



Plasma Etch Systems

Tactras™



Advanced Operations Manual

Document Number: CX97-100189-27

Revision 3.2.7 [Loader Module Model 1.1]

2019-06-03

Original Instructions

Advanced Operations Manual

**Plasma Etch Systems
Tactras™**

Tokyo Electron Limited

Published: 2019-06-03

Document Number: CX97-100189-27

▶ Preface 4501M.20180301

© Copyright 2018 Tokyo Electron Limited All rights reserved.

Published in Japan

Publisher: Tokyo Electron Limited

Akasaka Biz Tower, 5-3-1 Akasaka, Minato-ku Tokyo 107-6325 Japan, Tel: +81-3-5561-7000

Absent written consent from Tokyo Electron Limited (hereinafter referred to as "TEL"), the user may not directly or indirectly, unless otherwise specified in the purchase agreement for TEL's equipment and devices (hereinafter referred to as "TEL's products") concluded between TEL and the user, (i) copy (except for the purpose of internal use), distribute, modify or translate this manual, create any derivative works thereof, rent, lease or otherwise transfer rights to this manual, nor (ii) remove, omit or alter any intellectual property right notices contained in this manual. All intellectual property rights in and to this manual shall remain solely vested in TEL. The Copyright Act of the United States and international copyright treaties protect the material contained herein.

Those who purchase and use TEL's products are expressively advised that the determination and usage of any process patent rights and any risk of such rights contained in this manual or employed in order to use TEL's products are taken entirely at their own responsibility. It is the responsibility of the user to establish appropriate safety and health practices and to observe regulatory limitations prior to using TEL's products.

TEL reserves the right to periodically change the contents of this manual.

The consequences of unskilled, incorrect, or careless operation of TEL's products can be serious. TEL's products must be operated and maintained only by trained personnel, authorized by the user to perform their specific functions.

Prior to any use of TEL's products, every operator and service person must carefully read and thoroughly understand the information in this manual and any additional documents provided by TEL with respect to TEL's products. All Danger, Warning, and Caution notices must be carefully read, thoroughly understood, and strictly followed.

TEL assumes no liability for legal and/or equitable damages resulting from incorrect operation or misuse of TEL's products. The user must not perform any work that is not described in this manual or any other documents provided by TEL. TEL assumes no liability for legal and/or equitable damages due to the performance of work that is not described in this manual or any other documents provided by TEL. When installing TEL's products, the user shall assume sole responsibility for compliance with applicable safety and health regulations or standards set forth by the government or local authorities.

TEL, Ingenio, SCCM, UNITY, Telius, Vesta, Tactras, Vigus, RLSA, FAVIAS, and TELAVES are trademarks of Tokyo Electron group.

FreepCC is a trademark of Tokyo Electron group and MEIKO Co., Ltd.

All other company names, product names and service names are registered trademarks or trademarks of their respective owners.

► Warranty 4502M.20131101

WARRANTY AND LIABILITY FOR THE PRODUCTS

1. Warranty for the Products

1.1 Scope of Warranty

TOKYO ELECTRON LIMITED (“TEL”) shall warrant that certain items distributed by TEL (“Products”) will conform to specifications furnished or approved by TEL (“Specifications”) under normal use and service in accordance with the manuals which TEL provides with respect to the Products (“TEL’s manuals”). In the event that the Products do not conform to the Specifications under the above conditions during the warranty period for the Products, TEL shall provide maintenance services for such warranted Products without charge. Such maintenance shall be provided for the purpose of repair of the function and performance of the Products to the Specifications, and, at TEL’s discretion, if parts are required to be replaced, TEL shall replace such parts with new parts or recycled parts equivalent to the new parts in performance.

1.2 Warranty Period

The warranty period of the Products which are systems shall be one (1) year from the date when the Products satisfy the acceptance criteria.

1.3 Exception

TEL shall have no liability under this warranty and the above remedies shall not be available to the Product user (“User”) for the following damage:

- (1) Damage to the Products caused by parts specified or supplied by the User.
- (2) Damage to the Products caused by parts not supplied by TEL or TEL’s authorized supplier. Where the parts were supplied by TEL or TEL’s authorized supplier but the warranty period for such parts has expired, TEL shall not be liable for damage to the Products caused by such parts.
- (3) Damage to the Products caused by force majeure, including without limitation, governmental acts or directives; strikes; acts of God; war; insurrection, riot or civil commotion; natural disaster, fires, flooding; explosions.
- (4) Damage to the Products caused by improvements made without TEL’s written consent, or misuse or use of improper materials.
- (5) Damage to the Products caused by maintenance provided by anyone other than TEL, TEL’s authorized supplier or the User’s employees who are trained by TEL for such maintenance of the Products provided they perform such maintenance in accordance with TEL’s manuals.
- (6) Damage to the Products caused by any deviation from the procedures indicated by TEL.
- (7) Consequential damage, including, without limitation, damage resulting from defective products (e.g. defective wafers, devices, panels and other defective products produced by using the Products) or decrease of production, caused by misuse and breakdown of the Products.
- (8) Damage to the Products caused by a defect which could not have been discovered given the state of scientific or technical knowledge at the time when TEL delivered the Products.

(9) Damage to the Products caused by other products, items or materials for which TEL is not liable under warranty.

1.4 Limitations

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED OR IMPLIED, WRITTEN OR ORAL, STATUTORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY/SATISFACTORY QUALITY OR FITNESS FOR A PARTICULAR PURPOSE.

1.5 Attention

(1) The environment, condition and frequency of use of the Products may have negative influence on the life of parts.

(2) The cost of the parts required to maintain the Products after the expiration of the warranty period shall be borne by the User.

(3) The cost of consumable parts and periodic replacement parts shall be borne by the Users even during the warranty period of the Products. In addition the Users shall bear the cost of labor and transportation etc in connection with replacing the parts above.

2. Liability for damages due to operation of the Products

2.1 Liability for operation of the Products

Every operator and service person must read and thoroughly understand TEL's manuals, including, without limitation, the operation and maintenance manuals, and any additional information provided by TEL with respect to the Products and have sufficient training by TEL concerning the operation of the Products. All Danger, Warning and Cautionary notices must be carefully read, thoroughly understood and strictly observed. The User assumes its responsibility to implement all Governmental, Federal, State and local safety regulations and standards applicable to the use of the Products.

In the event that TEL identifies that a defect in the Products may cause damage to the User, TEL will send a technology change notice to the User ("Notice"), and implement the change for the identified part of the Products without charge ("Change"). The User will be required to make the arrangements necessary in order to complete implementation of the Change as soon as receiving the Notice.

2.2 Exception

TEL assumes no liability for the following damages:

(1) Damage due to improper operation or maintenance of the Products by the User.

(2) Damage caused by the alteration or addition made by anyone other than TEL not in accordance with TEL's manuals.

(3) Damage resulting from the User taking no action to implement the Change in spite of TEL's Notice.

(4) Damage caused by the User's failure to replace consumable parts and periodic replacement parts.

(5) Damage caused by operation of the Products not in accordance with the instructions specified in the Specifications and/or TEL's manuals.

(6) Damage to the Products caused by force majeure, including without limitation, governmental acts or directives; strikes; acts of God; war; insurrection, riot or civil commotion; natural disaster, fires, flooding; explosions.

(7) Consequential damage, including, without limitation, damage resulting from defective products (e.g. defective wafers, devices, panels and other defective products produced by using the Products) or decrease of production, caused by misuse or breakdown of the Products.

2.3 Attention

In the event that the Products are maintained and improved with parts not supplied by TEL or TEL's authorized supplier, or parts supplied by TEL or TEL's authorized supplier out of the warranty period of the parts, the User shall be liable for any defective work and incomplete performance of the Products.

2.4 Infringement

(1) TEL agrees to indemnify and hold the User harmless from and against any claims or actions that the Products infringe upon any rights of any third parties, including, without limitation, patent, copyright, trademark, mask works right or any other intellectual property rights, provided, however, that the User shall give TEL prompt written notice of all such claims or actions of infringement and shall provide TEL with necessary assistance and all defenses against such claims or actions, known or available to the User. TEL does not indemnify and shall not be liable for any claim of infringement, if it is arising out of: (i) the products produced utilizing the Products; (ii) the User's modification of the Products; (iii) the compliance of TEL with the User's designs, specifications, instructions, modifications or improvements; (iv) the User's combination of the Products with other products; or (v) processes or methods performed utilizing the Products.

(2) TEL shall have exclusive control over the defense, negotiation or settlement of any claims which shall be indemnified by TEL subject to the above Paragraph (1). TEL shall have the option of, and TEL's obligation of indemnification for the User shall be limited to, the following actions: (i) settling or defending against any claims of infringement with any third party asserting such claims; (ii) procuring for the User the right to continue use of the Products; (iii) modifying or substituting the Products such that the Products are noninfringing; or (iv) refunding payments paid by the User for the Products.

3. Limitation of liability

IN NO EVENT SHALL TEL BE LIABLE FOR ANY INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOSS OF PROPERTY, LOSS OF PROFITS OR LOSS OF PRODUCTION DAMAGES, RESULTING FROM THE PRODUCTS OR CAUSED BY INSTALLATION, MAINTENANCE OR OTHER PERFORMANCE BY TEL, WHETHER A CLAIM FOR SUCH DAMAGES IS BASED UPON WARRANTY, CONTRACT, TORT, NEGLIGENCE OR OTHERWISE. TEL'S TOTAL LIABILITY FOR THE CLAIM OF LOSSES OR DAMAGES CONCERNING THE PURCHASE, USE, OR OPERATION OF THE PRODUCTS SHALL IN NO EVENT EXCEED THE PURCHASE PRICE PAID BY THE USER TO TEL FOR THE PRODUCTS INVOLVED IN SUCH CLAIM.

* Note: In the event of a conflict between this document and a written agreement signed by authorized representatives of User and TEL, such written agreement shall take precedence.

NOTICE FOR USING THE SYSTEM OF EQUIPMENT

Please note the terms and conditions hereinafter, when using the system software which is provided by Tokyo Electron Limited ("TEL") with TEL's equipment ("Software"). The Software includes, without limitation, manuals, related materials and updates of such system software.

1. LICENSE GRANT

TEL hereby grants to you a non-transferable and non-exclusive right to use the Software, subject to the terms and conditions hereafter set forth.

2. SCOPE OF THE RIGHT TO USE

- (i) You may use the Software for internal purposes only, but you shall not alter, resell, lease, or take any other act to the Software except as specifically authorized hereby.
- (ii) You may use the Software only on TEL's equipment.
- (iii) You shall not copy the Software for any purpose.
- (iv) You agree not to reverse-assemble, decompile, or otherwise attempt to derive source code from the Software.

3. PROPRIETARY RIGHTS

- (i) You acknowledge that the Software and the documentation of the Software, the copies thereof, and the information contained therein, shall be confidential property of TEL or its licensor ("Licensor") and the title to, and the copyright of such property shall be remained in TEL or its Licensor. You shall not disclose such information to any third party, without prior written approval of TEL.
- (ii) You shall not alter or remove from, and shall affix to, the Software and the copies thereof, any notice of copyright and confidential proprietary right of TEL or the Licensor when you use, copies, alters, combines, or utilizes in any other manners the Software.

4. LIMITATION OF LIABILITY

IN NO EVENT SHALL TEL BE LIABLE FOR ANY INDIRECT, INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOSS OF PROPERTY, LOSS OF PROFITS, OR LOSS OF PRODUCTION DAMAGES, RESULTING FROM OR ARISING OUT OF THE SOFTWARE, WHETHER A CLAIM FOR SUCH DAMAGE IS BASED UPON WARRANTY, CONTRACT, TORT, NEGLIGENCE, OR OTHERWISE. TEL'S TOTAL LIABILITY FOR THE CLAIM OF LOSS OR DAMAGE CONCERNING THE SOFTWARE SHALL IN NO EVENT EXCEED THE PURCHASE PRICE PAID BY YOU TO TEL FOR TEL'S EQUIPMENT INVOLVED IN SUCH A CLAIM.

5. MANUFACTURING OF SIMILAR SOFTWARE

You shall not manufacture, nor have any third party manufacture, any software which is similar to the Software, based on technology, data, information, etc. obtained from the Software.

6. ASSIGNMENT

Unless specifically approved by TEL, you shall not assign or transfer, in whole or in part, the license of Software granted to you hereunder to any third parties.

► Export Control 3281M.20090720

United States Export Control

The technical data included in this media is controlled under the U.S. Export Administration Regulations. The export and re-export from any country of this technical data requires compliance with applicable U.S. export laws, rules and regulations. Any actions taken contrary to these laws are strictly prohibited.

This technical data may not be exported or re-exported to any person or entity designated as prohibited or restricted by an agency of the US government. Particularly, export or re-export of this technical data to destinations or entities incorporated in or citizens of Cuba, Iran, North Korea, Sudan, Syria and other U.S. sanctioned countries, as subject to change; are prohibited without U.S. government approval.

Prior to reviewing this manual, the User should become familiar on the details of the Export Administration Regulations (EAR) by accessing the following web site: <http://www.bis.doc.gov/>. The EAR prohibits and/or strictly regulates all sales, exports or re-exports of hardware, software and technology which will be used in conjunction with certain activities such as the research, development, design, manufacture, construction, operation or maintenance of nuclear, chemical, or biological weapons and certain other nuclear technology.

Japanese Export Trade Control

The technical data included in this media is controlled under the Japanese Export Trade Control. The export and re-export of this technical data from any country requires compliance with applicable Japanese Export laws, rules and regulations. Any actions taken contrary to these laws are strictly prohibited. This technical data may not be exported or re-exported to any person or entity designated as prohibited or restricted by an agency of the Japanese Government. Particularly, export or re-export of this technical data to other companies, destinations or entities incorporated in or citizens of Iran, Iraq, North Korea, Syria are prohibited without Japanese government approval (This list is on the URL <http://www.meti.go.jp/english/index.html> and is subject to change). Prior to reviewing the technical data, the User should become familiar with the details of the Japanese Export Trade Control.

The Japanese Export Trade Control prohibits and/or strictly regulates all sales, exports or re-exports of hardware, software and technology which will be used in conjunction with certain activities such as the research, development, design, manufacture, construction, operation or maintenance of nuclear, chemical, or biological weapons and certain other nuclear technology.

► Enrollment in TEL-Made Equipment Training A587M.20130701

The TEL-made equipment you have purchased requires routine maintenance for stable operation. These maintenance activities require sufficient basic knowledge on TEL equipment and latest maintenance information.

We offer an equipment training curriculum focusing on operation and maintenance that helps you acquire the necessary knowledge.

For enrolling in our equipment training, see the following:

1. Application

Contact the local TEL training department or sales/service office to request training. Your enrollment reservation will be registered after the schedule is arranged.

2. Training Fee

2.1 When You Have Training Credit

The training credit can be used on the condition provided in section “3. Use of Training Credit”.

2.2 When You Do Not Have Training Credit

The specified training fee is charged.

2.3 Other Expenses

- For equipment training provided at customer's site: Basically, separate costs are charged such as transportation and accommodation costs.
- Cancellation fee is charged if the enrollment reservation is canceled or the schedule is changed within two weeks of the expected training start date. The cancellation fee can be paid by the training credit.
- An additional fee will be charged when we provide equipment training outside of our standard service hours such as nighttime and non-business days.

3. Use of Training Credit

3.1 What is Training Credit?

For one unit of equipment purchased, the specified number of training credits is provided. One training credit allows one trainee to enroll in the training for the equipment purchased for one day (normal hours for providing training).

3.2 Issuance and Expiration Date

Training credit is issued together with the equipment serial number when the equipment is allocated to you according to your equipment purchase order sheet. Training credit is valid for one year after the CST date of the equipment purchased.

3.3 Scope of Application

The training credit applies to the standard training course for the equipment purchased. It is available only to the customer of the factory where the equipment purchased is installed.

Note that when the equipment is relocated within the same company, any valid training credit shall be transferred to the destination. Training credit becomes invalid when the equipment is sold or transferred to a company other than the original purchasing company.

3.4 Deduction of Credit Used (Utilization)

Any of the following cases assumes one training credit is used for one person for one-day training (within normal training hours). In this case, an appropriate number of credits are deducted from the remaining balance.

- Completion of equipment training (including discontinuation and early termination by the trainee)
- Cancellation by customer of enrollment within two weeks of the expected equipment training start date and the cancellation fee is paid by training credit (excluding the case when there is an alternative trainee)
- Change by customer to the schedule within two weeks of the expected equipment training start date and the cancellation fee is paid by training credit

3.5 Others

- A separately made agreement (e.g., in a contract), if any, is prioritized.
- Training credit has no cash value and cannot be exchanged or equivalent-exchanged with non-training items (e.g., services, parts, transportation and accommodation costs).
- For more information, contact the sales representative assigned to you.

Table of Contents

Preface.....	2
Warranty.....	3
Export Control	7
Enrollment in TEL-Made Equipment Training.....	8
Table of Contents.....	11
List of Tables.....	21
List of Figures.....	27

Chapter 1, Introduction 33

1.1 About the Contents of This Manual.....	34
1.2 Before Operating the Equipment.....	35
1.3 How to Use this Set of Manuals.....	37
1.3.1 How to Use Each Manual.....	37
1.3.1.1 Before Beginning Work.....	37
1.3.1.2 Signal Word Definitions.....	37
1.3.1.3 Installing the Equipment and Support Equipment.....	38
1.3.1.4 Processing Wafers.....	38
1.3.1.5 Editing Recipes.....	39
1.3.1.6 Performing Maintenance.....	40
1.4 About This Set of Manuals.....	41
1.5 Purpose and Target Readers of this Manual.....	43
1.6 Overview.....	44
1.7 How to Use this Manual.....	46
1.8 Notices.....	49
1.8.1 A Note to Our Customers.....	49
1.8.2 Typographical Conventions.....	49
1.8.2.1 Text Formatting.....	49
1.8.2.2 Numeric Subscripts.....	49
1.8.2.3 SI Units.....	49
1.8.2.4 Document Number.....	49
1.8.2.5 Model Number Abbreviations.....	49
1.8.3 Ordering Documentation.....	50
1.8.4 Application of the Manual.....	50

1.9 Sales and Service Offices	51
--	-----------

Chapter 2, Starting and Stopping the System **57**

2.1 Starting and Stopping the System.....	58
2.2 System Startup.....	59
2.3 System Shutdown.....	65
2.4 Restarting System Software.....	69
2.5 Symbols on the Screens Displayed upon Starting and Stopping the System	71
2.5.1 Symbols on the Unit Synchronization Screen.....	71
2.5.2 Symbols on the Shutdown Screen.....	71

Chapter 3, Special Port Usage **73**

3.1 Special Port Usage.....	74
3.2 Operating the Special Port Setup Screen.....	77
3.2.1 Symbols on the Special Port Setup Screen.....	78
3.3 Operating the Carrier Setup Screen.....	79
3.3.1 Setting the Dummy Port.....	80
3.3.2 Setting the Test Port.....	81
3.3.3 Saving Setting Information.....	82
3.3.4 Loading Setting Information.....	82
3.3.5 Deleting Setting Information.....	84
3.3.6 Exporting Setting Information.....	85
3.3.7 Importing Setting Information.....	87
3.3.8 Symbols on the Carrier Setup Screen.....	89
3.4 Operating the Wafer Exchange Screen.....	90
3.4.1 Wafer Exchange Steps.....	91
3.4.2 Symbols on the Wafer Exchange Screen.....	93

Chapter 4, Checking the Equipment Status **95**

4.1 Checking the Equipment Status.....	96
4.2 Operating the Trace Graph Screen.....	98
4.2.1 Displaying Trace Graph.....	99
4.2.2 Displaying Points in Values.....	101
4.2.3 Enlarging the Display of Specified Range.....	102
4.3 Operating the EPD Graph Screen.....	103
4.3.1 Displaying the EPD Graph.....	104

4.4 Operating the Process Data Screen.....	106
4.5 Operating the Data Graph Screen.....	107
4.5.1 Displaying the Data Graph.....	109
4.6 Operating the Substrate List Screen.....	111
4.6.1 Displaying STS Attributes.....	112
4.7 Operating the MC Status Screen.....	114
4.7.1 Starting the MC.....	114
4.8 Operating the PIO Status Screen.....	115
4.8.1 Setting Timer Between Signals.....	116
4.9 Operating the PM# Running Recipe Screen.....	117

Chapter 5, Settings to Prevent Mixing of the Gases **119**

5.1 Setting the Mixing Prevention Gases.....	120
5.2 Operating the Mixing Prevention Gas Setup Screen.....	121
5.2.1 Setting the Mixing Prevention Gases.....	122

Chapter 6, Parts Maintenance Management **123**

6.1 Parts Maintenance Management.....	124
6.2 Operating the Parts Maintenance Screen.....	125
6.2.1 Setting Maintenance Items.....	127
6.2.2 Resetting the Total Value.....	128
6.3 Setting Item List for Parts Maintenance.....	129
6.3.1 Details of Parts Maintenance Items for the Process Module.....	129
6.3.2 Details of Parts Maintenance Items for the Transfer Module.....	146
6.3.3 Details of Parts Maintenance Items for the Load Lock Module.....	148
6.3.4 Details of Parts Maintenance Items for the Loader Module.....	151
6.3.5 Details of Parts Maintenance Items for the Loader Port.....	158
6.3.6 Details of Parts Maintenance Items for the Dummy Storage.....	159

Chapter 7, Changing the Operation Mode **161**

7.1 Changing the Loader Module Operation Mode.....	162
7.2 Operating the Loader Module Change Mode Dialog.....	163
7.2.1 Changing to/from the Loader Module Maintenance Mode.....	163
7.2.2 Changing to/from the Loader Module Independent Maintenance Mode (Module Offline).....	164
7.3 Changing the Transfer Module/Load Lock Module Operation Mode.....	166

7.4 Operating the Change Module Mode Dialog for the Transfer Module/Load Lock Module.....	168
7.4.1 Changing to/from the Transfer Module/Load Lock Module Maintenance Mode.....	168
7.4.2 Changing to/from the Transfer Module/Load Lock Module Independent Maintenance Mode (Module Offline).....	169
7.5 Changing the Process Module Operation Mode.....	171
7.6 Operating the Process Module Change Mode Dialog.....	174
7.6.1 Changing to/from the Process Module Normal Mode (Non-Production)...	175
7.6.2 Changing to/from the Process Module Maintenance Mode.....	175
7.6.3 Changing to/from the Process Module Independent Maintenance Mode (Group Offline).....	176
7.7 Operating the Process Module Reserve Changing Mode Dialog.....	180
7.7.1 Reservation of Changing to Process Module Maintenance Mode.....	180
7.7.2 Reservation of Process Module Processing Mode Change.....	181
7.8 Changing to/from the Module Mode Change Screen.....	182
7.9 Operating the Module Mode Change Screen.....	183
7.9.1 Changing to/from the Maintenance Mode on the Module Mode Change Screen.....	184
7.9.2 Changing to/from the Normal Mode (Non-Production) on the Module Mode Change Screen.....	184
7.9.3 Initializing on the Module Mode Change Screen.....	184
7.9.4 Symbols on the Module Mode Change Screen.....	185

Chapter 8, Executing Auto Check 187

8.1 Executing Auto Check.....	188
8.2 Operating the Measure Chamber Volume Screen.....	194
8.2.1 Executing the Chamber Virtual Volume Measurement.....	195
8.2.2 Renewing the Initial Value of Chamber Virtual Volume Measurement.....	195
8.3 Operating the CM 0 Point Pressure Screen.....	196
8.3.1 Executing the CM 0 Point Pressure Check.....	197
8.3.2 Renewing the Initial Value of CM 0 Point Pressure Check.....	197
8.4 Operating the CM Adjust 0 Point Screen.....	198
8.4.1 Executing the CM 0 Point Adjustment.....	199
8.5 Operating the CM Sensitivity/Linearity Screen.....	200
8.5.1 Executing the CM Sensitivity and Linearity Check.....	201
8.5.2 Renewing the Initial Value of CM Sensitivity/Linearity Check.....	201
8.6 Operating the CM Deposit Check Screen.....	202
8.7 Operating the Gas 0 Point Flow Rate Screen.....	203

8.7.1 Executing the Gas 0 Point Flow Rate Check.....	204
8.7.2 Renewing the Initial Value of Gas 0 Point Flow Rate Check.....	204
8.8 Operating the Gas Adjust 0 Point Screen.....	205
8.8.1 Executing the Gas 0 Point Adjustment.....	206
8.9 Operating the Gas Flow Rate/Stability Screen.....	207
8.9.1 Executing the Gas Flow Rate/Stability Check.....	208
8.9.2 Renewing the Initial Value of Gas Flow Rate/Stability Check.....	208
8.10 Operating the PCV 0 Point Screen.....	209
8.10.1 Executing the PCV 0 Point Check.....	210
8.10.2 Renewing the Initial Value of PCV 0 Point Pressure Check.....	210
8.11 Operating the PCV Adjust 0 Point Screen.....	211
8.11.1 Adjusting the 0 Point of the PCV.....	212
8.12 Operating the NPPC Adjust PCV Screen.....	213
8.12.1 Executing the NPPC PCV Adjustment.....	214
8.12.2 Renewing the Standard Value of NPPC PCV Adjustment.....	214
8.13 Operating the Flow Verify Screen.....	215
8.13.1 Executing the Flow Verifier Check.....	216
8.13.2 Renewing the Initial Value of Flow Verifier Check.....	216
8.13.3 Calculating the Gas Flow Rate Setting.....	216
8.14 Operating the Verifier Leak Check Screen.....	218
8.14.1 Executing the Flow Verifier Leak Check.....	219
8.14.2 Renewing the Initial Value of Flow Verifier Leak Check.....	219
8.15 Operating the Verifier N2 Purge Screen.....	220
8.15.1 Executing the Verifier N2 Purge.....	221
8.16 Operating the Flow Splitter 0 Point Screen.....	222
8.16.1 Executing the Flow Splitter 0 Point Check.....	223
8.16.2 Renewing the Initial Value of Flow Splitter 0 Point Check.....	223
8.17 Operating the Flow Splitter Adjust 0 Point Screen.....	224
8.17.1 Performing the Flow Split 0 Point Adjustment.....	225
8.18 Operating the Flow Splitter Stability Screen.....	226
8.18.1 Executing the Flow Splitter Stability Check.....	227
8.18.2 Renewing the Initial Value of Flow Splitter Stability Check.....	227
8.19 Operating the Flow Splitter Leak Check Screen.....	228
8.19.1 Executing the Flow Splitter Leak Check.....	229
8.20 Operating the External Volume Measure Screen.....	230
8.20.1 Executing the External Volume Measurement.....	231
8.20.2 Renewing the Initial Value of External Volume Measurement.....	231
8.20.3 Setting External Volume Value.....	231

8.21 Operating the Pump Capacity Check Screen.....	232
8.21.1 Executing the PM Pump Capacity Check.....	233
8.21.2 Renewing the Initial Value of PM Pump Capacity Check.....	233
8.22 Operating the Leak Rate Check Screen.....	234
8.22.1 Executing the Leak Rate Check (PM).....	235
8.22.2 Executing the Leak Rate Check (PM + Gas Line).....	235
8.22.3 Executing the Leak Rate Check (PM + V 30).....	236
8.22.4 Executing the Leak Rate Check (ALL).....	237
8.22.5 Renewing the Initial Value of Leak Rate Check.....	237
8.23 Operating Self Diagnostic Screen.....	238
8.23.1 Executing the Flow Rate Self Diagnostic.....	239
8.24 Operating the Lower Temp. Sensor Check Screen.....	240
8.24.1 Executing Lower Temperature Sensor Check.....	241
8.24.2 Viewing the Current Temperature of the Lower Heater.....	241
8.25 Operating the Lower Temp. Rise/Fall Time Check Screen.....	242
8.25.1 Executing the Lower Temperature Rise/Fall Time Check.....	243
8.25.2 Viewing the Current Temperature of the Lower Heater.....	243
8.26 Operating the Maintenance (Auto Check Macro) Screen.....	244
8.26.1 Batch Execution of Auto Check Macros.....	245

Chapter 9, Auto Setup Execution **249**

9.1 Executing Auto Setup.....	250
9.2 Executing Auto Setup.....	252
9.3 Procedure for Executing the QC Check.....	257

Chapter 10, Manual Transfer **263**

10.1 Manual Transfer Function.....	264
10.2 Operating the Manual Transfer Screen.....	265
10.2.1 How to Transfer Wafers Manually.....	266
10.2.2 Symbols on the Manual Transfer Screen.....	273

Chapter 11, Log Check and Backup **275**

11.1 Log Check and Backup.....	276
11.2 Operating the Memo Screen.....	279
11.2.1 Editing memos.....	279
11.2.2 Deleting Memos.....	281
11.3 Operating the Process Logs Screen.....	282

11.3.1 Searching Logging Data.....	284
11.3.2 Displaying Lot Processing Details.....	286
11.3.3 Displaying Wafer Details.....	287
11.3.4 Comparing the Trace Log Graphs.....	288
11.3.5 Symbols on the Process Logs Screen.....	290
11.4 Operating the Alarm Logs Screen.....	294
11.4.1 Searching Logging Data.....	295
11.4.2 Letter Colors in the Alarm Logs Screen.....	296
11.5 Operating the Auto Check Logs Screen.....	297
11.5.1 Searching Logging Data.....	298
11.5.2 Graph Display of Logging Data.....	299
11.6 Operating the Flow Diagnosis Log Screen.....	302
11.6.1 Searching Logging Data.....	303
11.6.2 Symbols on the Flow Diagnosis Logs Screen.....	304
11.7 Operating the SMZ Diagnosis Logs Screen.....	305
11.7.1 Searching Logging Data.....	306
11.8 Operating the TM-LLM Leak Check Logs Screen.....	308
11.8.1 Searching Logging Data.....	309
11.8.2 Graph Display of Logging Data.....	310
11.9 Operating the TNS Data Logs Screen.....	313
11.9.1 Operating Display of the Plot Graph with X- and Y-axes.....	314
11.9.2 Operating Display of the Time Series Graph.....	314
11.9.3 Searching Logging Data.....	314
11.9.4 Comparing TNS Data Logs between Modules.....	317
11.10 Operating the Machine Logs Screen.....	319
11.10.1 Searching Logging Data.....	320
11.11 Operating the Operation Logs Screen.....	322
11.11.1 Searching Logging Data.....	323
11.12 Operating the Equipment Data Backup Screen.....	325
11.12.1 Saving the Equipment Data.....	326
11.12.2 Deleting the Equipment Data.....	326
11.12.3 Exporting the Equipment Data.....	326
Chapter 12, Online Operation	329
12.1 Online Settings.....	330
12.2 Operating the Online Mode Change Screen.....	333
12.2.1 Changing to Online/Offline Mode.....	334

12.2.2 Setting the Default Entry.....	334
12.2.3 Checking the Channel State.....	335
12.2.4 Setting the Communication Establishment State.....	335
12.3 Operating the Terminal Service Screen.....	337
12.3.1 Confirming the Received Messages.....	338
12.3.2 Editing and Sending Transmission Messages.....	338
12.3.3 Editing the Terminal Service Related Parameters.....	338
12.4 Operating the AMHS Setup Screen.....	339
12.4.1 Changing the AMHS Settings.....	341
12.5 Operating the Host Communication Parameters Screen.....	342
12.5.1 Changing the Host Communication Parameters.....	343
12.5.2 Synchronizing the Time with the Host.....	343
12.5.3 Loop Back Diagnosis.....	343
12.6 Operating the Channel Parameters (SECS-I) Screen.....	345
12.6.1 Opening/Closing Channels (SECS-I).....	346
12.6.2 Changing the Communication Establishment State (SECS-I).....	346
12.6.3 Editing the Configuration (SECS-I).....	346
12.6.4 Editing the Channel Parameters (SECS-I).....	347
12.6.5 Editing the Communication Establishment Default Entry (SECS-I).....	348
12.6.6 Setting Communication Method (SECS-I).....	349
12.6.7 Setting Communication Establishment Operation (SECS-I).....	349
12.6.8 Setting Spooling Function (SECS-I).....	349
12.7 Operating the Channel Parameters (HSMS) Screen.....	350
12.7.1 Opening/Closing Channels (HSMS).....	351
12.7.2 Changing the Communication Establishment State (HSMS).....	351
12.7.3 Editing the Configuration (HSMS).....	351
12.7.4 Editing the Channel Parameters (HSMS).....	352
12.7.5 Editing the Communication Establishment Default Entry (HSMS).....	354
12.7.6 Setting Communication Method (HSMS).....	354
12.7.7 Setting Communication Establishment Operation (HSMS).....	355
12.7.8 Setting Spooling Function (HSMS).....	355
12.8 Operating the Spooling Screen.....	356
12.8.1 Setting the Spooling.....	357
12.8.2 Editing the Spooling Related Parameters.....	358
12.9 Operating Heartbeat Screen.....	359
12.9.1 Setting the Heartbeat.....	360
12.9.2 Setting the Interval.....	360
12.10 Operating the Set RPTID Screen.....	361

12.10.1 Creating RPTID.....	362
12.10.2 Deleting RPTID.....	363
12.10.3 Restoring the RPTID Data to the Factory Settings.....	363
12.11 Operating the Set CEID Screen.....	364
12.11.1 Editing CEID.....	365
12.11.2 Setting the Limit Monitoring.....	366
12.11.3 Restoring the CEID Data to the Factory Settings.....	367
12.12 Operating the Alarm Report Setup Screen.....	368
12.12.1 Searching the Alarm ID.....	369
12.12.2 Setting Each Report to Host and Alarm Buzzer.....	369

Chapter 13, Transmitting Data 371

13.1 Transmitting Data Via FTP.....	372
13.2 Operating the FTP Screen.....	373
13.2.1 Refreshing the Data.....	374
13.2.2 Transmitting the Data.....	374
13.2.3 Deleting the Data.....	374
13.2.4 Setting Connection Condition.....	374

Chapter 14, Managing and Setting the User/User Group 377

14.1 Managing and Setting the User/User Group.....	378
14.2 Operating the User Management Screen.....	380
14.2.1 Registering a New User.....	381
14.2.2 Importing the User Information.....	382
14.2.3 Exporting the User Information.....	383
14.2.4 Inputting and Editing Comments.....	383
14.2.5 Registering and Changing Password.....	384
14.2.6 Setting the User Group that the User Belongs To.....	384
14.3 Operating the User Group Management Screen.....	386
14.3.1 Registering a New User Group.....	387
14.3.2 Importing the User Group Information.....	388
14.3.3 Exporting the User Group Information.....	389
14.3.4 Inputting and Editing Comments.....	389
14.3.5 Setting the User that the Belongs to the User Group.....	390
14.3.6 Setting the Operation Limit for the User Group.....	391

Revision History 393

List of Tables

Operation Level and Applicable Manuals.....	35
About This Set of Manuals.....	41
Example of Model Numbers and Abbreviations: 3WWZZWW.....	50
TOKYO ELECTRON U.S. HOLDINGS, INC.....	51
TOKYO ELECTRON AMERICA, INC.....	51
TEL TECHNOLOGY CENTER, AMERICA, LLC (TTCA).....	51
TEL VENTURE CAPITAL, INC. (TVC).....	52
TEL EPION, INC. (TEI).....	52
TEL FSI INC. (TEF).....	52
TOKYO ELECTRON EUROPE LTD.....	52
TEL SOLAR SERVICES AG.....	53
TEL MAGNETIC SOLUTIONS LIMITED.....	53
TOKYO ELECTRON ISRAEL LIMITED.....	53
TOKYO ELECTRON KOREA LIMITED.....	53
TOKYO ELECTRON TAIWAN LIMITED.....	54
TOKYO ELECTRON (SHANGHAI) LIMITED.....	54
TOKYO ELECTRON (SHANGHAI) LOGISTIC CENTER LIMITED.....	54
TOKYO ELECTRON (KUNSHAN) LIMITED.....	54
TOKYO ELECTRON SINGAPORE PTE. LIMITED.....	54
TOKYO ELECTRON MALAYSIA Sdn. Bhd.....	54
TOKYO ELECTRON INDIA PRIVATE LTD.....	55
Typical Symbols on the Synchronization Screen (Others).....	71
Examples of Symbols on Special Port Setup Screen (Wafer).....	78
Examples of Symbols on Special Port Setup Screen (Special Port Setup).....	78
Judgment of the Slot Status and the Executed Process by the Equipment.....	90
Description of STS Attribute.....	112
Chamber Cleaning.....	129
Change Up. Electrode.....	129
Change Focus Ring.....	129
Self Check.....	130
RF On Time.....	130
WLDC.....	131
Cleaning Process.....	131
Deposition Process.....	131
RF Generator.....	132

ESC.....	132
Exhaust Plate.....	132
Depo Shield.....	133
APC.....	133
PCV.....	134
General Counter #1–#18.....	134
Shutter Open (s), Shutter Close (s).....	134
P-Pin(Air) Up(s), P-Pin(Air) Down(s).....	135
P-Pin(Motor) Up(s), P-Pin(Motor) Down(s).....	135
Bevel Cover Up (s), Bevel Cover Down (s).....	135
Conduction Band.....	136
Top GAP.....	136
MC Battery.....	136
Pin Battery.....	136
APC Battery.....	137
Magnet.....	137
PM Dry Pump.....	137
Chiller.....	137
Chiller Vacuum.....	138
Magnet Gap.....	138
Shutter Open (c), Shutter Close (c).....	138
Pin.....	138
Bevel Cover Up (c), Bevel Cover Down (c).....	139
Top Arm.....	139
Shutter O Ring.....	139
Matcher.....	139
Gas1–Gas32 Flow meter.....	139
Vm (m: Number of the Valve).....	140
Gas1–Gas32 Flow.....	140
Warning Info #1–#8.....	140
Transfer Info #1–#8.....	140
SeasoningInfo.....	141
Upper HV.....	141
Upper Outer HV.....	141
NPPC.....	142
Micro Wave Filament.....	142
General Counter #19–#36.....	142

Cooling Water(TopRF), Cooling Water2(TopRF), Cooling Water(BtmRF), Cooling Water(Btm2RF).....	143
APC O Ring.....	143
Shutter Grease.....	143
Cooling Water (TMP).....	143
General Counter #A–General Counter #E.....	144
Recoil Reduction Kit.....	144
NPPCPM Laser.....	144
Upper Temp. Offset.....	145
V.RDC V50–V57.....	145
Flow Ratio Control Number.....	145
LLMx Gate Open (s), LLMx Gate Close (s).....	146
PM# Gate Open (s), PM# Gate Close (s).....	146
LLMx Gate Open (c), LLMx Gate Close (c).....	146
PM# Gate Open (c), PM# Gate Close (c).....	146
LLMx Gate O Ring.....	147
PM# Gate O Ring.....	147
T1–T3, T8, T11, T12.....	147
TM Arm R1 Axis, TM Arm R2 Axis, TM Arm Y Axis.....	147
TM Arm Battery.....	147
TM Dry Pump.....	148
Pirani.....	148
TM Operation Time.....	148
Door Open (s), Door Close (s).....	148
Lifter Up (s), Lifter Down (s).....	149
LLM Dry Pump.....	149
Door Open (c), Door Close (c).....	149
Lifter Up (c), Lifter Down (c).....	149
Door O Ring.....	150
Lifter O Ring.....	150
L11–L15, L17, L18, L21–L25, L27, L28.....	150
Pirani.....	150
LP1–LP6 Clamp (s), LP1–LP6 Unclamp (s).....	151
LP1–LP6 Tray Dock (s), LP1–LP6 Tray Undock (s).....	151
LP1–LP6 Door Unlatch (s), LP1–LP6 Door Latch (s).....	151
LP1–LP6 Door Open (s), LP1–LP6 Door Close (s).....	151
LP1–LP6 Door Down (s), LP1–LP6 Door Up (s).....	152
LP1–LP6 Nozzle Up (s), LP1–LP6 Nozzle Down (s).....	152

LP1–LP6 Clamp (c), LP1–LP6 Unclamp (c).....	152
LP1–LP6 Tray Dock (c), LP1–LP6 Tray Undock (c).....	152
LP1–LP6 Door Unlatch (c), LP1–LP6 Door Latch (c).....	153
LP1–LP6 Door Open (c), LP1–LP6 Door Close (c).....	153
LP1–LP6 Door Down (c), LP1–LP6 Door Up (c).....	153
LP1–LP6 Nozzle Up (c), LP1–LP6 Nozzle Down (c).....	153
MC Battery.....	153
EC Battery.....	154
LM Arm Battery.....	154
LM Arm R1 Axis, LM Arm R2 Axis, LM Arm X Axis.....	154
Pick 1 O Ring.....	154
Pick 2 O Ring.....	155
ORT O Ring.....	155
PST.....	155
Upper Chemical FFU, Lower Chemical FFU.....	155
Lower Chemical FFU (c).....	156
ORT Work Count.....	156
PST Work Count.....	156
ACDIST UPS.....	156
TL1–TL3 Battery.....	157
TL2, TL3 UPS.....	157
Ex-CONT Battery.....	157
EX-CONT UPS.....	157
LA Move (c).....	158
Dummy Wafer #1–#25.....	158
Dummy Wafer #1–#9 or #50.....	159
Overview of Each Auto Check Items.....	188
Selecting a Trigger.....	246
Set Values for Cycle.....	247
Restrictions in Auto Check Execution.....	247
Auto Check Waiting Conditions.....	247
Restrictions in Auto Setup Execution.....	254
Conditions Requiring Transfer Wait Time Before Execution of Processing Accompanied by Wafer Transfer.....	254
Restrictions in QC Check Execution.....	259
Conditions Requiring Transfer Wait Time Before Execution of Processing Accompanied by Wafer Transfer.....	259
Conditions for Setting Transfer Starting Point.....	267

Conditions for setting a transfer destination.....	269
Wafer Transfer Condition and Routes.....	270
Example of the Wildcard Search.....	285
Typical Symbols of Process Logs Screen (Log).....	291
Alarm Message Colors in the Alarm Logs Screen.....	296
Typical Symbols of Flow Diagnosis Logs Screen (Logs).....	304
Displayed Items of TNS Logging Data.....	316
Search Item and Restoring Method (Machine Logs).....	321
Search Item and Restoring Method (Operation Log).....	324
Control State List.....	334
Default Entry Settings.....	334
Terminal Service Related Parameter.....	338
Load Port Transfer Status.....	339
Host Communication Parameters.....	343
Communication Establishment State (SECS-I).....	346
Configuration Set Items (SECS-I).....	346
SECS-I Channel Parameters (Basic Settings).....	347
SECS-I Channel Parameters (Advance Settings).....	348
Communication Establishment Default Entry.....	349
Communication Establishment State (HSMS).....	351
Configuration Set Items (HSMS).....	352
HSMS Channel Parameters (Basic Settings).....	353
HSMS Channel Parameters (Advance Settings).....	353
Communication Establishment Default Entry.....	354
Spool State.....	356
Spooling Related Parameters.....	358
Heartbeat State.....	360

List of Figures

Manuals to Reference During an Installation.....	38
Manual to Reference When Processing Wafers.....	39
Manuals to Reference When Editing Recipes.....	39
Manuals to Reference When Performing Maintenance.....	40
Beginning of the Chapter.....	46
Description of Each Task (1).....	47
Description of Each Task (2).....	48
AC Power Box.....	59
Opening/Closing Front Door of AC Power Box.....	59
Loader Module (Back Side) Switch Box Cover.....	60
Loader Module (Back Side) Switch Box.....	60
Start Screen.....	61
Unit Synchronization Screen.....	63
Overall Status Screen.....	64
Shutdown Screen.....	65
System End Screen and Shutdown Dialog.....	66
Loader Module (Back Side) Switch Box.....	67
AC Power Box.....	68
Shutdown Screen.....	69
System Restart Screen and Restart Dialog.....	70
Software Hierarchy for Using Special Port.....	75
Special Port Setup Screen.....	77
Carrier Setup Screen.....	79
Load Carrier Settings Dialog.....	83
Delete Carrier Settings Dialog.....	84
Export (Special Port Setup) Dialog.....	85
Export (Special Port Setup - Save File) Dialog.....	86
Import (Special Port Setup) Dialog.....	87
Import (Special Port Setup - Load File) Dialog.....	88
Wafer Exchange Screen.....	91
Exchange Wafer Detail Dialog.....	92
Software Hierarchy for Checking the Overall Equipment Status.....	96
Trace Graph Screen.....	98
Trace Graph (Division) Screen.....	99

Select Data (Trace Graph) Dialog.....	100
Range Setting (Trace Graph) Dialog.....	100
Trace Graph (Display Cursor) Screen.....	101
Trace Graph (Zoom) Screen.....	102
EPD Graph Screen.....	103
Range Setting (EPD Graph) Dialog.....	105
Process Data Screen.....	106
Data Graph Screen.....	107
Items of Additional Information.....	108
Data Graph (ORT Alignment Data) Screen.....	109
Data Graph (LP*/DST Mapping Data) Screen.....	110
Substrate List.....	111
Substrate Detail Screen.....	112
MC Status Screen.....	114
PIO Status Screen.....	115
Set Timer Dialog.....	116
PM# Running Recipe (Step Conditions) Screen.....	117
Software Hierarchy for Setting the Mixing Prevention Gases.....	120
Mixing Prevention Gas Setup Screen.....	121
Software Hierarchy for Parts Maintenance Management.....	124
Parts Maintenance Screen (Ex: Process Module).....	125
Parts Maintenance Screen (Ex: Lord Port).....	126
Maintenance Item Dialog.....	127
Software Hierarchy for Changing the Loader Module Operation Mode.....	162
Change Module Mode (LM) Dialog.....	163
Independent Maintenance (LM) Screen.....	165
Software Hierarchy for Changing the Transfer Module/Load Lock Module Operation Mode.....	166
Change Module Mode (TM-LLM) Dialog.....	168
Independent Maintenance (TM-LLM) Screen.....	170
Software Hierarchy for Changing the Process Module Operation Mode.....	171
Change Module Mode (PM) Dialog.....	174
MC Status Screen.....	178
Independent Maintenance (PM) Screen.....	179
Reserve Changing Mode Dialog.....	180
Software Hierarchy for Changing Operation Mode on the Module Mode Change Screen.....	182
Change Module Mode Screen.....	183

Software Hierarchy for Executing Auto Check.....	191
Measure Chamber Volume Screen.....	194
CM 0 Point Pressure Screen.....	196
CM Adjust 0 Point Screen.....	198
CM Sensitivity/Linearity Screen.....	200
CM Deposit Check Screen.....	202
Gas 0 Point Flow Rate Screen.....	203
Gas Adjust 0 Point Screen.....	205
Gas Flow Rate/Stability Screen.....	207
PCV 0 Point Screen.....	209
PCV Adjust 0 Point Screen.....	211
NPPC Adjust PCV Screen.....	213
Flow Verify Screen.....	215
Calculation Table Dialog.....	216
Verifier Leak Check Screen.....	218
Verifier N2 Purge Screen.....	220
Flow Splitter 0 Point Screen.....	222
Flow Splitter Adjust 0 Point Screen.....	224
Flow Splitter Stability Screen.....	226
Flow Splitter Leak Check Screen.....	228
External Volume Measure Screen.....	230
Pump Capacity Check Screen.....	232
Leak Rate Check (Example: PM + V 30) Screen.....	234
Leak Rate Check (PM) Screen.....	235
Measurement Site Dialog.....	236
Leak Rate Check (PM + Gas Line) Screen.....	236
Self Diagnostic Screen.....	238
Lower Temp. Sensor Check Screen.....	240
Lower Temp. Rise/Fall Time Check Screen.....	242
Maintenance (Auto Check Macro) Screen.....	244
Example: Maintenance MacroViewer (Auto Check) Screen.....	246
Software Hierarchy for Executing Auto Setup.....	251
Auto Setup Dialog.....	252
Example: Maintenance MacroViewer (Auto Setup) Screen.....	253
Auto Setup Status Dialog.....	255
Auto Setup Result Dialog.....	256
QC Check Dialog.....	257
Example: Maintenance MacroViewer (Auto Setup) Screen.....	258

QC Check Status Dialog.....	260
QC Check Result Dialog.....	261
Software Hierarchy for Manual Transfer.....	264
Manual Transfer Screen.....	265
Select From Unit Dialog.....	267
Select Slot Dialog.....	268
Select To Unit Dialog.....	269
Log Check and Backup Software Hierarchy.....	277
Memo Screen.....	279
Edit Memo Dialog.....	280
Exp. Date Dialog.....	281
Process Logs Screen.....	283
Set Search Condition (Process Logs) Dialog.....	284
Lot Detail Dialog.....	286
Wafer List Dialog.....	287
Wafer Logs Screen.....	288
Trace Graph (Over lay) Screen.....	289
Trace Graph (Tile) Screen.....	290
Alarm Logs Screen.....	294
Log Search Setting (Alarm Logs) Dialog.....	295
Auto Check Logs Screen.....	297
Set Search Condition (Auto Check Logs) Dialog.....	298
Trace Graph (Auto Check Logs) Dialog.....	299
Select Data Display (Auto Check Logs) Dialog.....	300
Range Setting (Auto Check Logs) Dialog.....	300
Flow Diagnosis Logs Screen.....	302
Set Search Condition (Flow Diagnosis Logs) Dialog.....	303
SMZ Diagnosis Logs Screen.....	305
Set Search Condition (SMZ Diagnosis Logs) Dialog.....	306
TM-LLM Leak Check Logs Screen.....	308
Set Search Condition (TM-LLM Leak Check Logs) Dialog.....	309
Trace Graph (TM-LLM Leak Check Logs) Dialog.....	310
Select Data (TM-LLM Leak Check Logs) Dialog.....	311
Range Setting (TM-LLM Leak Check Logs) Dialog.....	311
TNS Data Logs Screen.....	313
Show Filtering Data Dialog.....	316
Details Dialog.....	317
Comparison between Modules Dialog.....	318

Machine Logs Screen.....	319
Log Search Key Setting (Machine Logs) Dialog.....	320
Operation Logs Screen.....	322
Log Search Key Setting (Operation Logs) Dialog.....	323
Equipment Data Backup Screen.....	325
Export (Equipment Data) Dialog.....	327
Software Hierarchy for Online Settings.....	331
Online Mode Change Screen.....	333
Channel State Screen.....	335
Terminal Service Screen.....	337
AMHS Setup Screen.....	340
Host Communication Parameters Screen.....	342
Channel Parameters (SECS-I) Screen.....	345
Channel Parameters (HSMS) Screen.....	350
Spooling Screen.....	357
Heartbeat Screen.....	359
Set RPTID Screen.....	361
Set the RPTID Dialog.....	362
Set CEID Screen.....	364
Set the CEID Dialog.....	365
Select Limit Monitoring CEID Dialog.....	366
Alarm Report Setup Screen.....	368
Software Hierarchy for Data Transmission.....	372
FTP Screen.....	373
Setup Connection Dialog.....	374
Server Name Dialog.....	375
Directory Dialog.....	375
User Name Dialog.....	376
Password Dialog.....	376
Software Hierarchy for Managing and Setting the User/User Group.....	378
User Management Screen.....	380
Import (User Information) Dialog.....	382
Export (User Information) Dialog.....	383
Select User Group Dialog.....	385
User Group Management Screen.....	386
Import (User Group Information) Dialog.....	388
Export (User Group Information) Dialog.....	389
Select User Dialog.....	390

Operation Limit Dialog.....	391
-----------------------------	-----

Introduction

This chapter provides the outline, purpose, and organization of this manual, and other information necessary for using this manual. It also includes contact information and important notices.

1.1 About the Contents of This Manual 10377M.20140201

The manuals provided with this system include the information about the installation, operation, and preventive maintenance for TEL manufactured equipment as well as its support equipment. Please keep the manuals in a location close to the equipment so that it is easily accessible when it is needed.

Some of the manuals are separated into volumes according to purpose and contents and the users are required to refer to other related manuals. Please use the manuals after understanding the content and how to use each manual.



General

Do not perform any tasks other than as described in this manual. TEL accepts no responsibility for damage arising because the tasks were performed other than as described in this manual.



Equipment Damage

Failure to perform the tasks described in this manual may affect the normal operation of the equipment. Perform all the tasks described in this manual.



NOTE

If there are any questions regarding the content of this manual, please contact TEL's service center. The design of this tool is being researched and improved continuously so there may be differences in the appearance, instrumentation, and screens on your tool. This manual contains the information on standard type.



NOTE

The original language of this manual is English. The TEL authorized editions of this manual are the English edition and the Japanese edition. Other editions of this manual which are written in any language other than English or Japanese are created for the user's convenience only. In the event of any discrepancy or conflict between the authorized editions of this manual and an edition of this manual which is written in any other language, the authorized editions shall prevail.

1.2 Before Operating the Equipment

00101M.20181101



WARNING

Chemical/Electric Shock/Mechanical Drive/Equipment Damage

There is the possibility of serious injury, death, and tool damage if the equipment is used improperly. The system is designed to process silicon wafers and should not be used for any other purpose.



WARNING

Strong Magnetic Field

Units equipped with magnets generate a strong magnetic field that can adversely affect the operation of electronic medical implanted devices such as pacemakers. People with pacemakers or other implanted medical electronic devices should maintain a safe distance of at least 1 m(3 ft) from units equipped with magnets.



CAUTION

Strong Magnetic Field

Units equipped with magnets generate a strong magnetic field that can attract metal accessories and potentially cause bodily injury when pulled strongly to the magnets. If you wear metal accessories such as body piercing or necklace, maintain a safe distance of at least 1 m(3 ft) from units equipped with magnets.



CAUTION

Equipment Damage

Units equipped with magnets generate a strong magnetic field that can adversely affect objects susceptible to magnetism (such as electronic devices and magnetic cards). Do not place objects susceptible to magnetism (such as electronic devices and magnetic cards) near units equipped with magnets.



CAUTION

Equipment Damage

Network in the equipment may be infected with a virus. Do not connect to the free port of hub on the equipment.

To prevent loss or corruption of data and damage to the equipment due to improper operation and ensure safe operation of the system, this system has three equipment operation levels (normal operation, process operation, and equipment operation) so that a user can access only the screens and functions that are allowed for the user, according to the operation level that has been assigned to the user according to his/her position, knowledge of the equipment, and skills. Therefore, the manuals you should read vary according to your operation level.

Before operating the equipment, you must carefully read and thoroughly understand the contents of applicable TEL manuals, as well as completing the necessary training classes. All the TEL manuals are prepared on the assumption that the operator has received the necessary trainings.

The following table lists the manuals and training courses that TEL require for each operation level.

▼ Operation Level and Applicable Manuals

Office Organization	Operation Level	Applicable Manuals	Required Training Courses
General operators	Normal operation (To operate production processing)	<ul style="list-style-type: none"> • TEL Safety and Environmental Guidelines • System Safety Manual • Process Module Safety Manual • Basic Operations Manual 	Training course level 1

Office Organization	Operation Level	Applicable Manuals	Required Training Courses
Process operators	Process operation (To edit process recipes)	<ul style="list-style-type: none"> • TEL Safety and Environmental Guidelines • System Safety Manual • Process Module Safety Manual • Basic Operations Manual • Advanced Operations Manual • Advanced Operations Recipe Manual • Process Manual • System Theory of Operation Manual • Process Module Theory of Operation Manual 	Training course level 1
Maintenance operator	Equipment operation (To perform maintenance, inspection, and adjustment)	<ul style="list-style-type: none"> • TEL Safety and Environmental Guidelines • System Safety Manual • Process Module Safety Manual • Basic Operations Manual • Advanced Operations Manual • Advanced Operations Recipe Manual • Advanced Operations Maintenance Macro Manual • Advanced Operations Maintenance Manual • Advanced Operations Parameter Manual • System Maintenance Manual • Process Module Maintenance Manual • System Theory of Operation Manual • Process Module Theory of Operation Manual 	Training course level 1 and 2
Installation worker	—	<ul style="list-style-type: none"> • TEL Safety and Environmental Guidelines • System Safety Manual • Process Module Safety Manual • System Installation/Startup Manual • Process Module Installation/Startup Manual 	—


General

TEL provides TEL Safety and Environmental Guidelines and Safety Manuals to establish a basic knowledge of important safety and environmental concerns. Thoroughly read and fully understand these manuals before performing installation, maintenance, and process.


NOTE

Installation engineers can only move, install, and connect the equipment. However, they can not operate the machine as they do not belong to any of the operation levels in the preceding table.

1.3 How to Use this Set of Manuals 10378M.20131001

1.3.1 How to Use Each Manual 10379M.20131001

The equipment and support equipment must be properly installed and operated for proper processing. In addition, maintenance work must be performed periodically to keep the equipment and support equipment in good working condition.

Refer to the appropriate manuals for specific instructions on installing the equipment and the support equipment, processing, and maintaining the equipment.

Each manual is prepared on the premise that the users fully understand the content of the manual regarding the safety.

1.3.1.1 Before Beginning Work 10380M.20131001

Although this system is designed to protect workers and the environment, improper or incorrect operation may jeopardize workers or the environment.

Anyone operating this system must fully understand and always be aware of the system's potential hazards and possible impact on the environment.

Personnel should also know how to operate the system so that the environment is not harmed.



CAUTION

General

TEL provides TEL Safety and Environmental Guidelines and Safety Manuals to establish a basic knowledge of important safety and environmental concerns. Thoroughly read and fully understand these manuals before performing installation, maintenance, and process.

1.3.1.2 Signal Word Definitions 10381M.20131001

Signal words are used in this manual to indicate that certain hazards exist, and signal words are also printed on the safety labels that are affixed to the equipment.

Signal words tell the users and workers around the system the extent of potential hazards. Depending on the level of danger, four types of signal words that comply with ANSI Z535.4-1988 are used in the manual for this system, and are defined as follows: In addition, Note indicates reference information.



DANGER

Danger

Danger indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.



WARNING

Warning

Warning indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.



CAUTION

Caution

Caution indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury to personnel.

CAUTION**Caution**

Caution indicates a potentially hazardous situation which, if not avoided, may result in property damage to the equipment or to the product.

**NOTE**

Note indicates necessary or useful information for the system operations and maintenance. This does not indicate any hazardous situation.

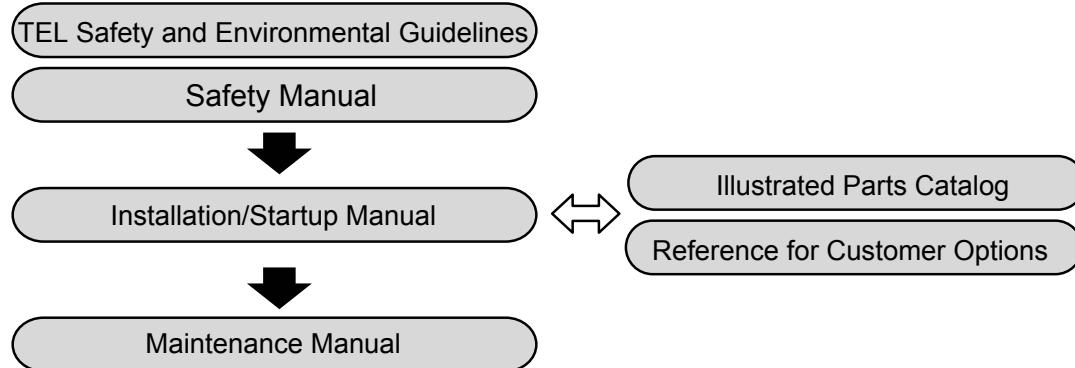
1.3.1.3 Installing the Equipment and Support Equipment 10382M.20131001

Only personnel who specialize in installing the equipment and support equipment are authorized to perform an installation.

Maintenance operators who install the equipment and support equipment should refer to the Illustrated Parts Catalog and the Reference for Customer Options for information on cable connections and the equipment dimensions needed for the installation.

After the installation is complete, maintenance operators who conduct the installation must verify that the system is installed properly by referring to the appropriate maintenance manuals.

▼ **Manuals to Reference During an Installation**



c_installationdoc_kai_e

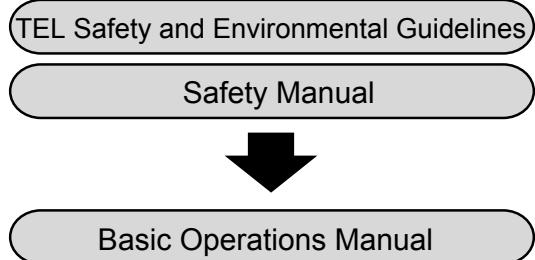
**CAUTION****General**

TEL provides TEL Safety and Environmental Guidelines and Safety Manuals to establish a basic knowledge of important safety and environmental concerns. Thoroughly read and fully understand these manuals before performing installation, maintenance, and process.

1.3.1.4 Processing Wafers 10383M.20131001

General operators, process operators, or maintenance operators processing wafers should refer to the Basic Operations Manual.

▼ Manual to Reference When Processing Wafers



c_operationsdoc_kai_e



CAUTION

General

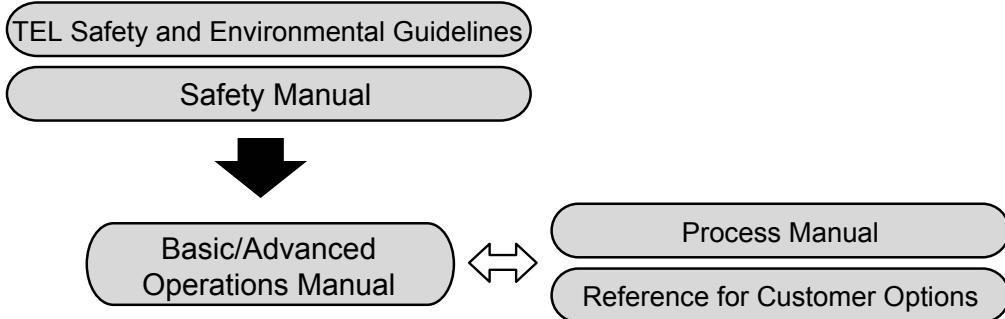
TEL provides TEL Safety and Environmental Guidelines and Safety Manuals to establish a basic knowledge of important safety and environmental concerns. Thoroughly read and fully understand these manuals before performing installation, maintenance, and process.

1.3.1.5 Editing Recipes 10384M.20131001

Only process operators and maintenance operators can edit recipes.

Refer to the appropriate process manuals or the Reference for Customer Options for information needed to edit recipes.

▼ Manuals to Reference When Editing Recipes



c_opsrecipeediting_kai_e



CAUTION

General

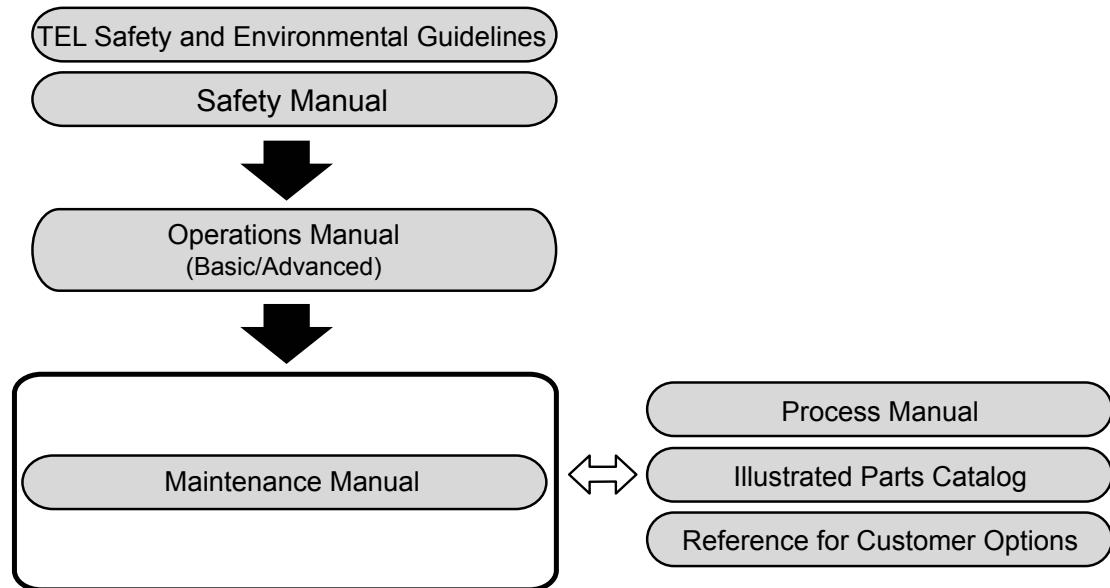
TEL provides TEL Safety and Environmental Guidelines and Safety Manuals to establish a basic knowledge of important safety and environmental concerns. Thoroughly read and fully understand these manuals before performing installation, maintenance, and process.

1.3.1.6 Performing Maintenance 10385M.20181101

Only personnel in charge of maintenance should perform maintenance on the system and support equipment.

Refer to the appropriate process manuals, the Illustrated Parts Catalog, and the Reference for Customer Options for needed information, such as part numbers and recipes.

▼ Manuals to Reference When Performing Maintenance



c_opsmaintprocessdoc_kai_e



General

TEL provides TEL Safety and Environmental Guidelines and Safety Manuals to establish a basic knowledge of important safety and environmental concerns. Thoroughly read and fully understand these manuals before performing installation, maintenance, and process.



NOTE

As the equipment parts may vary depending on the specifications, refer to the Illustrated Parts Catalog and Reference for Customer Options for details.

1.4 About This Set of Manuals 00102M.20181101

▼ About This Set of Manuals

Manual	Target Readers	Description
TEL Safety and Environmental Guidelines	General operators, maintenance operators, process operators, installation workers	This manual includes general descriptions of safety issues, types of potential hazards, visible and audible warnings, hazard control, and instructions for system transport and/or disposal of the TEL manufactured equipment.
System Safety Manual	General operators, maintenance operators, process operators, installation workers	This manual includes general descriptions of safety issues, types of potential hazards, visible and audible warnings, hazard control, and instructions for system transport and/or disposal for the loader module and the vacuum transfer module.
Process Module Safety Manual	General operators, maintenance operators, process operators, installation workers	This manual includes information on types of potential hazards inherent to process module, AC power box, RF unit, and chiller, and instructions for hazard control. You should have a separate safety manual for each type of process module that you have. If you need to order additional manuals, refer to 1.8.3 Ordering Documentation (see page 50) provided in the standard manual.
Basic Operations Manual	General operators, maintenance operators, process operators	This manual includes information about preparing the equipment for operation, operating the operation controller, and handling the equipment alarms.
Advanced Operations Manual	Maintenance operators, process operators	This manual includes information about obtaining and using data logs and accessing other system information. In addition, this manual includes information about the main menu and item menu choices. This manual also describes the major software program modules and gives a hierarchy of the screen menus.
Advanced Operations Recipe Manual	Maintenance operators, process operators	This manual includes information about creating system and process recipes.
Advanced Operations Maintenance Macro Manual	Maintenance operator	This manual includes information about creating maintenance macros.
Advanced Operations Maintenance Manual	Maintenance operator	This manual includes information about maintenance work by screen operation.
Advanced Operations Parameter Manual	Maintenance operator	This manual describes parameters specific to the equipment.
System Maintenance Manual	Maintenance operator	This manual includes both preventive maintenance procedures and corrective maintenance procedures for the loader module and vacuum transfer module. This manual also includes the TEL-recommended intervals for performing each procedure and information about the basic tasks required to complete maintenance operations.

Manual	Target Readers	Description
Process Module Maintenance Manual	Maintenance operator	This manual includes both preventive maintenance procedures and corrective maintenance procedures for the process module, the RF unit, the chiller, the gas supply module, and the AC power box. This manual also includes the TEL-recommended intervals for performing each procedure and information about the basic tasks required to complete maintenance operations. You should have a separate maintenance manual for each type of process chamber that you have. If you need to order additional manuals, refer to Ordering Documentation (see page 50) provided in the standard manual.
Process Manual	Process operators	This manual explains plasma etching theory, etching applications, process recipes, and methods for collecting etching data. It also explains how the process module works and how to troubleshoot process problems. You should have a separate process manual for each type of process module that you have. If you need to order additional manuals, refer to Ordering Documentation (see page 50) provided in the standard manual.
System Theory of Operation Manual	Maintenance operators, process operators	This manual provides an overall description of the equipment and explains the functions of each subsystem. It describes how the etcher subsystems interact with each other and with the support equipment.
Process Module Theory of Operation Manual	Maintenance operators, process operators	This manual provides an overall description of the process module and explains the functions of each unit. You should have a separate theory of operation manual for each type of process module that you have. If you need to order additional manuals, refer to Ordering Documentation (see page 50) provided in the standard manual.
System Installation/Startup Manual	Installation worker	This manual includes information about installing, connecting, and setting up the loader module and the vacuum transfer module at your facility.
Process Module Installation/Startup Manual	Installation worker	This manual includes information about installing, connecting, and setting up the process module, AC power box, and chiller at your facility. You should have a separate installation manual for each type of process chamber that you have. If you need to order additional manuals, refer to Ordering Documentation (see page 50) provided in the standard manual.
Supplemental Manuals to the Standard Manual Set	Maintenance operators, process operators, installation workers	Appendices and option manuals which include specifications and maintenance information for nonstandard equipment.
Illustrated Parts Catalog	Maintenance operators, installation workers	This manual includes exploded views of the equipment corresponding to the customer's specifications, with each part numbered.
Reference for Customer Options	Maintenance operators, installation workers	This manual includes information about the specifications of the customer's equipment.

1.5 Purpose and Target Readers of this Manual

9989M.20071201

This manual explains how to operate each unit in the TEL plasma etching system (hereafter called "this system" or "the system"), including the support equipment.

This manual is intended for maintenance operators who have read and fully understand the contents of the Basic Operations Manual.



WARNING Strong Magnetic Field

Units equipped with magnets generate a strong magnetic field that can adversely affect the operation of electronic medical implanted devices such as pacemakers. People with pacemakers or other implanted medical electronic devices should maintain a safe distance of at least 1 m(3 ft) from units equipped with magnets.



CAUTION Strong Magnetic Field

Units equipped with magnets generate a strong magnetic field that can attract metal accessories and potentially cause bodily injury when pulled strongly to the magnets. If you wear metal accessories such as body piercing or necklace, maintain a safe distance of at least 1 m(3 ft) from units equipped with magnets.



CAUTION General

Read the Safety Manual and fully understand its contents before servicing.



CAUTION Equipment Damage

Units equipped with magnets generate a strong magnetic field that can adversely affect objects susceptible to magnetism (such as electronic devices and magnetic cards). Do not place objects susceptible to magnetism (such as electronic devices and magnetic cards) near units equipped with magnets.

1.6 Overview 01436.20181101

Advanced Operations Manual contains the following chapters:

Chapter 1, Introduction

This chapter provides chapter overviews, explanation of conventions that are used throughout this manual, explanation of how to use the manual set, how to order manuals, how to request that changes be made to a manual, and contact information for TEL's sales and service offices worldwide.

Chapter 2, Starting and Stopping the System

This chapter provides the necessary operations for starting and stopping the system.

Chapter 3, Special Port Usage

This chapter provides details on the special port usage.

Chapter 4, Checking the Equipment Status

This chapter provides the operation necessary to check the current status of the equipment.

Chapter 5, Settings to Prevent Mixing of the Gases

This chapter provides the necessary operations for setting the mixing prevention gases.

Chapter 6, Parts Maintenance Management

This chapter provides the necessary operations for parts maintenance management.

Chapter 7, Changing the Operation Mode

This chapter provides the necessary operations for changing the modes of the loader module, load lock module, transfer module and process module.

Chapter 8, Executing Auto Check

This chapter provides the necessary operations for executing auto check for the process module and setting execution timing.

Chapter 9, Auto Setup Execution

This chapter provides the necessary operations for executing auto setup.

Chapter 10, Manual Transfer

This chapter provides the necessary operations for manual transfer.

Chapter 11, Log Check and Backup

This chapter provides various events that may occur inside the equipment and the alarm logging function.

Chapter 12, Online Operation

This chapter provides the operation procedures necessary to operate the equipment via the network.

Chapter 13, Transmitting Data

This chapter provides the operation procedures necessary to transmit data.

Chapter 14, Managing and Setting the User/User Group

This chapter provides the necessary operations for managing and setting the user and user group information with user management function.



NOTE

To request that changes or additions be made to this manual, complete the Document Change Request form provided at the end of each manual. For more information on filling out and submitting a Document Change Request form, refer to A Note to Our Customers.

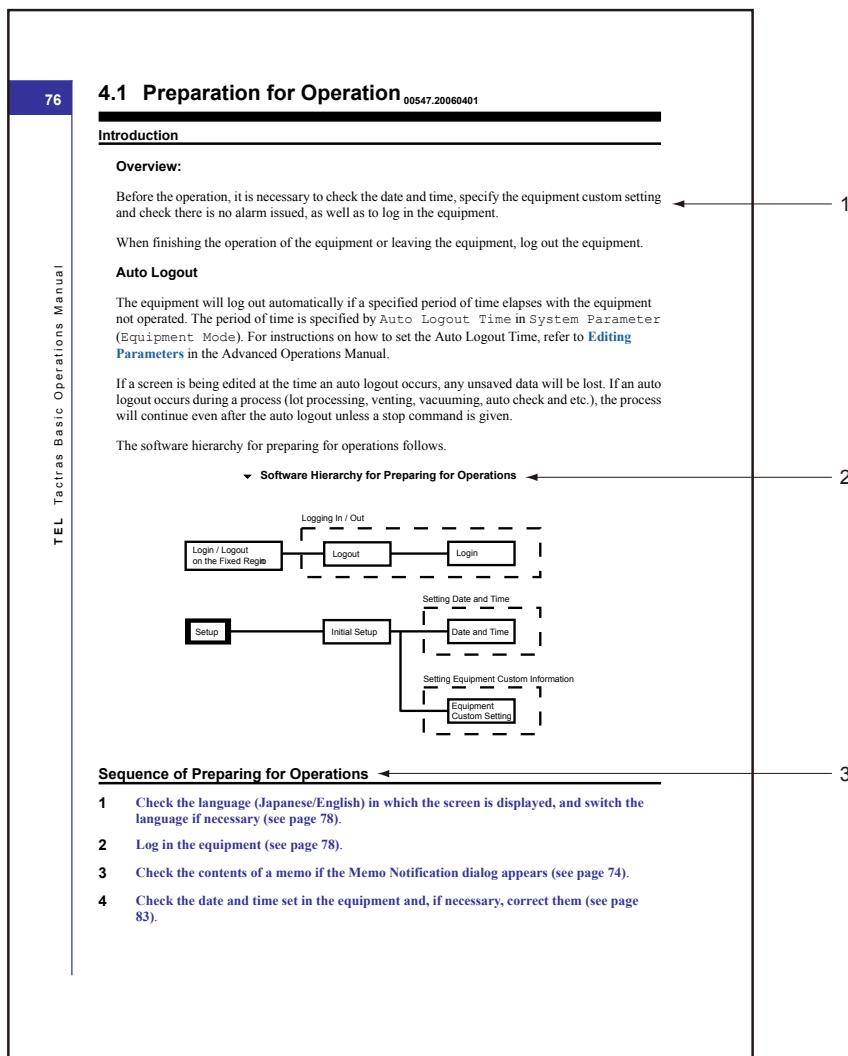
1.7 How to Use this Manual

01384TTM.20181101

Chapter 2 or the beginning of each chapter of the separate volume manuals describes an overview of the tasks explained in the separate volume manual or the chapter. Please read the overview before performing each task.

The format of the beginning of each separate volume manual or each chapter follows.

▼ Beginning of the Chapter



g013840757_e

No.	Description
1	Describes the overview of the chapter (such as details common among the tasks.)
2	Describes the relations between the tasks explained in the chapter and the software hierarchy. The software hierarchy describes the button operation to display the main screens used in each task. The button operations from the group menu (which is displayed constantly on the software screen) and from the fixed region are described here.
3	Describes the outline of the tasks explained in the chapter. The outline includes information of each task explained in the chapter.

Operation procedures, description, and function keys are explained in each task in the chapter.

The format of the description of each task follows.

▼ Description of Each Task (1)

78

4.2 Operating the Login Screen 00548.20060401

Log in the equipment.

Display the *Login* screen by pressing the following button in the fixed region:

LOGIN/LOGOUT→LOGOUT ← 1

▼ Login Screen

TEL Tactras
Version 1.00
Revision
Copyright(©) 2016 Tokyo Electron Limited.
All rights reserved - Licensed Material

No. Description ← 2

1	Enter the user name.
2	Enter the password.
3	With the user name and password entered, log in the equipment (see page 79).

Function Buttons ← 3

- GUEST LOGIN: An operator who has not been registered as a user can also log in the equipment (not necessary to enter the password). However, guests are only allowed to perform a limited number of operations, such as checking the status. This function button can also be used to log in the equipment temporarily just for checking the status after an auto logout. Operation with the guest login is valid until the equipment is shut down or the operator is changed. The history of all the operations done by the guest while he/she is logged in is stored

4.2.1 Switching Display Language 00530.20060401 ← 4

1 Press ☰ on the right of the *Login* screen to display the *Language* dialog.

▼ Language Dialog

2 Select the desired language on the *Language* dialog and then press OK.

g013840758_e

No.	Description
1	Describes the button operation to display the main screens used in each task. The button operations from the group menu (which is displayed constantly on the software screen) and from the fixed region are described here.
2	Describes the buttons and details displayed on the screen.
3	Describes the functions of each function buttons displayed at the right part of the screen.

No.	Description
4	Describes the operation procedures and settings of each function on the main screen.

In each task, there is also a part which explains the whole task in the procedure, as follows.

▼ **Description of Each Task (2)**

139

Chapter 6: Executing Lot Processing

6.8 Executing Fast Lot Process (1 Carrier/1 Lot) 00695.20050701

1 Load the carrier for fast lot process to the LP (see page 117).

2 Display the *1 Carrier/1 Lot* screen (6.5 Executing Production Lot Process (1 Carrier/1 Lot) (see page 124)).

3 Press FAST LOT or FAST WAFER of the processing lot type on the *1 Carrier/1 Lot* screen (default is NORMAL).

▼ Selecting Process Type (Fast Lot)



▼ Selecting Process Type (Fast Wafer)



Set the process conditions in the same procedure as the production lot process, except for setting the process type.

4 If the process condition is OK, press START at the right part of the *1 Carrier/1 Lot* screen to start the fast lot process.

During the fast lot process, it can be stopped (see page 141).

5 After the fast lot process, unload the carrier from the LP (see page 142).

g013840759_e

About the Description of the Equipment Configuration

The load port, process module, and gas line configurations vary depending on the customer machine specifications. In this manual, they are indicated as follows:

- *: 1–6 (Used for the load port)
- x: 1 or 2 (Used for the load lock module)
- #: 1–8 (Used for the process module)
- n: 1–32 (Used for gas lines)

1.8 Notices 00301M.20131001

1.8.1 A Note to Our Customers 00302M.20071101

TEL has made every effort to ensure that this manual is accurate. However, because the designs of the machines are continually being revised and improved, you may occasionally find that some information is missing from a manual. If you find that needed information is missing from this manual or if there is information that your company would like to see added, please send or fax to TEL the Document Change Request form at the back of this manual with your proposed changes. For TEL addresses and fax numbers, refer to [1.9 Sales and Service Offices \(see page 51\)](#).

We appreciate any feedback you can give us. Your feedback helps us keep our manuals as accurate and up-to-date as possible.

1.8.2 Typographical Conventions 00303M.20071101

1.8.2.1 Text Formatting 00304M.20071101

Typographical conventions used in this manual include text formatting for: **HARDWARE SWITCHES**, **SOFTWARE BUTTONS**, menus, menu items, and *screen names*.

1.8.2.2 Numeric Subscripts 00305M.20090501

Each procedure and section title includes the object document number and revision of that section or procedure. The digits to the left of the decimal (00305M for this section) make up a unique document number, and the digits to the right of the decimal indicate the date the section was last revised in a year, month, day format (YYYYMMDD). When comparing information, keep in mind that the information with the most recent date supersedes information with the same document number having an earlier date. This information may also supersede earlier information with a different document number that is directly related.

1.8.2.3 SI Units 00306M.20071101

This manual uses SI units as the standard. Non-SI units are listed in parentheses. The values in the parentheses are reference values.

1.8.2.4 Document Number 00307M.20131001

The document number is described in each manual cover or CD-ROM label. Please tell us this document number when you contact us with the Document Change Request form.

1.8.2.5 Model Number Abbreviations 00308M.20110301

TEL etcher model numbers indicate the equipment configuration for delivery to the customer. The following tables show examples of model names and explain the abbreviations that are used in the model numbers.

▼ Example of Model Numbers and Abbreviations: 3WWZZWW

Number	Alphabet
The first digit indicates the wafer size. 3: 12 inches or 300 mm 2: 8 inches or 200 mm	Alphabets indicate the chamber type and numbers indicate the number of chamber connection. W: Vigus Z: Without chamber

1.8.3 Ordering Documentation 00309M.20131001

An additional manual set for this system can be ordered.

Normally, only the CD-ROM will be provided. If you prefer a normal paper copy or a cleanroom paper copy of the manual, please contact TEL's service center.

1.8.4 Application of the Manual 00310M.20131001

There are crossreferences in the manual. The user is expected to read all linked and cross referenced materials. Important safety related information may be presented in the referenced material and may have been updated since the last revision of the manuals. Failure to read the referenced material may expose the user to unexpected hazards and potential for injury.

If any content in this manual is unclear, refer to **Sales and Service Offices (see page 51)** and contact one of TEL's service centers.

Because the design of the equipment is continuously being revised and improved, the appearance of the equipment and other detailed specifications that are shown in the manual may differ slightly from your equipment. Screen display details shown in the manual may also differ slightly from those seen on your equipment depending on your equipment's specifications.

This manual describes the TEL recommended procedures at the time of publication. Always confirm with the TEL service center that the information regarding procedures and parts is appropriate for your specification before servicing.

1.9 Sales and Service Offices

0015M.20190131

In the event of an emergency, contact your nearest TEL sales and service office. They are listed in the tables that follow.

