

Installing the Communication Module

Instruction sheet for SmartLine Transmitters:

- ST 700 and ST 800 Pressure Transmitters
- STT 850 and STT 750 Temperature Transmitter
- SLG 700 Level Transmitter
- SMV 800 Multivariable Transmitter

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Please take appropriate steps to avoid ESD damage when handling transmitter electronics assemblies.



All local electrical codes, and relevant service and repair regulations must be observed.



When installed as explosion-proof or flame-proof in a hazardous location, keep covers tight while the transmitter is energized. Disconnect power to the transmitter in the non-hazardous area prior to removing end caps for service. When installed as non-incendive or non-sparking equipment in a hazardous location, disconnect power to the transmitter in the non-hazardous area, or determine that the location is non-hazardous before disconnecting or connecting the transmitter wires.

Tools required

For this item	Use this tool
M3 set screw for end cap removal	1.5 mm Allen key
Communications module retaining screws	#1 Phillips or slotted screwdriver
Transmitter re-assembly	Parker Super O-ring Lubricant or equivalent
Field Upgrades	Pliers

Reference documents

Reference documentation	Transmitter User's manual	HART/DE Option manual	Fieldbus / Modbus option manual
ST 800	34-ST-25-35	34- ST-25-38	34-ST-25-39 (800 FF)
ST 700	35-ST-25-44	34-ST-25-47	34-ST-25-48 (700 FF)
STT850	34-TT-25-03	34-TT-25-06	34-TT-25-07 (FF)
STT750	34-TT-25-13	34-TT-25-15	N/A
SLG700	34-SL-25-11	34-SL-25-06	34-SL-25-07 (FF)
SMV800	34-SM-25-03	34-SM-25-06	34-SM-25-09 (MB)

Pre- installation considerations

DE is not supported by SLG 700 level transmitter, STT750 temperature transmitters or ST 700 basic transmitter. See page 8 for installing DE communications module.

Modbus support is available for SMV devices.

Refer to Table 1 to identify ST 700 basic and standard transmitter models.

Table 1 – ST 700 Standard and Basic model types

Transmitter Configuration	Smart Line Pressure ST700	
	Standard Models	Basic Models
Dual head DP	STD720/730/770	STD725/735/775
Dual head GP	STG730/740/770	STG735/745/775
Inline GP	STG73L/74L/77L/78L/79L	STG73S/74S/77S/78S/79S
Inline flush GP	STG73P	STG73SP
Dual head AP	STA722/740	STA725/745
Inline AP	STA72L/74L/77L	STA72S/74S/77S
Flush flanged liquid level	STF724/732	STF725/735
Pseudo flanged liquid level	STF72F/73F	STF72P/73P
Remote seal DP/GP	STR73D/74G	STR735D/745G

Installing Communication Module

The communication module includes a connector to the sensor ribbon cable (not applicable for STT850) and a connector to the optional display module. This section includes the procedure to replace the communication module and external button configuration assembly.



Please take appropriate steps to avoid ESD damage when handling the Communication and Display Module assemblies.

Refer to [Figure 2](#) for parts locations.

Step – 1: When removing the communications module with power applied, the loop output will go to 0 mA. Likewise, installing a communications module into a pressure, temperature and SMV transmitters with power applied will cause the loop output value to go to 12 mA for several seconds then the loop output value will go to the configured value based on the PV input. When installing a communications module into a level transmitter the loop output value will go to 21.5 mA for approximately 30 seconds or until a valid PV is returned.

For Modbus devices, it is recommended to isolate the transmitter from the Modbus network & power supply to be disconnected before removing COMM module /while installing the COMM module.

Installing a display module into a powered transmitter may cause a temporary upset to the loop output value.

Step – 2: Loosen the end cap lock, and unscrew the end cap from the electronics side of the Transmitter housing.

Step – 3: If equipped with a display module, carefully depress the two tabs on the sides of the display module, and pull it off. **Do not discard the display module.**

Step – 4: If necessary, unplug the interface connector from the communication module. **Do not discard the connector.**

Step – 5: Loosen the two retaining screws, and carefully pull the communication module from the electronics compartment.

