# HITACHI
## Inspire the Next

# VARIABLE FREQUENCY DRIVE
# SJ700 & SJ700B series

## Powerful Inverter with Sensorless Vector Control



*For More Precise Control*

*For General Purpose Use*

## Hitachi Industrial Equipment Systems Co., Ltd.

# *New Line up* *SJ700D series*

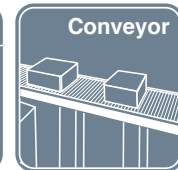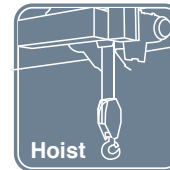**(Models: 3-ph,200V class 0.4 to 55kW,3-ph,400V class 0.75 to 132kW)**

## 1 Dual rating

・SJ700D can be used for both heavy and normal duty.
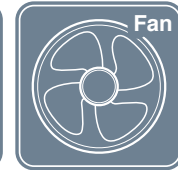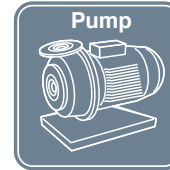・One-frame-size smaller SJ700D may be applicable for variable torque applications.

**SJ700**
**SJ700D-150LFF3**
**(15kW)**

**Heavy duty:** Conveyor, Lift Hoist, etc

**15kW**
**(overload capacity:150%,60sec)**

Hoist

Conveyor

**Nomal duty:** Fan, Pump, etc.

**18.5kW**
**(Overload capacity:120%,60sec)**

Pump

Fan

## 2 EzSQ improvement (1task/2ms⇒5 tasks/2ms)

・By separating codes to be repeated as loops in different tasks, overall execution can be faster.

## 3 RS485 (Modbus-RTU) communication speed is improved
### (Max19.2kbps⇒115.2kbps speed is improved)

・Approx. 6 times faster communication in comparison with the prior model is now supported.
 Additionally, more communication commands are available.

## 4 LCD operator
### (Optional:WOP) upgrade

・5-line LCD operator
・Real time clock built in
・4 sets of user parameter
 configurations
 can be saved and transferred.
・Two color backlight that
 distinguish trip status
・User selectable content for display.

## 5 Versatile functions

・Phase loss input protection : covers not only the input but
 output as well.
・Automatic return to the initial display (b164):
 Without operating for 10 minutes, the display returns to
 the initial display automatically.

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# The Hitachi SJ700D-3 series succeed the SJ700-2 series with the additional and enhanced features

## 6 Induction motor & permanent magnetic motor control with one inverter (PM motor control : ordering production)

• The SJ700D series inverter can drive both induction motors (IM)and permanent magnetic motors (PM).

IM+Inverter

PM +Dedicated Controller

IM

PM

## Details of enhancement (Comparison between SJ700-2 and SJ700D-3)

| No. | | item | Enhanced function, added parameters, etc. | | Remarks |
|---|---|---|---|---|---|
| 1 | | Model | SJ700D-004 to 550LFF3/LFEF3/LFUF3   SJ700D-007 to 1320HFF3/HFEF3/1500HFUF3 | | |
| 2 | Added function | Constant torque/ Variable torque (CT/VT) selection | Constant torque / Variable torque mode selectable (b049) | Newly added parameter b049 to switch between Constant torque mode and Variable torque mode. | In case of driving light load application, you can choose one power size smaller inverter or one frame size smaller inverter. |
| 3 | | PM motor control [ordering production] | Control mode (A044) | PM motor control (06) is added to the selection in A044 | PM motor control is only available in Variable torque mode. (note) The model supporting PM motor control is ordering production. |
| 4 | | | PM motor control parameters (H101~H134) | Parameters related to PM motor control are newly added (same as WJ200 series) | |
| 5 | | Automatic return to the initial display | Automatic return to the initial display (b164) | Without operating for 10 minutes, the display returns to the initial display automatically. | |
| 6 | | Data read and write | Data Read/Write selection (b166) | Selection of enabling or disabling data Read / Write from the copy unit WOP for parameter setting protection and security | |
| 7 | | Inverter mode | Inverter mode monitor (d060) | Displays currently selected inverter mode, IM motor (induction motor) or PM motor mode.(IM mode or PM mode.) | |
| 8 | | Phase loss protection | Phase loss output protection (b141,b142) | The inverter detects motor output phase loss | |
| 9 | Improvement function | EzSQ | Improvement | Parallel processing of 5 tasks | |
| 10 | | | | EzSQ starting trigger terminal: changed from FW terminal to PRG terminal which can be assigned any of input terminals. | |
| 11 | | | Additional function | Always running mode is added to selection of starting method for EzSQ. | |
| 12 | | | | Command to store changed data into EEPROM (eepwrt command) | |
| 13 | | | | Command to obtain clock data from WOP (rtcset command) | |
| 14 | | | | Part of EzSQ program variables (P129 (U29) to P131 (U31)) are automatically stored at power down (only when A017 is other than 00) | |
| 15 | | WOP operator [Option] | Full compatibility with the copy unit WOP(5 line display) | | |
| 16 | | | Real time clock function is available. | | |
| 17 | | RS485 | Communication speed is improved. | 2400/4800/9600/19.2k/ 38.4k/57.6k/76.8k/115.2k bps | |
| 18 | | | Modbus RTU | Maximum data length is expanded. 03h (Read holding register) 10h (Write in holding resisters) | 4 registers (8 byte) to 16 registers (32 byte) |
| 19 | | | | Command to write into/read from multiple holding registers is added (17h: Write/Read multiple holding registers) | Read and Write 16 registers (32 byte) |
| 20 | | | | Broadcast communication function is added. | |
| 21 | | | | EEPROM storing mode is added. | |
| 22 | | Initializing | Initializing method | Parameter setting (b180=01) triggers initialization | Initialization method of SJ700-2 is also valid. |
| 23 | | | Initializing of EzSQ | Parameter b084 range is expanded. | |
| 24 | | | Initial value | b037=00 (Full access) | |
| 25 | | Selection of initial display | Selection of initial display is expanded (all monitoring parameters, frequency command F001 (WOP monitor B) | | |
| 26 | Others | Warnings | Warnings are organized. | | 47 warnings to 31 warnings |
| 27 | | Run command in case of warnings | At occurrence of warning, the inverter does not accept Run command. | | |

# SJ700
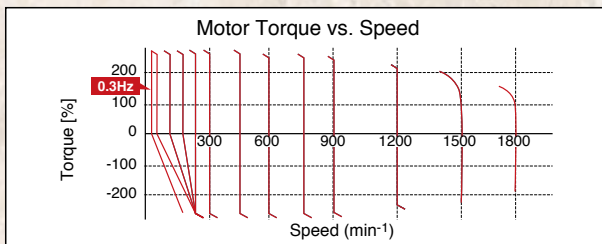## For More Precise Control

# SJ700B
## For General Purpose Use

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## High starting torque, Powerful drive and easy setting

### High starting torque

Improved sensorless vector control and auto tuning produce high starting torque of 200% or more at 0.3Hz.[1]
Easy setup of motor constants
Ideal for applications which need high torque, such as cranes, extruders and lifts.

**Motor Torque vs. Speed**

Torque [%]: 200, 0.3Hz, 100, 0, -100, -200
Speed (min$^{-1}$): 300 600 900 1200 1500 1800

[1] Starting torque

| Series | Applicable motor | Starting torque |
|---|---|---|
| SJ700D(CT) | 0.4 to 55kW | 0.3Hz/200% |
| | 75 to 132kW | 0.3Hz/180% |
| SJ700 | 185 to 400kW | 0.3Hz/150% |
| SJ700B | 11 to 75kW | 0.5Hz/150% |
| | 90 to 160kW | 0.5Hz/120% |

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## Possible with SJ700 series

### Hitachi exclusive 0Hz domain sensorless vector control *)

Develops 150% (SJ700B:120%)[2] torque at 0Hz speed reference
Ideal for cranes and other applications that require high torque upon starting.
[2] when inverter is one frame size larger than motor.
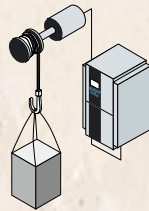
### Position control function*)

The SJ700D/SJ700/SJ700B, with optional feedback board installed, together with an encoder-equipped motor can perform position control.
For many applications, suitable performance can be achieved at a lower cost than servo systems.
Based on your four motion parameters (position command, speed command, acceleration time and deceleration time), the SJ700D/SJ700/SJ700B will move an object from original position A to target position B.
After the movement, the inverter keeps hold motor position.

Starting point A
Target point B

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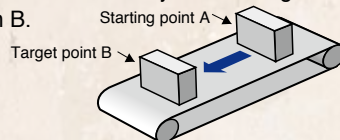
## Trip avoidance function

### Over current & voltage suppress function

Higher internal calculation speed improves current control performance.
Over-current suppress and Over-voltage suppress functions avoid inverter trips during acceleration and deceleration.

Frequency
Over-current trip
Motor current

Over-current suppress OFF

Impact load
Suppresses over current and continues running

Over-current suppress ON
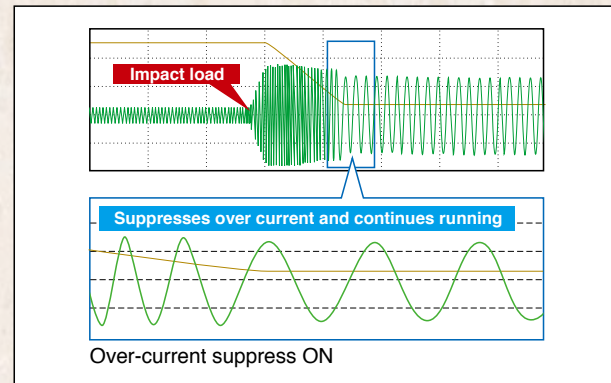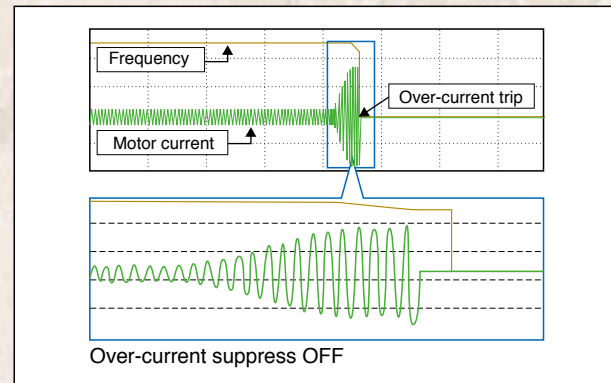
### DC bus AVR function during deceleration

The SJ700D/SJ700/SJ700B controls deceleration time so that the DC bus voltage does not exceed the over-voltage trip level, providing trip-less operation during deceleration.

Motor current
Voltage of the main circuit DC
Output frequency

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3
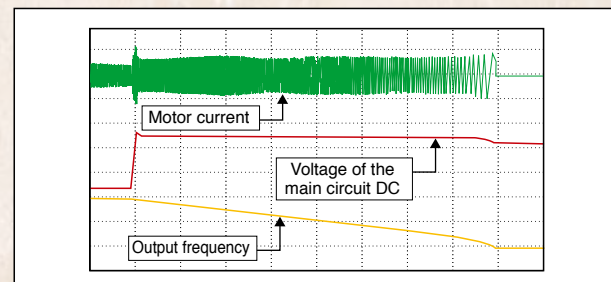
# High performance, powerful functions, yet user friendly.

## Programming [EzSQ: easy sequence] function

### Inverter control by built-in programming functions

Custom operation is realized by downloading to an inverter a user program created with ProDriveNext, Hitachi inverter configuration software.

Tailor inverter operation to meet changing process requirements, and replace separate PLCs in some cases.

By simplifying or eliminating external hardware, signficant cost savings can be achieved.

Password function is incorporated to provide security for proprietary program data against loss or unauthorized modification.

#### Typical example - Replacing external relay circuit



Standard Inverter

SJ700 Using EzSQ

EzSQ Programming

Programming Window

Download

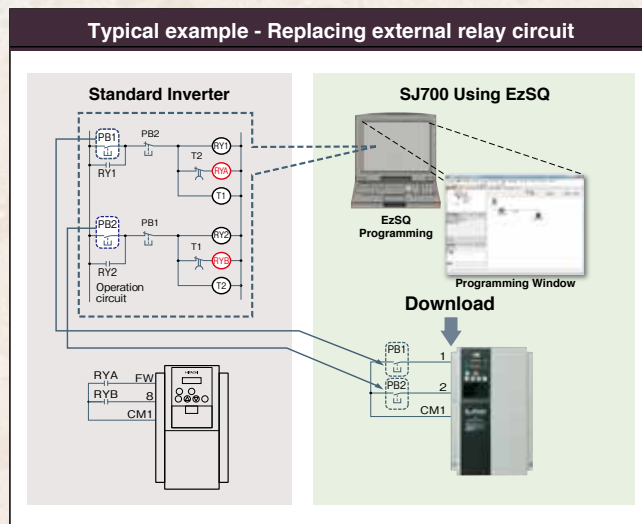| | Item | Description | |
|---|---|---|---|
| Language Spec | Language type | BASIC Like | |
| | Supported Device | Windows (DOS/V)OS:WindowsVista, Windows7) | |
| | Memory area | 1,024 steps or 6k byte (Smaller of these)Program is stored in internal of inverter. | |
| | Programming environment | Editor (Windows), Display (Windows) | |
| | | Syntax check (Windows) | |
| | | Program download/upload, All clear | |
| | Executable format | Interpreter 2.0ms/command (Sub routine supported. 8 nested) | |
| I/O function | External input | External digital contact input | Contact signal/Open collector signal input (Internal DC24V power supply available) |
| | | | Program RUN command: SJ700D:PRG terminal SJ700/SJ700B:FW terminal |
| | | | General-purpose input: Maximum of 8 point (X(00)-X (07)) |
| | | External analog input | XA (0) : 0-10V (O terminal) |
| | | | XA (1) : 4-20mA (OI terminal) |
| | | | XA (2) : 0-10V  (O2 terminal) |
| | External output | General-purpose output terminal | Maximum of 6 point (Y (00)-Y (05)) |
| | | External analog output | YA (0) : Setup for FM terminal is possible. |
| | | | YA (1) : Setup for AM terminal is possible. |
| | | | YA (2) : Setup for AMI terminal is possible. |
| Reserved word | Command | Programmable flow control <Loop, Unconditional jump, conditional jump, Time control, Sub routine, Others> | |
| | | Operation command <+,-,,*, /, substitution, mod, abs> | |
| | | I/O control (Bit input, Word input, Bit output, Word output) | |
| | | Timer control <on delay, off delay> | |
| | | Inverter parameter setting | |
| | Variable | User | U (00)-U (31)/32 point |
| | | Timer | UL (00)-UL (07)/8 point |
| | | Set frequency | SET-Freq |
| | | Acceleration time | ACCEL |
| | | Deceleration time | DECEL |
| | | Monitor | Output frequency, Output current, Rotation direction, PID feedback, Converted frequency, Output torque, Output voltage, Power, Cumulative RUN time, Cumulative power-on time, trip |
| | | General-purpose input contact | X (00)-X (07)/8 point |
| | | General-purpose output contact | Y (00)-Y (05)/6 point (1 point is relay output) |
| | | Internal user | UB (00)-UB (07)/8 point |
| | | Internal timer contact | TD (0)-TD (7)/8 point |
| | | Inverter input and output | In a remote operator display code. |

★ Windows® is a registered trademark of Microsoft Corporation.U.S.A and other countries.

## EMC Filter & brake circuit integrated as standard

### Built-in EMC filter up to 150kW★

Cost and space reduction compared with external EMC filter.
Reduces electromagnetic noise.Meets EN61800-3 2nd-Environment

★ SJ700: European Version and Japanese Version does not have 150 kW
   SJ700B: All models（5.5kW is without EMC Filter）

### Built-in brake resistor circuit up to 22kW★

Cost and space reduction compared with external braking controller.

★ SJ700B: Up to 30kW



Example (SJ700D-110HFEF3)

EN61800-3 2nd Environment [C3]QP Limit Level

Level [db]

Frequency  [Hz]

QP: Quasi Peak

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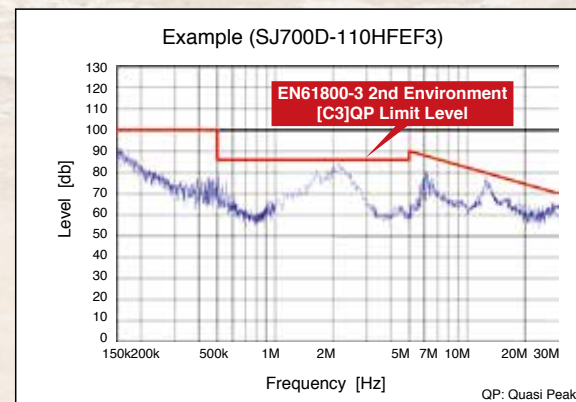
# Ease of maintenance

## Easy-removable construction for maintenance

Field replacement of cooling fan (s) and DC bus capacitors can be accomplished in a fraction of the time.
Using Logic terminal move to SJ700D/SJ700 without wiring change.
Read SJ300 Parameter by WOP remote operator and write them in to SJ700D/SJ700

Easy-removable
Cooling Fan

Easy-removable
DC bus Capacitors
(SJ700D/SJ700: above 15kW
 SJ700B: above 18.5kW)

SJ300series                SJ700series

Parameter
read write

Removable Control circuit terminals
(Move to SJ700D/SJ700 without rewiring)

*1    Control circuit terminals comparison table

| Series | Input terminals | Output terminals |
|---|---|---|
| SJ700D/SJ700 | 9 terminals (Intelligent 8terminals,FW) | 5 terminals (Open collector outputs) |
| SJ700B | | |
| SJ300 | | |
| L300P | 6 terminals (Intelligent 5terminals,FW) | 2 terminals (Relay outputs) |

## Long lifetime components & Lifetime warning function

### Long lifetime components
Design lifetime 10 Years or more for DC bus capacitors & Cooling Fan.Cooling Fan ON/OFF control function for longer fan life.
*Condition for lifetime calculation -
 Ambient temperature: 40 deg C (SJ700B: 30 deg C)
 Ambient condition: No corrosive gas, oil mist nor dust
 10 years is a design lifetime base on calculation, and not guaranteed

### Lifetime warning function
Lifetime warning function helps to perform preventive maintenance before a failure occurrence.
DC bus capacitor, cooling fan, heat sink temperature and motor temperature can be monitored in order to replace components prior to failure.

# Easy operation

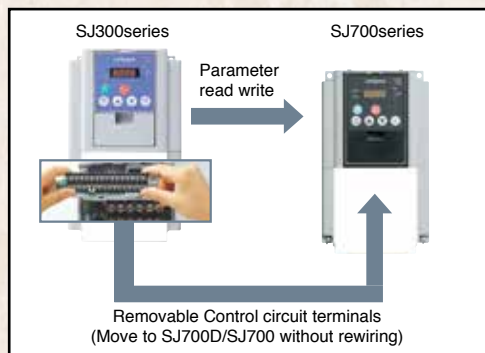## User selection of displayed parameters

**Data comparison display mode**

Displays only parameters changed from factory default

**User-define parameter display mode**

Displays only user defined parameters
 (up to 12 parameters, U001 to U012)

**Basic parameter display mode**

Displays only pre-defined basic parameters which are used commonly

Basic
mode

Chose Basic
Parameter

Indication only
Basic Parameter
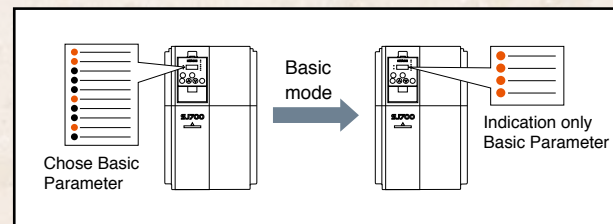
**Other functions**

Direct digit edit mode for quicker selection of parameter.
Returning to output frequency monitor display (d001) by holding the FUNC key for 3 seconds regardless of the current content.

# Network compatibility

The Modbus-RTU communication is embedded as standard along with a dedicated terminal.
Other fieldbus communications such DeviceNet and PROFIBUS-DP are supported with optional fieldbus modules.
-DeviceNet is a trade mark of Open DeviceNet Vender Association, Inc.
-PROFIBUS-DP is a registered trade mark of PROFIBUS Nutzer
 Organization

Simple & Low cost wiring, ease of installation
and replacement using feildbus commuincation

5

# Global standards

## Conformity to global standards

CE, UL, c-UL, C-Tick approvals.

$$CE \quad c\underset{\text{LISTED}}{\text{UL}}\text{US} \quad \checkmark$$

## Logic input & output terminal apply sink & source logic

## Wide Input power voltage range

Input voltage 240V for 200V class and 480V for 400V class as standard.

# Environmental friendliness

## Micro surge voltage suppress function

Hitachi original PWM control method limits motor terminal voltage to less than two times of inverter DC bus voltage. Lower than Hitachi motor Max. insulation voltage (1,250V)

(During regeneration, the motor terminal voltage may exceed the motor maximum insulation voltage (1,250V))

Motor terminal voltage



**1,250V**

E=650V, cable=100m
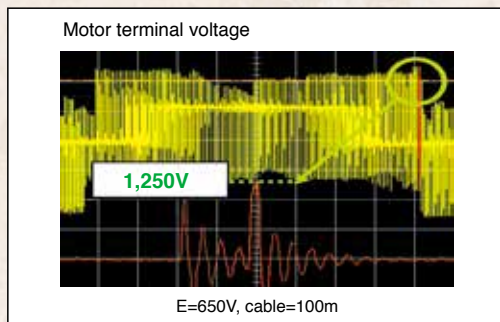
## EU RoHS compliant

EU RoHS compliant (except solder in power module)

## Improvement of environmental tolerance

Varnish coating of internal PC board & plating of main circuit copper bus bar are standard.

# Versatile functions

## Instantaneous power failure disregard function

The SJ700D/SJ700/SJ700B overrides instantaneous power failure when power fluctuation happens frequently, as long as DC bus voltage remains higher than under-voltage trip level.

## Emergency stop

Shuts down the inverter by hardware, bypassing the CPU, to achieve a reliable, emergency stop function.

## Intelligent input terminal and output terminal ON/OFF delay function

Helps simplify external circuits.

## Active frequency matching function

Motor frequency match restart function operates effectively even without motor residual voltage.

## Controlled deceleration and stop on power loss

## Analog input disconnection detection function

The SJ700D/SJ700/SJ700B outputs a disconnection signal when frequency command through analog input is lost.

## Acceleration/Deceleration curve functions

The curve shape (five types, such as S-curve, etc.) can be chosen according to the application requirements.

## Analog command holding function (AHD)

Output frequency can be changed with UP/DOWN Function, or with an analog signal as reference value. The set frequency at power shutdown can be saved, too.

## Pulse train input function

Pulse train input for Frequency reference or PID feed back signal, with SJ-FB (speed feed back card option).

## Integrated input electric power monitor

Input electric power (kW) and Integrated input electric power for monitoring energy saving.

## Automatic carrier frequency adjustment function

The SJ700D/SJ700/SJ700B detects motor current and automatically reduces carrier frequency according to the current.

## The resolution of analog outputs (voltage, current) is improved to 10 bits.

JQA-EM6974     JQA-1153

**6**

## ● 3-phase 200V class

| Model SJ700D- | | US Version | 004LFUF3 | 007LFUF3 | 015LFUF3 | 022LFUF3 | 037LFUF3 | 055LFUF3 | 075LFUF3 | 110LFUF3 | 150LFUF3 | 185LFUF3 | 220LFUF3 | 300LFUF3 | 370LFUF3 | 450LFUF3 | 550LFUF3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | JP Version | 004LFF3 | 007LFF3 | 015LFF3 | 022LFF3 | 037LFF3 | 055LFF3 | 075LFF3 | 110LFF3 | 150LFF3 | 185LFF3 | 220LFF3 | 300LFF3 | 370LFF3 | 450LFF3 | 550LFF3 |
| Enclosure (*1) | | | IP20 | | | | | | | | | | | | | | |
| Applicable motor (4-pole, kW(HP)) (*2) | | CT | 0.4(1/2) | 0.75(1) | 1.5(2) | 2.2(3) | 3.7(5) | 5.5(7.5) | 7.5(10) | 11(15) | 15(20) | 18.5(25) | 22(30) | 30(40) | 37(50) | 45(60) | 55(75) |
| | | VT | 0.75(1) | 1.1(1.5) | 2.2(3) | 3.0(4) | 5.5(7.5) | 7.5(10) | 11(15) | 15(20) | 18.5(25) | 22(30) | 30(40) | 37(50) | 45(60) | 55(75) | 75(100) |
| Output Ratings | Rated capacity (kVA) | 200V CT | 1.0 | 1.7 | 2.5 | 3.6 | 5.7 | 8.3 | 11.0 | 15.9 | 22.1 | 26.3 | 32.9 | 41.9 | 50.2 | 63.0 | 76.2 |
| | | 200V VT | 1.2 | 2.1 | 3.2 | 4.1 | 6.7 | 10.3 | 15.2 | 20.0 | 25.2 | 29.4 | 39.1 | 48.4 | 58.5 | 72.7 | 93.5 |
| | | 240V CT | 1.2 | 2.0 | 3.1 | 4.3 | 6.8 | 9.9 | 13.3 | 19.1 | 26.6 | 31.5 | 39.4 | 50.2 | 60.2 | 75.6 | 91.4 |
| | | 240V VT | 1.5 | 2.6 | 3.9 | 4.9 | 8.1 | 12.4 | 18.2 | 24.1 | 30.3 | 35.3 | 46.9 | 58.1 | 70.2 | 87.2 | 112.2 |
| | Rated output current (A) | CT | 3.0 | 5.0 | 7.5 | 10.5 | 16.5 | 24 | 32 | 46 | 64 | 76 | 95 | 121 | 145 | 182 | 220 |
| | | VT | 3.7 | 6.3 | 9.4 | 12 | 19.6 | 30 | 44 | 58 | 73 | 85 | 113 | 140 | 169 | 210 | 270 |
| | Overload capacity(output current) | | CT:150%,60sec., 200%,3sec. VT:120%,60sec., 150%,5sec. | | | | | | | | | | | | | | |
| | Rated output voltage (*3) | | 3-phase (3-wire) 200 to 240V (corresponding to input voltage) | | | | | | | | | | | | | | |
| Input Rating | Rated input voltage (V) | | 3-phase 200 to 240V+10%, -15%, 50/60Hz±5% | | | | | | | | | | | | | | |
| | Rated input current (A) | CT | 3.3 | 5.5 | 8.3 | 12 | 18 | 26 | 35 | 51 | 70 | 84 | 105 | 133 | 160 | 200 | 242 |
| | | VT | 3.9 | 7.2 | 10.8 | 13.9 | 23 | 37 | 48 | 64 | 80 | 94 | 120 | 150 | 186 | 240 | 280 |
| Braking | Dynamic braking (Short-time) (*4) | | Built-in BRD circuit (optional resistor) | | | | | | | | | | External dynamic braking unit (option) | | | | |
| | Minimum value of resistor (Ω) | | 50 | 50 | 35 | 35 | 35 | 16 | 10 | 10 | 7.5 | 7.5 | 5 | – | | | |
| Vibration (*5) | | | 5.9m/s²(0.6G), 10-55Hz | | | | | | | | | | 2.9m/s²(0.3G), 10-55Hz | | | | |
| EMC filter | | | Built-in (EN61800-3 category C3) | | | | | | | | | | | | | | |
| Zero-phase Reactor | | | Built-in | | | | | | | | | | | | | | |
| Weight [kg] (lbs.) | | | 3.5(7.7) | 3.5(7.7) | 3.5(7.7) | 3.5(7.7) | 3.5(7.7) | 6(13.2) | 6(13.2) | 6(13.2) | 14(30.8) | 14(30.8) | 14(30.8) | 22(48.4) | 30(66) | 30(66) | 43(94.6) |

## ● 3-phase 400V class

| Model SJ700D- | | European Version | 007HFEF3 | 015HFEF3 | 022HFEF3 | 040HFEF3 | 055HFEF3 | 075HFEF3 | 110HFEF3 | 150HFEF3 | 185HFEF3 | 220HFEF3 | 300HFEF3 | 370HFEF3 | 450HFEF3 | 550HFEF3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | US Version | 007HFUF3 | 015HFUF3 | 022HFUF3 | 040HFUF3 | 055HFUF3 | 075HFUF3 | 110HFUF3 | 150HFUF3 | 185HFUF3 | 220HFUF3 | 300HFUF3 | 370HFUF3 | 450HFUF3 | 550HFUF3 |
| | | JP Version | 007HFF3 | 015HFF3 | 022HFF3 | 037HFF3 | 055HFF3 | 075HFF3 | 110HFF3 | 150HFF3 | 185HFF3 | 220HFF3 | 300HFF3 | 370HFF3 | 450HFF3 | 550HFF3 |
| Enclosure (*1) | | | IP20 | | | | | | | | | | | | | |
| Applicable motor (4-pole, kW(HP)) (*2) | | CT | 0.75(1) | 1.5(2) | 2.2(3) | 4.0(5) | 5.5(7.5) | 7.5(10) | 11(15) | 15(20) | 18.5(25) | 22(30) | 30(40) | 37(50) | 45(60) | 55(75) |
| | | VT | 1.5(2) | 2.2(3) | 3.7(5) | 5.5(7.5) | 7.5(10) | 11(15) | 15(20) | 18.5(25) | 22(30) | 30(30) | 37(50) | 45(60) | 55(75) | 75(100) |
| Output Ratings | Rated capacity (kVA) | 400V CT | 1.7 | 2.6 | 3.6 | 6.2 | 9.7 | 13.1 | 17.3 | 22.1 | 26.3 | 33.2 | 40.1 | 51.9 | 62.3 | 76.2 |
| | | 400V VT | 2.1 | 3.3 | 4.6 | 7.6 | 11.0 | 15.2 | 20.0 | 25.6 | 29.7 | 39.4 | 48.4 | 58.8 | 72.7 | 93.5 |
| | | 480V CT | 2.0 | 3.1 | 4.3 | 7.4 | 11.6 | 15.8 | 20.7 | 26.6 | 31.5 | 39.9 | 48.2 | 62.3 | 74.8 | 91.4 |
| | | 480V VT | 2.5 | 3.9 | 5.5 | 9.2 | 13.3 | 18.2 | 24.1 | 30.7 | 35.7 | 47.3 | 58.1 | 70.6 | 87.2 | 112.2 |
| | Rated output current (A) | CT | 2.5 | 3.8 | 5.3 | 9.0 | 14 | 19 | 25 | 32 | 38 | 48 | 58 | 75 | 91 | 112 |
| | | VT | 3.1 | 4.8 | 6.7 | 11.1 | 16 | 22 | 29 | 37 | 43 | 57 | 70 | 85 | 105 | 135 |
| | Overload capacity(output current) | | CT:150%,60sec., 200%,3sec. VT:120%,60sec., 150%,5sec. | | | | | | | | | | | | | |
| | Rated output voltage (*3) | | 3-phase (3-wire) 380 to 480V (corresponding to input voltage) | | | | | | | | | | | | | |
| Input Rating | Rated input voltage (V) | | 3-phase 380 to 480V +10%, -15%, 50/60Hz±5% | | | | | | | | | | | | | |
| | Rated input current (A) | CT | 2.8 | 4.2 | 5.8 | 9.9 | 17 | 23 | 30 | 35 | 42 | 53 | 64 | 83 | 100 | 123 |
| | | VT | 4.3 | 5.9 | 8.1 | 13.3 | 20 | 24 | 32 | 41 | 47 | 63 | 77 | 94 | 116 | 149 |
| Braking | Dynamic braking (Short-time) (*4) | | Built-in BRD circuit (optional resistor) | | | | | | | | | | External dynamic braking unit (option) | | | |
| | Minimum value of resistor (Ω) | | 100 | 100 | 100 | 70 | 70 | 35 | 35 | 24 | 24 | 20 | – | | | |
| Vibration (*5) | | | 5.9m/s²(0.6G), 10-55Hz | | | | | | | | | | 2.9m/s²(0.3G), 10-55Hz | | | |
| EMC filter | | | Built-in (EN61800-3 category C3) | | | | | | | | | | | | | |
| Zero-phase Reactor | | | Built-in | | | | | | | | | | | | | |
| Weight [kg] (lbs.) | | | 3.5(7.7) | 3.5(7.7) | 3.5(7.7) | 3.5(7.7) | 6(13.2) | 6(13.2) | 6(13.2) | 14(30.8) | 14(30.8) | 14(30.8) | 22(48.4) | 30(66) | 30(66) | 30(66) |

| Model SJ700D- | | European Version | 750HFEF3 | 900HFEF3 | 1100HFEF3 | 1320HFEF3 |
|---|---|---|---|---|---|---|
| | | US Version | 750HFUF3 | 900HFUF3 | 1100HFUF3 | 1500HFUF3 |
| | | JP Version | 750HFF3 | 900HFF3 | 1100HFF3 | 1320HFF3 |
| Enclosure (*1) | | | IP00 | | | |
| Applicable motor (4-pole, kW(HP)) (*2) | | CT | 75(100) | 90(125) | 110(150) | 132/150(175) |
| | | VT | 90(125) | 110(150) | 132(175) | 160(220) |
| Output Ratings | Rated capacity (kVA) | 400V CT | 103.2 | 121.9 | 150.3 | 180.1 |
| | | 400V VT | 110.8 | 135 | 159.3 | 200.9 |
| | | 480V CT | 123.8 | 146.3 | 180.4 | 216.1 |
| | | 480V VT | 133 | 162.1 | 191.2 | 241.1 |
| | Rated output current (A) | CT | 149 | 176 | 217 | 260 |
| | | VT | 160 | 195 | 230 | 290 |
| | Overload capacity(output current) | | CT:150%,60sec., 200%,0.5sec. VT:120%,60sec., 150%,5sec. | | | |
| | Rated output voltage (*3) | | 3-phase (3-wire) 380 to 480V (corresponding to input voltage) | | | |
| Input Rating | Rated input voltage (V) | | 3-phase 380 to 480V +10%, -15%, 50/60Hz±5% | | | |
| | Rated input current (A) | CT | 164 | 194 | 239 | 286 |
| | | VT | 176 | 199 | 253 | 300 |
| Braking | Dynamic braking (Short-time) (*4) | | External dynamic braking unit (option) | | | |
| | Minimum value of resistor (Ω) | | - | | | |
| Vibration (*5) | | | 2.9m/s²(0.3G), 10-55Hz | | | |
| EMC filter | | | Built-in (EN61800-3 category C3) | | | |
| Zero-phase Reactor | | | Built-in | | | |
| Weight [kg] (lbs.) | | | 55(121) | 55(121) | 70(154) | 70(154) |

| Model SJ700- | | European Version | 1850HFE2 | 2200HFE2 | 3150HFE2 | 4000HFE2 |
|---|---|---|---|---|---|---|
| | | US Version | 1850HFU2 | 2200HFU2 | 3150HFU2 | 4000HFU2 |
| | | JP Version | 1850HF2 | 2200HF2 | 3150HF2 | 4000HF2 |
| Enclosure (*1) | | | IP00 | | | |
| Applicable motor (4-pole, kW(HP)) (*2) | | CT | 185(250) | 220(300) | 315(400) | 400(550) |
| | | VT | - | - | - | - |
| Output Ratings | Rated capacity (kVA) | 400V CT | 256 | 305 | 416 | 554 |
| | | 400V VT | - | - | - | - |
| | | 480V CT | 308 | 366 | 499 | 665 |
| | | 480V VT | - | - | - | - |
| | Rated output current (A) | CT | 370 | 440 | 600 | 800 |
| | | VT | - | - | - | - |
| | Overload capacity(output current) | | CT:150%,60sec., 180%,0.5sec. | | | |
| | Rated output voltage (*3) | | 3-phase (3-wire) 380 to 480V (corresponding to input voltage) | | | |
| Input Rating | Rated input voltage (V) | | 3-phase 380 to 480V +10%, -15%, 50/60Hz±5% | | | |
| | Rated input current (A) | CT | 389 | 455 | 630 | 840 |
| | | VT | - | - | - | - |
| Braking | Dynamic braking (Short-time) (*4) | | External dynamic braking unit(option) | | | |
| | Minimum value of resistor (Ω) | | - | | | |
| Vibration (*5) | | | 1.96m/s2(0.2G), 10-55Hz | | | |
| EMC filter | | | External Option | | | |
| Zero-phase Reactor | | | External Option | | | |
| Weight [kg] (lbs.) | | | 140(308) | 145(319) | 210(462) | 360(792) |