For the most up-to-date information, visit one of the following web sites:

Japanese: <http://www.tel.co.jp/about/locations/>

English: <http://www.tel.com/about/locations/>

▼ **TOKYO ELECTRON U.S. HOLDINGS, INC.**

Office	Address	Telephone	Fax
U.S. Headquarters	2400 Grove Blvd., Austin, Texas 78741 USA	+1-512-424-1000	+1-512-424-1001

▼ **TOKYO ELECTRON AMERICA, INC.**

Office	Address	Telephone	Fax
U.S. Headquarters	2400 Grove Blvd., Austin, TX 78741 U.S.A.	+1-512-424-1000	+1-512-424-1001
Boise Branch Office	9095 S. Federal Way, Suite 100, Boise, Idaho 83716 U.S.A.	+1-208-672-6000	+1-208-672-6001
Fishkill Branch Office	20 Corporate Park Drive, Suite A Hopewell Junction, New York 12533 U.S.A.	+1-845-202-5410	+1-845-897-9548
Manassas Branch Office	9501 Innovation Drive, Manassas, VA 20110 U.S.A.	+1-571-921-3900	+1-571-921-3901
Phoenix Branch Office	2545 West Frye Rd., Suite 1 Chandler, AZ 85224 U.S.A.	+1-480-539-2000	+1-480-539-2001
Portland Office	3188 NE Alolek Dr., Hillsboro, OR 97124 U.S.A.	+1-503-617-7800	+1-503-617-7801
Fremont Branch Office	2859 Bayview Dr., Fremont CA 94538 U.S.A.	+1-510-624-3450	+1-510-624-3451
Lehi Branch Office	3300 North Running Creek Way, Bldg. D200, Lehi, UT 84043 U.S.A.	+1-801-753-4900	+1-801-753-4916
Malta Branch Office	2 Bayberry Drive, Suite 2-200, Malta, NY 12020 U.S.A.	+1-518-289-3100	+1-518-289-3101

▼ **TEL TECHNOLOGY CENTER, AMERICA, LLC (TTCA)**

Office	Address	Telephone	Fax
Office	NanoFab 300 South, 255 Fuller Road, Suite 214, Albany, New York 12203 U.S.A.	+1-518-292-4200	+1-518-292-4300

▼ **TEL VENTURE CAPITAL, INC. (TVC)**

Office	Address	Telephone	Fax
Office	2859 Bayview Dr., Fremont CA 94538 U.S.A.	+1-510-624-3450	+1-510-624-3451

▼ **TEL EPION, INC. (TEI)**

Office	Address	Telephone	Fax
Office	900 Middlesex Turnpike, Bldg. 6, Billerica, Massachusetts 01821 U.S.A.	+1-978-436-2300	+1-978-436-2301

▼ **TEL FSI INC. (TEF)**

Office	Address	Telephone	Fax
Office	3455 Lyman Blvd., Chaska, MN 55318-3052 U.S.A.	+1-952-448-5440	+1-952-448-2825

▼ **TOKYO ELECTRON EUROPE LTD**

Office	Address	Telephone	Fax
Head Office	Pioneer, Crawley Business Quarter, Fleming Way, Crawley, West Sussex RH10 9QL, England U.K.	+44-1293-655800	+44-1293-655888
Londonderry Office	Unit 1, Ground Floor, Phase 1, 18 Ballinska Road, Springfield Industrial Estate, Londonderry, BT48 0NA, Northern Ireland	+44-1293-655800	—
Italian Branch Office Milan	Via Energy Park, 6, 20871 Vimercate, Monza e Brianza, Italy	+39-039-656081	+39-039-65608333
Italian Branch Office Catania	Unita locale di Catania Zona Industriale Pantano D'Arci VIII strada N°8, 95121 Catania, Italy	+39-335-280957	—
Italian Branch Office Avezzano	Via Cavour, 74C, 67051, Avezzano, Italy	+039-0863-49861	+039-0863-498640
French Branch Office Grenoble	Les Jardins d'Entreprise, Batiment Alicante, 1, Chemin De La Dhuy, 38240 Meylan, France	+33-4760-41244	+33-4760-41243
German Branch Office	Moritzburger Weg 67, Haus D, 01109 Dresden, Germany	+49-351-85034100	+49-351-85034188
Irish Branch Office	Unit 1, Block K, Maynooth Business Campus, Maynooth, Co. Kildare, Ireland	+353-1-601-4970	+353-1-601-4985
Netherlands Branch Office	Kerkenbos 10-15, Unit C, 6546 BB, Nijmegen, The Netherlands	+31-243-726-630	+31-243-726-640
Austrian Branch Office	Europastrasse 8-10 Gebaude T02, 9524 Villach, Austria	—	—

▼ **TEL SOLAR SERVICES AG**

Office	Address	Telephone	Fax
Corning Laser Technologies GmbH (for Laser Systems)	Robert-Stirling-Ring 2, DE-82152 Krailling, Germany	—	—
Evatec AG (for all other TEL solar equipment including Display [FTP] equipment)	Hauptstrasse 1a, CH-9477 Truebbach, Switzerland	—	—

▼ **TEL MAGNETIC SOLUTIONS LIMITED**

Office	Address	Telephone	Fax
Main Office	Unit J, Furry Park Industrial Estate, Santry, Dublin 9, Ireland	+353-1-854-7900	+353-1-862-0042

▼ **TOKYO ELECTRON ISRAEL LIMITED**

Office	Address	Telephone	Fax
Main Office	1 Leshem Street 1st Floor West Entrance, Gat 2000, Kiryat Gat, Israel	+972-8-681-0860	+972-8-681-0862

▼ **TOKYO ELECTRON KOREA LIMITED**

Office	Address	Telephone	Fax
Hwaseong Office (HTSC)	56, Samsung 1-ro 1-gil, Hwaseong-si, Gyeonggi-do, 18449 Korea	+82-31-260-5000	+82-31-260-5290
Balan Factory	51, Jangangongdan 6-gil, Jangan-myeon, Hwaseong-si, Gyeonggi-do, 18579 Korea	+82-31-260-5000	+82-31-260-5290
Cheonan Branch Office	4Fl., Miraecity Bldg., 46, Geomeundul 3-gil, Seobuk-gu, Cheonan-si, Chungcheongnam-do, 31163 Korea	+82-41-522-3328	+82-31-260-5199
Cheongju Branch Office	4Fl., Central 2Bldg., 17, Jangjeon-ro 6beonga-gil, Seowon-gu, Cheongju-si, Chungcheongbuk-do, 28614, Korea	+82-31-8077-6800	+82-43-276-8561
Gumi Branch Office	4Fl., Parkjaedal-Tower Bldg., 115, Indongbuk-gil, Gumi-si, Gyeongsangbuk-do, 39439 Korea	+82-54-472-9704	+82-31-260-5260
Icheon Branch Office	2056, Gyeongchung-daero, Bubal-eup, Icheon-si, Gyeonggi-do, 17332 Korea	+82-31-8010-3000	+82-31-8010-3032
Paju Branch Office	9Fl., Cheongwon Central-Tower Bldg., 84, Geumneungyeok-ro, Paju-si, Gyeonggi-do, 10915 Korea	+82-31-8077-6300	+82-31-944-5197
Pyeongtaek Branch Office	110, Sandan-ro 64beon-gil, Pyeongtaek-si, Gyeonggi-do, 17746, Korea	+82-31-8077-6900	+82-31-667-6901

▼ TOKYO ELECTRON TAIWAN LIMITED

Office	Address	Telephone	Fax
Office	No. 7, Dusing Rd, Hsinchu Science Park, Hsinchu City 30078, Taiwan, R.O.C.	+886-3-666-2266	+886-3-666-2277

▼ TOKYO ELECTRON (SHANGHAI) LIMITED

Office	Address	Telephone	Fax
Head Office	No.555 Gaosi Rd., Zhangjiang Hi-Tech Park, Shanghai 201203 China	+86-21-3895-4800	+86-21-5027-2002
Beijing Office	Room 608, Block B Building 1, No. 19, Ronghua Middle Rd., BDA, Beijing, 100176 China	+86-10-6787-2288	+86-10-6787-2286
Wuxi Office	B507, IC Design Tower, No. 33-1 Xinda Road WND, Wuxi, Jiangsu 214111 China	+86-510-8534-6166	+86-510-8534-6169
Xi'an Office	10F, Customs Clearance Service Center, No.5 Tonghai First Road, High-tech Zone, Xi'an, Shaanxi, 710100 China	+86-29-8188-7170	+86-29-8188-7195
Nanjing Office	A1006, New City Headquarters Building, No. 1, Pukou Road, Pukou District, Nanjing, Jiangsu, 211800 China	+86-25-5818-2150	+86-25-5818-1730

▼ TOKYO ELECTRON (SHANGHAI) LOGISTIC CENTER LIMITED

Office	Address	Telephone	Fax
Office	Level 1, No.126 Hedian Rd., Waigaoqiao FTZ, Pudong, Shanghai 200131, China	+86-21-5868-1626	+86-21-5868-1629

▼ TOKYO ELECTRON (KUNSHAN) LIMITED

Office	Address	Telephone	Fax
Office	No. 8, Dongguang Road, Kunshan Economic & Technical Development Zone Jiangsu 215300, China	+86-512-5500-8000	+86-512-5500-7000

▼ TOKYO ELECTRON SINGAPORE PTE. LIMITED

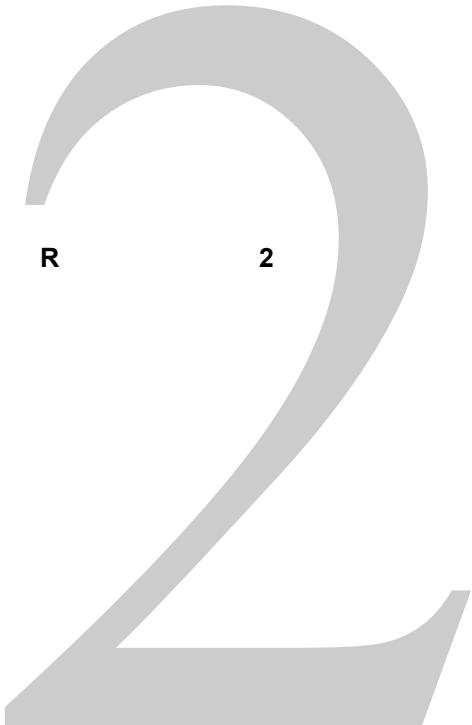
Office	Address	Telephone	Fax
Office	4 Changi North Street, 1 Hermes Epitek Center, Singapore 498816	+65-6439-7000	+65-6439-7001

▼ TOKYO ELECTRON MALAYSIA Sdn. Bhd.

Office	Address	Telephone	Fax
Head Office	Suite 1.08, 1st Floor, KHTP Business Centre, Kulim Hi-Tech Park, 09000 Kulim, Kedah, Malaysia	—	—

▼ TOKYO ELECTRON INDIA PRIVATE LTD.

Office	Address	Telephone	Fax
Head Office	7, Barakhamba Roda, New Delhi, Delhi, India 11001	+91-114-361-6263	—



Starting and Stopping the System

This chapter provides the necessary operations for starting and stopping the system.

The information contained in this chapter has been prepared based on the specifications of the standard equipment. Throughout the manual, figures provided in this manual, including operation screens and appearances, may vary from the equipment installed at your site.

2.1 Starting and Stopping the System 03650.20090401

Introduction

Overview:

Operate the necessary functions to start/stop the system.

Sequence of Starting System

- 1** Following the procedures below, operate the AC power box, loader module (back side) switch box, and process module breaker to prepare for starting the system.
 - 1.1** Turn on the AC Power Box main breaker.
 - 1.2** Check that the necessary breakers in the AC power box are turned on.
 - 1.3** Turn on the chiller main unit.
 - 1.4** Check that the process module breaker is turned on.
 - 1.5** Press MACHINE ON on the loader module (back side) switch box to start the system software.
- 2** Following the procedures below, start the system software.
 - 2.1** Log in to the equipment from the *Login* screen.
 - 2.2** Initialize the equipment.
 - 2.3** Display the *Overall Status* screen. Switch the screen and select/execute each menu item.

Sequence of Stopping the System

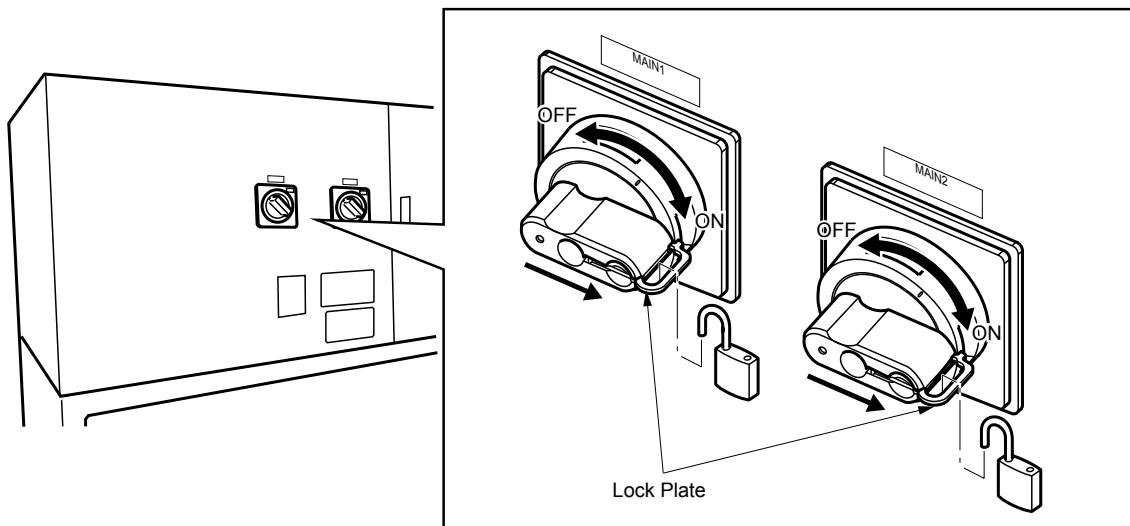
- 1** Following the procedures below, shut down the system software.
 - 1.1** Check that the process module is in the normal or maintenance mode.
 - 1.2** Display the *Shutdown* screen from **SYSTEM** in the group menu.
 - 1.3** Press **SHUTDOWN** on the right of the *Shutdown* screen.
 - 1.4** Confirm the shutting down message.
- 2** Following the procedures below, operate the AC power box, loader module (back side) switch box, and process module breaker to stop the system.
 - 2.1** Press MACHINE OFF on the loader module (back side) switch box to stop the equipment.
 - 2.2** Turn OFF the process module breaker.
 - 2.3** Turn off the chiller main unit.
 - 2.4** Turn off the breaker in the AC power box.
 - 2.5** Turn off the AC power box main breaker.

2.2 System Startup 03171TT.20160901

Preparation for Starting the System

- Turn on the AC power box main breakers (MAIN1, MAIN2).

▼ AC Power Box



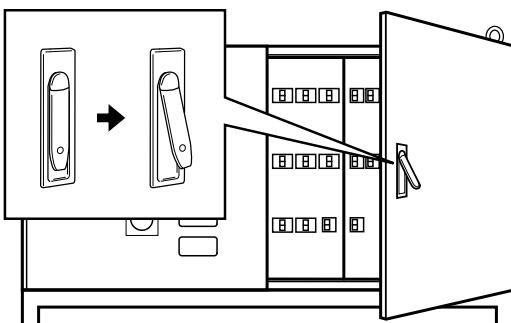
g031712363_e



NOTE The shapes of the main breakers and AC power box may vary depending on the specifications.

- Open the AC power box front door and make sure that the necessary breakers are turned on. If any necessary breaker is off, turn it on and close the front door.

▼ Opening/Closing Front Door of AC Power Box

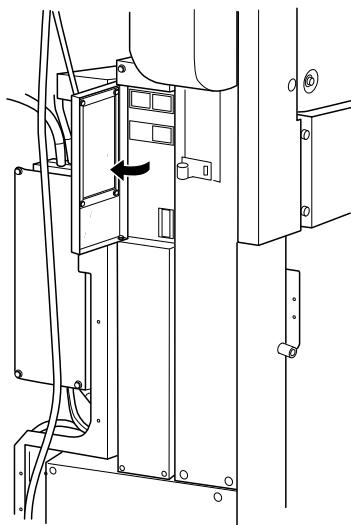


g031712383

- Turn on the chiller main unit.
- Make sure that the breaker located on the loader module (under the orienter) is turned on. If the breaker is off, turn it on.
- Locate the process module breaker at the lower part of the process module on the maintenance side and make sure that it is turned on. If the breaker is off, turn it on.

- 6 Open the switch box cover on the back of the loader module.

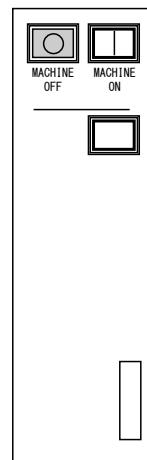
▼ **Loader Module (Back Side) Switch Box Cover**



g031712384

- 7 Press the MACHINE ON switch. The MACHINE ON switch will light up and the system software on the equipment main unit will initialize. Close the switch box cover.

▼ **Loader Module (Back Side) Switch Box**

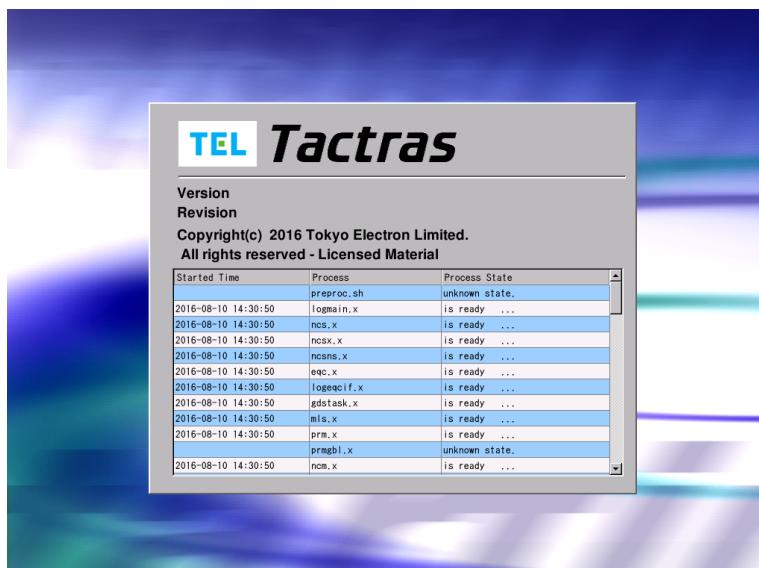


g031712385

Starting System Software

- 8 When the system software has started, the *Start* screen will be displayed on the operation controller.

▼ Start Screen



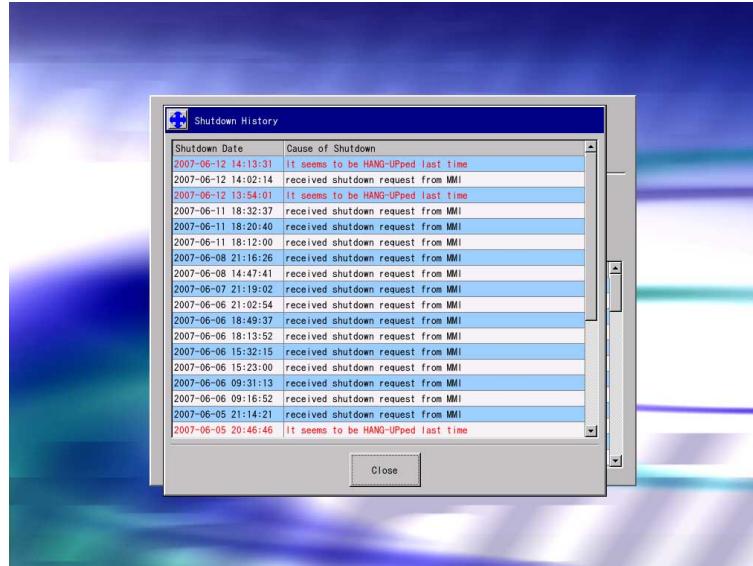
g031712386_e



NOTE

The *Shutdown History* dialog may be displayed if the system was stopped without following the proper shutdown sequence when the equipment was used the last time. If the

Shutdown History dialog is displayed, check the contents displayed on the dialog, and press CLOSE. The system will go on to the Start screen.

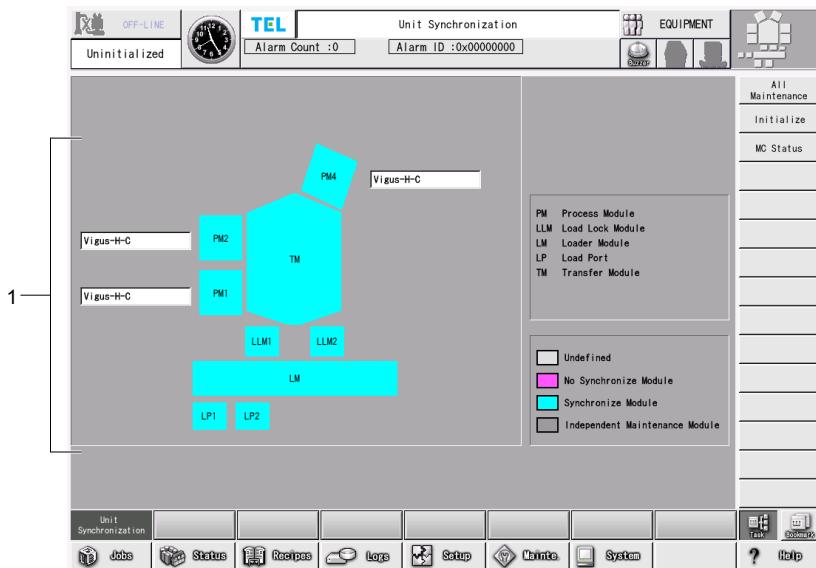


- 9 The *Login* screen will appear. Enter the user name and password, and then press **LOGIN**.

 **NOTE** For the details on the *Login* screen, refer to Preparation for Operation in the Basic Operation Manual.

- 10** Once startup status checks for various modules have been completed, the system will display the *Unit Synchronization* screen automatically.

▼ Unit Synchronization Screen



g031712388_e

No.	Description
1	Displays the connection status of each module controller (see page 71).

Function Buttons

- ALL MAINTENANCE:** Changes to the maintenance mode to perform maintenance.
- INITIALIZE:** Changes to the normal mode to perform normal processing. The process module changes to the normal mode (production) or the normal mode (non-production) depending on the settings of Processing Mode State at starting (PM1–6) of System Parameter (Equipment Mode).
- MC STATUS:** Displays the *MC Status* screen.

- 11** Press **INITIALIZE** on the right of the *Unit Synchronization* screen.

NOTE It is also available to change to the maintenance mode using **ALL MAINTENANCE** from the operation screen displayed after selecting **INITIALIZE**.

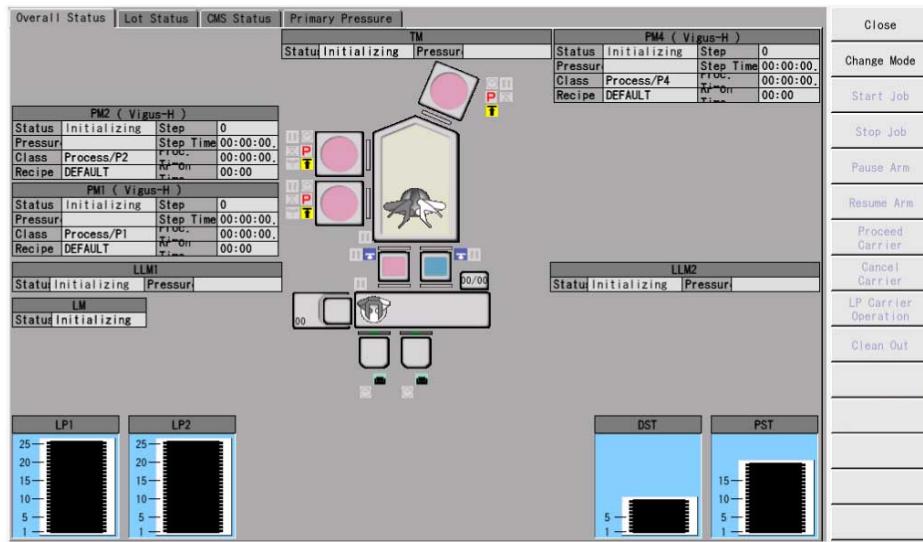
When pressing **ALL MAINTENANCE** to change to the maintenance mode, it is necessary to turn ON the pump system and the chiller from the *PM Status* screen or *PM Maintenance* screen. By executing the initialization, if the pump system and the chiller are Off, they will be turned ON.

- 12** After the *Initialize* dialog is displayed, press **OK**. The equipment initialization process will start.

NOTE It will take several minutes until initialization is complete.

- 13** The initial screen showing the equipment status will be displayed. When this initial screen displays, it is possible to switch between screens, select various menu items to run, etc.

▼ Overall Status Screen



g031712389_e

2.3 System Shutdown

03172TT.20160901

Shutting Down the System Software

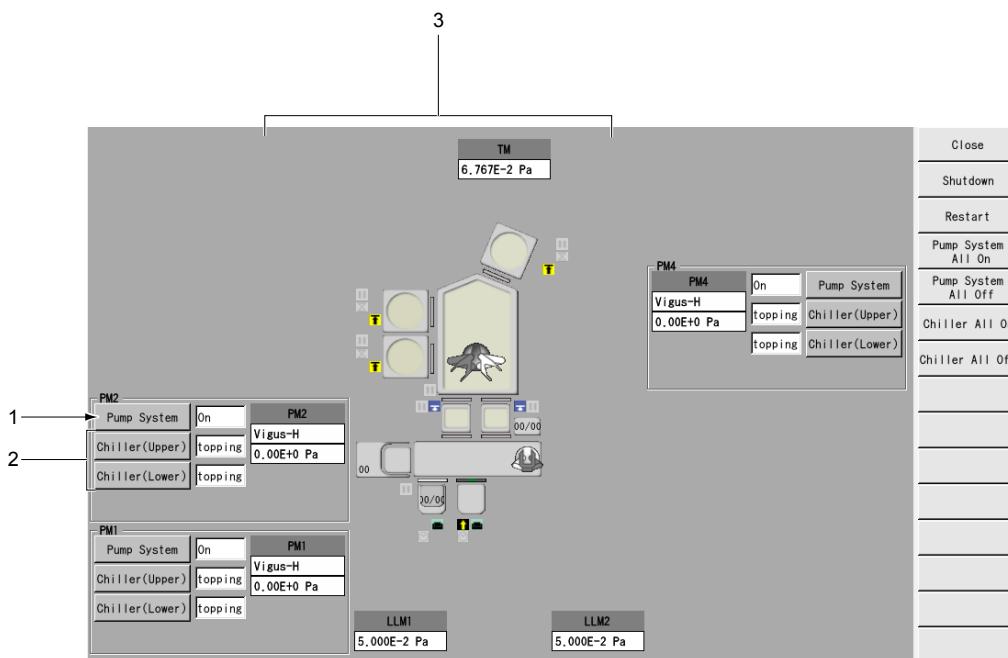
- Check that the process module is in the normal or maintenance mode.

CAUTION
Equipment Damage

If the process module is in the independent maintenance mode when the equipment is stopped, the applicable process module TMP can not stop normally. Change all process modules to the normal or maintenance mode.

- Display the *Shutdown* screen by pressing SHUTDOWN from SYSTEM of the group menu.

▼ Shutdown Screen



g031722390_e

No.	Description
1	Start or stop the pump system for the relevant process module.
2	Switches the chiller for the relevant process module to On or Off.
3	Displays the equipment status and wafer information (see page 71).

Function Buttons

- CLOSE:** Closes the *Shutdown* screen.
- SHUTDOWN:** Shuts down the equipment.
- RESTART:** Restarts the equipment. This is enabled when the Shutdown Function of the Common Parameter is set to Select Enabled.
- PUMP SYSTEM ALL ON:** Starts all pump systems.
- PUMP SYSTEM ALL OFF:** Stops all pump systems.
- CHILLER ALL ON:** Turns ON all chillers.
- CHILLER ALL OFF:** Turns OFF all chillers.

- 3 Press SHUTDOWN on the right of the *Shutdown* screen.
- 4 Press OK on the *Shutdown* dialog.

When executing the shutdown, the *System End* screen and the *Shutdown* dialog are displayed, and the system software starts the shutdown sequence.

▼ **System End Screen and Shutdown Dialog**



g031722391_e

NOTE To indicate when the system software shutdown will finish, the *Shutdown* dialog displays **Expected End Time**.

- 5 Verify that the *Shutdown* dialog and *System End* screen are closed and the message **flushing ide Devices: Power down.** is displayed on the bottom line of the console screen.

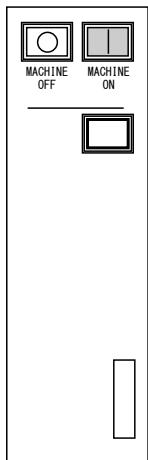
CAUTION **Equipment Damage**
Pressing MACHINE OFF switch before the message **flushing ide Devices:Power down.** is displayed can damage the equipment because the system software is performing the shutdown sequence. Do not press the MACHINE OFF switch until the message **flushing ide Devices:Power down.** is displayed.

System Shutdown

- 6 Open the switch box cover on the back of the loader module.

- 7 Press the MACHINE OFF switch in the switch box located on the back of the loader module. MACHINE ON switch will flash. MACHINE OFF switch will light up and the equipment will stop. Close the switch box cover.

▼ **Loader Module (Back Side) Switch Box**



g031722392



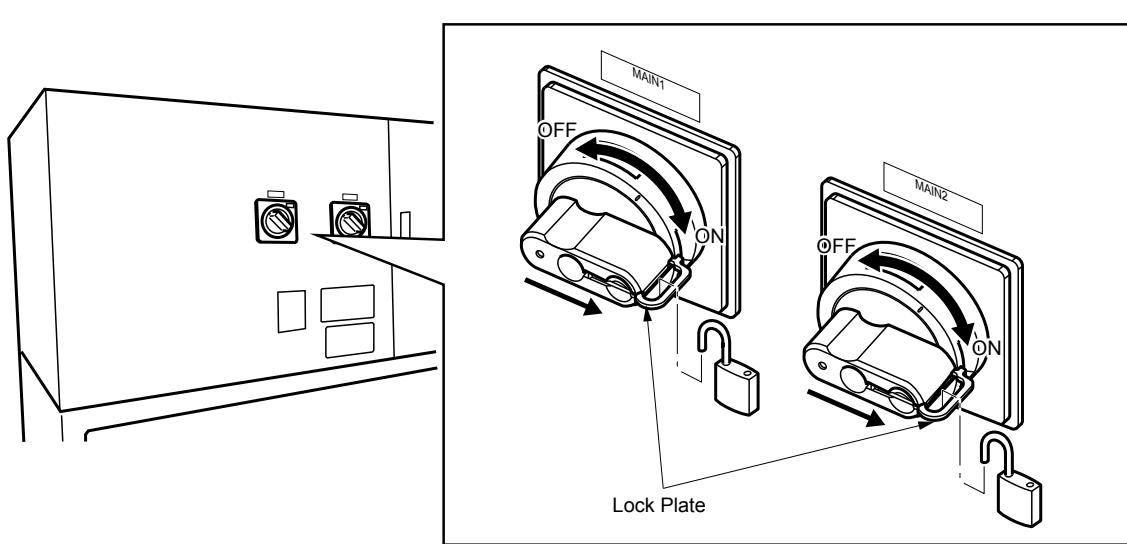
NOTE

When MACHINE OFF is pressed, MACHINE ON will flash for 3 seconds and then turn OFF. While MACHINE ON is flashing, MACHINE ON is temporarily disabled so that nothing will happen if it is pressed, in order to protect the equipment.

- 8 Turn off the breaker of the loader module (under the orienter).
- 9 Turn off the process module breaker at the lower part of the process module on the maintenance side.
- 10 Turn off the chiller main unit.
- 11 Open the AC power box front door, turn off the breakers and close the front door.

- 12 Turn off the AC Power Box main breakers (MAIN1, MAIN2).

▼ AC Power Box



g031722393_e



NOTE

The shapes of the main breakers and AC power box may vary depending on the specifications.

2.4 Restarting System Software 09717C.20160901

- Check that the process module is in the normal or maintenance mode.

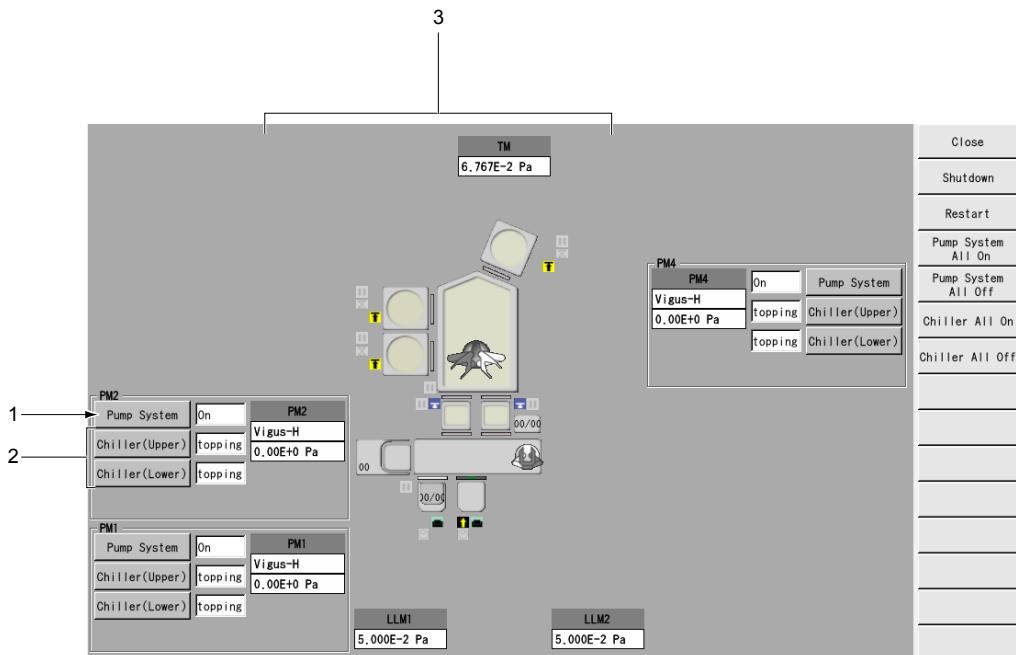
CAUTION

Equipment Damage

If the process module is in the independent maintenance mode when the equipment is stopped, the applicable process module TMP can not stop normally. Change all process modules to the normal or maintenance mode.

- Display the *Shutdown* screen by pressing SHUTDOWN from SYSTEM of the group menu.

▼ Shutdown Screen



g031722390_e

- Press **RESTART** on the right of the *Shutdown* screen.
- Press **OK** on the *Restart* dialog. When executing the restart, the *Restart* screen and the *Restart* dialog are displayed, and the system software starts the restart sequence.

CAUTION

Equipment Damage

When restart is executed while the information obtained during shutdown is saved, reducing the set temperature by local control of the chiller may damage the ESC. Keep the chiller under remote control during restart.

▼ System Restart Screen and Restart Dialog



g7560_e

 **NOTE** Expected End Time will be displayed on the *Restart* dialog as a reference information of the system software restart completion time.

2.5 Symbols on the Screens Displayed upon Starting and Stopping the System 03651.20090401

This section describes the symbols that are displayed on the screens that appear when the system starts or stops.

2.5.1 Symbols on the Unit Synchronization Screen 03652.20071201

This section describes the symbols that are displayed on the *Unit Synchronization* screen.

The descriptions of the symbol that are displayed on the screen can also be checked from the **HELP** on the group menu.

▼ Typical Symbols on the Synchronization Screen (Others)

Item	Symbol	Description
Synchronize Status		Undefined (light gray)
		No Synchronize Module (red)
		Synchronize Module (blue)
		Independent Maintenance Module (dark gray)

2.5.2 Symbols on the Shutdown Screen 03653.20071201

For the symbols that are displayed on the *Shutdown* screen, refer to *Checking the Equipment Status* in the **Basic Operations Manual**.

The descriptions of the symbol that are displayed on the screen can also be checked from the **HELP** on the group menu.

C

H

A

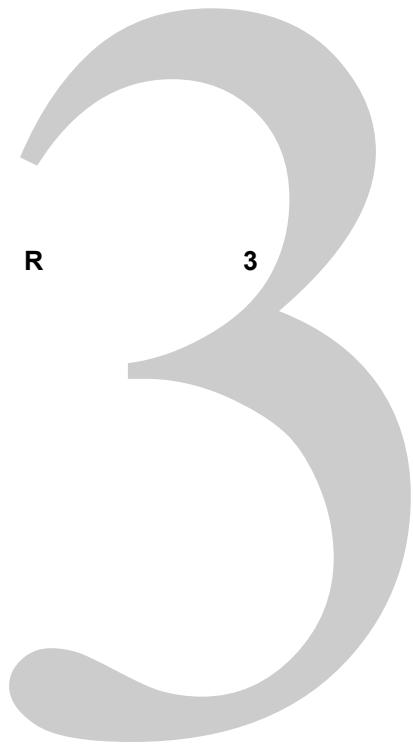
P

T

E

R

3



Special Port Usage

This chapter provides details on the special port usage.

The information contained in this chapter has been prepared based on the specifications of the standard equipment. Throughout the manual, figures provided in this manual, including operation screens and appearances, may vary from the equipment installed at your site.

3.1 Special Port Usage 01843TC.20101201

Introduction

Overview:

Be sure to set the carrier, that stores the wafers which are used for the processes other than the production lot process such as dummy process or cleaning, to the special port. Also, set the usage of the wafer in the dummy storage.

The wafers in the carrier and the dummy storage, that are not set to the special port, cannot be used for other than product lot process.



NOTE

The carrier, that is used for aging transfer and particle check process before the lot processing, does not need to be set to the special port.

Dummy Port and Test Port

There are two types of special ports; dummy port and test port. When setting the dummy storage to the special port, it should be used only as a dummy port.

Prepare different carriers since the usage of the dummy port and the test port differs.

The wafers in the dummy port are used for the following usage. Set the usage and the process module, in which the wafer will be used, for each wafer.

- Lot-stabilization dummy (used for lot-stabilization dummy process)
- Cleaning (used for lot cleaning process/out-lot cleaning process/cleaning process depending on PM usage times)
- Seasoning (used when seasoning is executed at the cleaning process depending on PM usage times)
- Combined application of lot-stabilization dummy and cleaning (Used for the lot-stabilization dummy process described above and each process performed for cleaning)

The wafers in the test port are used for the following auto setup function usage. Set the usage and the process module, in which the wafer will be used, for each wafer.

- Seasoning
- Particle Check
- Measuring Etch Rate
- Test Transfer
- Collecting Wafer (set to an empty slot)

Maintaining and Managing Wafers in Special Port

Maintenance timing for the wafers in the special port can be set (see page 124). The maintenance timing for the wafer is set to each slot of the special port.

Canceling Special Port Setting

The special port setting is canceled in the following cases:

- Unload the carrier which is set to the special port.

- Press CANCEL for the relevant special port on the *Special Port Setup* screen (refer to [3.2 Operating the Special Port Setup Screen \(see page 77\)](#)).

 **NOTE** The special port (dummy port) setting of the dummy storage can not be canceled.

The setting information will be cleared as the special port setting is canceled.

If the wafer maintenance timing is set on the slot of the special port, the total values of all the slots will be reset (see page 124). Note that the maintenance timing setting details are maintained.

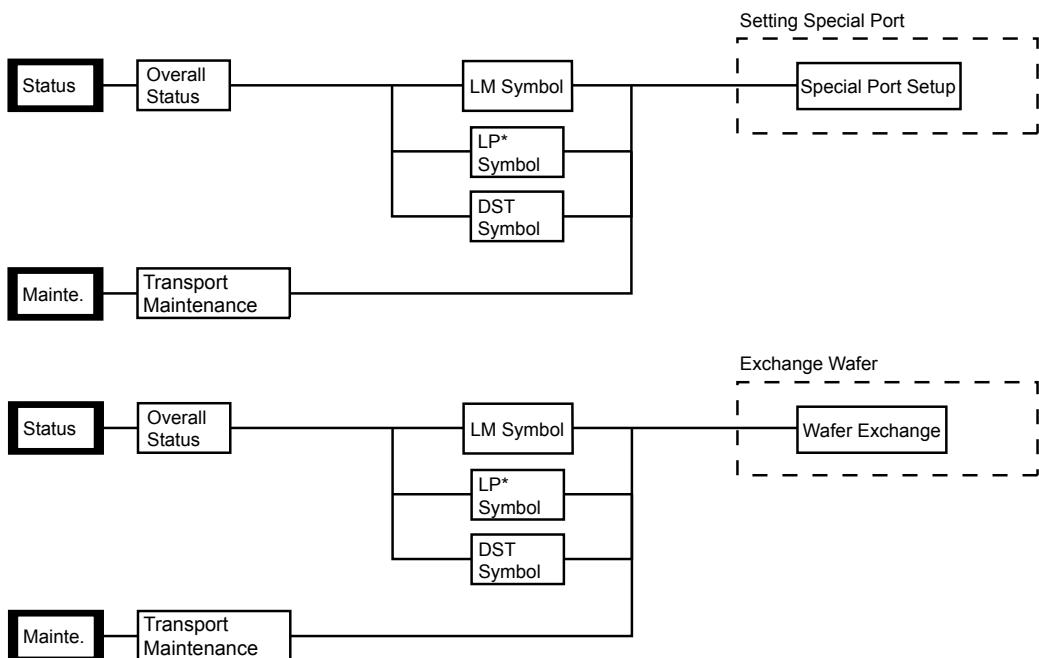
Saving Setting Information File

The setting information for the special port can be saved as a data file. The number of files that can be saved for the dummy port and test port is maximum ten files each.

The saved files can be exported/imported between the equipment ↔ removable media.

The software hierarchy for using a special port follows.

▼ Software Hierarchy for Using Special Port



g018432254_e

Sequence of Using Special Port

- Load the carrier to be set to the special port. For loading the carrier, refer to *Executing Lot Processing* in the [Basic Operations Manual](#).

If setting the dummy storage to the special port, insert a wafer to the dummy storage in the following procedures.

- 1.1 Load the carrier, which stores the wafer to be inserted to the dummy storage. For loading the carrier, refer to *Executing Lot Processing* in the **Basic Operations Manual**.
- 1.2 **Insert the wafer, stored in the loaded carrier, to the dummy storage (see page 90).**
- 1.3 Unload the carrier. For unloading the carrier, refer to *Executing Lot Processing* in the **Basic Operations Manual**.
- 2 **Select the carrier or the dummy storage which will be set to the special port (see page 77).**
- 3 **Set the usage and the process module, in which the wafer will be used, for the wafer in the carrier or dummy storage (see page 79).**
- 4 **Set the wafer maintenance timing to the slot of the special port (see page 124).**
- 5 The wafer in the special port is used for the lot processing and the auto setup functions. When the wafer maintenance timing is approaching, insert/extract/exchange the wafer from the special port in the following procedures.
 - 5.1 Load the carrier for exchange to an empty load port. For loading the carrier, refer to *Executing Lot Processing* in the **Basic Operations Manual**.
 - 5.2 **Insert/extract/exchange the wafer from the special port (see page 90).**

If the wafer maintenance timing is set on the slot of the special port, the total values of the target slot will be reset (see page 124). Note that the maintenance timing setting details are maintained.
 - 5.3 Unload the carrier for exchange. For unloading the carrier, refer to *Executing Lot Processing* in the **Basic Operations Manual**.

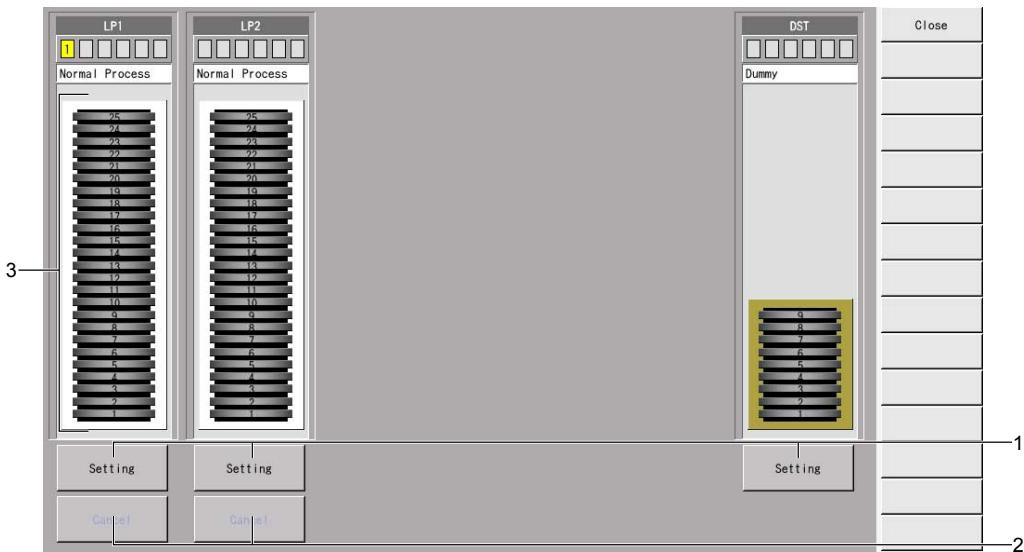
3.2 Operating the Special Port Setup Screen 01844TT.20101201

On the *Special Port Setup* screen, functions that are necessary to set/cancel a special port, are operated.

Display the *Special Port Setup* screen from the group menus below.

- STATUS→OVERALL STATUS→LM SYMBOL→SPECIAL PORT SETUP
- STATUS→OVERALL STATUS→LP* SYMBOL→SPECIAL PORT SETUP
- STATUS→OVERALL STATUS→DST SYMBOL→SPECIAL PORT SETUP
- MAINTE.→TRANSPORT MAINTENANCE→SPECIAL PORT SETUP

▼ Special Port Setup Screen



g018442244_e

No.	Description
1	Sets the relevant load port or the dummy storage to the special port (see page 79).
2	Cancels the special port setting of the relevant load port.
3	Displays the current setting status (see page 78).

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

CLOSE: Closes the *Special Port Setup* screen.

3.2.1 Symbols on the Special Port Setup Screen 01845.20071201

This section describes the symbols that are displayed on the *Special Port Setup* screen.

The descriptions of the symbol that are displayed on the screen can also be checked from the **HELP** on the group menu.

For the symbols that are not included in the following, refer to *Symbols on the LM Status Screen* in the **Basic Operations Manual**.

▼ Examples of Symbols on Special Port Setup Screen (Wafer)

Item	Symbol	Description
Wafer Usage		No Wafer (black)
		Undefined (gray)
		Lot Stab (green)
		Cleaning (red)
		Lot Stab. & Cleaning Mixture (blue)
		Seasoning (gold)
		Particle Check (purple)
		Etch Rate (pink)
		Test (yellowish green)
		Collect (light blue)

▼ Examples of Symbols on Special Port Setup Screen (Special Port Setup)

Item	Symbol	Description
Wafer Usage	U	Undefined
	L	Lot Stab (Dummy)
	C	Cleaning (Dummy)
	M	Lot Stab. & Cleaning Mixture (Dummy)
	S	Seasoning (Dummy, Test)
	P	Particle Check
	E	Etch Rate
	T	Test
	CL	Collect

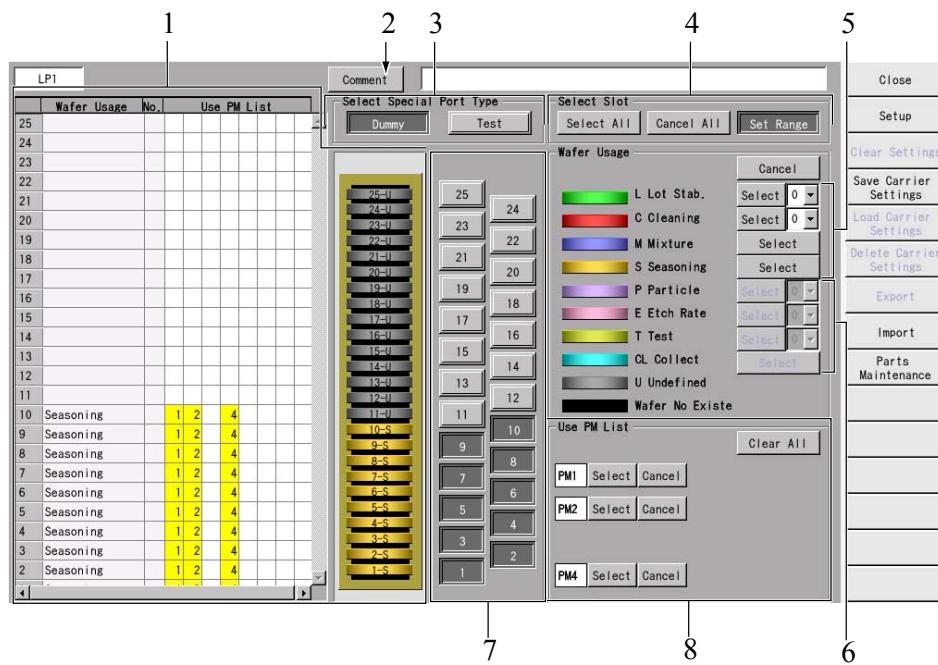
3.3 Operating the Carrier Setup Screen 01846TT.20101201

On the *Carrier Setup* screen, functions that are necessary to set the load port or dummy storage to the special port, are operated.

Display the *Carrier Setup* screen from the group menus below.

- STATUS→OVERALL STATUS→LM SYMBOL→SPECIAL PORT SETUP→SETTING
- STATUS→OVERALL STATUS→LP* SYMBOL→SPECIAL PORT SETUP→SETTING
- STATUS→OVERALL STATUS→DST SYMBOL→SPECIAL PORT SETUP→SETTING
- MAINTE.→TRANSPORT MAINTENANCE→SPECIAL PORT SETUP→SETTING

▼ Carrier Setup Screen



g018462245_e

No.	Description
1	Displays the current setting status. The setting status can be checked from the color of the carrier or the symbol of the wafer (see page 89).
2	Inputs comments for the special port.
3	Selects the intended use of the special port. The setting procedure of the special port (dummy port, test port) varies depending on the usage. For details, refer to 3.3.1 Setting the Dummy Port (see page 80) and 3.3.2 Setting the Test Port (see page 81) .
4	Specifies the method for selecting slots.
5	Selects the wafer usage when setting the dummy port.
6	Selects the wafer type No. and wafer usage when setting the special port.
7	Selects the wafer that is relevant to the wafer usage.
8	Selects the process module to transfer wafers.

**NOTE**

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Carrier Setup* screen.
- **SETUP:** Applies the settings on the *Carrier Setup* screen.
- **CLEAR SETTINGS:** Clears the settings on the *Carrier Setup* screen.
- **SAVE CARRIER SETTINGS:** **Saves the settings (see page 82)** on the *Carrier Setup* screen in a file.
- **LOAD CARRIER SETTINGS:** **Loads the saved setting information (see page 82).**
- **DELETE CARRIER SETTINGS:** **Deletes the saved setting information (see page 84).**
- **EXPORT:** **Saves the setting information saved in the equipment to the removable media (see page 85).**
- **IMPORT:** **Saves the setting information saved in the removable media to the equipment (see page 87).**
- **PARTS MAINTENANCE:** **Displays the parts maintenance screen which sets the wafer maintenance timing to the slot of the special port (see page 124).**

3.3.1 Setting the Dummy Port 03654.20140701

- 1** Press **COMMENT** on the *Carrier Setup* screen to input comments on the special port settings (this can be skipped).
- 2** Press **DUMMY** for the **Select Special Port Type** on the *Carrier Setup* screen.

**NOTE**

The dummy storage is fixed to DUMMY as it is used only as a dummy port.

- 3** Select a wafer.

Select the wafer in the following procedures.

- To select by each wafer:
Press the slot No. button.
- To set the range and select all:
Press **SET RANGE** for the **Select Slot**, and then press the first and last slot No. to be selected.
- To select all the wafers:
Press **SELECT ALL** for the **Select Slot**.

Cancel the wafer selection in the following procedures.

- To cancel by each wafer:
Press the slot No. button.
- To cancel all the wafers:
Press **CANCEL ALL** for the **Select Slot**.

- 4** Press **SELECT** on the right of the usage name for the **Wafer Usage** on the *Carrier Setup* screen to select the usage.

Press **CANCEL** for the **Wafer Usage** to cancel the usage selection.

**NOTE**

The wafer usage for lot stability and cleaning can each be set up to the four types.

- 5 Press **SELECT** on the right of the PM No. for the Use PM List on the *Carrier Setup* screen to select the process module to be used.

Cancel the selection made on the Use PM List in the following procedures.

- To cancel by each process module:
Press **CANCEL** on the right of the PM No. for the Use PM List
- To cancel all the process modules:
Press **CLEAR ALL** for the Use PM List.

- 6 Repeat step 3–5 to set the Wafer Usage and the Use PM List to each wafer or slot of the special port.

**NOTE**

Cancel the previous wafer selection before selecting a wafer (because the previous wafer selection is kept).

- 7 After the settings have been completed, press **SETUP** on the right of the *Carrier Setup* screen to apply the settings.

Refer to [3.3.3 Saving Setting Information \(see page 82\)](#) for saving the settings in a file.

3.3.2 Setting the Test Port 03454.20101201

- 1 Press **COMMENT** on the *Carrier Setup* screen to input comments on the special port settings (this can be skipped).
- 2 Press **TEST** for the Select Special Port Type on the *Carrier Setup* screen.
- 3 Select a wafer.

Select the wafer in the following procedures.

- To select by each wafer:
Press the slot No. button.
- To set the range and select all:
Press **SET RANGE** for the Select Slot, and then press the first and last slot No. to be selected.
- To select all the wafers:
Press **SELECT ALL** for the Select Slot.

Cancel the wafer selection in the following procedures.

- To cancel by each wafer:
Press the slot No. button.
- To cancel all the wafers:
Press **CANCEL ALL** for the Select Slot.

- 4 Sets the wafer type No. on the *Carrier Setup* screen and press **SELECT** on the right of the usage name for the Wafer Usage to select the wafer usage.

Sets the wafer type No. between 0–28 when performing Measure Particle, Measure Etch Rate, and Test Transfer from auto setup. Select the wafer to transfer from the wafer usage that matches each command.

Sets the wafer type No. between 1–28 when performing Measure Particle (Wafer Set), Measure Etch Rate (Wafer Set), and Test Transfer (Wafer Set) from auto setup. The wafer type No. set for the command will be the wafers to be transferred.

For more information about auto setup commands, refer to *Maintenance Macro Command List* in the [Advanced Operations Maintenance Macro Manual](#).

**NOTE**

Collect for the test port can be set only to the empty slots.

Press CANCEL for the Wafer Usage to cancel the usage selection.

- 5 Press SELECT on the right of the PM No. for the Use PM List on the *Carrier Setup* screen to select the process module to be used.

Cancel the selection made on the Use PM List in the following procedures.

- To cancel by each process module:
Press CANCEL on the right of the PM No. for the Use PM List
- To cancel all the process modules:
Press CLEAR ALL for the Use PM List.

- 6 Repeat step 3–5 to set the Wafer Usage, wafer type NO., and the Use PM List to each wafer or slot of the special port.

**NOTE**

Cancel the previous wafer selection before selecting a wafer (because the previous wafer selection is kept).

- 7 After the settings have been completed, press SETUP on the right of the *Carrier Setup* screen to apply the settings.

Refer to [3.3.3 Saving Setting Information \(see page 82\)](#) for saving the settings in a file.

3.3.3 Saving Setting Information 03655.20070501

- 1 Press SAVE CARRIER SETTINGS on the right of the *Carrier Setup* screen.
- 2 Press OK to save the setting information on the *Carrier Setup* screen in a file.

3.3.4 Loading Setting Information 01849.20101201

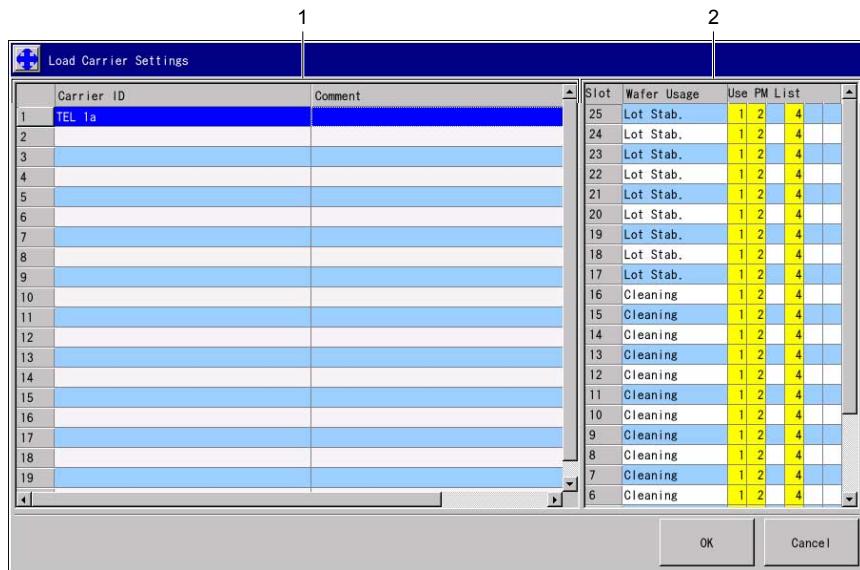
**NOTE**

The setting information saved in a file (only the load port setting information) can be loaded to other load ports.

- 1 Press the usage of the setting information to be loaded (DUMMY/TEST) for the Select Special Port Type on the *Carrier Setup* screen.

- 2 Press LOAD CARRIER SETTINGS on the right of the *Carrier Setup* screen to display the *Load Carrier Settings* dialog.

▼ Load Carrier Settings Dialog



g018492246_e

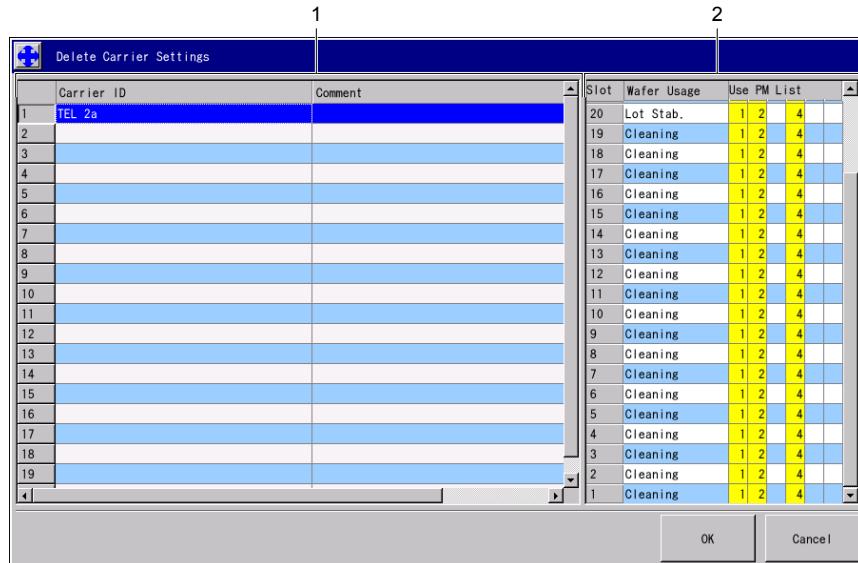
No.	Description
1	Displays the saved setting information of the special port.
2	Displays the details of the setting information on the cursor.

- 3 Select the setting information to be loaded on the *Load Carrier Settings* dialog and press OK to load onto the *Carrier Setup* screen.

3.3.5 Deleting Setting Information 03030.20070501

- 1 Press *Delete Carrier Settings* on the right of the *Carrier Setup* screen to display the *Delete Carrier Settings* dialog.

▼ Delete Carrier Settings Dialog



g030302247_e

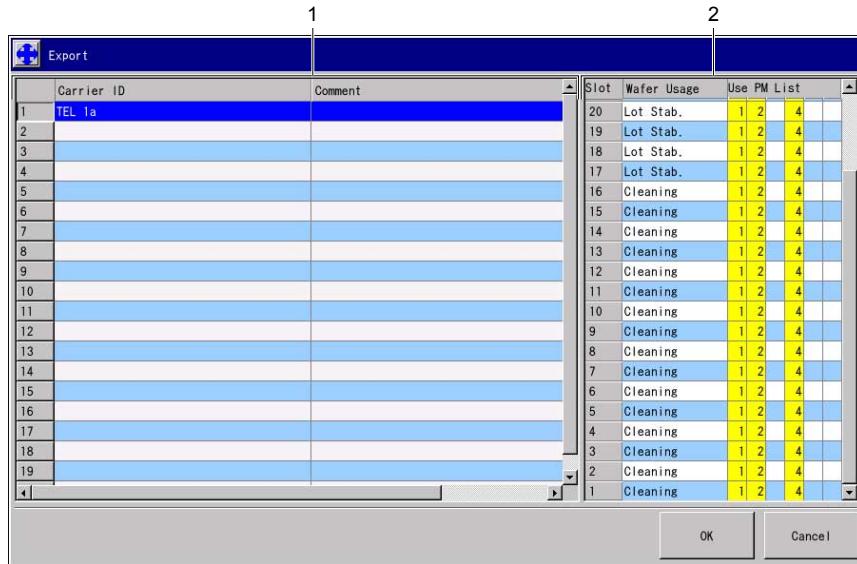
No.	Description
1	Displays the saved setting information of the special port.
2	Displays the details of the setting information on the cursor.

- 2 Select the setting information to be deleted on the *Delete Carrier Settings* dialog and press OK to delete the setting information.

3.3.6 Exporting Setting Information 03031.20090401

- 1 Press EXPORT on the right of the *Carrier Setup* screen to display the *Export (Special Port Setup)* dialog.

▼ Export (Special Port Setup) Dialog

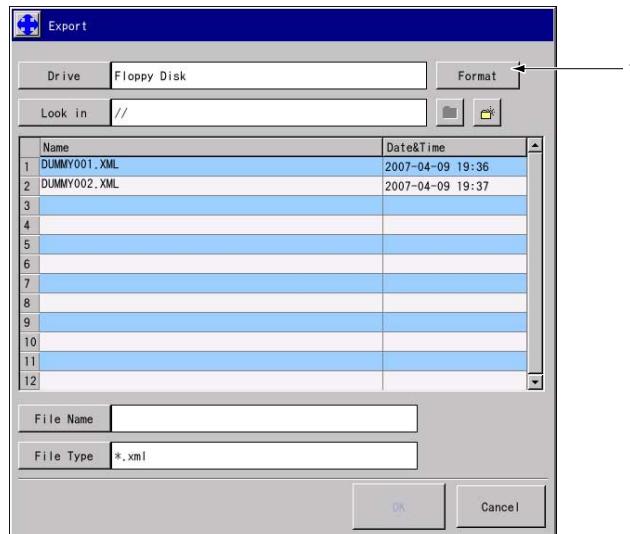


g030312248_e

No.	Description
1	Displays the saved setting information.
2	Displays the details of the setting information on the cursor.

- 2** Select the setting information to be exported on the *Export (Special Port Setup)* dialog and press **OK** to display *Export (Special Port Setup - Save File)* dialog.

▼ **Export (Special Port Setup - Save File) Dialog**



g030312249_e

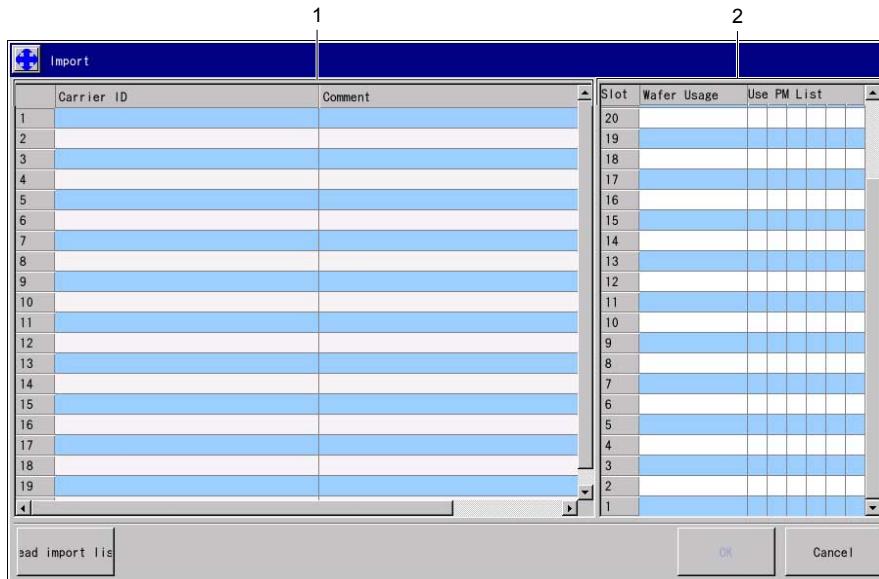
No.	Description
1	Formats the removable media.

- 3** Insert the removable media into the drive.
- 4** Press **DRIVE** on the *Export (Special Port Setup - Save File)* dialog to display the *Drive Selection* dialog.
- 5** Select the removable media to be stored on the *Drive Selection* dialog.
- 6** Press **FILE NAME** on the *Export (Special Port Setup - Save File)* dialog to display the *Edit File Name* dialog.
- 7** Enter the file name that will be saved on the *Edit File Name* dialog and press **OK**.
- 8** Press **OK** on the *Export (Special Port Setup - Save File)* dialog to export the data.

3.3.7 Importing Setting Information 03032.20101201

- 1 Press IMPORT on the right of the *Carrier Setup* screen to display the *Import (Special Port Setup)* dialog.

▼ Import (Special Port Setup) Dialog

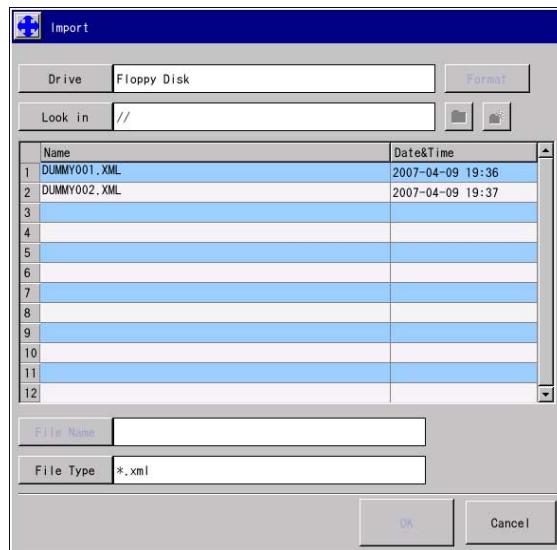


g030322250_e

No.	Description
1	Select the setting information to be imported.
2	Displays the details of the setting information on the cursor.

- 2** Press **READ IMPORT LIST** on the *Import (Special Port Setup)* dialog to display the *Import (Special Port Setup - Load File)* dialog.

▼ **Import (Special Port Setup - Load File) Dialog**



g030322251_e

- 3** Insert the removable media, which has the setting information to be imported, into the drive.
- 4** Press **DRIVE** on the *Import (Special Port Setup - Load File)* dialog to display the *Drive Selection* dialog.
- 5** Select the removable media to be read on the *Drive Selection* dialog.

The files, which can be imported from the removable media appears on the *Import (Special Port Setup - Load File)* dialog.

- 6** Select the file to be imported on the *Import (Special Port Setup - Load File)* dialog and press **OK**.

The file setting information loaded from the removable media will be added to the *Import (Special Port Setup)* dialog.



NOTE

At this point, the data are not saved to the HD in the equipment yet.

- 7** Select the file to be imported on the *Import (Special Port Setup)* dialog and press **OK**.

After importing, the imported setting information is saved to the HD in the equipment and the information is displayed on the *Carrier Setup* screen.

If the setting information of the special port is being edited on the *Carrier Setup* screen when importing, the *Import carrier settings* dialog is displayed. Select any of the followings:

- **SAVE**: Saves the setting information which is being edited on the *Carrier Setup* screen and displays the imported setting information.
- **DISCARD**: Discards the setting information which is being edited on the *Carrier Setup* screen and displays the imported setting information.

- **CANCEL:** Displays the setting information which is being edited on the *Carrier Setup* screen. Refer to [3.3.4 Loading Setting Information \(see page 82\)](#) to display the imported setting information.

3.3.8 Symbols on the Carrier Setup Screen 03033.20071201

Refer to [3.2.1 Symbols on the Special Port Setup Screen \(see page 78\)](#) for the symbols that are displayed on the *Carrier Setup* screen.

The descriptions of the symbol that are displayed on the screen can also be checked from the **HELP** on the group menu.

3.4 Operating the Wafer Exchange Screen 03034TT.20170301

On the *Wafer Exchange* screen, functions that are necessary to insert/extract/exchange the wafer from the special port, are operated.

Select the special port and the carrier for the exchange to insert/extract/exchange the wafer. The slot selection method is one, all, or specified range. The equipment will automatically judge the process (insert/extract/exchange) to be executed for each slot depending on the slot status of the special port and the carrier for exchange at the time the slot is specified.



NOTE The total value is cleared if wafer is exchanged.

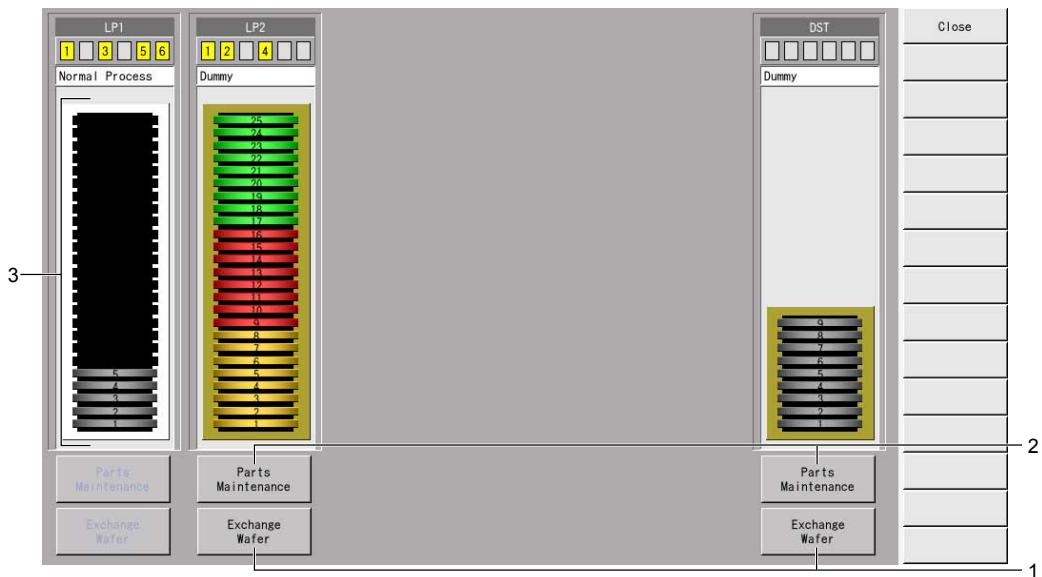
▼ Judgment of the Slot Status and the Executed Process by the Equipment

Slot Status		Judgment by the Equipment	Details of Execution
Special Port	Carrier for Exchange		
No wafer	With Wafer Present	Insert	Inserts the wafer of the carrier for exchange into the special port.
With Wafer Present	No wafer	Extract	Collects the wafer in the special port to the carrier for exchange.
With Wafer Present	With Wafer Present	Exchange	Exchanges the wafer in the special port and the wafer in the carrier for exchange.

Display the *Wafer Exchange* screen from the group menus below.

- MAINTENANCE→TRANSPORT MAINTENANCE→WAFER EXCHANGE
- STATUS→OVERALL STATUS→LM SYMBOL→WAFER EXCHANGE
- STATUS→OVERALL STATUS→LP* SYMBOL→WAFER EXCHANGE
- STATUS→OVERALL STATUS→DST SYMBOL→WAFER EXCHANGE

▼ Wafer Exchange Screen



g030342252_e

No.	Description
1	Inserts/extracts/exchanges the wafer from the special port (see page 91).
2	Displays the parts maintenance screen, on which the wafer maintenance timing is set, to the slot of the special port (see page 124).
3	Displays the current setting status (see page 93).



NOTE

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

CLOSE: Closes the *Wafer Exchange* screen.

3.4.1 Wafer Exchange Steps 03035.20121201

Introduction

Overview:

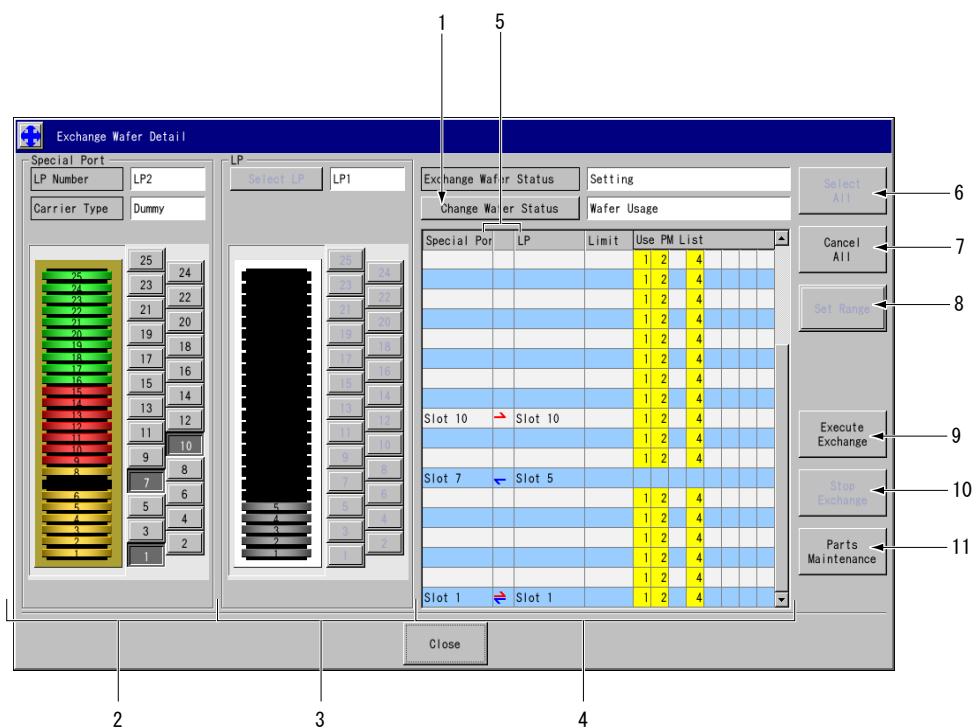
Insert/extract/exchange the wafer on the *Exchange Wafer Detail* dialog.



NOTE

If the FOUP is forcibly removed during exchange of wafer, the wafer may remain on the loader arm. Remove the remaining wafer by **Manual Transfer** or **Eliminate Wafer**.

▼ Exchange Wafer Detail Dialog



g030352253_e

No.	Description
1	Switches the slot status display to Wafer Usage/Transport Condition.
2	Displays the slot status for the special port.
3	Displays the slot status for the carrier for exchange.
4	Displays the detailed information of each wafer of the special port.
5	Displays the destination of the wafer.
6	Selects all wafers.
7	Clears all selected wafers.
8	Selects wafers by specifying a range.
9	Exchanges the wafer.
10	Cancels the wafer exchange. If wafer exchange is being executed, the wafer is moved to the special port or the carrier for exchange before the exchange is cancelled.
11	Displays the parts maintenance screen, on which the wafer maintenance timing is set, to the slot of the special port (see page 124).

Selecting a Wafer Slot by Slot

- 1 Press EXCHANGE WAFER for the special port, on which wafer exchange is to be executed, on the *Wafer Exchange* screen to display the *Exchange Wafer Detail* dialog.
- 2 If the carrier is loaded onto the multiple load port, press SELECT LP on the *Exchange Wafer Detail* dialog and select the load port for the carrier for exchange, and then press OK.
- 3 Press the slot No. button of the special port.

- 4 Press the slot No. button of the carrier for exchange.
- 5 To insert/extract/exchange multiple wafers, repeat steps 3–4.
- 6 Press EXECUTE EXCHANGE on the *Exchange Wafer Detail* dialog to insert/extract/exchange the wafer.

Selecting All Wafers

- 1 Press EXCHANGE WAFER for the special port, on which wafer exchange is to be executed, on the *Wafer Exchange* screen to display the *Exchange Wafer Detail* dialog.
- 2 If the carrier is loaded onto the multiple load port, press SELECT LP on the *Exchange Wafer Detail* dialog and select the load port for the carrier for exchange, and then press OK.
- 3 Press SELECT ALL on the *Exchange Wafer Detail* dialog to display the *Select All* dialog.
- 4 Press OK on the *Select All* dialog to select all wafers.
- 5 Press EXECUTE EXCHANGE on the *Exchange Wafer Detail* dialog to insert/extract/exchange the wafer.

Selecting Wafers by Specifying a Range

- 1 Press EXCHANGE WAFER for the special port, on which wafer exchange is to be executed, on the *Wafer Exchange* screen to display the *Exchange Wafer Detail* dialog.
- 2 If the carrier is loaded onto the multiple load port, press SELECT LP on the *Exchange Wafer Detail* dialog and select the load port for the carrier for exchange, and then press OK.
- 3 Press SET RANGE on the *Exchange Wafer Detail* dialog.
- 4 Press the first slot No. button in the selected exchange range.
- 5 Press the last slot No. button in the selected exchange range.
- 6 Press the starting slot No. button of the carrier for exchange. The subsequent slots are specified automatically.
- 7 Press EXECUTE EXCHANGE on the *Exchange Wafer Detail* dialog to insert/extract/exchange the wafer.

3.4.2 Symbols on the Wafer Exchange Screen 03036.20071201

Refer to the following for the symbols that are displayed on the *Wafer Exchange* screen.

- *Symbols on the LM Status Screen* in the **Basic Operations Manual**
- [3.2.1 Symbols on the Special Port Setup Screen \(see page 78\)](#)

The descriptions of the symbol that are displayed on the screen can also be checked from the HELP on the group menu.

Checking the Equipment Status

This chapter provides the operation necessary to check the current status of the equipment.

The information contained in this chapter has been prepared based on the specifications of the standard equipment. Throughout the manual, figures provided in this manual, including operation screens and appearances, may vary from the equipment installed at your site.

4.1 Checking the Equipment Status 03173TT.20140701

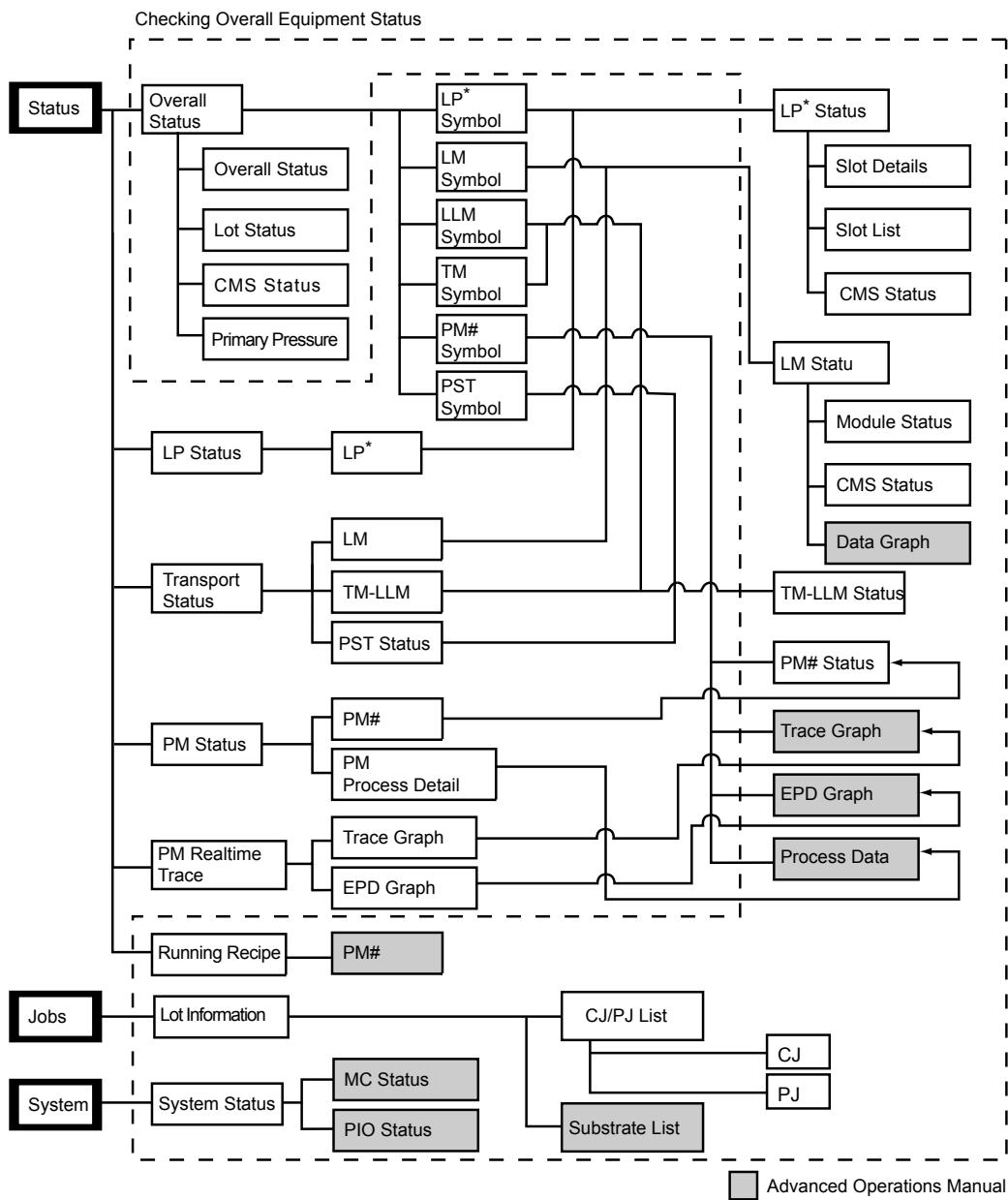
Introduction

Overview:

This checks the operation condition of the entire equipment, process module, transfer module, load lock module, loader module, and MC, wafer status check by substrate tracking standard (STS) function, status check of input and output signals between the AMHS and the equipment (Parallel I/O), and check the CJ and PJ.

The software hierarchy for checking the equipment status follows.

▼ Software Hierarchy for Checking the Overall Equipment Status



Sequence of Checking the Equipment Status

- 1 From the *Overall Status* screen, or by pressing STATUS, JOBS, or SYSTEM on the group menu, display the module status screen to check the status.
- 2 Check the equipment status on the following screens:
 - *Overall Status* screen: Refer to *Checking the Equipment Status* in the **Basic Operations Manual**.
 - *PM# Status* screen: Refer to *Checking the Equipment Status* in the **Basic Operations Manual**.
 - *Trace Graph* screen: **Displays the graph of the data under processing** (see page 98).
 - *EPD Graph* screen: **Displays the graph of the EPD data measured on the end point unit (SE3000) during processing** (see page 103).
 - *Process Data* screen: **Displays the set values and the current values of the data under processing** (see page 106).
 - *TM-LLM Status* screen: Refer to *Checking the Equipment Status* in the **Basic Operations Manual**.
 - *LM Status* screen: Checks the loader module status and load port status, and displays the CMS status and data graph.
For displaying loader module, load port, CMS status, refer to *Checking the Equipment Status* in the **Basic Operations Manual**.
On the data graph display, orienter alignment and load port/dummy storage mapping are displayed in graphs (see page 107).
 - *LP* Status* screen: Refer to *Checking the Equipment Status* in the **Basic Operations Manual**.
 - *CJ List* screen: Refer to *Checking the Equipment Status* in the **Basic Operations Manual**.
 - *PJ List* screen: Refer to *Checking the Equipment Status* in the **Basic Operations Manual**.
 - *Substrate List* screen: **Tracks the wafer (object of the substrate) status by using the STS function** (see page 111).
 - *MC Status* screen: **Checks the status of all the MCs connected to the network, checks the consistency, and starts or resets the MC** (see page 114).
 - *PIO Status* screen: **Displays the input/output signal (parallel I/O) condition between AMHS and the equipment by AMHS (AGV, RGV, OHT, SMIF) when the carrier is transferred in/out from the load port** (see page 115).
 - *PM# Running Recipe* screen: **Displays the running process recipe** (see page 117).

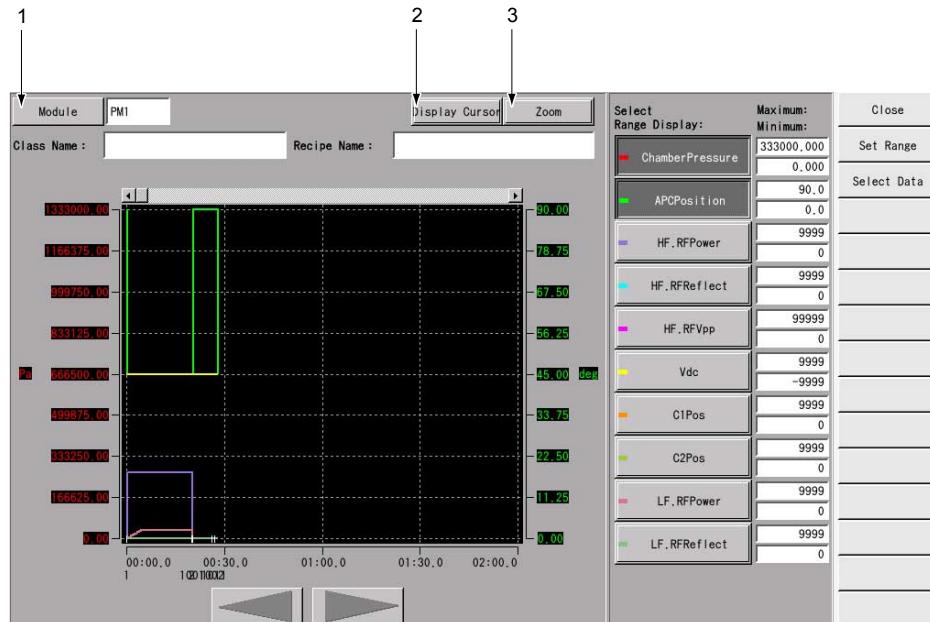
4.2 Operating the Trace Graph Screen 03174.20140701

On the *Trace Graph* screen, functions that are necessary to display the value changes of the data under processing in graphs, are operated.

Display the *Trace Graph* screen from the group menu below.

- STATUS→OVERALL STATUS→PM# SYMBOL→TRACE GRAPH
- STATUS→PM REALTIME TRACE→TRACE GRAPH

▼ Trace Graph Screen



g031742365_e

No.	Description
1	Selects the process module to be displayed in graphs or division (see page 99).
2	Displays the points on the graph in values (see page 101).
3	Enlarges the display of a specified region (see page 102).

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Trace Graph* screen.
- **SET RANGE:** Sets the range for the data to be displayed in graphs for the selected process module (see page 99).
- **SELECT DATA:** Selects the data to be displayed in graphs for the selected process module (see page 99).

- **RECIPE STEP COMMENT LIST:** Checks the step comments of recipe being executed with the displayed list.



NOTE This button is displayed only when the screen is displayed from *Wafer List* dialog.

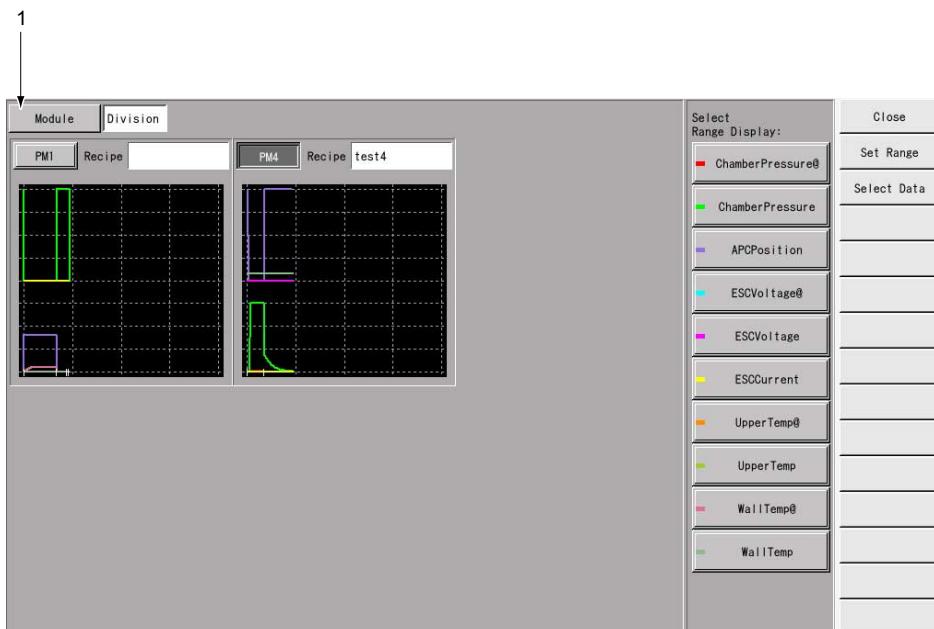
4.2.1 Displaying Trace Graph 03175.20140701

- 1 Press *Module* on the *Trace Graph* screen to display the *Select Module* dialog.
- 2 Select the process module to be displayed in graphs on the *Select Module* dialog.

If displaying multiple process modules in graphs simultaneously, displays the *Trace Graph (Division)* screen in the following procedures.

- 2.1 Press **DIVISION** on the *Select Module* dialog.
- 2.2 Select the process modules to be displayed in graphs simultaneously on the *Select Module (PM Selection)* dialog and press **OK**.

▼ Trace Graph (Division) Screen



g031752366_e

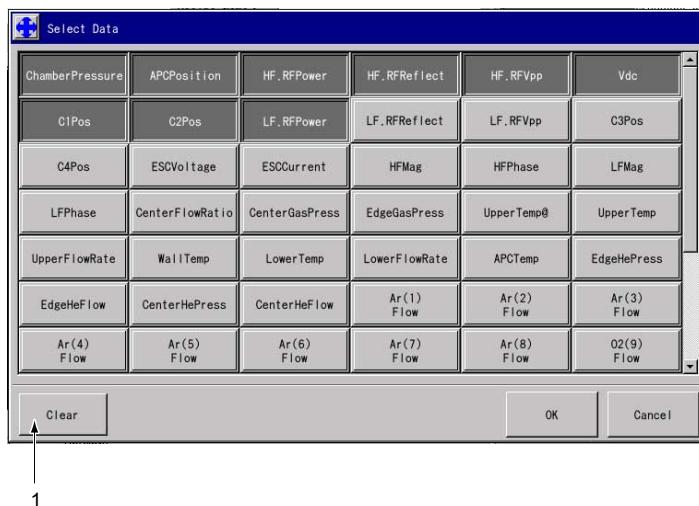
No.	Description
1	This switches the graph display for individual process module.