Step – 6: Carefully remove the sensor ribbon cable (not applicable for STT750/STT850 models) from the “P2” or “J4” connector at the bottom of the communication module.

Step – 7: Carefully align and connect the sensor ribbon cable (not applicable for STT750/STT850 models) to the “P2” or “J4” connector on the replacement communication module. See [Figure 1](#).

NOTE: For SLG 700 Level transmitters only.

When connecting 12 pin ribbon cable assembly (K1), of the power accumulator board to the 10 pin connector, “P2” on the Fieldbus comms board, make sure that the offset is maintained correctly. Pin 1 of the power accumulator (K1) assembly should match pin 1 of Fieldbus comms board “P2” connector. When connected in this fashion, pins 11 and 12 of the ribbon cable assembly connector will be unconnected.

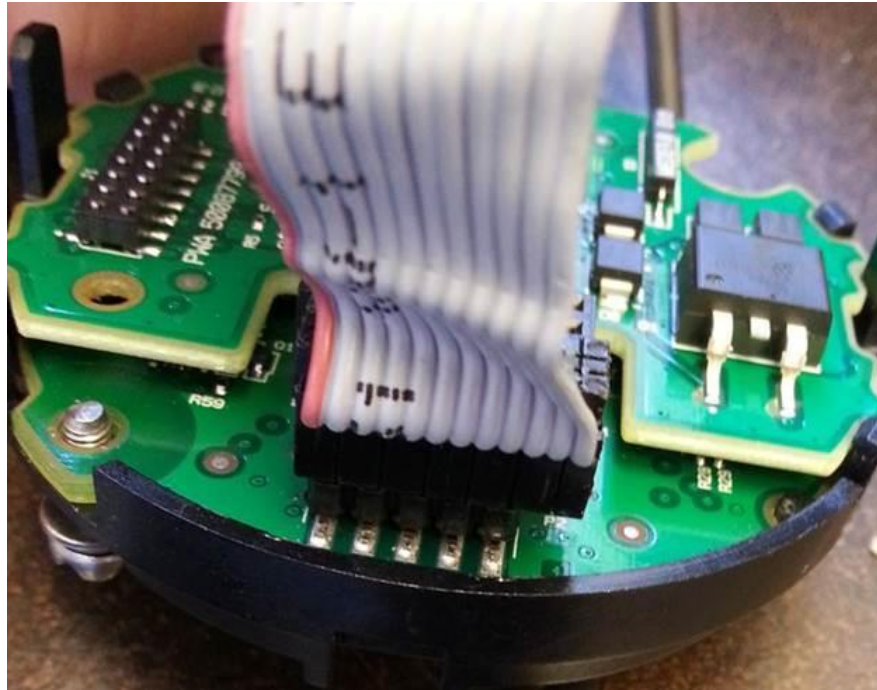


Figure 1: Level transmitters only - Ribbon Cable Assembly and Fieldbus Board


Step – 8: Carefully, insert the replacement communication module into the electronics compartment. Ensure that the sensor ribbon cable is not pinched (not applicable for STT models).

Step – 9: Tighten the two communication module retaining screws.

Step – 10: Refer to the SmartLine user's manual to change the FAILSAFE, READ/WRITE, and / or SIM-OFF/SIM-ON, AC termination jumper and configuration settings.

Step – 11: If applicable, re-install the display module as follows:

- Orient the display as desired.
- Install the Interface connector in the display module such that it will mate with the socket for the display in the communication module.
- Carefully line up the display, and snap it into place. Verify that the two tabs on the sides of the display latch.

 **Orient the display for proper viewing through the end cap window.**
You can rotate the meter mounting orientation in 90° increments.

Step – 12: Apply Parker Super O-ring Lubricant or equivalent to the end cap O-ring before installing the end cap. Reinstall the end cap and tighten the end cap locking screw.

NOTE: Steps 13-17 apply only to field upgrades* & model changes to the ST*, STT, and SMV transmitters.

