Replacing a Legacy Foxboro IMT25/IMT96 Paired with a Legacy Magnetic Flowtube with an IMT33A/IMT31A Using the R0101ZS Cable

This procedure describes how to replace the Schneider Electric IMT25 or IMT96 products paired with a Legacy Magnetic Flowtube with an IMT33A or IMT31A. You must use the R0101ZS cable specified in this document when installing the new transmitter.

⚠ DANGER

HAZARD OF ELECTRIC SHOCK

Follow all wiring instructions provided in this document carefully.

Failure to follow these instructions will result in death or serious injury.

Reference Documents

Table 1. Reference Documents

Document	Description
MI 021-120	2800 Series Flanged Magnetic Flowtubes - PTFE, PFA, or Polyurethane Lined, 2.5 to 300 mm (1/10 to 12 in) Sizes
MI 021-380	8000A Series Compact Magnetic Flowtubes - Wafer Ceramic-Lined, 1/16- through 6-inch Sizes, Wafer pfa-Lined, 1/2- through 6-inch Sizes, Sanitary, Ceramic-Lined, 1/2- through 3-inch Sizes - Installation
MI 021-381	8300 Series Magnetic Flowtubes - PTFE, Polyurethane, and Neoprene Lined, 1/2-in through 36-in Sizes
MI 021-386	9300A Series Flanged Magnetic Flowtubes PFA-Lined 1- through 12-inch Sizes, PTFE-Lined 1/2- through 16-inch Sizes, or Polyurethane-Lined 8- through 16-inch Sizes
MI 021-387	I/A Series® Magnetic Flow Transmitters Model IMT25 with 8000A Series Wafer Body Flowtubes and 2800, 8300, 9100A, 9200A and 9300A Series Flanged Flowtubes - Installation
MI 021-402	I/A Series® MagEXPERT Flow Transmitter Model IMT96 with 2800 Series Flanged Flowtubes - Installation

Schneider Electric™

Replacement Procedure

⚠ DANGER

HAZARD OF EXPLOSION

Do not install an IMT33A or IMT31A to a Legacy Magnetic Flowtube in a hazardous environment.

Failure to follow these instructions will result in death or serious injury.

NOTICE

INCORRECT MARKINGS ON DATA PLATE

All previous flowtube electrical certifications are no longer valid when the flowtubes are connected to an IMT33A or IMT31A. All electrical certifications must be removed from the existing flowtube's data plate as they are no longer valid.

Failure to follow these instructions can result in incorrect markings on the flowtube's data plate.

— NOTE

For this procedure to work properly, you must have a nominal known flowrate. The nominal known flowrate in the line can be determined by observing the flowrate on another meter in the line, collecting the data from a historian and replicating those conditions, calculating the flowrate based on a pump curve, or observing the change in volume in a tank over time and calculating the flow rate.

Electric equipment should be installed, operated, services and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

1. Locate the transmitter to be replaced by an IMT33A/IMT31A.
2. Install the new IMT33A/IMT31A. Select the instructions to be used from the following table:

To replace an IMT25 or IMT96 paired with a:	With an:	Follow the instructions provided in:
9300A/8000A	IMT31A	"Replacing the IMT25/IMT96 with an IMT31A (Using a 9300A/8000A Series Flowtube)" on page 4.
2800/8300	IMT31A	"Replacing the IMT25/IMT96 with an IMT31A (Using a 2800/8300 Series Flowtube)" on page 6.
9300A/8000A	IMT33A	"Replacing the IMT25/IMT96 with an IMT33A (Using a 9300A/8000A Series Flowtube)" on page 8.
2800/8300	IMT33A	"Replacing the IMT25/IMT96 with an IMT33A (Using a 2800/8300 Series Flowtube)" on page 10.

3. Configure the required parameters in the new IMT33A/IMT31A. Note that the URV must be configured prior to Step 4.

4. Configure the following parameters based on the transmitter used:

Replacement Transmitter:	Parameter Name	Parameter Value
IMT33A	GK	5.00
IMT31A	GKL	10.00

5. Verify that the IMT33A/IMT31A is reporting a value below 100% of the transmitter's URV.
   a. If the value reported is equal to 100% URV, reduce the GK/GKL value by half (for example, if GK was set to 5, reduce it to 2.5).
   b. Repeat Step 5a until the reported value is below 100% of the transmitter's URV.
6. Record the indicated flow rate.
7. Determine the new GK/GKL using the following equation:

$$GK = FR_2 \frac{GK_1}{FR_1} \quad OR \quad GKL = FR_2 \frac{GKL_1}{FR_1}$$

FR_1 = Flowrate from Step 6.
GK_1 = GK value from Steps 4/5.
GKL_1= GKL value from Steps 4/5.
FR_2 = Known Flowrate.

