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Honeywell SLG 700 SmartLine Guided Wave Level Transmitters Instruction Manual

SLG 700 Smart Line Guided Wave Level Transmitters?
Instruction Manual

Contents

SLG 700 Smart Line Guided Wave Level Transmitters

Replacing GWR Sensor Electronics

Instruction Sheet for Smart Line Transmitters:
SLG700 Level Transmitters
Document No: 34-SL-33-02
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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 nonamended or non-sparking equipment in a hazardous location, disconnect power to the transmitter in the non-hazardous area, or determine that the location is nonhazardous before disconnecting or connecting the transmitter wires.

Tools required

Use this tool	For this item
AF 2.0 mm Allen key	M4 set screw for Separating Sensor Electronics Housing from Process Connector and Communications Housing
AF 1.5 mm Allen key	M3 set screw for end cap removal
Parker Super O-ring Lubricant or equivalent	Transmitter re-assembly

Step – 1: Determine transmitter Firmware version of the Sensor and Communications Modules (refer to the SLG700 Transmitter User's Manual 34-SL-25-11). See table below.

Table 1: Sensor firmware version and ability to upgrade a transmitter

.Sensor Firmware Version	Notes:
1.000000/1.000100	COMM PCBA and ADVANCED DISPLAY must be replaced or have firmware upgraded. TERM PCBA must be replaced if the version number in the date code is not 'C'. An example of a correct date code label shown on the bottom of the terminal PCBA assembly, as shown in Figure 1.
1.010000, 1.020000 and later versions	Sensor electronics is replaceable

Figure 1: Part number and Date Code (D/C) label

Step – 2: Remove power from transmitter.

Step – 3: If a new terminal assembly is also being installed follow instructions 34-ST-33-64. The relevant part numbers are listed in Table 2

Table 2: Terminal assembly versions.

GWR Level Terminator Module w/Lightning Protection Kit for HART Modules	50095191-502
GWR Level Terminator Module w/Lightning Protection Kit for FF Modules	50095191-510
GWR Level Terminator Module w/o Lightning Protection Kit for HART Modules,	50095191-501
GWR Level Terminator Module w/o Lightning Protection Kit for FF Modules	50095191-509

Step – 4: If a new Communications Module is also being installed follow instructions #34-ST-33-69.

Step – 5: Separate the sensor housing from the process connector by first loosening the 4 mm setscrews (3) and gently separating the sensor electronics housing. Do not discard setscrews or o-rings.
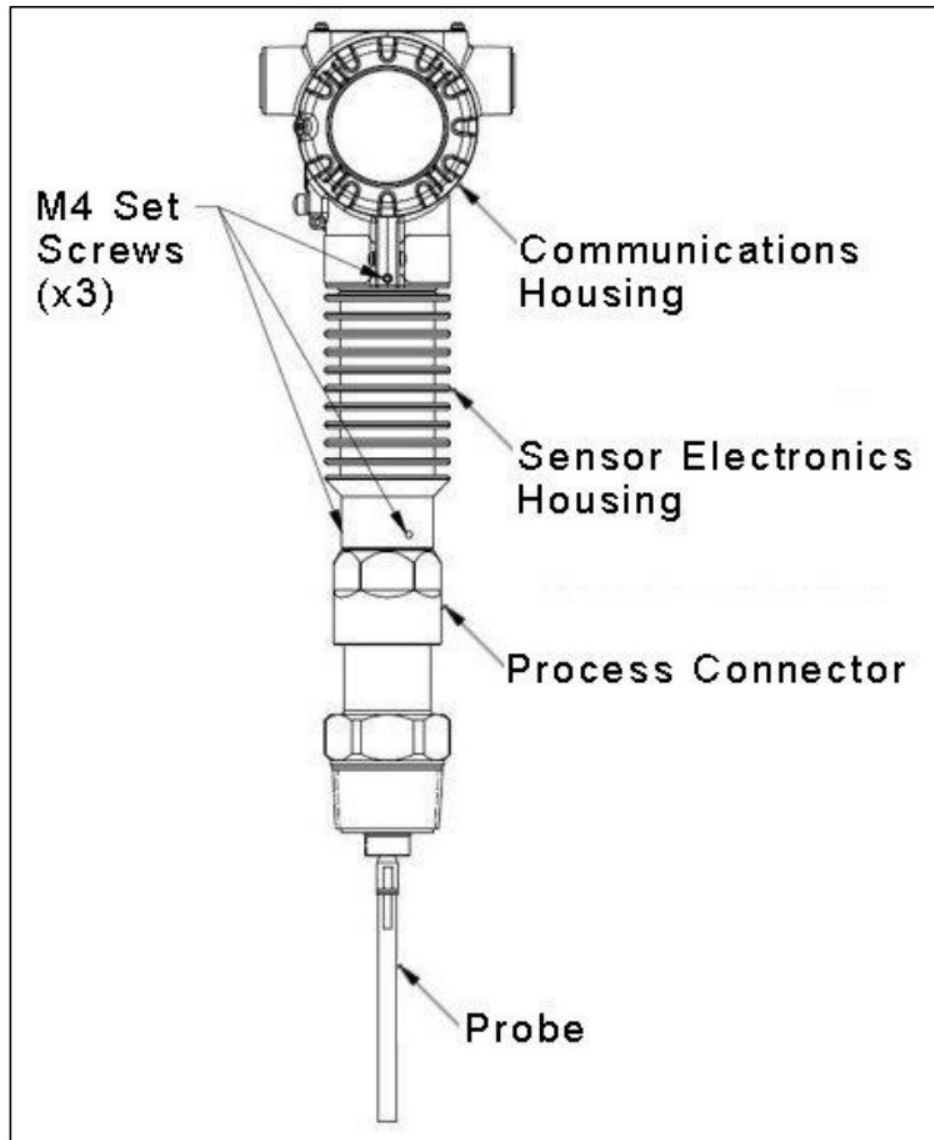

