



SECOM GMBH

Development for Laboratories

SDx
Disintegration Tester
Technical Manual

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1 Documents Version History

Ver.	Date	Firmware	Hardware	Comments	Author
1.00.0001	21.04.09	1.00.0001		- First version	HW- SST
1.00.0002	19.10.09	NA		- Added miscellaneous commands	HW-RPA
1.00.0003	25.11.09	NA		- All commands have in addition Device Number - All commands don't use Hex values	HW- SST
1.00.0004	11.12.09	1.00.0020		-Added miscellaneous commands: SETSIP/GETSIP SETSAC/GETSAC -Added Calibration/Adjust command list ADJTEM DRVPOS ADJLOP SETRLO GETRLO -Added more descriptions on STS Command -Added miscellaneous Service Request answer: STO	HW- SST
1.00.0004	14.12.09	1.00.0025		-Added miscellaneous commands: GETTST -Added miscellaneous Service Request answer: TST	HW- SST
1.00.0005	07.02.10	1.00.0028		-Added miscellaneous commands: GETBSN	HW- SST
1.00.0006	11.03.10	1.02.0003		-Added miscellaneous commands: GETSCS	HW-SST
1.00.0007	04.05.10	1.02.0013		-Add more parameter in RDA command	HW-SST
1.00.0008	22.06.10	1.02.0016		-Added miscellaneous Diagnostic commands: DIA TST -Added miscellaneous commands: SETSCS	HW-SST
1.00.0009	01.07.2010	NA		- creation of section Admin Password Reset	HW-RPA
1.00.0010	04.10.2010	NA		- creation of section Network Configuration	HW-RPA
1.00.0011	21.10.2010	1.03.0002		-Added miscellaneous commands: GETMAC / SETMAC GETSTA / SETSTA MANCEL CTC - Added miscellaneous SRQ: +STA - Added miscellaneous Parameter +Cell - Deleted miscellaneous commands STA / STP - Changed miscellaneous parameter STS FULL / STS BASKET	HW-SST
1.00.0012	22.10.2010	1.03.0003		- Changed miscellaneous parameter DIA	HW-SST
1.00.0013	09.11.2010	1.03.0006		- Added miscellaneous commands: REL – Get Release Version	HW-SST
1.00.0014	10.01.2011 11.01.2011			CC 0817 CC 0818 CC 0819 CC 0820 CC 0826	HW-RPA
1.00.0015	18.01.2011			Added missing :RDA parameter – description, CC 0833	HW-RPA
1.00.0016	31.01.2011			CC0840	HW-RPA
1.00.0017	31.01.2011			CC0839	HW-SST

Ver.	Date	Firmware	Hardware	Comments	Author
1.00.0018	01.02.2011			CC0847 Add. Answer Parameter ADJTEM,ADJLOP,ADJLED	HW-SST
1.00.0019	03.02.2011			CC0825 Add Parameter RDA 114	HW-SST
1.00.0020	07.02.2011			CC0837 - New Command: SETLSI / GETLSI - New Command: SETLDA / GETLDA CC0849 - New SRQ: HOT (Hold time) - New Command: HOT (Hold time) - Add System Status: 5 – Test in Hold - Add CTC Parameter - Add SETSTA Parameter	HW-SST
1.00.0020	09.02.2011			CC0849 - Add System Status : 5/6/7	HW-SST
1.00.0021	23.08.2012			- Add some commands - Add Communication description	HW-SST

Author

HW- SST
HW- RPA

Steffen Stautmeister, SECOM GmbH
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2 Firmware Version History

Ver.	Date	Comments	Author
1.00.0001	21.04.09	First Version	HW- SST

Author

HW- SST Steffen Stautmeister, SECOM GmbH

3 Introduction

3.1 Manual User

This manual is produced for technicians with electronically background.

3.2 Security Notice

The system contains electrical circuits, devices, and components operating at dangerous voltages. Contact with these circuits, devices, and components can cause death, serious injury, or painful electric shock.

Panels or covers that are retained by fasteners which require the use of a tool for removal may be opened only by trained, qualified, and authorized service engineers. Consult the manuals or product labels supplied with the system to determine which parts are operator - accessible.

Application of the wrong supply voltage, connection of the instrument to an incorrectly wired supply outlet, or lack of proper electrical grounding can create a fire hazard or a potentially serious shock hazard and could seriously damage the instrument and any attached ancillary equipment.

Always use a three-wire outlet with ground connection which is adequately rated for the load. The installation must comply with local, state, and federal safety regulations.

Do not connect the instrument to the main power supply until you have made sure that the operating voltage is correctly set for the main power supply in the specific outlet in your laboratory to which the equipment will be connected.

Other specific warnings and cautions appear in the manuals where appropriate and detail the specific hazard, describe how to avoid it, and specify the possible consequences of not heeding the warning or caution.

4 Device Description

4.1 System Overview

5 System Configuration

5.1 Serial Hardware Interface

The device can be controlled via the RS232 Interface:

Baudrate:	9600
Start Bits:	1
Data Bits:	8
Stop Bits:	1
Parity:	None
Flow Control:	Disable

5.2 Communication Protocol

Communication takes place via the following ASCII protocol:

Command:

All commands start with a colon ':' and end with carriage return **<CR>** and line feed **<LF>**.

<CR> = 0x0D

<LF> = 0x0A

The different parameters are separated by a space.

:<Command> <Device> [<Param1>] [<Param2>]... [<ParamN>]<CR><LF>

e.g.: :SETSRQ 1 1<CR><LF>

Synchronized Answer:

The responses of the unit to begin with an exclamation mark '!' and end also with carriage return **<CR>** and line feed **<LF>**.

!<Command> <Device> [<Param1>] [<Param2>]... [<ParamN>]<CR><LF>

e.g.: !SETSRQ 1 OK<CR><LF>

Asynchronous Answer:

If the Service Request mechanism is activated, the unit will send asynchronous status messages (e.g. when the state of the device has changed or when a process is terminated). These begin with a plus sign '+' and end also with carriage return **<CR>** and line feed **<LF>**.

+<Command> <Device> [<Param1>] [<Param2>]... [<ParamN>]<CR><LF>

e.g.: +SYS 1 0<CR><LF>

Device List:

Device Number	Description
1	Connected device (e.g. SDx)
2	First connected station
3	Second connected station
4	Third connected station
101	MediaPrep on the connected device
201	MediaPrep on the first connected station
301	MediaPrep on the second connected station
401	MediaPrep on the third connected station

5.3 Firmware Update

5.4 Network Configuration

Basic knowledge of ethernet and tcp/ip is assumed.

Prerequisites:

- PC with a RS232 connection.
- RS232 cable.
- Terminal for RS232 communication (e.g. HyperTerminal).

The following example configuration can be used to establish a master-client connection and to integrate a printer in a Class C network all together.

SDx (Master):

IP:Port 192.168.1.1:4842

SDc (Client):

IP:Port 192.168.1.2:4842

Printer:

IP:Port 192.168.1.3:9100

For all devices:

Netmask 255.255.255.0

Gateway: 192.168.1.101

At first the SDc has to be configured.

Connect the RS232 cable between PC and SDc (the lower, female SUB-D9 connector) and establish a connection with **9600 baud, 8 databits, 1 stop bit, no parity and no flow control**.

All commands are terminated by <CR><LF>.

Send command	Description
:SETIPA 1 192.168.1.2:4842	Set IP-Address and Network Port.
:GETIPA 1	get current IP-Address (optional)
:SETNET 1 255.255.255.0	Configure the netmask for a class c network.
:GETNET 1	Get current netmask (optional)
:SETGWA 1 192.168.1.101	Set Gateway IP-Address
:GETGWA 1	Get current Gateway IP-Address (optional)

Then we configure the SDx.

Connect the RS232 cable between PC and SDx, like above.

Send command	Description
:SETIPA 1 192.168.1.1:4842	Set IP-Address and Network Port.
:GETIPA 1	get current IP-Address (optional)
:SETNET 1 255.255.255.0	Configure the netmask for a class c network.
:GETNET 1	Get current netmask (optional)
:SETGWA 1 192.168.1.101	Set Gateway IP-Address
:GETGWA 1	Get current Gateway IP-Address (optional)
:SETSIP 1 200 192.168.1.3:9100	Set printer IP-Address and port
:GETSIP 1 200	Get current printer IP-Address(optional)
:SETSIP 1 0 192.168.1.2:4842	Set IP-Address and Port according to the configuration of the SDc (SD2).
:GETSIP 1 0	Get current IP-Address and Port of SDc (optional)
:SETSAC 1 0 1	Activate the client communication.
:GETSAC 1 0	Get client communication activated (optional)

The optional :GETxxx commands are for verification only, they are not needed for a successful device configuration.

Finally restart the SDc and SDx.

