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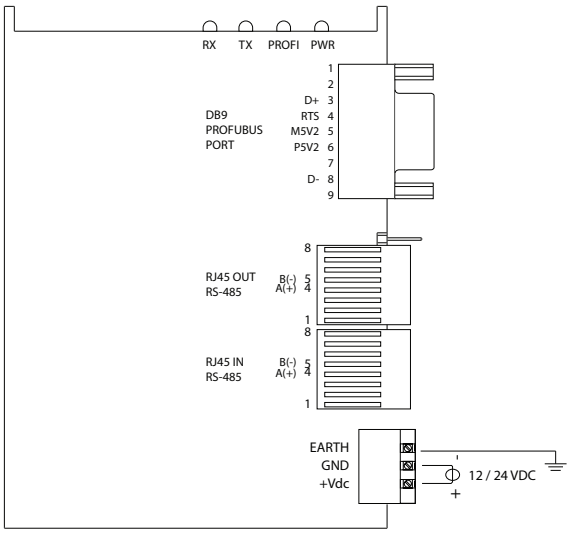
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SCT-2200 Fieldbus

Profibus® Quick Setup Guide

Electrical Diagram

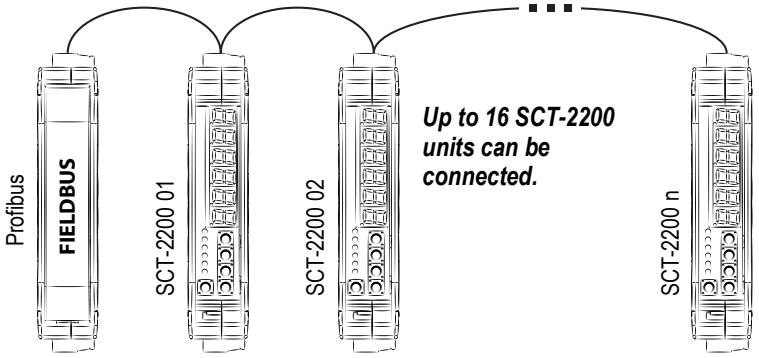


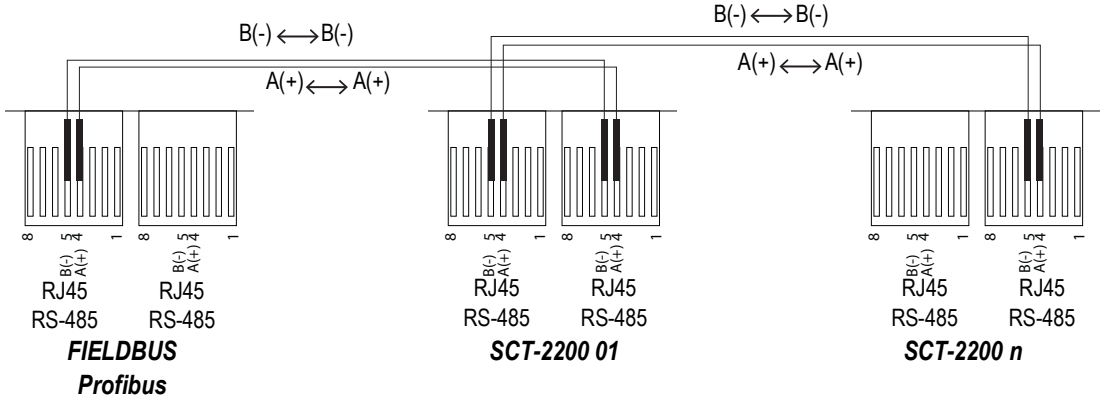
Note ***It is recommended equipment be powered by a 12-24 VDC LPS or a Class 3 power source***

Note ***CONSUMPTION: 50W max***

Module Connection to SCT-2200 Transmitters

Use the RJ45 and RS-485 directional ports to connect the Profibus Fieldbus Module to one or more SCT-2200.

