## GE Sensing

#### Foundation Fieldbus Communications for the XMT868

# Network Connection and<br/>Factory ResetFieldbus network connections are made at J8, pins 1 and 2 (see Figure 1<br/>below). Optionally, a shield can be connected to J8 pin 3, depending on<br/>the network wiring.

No connections are made to J9 under normal operation. If it is desired to reset the network board to factory defaults:

- 1. Connect a jumper between J9 pin 2 and J9 pin 3.
- 2. Power cycle the instrument.
- **3.** Ten seconds after the power has been restored to the unit, remove the jumper to return the network board to normal operation.



Figure 1: Model XMT868 Rear View - Network Connection and Factory Reset



#### Foundation Fieldbus Communications

Foundation Fieldbus provides a means of communicating with the XMT flowmeter. The patent numbers which apply are 5,909,363 and 6,424,872.

This Foundation Fieldbus device supports 2 Analog Input (AI) blocks, which can be configured to supply the following measurements on the network.

Description	Units	Description	Units	Description	Units
Ch1 Velocity	ft/s or m/s*	Ch2 Totalizer Time	seconds	Ch1 Power	POWER_U
Ch1 Volumetric	VOL_U	Ch2 Error Value	none	Ch1 +Energy	ENERGY_U
Ch1 +Totals	TOT_U	Ch2 SSUP	none	Ch1 –Energy	ENERGY_U
Ch1 -Totals	TOT_U	Ch2 SSDN	none	Ch1 TempS	Deg F or C*
Ch1 Tot Digits**	none	Ch2 SNDSP	ft/s or m/s*	Ch1 TempR	Deg F or C*
Ch1 Totalizer Time	seconds	Avg Velocity	ft/s or m/s*	Ch1 TS-TR	Deg F or C*
Ch1 Error Value	none	Avg Volumetric	VOL_U	Ch1 DELTH	Btu/lb J/gm
Ch1 SSUP	none	Avg +Totals	TOT_U	Ch2 Power	POWER_U
Ch1 SSDN	none	Avg -Totals	TOT_U	Ch2 +Energy	ENERGY_U
Ch1 SNDSP	ft/s or m/s*	Avg Tot Digits**	none	Ch2 –Energy	ENERGY_U
Ch2 Velocity	ft/s or m/s*	Avg Totalizer Time	seconds	Ch2 TempS	Deg F or C*
Ch2 Volumetric	VOL_U	Avg Error Value	none	Ch2 TempR	Deg F or C*
Ch2 +Totals	TOT_U	Avg SSUP	none	Ch2 TS-TR	Deg F or C*
Ch2 –Totals	TOT_U	Avg SSDN	none	Ch2 DELTH	Btu/lb J/gm
Ch 2 Tot Digits**	none	Avg SNDSP	ft/s or m/s*		

#### Table 1: Available Measurements

\*Metric or English units are determined by the setup of the **XMT868** flow meter.

\*\*Totalizer digits are available for informational purposes only. Respective totals are automatically scaled by the Tot Digits value selected in the XMT flow meter setup.

VOL\_U, TOT\_U, POWER\_U and ENERGY\_U are determined by the units chosen for these measurements in the setup for the **XMT868** flow meter. See the instrument User's Manual for the setup of these parameters.

#### Configuration Utility Setup

The following is an example setup using National Instruments Configuration Utility v3.1.

Figure 2 below shows the Configuration Utility with an **XMT868** flow meter on the network (GE Flow-XMT).



Figure 2: Configuration Utility Setup Example

**Note:** *The following procedures assume that the device has been placed in the OOS (out-of-service) mode before executing.* 

#### Selecting the Desired Measurements

- To set the measurement unit for each AI:
- 1. Double click on the FLOW Transducer Block (in the tree under GEFlow-XMT).
- 2. Select the **Others** tab and open the drop down list for the PRIMARY\_SELECTOR and SECONDARY\_SELECTOR (see Figure 3 on page 4).
- **3.** Choose the unit from the list (see Figure 3 on page 4).

This unit will correspond to the unit that is available in the AI block for network connection. The PRIMARY\_SELECTOR unit will correspond to ANALOG\_INPUT\_1 and the SECONDARY\_SELECTOR will correspond to ANALOG\_INPUT\_2.

Selecting the Desired Measurements (cont.)

4. After the desired measurements have been selected for the PRIMARY and SECONDARY SELECTOR, choose the unit system (UNIT\_SELECTOR above the PRIMARY\_SELECTOR) that has been programmed in the XMT868 (English or SI).

