PanaFlow™ Z1G/Z2G

Gas Ultrasonic Volumetric Flow Meter

User’s Manual

910-321 Rev. A
Jun 2018
[no content intended for this page]
Chapter 1. General Information

1.1 Theory of Operation ................................................................. 1
   1.1.1 Transit-Time Method ..................................................... 1
   1.1.2 Transducers ................................................................ 1

1.2 Multi-Path Design ................................................................. 1

1.3 Flow Profile ......................................................................... 1

1.4 Unpacking ........................................................................... 2

1.5 Inspection ........................................................................... 2

1.6 Meter Components ............................................................. 2

1.7 Tag Plates ........................................................................... 4
   1.7.1 Model Tag Plate ............................................................ 4
   1.7.2 Specification Tag Plate ................................................ 4
   1.7.3 Part String and Serial Number Tag Plate ...................... 5
   1.7.4 Transmitter Tag Plate .................................................. 5

Chapter 2. Installation

2.1 Introduction ......................................................................... 7

2.2 Lifting Instructions .............................................................. 7

2.3 Flowcell Location Guidelines ............................................. 9

2.4 Making the Electrical Connections .................................... 10
   2.4.1 Wiring the Line Power .................................................. 11
   2.4.2 Wiring the Transducers ................................................ 12
   2.4.3 Wiring the Standard 4-20 mA Analog Outputs .................. 12
   2.4.4 Wiring the Standard RS485 Serial Port ......................... 13
   2.4.5 Wiring the Option Cards ............................................... 13

Chapter 3. Initial Setup

3.1 Introduction ......................................................................... 21

3.2 Programming Methods ...................................................... 21

3.3 The Magnetic Keypad ......................................................... 22

3.4 Initial Power On Screens .................................................... 23

3.5 Entering Data in the GLOBL Menu ..................................... 24
   3.5.1 Entering Global System Data ....................................... 24
   3.5.2 Selecting Volumetric Units .......................................... 25
   3.5.3 Selecting Totalizer Units ............................................. 25
Product Registration

Thank you for purchasing your PanaFlow™ Z1G/Z2G Process Gas FlowMeter from Baker Hughes, a GE Company. Please register your product at www.gemeasurement.com/productregistration for product support such as the latest software/firmware upgrades, product information and special promotions.

Services

BHGE provides customers with an experienced staff of customer support personnel ready to respond to technical inquiries, as well as other remote and on-site support needs. To complement our broad portfolio of industry-leading solutions, we offer several types of flexible and scalable support services including: Training, Product Repairs, Extended Warranties, Service Agreements and more. Please visit www.gemeasurement.com/services for more details.

Terms and Conditions

Sales Terms and Conditions for your recent purchase of a BHGE product, including the applicable product Warranty, can be found on our website at the following link: www.gemeasurement.com/sales-terms-and-conditions

Typographical Conventions

Note: These paragraphs provide information that provides a deeper understanding of the situation, but is not essential to the proper completion of the instructions.

IMPORTANT: These paragraphs provide information that emphasizes instructions that are essential to proper setup of the equipment. Failure to follow these instructions carefully may cause unreliable performance.

CAUTION! This symbol indicates a risk of potential minor personal injury and/or severe damage to the equipment, unless these instructions are followed carefully.

WARNING! This symbol indicates a risk of potential serious personal injury, unless these instructions are followed carefully.

Safety Issues

WARNING! It is the responsibility of the user to make sure all local, county, state and national codes, regulations, rules and laws related to safety and safe operating conditions are met for each installation.

Attention European Customers! To meet CE Mark requirements for all units intended for use in the EU, all electrical cables must be installed as described in this manual.
Auxiliary Equipment

Local Safety Standards

The user must make sure that he operates all auxiliary equipment in accordance with local codes, standards, regulations, or laws applicable to safety.

Working Area

WARNING! Auxiliary equipment may have both manual and automatic modes of operation. As equipment can move suddenly and without warning, do not enter the work cell of this equipment during automatic operation, and do not enter the work envelope of this equipment during manual operation. If you do, serious injury can result.