6 Function Description

6.1 Command List

6.1.1 IDY – Identity

Get Identification and Firmware version

Command

:IDY <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!IDY <Device> SECOM SDxMain <FW-Version>/[<HW-Version>]

<Device> **- see 5.2 Communication Protocol**

Example

PC: :IDY 1
SDx: !IDY 1 SECOM SDxMain 1.00.0016/1.00

6.1.2 CTM – Communication Transparent mode

Command

```
:CTM <Device> <channel> <time><bytes>
```

<Device> **- see 5.2 Communication Protocol**

<channel>	0 :	PC
	1 :	MediumPrep
	2 :	COMtec
	3 :	COMbasket
	4 :	COMbldc
	5 :	COMtft
	200..203:	Generic clients

<time>	0...65535	[sec]
--------	-----------	-------

<bytes>	0...4294967296
---------	----------------

Answer

```
:CTM <Device> OK
```

<Device> **- see 5.2 Communication Protocol**

Example

```
PC:          :CTM 1 1 10 1000
SDx:         !CTM 1 OK
```

6.1.3 EMS – Emergency Stop

Command

:EMS <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!EMS <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC:	:EMS 1
SDx:	!EMS 1 OK

6.1.4 RES – System Reset

Command

:RES <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!RES <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC:	:RES 1
SDx:	!RES 1 OK

6.1.5 REL – Get Release Version

Command

:REL <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!REL <Device> <ReleaseVersion>

<Device> **- see 5.2 Communication Protocol**

<ReleaseVersion> (eg.: 1a) (max. 10 character)

Example

PC:	:REL 1
SDx:	!REL 1 1a

6.1.6 INI –Initialize System

Command

:INI <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!INI <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC:	:INI 1
SDx:	!INI 1 OK

6.1.7 STS – Get Status

Command

:STS <Device> <status>

<Device> - **see 5.2 Communication Protocol**

<status> FULL : Full System status
 HEATER : Heater status
 BASKET : Basket status
 MOTOR : Motor status
 SRQ : Service Request status
 SYS : System
 CLIENTS : Client Connect Status

Answer

!STS <Device> <status> <x1> <x2> ... <xn>

<status> = **FULL** :

<x1> = Basket detection 0 : Basket not connected
 1 : Six Tube Basket
 2 : Three Tube Basket

<x2> = Beaker detection 0...255
 (0=not detect / 1=detect)

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
SMp7	SMp6	SMp5	SMp4	SMp3	SMp2	SMp1	SDx

<x3> = Actually Temperature 0.0 ... 80.0 [0.1°C]

<x4> = Actually Temperature SST 0.0 ... 80.0 [0.1°C]

<x5> = Heater Status 0...255
 (0= Off, 1= On)

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
SMp7	SMp6	SMp5	SMp4	SMp3	SMp2	SMp1	SDx

<x6> = Finish temperate 0...255
 (0= not finish, 1= finish)

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
SMp7	SMp6	SMp5	SMp4	SMp3	SMp2	SMp1	SDx

<x7> = Error detection 0 : not detect
 1 : detect

<x8> = System Status

0 : Idle
 1 : move in Test
 2 : in Test
 3 : move out Test
 4 : not ready for test
 5 : Test move in hold
 6 : Test in hold
 7 : Test move out hold
 50 : Ready for calibration/adjust
 51 : Initialize calibration/adjust
 52 : in calibration/adjust
 100 : not Initialize
 101 : in Initialize
 150 : Ready for Testmode
 151 : Initialize Testmode
 152 : in Cell Testmode
 153 : in Leveldetec Testmode
 154 : in Cell Testmode without movement

<x9> = Runtime

0...65535 [sec]

<x10> = Cell Status

P – Cell Activating in Pretest
 M – Cell Manual Activating
 A – Cell Automatic Activating
 (0= Off, 1= On)

Bit 17	Bit 16	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Cell 6			Cell 5			Cell 4			Cell 3			Cell 2			Cell 1		
P	M	A	P	M	A	P	M	A	P	M	A	P	M	A	P	M	A

<x11> = Client Connect Status

0...255
 00 = not connect
 01 = connect
 11 = busy (try to connected/disconnect)

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
x	x	Client3	Client3	Client2	Client2	Client1	Client1

<status> = **HEATER** :

<x1> = Beaker detection

0...255
 (0=not detect / 1=detect)

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
SMp7	SMp6	SMp5	SMp4	SMp3	SMp2	SMp1	SDx

<x2> = Actually Temperature 0.0...80.0 [0.1°C]

<x3> = Actually Temperature SST 0.0...80.0 [0.1°C]
 0.0 = Service Station not detect
 1.0

<x4> = Heater Status

0...255
 (0= Off, 1= On)

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
SMp7	SMp6	SMp5	SMp4	SMp3	SMp2	SMp1	SDx

<x5> = Finish temperate 0...255
(0= not finish, 1= finish)

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
SMp7	SMp6	SMp5	SMp4	SMp3	SMp2	SMp1	SDx

<status> = **BASKET** :

<x1> = Basket detection 0 : Basket not connected
1 : Six Tube Basket
2 : Three Tube Basket

<x2> = Cell Status P – Cell Activating in Pretest
M – Cell Manual Activating
A – Cell Automatic Activating
(0= Off, 1= On)

Bit 17	Bit 16	Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Cell 6			Cell 5			Cell 4			Cell 3			Cell 2			Cell 1		
P	M	A	P	M	A	P	M	A	P	M	A	P	M	A	P	M	A

<x3> = Cell 1 disintegration time 0...65535 [sec]

<x4> = Cell 2 disintegration time 0...65535 [sec]

<x5> = Cell 3 disintegration time 0...65535 [sec]

<x6> = Cell 4 disintegration time 0...65535 [sec]

<x7> = Cell 5 disintegration time 0...65535 [sec]

<x8> = Cell 6 disintegration time 0...65535 [sec]

<x9> = Level Detection Position (0.0...200.0) [mm]

<status> = **MOTOR** :

<x1> = Initialize 0 : not init
1 : init

<x2> = Position (-32000.0..32000.0) [mm]

<x3> = in move 0 : not move
1 : move

<status> = **SRQ** :

<x1> = Service Request message detection (0=not detect / 1=detect)

<x2> = Last SRQ Message (if <x1> = 1)

<status> = **SYS** :

<x1> = System Status	0 :	Idle
	1 :	move in Test
	2 :	In Test
	3 :	move out Test
	4 :	not ready for test
	5 :	Test move in hold
	6 :	Test in hold
	7 :	Test move out hold
	50 :	Ready for calibration/adjust
	51 :	Initialize calibration/adjust
	52 :	in calibration/adjust
	100 :	not Initialize
	101 :	in Initialize
	150 :	Ready for Testmode
	151 :	Initialize Testmode
	152 :	in Cell Testmode
	153 :	in Leveldetec Testmode
	154 :	in Cell Testmode without movement

<status> = **CLIENTS** :

<x1> = Client Connect Status	0...255
	00 = not connect
	01 = connect
	11 = busy (try to connected/disconnect)

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
x	x	Client3	Client3	Client2	Client2	Client1	Client1

Example

PC: :STS 1 FULL
SDx: !STS 1 FULL 1 1 37.1 0.0 1 1 0 2 516 0 1

6.1.8 HOT –Get Hold time

Command

:HOT <Device>

<Device> - see 5.2 Communication Protocol

Answer

!HOT <Device> <time>

<Device> **- see 5.2 Communication Protocol**

```
<time>          0...65535          [sec]
```

Example

```
PC:          :HOT 1
SDx:        !HOT 1 253
```

6.1.9 SETSTA – Set Teststart

Command

:SETSTA <Device> <cmd>

<Device> **- see 5.2 Communication Protocol**

<cmd> 0: Stop Test
 1: Start Test
 2: Start Pre Test
 3: Start Test in Hold
 4: Start Test Continue after Hold

Answer

!SETSTA <Device> OK

<Device> **- see 5.2 Communication Protocol**

!SETSTA <Device> ERR SYSTEM-STATE

<Device> **- see 5.2 Communication Protocol**

Example

PC: :SETSTA 1 1
SDx: !SETSTA 1 OK

6.1.10 GETSTA – Get Teststart status

Command

:GETSTA <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!GETSTA <Device> <cmd>

<Device> **- see 5.2 Communication Protocol**

<cmd> 0: Stop Test
 1: Start Test
 2: Start PreTest
 3: Start Test in Hold
 4: Start Test Continue after Hold

Example

PC: :GETSTA 1
SDx: !GETSTA 1 1

6.1.11 MANCEL – Manual Cell Activating

Command

:MANCEL <Device> <cell> <cmd>

<Device> **- see 5.2 Communication Protocol**

<cell> Cell Number 1..6

<cmd> 0: not activating
 1: activating

Answer

!MANCEL <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC: :MANCEL 1 5 1
SDx: !MANCEL 1 OK

6.1.12 CTC – Clear Test Conditions

Command

:CTC <Device> <ClearMask>

<Device> **- see 5.2 Communication Protocol**

<ClearMask> 0..7

Bit2	Bit1	Bit0
Hold time	Cell status and associated time	Runtime

Answer

!CTC <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC: :CTC 1 2
SDx: !CTC 1 OK

6.1.13 TEM – Get Actual Temperature

Command

:TEM <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!TEM <Device> <Temperature>

<Device> **- see 5.2 Communication Protocol**

<Temperature> = Actual Temperature (10.0...80.0) [0.1°C]

Example

PC: :TEM 1
SDx: !TEM 1 37.1

6.1.14 SETSRQ – Set asynchronous SRQ logic

Command

:SETSRQ <Device> <cmd>

<Device> **- see 5.2 Communication Protocol**

<cmd> 0 = none (default)
 1 = over Communication Port ("+" - Transmit)

Answer

!SETSRQ <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC: :SETSRQ 1 1
SDx: !SETSRQ 1 OK