Figure 2: Location of Sensor Electronics Housing and attachment set screws

Step – 6: Loosen the end cap locking screw and unscrew the end cap on the Sensor Electronics side of the Transmitter Communications Housing
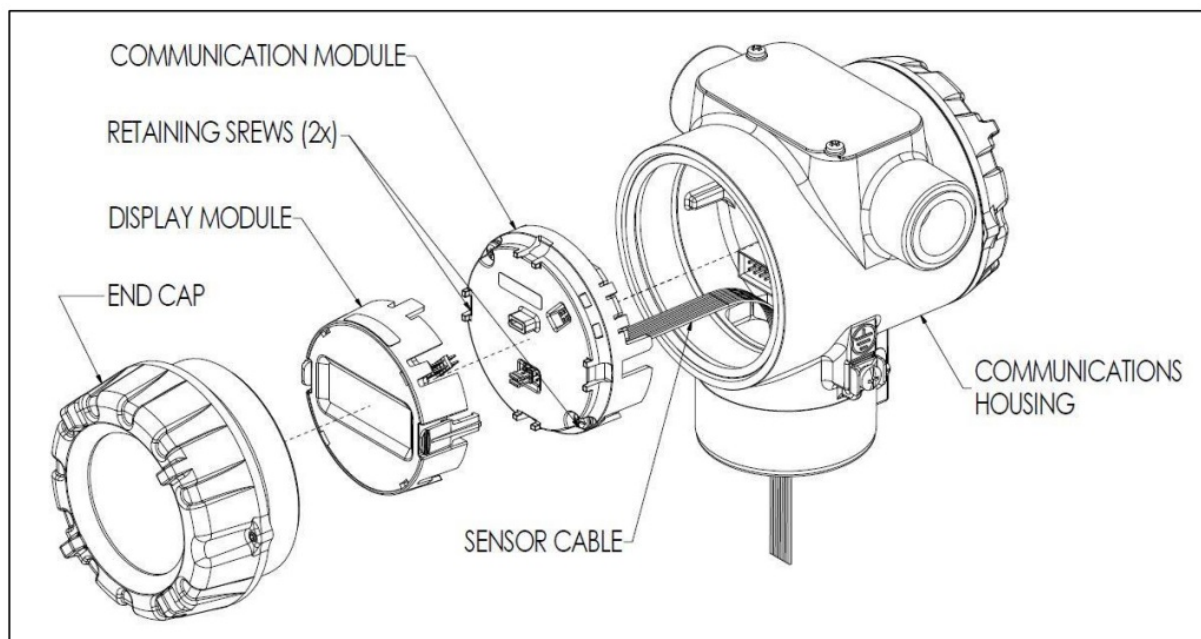
Figure 3. Communications Housing Assembly.

Step – 7: If equipped with a Display Module, carefully depress the two tabs on the sides of the Display Module, and pull it off. Ensure the interface connector (8-pin header) is not lost. Do not discard the Display Module, or connector.

Step – 8: Loosen the two retaining screws, and carefully pull the Communication Module from the Sensor Electronics compartment (do not discard the retaining set screws).