Example: For GK:

FR_1 = (Indicated Flowrate) 1000 GPM
GK_1 = (GK Value From Table) 5
FR_2 = (Known Flowrate) 1057 GPM

GK = 1057 * (5/1000)
GK = 1057 * (.005)
GK = 5.285

Example: For GKL:

FR_1 = (Indicated Flowrate) 26 GPM
GKL_1 = (GKL Value From Table) 10
FR_2 = (Known Flowrate) 16.32 GPM

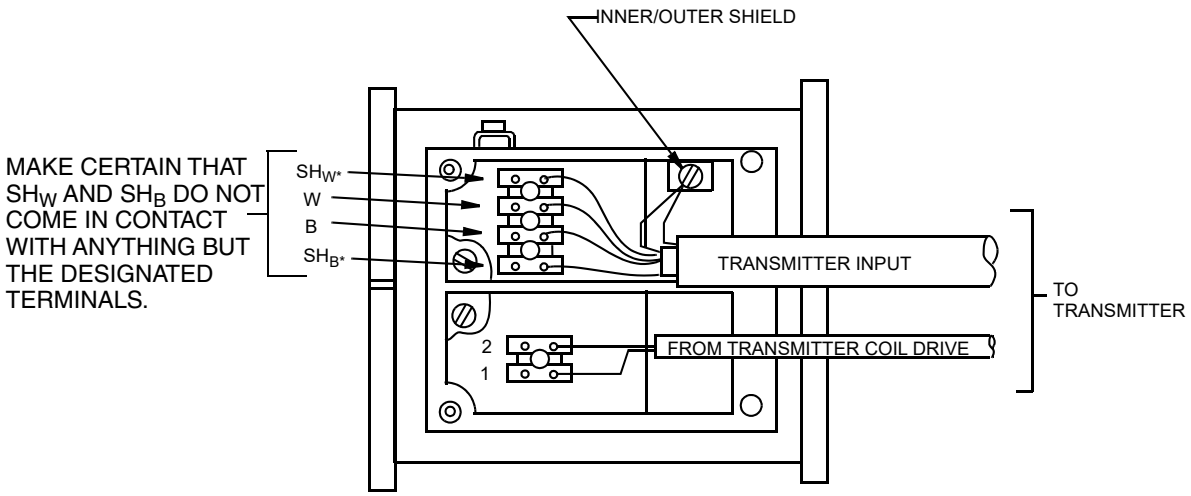
GKL = 16.32 * (10/26)
GKL = 16.32 * (.38462)
GKL = 6.277

8. Configure the new GK value in the IMT33A or the GKL value in the IMT31A based on the value determined in Step 7.
9. Verify that the indicated flow rate is equal to the expected flow rate.

Replacing the IMT25/IMT96 with an IMT31A (Using a 9300A/8000A Series Flowtube)

Foxboro 9300A/8000A Terminal Block

Signal cable (required): Part number R0101ZS.



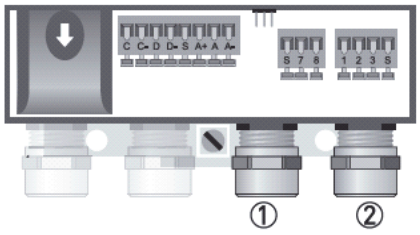
NOTE: GROUND RINGS ARE NEEDED AND MUST BE CONNECTED TO THE GROUND POST ON THE OUTSIDE OF THE JUNCTION BOX.