- 3 Press the button for the process module to be displayed if the *Trace Graph (Division)* screen is displayed.

This operation is not necessary if the *Trace Graph* screen is displayed.

- 4 Press **SELECT DATA** on the right of the *Trace Graph* screen or the *Trace Graph (Division)* screen to display the *Select Data (Trace Graph)* dialog.

▼ **Select Data (Trace Graph) Dialog**



1

g031752367_e

No.	Description
1	Clears the settings.



NOTE The settings of the *Select Data (Trace Graph)* dialog will also be used for the *Trace Graph* screen and *Trace Graph (Division)* screen.

- 5 Press the button for the data to be displayed in graphs and press **OK** (maximum of ten data can be displayed in graphs simultaneously).
- 6 Press **SET RANGE** on the right of the *Trace Graph* screen or the *Trace Graph (Division)* screen to display the *Range Setting (Trace Graph)* dialog.

▼ **Range Setting (Trace Graph) Dialog**



1

g031752368_e

No.	Description
1	Inputs the minimum and maximum values of the Y-axis for each data.

**NOTE**

The settings of the *Range Setting (Trace Graph)* dialog will also be used for the *Trace Graph* screen and *Trace Graph (Division)* screen.

- 7 Double-click the field to enter the setting value of the data, to which the minimum and maximum values are to be set, and display the setting value entry dialog.
- 8 Input the minimum and maximum values on the setting value entry dialog and press OK.
- 9 Repeat steps 3–8 to display individual process module if *Trace Graph (Division)* screen is displayed.

This operation is not necessary if the *Trace Graph* screen is displayed.

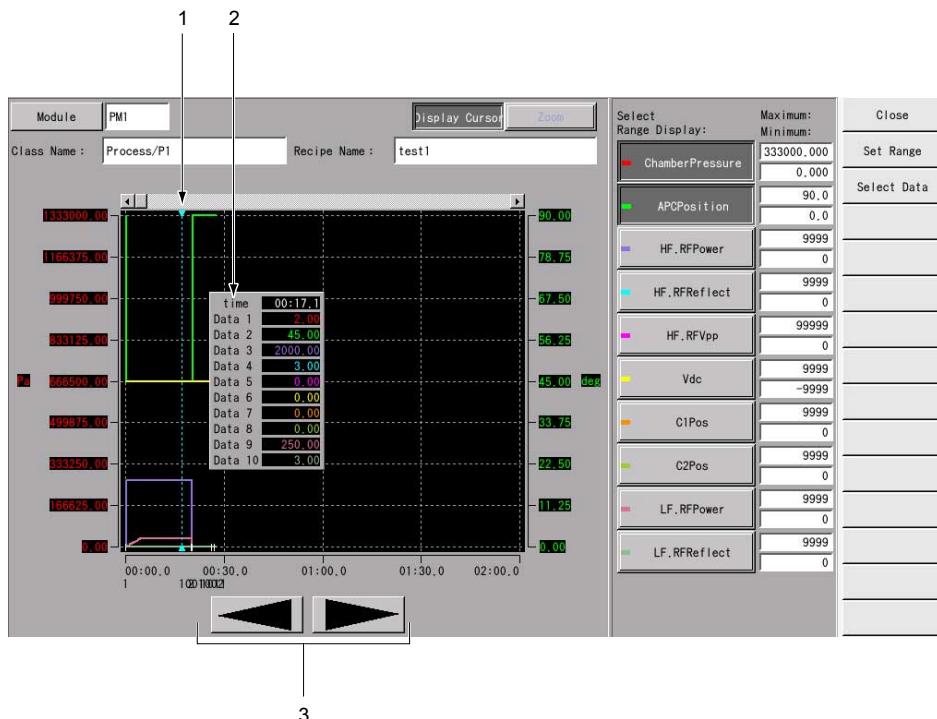
- 10 When the *Trace Graph* screen is displayed, press the button of the data on the *Select Range Display* to display its range in the Y-axis (this can display the ranges of maximum of four data simultaneously).

The range cannot be displayed on the Y-axis if the *Trace Graph (Division)* screen is displayed.

4.2.2 Displaying Points in Values 03176.20140701

- 1 Press *Display Cursor* on the *Trace Graph* screen to display the *Trace Graph (Display Cursor)* screen.

▼ Trace Graph (Display Cursor) Screen



3

No.	Description
1	Cursor
2	Displays the points on the cursor in values.
3	Moves the value display dialog to the right and the left by one point. This is enabled when there are data on the cursor shown on the left of the value display dialog.

- 2** Press **◀/▶** on the *Trace Graph (Display Cursor)* screen to position the cursor on the point to be displayed in values.

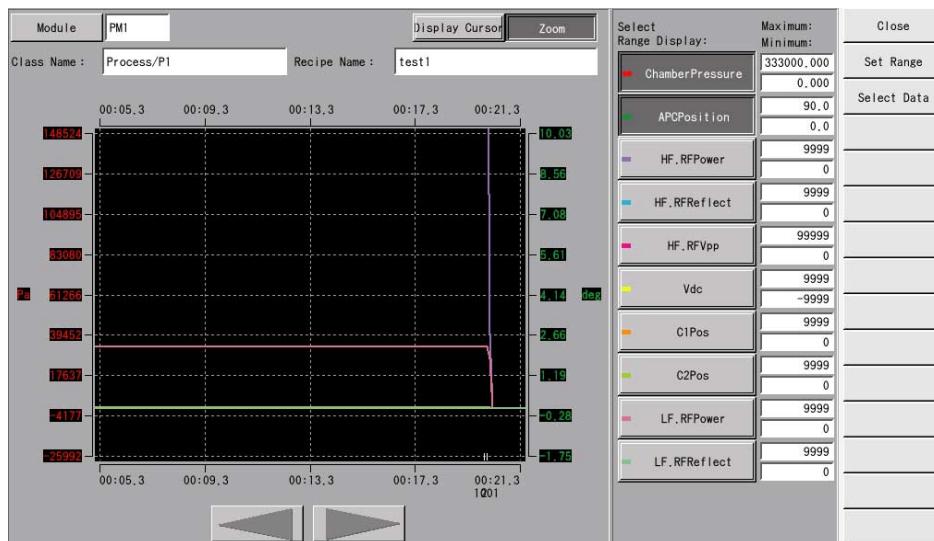
Press **DISPLAY CURSOR** again to close the value display.

4.2.3 Enlarging the Display of Specified Range 03177.20140701

- 1** Press **ZOOM** on the *Trace Graph* screen.
2 Press the two points of the range to be enlarged.

Press **ZOOM** again to return to the same magnification.

▼ Trace Graph (Zoom) Screen



g031772370_e

4.3 Operating the EPD Graph Screen 03178.20140701

On the *EPD Graph* screen, functions that are necessary to display the value changes of the EPD data measured on the end point detect unit (SE3000) during processing, in graphs, are operated.

On the *EPD Graph* screen, the trend data (DATA-A(nm), DATA-B(nm), DATA-C(%), DATA-D(%)) sent from SE3000 are displayed in graphs.

Display the *EPD Graph* screen from the group menu below.

- STATUS→OVERALL STATUS→PM# SYMBOL→EPD GRAPH
 - STATUS→PM REALTIME TRACE→EPD GRAPH

▼ EPD Graph Screen



g031782371_e

No.	Description
1	Selects the process module (equipped with SE3000) to be displayed in graphs (see page 104).
2	DISPLAY CURSOR displays the value display dialog which indicates points on the graph in values. On the value display dialog, points on the cursor, which is shown on the left of the value display dialog, are displayed in values. Press DISPLAY CURSOR again to close the value display dialog.
3	Moves the value display dialog to the right and the left by one point. This is enabled when there are data on the cursor shown on the left of the value display dialog.
4	Enlarges the display of a specified region. After pressing ZOOM, press the two points of the range to be enlarged. Press ZOOM again to return to the same magnification.

**NOTE**

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

**NOTE**

Zooming can be executed three times continuously.

Function Buttons

- **CLOSE:** Closes the *EPD Graph* screen.
- **SET RANGE:** Sets the range for the data to be displayed in graphs for the selected process module (see page 104).
- **RECIPE SKIP:** Stops the processing of the executing step and start the next step for the selected process module.
- **STOP RECIPE:** Stops the processing for the selected process module.
- **RECIPE STEP COMMENT LIST:** Checks the step comments of recipe being executed with the displayed list.

**NOTE**

This button is displayed only when the screen is displayed from *Wafer List* dialog.

4.3.1 Displaying the EPD Graph 03179.20070501

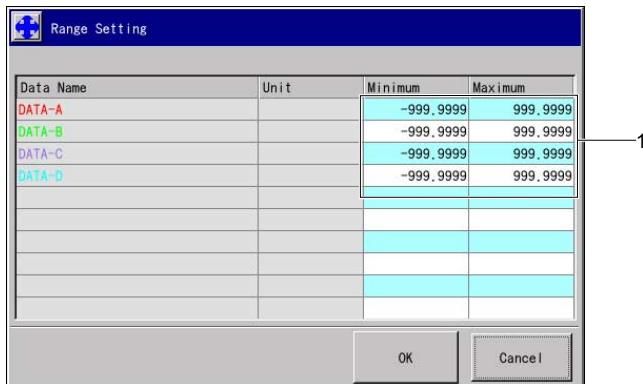
- 1 Press *Module* on the *EPD Graph* screen to display the *Select Module* dialog.
- 2 Select the process module to be displayed in graphs on the *Select Module* dialog.
- 3 Press *DISPLAY MODE* on the *EPD Graph* screen to select the display mode of the x-axis of the graph (default is **AUTO**).

There are following 3 types of display mode.

- **AUTO**
This displays on the basis of 00:00. The values between the minimum value—the maximum value are displayed as 00:00–02:00, 00:00–03:00, 00:00–04:00 depending on the time elapsed.
- **SHIFT**
This displays on the basis of two-minute interval. The values between the minimum value—the maximum value are displayed as 00:00–02:00, 01:00–03:00, 02:00–04:00 depending on the time elapsed.
- **SET**
This displays only the time between the specified minimum—the maximum values in graphs.
If the elapsed time does not meet the minimum value or exceeds the maximum value, it will not be displayed in graphs.

- 4 Press **SET RANGE** on the right of the *EPD Graph* screen to display the *Range Setting (EPD Graph)* dialog.

▼ **Range Setting (EPD Graph) Dialog**



g031792372_e

No.	Description
1	Inputs the minimum and maximum values of the Y-axis for each data.

- 5 Double-click the field to enter the setting value of the data, to which the minimum and maximum values are to be set, and display the setting value entry dialog.
 6 Input the minimum and maximum values on the setting value entry dialog and press OK.

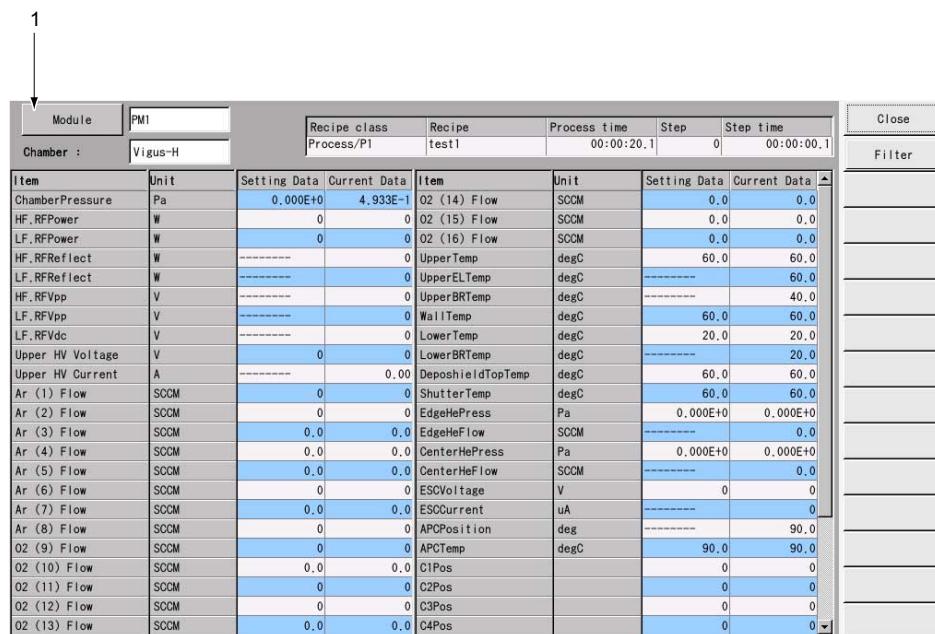
4.4 Operating the Process Data Screen 03180.20101201

On the *Process Data* screen, functions that are necessary to display the setting value and the current value of the data under processing, are operated.

Display the *Process Data* screen from the group menu below.

- STATUS→OVERALL STATUS→PM# SYMBOL→PROCESS DATA
- STATUS→PM STATUS→PM PROCESS DETAIL

▼ Process Data Screen



Module		PM1		Recipe class	Recipe	Process time	Step	Step time	
Chamber :	Vigus-H			Process/P1	test1	00:00:20.1	0	00:00:00.1	
Item	Unit	Setting Data	Current Data	Item	Unit	Setting Data	Current Data	▲	
ChamberPressure	Pa	0.000E+0	4.933E-1	O2 (14) Flow	SCCM	0.0	0.0		
HF.RFPower	W	0	0	O2 (15) Flow	SCCM	0.0	0.0		
LF.RFPower	W	0	0	O2 (16) Flow	SCCM	0.0	0.0		
HF.RFReflect	W	-----	0	UpperTemp	degC	60.0	60.0		
LF.RFReflect	W	-----	0	UpperELTemp	degC	-----	60.0		
HF.RFVpp	V	-----	0	UpperBRTemp	degC	-----	40.0		
LF.RFVpp	V	-----	0	WallTemp	degC	60.0	60.0		
LF.RFVdc	V	-----	0	LowerTemp	degC	20.0	20.0		
Upper HV Voltage	V	0	0	LowerBRTemp	degC	-----	20.0		
Upper HV Current	A	-----	0.00	DepositoeldTopTemp	degC	60.0	60.0		
Ar (1) Flow	SCCM	0	0	ShutterTemp	degC	60.0	60.0		
Ar (2) Flow	SCCM	0	0	EdgeHePress	Pa	0.000E+0	0.000E+0		
Ar (3) Flow	SCCM	0.0	0.0	EdgeHeFlow	SCCM	-----	0.0		
Ar (4) Flow	SCCM	0.0	0.0	CenterHePress	Pa	0.000E+0	0.000E+0		
Ar (5) Flow	SCCM	0.0	0.0	CenterHeFlow	SCCM	-----	0.0		
Ar (6) Flow	SCCM	0	0	ESCVoltage	V	0	0		
Ar (7) Flow	SCCM	0.0	0.0	ESCCurrent	uA	-----	0		
Ar (8) Flow	SCCM	0	0	APCPosition	deg	-----	90.0		
O2 (9) Flow	SCCM	0	0	APCTemp	degC	90.0	90.0		
O2 (10) Flow	SCCM	0.0	0.0	C1Pos	-----	0	0		
O2 (11) Flow	SCCM	0	0	C2Pos	-----	0	0		
O2 (12) Flow	SCCM	0	0	C3Pos	-----	0	0		
O2 (13) Flow	SCCM	0.0	0.0	C4Pos	-----	0	0	▼	

g031802373_e

No.	Description
1	Selects the process module for which the process data is to be displayed.

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Process Data* screen.
- **FILTER:** Switches the display of the Current Data.
While **FILTER** is selected, sets the display of the current data to 0 if the current data is below the reference value. The reference value is calculated from the Maximum of the I/O Parameter (AI Parameter/PM#) and the set value of the Filter.

4.5 Operating the Data Graph Screen

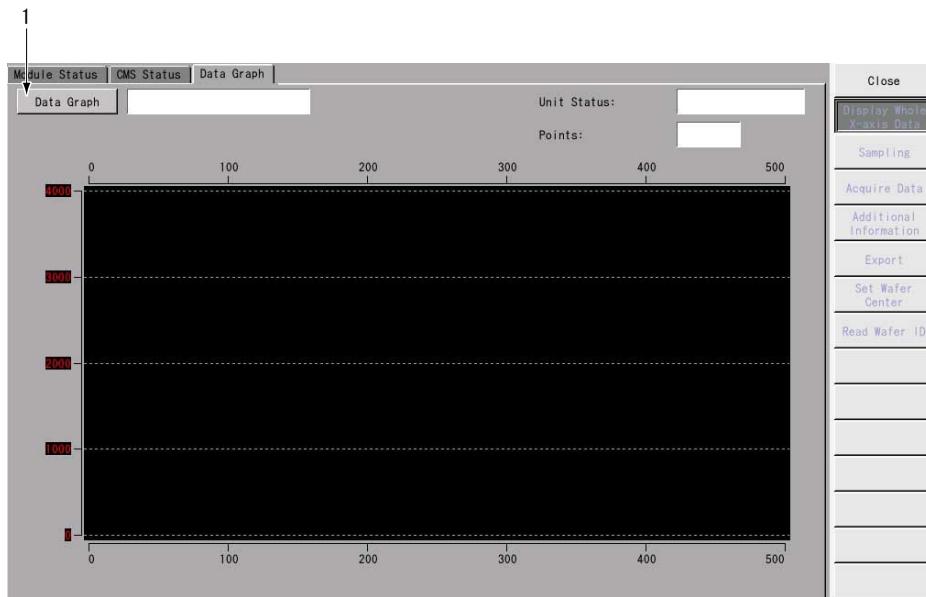
03181TT.20160101

On the *Data Graph* screen, orienter alignment data and load port/dummy storage mapping data are operated.

Display the *Data Graph* screen from the group menu below.

- STATUS→OVERALL STATUS→LM SYMBOL→LM STATUS→DATA GRAPH
- STATUS→TRANSPORT STATUS→LM→DATA GRAPH

▼ Data Graph Screen



g031812374_e

No.	Description
1	This selects the type of the data graph to be displayed (see page 109).

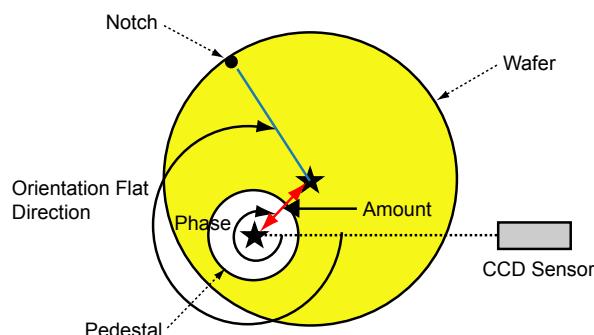
NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- CLOSE: Closes the *Data Graph* screen.
- DISPLAY WHOLE X-AXIS DATA: Switches the display of the X-axis in the graph.
 - If the orienter alignment data is displayed:
Orienter alignment data: Switches to 0–3000 point general display/500 point divided display.
 - If the load port/dummy storage mapping data is displayed:
 - Load port mapping data: Switches to 0–2500 point (25 slots) general display/500 point (5 slots) divided display.
 - Dummy storage mapping data: Switches to 0–900 point or 0–5000 point (all slots) general display/500 point (5 slots) divided display.

- **SAMPLING:** Press to perform orienter alignment, load port/dummy storage mapping, and update the graph.
 - If the orienter alignment data is displayed:
This executes the orienter alignment and updates the graph. This is enabled when the orienter is in idle state, or the loader module is in maintenance state.
 - If the load port/dummy storage mapping data is displayed:
This executes the load port/dummy storage mapping and updates the graph. This is enabled when the loader arm is in idle state or the relevant load port/dummy storage is in maintenance state.
- **ACQUIRE DATA:** Displays the latest orienter alignment results/mapping results in a graph.
 - If the orienter alignment data is displayed:
This displays the latest orienter alignment results in a graph. When the *Data Graph* screen displays, the graph will not be updated even though orienter alignment has been performed. If **SAMPLING** has been performed, however, the graph updates automatically.
 - If the load port/dummy storage mapping data is displayed:
This displays the latest load port/dummy storage mapping results in a graph. When the *Data Graph* screen displays, the graph will not be updated even though mapping has been performed. If **SAMPLING** has been performed, however, the graph updates automatically.
- **ADDITIONAL INFORMATION:** Displays the added information of the orienter alignment result. This is enabled when the orienter alignment data is displayed.
 - Amount: Eccentricity
 - Phase: Direction
 - Orientation Flat Direction: Direction of the orientation flat (notch)
- **EXPORT:** Saves the orienter alignment data and load port/dummy storage mapping data displayed on the screen to the removable media in CSV format.
 - If the orienter alignment data is displayed:
This saves the orienter alignment data displayed on the screen.
 - If the load port/dummy storage mapping data is displayed:
This saves the load port/dummy storage mapping data displayed on the screen.
- **SET WAFER CENTER:** Aligns the wafer center. This can be executed when the loader module is in maintenance mode.
- **READ WAFER ID:** Reads the wafer ID. This can be executed when the loader module is in maintenance mode.

▼ **Items of Additional Information**

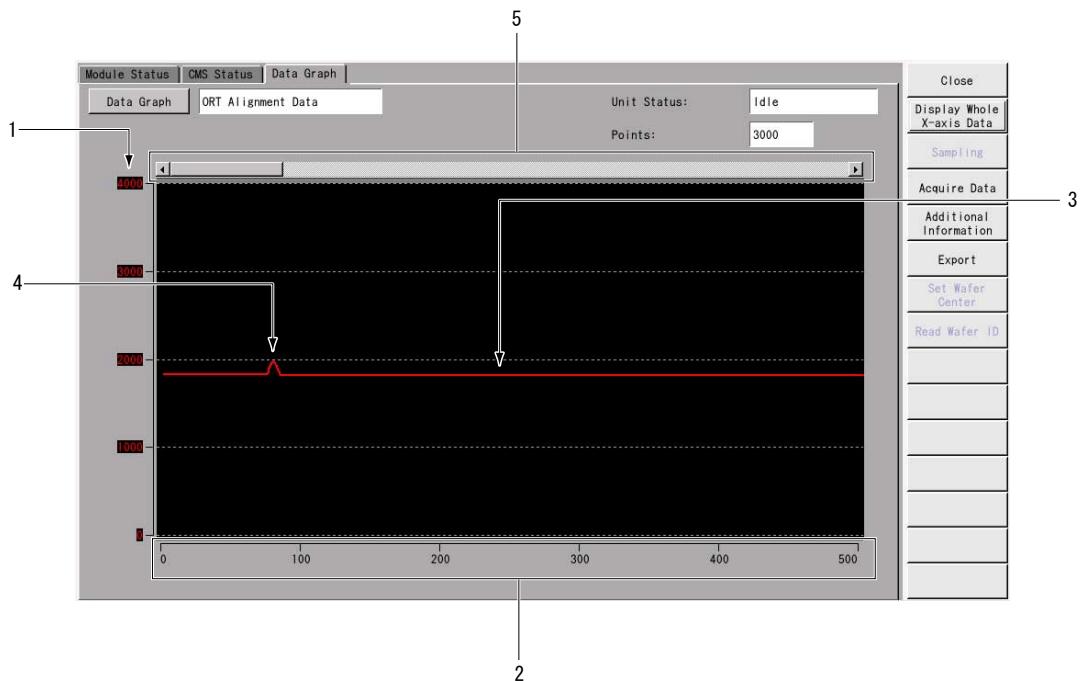


4.5.1 Displaying the Data Graph 03182TT.20160101

- 1 Press DATA GRAPH on the *Data Graph* screen to display the *Select Data Graph* dialog.
- 2 Select the graph type (ALIGNMENT DATA/MAPPING DATA) to be displayed on the *Select Data Graph* dialog.

If ALIGNMENT DATA is selected, *Data Graph (ORT Alignment Data)* screen will be displayed.

▼ Data Graph (ORT Alignment Data) Screen



g031822375_e

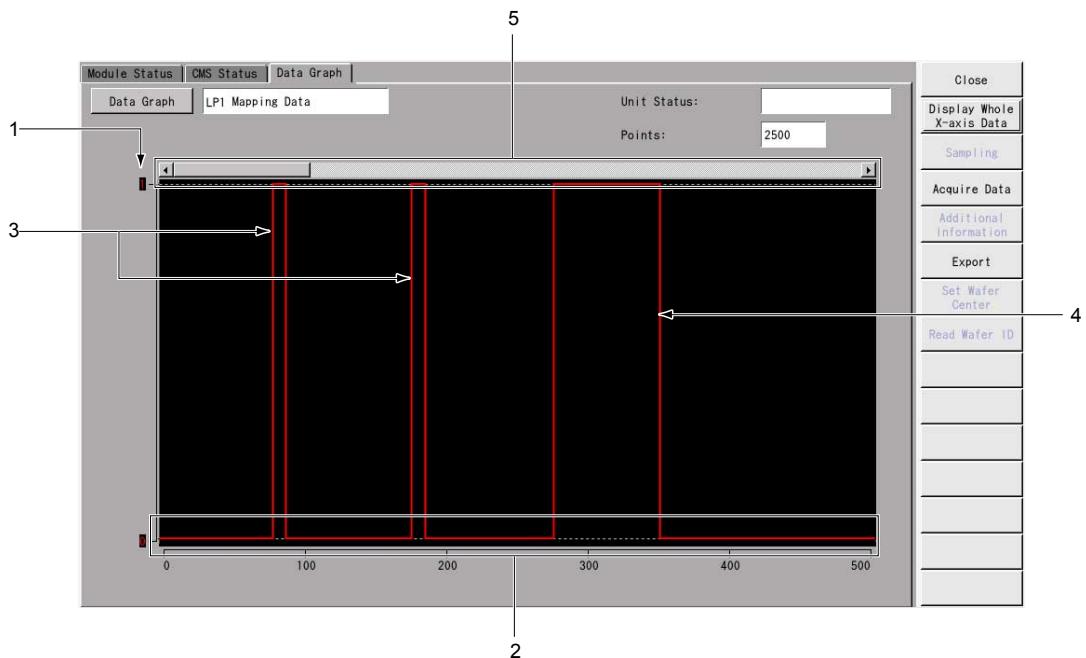
No.	Description
1	Displays the photoreceptor reading of the CCD line sensor in points from 0–4000 (0 is the closest side to the center of the pedestal).
2	Displays one revolution of the θ-axis in points from 0–3000. The graph can be displayed in 0–3000 point general display or 500 point divided display.
3	Displays the wafer rim data upside down.
4	The blip in the graph represents the notch.
5	Scroll buttons slide the graph along the x-axis (displayed when 500 point divided display is selected).

If MAPPING DATA is selected, *Data Graph (LP*/DST Mapping Data)* screen will be displayed.



NOTE If MAPPING DATA is selected, the latest load port or dummy storage mapping data will be displayed.

▼ Data Graph (LP*/DST Mapping Data) Screen



g031822376_e

No.	Description
1	Displays whether a wafer is present (1: Wafer is present, 0: Wafer is not present).
2	For load port: Displays all the slots in the carrier in points from 0–2500 (1 slot: 100 points). The graph can be displayed in 0–2500 point (25 slots) general display or 500 point (5 slots) divided display. For dummy storage: Displays all the slots in the DST in points from 0–900 or 0–5000 (1 slot: 100 points). The graph can be displayed in 0–900 point or 0–5000 (all slots) general display or 500 point (5 slots) divided display.
3	Shows that there is a wafer present in slots 21 and 22.
4	Shows that a cross-slotted wafer is present in slots 23 and 24.
5	Scroll buttons slide the graph along the x-axis (displayed when 500 point (5 slots) divided display is selected).

4.6 Operating the Substrate List Screen

03183.20101201

You can track the status of a wafer (also known as a substrate object) using the STS function defined by SEMI. This function allows you to determine the process, which slot the wafer originated from, and to which slot the wafer will return after processing. In addition, you can determine where the wafer is located currently as well as the wafer's transfer status, its process status, the ID of the lot to which it belongs, and how it will be used.

The wafer will be registered if it is mapped after the carrier is loaded. Also, if the OPERATOR ACCESS switch is pressed after the carrier is unloaded, the wafer will be deleted.

Display the *Substrate List* screen from the group menu below.

JOBs→LOT INFORMATION→SUBSTRATE LIST



g031832377_e

No.	Description
1	Displays the number of the ID of the latest wafer (object of the substrate) which is registered currently.
2	Displays the list of the ID of the latest wafer (object of the substrate) which is registered currently. The screen displays in the carrier slot order from the top.



NOTE

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

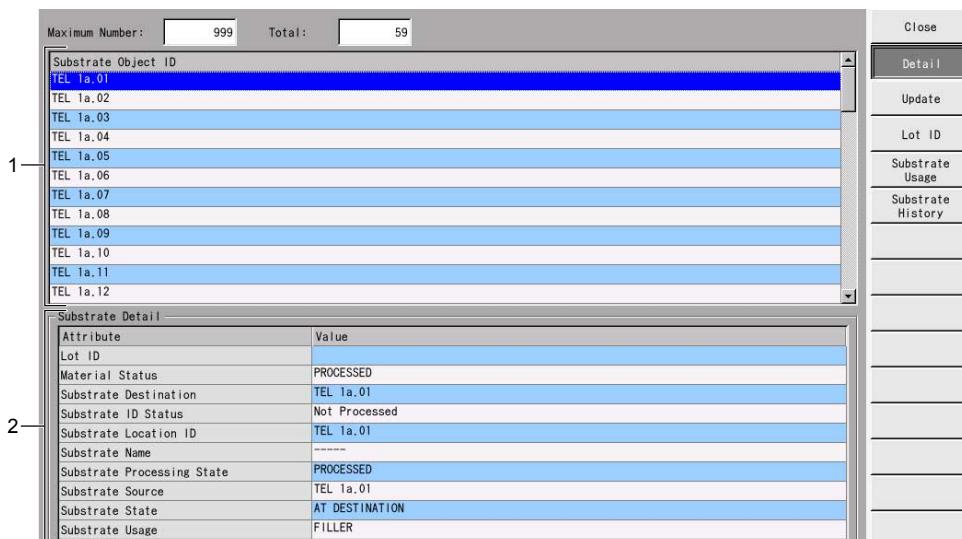
- CLOSE: Closes the *Substrate List* screen.

- **DETAIL:** Displays the attributes of the selected wafer (see page 112).
- **UPDATE:** Updates the screen display to show the most recent information.
- **LOT ID:** Edits the lot ID. The lot ID is the information for managing the wafers.
- **SUBSTRATE USAGE:** Edits the usage of the wafer.
- **SUBSTRATE HISTORY:** Displays the transfer history of the selected wafer ID.

4.6.1 Displaying STS Attributes 03184.20070501

- 1 Press DETAIL on the *Substrate List* screen.

▼ Substrate Detail Screen



g031842378_e

No.	Description
1	Displays the list of the ID of the latest wafer (object of the substrate) which is registered currently. The screen displays in the carrier slot order from the top.
2	Displays the STS attribute of the specified wafer.

- 2 Select the wafer from the Substrate Object ID on the *Substrate Detail* screen to display the STS attribute.

To display the latest information, press UPDATE.

▼ Description of STS Attribute

Item	Description
Lot ID	The lot ID. This is the information for managing wafers. This can be edited from the LOT ID on the right of the screen.

Item	Description
Material Status	<p>This is the wafer process status.</p> <p>NEEDS PROCESSING: Processing is required</p> <p>IN PROCESS: Under processing</p> <p>ABORTED: Not processed, process error, or process aborted</p> <p>PROCESSED: Completed normally</p>
Substrate Destination	Wafer's destination slot ID. The display will be <code>Carrier ID</code> . Slot No (for example: TEL 1a.01).
Substrate ID Status	Displays the Substrate Name setting status. Nothing will be displayed if it is not set/used.
Substrate Location ID	<p>ID of current wafer location</p> <p>ORT: Orienter</p> <p>LM_Arm x: The pick x of the loader arm</p> <p>LLMx_Buf1: The lifter pin of the load lock module</p> <p>TM_Arm x: The pick x of the transfer arm</p> <p>PM#: process module #</p>
Substrate Name	This data is used when the wafer ID reader is enabled, and the data read by the wafer ID will be displayed. Nothing will be displayed if it is not set/used.
Substrate Processing State	<p>This is the wafer process status. The status is defined by this equipment.</p> <p>NEEDS PROCESSING: Processing is required</p> <p>IN PROCESS: Under processing</p> <p>ABORTED: Not processed, process error, or process aborted</p> <p>PROCESSED: Completed normally</p> <p>REJECTED: Process is rejected</p> <p>STOPED: Process is stopped</p>
Substrate Source	Slot ID from which the wafer originated.
Substrate State	<p>Wafer's process status defined by the wafer's location</p> <p>AT SOURCE: Exists at the starting position</p> <p>AT WORK: Under processing</p> <p>AT DESTINATION: Exists at the final storage position</p>
Substrate Usage	<p>Displays the intended use of the wafer. This can be edited from the SUB-STRATE USAGE on the right of the screen.</p> <p>PRODUCT: Production wafer</p> <p>TEST: Wafer for test transfer</p> <p>FILLER: Wafer for other than production or test</p> <p>CLEANING: Cleaning wafer</p>

4.7 Operating the MC Status Screen 03185.20101201

On the *MC Status* screen, functions that are necessary to check the status of all the MCs connected to the network, check the conformity, starting/resetting the MC are operated.

Display the *MC Status* screen from the group menu below.

SYSTEM→SYSTEM STATUS→MC STATUS

▼ MC Status Screen

The screenshot shows a software interface titled 'MC Status Screen'. On the left is a table with columns: MC No., Module, MC Status, Check Parameter, EC/MC Parameter, and Offset. The table lists four modules: MC0 (SYSTEM, Running, Adjusted), MC1 (PM1, Running, Adjusted), MC2 (PM2, Running, Adjusted), and MC4 (PM4, Running, Adjusted). To the right of the table is a vertical stack of buttons:

- Close
- Check Parameter
- Select EC/MC Parameter
- Set Offset
- Start MC
- Reset MC

g031852379_e

 **NOTE** Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- CLOSE: Closes the *Status* screen.
- START MC: Starts the MC (see page 114).
- RESET MC: Resets the MC.

4.7.1 Starting the MC 03665.20070501

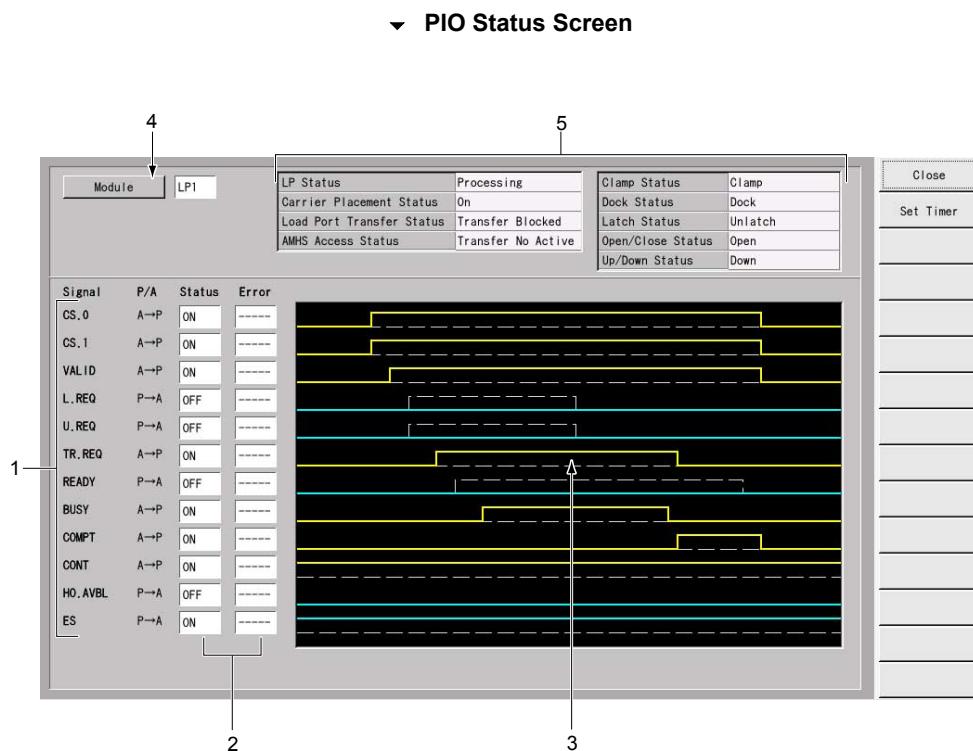
- 1 Check that the MC that you are going to start is in Init Wait status.
- 2 Select the MC that you are going to start.
- 3 Press START MC on the right of the screen to start the MC.
- 4 Check that the MC that you started is in Running status.

4.8 Operating the PIO Status Screen 03186.20070501

This displays the input/output signal (parallel I/O) conditions between the AMHS and the equipment by using AMHS (AGV, RGV, OHT, SMIF) during transferring the carrier to/from the load port. The input/output signals are displayed for each load port.

Display the *PIO Status* screen from the group menu below.

SYSTEM→SYSTEM STATUS→PIO STATUS



g031862380_e

No.	Description
1	Displays the type of signal.
2	Displays the on/off status and error occurrence of each signal (also displays the PIO error value when applicable).
3	Displays the timing chart for each signal. Signals sent from the equipment to the AMHS will display in aqua. Signals received from the AMHS to the equipment display in yellow. A dotted line on the timing chart means that the signal is off.
4	Selects the load port for which the timing chart is displayed.
5	Displays the load port status.

Function Buttons

- **CLOSE:** Closes the *PIO Status* screen.
- **SET TIMER:** Changes the timer between each signal (see page 116).

4.8.1 Setting Timer Between Signals 03187.20101201

Introduction

Overview:

Set the timer between each signal to set the communication time.



NOTE

The changes made on the timer settings will take effect after restarting the equipment.

- 1 Press SET TIMER on the right of the *PIO Status* screen to display the *Set Timer* dialog.

▼ Set Timer Dialog



g031872381_e

No.	Description
1	Displays the timer (TP1–TP8) between each signal.

- 2 On the *Set Timer* dialog, double-click the relevant timer (TP1–TP8) between each signal to display the setting value entry dialog.
- 3 Enter the setting value on the dialog and press OK.
- 4 Press OK on the *Set Timer* dialog to set the timer between signals.

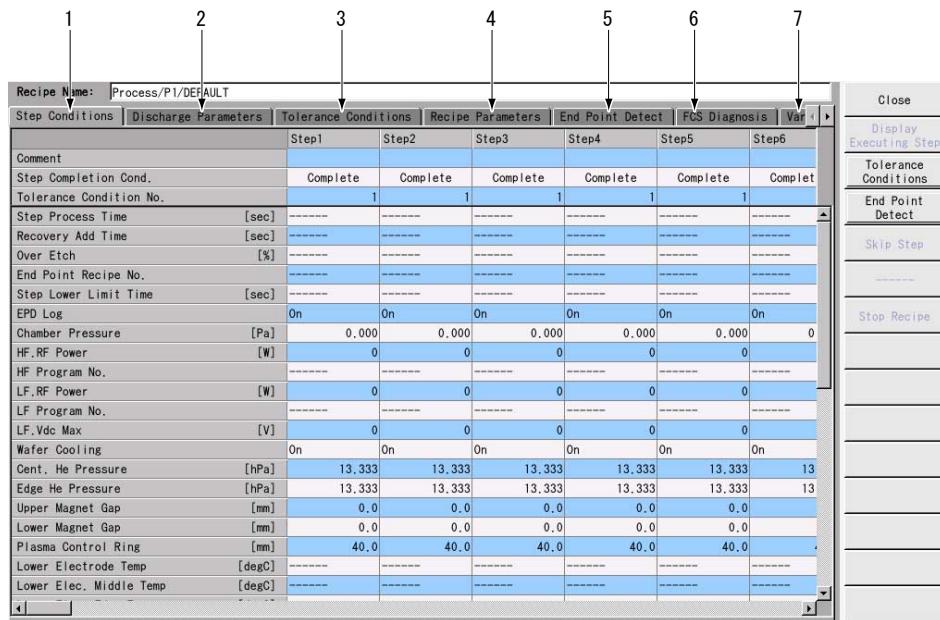
4.9 Operating the PM# Running Recipe Screen 03188.20101201

On the *PM# Running Recipe* screen, functions that are necessary to display the running process recipe, are operated.

Display the *PM# Running Recipe* screen from the group menu below.

- STATUS→OVERALL STATUS→PM# SYMBOL→PM# RUNNING RECIPE
- STATUS→RUNNING RECIPE→PM#

▼ PM# Running Recipe (Step Conditions) Screen



g031882382_e

No.	Description
1	Displays the step conditions of the running recipe. For information about the step conditions, refer to <i>Operating the Step Conditions Screen</i> in the Advanced Operations Recipe Manual .
2	Displays the discharge parameters of the running recipe. For information about the discharge parameters, refer to <i>Operating the Discharge Parameters Screen</i> in the Advanced Operations Recipe Manual .
3	Displays the tolerance conditions of the running recipe. For information about the tolerance conditions, refer to <i>Operating the Tolerance Conditions Screen</i> in the Advanced Operations Recipe Manual .
4	Displays the recipe parameters of the running recipe. For information about the recipe parameters, refer to <i>Operating the Recipe Parameters Screen</i> in the Advanced Operations Recipe Manual .
5	Displays the end point detect of the running recipe. For information about the end point detect, refer to <i>Operating the End Point Detect Screen</i> in the Advanced Operations Recipe Manual .
6	Displays the FCS diagnosis of the running recipe. For information about the FCS diagnosis, refer to <i>Operating the FCS Diagnosis Screen</i> in the Advanced Operations Recipe Manual .

No.	Description
7	<p>Displays the variable parameters of the running recipe.</p> <p>For information about the variable parameters, refer to <i>Operating the Variable Parameters (Display) Screen</i> in the Advanced Operations Recipe Manual.</p>


NOTE

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.


NOTE

On the *PM# Running Recipe* screen, a process recipe can not be edited.

Function Buttons

- **CLOSE:** Closes the *PM# Running Recipe* screen.
- **DISPLAY EXECUTING STEP:** Displays the step being executed.
- **TOLERANCE CONDITIONS:** Displays the tolerance conditions.
- **END POINT DETECT:** Displays the *End Point Detect* screen at the bottom of the screen so that you can display the step conditions and the end point detect conditions on one screen. The *End Point Detect* screen shows the information of the Detect Unit No. which is set at the step condition column where the cursor is placed. The over etch parameter on the *End Point Detect* screen is common in all end point detect units.
- **SKIP STEP:** Skips one step of the running recipe.
- **STOP RECIPE:** Stops the running recipe.

Settings to Prevent Mixing of the Gases

This chapter provides the necessary operations for setting the mixing prevention gases.

The information contained in this chapter has been prepared based on the specifications of the standard equipment. Throughout the manual, figures provided in this manual, including operation screens and appearances, may vary from the equipment installed at your site.

5.1 Setting the Mixing Prevention Gases 14234.20160901

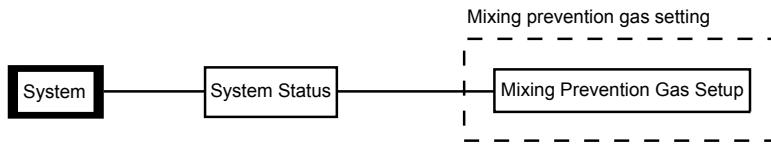
Introduction

Overview:

The combination of mixing prohibited gases and the valves to be interlocked can be displayed on the screen, allowing each item to be set arbitrarily.

The software hierarchy for setting the mixing prevention gases follows.

▼ Software Hierarchy for Setting the Mixing Prevention Gases



g9736_e

Sequence of Setting the Mixing Prevention Gases

- 1 **Change the process module to independent maintenance mode (Group Offline) (see page 176)** for setting the mixing prevention gases.
- 2 Display the *Mixing Prevention Gas Setup* screen from **SYSTEM** in the group menu.
- 3 Operate the *Mixing Prevention Gas Setup* screen **to set the combination of mixing prevention gases and the valves to be interlocked** (see page 121).

5.2 Operating the Mixing Prevention Gas Setup Screen

14235.20160901

Operate the relevant function to set the combination of mixing prevention gases and the valves to be interlocked.

Display the *Mixing Prevention Gas Setup* screen from the group menu below.

SYSTEM→SYSTEM STATUS→MIXING PREVENTION GAS SETUP

▼ Mixing Prevention Gas Setup Screen

Module	Gas1	Gas2	Open Both Primary Valve	Open Both Secondary Val	Open Both N2 Link Valve	
1	NH3	Ar	Disable	Enable	Enable	
2	NH3	HF	Disable	Enable	Enable	
3	NH3	HCl	Disable	Enable	Enable	
4	NH3	HBr	Disable	Enable	Enable	
5	NH3	SiF4	Disable	Enable	Enable	
6	NH3	BCl3	Disable	Enable	Enable	
7	NH3	SiCl4	Disable	Enable	Enable	
8			Enable	Enable	Enable	
9			Enable	Enable	Enable	
10			Enable	Enable	Enable	
11			Enable	Enable	Enable	
12			Enable	Enable	Enable	
13			Enable	Enable	Enable	
14			Enable	Enable	Enable	
15			Enable	Enable	Enable	
16			Enable	Enable	Enable	
17			Enable	Enable	Enable	
18			Enable	Enable	Enable	
19			Enable	Enable	Enable	
20			Enable	Enable	Enable	
21			Enable	Enable	Enable	
22			Enable	Enable	Enable	
23			Enable	Enable	Enable	
24			Enable	Enable	Enable	

g9737_e

No.	Description
1	Selects the process module on which the setting is performed.
2	Displays Gas1 to be prevented from mixing.
3	Displays Gas2 to be prevented from mixing.
4	Displays the setting whether to open the primary valves simultaneously.
5	Displays the setting whether to open the secondary valves simultaneously.
6	Displays the setting whether to open the N ₂ link valves simultaneously.



NOTE

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Mixing Prevention Gas Setup* screen.
- **SAVE:** Saves the setting of the mixing prevention gases. This can be executed when the process module is in independent maintenance mode.
- **CLEAR ROWS:** Clears the selected row.

5.2.1 Setting the Mixing Prevention Gases 14236.20160901

Introduction

Overview:

Set the combination of mixing prevention gases and the valves to be interlocked. By performing the setting on the *Mixing Prevention Gas Setup* screen, interlock occurs according to the setting.

- 1 Press **MODULE** on the *Mixing Prevention Gas Setup* screen to display the *Select Module* dialog.
- 2 Select the process module on which the setting is performed on the *Select Module* dialog.
- 3 Double-click the *Gas1* field on the *Mixing Prevention Gas Setup* screen to display the *Gas1* dialog.
- 4 Select the gas type to be set on the *Gas1* dialog.
- 5 Double-click the *Gas2* field on the *Mixing Prevention Gas Setup* screen to display the *Gas2* dialog.
- 6 Select the gas type to be set on the *Gas2* dialog.
- 7 Double-click the *Open Both Primary Valves* field on the *Mixing Prevention Gas Setup* screen to display the *Open Both Primary Valves* dialog.
- 8 Select **ENABLE** or **DISABLE** on the *Open Both Primary Valves* dialog.
- 9 Double-click the *Open Both Secondary Valves* field on the *Mixing Prevention Gas Setup* screen to display the *Open Both Secondary Valves* dialog.
- 10 Select **ENABLE** or **DISABLE** on the *Open Both Secondary Valves* dialog.
- 11 Double-click the *Open Both N2 Link Valves* field on the *Mixing Prevention Gas Setup* screen to display the *Open Both N2 Link Valves* dialog.
- 12 Select **ENABLE** or **DISABLE** on the *Open Both N2 Link Valves* dialog.
- 13 Press **SAVE** on the right of the *Mixing Prevention Gas Setup* screen to save the setting.

Parts Maintenance Management

This chapter provides the necessary operations for parts maintenance management.

The information contained in this chapter has been prepared based on the specifications of the standard equipment. Throughout the manual, figures provided in this manual, including operation screens and appearances, may vary from the equipment installed at your site.

6.1 Parts Maintenance Management

01804.20101201

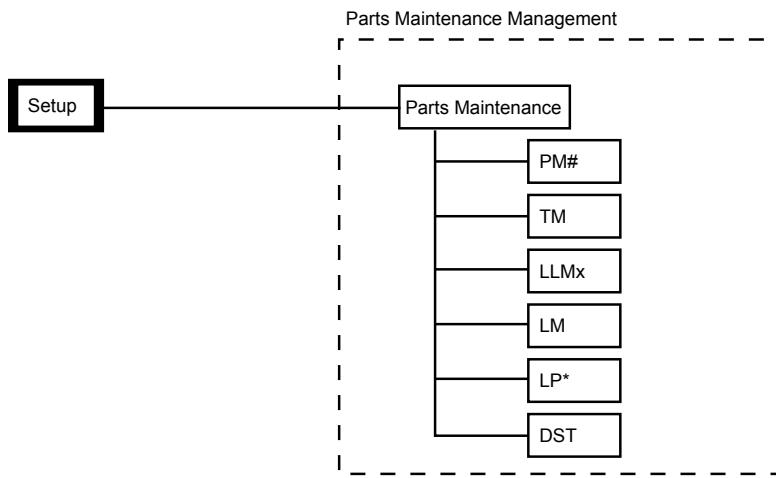
Introduction

Overview:

This displays the usage condition of individual parts, such as the process module, load lock module, transfer module, loader module, load port, and dummy storage.

The software hierarchy for the parts maintenance management follows.

▼ Software Hierarchy for Parts Maintenance Management



g014440786_e

Sequence of Parts Maintenance Management

- 1 Display the *Parts Maintenance* screen from **SETUP** of the group menu.
- 2 On the *Parts Maintenance* screen, **verify the usage conditions of individual parts and set the maintenance management for parts** (see page 125).

Refer to **6.3 Setting Item List for Parts Maintenance** (see page 129) for details on the parts maintenance items of each module.



NOTE

For setting the load port parts maintenance items, it is necessary to conduct the special port setting (see page 74).

- 3 When the value reaches the limit value set on the *Parts Maintenance* screen, an alarm occurs.



NOTE

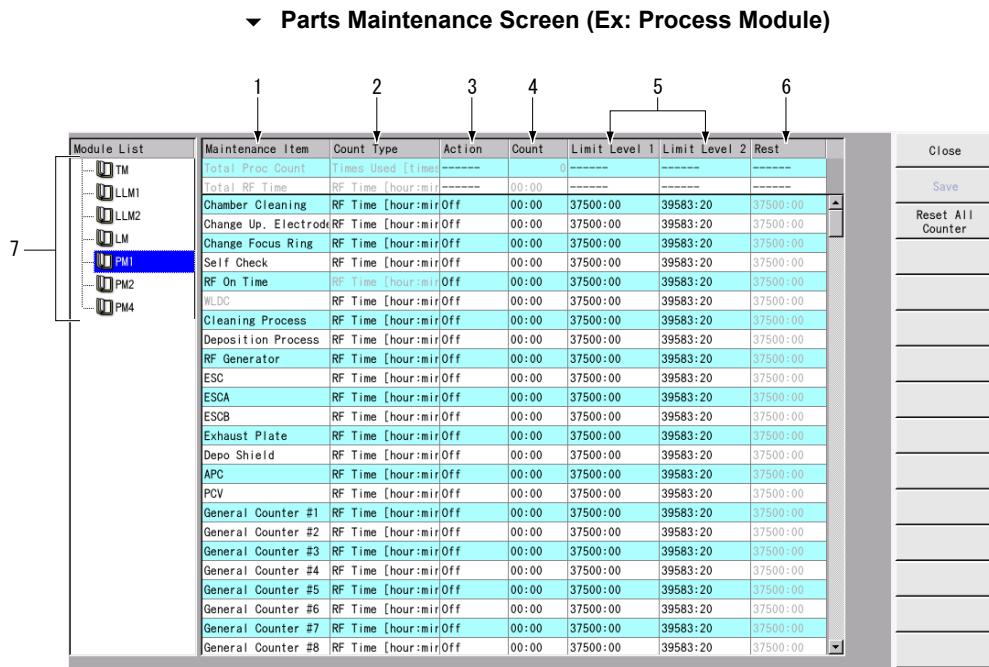
The corrective action after an alarm occurs varies depending on the customer's usage. Please follow the customer's protocol.

6.2 Operating the Parts Maintenance Screen 01805.20101201

This operates the necessary functions to conduct maintenance management operations on parts, such as process module, load lock module, transfer module, loader module, load port, and dummy storage.

Display the *Parts Maintenance* screen from the group menus below.

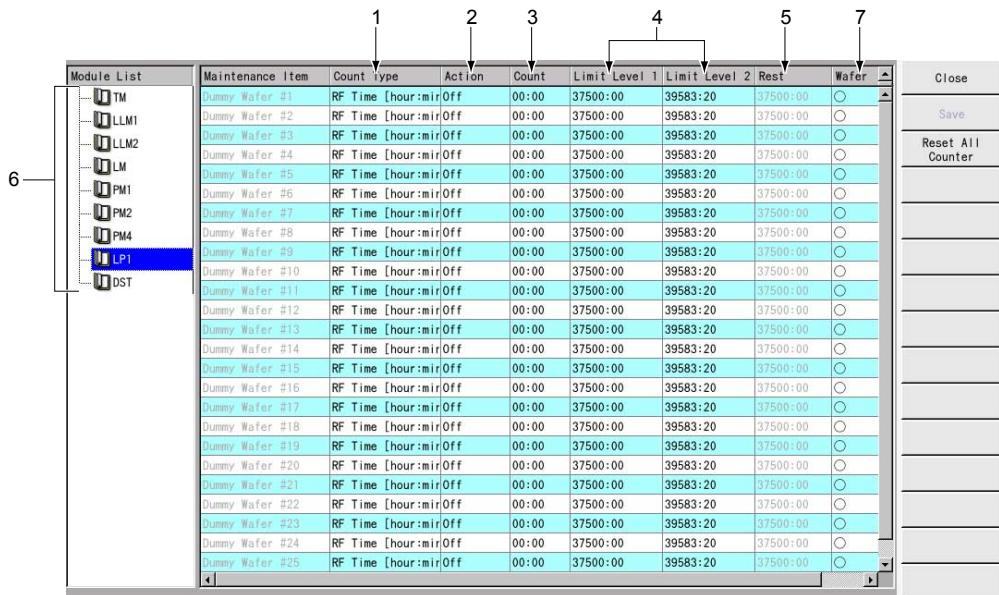
SETUP→PARTS MAINTENANCE



g018052241_e

No.	Description
1	Displays the names of the maintenance items.
2	Displays the count type.
3	Displays the action selected.
4	Displays the total value.
5	Displays the set value for the limit level.
6	Displays the remaining value until reaching the limit level.
7	Selects the module for which the maintenance items to be displayed on the right of the <i>Parts Maintenance</i> screen.

▼ Parts Maintenance Screen (Ex: Lord Port)



g018052242_e

No.	Description
1	Displays the count type.
2	Displays the action selected.
3	Displays the total value.
4	Displays the set value for the limit level.
5	Displays the remaining value until reaching the limit level.
6	Selects the module for which the maintenance items to be displayed on the right of the <i>Parts Maintenance</i> screen.
7	Displays the presence of the wafer

**NOTE**

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- CLOSE:** Closes the *Parts Maintenance* screen.
- SAVE:** Enables the settings and changes of the maintenance items.
- RESET ALL COUNTER:** Clears total values for all the maintenance items (see page 128).

6.2.1 Setting Maintenance Items 01806.20101201

Introduction

Overview:

This sets the maintenance items such as count type or the limit value. By selecting ON for the action and setting a limit value, an alarm will occur when the set limit value is reached.

Also the items, for which the set value can be changed, vary depending on the maintenance items. Refer to [6.3 Setting Item List for Parts Maintenance \(see page 129\)](#) for details.

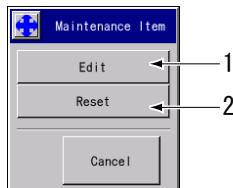


NOTE

If the name or the count of the maintenance item is enabled (displayed in black letters), the setting can be changed. If changing an item, press the name or the count of the maintenance item twice, then change the setting item.

- 1 Select the module, for which the maintenance items to be set, from the module list on the left of the *Parts Maintenance* screen to display the maintenance items on the right of the *Parts Maintenance* screen.
- 2 Follow the steps below to change the name.
 - 2.1 Double-click the maintenance item whose name will be changed to display the *Maintenance Item* dialog.
 - 2.2 Select EDIT.

▼ Maintenance Item Dialog



g018065851_e

No.	Description
1	Edit the name.
2	Restore the changed name to the default.

- 2.3 Enter the name and press OK.
- 3 Change the count type in the following procedures.
 - 3.1 Double-click the count type of the maintenance item you want to change to display the *Count Type* dialog.
 - 3.2 Select a count type.
- 4 Set the action in the following procedures.
 - 4.1 Double-click the action of the maintenance item you want to change to display the *Action* dialog.
 - 4.2 Select ON or OFF on the *Action* dialog.

- 5 Change the Limit level 1 or Limit Level 2 in the following procedures.
 - 5.1 Double-click the limit level 1 or limit level 2 of the maintenance item you want to change to display the input dialog.
 - 5.2 Enter the limit level 1 or limit level 2 and then press OK.
 - 6 Press **SAVE** on the right of the *Parts Maintenance* screen to save the changed settings.
-  **NOTE** If the module of which the maintenance item is to be set is under the following conditions, the settings can not be saved:
 - The relevant module is being executed.
 - The relevant process module is reserved and any of the PM special recipe items on Outside-Lot Cleaning such as Count Type, Action, Count, or Limit is set.

6.2.2 Resetting the Total Value 03666.20071201

- 1 Press **RESET ALL COUNTER** on the right of the *Parts Maintenance* screen.
- 2 After resetting the total value, press **SAVE** on the right of the *Parts Maintenance* screen.

6.3 Setting Item List for Parts Maintenance 01808.20070501

6.3.1 Details of Parts Maintenance Items for the Process Module 01809.20190401

▼ Chamber Cleaning

Change of name	Possible
Count Type	Times Used (number of process module operations)/RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <ul style="list-style-type: none"> Subject for totaling (count type: Times Used): Number of processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe. Subject for totaling (count type: RF Time): RF application time to the production wafer and lot stable dummy wafer, to which inside-lot cleaning is not performed. The time is not totaled if the process used the default recipe.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.

▼ Change Up. Electrode

Change of name	Possible
Count Type	Times Used (number of process module operations)/RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <ul style="list-style-type: none"> Subject for totaling (count type: Times Used): Number of processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe. Subject for totaling (count type: RF Time): RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.

▼ Change Focus Ring

Change of name	Possible
Count Type	Times Used (number of process module operations)/RF Time

Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <ul style="list-style-type: none"> Subject for totaling (count type: Times Used): Number of processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe. Subject for totaling (count type: RF Time): RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.

▼ Self Check

Change of name	Possible
Count Type	Times Used (number of process module operations)/RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <ul style="list-style-type: none"> Subject for totaling (count type: Times Used): Number of processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe. Subject for totaling (count type: RF Time): RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.

▼ RF On Time

Change of name	Possible
Count Type	RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <p>RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.</p>
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.

▼ WLDC

Change of name	Not possible
Count Type	Times Used (number of process module operations)/RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <ul style="list-style-type: none"> When the count type is Times Used: Number of processed recipes without the wafer. Totaling is executed regardless of whether the RF is applied. However, the discharge process is not counted. When the count type is RF Time: RF application time for which the recipe is executed without the wafer. However, the discharge process is not counted.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.

▼ Cleaning Process

Change of name	Possible
Count Type	RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <p>RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.</p>
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.

▼ Deposition Process

Change of name	Possible
Count Type	RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <p>RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.</p>
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.

▼ RF Generator

Change of name	Possible
Count Type	Times Used (number of process module operations)/RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <ul style="list-style-type: none"> Subject for totaling (count type: Times Used): Number of processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe. Subject for totaling (count type: RF Time): RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.

▼ ESC

Change of name	Possible
Count Type	Times Used (number of process module operations)/RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <ul style="list-style-type: none"> Subject for totaling (count type: Times Used): Number of processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe. Subject for totaling (count type: RF Time): RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.

▼ Exhaust Plate

Change of name	Possible
Count Type	Times Used (number of process module operations)/RF Time
Action	Off/On

Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <ul style="list-style-type: none"> Subject for totaling (count type: Times Used): Number of processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe. Subject for totaling (count type: RF Time): RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.

▼ Depo Shield

Change of name	Possible
Count Type	Times Used (number of process module operations)/RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <ul style="list-style-type: none"> Subject for totaling (count type: Times Used): Number of processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe. Subject for totaling (count type: RF Time): RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.

▼ APC

Change of name	Possible
Count Type	Times Used (number of process module operations)/RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <ul style="list-style-type: none"> Subject for totaling (count type: Times Used): Number of processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe. Subject for totaling (count type: RF Time): RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.
Limit value setting	Limit Level 1, Limit Level 2

Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.
-----------------	---

▼ PCV

Change of name	Possible
Count Type	Times Used (number of process module operations)/RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <ul style="list-style-type: none"> Subject for totaling (count type: Times Used): Number of processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe. Subject for totaling (count type: RF Time): RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.

▼ General Counter #1–#18

Change of name	Possible
Count Type	Times Used (number of process module operations)/RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <ul style="list-style-type: none"> Subject for totaling (count type: Times Used): Number of processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe. Subject for totaling (count type: RF Time): RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.

▼ Shutter Open (s), Shutter Close (s)

Change of name	Not possible
Count Type	Work Time

Action	Off/On
Timing for totaling	At the end of the shutter operation
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: Compares the shutter operation time with the standard operation time (limit value level 1) ± allowable range (limit value level 2). If the value is out of range, a warning will occur. However, wafer transfer will not be limited. Off: Displays the operation time only.

▼ **P-Pin(Air) Up(s), P-Pin(Air) Down(s)**

Change of name	Not possible
Count Type	Work Time
Action	Off/On
Timing for totaling	At the end of the air drive lifter pin operation The total value is counted when the Lifter Drive Type of the PM# Parameter (Equipment/Drive Edit) is set to Air Cylinder.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: Compares the operation time of the lifter pin (limit value level 1) ± allowable range (limit value level 2). If the value is out of range, a warning will occur. However, wafer transfer will not be limited. Off: Displays the operation time only.

▼ **P-Pin(Motor) Up(s), P-Pin(Motor) Down(s)**

Change of name	Not possible
Count Type	Work Time
Action	Off/On
Timing for totaling	At the end of the motor drive lifter pin operation The total value is counted when the Lifter Drive Type of the PM# Parameter (Equipment/Drive Edit) is set to Motor.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: Compares the operation time of the lifter pin (limit value level 1) ± allowable range (limit value level 2). If the value is out of range, a warning will occur. However, wafer transfer will not be limited. Off: Displays the operation time only.

▼ **Bevel Cover Up (s), Bevel Cover Down (s)**

Change of name	Not possible
Count Type	Work Time
Action	Off/On
Timing for totaling	At the end of the bevel cover ring operation
Limit value setting	Limit Level 1, Limit Level 2

Process content	<ul style="list-style-type: none"> On: Compares the bevel cover ring operation time with the standard operation time (limit value level 1) ± allowable range (limit value level 2). If the value is out of allowable range, a warning will occur. However, wafer transfer will not be limited. Off: Displays the operation time only.
-----------------	---

▼ Conduction Band

Change of name	Not possible
Count Type	Work Count
Action	On/Off
Timing for totaling	At the end of the top gap operation
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new lots that use the corresponding process module will be transferred into the chamber. Off: Counts only the number of operation.

▼ Top GAP

Change of name	Not possible
Count Type	Work Count
Action	On/Off
Timing for totaling	At the end of the top gap operation
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new lots that use the corresponding process module will be transferred into the chamber. Off: Counts only the number of operation.

▼ MC Battery

Change of name	Not possible
Count Type	Run Time
Action	Off/On
Timing for totaling	The duration of the power-off will be calculated when the tool is turned on.
Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. However, wafer transfer will not be limited. Off: Counts only the operation time.

▼ Pin Battery

Change of name	Not possible
Count Type	Run Time

Action	Off/On
Timing for totaling	The duration of the power-off will be calculated when the tool is turned on.
Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. However, wafer transfer will not be limited. Off: Counts only the operation time.

▼ APC Battery

Change of name	Not possible
Count Type	Run Time
Action	Off/On
Timing for totaling	The duration of the power-off will be calculated when the tool is turned on.
Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. However, wafer transfer will not be limited. Off: Counts only the operation time.

▼ Magnet

Change of name	Not possible
Count Type	Run Time
Action	—
Timing for totaling	Every minute
Limit value setting	—
Process content	Counts only the operation time.

▼ PM Dry Pump

Change of name	Not possible
Count Type	Run Time
Action	—
Timing for totaling	Acquires the current value in the dry pump when the equipment is turned on. While the system is running, the current value in the dry pump is acquired every minute.
Limit value setting	—
Process content	Counts only the operation time.

▼ Chiller

Change of name	Not possible
Count Type	Run Time
Action	—
Timing for totaling	Acquires the current value in the chiller unit when the equipment is turned on. While the system is running, the current value in the chiller unit is acquired every minute.

Limit value setting	—
Process content	Counts only the operation time.

▼ **Chiller Vacuum**

Change of name	Not possible
Count Type	Run Time
Action	Off/On
Timing for totaling	Every minute
Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> • On: Vacuums the chiller line of the process module if the current value reaches the limit level 1. Wafer transfer will not be limited. After vacuuming the chiller line, the current value is cleared automatically. If the process is started by loading the cassette during chiller line vacuuming, the vacuuming will be aborted. The total value will be maintained. • Off: Counts only the operation time.

▼ **Magnet Gap**

Change of name	Not possible
Count Type	Run Time
Action	Off/On
Timing for totaling	Every minute
Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> • On: A warning occurs if the current value reaches the limit level 1. However, wafer transfer will not be limited. • Off: Counts only the operation time.

▼ **Shutter Open (c), Shutter Close (c)**

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the end of the shutter operation
Limit value setting	—
Process content	Counts only the number of operations.

▼ **Pin**

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the end of the lifter pin raising operation
Limit value setting	—

Process content	Counts only the number of operations.
-----------------	---------------------------------------

▼ **Bevel Cover Up (c), Bevel Cover Down (c)**

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the end of the bevel cover ring operation
Limit value setting	—
Process content	Counts only the number of operations.

▼ **Top Arm**

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the end of the operation of the corresponding mechanism
Limit value setting	—
Process content	Counts only the number of operations. It does not during the power-out.

▼ **Shutter O Ring**

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	When the shutter closes
Limit value setting	—
Process content	Counts only the number of operations.

▼ **Matcher**

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	When turning RF on
Limit value setting	—
Process content	Counts only the number of operations.

▼ **Gas1–Gas32 Flow meter**

Change of name	Not possible
Count Type	Work Count
Action	Off/On
Timing for totaling	At the time of measuring flow rate

Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches limit level 1. If the current value reaches the limit level 2, an alarm occurs. Off: Executes totaling on only the selected count type.

▼ **Vm (m: Number of the Valve)**

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the end of the opening operation of the relevant valve
Limit value setting	—
Process content	Counts only the number of operations.

▼ **Gas1–Gas32 Flow**

Change of name	Not possible
Count Type	Gas Volume
Action	—
Timing for totaling	Constantly counts while the process gas flow rate is controlled.
Limit value setting	—
Process content	Totals only the amount of gas used.

▼ **Warning Info #1–#8**

Change of name	Not possible
Count Type	Special
Action	Off/On
Timing for totaling	Counted by Ingenio. Not counted by the process module.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit value level 1 or 2. Off: Executes Ingenio count only

▼ **Transfer Info #1–#8**

Change of name	Not possible
Count Type	Special
Action	Off/On
Timing for totaling	Counted by Ingenio. Not counted by the process module.
Limit value setting	Limit Level 1, Limit Level 2

Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes Ingenio count only
-----------------	--

▼ **SeasoningInfo**

Change of name	Not possible
Count Type	Special
Action	Off/On
Timing for totaling	Counted by Ingenio. Not counted by the process module.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit value level 1 or 2. Off: Executes Ingenio count only

▼ **Upper HV**

Change of name	Possible
Count Type	Times Used (number of process module operations)/RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <ul style="list-style-type: none"> Subject for totaling (count type: Times Used): Number of processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe. Subject for totaling (count type: RF Time): RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.

▼ **Upper Outer HV**

Change of name	Possible
Count Type	Times Used (number of process module operations)/RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <ul style="list-style-type: none"> Subject for totaling (count type: Times Used): Number of processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe. Subject for totaling (count type: RF Time): RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.
Limit value setting	Limit Level 1, Limit Level 2

Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.
-----------------	---

▼ NPPC

Change of name	Possible
Count Type	Times Used (number of process module operations)/RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <ul style="list-style-type: none"> Subject for totaling (count type: Times Used): Number of processed production wafers and lot stable dummy wafers. Subject for totaling (count type: RF Time): RF application time to the production wafer, lot stable dummy wafer, inside-lot cleaning, and outside-lot cleaning.
Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. After the value reaches to the limit level 1, NPPC for the process module is executed when the relevant process module lot process is completed. <p>When the NPPC is completed successfully, the count is reset to 0 and the transference of the next lot starts (If there is not a lot any more, the system becomes idling mode). If NPPC error occurs, the warning is not cleared and the next lot will not be transferred.</p> <ul style="list-style-type: none"> Off: Executes totaling on only the selected count type.

▼ Micro Wave Filament

Change of name	Not possible
Count Type	Run Time
Action	Off/On
Timing for totaling	Every minute
Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. However, wafer transfer will not be limited. Off: Counts only the operation time.

▼ General Counter #19–#36

Change of name	Possible
Count Type	Times Used (number of process module operations)/RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <ul style="list-style-type: none"> Subject for totaling (count type: Times Used): Number of processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe. Subject for totaling (count type: RF Time): RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.

Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.

▼ **Cooling Water(TopRF), Cooling Water2(TopRF), Cooling Water(BtmRF), Cooling Water(Btm2RF)**

Change of name	Not possible
Count Type	Water Volume
Action	Off/On
Timing for totaling	When the equipment is turned on, the pump operation time is acquired to calculate the used amount from the flow rate of cooling water and operation time during current application to the equipment. When current is being applied to the equipment, the used amount is calculated from the flow rate of cooling water and operation time.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Totals only the used amount of cooling water.

▼ **APC O Ring**

Change of name	Not possible
Count Type	RF Time
Action	—
Timing for totaling	When completing the process (at the end of the final step in the recipe) RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.
Limit value setting	—
Process content	Counts only the RF time.

▼ **Shutter Grease**

Change of name	Not possible
Count Type	Run Time
Action	—
Timing for totaling	Every minute
Limit value setting	—
Process content	Counts only the operation time.

▼ **Cooling Water (TMP)**

Change of name	Not possible
----------------	--------------

Count Type	Water Volume
Action	Off/On
Timing for totaling	When the equipment is turned on, the pump operation time is acquired to calculate the used amount from the flow rate of cooling water and operation time during current application to the equipment. When current is being applied to the equipment, the used amount is calculated from the flow rate of cooling water and operation time.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Totals only the used amount of cooling water.

▼ General Counter #A–General Counter #E

Change of name	Possible
Count Type	Run Time
Action	Off/On
Timing for totaling	Every minute
Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. However, wafer transfer will not be limited. Off: Counts only the operation time.

▼ Recoil Reduction Kit

Change of name	Possible
Count Type	RF Time
Action	Off/On
Timing for totaling	When completing the process (at the end of the final step in the recipe) RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.

▼ NPPCPM Laser

Change of name	Not possible
Count Type	Run Time
Action	Off/On

Timing for totaling	<p>Varies as below depending on NPPCPM Count Type of the PM# Parameter (Equipment Mode/Pressure Edit).</p> <ul style="list-style-type: none"> Type1: When START/STOP DO (signal name: ISPM_START) of the particle measurement start setting is ON and during particle measurement and manual record while NPPC is being performed. Type2: The time set in NPPCPM Count Timed of the PM# Parameter (Equipment Mode/Pressure Edit) after START/STOP DO (signal name: ISPM_START) of the particle measurement start setting switches from ON to OFF. <p>The time is not counted if the equipment is shut down with START/STOP DO (signal name: ISPM_START) ON.</p>
Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. However, wafer transfer will not be limited. Off: Counts only the operation time.

▼ Upper Temp. Offset

Change of name	Not possible
Count Type	RF Time
Action	Off/On
Timing for totaling	When completing the process (at the end of the final step in the recipe) RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots that use the corresponding process module will be transferred into the chamber. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, no new wafers will be transferred into the transfer module. Off: Executes totaling on only the selected count type.

▼ V.RDC V50–V57

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the end of the opening operation of the relevant valve
Limit value setting	—
Process content	Counts only the number of operations.

▼ Flow Ratio Control Number

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	When switching flow ratio control
Limit value setting	—

Process content	Counts only the number of operations.
-----------------	---------------------------------------

6.3.2 Details of Parts Maintenance Items for the Transfer Module 01810.20070501

▼ LLMx Gate Open (s), LLMx Gate Close (s)

Change of name	Not possible
Count Type	Work Time
Action	Off/On
Timing for totaling	At the end of the gate operations
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> • On: Compares the operation time of the corresponding unit with the standard operation time (limit value level 1) ± allowable range (limit value level 2). If the value is out of range, a warning will occur. However, wafer transfer will not be limited. • Off: Displays the operation time only.

▼ PM# Gate Open (s), PM# Gate Close (s)

Change of name	Not possible
Count Type	Work Time
Action	Off/On
Timing for totaling	At the end of the gate operations
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> • On: Compares the operation time of the corresponding unit with the standard operation time (limit value level 1) ± allowable range (limit value level 2). If the value is out of range, a warning will occur. However, wafer transfer will not be limited. • Off: Displays the operation time only.

▼ LLMx Gate Open (c), LLMx Gate Close (c)

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the end of the gate operations
Limit value setting	—
Process content	Counts only the number of operations.

▼ PM# Gate Open (c), PM# Gate Close (c)

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the end of the gate operations

Limit value setting	—
Process content	Counts only the number of operations.

▼ **LLMx Gate O Ring**

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	When the gate is close
Limit value setting	—
Process content	Counts only the number of operations.

▼ **PM# Gate O Ring**

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	When the gate is close
Limit value setting	—
Process content	Counts only the number of operations.

▼ **T1–T3, T8, T11, T12**

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the end of the operation of the corresponding mechanism
Limit value setting	—
Process content	Counts only the number of operations.

▼ **TM Arm R1 Axis, TM Arm R2 Axis, TM Arm Y Axis**

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	Counts when there is a change to the logical position after completing the operation of the corresponding drive unit of the transfer arm.
Limit value setting	—
Process content	Counts only the number of operations.

▼ **TM Arm Battery**

Change of name	Not possible
Count Type	Run Time

Action	Off/On
Timing for totaling	When starting up the system, the power-cut time of the equipment is calculated. This counts every one minute while the unit is ON.
Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. However, wafer transfer will not be limited. Off: Counts only the operation time.

▼ **TM Dry Pump**

Change of name	Not possible
Count Type	Run Time
Action	—
Timing for totaling	Acquires the current value in the dry pump when the equipment is turned on. While the system is running, the current value in the dry pump is acquired every minute.
Limit value setting	—
Process content	Counts only the operation time.

▼ **Pirani**

Change of name	Not possible
Count Type	Run Time
Action	—
Timing for totaling	Every minute
Limit value setting	—
Process content	Counts only the operation time.

▼ **TM Operation Time**

Change of name	Not possible
Count Type	Run Time
Action	Off/On
Timing for totaling	Every minute
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. However, wafer transfer will not be limited. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, processing of the next lot will be prohibited. Off: Counts only the operation time.

6.3.3 Details of Parts Maintenance Items for the Load Lock Module 01811.20071201

▼ **Door Open (s), Door Close (s)**

Change of name	Not possible
----------------	--------------

Count Type	Work Time
Action	Off/On
Timing for totaling	At the end of the door operation
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: Compares the operation time of the corresponding unit with the standard operation time (limit value level 1) ± allowable range (limit value level 2). If the value is out of range, a warning will occur. However, wafer transfer will not be limited. Off: Displays the operation time only.

▼ **Lifter Up (s), Lifter Down (s)**

Change of name	Not possible
Count Type	Work Time
Action	Off/On
Timing for totaling	At the end of the lifter pin operation
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: Compares the operation time of the corresponding unit with the standard operation time (limit value level 1) ± allowable range (limit value level 2). If the value is out of range, a warning will occur. However, wafer transfer will not be limited. Off: Displays the operation time only.

▼ **LLM Dry Pump**

Change of name	Not possible
Count Type	Run Time
Action	—
Timing for totaling	Acquires the current value in the dry pump when the equipment is turned on. While the system is running, the current value in the dry pump is acquired every minute.
Limit value setting	—
Process content	Counts only the operation time.

▼ **Door Open (c), Door Close (c)**

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the end of the door operation
Limit value setting	—
Process content	Counts only the number of operations.

▼ **Lifter Up (c), Lifter Down (c)**

Change of name	Not possible
Count Type	Work Count

Action	—
Timing for totaling	At the end of the lifter pin operation
Limit value setting	—
Process content	Counts only the number of operations.

▼ **Door O Ring**

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	When the door closes
Limit value setting	—
Process content	Counts only the number of operations.

▼ **Lifter O Ring**

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the end of the raising operation with a wafer on the lifter pin
Limit value setting	—
Process content	Counts only the number of operations.

▼ **L11–L15, L17, L18, L21–L25, L27, L28**

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the end of the operation of the corresponding mechanism
Limit value setting	—
Process content	Counts only the number of operations.

▼ **Pirani**

Change of name	Not possible
Count Type	Run Time
Action	—
Timing for totaling	Every minute
Limit value setting	—
Process content	Counts only the operation time.

6.3.4 Details of Parts Maintenance Items for the Loader Module

01812.20170301

▼ LP1–LP6 Clamp (s), LP1–LP6 Unclamp (s)

Change of name	Not possible
Count Type	Work Time
Action	Off/On
Timing for totaling	At the end of the operation of the corresponding mechanism
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> • On: Compares the operation time of the corresponding unit with the standard operation time (limit value level 1) ± allowable range (limit value level 2). If the value is out of range, a warning will occur. However, wafer transfer will not be limited. • Off: Displays the operation time only.

▼ LP1–LP6 Tray Dock (s), LP1–LP6 Tray Undock (s)

Change of name	Not possible
Count Type	Work Time
Action	Off/On
Timing for totaling	At the end of the operation of the corresponding mechanism
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> • On: Compares the operation time of the corresponding unit with the standard operation time (limit value level 1) ± allowable range (limit value level 2). If the value is out of range, a warning will occur. However, wafer transfer will not be limited. • Off: Displays the operation time only.

▼ LP1–LP6 Door Unlatch (s), LP1–LP6 Door Latch (s)

Change of name	Not possible
Count Type	Work Time
Action	Off/On
Timing for totaling	At the end of the operation of the corresponding mechanism
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> • On: Compares the operation time of the corresponding unit with the standard operation time (limit value level 1) ± allowable range (limit value level 2). If the value is out of range, a warning will occur. However, wafer transfer will not be limited. • Off: Displays the operation time only.

▼ LP1–LP6 Door Open (s), LP1–LP6 Door Close (s)

Change of name	Not possible
Count Type	Work Time
Action	Off/On

Timing for totaling	At the end of the operation of the corresponding mechanism
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: Compares the operation time of the corresponding unit with the standard operation time (limit value level 1) ± allowable range (limit value level 2). If the value is out of range, a warning will occur. However, wafer transfer will not be limited. Off: Displays the operation time only.

▼ LP1–LP6 Door Down (s), LP1–LP6 Door Up (s)

Change of name	Not possible
Count Type	Work Time
Action	Off/On
Timing for totaling	At the end of the operation of the corresponding mechanism
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: Compares the operation time of the corresponding unit with the standard operation time (limit value level 1) ± allowable range (limit value level 2). If the value is out of range, a warning will occur. However, wafer transfer will not be limited. Off: Displays the operation time only.

▼ LP1–LP6 Nozzle Up (s), LP1–LP6 Nozzle Down (s)

Change of name	Not possible
Count Type	Work Time
Action	Off/On
Timing for totaling	At the end of the operation of the corresponding mechanism
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: Compares the operation time of the corresponding unit with the standard operation time (limit value level 1) ± allowable range (limit value level 2). If the value is out of range, a warning will occur. However, wafer transfer will not be limited. Off: Displays the operation time only.

▼ LP1–LP6 Clamp (c), LP1–LP6 Unclamp (c)

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the end of the operation of the corresponding mechanism
Limit value setting	—
Process content	Counts only the number of operations.

▼ LP1–LP6 Tray Dock (c), LP1–LP6 Tray Undock (c)

Change of name	Not possible
Count Type	Work Count

Action	—
Timing for totaling	At the end of the operation of the corresponding mechanism
Limit value setting	—
Process content	Counts only the number of operations.

▼ LP1–LP6 Door Unlatch (c), LP1–LP6 Door Latch (c)

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the end of the operation of the corresponding mechanism
Limit value setting	—
Process content	Counts only the number of operations.

▼ LP1–LP6 Door Open (c), LP1–LP6 Door Close (c)

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the end of the operation of the corresponding mechanism
Limit value setting	—
Process content	Counts only the number of operations.

▼ LP1–LP6 Door Down (c), LP1–LP6 Door Up (c)

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the end of the operation of the corresponding mechanism
Limit value setting	—
Process content	Counts only the number of operations.

▼ LP1–LP6 Nozzle Up (c), LP1–LP6 Nozzle Down (c)

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the end of the operation of the corresponding mechanism
Limit value setting	—
Process content	Counts only the number of operations.

▼ MC Battery

Change of name	Not possible
----------------	--------------

Count Type	Run Time
Action	Off/On
Timing for totaling	When starting up the system, the power-cut time of the equipment is calculated. This counts every one minute while the unit is ON.
Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> • On: A warning occurs if the current value reaches the limit level 1. However, wafer transfer will not be limited. • Off: Counts only the operation time.

▼ **EC Battery**

Change of name	Not possible
Count Type	Run Time
Action	Off/On
Timing for totaling	When starting up the system, the power-cut time of the equipment is calculated. This counts every one minute while the unit is ON.
Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> • On: A warning occurs if the current value reaches the limit level 1. However, wafer transfer will not be limited. • Off: Counts only the operation time.

▼ **LM Arm Battery**

Change of name	Not possible
Count Type	Run Time
Action	Off/On
Timing for totaling	When starting up the system, the power-cut time of the equipment is calculated. This counts every one minute while the unit is ON.
Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> • On: A warning occurs if the current value reaches the limit level 1. However, wafer transfer will not be limited. • Off: Counts only the operation time.

▼ **LM Arm R1 Axis, LM Arm R2 Axis, LM Arm X Axis**

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	Counts when there is a change to the logical position after completing the operation of the corresponding drive unit of the loader arm.
Limit value setting	—
Process content	Counts only the number of operations.

▼ **Pick 1 O Ring**

Change of name	Not possible
----------------	--------------

Count Type	Work Count
Action	—
Timing for totaling	At the time of the loader arm operation is completed, counts under the state that the logical position of the R1-axis or X-axis is changed and a wafer is on the Pick 1.
Limit value setting	—
Process content	Counts only the number of operations.

▼ **Pick 2 O Ring**

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the time of the loader arm operation is completed, counts under the state that the logical position of the R2-axis or X-axis is changed and a wafer is on the Pick 2.
Limit value setting	—
Process content	Counts only the number of operations.

▼ **ORT O Ring**

Change of name	Not possible
Count Type	Work Count
Action	—
Timing for totaling	At the end of the alignment operation with a wafer on the orienter
Limit value setting	—
Process content	Counts only the number of operations.

▼ **PST**

Change of name	Not possible
Count Type	Run Time
Action	Off/On
Timing for totaling	Every minute
Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> • On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, no new lots will be loaded into the loader module. • Off: Counts only the operation time.

▼ **Upper Chemical FFU, Lower Chemical FFU**

Change of name	Not possible
Count Type	Run Time
Action	Off/On
Timing for totaling	Every minute

Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. However, wafer transfer will not be limited. Off: Counts only the operation time.

▼ **Lower Chemical FFU (c)**

Change of name	Not possible
Count Type	Times used (purge storage usage times)
Action	Off/On
Timing for totaling	Number of times in which wafers are transferred into the purge storage. Not counted if wafers are transferred manually.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Wafer transfer will not be limited. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, processing of the next lot will be prohibited. Off: Counts only the used time.

▼ **ORT Work Count**

Change of name	Not possible
Count Type	Times used (orienter usage times)
Action	—
Timing for totaling	At orienter operation
Limit value setting	—
Process content	Counts only the usage times.

▼ **PST Work Count**

Change of name	Not possible
Count Type	Times used (purge storage usage times)
Action	Off/On
Timing for totaling	Number of times in which wafers are transferred into the purge storage. Not counted if wafers are transferred manually.
Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the current value reaches the limit level 1, processing of the next lot will be prohibited. Off: Counts only the used time.

▼ **ACDIST UPS**

Change of name	Not possible
Count Type	Run Time
Action	Off/On
Timing for totaling	When starting up the system, the power-cut time of the equipment is calculated. This counts every one minute while the unit is ON.

Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. However, wafer transfer will not be limited. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, processing of the next lot will be prohibited. Off: Counts only the operation time.

▼ **TL1-TL3 Battery**

Change of name	Not possible
Count Type	Run Time
Action	Off/On
Timing for totaling	When starting up the system, the power-cut time of the equipment is calculated. This counts every one minute while the unit is ON.
Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. However, wafer transfer will not be limited. Off: Counts only the operation time.

▼ **TL2, TL3 UPS**

Change of name	Not possible
Count Type	Run Time
Action	Off/On
Timing for totaling	When starting up the system, the power-cut time of the equipment is calculated. This counts every one minute while the unit is ON.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. If the current value reaches the limit level 2, a warning occurs. However, wafer transfer will not be limited. Off: Counts only the operation time.

▼ **Ex-CONT Battery**

Change of name	Not possible
Count Type	Run Time
Action	Off/On
Timing for totaling	When starting up the system, the power-cut time of the equipment is calculated. This counts every one minute while the unit is ON.
Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. However, wafer transfer will not be limited. Off: Counts only the operation time.

▼ **EX-CONT UPS**

Change of name	Not possible
Count Type	Run Time

Action	Off/On
Timing for totaling	When starting up the system, the power-cut time of the equipment is calculated. This counts every one minute while the unit is ON.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. If the current value reaches the limit level 2, a warning occurs. However, wafer transfer will not be limited. Off: Counts only the operation time.