Step – 9: Carefully remove the sensor cable from the "P2" connector on the Communication Module at the bottom of the Communication Module.

Step – 10: Carefully unscrew the Sensor Electronics Housing from the Communications Housing.

Step – 11: Carefully transfer orange o-ring from old sensor electronics housing to new housing. Clean off o-ring and apply o-ring lubricant before re-installing.

Step – 12: Thread the ribbon cable of new Sensor Electronics Housing into Communications Housing.

Step – 13: Screw Sensor Electronics Housing into Communications Housing taking care not to damage the ribbon cable. The ribbon cable connector must be rotated with the sensor housing to ensure that it does not twist more than ½ turn during the process. Extreme care must be taken to avoid pinching the cable during rotation. Screw only as far as indicated in Figure 4.

There should be 2.5 mm clearance between the Communications housing and the top fin of the Sensor electronics housing. The o-ring should not be visible. Over-tightening will irreparably damage the ribbon cable.
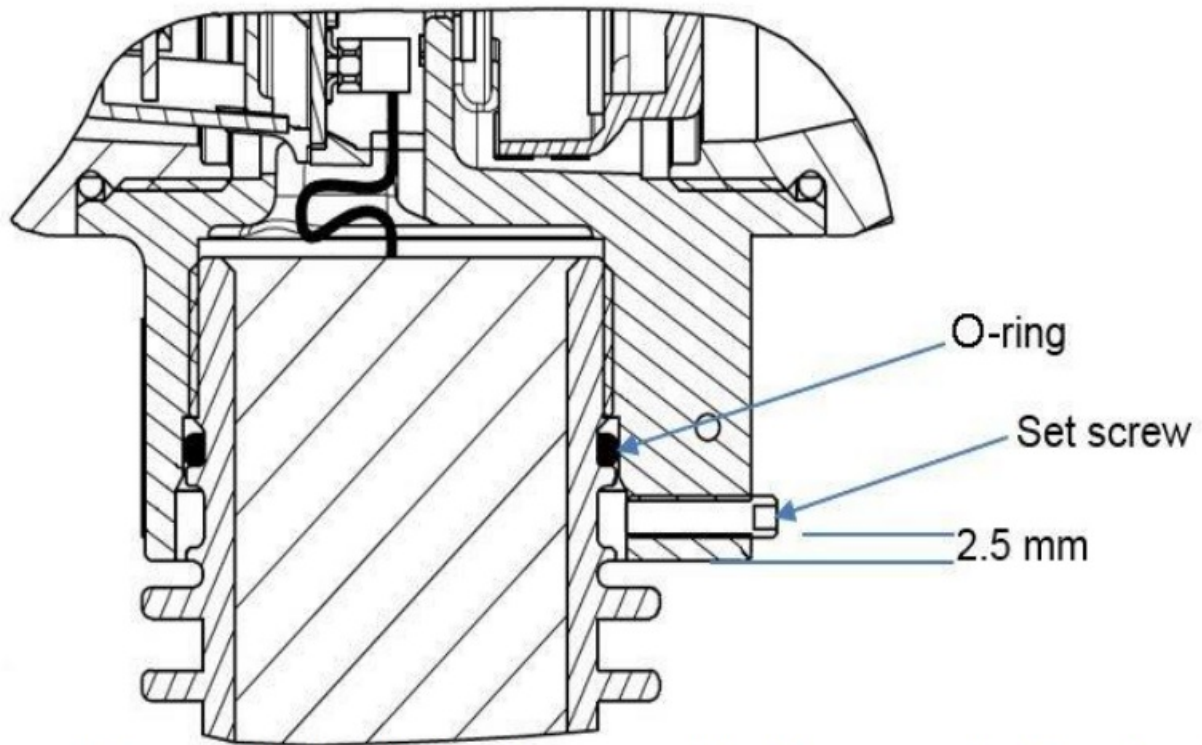
Figure 4. Sensor electronics housing assembly with communications housing.