6.1.15 GETSRQ – Get asynchronous SRQ logic status

Command

:GETSRQ <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!GETSRQ <Device> <cmd>

<Device> **- see 5.2 Communication Protocol**

<cmd> 0 = none (default)
 1 = over Communication Port ("+" - Transmit)

Example

PC: :GETSRQ 1
SDx: !GETSRQ 1 1

6.1.16 SETLTO – Set Level Range

Command

:SETLTO <Device> <Min> <Max>

<Device> - **see 5.2 Communication Protocol**

<Min> 20...250 [mm]

<Max> 20...250 [mm]

Answer

!SETLTO <Device> OK

<Device> - **see 5.2 Communication Protocol**

Example

PC: :SETLTO 1 85 110
SDx: !SETLTO 1 OK

6.1.17 GETLTO – Get Level Range

Command

```
:GETLTO <Device>
```

<Device> **- see 5.2 Communication Protocol**

Answer

```
!GETLTO <Device> <Min> <Max>
```

<Device> **- see 5.2 Communication Protocol**

<Min>	20...250	[mm]
-------	----------	------

<Min>	20...250	[mm]
-------	----------	------

Example

```
PC:          :GETLTO 1
SDx:        !GETLTO 1 85 110
```


6.1.18 SETTMP – Set Target Temperature

Command

```
:SETTMP <Device> <Temperature>
```

<Device> - see 5.2 Communication Protocol

<Temperature>	20.0...60.0	[0.1°C]
---------------	-------------	---------

Answer

```
!SETTMP <Device> OK
```

<Device> - see 5.2 Communication Protocol

Example

```
PC:          :SETTMP 1 37.0
SDx:        !SETTMP 1 OK
```

6.1.19 GETTMP – Get Target Temperature

Command

:GETTMP <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!GETTMP <Device> <Temperature>

<Device> **- see 5.2 Communication Protocol**

<Temperature> = Target Temperature (20.0...60.0) [0.1°C]

Example

PC: :GETTMP 1
SDx: !GETTMP 1 37.1

6.1.20 SETTST – Set Temperature statistic status

Command

:SETTST <Device> <CMD>

<Device> **- see 5.2 Communication Protocol**

<CMD> 0: Stop statistic record
 1: Start statistic record
 2: Reset statistic record

Answer

!SETTST <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC: :SETTST 1 1
SDx: :SETTST 1 OK

6.1.21 GETTST – Get Temperature statistic

Command

:GETTST <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!GETTST <Device> <min> <max> <average> <standard deviation> <sample>

<Device> **- see 5.2 Communication Protocol**

<min> minimum temperature (20.0...60.0) [0.1°C]

<max> maximum temperature (20.0...60.0) [0.1°C]

<average> average temperature (20.0...60.0) [0.1°C]

<standard deviation> standard deviation of temperature (0.00...60.00) [0.01°C]

<sample> number of sample (0..4294967295) (sec. interval)

Example

PC: :GETTST 1
SDx: !GETTST 1 36.9 37.2 37.1 0.02 150

6.1.22 SETHTR – Set Heater

Command

:SETHTR <Device> <heater>

<Device> **- see 5.2 Communication Protocol**

<heater> 0 : Heater off
 1 : Heater on

Answer

!SETHTR <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC: :SETHTR 1 1
SDx: !SETHTR 1 OK

6.1.23 GETHTR – Get Heater status

Command

:GETHTR <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!GETHTR <Device> <heater>

<Device> **- see 5.2 Communication Protocol**

<heater> 0 : Heater off
 1 : Heater on

Example

PC: :GETHTR 1
SDx: !GETHTR 1 1

6.1.24 GCO – Set Generic Client Connection

Command

:GCO <Device> <Client> <CMD>

<Device> **- see 5.2 Communication Protocol**

<Client> Generic client number 200..203

<CMD> 0 – disconnected
 1 – connected

Answer

!GCO <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC: :GCO 1 200 1
SDx: !GCO 1 OK

6.1.25 SETSNR – Set SDx Serial Number

Command

:SETSNR <Device> <SNR>
<Device> - **see 5.2 Communication Protocol**

<SNR> SDx serial number (max. 16 character)

Answer

!SETSNR <Device> OK

<Device> - **see 5.2 Communication Protocol**

Example

PC: :SETSNR 1 SDx.0001
SDx: !SETSNR 1 OK

6.1.26 GETSNR – Get SDx Serial Number

Command

:GETSNR <Device>
<Device> **- see 5.2 Communication Protocol**

Answer

!GETSNR <Device> <SNR>

<Device> **- see 5.2 Communication Protocol**

<SNR> SDx serial number

Example

PC: :GETSNR 1
SDx: !GETSNR 1 SDx.0001

6.1.27 GETBSN – Get Basket Serial Number

Command

:GETBSN <Device>
<Device> **- see 5.2 Communication Protocol**

Answer

!GETBSN <Device> <SNR>

<Device> **- see 5.2 Communication Protocol**

<SNR> Basket serial number

Example

PC: :GETBSN 1
SDx: !GETBSN 1 SDb6.0001

6.1.28 GETPRR – Get Printer Connection Status

Command

:GETPRR <Device>
<Device> **- see 5.2 Communication Protocol**

Answer

!GETPRR <Device> <Status>

<Device> **- see 5.2 Communication Protocol**

<Status>	OK	: Printer job started
	BUSY	: Printer is busy
	ERR CONNECT	: Printer connection error

Example

PC:	:GETPRR 1
SDx:	!GETPRR 1 OK

6.1.29 SETPCO – Set Printer Connection

Command

:SETPCO <Device> <PrinterType> <ConnectionType>

<Device> **- see 5.2 Communication Protocol**

<PrinterType> 0 : None
 1 : PostScript
 2 : Label

<ConnectionType> 0 : TCP/IP
 1 : Serial

Answer

!SETPCO <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC: :SETPCO 1 0 1
SDx: !SETPCO 1 OK

6.1.30 GETPCO – Get Printer Connection

Command

:GETPCO <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!GETPCO <Device> <PrinterType> <ConnectionType>

<Device> **- see 5.2 Communication Protocol**

<PrinterType> 0 : None
 1 : PostScript
 2 : Label

<ConnectionType> 0 : TCP/IP
 1 : Serial

Example

PC: :GETPCO 1
SDx: !GETPCO 1 0 1

6.1.31 PRR – Print Report

Command

:PRR <Device> <Mode>

<Device> **- see 5.2 Communication Protocol**

<Mode> 0 : Print Report Test Page
 1 : Print Report Page
 2 : Print Calibration Page (not implemented)

Answer

!PRR <Device> <Answer>

<Device> **- see 5.2 Communication Protocol**

<Answer> OK : Printer job started
 BUSY : Printer is busy

Example

PC: :PRR 1 1
SDx: !PRR 1 OK

6.1.32 RDA – Report Data

Command

: RDA <Device> <ID> <X1> ... <Xn>

<Device> **- see 5.2 Communication Protocol**

<ID> **0** : Initialize all Report Strings with 0

101...110 : Header

101	: Page Format	0 = DIN A4 1 = Letter 2 = Label 78mm
102	: Actual Date	(eg.: 11.01.2010) (max. 20 character)
103	: Product Number	(eg.: PROD1234) (max. 30 character)
104	: Product Name	(eg.: Product Name) (max. 80 character)
105	: Method Name	(eg.: Method Name) (max. 30 character)
106	: Batch Name	(eg.: sumtext) (max. 40 character)
107	: Performed on	(eg.: 23.05.2009) (max. 20 character)
108	: Performed at	(eg.: 16:08h) (max. 20 character)
109	: Device Description	(max. 60 character)
110	: Number of copies	
111	: Company Info	(eg.: SECOM GmbH) (max. 40 character)
112	: dsp Page _ of _ template	(0 = No / 1 = Yes)
113	: Report Grafic scaling	(eg.: 0, 65535) (0.. 65534, 65535) (65535 = auto-scaling) X1 = Y-Min [s] X2 = Y-Max [s]
114	: Language Index	0 – English 1 – German
115	: Label Report Length	0 – Short (only cell times) 1 – Middle (results) 2 – Long (complete)

200...209 : Conditions

200	: Parameter of ID 205, 206, 207	
		X1 = Pretest Enabled X2 = Disc Type X3 = Solvent Change Time
201	: DeviceID1	(eg: SECOM SDX.8484) (max. 30 character)
202	: DeviceID2	(eg: SECOM SDX.5544) (max. 30 character)
203	: BasketID1	(eg.: SDB6.1234) (max. 30 character)
204	: BasketID2	(eg.: SDB6.0421) (max. 30 character)
205	: Pretest Enabled	(0 = No / 1 = Yes)
206	: Disc Type	(0 = ? / 1 = ?)
207	: Solvent Change Time	(1..65530)
208	: Calibration Device 1	(eg.: 16.04.2010) (max. 20 character)
209	: Calibration Device 2	(eg.: 16.04.2010) (max. 20 character)

2500...2554 : Main Test Conditions

2500	: Parameter of ID 2510, 2511, 2551, 2552, 2553, 2554	
		X1 = Nominal Temperature X2 = Max Time X3 = Solvent Ok X4 = Level Height In X5 = Level Height Out X6 = Level Ok
2510	: Nominal Temperature	(eg.: 370)
2511	: Max Time	(1..65530)
2512	: Solvent	(eg.: 0.1N HCl) (max. 21 character)
2550	: Solvent Detected	(eg.: 0.1N HCl) (max. 21 character)
2551	: Solvent Ok	(0 = No / 1 = Yes / 2 = Disabled)
2552	: Level Height In	(eg.: 92) (1..65530)
2553	: Level Height Out	(eg.: 92) (1..65530)