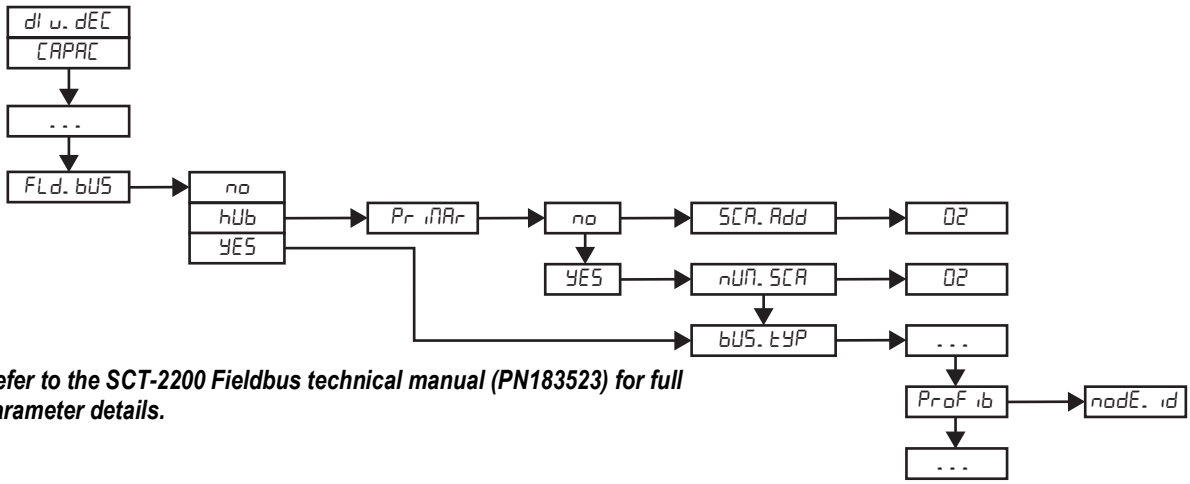




Configuration

The weight transmitter menu is used to configure the Profibus Module.

1. Reboot the weight transmitter.
2. Press the ▶ key while the display check is in progress to access the menu:



Note ***Refer to the SCT-2200 Fieldbus technical manual (PN183523) for full parameter details.***

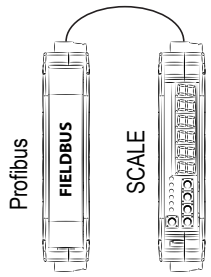
Parameter Descriptions

hUb	Enables HUB mode
nodE. id	Sets the Profibus ID of the module
Pr iMAr	In HUB mode, identifies the **primary scale** in the network to set the parameters
bAUd. r	Selects the baud rate (10 Kb/s to 1 Mb/s)

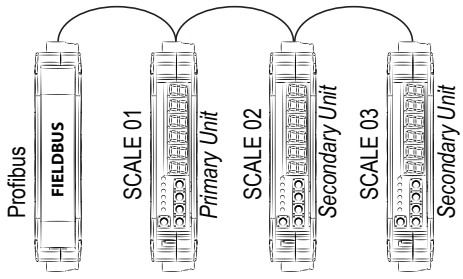
Note ***If FLdbUS = YES or hUb, RS-485 baud rate is automatically set to 115,200 and scale address = 01.***

Functioning Modes

Single Scale Mode



Hub Mode



Up to 16 SCT-2200 units can be connected.

Single Scale Mode Configuration

	Scale
hUb	no
nodE. id	00

Hub Mode Configuration

Primary	Scale 1
hUb	YES
Pr iMAr	YES
nodE. id	00
nUM. ScA	3

Secondary	Scale 02	Scale 03
hUb	YES	YES
Pr iMAr	no	no
ScA. Add	2	3

In hub mode all of the parameters must be configured for the primary unit (scale 01). Secondary units need only a few parameters