WARNING! Make sure that power to the auxiliary equipment is turned OFF and locked out before you perform maintenance procedures on this equipment.

Qualification of Personnel

Make sure that all personnel have manufacturer-approved training applicable to the auxiliary equipment.

Personal Safety Equipment

Make sure that operators and maintenance personnel have all safety equipment applicable to the auxiliary equipment. Examples include safety glasses, protective headgear, safety shoes, etc.

Unauthorized Operation

Make sure that unauthorized personnel cannot gain access to the operation of the equipment.
Environmental Compliance

RoHS


Waste Electrical and Electronic Equipment (WEEE) Directive

BHGE is an active participant in Europe's Waste Electrical and Electronic Equipment (WEEE) take-back initiative (Directive 2012/19/EU).

The equipment that you bought has required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment.

In order to avoid the dissemination of those substances in our environment and to diminish the pressure on the natural resources, we encourage you to use the appropriate take-back systems. Those systems will reuse or recycle most of the materials of your end life equipment in a sound way.

The crossed-out wheeled bin symbol invites you to use those systems.

If you need more information on the collection, reuse and recycling systems, please contact your local or regional waste administration.

Please visit http://www.gemeasurement.com/environmental-health-safety-ehs for take-back instructions and more information about this initiative.
Chapter 1. General Information

1.1 Theory of Operation


1.1.1 Transit-Time Method

The transit time technique uses a pair of transducers, with each transducer alternately sending and receiving coded ultrasonic signals through the fluid. When the fluid is flowing, signal transit time in the downstream direction is shorter than in the upstream direction. The difference between these transit times is proportional to the flow velocity. The PanaFlow Z1G/Z2G Process Gas Flowmeter measures this very small time difference and, using various digital signal processing techniques combined with programmed pipe parameters, determines the flow rate and direction.

1.1.2 Transducers

When in a transmit cycle, transducers convert electrical energy into ultrasonic pulses and then convert the ultrasonic pulses back to electrical energy when in a receive cycle. In other words, they act like loudspeakers when transmitting the signal and like microphones when receiving it. They perform the actual data transmission and collection, thus interrogating the flow.

1.2 Multi-Path Design

Multi-path ultrasonic flow meters are designed to accommodate more than one pair of transducers to interrogate the flow field in different locations and more accurately determine the actual flow rate. The PanaFlow Z1G/Z2G Process Gas Flowmeter system is available in either a 1-Path or 2-Path configuration. For the 2-Path configuration, the measurement paths are located either at Diametrical path or at Midradius configurations. In addition to the flow transducers, the PanaFlow Z1G/Z2G Process Gas Flowmeter can be fitted with optional temperature and pressure transducers to permit mass flow measurements.

1.3 Flow Profile

One of the main factors affecting an ultrasonic flow measurement is the flow profile. If the flow profile is known, mathematical modeling of the flow and the relationships between the raw data of the two paths can be made. Maintaining a constant flow-profile shape across all flow velocities, pipe sizes and upstream flow disturbances can be difficult. For this reason, BHGE has tested the PanaFlow Z1G/Z2G Process Gas Flowmeter under various conditions in an effort to determine its operational limits.
Chapter 1. General Information

1.4 Unpacking

The PanaFlow Z1G/Z2G Process Gas Flowmeter is typically packaged in a wooden crate, the size of which will depend on the size of product ordered. The flowcell is secured by several 2x4 wood blocks to prevent shifting during transit. Simply remove these 2x4 braces to unpack the system. For local-mount systems the transmitter electronics enclosure is installed directly on top of the flowcell via an adapter. For remote-mount systems the transmitter electronics enclosure and the remote cable may ship in a separate package.

1.5 Inspection

Prior to installation, inspect all materials to be used in the installation:

- **Gaskets** - check for cracks, tears and over compression
- **Nuts and Bolts** - check for damaged threads and for debris
- **RF Flange Faces** - check for damage to serrations that may cause gaskets to not seal properly.

In general, check for anything that may prevent safe operation of the equipment.