WARNING: Do not tightly screw the Sensor Housing into the Electronics Housing.
The connection should be to the point where the o-ring is not visible.
Ensure the O-ring is not pinched
Step-14: Tighten set screw as shown in Figure 4. The set-screw should not protrude from the Communications electronics housing. Protrusion indicates that the sensor housing is screwed an incorrect amount into the communications housing.
Step – 15: Carefully align and connect the sensor ribbon cable to the connector "J4" at the bottom of the Communication Module. Pin 1 must be aligned with contact 1 of the ribbon cable indicated by the colored edge wire.
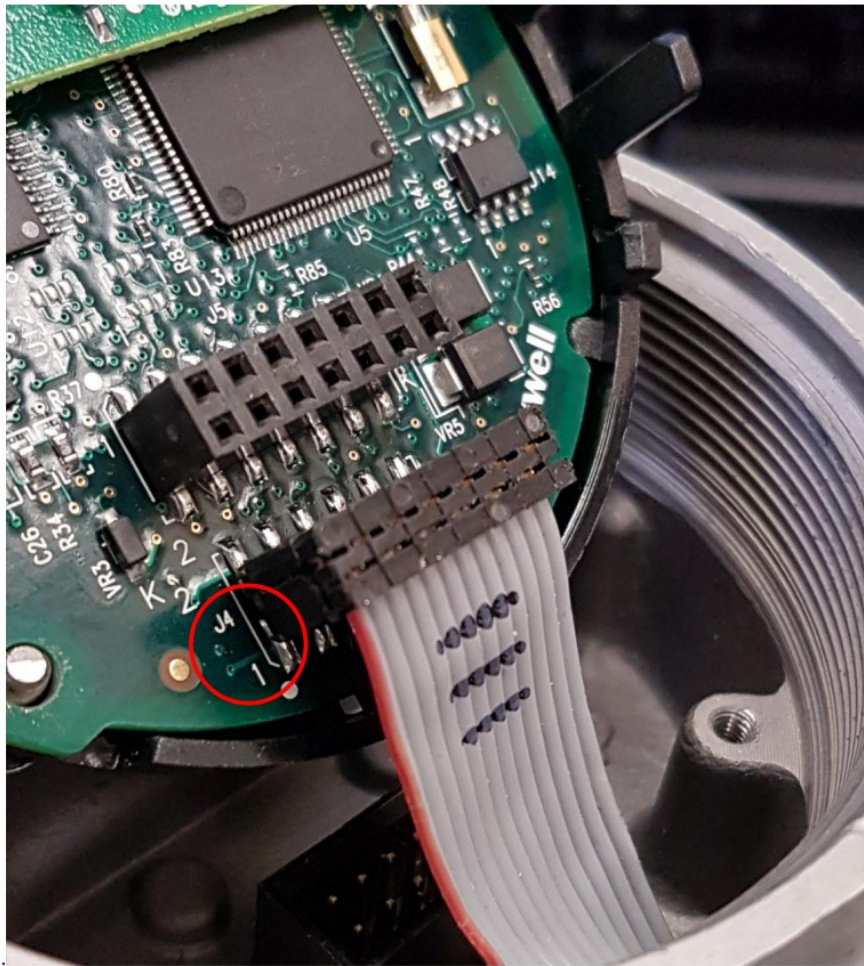
Figure 5. Sensor ribbon cable

Note: Sensor ribbon cable wire aligns with pin 1 of J4 as shown. The Communication Module is then rotated 180 degrees to seat in Communications Housing.

Step – 16: Carefully, insert the Communication Module into the Communication Electronics Housing. Ensure that the sensor ribbon cable is not pinched.

Step – 17: Tighten the two Communications Module retaining screws.

Step – 18: If a new Communications Module is being used, duplicate the jumper settings on the original module.

Step – 19: 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 – 20: Apply o-ring lubricant to the end cap o-ring before installing the end cap. Reinstall the end cap and tighten the end cap locking screw.

Step – 21: Ensure the small RF connector is seated firmly in place, on the bottom of the sensor electronics housing. See Figure 6
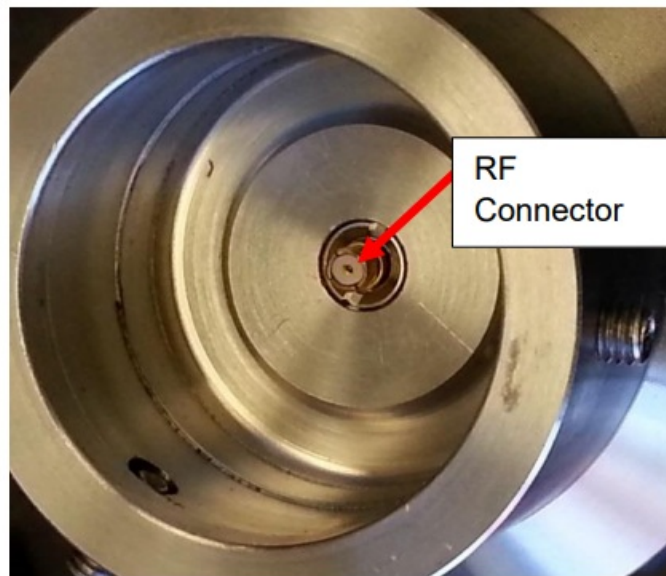
Figure 6. Location of RF connector at the bottom of sensor electronics housing.