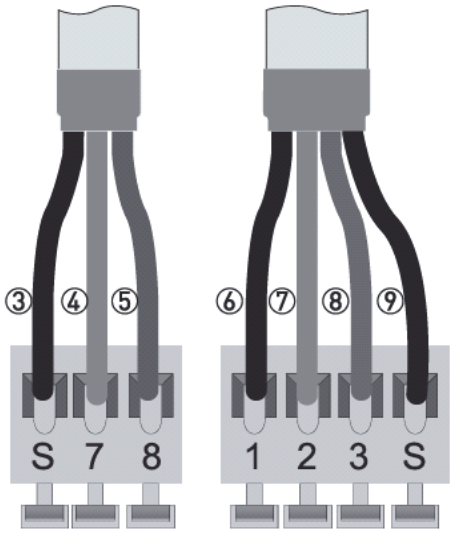
Coil Wires (a)	
9300A/8000A Terminals	IMT31A Terminals
1	7
2	8
no shield	S-shield (optional)

a. If the flow is in the wrong direction, reverse the number 7 and 8 wires.

Signal Wires	
9300A/8000A Terminals	IMT31A Terminals
W - White	3
B - Black	2
W - Shield	Not used
B - Shield	Not used
Inner Shield	1
Outer Shield	S (optional)

IMT31A Wiring

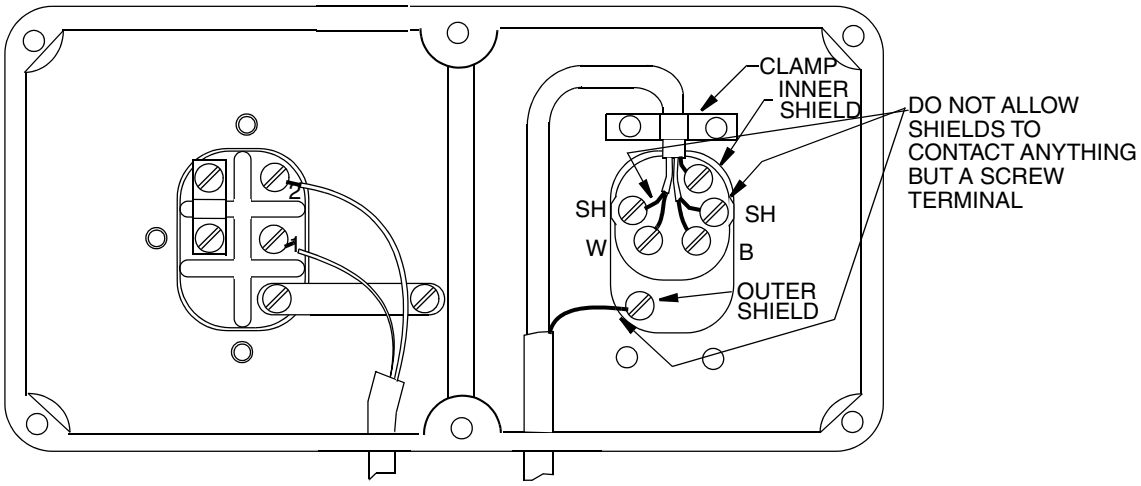




Replacing the IMT25/IMT96 with an IMT31A (Using a 2800/8300 Series Flowtube)

Foxboro 2800/8300 Terminal Block

Signal cable (required): Part number R0101ZS.



⚠ DANGER

HAZARD OF EXPLOSION

Do not install an IMT33A or IMT31A to a Legacy Magnetic Flowtube in a hazardous environment.

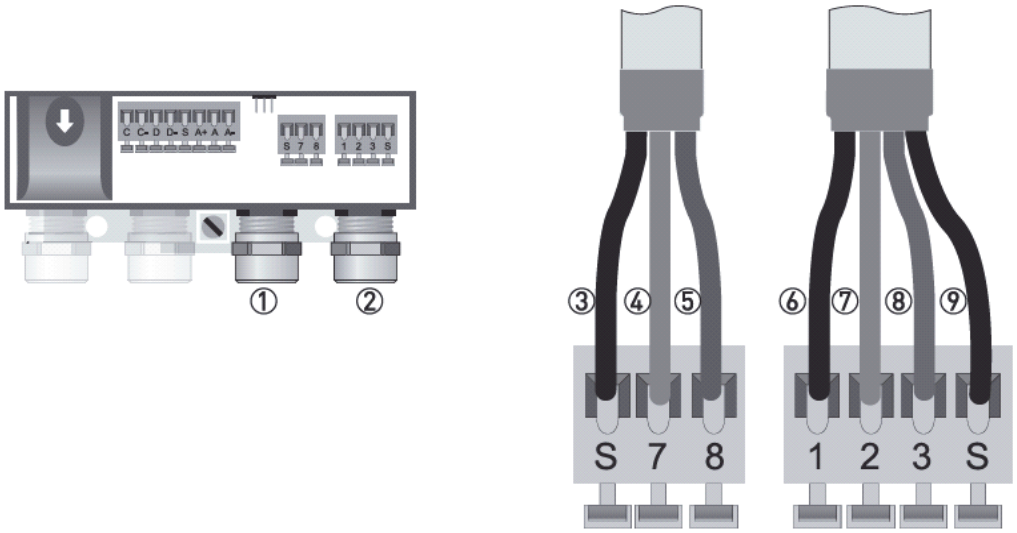
Failure to follow these instructions will result in death or serious injury.