**IMPORTANT:** If pipes are shipped pre-assembled as a single section, care should be taken to inspect and check the bolts and gaskets.

1.6 Meter Components

*Figure 1 on page 3 shows a PanaFlow Z1G/Z2G Process Gas Flowmeter system, with the items described in Table 1 below.*

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Meter Body with Flanges (material list WCB: LCB: CF8: CF8M: CK3MCuN: CD3MWCuN)</td>
</tr>
<tr>
<td>2</td>
<td>Transmitter Electronics</td>
</tr>
<tr>
<td>3</td>
<td>Magnetic Stylus (for Transmitter Keypad)</td>
</tr>
<tr>
<td>4</td>
<td>Mounting Adapter, Transmitter (for local mount only)</td>
</tr>
<tr>
<td>5</td>
<td>Transducers/Inserts</td>
</tr>
</tbody>
</table>

The meter body with Flanges together is called as Flowcell or Spool.
1.6 Meter Components (cont.)

![Typical PanaFlow Z1G/Z2G Process Gas Flowmeter Assembly](image)

**Figure 1: Typical PanaFlow Z1G/Z2G Process Gas Flowmeter Assembly**

**Note:** Design details may vary slightly with pipe size.
1.7 Tag Plates

The PanaFlow Z1G/Z2G Process Gas Flowmeter is marked with a variety of labels which provide valuable information about your specific system. Examples of typical flowcell tag plates are shown in the following sections.

1.7.1 Model Tag Plate

The Model Tag Plate (see Figure 2 below) contains the model name and certification markings for the spool and its hazardous area usage.

![Figure 2: Model Tag Plate](image)

1.7.2 Specification Tag Plate

The Specification Tag Plate (see Figure 3 below) contains information pertaining to the build and test of the spool, such as spool nominal size, flange rating, wall thickness, material, dry weight (including transmitter), vessel manufacturing serial number, ambient and fluid temperature ranges, operating pressures, hydro test pressure and date.

![Figure 3: Specification Tag Plate](image)
1.7.3 Part String and Serial Number Tag Plate

The **Part String and Serial Number Tag** (see Figure 4 below) contains the specific configuration of the spool as well as the final assembly date, BHGE serial number and customer tag number.

![Figure 4: Part String and SN Tag Plate](image)

1.7.4 Transmitter Tag Plate

The **Flow Transmitter Tag Plate** (see Figure 5 below) is affixed to the transmitter and includes the configuration per the model information detailed on the Model Tag Plate. This tag plate also contains the hazardous area certification information for the transmitter.

![Figure 5: Flow Transmitter Tag Plate](image)
[no content intended for this page]
Chapter 2. Installation

2.1 Introduction

To ensure safe and reliable operation of the PanaFlow Z1G/Z2G Process Gas Flowmeter, the system must be installed in accordance with the guidelines established by BHGE engineers. Those guidelines are explained in detail in this chapter.

**WARNING!** The PanaFlow Z1G/Z2G Process Gas Flowmeter can measure the flow rate of many gases, some of which are potentially hazardous. In such cases, the importance of proper safety practices cannot be overemphasized.

Be sure to follow all applicable local safety codes and regulations for installing electrical equipment and working with hazardous gases or flow conditions. Consult company safety personnel or local safety authorities to verify the safety of any procedure or practice.

**Attention!** To meet CE Mark requirements for all units intended for use in the EU or in high electrical noise environments, all electrical cables must be installed as described in Appendix A, “CE Mark Compliance and High Noise Environments”.

2.2 Lifting Instructions

Use proper lifting techniques when moving the PanaFlow Z1G/Z2G Process Gas Flowmeter. No lifting hooks or eyelets are provided. The recommended method for lifting the PanaFlow Z1G/Z2G Process Gas Flowmeter is by using lifting straps on each side of the spool with a stabilizer bar between them, located above the transmitter head. Additional care may need to be taken to prevent the transmitter from rotating, especially on the smaller systems where the transmitter weight is a larger percentage of the total system weight. A label similar to Figure 6 below, which illustrates these required precautions, is attached to the flowcell.