*** Field upgrades are not applicable to ST 700 Basic model transmitters.**

Refer to Table 1 to identify ST 700 Basic and Standard models.

Step – 13: Installing optional external configuration button assembly. Loosen (**Do Not Remove**) both top nameplate screws and pivot nameplate 90°. Align the protrusion on the button assembly with the matching opening in the housing and snap the button assembly into the housing.

Rotate the nameplate back to the original position, and tighten the nameplate screws.

Step – 14: Loosen the end cap locking screw and unscrew the end cap from the Field Wiring side of the transmitter housing.

Step – 15: Select the proper communication/external configuration upgrade kit label from the label strip provided and adhere to the inside of the field wiring compartment end cap.

Step – 16: Apply Parker Super O-ring lubricant or equivalent to the end cap before installing the end cap. Reinstall the end cap and tighten the end cap locking screw.

Step – 17: Install external upgrade nameplate (i.e. DEVICE MODIFIED.....) provided on outside of housing as shown in Figure 2.

Step – 18: For the power, there are two situations:

- Power removed: Restore power.
- Power not removed: For a clean startup, it is recommended to turn the transmitter's power off for approximately 20 seconds and then restart.

Step – 19: Check the settings of the transmitter setup and display setup parameters to make sure that the transmitter is configured correctly for your application.

Step – 20: If applicable, verify external button configuration operation.