2554 : Level Ok (0 = Disabled / 1 = Ok / 2 = Low /
3 = High / 4 = Failure)

2600...2654 : Pre Test Conditions

2600 : Parameter of ID 2610, 2611, 2651, 2652, 2653, 2654
X1 = Nominal Temperature
X2 = Max Time
X3 = Solvent Ok
X4 = Level Height In
X5 = Level Height Out
X6 = Level Ok

2610 : Nominal Temperature (eg.: 370)

2611 : Max Time (1..65530)

2612 : Solvent (eg.: Water) (max. 21 character)

2650 : Solvent Detected (eg.: Water) (max. 21 character)

2651 : Solvent Ok (0 = No / 1 = Yes / 2 = Disabled)

2652 : Level Height In (eg.: 92) (1..65530)

2653 : Level Height Out (eg.: 92) (1..65530)

2654 : Level Ok (0 = Disabled / 1 = Ok / 2 = Low /
3 = High / 4 = Failure)

2700...2754 : Main Test Conditions (Device 2)

2700 : Parameter of ID 2751, 2752, 2753, 2754
X1 = Solvent Ok
X2 = Level Height In
X3 = Level Height Out
X4 = Level Ok

2750 : Solvent Detected (eg.: 0.1N HCl) (max. 21 character)

2751 : Solvent Ok (0 = No / 1 = Yes / 2 = Disabled)

2752 : Level Height In (eg.: 92) (1..65530)

2753 : Level Height Out (eg.: 92) (1..65530)

2754 : Level Ok (0 = Disabled / 1 = Ok / 2 = Low /
3 = High / 4 = Failure)

2800...2854 : Pre Test Conditions (Device 2)

2800 : Parameter of ID 2851, 2852, 2853, 2854
X1 = Solvent Ok
X2 = Level Height In
X3 = Level Height Out
X4 = Level Ok

2850	: Solvent Detected	(eg.: Water) (max. 21 character)
2851	: Solvent Ok	(0 = No / 1 = Yes / 2 = Disabled)
2852	: Level Height In	(eg.: 92) (1..65530)
2853	: Level Height Out	(eg.: 92) (1..65530)
2854	: Level Ok	(0 = Disabled / 1 = Ok / 2 = Low / 3 = High / 4 = Failure)

300...305 : Disintegration Times

300	: Parameter of ID 301, 302, 303 and 305			
		X1 = Sample Count		
		X2 = Station Count		
		X3 = Run Time		
		X4 = Aborted		
301	: Sample Count	(1...12)		
302	: Station Count	(1..4)		
303	: Run Time	(1..65530)		
304	: Disint. Time	(12 times) (0..65530 per time)	[sec]	
	(eg.: 456 502 650 0 681 555 543 612 498 592 608 633)			
305	: Aborted	0 = no / 1 = yes		
306	: Disint. States	(12 States)		
		(0 = Disintegrated in Test)		
		(1 = Disintegrated in Pretest)		
		(2 = Manual Input in Test)		
		(3 = Manual Input in Pretest)		
	(eg.: 0 0 1 0 0 0 2 0 0 0 0 3 0)			

400...411 : Statistics

400	: Parameter of ID 401, 402, 403, 404, 405, 406, 407, 408 and 409			
		X1 = Cell Count		
		X2 = Min		
		X3 = Max		
		X4 = Average		
		X5 = Standard Deviation		
		X6 = Range		
		X7 = RSD		
		X8 = OutT1		
		X9 = OutT2		
401	: Cell Count	(eg.: 11)	(0..12)	
402	: Min	(eg.: 502)	(0...65530)	[sec]
403	: Max	(eg.: 681)	(0...65530)	[sec]
404	: Average	(eg.: 578)	(0...65530)	[sec]
405	: Standard Deviation	(eg.: 661)	(0...65530)	[sec]
406	: Range	(eg.: 196)	(0...65530)	[sec]
407	: RSD	(eg.: 114)	(0...65530)	[sec]
408	: OutT1	(eg.: 11)	(0...12)	[pcs]
409	: OutT2	(eg.: 5)	(0...12)	[pcs]

410 : TempStatistic Temperature statistic from device 1
 X1 = Min (eg.: 367)
 X2 = Max (eg.: 371)
 X3 = Average (eg.: 370)
 X4 = StandardDeviation (eg.: 181)

411 : TempStatistic Temperature statistic from device 2
 X1 = Min (eg.: 367)
 X2 = Max (eg.: 371)
 X3 = Average (eg.: 370)
 X4 = StandardDeviation (eg.: 181)

500...504 : Analysis

500 : Parameter of ID 501, 502, 503 and 504
 X1 = T1 Min
 X2 = T1 Max
 X3 = T2 Min
 X4 = T2 Max

501 : T1 Min (eg.: 0) (0...65530) [sec]

502 : T1 Max (eg.: 300) (0...65530) [sec]

503 : T2 Min (eg.: 0) (0...65530) [sec]

504 : T2 Max (eg.: 600) (0...65530) [sec]

Answer

!RDA <Device> OK

<Device> - **see 5.2 Communication Protocol**

Example

Set Product Name

PC: :RDA 1 104 My Product

SDx: !RDA 1 OK

Set Disintegration Times

PC: :RDA 1 304 456 502 650 0 681 555 543 612 498 592 608 633

SDx: !RDA 1 OK

Set Temperature Statistics for Device 1

PC: :RDA 1 410 36.7 37.1 37.0 1.81

SDx: !RDA 1 OK

6.1.33 GETPHV – Get PH Index

Command

:GETPHV <Device>
<Device> **- see 5.2 Communication Protocol**

Answer

!GETPHV <Device> <Index>

<Device> **- see 5.2 Communication Protocol**

<Index> 0 : None
 1 : Water
 2 : 0.1N HCl

Example

PC: :GETPHV 1
SDx: !GETPHV 1 2

6.1.34 GETLED – Get Level detection position

Command

:GETLED <Device>
<Device> - see 5.2 Communication Protocol

Answer

!GETLED <Device> <position>

<Device> - see 5.2 Communication Protocol

<position> Level Detection Position (0.0...200.0) [mm]

Example

PC: :GETLED 1
SDx: !GETLED 1 96.3

6.1.35 GETSCS – Get Slave Connection Status

Command

:GETSCS <Device>
<Device> **- see 5.2 Communication Protocol**

Answer

!GETSCS <Device> <SlaveStatus0> <SlaveStatus1> <SlaveStatus2>

<Device> **- see 5.2 Communication Protocol**

<SlaveStatus0> : 0 disconnect
 : 1 connect
 : 2 busy (try to connected/disconnect)

<SlaveStatus1> : 0 disconnect
 : 1 connect
 : 2 busy (try to connected/disconnect)

<SlaveStatus2> : 0 disconnect
 : 1 connect
 : 2 busy (try to connected/disconnect)

Example

PC: :GETSCS 1
SDx: !GETSCS 1 1 1 2

6.1.36 SETSCS – Set Slave Connection

Command

:SETSCS <Device> <Command>

<Device> **- see 5.2 Communication Protocol**

<Command>	0	: disconnect all activated slaves
	1	: connected all activated slaves

Answer

!SETSCS <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC:	:SETSCS 1 1
SDx:	!SETSCS 1 OK

6.1.37 SETLCK – Set System Lock

Command

:SETLCK <Device> <Command>

<Device> **- see 5.2 Communication Protocol**

<Command>	0	: unlock SDx
	1	: lock SDx

Answer

!SETLCK <Device> <Status>

<Device> **- see 5.2 Communication Protocol**

<Status>	0	: unlock successfully finished
	1	: lock successfully finished
	2	: lock/unlock not possible, because SDx is locked by other channel

Example

PC:	:SETLCK 1 1
SDx:	!SETLCK 1 1

6.1.38 GETLCK – Get System Lock Status

Command

:GETLCK <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!GETLCK <Device> <Status>

<Device> **- see 5.2 Communication Protocol**

<Status>	0	: SDx is unlocked
	1	: SDx is locked
	2	: SDx is locked by other channel

Example

PC:	:GETLCK 1
SDx:	!GETLCK 1 1

6.1.39 GETDAT – Get List Data

Command

:GETDAT <Device> <List> [INIT/END]

<Device> - **see 5.2 Communication Protocol**
 <List> - 'M', Method-list; 'P', Product-list
 [INIT] - string "INIT", to reset the internal item- and data counters.
 Every start of an export issue, :GETDAT has to be send with the
 INIT, due to the internal counters of COMtft. The following :GETDAT
 calls the INIT has to be omitted.
 [END] - string "END" stops the current export issue immediatly and
 uninitializes the item counter (LIST END) and data counter (DATA
 CONTROL)

Answer

!GETDAT <Device> ERR DeviceState

!GETDAT <Device> <List> <DataID> <Value1> [<Value2> .. <ValueN>]

<Device> - **see 5.2 Communication Protocol**
 <List> - 'M', Method-list; 'P', Product-list

 <DataID> - see tables below.
 <ValueX> - see tables below.