# STANDARD SPECIFICATIONS
# SJ700B Series

## ● 3-phase 200V class

| Model SJ700B- | US Version | 110LFUF | 150LFUF | 185LFUF | 220LFUF | 300LFUF | 370LFUF | 450LFUF | 550LFUF | 750LFUF |
|---|---|---|---|---|---|---|---|---|---|---|
| Enclosure (*1) | | IP20 ||||||||| 
| Applicable motor (4-pole, kW (HP)) (*2) | | 11(15) | 15(20) | 18.5(25) | 22(30) | 30(40) | 37(50) | 45(60) | 55(75) | 75(100) |
| Output Ratings — Rated capacity (kVA) | 200V | 15.2 | 20.0 | 25.2 | 29.4 | 39.1 | 48.4 | 58.5 | 72.7 | 93.5 |
| Output Ratings — Rated capacity (kVA) | 240V | 18.2 | 24.1 | 30.3 | 35.3 | 46.9 | 58.1 | 70.2 | 87.2 | 112.2 |
| Output Ratings — Rated output current (A) | | 44 | 58 | 73 | 85 | 113 | 140 | 169 | 210 | 270 |
| Output Ratings — Overload capacity (output current) | | 120%,60sec |||||||||
| Output Ratings — Rated output voltage (*3) | | 3-phase (3-wire) 200 to 240V (corresponding to input voltage) |||||||||
| Input Rating — Rated input voltage (V) | | 3-phase 200 to 240V +10%, -15%, 50/60Hz±5% |||||||||
| Input Rating — Rated input current (A) | | 48 | 64 | 80 | 94 | 120 | 150 | 186 | 240 | 280 |
| Braking — Dynamic braking (Short-time) (*4) | | Built-in BRD circuit (optional resistor) |||| | External dynamic braking unit (option) ||||
| Braking — Minimum value of resistor (Ω) | | 10 | 10 | 7.5 | 7.5 | 7.5 | – ||||
| Vibration (*5) | | 5.9m/s² (0.6G), 10-55Hz ||||| 2.9m/s² (0.3G), 10-55Hz ||||
| EMC filter | | Built-in (EN61800-3 category C3) |||||||||
| Zero-phase Reactor | | Built-in |||||||||
| Weight (lbs.) | | 6(13.2) | 6(13.2) | 14(30.8) | 14(30.8) | 14(30.8) | 22(48.4) | 30(66) | 30(66) | 43(94.6) |

## ● 3-phase 400V class

| Model SJ700B- | Asia Version | 055HF | 075HFF | 110HFF | 150HFF | 185HFF | 220HFF | 300HFF | 370HFF | 450HFF | 550HFF | 750HFF | 900HFF | 1100HFF | 1320HFF | 1600HFF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | US Version | 055HFU | 075HFUF | 110HFUF | 150HFUF | 185HFUF | 220HFUF | 300HFUF | 370HFUF | 450HFUF | 550HFUF | 750HFUF | 900HFUF | 1100HFUF | 1320HFUF | 1600HFUF |
| Enclosure (*1) | | IP20 ||||||||||| | IP00 ||||
| Applicable motor (4-pole, kW(HP)) (*2) | | 5.5(75) | 7.5(10) | 11(15) | 15(20) | 18.5(25) | 22(30) | 30(40) | 37(50) | 45(60) | 55(75) | 75(100) | 90(125) | 110(150) | 132(150) | 160(220) |
| Output Ratings — Rated capacity (kVA) | 400V | 9.7 | 11 | 15.2 | 20.0 | 25.6 | 29.7 | 39.4 | 48.4 | 58.8 | 72.7 | 93.5 | 110.8 | 135.1 | 159.3 | 200.9 |
| Output Ratings — Rated capacity (kVA) | 480V | 11.6 | 13.3 | 18.2 | 24.1 | 30.7 | 35.7 | 47.3 | 58.1 | 70.6 | 87.2 | 112.2 | 133 | 162.1 | 191.2 | 241.1 |
| Output Ratings — Rated output current (A) | | 14 | 16 | 22 | 29 | 37 | 43 | 57 | 70 | 85 | 105 | 135 | 160 | 195 | 230 | 290 |
| Output Ratings — Overload capacity (output current) | | 120%,60sec ||||||||||||||| 
| Output Ratings — Rated output voltage (*3) | | 3-phase (3-wire) 380 to 480V (corresponding to input voltage) ||||||||||||||| 
| Input Rating — Rated input voltage (V) | | 3-phase 380 to 480V +10%, -15%, 50/60Hz±5% ||||||||||||||| 
| Input Rating — Rated input current (A) | | 17 | 18 | 24 | 32 | 41 | 47 | 63 | 77 | 94 | 116 | 149 | 176 | 199 | 253 | 300 |
| Braking — Dynamic braking (Short-time) (*4) | | Built-in BRD circuit (optional resistor) ||||||| | External dynamic braking unit (option) |||||||
| Braking — Minimum value of resistor (Ω) | | 70 | 70 | 35 | 35 | 24 | 24 | 20 | – |||||||| 
| Vibration (*5) | | 5.9m/s²(0.6G), 10-55Hz ||||||| | 2.9m/s²(0.3G), 10-55Hz |||||||
| EMC filter | | – | Built-in (EN61800-3 category C3) ||||||||||||||
| Zero-phase Reactor | | – | Built-in ||||||||||||||
| Weight (lbs.) | | 3.5(7.7) | 6(13.2) | 6(13.2) | 6(13.2) | 14(30.8) | 14(30.8) | 14(30.8) | 22(48.4) | 30(66) | 30(66) | 30(66) | 55(121) | 55(121) | 70(154) | 70(154) |

*1: The protection method conforms to JIS C 0920 (IEC60529)
*2: The applicable motor refers to Hitachi standard 3-phase motor (4-pole).To use other motors, be sure to prevent the rated motor current (50Hz) from exceeding the rated output current of the inverter.
*3: The output voltage decreases as the main power supply voltage decreases except for the use of AVR function.
*4: Braking resistor is not integrated in the inverter. Please install optional braking resistor or dynamic braking unit when large braking torque is required.
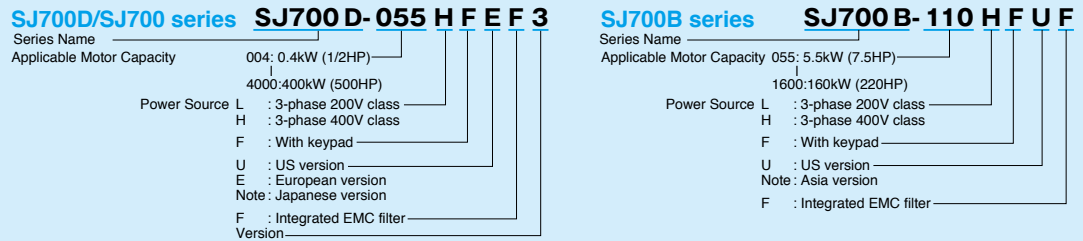*5: Conforms to the test method specified in JIS C 60068-2-6 : 2010 (IEC 60068-2-6 : 2007).
*6: To operate the motor beyond 50/60Hz, please consult with the motor manufacturer about the maximum allowable rotation speed.
*7: Storage temperature refers to the temperature in transportation.
*8: The frequency command is the maximum frequency at 9.8V for input voltage 0 to 10VDC, or at 19.8mA for input current 4 to 20mA.
     If this characteristic is not satisfactory for your application,contact your Hitachi representative.

## Model Name Indication

**SJ700D/SJ700 series**   SJ700 D- 055 H F E F 3
- Series Name
- Applicable Motor Capacity   004: 0.4kW (1/2HP)
      │
      4000:400kW (500HP)
- Power Source  L  : 3-phase 200V class
      H  : 3-phase 400V class
      F  : With keypad
      U  : US version
      E  : European version
      Note : Japanese version
      F  : Integrated EMC filter
      Version

**SJ700B series**   SJ700 B- 110 H F U F
- Series Name
- Applicable Motor Capacity  055: 5.5kW (7.5HP)
      │
      1600:160kW (220HP)
- Power Source  L  : 3-phase 200V class
      H  : 3-phase 400V class
      F  : With keypad
      U  : US version
      Note : Asia version
      F  : Integrated EMC filter

## Model Configuration  ● Available

| Applicable Motor kW (HP) | 0.4(1/2) | 0.75(1) | 1.5(2) | 2.2(3) | 3.7(5) | 4.0(5) | 5.5(7.5) | 7.5(7.5) | 11(15) | 15(20) | 18.5(25) | 22(30) | 30(40) | 37(50) | 45(60) | 55(75) | 75(100) | 90(125) | 110(150) | 132(175) | 150(200) | 160(220) | 185(250) | 220(300) | 315(400) | 400(550) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SJ700D 3-phase 200V LFUF3 | ● | ● | ● | ● | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | |
| SJ700D 3-phase 200V LFF3 | ● | ● | ● | ● | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | |
| SJ700D 3-phase 400V HFEF3 | | ● | ● | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | |
| SJ700D 3-phase 400V HFUF3 | | ● | ● | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | |
| SJ700D 3-phase 400V HFF3 | | ● | ● | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | |
| SJ700 3-phase 400V HFE2 | | | | | | | | | | | | | | | | | | | | | | | ● | ● | ● | ● |
| SJ700 3-phase 400V HFU2 | | | | | | | | | | | | | | | | | | | | | | | ● | ● | ● | ● |
| SJ700 3-phase 400V HF2 | | | | | | | | | | | | | | | | | | | | | | | ● | ● | ● | ● |
| SJ700B 3-phase 200V LFUF | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | | | |
| SJ700B 3-phase 400V HFF | | | | | | | ●*1 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | ● | | | | |
| SJ700B 3-phase 400V HFUF | | | | | | | ●*1 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | ● | | | | |

*1 Available only for Asia version and US Version. without EMC Filter

## ● General Specifications

| Items | | | General Specifications |
|---|---|---|---|
| **Control** | Control method | | Line to line sine wave pulse-width modulation (PWM) control |
| | Output frequency range (*6) | | 0.1-400.0Hz(400kW:0.1-120Hz) |
| | Frequency accuracy | | Digital: ±0.01% of the maximum frequency, Analog: ±0.2%(25±10˚C) |
| | Frequency resolution | | Digital setting: 0.01Hz, Analog setting: (Maximum frequency)/4,000 (O terminal: 12bit 0-10V, O2 terminal: 12bit -10-+10V) |
| | V/f characteristics | | SJ700D：IM : V/f optionally variable (30-400Hz of base frequency), V/f control (constant torque, reduced torque), sensorless vector control,0Hz ranged sensorless vector control (only CT), vector with sensor (SJ-FB card option , only CT) [ordering production] PM : sensorless vector control (only VT) SJ700/SJ700B：IM : V/f optionally variable (30-400Hz of base frequency), V/f control (constant torque, reduced torque), sensorless vector control 0Hz ranged sensorless vector control, vector with sensor (SJ-FB card option) |
| | Speed fluctuation | | ±0.5% (sensorless vector control) |
| | Acceleration/deceleration time | | 0.01-3,600sec. (Linear/curve, accel./decel. selection), Two-stage accel./decel. |
| | Starting Torque | SLV | SJ700/SJ700D (CT) 200%/0.3Hz,  (VT) 150%/0.5Hz, 75kW to 150kW  (CT) 180%/0.3Hz, (VT) 120%/0.5Hz, 185kW and over 150%/0.3Hz. SJ700B : 150%/0.5Hz, 90kW and over : 120%/0.5Hz, |
| | | 0Hz-SLV | SJ700/SJ700D (CT) (0Hz domain with motor one frame size down) 150% at around 0Hz, 75kW and over: 130% at around 0Hz. SJ700B : 120% at around 0Hz,SJ700D (VT):Disable. |
| | | PM-SLV[ordering production] | SJ700D (0.4 to 132kW) : 50% (at 10% of motor constant speed) [ordering production] (only SJ700D (VT)) |
| | Carrier frequency range | | SJ700/SJ700D (CT) 0.5 to 15kHz, (VT) 0.5 to 12 kHz, 75kW to 150kW (CT) 0.5 to 10kHz, (VT) 0.5 to 8 kHz,185kW and over : 0.5 to 3.0kHz SJ700B : 0.5 to 12.0kHz (90kW and over : 0.5 to 8.0kHz) |
| | DC braking | | Performs at start: under set frequency at deceleration, via an external input (braking force, time, and operating frequency). |
| **Input signal** | Frequency setting | Operator | Up and Down keys |
| | | External signal(*8) | DC 0-10V, -10-+10V (input impedance 10kΩ), 4-20mA (input impedance 100Ω) |
| | | External port | Setting via RS485 communication |
| | Forward /reverse Start /stop | Operator | Start/stop commands (forward/reverse switching by parameter setting) |
| | | External signal | Forward-operation start/stop commands (reverse-operation start/stop possible when relevant commands are assigned to intelligent input terminals)3-wire input possible (when relevant commands are assigned to control circuit terminals) |
| | | External port | Setting via RS485 communication |
| | Intelligent input terminals | Terminals | 8 terminals, NO/NC switchable, sink logic/source logic switchable |
| | | Functions | Reverse operation (RV), Multi-speed 1 setting (CF1), Multi-speed 2 setting (CF2), Multi-speed 3 setting (CF3), Multi-speed 4 setting (CF4), Jogging (JG), external DC braking (DB), 2nd motor control (SET), 2-stage acceleration/deceleration (2CH), free-run stop (FRS), external trip (EXT), unattended start protection (USP), commercial power supply switching (CS), software lock (SFT), analog input switching (AT), 3rd motor control (SET3), reset (RS), starting by 3-wire input (STA), stopping by 3-wire input (STP), forward/reverse switching by 3-wire input (F/R), PID disable (PID), PID integration reset (PIDC), control gain switching (CAS), acceleration by remote control (UP), deceleration by remote control (DWN), data clearance by remote control (UDC), forcible operation (OPE), Multi-speed bit 1 (SF1), Multi-speed bit 2 (SF2), Multi-speed bit 3 (SF3), Multi-speed bit 4 (SF4), Multi-speed bit 5 (SF5), Multi-speed bit 6 (SF6), Multi-speed bit 7 (SF7), overload restriction selection (OLR), torque limit selection (enabling/disabling) (TL), torque limit 1 (TRQ1), torque limit 2 (TRQ2), P/PI switching (PPI), braking confirmation (BOK), orientation (ORT), LAD cancellation (LAC), clearance of position deviation (PCLR), permission of 90˚shift phase (STAT), trigger for frequency addition (A145) (ADD), forcible-terminal operation (F-TM), permission of torque command input (ATR), cumulative power clearance (KHC), servo-on (SON), pre-excitation (FOC), general-purpose input 1 (MI1), general-purpose input 2 (MI2), general-purpose input 3 (MI3), general-purpose input 4 (MI4), general-purpose input 5 (MI5), general-purpose input 6 (MI6), general-purpose input 7 (MI7), general-purpose input 8 (MI8), analog command holding (AHD), Multistage position settings selection 1 (CP1), Multistage position settings selection 2 (CP2), Multistage position settings selection 3 (CP3), Zero-return limit function (ORL), Zero-return trigger function (ORG), Forward drive stop (FOT), reverse drive stop (ROT), Speed / position switching (SPD), Pulse counter (PCNT), Pulse counter clear (PCC), Emergency stop (EMR) ,EzSQ PRG-Run(PRG)(*12) ,no assignment (no) |
| | Thermistor input | | 1 terminal (PTC characteristics) |
| **Output signal** | Intelligent output terminals | Terminals | 5 open-collector output terminals, NO/NC switchable, sink logic/source logic switchable 1 relay (1c-contact) output terminal: NO/NC switchable |
| | | Functions | Running (RUN), constant-speed reached (FA1), set frequency overreached (FA2), overload notice advance signal (1) (OL), output deviation for PID control (OD), alarm signal (AL), set frequency reached (FA3), over-torque (OTQ), instantaneous power failure (IP), undervoltage (UV), torque limited (TRQ), operation time over (RNT), plug-in time over (ONT), thermal alarm signal (THM), brake release (BRK), braking error (BER), 0Hz detection signal (ZS), speed deviation maximum (DSE), positioning completed (POK), set frequency overreached 2 (FA4), set frequency reached 2 (FA5), overload notice advance signal (2) (OL2), PID feedback comparison (FBV), communication line disconnection (NDc), logical operation result 1 (LOG1), logical operation result 2 (LOG2), logical operation result 3 (LOG3), logical operation result 4 (LOG4), logical operation result 5 (LOG5), logical operation result 6 (LOG6), capacitor life warning (WAC)(*11), cooling-fan speed drop (WAF), starting contact signal (FR), heat sink overheat warning (OHF), low-current indication signal (LOC), general-purpose output 1 (M01), general-purpose output 2 (M02), general-purpose output 3 (M03), general-purpose output 4 (M04), general-purpose output 5 (M05), general-purpose output 6 (M06), inverter ready (IRDY), forward rotation (FWR), reverse rotation (RVR), major failure (MJA), window comparator O (WCO), window comparator OI (WCOI), window comparator O2 (WCO2), alarm code 0 to 3 (AC0 to AC3) |
| | | Monitor output terminals | Analog voltage output, analog current output, pulse-string output (e.g., A-F, D-F [n-fold, pulse output only], A, T, V, P) |
| **Monitoring on display** | | | Output frequency, output current, output torque, frequency conversion data, trip history, input/output terminal status, electric power, and others |
| **Other functions** | | | Free V/f setting (7 breakpoints), frequency upper/lower limit, jump (center) frequency, acceleration/deceleration according to characteristic curve, manual torque boost level/breakpoint, energy-saving operation, analog meter adjustment, start frequency setting, carrier frequency adjustment, electronic thermal function (available also for free setting), external start/end frequency/frequency rate, analog input selection, retry after trip, restart after instantaneous power failure, output of various signals, starting with reduced voltage, overload restriction, initial-value setting, automatic deceleration at power failure, AVR function, fuzzy acceleration/deceleration, online/offline auto-tuning, high-torque multi-motor operation (*11) (sensorless vector control of two motors by one inverter) |
| **Protective functions** | | | Overcurrent protection, overvoltage protection, undervoltage protection, electronic thermal protection, temperature error protection, instantaneous power failure protection, phase loss input protection, braking-resistor overload protection, ground-fault current detection at power-on, USP error, external trip, emergency stop trip, CT error, communication error, option board error, and others |
| **Environmental conditions** | Ambient operating/storage temperature (*7)/ humidity | | -10-50˚C (*9) / -20-65˚C / 20-90%RH (No condensation) |
| | Location | | Altitude 1,000m or less, indoors (no corrosive gases or dust) |
| **Options** | Digital input expansion card | | SJ-DG (4digits BCD, 16bits binary) |
| | Feedback expansion card | | SJ-FB (vector control loop speed sensor) |
| | Network interface card | | SJ-DN2 (DeviceNet (TM)) (*13), SJ-PB (T)2 (PROFIBUS) (*13) |
| | Others | | EMI filters, input/output reactors, radio noize filters, braking resistors, braking units, LCR filter, communication cables |

*1  : The protection method conforms to JIS C 0920 (IEC60529)
*2  : The applicable motor refers to Hitachi standard 3-phase motor (4-pole).  To use other motors, be sure to prevent the rated motor current (50Hz) from exceeding the rated output current of the inverter.
*3  : The output voltage decreases as the main power supply voltage decreases except for the use of AVR function.
*4  : Braking resistor is not integrated in the inverter. Please install optional braking resistor or dynamic braking unit when large braking torque is required.
*5  : Conforms to the test method specified in JIS C 60068-2-6:2010 (IEC 60068-2-6:2007).
*6  : To operate the motor beyond 50/60Hz, please consult with the motor manufacturer about the maximum allowable rotation speed.
*7  : Storage temperature refers to the temperature in transportation.
*8  : The frequency command is the maximum frequency at 9.8V for input voltage 0 to 10VDC,or at 19.8mA for input current 4 to 20mA.If this characteristic is not satisfactory for your application,contact your Hitachi representative.
*9  : SJ700B series is -10 to 45°C. SJ700D (VT):-10 to 40°C.
*10 : Please be sure to connect DC reactor attached to 1850HF,2200HF,3150HF and 4000HF. (1850HF,2200HF and 3150HF of US/JP Version:The DC reactor is not attached.)
*11 : 1850HF,2200HF,3150HF and 4000HF:The function is not provided.
*12 : SJ700D-3 only.
*13 : The option cannot access new parameters in SJ700D-3.

9

# DIMENSIONS

・SJ700D-004〜037LFUF3,LFF3
・SJ700D-007〜040HFEF3,HFUF3,007〜037HFF3
・SJ700B-055HF,055HFU
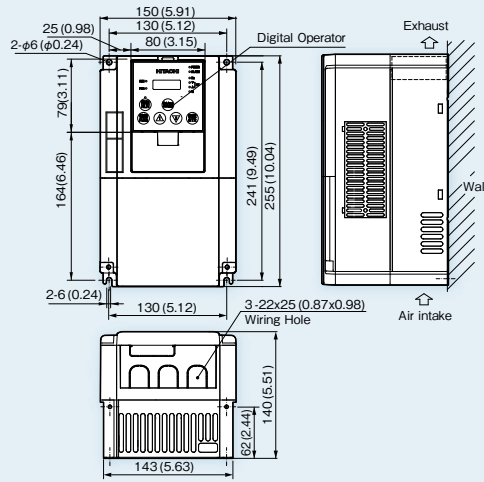


・SJ700D-055〜110LFUF3,LFF3,HFEF3,HFUF3,HFF3
・SJ700B-075〜150HFF,HFUF,LFUF
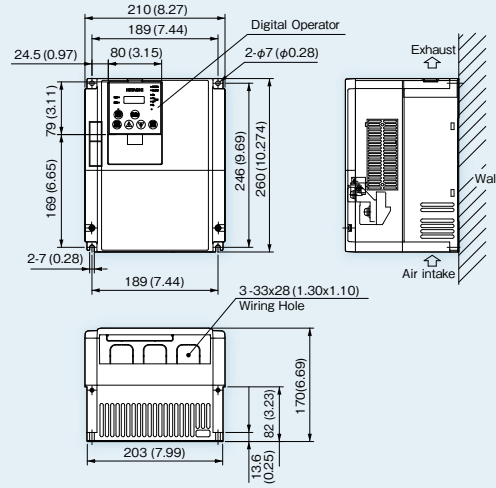


・SJ700D-150〜220LFUF3,LFF3,HFEF3,HFUF3,HFF3
・SJ700B-185〜300HFF,HFUF,LFUF
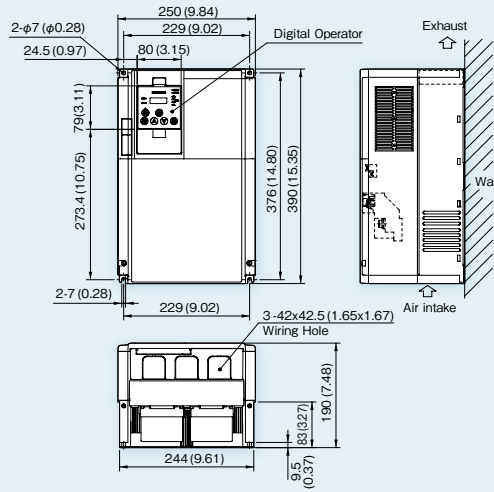


・SJ700D-300LFUF3,LFF3,HFEF3,HFUF3,HFF3
・SJ700B-370HFF,HFUF,LFUF
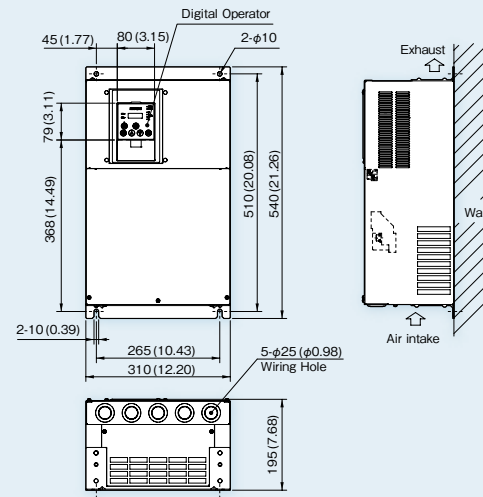


・SJ700D-370,450LFUF3,LFF3
・SJ700D-370〜550HFEF3,HFUF3,HFF3
・SJ700B-450〜750HFF,HFUF,450,550LFUF
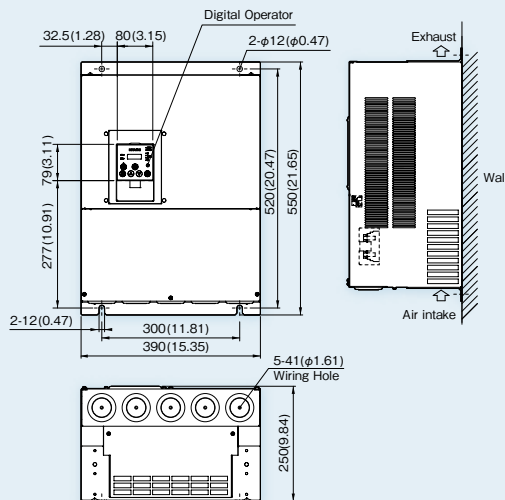


・SJ700D-550LFUF3,LFF3
・SJ700B-750LFUF
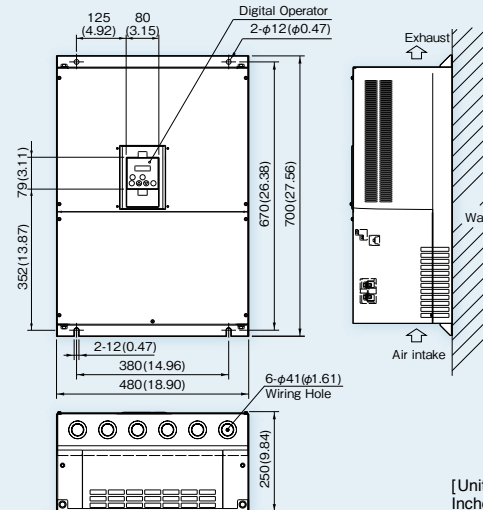


[Unit : mm(inch)]
Inches for reference only.

* Please refer to page 30 for detailed information about compatibility with SJ300.

# DIMENSIONS

・**SJ700D-750,900HFEF3,HFUF3,HFF3**
・**SJ700B-900,1100HFF,HFUF**



2-φ12 (φ0.47)
32.5 (12.8)
80 (3.15)
Digital Operator
79 (3.11)
700 (27.56)
670 (26.38)
357 (14.06)
2-12 (0.47)
300 (11.81)
390 (15.35)
270 (10.63)

Exhaust
Wall
Air intake
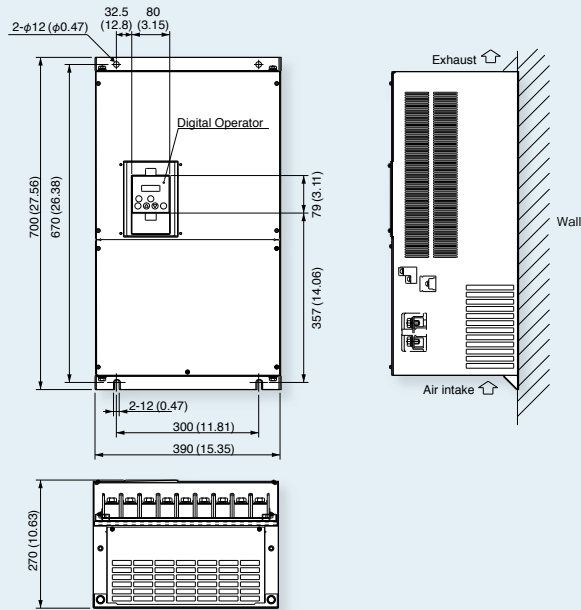
・**SJ700D-1100HFEF3,HFUF3,HFF3,1320HFEF3,HFF3,1500HFUF3**
・**SJ700B-1320,1600HFF,HFUF**



2-φ12 (φ0.47)
62.5 (2.46)
80 (3.15)
Digital Operator
79 (3.11)
740 (29.13)
710 (27.95)
480 (18.90)
2-12 (0.47)
380 (14.96)
480 (18.90)
270 (10.63)

Exhaust
Wall
Air intake

[Unit : mm (inch)]
Inches for reference only.