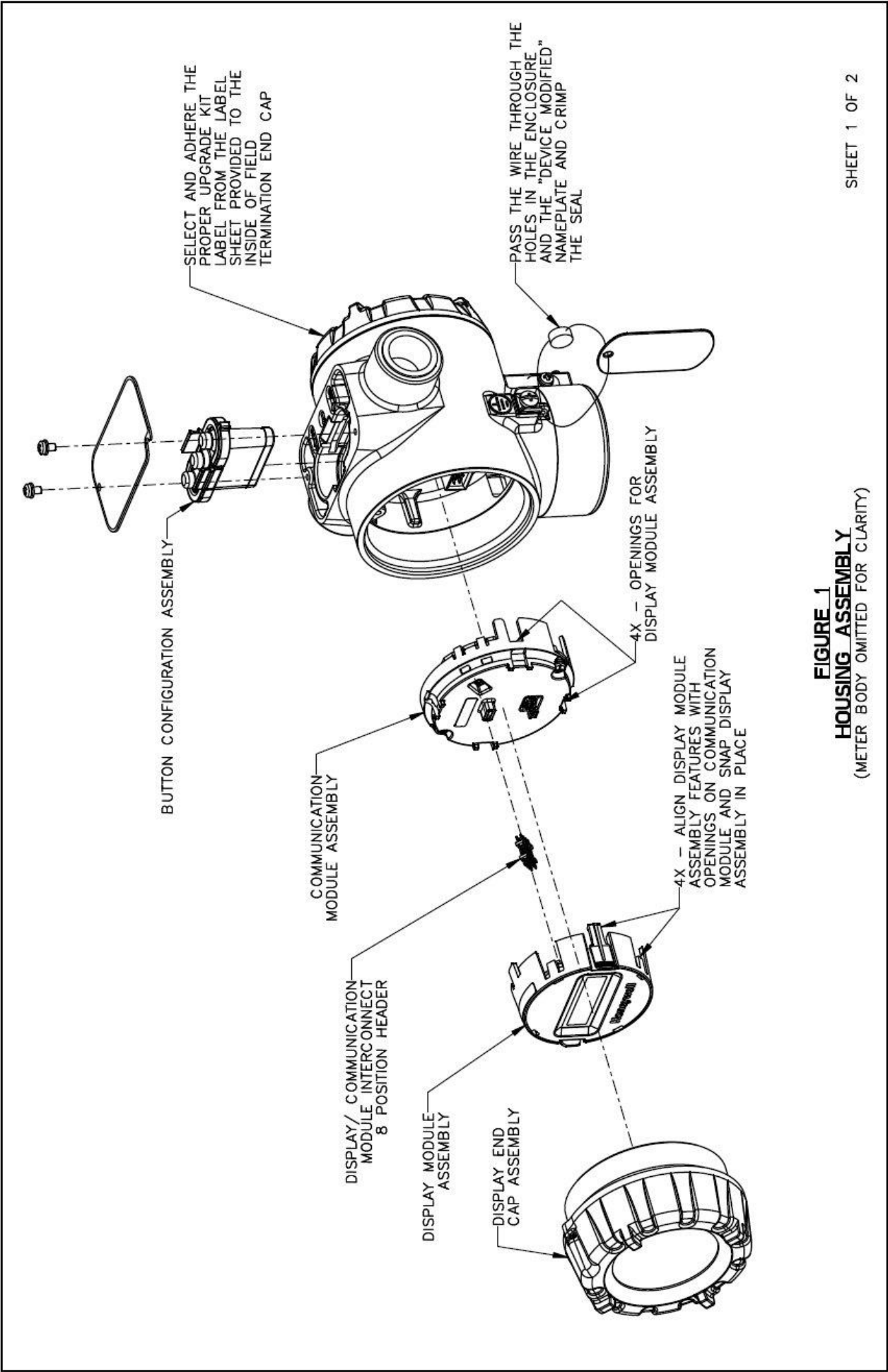


FIGURE 1
HOUSING ASSEMBLY
(METER BODY OMITTED FOR CLARITY)

Figure 2: Communication Module Replacement (Sheet 1)

(Represented here by ST 800, other models may vary)