▼ **LA Move (c)**

Change of name	Not possible
Count Type	Work Count
Action	Off/On
Timing for totaling	When receiving a wafer from the loader arm.
Limit value setting	Limit Level 1 only
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. However, wafer transfer will not be limited. Off: Counts only the number of operations.

6.3.5 Details of Parts Maintenance Items for the Loader Port

01813.20110601

▼ **Dummy Wafer #1–#25**

Change of name	Not possible
Count Type	Times Used (number of process module operations)/RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <ul style="list-style-type: none"> Subject for totaling (count type: Times Used): Number of processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe. Subject for totaling (count type: RF Time): RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the count reaches the limit level 1, no new lots, which uses dummy wafers, will be transferred from the load port which includes the relevant dummy wafer. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, usage of the relevant dummy wafer will be prohibited. However the production wafers will be transferred normally. When the relevant dummy wafer is replaced, the total value is automatically cleared and the warning is canceled. Off: Executes totaling on only the selected count type.

6.3.6 Details of Parts Maintenance Items for the Dummy Storage 01814TT.20160101

▼ Dummy Wafer #1–#9 or #50

Change of name	Not possible
Count Type	Times Used (number of process module operations)/RF Time
Action	Off/On
Timing for totaling	<p>When completing the process (at the end of the final step in the recipe)</p> <ul style="list-style-type: none"> Subject for totaling (count type: Times Used): Number of processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe. Subject for totaling (count type: RF Time): RF application time for the processed production wafers and lot stable dummy wafers. The time is not totaled if the process used the default recipe.
Limit value setting	Limit Level 1, Limit Level 2
Process content	<ul style="list-style-type: none"> On: A warning occurs if the current value reaches the limit level 1. Once the count reaches the limit level 1, no new lots, which uses dummy wafers, will be transferred from the dummy storage which includes the relevant dummy wafer. If the current value reaches the limit level 2, a warning occurs. Once the current value reaches the limit level 2, usage of the relevant dummy wafer will be prohibited. However the production wafers will be transferred normally. When the relevant dummy wafer is replaced, the total value is automatically cleared and the warning is canceled. Off: Executes totaling on only the selected count type.

Changing the Operation Mode

This chapter provides the necessary operations for changing the modes of the loader module, load lock module, transfer module and process module.

The information contained in this chapter has been prepared based on the specifications of the standard equipment. Throughout the manual, figures provided in this manual, including operation screens and appearances, may vary from the equipment installed at your site.

7.1 Changing the Loader Module Operation Mode

03667.20091101

Introduction

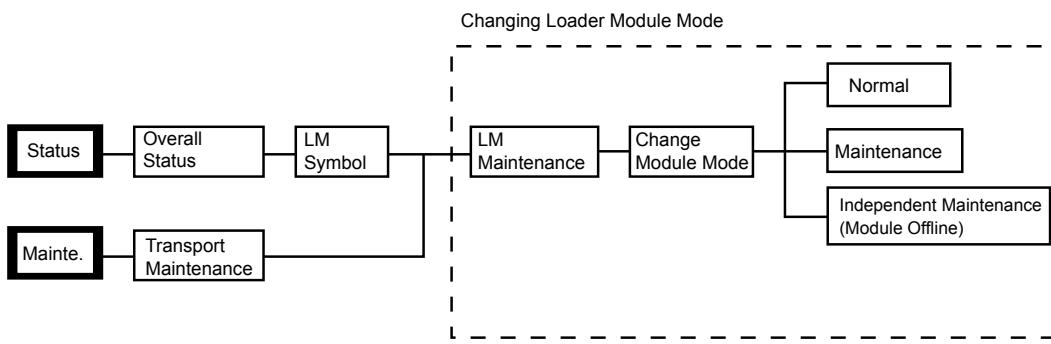
Overview:

Before performing maintenance tasks on the loader module, change to the loader module maintenance mode or independent maintenance mode.

After finishing the loader module maintenance tasks, change to the normal mode from the maintenance mode or independent maintenance mode.

The software hierarchy for changing the loader module operation mode follows.

▼ Software Hierarchy for Changing the Loader Module Operation Mode



g005020213_e

Sequence of Changing the Loader Module Maintenance Mode

- 1 Confirm that the equipment is in an idle state.
- 2 From the *Overall Status* screen, or by pressing MAINTE. on the group menu, display the *LM Maintenance* screen and change to the loader module maintenance mode.
- 3 After finishing the maintenance tasks, change to the loader module normal mode.

Sequence of Changing the Loader Module Independent Maintenance Mode

- 1 Confirm that the equipment is in an idle state, and [change to the loader module maintenance mode \(see page 163\)](#).
- 2 From the *Overall Status* screen, or by pressing MAINTE. on the group menu, display the *LM Maintenance* screen and change to the loader module independent maintenance (Module Offline) mode.
- 3 After finishing the maintenance tasks, change to the loader module maintenance mode.
- 4 [Change the loader module to normal mode \(see page 163\)](#).

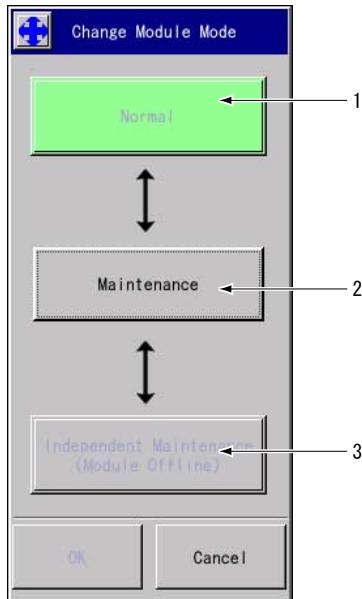
7.2 Operating the Loader Module Change Mode Dialog

03038.20101201

On the *Change Module Mode (LM)* dialog, you can perform necessary operations to change the loader module operation mode.

Display the *Change Module Mode (LM)* dialog from the group menu below.

- STATUS→OVERALL STATUS→LM SYMBOL→LM MAINTENANCE→CHANGE MODULE MODE
 - MAINTE.→TRANSPORT MAINTENANCE→LM MAINTENANCE→CHANGE MODULE MODE
- ▼ **Change Module Mode (LM) Dialog**



g030382277_e

No.	Description
1	Selects the normal mode.
2	Selects the maintenance mode.
3	Selects the independent maintenance mode (Module Offline.)

NOTE The effective buttons may differ from the figure depending on the current loader module operation mode.

7.2.1 Changing to/from the Loader Module Maintenance Mode

03668.20140701

Changing to the Loader Module Maintenance Mode

- 1 Press CHANGE MODULE MODE on the right of the LM Maintenance screen.
- 2 Press MAINTENANCE on the *Change Module Mode (LM)* dialog.

- 3 Press OK to change to the maintenance mode.

**NOTE**

Changing to the maintenance mode is disabled when the load port under any of the following operation is present. Stop the N2 purge or wait until the N2 purge is completed, and change to the maintenance mode.

- Nozzle purge (cleaning the inlet port of the load port)
- Leak check (checking the airtightness in the FOUP, adhesiveness of the nozzle and FOUP)
- Pre processing purge (executing the N2 purge for the FOUP with the FOUP door closed after the mapping)
- Post processing purge (executing the N2 purge for the FOUP after the lot process)

Changing to the Loader Module Normal Mode

- 1 Press Change Module Mode on the right of the LM MAINTENANCE screen to display the *Change Module Mode (LM)* dialog.
- 2 Press NORMAL on the *Change Module Mode (LM)* dialog.
- 3 Press OK to change to the normal mode.

7.2.2 Changing to/from the Loader Module Independent Maintenance Mode (Module Offline) 03039.20091101

Changing to the Loader Module Independent Maintenance Mode (Module Offline)

- 1 Confirm that the equipment is in an idle state, and [change to the loader module maintenance mode \(see page 163\)](#).
- 2 Press CHANGE MODULE MODE on the right of the *LM Maintenance* screen.
- 3 Press *Independent Maintenance (Module Offline)* on the CHANGE MODULE MODE (LM) dialog.
- 4 Press OK to change to the independent maintenance (Module Offline).

Changing from the Loader Module Independent Maintenance Mode (Module Offline)

- Press CHANGE MODULE MODE on the right of the *Independent Maintenance (LM)* screen to display the *Change Module Mode (LM)* dialog.

▼ **Independent Maintenance (LM) Screen**



g030392278_e

No.	Description
1	Displays the <i>Change Module Mode (LM)</i> dialog.

- Press MAINTENANCE on the *Change Module Mode (LM)* dialog.
- Press OK to change to the maintenance mode.
- Press INITIALIZE on the right of the *LM Maintenance* screen and select ALL UNIT. Then, press OK on the initialization confirmation dialog.
- Change the loader module to normal mode (see page 163).**

7.3 Changing the Transfer Module/Load Lock Module Operation Mode

03669.20101201

Introduction

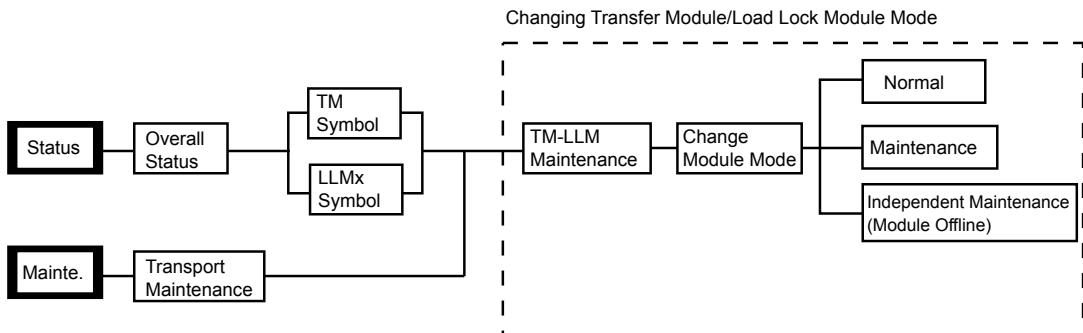
Overview:

Before performing maintenance tasks on the transfer module and load lock module, make them change to the maintenance mode or independent maintenance mode.

After the maintenance tasks are completed, change from the maintenance mode or independent maintenance mode to the normal mode.

The software hierarchy for changing the transfer module and load lock module operation mode follows.

▼ Software Hierarchy for Changing the Transfer Module/Load Lock Module Operation Mode



g005040218_e

Sequence of Changing the Transfer Module/Load Lock Module Maintenance Mode

- 1 Confirm that the equipment is in an idle state.
- 2 From the *Overall Status* screen, or by pressing **MAINTE.** on the group menu, display the *TM-LLM Maintenance* screen and change to the transfer module or load lock module maintenance mode.
- 3 After finishing the maintenance tasks, change to the transfer module or load lock module normal mode.



NOTE

If both the transfer module and loader module are in the maintenance mode, you cannot change only the load lock module to the normal mode. Before changing the load lock module to the normal mode, always change the transfer module and loader module to the normal mode.

Sequence of Changing the Transfer Module/Load Lock Module Independent Maintenance Mode

- 1 Confirm that the equipment is in an idle state, and [change to the transfer module and load lock module the maintenance mode \(see page 168\)](#).
 - 2 From the *Overall Status* screen, or by pressing MAINTE. on the group menu, display the *TM-LLM Maintenance* screen and change to the transfer module and load lock module independent maintenance (Module Offline) mode.
-  **NOTE** If the load lock module 1, load lock module 2 and transfer module are not in the maintenance mode, they can not change to the independent maintenance mode (Module Offline). First change to the load lock module 1, load lock module 2 and transfer module maintenance mode, then change them to the independent maintenance mode (Module Offline).
- 3 After finishing the maintenance tasks, change to the transfer module or load lock module maintenance mode.
 - 4 [Change to the transfer module or load lock module normal mode \(see page 168\)](#).

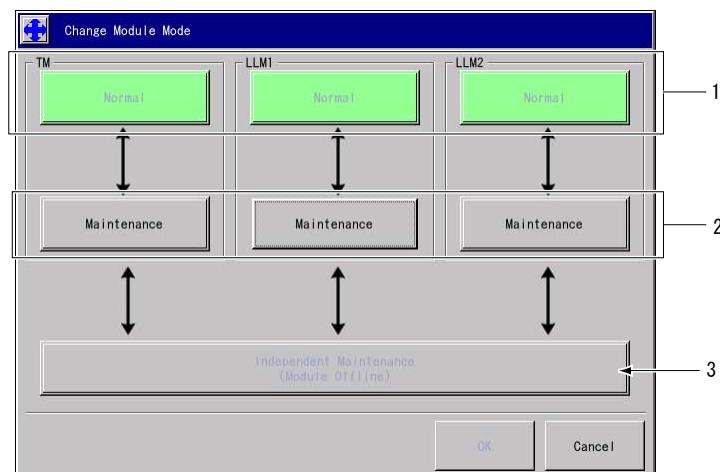
7.4 Operating the Change Module Mode Dialog for the Transfer Module/Load Lock Module 03041.20101201

On the *Change Module Mode (TM-LLM)* dialog, you can perform necessary operations to change the transfer module/load lock module operation mode.

Display the *Change Module Mode (TM-LLM)* dialog from the group menu below.

- STATUS→OVERALL STATUS→TM SYMBOL or LLMx SYMBOL→TM-LLM MAINTENANCE→CHANGE MODULE MODE
- MAINTE.→TRANSPORT MAINTENANCE→TM-LLM MAINTENANCE→CHANGE MODULE MODE

▼ Change Module Mode (TM-LLM) Dialog



g030412279_e

No.	Description
1	Selects the normal mode.
2	Selects the maintenance mode.
3	Selects the independent maintenance mode (Module Offline.)

NOTE The effective buttons may differ from the figure depending on the current transfer module/load lock module operation mode.

7.4.1 Changing to/from the Transfer Module/Load Lock Module Maintenance Mode 03717.20101201

Changing to the Transfer Module/Load Lock Module Maintenance Mode

- 1 Press CHANGE MODULE MODE on the right of the *TM-LLM Maintenance* screen.
- 2 Press MAINTENANCE on the *Change Module Mode (TM-LLM)* dialog.
- 3 Press OK to change to the maintenance mode.

Changing to the Transfer Module/Load Lock Module Normal Mode

- 1 Press CHANGE MODULE MODE on the right of the *TM-LLM Maintenance* screen to display the *Change Module Mode (TM-LLM)* dialog.
- 2 Press NORMAL on the *Change Module Mode (TM-LLM)* dialog.

**NOTE**

If both the transfer module and loader module are in the maintenance mode, you cannot change only the load lock module to the normal mode. Before changing the load lock module to the normal mode, always change the transfer module and loader module to the normal mode.

- 3 Press OK to change to the normal mode.

7.4.2 Changing to/from the Transfer Module/Load Lock Module Independent Maintenance Mode (Module Offline) 03042.20101201

Changing to the Transfer Module/Load Lock Module Independent Maintenance Mode (Module Offline)

- 1 Confirm that the equipment is in an idle state, and [change to the transfer module and load lock module the maintenance mode \(see page 168\)](#).
- 2 Press CHANGE MODULE MODE on the right of the *TM-LLM Maintenance* screen.
- 3 Press INDEPENDENT MAINTENANCE (MODULE OFFLINE) on the *Change Module Mode (TM-LLM)* dialog.

**NOTE**

If the load lock module 1, load lock module 2 and transfer module are not in the maintenance mode, they can not change to the independent maintenance mode (Module Offline). First change to the load lock module 1, load lock module 2 and transfer module maintenance mode, then change them to the independent maintenance mode (Module Offline).

- 4 Press OK to change to the independent maintenance (Module Offline).

Changing from the Transfer Module/Load Lock Module Independent Maintenance Mode (Module Offline)

- Press **CHANGE MODULE MODE** on the right of the *Independent Maintenance (TM-LLM)* screen to display the *Change Module Mode (TM-LLM)* dialog.

▼ **Independent Maintenance (TM-LLM) Screen**



g030422280_e

No.	Description
1	Displays the <i>Change Module Mode (TM-LLM)</i> dialog.

- Press **MAINTENANCE** on the *Change Module Mode (TM-LLM)* dialog.
- Press **OK** to change to the maintenance mode.
- Press **INITIALIZE MODULE** on the right of the *TM-LLM Maintenance* screen and select TM, LLM1, and LLM2. Then, press **OK** on the initialization confirmation dialog to initialize.
- Change to the transfer module or load lock module normal mode (see page 168).**

7.5 Changing the Process Module Operation Mode

03043.20101201

Introduction

Overview:

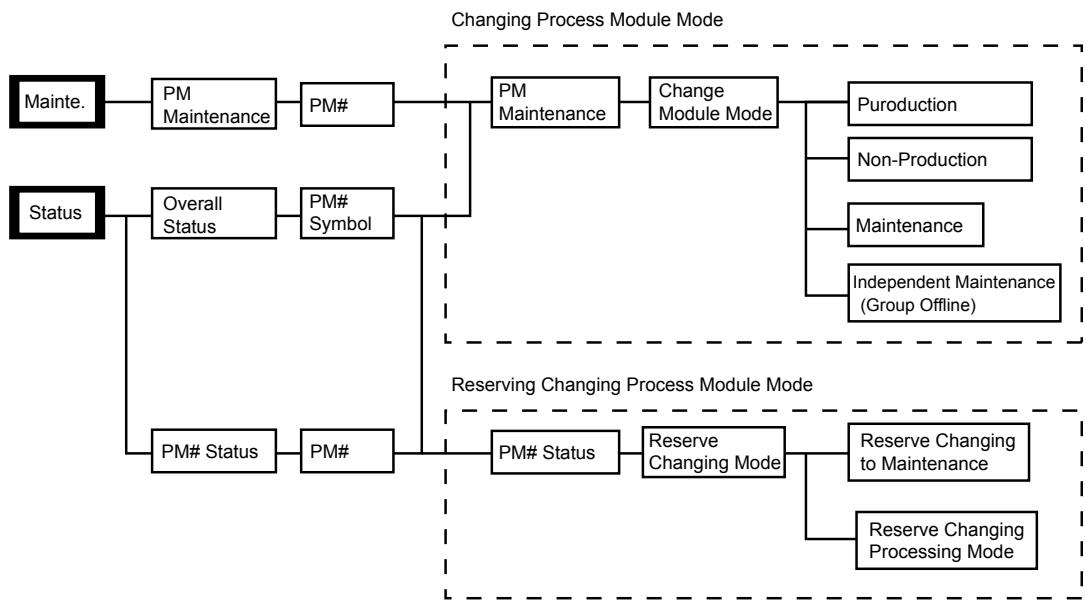
Before performing maintenance tasks on the process module, change to the process module normal mode (non-production), maintenance mode or independent maintenance mode.

Reserve the processing mode change for the process module and the changing to the maintenance mode for the process module on which the continuous lot processing is performed.

After the maintenance tasks are completed, change from the normal mode (non-production), maintenance mode, or independent maintenance mode to the normal mode (production).

The software hierarchy for changing the process module operation mode and the change reservation follows.

▼ Software Hierarchy for Changing the Process Module Operation Mode



g030432505_e

Sequence of Changing the Process Module Normal Mode (Non-production)

- 1 Confirm that the equipment is in an idle state.
- 2 From the *Overall Status* screen, or by pressing MAINTE. on the group menu, display the *PM# Maintenance* screen and change to the process module normal mode (non-production).



NOTE

Switching between normal mode (production) and normal mode (non-production) can also be performed from the *PM# Status* screen. Refer to *Checking the Equipment Status in the Basic Operations Manual*.

- 3 After finishing the tasks in the normal mode (non-production), change the process module to the normal mode (production).

Sequence of Changing the Process Module Maintenance Mode

- 1 Confirm that the equipment is in an idle state.
- 2 From the *Overall Status* screen, or by pressing MAINTENANCE on the group menu, display the *PM# Maintenance* screen and change to the process module maintenance mode.
- 3 After finishing the maintenance tasks, change to the process module normal mode (production).

Sequence of Changing the Process Module Independent Maintenance Mode

CAUTION

Equipment Damage

If the process module is in the independent maintenance mode when the equipment is stopped, the applicable process module TMP can not stop normally. Change all process modules to the normal or maintenance mode.

- 1 Confirm that the equipment is in an idle state, and **change the process module to maintenance mode (see page 175)**.
- 2 From the *Overall Status* screen, or by pressing MAINTENANCE on the group menu, display the *PM# Maintenance* screen and change to the process module independent maintenance (Group Offline) mode.
- 3 After finishing the maintenance tasks, change to the process module maintenance mode.
- 4 **Change the process module to normal mode (production) (see page 175)**.

Sequence of Change Reservation for the Process Module Maintenance Mode

- 1 Check that the applicable process module is in the normal mode.
- 2 From the *Overall Status* screen, or by pressing STATUS on the group menu, display the *PM# Status* screen and **reserve changing to the maintenance mode for the process module during lot processing (see page 180)**.

The process module changes to the maintenance mode when the module status is changed to Idle.



NOTE

If the applicable process module is changed to the maintenance mode due to other factors during the reservation of changing to the maintenance mode, or the reservation of changing to the maintenance mode is made during the maintenance mode, changing to the maintenance mode by the reservation is performed after the applicable process module is changed to the normal mode.

- 3 After finishing the maintenance tasks, **change to the process module normal mode (production) (see page 174)**.

Sequence of Change Reservation for the Process Module Processing Mode

- 1 Check that the applicable process module is in the normal mode (production).

- 2 From the *Overall Status* screen, or by pressing **STATUS** on the group menu, display the *PM# Status* screen and **reserve changing to the processing mode for the process module during lot processing (see page 181)**.

The process module changes to the normal mode (non-production) when the module status is changed to **Idle**.

- 3 After finishing the tasks in the normal mode (non-production), **change the process module to the normal mode (production) (see page 174)**.

7.6 Operating the Process Module Change Mode Dialog

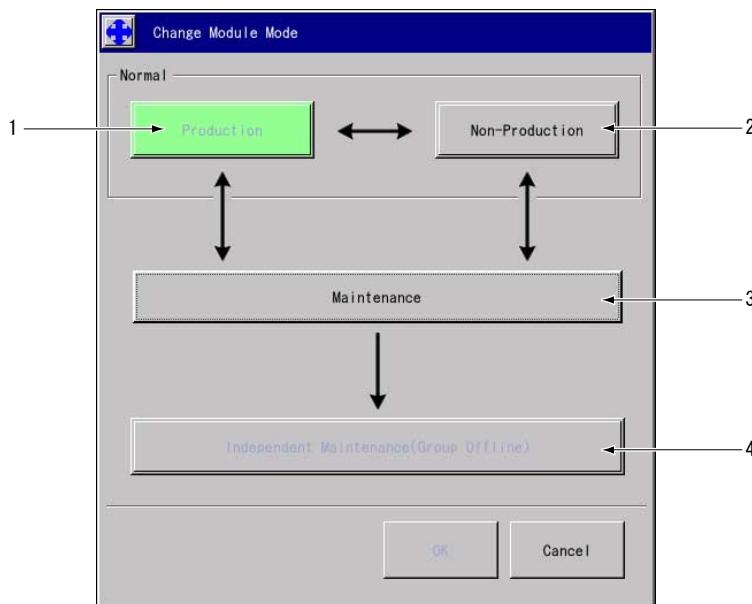
03044.20101201

On the *Change Module Mode (PM)* dialog, you can perform necessary operations to change the process module operation mode.

Display the *Change Module Mode (PM)* screen from the group menu below.

- STATUS→OVERALL STATUS→PM# SYMBOL→PM# MAINTENANCE→CHANGE MODULE MODE
- MAINTE.→PM MAINTENANCE→PM#→CHANGE MODULE MODE

▼ Change Module Mode (PM) Dialog



g030442281_e

No.	Description
1	Selects the normal mode (production.) This is used when performing normal processing.
2	Selects the normal mode (non-production.) Use this mode to perform checks and tests with dummy wafers and test wafers before processing products.
3	Selects the maintenance mode.
4	Selects the independent maintenance mode (Group Offline.)

NOTE The effective buttons may differ from the figure depending on the current process module operation mode.

7.6.1 Changing to/from the Process Module Normal Mode (Non-Production) 03670.20160901

Changing to the Process Module Normal Mode (Non-Production)

- 1 Press CHANGE MODULE MODE on the right of the *PM# Maintenance* screen.
- 2 Press NON-PRODUCTION on the *Change Module Mode (PM)* dialog.
- 3 Select the operation performed when the process module is changed to normal mode on the *Select Normal* dialog.
 - **NORMAL:** Transfers the non-production lot after the transfer of the production lot ends.
 - **NORMAL(CANCEL RESERVE):** Transfers the non-production lot before the transfer of the production lot ends.
 - **AUTO SETUP:** Executes the auto setup.

Changing to the Process Module Normal Mode (Production)

- 1 Press CHANGE MODULE MODE on the right of the *PM# Maintenance* screen to display the *Change Module Mode (PM)* dialog.
- 2 Press PRODUCTION on the *Change Module Mode (PM)* dialog.
- 3 Press OK to change to the normal mode (production).

7.6.2 Changing to/from the Process Module Maintenance Mode 03045.20140701

Changing to the Process Module Maintenance Mode

- 1 Press CHANGE MODULE MODE on the right of the *PM# Maintenance* screen.
- 2 Press MAINTENANCE on the *Change Module Mode (PM)* dialog.
- 3 Press OK to change to the maintenance mode.

Changing to the Process Module Normal Mode (Non-Production)

- 1 Press CHANGE MODULE MODE on the right of the *PM# Maintenance* screen to display the *Change Module Mode (PM)* dialog.
- 2 Press NON-PRODUCTION on the *Change Module Mode (PM)* dialog and then press OK. The *Select Normal* dialog appears.
- 3 On the *Select Normal* dialog, press either of the following buttons.
 - **NORMAL:** Does not execute the auto setup.
 - **AUTO SETUP:** **Executes the auto setup (see page 250).**

After the button is pressed, the *Select Gas Line Control* dialog appears.

The *Select Gas Line Control* dialog is displayed when Gas line cont, selection of Normal Shift of the PM# Parameter (Equipment Mode/Gas Line Edit) is set to Select at Exec. Time.

- 4 On the *Select Gas Line Control* dialog, press either of the following buttons.
 - **VACUUM GAS LINE**: Vacuums the gas lines while changing to the normal mode (non-production).
 - **PROCESS GAS FILLING**: Introduces the process gas to the process chamber while changing to the normal mode (non-production).
 - **NONE**: Does not perform the operation for the gas lines while changing to the normal mode (non-production).
- 5 Press **OK** on the *Change Processing Mode* dialog to change to the normal mode (non-production).
- 6 After finishing the tasks in the normal mode (non-production), **change the process module to the normal mode (production) (see page 175)**.

Changing to the Process Module Normal Mode (Production)

- 1 Press **CHANGE MODULE MODE** on the right of the *PM# Maintenance* screen to display the *Change Module Mode (PM)* dialog.
- 2 Press **PRODUCTION** on the *Change Module Mode (PM)* dialog and then press **OK**.
The *Select Gas Line Control* dialog appears.
The *Select Gas Line Control* dialog is displayed when Gas line cont, selection of Normal Shift of the PM# Parameter (Equipment Mode/Gas Line Edit) is set to Select at Exec. Time.
- 3 On the *Select Gas Line Control* dialog, press either of the following buttons.
 - **VACUUM GAS LINE**: Vacuums the gas lines while changing to the normal mode (production).
 - **PROCESS GAS FILLING**: Introduces the process gas to the process chamber when changing to the normal mode (production).
 - **NONE**: Does not perform the operation for the gas lines while changing to the normal mode (production).
- 4 Press **OK** on the *Change Processing Mode* dialog to change to the normal mode (production).

7.6.3 Changing to/from the Process Module Independent Maintenance Mode (Group Offline) 03046.20101201

Changing to the Process Module Independent Maintenance Mode (Group Offline)

- 1 Confirm that the equipment is in an idle state, and **change the process module to maintenance mode (see page 175)**.
- 2 Before performing the maintenance tasks, check the energy supply for which lock out described in the maintenance instructions is to be performed, release the lock out for the energy supply on the necessary sections, then perform the lock out. Perform the lock out for the following sources of energy.

For the lock out/tag out procedure, refer to *Lockout and Tagout* in the **Process Module Maintenance Manual**.

- Gas lines
- Process module air supply

- Process module power supply
- 3** Press **CHANGE MODULE MODE** on the right of the *PM# Maintenance* screen.
- 4** Press **INDEPENDENT MAINTENANCE (GROUP OFFLINE)** on the *Change Module Mode (PM)* dialog.
- 5** Press **OK** to change to the independent maintenance (Group Offline).

**NOTE**

An alarm occurs if the process module, which is set as the transfer route for the process including after process cleaning and wafer number designated cleaning, is changed to the independent maintenance mode.

- 6** Shut off the process module power supply and conduct a lock out.

For the procedures to lock out/tag out the process module power, refer to *Lockout and Tagout* in the **Process Module Maintenance Manual**.

Changing from the Process Module Independent Maintenance Mode (Group Offline)

- 1** After the maintenance tasks are completed, confirm the necessary sources of energy to release lock out, and release the lock out to start the energy supply. Release the lockout for the following sources of energy.

For the procedures for releasing lockout/tagout, refer to *Lockout and Tagout* in the **Process Module Maintenance Manual**.

- Gas lines
- Process module air supply
- Process module power supply

- 2** Press **SYSTEM** on the group menu at the bottom of the *Independent Maintenance (PM)* screen.
- 3** Select **SYSTEM STATUS** on the menu and press **MC STATUS** to display the *MC Status* screen.

Refer to **4.7 Operating the MC Status Screen (see page 114)** for the details of the MC Status screen.

▼ MC Status Screen

The screenshot shows a software interface titled 'MC Status Screen'. On the left is a table with columns: MC No., Module, MC Status, Check Parameter, EC/MC Parameter, and Offset. The table has 15 rows, with the first row (MC0, SYSTEM) highlighted in blue. The second row (MC1, PM1) also has its 'MC Status' cell highlighted in blue. The rest of the table rows are white. To the right of the table is a vertical stack of 15 rectangular buttons, each corresponding to one of the table rows. The buttons are light gray, except for the first one which is dark gray. A vertical scroll bar is located to the right of the buttons.

MC No.	Module	MC Status	Check Parameter	EC/MC Parameter	Offset
MC0	SYSTEM	Running	Adjusted	-----	-----
MC1	PM1	Running	Adjusted	-----	-----
MC2	PM2	Running	Adjusted	-----	-----
MC4	PM4	Running	Adjusted	-----	-----

g030462282_e

- 4 Select the MC of the process module to be started up and press **RESET MC**.
- 5 When the MC status becomes **Init Wait**, select the MC that you are going to start and press **START MC**.
- 6 Press **OK** on the MC start confirmation dialog.
- 7 When the status becomes **Running**, press **CLOSE** on the *MC Status* screen.

- 8** Press **CHANGE MODULE MODE** on the right of the *Independent Maintenance (PM)* screen to display the *Change Module Mode (PM)* dialog.

▼ **Independent Maintenance (PM) Screen**



g030462283_e

No.	Description
1	Displays the <i>Change Module Mode (PM)</i> dialog.

- 9** Press **MAINTENANCE** on the *Change Module Mode (PM)* dialog.
- 10** Press **OK** to change to the maintenance mode.
- 11** Press **INITIALIZE** on the right of the *PM# Maintenance* screen and press **OK** to initialize the process module.
- 12** **Change the process module to normal mode (production) (see page 175).**

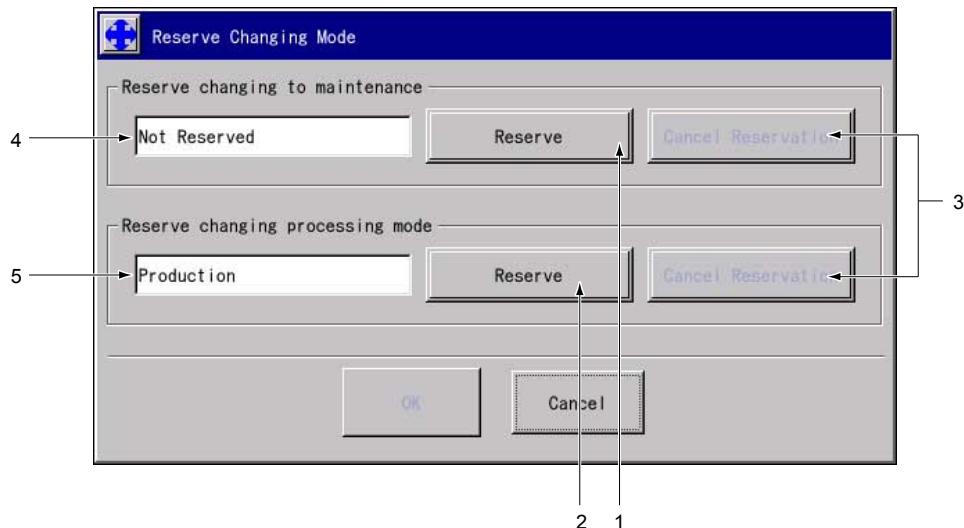
7.7 Operating the Process Module Reserve Changing Mode Dialog

03166.20101201

On the *Reserve Changing Mode* dialog, you can perform necessary operations to change the process module operation mode.

Display the Reserve Changing Mode dialog from the group menu below.

- STATUS→OVERALL STATUS→PM# SYMBOL→PM# STATUS→RESERVE CHANGING MODE
- STATUS→PM STATUS→PM#→RESERVE CHANGING MODE
 - ▼ Reserve Changing Mode Dialog



g031662400_e

No.	Description
1	Reserves changing to the maintenance mode (see page 180).
2	Reserves changing to the processing mode (see page 181).
3	Cancels the changing mode reservation.
4	Displays the reservation condition of changing to the maintenance mode.
5	Displays the current processing mode. Displays the reservation condition of the processing mode change while the changing mode is reserved.

NOTE The effective buttons may differ from the figure depending on the current process module operation mode.

7.7.1 Reservation of Changing to Process Module Maintenance Mode

03347.20091101

- 1 Press RESERVE CHANGING MODE on the right of the PM# Status screen.

- 2 Press **RESERVATION** on the Reserve changing to maintenance field on the *Reserve Changing Mode* dialog.
- 3 Press **OK** to reserve changing to the maintenance mode.

7.7.2 Reservation of Process Module Processing Mode Change

03346.20101201

Introduction

Overview:

On the processing mode change reservation, you can reserve the switching between the normal mode (production) on which product wafers are transferred and the normal mode (non-production) on which non-production wafers such as for measuring particle or etch rate are transferred.

- 1 Press **RESERVE CHANGING MODE** on the right of the *PM# Status* screen.
- 2 Press **RESERVATION** on the Reserve changing processing mode field on the *Reserve Changing Mode* dialog.



NOTE

After the mode change, the operation mode is automatically selected to as the non-production if the mode during the reservation is production, and production if the mode during the reservation is non-production.

- 3 Press **OK** to reserve the mode change.

7.8 Changing to/from the Module Mode Change Screen

03047.20070501

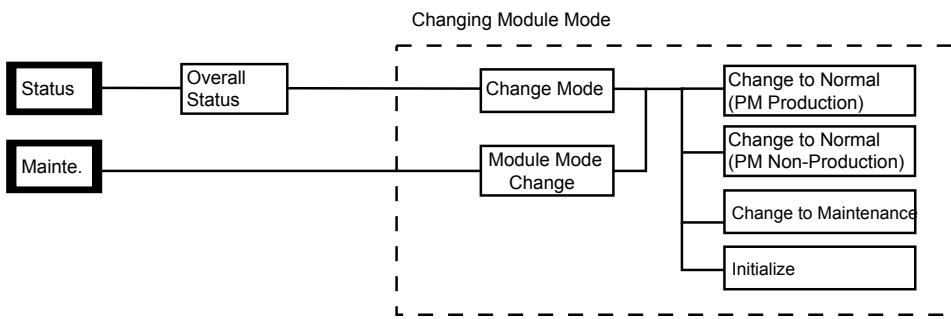
Introduction

Overview:

You can also change the operation mode from the *Module Mode Change* screen.

The software hierarchy for changing the operation mode on *Module Mode Change* screen follows.

▼ Software Hierarchy for Changing Operation Mode on the Module Mode Change Screen



g030472284_e

Sequence of Changing the Maintenance Mode

- 1 Confirm that the equipment is in an idle state.
- 2 From the *Overall Status* screen, or by pressing MAINTE. on the group menu, display the *Module Mode Change* screen and [change to the maintenance mode \(see page 184\)](#).
- 3 After finishing the maintenance tasks, [change to the normal mode \(production\) \(see page 184\)](#).

Sequence of Changing the Normal Mode (Non-production)

- 1 Confirm that the equipment is in an idle state.
- 2 From the *Overall Status* screen, or by pressing MAINTE. on the group menu, display the *Module Mode Change* screen and [change to the maintenance mode \(non-production\) \(see page 184\)](#).
- 3 After finishing the tasks in the normal mode (non-production), [change to the normal mode \(production\) \(see page 184\)](#).

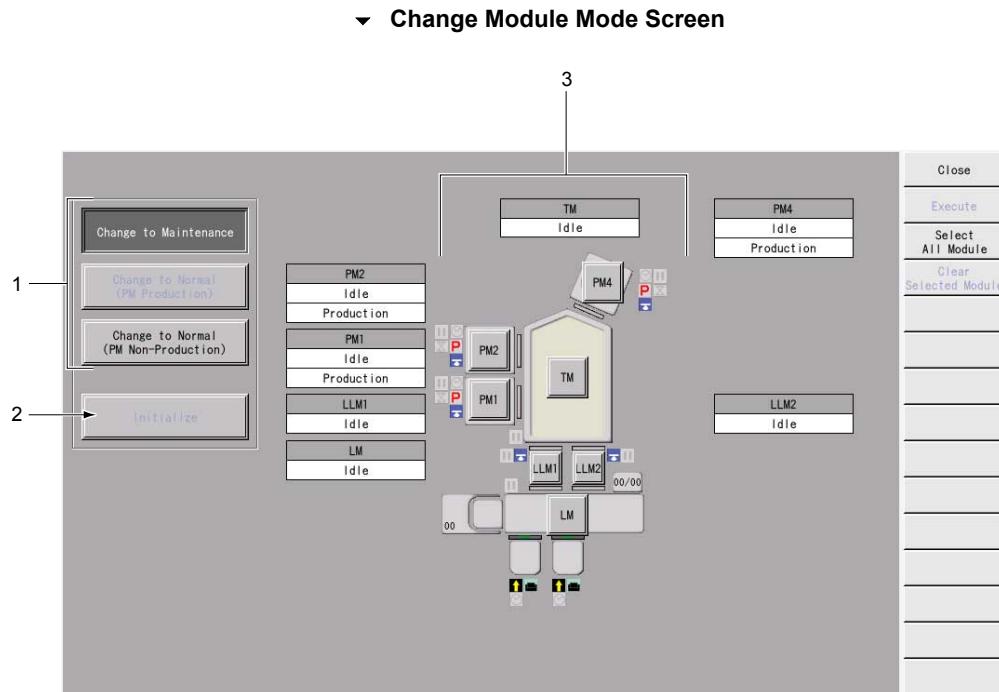
7.9 Operating the Module Mode Change Screen

03048TT.20101201

On the *Module Mode Change* screen, you can perform necessary operations to change the operation mode.

Display the *Module Mode Change* screen from the group menu below.

- STATUS→OVERALL STATUS→CHANGE MODE
- MAINTE.→MODULE MODE CHANGE



g030482285_e

No.	Description
1	Sets the operation mode of the designated module. Pressing CHANGE TO MAINTENANCE sets the designated module to maintenance mode. Pressing CHANGE TO NORMAL (PM PRODUCTION) sets the designated module to normal mode. If you select a process module, the process module will be set to the normal mode (production). Pressing CHANGE TO NORMAL (PM NON-PRODUCTION) sets the designated module to normal mode. If you select a process module, the process module will be set to the normal mode (non-production).
2	Sets the designated module to initialize.
3	Displays the current equipment status (see page 185). You can designate the module by pressing the button of the module which you want to change the operation mode.



NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Module Mode Change* screen.
- **EXECUTE:** Changes the designated module to the selected operation mode, or initialize the designated module.
- **SELECT ALL MODULE:** Designates all the modules that can be selected.
- **CLEAR SELECT MODULE:** Clears all the modules that are selected.

7.9.1 Changing to/from the Maintenance Mode on the Module Mode Change Screen 03671.20070501

Changing to the Maintenance Mode

- 1 Press **CHANGE TO MAINTENANCE** on the *Module Mode Change* screen.
- 2 Press the button of the module to change to the maintenance mode.
- 3 Press **EXECUTE** to change to maintenance mode.

Changing to the Normal Mode

- 1 Press **CHANGE TO NORMAL (PM PRODUCTION)** or **CHANGE TO NORMAL (PM Non-PRODUCTION)** on the *Module Mode Change* screen.
- 2 Press the button of the module to change to the normal mode.
- 3 If you select **CHANGE TO NORMAL (PM PRODUCTION)**, press **EXECUTE** to change to the normal mode.

If you select **CHANGE TO NORMAL (PM Non-PRODUCTION)**, refer to **7.9.2 Changing to/from the Normal Mode (Non-Production) on the Module Mode Change Screen** (see page 184).

7.9.2 Changing to/from the Normal Mode (Non-Production) on the Module Mode Change Screen 03672.20070501

Changing to the Normal Mode (Non-Production)

- 1 Press **CHANGE TO NORMAL (PM Non-PRODUCTION)** on the *Module Mode Change* screen.
- 2 Press the button of the module to change to the normal mode (non-production).
- 3 Press **EXECUTE** to change to the normal mode (non-production).

Changing from the Normal Mode (Production)

- 1 Press **CHANGE TO NORMAL (PM PRODUCTION)** on the *Module Mode Change* screen.
- 2 Press the button of the module to change to the normal mode (production).
- 3 Press **EXECUTE** to change to the normal mode (production).

7.9.3 Initializing on the Module Mode Change Screen 03673.20070501

- 1 Press **INITIALIZE** on the *Module Mode Change* screen.
- 2 Press the button of the module to initialize.

- 3 Press EXECUTE to initialize.

7.9.4 Symbols on the Module Mode Change Screen 03674.20071201

For the symbols that are displayed on the *Module Mode Change* screen, refer to *Symbols on the Overall Status Screen* in the **Basic Operations Manual**.

The descriptions of the symbol that are displayed on the screen can also be checked from the HELP on the group menu.

Executing Auto Check

This chapter provides the necessary operations for executing auto check for the process module and setting execution timing.

The information contained in this chapter has been prepared based on the specifications of the standard equipment. Throughout the manual, figures provided in this manual, including operation screens and appearances, may vary from the equipment installed at your site.

8.1 Executing Auto Check 03222.20120601

Introduction

Overview:

The auto check function is the function to the check vacuum and gas systems of the equipment.

There are two ways to execute an auto check: one is to execute individually from each auto check item on the screen, and the other is to execute all at once automatically after predetermined time has elapsed and the limit value of the set execution trigger has been reached by setting execution timing for the auto check macro.

The maximum 24 macros can be set for the execution timing for the auto check macro.

For information about creating/editing auto check macros, refer to *Operating the Maintenance Macro Editor Screen* in the **Advanced Operations Maintenance Macro Manual**.

The following explains the overview of each auto check items.

▼ Overview of Each Auto Check Items

Auto Check Items	Overview
Measure Chamber Volume	The chamber volume check is performed by calculating the capacity of the process chamber to be used for a vacuum/gas line check. This is done by obtaining a virtual capacity based on the ambient temperature and by using the pressure and the flow rate of the gas in the chamber to prevent any in-chamber gas temperature differential that could be created by the temperature control.
CM 0 Point Pressure	<p>The CM 0 point pressure is checked by measuring the pressure inside the process module after vacuuming the process module, and then comparing the measurement with the set value of the PM# Parameter (Maintenance/Auto Check) (the set value of CM Permit Range of 0 Point Pressure for standard CM check, or the set value of CM2 Permit Range of 0 Point Pressure for CM2 check), to evaluate whether the reading on the capacitance manometer is within the normal range.</p> <p>The CM 0 point check can be executed by the following two ways depending on the parameter settings.</p> <ul style="list-style-type: none"> If CM 0 Point Check Sampling Start Mode of PM# Parameter (Maintenance/Auto Check) is MODE_TIME (Time) and BA Gauge Configuration of PM# Parameter (Equipment/Pressure Edit) is None, the pressure is checked by exhausting the PM for the time set at Vacuuming Time for Auto Check of PM# Parameter (Maintenance/Auto Check) and comparing the pressure value. If CM 0 Point Check Sampling Start Mode of PM# Parameter (Maintenance/Auto Check) is MODE_BA (BA Gauge), the pressure is checked by exhausting the PM to the BA Measure Maximum Pressure of PM# Parameter (Equipment/Pressure Edit) and comparing the BA gauge reading after the set pressure is achieved.
CM Adjust 0 Point	The CM 0 point adjustment is the function that exhausts the process module for a set length of time and then adjusts the capacitance manometer reading to zero when the pressure shown on the B-A pressure gauge has reached the CM 0 Point Pressure Range.

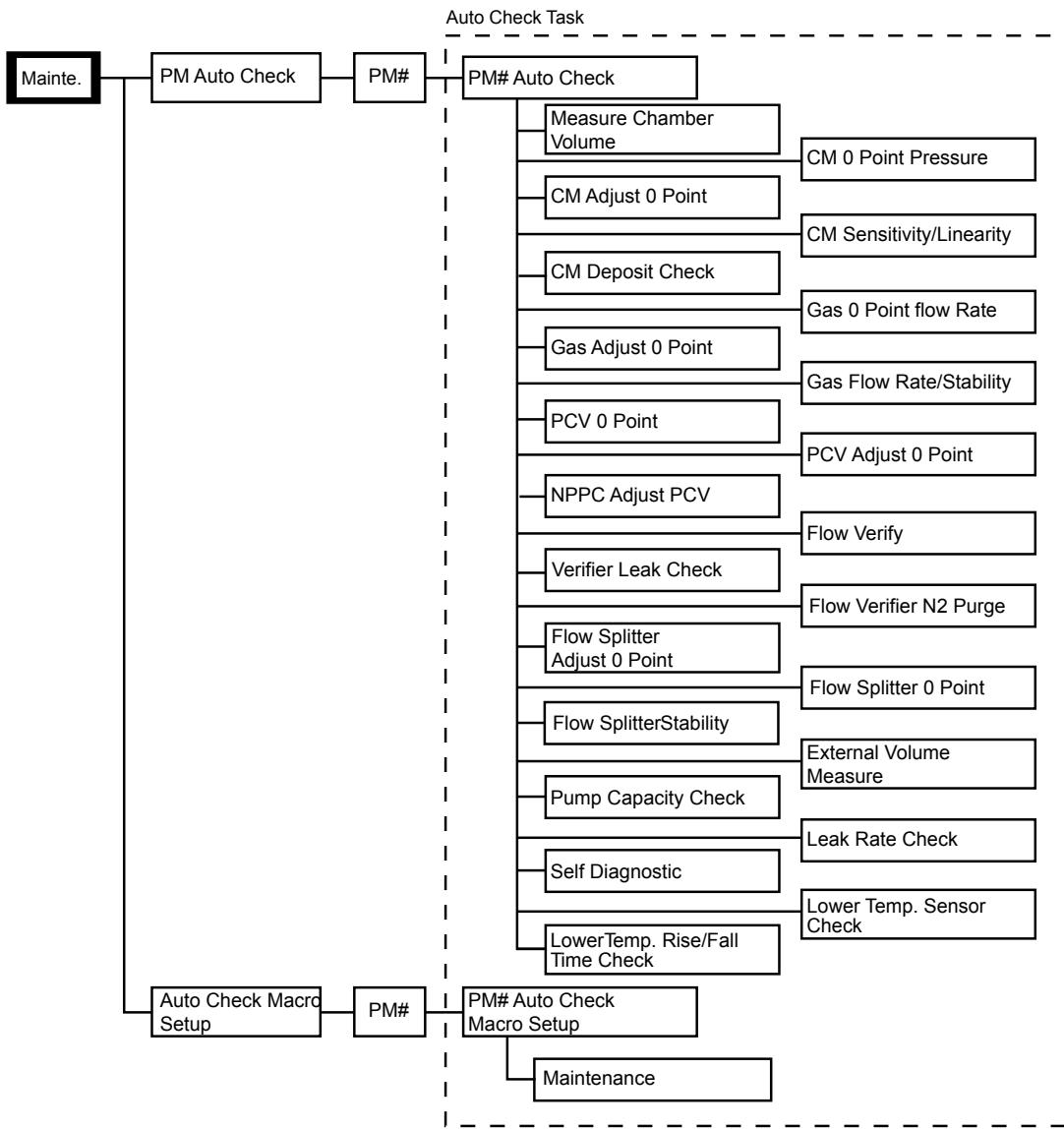
Auto Check Items	Overview
CM Sensitivity/Linearity	<p>The capacitance manometer (CM) sensitivity is checked by calculating the error rate from the slope of pressure increase measured by feeding gas at a predetermined flow rate into the process module while it is under vacuum as well as from the slope of theoretical pressure increase. The calculation is then compared with the preset (the preset of CM1 Permit Range of Sensibility Error for standard CM check, or CM2 Permit Range of Sensibility Error for CM2 check) of the PM# Parameter (Maintenance/Auto Check) or the initial value to evaluate whether the error rate is within the normal range.</p> <p>The CM linearity is checked by calculating the residual difference between the actual pressure measured by feeding gas at a predetermined flow rate into the process module while it is under vacuum and the calculated pressure increase curve linearity, and then comparing the difference with the preset (the preset of CM1 Permit Range of Pressure Linearity for standard CM check, and CM2 Permit Range of Pressure Linearity for CM2 check) of PM# Parameter (Maintenance/Auto Check) to evaluate whether the linearity is within the normal range.</p> <p>The sensitivity check and linearity check are conducted simultaneously.</p>
CM Deposit Check	<p>This function checks whether deposition is stuck on the capacitance manometer in the deposition trap structure.</p>
Gas 0 Point Flow Rate	<p>The gas 0 point flow rate check is conducted by measuring the gas flow rate with a flow meter in a no-gas-flow condition, and then by comparing the finding with the set value of PM# Parameter (Maintenance/Auto Check) Gas n Permit Range of 0 Point Flow Rate to evaluate whether the flow meter reading is within the normal range.</p>
Gas Adjust 0 Point	<p>The gas 0 point adjustment is the function to adjust the 0 point of the flow meter in the no-gas-flow conditions, closing the primary and secondary valves on the flow meter.</p>
Gas Flow Rate/Stability	<p>The gas flow rate is checked by feeding gas at a predetermined flow rate into the process module under vacuum and calculating the flow rate from the resultant pressure increase inclination, and comparing the error rate relative to the preset flow rate (theoretical value) with the Gas n Permit Range of Gas Flow Rate Error of PM# Parameter (Maintenance/Auto Check) or the initial value to evaluate whether the error rate is within the normal range.</p> <p>The stability is checked by feeding gas at a predetermined flow rate into the process module under vacuum, calculating the residual difference between the measured pressure and the calculated pressure increase curve linearity, and then comparing the difference with the Gas n Permit Range of Stability Press. of PM# Parameter (Maintenance/Auto Check) or the initial value to evaluate whether it is within the normal range.</p> <p>The MFC flow rate check and stability check are conducted simultaneously.</p>
PCV 0 Point	<p>The PCV 0 point pressure is checked by measuring the pressure inside the process module after exhausting the process module for a predetermined time, and then comparing the measurement with the set value of PM# Parameter (Maintenance/Auto Check) (the set value of PCV Permit Range of 0 Point Press (center) for the PCV (center) check, or the set value of PCV Permit Range of 0 Point Press (edge) for the PCV (edge) check) to evaluate whether the reading on the capacitance manometer is within the normal range.</p>
PCV Adjust 0 Point	<p>The PCV 0 point adjustment is the function that exhausts the process module for a set length of time and then adjusts the PCV reading to zero when the pressure shown on the B-A pressure gauge has reached the PCV 0 Point Pressure Range.</p>

Auto Check Items	Overview
NPPC Adjust PCV	The NPPC PCV adjustment is the function that measures the PM pressure for the PCV control pressure when NPPC is executed with small flow rate using the flow splitter to calculate the PCV control pressure when NPPC is executed.
Flow Verify	Flow verify check is the function to check the repeatability of the flow rate on the flow meter and the individual difference. Also it corrects the effects of external environment temperature.
Verifier Leak Check	Performs the leak check for the flow verifier including the pipes connected to the both ends.
Verifier N ₂ Purge	To protect the flow verifier from the corrosive gas, replace the gas inside the flow verifier with the N ₂ after measuring the flow rate of the gas except N ₂ .
Flow Splitter 0 Point	The flow split 0 point check exhausts the process module for a set length of time and measures the pressure, then compares the measurement with the set value of the F.S. Permit Range of 0 Point Press. of PM# Parameter (Maintenance/Auto Check) to evaluate whether the reading on the flow splitter PCV (edge, center) is within the normal range.
Flow Splitter Adjust 0 Point	The flow split 0 point adjustment exhausts the process module for a set length of time and measures the pressure, compares the measurement with the set value of the F.S. Permit Range of 0 Point Press. of PM# Parameter (Maintenance/Auto Check) to evaluate whether the reading on the flow splitter PCV (edge, center) is within the normal range, then adjusts the pressure value to zero.
Flow Splitter Stability	The stability check consists of the span check and the upper electrode erosion/gas leak/equipment error check. The span check measures the PCV (edge, center) pressures while full open by flowing N ₂ gas at different flow rates into the process module under vacuum and compares the pressure increase slope with the allowable range setting of the PM# Parameter (Maintenance/Auto Check) to evaluate whether the pressure rise is within the normal range. The upper electrode erosion/gas leak/equipment error check measures the PCV (edge, center) pressures while full open and full close respectively by feeding N ₂ gas at a predetermined flow rate and compares the pressure values with the allowable range setting of PM# Parameter (Maintenance/Auto Check) to evaluate the pressure values are within the normal range. The span check and the upper electrode erosion/gas leak/equipment error check are performed simultaneously.
External Vol Measure	The external volume measurement is the function to calculate the external volume necessary for flow verifier check.
Pump Capacity Check	The pump exhaust capability is checked by measuring the ultimate pressure after feeding a preset flow rate of gas into the process module under vacuum while it is being pumped continuously. The pump capability at a specified APC valve angle is checked by measuring the ultimate pressure with the APC valve set at a certain angle.
Leak Rate Check	Performs 4 types of leak checks to help the operator identify leak points by referring to the check results.
Self Diagnostic	The flow self-diagnostic is a function to determine whether the FCS is normal by comparing the declining pressure curve that was memorized by the FCS with the curve obtained in the measurement. You can select the flow rate self diagnosis or the 0 point check from the menu.
Lower Temp. Sensor Check	This function checks whether the average of the measurement values of the lower temperature sensor obtained by sampling is within the setting range.

Auto Check Items	Overview
Lower Temp. Rise/Fall Time Check	This function checks whether the temperature rise and fall times of the lower heater are within the setting range.

The software hierarchy for executing auto check follows.

▼ Software Hierarchy for Executing Auto Check



g014720856_e

Sequence of Auto Check Individual Execution

- 1 Confirm that the equipment is in an idle state, and [change to the maintenance mode for the process module to execute auto check \(see page 171\)](#).
- 2 Display the *PM# Auto Check* screen from MAINTE. of the group menu.
- 3 By operating the following screen functions, conduct each auto check operation.
 - *Measure Chamber Volume* screen: [Measures the virtual capacity of the chamber \(see page 194\)](#).

- *CM 0 Point Pressure* screen: Checks the capacitance manometer reading when the chamber pressure is set to 0 (see page 196).
- *CM Adjust 0 Point* screen: Adjusts the 0 point of the capacitance manometer reading when the chamber pressure is set to 0 (see page 198).
- *CM Sensitivity/Linearity* screen: Measures the pressure rise by feeding gas into the chamber and compares the measurement with the set value or the stored value (see page 200).
- *CM Deposit Check* screen: Checks whether deposition is stuck on the capacitance manometer in the deposition trap structure (see page 202).
- *Gas 0 Point Flow Rate* screen: Checks the flow meter reading when no gas is fed (see page 203).
- *Gas Adjust 0 Point* screen: Adjusts the 0 point of the flow meter reading when no gas is fed (see page 205).
- *Gas Flow Rate/Stability* screen: Checks the flow meter reading while a constant rate of gas is fed (see page 207).
- *PCV 0 Point* screen: Checks the PCV reading when the pressure of the cooling gas line PCV is set to 0 (see page 209).
- *PCV Adjust 0 Point* screen: Adjusts the PCV 0 point when the pressure of the cooling gas line PCV is set to 0 (see page 211).
- *NPPC Adjust PCV* screen: Measures the PM pressure for the PCV control pressure when NPPC is executed with small flow rate using the flow splitter to calculate the PCV control pressure when NPPC is executed (see page 213).
- *Flow Verify* screen: Checks the flow meter reading while a constant rate of gas is fed (see page 215).
- *Verifier Leak Check* screen: Performs leak check for the flow verifier including the pipes connected to both ends (see page 218).
- *Verifier N2 Purge* screen: To protect the flow verifier from the corrosive gases, replaces the gas inside the flow verifier with N2 after measuring the flow rate of a gas other than N2 (see page 220).
- *Flow Splitter 0 Point* screen: Determines whether the PCV (edge, center) readings of the flow splitter are normal (see page 222).
- *Flow Splitter Adjust 0 Point* screen: Determines whether the PCV (edge, center) readings of the flow splitter are normal and adjusts the readings to 0 (see page 224).
- *Flow Splitter Stability* screen: Checks the flow splitter for span difference, upper electrode erosion, gas leak, and equipment error (see page 226).
- *External Volume Measure* screen: Measures the external volume which is necessary for flow verifier check (see page 230).
- *Pump Capacity Check* screen: Checks the pump capacity by measuring the ultimate pressure while feeding a preset flow rate of gas into the process module under vacuum while it is being pumped continuously (see page 232).
- *Leak Rate Check* screen: Executes 4 types of leak checks to help the operator identify leak points (see page 234).
- *Self Diagnostic* screen: Determines whether the FCS is normal by comparing the declining pressure curve that was memorized by the FCS with the curve obtained in the measurement (see page 238).
- *Lower Temp. Sensor Check* screen: Checks whether the lower heater temperature is within the setting range (see page 240).
- *Lower Temp. Rise/Fall Time Check* screen: Checks whether the temperature rise and fall times of the lower heater temperature are within the setting range (see page 242).

Sequence of Auto Check Package Execution

- 1 Create the auto check macro.

For information about creating auto check macros, refer to *Operating the Maintenance Macro Editor Screen* in the **Advanced Operations Maintenance Macro Manual**.

- 2 Display the *PM# Auto Check Macro Setup* screen from MAINTE. of the group menu.

- 3 Check the auto check macro.

For information about the auto check macro items, refer to *Maintenance Macro Command List* in the **Advanced Operations Maintenance Macro Manual**.

- 4 By operating the functions in the *Maintenance (Auto Check Macro)* screen, **set the auto check macro execution timing (see page 244)**.

The auto check macro will be executed automatically when the set value of the execution trigger is reached.

If the executing trigger is set to Time (Day) or Time (Week), a warning occurs 30 minutes before the execution time and auto check execution is announced.

8.2 Operating the Measure Chamber Volume Screen

03223.20170301

On this screen, you can operate the necessary functions to measure the chamber virtual volume.

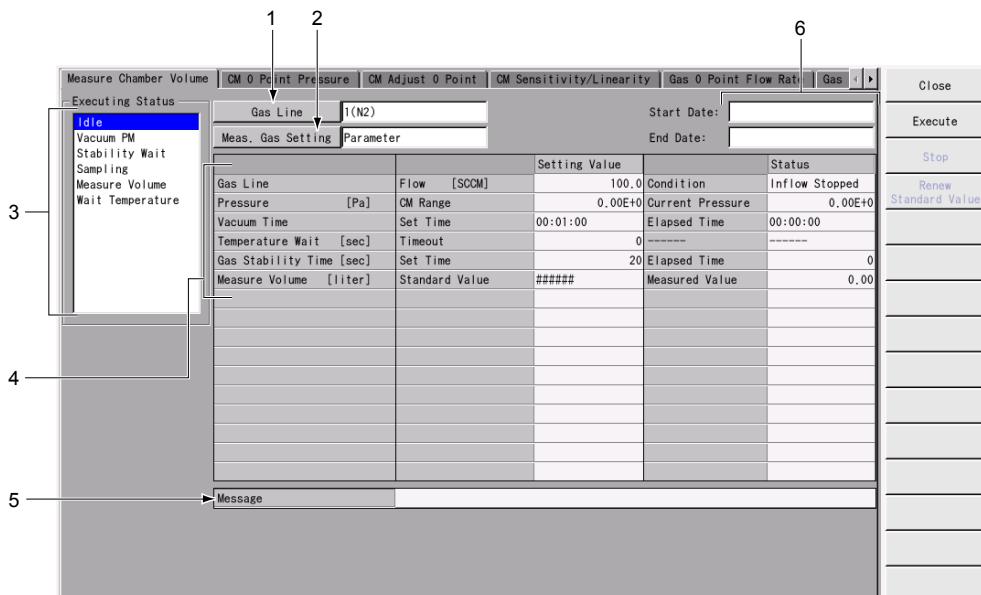


NOTE For the gas flow rate set value (Gas n (n=1 to 16) Select Use Gas Type of Individual Check of PM# Parameter (Maintenance/Auto Check)), set a value that allows sufficient heat exchange with the external environment. If the gas flow rate is too high, the temperature inside the chamber will increase, and it will prevent a normal pressure check.

Display the *Measure Chamber Volume* screen from the group menu below.

MAINTE.→PM AUTO CHECK→PM#→MEASURE CHAMBER VOLUME

▼ Measure Chamber Volume Screen



g032232431_e

No.	Description
1	Selects the gas line used for the chamber capacity measurement.
2	Selects the measurement gas setting used for the chamber capacity measurement.
3	Shows the status of the virtual chamber capacity check currently being executed.
4	Displays the status and set value of each item while the chamber virtual volume check is being executed.
5	Displays the completion status of the chamber virtual volume measurement or the initial value update. An error message appears in the event of an abnormal ending.
6	Displays the start time and completion time of the chamber virtual capacity measurement.



NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Measure Chamber Volume* screen. The screen can be closed during a virtual chamber volume measurement without interfering with the checking operation.
- **EXECUTE:** [Executes the chamber virtual volume measurement \(see page 195\)](#).
- **STOP:** Stops the virtual chamber capacity measurement currently being performed.
- **RENEW STANDARD VALUE:** [Saves the latest readings as initial value \(see page 195\)](#).

8.2.1 Executing the Chamber Virtual Volume Measurement

03362.20170301

- 1 Press **GAS LINE** on the *Measure Chamber Volume* screen and select the gas line used to measure the chamber virtual volume.



NOTE

The chamber virtual volume measurement can not be executed for the gas line on which explosive gas is set, or the gas line of which the flow meter is set to DN-VC (Flow Meter Type Selection for Gas Line n of PM# Parameter (Equipment/Gas Line Edit) is DN-VC) and Gas n Select Use Gas Type of Individual Check Of PM# Parameter (Maintenance/Auto Check) is set to N2 Gas.

- 2 Press **MEAS. GAS SETTING** on the *Measure Chamber Volume* screen and select the measurement gas setting used to measure the chamber virtual volume.
- 3 Press **EXECUTE** on the right of the *Measure Chamber Volume* screen to execute the chamber virtual volume measurement.

8.2.2 Renewing the Initial Value of Chamber Virtual Volume Measurement

03363.20070501

- 1 [Execute a chamber virtual volume measurement \(see page 195\)](#).
- 2 After the chamber virtual volume measurement, press **RENEW STANDARD VALUE** on the right of the *Measure Chamber Volume* screen to renew the initial value.

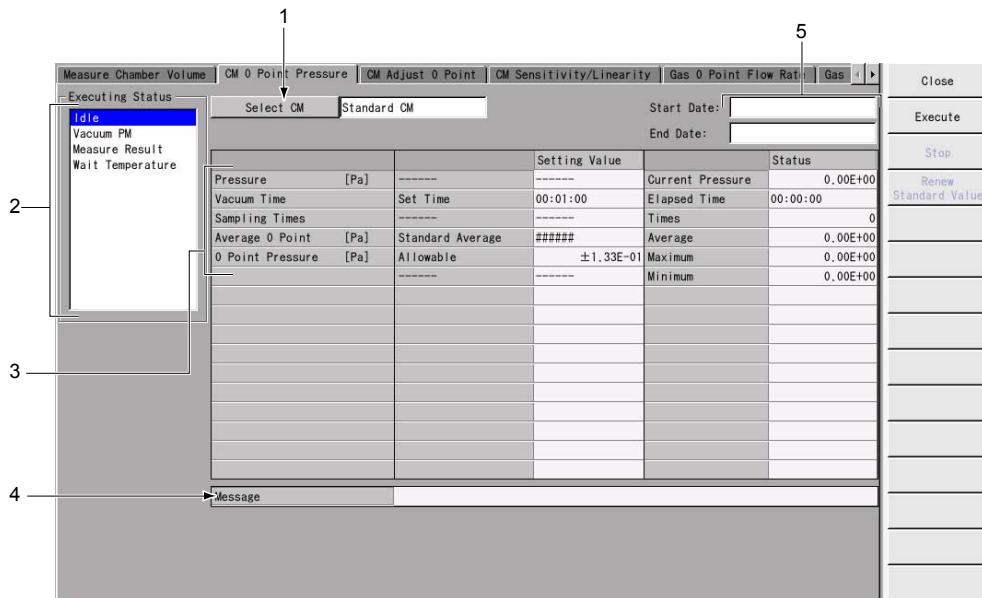
8.3 Operating the CM 0 Point Pressure Screen 03224.20101201

On this screen, you can operate the necessary functions to conduct a CM 0 point pressure check.

Display the *CM 0 Point Pressure* screen from the group menu below.

MAINTENANCE → PM AUTO CHECK → PM# → CM 0 POINT PRESSURE

▼ CM 0 Point Pressure Screen



g032242432_e

No.	Description
1	Selects the capacitance manometer (STANDARD CM or CM2) to execute the CM 0 point pressure check.
2	Shows the status of the CM 0 point pressure check currently being executed.
3	Displays the status and set value of each item while the CM 0 point pressure check is being executed.
4	Displays the completion status of the CM 0 point pressure check or the initial value update. If the CM 0 point check ends abnormally, an error message displays.
5	Displays the start time and end time of the CM 0 point pressure check.



NOTE

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *CM 0 Point Pressure* screen. The CM 0 point pressure check will continue even after the screen is closed.
- **EXECUTE:** Executes the **CM 0 point pressure check** (see page 197).

- STOP: Stops the CM 0 point pressure check currently being performed.
- RENEW STANDARD VALUE: Saves the latest readings as initial value (see page 197).

8.3.1 Executing the CM 0 Point Pressure Check 03147.20081001

- 1 Press SELECT CM on the *CM 0 Point Pressure* screen and select the capacitance manometer (STANDARD CM or CM 2) to execute the CM 0 point pressure check.
- 2 Press EXECUTE on the right of the *CM 0 Point Pressure* screen to execute the CM 0 point pressure check.

8.3.2 Renewing the Initial Value of CM 0 Point Pressure Check 03148.20070501

- 1 Executes the CM 0 point pressure check (see page 197).
- 2 After the CM 0 point pressure check, press RENEW STANDARD VALUE on the right of the *CM 0 Point Pressure* screen to renew the initial value.

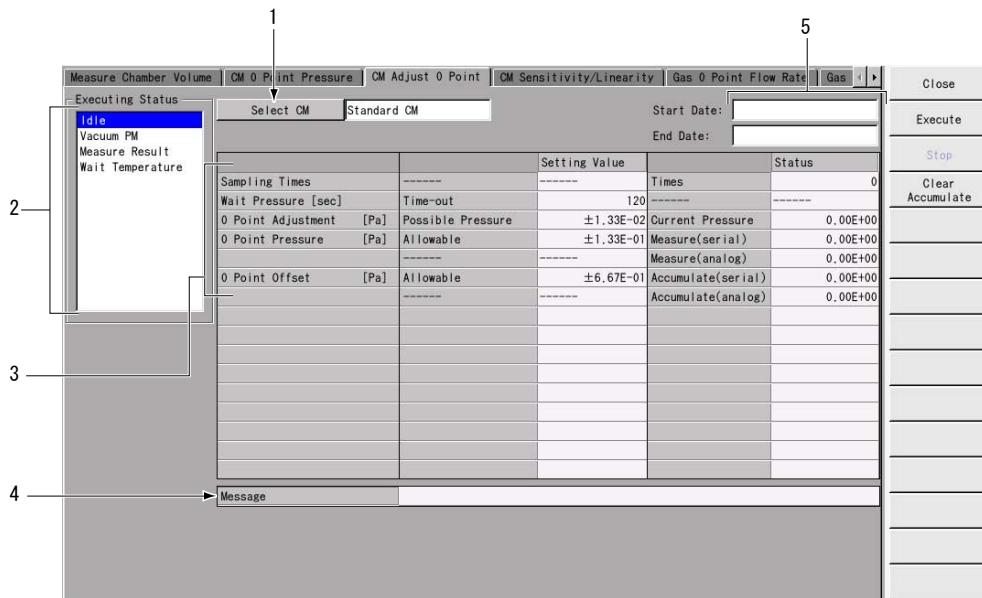
8.4 Operating the CM Adjust 0 Point Screen 03225.20101201

On this screen, you can operate the necessary functions to conduct a CM 0 point adjustment.

Display the *CM Adjust 0 Point* screen from the group menu below.

MAINTENANCE → PM AUTO CHECK → PM# → CM ADJUST 0 POINT

▼ CM Adjust 0 Point Screen



g032252433_e

No.	Description
1	Changes the 0 point adjustment display between STANDARD CM and CM 2.
2	Shows the status of the CM 0 point adjustment currently being executed.
3	Displays the status and set value of each item while the CM 0 point adjustment is being executed.
4	Shows the completion status of the CM 0 point adjustment. If the CM 0 point adjustment ends abnormally, an error message displays.
5	Displays the start time and end time of the CM 0 point adjustment.



NOTE

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- CLOSE**: Closes the *CM Adjust 0 Point* screen. The screen can be closed during a 0 point adjustment without interfering with the operation.
- EXECUTE**: Executes the CM 0 point adjustment (see page 199).

- **STOP:** Stops the CM 0 point adjustment currently being performed.
- **CLEAR ACCUMULATE:** Clears all cumulative values of the correction value.

8.4.1 Executing the CM 0 Point Adjustment 03149.20070501

- 1 Press **EXECUTE** on the right of the *CM Adjust 0 Point* screen to execute the CM 0 point adjustment.
- 2 After the CM 0 point adjustment, press **SELECT CM** on the *CM Adjust 0 Point* screen and select the capacitance manometer (**STANDARD CM** or **CM 2**) to display the result of the 0 point adjustment.

8.5 Operating the CM Sensitivity/Linearity Screen

03226.20101201

On this screen, you can operate the necessary functions to conduct a CM sensitivity/linearity check.

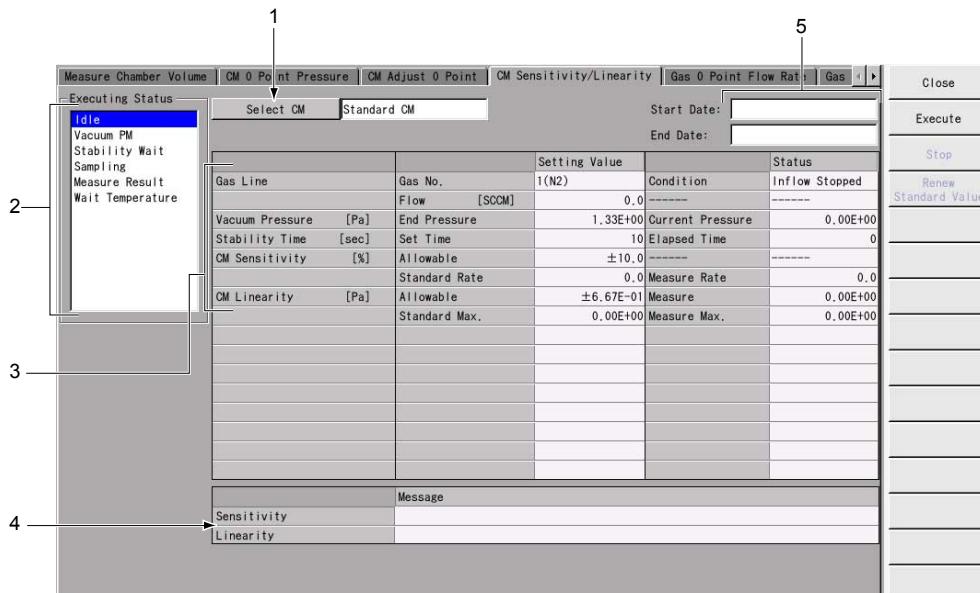
NOTE For the gas flow rate set value (Gas Flow Rate for Auto Check of PM# Parameter (Maintenance/Auto Check)), set a value that allows sufficient heat exchange with the external environment. If the gas flow rate is too high, the temperature inside the chamber will increase, and it will prevent a normal pressure check.

NOTE The virtual chamber capacity used for the CM sensitivity/linearity check is specified by the PM# Parameter (Maintenance/Auto Check), Setting Virtual Chamber Capacity. If the set value is 0, use the initial value last saved by either the chamber virtual volume measurement or the auto check macro.

Display the *CM Sensitivity/Linearity* screen from the group menu below.

MAINTE.→PM AUTO CHECK→PM#→CM SENSITIVITY/LINEARITY

▼ CM Sensitivity/Linearity Screen



g032262434_e

No.	Description
1	Selects the capacitance manometer (STANDARD CM or CM2) to execute the CM sensitivity/linearity check.
2	Shows the status of the CM sensitivity/linearity check currently being executed.
3	Displays the status and set value of each item while the CM sensitivity/linearity check is being executed.
4	Displays the completion status of the CM sensitivity/linearity check or the initial value update. If the CM sensitivity/linearity check ends abnormally, an error message displays.
5	Displays the start time and end time of the CM sensitivity/linearity check.

**NOTE**

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *CM Sensitivity/Linearity* screen. The screen can be closed during a CM sensitivity/linearity check without interfering with the checking operation.
- **EXECUTE:** [Executes the CM sensitivity/linearity check \(see page 201\)](#).
- **STOP:** Stops the sensitivity/linearity check currently being performed.
- **RENEW STANDARD VALUE:** [Saves the latest readings as initial value \(see page 201\)](#).

8.5.1 Executing the CM Sensitivity and Linearity Check 03364.20111001

- 1 Press **SELECT CM** on the *CM Sensitivity/Linearity* screen and select the capacitance manometer (**STANDARD CM** or **CM2**) to execute the CM sensitivity/linearity check.

**NOTE**

The CM sensitivity and linearity check cannot be executed if explosive gas is set for the gas line which is selected by Select Use Gas Type for Auto Check on PM# Parameter (Maintenance/Auto Check), or DN-VC (Flow Meter Type Selection for Gas Line n on PM# Parameter (Equipment/Gas Line Edit) is DN-VC) is set for the flow meter of the selected line.

- 2 Press **EXECUTE** on the right of the *CM Sensitivity/Linearity* screen to execute the CM sensitivity/linearity check.

8.5.2 Renewing the Initial Value of CM Sensitivity/Linearity Check 03355.20070501

- 1 [Execute a CM sensitivity/linearity check \(see page 201\)](#).
- 2 After the sensitivity/linearity check, press **RENEW STANDARD VALUE** on the right of the *CM Sensitivity/Linearity* screen to renew the initial value.

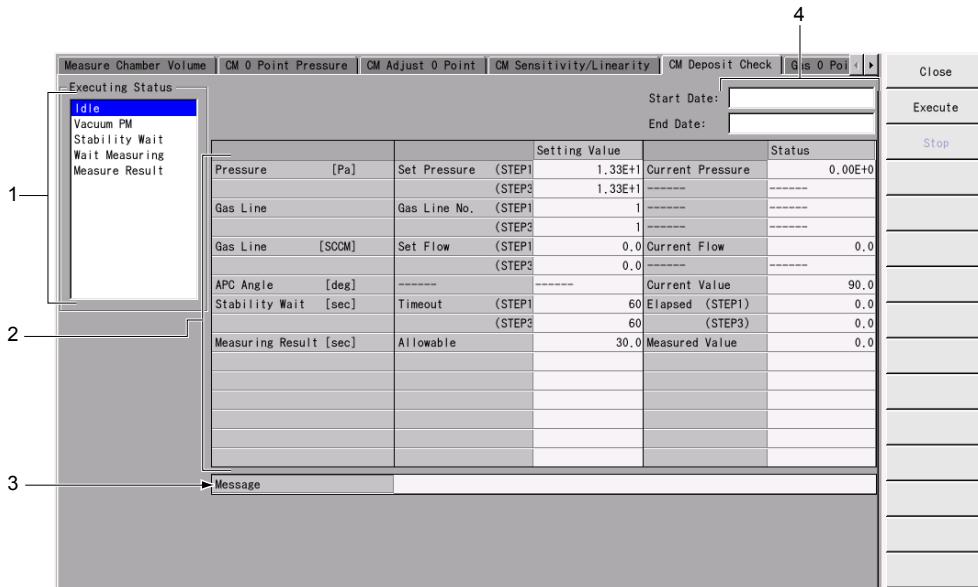
8.6 Operating the CM Deposit Check Screen 09269.20120601

On this screen, you can operate the necessary functions to conduct a CM deposition check.

Display the *CM Deposit Check* screen from the group menu below.

MAINTENANCE → PM AUTO CHECK → PM# → CM DEPOSIT CHECK

▼ CM Deposit Check Screen



g7206_e

No.	Description
1	Shows the status of the CM deposition check currently being executed.
2	Displays the status and set value of each item while the CM deposition check is being executed.
3	Displays the completion status of the CM deposition check. If the CM deposition check ends abnormally, an error message displays.
4	Displays the start time and end time of the CM deposition check.

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- CLOSE:** Closes the *CM Deposit Check* screen. The CM deposition check will continue even after the screen is closed.
- EXECUTE:** Executes the CM deposition check.
- STOP:** Stops the CM deposition check currently being performed.

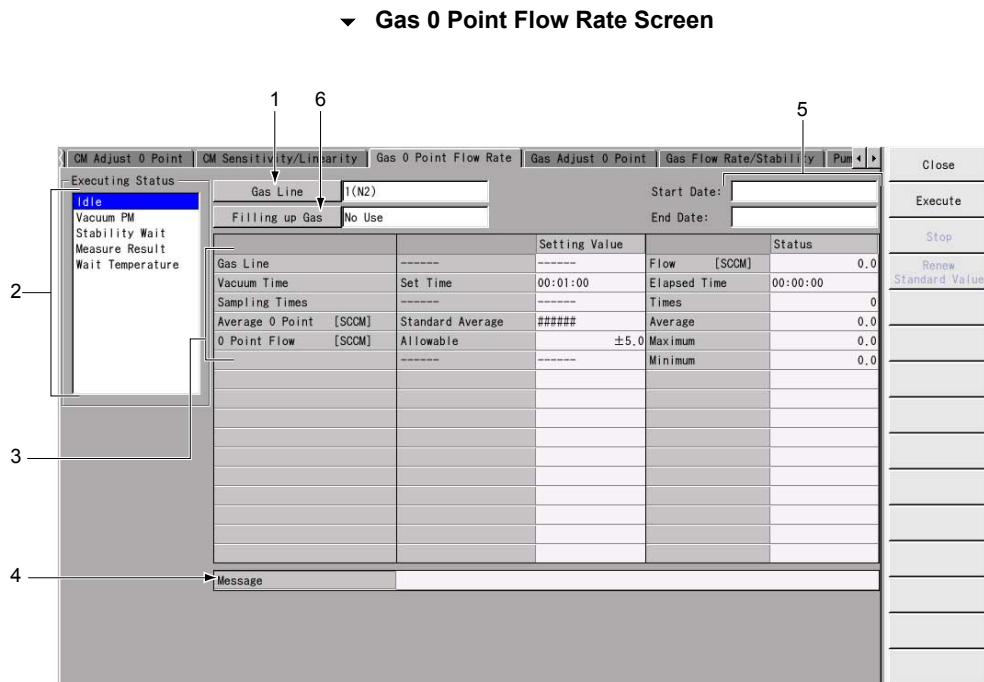
8.7 Operating the Gas 0 Point Flow Rate Screen

03227.20101201

On this screen, you can operate the functions required for the gas 0 point flow rate check.

Display the *Gas 0 Point Flow Rate* screen from the group menu below.

MAINTE.→PM AUTO CHECK→PM#→GAS 0 POINT FLOW RATE



g032272435_e

No.	Description
1	Selects the gas line for which the gas 0 point flow rate check is performed.
2	Shows the status of the gas 0 point flow rate check currently being executed.
3	Displays the status and set value of each item while the gas 0 point flow rate check is being executed.
4	Displays the completion status of the gas 0 point flow rate check or the initial value update. If the gas 0 point flow rate check ends abnormally, an error message displays.
5	Displays the start time and end time of the gas 0 point flow rate check.
6	If the gas line flow meter selected at the field 1 above is DN-MFC or DN-PMFC (Flow Meter Type Selection for Gas Line n of PM# Parameter (Equipment/Gas Line Edit) is set to DN-MFC or DN-PMFC), selects whether the 0 point flow rate is checked in the state where it is filled up with gas.



NOTE

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Gas 0 Point Flow Rate* screen. The screen can be closed during a gas 0 point flow rate check without interfering with the checking operation.
- **EXECUTE:** **Executes the gas 0 point flow rate check (see page 204).**
- **STOP:** Stops the gas 0 point flow rate check currently being performed.
- **RENEW STANDARD VALUE:** **Saves the latest measurements (see page 204).** The saved value will be used as the initial value.

8.7.1 Executing the Gas 0 Point Flow Rate Check 03356.20101201

- 1 Press **GAS LINE** on the *Gas 0 Point Flow Rate* screen and select the gas line to execute the gas 0 point flow rate check.

**NOTE**

If the gas line flow meter is DN-MFC or DN-PMFC (Flow Meter Type Selection for Gas Line n of PM# Parameter (Equipment/Gas Line Edit) is set to DN-MFC or DN-PMFC), press **FILLING UP GAS** on the *Gas 0 Point Flow Rate* screen and select whether the 0 point flow rate is checked in the state where it is filled up with gas.

- 2 Press **EXECUTE** on the right of the *Gas 0 Point Flow Rate* screen to execute the gas 0 point flow rate check.

8.7.2 Renewing the Initial Value of Gas 0 Point Flow Rate Check 03357.20070501

- 1 **Execute a gas 0 point flow rate check (see page 204).**
- 2 After the gas 0 point flow rate check, press **RENEW STANDARD VALUE** on the right of the *Gas 0 Point Flow Rate* screen to renew the initial value.

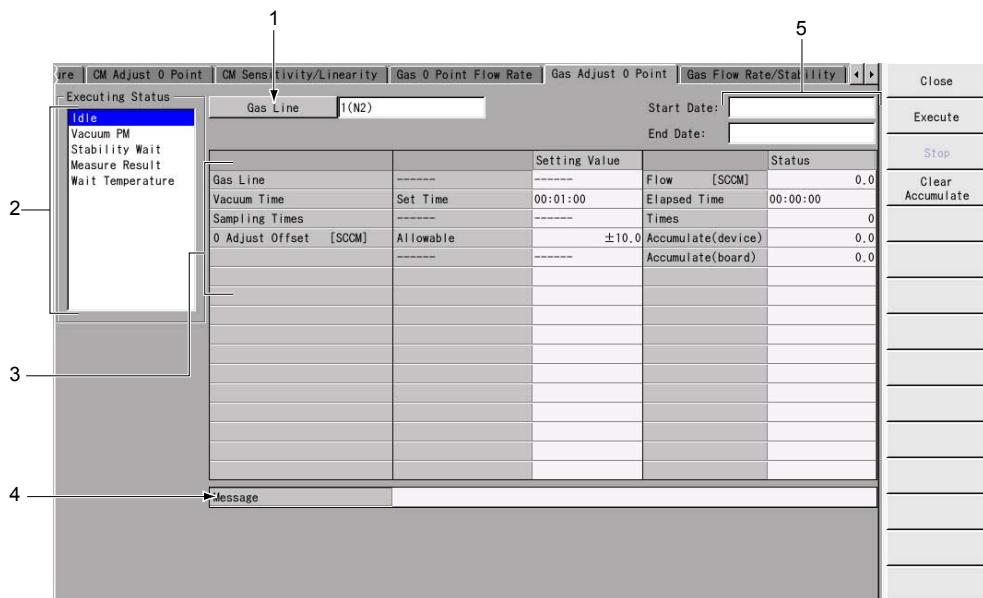
8.8 Operating the Gas Adjust 0 Point Screen 03228.20101201

On this screen, you can operate the necessary functions to conduct a Gas 0 point adjustment.

Display the *Gas Adjust 0 Point* screen from the group menu below.

MAINTENANCE → PM AUTO CHECK → PM# → GAS ADJUST 0 POINT

▼ Gas Adjust 0 Point Screen



g032282436_e

No.	Description
1	Selects the gas line for which the gas 0 point adjustment is performed.
2	Shows the status of the gas 0 point adjustment currently being executed.
3	Displays the status and set value of each item while the gas 0 point adjustment is being executed.
4	Displays the completion status of the gas 0 point adjustment or the initial value update. If the gas 0 point adjustment ends abnormally, an error message displays.
5	Displays the start time and end time of the gas 0 point adjustment.



NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Gas Adjust 0 Point* screen. The screen can be closed during a gas 0 point adjustment without interfering with the adjustment operation.
- **EXECUTE:** Executes the gas 0 point adjustment (see page 206).

- **STOP:** Stops the 0 point adjustment currently being performed.
- **CLEAR ACCUMULATE:** Clears all cumulative values of the correction value.

8.8.1 Executing the Gas 0 Point Adjustment 03229.20070501

- 1 Press **GAS LINE** on the *Gas Adjust 0 Point* screen and select the gas line to execute the gas 0 point adjustment.
- 2 Press **EXECUTE** on the right of the *Gas Adjust 0 Point* screen to execute the gas 0 point adjustment.

8.9 Operating the Gas Flow Rate/Stability Screen

03230.20170301

On this screen, you can operate the necessary functions to conduct a gas flow rate/stability check.