Coil Wires (a)	
2800/8300 Terminals	IMT31A Terminals
1	8
2	7
no shield	S-shield (optional)

a. If the flow is in the wrong direction, reverse the number 7 and 8 wires.

Signal Wires	
2800/8300 Terminals	IMT31A Terminals
W - White	3
B - Black	2
W - Shield	Not used
B - Shield	Not used
Inner Shield	1
Outer Shield	S (optional)

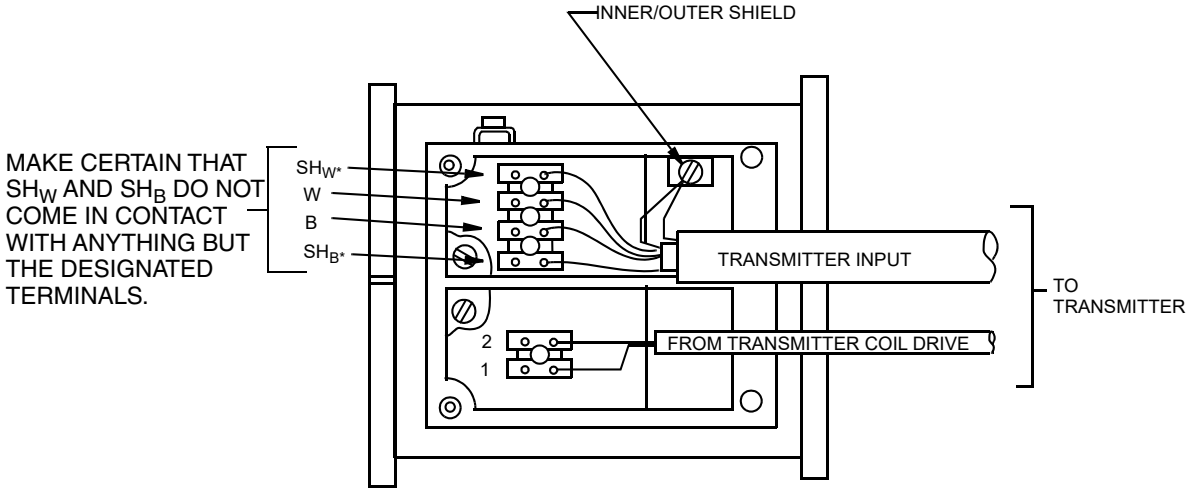
IMT31A Wiring



Replacing the IMT25/IMT96 with an IMT33A (Using a 9300A/8000A Series Flowtube)

Foxboro 9300A/8000A Terminal Block

Signal cable (required): Part number R0101ZS.



NOTE: GROUND RINGS ARE NEEDED AND MUST BE CONNECTED TO THE GROUND POST ON THE OUTSIDE OF THE JUNCTION BOX.

Coil Wires (a)	
9300A/8000A Terminals	IMT33A Terminals
1	7
2	8
no shield	9-shield

a. If the flow is in the wrong direction, reverse the number 7 and 8 wires.

Signal Wires	
9300A/8000A Terminals	IMT33A Terminals
W - White	3
B - Black	2
W - Shield	30
B - Shield	20
Inner Shield	1
Outer Shield	to case (see Figure 2)

IMT33A Wiring

Figure 1. Electrical Connection of the Signal and Field Current Cables, Wall-Mounted Housing