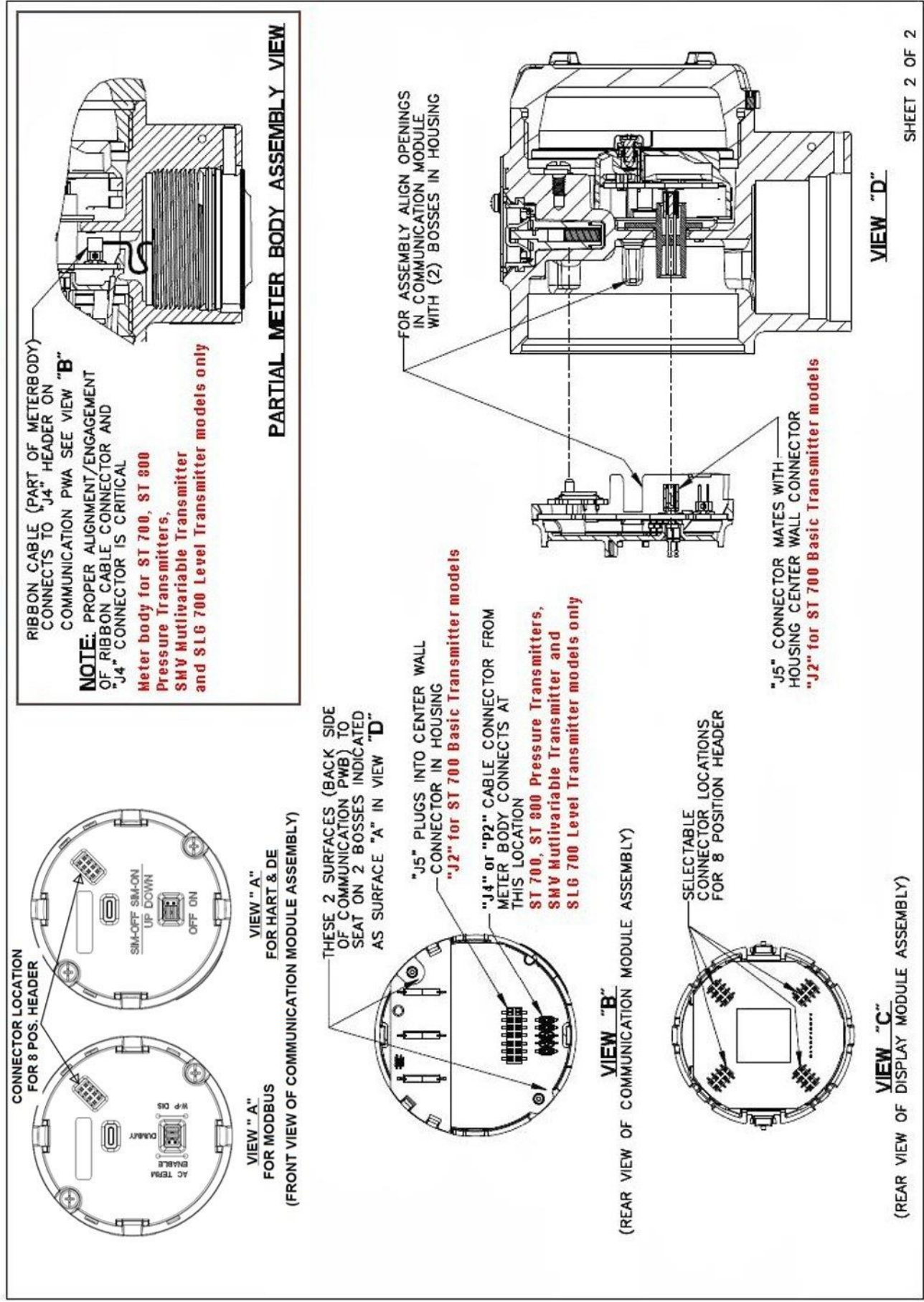


Figure 3: Communication Module Replacement (Sheet 2)

Installing DE Communication Module

DE is not supported by SLG 700 level transmitters, STT750 temperature transmitter or ST 700 basic transmitter. Refer to [Table 1](#)) to identify ST 700 basic transmitter models and ST 700 standard models.

The instructions below must be followed in order to retain the transmitter's configuration database when replacing a DE communications module.

Transmitter connected to a TPS/TDC System

Step – 1: Make the transmitter tag inactive.

Step – 2: Go to the “Smart transmitter data” section in the configuration page of the transmitter.

Step – 3: Select command as “UPLOADDB”. This command uploads all the transmitter configuration data to the host.

Step – 4: Wait for the Parameter STATE to indicate “LOADCOMP”. This confirms that upload of all transmitter data has completed.

Step – 5: Now you can power off the transmitter and replace the DE communication board as per the instructions provided in Step 1 of this document on page 3.

Step – 6: Power on device, check the display for no error messages.

Step – 7: Return back to the “smart transmitter data” section in the configuration page of the transmitter.

Step – 8: Select command as “DNLOADDB”. This command downloads all the transmitter configuration data from the host to the device.

Step – 9: Wait for the Parameter STATE to indicate “LOADCOMP”. This confirms that download of all transmitter data has completed.

Step – 10: Make the transmitter tag active.

Step – 11: The updated firmware version for DE transmitter can be confirmed in the following ways:

- ST 800 or SMV800 transmitters with local zero and span option (reed switch) and advanced display:
 - Navigate to main menu >> information >> comm module
 - Confirm that the “firmware version” is at the expected level
- ST 700 Transmitters with local zero and span option (Reed Switch) and Basic display:
 - Navigate to firmware >>electronics
 - Confirm that the “firmware version” is at the expected level
- ST 800, ST 700 or SMV800 transmitters without local zero and span (reed switch) the firmware version can be confirmed on the TPS/TDC host:
 - Go to the “smart transmitter data” section in the configuration page of the transmitter.
 - Confirm that parameter value for “STISWVER” is showing the expected firmware version

Attention! – The information in the “transmitter scratch pad” parameter may be lost during this procedure. This parameter does not hold any critical configuration data.

Transmitter connected to an Experion System

Step – 1: Make the transmitter tag inactive

Step – 2: Go to the “smart transmitter tab” of the block properties page.

Step – 3: Select command as “UpLoadDb”. This command uploads all the transmitter configuration data to the Host

Step – 4: Wait for the parameter “current State” to indicate “Loadcomp”. This confirms that Upload of all transmitter data has completed.