11
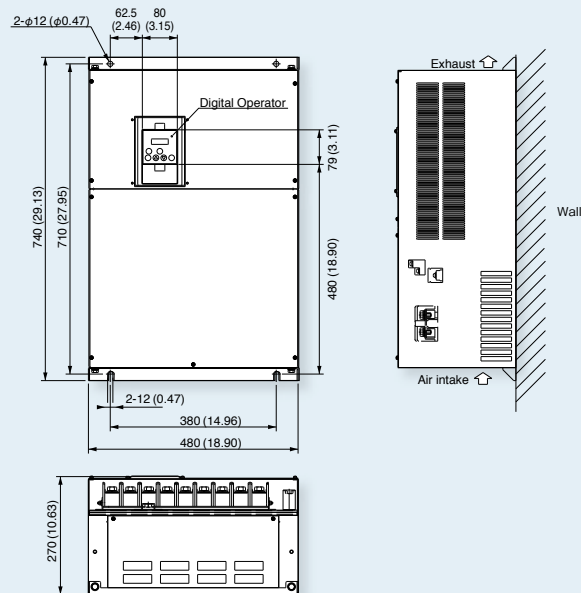
# DIMENSIONS

## ·SJ700-1850,2200HFE2,HFU2*²,HF2*²

3-φ15(0.59)  2-M12 Eyebolts  15(0.59)

Digital Operator

965(37.99)
995(39.17)

57.5(22.63)  15(0.59)  290(11.41)  290(11.41)  57.5(2.26)  15(0.59)

695(27.36)

Exhaust

Wall

Air Intake
370(14.56)

4-M12 Screw Holes For Eyebolts
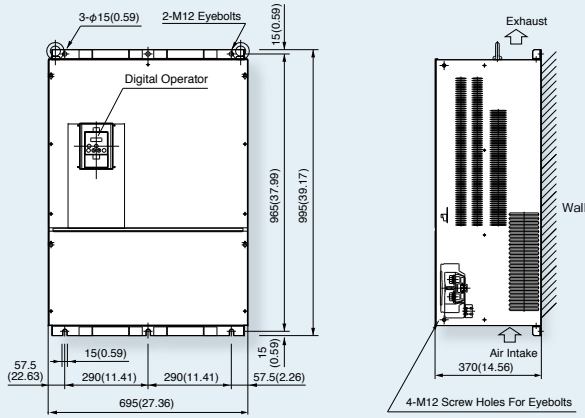
### Attachment DC reactor (DCL-H-185-H-R),(DCL-H-220-H-R)

305
150

H

230  11x18

200

φ18  25

50

W

X

245

Downward details drawing

| Model | H | W | X |
|---|---|---|---|
| DCL-H-185-H-R | 350 | 305 | 5 |
| DCL-H-220-H-R | 395 | 315 | 6 |

## ·SJ700-3150HFE2,HFU2*²,HF2*²

3-φ15(0.59)  2-M12 Eyebolts  15(0.59)  2-M12 Screw Holes

Digital Operator

1270(50.0)
1300(51.18)

50(1.96)  15(0.59)  290(11.41)  290(11.41)  50(1.96)  15(0.59)

680(26.77)

Exhaust

Vent Holes B(*1)

Wall

Vent Holes A(*1)

Air Intake
450(17.71)

4-M12 Screw Holes For Eyebolts
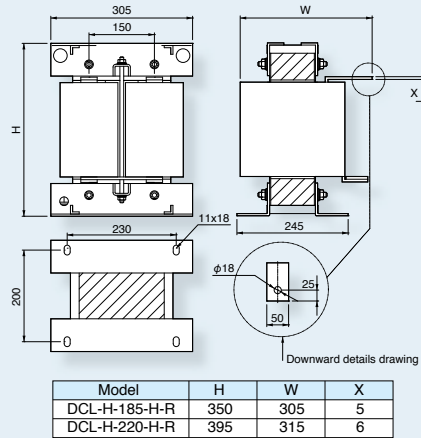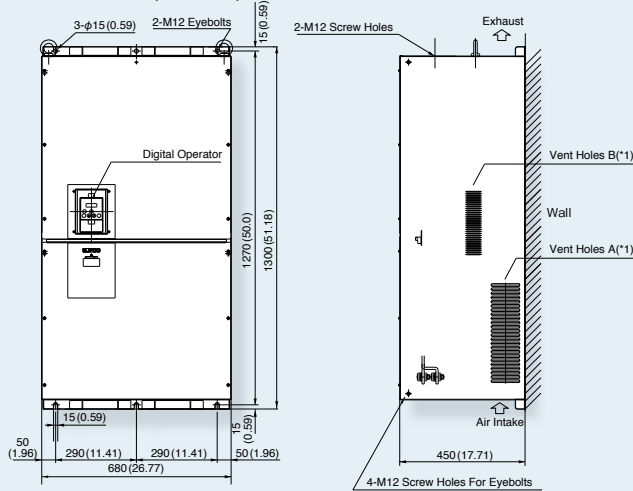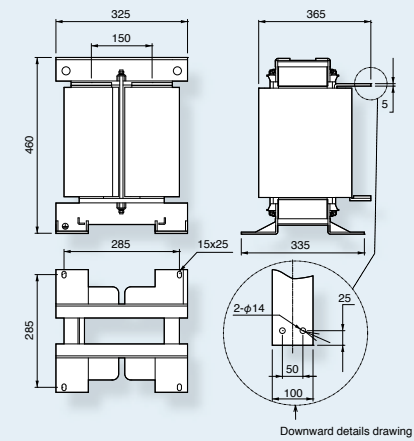
*1 Vent-Holes A are formed on both right and left side portions. Vent-Holes B are just on right side.

### Attachment DC reactor (DCL-H-315-H-R)

325
150

460

285  15x25

285

365

335

5

2-φ14  25

50
100

Downward details drawing

## ·SJ700-4000HFE2,HFU2,HF2

4-φ15(0.59)  2-M16 Eyebolts  2-M16 Screw Holes  15(0.59)

Digital Oprator

1670(65.74)
1700(66.92)

75(2.95)  15(0.59)  300(11.81)  300(11.81)  300(11.81)  75(2.95)  15(0.59)

1050(41.33)

Exhaust

Wall

Air Intake
450(17.71)

4-M16 Screw Holes For Eyebolts

### Attachment DC reactor (DCL-H-400-H-R)

365
180

460

285  15x25

285

365

335

5

2-φ14  25

50
100

Downward details drawing
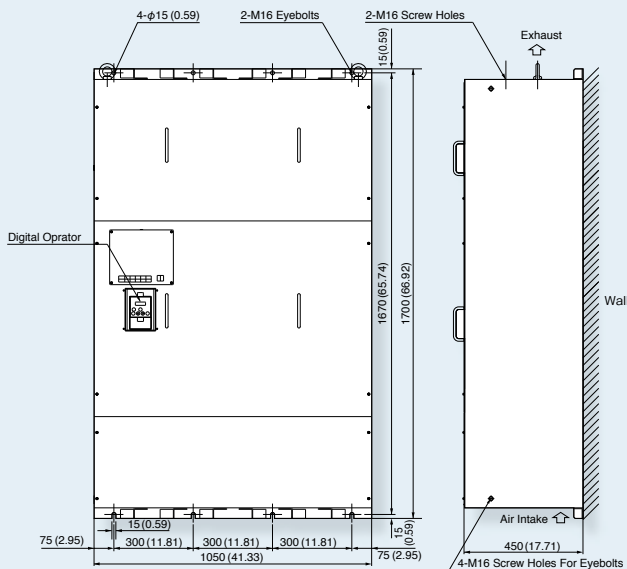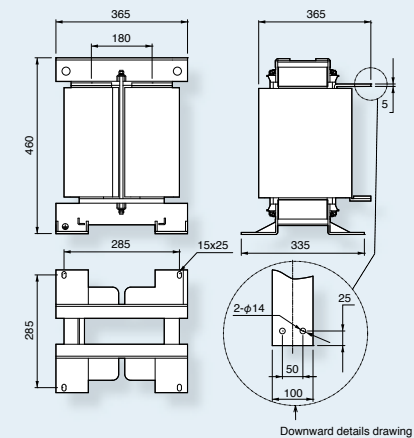
[Unit : mm(inch)]
Inches for reference only.

*² 1850H,2200H and 3150H of US/JP Version:The DC resctor is not attached.

# OPERATION and PROGRAMMING

SJ700/SJ700D and SJ700B Series can be easily operated with the digital operator provided as standard. The digital operator can also be detached and can be used for remote mounted control. Operator with copy function (WOP) and digital operator with potentiometer are also available as options.

### Parameter Display

Displays frequency, motor current, rotational speed of the motor, and an alarm code.

### Monitor LEDs

Shows drive status.

### RUN key enable LED

Lights up when the inverter is ready to respond to the RUN key.

### RUN Key

Press to run the motor.

### STOP/RESET Key

Press to stop the drive or reset an alarm.

### Function Key

Press to set or monitor a parameter value.

### Power LED

Lights when the power input to the drive is ON.

### ALARM LED

Lights to indicate that the inverter has tripped.

### Display Unit LEDs

Indicates the unit associated with the parameter display.

### Store Key

Press to write the new value to the EEPROM.

### Up/Down Keys

Press up or down to sequence through parameters and functions shown on the display, and increment/decrement values.

## ●Setting the output frequency

Power on

（1）*0.00* or the value previously monitored is displayed.

Press FUNC key.

（2）Function code appears.

Press ▲ ▼ until *F001* appears.

（3）*F001* appears.

Press FUNC key.

（4）Preset value is displayed.

Press ▲ ? to set desired value.

（5）Newly set value is displayed.

Press STR key to store the value.

（6）Returns to *F001* and the setting is complete.

*To run the motor, go back to monitor mode or basic setting mode.

## ●The contents of a basic mode display.

If a desired parameter is not displayed, check the setting of function "b037" (function code display restriction). To display all parameters, specify "00" for "b037".

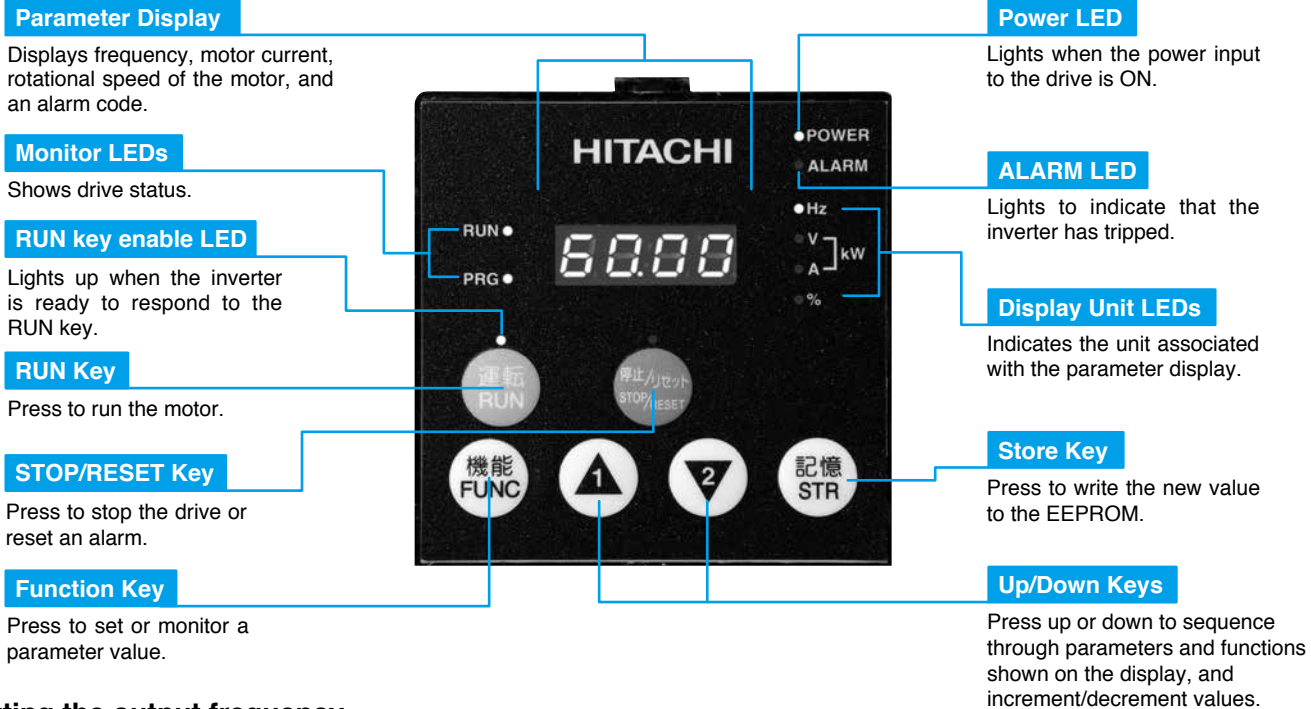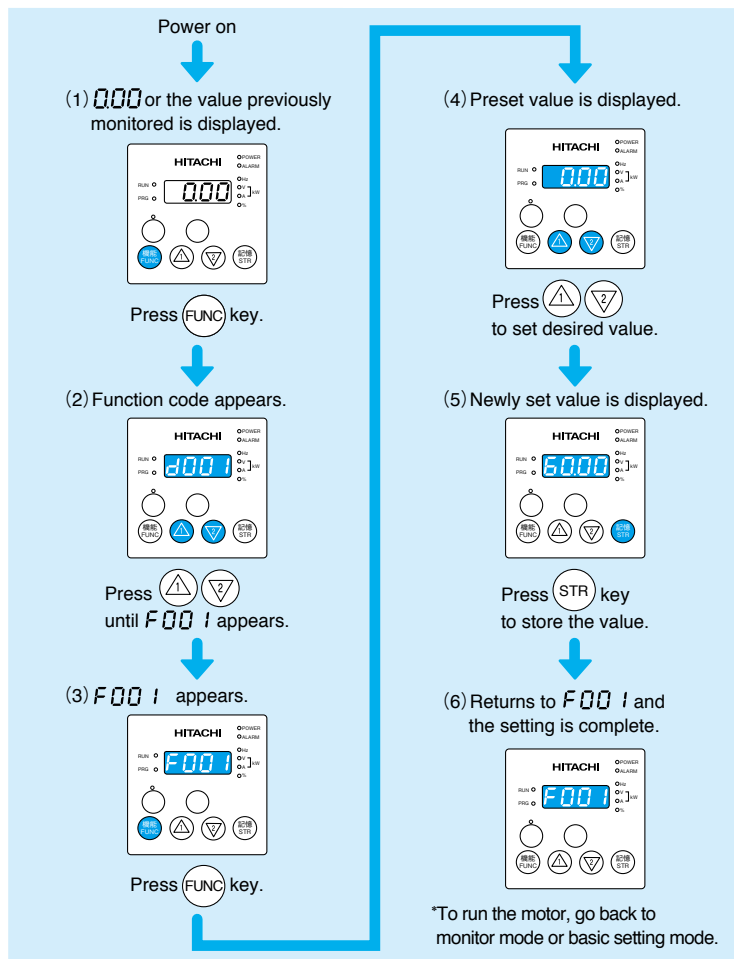| No. | Display code | Item |
|---|---|---|
| 1 | d001 to d104 | Monitor display |
| 2 | F001 | Output frequency setting |
| 3 | F002 | Acceleration (1) time setting |
| 4 | F003 | Deceleration (1) time setting |
| 5 | F004 | Operation direction setting |
| 6 | A001 | Frequency source setting |
| 7 | A002 | Run command source setting |
| 8 | A003 | Base frequency setting |
| 9 | A004 | Maximum frequency setting |
| 10 | A005 | [AT] selection |
| 11 | A020 | Multi-speed frequency setting |
| 12 | A021 | Multi-speed 1 setting |
| 13 | A022 | Multi-speed 2 setting |
| 14 | A023 | Multi-speed 3 setting |
| 15 | A044 | 1st control method |
| 16 | A045 | V/f gain setting |
| 17 | A085 | Operation mode selection |
| 18 | b001 | Selection of restart mode |
| 19 | b002 | Allowable under-voltage power failure time |
| 20 | b008 | Retry-after-trip selection |
| 21 | b011 | Retry wait time after trip |
| 22 | b037 | Function code display restriction |
| 23 | b083 | Carrier frequency setting |
| 24 | b084 | Initialization mode selection |
| 25 | b130 | Selection of overvoltage suppression function |
| 26 | b131 | Setting of overvoltage suppression level |
| 27 | C021 | Setting of intelligent output terminal 11 |
| 28 | C022 | Setting of intelligent output terminal 12 |
| 29 | C036 | Alarm relay active state |

13

# FUNCTION LIST

## ● MONITORING FUNCTIONS and MAIN PROFILE PARAMETERS

[○ = Allowed ✕= Not permitted]

| Code | | Function Name | Monitored data or setting | Default Setting SJ700/SJ700D(CTmode) -FE | -FU | SJ700B -F | -F | -FU | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|---|---|---|---|---|---|---|---|---|---|---|
| Monitor Mode | d001 | Output frequency monitor | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*1) | - | - | - | - | - | ○ | - |
| | d002 | Output current monitor | 0.0 to 999.9, 1000 to 9999 (A) | - | - | - | - | - | - | - |
| | d003 | Rotation direction minitoring | F (forward rotation), o (stopped), r (reverse rotation) | - | - | - | - | - | - | - |
| | d004 | Process variable (PV), PID feedback monitor | 0.00 to 99.99, 100.0 to 999.9, 1000. to 9999.  1000 to 9999 (10000 to 99990), ⌈100 to ⌈999 (10000 to 999000) | - | - | - | - | - | - | - |
| | d005 | Intelligent input terminal status | (Example) FW, 7, 2, 1 : ON  8, 6, 5, 4, 3 : OFF | - | - | - | - | - | - | - |
| | d006 | Intelligent output terminal status | (Example) 12, 11 : ON  AL, 15, 14, 13 :OFF | - | - | - | - | - | - | - |
| | d007 | Scaled output frequency monitoring | 0.00 to 99.99, 100.0 to 999.9, 1000. to 9999., 1000 to 3996 (10000 to 39960) | - | - | - | - | - | ○ | - |
| | d008 | Actual-frequency monitoring (*3) | -400. to -100., -99.9 to 0.00 to 99.99, 100.0 to 400.0 (Hz) (*2) | - | - | - | - | - | - | - |
| | d009 | Torque command monitoring (*3) | -200. to +200. (%) | - | - | - | - | - | - | - |
| | d010 | Torque bias monitoring (*3) | -200. to +200. (%) | - | - | - | - | - | - | - |
| | d012 | Torque monitoring | -200. to +200. (%) | - | - | - | - | - | - | - |
| | d013 | Output voltage monitoring | 0.0 to 600.0 (V) | - | - | - | - | - | - | - |
| | d014 | Power monitoring | 0.0 to 999.9 (kW) | - | - | - | - | - | - | - |
| | d015 | Cumulative power monitoring | 0.0 to 999.9, 1000. to 9999.,1000 to 9999 (10000 to 99990), ⌈100 to ⌈999 (100000 to 999000) | - | - | - | - | - | - | - |
| | d016 | Cumulative operation RUN time monitoring | 0. to 9999., 1000 to 9999 (10000 to 99990), ⌈100 to ⌈999 (10000 to 999000) (hr) | - | - | - | - | - | - | - |
| | d017 | Cumulative power-on time monitoring | 0. to 9999., 1000 to 9999 (10000 to 99990), ⌈100 to ⌈999 (10000 to 999000) (hr) | - | - | - | - | - | - | - |
| | d018 | Heat sink temperature monitoring | -020. to 200.0 (°C) | - | - | - | - | - | - | - |
| | d019 | Motor temperature monitoring | -020. to 200.0 (°C) | - | - | - | - | - | - | - |
| | d022 | Life-check monitoring | 1: Capacitor on main circuit board  2: Cooling-fan speed drop | - | - | - | - | - | - | - |
| | d023 | Program counter | 0 to 1024 | - | - | - | - | - | - | - |
| | d024 | Program number monitoring | 0000 to 9999 | - | - | - | - | - | - | - |
| | d025 | User monitor 0 | -2147483647 to 2147483647 (upper 4 digits including "-") | - | - | - | - | - | - | - |
| | d026 | User monitor 1 | -2147483647 to 2147483647 (upper 4 digits including "-") | - | - | - | - | - | - | - |
| | d027 | User monitor 2 | -2147483647 to 2147483647 (upper 4 digits including "-") | - | - | - | - | - | - | - |
| | d028 | Pulse counter | 0 to 2147483647 (upper 4 digits) | - | - | - | - | - | - | - |
| | d029 | Position setting monitor (*3) | -1073741823 to 1073741823 (upper 4 digits including "-") | - | - | - | - | - | - | - |
| | d030 | Position feedback monitor (*3) | -1073741823 to 1073741823 (upper 4 digits including "-") | - | - | - | - | - | - | - |
| | d031 | Clock monitor (SJ700D only) | * In case you use WOP (option), this monitor is activated. | - | - | - | ✕ | ✕ | - | - |
| | d060 | Inverter mode monitor (SJ700D only) | I-C (CT)/ I-v  (VT) | - | - | - | ✕ | ✕ | - | - |
| | d080 | Trip Counter | 0. to 9999., 1000 to 6553 (10000 to 65530) (times) | - | - | - | - | - | - | - |
| | d081 d086 | Trip monitoring 1-6 | Factor, frequency (Hz), current (A), voltage across P-N (V), running time (hours), power-on time (hours) | - | - | - | - | - | - | - |
| | d090 | Programming error monitoring | Warning code | - | - | - | - | - | - | - |
| | d102 | DC voltage monitoring | 0.0 to 999.9 (V) | - | - | - | - | - | - | - |
| | d103 | BRD load factor monitoring | 0.0 to 100.0 (%) | - | - | - | - | - | - | - |
| | d104 | Electronic thermal overload monitoring | 0.0 to 100.0 (%) | - | - | - | - | - | - | - |
| Setting Mode | F001 | Output frequency setting | 0.0, "start frequency" to "maximum frequency" (or maximum frequency, 2nd/3rd motors) (Hz) 0.0 to 100.0 (when PID function is enabled) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ○ | ○ |
| | F002 | Acceleration (1) time setting | 0.01 to 99.99, 100.0 to 999.9, 1000. to 3600. (s) | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | ○ | ○ |
| | F202 | Acceleration (1) time setting, 2nd motor | 0.01 to 99.99, 100.0 to 999.9, 1000. to 3600. (s) | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | ○ | ○ |
| | F302 | Acceleration (1) time setting, 3rd motor | 0.01 to 99.99, 100.0 to 999.9, 1000. to 3600. (s) | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | ○ | ○ |
| | F003 | Deceleration (1) time setting | 0.01 to 99.99, 100.0 to 999.9, 1000. to 3600. (s) | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | ○ | ○ |
| | F203 | Deceleration time setting, 2nd motor | 0.01 to 99.99, 100.0 to 999.9, 1000. to 3600. (s) | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | ○ | ○ |
| | F303 | Deceleration time setting, 3rd motor | 0.01 to 99.99, 100.0 to 999.9, 1000. to 3600. (s) | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | ○ | ○ |
| | F004 | Keypad Run key routing | 00 (forward rotation), 01 (reverse rotation) | 00 | 00 | 00 | 00 | 00 | ✕ | ✕ |
| Expanded Function | A--- | A Group: Standard functions | | | | | | | | |
| | b--- | b Group: Fine tuning  functions | | | | | | | | |
| | C--- | C Group: Intelligent terminal functions | | | | | | | | |
| | H--- | H Group: Motor constants functions | | | | | | | | |
| | P--- | P Group: Expansion card functions | | | | | | | | |
| | U--- | U Group: User-selectable menu functions | | | | | | | | |

(*1) 4000HF:0.00 to 99.99,100.0 to 120.0 (Hz)  (*2) 4000HF: -120. to -100., -99.9 to 0.00 to 99.99,100.0 to 120.0 (Hz)
(*3) SJ700D (VT): Not available (no display)

## ● A GROUP: STANDARD FUNCTIONS

[○ = Allowed  ×= Not permitted]

| Code | Function Name | Monitored data or setting | SJ700/SJ700D(CTmode) -FE | -FU | -F | SJ700B -F | -FU | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|---|---|---|---|---|---|---|---|---|---|
| **Basic settings** | | | | | | | | | |
| A001 | Frequency source setting | 00 (keypad potentiometer) (*1), 01 (control circuit terminal block), 02 (digital operator), 03 (RS485), 04 (option 1), 05 (option 2), 06 (pulse-string input), 07 (easy sequence), 10 (operation function result) | 01 | 01 | 02 | 01 | 02 | × | × |
| A002 | Run command source setting | 01 (control circuit terminal block), 02 (digital operator), 03 (RS485), 04 (option 1), 05 (option 2) | 01 | 01 | 02 | 01 | 02 | × | × |
| A003 | Base frequency setting | 30. to "maximum frequency " (Hz) | 50. | 60. | 60. | 50. | 60. | × | × |
| A203 | Base frequency setting, 2nd motor | 30. to "maximum frequency, 2nd motor" (Hz) | 50. | 60. | 60. | 50. | 60. | × | × |
| A303 | Base frequency setting, 3rd motor | 30. to "maximum frequency, 3rd motor" (Hz) | 50. | 60. | 60. | 50. | 60. | × | × |
| A004 | Maximum frequency setting | "base frequency" to 400. (Hz) (*2) | 50. | 60. | 60. | 50. | 60. | × | × |
| A204 | Maximum frequency setting, 2nd motor | "base frequency, 2nd motor" to 400. (Hz) (*2) | 50. | 60. | 60. | 50. | 60. | × | × |
| A304 | Maximum frequency setting, 3rd motor | "base frequency, 3rd motor" to 400. (Hz) (*2) | 50. | 60. | 60. | 50. | 60. | × | × |
| **Analog input and others** | | | | | | | | | |
| A005 | [AT] selection | 00 (switching between O and OI terminals), 01 (switching between O and O2 terminals), 02 (switching between O terminal and keypad potentiometer) (*1), 03 (switching between OI terminal and keypad potentiometer) (*1), 04 (switching between O2 and keypad potentiometer) (*1) | 00 | 00 | 00 | 00 | 00 | × | × |
| A006 | [O2] selection | 00 (single), 01 (auxiliary frequency input via O and OI terminals) (nonreversible), 02 (auxiliary frequency input via O and OI terminals) (reversible), 03 (disabling O2 terminal) | 03 | 03 | 03 | 03 | 03 | × | × |
| A011 | O-L input active range start frequency | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*4) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | ○ |
| A012 | O-L input active range end frequency | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*4) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | ○ |
| A013 | O-L input active range start voltabe | 0. to "[O]-[L] input active range end voltage" (%) | 0. | 0. | 0. | 0. | 0. | × | ○ |
| A014 | O-L input active range end voltabe | "[O]-[L] input active range start voltage" to 100. (%) | 100. | 100. | 100. | 100. | 100. | × | ○ |
| A015 | O-L input active range start frequency selection | 00 (external start frequency), 01 (0 Hz) | 01 | 01 | 01 | 01 | 01 | × | ○ |
| A016 | External frequency filter time constant | 1. to 30. or 31. (500 ms filter ±0.1 Hz with hysteresis) | 31. | 31. | 31. | 31. | 31. | × | ○ |
| A017 | Easy sequence function selection | 00 (disabling), 01 (enabling) SJ700D: 00 (disabling), 01 (PRG terminal), 02 (always on) | 00 | 00 | 00 | 00 | 00 | × | × |
| **Multispeed operation and Jogging** | | | | | | | | | |
| A019 | Multispeed operation selection | 00 (binary: 16 speeds selectable with 4 terminals), 01 (bit: 8 speeds selectable with 7 terminals) | 00 | 00 | 00 | 00 | 00 | × | × |
| A020 | Multispeed frequency setting | 0.00 or "start frequency" to "maximum frequency" (Hz) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ○ | ○ |
| A220 | Multispeed frequency setting, 2nd motor | 0.00 or "start frequency" to "maximum frequency, 2nd motor" (Hz) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ○ | ○ |
| A320 | Multispeed frequency setting, 3rd motor | 0.00 or "start frequency" to "maximum frequency, 3rd motor" (Hz) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ○ | ○ |
| A021 - A035 | Multispeed 1-15 setting | 0.00 or "start frequency" to "n-th maximum frequency" (Hz) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ○ | ○ |
| A038 | Jog frequency setting | "Start frequency" to 9.99 (Hz) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | ○ | ○ |
| A039 | Jog stop mode | 00 (free-running after jogging stops [disabled during operation]), 01 (deceleration and stop after jogging stops [disabled during operation]), 02 (DC braking after jogging stops [disabled during operation]), 03 (free-running after jogging stops [enabled during operation]), 04 (deceleration and stop after jogging stops [enabled during operation]), 05 (DC braking after jogging stops [enabled during operation]) | 00 | 00 | 00 | 00 | 00 | × | ○ |
| **V/f Characteristic** | | | | | | | | | |
| A041 | Torque boost method selection | 00 (Manual torque boost) / 01 (Automatic torque boost) | 00 | 00 | 00 | 00 | 00 | × | × |
| A241 | Torque boost method selection, 2nd motor | 00 (Manual torque boost) / 01 (Automatic torque boost) | 00 | 00 | 00 | 00 | 00 | × | × |
| A042 | Manual torque boost value | 0.0 to 20.0 (%) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | ○ | ○ |
| A242 | Manual torque boost value, 2nd motor | 0.0 to 20.0 (%) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | ○ | ○ |
| A342 | Manual torque boost value, 3rd motor | 0.0 to 20.0 (%) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | ○ | ○ |
| A043 | Manual torque boost frequency adjustment | 0.0 to 50.0 (%) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | ○ | ○ |
| A243 | Manual torque boost frequency adjustment, 2nd motor | 0.0 to 50.0 (%) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | ○ | ○ |
| A343 | Manual torque boost frequency adjustment, 3rd motor | 0.0 to 50.0 (%) | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 | ○ | ○ |
| A044 | V/F characteristic curve selection, 1st motor (*5) | 00 (VC), 01 (VP), 02 (free V/f), 03 (sensorless vector control), 04 (0Hz-range sensorless vector), 05 (vector with sensor) | 00 | 00 | 00 | 00 | 00 | × | × |
| A244 | V/F characteristic curve selection, 2nd motor (*5) | 00 (VC), 01 (VP), 02 (free V/f), 03 (sensorless vector control), 04 (0Hz-range sensorless vector) | 00 | 00 | 00 | 00 | 00 | × | × |
| A344 | V/F characteristic curve selection, 3rd motor | 00 (VC), 01 (VP) | 00 | 00 | 00 | 00 | 00 | × | × |
| A045 | V/f gain setting | 20. to 100. (%) | 100. | 100. | 100. | 100. | 100. | ○ | ○ |
| A046 | Voltage compensation gain setting for automatic torque boost. 1st motor | 0. to 255. | 100. | 100. | 100. | 100. | 100. | ○ | ○ |
| A246 | Voltage compensation gain setting for automatic torque boost, 2nd motor | 0. to 255. | 100. | 100. | 100. | 100. | 100. | ○ | ○ |
| A047 | Slippage compensation gain setting for automatic torque boost, 1st motor | 0. to 255. | 100. | 100. | 100. | 100. | 100. | ○ | ○ |
| A247 | Slippage compensation gain setting for automatic torque boost, 2nd motor | 0. to 255. | 100. | 100. | 100. | 100. | 100. | ○ | ○ |
| **DC Braking** | | | | | | | | | |
| A051 | DC braking enable | 00 (disabling), 01 (enabling), 02 (set frequency only) | 00 | 00 | 00 | 00 | 00 | × | ○ |
| A052 | DC braking frequency setting | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*4) | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | × | ○ |
| A053 | DC braking wait time | 0.0 to 5.0 (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | × | ○ |
| A054 | DC braking force during deceleration | SJ700/SJ700D (CT): 0. to 100. (%) <75 to 132kW:0. to 80./185kW and over:0. to 35.> SJ700D (VT): 0. to 70. (%) <75 to 132kW:0. to 50.> SJ700B: 0. to 70. (%) <90kW and over:0. to 50.> | 0 | 0 | 0 | 0 | 20.0 | × | ○ |
| A055 | DC braking time for deceleration | 0.0 to 60.0 (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | × | ○ |
| A056 | DC braking/edge or level detection for [DB] input | 00 (edge operation), 01 (level operation) | 01 | 01 | 01 | 01 | 01 | × | ○ |
| A057 | DC braking force for starting | SJ700/SJ700D (CT): 0. to 100. (%) <75 to 132kW:0. to 80./185kW and over:0. to 35.> SJ700D (VT): 0. to 70. (%) <75 to 132kW:0. to 50.> SJ700B: 0. to 70. (%) <90kW and over:0. to 50.> | 0. | 0. | 0. | 0. | 0. | × | ○ |
| A058 | DC braking time for starting | 0.0 to 60.0 (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | × | ○ |
| A059 | DC braking carrier frequency setting | SJ700/SJ700D (CT): 0.5 to 15.0(kHz) <75 to 132kW:0.5 to 10.0/185kW and over:0.5 to 3.0> SJ700D (VT): 0.5 to 12.0 (kHz) <75 to 132kW:0.5 to 8.0> SJ700B: 0.5 to 12.0 (kHz) <90kW and over:0.5 to 8.0> | 5.0 <75 to 132kW:3.0> | | | 3.0 | 3.0 | × | × |

(*1) This setting is valid only when the OPE-SR is connected. (*2) 4000HF:30. to 120. (Hz)
(*3) Derating is applied for SJ700B. Please consult technician at Hitachi or its distributor before use. (*4) 4000HF:0.00 to 99.99,100.0 to 120.0 (Hz)
(*5) SJ700D (VTmode):00 (VC), 01 (VP), 02 (free V/F), 03 (sensorless vector control)