Input Data (for data reading) - Single Scale Mode

<table>
<tr><th>Data</th><th>Byte</th><th>DESCRIPTION</th><th>EXAMPLE</th></tr>
<tr><td rowspan="4">Gross Weight</td><td>1(MSB)</td><td rowspan="4">Bytes 1, 2, 3 and 4 contain the gross weight value</td><td rowspan="4"><table><tr><th></th><th colspan="4">Gross weight value examples</th></tr><tr><th></th><th>1000</th><th>6000</th><th>15000</th><th>350000</th></tr><tr><td>1(MSB)</td><td>00 Hex</td><td>00 Hex</td><td>00 Hex</td><td>00 Hex</td></tr><tr><td>2</td><td>00 Hex</td><td>00 Hex</td><td>00 Hex</td><td>05 Hex</td></tr><tr><td>3</td><td>03 Hex</td><td>17 Hex</td><td>3A Hex</td><td>57 Hex</td></tr><tr><td>4(LSB)</td><td>E8 Hex</td><td>70 Hex</td><td>98 Hex</td><td>30 Hex</td></tr></table></td></tr>
<tr><td>2</td></tr>
<tr><td>3</td></tr>
<tr><td>4(LSB)</td></tr>
<tr><td rowspan="4">Net Weight</td><td>5(MSB)</td><td rowspan="4">Bytes 5, 6, 7 and 8 contain the net weight value</td><td rowspan="4"><table><tr><th></th><th colspan="4">Net weight value examples</th></tr><tr><th></th><th>1000</th><th>6000</th><th>15000</th><th>350000</th></tr><tr><td>5(MSB)</td><td>00 Hex</td><td>00 Hex</td><td>00 Hex</td><td>00 Hex</td></tr><tr><td>6</td><td>00 Hex</td><td>00 Hex</td><td>00 Hex</td><td>05 Hex</td></tr><tr><td>7</td><td>03 Hex</td><td>17 Hex</td><td>3A Hex</td><td>57 Hex</td></tr><tr><td>8(LSB)</td><td>E8 Hex</td><td>70 Hex</td><td>98 Hex</td><td>30 Hex</td></tr></table></td></tr>
<tr><td>6</td></tr>
<tr><td>7</td></tr>
<tr><td>8(LSB)</td></tr>
<tr><td rowspan="2">Input Status</td><td>9(MSB)</td><td>Bit 7(LSB) No function
Bit 6 No function
Bit 5 No function
Bit 4 No function
Bit 3 No function
Bit 2 No function
Bit 1 Status of input n.2 (0 = OFF; 1 = ON)
Bit 0(LSB) Status of input n.1 (0 = OFF; 1 = ON)</td><td><table><tr><th></th><th colspan="4">Input status</th></tr><tr><th></th><th>IN1 = OFF
IN2 = OFF</th><th>IN1 = ON
IN2 = OFF</th><th>IN1 = OFF
IN2 = ON</th><th>IN1 = ON
IN2 = ON</th></tr><tr><td>9(MSB)</td><td>00 Hex</td><td>01 Hex</td><td>02 Hex</td><td>03 Hex</td></tr><tr><td>10(LSB)</td><td>--</td><td>--</td><td>--</td><td>--</td></tr></table></td></tr>
<tr><td>10(LSB)</td><td>Bit 7(MSB) 1 = Scale unloaded (gross weight = 0)
Bit 6 Tare PT (1 = PT tare is active)
Bit 5 Tare (1 = Tare is active)
Bit 4 Overload condition (0 = No; 1 = Overload)
Bit 3 Underload condition (0 = No; 1 = Underload)
Bit 2 Weight Stability (0 = Unstable; 1 = Stable)
Bit 1 Gross Weight Polarity (0 =“+”; 1 = “-”)
Bit 0 (LSB) Net Weight Polarity (0 = “+”; 1 = “-”)</td><td>If BYTE 10(LSB) = 45 HEX:<table><tr><th>Bit 7</th><th>Bit 6</th><th>Bit 5</th><th>Bit 4</th><th>Bit 3</th><th>Bit 2</th><th>Bit 1</th><th>Bit 0</th></tr><tr><td>0</td><td>1</td><td>1</td><td>0</td><td>0</td><td>1</td><td>0</td><td>1</td></tr></table>Bit 0 = Net weight is negative
Bit 1 = Gross weight is positive
Bit 2 = Weight is stable
Bit 5/6 = A Preset Tare is in memory</td></tr>
<tr><td>--</td><td>11(MSB)</td><td>Bit7 Heartbeat status bit toggles from 1 to 0 every second</td><td></td></tr>
<tr><td>Command Status Register</td><td>12(LSB)</td><td>Bit 7(MSB) Last command result
Bit 6 Last command result
Bit 5 Last command result
Bit 4 Last command result
Bit 3 Counting of processed commands
Bit 2 Counting of processed commands
Bit 1 Counting of processed commands
Bit 0 (LSB) Counting of processed commands</td><td>Bit 0 to Bit 3 are used to count received commands, from 0 (0000) to 15 (1111).
Bit 4 to Bit 7 are used to indicate the result of the last received command:<table><tr><th>Bit 7</th><th>Bit 6</th><th>Bit 5</th><th>Bit 4</th><th>Result</th></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td><td>Command OK</td></tr><tr><td>0</td><td>0</td><td>0</td><td>1</td><td>Incorrect command</td></tr><tr><td>0</td><td>0</td><td>1</td><td>0</td><td>Incorrect command data</td></tr><tr><td>0</td><td>0</td><td>1</td><td>1</td><td>Command not allowed</td></tr><tr><td>0</td><td>1</td><td>0</td><td>0</td><td>Non-existent command</td></tr></table></td></tr>
<tr><td>--</td><td>13(MSB)</td><td>No Function</td><td rowspan="2"><table><tr><th></th><th colspan="4">Output status</th></tr><tr><th></th><th>IN1 = OFF
IN2 = OFF</th><th>IN1 = ON
IN2 = OFF</th><th>IN1 = OFF
IN2 = ON</th><th>IN1 = ON
IN2 = ON</th></tr><tr><td>13(MSB)</td><td>--</td><td>--</td><td>--</td><td>--</td></tr><tr><td>14(LSB)</td><td>00 Hex</td><td>01 Hex</td><td>02 Hex</td><td>03 Hex</td></tr></table></td></tr>
<tr><td>Output Status register</td><td>14(LSB)</td><td>Bit 7(MSB) No function
... ...
Bit 2 No function
Bit 1 Digital output 2 status (0 = OFF; 1 = ON)
Bit 0(LSB) Digital output 1 status (0 = OFF; 1 = ON)</td></tr>
<tr><td rowspan="3">--</td><td>15</td><td rowspan="3">--</td><td rowspan="3">-</td></tr>
<tr><td>...</td></tr>
<tr><td>32</td></tr>
</table>