GEFlow-XMT 000000003 : FL	00000 <u>- D X</u>				
	// 66 66 ¥e 67 %				
Periodic Lindates 2 (sec)					
Process Alarms Diagnostics II	Value				
	🛱 10.62				
	Good_NonCascade				
	NotLimited				
SECONDARY_VALUE_UNIT	0x0001				
♦ UNIT_SELECTOR	🖼 SI metric				
PRIMARY_SELECTOR					
SECONDARY_SELECTOR					
CLEAR_TOTALIZERS	CIECH1_PLUS_TOTALS				
CH1_VELOCITY					
CH1_VOLUMETRIC	CH1_ERROR_VALUE				
♦ CH1_PLUS_TOTALS	CH1_SSDN CH1_SNDSP				
♦ CH1_MINUS_TOTALS					
♦ CH1_T_DIGITS	CH2_PLUS_TOTALS				
♦ CH1_TOTALIZER_TIME					
◆ CH1_ERROR_VALUE	CH2_ERROR_VALUE				
	CH2_SSDN CH2_SNDSP				
CH1_SNDSP	AVG_PLUS_TOTALS				
CH2_VELOCITY	AVG_T_DIGITS				
CH2_VOLUMETRIC	<b>5</b> 19				

Figure 3: Primary Selector Drop Down List

#### Selecting Units for AI Blocks

To select the units for the individual AI blocks:

- 1. Double click on the AI block for which you wish to set the units (ANALOG\_INPUT\_1 or ANALOG\_INPUT\_2 in the tree under GEFlow-XMT; see Figure 2 on page 3).
- 2. Select the Scaling tab and set the unit for the measurement based on the XMT868 flow meter settings.

For example, if the **XMT868** was set to use the metric unit system and the PRIMARY\_SELECTOR was set to use VELOCITY you would choose **m/s** for the unit as shown in Figure 4 below.

GEFlow-XMT 000000003 : ANAI Apply Values	LOG_INPUT_1 0 💶 🗙				
ANALOG_INPUT_1 000	/ 🕅 🗠 🔟 🖉				
Periodic Updates 2 (sec)					
00S Auto Manual					
Diagnostics Tr Process Scaling Tun	ends Others   ing Options Alarms				
Parameter	Value				
	12 )				
	m/s				
<ul> <li>DUT_SCALE</li> <li>EU_100</li> <li>EU_0</li> <li>UNITS_INDEX</li> <li>DECIMAL</li> <li>♦ L_TYPE</li> </ul>	mvs ft/s Btu/lb *C #F Mft3/d Mm3/d MI ac-in/s ac-in/m ac-in/m				
<b>↓</b>	ac-in/d				
Write Changes	ac-tt/s ac-ft/m ac-ft/h				
	ac-ft/d Mft3 Mbbl ac-in				
	ac-ft Mgal Mgal/d Mm3 J/gm				

Figure 4: Units Index Drop Down List

#### Resetting Instrument Totalizers

To reset the instrument totalizers:

- 1. Double click on the FLOW transducer block (in the tree under GEFlow-XMT; see Figure 2 on page 3).
- **2.** Select the **Others** tab and scroll down to the CLEAR\_TOTALIZERS listing.
- 3. Select Clear from the drop down list box (see Figure 5 below).
- **4.** After the totals have been reset, select **Normal** from the drop down list box to resume total accumulation.

GEFlow-XMT 000000003 : FLO Apply Values	JW 00000 <u>- I X</u>				
FLOW 00000003 42	🥒 🕸 🐼 🔟 🕼 🏥				
Periodic Updates 2 (sec)					
00S Auto					
Process Alarms Diagnostics Tr	rends Others				
Parameter	Value				
	0 0 <b>0x0001</b> 0				
<ul> <li>➡ SECONDARY_VALUE</li> <li>➡ VALUE</li> <li>➡ STATUS</li> <li>➡ QUALITY</li> <li>➡ SUBSTATUS</li> <li>➡ LIMITS</li> </ul>	Good_NonCascade				
♦ SECONDARY_VALUE_UNIT	0x0001				
♦ UNIT_SELECTOR	📾 SI metric				
PRIMARY_SELECTOR	CH1_VELOCITY				
SECONDARY_SELECTOR	CH1_VELOCITY				
CLEAR_TOTALIZERS	Normal				
♦ CH1_VELOCITY	Normal Clear				
♦ CH1_VOLUMETRIC	<b>1263</b>				
♦ CH1_PLUS_TOTALS	Gm 441074				
← CH1_MINUS_TOTALS					
Write Changes	Pead All				
White Changes					

Figure 5: Clear Totalizers Drop Down List

### Function Block Application

Figure 6 below is an example setup using the Function Block Application editor. The **XMT868** AI blocks, along with the AO and PID of another device on the network, are displayed. We have connected the AI\_1 OUT of the **XMT868** to the CAS IN of the AO block. We have also connected the AI\_2 OUT of the **XMT868** to the CAS IN of the PID block.

- [interface0-0 : Func	tion Block Application]
ndow Help	
	Loop Time = 1 sec 🔄 Stale Limit = 1 🔄 🤗 🖡 袶 😔 🏄 🗰 🗛 🖓 🗞 🖶 🗸
0560 00560 (RB2) 000560 (UNK) 0560 (A1) 0560 (D1) (PID) 50 (AO) 00560 (D0) (UNK) 0 (UNK) (UNK)	ANALOG_INPUT_1 00000003 (AI) OUT Alarms Trends ANALOG_INPUT_2 00000003 (AI) ANALOG_INPUT_2 00000003 (AI) OUT ANALOG_INPUT_2 00000003 (AI) IN OUT Alarms Trends Alarms Trends Alarms Trends Alarms Alarms Trends Alarms Ala
1000003 (RB2) 3 (ELOW)	© GEFlow-XMT 000000003 : FLOW 000000 C ×
0003 (AI)	
0003 (AI)	Periodic Updates         2 (sec)

Figure 6: Function Block Application