Step – 5: Now you can power off the transmitter and replace the DE communication board as per the instructions provided in Step 1 of this document on page 3.

Step – 6: Power on device, check the display for no error messages.

Step – 7: Return back to the “smart transmitter tab” of the block properties page.

Step – 8: Select command as “DnLoadDb”. This command downloads all the transmitter configuration data from the host to the device.

Step – 9: Wait for the parameter “current state” to indicate “Loadcomp”. This confirms that download of all transmitter data has completed.

Step – 10: Make the transmitter tag active.

Step – 11: The updated firmware version for DE transmitter can be confirmed in the following ways:

- ST 800 or SMV800 transmitters with local zero and span option (Reed Switch) and Advanced Display:
 - Navigate to Main Menu >> Information >> elec module
 - Confirm that the “firmware version” is at the expected level
- ST 700 Transmitters with local zero and span option (reed switch) and basic display:
 - Navigate to firmware >>electronics
 - Confirm that the “firmware version” is at the expected level
- ST 800, ST 700 or SMV800 transmitters without local zero and span (Reed switch) the firmware version can be confirmed on the Experion host:
 - Go to the “smart transmitter” tab in the block properties page.
 - Confirm that parameter value for “software revision” is showing the expected firmware version

Attention! – The information in the “transmitter scratch pad” parameter may be lost during this procedure. This parameter does not hold any critical configuration data.

Transmitter connected to a MCToolkit Handheld

(SMV 800 DE model is not supported by MC Toolkit, use SmartLine Configuration Tool, SCT 3000)

Step – 1: Connect the MCToolkit with the DE device.

Step – 2: Select MCToolkit program.

Step – 3: Navigate to online Mmode and upload the database.

Step – 4: Once the database is uploaded, in DE main menu go to option “Save to File”.

Step – 5: Save the uploaded configuration in SD card or main memory. The configuration will be saved in “.xml” format.

Step – 6: Now you can power off the transmitter and replace the DE communication board as per the instructions provided in Step 1 of this document on page 3.

Step – 7: Power on Device, Check the Display for no error messages.

Step – 8: Again connect the MCToolkit with the DE device.

Step – 9: Go to the Offline configure tab, and select the earlier saved .xml file.

Step – 10: After selecting the appropriate configuration file, enter the file management tab on same window.

Step – 11: Cross check the configuration and press “DOWNLOAD to device”. This will download the configuration. You can upload the database by taking the device online.

Step – 12: The updated firmware version for DE transmitter can be confirmed in the following ways:

- ST 800 Transmitters with local zero and span option (reed switch) and advanced display:
 - Navigate to main menu >> Information >> elec module
 - Confirm that the “firmware version” is at the expected level
- ST 700 Transmitters with local zero and span option (reed switch) and basic display:
 - Navigate to firmware >> electronics
 - Confirm that the “firmware version” is at the expected level
- ST 800 or ST 700 transmitters without local zero and span (reed switch) the firmware version can be confirmed on the MCToolkit handheld:
 - Navigate to the "device Info" tab in the DE main menu.
 - Confirm that parameter value for “firmware revision” is D.3

Attention! – The information in the “transmitter scratch pad” parameter may be lost during this procedure. This parameter does not hold any critical configuration data.

Transmitter connected to Smart Field Communicator (SFC)

Step – 1: Connect the SFC with the DE device.

Step – 2: Press [SHIFT] “ID” to read tag ID. This step will identify the device

Step – 3: Once the ID is read successfully, press “CONF” to read the configuration of device. The screen will show status as “SFC working”.

Step – 4: Once the read is complete, use the following sequence in the SFC to save configuration data from the device to SFC

“NEXT” >> “NEXT” >> “NEXT” >> [NEXT] >> “SAVE/RESTORE?” >> YES” >>
“SAVE DATA?” >> “YES” >> “ARE YOU SURE”>> “YES”

Saving of data will start.

Step – 5: Once the data saving is complete the SFC will display message as “DATA SAVED”.