Table 6-1: DataID = 0, list/item control

Value1	Description / Values
1	LIST-START (INIT answer) Value2: Item count of ListIdx
2	LIST-END (any item sent)
3 - 5	NA
6	ITEM-NEXT/ITEM-SPACER

Table 6-2: DataID != 0, Item-Data

DataID	Description / Values	in List
1	Item No, string, enclosed in ""	P
2	Item Name, string, enclosed in ""	M/P
3	ID, Item reference ID.	M/P
4	referenced ID	P
5	Item enabled	M/P
6	Nominal temperature in 0,1°C	M
7	Maximal testing time in 1s.	M
8	Solvent index	M
9	Pretesting enabled	M
10	Pretesting time	M
11	Pretesting solvent index	M
12	Cell-time-limits in 1s. Value1: T1min Value2: T1max Value3: T2min Value4: T2max	M

DataID	Description / Values	in List
13	Sample count index	M
14	Disc type	M
15	Test stop	M
16	Level detection enabled	M
17	Solvent detection enabled	M

Example

Table 6-3: Get saved products:

Direction	Command / Answer	Description
->	:GETDAT 1 P INIT	external start of product export
<-	!GETDAT 1 P 0 1 0	LIST-START, no products saved on device.
->	:GETDAT 1 P	
<-	!GETDAT 1 P 0 2	LIST-END

Table 6-4: Get saved methods:

Direction	Command / Answer	Description
->	:GETDAT 1 M INIT	external start of method export
<-	!GETDAT 1 M 0 1 9	LIST-START, 9 methods saved on device.
->	:GETDAT 1 M	continuous export request
<-	!GETDAT 1 M 0 6	ITEM-NEXT, here: first item
->	:GETDAT 1 M	
<-	!GETDAT 1 M 2 "Method Name"	method name of the first item
->	:GETDAT 1 M	
<-	!GETDAT 1 M 3 1	Method reference id, e.g. 1
->	:GETDAT 1 M	
<-	!GETDAT 1 M 5 1	Method enabled
...	...	and so on
->	:GETDAT 1 M	
<-	!GETDAT 1 M 0 6	ITEM-NEXT, all data of the first item had been sent.
->	:GETDAT 1 M	
<-	!GETDAT 1 M 2 "2 nd Method Name"	method name of the second item
...	...	and so on
->	:GETDAT 1 M	
<-	!GETDAT 1 M 17 1	Solvent detection enabled of last list item.
->	:GETDAT 1 M	
<-	!GETDAT 1 M 0 2	LIST-END

6.1.40 SETDAT – Set List Data

Command

:SETDAT <Device> <List> <DataID> <Value1> [<Value2> .. <ValueN>]

<Device> - **see 5.2 Communication Protocol**
 <List> - M, Method-list; P, Product-list
 <DataID> - see tables below.
 <ValueX> - see tables below.

Table 6-5: DataID = 0, list/item control

Value1	Description / following Values
0	EMPTY-LIST (delete all items in <ListIdx> list)
1	NA
2	NA
3	ITEM-START (initialize item, data will be set to defaults)
4	ITEM-END-STORE (item will be checked and saved to fram)
5	ITEM-END-THROW (stop item import without saving anything)
6	ITEM-NEXT (implicitly ITEM-END-STORE followed by ITEM-START)

see also Table 6-2: DataID != 0, Item-Data

Answer

Standard answers like:

!SETDAT <Device> ERR=PARAM
 !SETDAT <Device> ERR DeviceState

Extended answers:

!SETDAT <Device> <List> <DataID> <Answer>

<Device> - **see 5.2 Communication Protocol**
 <List> - M, Method-list; P, Product-list
 <DataID> - see Table 6-2: DataID != 0, Item-Data
 and Table 6-5: DataID = 0, list/item control.
 <Answer> - OK
 - IGN (Item-sub-data ignored)
 - ERR DuplicateEntry (Method name, Product number allready used)
 - ERR ItemDataNotValid
 - ERR State
 - ERR Write (error on writing item to fram)

6.2 Calibration/Adjust Command List

6.2.1 SETCAM – Set Calibration/Adjust Mode

Command

:SETCAM <Device> <cmd>

<Device> **- see 5.2 Communication Protocol**

<cmd> 0 : Calibration/Adjust mode off
 1 : Calibration/Adjust mode on

Answer

!SETCAM <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC: :SETCAM 1 1
SDx: !SETCAM 1 OK

6.2.2 GETCAM – Get Calibration/Adjust Mode

Command

:GETCAM <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!SETCAM <Device> <cmd>

<Device> **- see 5.2 Communication Protocol**

<cmd> 0 : Calibration/Adjust mode off
 1 : Calibration/Adjust mode on

Example

PC: :GETCAM 1
SDx: !GETCAM 1 1

6.2.3 DRVPOS – Drive Position

Only used in calibration/adjust mode

Command

:DRVPOS <Device> <Position> [<x1>..xn>]

<Device> **- see 5.2 Communication Protocol**

<Position>	LOW	: Lowest position	(no additional parameter)
	HIGH	: Highest position	(no additional parameter)
	HOME	: Home position	(no additional parameter)
	LEVEL	: Level position	(no additional parameter)
	SIN	: Sinus	(required additional parameter)
	STOP	: Stop drive	(no additional parameter)

Position = SIN:

<x1>	0	: endless strokes
	1 .. 65353	: number of strokes

Answer

!DRVPOS <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC:	:DRVPOS 1 LOW
SDx:	!DRVPOS 1 OK

6.2.4 SEALED – Search Level Detection

Only used in calibration/adjust mode

Command

:SEALED <Device>

<Device> - see 5.2 Communication Protocol

Answer

!SEALED <Device> OK

<Device> - see 5.2 Communication Protocol

Example

PC:	:SEALED 1
SDx:	!SEALED 1 OK

6.2.5 ADJTEM – Adjust Temperature

Only used in calibration/adjust mode

Command

:ADJTEM <Device> <Temperature>

<Device> **- see 5.2 Communication Protocol**

<Temperature> = measure Temperature (20.0...60.0) [0.1°C]
 (Measuring with reference liquid-in-glass thermometer)

Answer

!ADJTEM <Device> <STATUS>

<Device> **- see 5.2 Communication Protocol**

<STATUS>	OK	-	Command executed
	ERR	-	Parameter out of range

Example

PC:	:ADJTEM 1 37.4
SDx:	!ADJTEM 1 OK

6.2.6 ADJLOP– Adjust lowest position

Only used in calibration/adjust mode

Command

```
:ADJLOP <Device> <Distance>
```

<Device> **- see 5.2 Communication Protocol**

<Distance>	measured distance between bottom and lowest position (0.0...100.0)	[0.1mm]
------------	---	---------

Answer

```
!ADJLOP <Device> <STATUS> <RANGE_MIN> <RANGE_MAX>
```

<Device> - see 5.2 Communication Protocol

<STATUS>	OK	-	Command executed
	ERR	-	Parameter out of range

<RANGE_MIN>	min. Range (see GETARG/SETARG)
<RANGE_MAX>	max. Range (see GETARG/SETARG)

Example

```
PC:          :ADJLOP 1 25.4
SDx:        !ADJLOP 1 OK 0.5 50.0
```

6.2.7 ADJLED– Adjust Level detection

Only used in calibration/adjust mode

Command

```
:ADJLED <Device> <Distance>
```

<Device> - see 5.2 Communication Protocol

<Distance>	measured distance between bottom and liquid level (0.0...255.0)	[0.1mm]
------------	--	---------

Answer

```
!ADJLED <Device> <STATUS> <RANGE_MIN> <RANGE_MAX>
```

<Device> - see 5.2 Communication Protocol

<STATUS>	OK	-	Command executed
	ERR	-	Parameter out of range

<RANGE_MIN>	min. Range (see GETARG/SETARG)
<RANGE_MAX>	max. Range (see GETARG/SETARG)

Example

```
PC:          :ADJLED 1 100.0
SDx:        !ADJLED 1 OK 80.0 120.0
```

6.3 Diagnostic Command List

6.3.1 DIA– Diagnostic

Command

```
:DIA <Device> <Mode> [<Channel>]
```

<Device> - see 5.2 Communication Protocol

```
<Mode>      REL  : Release Version
              IDY  : Module Identity
              STS  : Module Status
```

<Channel>	(use in mode IDY and STS)
0	: SDxMain
1	: COMtec (SDmp)
2	: COMtec
3	: COMbasketPrimary
4	: COMbldc
5	: COMtft
6	: COMbasketBase

Answer

!DIA <Device> <Mode> [<Channel>] <X1>..<Xn>

<Device> - see 5.2 Communication Protocol

<Mode> = **REL**
 <x1> = Release version String : (eg. SDx - A1)
 (max. 20 character)

<Mode> = **IDY**
 <x1> = Identity String : (eg.: COMbasket 1.01)
 (max. 20 character)

```
<Mode> = STS
      <X1> = Display color      : 0 = green
                                   1 = red
                                   2 = ????????
```

<x2> = Status String : (eg.: Idle)
(max. 20 character)

<Channel>	(use in mode IDY and STS)
0	: SDxMain
1	: COMtec (SDmp)
2	: COMtec
3	: COMbasket
4	: COMbldc
5	: COMtft