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Input Data (for data reading) - Hub Mode

DATA*	⚖ 1	⚖ 2	⚖ 3	⚖ 4	⚖ ...	⚖ 16	DESCRIPTION/EXAMPLE
In/Out Status	*1*	*9*	*17*	*25*	...	*121*	See below
Gross Weight	2(MSB)	*10*(MSB)	*18*(MSB)	*26*(MSB)	...	*122*(MSB)	See below
	3	*11*	*19*	*27*	...	*123*	
	4(LSB)	*12*(LSB)	*20*(LSB)	*28*(LSB)	...	*124*(LSB)	
Scale Status	*5*	*13*	*21*	*29*	...	*125*	See below
Net Weight	*6*(MSB)	*14*(MSB)	*22*(MSB)	*30*(MSB)	...	*126*(MSB)	See below
	7	*15*	*23*	*31*	...	*127*	
	8(LSB)	*16*(LSB)	*24*(LSB)	*32*(LSB)	...	*128*(LSB)	

In/Out Status

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	0	0	0	0	0	0	0

Bit 7 Scale present bit (Fixed value = 1)
Bit 6/5 Progressive command loop counter;
Values: 0 (00), 1 (01), 2 (10), 3 (11)
Bit 4 Last command result (0 = OK; 1 = ERROR)
Bit 3 Status of output n.2 (0 = OFF; 1 = ON)
Bit 2 Status of output n.1 (0 = OFF; 1 = ON)
Bit 1 Status of input n.2 (0 = OFF; 1 = ON)
Bit 0 Status of input n.1 (0 = OFF; 1 = ON)

EXAMPLE:

If Byte 1 = 13 Hex:

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	0	0	0	1	1	0	1

Bit 0 = Input 1 is ON
Bit 2 = Output 1 is ON
Bit 3 = Output 2 is ON

Gross Weight

For each scale there are three bytes containing the gross weight value

⚖ 1	3000 kg
2(MSB)	00 Hex
3	0B Hex
4(LSB)	B8 Hex

Scale Status

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	0	0	0	0	0	0	0

Bit 7 1 = Scale unloaded (gross weight = 0)
Bit 6 Tare PT (1 = PT tare is active)
Bit 5 Tare (1 = Tare is active)
Bit 4 Overload condition (0 = No; 1 = Overload)
Bit 3 Underload condition (0 = No; 1 = Underload)
Bit 2 Weight Stability (0= Unstable; 1 = Stable)
Bit 1 Gross Weight Polarity (0 = "+"; 1 = "-")
Bit 0 Net Weight Polarity (0 = "+"; 1 = "-")