15

| | Code | Function Name | Monitored data or setting | Default Setting SJ700/SJ700D(CTmode) -FE | -FU | -F | SJ700B -F | -FU | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency Upper/Lower Limit and Jump Frequency | A061 | Frequency upper limit setting | 0.00 or "1st minimum frequency limit" to "maximum frequency" (Hz) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | ○ |
| | A261 | Frequency upper limit setting, 2nd motor | 0.00 or "2nd minimum frequency limit" to "maximum frequency, 2nd motor" (Hz) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | ○ |
| | A062 | Frequency lower limit setting | 0.00 or "start frequency" to "maximum frequency limit" (Hz) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | ○ |
| | A262 | Frequency lower limit setting, 2nd motor | 0.00 or "start frequency" to "maximum frequency, 2nd motor limit" (Hz) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | ○ |
| | A063 | Jump (center) frequency setting 1 | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*1) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | ○ |
| | A064 | Jump (hysteresis) frequency width setting 1 | 0.00 to 10.00 (Hz) | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | × | ○ |
| | A065 | Jump (center) frequency setting 2 | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*1) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | ○ |
| | A066 | Jump (hysteresis) frequency width setting 2 | 0.00 to 10.00 (Hz) | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | × | ○ |
| | A067 | Jump (center) frequency setting 3 | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*1) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | ○ |
| | A068 | Jump (hysteresis) frequency width setting 3 | 0.00 to 10.00 (Hz) | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | × | ○ |
| | A069 | Acceleration stop time frequency setting | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*1) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | ○ |
| | A070 | Acceleration stop time frequency setting | 0.0 to 60.0 (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | × | ○ |
| PID Control | A071 | PID function enable | 00 (disabling), 01 (enabling), 02 (enabling inverted-data output) | 00 | 00 | 00 | 00 | 00 | × | ○ |
| | A072 | PID proportional gain | 0.2 to 5.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | ○ | ○ |
| | A073 | PID integral time constant | 0.0 to 999.9, 1000. to 3600.0 (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | ○ | ○ |
| | A074 | PID derivative gain | 0.00 to 99.99, 100.0 (s) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ○ | ○ |
| | A075 | PV scale conversion | 0.01 to 99.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | × | ○ |
| | A076 | PV source setting | 00 (input via OI), 01 (input via O), 02 (external communication), 03 (pulse-string frequency input), 10 (operation result output) | 00 | 00 | 00 | 00 | 00 | × | ○ |
| | A077 | Output of inverted PID deviation | 00 (OFF), 01 (ON) | 00 | 00 | 00 | 00 | 00 | × | ○ |
| | A078 | PID variation range | 0.0 to 100.0 (%) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | × | ○ |
| | A079 | PID feed forward selection | 00 (disabled), 01 (O input), 02 (OI input), 03 (O2 input) | 00 | 00 | 00 | 00 | 00 | × | ○ |
| AVR | A081 | AVR function select | 00 (always on), 01 (always off), 02 (off during deceleration) | 00 | 00 | 02 | 00 | 02 | × | × |
| | A082 | AVR voltage select | 200 V class: 200, 215, 220, 230, 240 (V)  400 V class: 380, 400, 415, 440, 460, 480 (V) | 400 | 230/460 | 200/400 | 200/400 | 200/400 | × | × |
| Operation Mode and acceleration/ deceleration function | A085 | Operation mode selection | 00 (Normal operation)/ 01 (Energy-saving operation)/ 02 (Fuzzy operation) (*3) | 00 | 00 | 00 | 00 | 00 | × | × |
| | A086 | Energy saving mode tuning | 0.1 to 100.0 | 50.0 | 50.0 | 50.0 | 50.0 | 50.0 | ○ | ○ |
| | A092 | Acceleration (2) time setting | 0.01 to 99.99, 100.0 to 999.9, 1000. to 3600. (s) | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | ○ | ○ |
| | A292 | Acceleration (2) time setting, 2nd motor | 0.01 to 99.99, 100.0 to 999.9, 1000. to 3600. (s) | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | ○ | ○ |
| | A392 | Acceleration (2) time setting, 3rd motor | 0.01 to 99.99, 100.0 to 999.9, 1000. to 3600. (s) | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | ○ | ○ |
| | A093 | Deceleration (2) time setting | 0.01 to 99.99, 100.0 to 999.9, 1000. to 3600. (s) | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | ○ | ○ |
| | A293 | Deceleration (2) time setting, 2nd motor | 0.01 to 99.99, 100.0 to 999.9, 1000. to 3600. (s) | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | ○ | ○ |
| | A393 | Deceleration (2) time setting, 3rd motor | 0.01 to 99.99, 100.0 to 999.9, 1000. to 3600. (s) | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | ○ | ○ |
| External frequency adjustment | A094 | Select method to switch to Acc2/Dec2 profile | 00 (switching by 2CH terminal), 01 (switching by setting), 02 (switching only when rotation is reversed) | 00 | 00 | 00 | 00 | 00 | × | × |
| | A294 | Select method to switch to Acc2/Dec2, 2nd motor | 00 (switching by 2CH terminal), 01 (switching by setting), 02 (switching only when rotation is reversed) | 00 | 00 | 00 | 00 | 00 | × | × |
| | A095 | Acc1 to Acc2 frequency transition point | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*2) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | × |
| | A295 | Acc1 to Acc2 frequency transition point, 2nd motor | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*2) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | × |
| | A096 | Dec1 to Dec2 frequency transition point | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*2) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | × |
| | A296 | Dec1 to Dec2 frequency transition point, 2nd motor | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*2) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | × |
| | A097 | Acceleration curve selection | 00 (linear), 01 (S curve), 02 (U curve), 03 (inverted-U curve), 04 (EL-S curve) | 00 | 00 | 00 | 00 | 00 | × | × |
| | A098 | Deceleration curve selection | 00 (linear), 01 (S curve), 02 (U curve), 03 (inverted-U curve), 04 (EL-S curve) | 00 | 00 | 00 | 00 | 00 | × | × |
| | A101 | OI-L input active range start frequency | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*2) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | ○ |
| | A102 | OI-L input active range end frequency | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*2) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | ○ |
| | A103 | OI-L input active range start current | 0. to "[OI]-[L] input active range end current" (%) | 20. | 20. | 20. | 20. | 20. | × | ○ |
| | A104 | OI-L input active range end current | "[OI]-[L] input active range start current" to 100. (%) | 100. | 100. | 100. | 100. | 100. | × | ○ |
| | A105 | OI-L input start frequency enable | 00 (external start frequency), 1 (0 Hz) | 00 | 00 | 00 | 00 | 00 | × | ○ |
| | A111 | O2-L input active range start frequency | -400. to -100., -99.9 to 0.00 to 99.99, 100.0 to 400.0 (Hz) (*3) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | ○ |
| | A112 | O2-L input active range end frequency | -400. to -100., -99.9 to 0.00 to 99.99, 100.0 to 400.0 (Hz) (*3) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | ○ |
| | A113 | O2-L input active range start voltage | -100. to 02 end-frequency rate (%) | -100. | -100. | -100. | -100. | -100. | × | ○ |
| | A114 | O2-L input active range end voltage | "02 start-frequency rate" to 100. (%) | 100. | 100. | 100. | 100. | 100. | × | ○ |
| Acceleration and deceleration | A131 | Acceleration curve constants setting | 01 (smallest swelling) to 10 (largest swelling) | 02 | 02 | 02 | 02 | 02 | × | ○ |
| | A132 | Deceleration curve constants setting | 01 (smallest swelling) to 10 (largest swelling) | 02 | 02 | 02 | 02 | 02 | × | ○ |
| Operation-target frequency | A141 | Operation-target frequency selection 1 | 00 (digital operator), 01 (keypad potentiometer), 02 (input via O), 03 (input via OI), 04 (external communication), 05 (option 1), 06 (option 2), 07 (pulse-string frequency input) | 02 | 02 | 02 | 02 | 02 | × | ○ |
| | A142 | Operation-target frequency selection 2 | 00 (digital operator), 01 (keypad potentiometer), 02 (input via O), 03 (input via OI), 04 (external communication), 05 (option 1), 06 (option 2), 07 (pulse-string frequency input) | 03 | 03 | 03 | 03 | 03 | × | ○ |
| | A143 | Operator selection | 00 (addition: A141 + A142), 01 (subtraction: A141 - A142), 02 (multiplication: A141 x A142) | 00 | 00 | 00 | 00 | 00 | × | ○ |
| | A145 | Frequency to be added | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*2) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | ○ |
| | A146 | Sign of the frequency to be added | 00 (frequency command + A145), 01 (frequency command - A145) | 00 | 00 | 00 | 00 | 00 | × | ○ |
| Acceleration and deceleration | A150 | EL-S-curve acceleration ratio 1 | 0. to 50. (%) | 25. | 25. | 25. | 25. | 25. | × | × |
| | A151 | EL-S-curve acceleration ratio 2 | 0. to 50. (%) | 25. | 25. | 25. | 25. | 25. | × | × |
| | A152 | EL-S-curve deceleration ratio 1 | 0. to 50. (%) | 25. | 25. | 25. | 25. | 25. | × | × |
| | A153 | EL-S-curve deceleration ratio 2 | 0. to 50. (%) | 25. | 25. | 25. | 25. | 25. | × | × |

(*1) 4000HF:0.00 to 99.99,100.0 to 120.0 (Hz)   (*2) -120. to -100., -99.9 to 0.00 to 99.99 ,100.0 to 120.0 (Hz)
(*3) SJ700D (VT mode):00 (Normal operation), 01 (Energy saving operation)

## ● B GROUP: FINE TUNING FUNCTIONS

[○ = Allowed  ✕= Not permitted]

| Code | Function Name | Monitored data or setting | SJ700/SJ700D(CTmode) -FE | SJ700/SJ700D(CTmode) -FU | SJ700/SJ700D(CTmode) -F | SJ700B -F | SJ700B -FU | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|---|---|---|---|---|---|---|---|---|---|
| b001 | Selection of restart mode | 00 (tripping), 01 (starting with 0 Hz), 02 (starting with matching frequency), 03 (tripping after deceleration and stopping with matching frequency), 04 (restarting with active matching frequency) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| b002 | Allowable under-voltage power failure time | 0.3 to 25.0 (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | ✕ | ○ |
| b003 | Retry wait time before motor restart | 0.3 to 100.0 (s) | 1.0 (*1) | 1.0 (*1) | 1.0 (*1) | 1.0 | 1.0 | ✕ | ○ |
| b004 | Instantaneous power failure/under-voltage trip alarm enable | 00 (disabling), 01 (enabling), 02 (disabling during stopping and decelerating to stop) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| b005 | Number of restarts on power failure/under-voltage trip events | 00 (16 times), 01 (unlimited) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| b006 | (Input) Phase loss detection enable | 00 (disabling), 01 (enabling) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| b007 | Restart frequency threshold | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*2) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ✕ | ○ |
| b008 | Selection of retry after tripping | 00 (tripping), 01 (starting with 0 Hz), 02 (starting with matching frequency), 03 (tripping after deceleration and stopping with matching frequency), 04 (restarting with active matching frequency) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| b009 | Selection of retry after undervoltage | 00 (16 times), 01 (unlimited) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| b010 | Selection of retry count after overvoltage or overcurrent | 1 to 3 (times) | 3 | 3 | 3 | 3 | 3 | ✕ | ○ |
| b011 | Retry wait time after tripping | 0.3 to 100.0 (s) | 1.0 (*1) | 1.0 (*1) | 1.0 (*1) | 1.0 | 1.0 | ✕ | ○ |
| b012 | Electronic thermal setting (calculated within the inverter from current output) | 0.20 x "rated current" to 1.00 x "rated current" (A) | Rated current of inverter x 1.00 | | | | | ✕ | ○ |
| b212 | Electronic thermal setting (calculated within the inverter from current output), 2nd motor | 0.20 x "rated current" to 1.00 x "rated current" (A) | | | | | | ✕ | ○ |
| b312 | Electronic thermal setting (calculated within the inverter from current output), 3rd motor | 0.20 x "rated current" to 1.00 x "rated current" (A) | | | | | | ✕ | ○ |
| b013 | Electronic thermal characteristic | 00 (reduced-torque characteristic), 01 (constant-torque characteristic), 02 (free setting) | 01 | 01 | 00 | 01 | 01 | ✕ | ○ |
| b213 | Electronic thermal characteristic, 2nd motor | 00 (reduced-torque characteristic), 01 (constant-torque characteristic), 02 (free setting) | 01 | 01 | 00 | 01 | 01 | ✕ | ○ |
| b313 | Electronic thermal characteristic, 3rd motor | 00 (reduced-torque characteristic), 01 (constant-torque characteristic), 02 (free setting) | 01 | 01 | 00 | 01 | 01 | ✕ | ○ |
| b015 | Free-setting electronic thermal frequency (1) | 0. to (b017) (Hz) | 0. | 0. | 0. | 0. | 0. | ✕ | ○ |
| b016 | Free-setting electronic thermal current (1) | 0.00 to rated current (A) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | ○ |
| b017 | Free-setting electronic thermal frequency (2) | (b015) to (b019) (Hz) | 0. | 0. | 0. | 0. | 0. | ✕ | ○ |
| b018 | Free-setting electronic thermal current (2) | 0.00 to rated current (A) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | ○ |
| b019 | Free-setting electronic thermal frequency (3) | (b017) to 400. (*3) | 0. | 0. | 0. | 0. | 0. | ✕ | ○ |
| b020 | Free-setting electronic thermal current (3) | 0.00 to rated current (A) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | ○ |
| b021 | Overload restriction operation mode | 00 (disabling), 01 (enabling during acceleration and deceleration), 02 (enabling during constant speed), 03 (enabling during acceleration and deceleration (increasing the speed during regeneration)) | 01 | 01 | 01 | 01 | 01 | ✕ | ○ |
| b022 | Overload restriction setting | SJ700/SJ700D (CT): 0.20 x "rated current" to 2.00 x "rated current" (A) < 75kW and over:0.20 x 1.80 > SJ700D (VT)/SJ700B: 0.20 x "rated current" to 1.50 x "rated current" (A) | Rated current x 1.50 | | | Rated current x 1.20 | | ✕ | ○ |
| b023 | Deceleration rate at overload restriction | 0.10 to 30.00 (s) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | ✕ | ○ |
| b024 | Overload restriction operation mode (2) | 00 (disabling), 01 (enabling during acceleration and deceleration), 02 (enabling during constant speed), 03 (enabling during acceleration and deceleration (increasing the speed during regeneration)) | 01 | 01 | 01 | 01 | 01 | ✕ | ○ |
| b025 | Overload restriction setting (2) | SJ700/SJ700D (CT): 0.20 x "rated current" to 2.00 x "rated current" (A) < 75kW and over:0.20 x 1.80 > SJ700D (VT)/SJ700B: 0.20 x "rated current" to 1.50 x "rated current" (A) | Rated current x 1.50 | | | Rated current x 1.20 | | ✕ | ○ |
| b026 | Deceleration rate at overload restriction (2) | 0.10 to 30.00 (s) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | ✕ | ○ |
| b027 | Overcurrent suppression enable | 00 (disabling), 01 (enabling) | 01 | 01 | 01 | 01 | 01 | ✕ | ○ |
| b028 | Active frequency matching, scan start frequency | SJ700/SJ700D (CT): 0.20 x "rated current" to 2.00 x "rated current" (A) < 75kW and over:0.20 x 1.80 > SJ700D (VT)/SJ700B: 0.20 x "rated current" to 1.50 x "rated current" (A) | Rated current of inverter x 1.00 | | | | | ✕ | ○ |
| b029 | Active frequency matching, scan-time constant | 0.10 to 30.00 (s) | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | ✕ | ○ |
| b030 | Active frequency matching, restart frequency select | 00 (frequency at the last shutoff), 01 (maximum frequency), 02 (set frequency) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| b031 | Software lock mode selection | 00 (disabling change of data other than "b031" when SFT is on), 01 (disabling change of data other than "b031" and frequency settings when SFT is on), 02 (disabling change of data other than "b031"), 03 (disabling change of data other than "b031" and frequency settings), 10 (enabling data changes during operation) | 01 | 01 | 01 | 01 | 01 | ✕ | ○ |
| b034 | RUN/ power-on warning time | 0. to 9999. (0 to 99990), 1000 to 6553 (10000 to 655300) (hr) | 0. | 0. | 0. | 0. | 0. | ✕ | ○ |
| b035 | Rotational direction restriction | 00 (enabling both forward and reverse rotations), 01 (enabling only forward rotation), 02 (enabling only reverse rotation) | 00 | 00 | 00 | 00 | 00 | ✕ | ✕ |
| b036 | Reduced voltage start selection | 0 (minimum reduced voltage start time) to 255 (maximum reduced voltage start time) | 06 | 06 | 06 | 06 | 06 | ✕ | ○ |
| b037 | Function code display restriction | 00 (full display), 01 (function-specific display), 02 (user setting), 03 (data comparison display), 04 (basic display) | 00 (*4) | 00 (*4) | 00 (*4) | 04 | 04 | ✕ | ○ |
| b038 | Initial-screen selection | SJ700D: 000 (Func code that STR key pressed last displayed), 001 to 060 (d001 to d060), 201 (F001) SJ700/SJ700B: 00 (screen displayed when the STR key was pressed last), 01 (d001), 02 (d002), 03 (d003), 04 (d007), 05 (F001) | 001 (*5) | 001 (*5) | 001 (*5) | 01 | 01 | ✕ | ○ |
| b039 | Automatic user-parameter setting function enable | 00 (disabling), 01 (enabling) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |

(*1) 4000HF:5.0   (*2) 4000HF:0.00 to 99.99,100.0 to 120.0 (Hz)   (*3) 4000HF:0. to 120. (Hz)   (*4) SJ700-2:04. (basic display)   (*5) SJ700-2:01

[○ = Allowed  ×= Not permitted]

| | Code | Function Name | Monitored data or setting | Default Setting SJ700/SJ700D(CTmode) -FE | -FU | SJ700B -F | -F | -FU | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|---|---|---|---|---|---|---|---|---|---|---|
| Torque limitation | b040 | Torque limit selection | 00 (quadrant-specific setting), 01 (switching by terminal), 02 (analog input), 03 (option 1),04 (option 2) | 00 | 00 | 00 | 00 | 00 | × | ○ |
| | b041 | Torque limit (1) (Forward-driving in 4-quadrant mode) | SJ700/SJ700D (CT): 0. to 200. (%), no (disabling torque limitation) < 75kW and over:0. to 180.> SJ700D (VT)/SJ700B: 0. to 150. (%), no (disabling torque limitation) | 150. | 150. | 150. | 150. | 120. | × | ○ |
| | b042 | Torque limit (2) (Reverse-regenerating in 4-quadrant mode) | SJ700/SJ700D (CT): 0. to 200. (%), no (disabling torque limitation) < 75kW and over:0. to 180.> SJ700D (VT)/SJ700B: 0. to 150. (%), no (disabling torque limitation) | 150. | 150. | 150. | 150. | 120. | × | ○ |
| | b043 | Torque limit (3) (Reverse-driving in 4-quadrant mode) | SJ700/SJ700D (CT): 0. to 200. (%), no (disabling torque limitation) < 75kW and over:0. to 180.> SJ700D (VT)/SJ700B: 0. to 150. (%), no (disabling torque limitation) | 150. | 150. | 150. | 150. | 120. | × | ○ |
| | b044 | Torque limit (4) (Forward-regenerating in 4-quadrant mode) | SJ700/SJ700D (CT): 0. to 200. (%), no (disabling torque limitation) < 75kW and over:0. to 180.> SJ700D (VT)/SJ700B: 0. to 150. (%), no (disabling torque limitation) | 150. | 150. | 150. | 150. | 120. | × | ○ |
| | b045 | Torque limit LADSTOP enable | 00 (disabling), 01 (enabling) | 00 | 00 | 00 | 00 | 00 | × | ○ |
| Non-stop operation at momentary power failure | b046 | Reverse RUN protection enable | 00 (disabling), 01 (enabling) | 00 | 00 | 00 | 00 | 01 | × | ○ |
| | b049 | CT/VT selection (SJ700D only) | 00 (CT : Constant torque), 01 (VT : Variable torque) | 00 | 00 | 00 | × | × | × | × |
| | b050 | Controlled deceleration and stop on power loss | 00 (disabling), 01 (nonstop deceleration to stop), 02 (DC voltage constant control, with resume), 03 (DC voltage constant control, without resure) | 00 | 00 | 00 | 00 | 00 | × | × |
| | b051 | DC bus voltage trigger level during power loss | 0.0 to 999.9, 1000. (V) | 220.0/440.0 | 220.0/440.0 | 220.0/440.0 | 220.0/440.0 | 220.0/440.0 | × | × |
| | b052 | Over-voltage threshold during power loss | 0.0 to 999.9, 1000. (V) | 360.0/720.0 | 360.0/720.0 | 360.0/720.0 | 360.0/720.0 | 360.0/720.0 | × | × |
| | b053 | Deceleration time setting during power loss | 0.01 to 99.99, 100.0 to 999.9, 1000. to 3600. (s) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | × | × |
| | b054 | Initial output frequency decrease during power loss | 0.00 to 10.00 (Hz) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | × | × |
| | b055 | Proportional gain setting for nonstop operation at power loss | 0.00 to 2.55 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | ○ | ○ |
| | b056 | Integral time setting for nonstop operation at power loss | 0.0 to 9.999 /10.00 to 65.55 | 0.100 | 0.100 | 0.100 | 0.100 | 0.100 | ○ | ○ |
| Window comparator | b060 | Maximum-limit level of window comparators O | 0. to 100. (lower limit : b061 + b062*2) (%) | 100 | 100 | 100 | 100 | 100 | ○ | ○ |
| | b061 | Minimum-limit level of window comparators O | 0. to 100. (lower limit : b060 - b062*2) (%) | 0 | 0 | 0 | 0 | 0 | ○ | ○ |
| | b062 | Hysteresis width of window comparators O | 0. to 10. (lower limit : b061 - b062 / 2) (%) | 0 | 0 | 0 | 0 | 0 | ○ | ○ |
| | b063 | Maximum-limit level of window comparators OI | 0. to 100. (lower limit : b064 + b066*2) (%) | 100 | 100 | 100 | 100 | 100 | ○ | ○ |
| | b064 | Minimum-limit level of window comparators OI | 0. to 100. (lower limit : b063 - b066*2) (%) | 0 | 0 | 0 | 0 | 0 | ○ | ○ |
| | b065 | Hysteresis width of window comparators OI | 0. to 10. (lower limit : b063 - b064 / 2) (%) | 0 | 0 | 0 | 0 | 0 | ○ | ○ |
| | b066 | Maximum-limit level of window comparators OI | -100. to 100. (lower limit : b067 + b068*2) (%) | 100 | 100 | 100 | 100 | 100 | ○ | ○ |
| | b067 | Minimum-limit level of window comparators O/OI/O2 | -100. to 100. (lower limit : b066 - b068*2) (%) | -100 | -100 | -100 | -100 | -100 | ○ | ○ |
| | b068 | Hysteresis width of window comparators O/OI/O2 | 0. to 10. (lower limit : b066 - b067 / 2) (%) | 0 | 0 | 0 | 0 | 0 | ○ | ○ |
| | b070 | Operation level at O disconnection | 0 to 100 (%) or "no" (ignore) | 255(no) | 255(no) | 255(no) | 255(no) | 255(no) | × | ○ |
| | b071 | Operation level at OI disconnection | 0 to 100 (%) or "no" (ignore) | 255(no) | 255(no) | 255(no) | 255(no) | 255(no) | × | ○ |
| | b072 | Operation level at O2 disconnection | 0 to 100 (%) or "no" (ignore) | 127(no) | 127(no) | 127(no) | 127(no) | 127(no) | × | ○ |
| Others | b078 | Cumulative input power data clearance | Clearance by setting "01" and pressing the STR key | 00 | 00 | 00 | 00 | 00 | ○ | ○ |
| | b079 | Cumulative input power display gain setting | 1. to 1000. | 1. | 1. | 1. | 1. | 1. | ○ | ○ |
| | b082 | Start frequency adjustment | 0.10 to 9.99 (Hz) | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | × | ○ |
| | b083 | Carrier frequency setting | SJ700/SJ700D (CT): 0.5 to 15.0 (kHz) <75 to 132kW:0.5 to 10.0/185kW and over:0.5 to 3.0> SJ700D (VT): 0.5 to 12.0 (kHz) <75 to 132kW:0.5 to 8.0.> SJ700B: 0.5 to 12.0 (kHz) <90kW and over:0.5 to 8.0> | 5.0(*2) | 5.0(*2) | 5.0(*2) | 3.0(*1) | 3.0(*1) | × | × |
| | b084 | Initialization mode (parameters or trip history) | SJ700D: 00 (disabling), 01 (cleaning the trip history), 02 (initializing the data), 03 (cleaning the trip history and initializing the data), 04 (cleaning the trip history and initializing the data and EzSQ program) SJ700/SJ700B: 00 (clearing the trip history), 01 (initializing the data), 02 (clearing the trip history and initializing the data) | 00 | 00 | 00 | 00 | 00 | × | × |
| | b085 | Country code for initialization | 00 (Japan), 01 (EU), 02 (U.S.A.) | 01 | 02 | 00 | 01 | 02 | × | × |
| | b086 | Frequency scaling conversion factor | 0.1 to 99.9 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | ○ | ○ |
| | b087 | STOP key enable | 00 (enabling), 01 (disabling), 02 (disabling only the function to stop) | 00 | 00 | 00 | 00 | 00 | × | ○ |
| | b088 | Restart mode after FRS | 00 (starting with 0 Hz), 01 (starting with matching frequency), 02 (starting with active matching frequency) | 00 | 00 | 00 | 00 | 00 | × | ○ |
| | b089 | Automatic carrier frequency reduction | 00: invalid, 01: valid | 00 | 00 | 00 | 00 | 00 | × | × |
| | b090 | Dynamic braking usage ratio | 0.0 to 100.0 (%) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | × | ○ |
| | b091 | Stop mode selection | 00 (deceleration until stop), 01 (free-run stop) | 00 | 00 | 00 | 00 | 00 | × | ○ |
| | b092 | Cooling fan control | 00 (always operating the fan), 01 (operating the fan only during inverter operation [including 5 minutes after power-on and power-off]) | 00 | 00 | 00 | 00 | 01 | × | ○ |
| | b095 | Dynamic braking control | 00 (disabling), 01 (enabling [disabling while the motor is topped]), 02 (enabling [enabling also while the motor is topped]) | 00 | 00 | 00 | 00 | 01 | × | ○ |
| | b096 | Dynamic braking activation level | 330 to 380, 660 to 760 (V) | 360/720 | 360/720 | 360/720 | 360/720 | 360/720 | × | ○ |
| | b098 | Thermistor for thermal protection control | 00 (disabling the thermistor), 01 (enabling the thermistor with PTC), 02 (enabling the thermistor with NTC) | 00 | 00 | 00 | 00 | 00 | × | ○ |
| | b099 | Thermal protection level setting | 0. to 9999. (Ω) | 3000. | 3000. | 3000. | 3000. | 3000. | × | ○ |
| Free setting of V/f characteristic | b100 | Free-setting V/f frequency (1) | 0. to "free-setting V/f frequency (2)" (Hz) | 0. | 0. | 0. | 0. | 0. | × | × |
| | b101 | Free-setting V/f voltage (1) | 0.0 to 800.0 (V) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | × | × |
| | b102 | Free-setting V/f frequency (2) | 0. to "free-setting V/f frequency (3)" (Hz) | 0. | 0. | 0. | 0. | 0. | × | × |
| | b103 | Free-setting V/f voltage (2) | 0.0 to 800.0 (V) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | × | × |
| | b104 | Free-setting V/f frequency (3) | 0. to "free-setting V/f frequency (4)" (Hz) | 0. | 0. | 0. | 0. | 0. | × | × |
| | b105 | Free-setting V/f voltage (3) | 0.0 to 800.0 (V) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | × | × |
| | b106 | Free-setting V/f frequency (4) | 0. to "free-setting V/f frequency (5)" (Hz) | 0. | 0. | 0. | 0. | 0. | × | × |
| | b107 | Free-setting V/f voltage (4) | 0.0 to 800.0 (V) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | × | × |

(*1) "Over current protection" , " Overload restriction" , "Over current limiting" and "Electronic thermal protection" might operate from the set value when "Carrier frequency setting" is used with less than 2kHz by a low value. Please set to 2kHz or more and use the setting of "Carrier frequency setting" for such a situation.
(*2) 750HF to 1320HF: 3.0 1850HF, 2200HF and 3150HF:2.1, 4000HF:1.9  (*3) 4000HF: 0.0 to 120.0 (Hz)

18

| Code | Function Name | Monitored data or setting | Default Setting | | | | | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|---|---|---|---|---|---|---|---|---|---|
| | | | SJ700/SJ700D(CTmode) | | | SJ700B | | | |
| | | | -FE | -FU | -F | -F | -FU | | |
| b108 | Free-setting V/f frequency (5) | 0. to "free-setting V/f frequency (6)" (Hz) | 0. | 0. | 0. | 0. | 0. | ✕ | ✕ |
| b109 | Free-setting V/f voltage (5) | 0.0 to 800.0 (V) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | ✕ |
| b110 | Free-setting V/f frequency (6) | 0. to "free-setting V/f frequency (7)" (Hz) | 0. | 0. | 0. | 0. | 0. | ✕ | ✕ |
| b111 | Free-setting V/f voltage (6) | 0.0 to 800.0 (V) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | ✕ |
| b112 | Free-setting V/f frequency (7) | 0.0 to 400.0 (Hz) (*4) | 0. | 0. | 0. | 0. | 0. | ✕ | ✕ |
| b113 | Free-setting V/f voltage (7) | 0.0 to 800.0 (V) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | ✕ |
| b120 | Brake control enable (*3) | 00 (disabling), 01 (enabling) | 00 | 00 | 00 | 00 | 00 | ✕ | ◯ |
| b121 | Brake wait time for release (*3) | 0.00 to 5.00 (s) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ✕ | ◯ |
| b122 | Brake wait time for acceleration (*3) | 0.00 to 5.00 (s) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ✕ | ◯ |
| b123 | Brake wait time for stopping (*3) | 0.00 to 5.00 (s) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ✕ | ◯ |
| b124 | Brake wait time for confirmation (*3) | 0.00 to 5.00 (s) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ✕ | ◯ |
| b125 | Brake release frequency setting (*3) | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*1) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ✕ | ◯ |
| b126 | Brake release current setting (*3) | SJ700/SJ700D: 0.0 to 2.00 x "rated current" (A)<br>< 75kW and over:0.0 to 1.80 x "rated current" (A)><br>SJ700B: 0.0 to 1.50 x "rated current" (A) | Rated current x 1.00 | | | | | ✕ | ◯ |
| b127 | Braking frequency (*3) | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*1) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ✕ | ◯ |
| b130 | Overvoltage suppression enable | 00 (disabling the restraint), 01 (decelerating and stagnating),<br>02 (enabling acceleration with deceleration),<br>03 (enabling acceleration) (SJ700D only) | 00 | 00 | 00 | 00 | 00 | ✕ | ◯ |
| b131 | Overvoltage suppression level | 330 to 390 (V) (200 V class model), 660 to 780 (V) (400 V class model) | 380/760 | 380/760 | 380/760 | 380/760 | 380/760 | ✕ | ◯ |
| b132 | Acceleration and deceleration rate at overvoltage suppression | 0.10 to 30.00 (s) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | ✕ | ◯ |
| b133 | Overvoltage suppression propotional gain | 0.00 to 2.55 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | ◯ | ◯ |
| b134 | Overvoltage suppression Integral time | 0.000 to 9.999 / 10.00 to 63.53 (s) | 0.060 | 0.060 | 0.060 | 0.060 | 0.060 | ◯ | ◯ |
| b141 | Output loss detection enable (SJ700D only) | 00 (disabling), 01 (enabling) | 00 | 00 | 00 | ✕ | ✕ | ✕ | ◯ |
| b142 | Output loss detection sensibility (SJ700D only) | 1.to 100.(%) | 10. | 10. | 10. | ✕ | ✕ | ✕ | ◯ |
| b164 | Automatic return to initial display (SJ700D only) | 00 (disabling), 01 (enabling) | 00 | 00 | 00 | ✕ | ✕ | ◯ | ◯ |
| b166 | Data Read/Write select (SJ700D only) | 00 (Read/Write OK), 01 (Protected) | 00 | 00 | 00 | ✕ | ✕ | ✕ | ◯ |
| b180 | Initialization trigger (SJ700D only) | 00 (Initialization disable), 01 (Perform initialization) | 00 | 00 | 00 | ✕ | ✕ | ✕ | ✕ |

(*1) 4000HF: 0.00 to 120.0 (Hz)    (*2) 4000HF: 0.00 to 99.99, 100.0 to 120.0 (Hz)    (*3) SJ700D (VT): Not available (no display)