Example

PC: :DIA 1 IDY 2
SDx: !DIA 1 IDY 2 COMtec 1.03

PC: :DIA 1 STS 1
SDx: !DIA 1 STS 1 1 Not Connected

PC: :DIA 1 STS 4
SDx: !DIA 1 STS 4 2 Exp. Version: 1.04

6.3.2 SETTMO– Set Test Mode Active

Command

:SETTMO <Device> <Command>

<Device> **- see 5.2 Communication Protocol**

<Command>	0	: deactivate Test Mode
	1	: activate Test Mode

Answer

!SETTMO <Device> OK

<Device> **- see 5.2 Communication Protocol**

!SETTMO <Device> ERR Not possible

Example

PC:	:SETTMO 1 1
SDx:	!SETTMO 1 OK

6.3.3 GETTMO– Get Test Mode Active

Command

:GETTMO <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!GETTMO <Device> <Command>

<Device> **- see 5.2 Communication Protocol**

<Command>	0	: deactivate Test Mode
	1	: activate Test Mode

Example

PC:	:GETTMO 1
SDx:	!GETTMO 1 1

6.3.4 TSTM0D– Test Mode

Only used in test mode

Command

:TSTM0D <Device> <Mode>

<Device> **- see 5.2 Communication Protocol**

<Mode> 0: Abort Test mode actual test mode
 1: Start Diagnostic of cell values
 2: Start Level Detection
 3: Start Diagnostic of cell values without movement

Answer

!TSTM0D <Device> <Mode> <X1> .. <Xn>

<Device> **- see 5.2 Communication Protocol**

<Mode> 0: Abort Test mode actual test mode
 1: Start Diagnostic of cell values
 2: Start Level Detection
 3: Start Diagnostic of cell values without movement

<Mode> = **0**
 <X1> OK

<Mode> = **1**
 <X1> PH threshold (0...255)
 <X2> Cell detect threshold (0...255)

<Mode> = **2**
 <X1> Level detect threshold (0...255)

<Mode> = **3**
 <X1> PH threshold (0...255)
 <X2> Cell detect threshold (0...255)

!TSTM0D <Device> <Mode> ERR Not possible

Example

```
PC:      :TSTM0D 1 0
SDx:     !TSTM0D 1 0 OK

PC:      :TSTM0D 1 1
SDx:     !TSTM0D 1 1 150 30

PC:      :TSTM0D 1 2
SDx:     !TSTM0D 1 2 10
```

6.4 Configuration Command List

6.4.1 FWU – Firmware upload

Command

:FWU <Device> <Channel>

<Device> **- see 5.2 Communication Protocol**

<Channel> 0: SDxMain
 1: MediumPrep
 2: COMtec
 3: COMbasket (mounting)
 4: COMbldc
 5: COMbasket (add-on part)

Answer

:FWU <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC: :FWU 1 3
SDx: :FWU 1 OK

6.4.2 SBR – Set UART baud rate

UART is configured on 9600 baud after every PowerOn.

If you chance the baud rate, SDx send answer (!SBR 1 OK) with the old baud rate before chanced it.

Command

:SBR <Device> <Baudrate> [<Second Channel>]

<Device> **- see 5.2 Communication Protocol**

<Baudrate>	9600	:	9600 Baud	(Default)
	19200	:	19200 Baud	
	38400	:	38400 Baud	
	57600	:	57600 Baud	
	115200	:	115200 Baud	

<Second Channel>	optional parameter to chance baud rate on additional channel			
	0	:	PC	
	1	:	MediumPrep	
	2	:	COMtec	
	3	:	COMbasket	
	4	:	COMbldc	
	5	:	COMtft	

Answer

:SBR <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC:	:SBR 1 115200 5
SDx:	:SBR 1 OK

6.4.3 DEFCON – Default Configuration

Set System on default configuration after next power on.

Command

:DEFCON <Device>

<Device> - see 5.2 Communication Protocol

Answer

:DEFCON <Device> OK

<Device> - see 5.2 Communication Protocol

Example

PC: :DEFCON 1
SDx: :DEFCON 1 OK

6.4.4 SETRNG – Set Temperature Range Window

Command

:SETRNG <Device> <range> <time>

<Device> **- see 5.2 Communication Protocol**

<range> Temperature Range +-<range> to requested (0.1...10.0) [0.1°C]

<time> Time to be inside before finished Flag is set (1...256) [sec.]
(see 6.2 "Asynchronies Answer")

Answer

!SETRNG <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC: :SETRNG 1 0.5 30

SDx: !SETRNG 1 OK

6.4.5 GETRNG – Get Temperature Range Window

Command

:GETRNG <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!GETRNG <Device> <range> <time>

<Device> **- see 5.2 Communication Protocol**

<range> Temperature Range +/-<range> to requested (0.1...10.0) [0.1°C]

<time> Time to be inside before finished Flag is set (1...256) [sec.]
(see 6.2 "Asynchronies Answer")

Example

PC: :GETRNG 1
SDx: !GETRNG 1 1.0 30

6.4.6 SETIPA – Set IP address

Command

:SETIPA <Device> <IP>:<Port>

<Device> **- see 5.2 Communication Protocol**

<IP> : IP-Address in common notation, e.g. 192.168.192.168.
 Every IP-segment is in the range of 0..255.

<Port> : Listen port 0..9999.

Answer

!SETIPA <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

Set SDx host address and port:

PC: :SETIPA 1 192.168.192.168:4329

SDx: !SETIPA 1 OK

6.4.7 GETIPA – Get IP address

Command

:GETIPA <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!GETIPA <Device> <IP>:<Port>

<Device> **- see 5.2 Communication Protocol**

<IP> : IP-Address in common notation, e.g. 192.168.192.168.
 Every IP-segment is in the range of 0..255.

<Port> : Listen port 0..9999.

Example

PC: :GETIPA 1

SDx: !GETIPA 1 192.168.192.168:4329

6.4.8 SETMAC – Set Media-Access-Control address

Command

:SETMAC <Device> <MAC>

<Device> **- see 5.2 Communication Protocol**

<MAC> : MAC-Address in common notation, e.g. AF-FF-C3-58-75-E3
Every MAC-segment is in the range of 00..FF (hex format).

Answer

!SETMAC <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

Set SDx host address and port:

PC: :SETMAC 1 AF-FF-C3-58-75-E3
SDx: !SETMAC 1 OK

6.4.9 GETMAC – Get Media-Access-Control address

Command

:GETMAC <Device>

<Device> - **see 5.2 Communication Protocol**

Answer

!GETMAC <Device> <MAC>

<Device> - **see 5.2 Communication Protocol**

<MAC> : MAC-Address in common notation, e.g. AF-FF-C3-58-75-E3
 Every MAC-segment is in the range of 00..FF (hex format).

Example

PC:	:GETMAC 1
SDx:	!GETMAC 1 AF-FF-C3-58-75-E3

6.4.10 SETNET – Set Netmask

Command

:SETNET <Device>

<Device> **- see 5.2 Communication Protocol**

<netmask> : Netmask in common notation, e.g. 255.255.255.0.
 Every segment is in the range of 0..255.

Answer

!SETNET <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC: :SETNET 1 255.255.255.0
SDx: !SETNET 1 OK

6.4.11 GETNET – Get Netmask

Command

:GETNET <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!GETNET <Device> <netmask>

<Device> **- see 5.2 Communication Protocol**

<netmask> : Netmask in common notation, e.g. 255.255.255.0.
 Every segment is in the range of 0..255.

Example

PC:	:GETNET 1
SDx:	!GETNET 1 255.255.255.0

6.4.12 SETGWA – Set Gateway

Command

:SETGWA <Device>

<Device> **- see 5.2 Communication Protocol**

<gateway> : Gateway in common notation, e.g. 192.168.192.1.
 Every segment is in the range of 0..255.

Answer

!SETGWA <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC: :SETGWA 1 255.255.255.0
SDx: !SETGWA 1 OK

6.4.13 GETGWA – Get Gateway

Command

:GETGWA <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!GETGWA <Device> <gateway>

<Device> **- see 5.2 Communication Protocol**

<gateway> : Gateway in common notation, e.g. 192.168.192.1.
 Every segment is in the range of 0..255.

Example

PC: :GETGWA 1
SDx: !GETGWA 1 192.168.192.1.

6.4.14 SETSIP – Set Slave IP address

Command

:SETSIP <Device> <Slave> <IP>:<Port>

<Device> **- see 5.2 Communication Protocol**

<Slave> : SDx Slave number 0..2
 : Generic clients number 200...203

<IP> : IP-Address in common notation, e.g. 192.168.192.168.
 Every IP-segment is in the range of 0..203.

<Port> : Listen port 0..9999.

Answer

!SETSIP <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC: :SETSIP 1 0 192.168.192.168:4329
SDx: !SETSIP 1 OK

6.4.15 GETSIP – Get Slave IP address

Command

:GETSIP <Device> <Slave>

<Device> **- see 5.2 Communication Protocol**

<Slave> : SDx Slave number 0..2
 : Generic clients number 200...255

Answer

!GETSIP <Device> <Slave> <IP>:<Port>

<Device> **- see 5.2 Communication Protocol**

<Slave> : SDx Slave number 0..2
 : Generic clients number 200...203

<IP> : IP-Address in common notation, e.g. 192.168.192.168.
 Every IP-segment is in the range of 0..203.

<Port> : Listen port 0..9999.