NOTE

The virtual chamber capacity used for the gas flow rate/stability check is specified by the PM# Parameter (Maintenance/Auto Check), Setting Virtual Chamber Capacity. If the set value is 0, use the initial value last saved by either the chamber virtual volume measurement or the auto check macro.

Display the *Gas Flow Rate/Stability* screen from the group menu below.

MAINTE.→PM AUTO CHECK→PM#→GAS FLOW RATE/STABILITY

▼ Gas Flow Rate/Stability Screen

The screenshot shows the Gas Flow Rate/Stability screen with the following interface elements:

- Top Bar:** CM Adjust 0 Point, CM Sensitivity, Linearity, Gas 0 Point Flow Rate, Gas Adjust 0 Point, Gas Flow Rate/Stability, Close, Execute, Stop, Renew Standard Value, Details of Result.
- Left Column (3):** Executing Status (Idle, Vacuum PM, Stability Wait, Sampling, Measure Result, Wait Temperature).
- Gas Line Selection (2):** Gas Line: I(N2), Meas. Gas Setting: Parameter.
- Time Selection (6):** Start Date: [] End Date: [].
- Data Tables:**
 - Gas Line: Shows Gas Line, Conversion Factor, Pressure [Pa], CM End Pressure, Gas Stability Time [sec], Set Time, Condition, Inflow Stopped.
 - Gas Flow Range [%]: Shows Allowable, Measured, Standard, Measured.
 - Gas Flow [SCCM]: Shows Setting Value, Standard, Measured.
 - Gas Error Pressure [Pa]: Shows Allowable, Measured, Standard Max., Measured Max.
- Message Area (5):** Displays a message box.

g032302437_e

No.	Description
1	Selects the gas line for which you want to check the gas flow rate/stability.
2	Selects the measurement gas setting used for the gas flow rate/stability check.
3	Shows the status of the gas flow rate/stability check currently being executed.
4	Displays the status and set value of each item while the gas flow rate/stability check is being executed.
5	Displays the completion status of the gas flow rate/stability check or the initial value update. If the gas flow rate/stability check ends abnormally, an error message displays.
6	Displays the start time and end time of the gas flow rate/stability check.



NOTE

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Gas flow Rate/Stability* screen. This screen can be closed during a gas flow rate/stability check without interfering with the checking operation.
- **EXECUTE:** [Executes the gas flow rate/stability check \(see page 208\)](#).
- **STOP:** Stops the gas flow rate/stability check currently being performed.
- **RENEW STANDARD VALUE:** [Saves the latest readings as initial value \(see page 208\)](#).
- **DETAILS OF RESULT:** Displays the detail screen of results of the gas flow rate/stability check.

8.9.1 Executing the Gas Flow Rate/Stability Check 03358.20170301

- 1 Press **GAS LINE** on the *Gas Flow Rate/Stability* screen and select the gas line to execute the gas flow rate/stability check.

 **NOTE** The gas flow rate/stability check can not be executed for the gas line on which explosive gas is set, or the gas line of which the flow meter is set to DN-VC (Flow Meter Type Selection for Gas Line n of PM# Parameter (Equipment/Gas Line Edit) is DN-VC) and Gas n Select Use Gas Type of Individual Check of PM# Parameter (Maintenance/Auto Check) is set to N2 Gas.
- 2 Press **MEAS. GAS SETTING** on the *Gas Flow Rate/Stability* screen and select the measurement gas setting used for the gas flow rate/stability check.
- 3 When **AUTO SETTING(N2)** or **AUTO SETTING(PROCESS)** on the *Meas. Gas Setting* dialog is selected, the *Number Of Measurements* dialog is displayed.
- 4 Enter the number of measurements on the *Number Of Measurements* dialog, and press **OK**.
- 5 Press **EXECUTE** on the right of the *Gas Flow Rate/Stability* screen to execute the gas flow rate/stability check.

8.9.2 Renewing the Initial Value of Gas Flow Rate/Stability Check 03359.20070501

- 1 [Execute the gas flow rate/stability check \(see page 208\)](#).
- 2 After the gas flow rate/stability check, press **RENEW STANDARD VALUE** on the right of the *Gas Flow Rate/Stability* screen to renew the initial value.

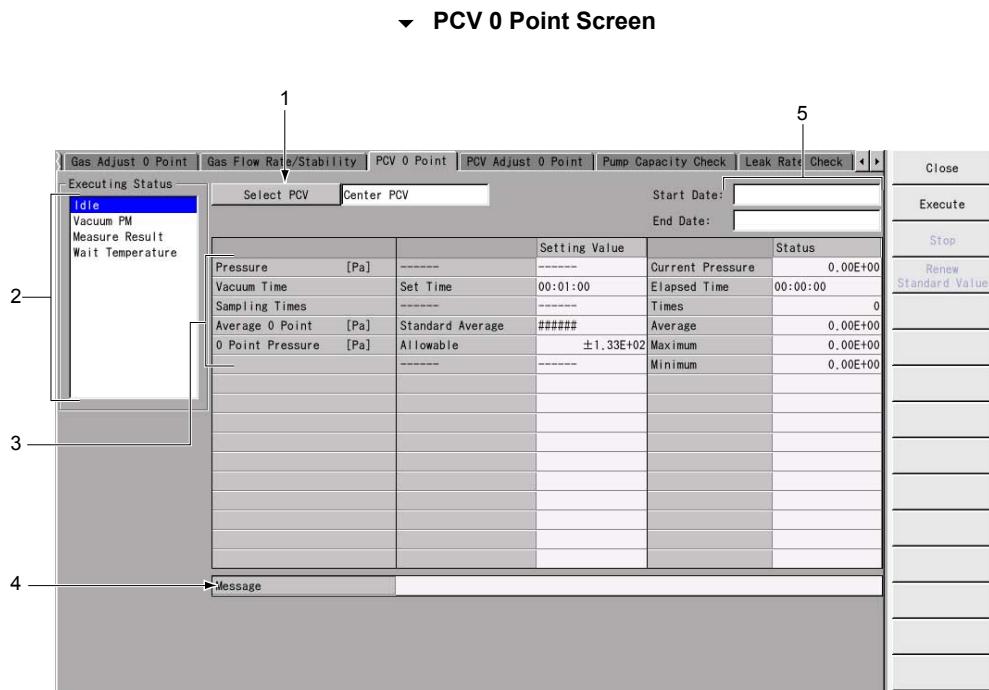
8.10 Operating the PCV 0 Point Screen

03231.20101201

On this screen, you can operate the necessary functions to conduct a PCV 0 point pressure check.

Display the *PCV 0 Point* screen from the group menu below.

MAINTENANCE → PM AUTO CHECK → PM# → PCV 0 POINT



g032312438_e

No.	Description
1	Selects PCV (CENTER PCV or EDGE PCV) to execute a PCV 0 point pressure check.
2	Displays the status of the PCV 0 point pressure check currently being executed.
3	Displays the status and set value of each item while the PCV 0 point pressure check is being executed.
4	Displays the completion status of the PCV 0 point pressure check or the initial value update. If the PCV 0 point pressure check ends abnormally, an error message displays.
5	Displays the start time and end time of the PCV 0 point pressure check.



NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *PCV 0 Point* screen. The screen can be closed during a PCV 0 point pressure check without interfering with the checking operation.
- **EXECUTE:** Executes the *PCV 0 point pressure check* (see page 210).

- **STOP:** Stops the PCV 0 point pressure check currently being performed.
- **RENEW STANDARD VALUE:** **Saves the latest readings as initial value (see page 210).**

8.10.1 Executing the PCV 0 Point Check 03232.20081001

- 1 Press **SELECT PCV** on the *PCV 0 Point* screen and select PCV (**CENTER PCV** or **EDGE PCV**) to execute the PCV 0 point pressure check.
- 2 Press **EXECUTE** on the right of the *PCV 0 Point* screen to execute the PCV 0 point pressure check.

8.10.2 Renewing the Initial Value of PCV 0 Point Pressure Check 03233.20070501

- 1 **Executes the PCV 0 point pressure check (see page 210).**
- 2 After the PCV 0 point pressure check, press **RENEW STANDARD VALUE** on the right of the *PCV 0 Point* screen to renew the initial value.

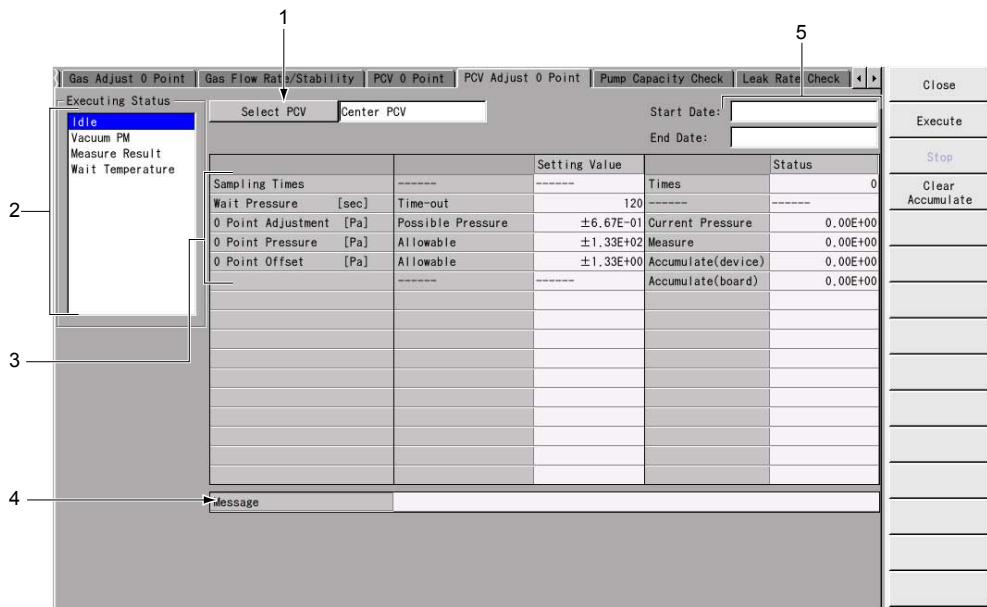
8.11 Operating the PCV Adjust 0 Point Screen 03234.20101201

On this screen, you can operate the necessary functions to conduct a PCV 0 point adjustment.

Display the *PCV Adjust 0 Point* screen from the group menu below.

MAINTENANCE → PM AUTO CHECK → PM# → PCV ADJUST 0 POINT

▼ PCV Adjust 0 Point Screen



g032342439_e

No.	Description
1	Selects PCV (CENTER PCV or EDGE PCV) to execute a PCV 0 point adjustment.
2	Shows the status of the PCV 0 point adjustment currently being executed.
3	Displays the status and set value of each item while the PCV 0 point adjustment is being executed.
4	Shows the completion status of the PCV 0 point adjustment. If the PCV 0 point adjustment completes with abnormalities, an error message displays.
5	Displays the start time and end time of the PCV 0 point adjustment.



NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *PCV Adjust 0 Point* screen. The screen can be closed during a PCV 0 point adjustment without interfering with the checking operation.
- **EXECUTE:** Executes the **PCV 0 point adjustment** (see page 212).

- **STOP:** Stops the PCV 0 point adjustment currently being performed.
- **CLEAR ACCUMULATE:** Clears all cumulative values of the correction value.

8.11.1 Adjusting the 0 Point of the PCV 03235.20070501

- 1 Press **SELECT PCV** on the *PCV Adjust 0 Point* screen and select PCV (**CENTER PCV** or **EDGE PCV**) to execute the PCV zero point adjustment.
- 2 Press **EXECUTE** on the right of the *PCV Adjust 0 Point* screen to execute the PCV zero point adjustment.

8.12 Operating the NPPC Adjust PCV Screen 04125.20101201

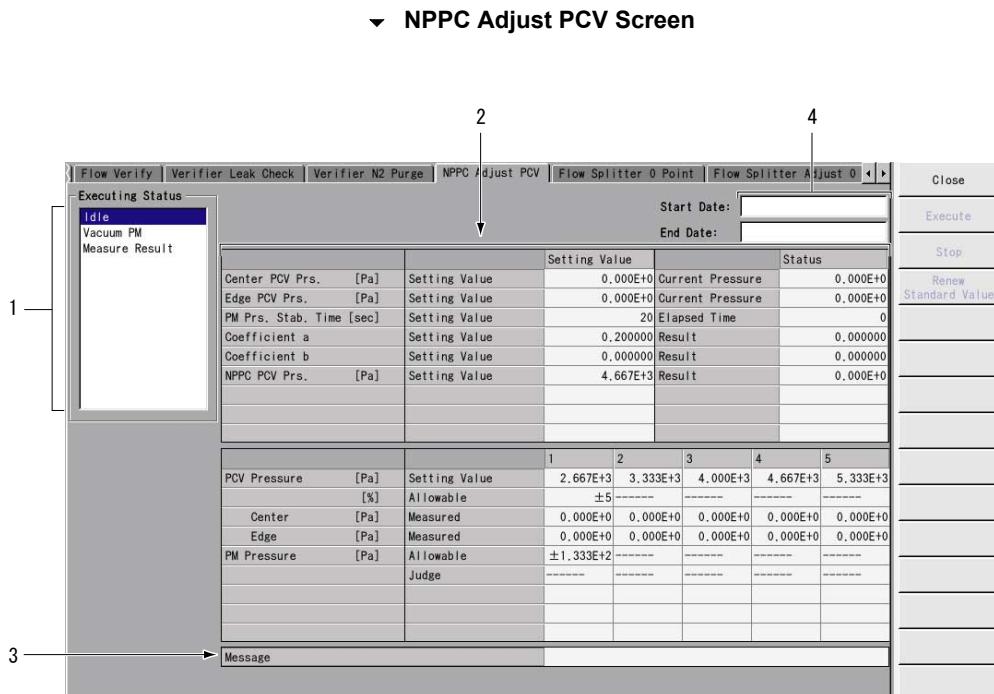
On this screen, you can operate the necessary functions to conduct a NPPC PCV adjustment.

NOTE Before performing NPPC PCV adjustment, check that NPPC PCV Adjustment Pressure Setting 1–5 of PM# Parameter (Maintenance/Auto Check) are other than 0, and within the range between Flow Split PCV Pressure Minimum and Flow Split PCV Pressure Maximum of PM# Parameter (Equipment/Gas Line Edit).

NOTE Before performing NPPC PCV adjustment, execute the recipe to be executed in NPPC so that the process module is stabilized at the temperature of NPPC execution.

Display the *NPPC Adjust PCV* screen from the group menu below.

MAINTE.→PM AUTO CHECK→PM#→NPPC PCV ADJUSTMENT



g041253337_e

No.	Description
1	Shows the status of the NPPC PCV adjustment currently being executed.
2	Displays the status and set value of each item while the NPPC PCV adjustment is being executed.
3	Shows the completion status of the NPPC PCV adjustment. If the NPPC PCV adjustment completes with abnormalities, an error message displays.
4	Displays the start time and end time of the NPPC PCV adjustment.

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also

change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *NPPC Adjust PCV* screen. The screen can be closed during a PCV 0 point adjustment without interfering with the checking operation.
- **EXECUTE:** [Executes the NPPC PCV adjustment \(see page 214\)](#).
- **STOP:** Stops the NPPC PCV adjustment currently being performed.
- **RENEW STANDARD VALUE:** [Renews the result of the NPPC PCV adjustment as standard value \(see page 214\)](#).

8.12.1 Executing the NPPC PCV Adjustment 04126.20081001

- 1 Press EXECUTE on the right of the *NPPC Adjust PCV* screen.
- 2 Press OK to execute the NPPC PCV adjustment.

8.12.2 Renewing the Standard Value of NPPC PCV Adjustment 04127.20080401

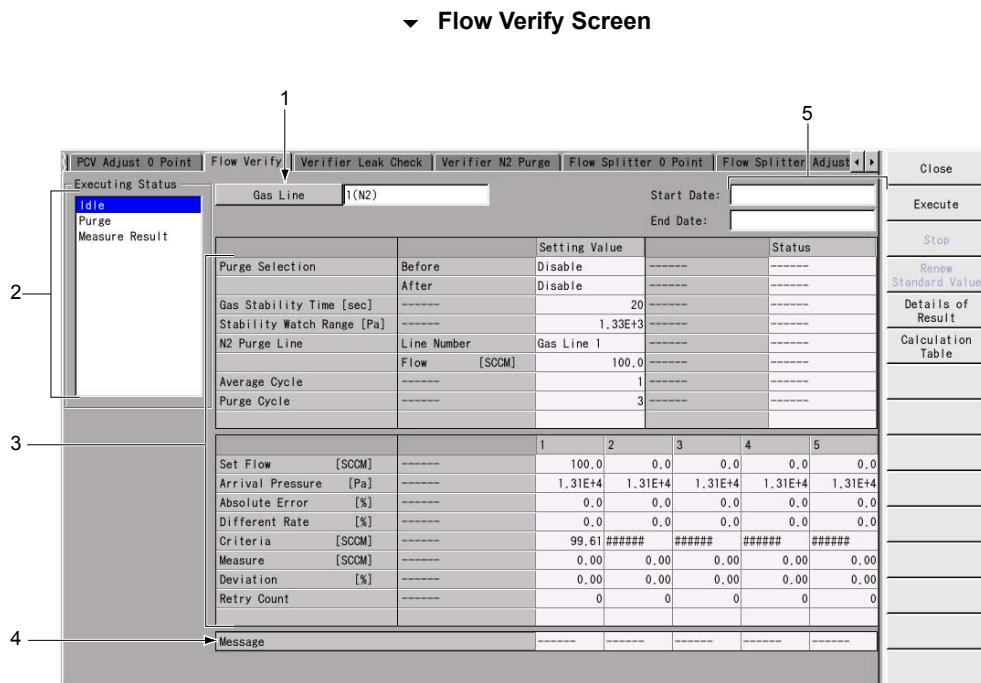
- 1 [Execute a NPPC PCV adjustment \(see page 214\)](#).
- 2 After the NPPC PCV adjustment, press RENEW STANDARD VALUE on the right of the *NPPC Adjust PCV* screen to renew the standard value.

8.13 Operating the Flow Verify Screen 03236.20101201

On this screen, you can operate the necessary functions to conduct a flow verifier check.

Display the *Flow Verify* screen from the group menu below.

MAINTENANCE → PM AUTO CHECK → PM# → FLOW VERIFY



g032362440_e

No.	Description
1	Selects the gas line for which you want to check the gas flow rate.
2	Shows the status of the flow verify check currently being executed.
3	Displays the status and set value of each item while the flow verifier check is being executed.
4	Displays the completion status of the flow verifier check or the initial value update. If the flow verifier check ends abnormally, an error message appears.
5	Displays the start time and end time of the flow verifier check.



NOTE

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Flow Verify* screen. The screen can be closed during a flow verifier check without interfering with the checking operation.
- **EXECUTE:** Executes the flow verifier check (see page 216).

- **STOP:** Stops the flow verifier check currently being performed.
- **RENEW STANDARD VALUE:** **Saves the latest readings as initial value (see page 216).**
- **DETAILS OF RESULT:** Displays the *Details of Result* dialog for the flow verifier check.
- **CALCULATION TABLE:** Displays the *Calculation Table* dialog to **calculate the gas flow rate setting (see page 216)**. The enable/disable setting of the calculation table varies depending on the equipment specification.

8.13.1 Executing the Flow Verifier Check 03150.20081001

- 1 Press **GAS LINE** on the *Flow Verify* screen and select the gas line to execute the gas flow rate check.
- 2 Press **EXECUTE** on the right of the *Flow Verify* screen to execute the flow verifier check.

8.13.2 Renewing the Initial Value of Flow Verifier Check 03152.20070501

- 1 **Execute a flow verifier check (see page 216).**
- 2 After the flow verifier check, press **RENEW STANDARD VALUE** on the right of the *Flow Verify* screen to renew the initial value.

8.13.3 Calculating the Gas Flow Rate Setting 03237.20080401

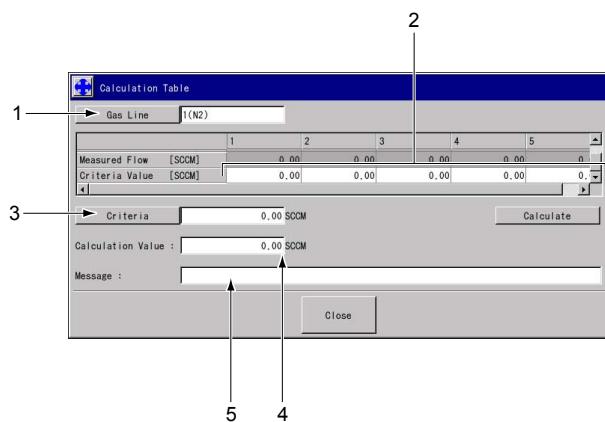
Introduction

Overview:

Using the *Calculation Table* screen, calculate the gas flow rate setting.

- 1 **Execute a flow verifier check to update the initial value (see page 216)** for the gas line to calculate the set flow rate.
- 2 After the flow verifier check, press **CALCULATION TABLE** on the right of the *Flow Verify* screen to display the *Calculation Table* dialog.

▼ Calculation Table Dialog



No.	Description
1	Selects the gas line for which you want to check the preset flow rate.
2	Sets the flow rate of the standard equipment.
3	Sets the flow rate which you want.
4	Displays the calculation result.
5	Displays the completion status of the calculation. If the calculation ends abnormally, an error message displays.

- 3** Press **GAS LINE** on the *Calculation Table* dialog and select the gas line to calculate the flow rate for.
- 4** Double-click the set value of **Criteria Value** and set the criteria value.
- 5** Press **CRITERIA** to register the criterion flow rate.
- 6** Press **CALCULATE** on the *Calculation Table* dialog to execute the calculation.

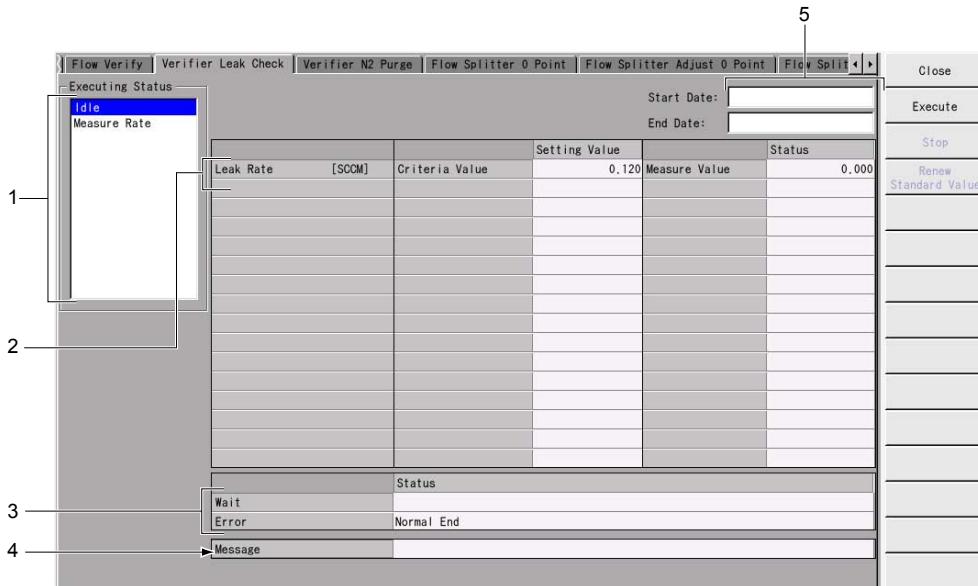
8.14 Operating the Verifier Leak Check Screen

On this screen, you can operate the necessary functions to conduct a flow verifier leak check.

Display the *Verifier Leak Check* screen from the group menu below.

MAINTENANCE → PM AUTO CHECK → PM# → VERIFIER LEAK CHECK

▼ Verifier Leak Check Screen



g032382442_e

No.	Description
1	Shows the status of the flow verifier leak check currently being executed.
2	Shows the initial measured value at the Criteria Value, only when the initial measured value has been stored by pressing RENEW STANDARD VALUE. The calculated leak rate value is displayed on the Measured Value.
3	Shows the status of the flow verifier leak check. Wait: Shows the gas condition during the flow verifier leak check. Error: Shows the error during the flow verifier leak check.
4	Displays the completion status of the flow verifier leak check or the initial value update. If the flow verifier leak check ends abnormally, an error message appears.
5	Displays the start time and end time of the flow verifier leak check.



NOTE

 **NOTE** Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Verifier Leak Check* screen. The screen can be closed during a flow verifier leak check without interfering with the checking operation.
- **EXECUTE:** [Executes the flow verifier leak check \(see page 219\)](#).
- **STOP:** Stops the flow verifier leak check currently being performed.
- **RENEW STANDARD VALUE:** [Saves the latest readings as initial value \(see page 219\)](#).

8.14.1 Executing the Flow Verifier Leak Check 03153.20081001

- 1 Press **EXECUTE** on the right of the *Verifier Leak Check* screen.
- 2 Press **OK** to execute the flow verifier leak check.

8.14.2 Renewing the Initial Value of Flow Verifier Leak Check 03154.20070501

- 1 [Execute a flow verifier leak check \(see page 219\)](#).
- 2 After the flow verifier leak check, press **RENEW STANDARD VALUE** on the right of the *Verifier Leak Check* screen to renew the initial value.

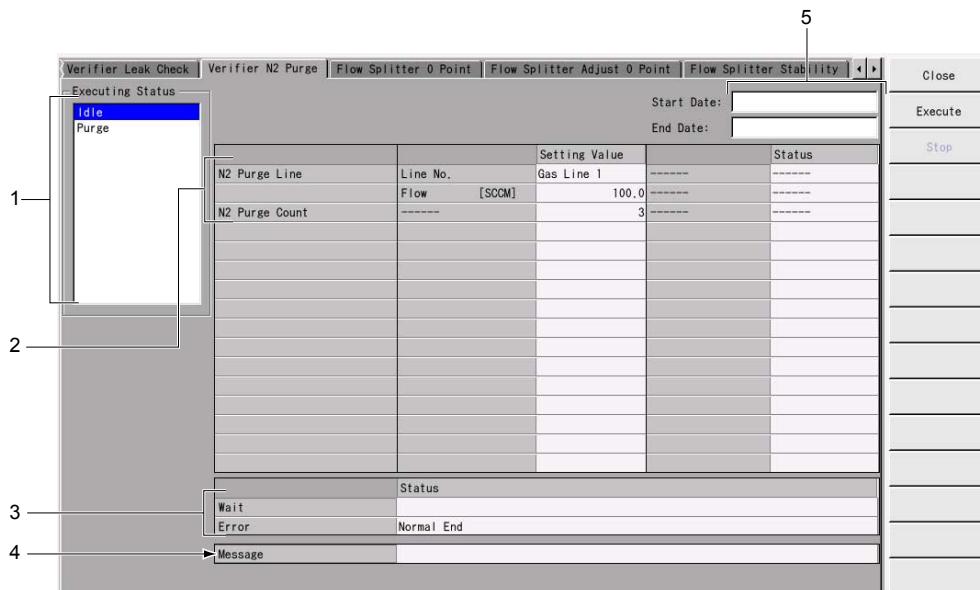
8.15 Operating the Verifier N2 Purge Screen 03239.20101201

On this screen, you can operate the necessary functions to conduct a N₂ purge.

Display the *Verifier N2 Purge* screen from the group menu below.

MAINTE.→PM AUTO CHECK→PM#→VERIFIER N2 PURGE

▼ Verifier N2 Purge Screen



g032392443_e

No.	Description
1	Shows the status of the flow verifier N ₂ purge currently being executed.
2	Shows the set value of each item on which the flow verifier N ₂ purge is being executed.
3	Displays the status of the flow verifier N ₂ purge. Wait: Displays the gas condition during the flow verifier N ₂ purge. Error: Displays the error conditions during the flow verifier N ₂ purge.
4	Shows the completion status of the flow verifier N ₂ purge. If the flow verifier N ₂ purge ends abnormally, an error message appears.
5	Displays the start time and end time of the flow verifier N ₂ purge.

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Verifier N₂ Purge* screen. The screen can be closed during a flow verifier N₂ purge without interfering with the checking operation.
- **EXECUTE:** [Executes the flow verifier N₂ purge \(see page 221\)](#).
- **STOP:** Stops the flow verifier N₂ purge currently being performed.

8.15.1 Executing the Verifier N₂ Purge 03155.20070501

- 1 Press EXECUTE on the right of the *Verifier N₂ Purge* screen.
- 2 Press OK to execute the flow verifier N₂.

8.16 Operating the Flow Splitter 0 Point Screen

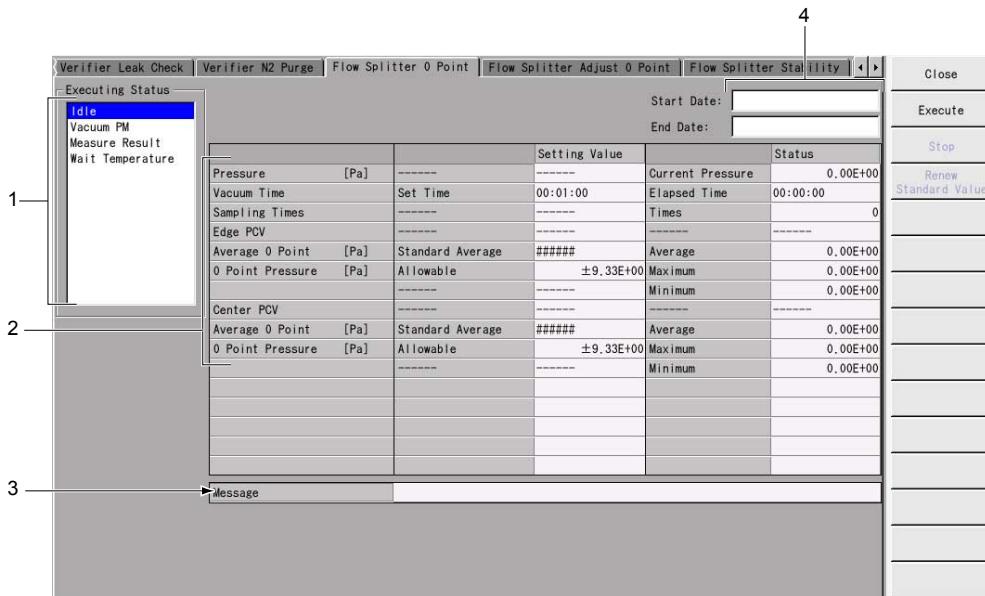
03240.20101201

On this screen, you can operate the necessary functions to conduct a flow splitter 0 point check.

Display the *Flow Splitter 0 Point* screen from the group menu below.

MAINTENANCE → PM AUTO CHECK → PM# → FLOW SPLITTER 0 POINT

▼ Flow Splitter 0 Point Screen



g032402444_e

No.	Description
1	Shows the status of the flow split 0 point check currently in progress.
2	Displays the status and set value of each item while the flow splitter 0 point check is being executed.
3	Displays the completion status of the flow splitter 0 point check or the initial value update. If the flow splitter 0 point check ends abnormally, an error message displays.
4	Displays the start time and end time of the flow splitter 0 point check.

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- CLOSE:** Closes the *Flow Splitter 0 Point* screen. The flow splitter 0 point check will continue even after the screen is closed.
- EXECUTE:** Closes the **flow splitter 0 point check** (see page 223).
- STOP:** Stops the flow splitter 0 point check being executed.
- RENEW STANDARD VALUE:** **Saves the latest readings as initial value** (see page 223).

8.16.1 Executing the Flow Splitter 0 Point Check_{03163.20081001}

- 1 Press EXECUTE on the right of the *Flow Splitter 0 Point* screen.
- 2 Press OK to execute the flow splitter 0 point check.

8.16.2 Renewing the Initial Value of Flow Splitter 0 Point Check_{03216.20070501}

- 1 [Execute a flow splitter 0 point check \(see page 223\).](#)
- 2 After the flow splitter 0 point check, press RENEW STANDARD VALUE on the right of the *Flow Splitter 0 Point* screen to renew the initial value.

8.17 Operating the Flow Splitter Adjust 0 Point Screen

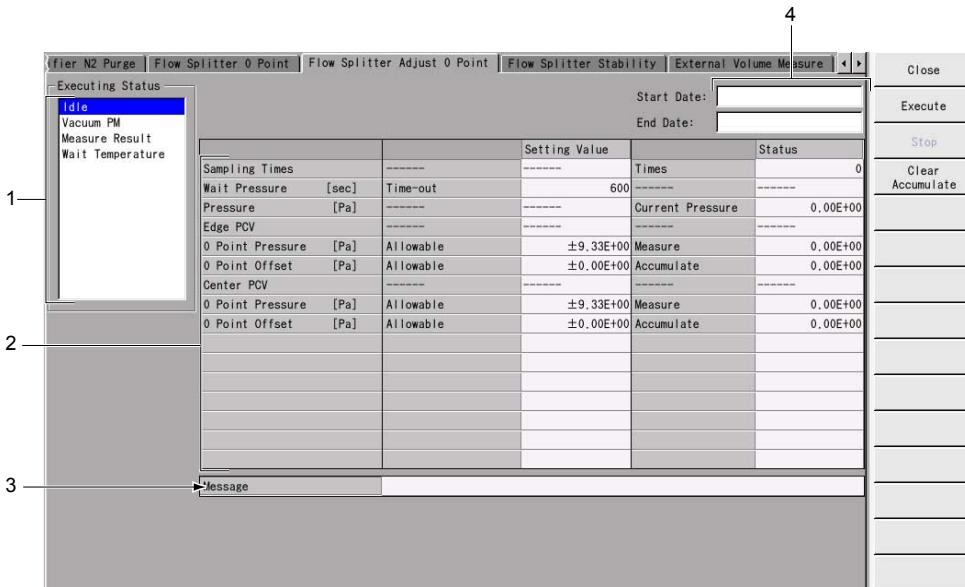
03241.20101201

On this screen, you can operate the necessary functions to conduct a flow splitter 0 point adjustment.

Display the *Flow Splitter Adjust 0 Point* screen from the group menu below.

MAINTE.→PM AUTO CHECK→PM#→FLOW SPLITTER ADJUST 0 POINT

▼ Flow Splitter Adjust 0 Point Screen



g032412445_e

No.	Description
1	Shows the status of the flow split 0 point adjustment currently in progress.
2	Displays the status and set value of each item while the flow splitter 0 point adjustment is being executed.
3	Displays the completion status of the flow split 0 point adjustment. If the flow splitter 0 point adjustment ends abnormally, an error message displays.
4	Displays the start time and end time of the flow splitter 0 point adjustment.



NOTE

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Flow Splitter Adjust 0 Point* screen. The flow split 0 point adjustment will continue even after the screen is closed.
- **EXECUTE:** Executes the flow splitter 0 point adjustment (see page 225).
- **STOP:** Stops the flow split 0 point adjustment.

- CLEAR ACCUMULATE: Clears all cumulative values of the correction value.

8.17.1 Performing the Flow Split 0 Point Adjustment_{03217.20070501}

- 1 Press EXECUTE on the right of the *Flow Splitter Adjust 0 Point* screen.
- 2 Press OK to execute the flow splitter 0 point adjustment.

8.18 Operating the Flow Splitter Stability Screen

03242.20160901

On this screen, you can operate the necessary functions to conduct a flow splitter stability check.



NOTE The flow splitter stability check function can be executed only when the gas lines selected at Flow Split Gas Line A (and B) Select of PM# Parameter (Maintenance/Auto Check) are not an explosive gas line.

However, the check can be executed even if the gas line of which the gas type is explosive gas (N2), when Simul Gas Input Explosive/Support Explosion Line on PM# Parameter (Equipment Mode/Gas Line Edit) is set to Enable.

Display the *Flow Splitter Stability* screen from the group menu below.

MAINTE.→PM AUTO CHECK→PM#→FLOW SPLITTER STABILITY

▼ Flow Splitter Stability Screen

The screenshot shows the 'Flow Splitter Stability' screen with several sections labeled 1 through 5:

- 1**: Top navigation bar with tabs: Splitter 0 Point, Flow Splitter Adjust 0 Point, Flow Splitter Stability, External Volume Measure, Pump Capacity Check, and a separator line.
- 2**: Executing Status panel showing 'Idle', 'Vacuum PM', 'Stability Wait', 'Sampling', and 'Wait Temperature'.
- 3**: Main parameter table showing settings for Gas Line A and Gas Line B, including Set Flow [SCCM], Sampling, Pressure [Pa], Slope [Pa/SCCM], Allowable, Average, and Close Pressure values.
- 4**: Message panel showing 'Span' and 'Leak' status.
- 5**: Right side panel with buttons: Close, Execute, Stop, Renew, and Standard Value.

g032422446_e

No.	Description
1	Changes over the display of the measurement results for the flow splitter PCV (CENTER PCV or EDGE PCV). Displays when Flow Split Control Type of the PM# Parameter (Equipment/Gas Line Edit) is set to Pressure Control.
2	Shows the status of the flow split stability check currently in progress.
3	Displays the status and set value of each item while the flow splitter stability check is being executed.
4	Displays the completion status of the flow splitter stability check or the initial value update. If the flow splitter stability check ends abnormally, an error message appears.
5	Displays the start time and end time of the flow splitter stability check.

**NOTE**

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Flow Splitter Stability* screen. The flow splitter stability check will continue even after the screen is closed.
- **EXECUTE:** **Executes the flow splitter stability check (see page 227).**
- **STOP:** Stops the flow split stability check.
- **RENEW STANDARD VALUE:** **Saves the latest measurements (see page 227).** The saved value will be used as the initial value.

8.18.1 Executing the Flow Splitter Stability Check 03220.20160901

- 1 Press **EXECUTE** on the right of the *Flow Splitter Stability* screen to execute a flow splitter stability check.
- 2 When Flow Split Control Type of the PM# Parameter (Equipment/Gas Line Edit) is Pressure Control, after the flow splitter stability check, press **SELECT PCV** on the *Flow Splitter Stability* screen and select **CENTER PCV** or **EDGE PCV** to display the results of the flow splitter stability check.

8.18.2 Renewing the Initial Value of Flow Splitter Stability Check 03376.20070501

- 1 **Execute a flow splitter stability check (see page 227).**
- 2 After the flow splitter stability check, press **RENEW STANDARD VALUE** on the right of the *Flow Splitter Stability* screen to renew the initial value.

8.19 Operating the Flow Splitter Leak Check Screen

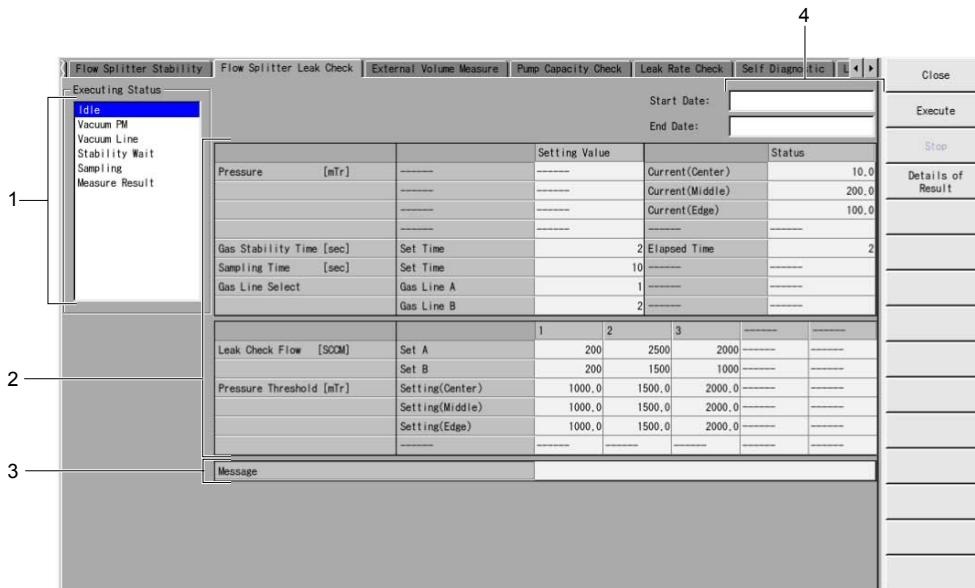
15826.20180401

On this screen, you can operate the necessary functions to conduct a flow splitter leak check.

Display the *Flow Splitter Leak Check* screen from the group menu below.

MAINTE.→PM AUTO CHECK→PM#→FLOW SPLITTER LEAK CHECK

▼ Flow Splitter Leak Check Screen



gB555_e

No.	Description
1	Shows the status of the flow splitter leak check currently in progress.
2	Displays the status and set value of each item while the flow splitter leak check is being executed.
3	Displays the completion status of the flow splitter leak check. If the flow splitter ends abnormally, an error message appears.
4	Displays the start time and end time of the flow splitter leak check.



NOTE

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- CLOSE:** Closes the *Flow Splitter Leak Check* screen. The flow splitter leak check will continue even after the screen is closed.
- EXECUTE:** Executes the flow splitter leak check.
- STOP:** Stops the flow splitter leak check currently being performed.

- DETAILS OF RESULT: Displays the detail screen of results of the flow splitter leak check.

8.19.1 Executing the Flow Splitter Leak Check 15827.20180401

- 1 Press EXECUTE on the right of the *Flow Splitter Leak Check* screen.
- 2 Press OK to execute the flow splitter leak check.

8.20 Operating the External Volume Measure Screen

04128.20101201

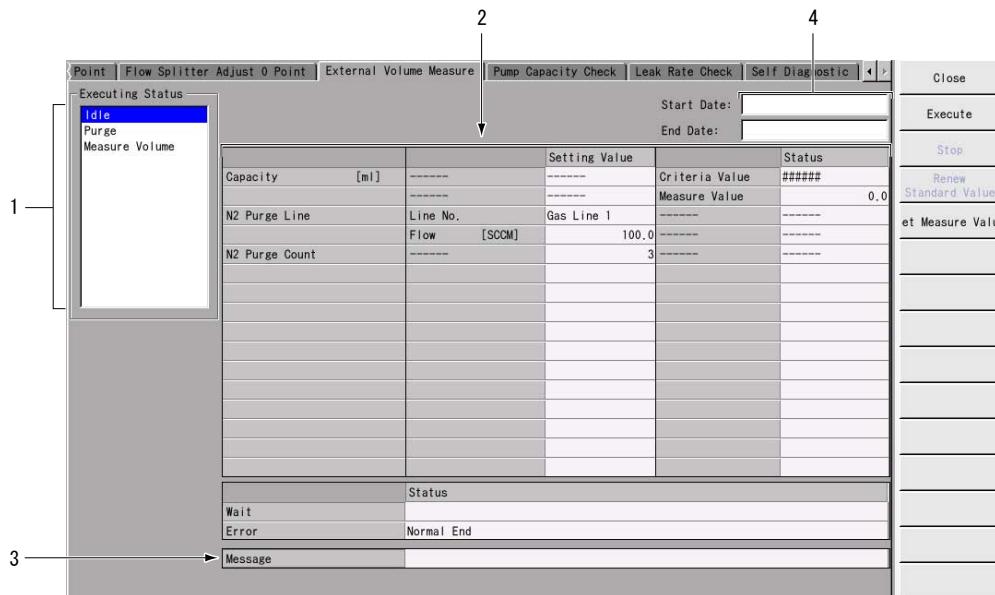
Calculate the external volume which is necessary for flow verifier check.

External volume is volume of gas line and volume between the inlet valve and the flow verifier gas stick.

Display the *External Volume Measure* screen from the group menu below.

MAINTENANCE → PM AUTO CHECK → PM# → EXTERNAL VOLUME MEASURE

▼ External Volume Measure Screen



g041283338_e

No.	Description
1	Shows the status of the external volume measurement currently being executed.
2	Displays the set value and status of each item while the external volume measurement is being executed.
3	Shows the completion status of the external volume measurement. If the external volume measurement ends abnormally, an error message displays.
4	Displays the start time and end time of the external volume measurement.

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *External Volume Measure* screen. The screen can be closed during an external volume measurement without interfering with the checking operation.
- **EXECUTE:** [Executes the external volume measurement \(see page 231\)](#).
- **STOP:** Stops the external volume measurement currently being performed.
- **RENEW STANDARD VALUE:** [Saves the latest readings as initial value \(see page 231\)](#).
- **SET MEASURE VALUE:** [Sets external volume value when the flow verifier that do not have external volume measurement function is mounted \(see page 231\)](#).

8.20.1 Executing the External Volume Measurement 04129.20081001

- 1 Press EXECUTE on the right of the *External Volume Measure* screen.
- 2 Press OK to execute the external volume measurement.

8.20.2 Renewing the Initial Value of External Volume Measurement 04130.20080401

- 1 [Execute an external volume measurement \(see page 231\)](#).
- 2 After the external volume measurement, press RENEW STANDARD VALUE on the right of the *External Volume Measure* screen to renew the initial value.

8.20.3 Setting External Volume Value 09878.20130601

- 1 Press SET MEASURE VALUE on the right of the *External Volume Measure* screen.
- 2 Set the external volume value.

8.21 Operating the Pump Capacity Check Screen

03243.20101201

On this screen, you can operate the necessary functions to conduct a PM pump capacity check.

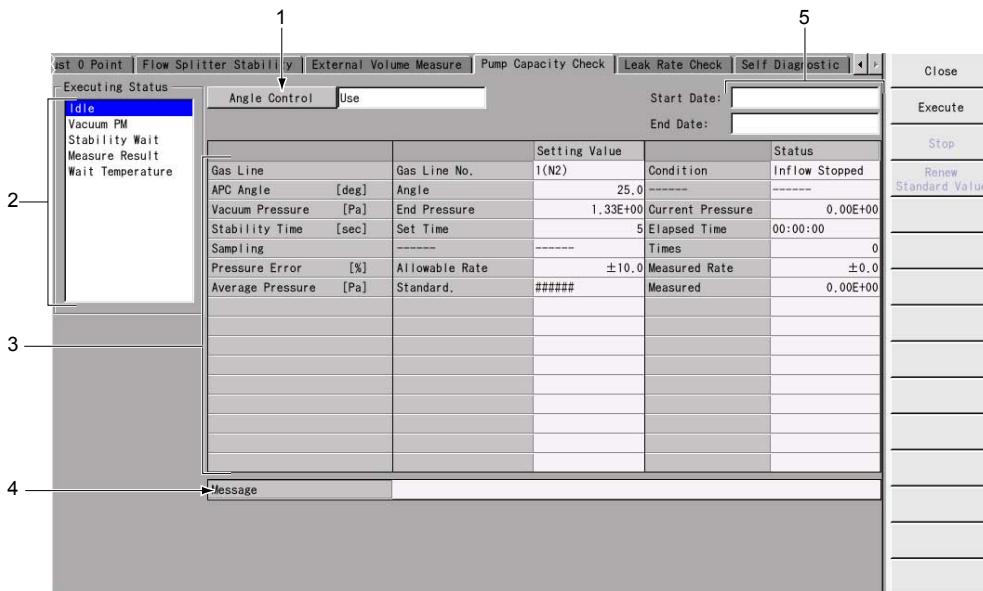


NOTE For the gas flow rate set value (Gas Flow Rate for Auto Check of PM# Parameter (Maintenance/Auto Check)), set a value that allows sufficient heat exchange with the external environment. If the gas flow rate is too high, the temperature inside the chamber will increase, and it will prevent a normal pressure check.

Display the *Pump Capacity Check* screen from the group menu below.

MAINTE.→PM AUTO CHECK→PM#→PUMP CAPACITY CHECK

▼ Pump Capacity Check Screen



g032432447_e

No.	Description
1	Selects the availability of the angle control. If the angle control is Use: Sets the APC angle to the set value of APC Angle at Pump Check of PM# Parameter (Maintenance/Auto Check) and executes the pump capacity check. If the angle control is No Use: Fully opens the APC angle (90°) and executes the pump capacity check.
2	Displays the status of the PM pump capacity check currently being executed.
3	Displays the status and set value of each item while the PM pump capacity check is being executed.
4	Displays the completion status of the PM pump capacity check or the initial value update. If the PM pump capacity check ends abnormally, an error message appears.
5	Displays the start time and end time of the PM pump capacity check.

**NOTE**

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- CLOSE: Closes the *Pump Capacity Check* screen. The screen can be closed during a pump capability check without interfering with the checking operation.
- EXECUTE: [Executes the pump capacity check \(see page 233\)](#).
- STOP: Stops the pump capability check currently being performed.
- RENEW STANDARD VALUE: [Saves the latest readings as initial value \(see page 233\)](#).

8.21.1 Executing the PM Pump Capacity Check 03360.20111001

- 1 Press ANGLE CONTROL on the *Pump Capacity Check* screen and select the availability of the angle control.

**NOTE**

The pump capacity check cannot be executed if explosive gas is set for the gas line which is selected by Select Use Gas Type for Auto Check ON PM# Parameter (Maintenance/Auto Check), or DN-VC (Flow Meter Type Selection for Gas Line n on PM# Parameter (Equipment/Gas Line Edit) is DN-VC) is set for the flow meter of the selected line.

- 2 Press EXECUTE on the right of the *Pump Capacity Check* screen to execute the PM pump capacity check.

8.21.2 Renewing the Initial Value of PM Pump Capacity Check 03361.20070501

- 1 [Execute a PM pump capacity check \(see page 233\)](#).
- 2 After the PM pump capacity check, press RENEW STANDARD VALUE on the right of the *Pump Capacity Check* screen to renew the initial value.

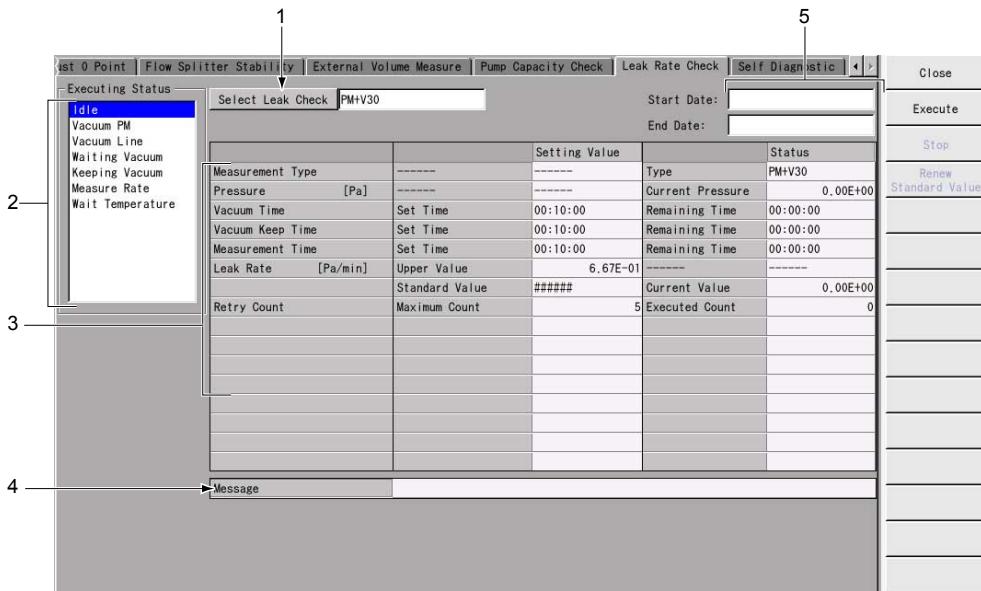
8.22 Operating the Leak Rate Check Screen 03244.20160901

On this screen, you can operate the necessary functions to conduct a leak rate check.

Display the *Leak Rate Check* screen from the group menu below.

MAINTENANCE → PM AUTO CHECK → PM# → LEAK RATE CHECK

▼ Leak Rate Check (Example: PM + V 30) Screen



g032442448_e

No.	Description
1	Selects a leak rate check pattern (PM, PM + GAS LINE, PM + V 30, or ALL).
2	Shows the status of the leak check currently being executed.
3	Displays the status and set value of each item while the leak rate check is being executed.
4	Displays the completion status of the leak rate check or the initial value update. If the leak rate check ends abnormally, an error message displays.
5	Displays the start time and end time of the leak rate check.



NOTE

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

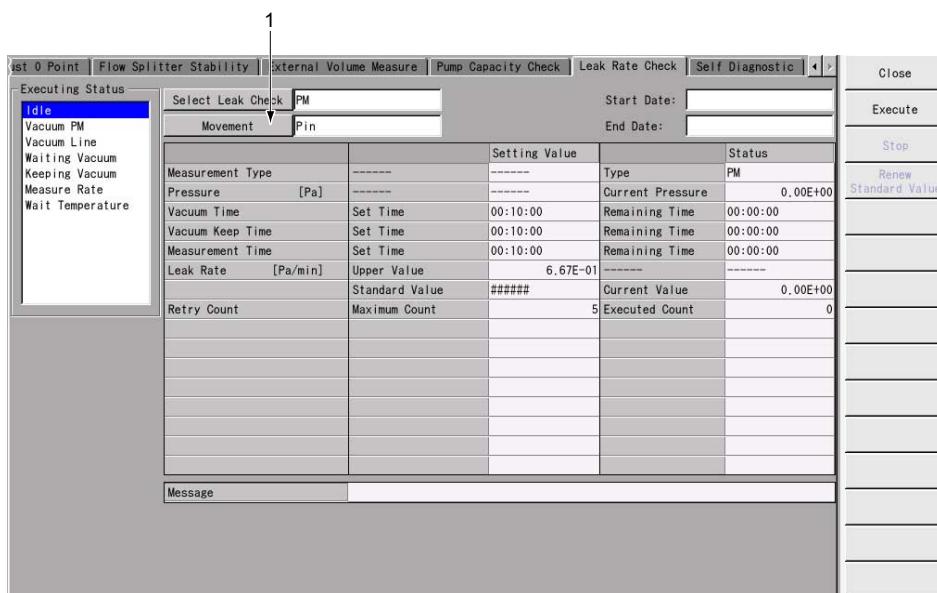
- **CLOSE:** Closes the *Leak Rate Check* screen. This screen can be closed during a leak check without interfering with the checking operation.

- **EXECUTE:** Executes the leak rate check with the pattern selected on the *Leak Rate Check* screen (**PM (see page 235)**, **PM + Gas Line (see page 235)**, **PM + V 30 (see page 236)**, or **ALL (see page 237)**).
- **STOP:** Stops the leak check currently being performed.
- **RENEW STANDARD VALUE:** **Saves the latest measurements (see page 237)**. The saved value will be used as the initial value.

8.22.1 Executing the Leak Rate Check (PM) 03245.20160901

- 1 Press **SELECT LEAK CHECK** on the *Leak Rate Check* screen and select **PM**.
- 2 Press **MOVEMENT** on the *Leak Rate Check* screen, and select **NONE**, **PIN**, **SHUTTER**, **PIN+SHUTTER**, or **BEVEL COVER**.

▼ **Leak Rate Check (PM) Screen**



g032452449_e

No.	Description
1	Selects a drive unit to be operated during the leak rate check (PIN , SHUTTER , PIN+SHUTTER , or BEVEL COVER). The selected drive unit repeats moving up/down during the leak check. If NONE is selected, no drive units (Pin, Shutter, nor Bevel Cover) will be operated during the leak rate check.

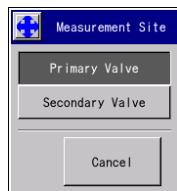
- 3 Press **EXECUTE** on the right of the *Leak Rate Check* screen to execute the leak rate check (PM).

8.22.2 Executing the Leak Rate Check (PM + Gas Line) 03246.20170301

- 1 Press **SELECT LEAK CHECK** on the *Leak Rate Check* screen, select **PM+GAS LINE** to display the *Measurement Site* dialog.

- 2** Select PRIMARY VALVE or SECONDARY VALVE on the *Measurement Site* dialog to select the measurement site.

▼ **Measurement Site Dialog**

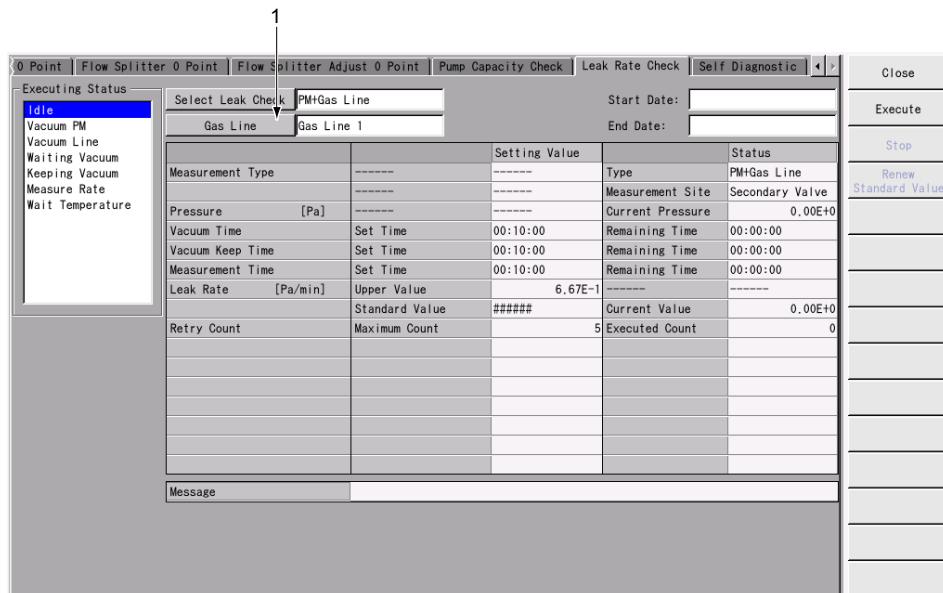


gA127_e

- 3** Press GAS LINE on the *Leak Rate Check* screen and select a gas line to conduct a leak rate check.

 **NOTE** If the flow meter of the gas line is set to DN-VC (Flow Meter Type Selection for Gas Line n of PM# Parameter (Equipment/Gas Line Edit) is set to DN-VC), you cannot execute leak rate check (PM+Gas Line).

▼ **Leak Rate Check (PM + Gas Line) Screen**



g032462450_e

No.	Description
1	Selects a gas line to conduct the leak rate check (individual setting or all gas lines).

- 4** Press EXECUTE on the right of the *Leak Rate Check* screen to execute the leak rate check (PM + Gas Line).

8.22.3 Executing the Leak Rate Check (PM + V 30) 03247.20081001

- 1** Press SELECT LEAK CHECK on the *Leak Rate Check* screen and select PM+V30.

- 2 Press EXECUTE on the right of the *Leak Rate Check* screen to execute the leak rate check (PM + V30).

8.22.4 Executing the Leak Rate Check (ALL) 14237.20160901

- 1 Press SELECT LEAK CHECK on the *Leak Rate Check* screen and select ALL.
- 2 Press EXECUTE on the right of the *Leak Rate Check* screen to execute the leak rate check (ALL).

8.22.5 Renewing the Initial Value of Leak Rate Check 03249.20140201

- 1 Execute the leak rate check with the pattern selected on the *Leak Rate Check* screen (**PM** (see page 235), **PM + Gas Line** (see page 235), **PM + V 30** (see page 236), or **ALL** (see page 237)).
- 2 After the leak rate check, press RENEW STANDARD VALUE on the right of the *Leak Rate Check* screen to renew the initial value.

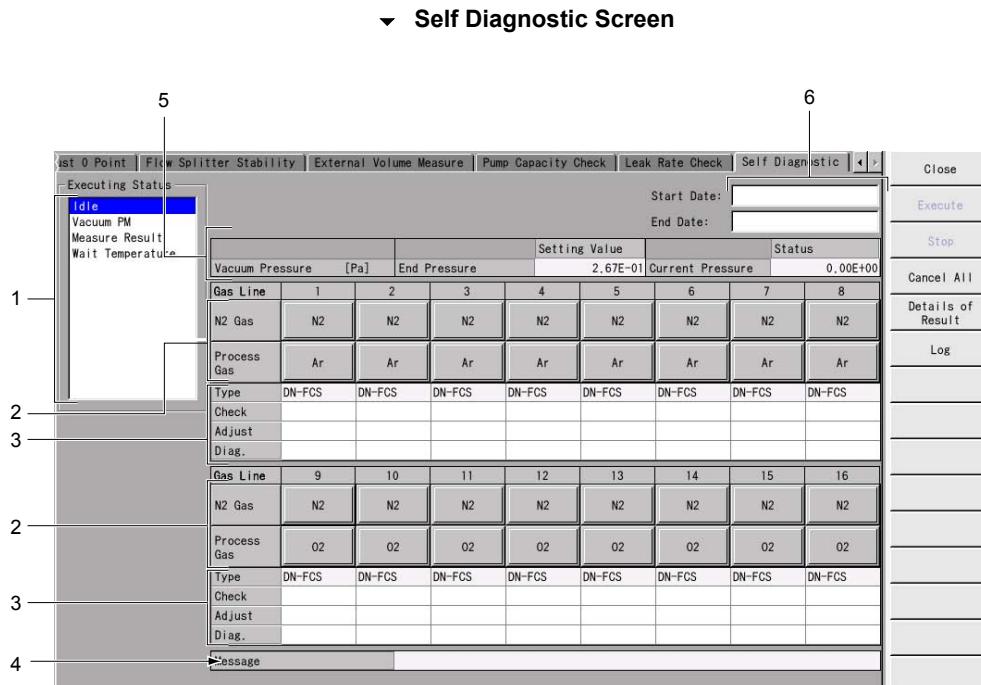
8.23 Operating Self Diagnostic Screen 03250.20101201

On this screen, you can operate the necessary functions to conduct a flow rate self diagnostic.

NOTE The flow rate self diagnostic function is available to the gas lines for which DN-FCS/DN-WFCS is set at Flow Meter Type Selection for Gas Line n of PM# Parameter(Equipment/Gas Line Edit).

Display the *Self Diagnostic* screen from the group menu below.

MAINTE.→PM AUTO CHECK→PM#→SELF DIAGNOSTIC



g032502452_e

No.	Description
1	Displays the status of the flow rate self diagnostic being executed.
2	Displays the gas line and gas type for the flow rate self diagnostic.
3	Displays the type of the flow meter used in the gas line as well as the result and status of the self diagnostic.
4	Displays the completion status of the flow rate self diagnostic. If the diagnostic ends abnormally, an error message displays.
5	Displays the ending pressure for vacuuming, along with the real-time pressure inside the chamber.
6	Displays the start time and end time of the flow rate self diagnostic.

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Self Diagnostic* screen. The process will continue even though the screen is closed during the flow rate self-diagnosis.
- **EXECUTE:** [Executes the flow rate self diagnostic \(see page 239\)](#).
- **STOP:** Stops the flow rate self-diagnosis.
- **CANCEL ALL:** Cancels all gas line and gas type selections.
- **DETAILS OF RESULT:** Displays the details of the flow rate self diagnostic result.
- **LOG:** Displays the *Flow Diagnosis Logs* screen.

8.23.1 Executing the Flow Rate Self Diagnostic 03251.20111001

- 1 On the *Self Diagnostic* screen, select a gas line and gas type (N₂ gas/process gas) to conduct a flow rate self diagnostic.

Pressing **CANCEL ALL** on the right of the *Self Diagnostic* screen cancels all gas line and gas type selections.

**NOTE**

Only the process gas can be selected if Gas Line #Gas Type of the PM# Parameter (Equipment/Gas Line Edit) is set to Explosive Gas or Normal Gas (Non N2).

- 2 Press **EXECUTE** on the right of the *Self Diagnostic* screen and select a desirable operation (**SELF DIAG.** or **0 POINT CHECK**) to execute the flow rate self diagnostic.

**NOTE**

Only SELF DIAG. can be selected when the zero-Point Check Function of FCS of the PM# Parameter (Equipment/Gas Line Edit) is set to Disable.

8.24 Operating the Lower Temp. Sensor Check Screen

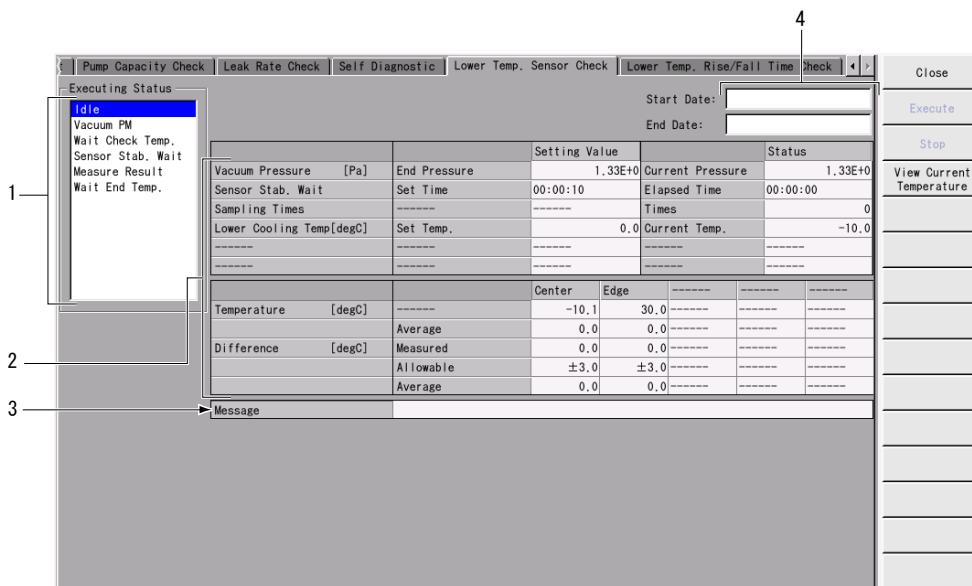
08486.20111001

On this screen, you can operate the necessary functions to check the lower temperature sensor.

Display the *Lower Temp. Sensor Check* screen from the group menu below.

MAINTE.→PM AUTO CHECK→PM#→LOWER TEMP. SENSOR CHECK

▼ Lower Temp. Sensor Check Screen



g084856855_e

No.	Description
1	Shows the status of the lower temperature sensor check currently being executed.
2	Displays the status and set value of each item while the lower temperature sensor check is being executed.
3	Displays the completion status of the lower temperature sensor check. If the lower temperature sensor check ends abnormally, an error message appears.
4	Displays the start time and end time of the lower temperature sensor check.

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- CLOSE:** Closes the *Lower Temp. Sensor Check* screen. This screen can be closed during lower temperature sensor check without interfering with the checking operation.
- EXECUTE:** Executes the lower temperature sensor check (see page 241).
- STOP:** Stops the lower temperature sensor check currently being performed.

- **VIEW CURRENT TEMPERATURE:** Displays the current temperature of the lower heater (see page 241).

8.24.1 Executing Lower Temperature Sensor Check 08487.20111001

- 1 Press EXECUTE on the *Lower Temp. Sensor Check* screen.
- 2 Press OK to execute the lower temperature sensor check.

8.24.2 Viewing the Current Temperature of the Lower Heater 08735.20111001

- 1 Execute the lower temperature sensor check (see page 241).
- 2 After the lower temperature sensor check, press **VIEW CURRENT TEMPERATURE** on the right of the *Lower Temp. Sensor Check* screen to display the current temperature.

8.25 Operating the Lower Temp. Rise/Fall Time Check Screen

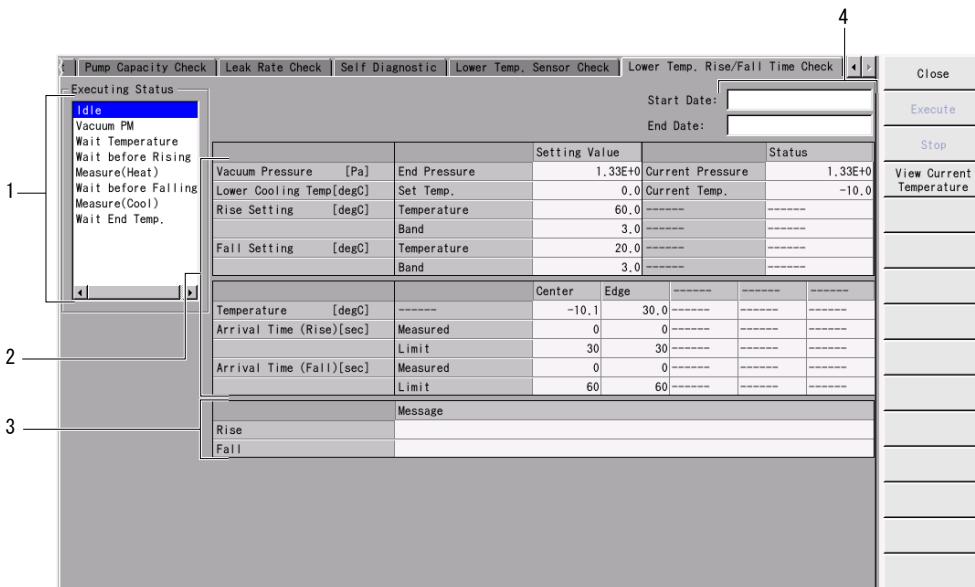
08736.20111001

On this screen, you can operate the necessary functions to check the lower temperature rise/fall time.

Display the *Lower Temp. Rise/Fall Time Check* screen from the group menu below.

MAINTE.→PM AUTO CHECK→PM#→LOWER TEMP. RISE/FALL TIME CHECK

▼ Lower Temp. Rise/Fall Time Check Screen



g087366856_e

No.	Description
1	Shows the status of the lower temperature rise/fall time check currently being executed.
2	Displays the status and set value of each item while the lower temperature rise/fall time check is being executed.
3	Displays the completion status of the lower temperature rise/fall time check. If the lower temperature rise/fall time check ends abnormally, an error message displays.
4	Displays the start time and end time of the lower temperature rise/fall time check.

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- CLOSE:** Closes the *Lower Temp. Rise/Fall Time Check* screen. This screen can be closed during lower temperature rise/fall time check without interfering with the checking operation.
- EXECUTE:** Executes the lower temperature rise/fall time check (see page 243).
- STOP:** Stops the lower temperature rise/fall time check currently being performed.

- VIEW CURRENT TEMPERATURE: Displays the current temperature of the lower heater (see page 243).

8.25.1 Executing the Lower Temperature Rise/Fall Time Check 08737.20111001

- 1 Press EXECUTE on the *Lower Temp. Rise/Fall Time Check* screen.
- 2 Press OK to execute the lower temperature rise/fall time check.

8.25.2 Viewing the Current Temperature of the Lower Heater 08738.20111001

- 1 Execute the lower temperature rise/fall time check (see page 243).
- 2 After the lower temperature rise/fall time check, press VIEW CURRENT TEMPERATURE on the right of the *Lower Temp. Rise/Fall Time Check* screen to display the current temperature.

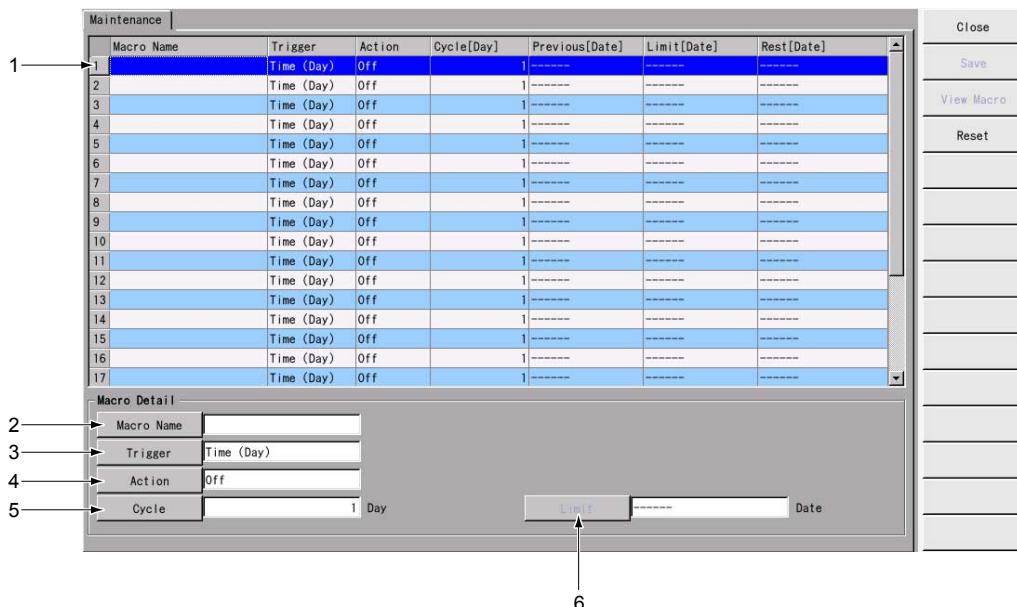
8.26 Operating the Maintenance (Auto Check Macro) Screen

03252.20101201

Display the *Maintenance (Auto Check Macro)* screen from the group menu below.

MAINTE.→AUTO CHECK MACRO SETUP→PM#→MAINTENANCE

▼ Maintenance (Auto Check Macro) Screen



g032522453_e

No.	Description
1	Pressing on the line to be edited once enables the buttons in the setting area under the <i>Maintenance (Auto Check Macro)</i> screen.
2	Selects an auto check macro to be executed. (Duplicated selection is not allowable.)
3	Selects the executing trigger of the auto check macro.
4	Sets enable/disable for automatic execution of the auto check macro.
5	Sets the execution interval for the auto check macro.
6	Displays the expected value for the automatic execution of the auto check macro. If the executing trigger is RF Time or PM Time, displays the limit value. If the executing trigger is Time (Day) or Time (Week), displays the planned next execution time. Limit can be changed only at the first time.



NOTE

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Maintenance (Auto Check Macro)* screen.
- **SAVE:** Stores the auto check macro settings being edited on the *Maintenance (Auto Check Macro)* screen.
- **VIEW MACRO:** Displays the setting contents of the auto check macro pointed by the cursor.
- **RESET:** Clears the contents of the settings. When clearing the saved setting which **ACTION** is set to **ON**, press **RESET** after **ACTION** is set to **OFF** and is once saved.

8.26.1 Batch Execution of Auto Check Macros 03253.20101201

- 1 Create the auto check macro.

For information about creating auto check macros, refer to *Operating the Maintenance Macro Editor Screen* in the **Advanced Operations Maintenance Macro Manual**.

- 2 Enable the buttons in the setting range under the *Maintenance (Auto Check Macro)* by pressing on the line to be edited once in the *Maintenance (Auto Check Macro)* screen.
- 3 Press **MACRO NAME** and set the auto check macro to be used, then press **OK**.

**NOTE**

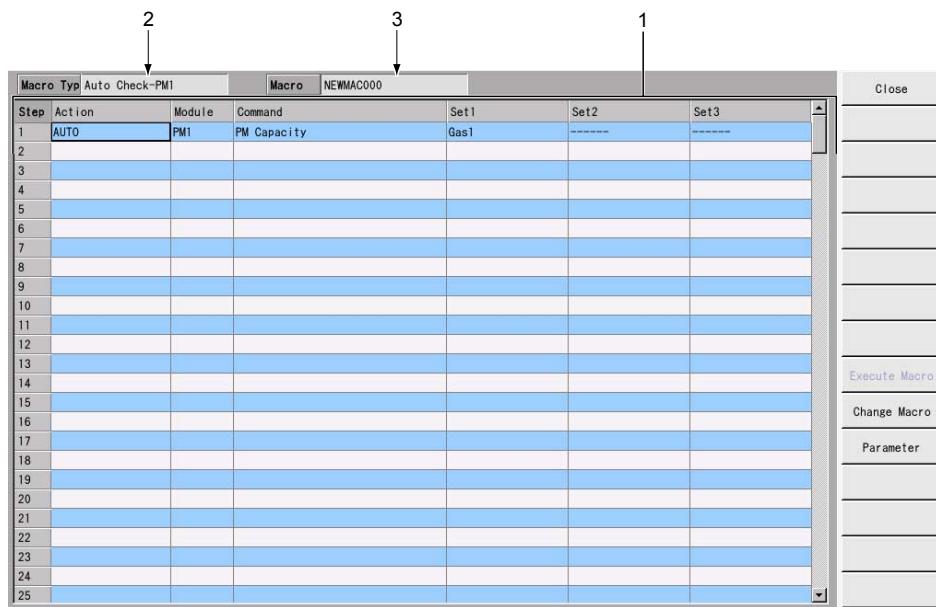
You can set the same macro only once. For the execution timing of an auto check macro, you can set it for a maximum of 24 macros.

- 4 Press **VIEW MACRO** on the right of the *Maintenance (Auto Check Macro)* screen to display the *Maintenance MacroViewer (Auto Check)* screen. On the *Maintenance MacroViewer (Auto Check)* screen, check the contents of the auto check macro.

CAUTION**Equipment Damage**

The set values in the following auto check macro are one example of use, and may differ depending on the customer's usage. In actual use, confirm if it is appropriate for the customer's specifications.

▼ Example: Maintenance MacroViewer (Auto Check) Screen



g032532454_e

No.	Description
1	The auto check is executed from Step 1 according to the setting contents of Action, Module, Command, and Set 1–Set 3. For information about the auto check macro settings, refer to <i>Maintenance Macro Command List</i> in the Advanced Operations Maintenance Macro Manual . You can confirm the macro parameters of the displayed auto check macro by pressing PARAMETER on the right of the <i>Maintenance MacroViewer (Auto Check)</i> screen.
2	Displays the type of the macro.
3	Displays the name of the selected auto check macro.

- 5 Press TRIGGER and select an executing trigger.

▼ Selecting a Trigger

Executing trigger	Description
Time (Day)	Executes the auto check macro at intervals of constant time.
Time (Week)	
RF Time	Executes the auto check macro when the total RF time reaches the set limit.
PM Time	Executes the auto check macro when the number of times the process module is used reaches the limit. If the limit is reached in the middle of a transfer, the equipment first enters the idling state and then executes the auto check macro.

- 6 Press ACTION and select ON or OFF.

- 7 Press CYCLE and set the execution interval.

The set value for the execution interval will be handled differently depending on the type of the executing trigger set at TRIGGER.

▼ Set Values for Cycle

Executing trigger	Description
Time (Day)	Sets the executing interval by day (24 hours).
Time (Week)	Sets the executing interval by week (7 days).
RF Time	Sets the limit of the total RF time.
PM Time	Sets the limit of the number of times the process module is used.



NOTE

The limit can be edited only at the first time by pressing LIMIT.

- 8 Press **SAVE** on the right of the *Maintenance (Auto Check Macro)* to store the settings.

When the set value of the execution trigger is reached, the auto check macro will be executed automatically and the module changes to the maintenance mode.

Depending on the result of the auto check macro or the completion status, the mode to be changed to differs as follows.

- If the result of the auto check macro is normal: Automatically changes to the normal mode (non-production). To learn how to change to the normal mode (production), refer to **7.5 Changing the Process Module Operation Mode (see page 171)**.
- If any error is present in the result of the auto check macro: Changes to the maintenance mode, not the normal mode.
- If the auto check macro ends abnormally in the interim: Changes to the maintenance mode, not the normal mode.

Restrictions

The auto check cannot be executed if any of the conditions listed below apply. Before executing the auto check, make sure to check the alarm details and take necessary actions.

▼ Restrictions in Auto Check Execution

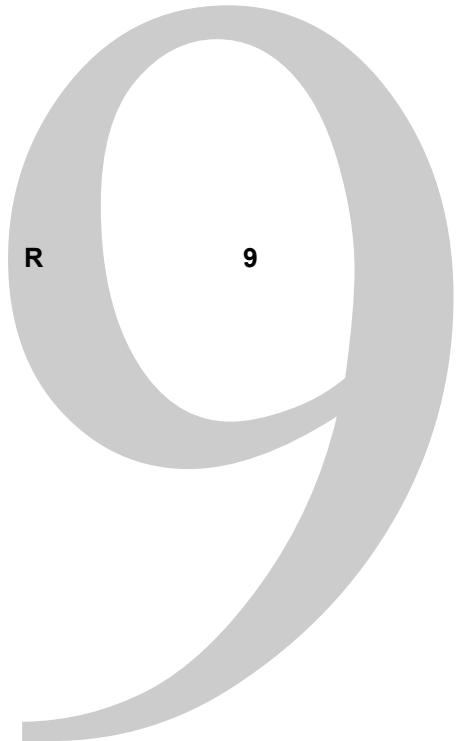
Disabling Conditions
Remaining wafers (wafer whose destination is unknown) are in the target process module.
The specified auto check macro has not cleared the verify error check (The auto check macro is deleted or renamed, or it does not match with the parameter).
The macros reach the maximum number which can be executed simultaneously.

Waiting Conditions

The auto check is suspended if any of the conditions listed below apply. Before executing the auto check, make sure to check the alarm details and take necessary actions.

▼ Auto Check Waiting Conditions

Waiting Conditions
The target process module is in the lot processing.
The target process module is in normal state and the status is other than Idle.
The target process module is in the maintenance status.



Auto Setup Execution

This chapter provides the necessary operations for executing auto setup.

The information contained in this chapter has been prepared based on the specifications of the standard equipment. Throughout the manual, figures provided in this manual, including operation screens and appearances, may vary from the equipment installed at your site.

9.1 Executing Auto Setup 03373.20101201

Introduction

Overview:

The auto-setup function executes changing of the operation from the maintenance mode to normal mode automatically.

The contents of the check at the auto-setup can be set on the auto setup macro. The check contents set for the auto setup macro can be executed when the relevant module changes from the maintenance mode to the normal mode (non-production). The followings can be set in the auto setup macro.

- Check Content: Choose which check is to be performed out of processing, such as the capacitance manometer, flow meter, and leak check.
- Check Order: Specify in what order it checks. Moreover, as a result of checking, when abnormalities are detected, specification that a special check is performed can also be carried out.
- Detailed Setting with Parameter: By having a macro parameter for every auto setup macro, it can check on various conditions according to the recovery situation.

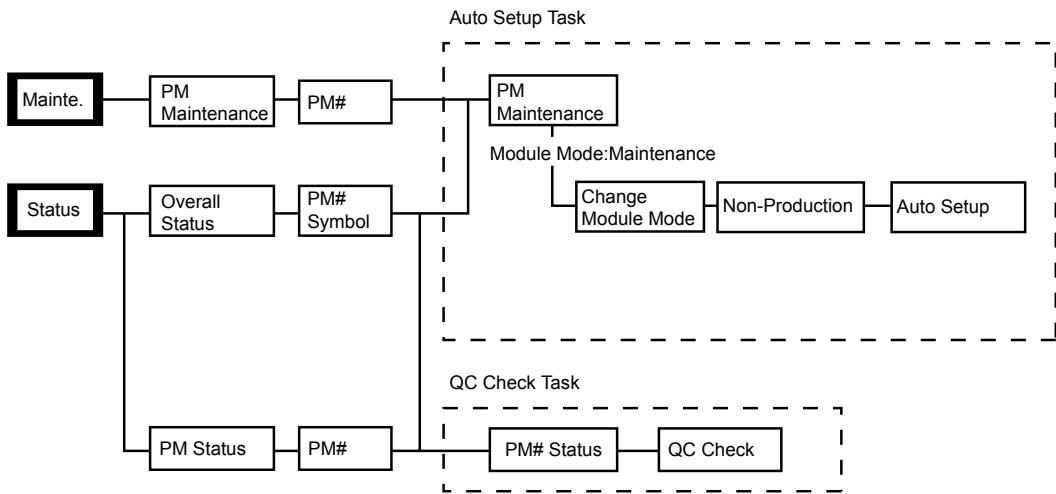
For information about creating/editing auto setup macros, refer to *Operating the Maintenance Macro Editor Screen* in the [Advanced Operations Maintenance Macro Manual](#).

Also, the QC check function which can be executed from the normal mode is provided to the auto-setup. When the QC check is executed, changing from the normal mode to maintenance mode, and then to the normal mode, are executed automatically to execute the check contents which is set to the auto setup macro while changing to the normal mode.

The auto-setup is intended to optimize the process and save labor by automating the operation of changing to the normal mode after the maintenance tasks. The QC check is intended to transfer the non-production wafers used for measuring particle of the process module or the etch rate in the intervals between lot process.

The software hierarchy for executing auto setup follows.

▼ Software Hierarchy for Executing Auto Setup



g033732528_e

Sequence of Executing Auto Setup

- 1 Confirm that the equipment is in an idle state, and **change the process module to maintenance mode (see page 174)**.

NOTE For the process module on which the continuous lot processing is performed, change to the maintenance mode using the reserve changing mode function.
- 2 After the maintenance tasks are finished, **the auto setup is performed when the process module changes to the normal mode (non-production) (see page 252)**.
- 3 **Change the process module from normal mode (non-production) to the normal mode (production) (see page 174)**.

Sequence of Executing QC Check

- 1 Confirm that the equipment is in an idle state.

NOTE For the process module on which the continuous lot processing is performed, change to the normal mode (non-production) using the reserve changing mode function.
- 2 From the *Overall Status* screen, or by selecting STATUS from the group menu, display *PM# Status Display* screen.
- 3 **Execute the QC check (see page 257)**.

9.2 Executing Auto Setup 03374.20150801

- 1 Display the *PM Maintenance* screen from the group menu below and [change to the process module maintenance mode \(see page 174\)](#).
 - STATUS→OVERALL STATUS→PM# SYMBOL→PM# MAINTENANCE→MODULE
 - MAINTE.→PM MAINTENANCE→PM#→MODULE
- 2 After the maintenance tasks, press **CHANGE MODULE MODE** on the right of the *PM Maintenance* screen to display the *Change Module Mode (PM)* dialog.
- 3 Press **NON-PRODUCTION** on the *Change Module Mode (PM)* dialog, then press **OK** to display the *Select Normal* dialog.
- 4 Press **AUTO SETUP** on the *Select Normal* dialog to display the *Select Macro* dialog.

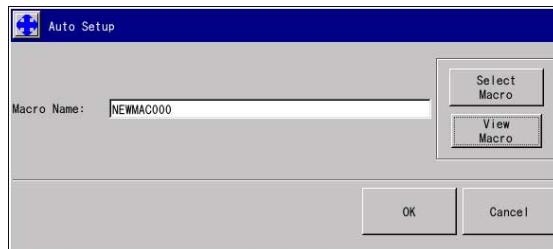


NOTE

Pressing **NORMAL** on the *Select Normal* dialog will change the module to normal mode (non-production) without executing auto setup.

- 5 Select the auto setup macro to be executed from those registered in the equipment, and press **OK**.

▼ **Auto Setup Dialog**



g033742529_e

- 6 Press **VIEW MACRO** on the *Auto Setup* dialog to display the *Maintenance MacroViewer (Auto Setup)* screen. On the *Maintenance MacroViewer (Auto Setup)* screen, check the contents of the auto setup macro.

CAUTION

Equipment Damage

The set values in the following auto setup macro are one example of use, and may differ depending on the customer's usage. In actual use, confirm if it is appropriate for the customer's specifications.

