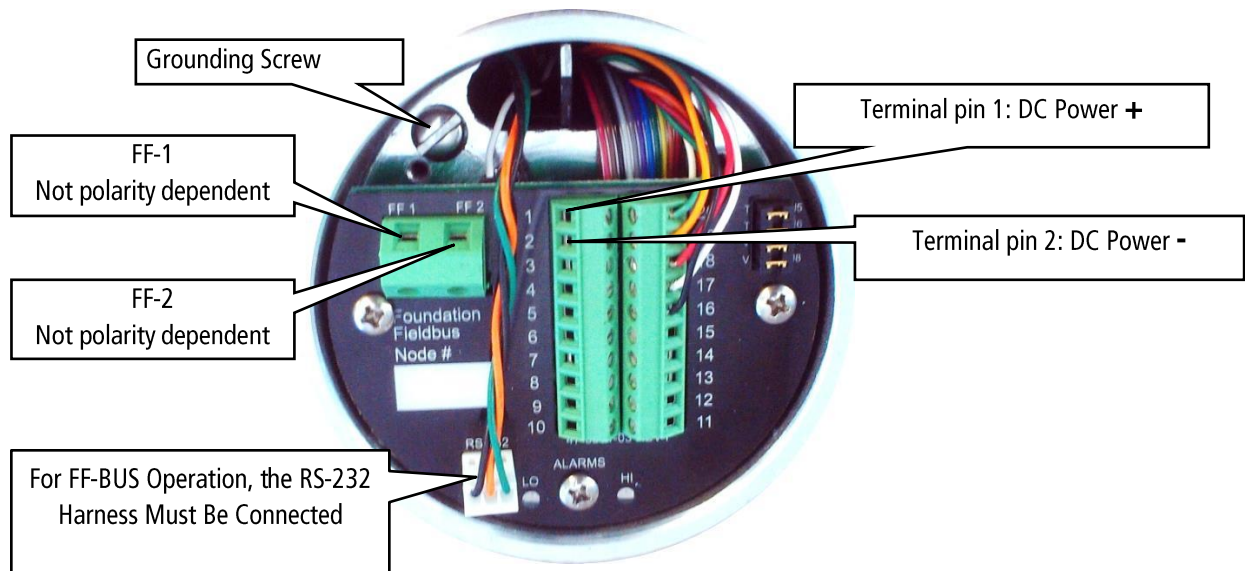# Quick Install Guide

This Quick Install Guide is applicable for 600/700 models: 640S, 760S, 780S, and 780S UHP equipped with a Foundation Fieldbus interface.

A copy of this Quick Install Guide, the device description (DD) files, the 600/700 Series Foundation Fieldbus manual, and the individual product manuals are included on the digital communication information CD included in your shipment. This information is also available for download.

This quick install guide is intended to offer specific setup information for customers who already uses Foundation Fieldbus (FF-BUS). To get more technical information on Foundation Fieldbus, go to www.fieldbus.org and click on the End User Resources button and then choose the Technical References button.

Wiring Connections

Power Requirements: The 600/700 Series meters use 18-30 VDC at 625 mA. Because of the current needed, the meter cannot be powered off the H1 network. The separate 18-30 VDC power supply is connected to terminals 1 and 2 (See Figure 1).

Grounding Screw

FF-1
Not polarity dependent

FF-2
Not polarity dependent

For FF-BUS Operation, the RS-232 Harness Must Be Connected

Terminal pin 1: DC Power **+**

Terminal pin 2: DC Power **-**

Figure 1: Basic Meter Connections

Data Connections: The Foundation Fieldbus H1 Network connections are labeled as FF-1 and FF-2 (See Figure 1). These are not polarity dependent. If multiple shield grounds are being used, use the earth grounding screw shown in Figure 1.

Connecting to the 600/700 Series Foundation Fieldbus Module

1. Connect the 18-30 VDC power supply to terminal pins 1 and 2 as shown in Figure 1.
2. Connect your Foundation Fieldbus network to FF-1 and FF-2 shown in Figure 1.

Adding SIERRA_DEVICE to Your H1 Network

1. Load the DD files for this instrument into your host system (PC, PLC, DCS, HMI, etc.).
2. Start the FF-BUS host.
3. The 600/700 Series will show up on the device list as SIERRA_DEVICE.
4. Sierra set the node address to 247. We suggest you change it to suit your application.
5. AI_1, 2 are already configured for flow and total AI_3, 4 and AO are unassigned.
6. At this point, the tag names and configuration may be changed for your application.

To change your configuration variables from the factory default, see the See 600/700 Series Foundation Fieldbus instruction manual.

Foundation Fieldbus Interface Configuration

The 600/700 Series FF-BUS interface uses a MODBUS to FF-BUS translator board inside the meter. This allows the user to configure most of the variables accessible to the MODBUS interface. If changes are needed, the Transducer Block can be configured to access other Modbus variables. See the full 600/700 Series Foundation Fieldbus manual for instructions.

AI/AO Blocks

The Foundation Fieldbus transducer block (SIERRA_TB) provides four analog inputs, AI1 through AI4, and one analog output, AO (See A1/AO blocks in Table 1). These are all configurable as 16 or 32 bit integers or float data types (See Data Type in Table 1). These variables have been pre-configured as shown below in Table 1. However, the user can reconfigure them as needed.

AI/AO Blocks	Primary Value	Channel	Data Type	Analog Signal
AI1	PV1	1	32 bit float	Flow Rate
AI2	PV2	2	32 bit unsigned integer	Total
AI3	PV3	3	*	*
AI4	PV4	4	*	*
AO	Final Value	5	*	*

*Unassigned, open for customer configuration

Table 1: Factory AI/AO Blocks

MODBUS_REGS (1 through 4)

The Transducer Block also has four groups of Modbus registers that can be used for static setup inputs and outputs for variables such as Valve Power, Gas Type Index, Valve Mode, or for resetting the totalizer. This data is not cyclic as it only updates occasionally and might not be accessible to all devices on the fieldbus. The data type is unsigned short integer, Byte order 0-1. To change these, see the 600/700 Series Foundation Fieldbus manual. All the variables in Table 2 have been pre-configured to be accessible in FF-BUS.

Variable	MODBUS_REGS Group	REG_START ADDRESS	NUM_OF_REGS
User full scale	1	4	4
Factory full scale			
K factor			
Total reset			
Calibration Date, Low word	2	8	5
Calibration Date, High word			
Flow unit - char 1,2			
Flow unit - char 3,4			
Flow unit - char 5,6			
Totalizer unit- char 1,2	3	13	7
Totalizer unit- char 3,4			
Serial number – char 1,2			
Serial number – char 3,4			
Serial number – char 5,6			
Serial number – char 7,8			
Serial number – char 9,10			
Decimal Point for flow/total	4	26	1

Table 2: Factory Static Modbus Registers

Below (Figure 2) is an example of what these MODBUS_REGS_1, 2, 3, 4 actually look like on NI_FBUS Configurator. MODBUS_REGS_1 has the User full scale (15000), Factory full scale (18750), K-factor (1000=1.000), Total reset (1 returned, write 3 to reset). MODBUS_REGS_2 has the Calibration Date, low word, Calibration Date High word, and so on.

Figure 2: MODBUS_REGS_1, 2, 3, 4 values