Attention! – After the SAVE operation is complete do not navigate to any other menu on the SFC or power off the SFC

Step – 6: Now you can power off the transmitter and replace the DE communication board as per the instructions provided in Step 1 of this document on page 3.

Step – 7: Power on device, check the display for no error messages.

Step – 8: Again connect the SFC with the DE device.

Step – 9: On the same menu as Step 5, use the following sequence in the SFC to Restore configuration data from the SFC to device

“NEXT” >> “SAVE/RESTORE” >> UP ARROW >> “RESTORE DATA” >> “YES” >>
“SFC WORKING” >> “DATA RESTORED”

Restore operation would take a few seconds to complete.

Step – 10: Put transmitter back into DE mode by press [SHIFT] [A <-DE]

Step – 11: The updated firmware version for DE transmitter can be confirmed in the following ways:

- ST 800 transmitters with local zero and span option (reed switch) and advanced display:
 - Navigate to main menu >> information >> elec module
 - Confirm that the “firmware version” is at the expected level
- ST 700 transmitters with local zero and span option (reed switch) and basic display:
 - Navigate to firmware >>electronics
 - Confirm that the “firmware version” is at the expected level
- ST 800 or ST 700 transmitters without local zero and span (reed switch) the firmware version can be confirmed on the SFC
 - Press “SHIFT” + “SW VER”
 - Confirm that parameter value for “XMTR” is D.3

R100 SLG720 Transmitters

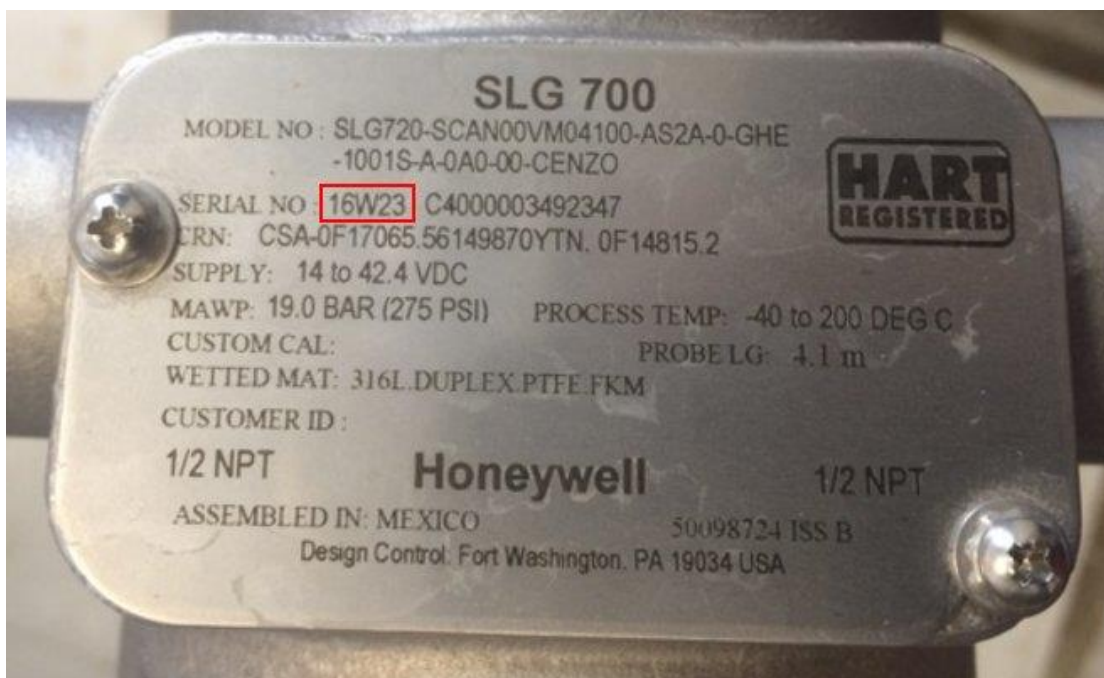
When replacing the communications module on a R100 version of the SLG720 level transmitter ensure that a compatible version of firmware is loaded in the communications module.