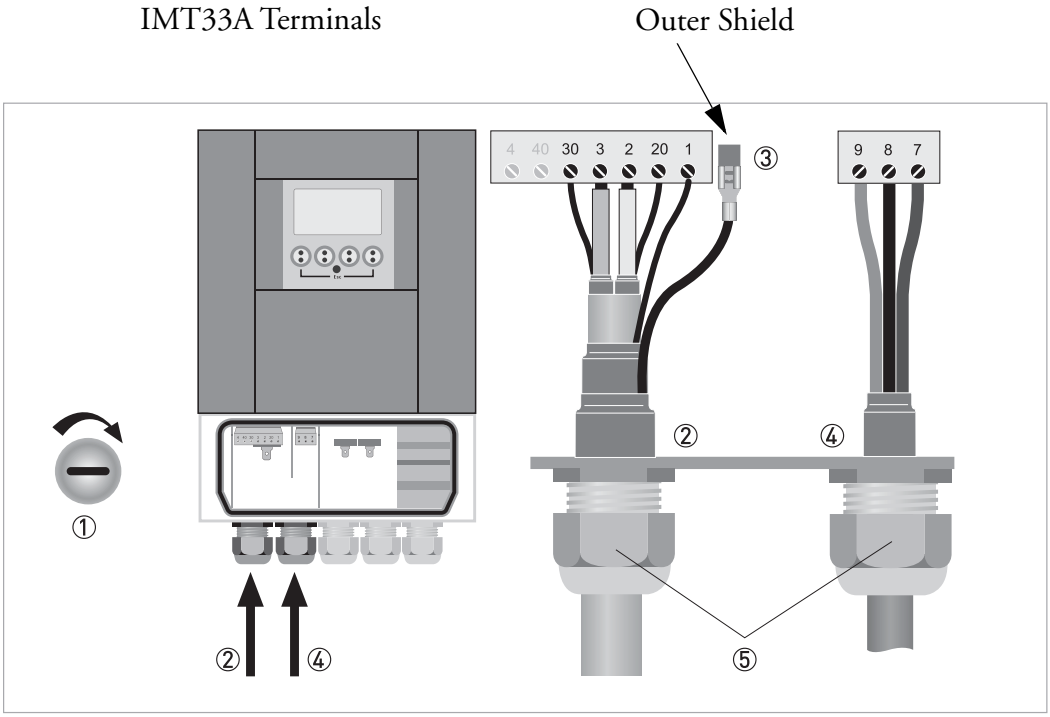
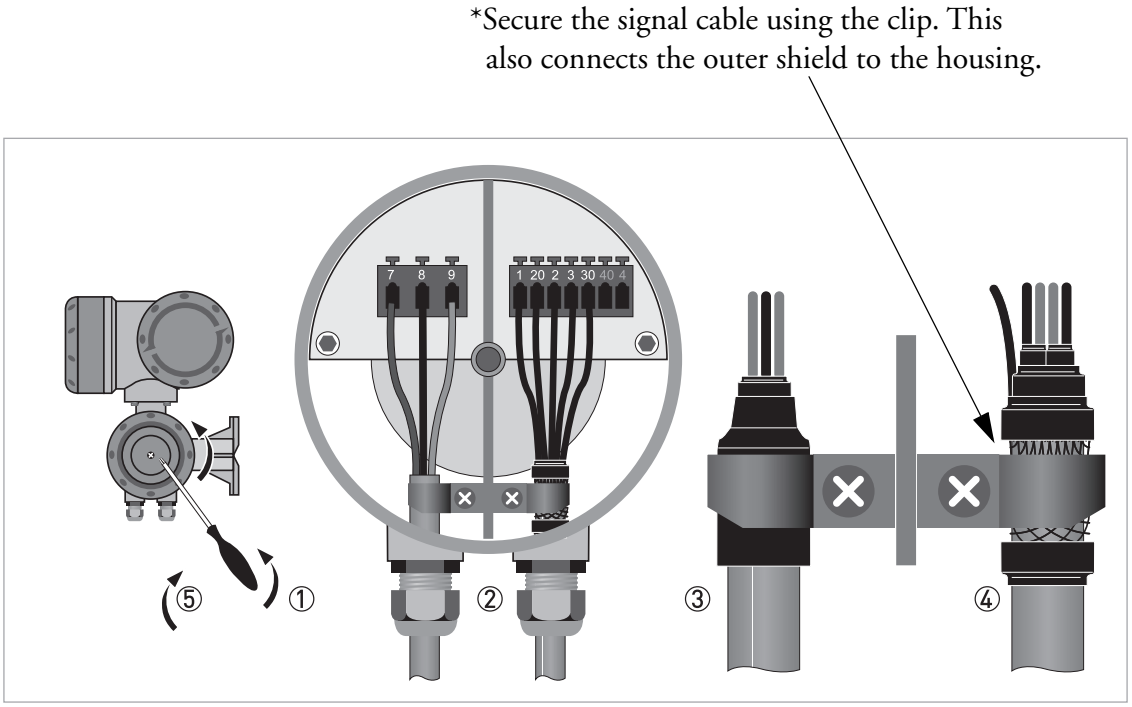