## ● C GROUP: INTELLIGENT TERMINAL FUNCTIONS

[ ◯ = Allowed ✕= Not permitted]

| Code | Function Name | Monitored data or setting | Default Setting | | | | | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|---|---|---|---|---|---|---|---|---|---|
| | | | SJ700/SJ700D(CTmode) | | | SJ700B | | | |
| | | | -FE | -FU | -F | -F | -FU | | |
| C001 | Terminal [1] function (*1) | 01 (RV: Reverse RUN), 02 (CF1: Multispeed 1 setting), 03 (CF2: Multispeed 2 setting), 04 (CF3: Multispeed 3 setting), 05 (CF4: Multispeed 4 setting), 06 (JG: Jogging), 07 (DB: external DC braking), 08 (SET: Set 2nd motor data), 09 (2CH: 2-stage acceleration/deceleration), 11 (FRS: free-run stop), 12 (EXT: external trip), 13 (USP: unattended start protection), 14: (CS: commercial power source enable), 15 (SFT: software lock), 16 (AT: analog input voltage/current select), 17 (SET3: 3rd motor control), 18 (RS: reset), 20 (STA: starting by 3-wire input), 21 (STP: stopping by 3-wire input), 22 (F/R: forward/reverse switching by 3-wire input), 23 (PID: PID disable), 24 (PIDC: PID reset), 26 (CAS: control gain setting), 27 (UP: remote control UP function), 28 (DWN: remote control DOWN function), 29 (DWN: remote control data clearing), 31 (OPE: forcible operation), 32 (SF1: multispeed bit 1), 33 (SF2: multispeed bit 2), 34 (SF3: multispeed bit 3), 35 (SF4: multispeed bit 4), 36 (SF5: multispeed bit 5), 37 (SF6: multispeed bit 6), 38 (SF7: multispeed bit 7), 39 (OLR: overload restriction selection), 40 (TL: torque limit enable), 41 (TRQ1: torque limit selection bit 1), 42 (TRQ2: torque limit selection bit 2), 43 (PPI: P/PI mode selection), 44 (BOK: braking confirmation), 45 (ORT: orientation), 46 (LAC: LAD cancellation), 47 (PCLR: clearance of position deviation), 48 (STAT: pulse train position command input enable), 50 (ADD: trigger for frequency addition [A145]), 51 (F-TM: forcible-terminal operation), 52 (ATR: permission of torque command input), 53 (KHC: cumulative power clearance), 54 (SON: servo-on), 55 (FOC: pre-excitation), 56 (MI1: general-purpose input 1), 57 (MI2: general-purpose input 2), 58 (MI3: general-purpose input 3), 59 (MI4: general-purpose input 4), 60 (MI5: general-purpose input 5), 61 (MI6: general-purpose input 6), 62 (MI7: general-purpose input 7), 63 (MI8: general-purpose input 8), 64 (EMR: Emergency stop) (*1), 65 (AHD: analog command holding), 66 (CP1: multistage position settings selection 1 ), 67 (CP2: multistage position settings selection 2), 68 (CP3: multistage position settings selection 3), 69 (ORL: Zero-return limit function), 70 (ORG: Zero-return trigger function), 71 (FOT: forward drive stop), 72 (ROT: reverse drive stop), 73 (SPD: speed / position switching), 74 (PCNT: pulse counter), 75 (PCC: pulse counter clear), 82 (PRG: EzSQ program) (SJ700D only), no (NO: no assignment) | 18 (RS) | 18 (RS) | 18 (RS) | 18 (RS) | 18 (RS) | ✕ | ◯ |
| C002 | Terminal [2] function | | 16 (AT) | 16 (AT) | 16 (AT) | 16 (AT) | 16 (AT) | ✕ | ◯ |
| C003 | Terminal [3] function (*1) | | 06 (JG) | 06 (JG) | 06 (JG) | 06 (JG) | 03 (CF2) | ✕ | ◯ |
| C004 | Terminal [4] function | | 11 (FRS) | 11 (FRS) | 11 (FRS) | 11 (FRS) | 02 (CF1) | ✕ | ◯ |
| C005 | Terminal [5] function | | 09 (2CH) | 09 (2CH) | 09 (2CH) | 09 (2CH) | 01 (RV) | ✕ | ◯ |
| C006 | Terminal [6] function | | 03 (CF2) | 13 (USP) | 03 (CF2) | 03 (CF2) | 06 (JG) | ✕ | ◯ |
| C007 | Terminal [7] function | | 02 (CF1) | 02 (CF1) | 02 (CF1) | 02 (CF1) | 11 (FRS) | ✕ | ◯ |
| C008 | Terminal [8] function | | 01 (RV) | 01 (RV) | 01 (RV) | 01 (RV) | 13 (USP) | ✕ | ◯ |
| C011 | Terminal (1) active state | 00 (NO) / 01 (NC) | 00 | 00 | 00 | 00 | 00 | ✕ | ◯ |
| C012 | Terminal (2) active state | 00 (NO) / 01 (NC) | 00 | 00 | 00 | 00 | 00 | ✕ | ◯ |
| C013 | Terminal (3) active state | 00 (NO) / 01 (NC) | 00 | 00 | 00 | 00 | 00 | ✕ | ◯ |
| C014 | Terminal (4) active state | 00 (NO) / 01 (NC) | 00 | 00 | 00 | 00 | 00 | ✕ | ◯ |
| C015 | Terminal (5) active state | 00 (NO) / 01 (NC) | 00 | 00 | 00 | 00 | 00 | ✕ | ◯ |
| C016 | Terminal (6) active state | 00 (NO) / 01 (NC) | 00 | 01 | 00 | 00 | 00 | ✕ | ◯ |
| C017 | Terminal (7) active state | 00 (NO) / 01 (NC) | 00 | 00 | 00 | 00 | 00 | ✕ | ◯ |
| C018 | Terminal (8) active state | 00 (NO) / 01 (NC) | 00 | 00 | 00 | 00 | 00 | ✕ | ◯ |
| C019 | Terminal FW active state | 00 (NO) / 01 (NC) | 00 | 00 | 00 | 00 | 00 | ✕ | ◯ |

(*1) When the emergency stop function is enabled (SW1 = ON), "18" (RS) and "64" (EMR) are forcibly written to parameters "C001" and "C003",
respectively. (You cannot arbitrarily write "64" to "C001".) If the SW1 signal is turned off and then turned on, "no" (no assignment) is set in parameter "C003".
(*2) 1850HF,2200HF,3150HF and 4000HF:The function is not provided.

| Code | Function Name | Monitored data or setting | Default Setting SJ700/SJ700D(CTmode) -FE | -FU | -F | SJ700B -F | -FU | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|---|---|---|---|---|---|---|---|---|---|
| **Intelligent output terminals** | | | | | | | | | |
| C021 | Terminal (11) function | 00 (RUN: running), 01 (FA1: constant-speed reached), 02 (FA2: set frequency overreached), 03 (OL: overload notice advance signal (1)), 04 (OD: output deviation for PID control), 05 (AL: alarm signal), 06 (FA3: set frequency reached), 07 (OTQ: over-torque), 08 (IP: instantaneous power failure), 09 (UV: undervoltage), 10 (TRQ: torque limited), 11 (RNT: operation time over), 12 (ONT: plug-in time over), 13 (THM: thermal alarm signal), 19 (BRK: brake release), 20 (BER: braking error), 21 (ZS: 0 Hz detection signal), 22 (DSE: speed deviation maximum), 23 (POK: positioning completed),24 (FA4: set frequency overreached 2), 25 (FA5: set frequency reached 2), 26 (OL2: overload notice advance signal (2)), 27 (Odc: Analog O disconnection detection), 28 (OIDc: Analog OI disconnection detection), 29 (O2Dc: Analog O2 disconnection detection), 31 (FBV: PID feedback comparison), 32 (NDc: communication line disconnection), 33 (LOG1: logical operation result 1), 34 (LOG2: logical operation result 2), 35 (LOG3: logical operation result 3), 36 (LOG4: logical operation result 4), 37 (LOG5: logical operation result 5), 38 (LOG6: logical operation result 6), 39 (WAC: capacitor life warning) (*2), 40 (WAF: cooling-fan speed drop), 41 (FR: starting contact signal), 42 (OHF: heat sink overheat warning), 43 (LOC: low-current indication signal), 44 (M01: general-purpose output 1), 45 (M02: general-purpose output 2), 46 (M03: general-purpose output 3), 47 (M04: general-purpose output 4), 48 (M05: general-purpose output 5), 49 (M06: general-purpose output 6), 50 (IRDY: inverter ready), 51 (FWR: forward rotation), 52 (RVR: reverse rotation), 53 (MJA: major failure), 54 (WCO: window comparator O), 55 (WCOI: window comparator OI), 56 (WCO2: window comparator O2) (When alarm code output is selected for "C062", functions "AC0" to "AC2" or "AC0" to "AC3" [ACn: alarm code output] are forcibly assigned to intelligent output terminals 11 to 13 or 11 to 14, respectively.) | 01 (FA1) | 01 (FA1) | 01 (FA1) | 01 (FA1) | 01 (FA1) | ✕ | ○ |
| C022 | Terminal (12) function | | 00 (RUN) | 00 (RUN) | 00 (RUN) | 00 (RUN) | 00 (RUN) | ✕ | ○ |
| C023 | Terminal (13) function | | 03 (OL) | 03 (OL) | 03 (OL) | 03 (OL) | 03 (OL) | ✕ | ○ |
| C024 | Terminal (14) function | | 07 (OTO) | 07 (OTO) | 07 (OTO) | 07 (OTO) | 07 (OTO) | ✕ | ○ |
| C025 | Terminal (15) function | | 40 (WAF) | 40 (WAF) | 40 (WAF) | 40 (WAF) | 40 (WAF) | ✕ | ○ |
| C026 | Alarm relay terminal function | | 05 (AL) | 05 (AL) | 05 (AL) | 05 (AL) | 05 (AL) | ✕ | ○ |
| **Analog monitoring** | | | | | | | | | |
| C027 | FM signal selection | 00 (output frequency), 01 (output current), 02 (output torque), 03 (digital output frequency), 04 (output voltage), 05 (input power), 06 (electronic thermal overload), 07 (LAD frequency), 08 (digital current monitoring), 09 (motor temperature), 10 (heat sink temperature), 12 (general-purpose output YA0) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| C028 | AM signal selection | 00 (output frequency), 01 (output current), 02 (output torque), 04 (output voltage), 05 (input power), 06 (electronic thermal overload), 07 (LAD frequency), 09 (motor temperature), 10 (heat sink temperature), 11 (output torque [signed value]), 13 (general-purpose output YA1) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| C029 | AMI signal selection | 00 (output frequency), 01 (output current), 02 (output torque), 04 (output voltage), 05 (input power), 06 (electronic thermal overload), 07 (LAD frequency), 09 (motor temperature), 10 (heat sink temperature), 14 (general-purpose output YA2) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| C030 | Digital current monitor reference value | SJ700/SJ700D:0.20 x "rated current" to 2.00 x "rated current" (A) / SJ700B:0.20 x "rated current" to 1.50 x "rated current" (A) (Current with digital current monitor output at 1,440 Hz) | Rated current of inverter x 1.00 | | | | | ○ | ○ |
| **Intelligent output terminals** | | | | | | | | | |
| C031 | Terminal (11) active state | 00 (NO) / 01 (NC) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| C032 | Terminal (12) active state | 00 (NO) / 01 (NC) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| C033 | Terminal (13) active state | 00 (NO) / 01 (NC) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| C034 | Terminal (14) active state | 00 (NO) / 01 (NC) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| C035 | Terminal (15) active state | 00 (NO) / 01 (NC) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| C036 | Alarm relay terminal active state | 00 (NO) / 01 (NC) | 01 | 01 | 01 | 01 | 01 | ✕ | ○ |
| **Levels and output terminal status** | | | | | | | | | |
| C038 | Low-current indication signal output mode selection | 00 (output during acceleration/deceleration and constant-speed operation), 01 (output only during constant-speed operation) | 01 | 01 | 01 | 01 | 01 | ✕ | ○ |
| C039 | Low-current indication signal detection level | SJ700/SJ700D (CT):0.0 to 2.00 x "rated current" (A) < 75kW and over:0.0 to 1.80 x "rated current" (A)> SJ700D (VT)/SJ700B:0.0 to 1.50 x "rated current" (A) | Rated current of inverter x 1.00 | | | | | ○ | ○ |
| C040 | Overload signal output mode | 00 (output during acceleration/deceleration and constant-speed operation), 01 (output only during constant-speed operation) | 01 | 01 | 01 | 01 | 01 | ✕ | ○ |
| C041 | Overload level setting | SJ700/SJ700D (CT):0.0 to 2.00 x "rated current" (A) < 75kW and over:0.0 to 1.80 x "rated current" (A)> SJ700D (VT)/SJ700B:0.0 to 1.50 x "rated current" (A) | Rated current of inverter x 1.00 | | | | | ○ | ○ |
| C042 | Frequency arrival setting for accel. | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*1) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ✕ | ○ |
| C043 | Frequency arrival setting for decel. | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*1) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ✕ | ○ |
| C044 | PID deviation level setting | 0.0 to 100.0 (%) | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | ✕ | ○ |
| C045 | Frequency arrival setting for acceleration (2) | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*1) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ✕ | ○ |
| C046 | Frequency arrival setting for deceleration (2) | 0.00 to 99.99, 100.0 to 400.0 (Hz) (*1) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ✕ | ○ |
| C052 | Maximum PID feedback data | 0.0 to 100.0 (%) | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | ✕ | ○ |
| C053 | Minimum PID feedback data | 0.0 to 100.0 (%) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | ○ |
| C055 | Over-torque (Forward-driving) level setting | SJ700/SJ700D (CT): 0. to 200. (%) < 75kW and over:0. to 180.> SJ700D (VT)/SJ700B: 0. to 150. (%) | 100. | 100. | 100. | 100. | 100. | ✕ | ○ |
| C056 | Over-torque (Reverse-regenerating) level setting | SJ700/SJ700D (CT): 0. to 200. (%) < 75kW and over:0. to 180.> SJ700D (VT)/SJ700B: 0. to 150. (%) | 100. | 100. | 100. | 100. | 100. | ✕ | ○ |
| C057 | Over-torque (Reverse-driving) level setting | SJ700/SJ700D (CT): 0. to 200. (%) < 75kW and over:0. to 180.> SJ700D (VT)/SJ700B: 0. to 150. (%) | 100. | 100. | 100. | 100. | 100. | ✕ | ○ |
| C058 | Over-torque (Forward-regenerating) level setting | SJ700/SJ700D (CT): 0. to 200. (%) < 75kW and over:0. to 180.> SJ700D (VT)/SJ700B: 0. to 150. (%) | 100. | 100. | 100. | 100. | 100. | ✕ | ○ |
| C061 | Electronic thermal warning level setting | 0. to 100. (%) | 80. | 80. | 80. | 80. | 80. | ✕ | ○ |
| C062 | Alarm code input | 00 (Disabled) / 01 (3-bit) / 02 (4-bit) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| C063 | Zero speed detection level | 0.00 to 99.99, 100.0 (Hz) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ✕ | ○ |
| C064 | Heat sink overheat warning level | 0. to 200.0 (°C) | 120. | 120. | 120. | 120. | 120. | ✕ | ○ |
| **Communication function** | | | | | | | | | |
| C071 | Communication speed selection (*2) | SJ700D: 02 (loopback test), 03 (2,400 bps), 04 (4,800 bps), 05 (9,600 bps), 06 (19,200 bps), 07 (38,400 bps), 08 (57,600 bps), 09 (76,800 bps), 10 (115,200 bps) SJ700/SJ700B: 02 (loopback test), 03 (2,400 bps), 04 (4,800 bps), 05 (9,600 bps), 06 (19,200 bps) | 04 | 04 | 04 | 04 | 04 | ✕ | ○ |
| C072 | Node allocation | SJ700D: 1 to 247, SJ700/SJ700B: 1 to 32 | 1. | 1. | 1. | 1. | 1. | ✕ | ○ |
| C073 | Communication data length selection | 7 (7 bits), 8 (8 bits) | 7 | 7 | 7 | 7 | 7 | ✕ | ○ |
| C074 | Communication parity selection | 00 (no parity), 01 (even parity), 02 (odd parity) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| C075 | Communication stop bit selection | 1 (1 bit), 2 (2 bits) | 1 | 1 | 1 | 1 | 1 | ✕ | ○ |

(*1) 4000HF:0.00 to 99.99, 100.0 to 120.0 (Hz)

**20**

| Code | Function Name | Monitored data or setting | Default Setting SJ700/SJ700D(CTmode) -FE | -FU | -F | SJ700B -F | -FU | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|---|---|---|---|---|---|---|---|---|---|
| **Communication function** | | | | | | | | | |
| C076 | Selection of the operation after communication error | 00 (tripping), 01 (tripping after decelerating and stopping the motor), 02 (ignoring errors), 03 (stopping the motor after free-running), 04 (decelerating and stopping the motor) | 02 | 02 | 02 | 02 | 02 | ✕ | 〇 |
| C077 | Communication timeout limit before tripping | 0.00 to 99.99 (s) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ✕ | 〇 |
| C078 | Communication wait time | 0. to 1000. (ms) | 0. | 0. | 0. | 0. | 0. | ✕ | 〇 |
| C079 | Communication mode selection | 00 (ASCII), 01 (Modbus-RTU) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| **Adjustment** | | | | | | | | | |
| C081 | O input span calibration | 0. to 9999., 1000 to 6553 (10000 to 65530) | Factory set | | | | | 〇 | 〇 |
| C082 | OI input span calibration | 0. to 9999., 1000 to 6553 (10000 ～ 65530) | Factory set | | | | | 〇 | 〇 |
| C083 | O2 input span calibration | 0. to 9999., 1000 to 6553 (10000 ～ 65530) | Factory set | | | | | 〇 | 〇 |
| C085 | Thermistor input tuning | 0.0 to 999.9, 1000. | Factory set | | | | | 〇 | 〇 |
| C091 | Debug mode enable | (Do not change this parameter, which is intended for factory adjustment.) | 00 | 00 | 00 | 00 | 00 | 〇 | 〇 |
| **Others** | | | | | | | | | |
| C101 | UP/DOWN memory mode selection | 00 (not storing the frequency data), 01 (storing the frequency data) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| C102 | Reset mode selection | 00 (resetting the trip when RS is on), 01 (resetting the trip when RS is off), 02 (enabling resetting only upon tripping [resetting when RS is on]), 03 (resetting only trip) | 00 | 00 | 00 | 00 | 00 | 〇 | 〇 |
| C103 | Restart mode after reset | 00 (starting with 0 Hz), 01 (starting with matching frequency), 02 (restarting with active matching frequency) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| **Meter adjustment** | | | | | | | | | |
| C105 | FM gain adjustment | 50. to 200. (%) | 100. | 100. | 100. | 100. | 100. | 〇 | 〇 |
| C106 | AM gain adjustment | 50. to 200. (%) | 100. | 100. | 100. | 100. | 100. | 〇 | 〇 |
| C107 | AMI gain adjustment | 50. to 200. (%) | 100. | 100. | 100. | 100. | 100. | 〇 | 〇 |
| C109 | AM bias adjustment | 0. to 100. (%) | 0. | 0. | 0. | 0. | 0. | 〇 | 〇 |
| C110 | AMI bias adjustment | 0. to 100. (%) | 20. | 20. | 20. | 20. | 20. | 〇 | 〇 |
| **Terminal** | | | | | | | | | |
| C111 | Overload setting (2) | SJ700/SJ700D (CT):0.0 to 2.00 x "rated current" (A) <75kW and over:0.0 to 1.80 x "rated current"> SJ700D (VT)/SJ700B:0.0 to 1.50 x "rated current" (A) | Rated current of inverter x 1.00 | | | | | 〇 | 〇 |
| **Adjustment** | | | | | | | | | |
| C121 | O input zero calibration | 0. to 9999., 1000 to 6553 (10000 to 65530) | Factory set | | | | | 〇 | 〇 |
| C122 | OI input zero calibration | 0. to 9999., 1000 to 6553 (10000 to 65530) | Factory set | | | | | 〇 | 〇 |
| C123 | O2 input zero calibration | 0. to 9999., 1000 to 6553 (10000 to 65530) | Factory set | | | | | 〇 | 〇 |
| **Output terminal operation function** | | | | | | | | | |
| C130 | Output 11 on-delay time | 0.0 to 100.0 (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | 〇 |
| C131 | Output 11 off-delay time | 0.0 to 100.0 (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | 〇 |
| C132 | Output 12 on-delay time | 0.0 to 100.0 (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | 〇 |
| C133 | Output 12 off-delay time | 0.0 to 100.0 (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | 〇 |
| C134 | Output 13 on-delay time | 0.0 to 100.0 (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | 〇 |
| C135 | Output 13 off-delay time | 0.0 to 100.0 (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | 〇 |
| C136 | Output 14 on-delay time | 0.0 to 100.0 (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | 〇 |
| C137 | Output 14 off-delay time | 0.0 to 100.0 (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | 〇 |
| C138 | Output 15 on-delay time | 0.0 to 100.0 (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | 〇 |
| C139 | Output 15 off-delay time | 0.0 to 100.0 (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | 〇 |
| C140 | Output RY on-delay time | 0.0 to 100.0 (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | 〇 |
| C141 | Output RY off-delay time | 0.0 to 100.0 (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | ✕ | 〇 |
| C142 | Logical output signal 1 selection 1 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| C143 | Logical output signal 1 selection 2 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| C144 | Logical output signal 1 operator selection | 00 (AND), 01 (OR), 02 (XOR) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| C145 | Logical output signal 2 selection 1 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| C146 | Logical output signal 2 selection 2 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| C147 | Logical output signal 2 operator selection | 00 (AND), 01 (OR), 02 (XOR) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| C148 | Logical output signal 3 selection 1 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| C149 | Logical output signal 3 selection 2 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| C150 | Logical output signal 3 operator selection | 00 (AND), 01 (OR), 02 (XOR) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| C151 | Logical output signal 4 selection 1 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| C152 | Logical output signal 4 selection 2 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| C153 | Logical output signal 4 operator selection | 00 (AND), 01 (OR), 02 (XOR) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| C154 | Logical output signal 5 selection 1 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| C155 | Logical output signal 5 selection 2 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| C156 | Logical output signal 5 operator selection | 00 (AND), 01 (OR), 02 (XOR) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| C157 | Logical output signal 6 selection 1 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| C158 | Logical output signal 6 selection 2 | Same as the settings of C021 to C026 (except those of LOG1 to LOG6) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| C159 | Logical output signal 6 operator selection | 00 (AND), 01 (OR), 02 (XOR) | 00 | 00 | 00 | 00 | 00 | ✕ | 〇 |
| **Input terminal response** | | | | | | | | | |
| C160 | Input terminal response time setting 1 | 0. to 200. (×2ms) | 1 | 1 | 1 | 1 | 1 | ✕ | 〇 |
| C161 | Input terminal response time setting 2 | 0. to 200. (×2ms) | 1 | 1 | 1 | 1 | 1 | ✕ | 〇 |
| C162 | Input terminal response time setting 3 | 0. to 200. (×2ms) | 1 | 1 | 1 | 1 | 1 | ✕ | 〇 |
| C163 | Input terminal response time setting 4 | 0. to 200. (×2ms) | 1 | 1 | 1 | 1 | 1 | ✕ | 〇 |
| C164 | Input terminal response time setting 5 | 0. to 200. (×2ms) | 1 | 1 | 1 | 1 | 1 | ✕ | 〇 |
| C165 | Input terminal response time setting 6 | 0. to 200. (×2ms) | 1 | 1 | 1 | 1 | 1 | ✕ | 〇 |
| C166 | Input terminal response time setting 7 | 0. to 200. (×2ms) | 1 | 1 | 1 | 1 | 1 | ✕ | 〇 |
| C167 | Input terminal response time setting 8 | 0. to 200. (×2ms) | 1 | 1 | 1 | 1 | 1 | ✕ | 〇 |
| C168 | Input terminal response time setting FW | 0. to 200. (×2ms) | 1 | 1 | 1 | 1 | 1 | ✕ | 〇 |
| **other** C169 | Multistage speed/position determination time | 0. to 200. (×10ms) | 0 | 0 | 0 | 0 | 0 | ✕ | 〇 |

## ● H GROUP: MOTOR CONSTANTS FUNCTIONS

[○ = Allowed  ✕= Not permitted]

| | Code | Function Name | Monitored data or setting | Default Setting SJ700/SJ700D(CTmode) -FE | -FU | -F | SJ700B -F | -FU | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|---|---|---|---|---|---|---|---|---|---|---|
| Control constants | H001 | Auto-tuning Setting | 00 (disabling auto-tuning), 01 (auto-tuning without rotation), 02 (auto-tuning with rotation) | 00 | 00 | 00 | 00 | 00 | ✕ | ✕ |
| | H002 | Motor data selection, 1st motor | 00 (Hitachi standard data), 01 (auto-tuned data), 02 (auto-tuned data [with online auto-tuning function]) | 00 | 00 | 00 | 00 | 00 | ✕ | ✕ |
| | H202 | Motor data selection, 2nd motor | 00 (Hitachi standard data), 01 (auto-tuned data), 02 (auto-tuned data [with online auto-tuning function]) | 00 | 00 | 00 | 00 | 00 | ✕ | ✕ |
| | H003 | Motor capacity, 1st motor | SJ700/SJ700D:0.20 to 160 (kW), 185kW and over :11.0 to 400 (kW) SJ700B:0.20 to 160(kW) | Factory set | | | | | ✕ | ✕ |
| | H203 | Motor capacity, 2nd motor | SJ700/SJ700D:0.20 to 160 (kW),  185kW and over :11.0 to 400 (kW) SJ700B:0.20 to 160 (kW) | | | | | | ✕ | ✕ |
| | H004 | Motor poles setting, 1st motor | 2, 4, 6, 8, 10 (poles) | 4 | 4 | 4 | 4 | 4 | ✕ | ✕ |
| | H204 | Motor poles setting, 2nd motor | 2, 4, 6, 8, 10 (poles) | 4 | 4 | 4 | 4 | 4 | ✕ | ✕ |
| | H005 | Motor speed constant, 1st motor | 0.001 to 9.999, 10.00 to 80.00 (10.000 to 80.000) | 1.590 | 1.590 | 1.590 | 1.590 | 1.590 | ○ | ○ |
| | H205 | Motor speed constant, 2nd motor | 0.001 to 9.999, 10.00 to 80.00 (10.000 to 80.000) | 1.590 | 1.590 | 1.590 | 1.590 | 1.590 | ○ | ○ |
| | H006 | Motor stabilization constant, 1st motor | 0. to 255. | 100. | 100. | 100. | 100. | 100. | ○ | ○ |
| | H206 | Motor stabilization constant, 2nd motor | 0. to 255. | 100. | 100. | 100. | 100. | 100. | ○ | ○ |
| | H306 | Motor stabilization constant, 3rd motor | 0. to 255. | 100. | 100. | 100. | 100. | 100. | ○ | ○ |
| | H020 | Motor constant R1, 1st motor | 0.001 to 9.999, 10.00 to 65.53 (Ω) (*1) | Depending on motor capacity/poles | | | | | ✕ | ✕ |
| | H220 | Motor constant R1, 2nd motor | 0.001 to 9.999, 10.00 to 65.53 (Ω) (*1) | | | | | | ✕ | ✕ |
| | H021 | Motor constant R2, 1st motor | 0.001 to 9.999, 10.00 to 65.53 (Ω) (*1) | | | | | | ✕ | ✕ |
| | H221 | Motor constant R2, 2nd motor | 0.001 to 9.999, 10.00 to 65.53 (Ω) (*1) | | | | | | ✕ | ✕ |
| | H022 | Motor constant L, 1st motor | 0.01 to 99.99, 100.0 to 655.3 (mH) (*2) | | | | | | ✕ | ✕ |
| | H222 | Motor constant L, 2nd motor | 0.01 to 99.99, 100.0 to 655.3 (mH) (*2) | | | | | | ✕ | ✕ |
| | H023 | Motor constant Io | 0.01 to 99.99, 100.0 to 655.3 (A) (*3) | | | | | | ✕ | ✕ |
| | H223 | Motor constant Io, 2nd motor | 0.01 to 99.99, 100.0 to 655.3 (A) (*3) | | | | | | ✕ | ✕ |
| | H024 | Motor constant J | 0.001 to 9.999, 10.00 to 99.99, 100.0 to 999.9, 1000. to 9999. | | | | | | ✕ | ✕ |
| | H224 | Motor constant J, 2nd motor | 0.001 to 9.999, 10.00 to 99.99, 100.0 to 999.9, 1000. to 9999. | | | | | | ✕ | ✕ |
| | H030 | Auto constant R1, 1st motor | 0.001 to 9.999, 10.00 to 65.53 (Ω) (*1) | | | | | | ✕ | ✕ |
| | H230 | Auto constant R1, 2nd motor | 0.001 to 9.999, 10.00 to 65.53 (Ω) (*1) | | | | | | ✕ | ✕ |
| | H031 | Auto constant R2, 1st motor | 0.001 to 9.999, 10.00 to 65.53 (Ω) (*1) | | | | | | ✕ | ✕ |
| | H231 | Auto constant R2, 2nd motor | 0.001 to 9.999, 10.00 to 65.53 (Ω) (*1) | | | | | | ✕ | ✕ |
| | H032 | Auto constant L, 1st motor | 0.01 to 99.99, 100.0 to 655.3 (mH) (*2) | | | | | | ✕ | ✕ |
| | H232 | Auto constant L, 2nd motor | 0.01 to 99.99, 100.0 to 655.3 (mH) (*2) | | | | | | ✕ | ✕ |
| | H033 | Auto constant Io, 1st motor | 0.01 to 99.99, 100.0 to 655.3 (A) (*3) | | | | | | ✕ | ✕ |
| | H233 | Auto constant Io, 2nd motor | 0.01 to 99.99, 100.0 to 655.3 (A) (*3) | | | | | | ✕ | ✕ |
| | H034 | Auto constant J, 1st motor | 0.001 to 9.999, 10.00 to 99.99, 100.0 to 999.9, 1000. to 9999. | | | | | | ✕ | ✕ |
| | H234 | Auto constant J, 2nd motor | 0.001 to 9.999, 10.00 to 99.99, 100.0 to 999.9, 1000. to 9999. | | | | | | ✕ | ✕ |
| Control constants | H050 | PI proportional gain for 1st motor | 0.0 to 999.9, 1000. | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | ○ | ○ |
| | H250 | PI proportional gain for 2nd motor | 0.0 to 999.9, 1000. | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | ○ | ○ |
| | H051 | PI integral gain for 1st motor | 0.0 to 999.9, 1000. | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | ○ | ○ |
| | H251 | PI integral gain for 2nd motor | 0.0 to 999.9, 1000. | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | ○ | ○ |
| | H052 | P proportional gain setting for 1st motor | 0.01 to 10.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | ○ | ○ |
| | H252 | P proportional gain setting for 2nd motor | 0.01 to 10.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | ○ | ○ |
| | H060 | Zero LV lmit for 1st motor (*4) | 0.0 to 100.0 | 100. | 100. | 100. | 70. | 70. | ○ | ○ |
| | H260 | Zero LV lmit for 2nd motor (*4) | 0.0 to 100.0 | 100. | 100. | 100. | 70. | 70. | ○ | ○ |
| | H061 | Zero LV starting boost current for 1st motor (*4) | 0. to 50. (%) | 50. | 50. | 50. | 50. | 50. | ○ | ○ |
| | H261 | Zero LV starting boozst current for 2nd motor (*4) | 0. to 50. (%) | 50. | 50. | 50. | 50. | 50. | ○ | ○ |
| | H070 | Terminal selection PI proportional gain setting | 0.0 to 999.9, 1000. | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | ○ | ○ |
| | H071 | Terminal selection PI integral gain setting | 0.0 to 999.9, 1000. | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | ○ | ○ |
| | H072 | Terminal selection P proportional gain setting | 0.00 to 10.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | ○ | ○ |
| | H073 | Gain switching time | 0. to 9999. (ms) | 100. | 100. | 100. | 100. | 100. | ○ | ○ |

(*1) 1850HF,2200HF,3150HF and 4000HF:0.1 to 999.9,1000. to 6553. (mΩ).
(*2) 1850HF,2200HF,3150HF and 4000HF:0.001 to 9.999,10.00. to 65.53 (mH).
(*3) 1850HF,2200HF,3150HF and 4000HF:0.01 to 0.35 " rated current " (A).
(*4) SJ700D (VT): Not available (no display)