All SLG transmitters built before July 1st 2016 are R100 versions and around 150 of these transmitters were shipped. Refer to the date code in the serial number field on the top name plate of the transmitter to determine when it was built.

If the date code is prior to 16W27 and no upgrades have been done on your transmitter then it is a R100 transmitter.

The two numerals before the “W” in the date code indicate the year and the two numerals after the “W” indicate the week.

Refer to the date code shown in the serial number field in the picture below which shows that the transmitters was built in week 23 of 2016.



The communications board firmware for a R100 transmitter is R1.000700 – please contact TAC at hfs-tac-support@honeywell.com if you need to arrange R1.000700 Communications Board firmware to be loaded.

Alternatively if you have access to Honeywell SmartLine Anywhere Tool (SAT) then you can load the firmware from the Honeywell website.

All released firmware versions can be downloaded from:

<https://www.honeywellprocess.com/en-US/explore/products/instrumentation/process-level-sensors/Pages/smartline-level-transmitter.aspx>.

Once the new communications module has had the correct firmware installed and the module been installed into the transmitter then you will need to configured the gauge for the application by doing a background subtraction, setting DC, etc.

Hazardous Locations

Warning - : When installed as explosion-proof or flame-proof in a hazardous location, keep covers tight while the transmitter is energized. Disconnect power to the transmitter in the non-hazardous area prior to removing end caps for service. When installed as non-incendive or non-sparking equipment, disconnect power to the transmitter in the non-hazardous area, or determine that the location is non-hazardous before disconnecting or connecting the transmitter wires.

Product Approvals - : All replacement sensor electronic modules are built according to the same quality and regulatory processes as the original transmitter parts and complete transmitter. Deviating from this instruction sheet, or using other replacement parts, may invalidate the product approvals marked on the transmitter nameplate.

Hi-Pot (Dielectric Strength) Test - : If applicable standards for the installation require a hi-pot test after device repair, the voltage shall not exceed 600Vac or 850Vdc between loop terminals and case. The hi-pot test will fail with lightning protection terminal assemblies installed. The hi-pot test must only be performed with a non-lightning protected terminal assembly installed in the transmitter during the test.

Sales and Service

For application assistance, current specifications, pricing, or name of the nearest Authorized Distributor, contact one of the offices below.

ASIA PACIFIC

Honeywell Process Solutions,
(TAC) hfs-tac-support@honeywell.com

Australia

Honeywell Limited
Phone: +(61) 7-3846 1255
FAX: +(61) 7-3840 6481
Toll Free 1300-36-39-36
Toll Free Fax:
1300-36-04-70

China – PRC - Shanghai

Honeywell China Inc.
Phone: (86-21) 5257-4568
Fax: (86-21) 6237-2826

Singapore

Honeywell Pte Ltd.
Phone: +(65) 6580 3278
Fax: +(65) 6445-3033

South Korea

Honeywell Korea Co Ltd
Phone: +(822) 799 6114
Fax: +(822) 792 9015

EMEA

Honeywell Process Solutions,
Phone: + 80012026455 or
+44 (0)1344 656000

Email: (Sales)

FP-Sales-Apps@Honeywell.com

or

(TAC)

hfs-tac-support@honeywell.com

AMERICA'S

Honeywell Process Solutions,
Phone: (TAC) 1-800-423-9883 or
215/641-3610
(Sales) 1-800-343-0228

Email: (Sales)

FP-Sales-Apps@Honeywell.com

or

(TAC)

hfs-tac-support@honeywell.com

For more information

To learn more about SmartLine Pressure Transmitters, visit

www.honeywellprocess.com

Or contact your Honeywell Account Manager

Process Solutions

Honeywell
1250 W Sam Houston Pkwy S
Houston, USA, TX 77042

Honeywell Control Systems Ltd
Honeywell House, Skimped Hill Lane
Bracknell, England, RG12 1EB

Shanghai City Centre, 100 Jungi Road
Shanghai, China 20061

www.honeywellprocess.com

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