Step – 22: If necessary, replace the O-ring at the top of the process connector. Apply o-ring lubricant and carefully replace the sensor electronics housing without pinching the O-ring. Tighten the set screws.

Step – 23: Turn ON transmitter power.

Step – 24: Comm and Sensor Model Number reconciliation

- If the COMM Firmware version is 1.020000 the transmitter should power up and operate with no further configuration required. However, if the sensor electronics housing has been used in another transmitter, a further configuration step is necessary. See the Appendix for detailed instructions.

- If the COMM Firmware version is 1.010000, the model number information will not be visible. This does not affect the operation of the transmitter.

Step – 25: If upgrading transmitter from sensor firmware version 1.000×00, the transmitter configuration will need to be set. However, if a new COMM module was ordered at the same time as the sensor electronics a basic configuration will be already in place. See manuals:

Publication #	Publication Title
34-SL-25-11	SLG 700 Smart Line Guided Wave Radar User's Manual
34-SL-25-06	SLG 700 Smart Line Level Transmitter Guided Wave Radar HART© Option User's Manual
34-SL-25-07	SLG 700 Smart Line Level Transmitter Guided Wave Radar FOUNDATION Fieldbus Option Manual

Note: The transmitter stores it's configuration on the COMM PCBA. Therefore you do not need to transfer the configuration.

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 nonhazardous area prior to removing end caps for service. When installed as non-incentive or nonspeaking 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 – : The replacement sensor electronic modules are hi-pot tested at the factory prior to shipment, using a voltage of 850V for 1 second. If applicable standards for the installation still 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.

The Hi-Pot test may be performed on the transmitter electronics, before re-installing on the process connector.

Appendix: Reconciling Model Numbers

If a spare sensor electronics housing has been used in a transmitter, it will likely have a model number which does not match the model number stored in the COMM electronics. This will cause an error.

Using three-button interface and display:

The error can be identified by selecting

Monitor

- Non-critical errors

    o The error will appear as Model Number Mismatch

    To clear this error, select

    Monitor

- Model Number

The Sensor Model Number and the Communication Model number can be displayed. To clear the error, a Matching Source will have to be selected. In most cases this will be the COMM module; however, in some cases Sensor module can be selected. The Do Match must be selected to clear the fault.

Refer to the User's manual for instructions on using the three-button interface.

Using the DTM:

The error can be identified from the Monitor, Device Status & Alarms screen. The error is identified as Model Number Mismatch (see Figure 7)
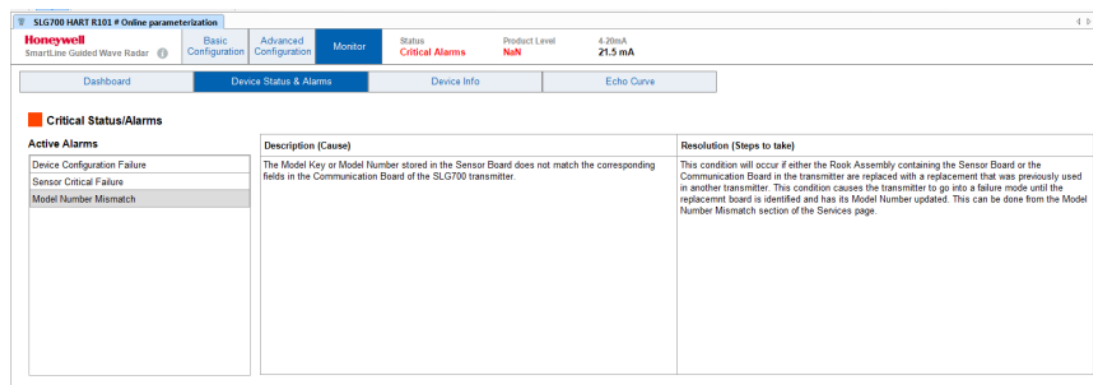

Figure 7 - Model Number Mismatch Critical Error

To clear this error, Navigate to the Advanced Configuration, Services tab and select Reconcile Model Numbers. In most cases, it will be appropriate to select Use Comm Module Model Number to clear the error. After selection, the transmitter will restart.

Figure 8 - Reconcile Model Numbers feature

Sales and Service

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

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