EXAMPLE:

If BYTE 5 = 45 HEX:

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	1	1	0	0	1	0	1

Bit 0 = Net weight is negative
Bit 1 = Gross weight is positive
Bit 2 = Weight is stable
Bit 5/6 = A Preset Tare is in memory

Net Weight

For each scale there are three bytes containing the net weight value

⚖ 3	1000 kg
22(MSB)	00 Hex
23	03 Hex
24(LSB)	E8 Hex

Output Data (for sending commands)

<table>
<tr><th>Command</th><th>Byte</th><th>Description</th><th>Example</th></tr>
<tr><td>Transmitter ID</td><td>1</td><td>Select the transmitter to receive the command:
<table><tr><th>Transmitter</th><th>Value</th></tr><tr><td>Transmitter 01</td><td>01 Hex</td></tr><tr><td>Transmitter 02</td><td>02 Hex</td></tr><tr><td>Transmitter 03</td><td>03 Hex</td></tr><tr><td>...</td><td>... Hex</td></tr><tr><td>Transmitter 16</td><td>10 Hex</td></tr></table>
NOTE: Transmitter ID must be set for each command.</td><td>To zero the weight of transmitter number 4:
<table><tr><th>Byte</th><th>Value</th></tr><tr><td>1</td><td>04 Hex</td></tr><tr><td>2</td><td>01 Hex</td></tr></table></td></tr>
<tr><td>Command</td><td>2</td><td>Main available commands:
<table><tr><th>Value</th><th>Command</th></tr><tr><td>00 Hex</td><td>No command</td></tr><tr><td>01 Hex</td><td>Scale zeroing</td></tr><tr><td>02 Hex</td><td>Tare</td></tr><tr><td>03 Hex</td><td>Preset Tare</td></tr><tr><td>0A Hex</td><td>Setpoint 1 setting</td></tr><tr><td>0B Hex</td><td>Setpoint 2 setting</td></tr><tr><td>19 Hex</td><td>Digital output setting</td></tr><tr><td>22 Hex</td><td>Reboot the weight transmitter</td></tr><tr><td>23 Hex</td><td>Read the calibration data</td></tr><tr><td>24 Hex</td><td>Write the calibration data</td></tr><tr><td>25 Hex</td><td>Calibration point acquisition</td></tr><tr><td>26 Hex</td><td>Abort the calibration procedure</td></tr><tr><td>28 Hex</td><td>Lock keyboard (parameter 1 = 0);
Unlock keyboard (parameter 1 = 1)</td></tr></table>
NOTE: To repeat the last command, set the command to “No command” value (0000 Hex) then repeat the command.</td><td>EXAMPLE 1
For setting a preset tare of 1000 kg:

1. Set the transmitter address in byte 1
2. Set the command in byte 2
3. Set the tare value in parameter 1
(byte 3, 4, 5, 6)

<table><tr><th>Byte</th><th>Value</th></tr><tr><td>1</td><td>01 Hex</td></tr><tr><td>2</td><td>03 Hex</td></tr><tr><td>3(MSB)</td><td>00 Hex</td></tr><tr><td>4</td><td>00 Hex</td></tr><tr><td>5</td><td>03 Hex</td></tr><tr><td>6(LSB)</td><td>E8 Hex</td></tr></table>
EXAMPLE 2
For setting the setpoint n. 1 of the scale n. 2 to 1000 kg:

1. Set the transmitter address in byte 1
2. Set the command in byte 2
3. Set the setpoint value in parameter 1
(byte 3, 4, 5, 6)</td></tr>
<tr><td rowspan="4">Parameter 1</td><td>3(MSB)</td><td rowspan="4">First parameter of the command.
Parameter is always expressed in absolute mode (no decimals, no sign).</td><td rowspan="4"><table><tr><th>Byte</th><th>Value</th></tr><tr><td>1</td><td>02 Hex</td></tr><tr><td>2</td><td>0A Hex</td></tr><tr><td>3(MSB)</td><td>00 Hex</td></tr><tr><td>4</td><td>00 Hex</td></tr><tr><td>5</td><td>03 Hex</td></tr><tr><td>6(LSB)</td><td>E8 Hex</td></tr></table></td></tr>
<tr><td>4</td></tr>
<tr><td>5</td></tr>
<tr><td>6(LSB)</td></tr>
<tr><td rowspan="4">Parameter 2</td><td>7(MSB)</td><td rowspan="4">Second parameter of the command.
Parameter is always expressed in absolute mode (no decimals, no sign).</td></tr>
<tr><td>8</td></tr>
<tr><td>9</td></tr>
<tr><td>10(LSB)</td></tr>
<tr><td rowspan="3">-</td><td>11</td><td rowspan="3">-</td><td rowspan="3">-</td></tr>
<tr><td>...</td></tr>
<tr><td>32</td></tr>
</table>

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Calibration Procedure

<table>
<tr><th>DESCRIPTION</th><th>EXAMPLE</th></tr>
<tr><td>1. Send command 23 Hex to the transmitter to adjust calibration (transmitter ID has to be specified in byte 1)</td><td>
<table>
<tr><th>Byte</th><th>Value</th><th>Description</th></tr>
<tr><td>1</td><td>03 Hex</td><td>Transmitter n. 3</td></tr>
<tr><td>2</td><td>23 Hex</td><td>Command</td></tr>
</table>
</td></tr>
<tr><td>2. Select page 5001 for calibration using the CHANGE PAGE command (1D Hex)</td><td>
<table>
<tr><th>Byte</th><th>Value</th><th>Description</th></tr>
<tr><td>1</td><td>03 Hex</td><td>Transmitter n. 3</td></tr>
<tr><td>2</td><td>1D Hex</td><td>Change page</td></tr>
<tr><td>3(MSB)</td><td>00 Hex</td><td rowspan="4">5001 (1389 Hex)</td></tr>
<tr><td>4</td><td>00 Hex</td></tr>
<tr><td>5</td><td>13 Hex</td></tr>
<tr><td>6(LSB)</td><td>89 Hex</td></tr>
</table>
</td></tr>
<tr><td>3. Set the span adjustment weight on page 5001, from byte 19 to 22 (if different from the one used during the last calibration)</td><td>
<table>
<tr><th></th><th colspan="4">Weight value examples</th></tr>
<tr><th></th><th>1000</th><th>6000</th><th>15000</th><th>350000</th></tr>
<tr><td>19(MSB)</td><td>00 Hex</td><td>00 Hex</td><td>00 Hex</td><td>00 Hex</td></tr>
<tr><td>20</td><td>00 Hex</td><td>00 Hex</td><td>00 Hex</td><td>05 Hex</td></tr>
<tr><td>21</td><td>03 Hex</td><td>17 Hex</td><td>3A Hex</td><td>57 Hex</td></tr>
<tr><td>22(LSB)</td><td>E8 Hex</td><td>70 Hex</td><td>98 Hex</td><td>30 Hex</td></tr>
</table>
</td></tr>
<tr><td>4. Send “WRITE CALIBRATION” command (24 Hex), with: parameter 1 = 5001 (1389 Hex).</td><td>See example of point 2, but byte 2=24 Hex (Write Calibration).</td></tr>
<tr><td>5. Zero capture: unload the scale and write the “ACQUISITION POINT” command (25 Hex), with parameter 1 = 0.</td><td>
<table>
<tr><th>Byte</th><th>Value</th><th>Description</th></tr>
<tr><td>1</td><td>03 Hex</td><td>Transmitter n. 3</td></tr>
<tr><td>2</td><td>25 Hex</td><td>Acquisition point</td></tr>
<tr><td>3(MSB)</td><td>00 Hex</td><td rowspan="3">Zero point acquisition</td></tr>
<tr><td>4/5</td><td>00 Hex</td></tr>
<tr><td>6(LSB)</td><td>00 Hex</td></tr>
</table>
</td></tr>
<tr><td>6. Read the calibration status into page 5001 (byte 30, 31)