![Figure 6: Spoolpiece Lifting Label (ref. dwg. 442-1232)](image-url)
2.2 Lifting Instructions (cont.)

While lifting the *PanaFlow Z1G/Z2G Process Gas Flowmeter*, be sure to observe the warnings and figures below:

**WARNING!** Never stand below any object being lifted.

![Figure 7: Proper Lifting Method](image)

**WARNING!** Do not use the transmitter to support the weight of the flowcell as shown in Figure 8 below. The transmitter cannot support the weight of the Flowcell/Spool.
2.3 Flowcell Location Guidelines

The flowcell includes the flow transducers and, optionally, pressure and temperature transmitters. Ideally, install the flowcell in a section of pipe with access to the flowcell, such as a long run of pipe that is above ground. Observe the following recommendations:

- There should be at least 20 pipe diameters of straight, undisturbed flow upstream and 10 pipe diameters of straight, undisturbed flow downstream from the measurement point. To ensure undisturbed flow, avoid sources of disturbances in the fluid such as valves, flanges, expansions, and elbows.

- Because condensate or sediment at the bottom of the pipe may cause attenuation of the ultrasonic signal, always install the PanaFlow Z1G/Z2G Process Gas Flowmeter with the transmitter in a vertical orientation on the top of the pipe. This ensures that the transducers are located on the sides of the pipe rather than on the top or bottom.

- Only authorized personnel should perform the installation. The proper personal protection equipment (PPE) should always be used when working with this equipment.

- The flowcell shall be installed in such a way that it can be safely operated, maintained and inspected. Please refer to specific outline and installation drawings for proper clearances and specific distances for each system size. In general, allow for a minimum of 12” of space on all sides of the flowcell and flow transmitter, with an ideal clearance of 24” on all sides.

- You must provide suitable over-pressure protection at the main piping to the flowcell in order to prevent damage to the flowcell and injury to personnel. The utilized over-pressure protection device shall be supplied with all declarations of conformity and EC-type design certificates.
- Make sure the difference between the inside diameter of the pipe and that of the PanaFlow Z1G/Z2G Process Gas Flowmeter does not exceed 0.5%, as changes in internal diameters will cause flow profile disturbances.

- Make sure any non-symmetrical offset does not exceed 1%, as misalignment between the piping and the meter may cause flow profile disturbances.

- Make sure the gasket is centered on the flange faces and does not protrude into the pipe, as protrusion of the gasket into the pipe may cause flow profile disturbances.

- If pipe insulation is required, install all insulation materials and accessories in accordance with the manufacturer's instructions and recognized industry practices. Adhere to the local code where applicable to ensure that the safe and proper installation will serve its intended purpose.

### 2.4 Making the Electrical Connections

This section contains instructions for making all the necessary electrical connections to the PanaFlow Z1G/Z2G Process Gas Flowmeter. Refer to Figure 13 on page 19 for a complete wiring diagram.

**Note:** Except for the power connector, all electrical connectors are stored on their terminal blocks during shipment and may be removed from the enclosure for more convenient wiring. Simply, feed the cables through the conduit holes on the side of the enclosure, attach the wires to the appropriate connectors, and plug the connectors back into their terminal blocks.

To prepare the PanaFlow Z1G/Z2G Process Gas Flowmeter for wiring, refer to Figure 9 below, and complete the following steps:
**WARNING!** Always disconnect the line power from the PanaFlow Z1G/Z2G Process Gas Flowmeter electronics before removing either the front or rear cover. This is especially important in a hazardous environment.

1. Disconnect any existing power line from its source.
2. Loosen the set screw on the rear cover.
3. Place a rod or long screwdriver across the cover in the slots provided, and rotate the cover counterclockwise until it comes free from the enclosure.
4. Install any required cable clamps in the appropriate conduit holes around the side of the enclosure.
5. Refer to the labels inside the rear cover to assist in making the power and option card connections. Also, *Figure 14 on page 20* shows the specific connection labels for all available option cards.