Example

PC: :GETSIP 1 0

SDx: !GETSIP 1 0 192.168.192.168:4329

6.4.16 SETSAC – Set Slave active

Command

:SETSAC <Device> <Slave> <cmd>

<Device> **- see 5.2 Communication Protocol**

<Slave> : Slave number 0..2

<cmd> : 0 don't try to connect with slave
 : 1 try to connect with slave

Answer

!SETSAC <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC: :SETSAC 1 0 1
SDx: !SETSAC 1 OK

6.4.17 GETSAC – Get Slave active

Command

:GETSAC <Device> <Slave>

<Device> **- see 5.2 Communication Protocol**

<Slave> : Slave number 0..2

Answer

!GETSAC <Device> <Slave> <cmd>

<Device> **- see 5.2 Communication Protocol**

<Slave> : Slave number 0..2

<cmd> : 0 don't try to connect with slave
 : 1 try to connect with slave

Example

PC: :GETSAC 1 0
SDx: !GETSAC 1 0 1

6.4.18 SETRLO– Set reference to lowest position

Command

:SETRLO <Device> <Reference>

<Device> - **see 5.2 Communication Protocol**

<Reference> Reference to lowest position
 (USP and EP Value = 25.0 mm)
 (0.0...100.0) [0.1mm]

Answer

!SETRLO <Device> OK

<Device> - **see 5.2 Communication Protocol**

Example

PC: :SETRLO 1 25.0
SDx: !SETRLO 1 OK

6.4.19 GETRLO– Get reference to lowest position

Command

:GETRLO <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!GETRLO <Device> <Reference>

<Device> **- see 5.2 Communication Protocol**

<Reference> Reference to lowest position
 (USP and EP Value = 25.0 mm)
 (0.0...100.0) [0.1mm]

Example

PC: :GETRLO 1
SDx: !GETRLO 1 25.0

6.4.20 SETRSD– Set reference to stroke distance

Command

:SETRSD <Device> <Reference>

<Device> **- see 5.2 Communication Protocol**

<Reference> Reference to stroke distance
 (USP and EP Value = 55.0 mm)
 (0.0...100.0) [0.1mm]

Answer

!SETRSD <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC: :SETRSD 1 55.0
SDx: !SETRSD 1 OK

6.4.21 GETRSD– Get reference to stroke distance

Command

:GETRLO <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!GETRSD <Device> <Reference>

<Device> **- see 5.2 Communication Protocol**

<Reference> Reference to stroke distance
 (USP and EP Value = 55.0 mm)
 (0.0...100.0) [0.1mm]

Example

PC: :GETRSD 1
SDx: !GETRSD 1 55.0

6.4.22 SETMPO– Set Motor Points

Command

:SETMPO <Device> <Point> <Position>

<Device> **- see 5.2 Communication Protocol**

<Point> HOME : Home position (x positions below end switch)
 LOW : Lowest position
 LEVEL : Level position
 MAX : max. position

<Position> (0.0..32000.0) [0.1mm]

Answer

!SETMPO <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC: :SETMPO 1 LOW 125.0
SDx: !SETMPO 1 OK

6.4.23 GETMPO– Get Motor Points

Command

:GETMPO <Device> <Point>

<Device> **- see 5.2 Communication Protocol**

<Point> HOME : Home position (x positions below end switch)
 LEVEL : Level position
 HIGH : Highest position (Lowest position – stroke distance)
 LOW : Lowest position
 MAX : max. position

Answer

!GETMPO <Device> <Point> <Position>

<Device> **- see 5.2 Communication Protocol**

<Point> HOME : Home position (x positions below end switch)
 LEVEL : Level position
 HIGH : Highest position
 LOW : Lowest position
 MAX : max. position

<Position> (0.0..32000.0) [0.1mm]

Example

PC: :GETMPO 1 LOW
SDx: !GETMPO 1 LOW 125.0

6.4.24 SETTAC– Set Test Abort Conditions

Command

```
:SETTAC <Device> <Mask>
```

<Device> **- see 5.2 Communication Protocol**

<Mask>	Test Abort Mask	0...255 (0=don't abort / 1=abort)
--------	-----------------	--------------------------------------

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
-	-	-	-	-	-	PHV	LED

LED : Level Detection Error
PHV : PH Value Detection Error

Answer

```
!SETTAC <Device> OK
```

<Device> **- see 5.2 Communication Protocol**

Example

```
PC:          :SETTAC 1 3
SDx:        !SETTAC 1 OK
```

6.4.25 GETTAC– Get Test Abort Conditions

Command

:GETTAC <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!GETTAC <Device> <Mask>

<Device> **- see 5.2 Communication Protocol**

<Mask> Test Abort Mask 0...255
 (0=don't abort / 1=abort)

Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
-	-	-	-	-	-	PHV	LED

LED : Level Detection Error

PHV : PH Value Detection Error

Example

PC: :GETTAC 1
SDx: !GETTAC 1 3

6.4.26 SETPHT– Set PH Threshold

Command

:SETPHT <Device> < PHThreshold>

<Device> **- see 5.2 Communication Protocol**

<PHThreshold> ADC Value 0...255
 If the PH Value is greater than the same as the PH Threshold,
 then it is water.
 If the PH Value is less than the PH Threshold, then it is 0,1N HCl.

Answer

!SETPHT <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC: :SETPHT 1 210
SDx: !SETPHT 1 OK

6.4.27 GETPHT– Get PH Threshold

Command

:GETPHT <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!GETPHT <Device> <PHThreshold>

<Device> **- see 5.2 Communication Protocol**

<PHThreshold> ADC Value 0...255
 If the PH Value is greater than the same as the PH Threshold,
 then it is water.
 If the PH Value is less than the PH Threshold, then it is 0,1N HCl.

Example

PC: :GETPHT 1
SDx: !GETPHT 1 210

6.4.28 SETARG– Set Adjustment Range

Command

:SETARG <Device> <Type> <Min> <Max>

<Device> **- see 5.2 Communication Protocol**

<Type> LOW - Lowest Position
 LEVEL - Level Position
 TEMP - Temperature

<Min> <Max> 0.0...600.0 for LOW and LEVEL in [mm]
 0.0...60.0 for TEMP in [°C]

Answer

!SETARG <Device> OK

<Device> **- see 5.2 Communication Protocol**

Example

PC: :SETARG 1 LOW 0.5 50.0
SDx: !SETARG 1 OK

6.4.29 GETARG– Get Adjustment Range

Command

:GETARG <Device> <Type>

<Device> **- see 5.2 Communication Protocol**

<Type> LOW - Lowest Position
 LEVEL - Level Position
 TEMP - Temperature

Answer

!GETARG <Device> <Type> <Min> <Max>

<Device> **- see 5.2 Communication Protocol**

<Type> LOW - Lowest Position
 LEVEL - Level Position
 TEMP - Temperature

<Min> <Max> 0.0...600.0 for LOW and LEVEL in [mm]
 0.0...60.0 for TEMP in [°C]

Example

PC: :GETARG 1 LOW
SDx: !GETARG 1 LOW 0.5 50.0

6.4.30 SETLSI– Set Customer Logo Size

Command

:SETLSI <Device> <Size>

<Device> **- see 5.2 Communication Protocol**

<Size> 0...80000 [Byte]

Answer

!SETLSI <Device> OK

<Device> **- see 5.2 Communication Protocol**

!SETLSI <Device> ERR EERPOM-SIZE

The detect EEPROM don't supported the customer logo (EEPROM size to small)

Example

PC: :SETLSI 1 53620
SDx: !SETLSI 1 OK

6.4.31 GETLSI– Get Customer Logo Size

Command

```
:GETLSI <Device>
```

<Device> - see 5.2 Communication Protocol

Answer

```
!GETLSI <Device> <Size>
```

<Device> - see 5.2 Communication Protocol

<Size>	0...80000	[Byte]
--------	-----------	--------

```
!GETLSI <Device> ERR EERPOM-SIZE
```

The detect EEPROM don't supported the customer logo (EEPROM size to small)

Example

```
PC:          :GETLSI 1
SDx:        !GETLSI 1 53620
```


6.4.32 SETLDA– Set Customer Logo Data

Command

:SETLDA <Device> <AddressOffset> <Length> <Data1> ... <DataX>

<Device> **- see 5.2 Communication Protocol**

<AddressOffset> 0...80000

<Length> 1...30 (Number of Data)

<Data1..X> 0...255

Answer

!SETLDA <Device> OK

<Device> **- see 5.2 Communication Protocol**

!SETLDA <Device> ERR EERPOM-SIZE

The detect EEPROM don't supported the customer logo (EEPROM size to small)

Example

PC: :SETLDA 1 10 5 33 55 2 230 127
SDx: !SETLDA 1 OK

6.4.33 GETLDA– Get Customer Logo Data

Command

:GETLDA <Device> <AddressOffset> <Length>

<Device> **- see 5.2 Communication Protocol**

<AddressOffset> 0...80000

<Length> 1...30 (Number of Data)

Answer

!GETLDA <Device> <Data1> ... <DataX>

<Device> **- see 5.2 Communication Protocol**

<Data1..X> 0...255

!GETLDA <Device> ERR EERPOM-SIZE

The detect EEPROM don't supported the customer logo (EEPROM size to small)

Example

PC: :GETLDA 1 10 5
SDx: !GETLDA 1 33 55 2 230 127

6.4.34 SETHSN– Set Hardware Serial Number

!!! May only be used by the SECOM GmbH !!!