▼ Example: Maintenance MacroViewer (Auto Setup) Screen



g033742530_e

No.	Description
1	The auto setup is executed from Step 1 according to the setting contents of Action, Module, Command, and Set 1–Set 3. For more information about auto setup macro settings, refer to <i>Maintenance Macro Command List</i> in the Advanced Operations Maintenance Macro Manual . You can confirm the macro parameters of the displayed auto setup macro by pressing PARAMETER on the right of the <i>Maintenance MacroViewer (Auto Setup)</i> screen.
2	Displays the type of the macro.
3	Displays the name of the selected auto setup macro.

When performing a process including any of the following wafer transfer operations, **load a carrier to a desirable load port and set the special port according to the process (see page 74)**.

- Seasoning
- Lot-stabilization dummy process
- Cleaning
- Measure Particle
- Measure Etch Rate
- Test Transfer
- Measure Particle (Wafer Set)
- Measure Etch Rate (Wafer Set)
- Test Transfer (Wafer Set)

**NOTE**

When seasoning/lot-stabilization dummy process/cleaning is performed by auto setup, the wafer in the dummy storage can be also used.

- 7 Press OK on the *Auto Setup* dialog to execute the auto setup.

Restrictions

Auto-setup cannot be performed if any of the conditions listed below apply. Before executing the auto setup, make sure to check the alarm details and take necessary actions.

▼ Restrictions in Auto Setup Execution

Disabling Conditions
The process module status is other than Maintenance.
The specified auto setup macro is not present (deleted or renamed).
The specified auto setup macro has not cleared the verify error check.
The target process module is in transfer operation.
Remaining wafers (wafer whose destination is unknown) are in the target process module.

Condition Requiring Transfer Wait Time

If any of the conditions listed below applies, a transfer wait time is required before execution of the processing accompanied by wafer transfer. Before executing the auto setup, make sure to check the alarm details and take necessary actions.

▼ Conditions Requiring Transfer Wait Time Before Execution of Processing Accompanied by Wafer Transfer

Condition Requiring Transfer Wait Time
A wafer is detected during search action and no carrier or vacant slot is available to clean it out.
The test carrier is not set.
No specified type of wafer is present in the test carrier.
The applicable wafer has reached the limit level of the maintenance management.
As the result of a transfer check, the process module is in other than the transferable status.
As the result of a transfer check, the Load Lock Module is in other than the transferable status.
As the result of a transfer check, the loader module is in other than the transferable status.



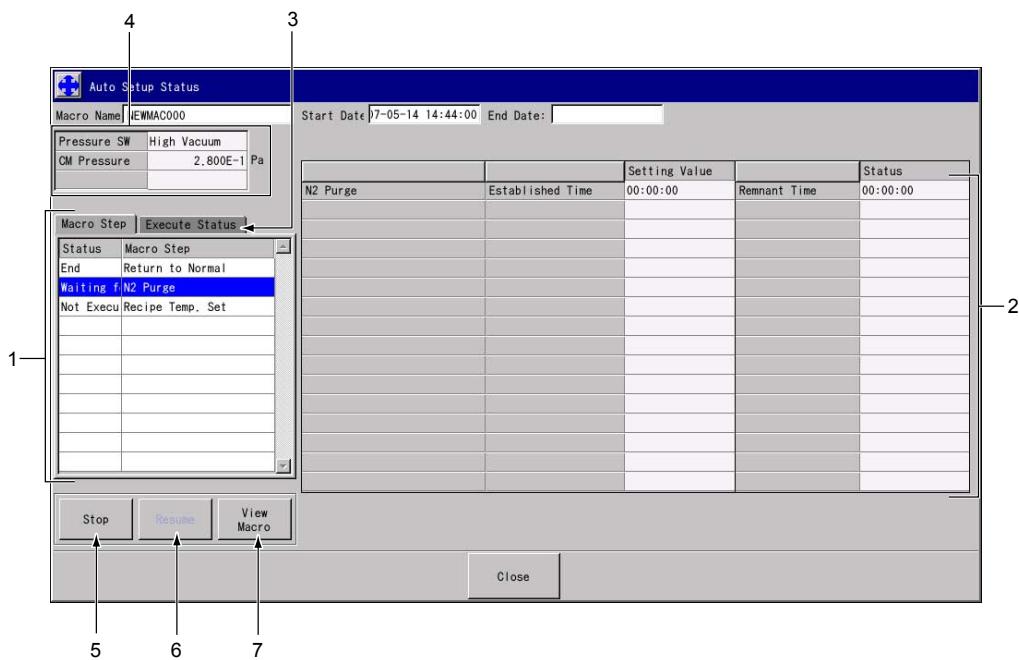
NOTE

The transfer check is performed whenever a process with wafer transfer is performed.

- 8 On the *Auto Setup Status* dialog, check the status during the auto setup execution.

You can display the *Auto Setup Status* dialog by pressing AUTO SETUP STATUS on the right of the *PM Maintenance* screen.

▼ Auto Setup Status Dialog

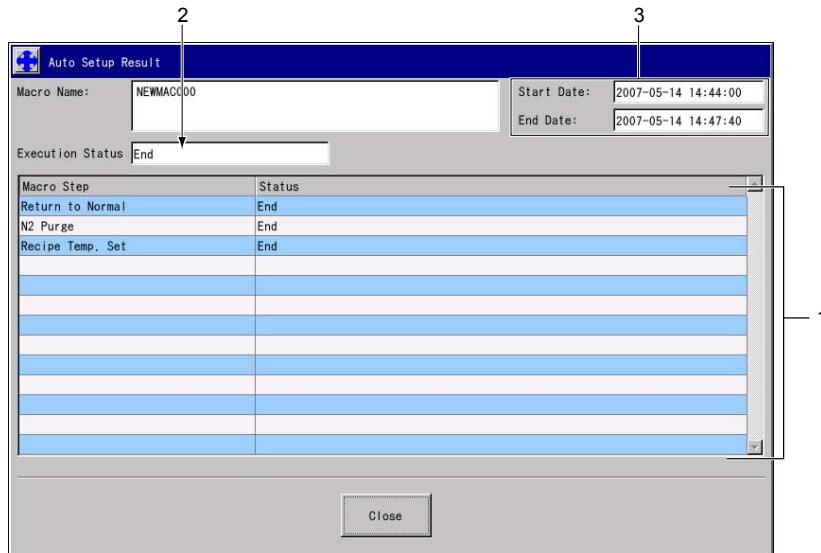


g033742531_e

No.	Description
1	Displays the executing step of the auto check macro.
2	Displays each value of the executing auto set-up. For the seasoning, measure particle, measure etch rate, test transfer, measure particle (wafer set), measure etch rate (wafer set), and test transfer (wafer set), the following buttons are displayed. STOP: Prohibits any wafer unload from the carrier. If there is a wafer, which is being unloaded, this wafer process will be continued until the wafer is collected to the carrier. ABORT: Prohibits any wafer unload from the carrier. Completes the process only for the wafer being processed in the process module. Any wafers that have not reached the process module will be returned to the carrier immediately.
3	Displays the status of the auto set-up currently in progress.
4	Displays the current pressure values measured by the pressure switch, capacitance manometer, and BA gauge.
5	Interrupts the auto-setup now in progress and changes to the maintenance mode.
6	Clears the pause of the process, and continue the auto-setup.
7	Refers to the auto setup macro now in progress. (Edit is impossible.)

- 9 After the auto setup finishes, check if the auto setup is completed successfully on the *Auto Setup Result* dialog.

▼ **Auto Setup Result Dialog**



g033742532_e

No.	Description
1	Displays the executing results of the auto-setup.
2	Displays the result conditions of the auto-setup.
3	Displays the time auto-setup has started/ended.



NOTE

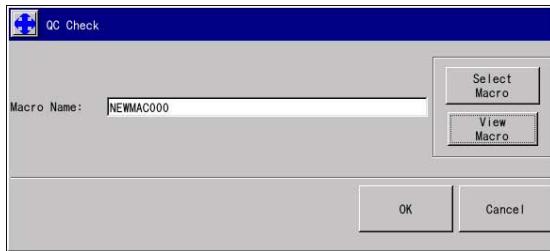
Pressing AUTO SETUP RESULT on the right of the PM Maintenance screen. will display the latest auto setup result on the *Auto Setup Result* dialog.

9.3 Procedure for Executing the QC Check

03379.20101201

- 1 Display the *PM# Status* screen by selecting the following items from the group menu:
 - STATUS→OVERALL STATUS→PM# SYMBOL→PM# STATUS
 - STATUS→PM STATUS→PM#
- 2 Press QC CHECK on the right of the *PM# Status* screen to display the *Select Macro* dialog.
- 3 Select the auto setup macro to be executed from those registered in the equipment, and press OK.

▼ QC Check Dialog



g033792549_e

- 4 Press VIEW MACRO on the *QC check* dialog to display the *Maintenance MacroViewer (Auto Setup)* screen. On the *Maintenance MacroViewer (Auto Setup)* screen, check the contents of the auto setup macro.

CAUTION

Equipment Damage

The set values of the following auto-setup recipes are one of the examples and different depending on the customer's usage. In actual use, confirm if it is appropriate for the customer's specifications.

▼ Example: Maintenance MacroViewer (Auto Setup) Screen



g033742530_e

No.	Description
1	The QC check is executed from Step 1 according to the setting contents of Action, Module, Command, and Set 1–Set 3. For more information about auto setup macro settings, refer to <i>Maintenance Macro Command List</i> in the Advanced Operations Maintenance Macro Manual . You can confirm the macro parameters of the displayed auto setup macro by pressing PARAMETER on the right of the <i>Maintenance MacroViewer (Auto Setup)</i> screen.
2	Displays the type of the macro.
3	Displays the name of the selected auto setup macro.

When performing a process including any of the following wafer transfer operations, **load a carrier to a desirable load port and set the special port according to the process (see page 74)**.

- Seasoning
- Measure Particle
- Measure Etch Rate
- Test Transfer
- Measure Particle (Wafer Set)
- Measure Etch Rate (Wafer Set)
- Test Transfer (Wafer Set)

5 Press OK on the *QC Check* dialog to execute the QC check.

Restrictions

The QC check cannot be executed if any of the following conditions are met: Before executing the QC check, make sure to check the alarm details and take necessary actions.

▼ **Restrictions in QC Check Execution**

Disabling Conditions
The process module status is other than Idle and Paused.
The specified auto setup macro is not present (deleted or renamed).
The specified auto setup macro has not cleared the verify error check.
The target process module is in transfer operation.
Remaining wafers (wafer whose destination is unknown) are in the target process module.

Condition Requiring Transfer Wait Time

If any of the conditions listed below applies, a transfer wait time is required before execution of the processing accompanied by wafer transfer. Before executing the QC check, make sure to check the alarm details and take necessary actions.

▼ **Conditions Requiring Transfer Wait Time Before Execution of Processing Accompanied by Wafer Transfer**

Condition Requiring Transfer Wait Time
A wafer is detected during search action and no carrier or vacant slot is available to clean it out.
The test carrier is not set.
No specified type of wafer is present in the test carrier.
The applicable wafer has reached the limit level of the maintenance management.
The applicable process module is not in the normal mode (non-production or production).
As the result of a transfer check, the process module is in other than the transferable status.
As the result of a transfer check, the Load Lock Module is in other than the transferable status.
As the result of a transfer check, the loader module is in other than the transferable status.



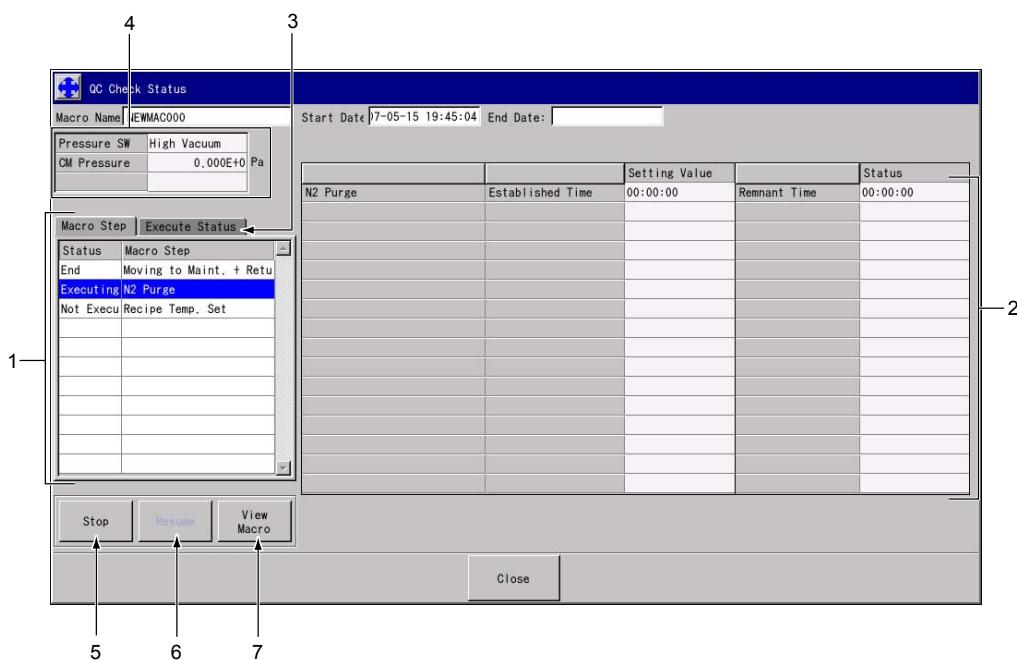
NOTE

The transfer check is performed whenever a process with wafer transfer is performed.

- On the *QC Check Status* dialog, check the status during the QC check execution.

You can display the *QC Check Status* dialog by pressing **QC CHECK STATUS** on the right of the *PM Maintenance* screen.

▼ QC Check Status Dialog

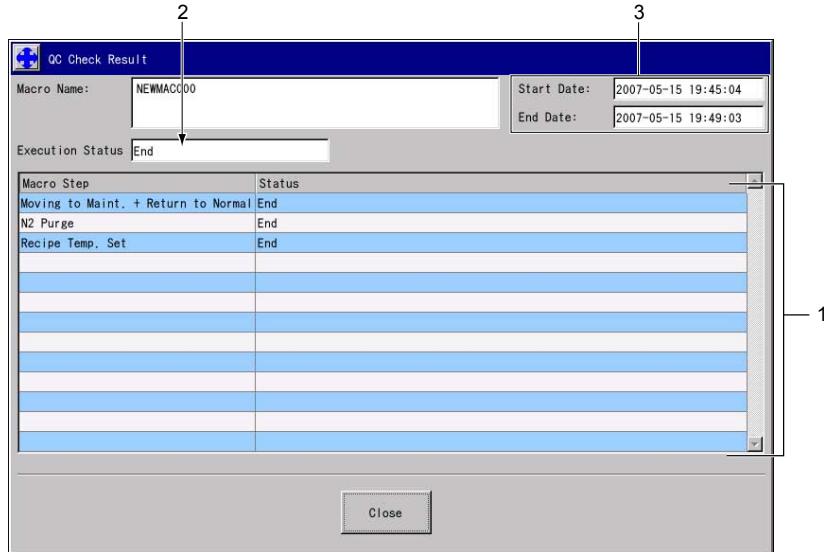


g033792550_e

No.	Description
1	Displays the executing step of the auto check macro.
2	Displays each value of the executing QC check. For the seasoning, measure particle, measure etch rate, test transfer, measure particle (wafer set), measure etch rate (wafer set), and test transfer (wafer set), the following buttons are displayed. STOP: Prohibits any wafer unload from the carrier. If there is a wafer, which is being unloaded, this wafer process will be continued until the wafer is collected to the carrier. ABORT: Prohibits any wafer unload from the carrier. Completes the process only for the wafer being processed in the process module. Any wafers that have not reached the process module will be returned to the carrier immediately.
3	Displays the status of the executing QC check.
4	Displays the current pressure values measured by the pressure switch, capacitance manometer, and BA gauge.
5	Interrupts the auto-setup now in progress and changes to the maintenance mode.
6	Clears the pause of the process, and continue the auto-setup.
7	Refers to the auto setup macro now in progress. (Edit is impossible.)

- 7 After the QC check finishes, check if the QC check is completed successfully on the *QC Check Result* dialog.

▼ **QC Check Result Dialog**



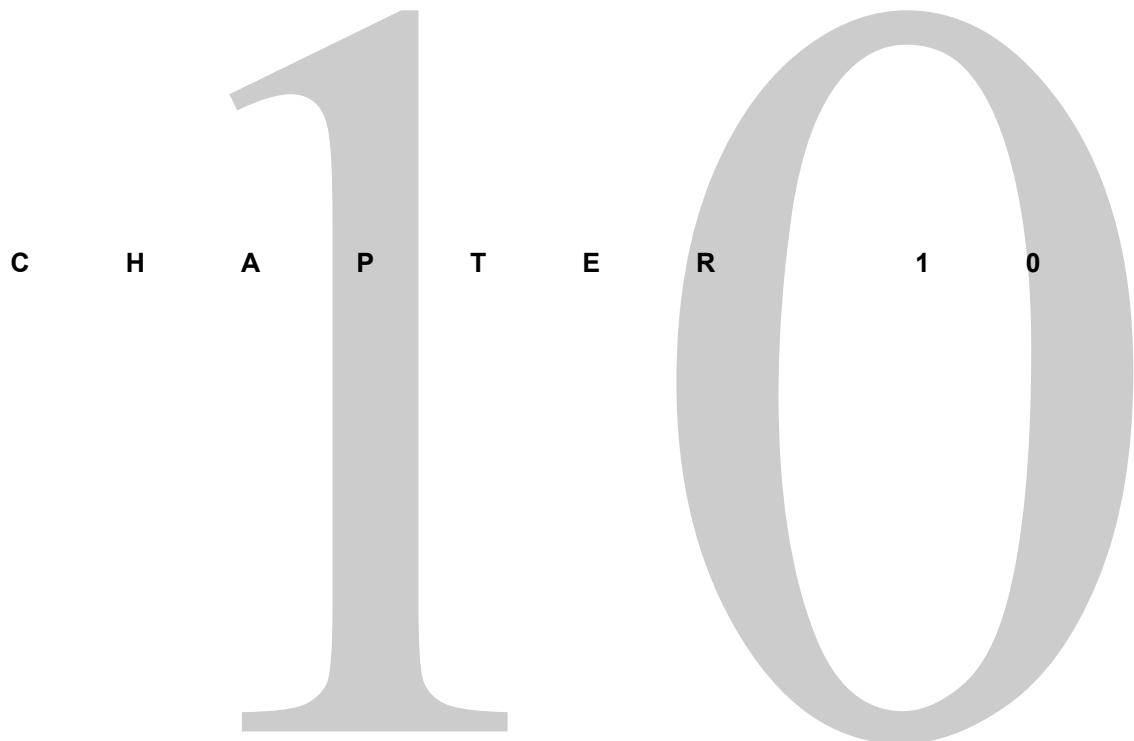
g033792551_e

No.	Description
1	Displays the executing results of the QC check.
2	Displays the completion status of the QC check.
3	Displays the start time and end time of the QC check.



NOTE

You can view the latest QC check results on the *QC Check Result* dialog by pressing QC CHECK RESULT on the right of the PM# Status screen.



Manual Transfer

This chapter provides the necessary operations for manual transfer.

The information contained in this chapter has been prepared based on the specifications of the standard equipment. Throughout the manual, figures provided in this manual, including operation screens and appearances, may vary from the equipment installed at your site.

10.1 Manual Transfer Function 03695TT.20101201

Introduction

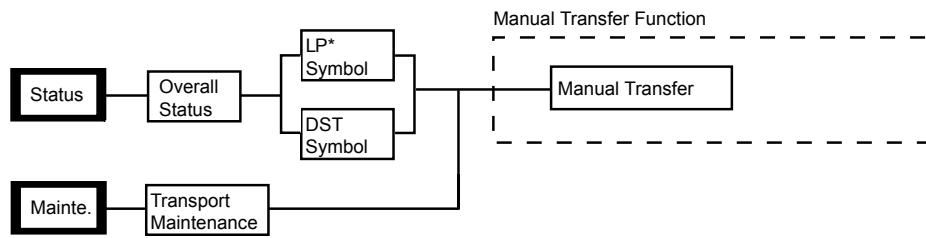
Overview:

Manual transfer function is a function to transfer the designated wafer to the designated module when each module of the equipment is in the maintenance mode.

Using this function, you can check if the equipment transfers a wafer correctly. Also, this makes maintenance operations (ORT alignment and recipe execution) possible with the wafer inside the designated module.

The software hierarchy for the manual transfer follows.

▼ Software Hierarchy for Manual Transfer



g005240215_e

Sequence of Manual Transfer

- 1 Confirm that the system is in an idle state, and change the modules of transfer starting point, transfer destination, and transfer route to the maintenance mode. Refer to the chapter **Changing the Operation Mode** for changing to the maintenance mode.

NOTE During the manual transfer, modules of transfer starting point, transfer destination, and transfer route can not be maintained. Maintenance operation will be allowed when wafer transfer finishes.
- 2 Display *Manual Transfer* and execute the manual transfer as follows.
 - 2.1 Load a carrier on the load port.
 - 2.2 Set the transfer starting point and the transfer destination.
 - 2.3 Set the transfer mode.
 - 2.4 Execute the manual transfer.
 - 2.5 After the operation with manual transfer completes, collect all transferred wafers and unload the carrier.
- 3 Change the modules of transfer starting position, transfer destination, and transfer route to the normal mode. Refer to the chapter **Changing the Operation Mode** for changing to the normal mode.

10.2 Operating the Manual Transfer Screen 03353TT.20181101

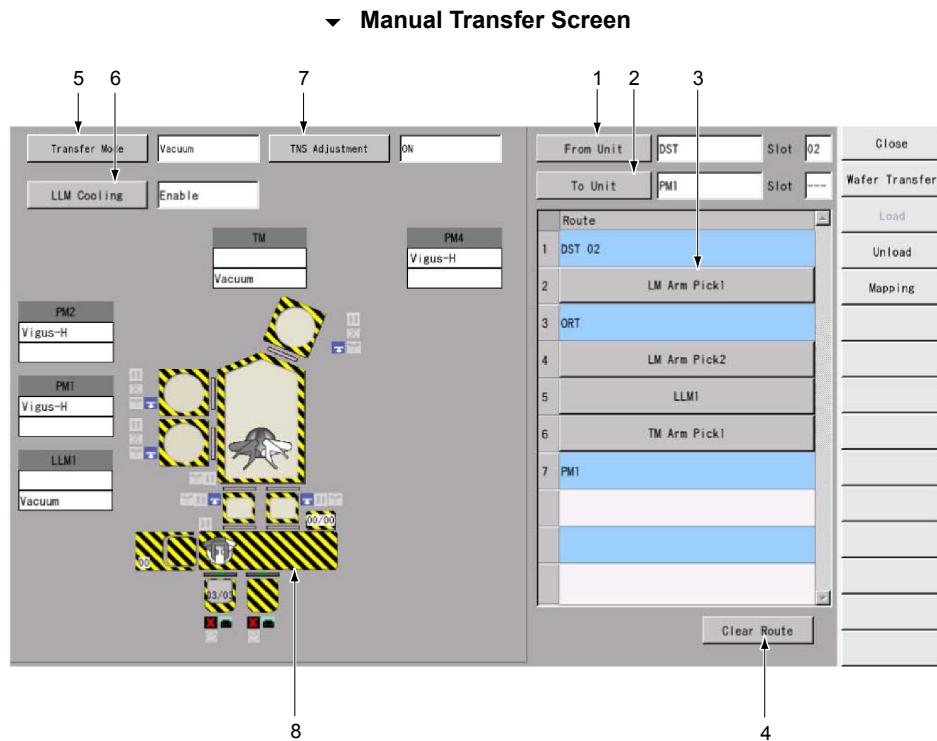
This sets the wafer transfer condition, transfer starting point, and transfer destination, and operates the transfer mode.

Display the *Manual Transfer* screen from the group menu below.

STATUS→OVERALL STATUS→LP* SYMBOL→MANUAL TRANSFER

STATUS→OVERALL STATUS→DST SYMBOL→MANUAL TRANSFER

MAINTE.→TRANSPORT MAINTENANCE→MANUAL TRANSFER



g033532354_e

No.	Description
1	Designates the wafer transfer starting point.
2	Designates the wafer transfer destination.
3	Designates a pick and load lock module used for transferring a wafer.
4	Clears the setting of transfer route.
5	If any of the load lock module, transfer module, and process module is included in the transfer route, this selects whether the relevant module should be under atmospheric state or vacuum state when a wafer is transferred there.
6	When the transfer mode is in vacuum, this specifies whether the cooling process of the load lock module is enabled or not.
7	Specifies whether to perform TNS position adjustment during manual transfer.
8	Displays the transfer status of the wafer.

**NOTE**

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Manual Transfer* screen.
- **WAFER TRANSFER:** Starts the manual transfer.
- **LOAD:** Loads the carrier on the specified load port. Mapping will not be performed.
- **UNLOAD:** Unloads the carrier from the designated load port.
- **MAPPING:** Maps the loaded carrier in the designated load port, the dummy storage, or the purge storage.

10.2.1 How to Transfer Wafers Manually 03354TT.20101201

Introduction

Overview:

To execute manual transfer, load a carrier and set the transfer destination, transfer starting point, and transfer mode. After the operation with manual transfer completes, collect wafers and unload the carrier.

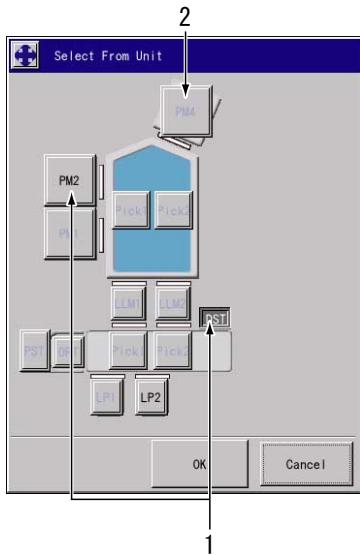
Loading Carrier

- 1 Place a carrier on the load port carrier base.
- 2 Press **LOAD** on the right of the *Manual Transfer* screen to display the *Select LP* dialog.
- 3 Press **LP*** on the *Select LP* dialog and press **OK**.
- 4 Press **MAPPING** on the right of the *Manual Transfer* screen to display the *Select LP* dialog.
- 5 Press **LP*** on the *Select LP* dialog and press **OK**.

Setting Transfer Starting Point and Transfer Destination

- 6 Press **FROM UNIT** on the *Manual Transfer* screen to display the *Select From Unit* dialog.

▼ **Select From Unit Dialog**



g033542355_e

No.	Description
1	This is the module which can be set as a transfer starting point.
2	This is the module which cannot be set as a transfer starting point.

- 7 On the *Select From Unit* dialog, specify the source unit and press **OK**.

If the following conditions are satisfied for setting the transfer starting point, each module can be set as a transfer starting point.

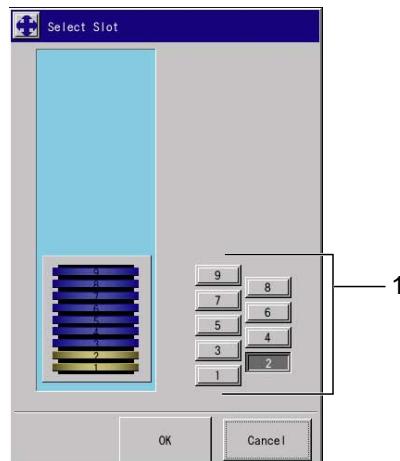
▼ **Conditions for Setting Transfer Starting Point**

Module	Conditions for Setting Transfer Starting Point
• LP*	• Other operations are not in progress. • A wafer exists in a slot. • There is a pick which does not hold a wafer on loader arm.
DST	
LM arm	• Other operations are not in progress. • There is a pick which holds a wafer.
ORT	• Other operations are not in progress. • The Orienter holds a wafer. • There is a pick which does not hold a wafer on loader arm.
PST	• Other operations are not in progress. • A wafer exists in the purge storage. • There is a pick which does not hold a wafer on loader arm.

Module	Conditions for Setting Transfer Starting Point
LLMx	<ul style="list-style-type: none"> Other operations are not in progress. The load lock module holds a wafer. If the wafer is transferred to the load lock module: There is a pick which does not hold a wafer on the loader arm. If the wafer is transferred to the transfer module or process module: There is a pick which does not hold a wafer on the transfer arm.
TM arm	<ul style="list-style-type: none"> Other operations are not in progress. There is a pick which holds a wafer.
PM#	<ul style="list-style-type: none"> Other operations are not in progress. A wafer exists on the process module. There is a pick which does not hold a wafer on the transfer arm.

If the transfer start point is the load port, dummy storage, or purge storage: When OK is pressed, the *Select Slot* dialog will be displayed. Press the slot No. button of a wafer to be transferred on the displayed screen, and then press OK.

▼ Select Slot Dialog

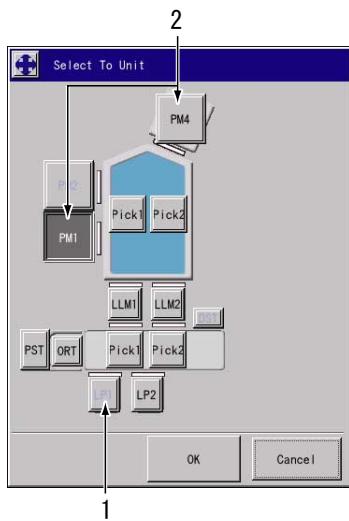


g033542356_e

No.	Description
1	Designates the slot No. of a wafer to be transferred.

- 8 Press TO UNIT on the *Manual Transfer* screen to display the *Select To Unit* dialog.

▼ Select To Unit Dialog



g033542357_e

No.	Description
1	This is the module which cannot be set as a transfer destination.
2	This is the module which can be set as a transfer destination.

- 9 On the *Select To Unit* dialog, specify the destination unit and press OK.

If the following conditions are satisfied for setting the transfer destination, each module can be set as a transfer destination.

▼ Conditions for setting a transfer destination

Module	Conditions for setting a transfer destination
• LP*	• Other operations are not in progress. • A wafer does not exist in the transfer route. • A wafer does not exist in a slot of the transfer destination.
DST	
LM arm	• Other operations are not in progress. • A wafer does not exist in the transfer route. • There is a pick which holds no wafer.
ORT	• Other operations are not in progress. • A wafer does not exist in the transfer route. • A wafer does not exist in the Orienter.
PST	• Other operations are not in progress. • A wafer does not exist in the transfer route. • A wafer does not exist in the purge storage.
LLMx	• Other operations are not in progress. • A wafer does not exist in the transfer route. • The load lock module holds no wafer.
TM arm	• Other operations are not in progress. • A wafer does not exist in the transfer route. • There is a pick which holds no wafer.

Module	Conditions for setting a transfer destination
PM#	<ul style="list-style-type: none"> • Other operations are not in progress. • A wafer does not exist in the transfer route. • A wafer does not exist on the process module.

If the destination is the load port or dummy storage, when OK is pressed, the *Select Slot* dialog will be displayed. Press the slot No. button of the transfer destination on the displayed screen and then press OK.

- 10 Press LM ARM PICK x, TM ARM PICK x, or LLMx to display the *Select Pick* dialog or the *Select Unit* dialog and then select the pick and the load lock module to be used for manual transfer.

Setting Transfer Mode

- 11 Press TRANSFER MODE on the *Manual Transfer* screen to display the *Select Transfer Mode* dialog.
- 12 Select the ATMOSPHERE or VACUUM on the *Select Transfer Mode* dialog.

Refer to the table below for the effective transfer condition for designating the transfer mode (Vacuum/Atmosphere).

▼ Wafer Transfer Condition and Routes

Transfer From Unit	Transfer To Unit	Transfer Route	Enabled or Disabled Transfer Mode Designation
LP*	LM Arm Pick x	From unit→LM arm pick x→ORT→to unit	Off
	ORT	From unit → LM Arm Pick x → to unit	Off
	PST	From unit→LM arm pick x→ORT→LM arm pick x→to unit	Off
	DST	From unit→LM arm pick x→ORT→LM arm pick x→to unit	Off
	LLMx	From unit→LM arm pick x→ORT→LM arm pick x→to unit	Off
	TM Arm Pick x	From unit→LM arm pick x→ORT→LM arm pick x→to unit	Enabled (LLMx → to unit)
	PM#	From unit→LM arm pick x→ORT→LM arm pick x→LLMx→to unit	Enabled (LLMx → to unit)

Transfer From Unit	Transfer To Unit	Transfer Route	Enabled or Disabled Transfer Mode Designation
LM Arm Pick x	LP*	From unit → to unit	Off
	ORT	From unit → to unit	Off
	PST	From unit → to unit	Off
	DST	From unit → to unit	Off
	LLMx	From unit→ORT→LM arm pick x→to unit	Off
	TM Arm Pick x	From unit→ORT→LM arm pick x→LLMx→to unit	Enabled (LLMx → to unit)
	PM#	From unit→ORT→LM arm pick x→LLMx→TM arm pick x→ to unit	Enabled (LLMx → to unit)
ORT	LP*	From unit → LM Arm Pick x → to unit	Off
	LM Arm Pick x	From unit → to unit	Off
	PST	From unit → LM Arm Pick x → to unit	Off
	DST	From unit → LM Arm Pick x → to unit	Off
	LLMx	From unit → LM Arm Pick x → to unit	Off
	TM Arm Pick x	From unit→LM arm pick x→LLMx→to unit	Enabled (LLMx → to unit)
	PM#	From unit→LM arm pick x→LLMx→TM arm pick x→ to unit	Enabled (LLMx → to unit)
PST	LP*	From unit → LM Arm Pick x → to unit	Off
	LM Arm Pick x	From unit→LM arm pick x→ORT→to unit	Off
	ORT	From unit → LM Arm Pick x → to unit	Off
	DST	From unit→LM arm pick x→ORT→LM arm pick x→to unit	Off
	LLMx	From unit→LM arm pick x→ORT→LM arm pick x→to unit	Off
	TM Arm Pick x	From unit→LM arm pick x→ORT→LM arm pick x→LLMx→to unit	Enabled (LLMx → to unit)
	PM#	From unit→LM arm pick x→ORT→LM arm pick x→LLMx→TM arm pick x→to unit	Enabled (LLMx → to unit)

Transfer From Unit	Transfer To Unit	Transfer Route	Enabled or Disabled Transfer Mode Designation
DST	LP*	From unit → LM Arm Pick x → to unit	Off
	LM Arm Pick x	From unit→LM arm pick x→ORT→to unit	Off
	ORT	From unit → LM Arm Pick x → to unit	Off
	PST	From unit→LM arm pick x→ORT→LM arm pick x→to unit	Off
	LLMx	From unit→LM arm pick x→ORT→LM arm pick x→to unit	Off
	TM Arm Pick x	From unit→LM arm pick x→ORT→LM arm pick x→LLMx→to unit	Enabled (LLMx → to unit)
	PM#	From unit→LM arm pick x→ORT→LM arm pick x→LLMx→TM arm pick x→to unit	Enabled (LLMx → to unit)
LLMx	LP*	From unit → LM Arm Pick x → to unit	Off
	LM Arm Pick x	From unit → to unit	Off
	ORT	From unit → LM Arm Pick x → to unit	Off
	PST	From unit → LM Arm Pick x → to unit	Off
	DST	From unit → LM Arm Pick x → to unit	Off
	TM Arm Pick x	From unit → to unit	On
	PM#	From unit → TM Arm Pick x → to unit	Enabled (from unit→to unit)
TM Arm Pick x	LP*	From unit→LLMx→LM arm pick x→ to unit	Enabled (from unit→LLMx)
	LM Arm Pick x	From unit → LLMx→to unit	Enabled (from unit→LLMx)
	ORT	From unit→LLMx→LM arm pick x→ to unit	Enabled (from unit→LLMx)
	PST	From unit→LLMx→LM arm pick x→ to unit	Enabled (from unit→LLMx)
	DST	From unit→LLMx→LM arm pick x→ to unit	Enabled (from unit→LLMx)
	LLMx	From unit → to unit	On
	PM#	From unit → to unit	Enabled (from unit→to unit)

Transfer From Unit	Transfer To Unit	Transfer Route	Enabled or Disabled Transfer Mode Designation
PM#	LP*	From unit→TM arm pick x→LLMx→LM arm pick x→ to unit	Enabled (from unit→LLMx)
	LM Arm Pick x	From unit→TM arm pick x→LLMx→ to unit	Enabled (from unit→LLMx)
	ORT	From unit→TM arm pick x→LLMx→LM arm pick x→ to unit	Enabled (from unit→LLMx)
	PST	From unit→TM arm pick x→LLMx→LM arm pick x→ to unit	Enabled (from unit→LLMx)
	DST	From unit→TM arm pick x→LLMx→LM arm pick x→ to unit	Enabled (from unit→LLMx)
	LLMx	From unit → TM Arm Pick x → to unit	Enabled (from unit→to unit)
	TM Arm Pick x	From unit → to unit	On
	PM#	From unit → TM Arm Pick x → to unit	Enabled (from unit→to unit)

- 13 On the *Set Transfer Mode* dialog, press OK.


NOTE

If the transfer mode is set to vacuum, the load lock module cooling process can be executed. To execute the cooling process, press LLM COOLING on the *Manual Transfer* screen, and select ENABLE.

Executing Manual Transfer

- 14 Press WAFER TRANSFER on the right of the *Manual Transfer* screen.

- 15 Press OK to start the manual transfer.

To stop the manual transfer, press ABORT.

Unloading Carriers

- 16 Collect all wafers transferred during manual transfer into the carrier.

- 17 Press UNLOAD on the right of the *Manual Transfer* screen.

- 18 Press LP* on the *Select LP* dialog and press OK.

- 19 Unload the carrier from the load port carrier base.


NOTE

To collect the transferred wafers, clean out function can also be used after changing to the normal mode.

10.2.2 Symbols on the Manual Transfer Screen 03696.20071201

This section describes the symbols that are displayed on the *Manual Transfer* screen.

The descriptions of the symbol that are displayed on the screen can also be checked from the HELP on the group menu.

For the symbols that are displayed on the *Manual Transfer* screen, refer to *Checking the Equipment Status* in the **Basic Operations Manual**.

C H A P T E R 1

Log Check and Backup

This chapter provides various events that may occur inside the equipment, the alarm logging function and the equipment status information (logging data) backup function.

The information contained in this chapter has been prepared based on the specifications of the standard equipment. Throughout the manual, figures provided in this manual, including operation screens and appearances, may vary from the equipment installed at your site.

11.1 Log Check and Backup 01815.20181101

Introduction

Overview:

The logging data can be utilized to check the use condition and status of the equipment and identify the causes of any trouble.

The equipment status information (such as logging data) can be backed up to prepare for future needs of troubleshooting.

Memos can be displayed after logging in the equipment in order to communicate any operational precautions and remarks to a person who takes over the current job.

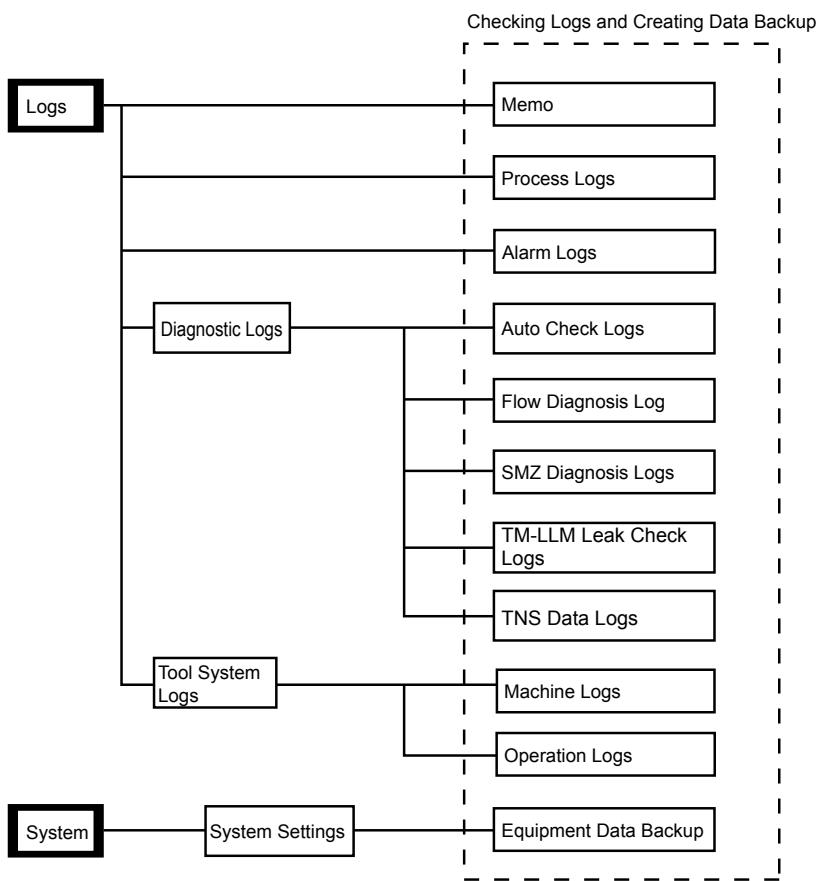
If abnormality is detected when obtaining or saving logs, operation set in the parameter is performed.

Followings are the subject logs.

- Process logs
- Trace logs
- EPD logs

The software hierarchy for checking logs and memo functions follow.

▼ Log Check and Backup Software Hierarchy



g014460788_e

Flow of Memo Editing

- 1** Use each function in the Memo screen to edit memos (see page 279).
- 2** Just after the login to the equipment, check the contents of the memo.

For the procedure to check the memo, refer to *Preparation for Operation* in the **Basic Operations Manual**.

Sequence of Log Check and Backup

- 1 By operating the following screen functions, display the desired logging data.
 - *Process Logs* screen: **Displays various logging data collected during the processes** (see page 282). The logging data are displayed by lot.
 - *Alarm Logs* screen: **Displays the logging data of alarm occurrences and recoveries** (see page 294).
 - *Auto Check Logs* screen: **Displays the logging data indicating the execution details and results of auto check and auto setup** (see page 297). The logging data are displayed by check item. The logging data are displayed in the order of execution.
 - *Flow Diagnosis Logs* screen: **Displays the logging data indicating the execution details and results of the flow rate self diagnostic for the flow meter** (see page 302).

- *TM-LLM Leak Check Logs* screen: **Displays the logging data indicating the execution details and results of TM-LLM leak measurements** (see page 308). The logging data are displayed by check item. The logging data are displayed in the order of execution.
 - *TNS Data Logs* screen: **Displays the logging data of TNS measurement** (see page 313).
 - *Machine Logs* screen: **Displays the logging data indicating the operation details of the equipment drive units (actuators, gate, transfer arm, loader arm, valves)** (see page 319).
 - *Operation Logs* screen: **Displays the logging data of the operation details in each screen** (see page 322).
- 2 By browsing the contents of the logging data, check the use condition and status of the equipment or identify the causes of a trouble that has occurred.

As necessary, collect the equipment status information for troubleshooting and analyze the situation.

Equipment Data Backup screen: **Backs up all equipment status information (logging data) in the equipment internal HD** (see page 325).

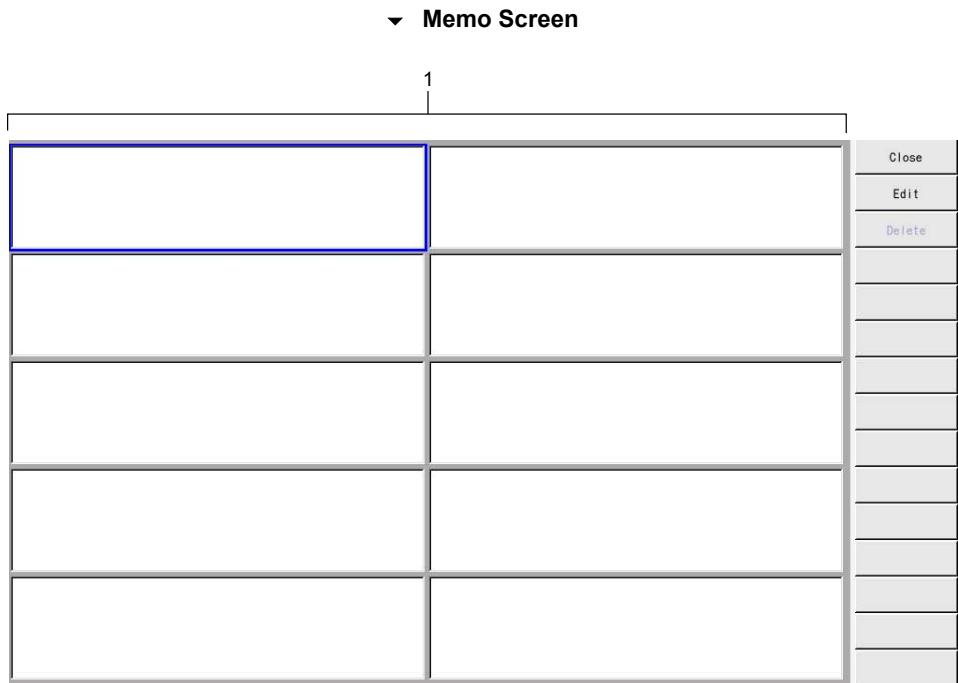
11.2 Operating the Memo Screen 01816.20101201

On the *Memo* screen, memos can be edited and deleted in order to communicate any operational precautions and remarks to a person who takes over the current job.

Up to 10 memos can be stored. Each memo can be given an expiry date.

Display the *Memo* screen from the group menu below.

LOGS→MEMO



g018162255_e

No.	Description
1	The description of the abnormality displays.



NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

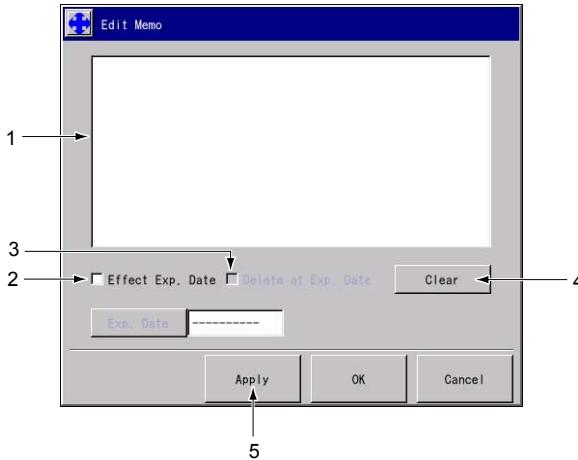
- **CLOSE:** Closes the *Memo* screen.
- **EDIT:** Edits the memo (see page 279).
- **DELETE:** Deletes the memo (see page 281).

11.2.1 Editing memos 01817.20070501

- 1 On the *Memo* screen, select the memo to be edited.

- 2** Press EDIT on the right of the *Memo* screen to display the *Edit Memo* dialog.

▼ **Edit Memo Dialog**



g018172256_e

No.	Description
1	Enters memo (text) in the text field.
2	Checks when setting an expiry date to the memo.
3	This check box is valid when the memo has an expiry date. When checked: Automatically deletes the memo when the specified effective period expires. When unchecked: Maintains the memo even after the expiry date.
4	Deletes the memo you have just entered.
5	Temporally stores the edit contents. The contents stored temporally will be maintained even after cancelled

- 3** Enter the memo in the test field.

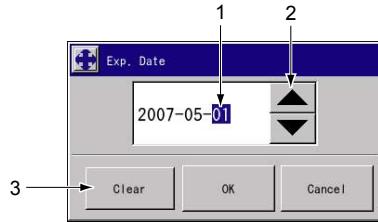
- 4** Set an expiry date to the memo.

If you are setting no expiry date, proceed to the step 5. Any memo given no expiry date will be displayed perpetually. **To delete a memo without expiry date, use the Memo screen (see page 281).**

- 4.1** Check Effect Exp. Date in the *Edit Memo* dialog.

- 4.2** Press EXP. DATE on the right of the *Edit Memo* dialog to display the *Exp. Date* dialog.

▼ Exp. Date Dialog



g018172257_e

No.	Description
1	Select the digit of date to be changed.
2	Change the date.
3	Restore the date before changed.

- 4.3** On the *Exp. Date* dialog, set the expiry date and press OK.
- 4.4** If you want the memo to be deleted automatically after the expiry date, check Delete at Exp. Date in the *Edit Memo* dialog.

When unchecked, the memo will be displayed even after the expiry date. **To delete a memo that has passed the expiry date, use the Memo screen (see page 281).**

- 5** On the *Edit Memo* dialog, press OK.

11.2.2 Deleting Memos 03697.20070501

- 1** On the *Memo* screen, select the memo to be deleted.
- 2** Press **DELETE** on the right of the *Memo* screen to delete the memo.

11.3 Operating the Process Logs Screen 01819.20160901

On the *Process Logs* screen, the process data logs collected during process execution and the logging data of the process trace logs are displayed.

Process Data Log

The equipment calculates the data obtained during process execution according to a predetermined method and logs the calculation results. A process data log includes the data logged by lot and the data logged by wafer.

If lot-stabilization dummy process or in-lot dry cleaning is performed, process data logs are created aside from main lot. If multiple wafers are processed, process data logs of the same number as the processed wafers are created.

If out-lot dry cleaning is performed, process data logs of the same number as the processed wafers are created.

Process Trace Log

The equipment logs raw data obtained during process execution and displays them in a graph chart (trace graph). It also logs the EPD related data as part of the process trace log and displays them in a graph chart (EPD graph).

The process trace logs are used as part of the data by wafer included in a process data log.

 **NOTE** A process data log can store a maximum of 8,000 records of logging data. However, depending on some variable length data (e.g.RF data item number, step item number), the maximum storage capacity (8 GB or 13 GB) may be exceeded even if the number of records is smaller than the maximum limit. If the logging data records exceed 8,000 or the maximum storage capacity is exceeded, a new logging data will overwrite the oldest data. The maximum storage capacity varies depending on the specifications.

 **NOTE** Depending on some variable length data (e.g.trace item number), maximum storage capacity (18 GB or 34 GB) of the process trace log may be exceeded. If the logging data exceeds the maximum storage capacity, a new logging data will overwrite the oldest data. The maximum storage capacity varies depending on the specifications.

 **NOTE** When the PM usage WLDC is executed, the process data log is created. In this case, PJID and CJID will be blank.

Display the *Process Logs* screen from the group menu below.

LOGS→PROCESS LOGS

▼ Process Logs Screen

The screenshot shows a software interface titled "Process Logs Screen". On the left is a table with columns: P/N, Status, PJID, CJID, Lot Start Time, and Lot End Time. The first row is highlighted in blue. The table has 24 rows, numbered 1 to 24. On the right is a vertical sidebar with buttons: Close, Refresh, Search Key, Next Search, Previous Search, Lot Detail, Wafer List, and Wafer Logs. A search bar at the top right shows "Search Count: 6". Arrows labeled 1 and 2 point to the "Close" button and the table respectively.

P/N	Status	PJID	CJID	Lot Start Time	Lot End Time
1	P	LP1/PJ 1/181455	LP1/CJ181455	2016-08-09 18:56:42	2016-08-09 19:11:33
2	P	LP2/PJ 1/174945	LP2/CJ174945	2016-08-09 18:05:02	2016-08-09 19:05:12
3	P	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:20:12	2016-08-09 18:13:32
4	P	LP1/PJ 1/162314	LP1/CJ162314	2016-08-09 16:24:22	2016-08-09 16:24:40
5	P	LP1/PJ 1/161835	LP1/CJ161835	2016-08-09 16:19:02	2016-08-09 16:19:20
6	P	LP1/PJ 1/153856	LP1/CJ153856	2016-08-09 15:39:22	2016-08-09 15:42:30
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					

g018192258_e

No.	Description
1	Displays the total number of logging data. If search results are on the screen, displays the total number of the search results.
2	Displays the process results of each logging data (see page 290).

**NOTE**

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

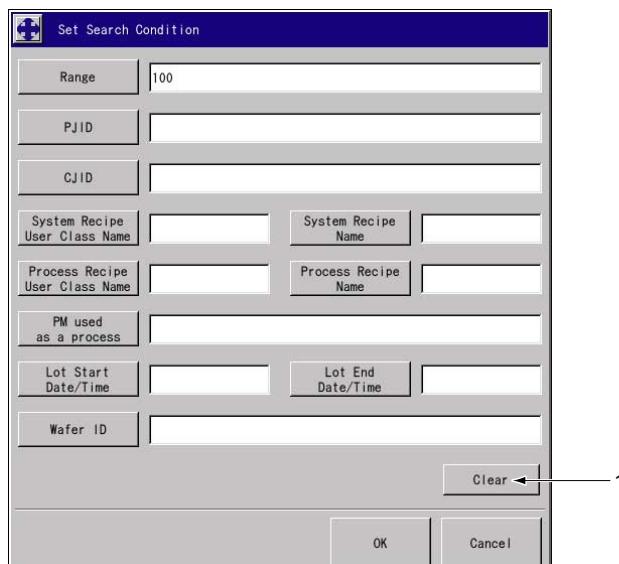
Function Buttons

- CLOSE:** Closes the *Process Logs* screen.
- REFRESH:** While the *Process Logs* screen is displayed, the logging data will not be refreshed automatically. Press **REFRESH** to refresh the logging data and retrieve new logging data.
- SEARCH KEY:** **Searches logging data (see page 284).**
- NEXT SEARCH:** The *Process Logs* screen displays the number of logging data amounting to the search range specified in the *Set Search Condition (Process Logs)* dialog. If any logging data are present exceeding the specified search range, the next page is displayed.
- PREVIOUS SEARCH:** The *Process Logs* screen displays the number of logging data amounting to the search range specified in the *Set Search Condition (Process Logs)* dialog. If any logging data are present exceeding the specified search range, the previous page is displayed.
- LOT DETAIL:** **Displays the details of the logging data (lot process) pointed by the cursor (see page 286).**
- WAFER LIST:** **Displays the details of the wafer processed with the logging data (lot process) pointed by the cursor (see page 287).**
- WAFER LOGS:** **Compares the trace data by wafer (see page 288).**

11.3.1 Searching Logging Data 01820.20170901

- 1 Press **SEARCH KEY** on the right of the *Process Logs* screen to display the *Search Key Setting (Process Logs)* dialog.

▼ **Set Search Condition (Process Logs) Dialog**



g018202259_e

No.	Description
1	Clears the set search condition contents.

- 2 Set the search conditions.

You can specify the search conditions in combination.

- Range
Specifies the number of record displayed on the screen at a time.
If the total number of search results exceeds the range, the display page can be changed over by pressing **NEXT SEARCH** or **PREVIOUS SEARCH** on the right of the *Process Logs* screen.
- PVID search
Searches by PVID.
Press **PVID** to display the *PVID* dialog and enter the desired PVID (wildcard search is available).
- CJID search
Searches by CJID.
Press **CJID** to display the *CJID* dialog and enter the desired CJID (wildcard search is available).
- System Recipe User Class Name
Searches by the system recipe user class name (specify down to the module class name).
Press **SYSTEM RECIPE USER CLASS NAME** to display the *System Recipe User Class Name* dialog and enter the system recipe user class name (wildcard search is available).
- System Recipe Name
Searches by the system recipe name.

- Press **SYSTEM RECIPE NAME** to display the *System Recipe Name* dialog and enter the system recipe name (wildcard search is available).
- **Process Recipe User Class Name**
Searches by the process recipe user class name (specify down to the module class name). Press **PROCESS RECIPE USER CLASS NAME** to display the *Process Recipe User Class Name* dialog and enter the process recipe user class name (wildcard search is available).
 - **Process Recipe Name**
Searches by the process recipe name. Press **PROCESS RECIPE NAME** to display the *Process Recipe Name* dialog and enter the process recipe name (wildcard search is available).
 - **PM used as a process**
Searches by the process module used for the log processing. Press **PM USED AS A PROCESS** to display the *PM used as a process* dialog and select the process module(s) (multiple process modules can be selected).
 - **Lot Start Date/Time**
Searches by the lot start date/time. If the lot end date/time is specified, the equipment will search logging data from the lot start date/time to the lot end date/time. If the lot end date/time is not specified, the equipment will search all logging data on and after the lot start date/time.
 - **Lot End Date/Time**
Searches by the lot end date/time. If the lot start date is specified, the equipment will search logging data from the lot start date/time to the lot end date/time. If the lot start date is not specified, the equipment will search all logging data on and before the lot end date/time.
 - **Wafer ID**
Searches the wafer ID. Press **WAFER ID** to display the *Wafer ID* dialog and enter the wafer ID (wildcard search is available). This is displayed only when **Wafer ID Reader Constitution of the System Parameter (Equipment Mode)** is other than **None**. The maximum number of the searched data to be displayed for which the data is searched by the wafer ID is specified by **Wafer ID max search count** in **System Parameter (Equipment Mode)**. If the number of log exceeds the set value, data is displayed up to the number set by the latest log. If the number of log is the set value or smaller, all logs are displayed.



NOTE

For wildcard search, the marks "?" and "*" can be used. "?" represents an arbitrary character, and "*" represents multiple characters (including when no characters exist). The use of "*" is enabled only twice, the use of "?" and "*" at the same time is disabled in search conditions.

For the wildcard search procedure, refer to the following table.

▼ Example of the Wildcard Search

Condition	Result
*	Arbitrary character string data (applicable to all)
LOTA*	Data which starts with "LOTA" (including the data which contains only "LOTA")
*P	Data which ends with "P" (including the data contains only "P")
LOTA*P	Data which starts with "LOTA" and ends with "P" (including "LOTAP")
**	Arbitrary character string data (applicable to all)
LOTA**	Data which starts with "LOTA" (including the data which contains only "LOTA")

Condition	Result
**P	Data which ends with "P" (including the data contains only "P")
LOTA**P	Data which starts with "LOTA" and ends with "P" (including "LOTAP")
*LOTA*P	Arbitrary character string data which includes "LOTA" and ends with "P" (including "LOTAP")
P	Arbitrary character string data which includes P
LOTA*P*	Arbitrary character string data which starts with "LOTA" and includes "P" (including "LOTAP")
???????	Data consisting of arbitrary seven characters
???P	Data which ends with "P" after arbitrary three characters
LOT?????	Data which contains arbitrary five characters after "LOT"
LOT???	Data which contains three characters after "LOT" and ends with "P"

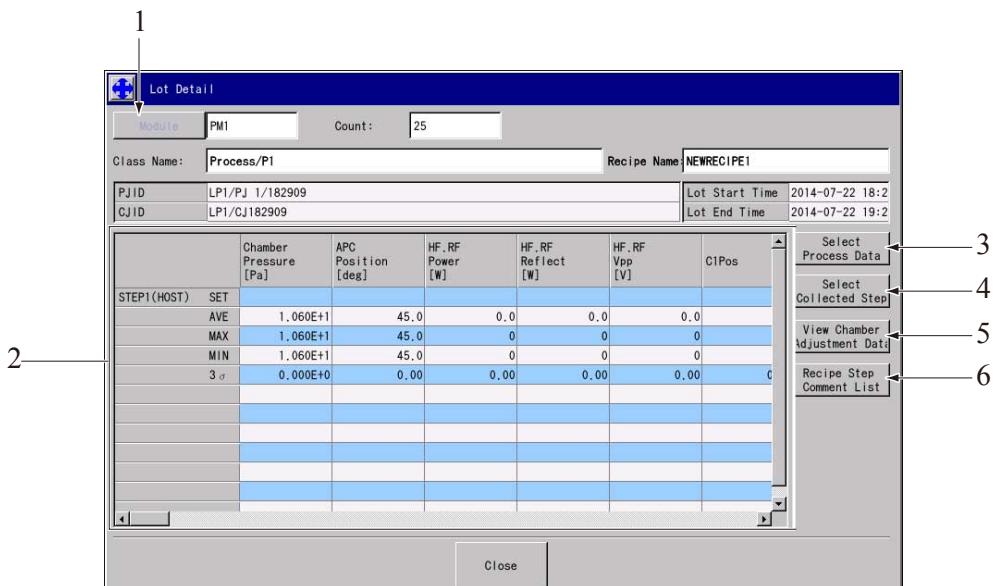
- 3** After setting the search conditions, press OK in the *Set Search Condition (Process Logs)* dialog to execute the search.

To restore the display contents in the *Process Logs* screen to the original state (all logging data displayed), press **CLEAR** in the *Set Search Condition (Process Logs)* dialog to clear all search conditions, and press **OK**.

11.3.2 Displaying Lot Processing Details 01821.20140701

- In the *Process Logs* screen, select the logging data for which you want to display the lot processing details.
 - Press **LOT DETAIL** on the right of the *Process Logs* screen to display the *Lot Detail* dialog.

▼ Lot Detail Dialog

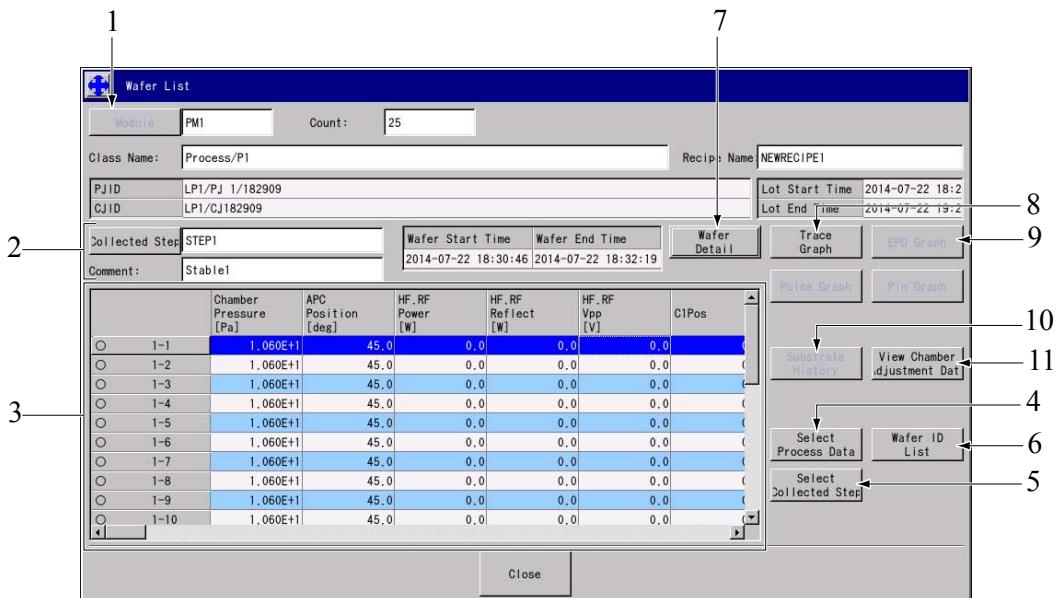


No.	Description
1	Selects the process module to display the logging data (only for the OR transfer or serial transfer).
2	Displays various data of the step(s) selected by SELECT COLLECTED STEP (data selected by SELECT PROCESS DATA).
3	Selects the data to display. The data can be set for each process module.
4	Selects the step to display.
5	Displays the set value of the adjustment table used for lot processing.
6	Displays the collected step comment.

11.3.3 Displaying Wafer Details 01822.20140701

- In the *Process Logs* screen, select the logging data for which you want to display the details of the wafer processed by the lot processing.
- Press **WAFER LIST** on the *Process Logs* screen to display the *Wafer List* dialog.

▼ Wafer List Dialog



g018222261_e

No.	Description
1	Selects the process module to display the logging data (only for the OR transfer or serial transfer).
2	Selects the step to display. The step comment is displayed in Comment . The logged steps are those for which On (Host) or On is specified in Process Data of the Step Conditions . Refer to <i>Operating the Step Conditions Screen</i> in the Advanced Operations Recipe Manual for details.
3	Displays various data for each wafer, and displays the wafer process results (see page 290) . Displays various data of the step(s) selected by COLLECTED STEP (data selected by SELECT PROCESS DATA).

No.	Description
4	Selects the data to display. The data can be set for each process module. The selected data is also included in the detail information displayed at the bottom of the dialog when WAFER DETAIL is pressed.
5	Selects the step(s) to include in the detail information displayed at the bottom of the dialog when WAFER DETAIL is pressed.
6	Lists the wafer ID's of the wafers processed in the lot processing.
7	Displays the wafer details pointed by the cursor at the bottom of the dialog. The detail information to be displayed include various data of the step(s) selected by SELECT COLLECTED STEP (data selected by SELECT PROCESS DATA).
8	Displays the trace graph for the wafer pointed by the cursor (see page 98).
9	Displays the EPD graph for the wafer pointed by the cursor (see page 103).
10	Displays the transfer history (STS log) of the wafer which is on the cursor.
11	Displays the set value of the adjustment table used for lot processing.

11.3.4 Comparing the Trace Log Graphs 14238.20160901

Preparation for Comparing the Trace Log Graphs

- In the *Process Logs* screen, select the logging data of the lot process.
- Press **WAFER LOGS** on the *Process Logs* screen to display the *Wafer Logs* screen.

▼ Wafer Logs Screen

Status	LP-Slot	Module	PJID	CJID	Wafer Start Time	Wa	Search Count: 25	Close
1	1-1	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:21:4:201			Trace Graph (Overlay)
2	1-2	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:23:4:201			Trace Graph (Tile)
3	1-3	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:25:5:201			
4	1-4	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:27:5:201			
5	1-5	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:29:5:201			
6	1-6	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:32:0:201			
7	1-7	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:34:0:201			
8	1-8	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:36:1:201			
9	1-9	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:38:1:201			
10	1-10	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:40:1:201			
11	1-11	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:42:2:201			
12	1-12	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:44:2:201			
13	1-13	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:46:3:201			
14	1-14	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:48:3:201			
15	1-15	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:50:3:201			
16	1-16	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:52:4:201			
17	1-17	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:54:4:201			
18	1-18	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:56:5:201			
19	1-19	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 17:58:5:201			
20	1-20	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 18:00:5:201			
21	1-21	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 18:03:0:201			
22	1-22	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 18:05:0:201			
23	1-23	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 18:07:1:201			
24	1-24	PM1	LP1/PJ 1/171541	LP1/CJ171541	2016-08-09 18:09:1:201			

Comparing the Trace Graphs by Overlaying

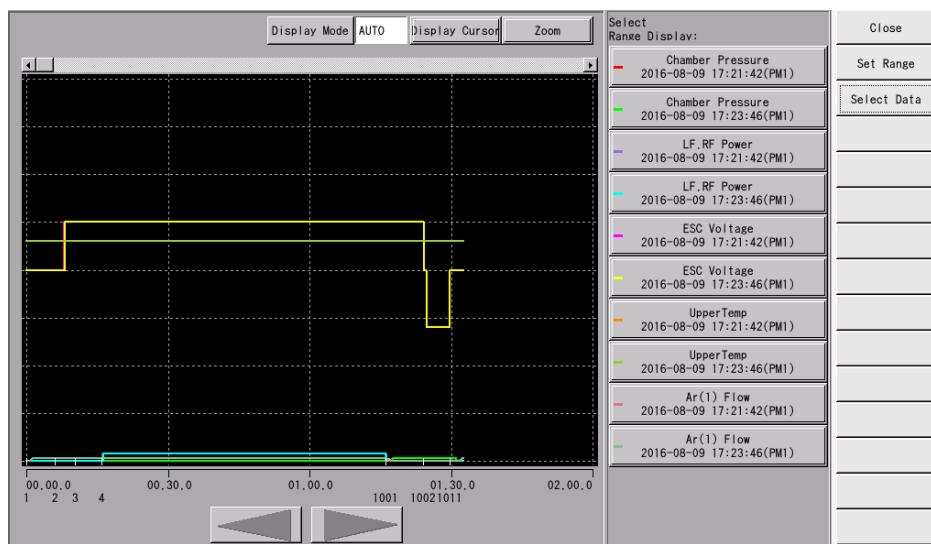
- 1 While pressing **CTRL** on the keyboard, click the wafer data to be compared.

Up to 10 wafers can be selected for displaying the trace graphs overlaid.

- 2 Press **TRACE GRAPH(OVER LAY)** on the *Wafer Logs* screen to display the *Trace Graph(Overlay)* screen.

Refer to **4.2 Operating the Trace Graph Screen (see page 98)** for operation of trace log graph.

▼ Trace Graph (Over lay) Screen



g9739_e

Comparing the Trace Graphs by Tiling

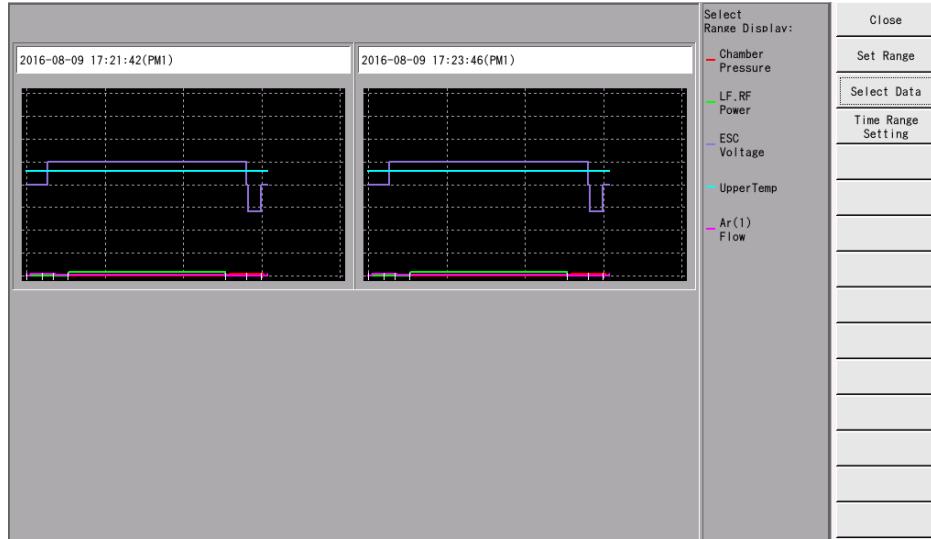
- 1 While pressing **CTRL** on the keyboard, click the wafer data to be compared.

Up to four wafers can be selected for displaying the trace graphs tiled.

- 2 Press **TRACE GRAPH(TILE)** on the *Wafer Logs* screen to display the *Trace Graph(Tile)* screen.

Refer to **4.2 Operating the Trace Graph Screen (see page 98)** for operation of trace log graph.

▼ Trace Graph (Tile) Screen



g9740_e

11.3.5 Symbols on the Process Logs Screen 03718.20100501

This section describes the symbols that are displayed on the *Process Logs* screen.

The descriptions of the symbol that are displayed on the screen can also be checked from the **HELP** on the group menu.

▼ Typical Symbols of Process Logs Screen (Log)

Item	Symbol	Description
Lot Status	○	<ul style="list-style-type: none"> • Status 1: Normal Quit (Completed normally) • Status 2: No error wafer in lot
	□	<ul style="list-style-type: none"> • Status 1: Stop Execution • Status 2: No error wafer in lot
	■	<ul style="list-style-type: none"> • Status 1: Abort Execution • Status 2: No error wafer in lot
	△	<ul style="list-style-type: none"> • Status 1: Normal Quit (Completed normally) • Status 2: Error wafer in lot
	▽	<ul style="list-style-type: none"> • Status 1: Stop Execution • Status 2: Error wafer in lot
	▼	<ul style="list-style-type: none"> • Status 1: Abort Execution • Status 2: Error wafer in lot
	※	<ul style="list-style-type: none"> • Status 1: Normal Quit (Completed normally) • Status 2: Default recipe process lot
	☆	<ul style="list-style-type: none"> • Status 1: Stop Execution • Status 2: Default recipe process lot
	★	<ul style="list-style-type: none"> • Status 1: Abort Execution • Status 2: Default recipe process lot
	-	<ul style="list-style-type: none"> • Status 1: Incompleted • Status 2: -
Process Type	R	<ul style="list-style-type: none"> • Status 1: R2R process in lot • Status 2: -
	P	<ul style="list-style-type: none"> • Status 1: Production Lot • Status 2: -
Lot Type	N	<ul style="list-style-type: none"> • Status 1: Non-Production Lot • Status 2: -

Item	Symbol	Description
Wafer Status	○	<ul style="list-style-type: none"> Status 1: Normal Quit (Completed normally) Status 2: RF On Status 3: No Retry
	●	<ul style="list-style-type: none"> Status 1: Normal Quit (Completed normally) Status 2: RF Off Status 3: No Retry
	△	<ul style="list-style-type: none"> Status 1: Abnormal Quit (ended with error) Status 2: RF On Status 3: No Retry
	▲	<ul style="list-style-type: none"> Status 1: Abnormal Quit (ended with error) Status 2: RF Off Status 3: No Retry
	◇	<ul style="list-style-type: none"> Status 1: Normal Quit (Completed normally) Status 2: RF On Status 3: Retry
	◆	<ul style="list-style-type: none"> Status 1: Normal Quit (Completed normally) Status 2: RF Off Status 3: Retry
	▽	<ul style="list-style-type: none"> Status 1: Abnormal Quit (ended with error) Status 2: RF On Status 3: Retry
	▼	<ul style="list-style-type: none"> Status 1: Abnormal Quit (ended with error) Status 2: RF Off Status 3: Retry
	■	<ul style="list-style-type: none"> Status 1: Unprocessed Recovery Status 2: - Status 3: -
	-	<ul style="list-style-type: none"> Status 1: Incompleted Status 2: - Status 3: -
	W	<ul style="list-style-type: none"> Status 1: Wafer Less Dry Cleaning Status 2: - Status 3: -
	P	<ul style="list-style-type: none"> Status 1: chamber Conditioning Status 2: - Status 3: -
	M	<ul style="list-style-type: none"> Status 1: Cleaning time was automatically adjusted Status 2: - Status 3: -
	C1	<ul style="list-style-type: none"> Status 1: Detected Level1 tolerance conditions set Proc Continue Status 2: - Status 3: -
	C2	<ul style="list-style-type: none"> Status 1: Detected Level2 tolerance conditions set Proc Continue Status 2: - Status 3: -

Item	Symbol	Description
Wafer Status	A1	<ul style="list-style-type: none">• Status 1: Detected Level1 tolerance conditions set Proc Abort or Proc Abort Now• Status 2: -• Status 3: -
	A2	<ul style="list-style-type: none">• Status 1: Detected Level2 tolerance conditions set Proc Abort or Proc Abort Now• Status 2: -• Status 3: -

11.4 Operating the Alarm Logs Screen

01824.20101201

The *Alarm Logs* screen displays the alarms that have occurred and the recovery logging data.

NOTE An alarm log can store a maximum of 5,000 records of logging data. If the logging data records exceed 5,000, a new logging data will overwrite the oldest data.

NOTE Logs are backed up automatically and periodically in the equipment internal HD to prepare for future needs of troubleshooting. Logs that are backed up periodically cannot be checked normally.

Display the *Alarm Logs* screen from the group menu below.

LOGS→ALARM LOGS

▼ Alarm Logs Screen

	Date/Time	Alarm Code	Summary
1	2007-04-19 14:40:46	0x300a06f4	Recovered
2	2007-04-19 14:32:55	0x300a06f4	Dry Pump 1 Energy Save is Running
3	2007-04-19 14:10:41	0x300a06f4	Recovered
4	2007-04-19 14:02:32	0x300a06f4	Dry Pump 1 Energy Save is Running
5	2007-04-19 14:01:31	0x830a3007	Recovered
6	2007-04-19 14:01:03	0x810a3808	Recovered
7	2007-04-19 14:01:00	0x810a3808	Recovered
8	2007-04-19 14:00:58	0x810a3708	Recovered
9	2007-04-19 14:00:58	0x810a3608	Recovered
10	2007-04-19 14:00:58	0x840a3708	Recovered
11	2007-04-19 14:00:57	0x810a3005	Recovered
12	2007-04-19 14:00:55	0x810a3007	Recovered
13	2007-04-19 14:00:55	0x820a3006	Recovered
14	2007-04-19 14:00:55	0x820a3005	Recovered
15	2007-04-19 14:00:54	0x800a3608	Recovered
16	2007-04-19 14:00:52	0x810a3006	Recovered
17	2007-04-19 14:00:52	0x820a301e	Recovered
18	2007-04-19 14:00:52	0x830a301e	Recovered
19	2007-04-19 14:00:52	0x820a301d	Recovered
20	2007-04-19 14:00:51	0x830a3006	Recovered
21	2007-04-19 14:00:51	0x830a3005	Recovered
22	2007-04-19 14:00:51	0x800a3005	Recovered
23	2007-04-19 14:00:51	0x800a3006	Recovered
24	2007-04-19 14:00:51	0x840a3005	Recovered
25	2007-04-19 14:00:49	0x830a303a	Recovered

g018242262_e

No.	Description
1	Displays the number of logging data displayed. The number of data may vary depending on the search range setting in the Log Search Setting (Alarm Logs) dialog (see page 295).
2	The color of each logging data represents the alarm level (see page 296).

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

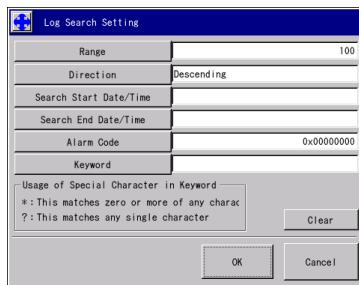
Function Buttons

- **CLOSE:** Closes the *Alarm Logs* screen.
- **DETAIL:** Displays the details of the logging data pointed by the cursor at the bottom of the screen.
- **REFRESH:** While the *Alarm Logs* screen is displayed, the logging data will not be refreshed automatically. Press **REFRESH** to refresh the logging data and retrieve new logging data.
- **SEARCH KEY:** **Searches logging data (see page 295).**
- **NEXT SEARCH:** The *Alarm Logs* screen displays the number of logging data amounting to the search range specified in the *Log Search Setting (Alarm Logs)* dialog. If any logging data are present exceeding the specified search range, the next page is displayed.
- **PREVIOUS SEARCH:** The *Alarm Logs* screen displays the number of logging data amounting to the search range specified in the *Log Search Setting (Alarm Logs)* dialog. If any logging data are present exceeding the specified search range, the previous page is displayed.

11.4.1 Searching Logging Data 01825.20170901

- 1 Press **SEARCH KEY** on the right of the *Alarm Logs* screen to display the *Log Search Setting (Alarm Logs)* dialog.

▼ Log Search Setting (Alarm Logs) Dialog



g018252263_e

- 2 Specify the display method of search results.

- **Range**
Specifies the number of record displayed on the screen at a time.
If the total number of search results exceeds the range, the display page can be changed over by pressing **NEXT SEARCH** or **PREVIOUS SEARCH** on the right of the *Alarm Logs* screen.
- **Direction**
Specifies the display order of the logging data.
 - **Descending**
Displays the data in the order of date from new to old.
 - **Ascending**
Displays the data in the order of date from old to new.

- 3 Set the search conditions.

You can specify the search conditions in combination.

- **Search Start Date/Time**
Perform the search by the date/time of the alarm occurrence and recovery operation.

If the search end date/time is specified, the equipment searches the logging data from the search start date/time—the search end date/time. If the search end date/time is not specified, the equipment searches all logging data on and after the search start date/time.

- **Search End Date/Time**
Perform the search by the date/time of the alarm occurrence and recovery operation.
If the search start date/time is specified, the equipment searches the logging data from the search start date/time—the search end date/time. If the search end date/time is not specified, the equipment searches all logging data on and before the search end start date/time.
- **Alarm Code**
Performs the search by alarm code.
Press **ALARM CODE** to display the *Alarm Code* dialog and enter the desired alarm code (in full digits).
- **Keyword**
Performs a search by an entered keyword.
Press **KEYWORD** to display the *Keyword* dialog for entering a keyword.
There are the following restrictions in keyword entry.
 - For the keyword, up to 40 characters can be entered.
 - A keyword including a space is recognized as one word (a space cannot divide a keyword).
 - A keyword can consist of only alphanumeric characters, which are case sensitive.



NOTE

For keyword search, the marks "?" and "*" can be used. "?" represents an arbitrary character, and "*" represents zero or more arbitrary characters. "?" and "*" are not recognized as themselves.

- 4 After setting the search result display method and search conditions, press **OK** on the *Log Search Setting (Alarm Logs)* dialog to execute the search.

To restore the display contents in the *Alarm Logs* screen to the original state, press **CLEAR** in the *Log Search Setting (Alarm Logs)* dialog, and press **OK** for performing a search again.

11.4.2 Letter Colors in the Alarm Logs Screen 03698.20071201

The colors of the alarm messages displayed in the *Alarm Logs* have the following meanings.

Description of the letter colors can also be displayed on the screen by selecting **HELP** from the group menu.

▼ Alarm Message Colors in the Alarm Logs Screen

Item	Letter color of the alarm	Description
Alarm type of alarm log	Red	Alarm (Alarm level: High)
	Yellow	Warning (Alarm level: Medium)
	Black	Information (Alarm level: Low)

11.5 Operating the Auto Check Logs Screen 01827.20101201

Auto Check Logs screen displays the logging data indicating the execution details and results of auto check and auto setup. The logging data are displayed in the order of execution.

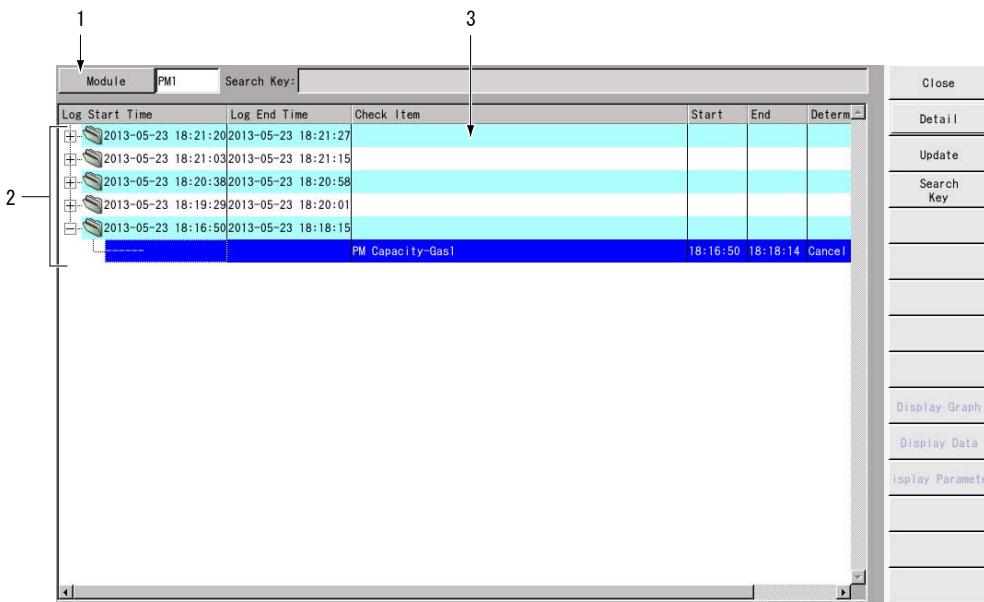


NOTE An auto check log, along with the auto setup log, can store up to 100 records of logging data. If the logging data records exceed 100, the old logging data, including the auto setup log, are deleted to store the new data.

Display the *Auto Check Logs* screen from the group menu below.

LOGS→DIAGNOSTIC LOGS→AUTO CHECK LOGS

▼ Auto Check Logs Screen



g018272264_e

No.	Description
1	Selects the process module to display the logging data.
2	Displays the logging data in a list format in the order of the auto check/auto setup execution (in the order of the date from new to old).
3	Displays the check items executed with the logging data.



NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.



NOTE Of the auto setup data, those for the seasoning, particle measurement, etching rate measurement and process recipe contents used for test transfer are logged in the process log.

Function Buttons

- **CLOSE:** Closes the *Auto Check Logs* screen.
- **DETAIL:** Displays the details of the logging data pointed by the cursor at the bottom of the screen.
- **UPDATE:** While the *Auto Check Logs* screen is displayed, the logging data will not be refreshed automatically. Press **UPDATE** to refresh the logging data and retrieve new logging data.
- **SEARCH KEY:** **Searches logging data (see page 298).**
- **DISPLAY GRAPH:** **Displays logging data in graphs (see page 299).**
- **DISPLAY DATA:** Displays logging data in details.
- **DISPLAY PARAMETER:** Displays parameter settings of logging data.

11.5.1 Searching Logging Data 01829.20090401

- 1 Press **SEARCH KEY** on the right of the *Auto Check Logs* screen to display the *Set Search Condition (Auto Check Logs)* dialog.

▼ Set Search Condition (Auto Check Logs) Dialog



g018292266_e

No.	Description
1	Clears the set search condition contents.

- 2 Set the search conditions.

You can specify the search conditions in combination.

- **Start Time**
Searches by the log start date/time.
If the log end date/time is specified, the equipment will search logging data from the log start date/time to the log end date/time. If the log end date/time is not specified, the equipment will search all logging data on and after the log start date/date.
- **End Time**
Searches by the log end date/time.
If the log start date/time is specified, the equipment will search logging data from the log start date/time to the log end date/time. If the log start date is not specified, the equipment will search all logging data on and before the log end date.
- **Check Item**
Searches by the Check Item.
- **Log**

Searches by the log type. Also, setting only Log for the search condition displays logging data of auto check, auto setup, or both of them.

- All
Searches logging data of auto check or auto setup.
- Auto Check
Searches logging data of auto check.
- Auto Setup
Searches logging data of auto setup.

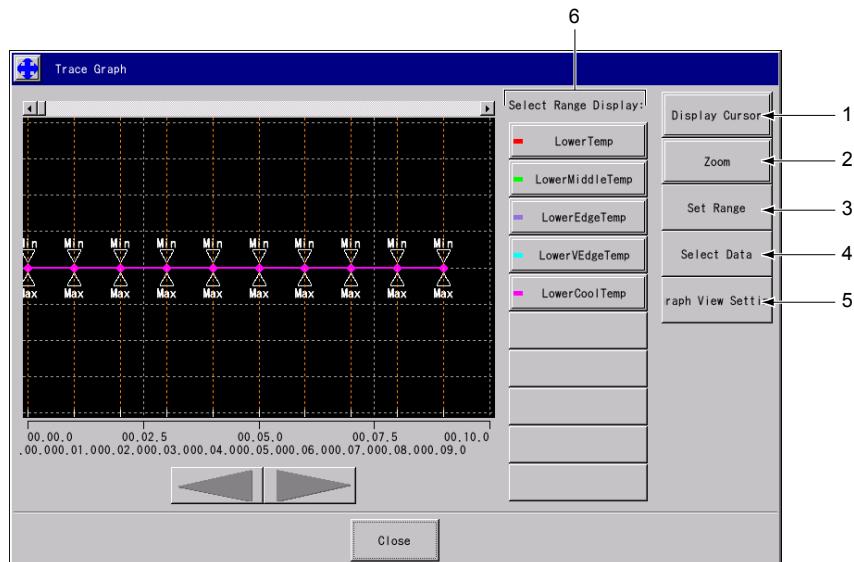
- 3** After setting the search conditions, press OK in the *Set Search Condition (Auto Check Logs)* dialog to execute the search.