### 2.4.1 Wiring the Line Power

The *PanaFlow Z1G/Z2G Process Gas Flowmeter* may be ordered for operation with power inputs of either 85-240 VAC (standard) or 12-28 VDC (optional). The tag plate on the side of the electronics enclosure lists the required line voltage and the power rating. Be sure to connect the meter only to the specified line voltage.

**WARNING!** Proper grounding of the PanaFlow Z1G/Z2G Process Gas Flowmeter is required to prevent the possibility of electric shock. See *Figure 11 on page 17* for the location of the chassis grounding screw.

**WARNING!** For compliance with the European Union’s Low Voltage Directive, this unit requires an external power disconnect device such as a switch or circuit breaker. The disconnect device must be marked as such, clearly visible, directly accessible, and located within 1.8 m (6 ft) of the meter.

**WARNING!** Improper connection of the line power leads or connecting the meter to the incorrect line voltage may damage the unit. It may also result in hazardous voltages at the flowcell and associated piping as well as within the electronics enclosure.

Refer to *Figure 13 on page 19* to locate the correct terminal block, and connect the line power as follows:

1. Prepare the line power leads by trimming the line and neutral AC power leads (or the positive and negative DC power leads) to a length 0.5 in. (1 cm) shorter than the ground lead. This ensures that the ground lead is the last to detach if the power cable is forcibly disconnected from the meter.
2. Install a cable clamp in the conduit hole closest to the power terminal block. Avoid using the other conduit holes for this purpose to minimize any interference in the circuitry from the AC power line.
3. Strip 1/4 in. of insulation from the end of each of the three power line leads.
4. Route the cable through the conduit hole and connect the line power leads to the terminal block, using the pin number assignments shown in *Figure 13 on page 19*.
5. Leaving a bit of slack, secure the power line with the cable clamp.
Chapter 2. Installation

2.4.2 Wiring the Transducers

Procedurally, wiring a PanaFlow Z1G/Z2G Process Gas Flowmeter system with the flow transmitter mounted on the flowcell, no external transducer wiring is required. However, for a system with a remote mounted flow transmitter, refer to the wiring diagram in Figure 12 on page 18 to connect the transducers and preamplifiers to the transmitter.

2.4.3 Wiring the Standard 4-20 mA Analog Outputs

The standard configuration of the PanaFlow Z1G/Z2G Process Gas Flowmeter includes two isolated 4-20 mA analog outputs (designated as outputs 1 and 2). Connections to these outputs may be made with standard twisted-pair wiring, but the current loop impedance for these circuits must not exceed 600 Ω.

To wire the analog outputs, complete the following steps:

1. Disconnect the main power and remove the rear cover.
2. Install a cable clamp in the chosen conduit hole on the side of the electronics enclosure.
3. Refer to Figure 13 on page 19 to locate the correct terminal block, and wire the analog outputs as shown. Secure the cable clamp.

Attention: Analog outputs 1 and 2 in the wiring diagram correspond to analog outputs A and B in Slot 0 in the Panaview software.

4. If wiring of the unit has been completed, reinstall the rear cover on the enclosure and tighten the set screw.

WARNING! Make sure both covers, with their o-ring seals, are installed and the set screws tightened before applying power in a hazardous environment.
**Note:** Prior to use, the analog outputs must be set up and calibrated.

Proceed to the next section to continue the wiring of the *PanaFlow Z1G/Z2G Process Gas Flowmeter*.

### 2.4.4 Wiring the Standard RS485 Serial Port

The *PanaFlow Z1G/Z2G Process Gas Flowmeter* is equipped with a standard RS485 serial interface. This serial port will be used to communicate with PC/DCS system. In addition, the *PanaFlow Z1G/Z2G Process Gas Flowmeter* can receive and execute remote commands, using BHGE’s *PanaView* software.

**Note:** For more detailed information on serial communications refer to BHGE’s EIA-RS Serial Communications manual (document #916-054).

**Attention!** To meet CE Mark requirements for all units intended for use in the EU or in high electrical noise environments, all electrical cables must be installed as described in Appendix A, “CE Mark Compliance and High Noise Environments”.