## ● P GROUP: EXPANSION CARD FUNCTIONS

[○ = Allowed ✕= Not permitted]

| | Code | Function Name | Monitored data or setting | Default Setting | | | | | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | SJ700/SJ700D(CTmode) | | | SJ700B | | | |
| | | | | -FE | -FU | -F | -F | -FU | | |
| Output terminal operation function | P001 | Operation mode on expansion card 1 error | 00 (tripping), 01 (continuing operation) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| | P002 | Operation mode on expansion card 2 error | 00 (tripping), 01 (continuing operation) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| | P011 | Encoder pulse-per-revolution (PPR) setting (*1) | 128. to 9999., 1000 to 6500 (10000 to 65000) (pulses) | 1024 | 1024 | 1024 | 1024 | 1024 | ✕ | ✕ |
| | P012 | Control pulse setting (*1) | 00 (ASR), 01 (APR), 02 (APR2), 03 (HAPR) | 00 | 00 | 00 | 00 | 00 | ✕ | ✕ |
| | P013 | Pulse input mode setting (*1) | 00 (mode 0), 01 (mode 1), 02 (mode 2) | 00 | 00 | 00 | 00 | 00 | ✕ | ✕ |
| | P014 | Home search stop position setting (*1) | 0. to 4095. | 0. | 0. | 0. | 0. | 0. | ✕ | ○ |
| | P015 | Home search speed setting (*1) | "start frequency" to "maximum frequency" (up to 120.0) (Hz) | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | ✕ | ○ |
| | P016 | Home search direction setting (*1) | 00 (forward), 01 (reverse) | 00 | 00 | 00 | 00 | 00 | ✕ | ✕ |
| | P017 | Home search completion range setting (*1) | 0. to 9999., 1000 (10000) (pulses) | 5. | 5. | 5. | 5. | 5. | ✕ | ○ |
| | P018 | Home search completion delay time setting (*1) | 0.00 to 9.99 (s) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ✕ | ○ |
| | P019 | Electronic gear set position selection (*1) | 00 (feedback side), 01 (commanding side) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| | P020 | Electronic gear ratio numerator setting (*1) | 0. to 9999. | 1. | 1. | 1. | 1. | 1. | ○ | ○ |
| | P021 | Electronic gear ratio denominator setting (*1) | 0. to 9999. | 1. | 1. | 1. | 1. | 1. | ○ | ○ |
| | P022 | Feed-forward gain setting (*1) | 0.00 to 99.99, 100.0 to 655.3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ○ | ○ |
| | P023 | Position loop gain setting (*1) | 0.00 to 99.99, 100.0 | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 | ○ | ○ |
| | P024 | Position bias setting (*1) | -204 (-2048.) / -999. to 2048 | 0. | 0. | 0. | 0. | 0. | ○ | ○ |
| | P025 | Temperature compensation thermistor enable | 00 (no compensation), 01 (compensation) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| | P026 | Over-speed error detection level setting (*1) | 0.0 to 150.0 (%) | 135.0 | 135.0 | 135.0 | 135.0 | 135.0 | ✕ | ○ |
| | P027 | Speed deviation error detection level setting (*1) | 0.00 to 99.99, 100.0 to120.0 (Hz) | 7.50 | 7.50 | 7.50 | 7.50 | 7.50 | ✕ | ○ |
| | P028 | Numerator of motor gear ratio (*1) | 0. to 9999. | 1. | 1. | 1. | 1. | 1. | ✕ | ○ |
| | P029 | Denominator of motor gear ratio (*1) | 0. to 9999. | 1. | 1. | 1. | 1. | 1. | ✕ | ○ |
| | P031 | Accel./decel. time input selection | 00 (digital operator), 01 (option 1), 02 (option 2), 03 (easy sequence) | 00 | 00 | 00 | 00 | 00 | ✕ | ✕ |
| | P032 | Positioning command input selection (*1) | 00 (digital operator), 01 (option 1), 02 (option 2) | 00 | 00 | 00 | 00 | 00 | ✕ | ○ |
| | P033 | Torque command input selection (*1) | 00 (O terminal), 01 (OI terminal), 02 (O2 terminal), 03 (digital operator) | 00 | 00 | 00 | 00 | 00 | ✕ | ✕ |
| | P034 | Torque command setting (*1) | SJ700/SJ700D: 0. to 200. (%) < 75kW and over:0. to 180. (%) > SJ700B: 0. to 180. (%) | 0. | 0. | 0. | 0. | 0. | ○ | ○ |
| | P035 | Polarity selection at the torque command input via O2 terminal (*1) | 00 (as indicated by the sign), 01 (depending on the operation direction) | 00 | 00 | 00 | 00 | 00 | ✕ | ✕ |
| | P036 | Torque bias mode (*1) | 00 (disabling the mode), 01 (digital operator), 02 (input via O2 terminal) | 00 | 00 | 00 | 00 | 00 | ✕ | ✕ |
| | P037 | Torque bias value (*1) | SJ700/SJ700D: -200. to +200. (%) < 75kW and over:-180. to +180. (%) > SJ700B: -180. to +180. (%) | 0. | 0. | 0. | 0. | 0. | ○ | ○ |
| | P038 | Torque bias polarity selection (*1) | 00 (as indicated by the sign), 01 (depending on the operation direction) | 00 | 00 | 00 | 00 | 00 | ✕ | ✕ |
| | P039 | Speed limit for torque-controlled operation (forward rotation) (*1) | 0.00 to "maximum frequency" (Hz) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ○ | ○ |
| | P040 | Speed limit for torque-controlled operation (reverse rotation) (*1) | 0.00 to "maximum frequency" (Hz) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ○ | ○ |
| | P044 | DeviceNet comm watchdog timer | 0.00 to 99.99 (s) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | ✕ | ✕ |
| | P045 | Inverter action on DeviceNet comm error | 00 (tripping), 01 (tripping after decelerating and stopping the motor), 02 (ignoring errors), 03 (stopping the motor after free-running), 04 (decelerating and stopping the motor) | 01 | 01 | 01 | 01 | 01 | ✕ | ✕ |
| | P046 | DeviceNet polled I/O : Output instance number | 20, 21, 100 | 21 | 21 | 21 | 21 | 21 | ✕ | ✕ |
| | P047 | DeviceNet polled I/O : input instance number | 70, 71, 101 | 71 | 71 | 71 | 71 | 71 | ✕ | ✕ |
| | P048 | Inverter action on DeviceNet idle mode | 00 (tripping), 01 (tripping after decelerating and stopping the motor), 02 (ignoring errors), 03 (stopping the motor after free-running), 04 (decelerating and stopping the motor) | 01 | 01 | 01 | 01 | 01 | ✕ | ✕ |
| | P049 | DeviceNet motor poles setting for RPM | 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38 (poles) | 00 | 00 | 00 | 00 | 00 | ✕ | ✕ |
| | P055 | Pulse-string frequency scale | 1.0 to 50.0 (kHz) | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | ✕ | ○ |
| | P056 | Time constant of pulse-string frequency filter | 0.01 to 2.00 (s) | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | ✕ | ○ |
| | P057 | Pulse-string frequency bias | -100. to +100. (%) | 0. | 0. | 0. | 0. | 0. | ✕ | ○ |
| | P058 | Pulse-string frequency limit | 0. to 100. (%) | 100. | 100. | 100. | 100. | 100. | ✕ | ○ |
| Absolute position control | P060 - P067 | Multistage position setting 0-7 (*1) | Position setting range reverse side – forward side (upper 4 digits including "-") | 0 | 0 | 0 | 0 | 0 | ○ | ○ |
| | P068 | Zero-return mode selection (*1) | 00(Low) / 01 (Hi1) / 00 (Hi2) | 00 | 00 | 00 | 00 | 00 | ○ | ○ |
| | P069 | Zero-return direction selection (*1) | 00 (FW) / 01 (RV) | 00 | 00 | 00 | 00 | 00 | ○ | ○ |
| | P070 | Low-speed zero-return frequency (*1) | 0.00 – 10.00 (Hz) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ○ | ○ |
| | P071 | High-speed zero-return frequency (*1) | 0.00 – 99.99 / 100.0 – Maximum frequency setting, 1st motor (Hz) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | ○ | ○ |
| | P072 | Position range specification (forward) (*1) | 0 – 268435455 (when P012 = 02) 0 – 1073741823 (When P012 = 03) (upper 4 digits) | 268435455 | | | | | ○ | ○ |
| | P073 | Position range specification (reverse) (*1) | -268435455 – 0  (when P012 = 02) -1073741823 - 0 (When P012 = 03) (upper 4 digits) | -268435455 | | | | | ○ | ○ |
| | P074 | Teaching selection (*1) | 00 (X00) / 01 (X01) / 02 (X02) / 03 (X03) /04 (X04) / 05 (X05) / 06 (X06) / 07 (X07) | 00 | 00 | 00 | 00 | 00 | ○ | ○ |
| sequence | P100 - P131 | Easy sequence user parameter U (00)- (31) | 0. to 9999., 1000 to 6553 (10000 to 65535) | 0. | 0. | 0. | 0. | 0. | ○ | ○ |

(*1) SJ700D (VT): Not available (no display)


## ● U GROUP: USER-SELECTABLE MENU FUNCTIONS

[○ = Allowed ✕= Not permitted]

| | Code | Function Name | Monitored data or setting | Default Setting | | | | | Setting during operation (allowed or not) | Change during operation (allowed or not) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | SJ700/SJ700D(CTmode) | | | SJ700B | | | |
| | | | | -FE | -FU | -F | -F | -FU | | |
| parameters | U001 - U012 | User selected functions 1-12 | no/d001 to P131 | no | no | no | no | no | ○ | ○ |

**23**

| Name | Cause (s) | | Display on digital operator | Display on remote operator/copy unit ERR1**** |
|---|---|---|---|---|
| Over-current protection | The inverter output was short-circuited, or the motor shaft is locked or has a heavy load. These conditions cause excessive current for the inverter, so the inverter output is turned off. | While at constant speed | E01 | OC.Drive |
| | | During deceleration | E02 | OC.Decel |
| | | During acceleration | E03 | OC.Accel |
| | | Others | E04 | Over.C |
| Overload protection (*1) | When a motor overload is detected by the electronic thermal function, the inverter trips and turns off its output. | | E05 | Over.L |
| Braking resistor overload protection | When the regenerative braking resistor exceeds the usage time allowance or an over-voltage caused by the stop of the BRD function is detected, the inverter trips and turns off its output. | | E06 | OL.BRD |
| Over-voltage protection | When the DC bus voltage exceeds a threshold, due to regenerative energy from the motor, the inverter trips and turns off its output. | | E07 | Over.V |
| EEPROM error (*2) | When the built-in EEPROM memory has problems due to noise or excessive temperature, the inverter trips and turns off its output. | | E08 | EEPROM |
| Under-voltage error | A decrease of internal DC bus voltage below a threshold results in a control circuit fault. This condition can also generate excessive motor heat or cause low torque. The inverter trips and turns off its output. | | E09 | Under.V |
| CT (Current transformer) error | If a strong source of electrical interference is close to the inverter or abnormal operations occur in the built-in CT, the inverter trips and turns off its output. | | E10 | CT |
| CPU error | When a malfunction in the built-in CPU has occurred, the inverter trips and turns off its output. | | E11 | CPU |
| External trip | When a signal to an intelligent input terminal configured as EXT has occurred, the inverter trips and turns off its output. | | E12 | EXTERNAL |
| USP error | An error occurs when power is cycled while the inverter is in RUN mode if the Unattended Start Protection (USP) is enabled. The inverter trips and does not go into RUN mode until the error is cleared. | | E13 | USP |
| Ground fault | The inverter is protected by the detection of ground faults between the inverter output and the motor during power-up tests. This feature protects the inverter only. | | E14 | GND.Flt. |
| Input over-voltage protection | When the input voltage is higher than the specified value, it is detected 60 seconds after power-up and the inverter trips and turns of its output. | | E15 | OV.SRC |
| Instantaneous power failure | When power is cut for more than 15ms, the inverter trips and turns off its output. If power failure continues, the error will be cleared. The inverter restarts if it is in RUN mode when power is cycled. | | E16 | Inst.P-F |
| Temperature error due to low cooling-fan speed | The inverter will display the error code shown on the right if the lowering of cooling-fan speed is detected at the occurrence of the temperature error described below. | | E20 | OH.stFAN |
| Inverter thermal trip | When the inverter internal temperature is higher than the specified value, the thermal sensor in the inverter module detects the higher temperature of the power devices and trips, turning off the inverter output. | | E21 | OH FIN |
| Gate array error | Communication error has occurred between CPU and gate array. | | E23 | GA.COM |
| Phase loss input protection | One of three lines of 3-phase power supply is missing. | | E24 | PH.Fail |
| Main circuit error (*3) | The inverter will trip if the gate array cannot confirm the on/off state of IGBT because of a malfunction due to noise or damage to the main circuit element. | | E25 | Main.Cir |
| Cooling-fan speed drop signal | If the rotation speed of the internal cooling fan decreases so that the cooling effect decreases,inverter output turns OFF for protection. (available only for SJ700 1850-4000) | | E29 | Fan. Slow |
| IGBT error | When an instantaneous over-current has occurred, the inverter trips and turns off its output to protect main circuit element. | | E30 | IGBT |
| Phase loss output protection (SJ700D only) | When the phase loss output protection has been enabled (b141=01), the inverter will trip to avoid damage if a phase loss output is detected. | | E34 | O.PH.Fail |
| Thermistor error | When the thermistor inside the motor detects temperature higher than the specified value, the inverter trips and turns off its output. | | E35 | TH |
| Braking error | The inverter turns off its output when it can not detect whether the braking is ON or OFF within waiting time set at b024 after it has released the brake. (When braking is enabled at b120) | | E36 | BRAKE |
| Emergency stop (*4) | If the EMR signal (on three terminals) is turned on when the slide switch (SW1) on the logic board is set to ON, the inverter hardware will shut off the inverter output and display the error code shown on the right. | | E37 | EMR |
| Low-speed overload protection | If overload occurs during the motor operation at a very low speed at 0.2 Hz or less, the electronic thermal protection circuit in the inverter will detect the overload and shut off the inverter output. (2nd electronic thermal control) (Note that a high frequency may be recorded as the error history data.) | | E38 | OL-LowSP |
| Modbus communication error | If timeout occurs because of line disconnection during the communication in Modbus-RTU mode, the inverter will display the error code shown on the right. (The inverter will trip according to the setting of "C076".) | | E41 | NET.ERR |
| Out of operation due to under-voltage | Due to insufficient voltage, the inverter has turned off its output and been trying to restart. If it fails to restart, it goes into the under-voltage error. | | ---- | UV.WAIT |
| Easy sequence function Error | Error indications by protective functions with the easy sequence function used. | | E43 | PRG.CMD |
| | | | E44 | PRG.NST |
| | | | E45 | PRG.ERR1 |
| Expansion card 1 connection error | An error has been detected in an expansion card or at its connecting terminals. | | E60~E69 | OP1-0 ~ OP1-9 |
| Expansion card 2 connection error | | | E70~E79 | OP2-0 ~ OP2-9 |

(*1): Reset operation is acceptable 10 seconds after the trip. (185kW and over :90 seconds)  (*2): Check the parameters when EEPROM error occurs. (*3): The inverter will not accept reset commands input via the RS terminal or entered by the STOP/RESET key. Therefore, turn off the inverter power.  (*4): The inverter will not accept the reset command entered from the digital operator. Therefore, reset the inverter by turning on the RS terminal.

〈Status Display〉

| Code | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| Description | Reset | Stop | Deceleration | Constant Speed | Acceleration | f0 Stop | Starting | DB | Overload Restriction | Forcible or servo-on |

〈How to access the details about the present fault〉

E07.2 — Error code   Status at trip point

60.00 — Output frequency at trip point

4.00 — Motor current at trip point

270.0 — Voltage between P (+) and N (−) at trip point

15. — Cumulative inverter RUN time at trip point

18. — Cumulative power-on time at trip point
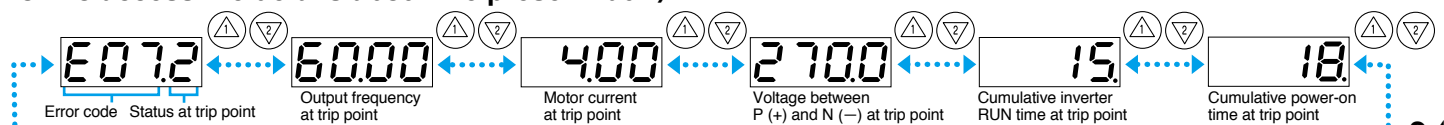
省スペース化をはかるため、表組の組み方を変えました。

24

# TERMINALS

## Main Circuit Terminals

### ● Terminal Description

| Terminal Symbol | Terminal Name | Terminal Symbol | Terminal Name |
|---|---|---|---|
| R (L1), S (L2), T (L3) | Main power supply input terminals | P (+), N (-) | External braking unit connection terminals |
| U (T1), V (T2), W (T3) | Inverter output terminals | $\oplus$ (G) | Ground connection terminal |
| PD (+1), P (+) | DC reactor connection terminals | R0 (R0), T0 (T0) | Control power supply input terminals |
| P (+), RB (RB) | External braking resistor connection terminals | | |

### ● Screw Diameter and Terminal Width
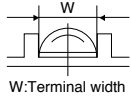
W:Terminal width

| Model | | Screw diameter | Ground Screw diameter | Terminal width (mm) |
|---|---|---|---|---|
| SJ700/SJ700D | SJ700B | | | |
| 004〜037LFF3,LFUF3/007〜037HFF3,HFEF3,HFUF3 | 055HF | M4 | M4 | 13 |
| 055,075LFF3,LFUF3/HFF3,HFEF3,HFUF3 | 075,110HFF/ HFUF,110LFUF | M5 | M5 | 18 |
| 110LFF3,LFUF3/HFF3,HFEF3,HFUF3 | 150HFF/ HFUF/ LFUF | M6 | M6 | 18 |
| 150,185LFF3,LFUF3/150-300HFF3,HFEF3,HFUF3 | 185-370HFF/HFUF,185,220LFUF | M6 | M6 | 23 |
| 220,300LFF3,LFUF3 | 300,370LFUF | M8 | M6 | 23 |
| 370,450LFF3,LFUF3/370-550HFF3,HFEF3,HFUF3 | 450-750HFF/ HFUF,450,550LFUF | M8 | M8 | 29 |
| 550LFF3,LFUF3 | 750LFUF | M10 | M8 | 40 |
| 750,900HFF3,HFEF3,HFUF3 | 900,1100HFF/ HFUF | M10 | M8 | 29 |
| 1100HFF3,HFEF3,HFUF3/1320HFF3,HFEF3/1500HFUF3 | 1320,1600HFF/ HFUF | M10 | M8 | 40 |
| 1850,2200HF2,HFE2,HFU2 | - | M16 | M12 | 51 |
| 3150HF2,HFE2,HFU2 | - | M16 | M12 | 45 |
| 4000HF2,HFE2,HFU2 | - | M12 | M12 | 50 |
| R0T0 terminals (All models) | | M4 | - | 9 |

### ● Terminal Arrangement

■ SJ700D-004-037LFUF3,LFF3,007-037HFEF3,HFUF3,HFF3
■ SJ700B-055HF,HFU

| R0 | T0 |

| R (L1) | S (L2) | T (L3) | U (T1) | V (T2) | W (T3) |
| PD (+1) | P (+) | N (−) | RB (RB) | $\oplus$ (G) | $\oplus$ (G) |

■ SJ700-1850,2200HFE2,HFU2,HF2

| R0 (R0) | T0 (T0) |

| $\oplus$ (G) | R (L1) | S (L2) | T (L3) | PD (+1) | P (+) | N (−) | U (T1) | V (T2) | W (T3) | $\oplus$ (G) |
| P (+) |
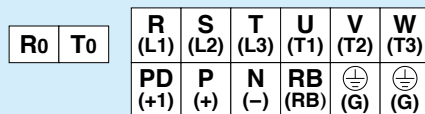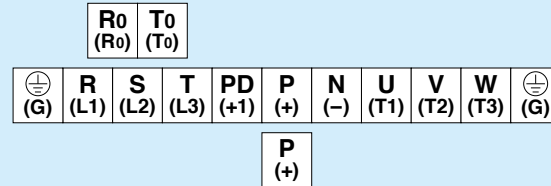
■ SJ700D-055-220LFUF3,LFF3,HFEF3,HFUF3,HFF3
■ SJ700B-075-300HFF,HFUF,110-300LFUF

| RB (RB) | R0 (R0) | T0 (T0) |

| R (L1) | S (L2) | T (L3) | PD (+1) | P (+) | N (−) | U (T1) | V (T2) | W (T3) |
| $\oplus$ (G) | | | | | | | | $\oplus$ (G) |

■ SJ700-3150HFE2,HFU2,HF2

| R0 (R0) | T0 (T0) |

| $\oplus$ (G) | R (L1) | S (L2) | T (L3) | PD (+1) | P (+) | N (−) | U (T1) | V (T2) | W (T3) | $\oplus$ (G) |
| P (+) |
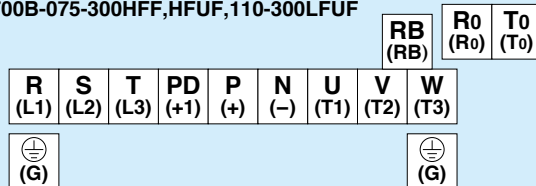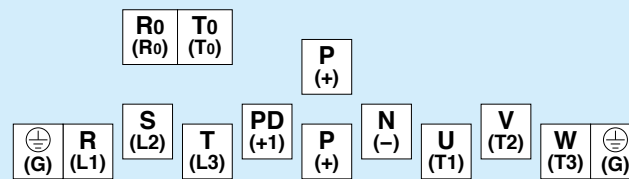
■ SJ700D-300-370LFUF3,LFF3,300−550HFEF3,HFUF3,HFF3
■ SJ700B-370-750HFF,HFUF,370-450LFUF

| R0 (R0) | T0 (T0) |

| $\oplus$ (G) | R (L1) | S (L2) | T (L3) | PD (+1) | P (+) | N (−) | U (T1) | V (T2) | W (T3) | $\oplus$ (G) |

■ SJ700-4000HFE2,HFU2,HF2

| R0 (R0) | T0 (T0) |

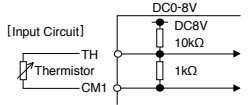| P (+) |
| $\oplus$ (G) | R (L1) | S (L2) | T (L3) | PD (+1) | P (+) | N (−) | U (T1) | V (T2) | W (T3) | $\oplus$ (G) |
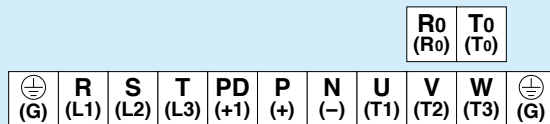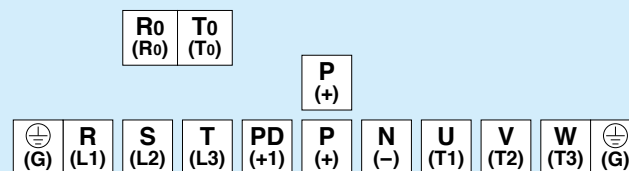
■ SJ700D-450-550LFUF3,LFF3,750-1100HFEF3,HFUF3,HFF3
1320HFEF3,HFF3,1500HFUF3
■ SJ700B-900-1600HFF,HFUF,
550-750LFUF

| R0 (R0) | T0 (T0) |

| R (L1) | S (L2) | T (L3) | PD (+1) | P (+) | N (−) | U (T1) | V (T2) | W (T3) |
| $\oplus$ (G) | | | | | | | | $\oplus$ (G) |
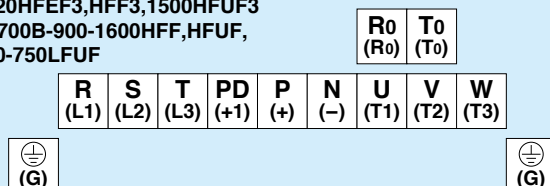
# TERMINALS

## Control Circuit Terminals

### ● Terminal Description

| | Symbol | Name | Explanation of Terminals | Ratings |
|---|---|---|---|---|
| **Analog** — Power Supply | L | Common Terminal for Analog Power Source | Common terminal for H, O, O2, OI, AM, and AMI. Do not ground. | - |
| Power Supply | H | Power Source for Frequency Setting | Power supply for frequency command input | DC 10V, 20mA max. |
| Frequency Setting | O | Frequency Command Terminal | Maximum frequency is attained at DC 10V in DC 0-10V range. Set the voltage at A014 to command maximum frequency below DC 10V. | Input impedance: 10kΩ, Allowable input voltage range: DC -0.3-+12V |
| Frequency Setting | O2 | Frequency Command Extra Terminal | O2 signal is added to the frequency command of O or OI in DC 0-±10V range. By changing configuration, frequency command can be input also at O2 terminal. | Input impedance:10kΩ, Allowable input voltage range: DC 0-±12V |
| Frequency Setting | OI | Frequency Command Terminal | Maximum frequency is attained at DC 20mA in DC 4-20mA range. When the intelligent terminal configured as AT is on, OI signal is enabled. | Input impedance: 100Ω, Allowable input voltage range: DC 0-24mA |
| Monitor Output | AM | Analog Output Monitor (Voltage) | Selection of one function from: Output frequency, output current, torque, output voltage, input power, electronic thermal load ratio, and LAD frequency. | DC 0-10V, 2mA max. |
| Monitor Output | AMI | Analog Output Monitor (Current) | | DC 4-20mA, 250Ω max. |
| **Digital** — Monitor Output | FM | Digital Monitor (Voltage) | [DC0-10V output (PWM output)] Selection of one function from: Output frequency, output current, torque, output voltage, input power, electronic thermal load ratio, and LAD frequency. [Digital pulse output (Pulse voltage DC 0/10V)] Outputs the value of output frequency as digital pulse (duty 50%) | Digital output frequency range: 0-3.6kHz, 1.2mA max. |
| Power Supply | P24 | Power Terminal for Interface | Internal power supply for input terminals. In the case of source type logic, common terminal for contact input terminals. | DC 24V, 100mA max. |
| Power Supply | CM1 | Common Terminal for Interface | Common terminal for P24, TH, and FM. In the case of sink type logic, common terminal for contact input terminals. Do not ground. | - |
| Contact Input — Run Command | FW | Forward Command Input | The motor runs forward when FW terminal is ON, and stops when FW is OFF. | [Input ON condition] Voltage between each terminal and PLC: DC 18V min. [Input OFF condition] Voltage between each terminal and PLC: DC 3V max. Input impedance between each terminal and PLC: 4.7Ω Allowable maximum voltage between each terminal and PLC: DC 27V |
| Contact Input — Functions | 1 2 3 4 5 6 7 8 | Intelligent Input Terminals | Assign 8 functions to terminals. (Refer to the standard specifications for the functions.) | |
| Contact Input — Common Terminal | PLC | Common Terminal for Intelligent Input Terminals, Common Terminal for External Power Supply for PLCs, etc. | Select sink or source logic with the short-circuit bar on the control terminals. Sink logic: Short P24 to PLC / Source logic: Short CM1 to PLC. When applying external power source, remove the short-circuit bar and connect PLC terminal to the external device. | |
| Open Collector Output — State | 11 12 13 14 15 | Intelligent Output Terminals | Assign 5 functions to open collector outputs. When the alarm code is selected at C062, terminal 11-13 or 11-14 are reserved for error codes of inverter trip. (Refer to the standard specifications for the functions.) Both sink and source logic are always applicable between each terminal and CM1. | Decrease in voltage between each terminal and CM2: 4V max. during ON Allowable maximum voltage: DC 27V Allowable maximum current: 50mA |
| Open Collector Output | CM2 | Common Terminal for Intelligent Output Terminals | Common terminal for intelligent output terminal 11-15. | |
| **Analog** — Analog Input — Sensor | TH | Thermistor Input Terminals | The inverter trips when the external thermistor detects abnormal temperature. Common terminal is CM1. [Recommended thermistor characteristics] Allowable rated power: 100mW or over. Impedance in the case of abnormal temperature: 3kΩ Note: Thermal protection level can be set between 0 and 9999Ω. | Allowable input voltage range [Input Circuit] DC0-8V DC8V 10kΩ 1kΩ TH Thermistor CM1 |
| **Digital** — Relay Output — State/Alarm | AL0 AL1 AL2 | Alarm Output Terminals | In default setting, an alarm is activated when inverter output is turned off by a protective function. | Maximum capacity of relays AL1-AL0:AC 250V, 2A (R load)/0.2A (L load) DC 30V, 8A (R load)/0.6A (L load) AL2-AL0:AC 250V, 1A (R load)/0.2A (L load) DC 30V, 1A (R load)/0.2A (L load) Minimum capacity of relays AL1-AL0, AL2-AL0: AC100V, 10mA DC5V, 100mA |

### ● Terminal Arrangement

| H | O2 | AM | FM | TH | FW | 8 | CM1 | 5 | 3 | 1 | 14 | 13 | 11 | AL1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| L | O | OI | AM1 | P24 | PLC | CM1 | 7 | 6 | 4 | 2 | 15 | CM2 | 12 | AL0 | AL2 |

Screw diameter:M3          Terminal Width:6.4mm

## Relay Output PCB (L300PTM)

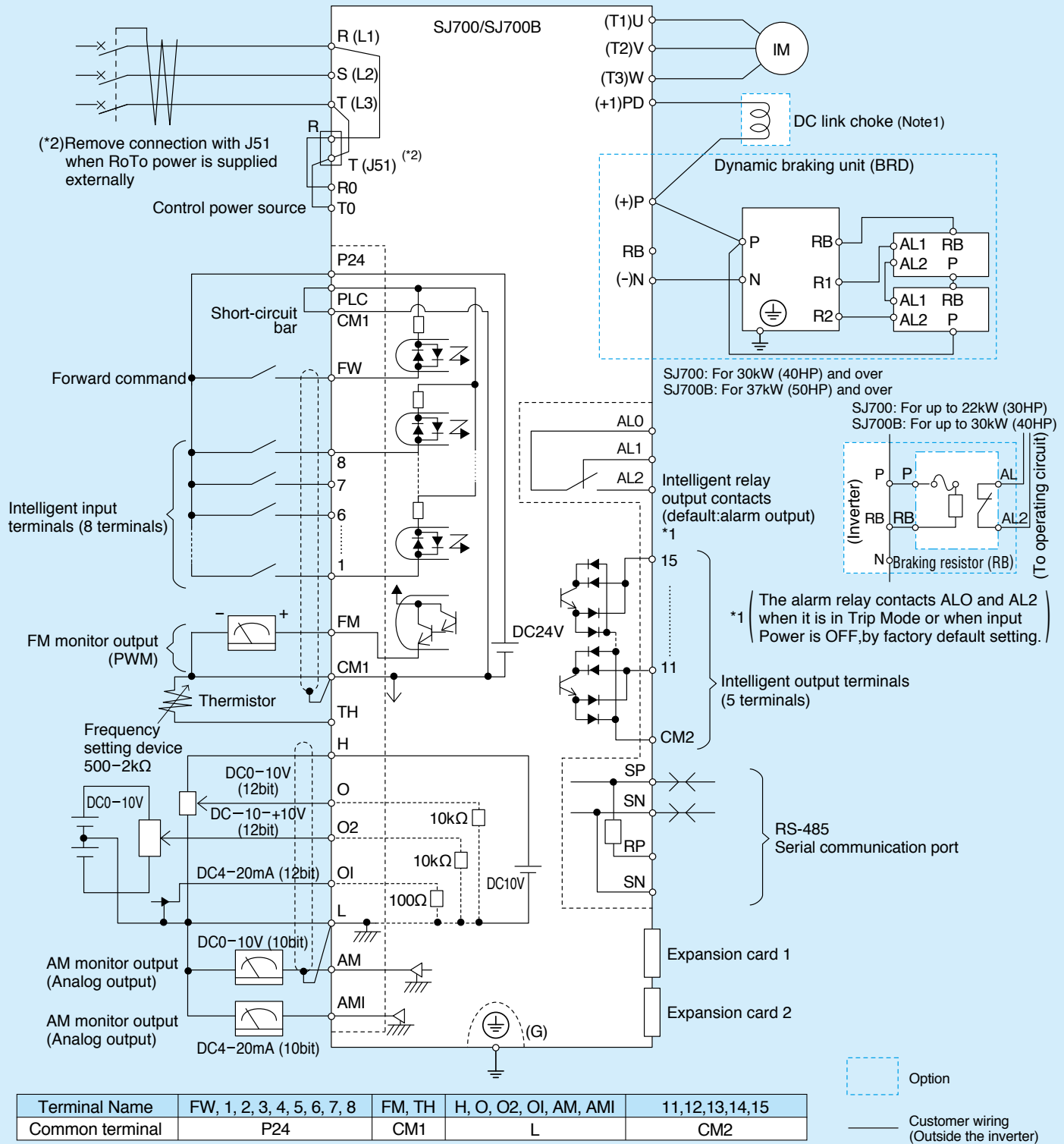**L300PTM is available in case a relay output function is necessary.**
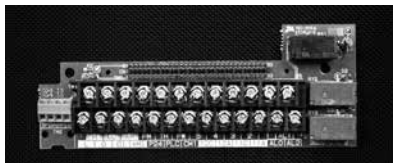
| Terminal Symbol | Specifications | | |
|---|---|---|---|
| 11A 11C 12A 12C | Contacting Maximum Rate | AC250V | 5A |
| | | | 1A |
| | | DC30A | 5A |
| | | | 1A |
| | Contacting Minimum Rate | DC1V | 1mA |

**26**

● **Source type logic**

200V class 200V−240V+10%, −15% 50/60Hz±5%
400V class 380V−480V+10%, −15% 50/60Hz±5%

SJ700/SJ700B

R (L1)
S (L2)
T (L3)

(*2)Remove connection with J51 when RoTo power is supplied externally

R
T (J51) (*2)
R0
T0

Control power source

(T1)U
(T2)V
(T3)W
(+1)PD

IM

DC link choke (Note1)

Dynamic braking unit (BRD)

(+)P
RB
(-)N

P    RB
N    R1
     R2

AL1  RB
AL2  P
AL1  RB
AL2  P

SJ700: For 30kW (40HP) and over
SJ700B: For 37kW (50HP) and over

SJ700: For up to 22kW (30HP)
SJ700B: For up to 30kW (40HP)

(Inverter)    P    P         AL
              RB   RB        AL2
              N    Braking resistor (RB)

(To operating circuit)

P24
PLC
Short-circuit bar
CM1
FW
Forward command

8
7
6
1
Intelligent input terminals (8 terminals)

AL0
AL1
AL2
Intelligent relay output contacts (default:alarm output) *1

15

11

CM2

*1 The alarm relay contacts ALO and AL2 when it is in Trip Mode or when input Power is OFF,by factory default setting.