6.4.35 GETHSN– Get Customer Logo Data

Command

:GETHSN <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!GETHSN <Device> <Type>.<Version>.<Number>

<Device> **- see 5.2 Communication Protocol**

<Type> 04 - SDxMain

<Version> Hardware Version

<Number> Serial Number

Example

PC: :GETHSN 1

SDx: !GETHSN 1 04.2.0056

6.4.36 SETDVT– Set Device Type

!!! May only be used by the SECOM GmbH !!!

6.4.37 GETDVT – Get Device Type

Command

:GETDVT <Device>

<Device> **- see 5.2 Communication Protocol**

Answer

!GETDVT <Device> <Type>

<Device> **- see 5.2 Communication Protocol**

<Type> 0 - SDx
 1 - DisiTest50

Example

PC: :GETDVT 1
SDx: !GETDVT 1 1

6.5 Service Request Asynchronous Answer

All asynchronous answer begins with "+".

6.5.1 SYS – System status

Async Answer

+SYS <Device> <status>

<Device> **- see 5.2 Communication Protocol**

<status>	0 :	Idle
	1 :	move in Test
	2 :	in Test
	3 :	move out Test
	4 :	not ready for test
	5 :	Test move in hold
	6 :	Test in hold
	7 :	Test move out hold
	50 :	Ready for calibration/adjust
	51 :	Initialize calibration/adjust
	52 :	in calibration/adjust
	100 :	not Initialize
	101 :	in Initialize
	150 :	Ready for Testmode
	151 :	Initialize Testmode
	152 :	in Cell Testmode
	153 :	in Leveldetector Testmode
	154 :	in Cell Testmode without movement

Example

SDx: +SYS 1 0

6.5.2 CTM – Communication Transparent mode off

Async Answer

+CTM <Device> OFF

<Device> **- see 5.2 Communication Protocol**

Example

SDx: +CTM 1 OFF

6.5.3 BSK – Basket detection

Async Answer

+BSK <Device> <status>

<Device> **- see 5.2 Communication Protocol**

<status> 0 : Basket not connected
 1 : Six Tube Basket
 2 : Three Tube Basket
 Errors:
 -1: incompatible Basket firmware
 -2: incompatible mounting firmware

Example

SDx: +BSK 1 1

6.5.4 BSN – Basket Serial Number

Async Answer

+BSN <Device> <Serial Number>

<Device> **- see 5.2 Communication Protocol**

<Serial Number> SBx.xxxx

Example

SDx: +BSN 1 SB6.4008

6.5.5 BKR – Beaker detection

Async Answer

+BKR <Device> <status>

<Device> **- see 5.2 Communication Protocol**

<status> 0 : not detect
 1 : detect

Example

SDx: +BKR 1 1

6.5.6 HTR – Heater status

Async Answer

+HTR <Device> <status>

<Device> **- see 5.2 Communication Protocol**

<status> 0 : Heater off
 1 : Heater on

Example

SDx: +HTR 1 1

6.5.7 FIN – Temperature in range (finished)

Async Answer

+FIN <Device> <status>

<Device> **- see 5.2 Communication Protocol**

<status> 0 : Temperature not in range
 1 : Temperature in range

Example

SDx: +FIN 1 1

6.5.8 ERR – Error status

Async Answer

+ERR <Device> <status>

<Device> **- see 5.2 Communication Protocol**

<status> 0 : Error not detect
 1 : Error detect

Example

SDx: +ERR 1 1

6.5.9 RUT – Test Runtime

Async Answer

+RUT <Device> <time>

<Device> - see 5.2 Communication Protocol

<time>	0...65535	[sec]
--------	-----------	-------

Example

SDx: +RUT 1 516

6.5.10 HQT – Test Hold time

Async Answer

+HOT <Device> <time>

<Device> - see 5.2 Communication Protocol

```
<time>          0...65535          [sec]
```

Example

SDx: +HOT 1 253

6.5.11 CEL – Cell disintegration status

Async Answer

+CEL <Device> <Cell> <time> <Status>

<Device> - **see 5.2 Communication Protocol**

<cell> Cell number (1...6)

<time> disintegration Time (1...65535) [sec]

<Status> P – Cell Activating in Pretest
 M – Cell Manual Activating
 A – Cell Automatic Activating
 (0= Off, 1= On)

Bit2	Bit 1	Bit 0
P	M	A

Example

SDx: +CEL 1 5 532 5

6.5.12 LED – Level Detection

Async Answer

+LED <Device> <position>

<Device> **- see 5.2 Communication Protocol**

<position> Level Detection Position (0.1...200.0) [mm]

0.0 : no level detected

Example

SDx: +LED 1 94.5

6.5.13 PHV – PH Value

Async Answer

+PHV <Device> <Index>

<Device> **- see 5.2 Communication Protocol**

<Index> 0 : None
 1 : Water
 2 : 0.1N HCl

Example

SDx: +PHV 1 2

6.5.14 TEM – Actual Temperature

Async Answer

+TEM <Device> <Temperature>

<Device> **- see 5.2 Communication Protocol**

<Temperature> Actual Temperature (10.0...80.0) [0.1°C]

Example

SDx: +TEM 1 36.9

6.5.15 STO – Actual Stroke number

Only used in calibration/adjust mode

Async Answer

+STO <Device> <Stroke>

<Device> - **see 5.2 Communication Protocol**

< Stroke > Actual Stroke number (0...4294967295)

Example

SDx: +STO 1 36.9

6.5.16 PRR – Printer Connection Status

Async Answer

+PRR <Device> <Status>

<Device> **- see 5.2 Communication Protocol**

<Status> 0: Printer Client disconnect
 1: Printer Client connect
 101: Printer Client connect error

Example

SDx: +PRR 1 1

6.5.17 TMP– Target Temperatrure

Async Answer

+TMP <Device> <Temperature>

<Device> **- see 5.2 Communication Protocol**

<Temperature>	20.0...60.0	[0.1°C]
---------------	-------------	---------

Example

SDx: +TMP 1 37.0

6.5.18 FWU– Firmware Update

Async Answer

+FWU <Device> <Channel>

<Device> **- see 5.2 Communication Protocol**

<Channel> 0: SDxMain
 1: MediumPrep
 2: COMtec
 3: COMbasket (mounting)
 4: COMbldc
 5: COMbasket (add-on part)

Example

SDx: +FWU 1 3

6.5.19 TST– Test Modes

Async Answer

+TST <Device> <Mode> [Parameters]

<Device> - see 5.2 Communication Protocol

<Mode>

- 1: Diagnostic of cell values
- 2: Level Detection
- 3: Diagnostic of cell values without movement

[illegible]

```
<Parameter1> = 0
<Paramter2>      : Cell Value 1      (0..255)
<Paramter3>      : Cell Value 2      (0..255)
<Paramter4>      : Cell Value 3      (0..255)
<Paramter5>      : Cell Value 4      (0..255)
<Paramter6>      : Cell Value 5      (0..255)
<Paramter7>      : Cell Value 6      (0..255)
```

```
<Parameter1> = 1
<Paramter2>      : Cell Min Value 1 (0..255)
<Paramter3>      : Cell Max Value 1 (0..255)
<Paramter4>      : Cell Min Value 2 (0..255)
<Paramter5>      : Cell Max Value 2 (0..255)
<Paramter6>      : Cell Min Value 3 (0..255)
<Paramter7>      : Cell Max Value 3 (0..255)
<Paramter8>      : Cell Min Value 4 (0..255)
<Paramter9>      : Cell Max Value 4 (0..255)
<Paramter10>     : Cell Min Value 5 (0..255)
<Paramter11>     : Cell Max Value 5 (0..255)
<Paramter12>     : Cell Min Value 6 (0..255)
<Paramter13>     : Cell Max Value 6 (0..255)
```

```
<Mode> = 2
  <Parameter1>      : Level Value      (0..255)
```

Example

```
SDx:      +TST 1 1 0 8 109 10 9 8 105
SDx:      +TST 1 2 128
SDx:      +TST 1 3 0 8 109 10 9 8 105
```

6.5.20 LCK– System Lock Status

Async Answer

+LCK <Device> <Status>

<Device> **- see 5.2 Communication Protocol**

<Status>	0	: SDX is unlocked
	1	: SDX is locked
	2	: SDx is locked by other channel

Example

SDx: +LCK 1 1

6.5.21 STA– Teststart Status

Async Answer

+STA <Device> <Status>

<Device> **- see 5.2 Communication Protocol**

<Status> 0: Stop Test
 1: Start Test
 2: Start PreTest
 3: Start Test in Hold
 4: Start Test Continue after Hold

Example

SDx: +STA 1 1

6.5.22 BBM– Basket Betaversion Message

Async Answer

+BBM <Device>

<Device> **- see 5.2 Communication Protocol**

Example

SDx: +BBM 1

6.5.23 BVM – Beta Version Message

Async Answer

+BVM <Device> <Module>

<Device>	- see 5.2 Communication Protocol
<Module>	0, SDxMain
	1, COMtec (SDmp)
	2, COMtec
	3, COMbasketPrimary
	4, COMbldc
	5, COMtft

Example

Beta versioned firmware on SDxMain:

SDx: +BVM 1 0