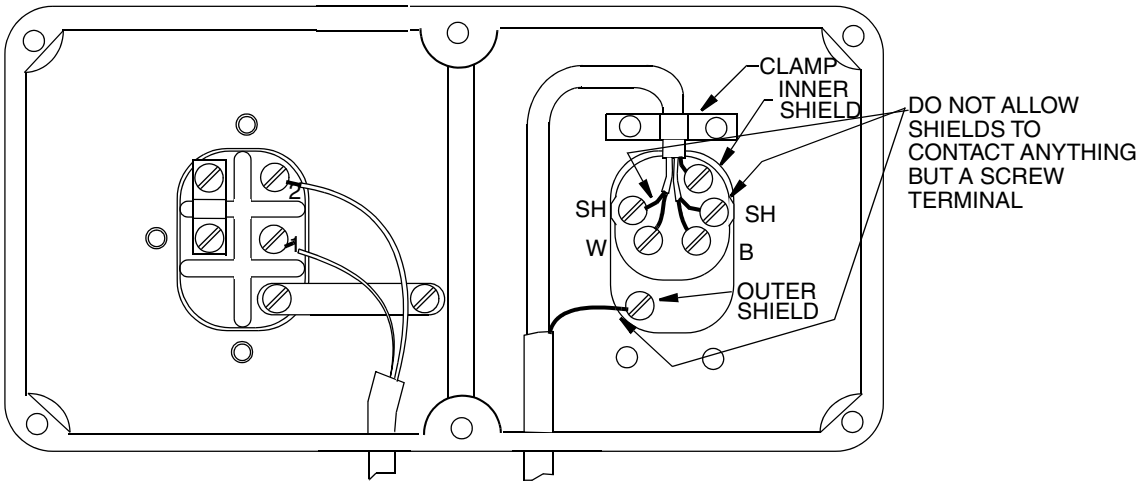
Figure 2. Electrical Connection of the Signal and Field Current Cables, Field Housing



Replacing the IMT25/IMT96 with an IMT33A (Using a 2800/8300 Series Flowtube)

Foxboro 2800/8300 Terminal Block

Signal cable (required): Part number R0101ZS.



⚠ DANGER

HAZARD OF EXPLOSION

Do not install an IMT33A or IMT31A to a Legacy Magnetic Flowtube in a hazardous environment.

Failure to follow these instructions will result in death or serious injury.

Coil Wires (a)	
2800/8300 Terminals	IMT33A Terminals
1	8
2	7
no shield	9-shield

a. If the flow is in the wrong direction, reverse the number 7 and 8 wires.

Signal Wires	
2800/8300 Terminals	IMT33A Terminals
W - White	3
B - Black	2
W - Shield	30
B - Shield	20
Inner Shield	1
Outer Shield	to case (see Figure 4)

IMT33A Wiring

Figure 3. Electrical Connection of the Signal and Field Current Cables, Wall-Mounted Housing