Intelligent output terminals (5 terminals)

FM
CM1
FM monitor output (PWM)

DC24V

Thermistor

Frequency setting device 500−2kΩ

TH
H
O
O2
OI
L

DC0−10V (12bit)
DC−10−+10V (12bit)
DC4−20mA (12bit)

DC0−10V

10kΩ
10kΩ
100Ω
DC10V

SP
SN
RP
SN
RS-485 Serial communication port

AM
AMI
AM monitor output (Analog output)
DC0−10V (10bit)
DC4−20mA (10bit)

(G)

Expansion card 1
Expansion card 2

Option

Customer wiring (Outside the inverter)

| Terminal Name | FW, 1, 2, 3, 4, 5, 6, 7, 8 | FM, TH | H, O, O2, OI, AM, AMI | 11,12,13,14,15 |
|---|---|---|---|---|
| Common terminal | P24 | CM1 | L | CM2 |

Note1:Please be sure to connect DC reactor attached to 1850HF,2200HF,3150HF and 4000HF.
(1850HF,2200HF and 3150HF of US/JP Version: DC reator is not attached.)

## ● Sink type logic

200V class 200V〜240V+10%, −15%
50/60Hz±5%
400V class 380V〜480V+10%, −15%
50/60Hz±5%

SJ700/SJ700B

R (L1)
S (L2)
T (L3)

(*2)Remove connection with J51
when RoTo power is supplied
externally

R
T (J51) (*2)
R0
T0

Control power source

(T1)U
(T2)V
(T3)W
(+1)PD

IM

DC link choke(Note 1)

Dynamic braking unit (BRD)

(+)P
RB
(−)N

P
N

RB
R1
R2

AL1 RB
AL2 P

AL1 RB
AL2 P

SJ700: For 30kW (40HP) and over
SJ700B: For 37kW (50HP) and over

SJ700: For up to 22kW (30HP)
SJ700B: For up to 30kW (40HP)

(Inverter)

P P
RB RB
N

AL
AL2

Braking resistor (RB)

(To operating circuit)

P24
Short-circuit bar
PLC
FW
Forward command

8
7
6
Intelligent input
terminals (8 terminals)

1

− +
FM monitor output
(PWM)

FM
CM1

Thermistor

Frequency
setting device
500Ω〜2kΩ

TH
H

DC0〜10V
(12bit)
DC−10〜+10V
(12bit)

DC0〜10V

DC4〜20mA (12bit)

O
O2
OI
L

10kΩ
10kΩ
100Ω

DC10V

DC0〜10V (10bit)

AM monitor output
(Analog output)

AM

DC4〜20mA (10bit)

AM monitor output
(Analog output)

AMI

(G)

AL0
AL1
AL2

Intelligent relay
output contacts
(default:alarm output)
*1

DC24V

15

11

CM2

Intelligent output terminals
(5 terminals)

*1 The alarm relay contacts ALO and AL2
when it is in Trip Mode or when input
Power is OFF,by factory default setting.

SP
SN
RP
SN

RS-485
Serial communication port

Expansion card 1

Expansion card 2

Option

Customer wiring
(Outside the inverter)

| Terminal Name | FW, 1, 2, 3, 4, 5, 6, 7, 8, FM, TH | H, O, O2, OI, AM, AMI | 11,12,13,14,15 |
|---|---|---|---|
| Common terminal | CM1 | L | CM2 |

Note1:Please be sure to connect DC reactor attached to 1850HF,2200HF,3150HF and 4000HF.
     (1850HF,2200HF and 3150HF of US/JP Version: DC reator is not attached.)

# CONNECTING TO PLC

## ● Connection with Input Terminals

### 1.Using Internal Power Supply of The Inverter

**(1) Sink type logic**
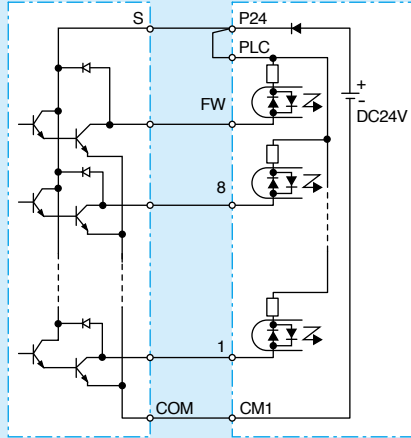


Hitachi EH-150 series PLC
Output Module
EH-YT16

Inverter

**(2) Source type logic**



Hitachi EH-150 series PLC
Output Module
EH-YTP16

Inverter
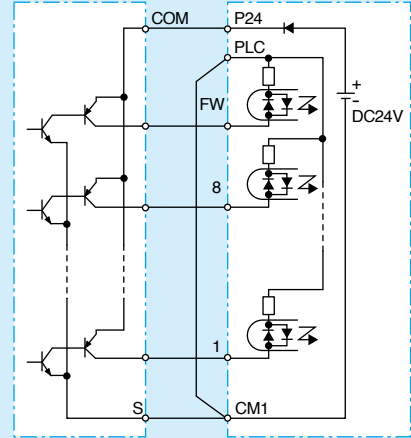
(Note: Place short-circuit bar
between PLC and CM1 instead
of P24 and PLC)

### 2.Using External Power Supply

**(1) Sink type logic**
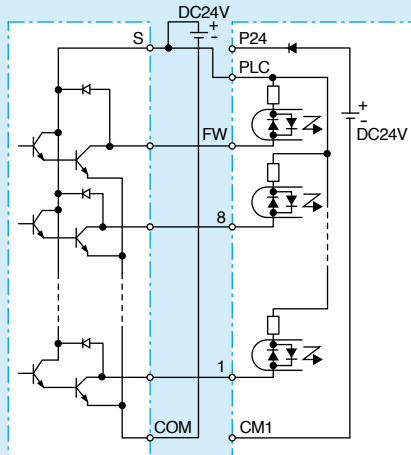


Hitachi EH-150 series PLC
Output Module
EH-YT16

Inverter

(Note: Remove short-circuit bar
between P24 and PLC)

**(2) Source type logic**
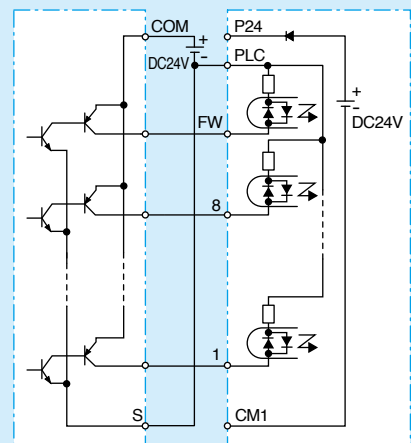


Hitachi EH-150 series PLC
Output Module
EH-YTP16

Inverter

(Note: Remove short-circuit
bar between P24 and PLC)

(Note: Be sure to turn on the inverter after turning on the PLC and its external power source to prevent the parameters in the inverter from being modified.)

## ● Connection with Output Terminals

**(1) Sink type logic**
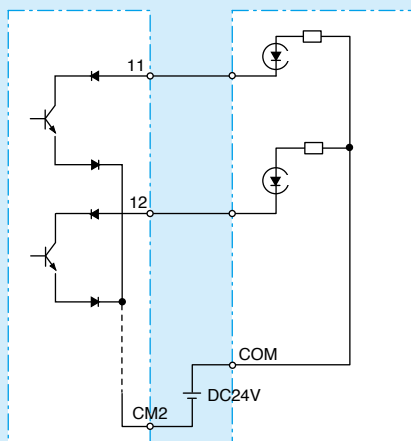


Inverter

Hitachi EH-150 series PLC
Input Module
EH-XD16

**(2) Source type logic**
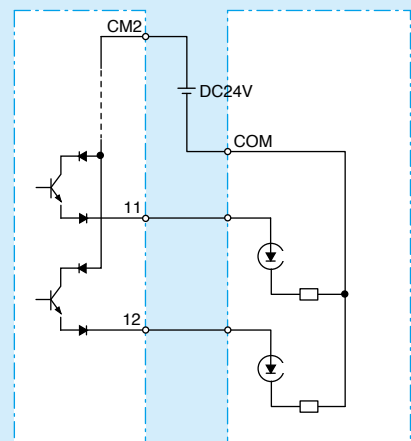


Inverter

Hitachi EH-150 series PLC
Input Module
EH-XD16

29

# WIRING and ACCESSORIES

Power Supply

Fuse



Inverter

R(L1)  S(L2)  T(L3)  PD(+1)
P(+)
R0
T0
RB
(-)N
U(T1)  V(T2)  W(T3)

IM  Motor
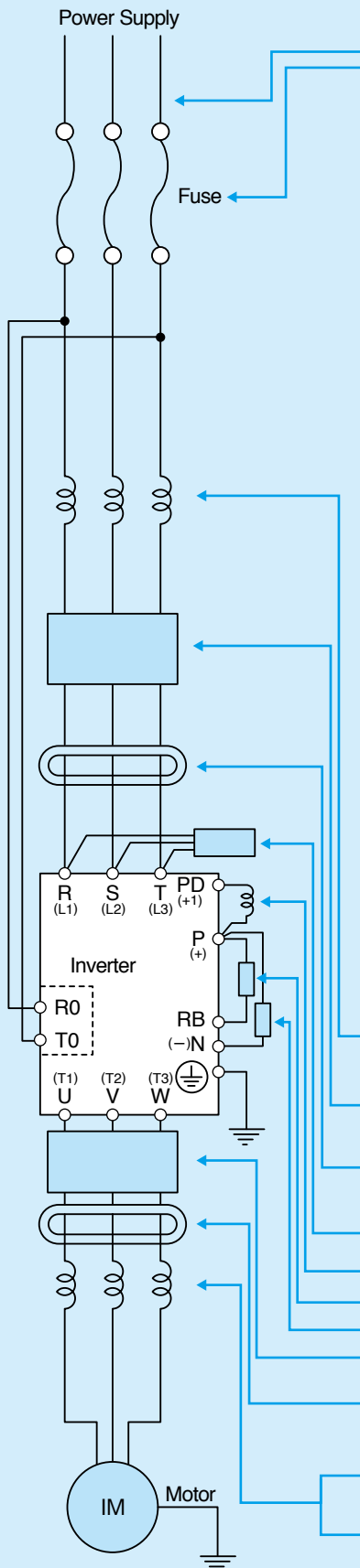
| Input Voltage | Motor Output (kW(HP)) | Model | | Wiring | | | | Signal Lines | Fuse (Class J) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Power Lines | | | | | | |
| | | | | AWG | mm² | AWG | mm² | | SJ700/SJ700D | SJ700B |
| | | SJ700/SJ700D | SJ700B | SJ700/SJ700D | | SJ700B | | | | |
| 200V | 0.4(1/2) | 004LFUF3,LFF3 | - | 14 | 2.1 | - | | 0.75mm² shielded wire | 5 | - |
| | 0.75(1) | 007LFUF3,LFF3 | - | 14 | 2.1 | - | | | 10 | - |
| | 1.5(2) | 015LFUF3,LFF3 | - | 14 | 2.1 | - | | | 15 | - |
| | 2.2(3) | 022LFUF3,LFF3 | - | 14 | 2.1 | - | | | 20 | - |
| | 3.7(5) | 037LFUF3,LFF3 | - | 10 | 5.3 | - | | | 30 | - |
| | 5.5(7.5) | 055LFUF3,LFF3 | - | 8 | 8.4 | - | | | 30 | - |
| | 7.5(10) | 075LFUF3,LFF3 | - | 6 | 13.3 | - | | | 40 | - |
| | 11(15) | 110LFUF3,LFF3 | 110LFUF | 6 | 13.3 | 6 | 13.3 | | 60 | 60 |
| | 15(20) | 150LFUF3,LFF3 | 150LFUF | 2 | 33.6 | 6 | 13.3 | | 80 | 100 |
| | 18.5(25) | 185LFUF3,LFF3 | 185LFUF | 1 | 42.4 | 2 | 33.6 | | 100 | 100 |
| | 22(30) | 220LFUF3,LFF3 | 220LFUF | 1 | 42.4 | 1 | 42.4 | | 125 | 100 |
| | 30(40) | 300LFUF3,LFF3 | 300LFUF | 2/0 | 67.4 | 1 | 42.4 | | 150 | 125 |
| | 37(50) | 370LFUF3,LFF3 | 370LFUF | 4/0 | 107.2 | 2/0 | 67.4 | | 175 | 175 |
| | 45(60) | 450LFUF3,LFF3 | 450LFUF | 4/0 | 107.2 | 4/0 | 107.2 | | 225 | 225 |
| | 55(75) | 550LFUF3,LFF3 | 550LFUF | 2/0 x 2 | 67.4 x 2 | 4/0 | 107.2 | | 250 | 250 |
| | 75(100) | - | 750LFUF | - | | 2/0 x 2 | 67.4 x 2 | | - | 300 |
| 400V | 0.75(1) | 007HFEF3,HFUF3,HFF3 | - | 14 | 2.1 | - | | 0.75mm² shielded wire | 5 | - |
| | 1.5(2) | 015HFEF3,HFUF3,HFF3 | - | 14 | 2.1 | - | | | 10 | - |
| | 2.2(3) | 022HFEF3,HFUF3,HFF3 | - | 14 | 2.1 | - | | | 10 | - |
| | 3.7(5) | 037HFEF3,HFUF3,HFF3 | - | 14 | 2.1 | - | | | 15 | - |
| | 5.5(7.5) | 055HFEF3,HFUF3,HFF3 | 055HF/HFU | 12 | 3.3 | 12 | 3.3 | | 20 | 15 |
| | 7.5(10) | 075HFEF3,HFUF3,HFF3 | 075HFF/HFUF | 10 | 5.3 | 12 | 3.3 | | 30 | 20 |
| | 11(15) | 110HFEF3,HFUF3,HFF3 | 110HFF/HFUF | 8 | 8.4 | 10 | 5.3 | | 30 | 30 |
| | 15(20) | 150HFEF3,HFUF3,HFF3 | 150HFF/HFUF | 6 | 13.3 | 8 | 8.4 | | 40 | 40 |
| | 18.5(25) | 185HFEF3,HFUF3,HFF3 | 185HFF/HFUF | 6 | 13.3 | 6 | 13.3 | | 50 | 50 |
| | 22(30) | 220HFEF3,HFUF3,HFF3 | 220HFF/HFUF | 6 | 13.3 | 6 | 13.3 | | 60 | 50 |
| | 30(40) | 300HFEF3,HFUF3,HFF3 | 300HFF/HFUF | 3 | 26.7 | 6 | 13.3 | | 70 | 75 |
| | 37(50) | 370HFEF3,HFUF3,HFF3 | 370HFF/HFUF | 1 | 42.4 | 3 | 26.9 | | 90 | 80 |
| | 45(60) | 450HFEF3,HFUF3,HFF3 | 450HFF/HFUF | 1 | 42.4 | 1 | 42.4 | | 125 | 100 |
| | 55(75) | 550HFEF3,HFUF3,HFF3 | 550HFF/HFUF | 2/0 | 67.4 | 1 | 42.4 | | 125 | 125 |
| | 75(100) | 750HFEF3,HFUF3,HFF3 | 750HFF/HFUF | 1/0 x 2 | 53.5 x 2 | 2/0 | 67.4 | | 225 | 150 |
| | 90(125) | 900HFEF3,HFUF3,HFF3 | 900HFF/HFUF | 1/0 x 2 | 53.5 x 2 | 1/0 x 2 | 53.5 x 2 | | 225 | 225 |
| | 110(150) | 1100HFEF3,HFUF3,HFF3 | 1100HFF/HFUF | 3/0 x 2 | 85.0 x 2 | 1/0 x 2 | 53.5 x 2 | | 300 | 225 |
| | 132(175) | 1320HFEF3,HFF3 | 1320HFF/HFUF | 3/0 x 2 | 85.0 x 2 | 3/0 x 2 | 85.0 x 2 | | 300 | 300 |
| | 150(200) | 1500HFUF3 | - | 3/0 x 2 | 85.0 x 2 | - | | | 300 | - |
| | 160(220) | - | 1600HFF/HFUF | - | | 3/0 x 2 | 85.0 x 2 | | - | 350 |
| | 185(250) | 1850HFE2,HFU2,HF2 | - | 300 x 2 | 152 x 2 | - | | | 700 | - |
| | 220(300) | 2200HFE2,HFU2,HF2 | - | 350 x 2 | 177 x 2 | - | | | 700 | - |
| | 315(400) | 3150HFE2,HFU2,HF2 | - | 500 x 2 | 253 x 2 | - | | | 700 | - |
| | 400(550) | 4000HFE2,HFU2,HF2 | - | 800 x 2 | 405 x 2 | - | | | 1000 | - |

Note 1: Field wiring connection must be made by a UL and c-UL listed closed-loop terminal connector sized for the wire gauge involved. Connector must be fixed using the crimping tool specified by the connector manufacture.
Note 2: Be sure to use large wire gauges for power wiring if the distance exceeds 20m (66ft).

| Name | Function |
|---|---|
| Input side AC reactor | This is useful in suppressing harmonics induced on the power supply lines, or when the main power voltage imbalance exceeds 3% (and power source capacity is more than 500kVA), or to smooth out line fluctuations. It also improves the power factor. |
| EMI filter | Reduces the conducted noise on the power supply wiring generated by the inverter. Connect to the inverter input side. |
| Radio noise filter | Electrical noise interference may occur on nearby equipment such as a radio receiver. This magnetic choke filter helps reduce radiated noise (can also be used on output). |
| Radio noise filter (Capacitor filter) | This capacitor filter reduces radiated noise from the main power wires in the inverter input side. |
| DC link choke | Suppresses harmonics generated by the inverter. |
| Braking resistor | This is useful for increasing the inverter's control torque for high duty-cycle (on-off) applications, and improving the decelerating capability. |
| Braking unit | |
| Output side noise filter | Reduces radiated noise from wiring in the inverter output side. |
| Radio noise filter | Electrical noise interference may occur on nearby equipment such as a radio receiver. This magnetic choke filter helps reduce radiated noise (can also be used on input). |
| AC reactor | This reactor reduces the vibration in the motor caused by the inver-ter's switching waveforms, by smoothing the waveforms to approxi-mate commercial power quality. It is also useful when wiring from the inverter to the motor is more than 10m in length, to reduce harmonics. |
| LCR filter | Sine wave shaping filter for the output side. |

Note : An EMI filter is required for European EMC directive and C-Tick, but the others are not for this purpose.
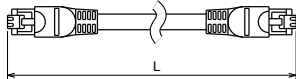
# OPERATOR

## ■Operator, Cable

### ●Operator

| Model | Potentiometer | Remote Control | Copy function | Applied Cable | Applied Model for Built-in |
|---|---|---|---|---|---|
| OPE-SR mini | ○ | ○ | | | SJ200 |
| OPE-SBK | | ○ | | | Standard for SJ700/SJ700D,SJ700B |
| OPE-SR | ○ | ○ | | ・ICS-1 (1m) | SJ700/SJ700D,SJ700B |
| WOP | | ○ | ○ | ・ICS-3 (3m) | SJ700/SJ700D,SJ700B,SJ300,L300P |
| SRW-0EX *1 | | ○ | ○ | | SJ300,L300P |

*1) Production has been stopped.

### ●Cable
**Cable <ICS-1,3>**

| Model | Cable Length |
|---|---|
| ICS-1 | 1m (3.3ft) |
| ICS-3 | 3m (9.8ft) |

### 4X-KITmini (For installation with OPE-SR mini)

Screw
Panel
External Gasket
Front Cover
Internal Gasket 1
Seal
Internal Gasket 2
Rear Cover
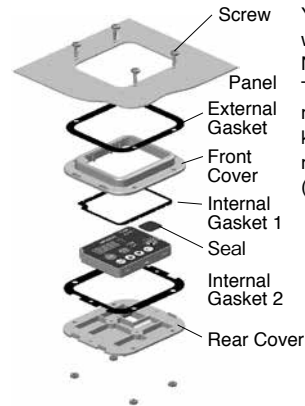
You can mount the keypad with the potentiometer for a NEMA1 rated installation. The kit also provides for removing the potentiometer knob to meet NEMA 4X requirements,as shown (part no.4X-KITmini).

## ■Operator

<OPE-SR mini>    <OPE-SBK (SR)>    <SRW-0J, SRW-0EX>    <WOP>

### Additional operation using optional operator WOP
### Main Features for WOP (SJ700D only)
-Large 5-line LCD screen
-Real time clock
-Copy function: Storing 4 sets of parameter settings
-Selectable display mode

### ●Dimentions (Unit:mm (inch) Inches for reference only)

<OPE-SR mini>

2.7 (0.11)
10 (0.39)
7 (0.28)
70 (2.76)
POWER ○
ALARM ○
○ Hz
○ A
○ R/N/L
○ PRG
RUN STOP
FUNC STR MIN MAX
55 (2.17)
2-M3 depth5 (Reverse side)
20.5 (0.81)
2-φ (0.16)    18 (0.71)
15.3 (0.60)
16.5 (0.65)
8.8 (0.35)
18 (0.71)
Mounting holes

<OPE-SBK (SR)>

8 (0.31)
13 (0.51)
80 (3.15)
79 (3.11)
RUN
PRG
RUN STOP/RESET STR
FUNC
Potentiometer is installed only in OPE-SR
26.5 (1.04)
2 (0.08)
18 (0.71)
18 (0.71)
59 (2.32)
Mounting holes
6.5 (0.26)

< SRW-0J, SRW-0EX, WOP>

8 (0.31)
13 (0.51)
80 (3.15)
POWER RUN WARNING ALARM
REMOTE OPERATOR
OPE
REMOTE READ WRITE
ESC SET
FWD RUN REV RUN STOP/RESET
KEY ENABLED
123 (4.84)
103 (4.06)
6.5 (0.26)
2-M3 depth5 (Reverse side)
26.5 (1.04)
2 (0.08)
18 (0.71)
18 (0.71)
103 (4.06)
2-φ4 (0.16)
Mounting holes

# EXPANSION CARD

## Digital Input Expansion Card   SJ-DG

Output frequency, acceleration time, deceleration time, torque limit, and orientation position[*1] can be set by a digital output device such as PLC, etc. (Binary or BCD)

●Standard Specifications

| Item | | |
|---|---|---|
| Input | Data setting signal | |
| | Strobe signal | |
| Output | Sequence error signal (Data input error signal) | |
| Power supply | Power supply for interface | |
| **Specification** | | |
| Input | NO contact input (sink/ source compatible) | D0,D1, … between D15 and PLCB |
| | | Between STRB and PLCB |
| Output | Open collector output (sink/ source compatible) | DC+27V 50mA max., between SEQ and CMB |
| Power supply | DC+24V 90mA max., between P24B and CM1 | |

*1 Orientation position setting is enabled when the feedback PCB (SJ-FB) is used together.

●Connecting Diagram

SJ-DG

Sequence error output terminal   SEQ
Common terminal   CMB
D15
D14
Data input terminals
D0
Strobe terminal   STRB
Common terminal   CM1
PLCB
P24B

Data input error signal output

PLC, etc.
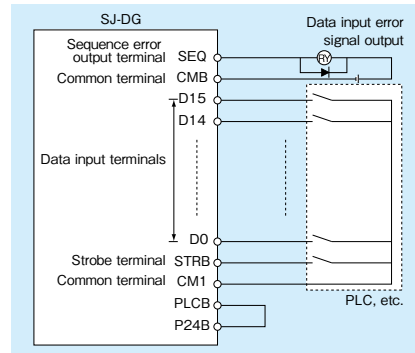
●Data Bit Configuration

| Item | Mode1 | Mode2 |
|---|---|---|
| D15 | Data classification code | Setting data |
| D14 | | |
| D13 | | |
| D12 | | |
| D11 | | |
| D10 | | |
| D9 | Data can be set by either 16-bit binary or 4-digit BCD. | Data can be set by either 16-bit binary or 4-digit BCD. |
| D8 | | |
| D7 | | |
| D6 | | |
| D5 | | |
| D4 | Setting data | Input data is divided into upper 8-bit and lower 8-bit. |
| D3 | | |
| D2 | | |
| D1 | | |
| D0 | | |

*Data input mode is selected by the dip switch on the expansion card.

## Feedback Expansion Card   SJ-FB

Detects motor speed with an encoder and receives the feedback speed fluctuation to realize high-precision operation. Positioning control and orientation with pulse-train input are also possible.

●Application Examples

High-precision operation for the main motor of coil winding machine, wire drawing machine, truck, extruder, etc.

●Connecting Diagram (Example)

Configurable at intelligent input terminal 1 to 8

SJ700 logic PCB          SJ-FB

Input terminals
FW
RV
LAC   (LAD cancel signal)
CLR   (Clear signal)
ORT   (Orientation signal)
CM1

output terminals
POK   (Positioning completion)
ZS   (Zero speed signal)
DSE   (Speed deviation excessive signal)
Configurable at intelligent output terminal 1 to 5
H
O
L

EP5
EG5
EAP
EAN
EBP
EBN
EZP
EZN

SAP
SAN
SBP
SBN

AP
AN
BP
BN

90-degree phase difference pulse train input

Encoder signal output

M

EC

Motor with encoder

●General Specifications

| Item | | Specification |
|---|---|---|
| Speed control | Encoder feedback | Standard: 1024-pulse/r Maximum input pulse: 100k-pulse/s |
| | Speed control method | Proportional-Integral (PI) / Proportional (P) control |
| Position control | Positioning command | A-, B-phase, 90-degree phase difference input  (By A-, B-, and Z-phase encoder), Maximum input pulse: 100k-pulse/s |
| | Electronic gear | Pulse ratio A/B  (A, B: Setting range of 1-9999) 1/50≦A/B≦20 |
| Orientation | Stop position | 4096 splitting per motor's single revolution (When using standard encoder) |
| | Speed | Orientation speed and rotational direction can be set |
| Protective functions | | Encoder cable disconnection protection, Over-speed protection, Positioning error |

## DeviceNet™ EXPANSION CARD   SJ-DN2

With fieldbus option module SJ-DN2, the inverter provides network compatibility with DeviceNet communication as a slave, allowing inverter operation and monitoring from a master device via fieldbus. Expensive hard-wiring can be eliminated for space saving and cost reduction, and installation/replacement within the system can be easily done.

●Specifications

| General data | Applicable DeviceNet specification | CIP Volume I –Release3.  4 CIP Volume III-Release1.  5 DeviceNet Adaptation | |
|---|---|---|---|
| | Vendor name | Hitachi Industrial Equipment Systems Co.,Ltd. | Vendor ID=1112 |
| Physical conformance data | Device profile name | Slave AC Drive | Profile No=2 |
| | Product revision | 2.1 | |
| | Network consumption current | 50mA | |
| | Connector type | Open connector | |
| | Isolation of physical layer | Yes | |
| | Support LED | Module status / network status | |
| | MAC ID setting | set at DipSW | |
| | Default MAC ID | 00 | |
| | Transmission baud rate setting | set at DipSW | |
| | Support transmission baud rate | 125k/250k/500k | |
| Communication data | Pre-defined master/slave connection set | Group 2 only server | |
| | UCMM Support | None | |
| | Support connection | Explicit message connection, Polled I/O connection | |
| | Explicit message fragmentation | Yes | |

*SJ-DN2 cannot access new parameters is SJ700D-3

●Dimensional drawings [Unit:mm]

Black   Blue   White   Red   Nameplate
15
8.3
2.54
5.08
20.32
18.2
25.4
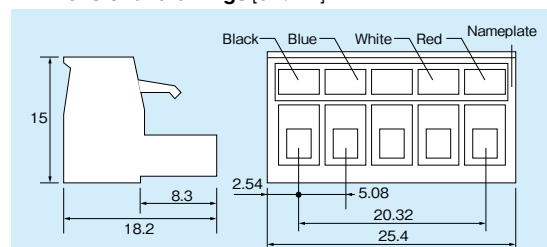
DeviceNet is a trademark of Open DeviceNet Vendor Association.

●Cable connection

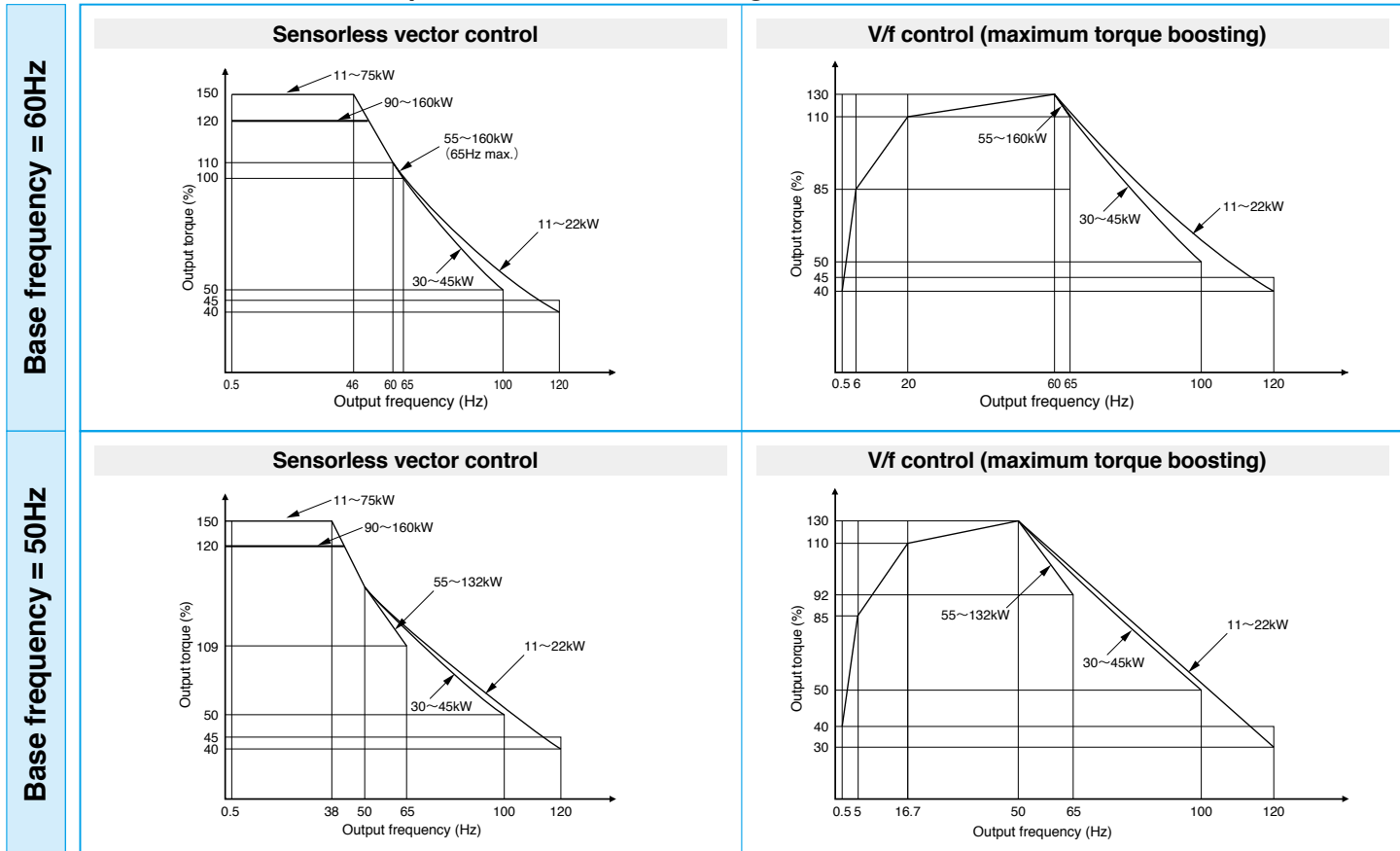| No | Signal | Cable color |
|---|---|---|
| 1 | V- | Black |
| 2 | CAN_L | Blue |
| 3 | Drain | — |
| 4 | CAN_H | White |
| 5 | V+ | Red |

Note: Communication power supply (24VDC)is required in system configuration.