If acquisition is OK, then proceed with step 7; otherwise check the load cell mV/V (must be stable) and repeat step 5.</td><td>
<table>
<tr><th>30(MSB)</th><th>31(LSB)</th><th></th></tr>
<tr><td>00 Hex</td><td>00 Hex</td><td>Calibration not started</td></tr>
<tr><td>00 Hex</td><td>01 Hex</td><td>Acquisition underway</td></tr>
<tr><td>00 Hex</td><td>02 Hex</td><td>Acquisition OK</td></tr>
<tr><td>00 Hex</td><td>03 Hex</td><td>Acquisition error</td></tr>
<tr><td>00 Hex</td><td>04 Hex</td><td>Calibration OK</td></tr>
<tr><td>00 Hex</td><td>05 Hex</td><td>Calibration error</td></tr>
</table>
</td></tr>
<tr><td>7. Span capture: load the scale with span weight and write the “ACQUISITION POINT” command (25 Hex), with parameter 1 = “1”.

If acquisition is OK, proceed to step 8; if not check the load cell mV/V (must be stable and greater then zero point) and repeat step 7.</td><td>
<table>
<tr><th>Byte</th><th>Value</th><th>Description</th></tr>
<tr><td>1</td><td>03 Hex</td><td>Transmitter n. 3</td></tr>
<tr><td>2</td><td>25 Hex</td><td>Acquisition point</td></tr>
<tr><td>3(MSB)</td><td>00 Hex</td><td rowspan="3">Span acquisition</td></tr>
<tr><td>4/5</td><td>00 Hex</td></tr>
<tr><td>6(LSB)</td><td>01 Hex</td></tr>
</table>
</td></tr>
<tr><td>8. Store calibration using the “WRITE CALIBRATION” command (24 Hex), with parameter 1 = 0</td><td>
<table>
<tr><th>Byte</th><th>Value</th><th>Description</th></tr>
<tr><td>1</td><td>03 Hex</td><td>Transmitter n. 3</td></tr>
<tr><td>2</td><td>24 Hex</td><td>Write calibration</td></tr>
<tr><td>3(MSB)</td><td>00 Hex</td><td rowspan="3">Store calibration</td></tr>
<tr><td>4/5</td><td>00 Hex</td></tr>
<tr><td>6(LSB)</td><td>00 Hex</td></tr>
</table>
</td></tr>
</table>

Messages

Message	Description
FbUS. Er	No connection received from module Hub after 30 seconds
F. r. HH. YY	Firmware version of the module hub
F_b_Conn	Start the Communication between hub module and scale
F_b_oH	Communication on fieldbus network configured and running
F_b_Err +code	Error state, see table error codes
F. bUS. in	Fieldbus initialization

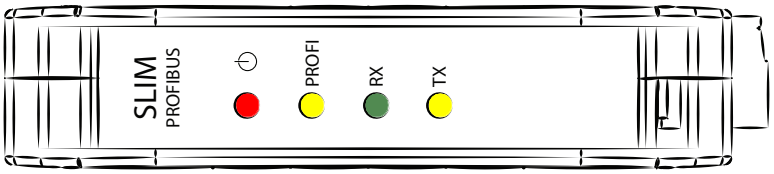
Hub Module Error Codes

Code	Description
1000	Fatal error in hub module
1001	Inconsistency between protocol type selected and the one managed by the Hub module, e.g. Hub type EtherCAT module with Devicenet protocol selected on SCT
1-18	Other fatal error in Hub module
000001 and the following	Unrecoverable error module Hub

Network Error Codes

Code	Description
000140	General network error
000141	Connection closed
000142	Time-out connection
000143	Isolated network
000144	Duplicated node
000145	Network cable disconnected

Annunciators



Annunciator	Description
⏻	Solid Red – Profibus module is ready
STATE	Solid yellow – Profibus module is connected to the Profibus master.
RX	These LEDs indicate the RS-485 communication state between Profibus module and weigh transmitter; Blinking – Profibus Module is correctly communicating. Solid or off – no communication with the weight transmitter
TX	

Note ***All LED annunciators turn on during the fieldbus module start-up to verify correct functioning.***

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