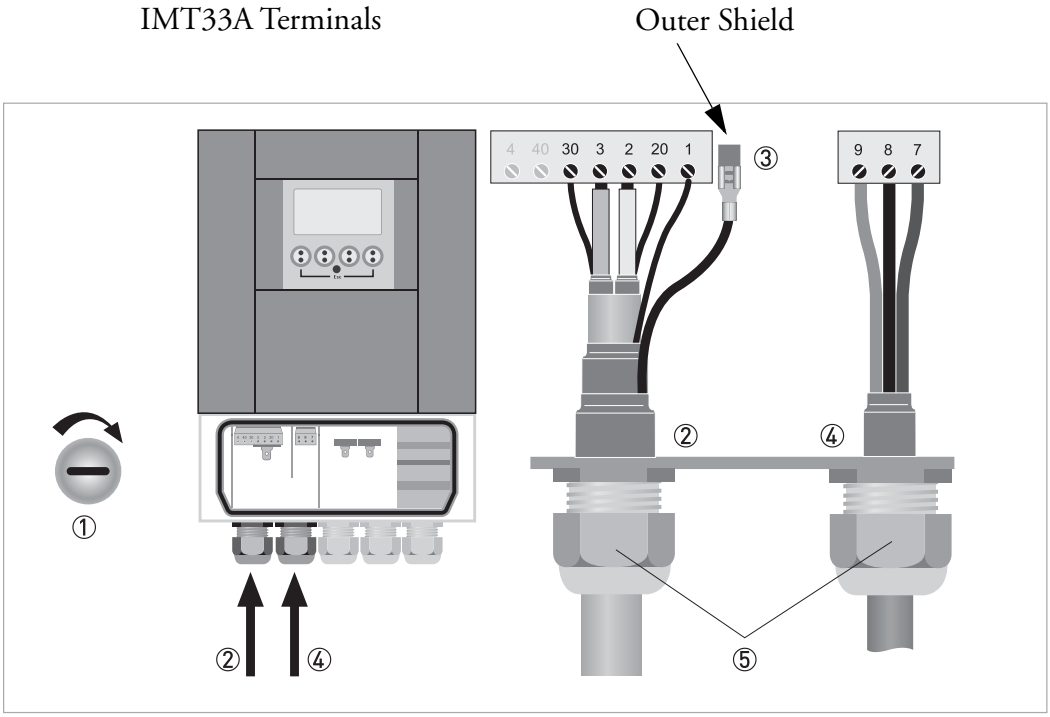
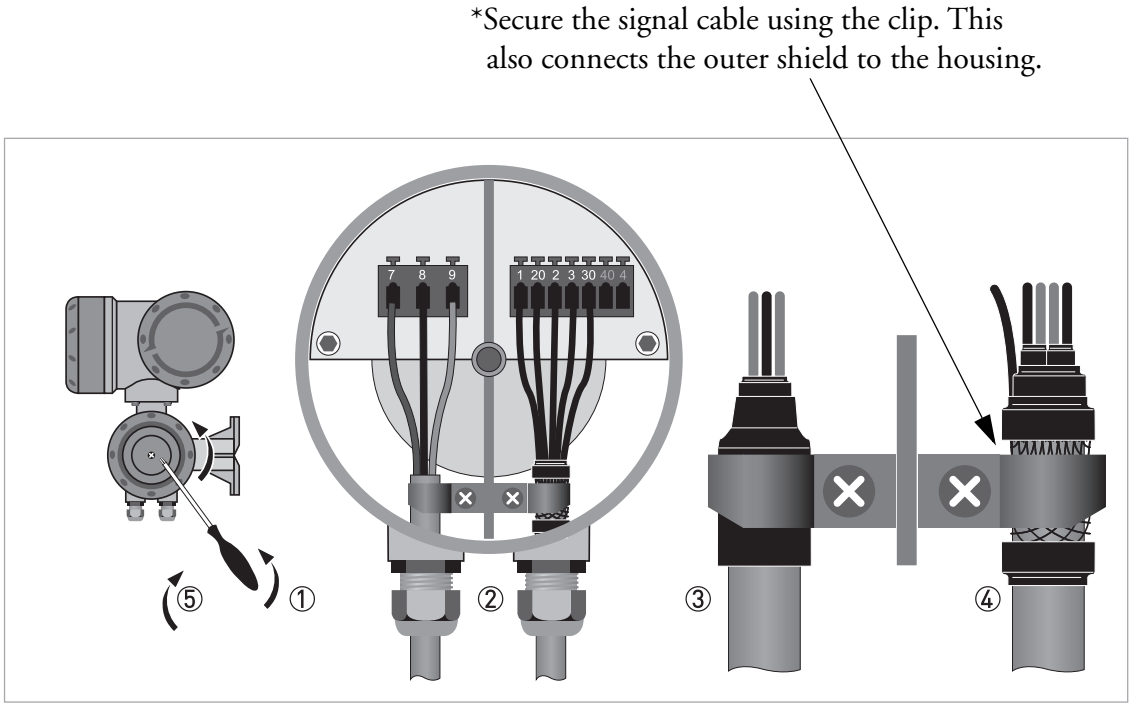


Figure 4. Electrical Connection of the Signal and Field Current Cables, Field Housing



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