# TORQUE CHARACTORISTIC

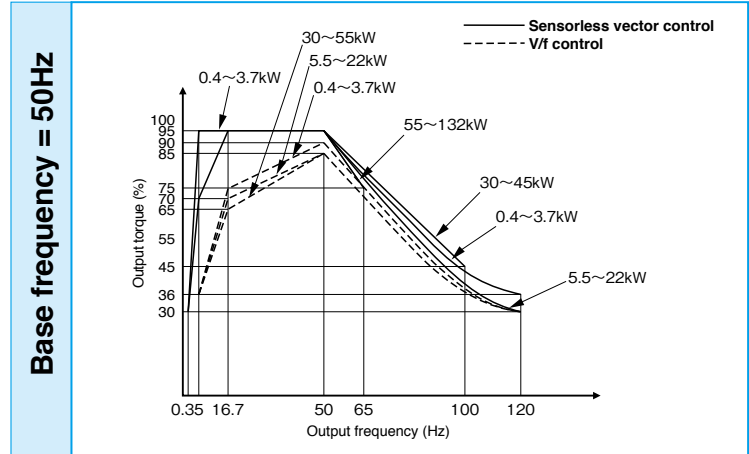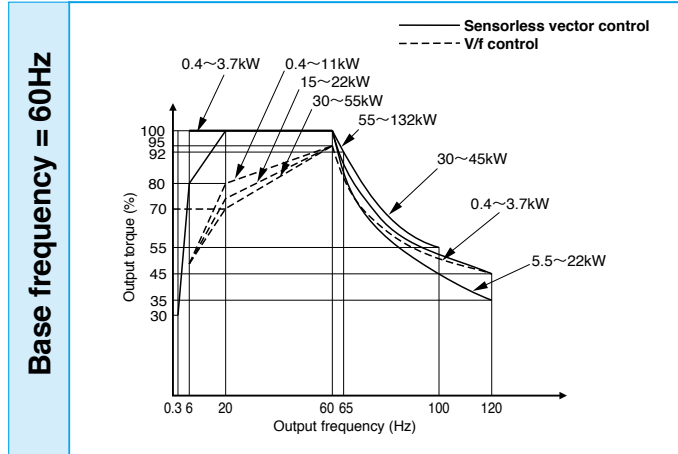## SJ700D (CT) Series / Maximum Torque with Short - Time Rating

**Base frequency = 60Hz**

### Sensorless vector control
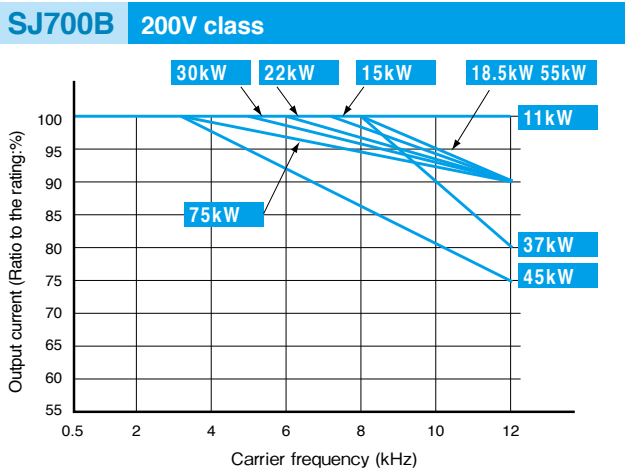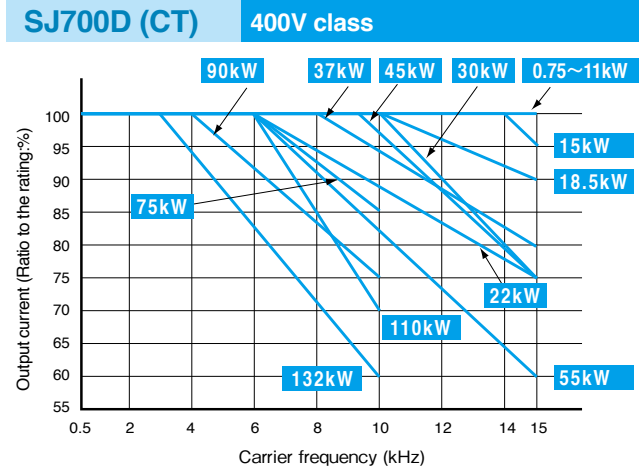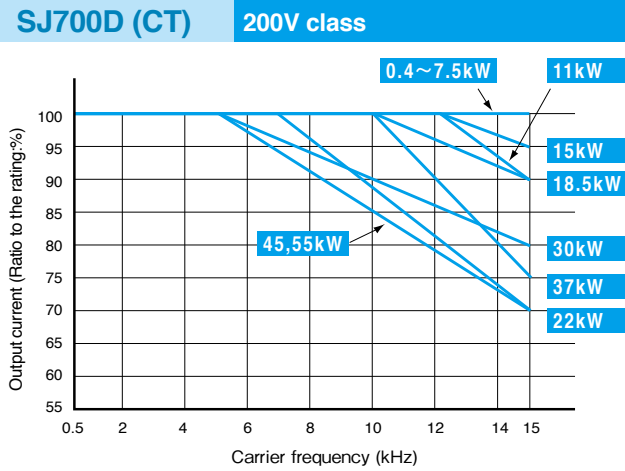


0.4～55kW
75～132kW
55～132kW
（65Hz max.）
0.4～3.7kW
5.5～22kW
30～45kW

Output torque (%)
Output frequency (Hz)

### V/f control (maximum torque boosting)



55～132kW
0.4～3.7kW
30～45kW
5.5～22kW

Output torque (%)
Output frequency (Hz)

**Base frequency = 50Hz**

### Sensorless vector control



0.4～55kW
75～132kW
55～132kW
0.4～3.7kW
5.5～22kW
30～45kW

Output torque (%)
Output frequency (Hz)

### V/f control (maximum torque boosting)



55～132kW
0.4～3.7kW
5.5～22kW
30～45kW

Output torque (%)
Output frequency (Hz)

## SJ700B Series / Maximum Torque with Short - Time Rating

**Base frequency = 60Hz**

### Sensorless vector control



11～75kW
90～160kW
55～160kW
（65Hz max.）
11～22kW
30～45kW

Output torque (%)
Output frequency (Hz)

### V/f control (maximum torque boosting)



55～160kW
30～45kW
11～22kW

Output torque (%)
Output frequency (Hz)

**Base frequency = 50Hz**

### Sensorless vector control



11～75kW
90～160kW
55～132kW
11～22kW
30～45kW

Output torque (%)
Output frequency (Hz)

### V/f control (maximum torque boosting)



55～132kW
30～45kW
11～22kW

Output torque (%)
Output frequency (Hz)

33

# TORQUE CHARACTORISTIC

## SJ700D (CT)/SJ700B Series / Torque Under Continous Operation

**Base frequency = 60Hz**



**Base frequency = 50Hz**



# DERATING DATA

## SJ700D (CT)  200V class



## SJ700D (CT)  400V class



## SJ700B  200V class



## SJ700B  400V class
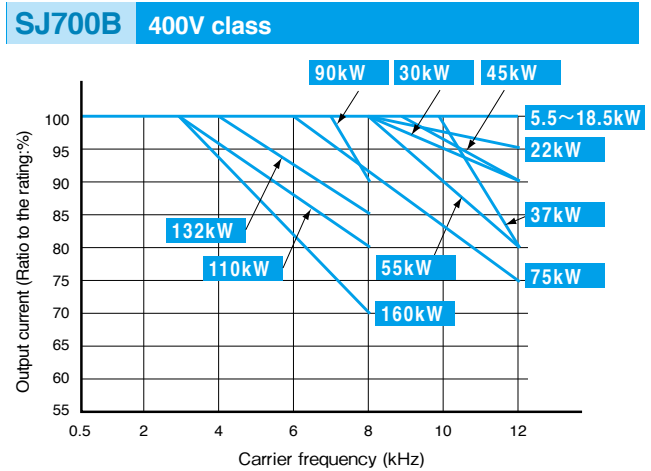
# DIFFERENCE and COMPATIBILITY of SJ300 series and SJ700/SJ700D series

| Items | | | | SJ300 series | SJ700/SJ700D series |
|---|---|---|---|---|---|
| Copying the parameter settings | | | | You can copy the parameter settings from the SJ300 series into the SJ700 series. (You cannot copy the parameter settings from the SJ700 series to the SJ300 series because the SJ700 series has many new functions and additional parameters.) | |
| Parameter display mode. | | | | No display mode selection. (full display) | Basic display mode/Data comparison function addition. Note:basic display mode. To display all parameters, specify "00" for "b037". |
| Change function | Retry or trip parameter | | | Instantaneous power failure/under-voltage/ overvoltage/overcurrent:It sets up by b001. | Instantaneous power failure/under-voltage:It sets up by b001. overvoltage/overcurrent:It sets up by b008. |
| | d001: Output frequency monitoring d007: Scaled output frequency monitoring | | | You can not change the output frequency setting by using the △ and/or ▽ key. | You can not change the output frequency setting by using the △ and/or ▽ key. |
| | A016:External frequency filter time const. | | | Default:8 | Default:31 Note 1 |
| | A038:Jog frequency setting | | | Setting range:0 to 999Hz | Setting range: 0.01 to 999Hz (0Hz setup is impossible) |
| | A105:[OI]-[L] input start frequency enable | | | Default:01 (external start frequency) | Default:00 (0Hz) |
| | b012, b212, b312: Electronic thermal function | | | Setting upper limit:120% | Setting upper limit:100% |
| | C025:Terminal [15] function | | | Default:08 (instantaneous power failure) | Default:40 (cooling-fan speed drop) |
| Terminal | Control Circuit | Removable | | Removable | Removable (You can mount the SJ300 series into the SJ700/SJ700D series.) |
| | | Position | | Other model:same position. 055L/H:5mm upper part from SJ300. 300L/H:97mm upper part from SJ300. | |
| | Main Circuit | Screw diameter | 110L/H | M6 (Ground Screw) | M5 (Ground Screw) |
| | | | 300L | M8 (Ground Screw) | M6 (Ground Screw) |
| | | | 450L | M10 | M8 |
| | | | 370H | M6 | M8 |
| | | Position | | 055 to 110L/H:10mm upper part from SJ300. 300L:77mm upper part from SJ300. 300H:72mm upper part from SJ300. 150 to 185L / 220H:29mm upper part from SJ300. 220L:18mm upper part from SJ300. 550L:25mm upper part from SJ300. Other model:same position. | |
| | | Arrangement | | 055 to 110L/H:Two steps, 150 to 550L/H:One step | 055 to 550L/H:One step |
| | | Others | | 150 to 220L/H:RB there is not a terminal. | 150 to 220L/H:RB there is a terminal. |
| Easy-removable Dc bus Capacitor | | | | All the models are possible. | 15kW or more is possible. |
| Dynamic Brake circuit | | | | up to 11kW | up to 22kW |
| Minimum value of resistor (Ω) | 055L | | | 17 | 16 |
| | 075L | | | 17 | 10 |
| | 110L | | | 17 | 10 |
| | 055H | | | 50 | 35 |
| | 075H | | | 50 | 35 |
| Dimensions | Installation | | | 055L/H: SJ700/SJ700D is in next larger enclosure vs. SJ300. All other models are the same enclosure size. | |
| | External radiating fin | | | 055L/H:Those with no compatibility.075 to 550L/H:Those with compatibility.  Note 2 | |
| Digital operator position | | | | 055L/H:5mm upper part from SJ300. 300L/H:97mm upper part from SJ300. Other model:same position. | |
| Option boards | SJ-DG | | | Those with compatibility. | |
| | SJ-FB | | | | |
| | SJ-DN / SJ-DN2 | | | Those with compatibility. Note:Since the SJ700 series has many new functions and additional parameters, some functions of the SJ-DN, SJ-LW, and SJ-PB/PBT (option boards conforming to the open network specifications) cannot be implemented on the SJ700 series.  SJ-DN2, SJ-PB2/PBT2 has compatibility to SJ700-2. SJ-DN2, SJ-PB2/PBT2 cannot access new paramaters is SJ700D-3. | |
| | SJ-PB/PBT, SJ-PB2/PBT2 | | | | |
| | SJ-LW | | | available | not available |
| | Option position | | | Other model:same position. 055L/H:5mm upper part from SJ300. 300L/H:97mm upper part from SJ300. | |

Note1: As analog response follows the V/F curve, selection of SLV may require this setting to be reduced.

Note2: 370, 450L/H and 550H:Metal fittings differ.

35

# DIFFERENCE and COMPATIBILITY of L300P series and SJ700B series

| Items | | | | L300P series | SJ700B series |
|---|---|---|---|---|---|
| Copying the parameter settings | | | | You can copy the parameter settings from the L300P series into the SJ700B series. (You cannot copy the parameter settings from the SJ700B series to the L300P series because the SJ700B series has many new functions and additional parameters.) | |
| Parameter display mode. | | | | No display mode selection. (full display) | Basic display mode/Data comparison function addition. Note:basic display mode [factory setting] To display all parameters, specify "00" for "b037". |
| Change function | | Retry or trip parameter | | Instantaneous power failure/under-voltage/ overvoltage/overcurrent:It sets up by b001. | Instantaneous power failure/under-voltage:It sets up by b001. overvoltage/overcurrent:It sets up by b008. |
| | | d001:Output frequency monitoring d007:Scaled output frequency monitoring | | You can not change the output frequency setting by using the up and or down key. | You can not change the output frequency setting by using the up and or down key. |
| | | A001: Frequency source setting | | Default:00 (Keypad potentiometer on digital operator) | Default:02 (Digital operator) |
| | | A016: External frequency filter time const. | | Default:8 | Default:31 Note 1 |
| | | A038:Jog frequency setting | | Setting range:0 to 999Hz | Setting range: 0.01 to 999Hz (0Hz setup is impossible) |
| | | A105: [OI]-[L] input start frequency enable | | Default:01 (external start frequency) | Default:00 (0Hz) |
| | | b012, b212, b312: Electronic thermal function | | Setting upper limit:120% | Setting upper limit:100% |
| | | b013, b213, b313: Electronic thermal characteristic | | Default:00 (reduced-torque characteristic) | Default:01 (constant-torque characteristic) |
| | | b092:Cooling fan control | | Default:00 (always operating the fan) | Default:01 (operating the fan only during inverter operation [including 5 minutes after power-on and power-off]) |
| | | b095:Dynamic braking control | | Default:00 (disabling) | Default:01 (enabling [disabling while the motor is topped]) |
| Terminal | Control circuit | Removable | | Removable | Removable (You can mount the L300P into the SJ700B .) |
| | | Intelligent input terminals | | 5 terminals | 8 terminals |
| | | Intelligent output terminals | | 2 terminals (Relay) | 5 terminals (Open collector) |
| | | Position | | 370L/H:97mm upper part from L300P. Other model:same position. | |
| | Main circuit | Screw diameter | 150L/H | M6 (Ground Screw) | M5 (Ground Screw) |
| | | | 370L | M8 (Ground Screw) | M6 (Ground Screw) |
| | | | 550L | M10 | M8 |
| | | | 450H | M6 | M8 |
| | | Position | | 110,150LF/HF:10mm upper part from L300P. 185 to 220L/300H:29mm upper part from L300P. 300L:18mm upper part from L300P. 370L:77mm upper part from L300P. 370H:72mm upper part from L300P. 750L:25mm upper part from L300P. Other model:same position. | |
| | | Others | | 185 to 300L/H:RB there is not a terminal. | 185 to 300H:RB there is a terminal. |
| Easy-removable Dc bus Capacitor | | | | All the models are possible. | 18.5kW or more is possible. |
| Dynamic Brake circuit | | | | Up to 15kW | Up to 30kW |
| Minimum value of resistor (Ω) | | 110L | | 17 | 10 |
| | | 150L | | 17 | 10 |
| | | 110H | | 50 | 35 |
| | | 150H | | 50 | 35 |
| Dimensions | | Installation | | All models are the same enclosure size. | |
| | | External radiating fin | | Those with compatibility. Note 2 | |
| Digital operator position | | | | 300L/H:97mm upper part from L300P. Other model:same position. | |
| Keypad potentiometer on digital operator | | | | Yes. | No. (Option) |
| Option boards | | SJ-DG | | Those with compatibility. | |
| | | SJ-DN / SJ-DN2 | | Those with compatibility. Note:Since the SJ700B series has many new functions and additional parameters,some functions of the SJ-DN, and SJ-PB/PBT (option boards conforming to the open network specifications)cannot be implemented on the SJ700B series. | |
| | | SJ-PB/PBT, SJ-PB2/PBT2 | | | |
| | | SJ-LW | | available | not available |
| | | Option position | | 370L/H:97mm upper part from L300P. Other model:same position. | |

Note1: Since a response falls the V/F characteristic curve selection SLV should make this setup small.

Note2: 450, 550L/H and 750H:Metal fittings differ.

## Application to Motors

### Application to general-purpose motors

| | |
|---|---|
| Operating frequency | For operation at higher than 60Hz, it is required to examine the allowable torque of the motor, useful life of bearings, noise, vibration, etc. In this case, be sure to consult the motor manufacturer as the maximum allowable rpm differs depending on the motor capacity, etc. |
| Torque characteristics | The torque characteristics of driving a general-purpose motor with an inverter differ from those of driving it using commercial power (starting torque decreases in particular).Carefully check the load torque characteristic of a connected machine and the driving torque characteristic of the motor. |
| Motor loss and temperature increase | An inverter-driven general-purpose motor heats up quickly at lower speeds. Consequently, the continuous torque level (output) will decrease at lower motor speeds. Carefully check the torque characteristics vs speed range requirements. |
| Noise | When run by an inverter, a general-purpose motor audible slightly greater than with commercial power. |
| Vibration | When run by an inverter at variable speeds, the motor may generate vibration, especially because of (a) unbalance of the rotor including a connected machine, or (b) resonance caused by the natural vibration frequency of a mechanical system. Particularly, be careful of (b) when operating at variable speeds a machine previously fitted with a constant speed motor. Vibration can be minimized by (1) avoiding resonance points using the frequency jump function of the inverter, (2) using a tireshaped coupling, or (3) placing a rubber shock absorber beneath the motor base. |
| Power transmission mechanism | Under continued, low-speed operation, oil lubrication can deteriorate in a power transmission mechanism with an oil-type gear box (gear motor) or reducer. Check with the motor manufacturer for the permissible range of continuous speed. To operate at more than 60 Hz, confirm the machine's ability to withstand the centrifugal force generated. |

### Application to special motors

| | |
|---|---|
| Gear motor | The allowable rotation range of continuous drive varies depending on the lubrication method or motor manufacturer. (Particularly in case of oil lubrication, pay attention to the low frequency range.) |
| Brake-equipped motor | For use of a brake-equipped motor, be sure to connect the braking power supply from the primary side of the inverter. |
| Pole-change motor | There are different kinds of pole-change motors (constant output characteristic type, constant torque characteristic type, etc.), with different rated current values. In motor selection, check the maximum allowable current for each motor of a different pole count. At the time of pole changing, be sure to stop the motor. Also see: Application to the 400V-class motor. |
| Submersible motor | The rated current of a submersible motor is significantly larger than that of the general-purpose motor. In inverter selection, be sure to check the rated current of the motor. |
| Explosion-proof motor | Inverter drive is not suitable for a safety-enhanced explosion-proof type motor. The inverter should be used in combination with a pressure-proof explosion-proof type of motor. *Explosion-proof verification is not available for SJ700/SJ700D/SJ700B Series. |
| Synchronous (MS) motor High-speed (HFM) motor | In most cases, the synchronous (MS) motor and the high-speed (HFM) motor are designed and manufactured to meet the specifications suitable for a connected machine. As to proper inverter selection, consult the manufacturer. |
| Single-phase motor | A single-phase motor is not suitable for variable-speed operation by an inverter drive. Therefore, use a three-phase motor. |

### Application to the 400V-class motor

A system applying a voltage-type PWM inverter with IGBT may have surge voltage at the motor terminals resulting from the cable constants including the cable length and the cable laying method. Depending on the surge current magnification, the motor coil insulation may be degraded. In particular, when a 400V-class motor is used, a longer cable is used, and critical loss can occur, take any of the following countermeasures:
(1) install the LCR filter between the inverter and the motor,
(2) install the AC reactor between the inverter and the motor, or
(3) enhance the insulation of the motor coil.

## Notes on Use

### Drive

| | |
|---|---|
| Run/Stop | Run or stop of the inverter must be done with the keys on the operator panel or through the control circuit terminal. Do not operate by installing a electromagnetic contactor (MC) in the main circuit. |
| Emergency motor stop | When the protective function is operating or the power supply stops, the motor enters the free run stop state. When an emergency stop is required or when the motor should be kept stopped, use of a mechanical brake should be considered. |
| High-frequency run | A max. 400Hz can be selected on the SJ700/SJ700D/SJ700B Series. However, a two-pole motor can attain up to approx. 24,000 rpm, which is extremely dangerous. Therefore, carefully make selection and settings by checking the mechanical strength of the motor and connected machines. Consult the motor manufacturer when it is necessary to drive a standard (general-purpose) motor above 60 Hz. A full line of high-speed motors is available from Hitachi. |

### Repetitive operation on starting or plugging

About frequent repetition use (crane, elevator, press, washing machine) , a power semiconductor (IGBT, a rectification diode, thyristor) in the inverter may come to remarkably have a short life by thermal fatigue.
The life can be prolonged by lower a load electric current. Lengthen acceleration / deceleration time. Lower carrier frequency. or increasing capacity of the inverter.

### Operation use in highlands beyond 1,000m above sea level

Due to the air density decreasing, whenever standard inverters are used for altitudes above 1000m, the following conditions are additionally required for proper operation. In application for operation over 2500m, kindly contact your nearest sales office for assistance.
1. Reduction of inverter rated current
   Current rating has to be reduced 1% for every 100m that exceeds from an altitude of 1000m.
   For example, for inverters placed at an altitude of 2000m, the rated current has to be reduced 10% (Rated current x0.9) from its original amount.
   {(2000m-1000m)/100m*-1%=-10%}
2. Reduction of breakdown voltage
   Whenever an inverter is used at altitudes beyond 1000m, the breakdown voltage decreases as follows:
   1000m or less: 1.00 / 1500m: 0.92 / 2000m: 0.90 / 2500m: 0.85. As mentioned in the instruction manual, please avoid any pressure test.

### Installation location and operating environment

Avoid installation in areas of high temperature, excessive humidity, or where moisture can easily collect, as well as areas that are dusty, subject to corrosive gasses, mist of liquid for grinding, or salt. Install the inverter away from direct sunlight in a well-ventilated room that is free of vibration. The inverter can be operated in the ambient temperature range from SJ700/SJ700D (CT): -10 to 50°C, SJ700D (VT): -10 to 40°C, SJ700B: -10 to 45°C. (Carrier frequency and output current must be reduced in the range of 40 to 50°C.)

## Main power supply

| | |
|---|---|
| Installation of an AC reactor on the input side | In the following examples involving a general-purpose inverter, a large peak current flows on the main power supply side, and is able to destroy the converter module. Where such situations are foreseen or the connected equipment must be highly reliable, install an AC reactor between the power supply and the inverter. Also, where influence of indirect lightning strike is possible, install a lightning conductor.<br>(A) The unbalance factor of the power supply is 3% or higher. (Note)<br>(B) The power supply capacity is at least 10 times greater than the inverter capacity (the power supply capacity is 500 kVA or more).<br>(C) Abrupt power supply changes are expected.<br>   Examples:<br>   (1) Several inverters are interconnected with a short bus.<br>   (2) A thyristor converter and an inverter are interconnected with a short bus.<br>   (3) An installed phase advance capacitor opens and closes.<br>In cases (A), (B) and (C), it is recommended to install an AC reactor on the main power supply side.<br>Note: Example calculation with $V_{RS}$ = 205V, $V_{ST}$ = 201V, $V_{TR}$ = 200V<br>   $V_{RS}$ : R-S line voltage, $V_{ST}$ : S-T line voltage, $V_{TR}$ : T-R line voltage<br><br>$$\text{Unbalance factor of voltage} = \frac{\text{Max. line voltage (min.) - Mean line voltage}}{\text{Mean line voltage}} \times 100$$<br>$$= \frac{V_{RS}-(V_{RS}+V_{ST}+V_{TR})/3}{(V_{RS}+V_{ST}+V_{TR})/3} \times 100 = \frac{205-202}{202} \times 100 = 1.5(\%)$$ |
| Using a private power generator | An inverter run by a private power generator may overheat the generator or suffer from a deformed output voltage waveform of the generator. Generally, the generator capacity should be five times that of the inverter (kVA) in a PWM control system, or six times greater in a PAM control system. |

## Notes on Peripheral Equipment Selection

| | | |
|---|---|---|
| Wiring connections | | (1) Be sure to connect main power wires with R (L1), S (L2), and T (L3) terminals (input) and motor wires to U (T1), V (T2), and W (T3) terminals (output). (Incorrect connection will cause an immediate failure.)<br>(2) Be sure to provide a grounding connection with the ground terminal ( ⊕ ). |
| Wiring between inverter and motor | Electromagnetic contactor | When an electromagnetic contactor is installed between the inverter and the motor, do not perform on-off switching during running operation. |
| | Thermal relay | When used with standard applicable output motors (standard three-phase squirrel-cage four-pole motors), the SJ700/SJ700D/SJ700B Series does not need a thermal relay for motor protection due to the internal electronic protective circuit. A thermal relay, however, should be used:<br>• during continuous running outside a range of 30 to 60 Hz.<br>• for motors exceeding the range of electronic thermal adjustment (rated current).<br>• when several motors are driven by the same inverter; install a thermal relay for each motor.<br>• The RC value of the thermal relay should be more than 1.1 times the rated current of the motor. If the wiring length is 10 m or more, the thermal relay tends to turn off readily. In this case, provide an AC reactor on the output side or use a current sensor. |
| Installing a circuit breaker | | Install a circuit breaker on the main power input side to protect inverter wiring and ensure personal safety. Choose an inverter-compatible circuit breaker. The conventional type may malfunction due to harmonics from the inverter. For more information, consult the circuit breaker manufacturer. |
| Wiring distance | | The wiring distance between the inverter and the remote operator panel should be 20 meters or less. Shielded cable should be used on thewiring. Beware of voltage drops on main circuit wires. (A large voltage drop reduces torque.) |
| Earth leakage relay | | If the earth leakage relay (or earth leakage breaker) is used, it should have a sensitivity level of 15 mA or more (per inverter). |
| Phase advance capacitor | | Do not use a capacitor for power factor improvement between the inverter and the motor because the high-frequency components of the inverter output may overheat or damage the capacitor. |

## High-frequency Noise and Leakage Current

(1) High-frequency components are included in the input/output of the inverter main circuit, and they may cause interference in a transmitter, radio, or sensor if used near the inverter. The interference can be minimized by attaching noise filters (option) in the inverter circuitry.
(2) The switching action of an inverter causes an increase in leakage current. Be sure to ground the inverter and the motor.
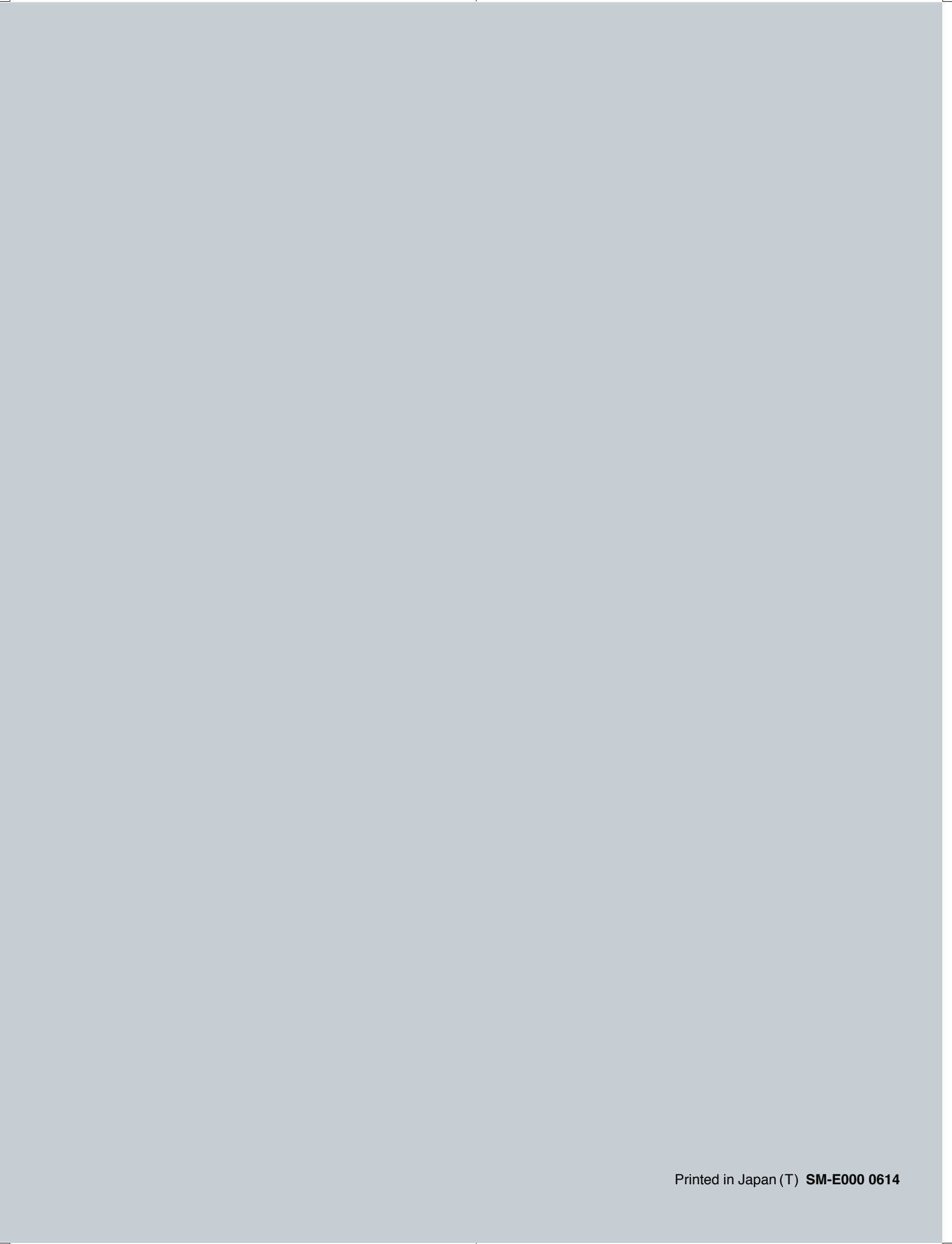
## Lifetime of Primary Parts

Because a DC bus capacitor deteriorates as it undergoes internal chemical reaction, it should normally be replaced every five years. Be aware, however, that its life expectancy is considerably shorter when the inverter is subjected to such adverse factors as high temperatures or heavy loads exceeding the rated current of the inverter. The approximate lifetime of the capacitor is as shown in the figure at the right when it is used 12 hours daily (according to the " Instructions for Periodic Inspection of General-Purpose Inverter " (JEMA).) Also, such moving parts as a cooling fan should be replaced. Maintenance inspection and parts replacement must beperformed by only specified trained personnel. Please plan to replace new inverter depends on the load, ambient condition in advance.
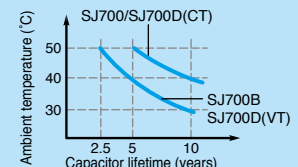


## Precaution for Correct Usage

• Before use, be sure to read through the Instruction Manual to insure proper use of the inverter.
• Note that the inverter requires electrical wiring; a trained specialist should carry out the wiring.
• The inverter in this catalog is designed for general industrial applications. For special applications in fields such as aircraft, outer space, nuclear power, electrical power, transport vehicles, clinics, and underwater equipment, please consult with us in advance.
• For application in a facility where human life is involved or serious injury may occur, make sure to provide safety devices to avoid any accident.
• The inverter is intended for use with a three-phase AC motor. For use with a load other than this, please consult with us.

Information in this brochure is subject to change without notice.