To restore the display contents in the *Auto Check Logs* screen to the original state (all logging data displayed), press CLEAR to clear all search conditions, and press OK.

11.5.2 Graph Display of Logging Data 04133.20101201

- 1** Select logging data to be displayed in graphs on the *Auto Check Logs* screen.
- 2** Press DISPLAY GRAPH on the right of the *Auto Check Logs* screen to display the *Trace Graph (Auto Check Logs)* dialog.

▼ Trace Graph (Auto Check Logs) Dialog

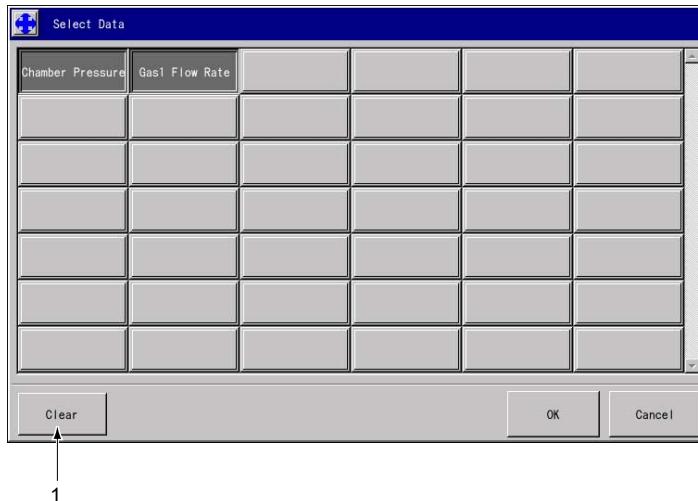


g041333341_e

No.	Description
1	Displays the pointers on the graph in values (see page 101).
2	Enlarges the display of a specified region (see page 102).
3	Sets the data range to be displayed in a graph.
4	Selects the data to be displayed in a graph.
5	Displays the position of selected item with pointer on the graph.
6	Displays the data to be displayed in a graph.

- 3** Press **SELECT DATA** on the *Trace Graph (Auto Check Logs)* dialog to display the *Select Data (Auto Check Logs)*.

▼ **Select Data Display (Auto Check Logs) Dialog**



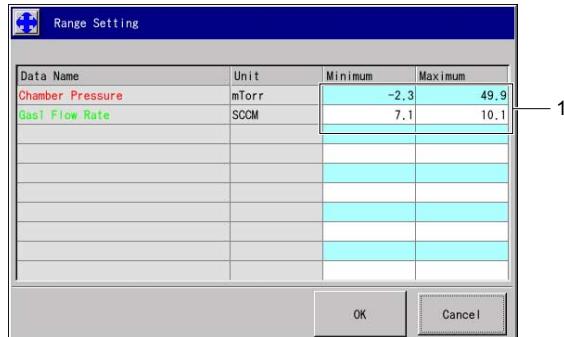
g041333342_e

No.	Description
1	Clears the settings.

- 4** Press the button of data to be displayed in a graph, and press **OK**.

- 5** Press **SET RANGE** on the right of the *Trace Graph (Auto Check Logs)* screen to display the *Range Setting (Auto Check Logs)* dialog.

▼ **Range Setting (Auto Check Logs) Dialog**



g041333343_e

No.	Description
1	Inputs the minimum and maximum values of the Y-axis for each data.

- 6** Double-click the field to enter the setting value of the data, to which the minimum and maximum values are to be set, and display the setting value entry dialog.

- 7** Input the minimum and maximum values on the setting value entry dialog and press **OK**.

- 8** Press the button of the data on the *Select Range Display* to display its range in the Y-axis.

- 9 Press GRAPH VIEW SETTING on the *Trace Graph (Auto Check Logs)* dialog to display the *Graph View Setting (Auto Check Logs)* dialog.
- 10 Select the item to be displayed with pointers on the graph of the *Graph View Setting (Auto Check Logs)* dialog.
 - Minimum Value
 - Maximum Value
 - Point Measurement
 - Measuring Time

11.6 Operating the Flow Diagnosis Log Screen 01830.20101201

The *Flow Diagnosis Logs* screen displays the logging data indicating the execution details and results of the flow rate self diagnostic for the flow meter.



NOTE A flow rate diagnostic log can store up to 10,000 records of logging data for each process module. If the logging data records exceed 10,000, the oldest logging data are deleted to store the new data.

Display the *Flow Diagnosis Logs* screen from the group menu below.

LOGS→DIAGNOSTIC LOGS→FLOW DIAGNOSIS LOGS

▼ Flow Diagnosis Logs Screen



g018302267_e

No.	Description
1	Displays the total number of logging data. If search results are on the screen, displays the total number of the search results.
2	Selects the process module to display the logging data.
3	Displays the mode of the flow rate self diagnostic execution with a symbol (see page 304).



NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

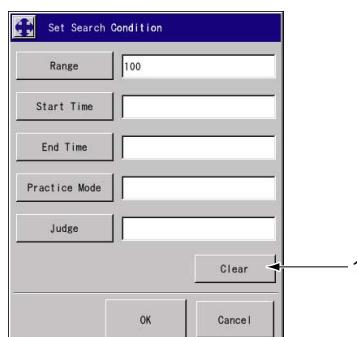
- **CLOSE:** Closes the *Flow Diagnosis Logs* screen.

- **DETAIL:** Displays the details of the logging data pointed by the cursor at the bottom of the screen.
- **REFRESH:** While the *Flow Diagnosis Logs* screen is displayed, the logging data will not be refreshed automatically. Press **REFRESH** to refresh the logging data and retrieve new logging data.
- **SEARCH KEY:** **Searches logging data (see page 303).**
- **NEXT SEARCH:** The *Flow Diagnosis Logs* screen displays the number of logging data amounting to the search range specified in the *Set Search Condition (Flow Diagnosis Logs)* dialog. If any logging data are present exceeding the specified search range, the next page is displayed.
- **PREVIOUS SEARCH:** The *Flow Diagnosis Logs* screen displays the number of logging data amounting to the search range specified in the *Set Search Condition (Flow Diagnosis Logs)* dialog. If any logging data are present exceeding the specified search range, the previous page is displayed.

11.6.1 Searching Logging Data 01831.20090401

- 1 Press **SEARCH KEY** on the right of the *Flow Diagnosis Logs* screen to display the *Set Search Condition (Flow Diagnosis Logs)* dialog.

▼ Set Search Condition (Flow Diagnosis Logs) Dialog



g018312268_e

No.	Description
1	Clears the set search condition contents.

- 2 Set the search conditions.

You can specify the search conditions in combination.

- **Range**
Specifies the number of record displayed on the screen at a time.
If the total number of search results exceeds the range, the display page can be changed over by pressing **NEXT SEARCH** or **PREVIOUS SEARCH** on the right of the *Flow Diagnosis Logs* screen.
- **Start Time**
Performs the search by the start date/time of the flow rate self diagnostic.
If the log end date/time is specified, the equipment will search logging data from the log start date/time to the log end date/time. If the log end date/time is not specified, the equipment will search all logging data on and after the log start date/date.
- **End Time**
Performs the search by the end date/time of the flow rate self diagnostic.

If the log start date/time is specified, the equipment will search logging data from the log start date/time to the log end date/time. If the log start date is not specified, the equipment will search all logging data on and before the log end date.

- Practice Mode
Performs the search by the execution mode of the flow rate self diagnostic.
 - Before Wafer Processing
 - After Wafer Processing
 - Before Lot Processing
 - Auto Check
 - Before Aging Transfer
- Judge
Performs the search by the results of the flow rate self diagnostic.
 - OK
 - NG

- 3** After setting the search conditions, press **OK** in the *Set Search Condition (Flow Diagnosis Logs)* dialog to execute the search

To restore the display contents in the *Flow Diagnosis Logs* screen to the original state (all logging data displayed), press **CLEAR** to clear all search conditions, and press **OK**.

11.6.2 Symbols on the Flow Diagnosis Logs Screen 03699.20071201

This section describes the symbols that are displayed on the *Flow Diagnosis Logs* screen.

The descriptions of the symbol that are displayed on the screen can also be checked from the **HELP** on the group menu.

▼ **Typical Symbols of Flow Diagnosis Logs Screen (Logs)**

Item	Symbol	Description
Execution Mode Details	○	Executed before wafer processing (logs of flow rate self diagnosis executed before wafer processing)
	△	Executed after wafer processing (logs of flow rate self diagnosis executed after wafer processing)
	□	Executed before lot processing (logs of flow rate self diagnosis executed before lot processing)
	■	Executed in Auto Check (logs of flow rate self diagnosis executed during auto check)
	▲	Executed before Aging Transfer (logs of flow rate self diagnosis executed when aging transfer is started)

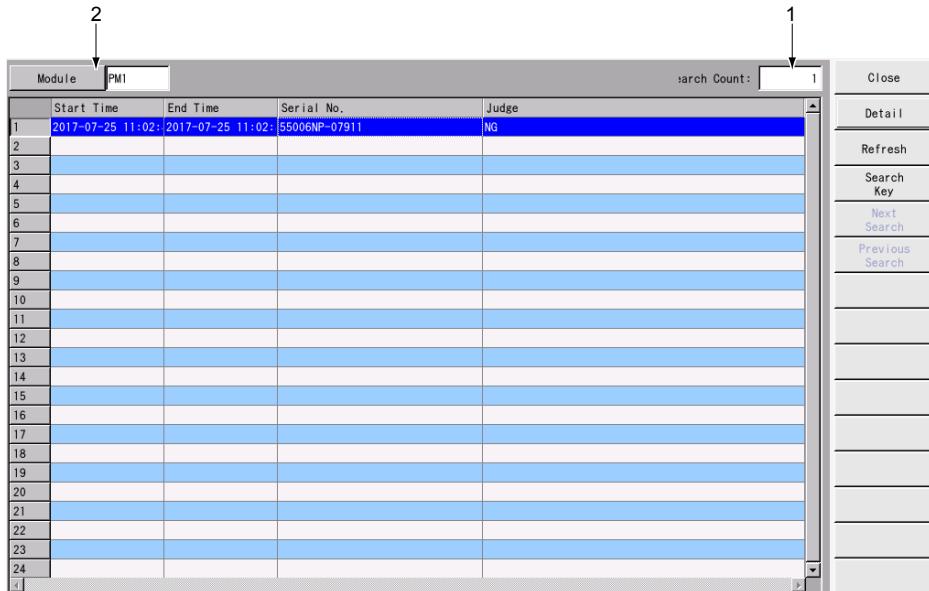
11.7 Operating the SMZ Diagnosis Logs Screen 15187.20170901

The *SMZ Diagnosis Logs* screen displays the contents of SMZ health check.

Display the *SMZ Diagnosis Logs* screen from the group menu below.

LOGS→DIAGNOSTIC LOGS→SMZ DIAGNOSIS LOGS

▼ SMZ Diagnosis Logs Screen



gA724_e

No.	Description
1	Displays the total number of logging data. If search results are on the screen, displays the total number of the search results.
2	Selects the process module to display the logging data.



NOTE

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

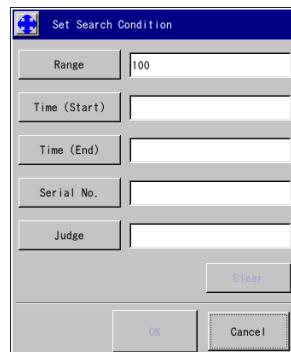
- **CLOSE:** Closes the *SMZ Diagnosis Logs* screen.
- **DETAIL:** Displays the details of the logging data pointed by the cursor at the bottom of the screen.
- **REFRESH:** While the *SMZ Diagnosis Logs* screen is displayed, the logging data will not be refreshed automatically. Press **REFRESH** to refresh the logging data and retrieve new logging data.
- **SEARCH KEY:** **Searches logging data (see page 306).**
- **NEXT SEARCH:** The *SMZ Diagnosis Logs* screen displays the number of logging data amounting to the number of search items specified in the *Set Search Condition (SMZ Diagnosis Logs)* dialog. If any logging data are present exceeding the specified number of search items, the next page is displayed.

- **PREVIOUS SEARCH:** The *SMZ Diagnosis Logs* screen displays the number of logging data amounting to the number of search items specified in the *Set Search Condition (SMZ Diagnosis Logs)* dialog. If any logging data are present exceeding the specified number of search items, the previous page is displayed.

11.7.1 Searching Logging Data 15188.20170901

- 1 Press **SEARCH KEY** on the right of the *SMZ Diagnosis Logs* screen to display the *Set Search Condition (SMZ Diagnosis Logs)* dialog.

▼ **Set Search Condition (SMZ Diagnosis Logs) Dialog**



gA725_e

No.	Description
1	Clears the set search condition contents.

- 2 Set the search conditions.

You can specify the search conditions in combination.

- **Range**
Specifies the number of record displayed on the screen at a time.
If the total number of search results exceeds the range, the display page can be changed over by pressing **NEXT SEARCH** or **PREVIOUS SEARCH** on the right of the *SMZ Diagnosis Logs* screen.
- **Time (Start)**
Searches by the time (start) of the log.
If Time (End) is specified, the equipment searches the logging data from Time (Start)–Time (End). If Time (End) is not specified, the equipment searches all logging data on and after Time (Start).
- **Time (End)**
Searches by the time (end) of the log.
If Time (Start) is specified, the equipment searches the logging data from Time (Start)–Time (End). If Time (Start) is not specified, the equipment searches all logging data on and before Time (End).
- **Serial No.**
Searches by **Serial No.** of the logging data.
- **Judge**
Searches by **Judge** of the logging data.

- 3 After setting the search conditions, press **OK** in the *Set Search Condition (SMZ Diagnosis Logs)* dialog to execute the search.

To restore the display contents in the *SMZ Diagnosis Logs* screen to the original state (all logging data displayed), press **CLEAR** to clear all search conditions, and press **OK**.

11.8 Operating the TM-LLM Leak Check Logs Screen

01833.20101201

TM-LLM Leak Check Logs screen displays the logging data indicating the execution details and results of TM-LLM leak measurements. The logging data are displayed in the order of execution.

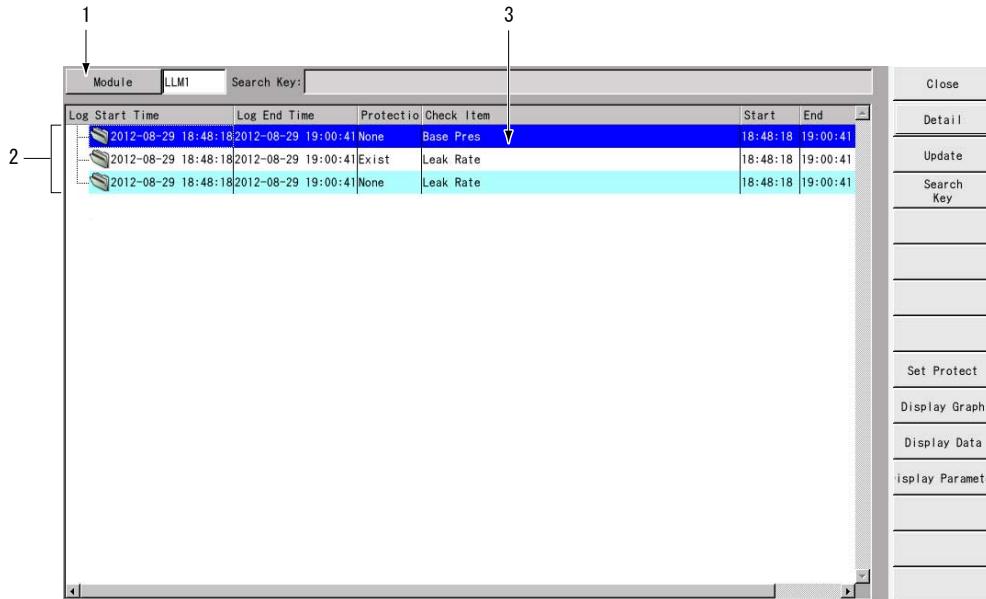


NOTE A TM-LLM leak check log can store a maximum of 100 records of logging data each for the transfer module, load lock module 1, and load lock module 2. If the logging data records exceed 100, a new logging data will overwrite the oldest data.

Display the *TM-LLM Leak Check Logs* screen from the group menu below.

LOGS→DIAGNOSTIC LOGS→TM-LLM LEAK CHECK LOGS

▼ TM-LLM Leak Check Logs Screen



g018332269_e

No.	Description
1	Selects the transfer module or load lock module to view the logging data.
2	Displays the logging data of base pressure/leak check in a list format in the order of execution (in the order of the date from new to old).
3	Displays the check items executed with the logging data selected.



NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

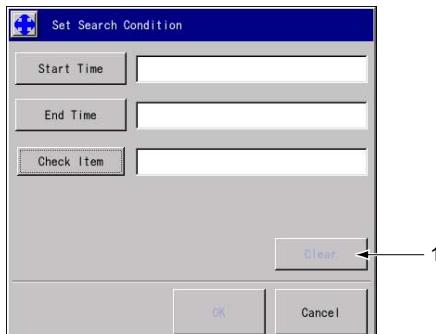
Function Buttons

- **CLOSE:** Closes the *TM-LLM Leak Check Logs* screen.
- **DETAIL:** Displays the details of the logging data pointed by the cursor at the bottom of the screen.
- **UPDATE:** While the *TM-LLM Leak Check Logs* screen is displayed, the logging data will not be refreshed automatically. Press **UPDATE** to refresh the logging data and retrieve new logging data.
- **SEARCH KEY:** [Searches logging data \(see page 309\)](#).
- **SET PROTECT:** Use this setting to protect the logging data. 100 records of logging data can be protected for each of TM/LLM1/LLM2. The protected logging data will not be deleted even when the number of logging data exceeds the maximum limit of storage and the oldest data are overwritten. If a new logging data is protected while 100, the maximum number of storage, are protected, the oldest logging data is deleted automatically.
- **DISPLAY GRAPH:** [Displays logging data in graphs \(see page 310\)](#).
- **DISPLAY DATA:** Displays logging data in details.
- **DISPLAY PARAMETER:** Displays parameter settings of logging data.

11.8.1 Searching Logging Data 01834.20080401

- 1 Press **SEARCH KEY** on the right of the *TM-LLM Leak Check Logs* screen to display the *Set Search Condition (TM-LLM Leak Check Logs)* dialog.

▼ Set Search Condition (TM-LLM Leak Check Logs) Dialog



g018343344_e

No.	Description
1	Clears the set search condition contents.

- 2 Set the search conditions.

You can specify the search conditions in combination.

- **Start Time**
Searches by the log start date/time.
If the log end date/time is specified, the equipment will search logging data from the log start date/time to the log end date/time. If the log end date/time is not specified, the equipment will search all logging data on and after the log start date/date.
- **End Time**
Searches by the log end date/time.

If the log start date/time is specified, the equipment will search logging data from the log start date/time to the log end date/time. If the log start date is not specified, the equipment will search all logging data on and before the log end date.

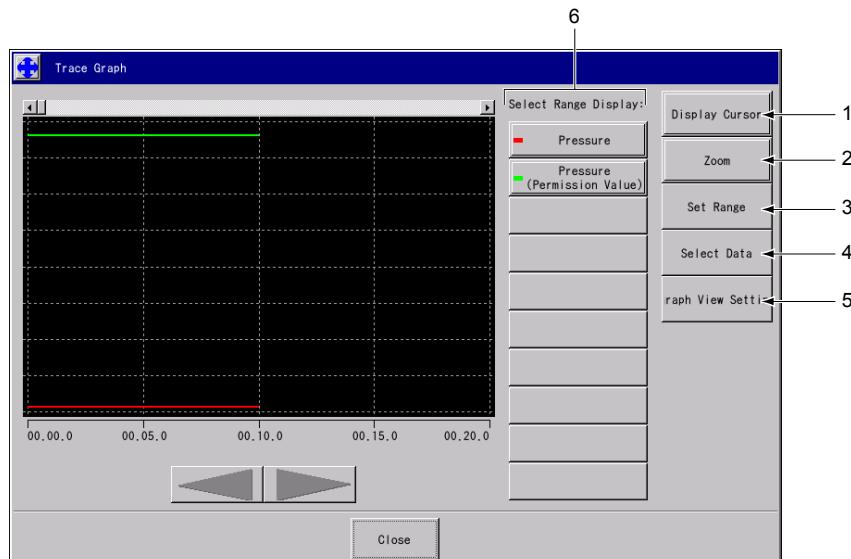
- Check Item
Searches by the Check Item.
- 3** After setting the search conditions, press OK in the *Set Search Condition (TM-LLM Leak Check Logs)* dialog to execute the search.

To restore the display contents in the *TM-LLM Leak Check Logs* screen to the original state (all logging data displayed), press CLEAR to clear all search conditions, and press OK.

11.8.2 Graph Display of Logging Data 04134.20101201

- 1 Select logging data to be displayed in graphs on the *TM-LLM Leak Check Logs* screen.
- 2 Press DISPLAY GRAPH on the right of the *TM-LLM Leak Check Logs* screen to display the *Trace Graph (TM-LLM Leak Check Logs)* dialog.

▼ Trace Graph (TM-LLM Leak Check Logs) Dialog

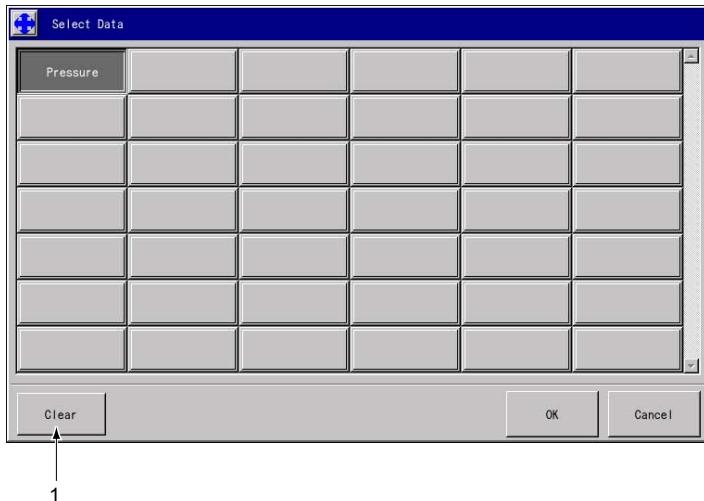


g041343345_e

No.	Description
1	Displays the pointers on the graph in values (see page 101).
2	Enlarges the display of a specified region (see page 102).
3	Sets the data range to be displayed in a graph.
4	Selects the data to be displayed in a graph.
5	Displays the position of selected item with pointer on the graph.
6	Displays the data to be displayed in a graph.

- 3 Press **SELECT DATA** on the right of the *Trace Graph (TM-LLM Leak Check Logs)* dialog to display the *Select Data (TM-LLM Leak Check Logs)* dialog.

▼ **Select Data (TM-LLM Leak Check Logs) Dialog**



g041343346_e

No.	Description
1	Clears the settings.

- 4 Press the button of data to be displayed in a graph, and press **OK**.
- 5 Press **SET RANGE** on the *Trace Graph (TM-LLM Leak Check Logs)* dialog to display the *Range Setting (TM-LLM Leak Check Logs)* dialog.

▼ **Range Setting (TM-LLM Leak Check Logs) Dialog**



g041343347_e

No.	Description
1	Inputs the minimum and maximum values of the Y-axis for each data.

- 6 Double-click the field to enter the setting value of the data, to which the minimum and maximum values are to be set, and display the setting value entry dialog.
- 7 Input the minimum and maximum values on the setting value entry dialog and press **OK**.
- 8 Press the button of the data on the *Select Range Display* to display its range in the Y-axis.

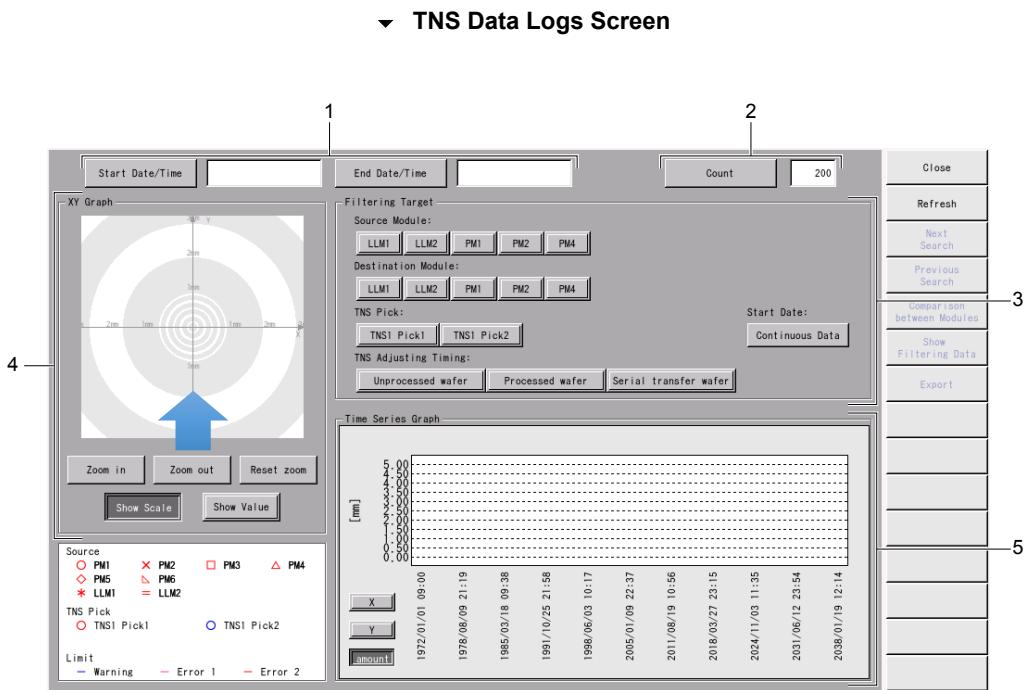
- 9 Press GRAPH VIEW SETTING on the *Trace Graph (TM-LLM Leak Check Logs)* dialog to display the *Graph View Setting (TM-LLM Leak Check Logs)* dialog.
- 10 Select the item to be displayed with pointers on the graph of the *Graph View Setting (TM-LLM Leak Check Logs)* dialog.
 - Minimum Value
 - Maximum Value
 - Point Measurement
 - Measuring Time

11.9 Operating the TNS Data Logs Screen 16570.20181101

The *TNS Data Logs* screen displays the results of TNS measurement in a graph.

Display the *TNS Data Logs* screen from the group menu below.

LOGS→DIAGNOSTIC LOGS→TNS DATA LOGS



gC110_e

No.	Description
1	Sets the time period for searching logging data.
2	Sets the number of logging data to be obtained and searched.
3	Specifies the search conditions. If no item is specified, all items will be searched.
4	Displays the logging data retrieved by a search in a plot graph with X- and Y-axes (see page 314). The arrow indicates the wafer entry direction.
5	Displays the logging data retrieved by a search in a time series graph (see page 314).



NOTE

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- CLOSE:** Closes the *TNS Data Logs* screen.
- REFRESH:** Performs a search based on the specified period and conditions.

- **NEXT SEARCH:** The *TNS Data Logs* screen displays the specified number of logging data. If any logging data are present exceeding the specified number, the next page is displayed.
- **PREVIOUS SEARCH:** The *TNS Data Logs* screen displays the specified number of logging data. If any logging data are present exceeding the specified number, the previous page is displayed.
- **COMPARISON BETWEEN MODULES:** Displays a plot graph with X- and Y-axes for each module after wafers are carried in.
- **SHOW FILTERING DATA:** Displays search results based on the specified period and conditions in a list.
- **EXPORT:** Saves search results based on the specified period and conditions in CSV format.

11.9.1 Operating Display of the Plot Graph with X- and Y-axes 16571.20181101

Pressing the following buttons switches the display of the plot graph with X- and Y-axes.

- **ZOOM IN/ZOOM OUT:** Zooms in/out the graph in a maximum of 6 levels.
- **RESET ZOOM:** Restores the zoom rate of the display changed by **ZOOM IN/ZOOM OUT** to the initial value.
- **SHOW SCALE:** Sets whether to display the scales of the X- and Y-axes. Pressing this button displays the scales.
- **SHOW VALUE:** Sets whether to display the coordinate value. Pressing this button displays the coordinate value.

11.9.2 Operating Display of the Time Series Graph 16572.20181101

Pressing the following buttons switches the items displayed in the time series graph.

- **X:** Displays the value of wafer center shift amount X in the graph.
- **Y:** Displays the value of wafer center shift amount Y in the graph.
- **AMOUNT:** Displays the value of wafer center shift amount in the graph.

11.9.3 Searching Logging Data 16573.20181101

- 1 Set the time period and conditions for searching logging data on the «TNS Data Logs» screen.

You can specify the search conditions in combination.

- **Start Date/Time**
Searches TNS logging data by date and time.
If End Date/Time is specified, the equipment searches the logging data from Start Date/Time to End Date/Time.
If End Date/Time is not specified, the equipment searches all logging data on and after Start Date/Time.
- **End Date/Time**
Searches TNS logging data by date and time.
If Start Date/Time is specified, the equipment searches the logging data from Start Date/Time to End Date/Time.
If Start Date/Time is not specified, the equipment searches all logging data on and before End Date/Time.

- Count
Specifies the number of record displayed on the screen at a time.
If the total number of search results exceeds the range, the display page can be changed over by pressing **NEXT SEARCH** or **PREVIOUS SEARCH** on the right of the *TNS Data Logs* screen.
- Source Module
Selects the module to be searched that carried out wafers.
If no module is selected, all modules will be searched.
- Destination Module
Selects the module to be searched that carried in wafers.
If no module is selected, all modules will be searched.
- TNS Pick
Selects the combination of the TNS sensor that measured the wafer misalignment and the TM arm pick.
If no combination is selected, all combinations will be searched.
- TNS Adjusting Timing
Selects the timing when the wafer misalignment was corrected.
If no timing is selected, all correction timings will be searched.
- Start Date
Pressing **CONTINUOUS DATA** sets the oldest date and time of logging data continuously obtained as Start Date/Time.

The following is an example of setting to "display up to 10 unprocessed wafers transferred from LLM1 to PM2 with Pick1 and measured with TNS sensor 1 between July and September 2018".

- 1.1** Press **START DATE/TIME** and set to 2018-07-01 00:00:00.
- 1.2** Press **END DATE/TIME** and set to 2018-10-01 00:00:00.
- 1.3** Press **COUNT** and specify a value of 10.
- 1.4** Press **LLM1** of Source Module.
- 1.5** Press **PM2** of Destination Module.
- 1.6** Press **TNS1 PICK1** of TNS Pick.
- 1.7** Press **UNPROCESSED WAFER** of TNS Adjusting Timing.

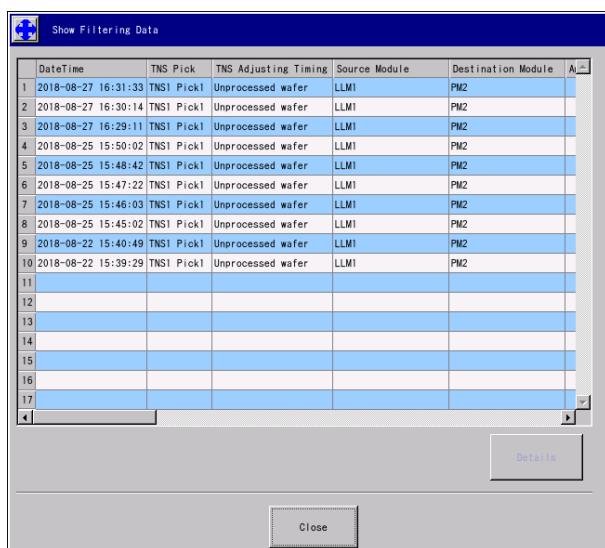
- 2** Press **REFRESH** on the right of the *TNS Data Logs* screen to search logging data.

The logging data retrieved by a search is displayed in each graph.

To confirm the items of the logging data retrieved by a search, press **SHOW FILTERING DATA** on the right of the *TNS Data Logs* screen.

The *Show Filtering Data* dialog is displayed, allowing you to confirm the items of the logging data.

▼ Show Filtering Data Dialog



gC111_e

The items displayed in the *Show Filtering Data* dialog are as follows.

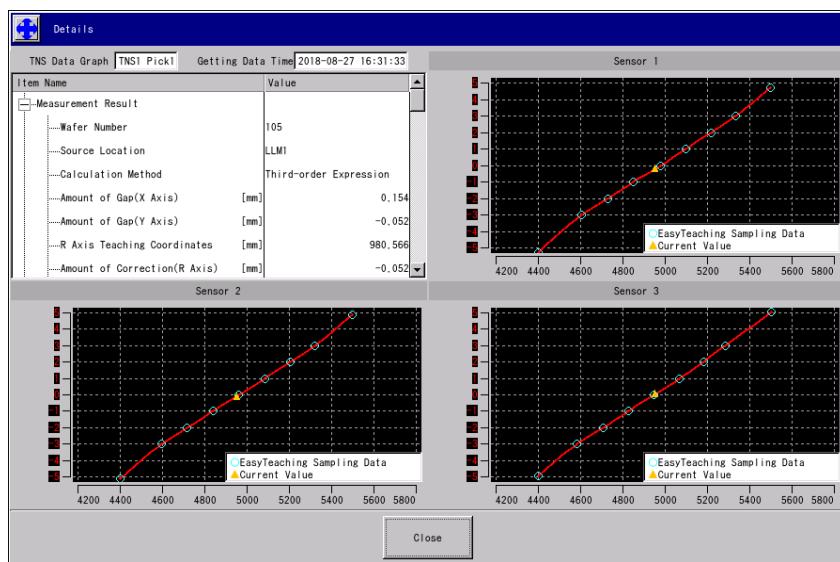
▼ Displayed Items of TNS Logging Data

Item	Description
DateTime	Date and time when a wafer was measured
TNS Pick	Number of the TNS that measured a wafer and number of the pick that transferred the wafer
TNS Adjusting Timing	Process status of a wafer measured by TNS <ul style="list-style-type: none"> • Unprocessed wafer: After a wafer is carried out of LLM and before it is carried into PM • Processed wafer: After a wafer is carried out of PM and before it is carried into LLM • Serial transfer wafer: After a wafer is carried out of PM and before it is transferred to the next PM
Source Module	Module from which a wafer was transferred to the TNS sensor
Destination Module	Module to which a wafer was transferred after measured by TNS
Amount	Correction amount for transfer
Amount of Gap X	Shift amount converted into a value on the X-axis
Amount of Gap Y	Shift amount converted into a value on the Y-axis
CJID	ID of the CJ to which a wafer measured by TNS belonged
PJID	ID of the PJ to which a wafer measured by TNS belonged
System Recipe Name	System recipe name of a wafer measured by TNS
Process Recipe Name	Process recipe name of a wafer measured by TNS
CarrierID	ID of the FOUP to which a wafer measured by TNS belonged

Item	Description
WaferID	ID of a wafer measured by TNS
LotID	ID of the lot to which a wafer measured by TNS belonged
Result	TNS measurement result <ul style="list-style-type: none"> • OK: When measurement was successful • NG: When measurement was not successful

By selecting logging data and pressing **DETAILS**, the logging data is displayed in a detailed graph.

▼ Details Dialog



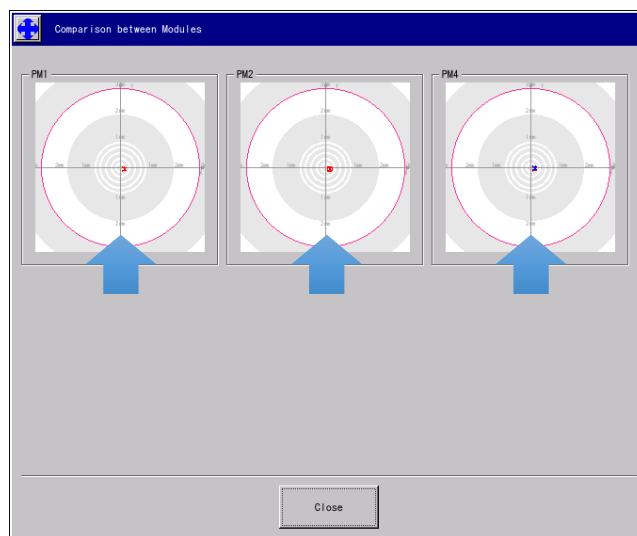
gC112_e

11.9.4 Comparing TNS Data Logs between Modules 16574.20181101

When two or more modules from which wafers were transferred are selected for searching, their logging data are displayed in plot graphs with X- and Y-axes side by side, allowing comparison between them.

Press **COMPARISON BETWEEN MODULES** on the right of the *TNS Data Logs* screen.

▼ Comparison between Modules Dialog



gC113_e

The above arrows indicate the wafer entry direction.

11.10 Operating the Machine Logs Screen

01835.20140201

The *Machine Logs* screen displays the logging data indicating the operation details of the equipment drive units (actuators, gate, transfer arm, loader arm, load port, valves).

NOTE A machine log can store a maximum of 100,000 records of logging data. If the logging data records exceed 100,000, the oldest logging data are deleted to store the new data.

NOTE Logs are backed up automatically and periodically in the equipment internal HD to prepare for future needs of troubleshooting. Logs that are backed up periodically cannot be checked normally.

Display the *Machine Logs* screen from the group menu below.

LOGS→TOOL SYSTEM LOGS→MACHINE LOGS

▼ Machine Logs Screen

	Date/Time	Application	Level	Category	Summary
1	2007-04-19 14:40:46	CPF	4	CPF	[0003f3f2]PM2 PMIF Rcv TS Evt. mID=10040401, mdID=81000000, Net
2	2007-04-19 14:40:45	CPF	4	CPF	[0003f3dc]TM valve(1) open
3	2007-04-19 14:40:45	CPF	4	CPF	[0003f3dc]LLM valve(21) open
4	2007-04-19 14:40:45	CPF	4	CPF	[0003f3dc]LLM valve(11) open
5	2007-04-19 14:40:45	CPF	4	CPF	[0003f3dc]LLM1 DP1_NORMAL_RETURN END
6	2007-04-19 14:40:35	CPF	4	CPF	[0003eff0]PM6 PMIF Rcv TS Evt. mID=10040401, mdID=85000000, Net
7	2007-04-19 14:40:35	CPF	4	CPF	[0003eff0]PM1 PMIF Rcv TS Evt. mID=10040401, mdID=84000000, Net
8	2007-04-19 14:40:35	CPF	4	CPF	[0003fecf]PM3 PMIF Rcv TS Evt. mID=10040401, mdID=82000000, Net
9	2007-04-19 14:40:35	CPF	4	CPF	[0003fecf]PM4 PMIF Rcv TS Evt. mID=10040401, mdID=83000000, Net
10	2007-04-19 14:40:35	CPF	4	CPF	[0003fe5f]LLM1 DP1_NORMAL_RETURN START
11	2007-04-19 14:40:35	CPF	4	CPF	[0003fe3f]PM1 PMIF Rcv TS Evt. mID=10040401, mdID=80000000, Net
12	2007-04-19 14:40:35	CPF	2	CPF	[0003fedf]LM Mainte Start
13	2007-04-19 14:40:35	CPF	2	CPF	[0003efdc]LLM2 Change mode to Mainte Start
14	2007-04-19 14:40:35	CPF	2	CPF	[0003efdc]LLM1 Change mode to Mainte Start
15	2007-04-19 14:40:35	CPF	2	CPF	[0003fda]TM Change mode to Mainte Start
16	2007-04-19 14:32:54	CPF	4	CPF	[0003bb5f]LLM1 DP1_ENERGY_SAVE END
17	2007-04-19 14:32:54	CPF	4	CPF	[0003bb5f]LLM valve(11) close
18	2007-04-19 14:32:54	CPF	4	CPF	[0003bbaa]LLM1 DP1_ENERGY_SAVE START
19	2007-04-19 14:32:54	CPF	4	CPF	[0003bbaa]LLM valve(21) close
20	2007-04-19 14:32:54	CPF	4	CPF	[0003bbaa]TM valve(1) close
21	2007-04-19 14:31:53	CPF	4	CPF	[000323c7]TM valve(1) open
22	2007-04-19 14:31:53	CPF	4	CPF	[000323c7]LLM valve(21) open
23	2007-04-19 14:31:53	CPF	4	CPF	[000323c7]LLM valve(11) open
24	2007-04-19 14:31:53	CPF	4	CPF	[000323c7]LLM valve(11) close
25	2007-04-19 14:31:53	CPF	3	CPF	[000323c7]WAF LLM1 Drive End Finish

g018352271_e

No.	Description
1	Displays the number of logging data displayed. The number of data may vary depending on the search range setting in the Log Search Setting (Machine Logs) dialog (see page 320).

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

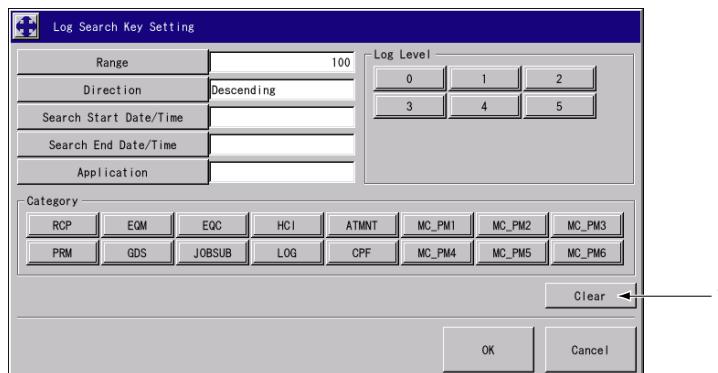
Function Buttons

- **CLOSE:** Closes the *Machine Logs* screen.
- **DETAIL:** Displays the details of the logging data pointed by the cursor at the bottom of the screen.
- **REFRESH:** While the *Machine Logs* screen is displayed, the logging data will not be refreshed automatically. Press **REFRESH** to refresh the logging data and retrieve new logging data.
- **SEARCH KEY:** **Searches logging data (see page 320).**
- **NEXT SEARCH:** The *Machine Logs* screen displays the number of logging data amounting to the search range specified in the *Log Search Key Setting (Machine Logs)* dialog. If any logging data are present exceeding the specified search range, the next page is displayed.
- **PREVIOUS SEARCH:** The *Machine Logs* screen displays the number of logging data amounting to the search range specified in the *Log Search Key Setting (Machine Logs)* dialog. If any logging data are present exceeding the specified search range, the previous page is displayed.

11.10.1 Searching Logging Data 01836.20111001

- 1 Press **SEARCH KEY** on the right of the *Machine Logs* screen to display the *Log Search Key Setting (Machine Logs)* dialog.

▼ Log Search Key Setting (Machine Logs) Dialog



g018362272_e

No.	Description
1	Clears the set search condition contents.

- 2 Specify the display method of search results.

- **Range**
Specifies the number of record displayed on the screen at a time.
If the total number of search results exceeds the range, the display page can be changed over by pressing **NEXT SEARCH** or **PREVIOUS SEARCH** on the right of the *Machine Logs* screen.
- **Direction**
Specifies the display order of the logging data.
 - Descending

- Displays the data in the order of date from new to old.
- Ascending
Displays the data in the order of date from old to new.

3 Set the search conditions.

You can specify the search conditions in combination.

- **Search Start Date/Time**
Performs the search by the driving unit operation date/time.
If the search end date/time is specified, the equipment searches the logging data from the search start date/time—the search end date/time. If the search end date/time is not specified, the equipment searches all logging data on and after the search start date/time.
- **Search End Date/Time**
Performs the search by the driving unit operation date/time.
If the search start date/time is specified, the equipment searches the logging data from the search start date/time—the search end date/time. If the search end date/time is not specified, the equipment searches all logging data on and before the search end start date/time.
- **Application**
Performs the search by the application name.
- **Log Level**
Performs the search by the log level.
- **Category**
Performs the search by the category name.

4 After setting the search result display method and search conditions, press **OK** on the *Log Search Key Setting (Machine Logs)* dialog to execute the search.

The method to restore the *Machine Logs* screen to the original state varies depending on the search item.

▼ **Search Item and Restoring Method (Machine Logs)**

Search item	Restoring method
Range	On the <i>Log Search Key Setting (Machine Logs)</i> dialog, set the original value and retry the search.
Direction	On the <i>Log Search Key Setting (Machine Logs)</i> dialog, set the original value and retry the search. The original state is also restored when the <i>Machine Logs</i> screen is closed and displayed again.
Search Start Date/Time	Close the <i>Machine Logs</i> screen and redisplay it.
Search End Date/Time	
Application	On the <i>Log Search Key Setting (Machine Logs)</i> dialog, clear the setting contents and retry the search. The original state is also restored when the <i>Machine Logs</i> screen is closed and displayed again.
Log Level	On the <i>Log Search Key Setting (Machine Logs)</i> dialog, restore the state before pressing the button and retry the search.
Category	The original state is also restored when the <i>Machine Logs</i> screen is closed and displayed again.

11.11 Operating the Operation Logs Screen 01837.20140201

The *Operation Logs* screen displays the logging data of the operation details in each screen.

NOTE An operation log can store a maximum of 100,000 records of logging data. If the logging data records exceed 100,000, the oldest logging data are deleted to store the new data.

Display the *Operation Logs* screen from the group menu below.

LOGS→TOOL SYSTEM LOGS→OPERATION LOGS

▼ Operation Logs Screen

Total: 100			
Date/Time	User Name	Level	Summary
2008-12-09 10:43:55	T	2	Open Panel[Operation Logs]
2008-12-09 10:43:51	T	2	Close Panel[LM Status]
2008-12-09 10:43:51	T	2	Press Button[Close] Panel[LM Status]
2008-12-09 10:43:14	T	2	Toggle On[Display Whole-axis Data] Panel[LM Status]
2008-12-09 10:43:14	T	2	Select Tab[Data Graph] Panel[LM Status]
2008-12-09 10:43:13	T	2	Open Panel[LM Status]
2008-12-09 10:43:13	T	2	Toggle On[PST] Panel[LM Status]
2008-12-09 10:43:13	T	2	Toggle On[DST] Panel[LM Status]
2008-12-09 10:43:13	T	2	Toggle On[LP2] Panel[LM Status]
2008-12-09 10:43:13	T	2	Toggle On[LPI] Panel[LM Status]
2008-12-09 10:43:11	T	2	Select Item[LM Status] Dialog[Select Panel(LM)] Panel[Overall Status]
2008-12-09 10:43:11	T	2	Close Dialog[Select Panel(LM)] Panel[Overall Status]
2008-12-09 10:43:07	T	2	Open Dialog[Select Panel(LM)] Panel[Overall Status]
2008-12-09 10:43:06	T	2	Close Dialog[Select Panel(LPI)] Panel[Overall Status]
2008-12-09 10:43:06	T	2	Press Button[Cancel] Dialog[Select Panel(LPI)] Panel[Overall Status]
2008-12-09 10:43:05	T	2	Open Dialog[Select Panel(LPI)] Panel[Overall Status]
2008-12-09 10:42:47	T	2	Open Panel[Overall Status]
2008-12-09 10:42:44	T	2	Close Panel[Unit Synchronization]
2008-12-09 10:42:44	T	2	Close Dialog[Initialize] Panel[Unit Synchronization]
2008-12-09 10:42:44	T	2	Press Button[OK] Dialog[Initialize] Panel[Unit Synchronization]
2008-12-09 10:42:43	T	2	Open Dialog[Initialize] Panel[Unit Synchronization]
2008-12-09 10:42:43	T	2	Press Button[Initialize] Panel[Unit Synchronization]
2008-12-09 10:42:41	T	2	Close Panel[Operation Logs]
2008-12-09 10:42:41	T	2	Press Button[Close] Panel[Operation Logs]
2008-12-09 10:42:14	T	2	Open Panel[Operation Logs]

g018372273_e

No.	Description
1	Displays the number of logging data displayed. The number of data may vary depending on the search range setting in the Log Search Key Setting (Operation Logs) dialog (see page 323).

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

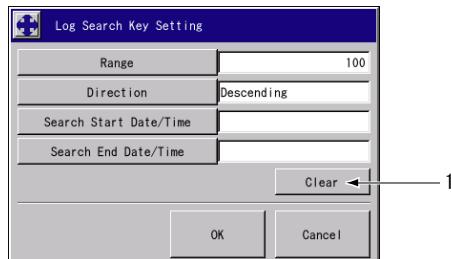
- CLOSE:** Closes the *Operation Logs* screen.
- DETAIL:** Displays the details of the logging data pointed by the cursor at the bottom of the screen.

- **REFRESH:** While the *Operation Logs* screen is displayed, the logging data will not be refreshed automatically. Press **REFRESH** to refresh the logging data and retrieve new logging data.
- **SEARCH KEY:** [Searches logging data \(see page 323\)](#).
- **NEXT SEARCH:** The *Operation Logs* screen displays the number of logging data amounting to the search range specified in the *Log Search Key Setting (Operation Logs)* dialog. If any logging data are present exceeding the specified search range, the next page is displayed.
- **PREVIOUS SEARCH:** The *Operation Logs* screen displays the number of logging data amounting to the search range specified in the *Log Search Key Setting (Operation Logs)* dialog. If any logging data are present exceeding the specified search range, the previous page is displayed.

11.11.1 Searching Logging Data 01838.20111001

- 1 Press **SEARCH KEY** on the right of the *Operation Logs* screen to display the *Log Search Key Setting (Operation Logs)* dialog.

▼ **Log Search Key Setting (Operation Logs) Dialog**



g018382274_e

No.	Description
1	Clears the set search condition contents.

- 2 Specify the display method of search results.

- **Range**
Specifies the number of record displayed on the screen at a time.
If the total number of search results exceeds the range, the display page can be changed over by pressing **NEXT SEARCH** or **PREVIOUS SEARCH** on the right of the *Operation Logs* screen.
- **Direction**
Specifies the display order of the logging data.
 - **Descending**
Displays the data in the order of date from new to old.
 - **Ascending**
Displays the data in the order of date from old to new.

- 3 Set the search conditions.

The search range can be restricted by the date/time. You can specify the search conditions in combination.

- Search Start Date/Time
Searches by the operation date/time. If the search end date/time is specified, the equipment searches the logging data from the search start date/time—the search end date/time. If the search end date/time is not specified, the equipment searches all logging data on and after the search start date/time.
 - Search End Date/Time
Searches by the operation date/time. If the search start date/time is specified, the equipment searches the logging data from the search start date/time—the search end date/time. If the search end date/time is not specified, the equipment searches all logging data on and before the search end start date/time.
- 4 After setting the search result display method and search conditions, press **OK** on the *Log Search Key Setting (Operation Logs)* dialog to execute the search.

The method to restore the *Operation Logs* screen to the original state varies depending on the search item.

▼ **Search Item and Restoring Method (Operation Log)**

Search item	Restoring method
Range	On the <i>Log Search Key Setting (Operation Logs)</i> dialog, set the original value and retry the search.
Direction	On the <i>Log Search Key Setting (Operation Logs)</i> dialog, set the original value and retry the search. The original state is also restored when the <i>Operation Logs</i> screen is closed and displayed again.
Search Start Date/Time	Close the <i>Operation Logs</i> screen and redisplay it.
Search End Date/Time	

11.12 Operating the Equipment Data Backup Screen

01839.20110401

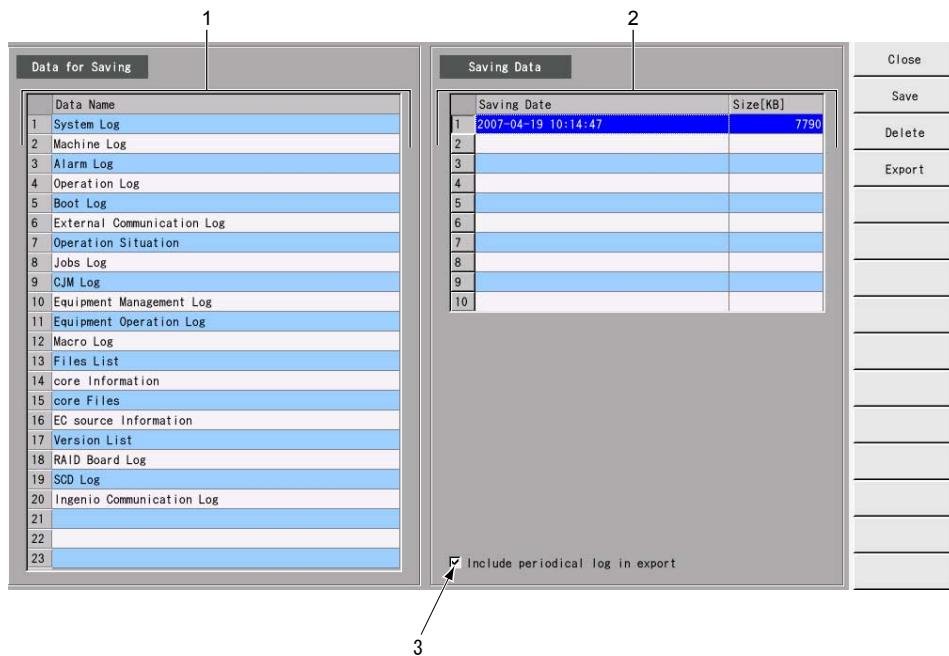
The *Equipment Data Backup* screen backs up all equipment status information (logging data) in the HD inside the equipment.

The data in the equipment internal HD can be transferred to removable media.

Display the *Equipment Data Backup* screen from the group menu below.

SYSTEM→SYSTEM SETTINGS→EQUIPMENT DATA BACKUP

▼ Equipment Data Backup Screen



g018392275_e

No.	Description
1	Displays the equipment data items to be stored.
2	Displays the date/time and data size of the stored equipment data.
3	Selects whether to include the equipment status backup log (periodical) in the equipment status information to be exported.

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Equipment Data Backup* screen.
- **SAVE:** Stores all equipment data in the equipment internal HD (see page 326).
- **DELETE:** Deletes the equipment data from the equipment internal HD (see page 326).

- EXPORT: Exports the equipment data from the equipment internal HD to removable media (see page 326).

11.12.1 Saving the Equipment Data 03700.20101201

Introduction

Overview:

The equipment internal HD can store a maximum of 10 records of equipment data.



NOTE

If the number of records stored in the internal HD exceed 10, the oldest equipment data record is deleted automatically.

- 1 Press SAVE on the right of the *Equipment Data Backup* screen
- 2 Press OK to save the equipment data.

11.12.2 Deleting the Equipment Data 03701.20070501

- 1 On the *Equipment Data Backup* screen, select the equipment data to be deleted.
- 2 Press DELETE on the right of the *Equipment Data Backup* screen
- 3 Press OK to delete the equipment data.

11.12.3 Exporting the Equipment Data 01842.20110601

- 1 On the *Equipment Data Backup* screen, select the equipment data to be exported.

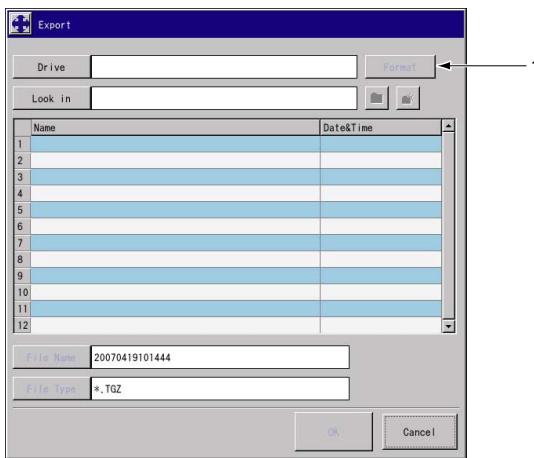


NOTE

When including equipment status backup log (periodical) in the equipment status information to be exported, place a check on **Include periodical log in export** check box. If there is not enough free space on the removable media, uncheck the check box to export only the equipment status information.

- 2 Press **EXPORT** on the right of the *Equipment Data Backup* screen to display the *Export (Equipment Data Backup)* dialog.

▼ Export (Equipment Data) Dialog



g018422276_e

No.	Description
1	Formats the removable media.

- 3 Press **DRIVE** to display the *Drive Selection* dialog.
4 Select the removable media to be stored on the *Drive Selection* dialog.
5 Press **OK** on the *Export (Equipment Data Backup)* dialog to execute the export.



Online Operation

This chapter provides the operation procedures necessary to operate the equipment via. the network.

12.1 Online Settings 03059.20101201

Introduction

Overview:

This function is required to enable the communication with the host when operating the equipment in the online mode.

Functions	Overview
Online Mode Change	Changes over between the online mode and the offline mode, sets the default entry after power up, displays the channel status, and changes to the communication establishment state.
Terminal Service	Alerts the operator to any received message from the host, reports the host that the operator has confirmed the message, and allows the operator to create the message to be sent to the host and send the message.
AMHS Setup	Changes over the method to transfer a carrier into/from the load port (automatic transfer by AMHS and manual transfer by the operator) if the equipment is fitted with a carrier transfer unit such as AGV or AMHS (RGV, OHT, SMIF).
Host Communication Parameters	Offers the means to enable/disable the host communication function, check if the message communication with the host takes place correctly by inputting a diagnosis string (loop back function), and change MDLM (model name).
Channel Parameter	Sets the channel parameters or opens/closes the channel in the SECS-I channel protocol or the HSMS-SS channel protocol.
Spooling	The spooling is a function that stores any messages that occur while no communication is available and resends them as soon as the communication is restored. This displays the spool state and displays or sets the currently spooled messages. Up to 68 messages can be spooled.
Heartbeat	The heartbeat is a function that sends a message (when the connection method is SECS-I; "S1F1", and when HSMS; "Select.req") at certain intervals to check if the equipment is online.
Event Link	Conducts the RPTID settings and CEID settings.
Alarm report settings	Enables or disables the reporting to host for each alarm and the alarm buzzer.

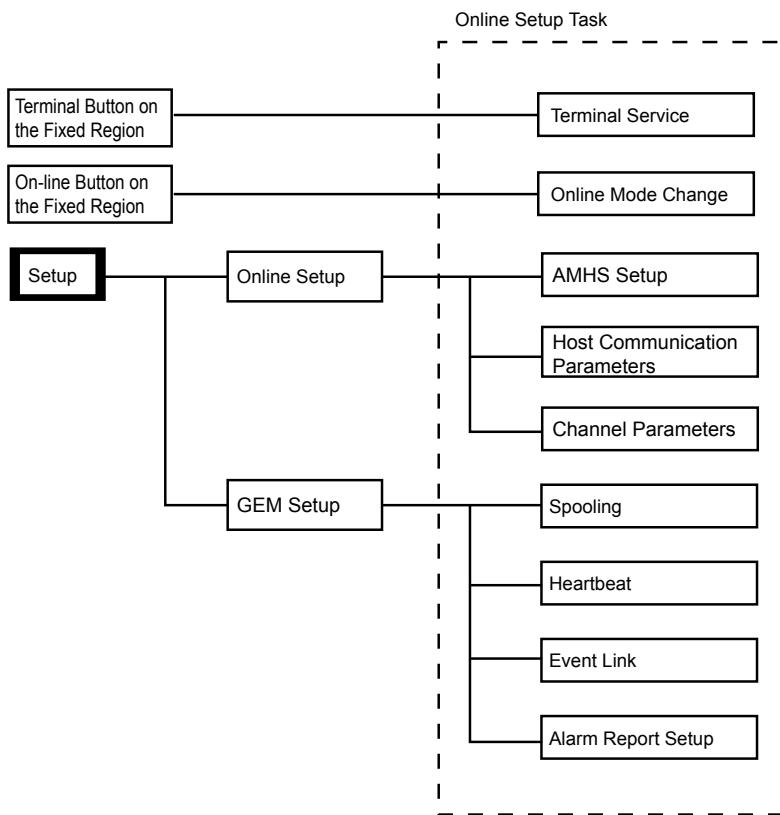


NOTE

If Host Communication Function in Host Communication Parameter is Enabled, you can use Channel Parameters and GEM Setup in the group menu

The software hierarchy for the online settings follows.

▼ Software Hierarchy for Online Settings



g030592413_e

Sequence of Online Settings

- 1** Verify that Host Communication Function of Host Communication Parameters is Enable.
- 2** Using the functions of the following screens, make the online settings, create messages and check the settings.
 - *Online Mode Change* screen: Changes over between the **online mode** and the **offline mode**, sets the **default entry**, displays the **channel status**, and changes to the **communication establishment state** (see page 333).
 - *Terminal Service* screen: Checks the messages sent from the host and creates/sends messages to the host (see page 337).
 - *AMHS Setup* screen: Changes over the mode of carrier transfer to the load port if the equipment is fitted with a carrier transfer unit such as AGV or AMHS (RGV, OHT, SMIF) (see page 339).
 - *Host Communication Parameters* screen: Enables/disables the host communication function and the multiple processes/program events function (see page 342).
 - *Channel Parameters* screen: Displays the channel parameter settings. Refer to either of the following according to your communication method.
 - **12.6 Operating the Channel Parameters (SECS-I) Screen** (see page 345)
 - **12.7 Operating the Channel Parameters (HSMS) Screen** (see page 350)
 - *Spooling* screen: Displays the spool state and displays or sets the currently spooled messages (see page 356).

- *Heartbeat* screen: **Enables or disables the heartbeat function and sets the interval (see page 359).**
- *Set RPTID* screen: **Adds or deletes RPTID or specifies the variable data ID to be linked (see page 361).**
- *Set CEID* screen: **Sets the grouping of the RPTID linked to CEID and each VID to RPTID, and enables/disables the report to host (see page 364).**
- *Alarm Report Setup* screen: **Enables or disables the reporting to host for each alarm and the alarm buzzer (see page 368).**

12.2 Operating the Online Mode Change Screen

03189.20101201

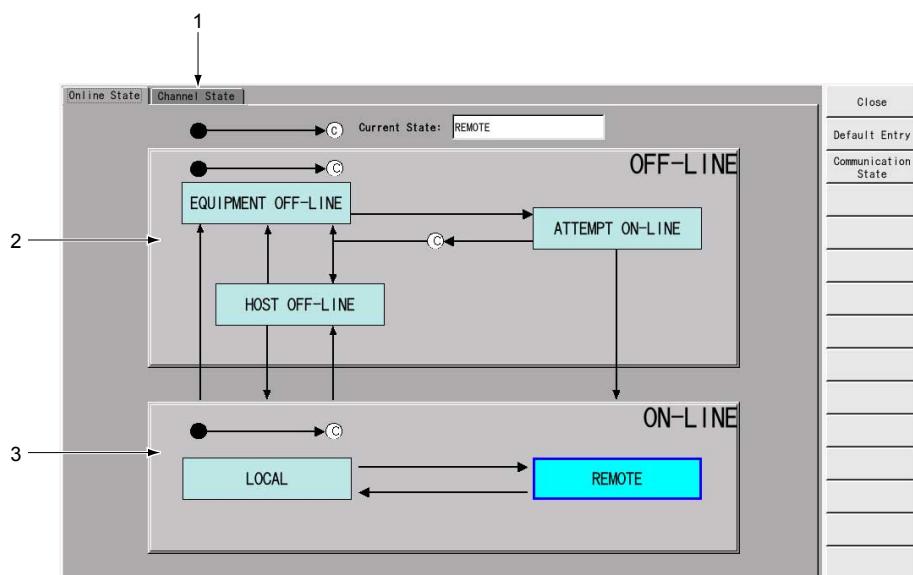
On the *Online Mode Change* screen, you can use the functions required to change to the online/offline modes, set the default entry, check the channel status and change to the communication establishment state.

The current control state is displayed at ON-LINE in the fixed region.

Display the *Online Mode Change* screen from the fixed region below.

ON-LINE

▼ Online Mode Change Screen



g031892414_e

No.	Description
1	Displays the current channel state of the equipment (see page 335).
2	Changes to the offline state (see page 334).
3	Changes to the online state (see page 334).

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- CLOSE:** Closes the *Online Mode Change* screen.
- DEFAULT ENTRY:** Specifies the initial settings in each state of the equipment (see page 334).
- COMMUNICATION STATE:** Sets the channel parameters (see page 335).

12.2.1 Changing to Online/Offline Mode 03702.20070501

Introduction

Overview:

The current control state is displayed. The applicable boxes (regions where the control state names are displayed) are displayed in light blue.

- 1 Press **ONLINE** to display the *Online Mode Change* screen.
- 2 Depending on the current control state, press **ON-LINE** or **OFF-LINE**.

▼ Control State List

Control state name		Overview
EQUIPMENT OFF-LINE		The equipment is offline. The equipment is waiting for an operator command to change to the online mode. Pressing ON-LINE sets the online default entry state specified in the parameters to the message and sends a control state change request to the host.
ATTEMPT ON-LINE		The equipment is changing to the established online state. This is the state where the equipment is responding to the online mode change command from the operator.
HOST OFF-LINE		The equipment is waiting for an offline mode entry request from the host. Pressing OFF-LINE changes to EQUIPMENT OFF-LINE.
ON-LINE	LOCAL	This is the state where the operator uses the equipment in the online mode. The operator cannot apply any restrictions to the equipment operations. Pressing OFF-LINE changes to EQUIPMENT OFF-LINE. Pressing REMOTE changes to ON-LINE/REMOTE.
	REMOTE	This is the online state where the host operates the equipment via the communication interface. The equipment imposes no restrictions to the host performance. The host can operate the equipment as far as its capacity allows. Pressing OFF-LINE changes to EQUIPMENT OFF-LINE. Pressing LOCAL changes to ON-LINE/LOCAL.

12.2.2 Setting the Default Entry 03703.20070501

- 1 Press **DEFAULT ENTRY** on the right of the *Online Mode Change* screen.
- 2 Display the *Default Entry* dialog and make the initial settings for each state of the equipment.

▼ Default Entry Settings

Item	Parameter option	Default value
Power On Time	<ul style="list-style-type: none"> • OFF-LINE • ON-LINE 	OFF-LINE

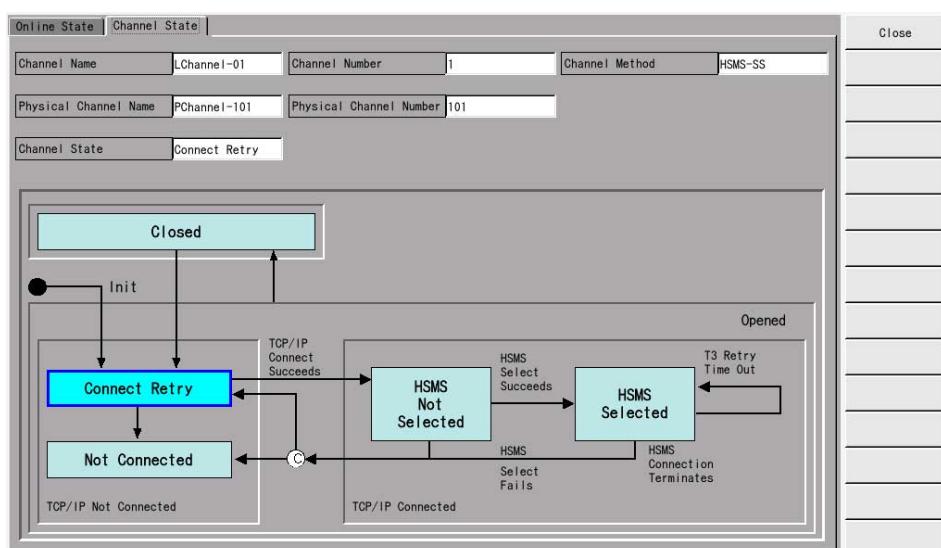
Item	Parameter option	Default value
ON-LINE Time	<ul style="list-style-type: none"> LOCAL REMOTE 	REMOTE
OFF-LINE Time	<ul style="list-style-type: none"> EQUIPMENT OFF-LINE ATTEMPT ON-LINE HOST OFF-LINE 	EQUIPMENT OFF-LINE
ON-LINE Failure	<ul style="list-style-type: none"> EQUIPMENT OFF-LINE HOST OFF-LINE 	EQUIPMENT OFF-LINE

- 3 Press OK on the *Default Entry* dialog to register the default entry settings.

12.2.3 Checking the Channel State 03191.20101201

- 1 Press CHANNEL STATE on the *Online Mode Change* screen.
- 2 Confirm the current channel state.

▼ Channel State Screen



g031912415_e



NOTE

The configuration of the *Channel State* screen may vary depending on the selected communication method.

12.2.4 Setting the Communication Establishment State 03192.20070501

- 1 Press COMMUNICATION STATE on the right of the *Online Mode Change* screen.
- 2 Open the *Communication State* screen and make settings.

For the details of the *Communication State* screen, refer to either of the following sections according to the selected communication method.

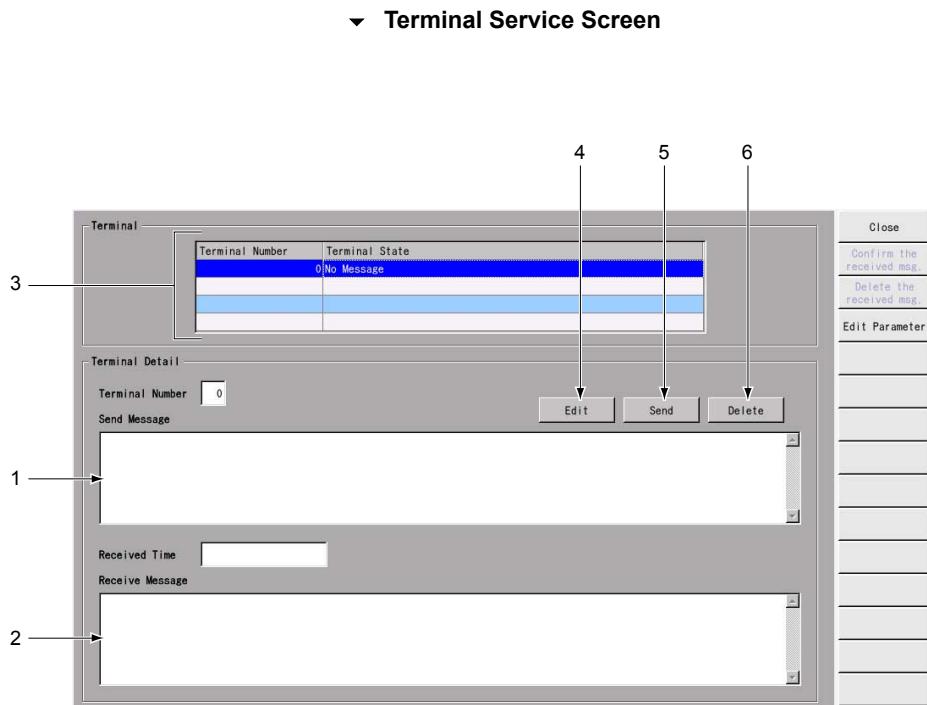
- **12.6 Operating the Channel Parameters (SECS-I) Screen (see page 345)**
- **12.7 Operating the Channel Parameters (HSMS) Screen (see page 350)**

12.3 Operating the Terminal Service Screen 03193.20101201

On the *Terminal Service* screen, you can use the functions needed to check the messages sent from the host, create/send messages to the host.

Display the *Terminal Service* screen from the fixed region below.

TERMINAL



g031932416_e

No.	Description
1	Displays the transmission message edited.
2	Displays the messages received from the host.
3	Selects the terminal to edit the messages received from the host and those to be sent to the host. If any reception message is present, the presence of the message is indicated at Terminal State.
4	Edits the message to be sent (see page 338).
5	Sends the transmission message edited (see page 338).
6	Deletes the transmission message edited (see page 338).



NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Terminal Service* screen.

- CONFIRM THE RECEIVED MSG.: **Confirms the received messages (see page 338)**. This reports to the host event that the operator has confirmed the terminal display noticed by the host.
- DELETE THE RECEIVED MSG.: **Deletes the received messages (see page 338)**. The deletion cannot be executed unless the messages are confirmed.
- EDIT PARAMETER: **Edits the parameters related to the terminal service (see page 338)**.

12.3.1 Confirming the Received Messages 03704.20070501

- 1 Check Terminal State on the *Terminal Service* screen and select a terminal that has messages from the host.
- 2 After confirming the received messages, press CONFIRM THE RECEIVED MSG.. This reports to the host event that the operator has confirmed the terminal display noticed by the host.
If you close the screen without any confirmation operation, the received messages remain unconfirmed.
- 3 Pressing DELETE THE RECEIVED MSG. deletes the messages.
If you attempt to delete the messages although unconfirmed messages remain, the deletion is cancelled and the Terminal Service Message Not Checked error is displayed.

12.3.2 Editing and Sending Transmission Messages 03705.20070501

- 1 Check Terminal State on the *Terminal Service* screen and select the terminal designated as the transmission destination.
- 2 Press EDIT to edit the message to be sent to the host. After creating the message, press OK.
- 3 Press SEND to send the message to the host.

To delete the message not sent yet, press DELETE. The message is deleted without being sent to the host.

12.3.3 Editing the Terminal Service Related Parameters 03368.20070501

- 1 Press EDIT PARAMETER on the right of the *Terminal Service* screen to display the *Edit Parameter* dialog.
- 2 Double-click the set value of the desired item in the *Edit Parameter* dialog and modify the set value. Then press OK to confirm the modified value.

▼ Terminal Service Related Parameter

Item	Set Value	Description
Number of Terminals	1–4	Set the number of reception terminals.
Overwrite Displayed Message	<ul style="list-style-type: none"> • ENABLE • DISABLE 	Determine whether the messages are overwritten for the terminal.
Terminal Request to the Host	<ul style="list-style-type: none"> • ENABLE • DISABLE 	Determine whether the terminal services from the equipment to the host are available or not.
Terminal Popup Service	<ul style="list-style-type: none"> • ENABLE • DISABLE 	Determine whether a popup screen is displayed when a terminal message is received.

12.4 Operating the AMHS Setup Screen 03194.20101201

On the *AMHS Setup* screen, you can operate the functions needed to change over the mode of carrier transfer to the load port if the equipment is fitted with a carrier transfer unit such as AGV or AMHS (RGV, OHT, SMIF).

Before changing the carrier operation mode and the availability status, make sure to confirm the load port transfer status. When checking the load port transfer status, refer to the table below.

▼ Load Port Transfer Status

Transfer Status	Description
OUT OF SERVICE	Carrier transfer is disabled.
IN SERVICE	Carrier transfer is enabled.
TRANSFER READY	Carriers can be loaded and unloaded.
READY TO LOAD	Carriers can be loaded from outside because the load port has no carriers.
READY TO UNLOAD	Carriers in the load port can be unloaded.
TRANSFER BLOCKED	No carriers can be transferred because the equipment is using the load port (a carrier is docked).



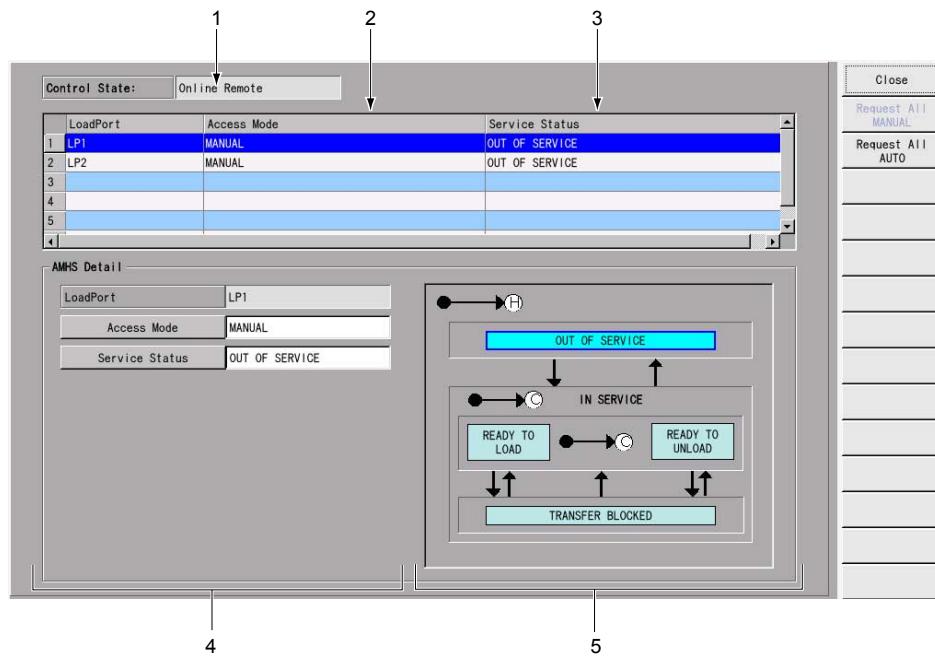
NOTE

You can not change over the carrier transfer method for the load port that is loading/unloading a carrier.

Display the *AMHS Setup* screen from the group menu below.

SETUP→ONLINE SETUP→AMHS SETUP

▼ AMHS Setup Screen



g031942417_e

No.	Description
1	Displays the equipment-to-host connection condition in real time.
2	Displays the current operation mode (see page 341). Manual transfer =MANUAL Automatic transfer = AUTO
3	Displays the current availability status of the load port (see page 341). Available = IN SERVICE Not available = OUT OF SERVICE
4	Displays the detailed information of the selected load port.
5	Displays the current transfer status of the load port.

**NOTE**

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *AMHS Setup* screen.
- **REQUEST ALL MANUAL:** Changes the carrier transfer method to the manual transfer for all load ports.
- **REQUEST ALL AUTO:** Changes the carrier transfer method to the automatic transfer for all load ports.

12.4.1 Changing the AMHS Settings 03206.20080401

Introduction

Overview:

Before changing the AMHS settings, always confirm the load port transfer status.

Changing the Load Port Operation Mode

- 1 Selects the load port of which the operation mode is to be changed.
- 2 Press **ACCESS MODE**.
- 3 On the *Set Access Mode* dialog, press **MANUAL** or **AUTO** according to the current load port transfer status to change the operation mode.

Changing the Load Port Availability Status

- 1 Selects the load port of which the available status is to be changed.
- 2 Press **SERVICE STATUS**.
- 3 On the *Set Service Status* dialog, press **IN SERVICE** or **OUT OF SERVICE** according to the current load port transfer status to change the availability status.

12.5 Operating the Host Communication Parameters Screen

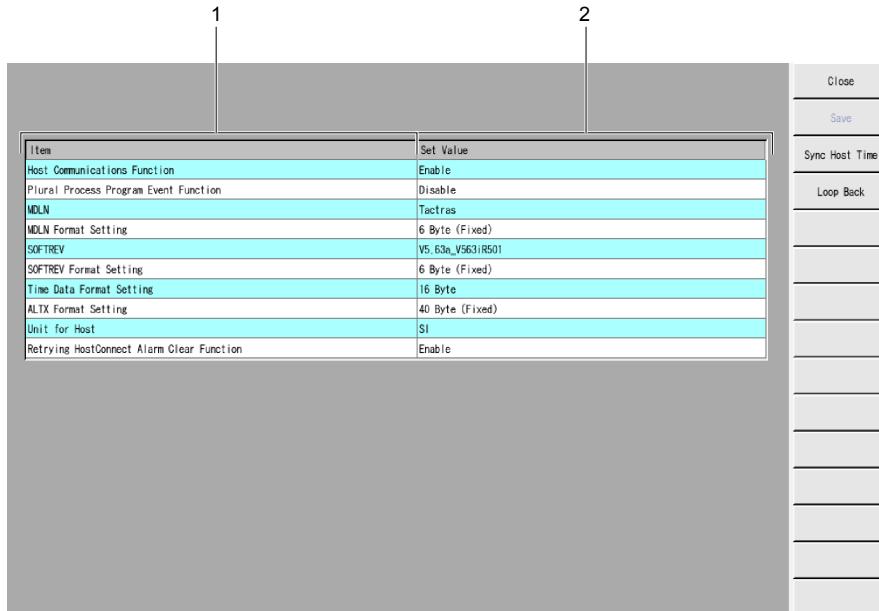
03195.20180401

On the *Host Communication Parameters* screen, you can use the functions needed to set the host communication function and time, conduct a loop back diagnosis, and modify MDLN (model name).

Display the *Host Communication Parameters* screen from the group menus below.

SETUP→ONLINE SETUP→HOST COMMUNICATION PARAMETERS

▼ Host Communication Parameters Screen



g031952418_e

No.	Description
1	Displays the host communication parameter items (see page 343).
2	Displays the current set values of the host communication parameters (see page 343).

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Host Communication Parameters* screen.
- **SAVE:** Saves the changed settings of the parameters.
- **SYNC HOST TIME:** Sets the time on the host to the equipment (see page 343).
- **LOOP BACK:** Conducts a loop back diagnosis (see page 343).

12.5.1 Changing the Host Communication Parameters 03370.20180401

- 1 Double-click the set value for the host communication parameter you are changing.

▼ **Host Communication Parameters**

Item	Set Value	Description
Host Communications Function	<ul style="list-style-type: none"> • Enable • Disable 	Sets Enable/Disable for the host communication function.
Plural Process Program Event Function	<ul style="list-style-type: none"> • Enable • Disable 	Sets Enable/Disable for the plural process program event function. When set to Enable, the events reported when processes or programs are successfully deleted are transmitted collectively at a time.
MDLN	6 characters	Change the model name.
SOFTREV	6 characters	Change the software revision.
Time Data Format Setting	<ul style="list-style-type: none"> • 16 Byte • 12 Byte 	Set the string length of the time data.
ALTX Format Setting	<ul style="list-style-type: none"> • 40 Byte (Fixed) • 120 Byte (Flexed) 	Sets the length of the alarm text reported to the host.
Unit for Host	<ul style="list-style-type: none"> • SI • Non SI 	<p>Sets the unit used when a recipe is uploaded or downloaded.</p> <p>A recipe is uploaded or downloaded according to this setting, not according to the Unit of System Parameter (Equipment Mode).</p>
Retrying HostConnect Alarm Clear Function	<ul style="list-style-type: none"> • Disable • Enable 	Sets whether to delete the displayed alarm automatically when connecting retry is successfully made after the connection to the host is disconnected.

- 2 After changing the set values, press **SAVE** on the right of the *Host Communication Parameters* screen to store the set values.

12.5.2 Synchronizing the Time with the Host 03706.20070501

- 1 Press **SYNC HOST TIME** on the right of the *Host Communication Parameters* screen.
- 2 Press **OK** in the confirmation dialog. The equipment sends a time request to the host.

When the response is sent back from the host, the equipment sets the time data provided by the host to its internal clock.

12.5.3 Loop Back Diagnosis 03707.20070501

Introduction

Overview:

This is used to check if the equipment exchanges messages correctly with the host.

Executing a loop back diagnosis

- 1 Press **LOOP BACK** on the right of the *Host Communication Parameters* screen to display the *Diagnose the Loop Back* dialog.
- 2 Press **DIAGNOSIS STRING INPUT** on the *Diagnose the Loop Back* dialog, enter the string for the loop back diagnosis and press **OK**.

A maximum of 40 characters can be entered. The loop back diagnosis can be executed without entering the string.
- 3 Press **DIAGNOSE** in the *Diagnose the Loop Back* dialog. The equipment sends a loop back diagnosis request to the host.
- 4 The loop back diagnosis results from the host are displayed at **Results** in the *Diagnose the Loop Back* dialog.

12.6 Operating the Channel Parameters (SECS-I) Screen

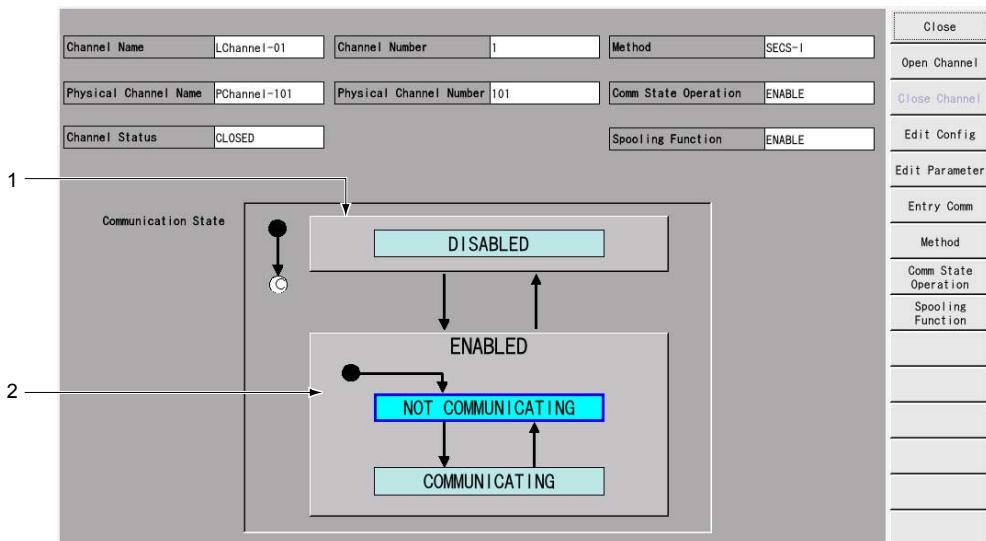
03196.20101201

On the *Channel Parameters (SECS-I)* screen, you can use the functions required to set the channel parameters and change to the communication establishment state.

Display the *Channel Parameters (SECS-I)* screen from the group menus below.

SETUP→ONLINE SETUP→CHANNEL PARAMETERS

▼ Channel Parameters (SECS-I) Screen



g031962419_e

No.	Description
1	Changes the communication establishment state to DISABLED (see page 346).
2	Changes the communication establishment state to ENABLED (see page 346).

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- CLOSE:** Closes the *Channel Parameters (SECS-I)* screen.
- OPEN CHANNEL:** **Performs a channel opening process (see page 346).** This check box is valid when the channel is currently closed.
- CLOSE CHANNEL:** **Performs a channel closing process (see page 346).** This check box is valid when the channel is currently open.
- EDIT CONFIG:** **Edits the configuration (see page 346).**

- **EDIT PARAMETER:** Edits the channel parameters (see page 347).
- **ENTRY COMM:** Edits the communication establishment default entry (see page 348).
- **METHOD:** Sets the communication method (see page 349).
- **COMM STATE OPERATION:** Enables or disables the communication establishment operation (see page 349). If set to ENABLED, communication establishment state can be changed.
- **SPOOLING FUNCTION:** Enables or disables the spooling function (see page 349). Refer to 12.8 Operating the Spooling Screen (see page 356) for details of editing spooling function.

12.6.1 Opening/Closing Channels (SECS-I) 03708.20070501

- 1 Press CLOSE CHANNEL or OPEN CHANNEL on the right of the *Channel Parameters (SECS-I)* screen according to the current channel state.
- 2 Press OK in the *Close the Channel* dialog or the *Open the Channel* dialog to close or open the channel.

12.6.2 Changing the Communication Establishment State (SECS-I) 03207.20070501

- 1 Press DISABLED or ENABLED in the *Channel Parameters (SECS-I)* screen according to the communication establishment state.

▼ **Communication Establishment State (SECS-I)**

Item		Description
DISABLED		The communication is disabled. The messages from the host are received but not responded. The communication is not established.
ENABLED	NOT COMMUNICATING	This is the state in which the equipment is trying to establish a communication link. The communication is interrupted.
	COMMUNICATING	The communication is established. Message exchange is possible and the actual communication is underway.

- 2 Pressing OK in the *Shift State* dialog sends a communication state shift request message to the host and causes a state shift to take place.

12.6.3 Editing the Configuration (SECS-I) 03369.20101201

- 1 Press EDIT CONFIG on the right of the *Channel Parameters (SECS-I)* screen.



NOTE

You can not edit the configuration while the relevant channel is open.

- 2 Double-click the set value of the desired item in the *Edit Configuration* dialog and modify the set value. Then press OK to confirm the modified value.

▼ **Configuration Set Items (SECS-I)**

Item	Set Value	Description
Serial Port	<ul style="list-style-type: none"> • /dev/ifcomraw0 • /dev/ifcomraw1 • Others 	Sets the serial port.

Item	Set Value	Description
Communication Speed	<ul style="list-style-type: none"> • 300 • 600 • 1200 • 2400 • 4800 • 9600 • 19200 	Sets the communication speed.
Communication Log Write Size	1,000 – 8,192 (byte)	Sets the communication log write size.
SECS Mode	<ul style="list-style-type: none"> • NORMAL • SECS_M • SECS_N 	Sets the SECS mode.

12.6.4 Editing the Channel Parameters (SECS-I) 03210.20181101

- 1 Press EDIT PARAMETER on the right of the *Channel Parameters (SECS-I)* screen.



NOTE

You can not edit the parameters while the relevant channel is open.

- 2 Double click the set value of the desired item in the *Channel Parameters (SECS-I)* dialog and modify the set value. Then press OK to confirm the modified value.

▼ SECS-I Channel Parameters (Basic Settings)

Item	Set Value	Description
Master/Slave	<ul style="list-style-type: none"> • Master • Slave 	Makes the master/slave settings.
Device ID	0–32,767 (0–7fff)	Sets the ID. You can change to the hexadecimal mode by pressing HEXADECIMAL.
R-BIT	<ul style="list-style-type: none"> • Enable • Disable 	Sets Enable/Disable for R-BIT.
T1 Timer	0.1–10.0 (sec)	Sets the time to detect any error between received characters.
T2 Timer	0.2–25.0 (seconds)	Sets the time to detect any missing protocol response.
T3 Timer	1–120 (seconds)	Sets the time to detect any missing response message.
T4 Timer	1–120 (seconds)	Sets the time to detect any multi-block message error.
Conversation Timer	1–240 (seconds)	Sets the time to detect any error in the transmission/reception of a particular message.
Number of Retries	0–31	Sets the maximum number of allowable retries by the transmission side.
Detect Duplicate Blocks	<ul style="list-style-type: none"> • Enable • Disable 	Enables or disables the duplicated message detection function. If set to Enable, the equipment detects any duplicated message and delete it automatically.

Item	Set Value	Description
Communication Log	<ul style="list-style-type: none"> Enable Disable 	Enables or disables the message transmission/reception log function. If set to Enable, all message transmissions and receptions are logged.

▼ SECS-I Channel Parameters (Advance Settings)

Item	Set Value	Description
Multi-block Transmit Request	<ul style="list-style-type: none"> Enable Disable Enable/Not Interrupt 	Enables or disables the multi-block transmission request.
System-byte Check	<ul style="list-style-type: none"> Enable Disable 	Enables or disables the system byte check.
System-byte Increment	<ul style="list-style-type: none"> Enable Disable 	Enables or disables the system byte increment.
Multi-transaction Control	<ul style="list-style-type: none"> NO ABORT ABORT 	Sets the multi-transaction control.
Number of Open Transactions Possible	1–10	Sets the number of transactions that can be opened at a time.
Number of Received Transactions Possible	1–10	Sets the number of transactions that can be received at a time.
Error Messages	<ul style="list-style-type: none"> APLI ABORT S9 	Sets the error messages.
W-BIT (S5F1)	<ul style="list-style-type: none"> Enable Disable 	Enables or disables W-BIT of S5F1.
W-BIT (S6F1, S6F11)	<ul style="list-style-type: none"> Disable, Disable None, Exist Enable, Disable Enable, Enable 	Enables or disables W-BIT of S6F1 and S6F11.
W-BIT (HOST)	<ul style="list-style-type: none"> Enable Disable 	Enables or disables W-BIT of the host.
Device ID in System Byte	<ul style="list-style-type: none"> Disable Enable 	Sets the device ID in the system bytes.

12.6.5 Editing the Communication Establishment Default Entry (SECS-I) 03190.20141101

- 1 Press ENTRY COMM on the right of the *Channel Parameters (SECS-I)* screen.



NOTE

You can not edit the communication establishment default entry while the relevant channel is open.

- 2** Press **DEFAULT ENTRY AT POWER UP** or **ESTABLISH COMMUNICATIONS INTERVAL** in the *Establish Communication Default Entry* dialog, modify the set values and press **OK** to confirm the modifications.

▼ **Communication Establishment Default Entry**

Item	Set Value	Description
Default Entry at Power Up	<ul style="list-style-type: none"> • DISABLED • ENABLED 	Sets the default at the time of power on.
Establish Communications Interval	1–300 (sec)	The communication establishment interval is a length of time until another communication establishment request is sent again after the previous request is not responded. Set this interval here.

12.6.6 Setting Communication Method (SECS-I) 04727.20101201

- 1** Press **METHOD** on the right of the *Channel Parameters (SECS-I)* screen.



NOTE

You can not edit the communication method while the relevant channel is open.

- 2** Press **HSMS-SS** on the *Communication Method* dialog.



NOTE

This setting will be enabled when the system is restarted.

12.6.7 Setting Communication Establishment Operation (SECS-I) 04728.20101201

- 1** Press **COMM STATE OPERATION** on the right of the *Channel Parameters (SECS-I)* screen.



NOTE

You can not edit the communication establishment operation while the relevant channel is open.

- 2** Press **ENABLE** or **DISABLE** on the *Communication State Operation* dialog.



NOTE

This setting will be enabled when the system is restarted.

12.6.8 Setting Spooling Function (SECS-I) 04729.20101201

- 1** Press **SPOOLING FUNCTION** on the right of the *Channel Parameters (SECS-I)* screen.



NOTE

You can not edit the spooling function while the relevant channel is open.

- 2** Press **ENABLE** or **DISABLE** on the *Spooling Function* dialog.



NOTE

This setting will be enabled when the system is restarted.

12.7 Operating the Channel Parameters (HSMS) Screen

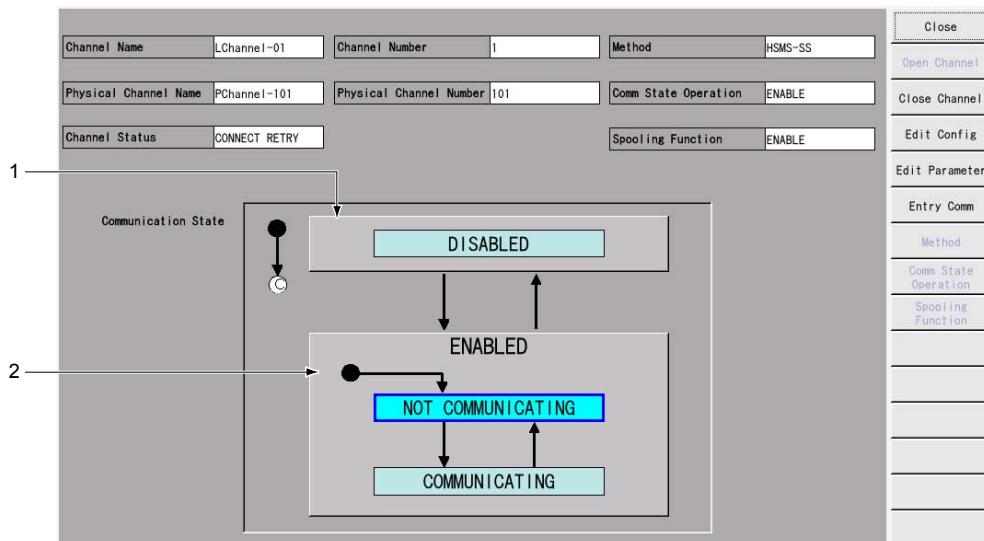
03197.20101201

On the *Channel Parameters (HSMS)* screen, you can use the functions required to set the channel parameters and change to the communication establishment state.

Display the *Channel Parameters (HSMS)* screen from the group menus below.

SETUP→ONLINE SETUP→CHANNEL PARAMETERS

▼ Channel Parameters (HSMS) Screen



g031972420_e

No.	Description
1	Changes the communication establishment state to DISABLED (see page 351).
2	Changes the communication establishment state to ENABLED (see page 351).

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- CLOSE:** Closes the *Channel Parameters (HSMS)* screen.
- OPEN CHANNEL:** **Performs a channel opening process (see page 351).** This check box is valid when the channel is currently closed.
- CLOSE CHANNEL:** **Performs a channel closing process (see page 351).** This check box is valid when the channel is currently open.
- EDIT CONFIG:** **Edits the configuration (see page 351).**

- EDIT PARAMETER: Edits the channel parameters (see page 352).
- ENTRY COMM: Edits the communication establishment default entry (see page 354).
- METHOD: Sets the communication method (see page 354).
- COMM STATE OPERATION: Enables or disables the communication establishment operation (see page 355). If set to ENABLED, communication establishment state can be changed.
- SPOOLING FUNCTION: Enables or disables the spooling function (see page 355). Refer to 12.8 Operating the Spooling Screen (see page 356) for details of editing spooling function.

12.7.1 Opening/Closing Channels (HSMS) 03709.20070501

- 1 Press CLOSE THE CHANNEL or OPEN THE CHANNEL on the right of the *Channel Parameters (HSMS)* screen according to the current equipment channel state.
- 2 Press OK in the *Close the Channel* dialog or the *Open the Channel* dialog to close or open the channel.

12.7.2 Changing the Communication Establishment State (HSMS) 03208.20070501

- 1 Press DISABLED or ENABLED in the *Channel Parameters (HSMS)* screen according to the communication establishment state.
- ▼ **Communication Establishment State (HSMS)**

Item		Description
DISABLED		The communication is disabled. The messages from the host are received but not responded. The communication is not established.
ENABLED	NOT COMMUNICATING	This is the state in which the equipment is trying to establish a communication link. The communication is interrupted.
	COMMUNICATING	The communication is established. Message exchange is possible and the actual communication is underway.

- 2 Pressing OK in the *Shift State* dialog sends a communication state shift request message to the host and causes a state shift to take place.

12.7.3 Editing the Configuration (HSMS) 03211.20101201

- 1 Press EDIT CONFIG on the right of the *Channel Parameters (HSMS)* screen.



NOTE

You can not edit the configuration while the relevant channel is open.

- 2** Double-click the set value of the desired item in the *Edit Configuration* dialog and modify the set value. Then press **OK** to confirm the modified value.

▼ **Configuration Set Items (HSMS)**

Item	Set Value	Description
Connect Retry	<ul style="list-style-type: none"> • Enable • Disable • Enable/Not Reconnect 	<p>Enables or disables the connect retry. If set to Disable, no connect retry is performed.</p> <p>If set to Enable/Not Reconnect, the equipment will not connect to another node even if it issues a connection request.</p>
Remote Node Name: Remote Port Number	63 characters	<p>Sets the remote node name or remote node ID [IP address] and the remote port number by dividing them with :.</p> <p>This represents the remote node to be connected when the connection method is ACTIVE.</p>
Passive Timeout	0–600 (sec)	<p>Sets the passive timeout.</p> <p>This represents the timer value to wait for TCP/IP connection establishment when the connection method is PASSIVE.</p>
Local Port Number	5000–65535	<p>Sets the local port number.</p> <p>This represents the port number of the equipment when the connection method is PASSIVE.</p>
Remote Node Check	<ul style="list-style-type: none"> • Enable • Disable 	<p>Enables or disables the remote node check.</p> <p>This determines whether the corresponding node is checked or not when the connection method is PASSIVE.</p>
Communication Log Write Size	1,000 – 8,192 (byte)	Specifies the communication log write size.
Session ID (MSB)	<ul style="list-style-type: none"> • NOT USED • USED • R-BIT 	Sets the session ID.

12.7.4 Editing the Channel Parameters (HSMS) 03212.20181101

- 1** Press **EDIT PARAMETER** on the right of the *Channel Parameters (HSMS)* screen.



NOTE

You can not edit the parameters while the relevant channel is open.

- 2** Double-click the set value of the desired item in the *Channel Parameters (HSMS)* dialog and modify the set value. Then press **OK** to confirm the modified value.

▼ **HSMS Channel Parameters (Basic Settings)**

Item	Set Value	Description
Session ID	0–32,767 (0–7fff)	Sets the ID. You can change to the hexadecimal mode by pressing HEXADECIMAL .
T3 Timer	1–120 (seconds)	Sets the time to detect any missing transmission message.
T5 Timer	1–240 (seconds)	Sets the connect interval timer value.
T6 Timer	1–240 (seconds)	Sets the response timer value for control messages.
T7 Timer	1–240 (seconds)	Sets the SELECTED timer value.
T8 Timer	1–120 (seconds)	Sets the inter-character timer value.
Conversation Timer	1–240 (seconds)	Sets the time to detect any error in the transmission/reception of a particular message.
Communication Log	<ul style="list-style-type: none"> • Enable • Disable 	Enables or disables the message transmission/reception log function. If set to Enable , all message transmissions and receptions are logged.
Detect Duplicate Blocks	<ul style="list-style-type: none"> • Enable • Disable 	Enables or disables the duplicated message detection function. If set to Enable , the equipment detects any duplicated message and delete it automatically.

▼ **HSMS Channel Parameters (Advance Settings)**

Item	Set Value	Description
Multi-block Transmit Request	<ul style="list-style-type: none"> • Enable • Disable • Enable/Not Interrupt 	Enables or disables the multi-block transmission request.
System-byte Check	<ul style="list-style-type: none"> • Enable • Disable 	Enables or disables the system byte check.
System-byte Increment	<ul style="list-style-type: none"> • Enable • Disable 	Enables or disables the system byte increment.
Multi-transaction Control	<ul style="list-style-type: none"> • NO ABORT • ABORT 	Sets the multi-transaction control.
Number of Open Transactions Possible	1–10	Sets the number of transactions that can be opened at a time.
Number of Received Transactions Possible	1–10	Sets the number of transactions that can be received at a time.
Error Messages	<ul style="list-style-type: none"> • API • ABORT • S9 	Sets the error messages.
W-BIT (S5F1)	<ul style="list-style-type: none"> • Enable • Disable 	Enables or disables W-BIT of S5F1.

Item	Set Value	Description
W-BIT (S6F1, S6F11)	<ul style="list-style-type: none"> • Disable, Disable • None, Exist • Enable, Disable • Enable, Enable 	Enables or disables W-BIT of S6F1 and S6F11.
W-BIT (HOST)	<ul style="list-style-type: none"> • Enable • Disable 	Enables or disables W-BIT of the host.
Device ID in System Byte	<ul style="list-style-type: none"> • Disable • Enable 	Sets the device ID in the system bytes.
Control Message Handling	<ul style="list-style-type: none"> • NORMAL • APLI 	Sets the control message handling.

12.7.5 Editing the Communication Establishment Default Entry (HSMS) 03209.20141101

- 1 Press ENTRY COMM on the right of the *Channel Parameters (HSMS)* screen.


NOTE

You can not edit the communication establishment default entry while the relevant channel is open.

- 2 Press DEFAULT ENTRY AT POWER UP or ESTABLISH COMMUNICATIONS INTERVAL in the *Establish Communication Default Entry* dialog, modify the set values and press OK to confirm the modifications.

▼ Communication Establishment Default Entry

Item	Set Value	Description
Default Entry at Power Up	DISABLED, ENABLED	Sets the default at the time of power on.
Establish Communications Interval	1–300 (sec)	The communication establishment interval is a length of time until another communication establishment request is sent again after the previous request is not responded. Set this interval here.

12.7.6 Setting Communication Method (HSMS) 04730.20101201

- 1 Press METHOD on the right of the *Channel Parameters (HSMS)* screen.


NOTE

You can not edit the communication method while the relevant channel is open.

- 2 Press SECS-I on the *Communication Method* dialog.


NOTE

This setting will be enabled when the system is restarted.

12.7.7 Setting Communication Establishment Operation (HSMS) 04731.20101201

- 1 Press COMM STATE OPERATION on the right of the *Channel Parameters (HSMS)* screen.

**NOTE**

You can not edit the communication establishment operation while the relevant channel is open.

- 2 Press ENABLE or DISABLE on the *Communication State Operation* dialog.

**NOTE**

This setting will be enabled when the system is restarted.

12.7.8 Setting Spooling Function (HSMS) 04732.20101201

- 1 Press SPOOLING FUNCTION on the right of the *Channel Parameters (HSMS)* screen.

**NOTE**

You can not edit the spooling function while the relevant channel is open.

- 2 Press ENABLE or DISABLE on the *Spooling Function* dialog.

**NOTE**

This setting will be enabled when the system is restarted.

12.8 Operating the Spooling Screen 03198.20101201

On the *Spooling* screen, you can use the functions to display the spool state, display the currently spooled messages, display/add/delete the message streams/functions, and edit the spool related parameters.

When checking the current spool state, refer to the table below.

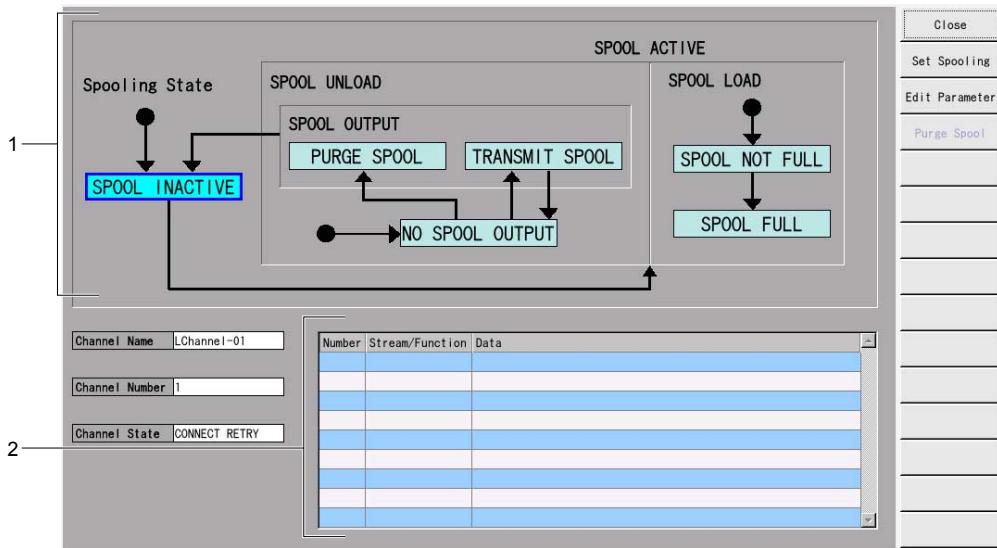
▼ Spool State

Spool state	Description
SPOOL INACTIVE	— The spool is in idle state. The spool area is empty.
SPOOL ACTIVE	— The spool is active. The following sub states are available.
	SPOOL LOAD Spool data can be written.
	SPOOL NOT FULL The spool area is vacant. Message can be written.
	SPOOL FULL The spool area is full. If Over-write Spool is set to Over-write, the old messages are overwritten when the spool area becomes full.
	SPOOL UNLOAD This is the state when or before data are retrieved.
	SPOOL OUTPUT The spool is in the output state. This is the state where messages are removed from the spool. Either of the following two sub states is selected according to the command from the host.
	PURGE SPOOL Sweeps the spool. Discards all messages in the spool to empty the spool.
	TRANSMIT SPOOL The spool is in the transmitting state. Sends the messages in the spool to the host in the order from old to new.
	NO SPOOL OUTPUT The spool is in the output state. The communication with the host is not recovered.

Display the *Spooling* screen from the group menu below.

SETUP→GEM SETUP→SPOOLING

▼ Spooling Screen



g031982421_e

No.	Description
1	Displays the current spool state of the selected channel.
2	Displays the messages currently spooled.

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- CLOSE:** Closes the Spooling screen.
- SET SPOOLING:** Displays the streams/functions currently set to be spooled. In addition, this offers the functions to **add and delete new streams/functions** (see page 357).
- EDIT PARAMETER:** Edits the spooling parameters (see page 358).

12.8.1 Setting the Spooling 03213.20070501

Registering new streams/functions to be spooled

1 Press SET SPOOLING on the right of the Spooling screen to display the Set Spooling dialog.

2 Press STREAM on the Set Spooling dialog and enter a stream number.

The acceptable number range is from 2–127.

3 Press FUNCTION on the Set Spooling dialog and enter a function number.

The acceptable number range is from 1–255.

- 4** Press **ADD** on the *Set Spooling* dialog to register the specified stream/function.

Deleting streams/functions registered for spooling

- 1** Press **SET SPOOLING** on the right of the *Spooling* screen to display the *Set Spooling* dialog.
- 2** From Target message of spool in the left of the *Set Spooling* dialog, select the message registered for spooling which you want to delete.
- 3** Press **DELETE** on the right of the *Set Spooling* dialog to delete the stream/function registered for spooling.

12.8.2 Editing the Spooling Related Parameters 03214.20070501

- 1** Press **EDIT PARAMETER** on the right of the *Spooling* screen to display the *Edit Parameter* dialog.
- 2** Double-click the set value of the desired item in the *Edit Parameter* dialog and modify the set value. Then press **OK** to confirm the modified value.

▼ Spooling Related Parameters

Item	Set Value	Description
Maximum Number of Spool Messages	0–68	Sets the maximum number of messages to be sent from the spool area to the host when spool data are transmitted.
Overwrite Spool	<ul style="list-style-type: none"> • Overwrite • Do Not Overwrite 	Sets Enable or Disable for the function that overwrites the old messages with new messages when the spool area is full during spool load.
Enable Spooling	<ul style="list-style-type: none"> • Enable • Disable 	Sets Enable/Disable for the spooling. If set to Disable , the equipment will not spool the messages.

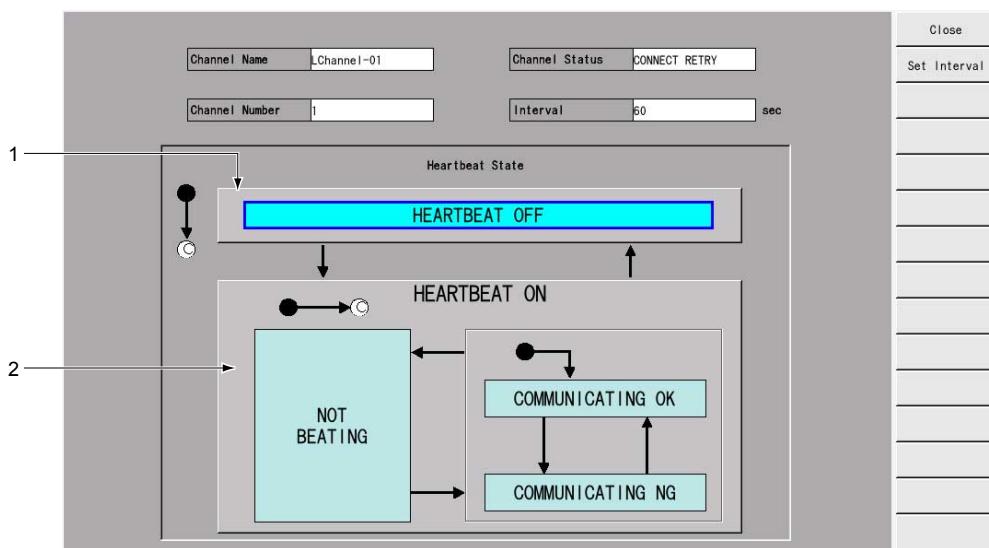
12.9 Operating Heartbeat Screen 03199.20101201

On the *Heartbeat* screen, you can use the functions needed to display the heartbeat, check the channel information, enable/disable the heartbeat, and set the heartbeat interval.

Display the *Heartbeat* screen from the group menu below.

SETUP→GEM SETUP→HEARTBEAT

▼ Heartbeat Screen



g031992422_e

No.	Description
1	Changes the heartbeat parameter to OFF (see page 360).
2	Changes the heartbeat parameter to ON (see page 360).



NOTE

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Heartbeat* screen.
- **SET INTERVAL:** Sets the interval (see page 360).

12.9.1 Setting the Heartbeat 03710.20070501

- 1 On the *Heartbeat* screen, press HEARTBEAT OFF or HEARTBEAT ON according to the current equipment channel state.

▼ **Heartbeat State**

Heartbeat state		Description
HEARTBEAT OFF	—	The heartbeat is OFF.
HEARTBEAT ON	NOT BEATING	No heartbeat can be ticked because the control state is OFF LINE.
	COMMUNICATING OK	The heartbeat is working well.
	COMMUNICATING NG	The heartbeat is not working well.

- 2 Press OK in the *Shift State* dialog to turn the heartbeat ON/OFF.

12.9.2 Setting the Interval 03711.20070501

- 1 Press SET INTERVAL on the right of the *Heartbeat* screen.
- 2 Enter the set value for the interval and press OK to register the set value.

12.10 Operating the Set RPTID Screen 03200.20101201

On the *Set RPTID* screen, you can use the functions to add or delete RPTID and specify the variable data ID to be linked.

A maximum of 80 RPTID's can be defined.

RPTID (report ID) is an ID used to identify each event at the time of event report by the equipment. Every event report is linked with variable data (V) grouped by RPTID. The variable data (V) include a status variable (SV), equipment constant (ECV), and data value (DVVAL), each of which is given a variable ID (SVID, ECID, DVNAME) as the identifier.



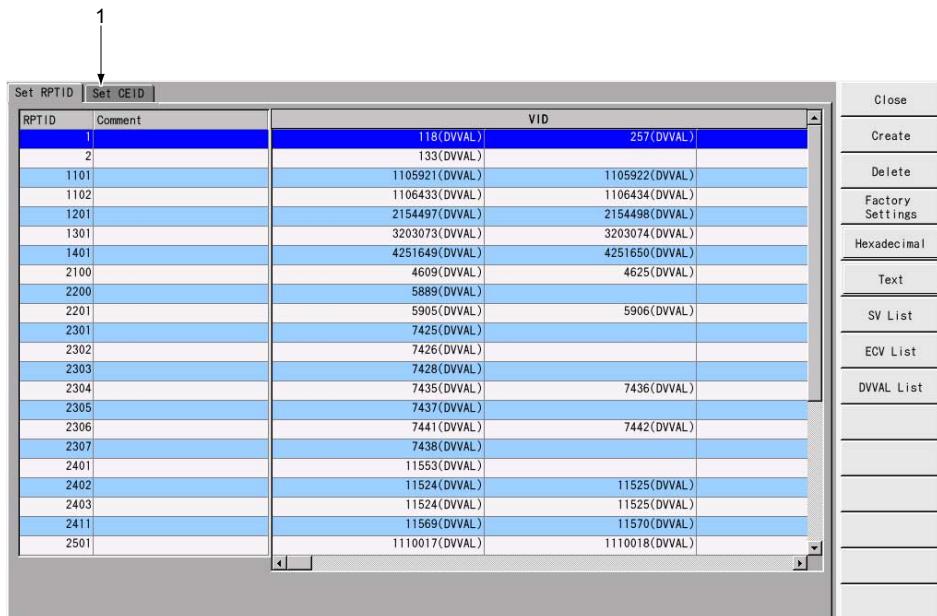
NOTE

The RPTID can be set only while the control state is OFF LINE.

Display the *Set RPTID* screen from the group menu below.

SETUP→GEM SETUP→EVENT LINK→SET RPTID

▼ Set RPTID Screen



g032002423_e

No.	Description
1	Displays the <i>Event Link (Set CEID)</i> screen.



NOTE

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *Set RPTID* screen.
- **CREATE:** Adds new RPTID (see page 362).
- **DELETE:** Deletes the selected RPTID (see page 363).
- **FACTORY SETTINGS:** Restores the RPTID data to the factory settings (see page 363).
- **HEXADECIMAL:** Changes to the hexadecimal mode.
- **TEXT:** Changes to the text mode.
- **SV LIST:** Displays the *SV List* dialog.
- **ECV LIST:** Displays the *ECV List* dialog.
- **DVAL LIST:** Displays the *DVAL List* dialog.

12.10.1 Creating RPTID 03201.20101201

Introduction

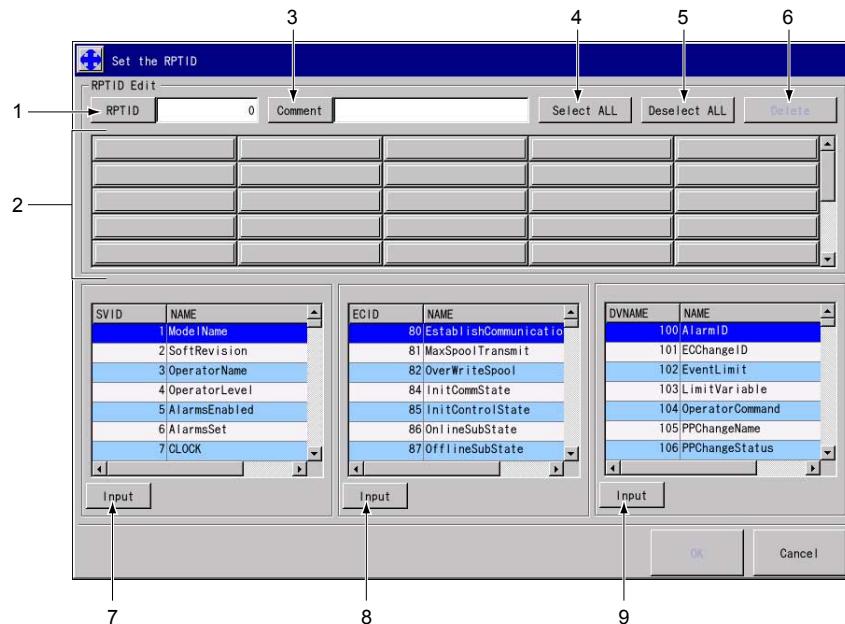
Overview:

This creates a RPTID and the corresponding VID used for event report from the equipment to the host.

Entering RPTID and comments

- 1 Press CREATE on the right of the *Set RPTID* screen to display the *Set the RPTID* dialog.

▼ Set the RPTID Dialog



g032012424_e

No.	Description
1	Enter RPTID here.
2	Displays grouped VID.

No.	Description
3	Enters comments.
4	Selects all grouped VID's.
5	Cancels all VID selections.
6	Deletes the selected VID.
7	Specifies the SV selected from the SV list as the grouping VID.
8	Specifies the ECV selected from the ECV list as the grouping VID.
9	Specifies the DVVAL selected from the DVVAL list as the grouping VID.

- 2 Press RPTID on the *Set the RPTID* dialog, enter RPTID and press OK.
- 3 To append a comment to the RPTID, press COMMENT in the *Set the RPTID* dialog, enter the comment and press OK.

For the comment, up to 24 characters can be entered.

Setting and deleting the grouping VID

- 1 Select a VID used for grouping from the SV list, ECV list and DVVAL list under the *Set the RPTID* dialog and press INPUT. The selected VID is specified as the grouping VID. The specified VID is entered in the grouping VID column on the *Set the RPTID* dialog.


NOTE

Up to 50 VID's can be entered as the grouping VID, however, RPTID can not be set if no grouping VID is selected.

To delete the grouping VID, follow the steps below.

- 1.1 Select the VID to be deleted by pressing the button located at the applicable entry area.

Pressing SELECT ALL selects all entered VID's. Pressing DESELECT ALL cancels all VID selections.

- 1.2 Press DELETE to delete all selected VID's.

- 2 After entering the grouping VID, press OK to add the RPTID.

12.10.2 Deleting RPTID 03712.20070501

- 1 On the *Set RPTID* screen, select the RPTID to be deleted.
- 2 Press DELETE on the right of *Set RPTID* screen and press OK in the confirmation dialog. The RPTID is deleted.

12.10.3 Restoring the RPTID Data to the Factory Settings 03713.20070501

- 1 Press FACTORY SETTINGS on the right of the *Set RPTID* screen.
- 2 Press OK in the confirmation dialog to restore the RPTID data to the factory settings.

12.11 Operating the Set CEID Screen

03202.20101201

On the *Set CEID* screen, you can use the functions needed to enable/disable the report to host, edit RPTID to be linked to CEID and set the event reports to host for the RPTID's linked to CEID and the VID's grouped to RPTID.

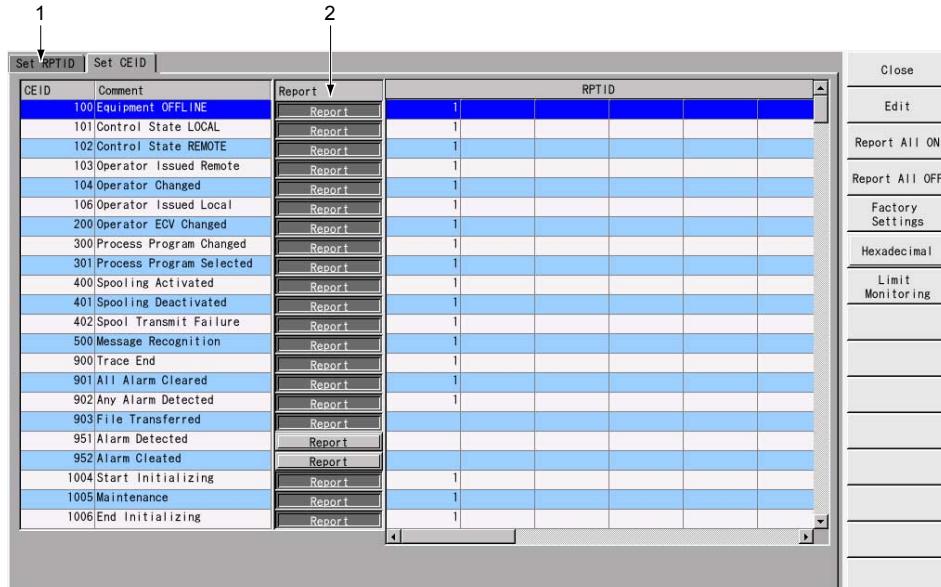
CEID (collected event ID) is an ID used to identify the selected events occurring on the equipment side, called collected event. In the event report, each event can be identified by the CEID and the RPTID or VID linked to that CEID about which equipment or variable data the event belongs to.

 **NOTE** The CEID setting is possible only when the control state is OFF LINE.

Display the *Set CEID* screen from the group menu below.

SETUP→GEM SETUP→EVENT LINK→SET CEID

▼ Set CEID Screen



g0320222405_e

No.	Description
1	Displays the <i>Event Link (Set RPTID)</i> screen.
2	Enables or disables the report to host for CEID.

 **NOTE** Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

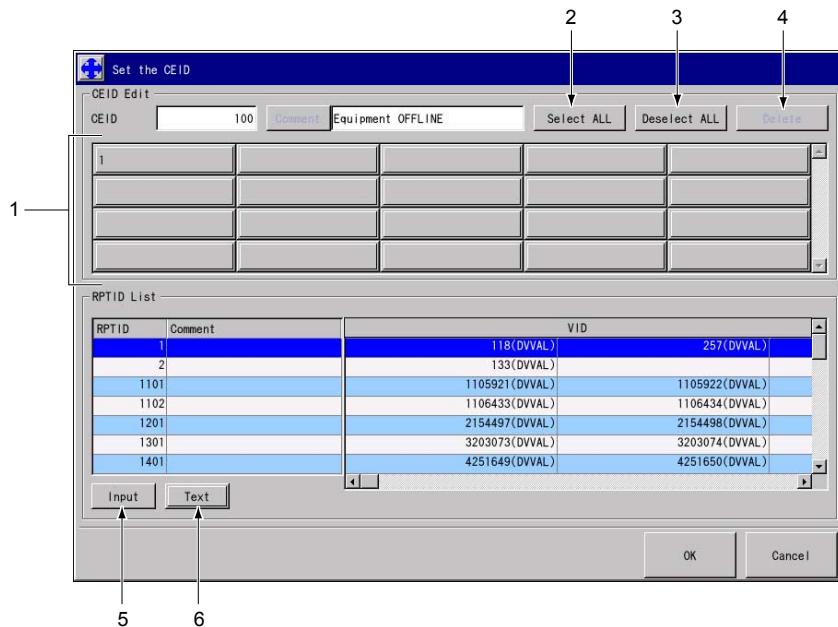
Function Buttons

- **CLOSE:** Closes the *Event Link (Set CEID)* screen.
- **EDIT:** Edits the selected CEID (see page 365).
- **REPORT ALL ON:** Enables all reports to host for CEID.
- **REPORT ALL OFF:** Disables all reports to host for CEID.
- **FACTORY SETTINGS:** Restores the CEID data to the factory settings (see page 367).
- **HEXADECIMAL:** Changes to the hexadecimal mode.
- **LIMIT MONITORING:** Sets the limit monitoring (see page 366).

12.11.1 Editing CEID 03203.20070501

- 1 Press EDIT on the right of the *Set CEID* screen to display the *Set the CEID* dialog.

▼ Set the CEID Dialog



g032032426_e

No.	Description
1	Displays the RPTID to be linked to CEID.
2	Displays all RPTID's to be linked to CEID.
3	Cancels all selections of RPTID to be linked.
4	Deletes the selected RPTID to be linked.
5	Links the RPTID selected from the RPTID list to CEID.
6	Changes to the text display.

- 2 Select a RPTID from the RPTID List under the *Set the CEID* dialog and press INPUT. The RPTID is linked to CEID. Up to 20 RPTID's can be linked.

To delete RPTID's from the link, follow the steps below.

- 2.1** Select the linked RPTID by pressing the button located at the applicable entry area.

Pressing **SELECT ALL** selects all linked RPTID's. Pressing **Deselect All** cancels all RPTID selections.

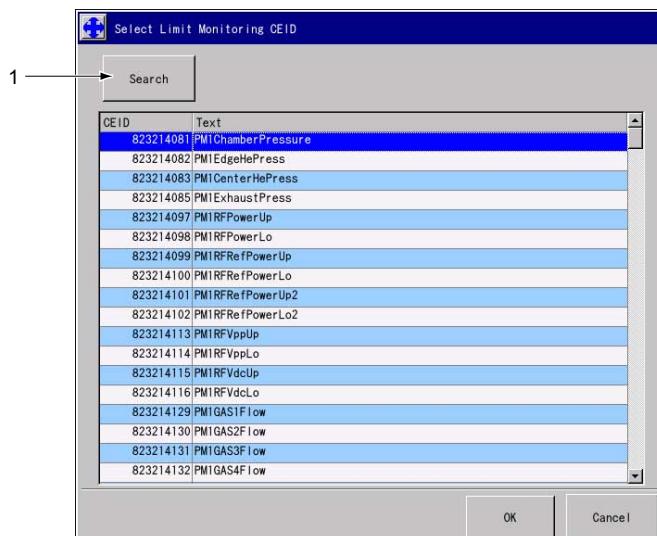
- 2.2** Press **DELETE** to delete all selected RPTID's.

- 3** Press **OK** to set CEID.

12.11.2 Setting the Limit Monitoring 03204.20070501

- 1** Press **LIMIT MONITORING** on the right of the *Set CEID* screen to display the *Select Limit Monitoring CEID* dialog.

▼ Select Limit Monitoring CEID Dialog



g032042427_e

No.	Description
1	Searches by CEID.

- 2** Select the CEID to be set for limit monitoring on the *Select Limit Monitoring CEID* dialog and press **OK**.
- 3** Select a RPTID from the RPTID List under the *Set the CEID (Limit Monitoring)* dialog and press **INPUT**. The RPTID is linked to the limit monitoring CEID. Up to 20 RPTID's can be linked.

To delete RPTID's from the link, follow the steps below.

- 3.1** Select the linked RPTID by pressing the button located at the applicable entry area.

Pressing **SELECT ALL** selects all linked RPTID's. Pressing **Deselect All** cancels all RPTID selections.

3.2 Press **DELETE** to delete all selected RPTID's.

4 Press **OK** to set the limit monitoring CEID.

12.11.3 Restoring the CEID Data to the Factory Settings 03714.20070501

1 Press **FACTORY SETTINGS** on the right of the *Event Link (Set CEID)* screen.

2 Press **OK** in the confirmation dialog to restore the CEID data to the factory settings.

12.12 Operating the Alarm Report Setup Screen

03205.20101201

On the *Alarm Report Setup* screen, you can use the functions needed to enable or disable the reporting to host for each alarm and the alarm buzzer.

Display the *Alarm Report Setup* screen from the group menu below.

SETUP→GEM SETUP→ALARM REPORT SETUP

▼ Alarm Report Setup Screen

The screenshot shows a software interface for managing alarm reports. At the top, there's a title bar with a downward arrow and the text "Alarm Report Setup Screen". Below the title is a table with 25 rows, each representing an alarm entry. The columns are labeled: No., Alarm ID, Alarm Code, Alarm Message, Report, Detect, Clear, and Buzzer. The "Report" column contains mostly "OFF" entries, while the "Buzzer" column has many "ON" entries. To the right of the table is a vertical stack of buttons: Close, Save, Search Alarm ID, Previous Page, Next Page, Report All ON, Detected All ON, Cleared All ON, and Buzzer All ON. The "Report All ON" button is highlighted in blue. The entire interface is contained within a window frame.

No.	Alarm ID	Alarm Code	Alarm Message	Report	Detect	Clear	Buzzer
1	0x00570001	0x06	Undefined ErrID(u:%X,e:%X)	OFF	OFF	OFF	ON
2	0x00510004	0x06	MC0 Ctrl. Com.ERR	ON	ON	ON	ON
3	0x00510005	0x06	MC1 Ctrl. Com.ERR	ON	ON	ON	ON
4	0x00510006	0x06	MC2 Ctrl. Com.ERR	ON	ON	ON	ON
5	0x00510007	0x06	MC3 Ctrl. Com.ERR	ON	ON	ON	ON
6	0x00510008	0x06	MC4 Ctrl. Com.ERR	ON	ON	ON	ON
7	0x00510009	0x02	System Ctrl.CPU FAN ERR	ON	ON	ON	ON
8	0x0051000a	0x02	System Ctrl.Rack FAN ERR	ON	ON	ON	ON
9	0x0051000b	0x02	System Ctrl.Rack FAN ERR	ON	ON	ON	ON
10	0x0051000c	0x02	MC0 Ctrl.Rack FAN ERR	ON	ON	ON	ON
11	0x0051000d	0x02	MC1 Ctrl.Rack FAN ERR	ON	ON	ON	ON
12	0x0051000e	0x02	MC2 Ctrl.Rack FAN ERR	ON	ON	ON	ON
13	0x0051000f	0x02	MC3 Ctrl.Rack FAN ERR	ON	ON	ON	ON
14	0x00510010	0x02	MC4 Ctrl.Rack FAN ERR	ON	ON	ON	ON
15	0x00510025	0x08	MC0 ctrl. com. disconnect	ON	ON	ON	OFF
16	0x00510026	0x08	MC1 ctrl. com. disconnect	ON	ON	ON	OFF
17	0x00510027	0x08	MC2 ctrl. com. disconnect	ON	ON	ON	OFF
18	0x00510028	0x08	MC3 ctrl. com. disconnect	ON	ON	ON	OFF
19	0x00510029	0x08	MC4 ctrl. com. disconnect	ON	ON	ON	OFF
20	0x00510030	0x06	LP1 Load Operation No Finish	ON	ON	ON	ON
21	0x00510031	0x06	LP2 Load Operation No Finish	ON	ON	ON	ON
22	0x00510032	0x06	LP0 Load Operation No Finish	ON	ON	ON	ON
23	0x00510033	0x06	LP0 Load Operation No Finish	ON	ON	ON	ON
24	0x00510034	0x06	LP0 Load Operation No Finish	ON	ON	ON	ON
25	0x00510035	0x06	LP6 Load Operation No Finish	ON	ON	ON	ON

g032052428_e

No.	Description
1	Changes each setting of the alarm report to ON or OFF (see page 369).

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- CLOSE:** Closes the *Alarm Report Setup* screen.
- SAVE:** Stores the settings about whether the following functions are enabled or disabled: alarm report, event report, cancellation event report, buzzer.
- SEARCH ALARM ID:** Searches alarm data by the alarm ID (see page 369).
- PREVIOUS PAGE:** Displays the alarm data on the previous page.
- NEXT PAGE:** Displays the alarm data on the next page.

- **REPORT ALL ON:** Enables the report to host for all alarms. Pressing it once again disables the report to host for all alarms.
- **DETECTED ALL ON:** Enables the event report for all alarms. Pressing it once again disables the event report for all alarms.
- **CLEARED ALL ON:** Enables the cancellation event report for all alarms. Pressing it once again disables the cancellation event report for all alarms.
- **BUZZER ALL ON:** Enables the alarm buzzer for all alarms. Pressing it once again disables the alarm buzzer for all alarms.

12.12.1 Searching the Alarm ID 03715.20070501

- 1 Press **SEARCH ALARM ID** on the right of the *Alarm Report Setup* screen to display the *Search Alarm ID* dialog.
- 2 After entering the alarm ID to be searched, press **OK** to execute the search.

12.12.2 Setting Each Report to Host and Alarm Buzzer 03716.20070501

- 1 Press **ON** or **OFF** in the *Alarm Report Setup* screen to change the setting to ON or OFF.
- 2 Press **SAVE** on the right of the *Alarm Report Setup* screen to store the changed settings.



Transmitting Data

This chapter provides the operation procedures necessary to transmit data.

13.1 Transmitting Data Via FTP 09879.20130601

Introduction

Overview:

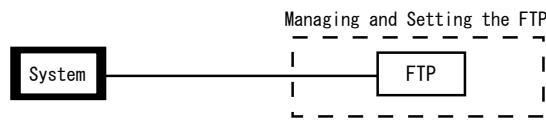
Data can be transmitted from/to the equipment via FTP server. With this function, data can be handled on the network, without using external media.

Note that data cannot be transmitted via FTP when the data condition matches any of the followings.

- If the file name of the data uses 200 characters or more.
- If the file size of the data is 2 GB or more.
- If the file transmitting time takes 5 minutes or more.

The software hierarchy for FTP transmission follows.

▼ Software Hierarchy for Data Transmission



g7828_e

Sequence of Transmitting Data via FTP

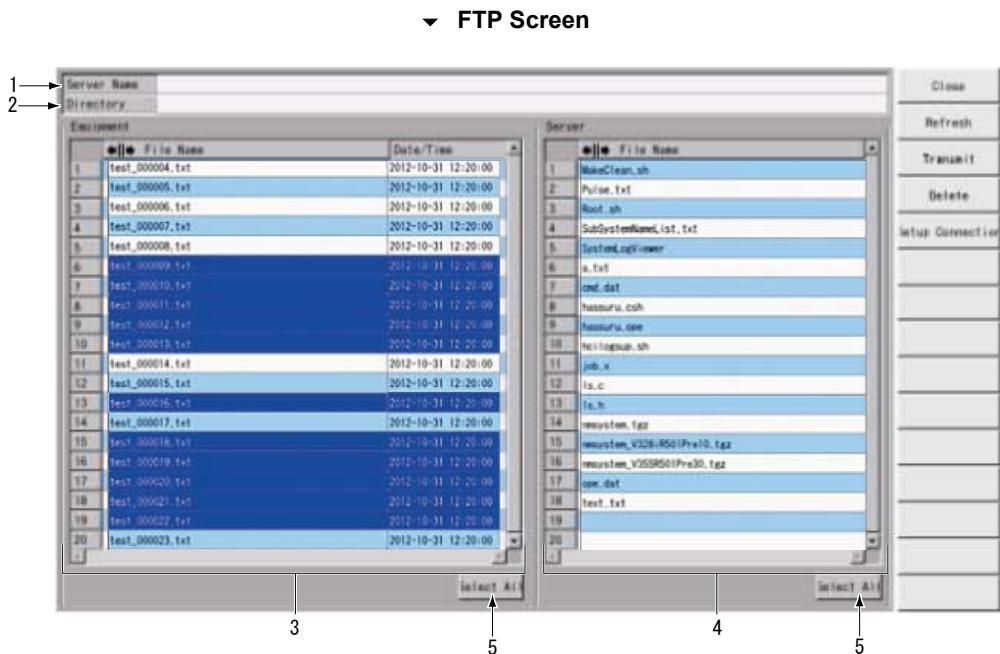
- 1 Display the *FTP* screen.
- 2 Select the file you want to transmit.
- 3 Press **TRANSMIT**.

13.2 Operating the FTP Screen 09880.20130601

This section describes how to operate the screen for transmitting and deleting the data, and to set connection conditions.

Display the *FTP* screen by selecting the following items from the group menu.

SYSTEM→FTP



g7829_e

No.	Description
1	Displays the server name.
2	Displays the directory.
3	Displays the list of equipment files.
4	Displays the list of server files.
5	Selects all files.



NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

CLOSE: Closes the *FTP* screen.

REFRESH: Refreshes the data.

DELETE: Deletes the data.

SETUP CONNECTION: Sets the connection conditions.

13.2.1 Refreshing the Data 08881.20130601

- 1 Press REFRESH on the right of the *FTP* screen to refresh the display.

13.2.2 Transmitting the Data 08882.20130601

- 1 Select the file you want to transmit from the *FTP* screen.



NOTE

Press SELECT ALL to select all the files.

- 2 Press TRANSMIT on the right of the *FTP* screen to transmit the data.

13.2.3 Deleting the Data 08883.20130601

- 1 Select the file you want to delete from the *FTP* screen.



NOTE

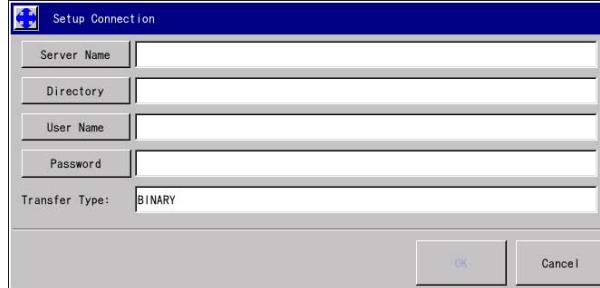
Press SELECT ALL to select all the files.

- 2 Press DELETE on the right of the *FTP* screen to delete the data.

13.2.4 Setting Connection Condition 08884.20140701

- 1 Press SETUP CONNECTION on the right of the *FTP* screen to display *Setup Connection* dialog.

▼ Setup Connection Dialog



g7830_e

- 2 Press SERVER NAME to display the *Server Name* dialog.

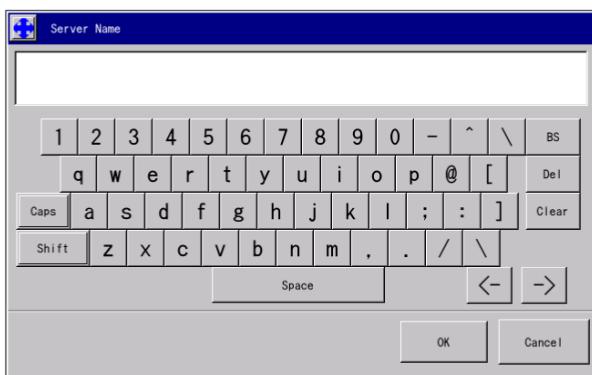


NOTE

Display and edit the name of the server to be used for connecting with server.

If the server name is already set, the preset setting value is displayed.

▼ Server Name Dialog



g7831_e

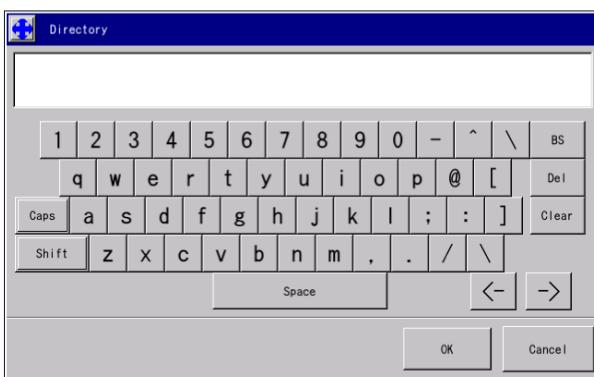
- 3 Enter the name of the server to be used.
- 4 Press DIRECTORY to display the *Directory* dialog.

**NOTE**

Display and edit the directory to be used for connecting with server.

If the directory is already set, the preset setting value is displayed.

▼ Directory Dialog



g7832_e

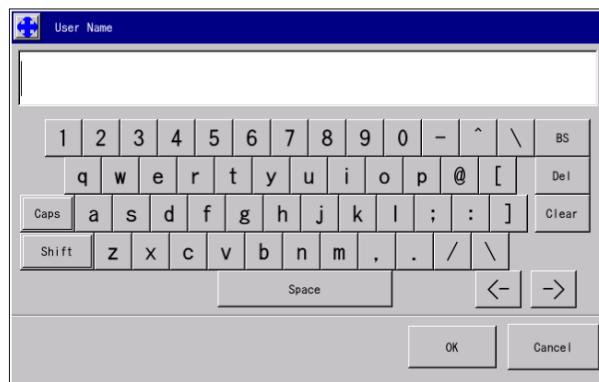
- 5 Enter the name of the directory to be used.
- 6 Press USER NAME to display the *User Name* dialog.

**NOTE**

Display and edit the name of the user to be used for connecting with server.

If the user name is already set, the preset setting is displayed.

▼ User Name Dialog



g7833_e

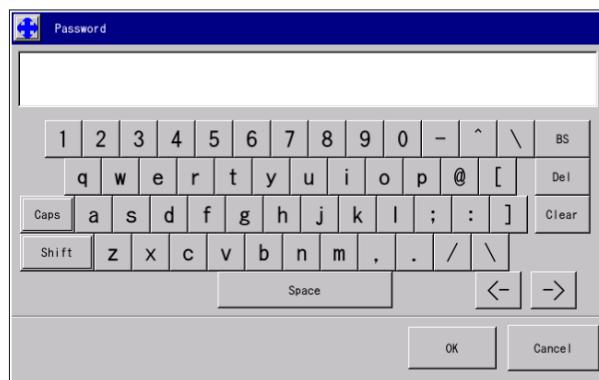
- 7 Enter the user name.
- 8 Press **PASSWORD** to display the *Password* dialog.

**NOTE**

Display and edit the password to be used for connecting with server.

If the password is already set, "*" is displayed.

▼ Password Dialog



g7834_e

- 9 Enter the password.
- 10 Press OK.



Managing and Setting the User/ User Group

This chapter provides the necessary operations for managing and setting the user and user group information with user management function.

The information contained in this chapter has been prepared based on the specifications of the standard equipment. Throughout the manual, figures provided in this manual, including operation screens and appearances, may vary from the equipment installed at your site.

14.1 Managing and Setting the User/User Group

00541.20101201

Introduction

Overview:



General

If a personnel, other than the person in charge of the equipment who has the administrator authority, operates the user management function, it can have a significant influence on the workers or the equipment. Person in charge of the equipment who has the administrator authority and who understands the user operation level should operate the user management function and keep the password of the Administrator authority published by TEL under lock and key.

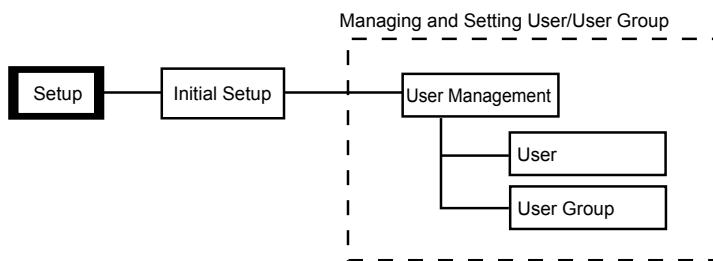
Users can be managed according to the equipment operation, by setting the user/user group information with the user management function. Operation limit can be set according to the user level and can prevent an error in operation which may lead to destruction of data or equipment damage. For example, data can be protected by limiting the operation level that can edit the recipes and parameters.

In the user management function, information of the user/user group can be imported/exported. Thus, the user/group setting can be matched between equipment.

User/user group information is set on the *User Management* screen and *User Group Management* screen.

The software hierarchy for managing/setting the user/user group follows.

▼ Software Hierarchy for Managing and Setting the User/User Group



g005410273_e

Sequence of Managing and Setting the User/User Group

- 1 Log in the equipment.



General

If a personnel, other than the person in charge of the equipment who has the administrator authority, operates the user management function, it can have a significant influence on the workers or the equipment. Person in charge of the equipment who has the administrator authority and who understands the user operation level should operate the user management function and keep the password of the Administrator authority published by TEL under lock and key.

2 Manage and set the user/user group on the following screens:

- *User Management* screen: Sets the user information such as registration of new user, password, comment, and user group that the user belongs to (see page 380).
- *User Group Management* screen: Sets the user group information such as registration of new user group, comment, user that belongs to the group, and operation limits for the user group (see page 386).

3 Log out the equipment.



NOTE

The set user/user group information will become active next time when logging in the equipment.

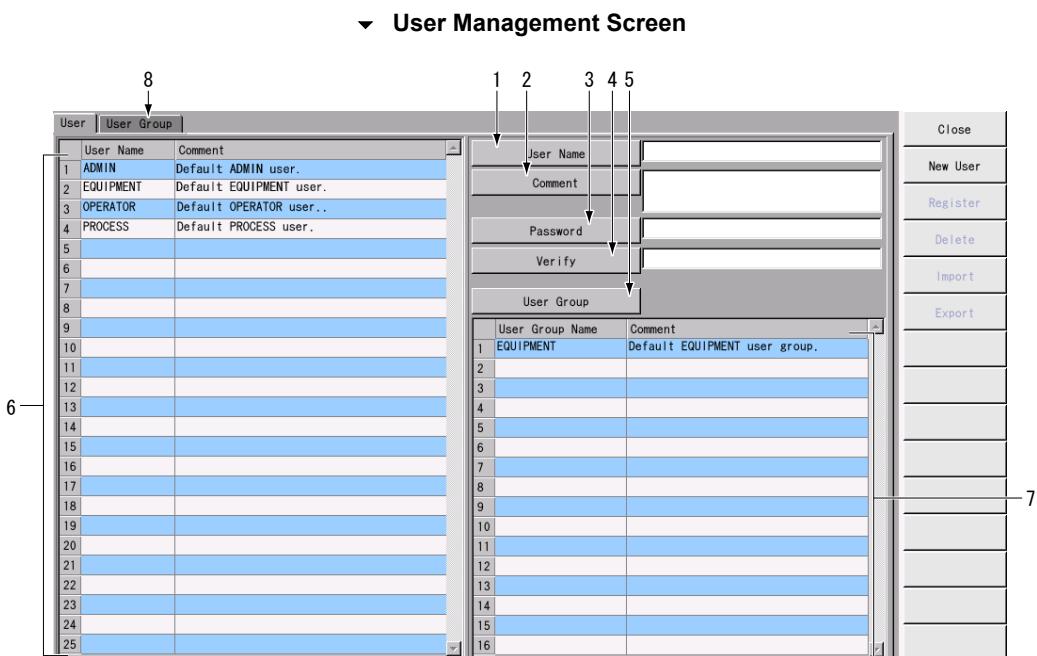
14.2 Operating the User Management Screen 00544.20101201

Sets the user information such as registration of new user, password, comment, and user group that the user belongs to. Maximum of 128 users can be registered.

Home screen can be set and bookmarks can be edited per user. For setting the home screens and editing the bookmarks, refer to *Basic Points of Screen Operation* in the **Basic Operations Manual**.

Display the *User Management* screen from the group menu below.

SETUP→**INITIAL SETUP**→**USER MANAGEMENT**



g005440233_e

No.	Description
1	Sets the user name when registering a new user.
2	Edits the comment (see page 383).
3	Edits the password (see page 384).
4	Inputs a password for confirmation (input the same password edited in PASSWORD).
5	Sets the user group that the user belongs to (see page 384).
6	Displays the registered users.
7	Displays the user group that the user belongs to.
8	Displays the User Group Management screen (see page 386).

NOTE Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *User Management* screen.
- **NEW USER:** **Sets the information of the new user (see page 381).**
- **REGISTER:** Registers the set user information.
- **DELETE:** Deletes the specified user information.
- **IMPORT:** **Reads the user information created in XML format from the removable media (see page 382).**
- **EXPORT:** **Saves the user information to the removable media in XML format (see page 383).**

14.2.1 Registering a New User 00527.20101201

- 1 Press **NEW USER** on the *User Management* screen.
- 2 Press **USER NAME** on the *User Management* screen to display the *User Name* dialog.
- 3 Enter a user name and then press **OK**.

**NOTE**

The user name which is already registered can not be registered.

- 4 Input the following information of the user.
 - **Password (see page 384)**
 - **User group that the user belongs to (see page 384)**
 - **Comments (see page 383)**
- 5 Press **REGISTER** on the right of the *User Management* screen to register a new user.

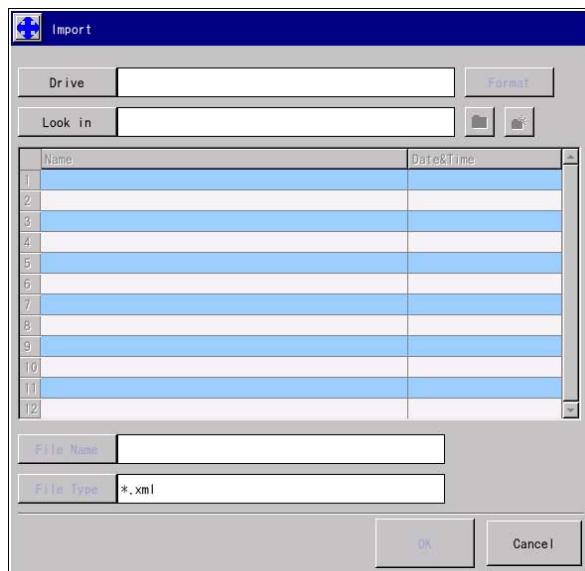
**NOTE**

The new user will become active next time when logging in the equipment.

14.2.2 Importing the User Information 00545.20101201

- 1 Press **IMPORT** on the right of the *User Management* screen to display the *Import (User Information)* dialog.

▼ Import (User Information) Dialog



g034012547_e

- 2 Press **DRIVE** on the *Import (User Information)* dialog to display the *Drive Selection* dialog.
- 3 Select the removable media to be read on the *Drive Selection* dialog.

The files, which can be imported, in the removable media appear on the *Import (User Information)* dialog.

- 4 Select the file to import and then press **OK**.



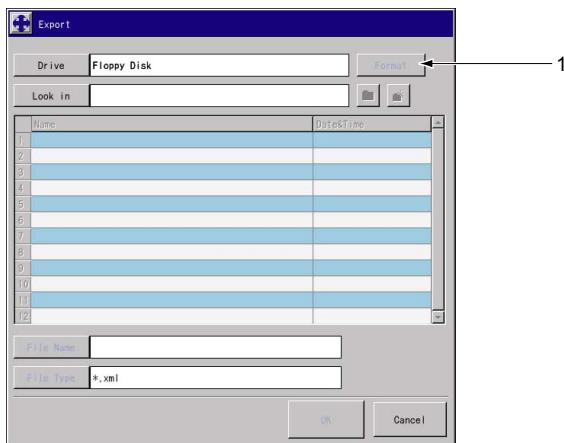
NOTE

The imported user information will become active next time when logging in the equipment.

14.2.3 Exporting the User Information 00528.20080401

- 1 Press EXPORT on the right of the *User Management* screen to display the *Export (User Information)* dialog.

▼ Export (User Information) Dialog



g034002700_e

No.	Description
1	Formats the removable media.

- 2 Press DRIVE on the *Export (User Information)* dialog to display the *Drive Selection* dialog.
- 3 Select the removable media to be stored on the *Drive Selection* dialog.
- 4 Press FILE NAME to display the *Edit File Name* dialog.
- 5 Enter the file name that will be saved on the *Edit File Name* dialog and press OK.
- 6 Press OK on the *Export (User Information)* dialog to start exporting.

14.2.4 Inputting and Editing Comments 00529.20101201

Introduction

Overview:

The comments of a new user can be registered, or the comments of the registered user can be edited.



To edit the comments of the registered user, specify the user of the comments to be edited on the *User Management* screen.

- 1 Press COMMENT on the *User Management* screen to display the *Edit User Comment* dialog.
- 2 Enter the comment on the *Edit User Comment* dialog and press OK.

14.2.5 Registering and Changing Password 01352.20101201

Introduction

Overview:

The password of a new user can be registered, or the password of the registered user can be changed.

The password can also be changed from the *Logout* screen. Refer to *Preparation for Operation* in the **Basic Operations Manual** for details.



NOTE

To edit the comments of the registered user, specify the user of the comments to be edited on the *User Management* screen.

- 1 Press **PASSWORD** on the *User Management* screen to display the *Password (Change)* dialog.
- 2 Input the password on the *Password (Change)* dialog and press **OK**.
- 3 Press **VERIFY** on the *User Management* screen to display the *Password (Verify)* dialog.
- 4 Input the same password, which you inputted in step 3, on the *Password (Verify)* dialog and press **OK** to change the password.



NOTE

Input the same password on the *Password (Change)* dialog and the *Password (Verify)* dialog. If the inputted password differs, the user information can not be registered.



NOTE

The changed password will become active next time when logging in the equipment.

14.2.6 Setting the User Group that the User Belongs To 01353.20101201

Introduction

Overview:

The user group that the new user or the registered user belongs to can be set. 1–128 user groups can be set per user.

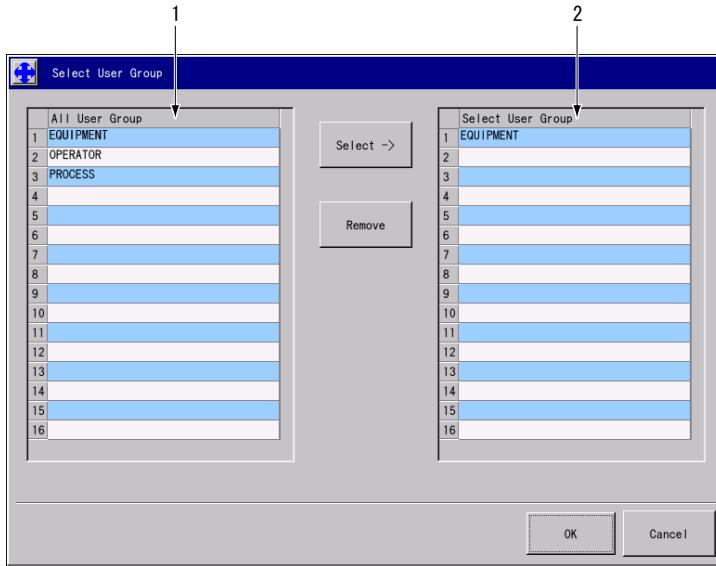


NOTE

To change the user group of the registered user, specify the user of the user group to be changed on the *User Management* screen.

- 1 Press **USER GROUP** on the *User Management* screen to display the *Select User Group* dialog.

▼ **Select User Group Dialog**



g013530234_e

No.	Description
1	Displays all the registered user group.
2	Displays the user group for the user to belong to.

- 2 From the All User Group on the *Select User Group* dialog, specify the user group for the user to belong to, and press **SELECT**.

User group for the user to belong to can be removed by specifying the user group from the *Select User Group* and pressing **REMOVE**.

- 3 Press **OK** on the *Select User Group* dialog to set the user group.



NOTE The set operation limit will become active next time when logging in the equipment.

14.3 Operating the User Group Management Screen

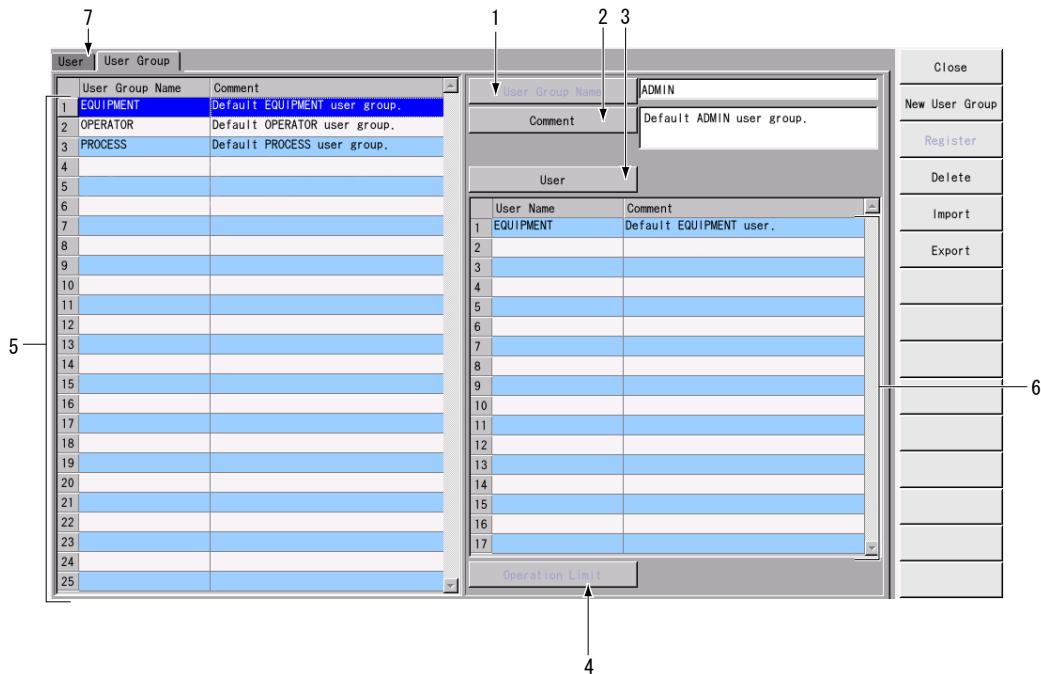
01354.20101201

The user group information such as registration of new user group, comment, user that belongs to the group, and operation limits for the user group can be set. Maximum of 128 user groups can be registered.

Display the *User Group Management* screen from the group menu below.

SETUP→INITIAL SETUP→USER MANAGEMENT→USER GROUP

▼ User Group Management Screen



g013540235_e

No.	Description
1	Sets the user group name when registering a new user group.
2	Edits the comment (see page 389).
3	Sets the user that belongs to the user group (see page 390).
4	Limits the function that the user group can operate (see page 391).
5	Displays the registered user group.
6	Displays the user that belongs to the user group.
7	Displays the User Management screen (see page 380).



NOTE

Equipment screens displayed may vary depending on individual equipment specifications. Therefore, the screen may be different from actual cases. The contents of the screens will also change depending on your system parameter settings and operation level of the operator. Please take this into consideration.

Function Buttons

- **CLOSE:** Closes the *User Group Management* screen.
- **NEW USER GROUP:** Sets the information of the new user group (see page 387).
- **REGISTER:** Registers the set user group information.
- **DELETE:** Deletes the specified user group information.
- **IMPORT:** Reads the user group information created in XML format from the removable media (see page 388).
- **EXPORT:** Saves the user group information to the removable media in XML format (see page 389).

14.3.1 Registering a New User Group 01355.20101201

- 1 Press **NEW USER GROUP** on the *User Group Management* screen.
- 2 Press **USER GROUP NAME** on the *User Group Management* screen to display the *Edit User Group Name* dialog.
- 3 Enter a user group name and then press **OK**.

**NOTE**

The user group name which is already registered can not be registered.

- 4 Input the following information of the user group.
 - **Comments** (see page 389)
 - **User that the belongs to the user group** (see page 390)

Set the operation limit after registration of new user group. For details on setting the operation limit, refer to **14.3.6 Setting the Operation Limit for the User Group** (see page 391).

- 5 Press **REGISTER** on the right of the *User Group Management* screen to register a new user group.

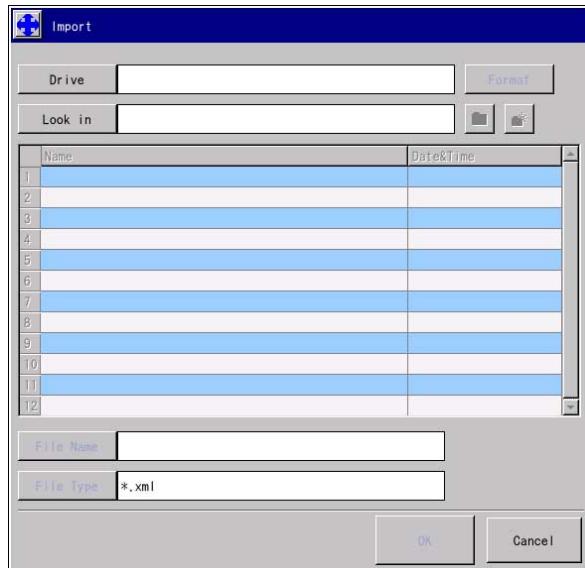
**NOTE**

The set operation limit will become active next time when logging in the equipment.

14.3.2 Importing the User Group Information 01356.20101201

- 1 Press **IMPORT** on the right of the *User Group Management* screen to display the *Import (User Group Information)* dialog.

▼ Import (User Group Information) Dialog



g034012547_e

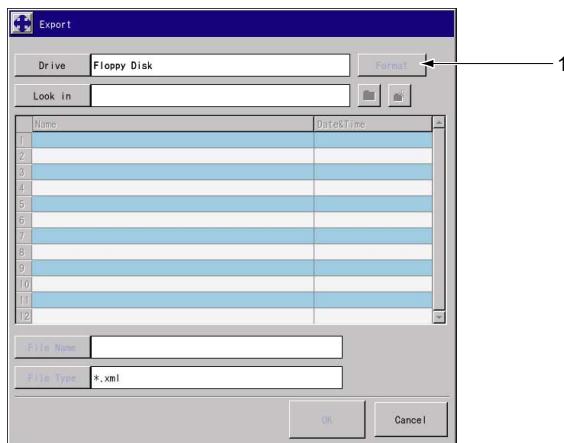
- 2 Press **DRIVE** on the *Import (User Group Information)* dialog to display the *Drive Selection* dialog.
- 3 Select the removable media to be read on the *Drive Selection* dialog.
- The files, which can be imported, in the removable media appear on the *Import (User Group Information)* dialog.
- 4 Select the file to import and then press **OK**.

NOTE **The imported user group information will become active next time when logging in the equipment.**

14.3.3 Exporting the User Group Information 01357.20080401

- 1 Press EXPORT on the right of the *User Group Management* screen to display the *Export (User Group Information)* dialog.

▼ Export (User Group Information) Dialog



g034002700_e

No.	Description
1	Formats the removable media.

- 2 Press DRIVE on the *Export (User Group Information)* dialog to display the *Drive Selection* dialog.
- 3 Select the removable media to be stored on the *Drive Selection* dialog.
- 4 Press FILE NAME to display the *Edit File Name* dialog.
- 5 Enter the file name that will be saved on the *Edit File Name* dialog and press OK.
- 6 Press OK on the *Export (User Group Information)* dialog to start exporting.

14.3.4 Inputting and Editing Comments 01358.20101201

Introduction

Overview:

The comments of a new user group can be registered, or the comments of the registered user group can be edited.



NOTE To edit the comments of the registered user group, specify the user group of the comments to be edited on the User Group Management screen.

- 1 Press COMMENT on the *User Group Management* screen to display the *Edit User Group Comment* dialog.
- 2 Enter the comment on the *Edit User Group Comment* dialog and press OK.

14.3.5 Setting the User that the Belongs to the User Group 01359.20101201

Introduction

Overview:

The user that belongs to the new user group or the registered user group can be set.

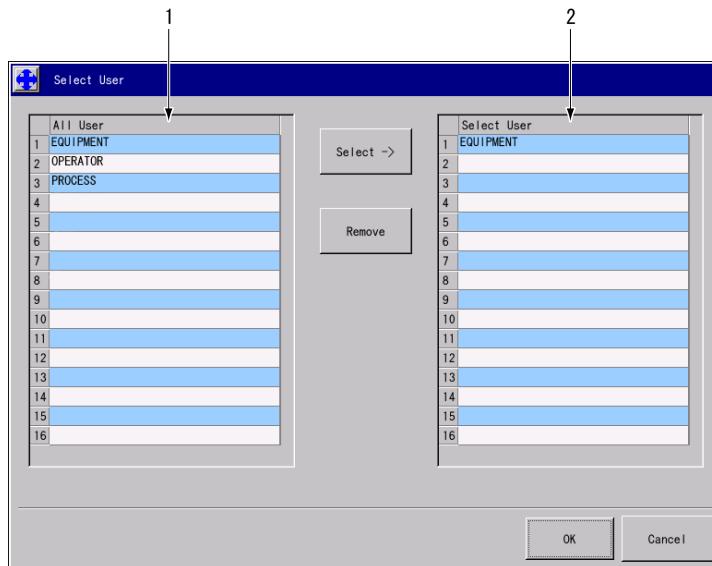


NOTE

To change the user that belongs to the registered user group, specify the user group of the user to be changed on the User Group Management screen.

- 1 Press **USER** on the *User Group Management* screen to display the *Select User* dialog.

▼ Select User Dialog



g013590731_e

No.	Description
1	Displays all the registered users.
2	Displays the user to belong to the user group.

- 2 From the **All User** on the *Select User* dialog, specify the user to belong to the user group, and press **SELECT**.

User to belong to the user group can be removed by specifying the user from the **Select User** and pressing **REMOVE**.

- 3 Press **OK** on the *Select User* dialog to set the user.



NOTE

The set user will become active next time when logging in the equipment.

14.3.6 Setting the Operation Limit for the User Group 01360.20101201

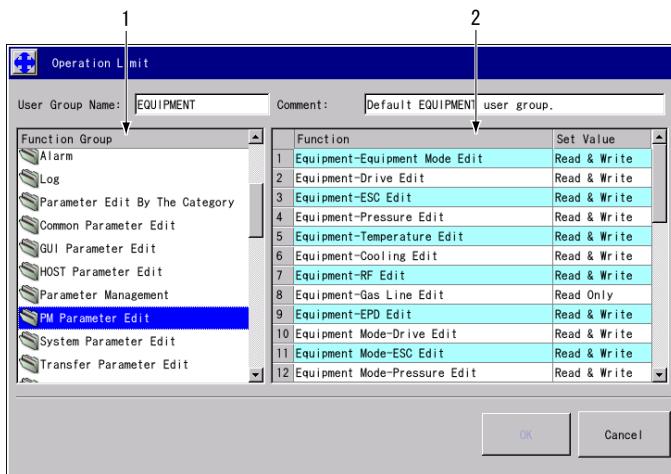
Introduction

Overview:

The function that the registered user group can operate, can be limited.

- 1 Specify the user group to apply the operation limit on the *User Group Management* screen.
- 2 Press **OPERATION LIMIT** on the *User Group Management* screen to display the *Operation Limit* dialog.

▼ Operation Limit Dialog



g013600236_e

No.	Description
1	Displays the function group.
2	Displays the functions that are included in the function group.

- 3 Select the applicable group from the *Function Group* on the *Operation Limit* dialog.
- 4 On the *Operation Limit* dialog, double-click the applicable function to display the setting value entry dialog.
- 5 Change the set value.
- 6 Press **OK** on the *Operation Limit* dialog to limit the function that the user group can operate.



NOTE

The set operation limit will become active next time when logging in the equipment.

Revision History

Revision No.	Description of Document Changes	Date
3.2.7	Updated content.	2019-06-03
3.2.6	Updated content. Separated into volumes.	2018-12-25
3.2.5	Updated content. Newly added. 13.19 Operating the Flow Splitter Leak Check Screen. Deleted. 11.10 Operating the Setup Temperature Board(SMZ) Screen.	2018-06-01
3.2.4	Updated content. Newly added. 11.10 Operating the Setup Temperature Board(SMZ) Screen. 16.7 Operating the SMZ Diagnosis Logs Screen.	2017-10-01
3.2.3	Updated content.	2017-04-01
3.2.2	Updated content. Newly added. 3.9 Sequence of Comparing the Process Recipe: 3.15.13 Displaying Differences of the Recipes: Chapter 6 Settings to Prevent Mixing of the Gases: 13.21.4 Executing the Leak Rate Check (ALL): 16.3.4 Comparing the Trace Log Graphs.	2016-10-01
3.2.1	Updated content. Newly added. 3.16 Operating the CP Conversion Parameter Screen: 10.2.33 Controlling Zweite Unit.	2016-04-01
3.1.4	Updated content. Newly added. 10.3.8 Checking PQ Measurement Result.	2015-09-01
3.1.3	Updated content.	2015-03-01
3.1.2	Updated content. Newly added. 3.2.3 Selecting the Gas Line Display: 8.2.7 Adjusting the 0 Point of the MFC for the N2 Purge.	2014-09-01
3.1.1	Updated content. Newly added. 8.4.3 Switching the Process Module Exhaust Line.	2014-03-01
3.0.6	Updated content. Newly added. 4.14.24 Checking the Lower Recipe: 12.19.3 Setting External Volume Value: Chapter 17 Transmitting Data.	2013-08-01
3.0.5	Updated content. Newly added. 2.4 Restarting System Software: 2.5 Setting the Boot Option: 8.3.7 Executing the H2O Circulation Sequence.	2012-12-01
3.0.4	Updated content. Newly added. 8.3.6 Setting the Process Gas Introduction Zone Pattern: 12.6 Operating the CM Deposit Check Screen	2012-06-01
3.0.3	Updated content. Newly added. 4.15 Operating the Chamber Adjustment Data Screen:	2012-01-01
3.0.2	Updated content.	2011-06-01
3.0.1	Updated content.	2011-01-01
2.0.7	Updated content.	2010-07-01
2.0.6.A	Updated content. Newly added. 8.2.32 Controlling the Bevel Cover Ring: 8.7.4 Controlling the Bevel Cover Ring:	2010-02-01

Revision History

Revision No.	Description of Document Changes	Date
2.0.5.A	Updated content. Newly added. 4.14.9 Setting Process Group: 8:2:3:1 Controlling Microwave Filament: 9.2.8 Moving the Transfer Arm Pick to the Washing Position: 9.3 Operating the TM Leak Check Screen: 9.3.1 Checking the Leak Rate of the Transfer Module: 9.4 Operating the LLMx Leak Check Screen 9.4.1 Leak Rate of the Load Lock Module: 17.6.6 Setting Communication Method (SECS-I): 17.6.7 Setting Communication Establishment Operation (SECS-I): 17.6.8 Setting Spooling Function (SECS-I): 17.7.6 Setting Communication Method (HSMS): 17.7.7 Setting Communication Establishment Operation (HSMS): 17.7.8 Setting Spooling Function (HSMS):	2009-06-01
2.0.4.A	Updated content.	2009-01-01
2.0.3	Updated content. Newly added. 12.11 Operating the NPPC Adjust PCV Screen: 12.11.1 Executing the NPPC PCV Adjustment: 12.11.2 Renewing the Standard Value of NPPC PCV Adjustment: 12.18 Operating the External Volume Measure Screen: 12.18.1 Executing the External Volume Measurement: 12.18.2 Renewing the Initial Value of External Volume Measurement: 16.5.1 Searching Logging Data: 16.5.2 Graph Display of Logging Data: 16.7.1 Searching Logging Data: 16.7.2 Graph Display of Logging Data: 18 Managing and Setting the User/User Group: 18.1 Managing and Setting the User/User Group: 18.2 Operating the User Management Screen: 18.2.1 Registering a New User: 18.2.2 Importing the User Information: 18.2.3 Exporting the User Information: 18.2.4 Inputting and Editing Comments: 18.2.5 Registering and Changing Password: 18.2.6 Setting the User Group that the User Belongs To: 18.3 Operating the User Group Management Screen: 18.3.1 Registering a New User Group: 18.3.2 Importing the User Group Information: 18.3.3 Exporting the User Group Information: 18.3.4 Inputting and Editing Comments: 18.3.5 Setting the User that the Belongs to the User Group: 18.3.6 Setting the Operation Limit for the User Group:	2008-06-01
2.0.2	Updated content. Newly added. 4.9 Sequence of Setting the Password to Process Recipe: 4.11.2 Sequence of Setting the Password to LLM Recipe: 4.12.3 Sequence of Setting the Password to System Recipe: 4.13.2 Sequence of Setting the Password to Particle Check Recipe: 8.7 Operating the Drive System Screen:	2008-01-01
2.0.1	Updated content.	2007-06-01
1.0.2	Updated content.	2006-10-01
1.0.1	Updated content.	2006-04-01
0.1.2	Updated content (Preliminary)	2005-10-01
0.1.1	Initial release (Preliminary)	2005-07-01

Document Change Request Form

Tokyo Electron has made every effort to ensure that this manual is accurate. However, because the designs of the machines are continually being revised and improved, you may occasionally find that some information is missing from a manual. If you find that needed information is missing from this manual, or if there is information that your company would like to see added, please send or fax to us this Document Change Request Form with your proposed changes to the address below, or refer to the list of Sales and Service Offices and send to your regional TEL FE Service Center.

Tokyo Electron America, Inc.
Technical Publications Department M/S 420
2400 Grove Boulevard
Austin, TX 78741 U.S.A.

Fax: +1 512-424-1042
Email: techpubs@us.tel.com

1) Section:	Page:	Description:			
		----- ----- -----			
2) Section:	Page:	Description:			
		----- ----- -----			
3) Other Improvements/Changes	Description:				
	----- ----- -----				
Manual Name		Company			
Manual No.		Dept.		Name	
Equipment No.		Company Address			
Date	/ /				



TOKYO ELECTRON LIMITED
Akasaka Biz Tower, 3-1 Akasaka 5-chome
Minato-ku, Tokyo 107-6325, Japan
Tel.+81-3-5561-7000 <http://www.tel.com>