Refer to *Figure 13 on page 19* to locate the correct terminal block, and wire the RS485 serial port as follows:

**WARNING!** Always disconnect the line power from the *PanaFlow Z1G/Z2G Process Gas Flowmeter* electronics before removing either the front or rear cover. This is especially important in a hazardous environment.

1. Disconnect the main power and remove the rear cover.
2. Install the required cable clamp in the chosen conduit hole on the side of the electronics enclosure.
3. Feed one end of the cable through the conduit hole, wire it to terminal block, and secure the cable clamp. Use the information in *Table 2* below to prepare a suitable cable for connecting the *PanaFlow Z1G/Z2G Process Gas Flowmeter* to the external serial device.

<table>
<thead>
<tr>
<th>TB Pin #</th>
<th>Signal Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RS485+</td>
</tr>
<tr>
<td>2</td>
<td>RS485-</td>
</tr>
<tr>
<td>3</td>
<td>COM</td>
</tr>
<tr>
<td>4</td>
<td>Not Used</td>
</tr>
<tr>
<td>5</td>
<td>Not Used</td>
</tr>
</tbody>
</table>

4. If wiring of the unit has been completed, reinstall the rear cover on the enclosure and tighten the set screw.

Proceed to the next section to continue the wiring of the *PanaFlow Z1G/Z2G Process Gas Flowmeter*.

### 2.4.5 Wiring the Option Cards

The *PanaFlow Z1G/Z2G Process Gas Flowmeter* can accommodate two option cards one in Slot 1 and other option card in Slot 2. The following option card functions are available only in certain combinations.
• Analog Inputs (Slot 1)
• RTD Inputs (Slot 1)
• Modbus Communications (Slot 2)
• HART Communications (Slot 2)
• Foundation Fieldbus Communications (Slot 2)

*Figure 14 on page 20* shows the connection labels for the available option cards. Wiring any option card installed in Slot 1 requires completion of the following steps:

1. Disconnect the main power and remove the rear cover.

2. Install a cable clamp in the chosen conduit hole on the side of the electronics enclosure and feed a standard twisted-pair cable through this conduit hole.

3. Locate the 12-pin terminal block in *Figure 13 on page 19* and wire the option card as indicated on the label inside the rear cover (see *Figure 9 on page 10*). Secure the cable clamp.

**IMPORTANT:** If you have multiple flow transmitters, because of the attached wiring label, all rear covers must remain with their original meters!

4. If wiring of the unit has been completed, reinstall the rear cover on the enclosure and tighten the set screw.

**IMPORTANT:** Prior to use, the option card must be set up and calibrated.

For more specific instructions on particular option cards, proceed to the appropriate section(s) that follow.

---

**Attention!** To meet CE Mark requirements for all units intended for use in the EU or in high electrical noise environments, all electrical cables must be installed as described in Appendix A, “CE Mark Compliance and High Noise Environments”.

---
2.4.5.1 Wiring a 4-20 mA Analog Inputs Option Card

To calculate standard flow rates, the PanaFlow Z1G/Z2G Process Gas Flowmeter requires accurate temperature and pressure data from the measurement site. Transmitters installed in the flowcell can provide this information via an optional 4-20 mA analog inputs option card. This option card includes two or four isolated 4-20 mA analog inputs (designated as A, B, C and D), each of which includes a 24 VDC power supply for loop-powered transmitters. Either input may be used to process the temperature signal, while the other input is used to process the pressure signal.

**IMPORTANT:** To properly enter programming data into the meter, it is necessary to know which input is assigned to which process parameter.

The analog inputs, which have an impedance of 118 Ω, should be connected with standard twisted-pair wiring. Power to the transmitters may be supplied either by the integral 24 VDC power supply on the analog input option card or by an external power supply. Figure 10 below shows typical wiring diagrams, with and without an external power supply, for one of the analog inputs.

![Figure 10: Typical Analog Input Wiring Diagrams](image)

Before making any connections, complete the steps in “Making the Electrical Connections” on page 10. Then, wire the analog inputs as shown on the label in the rear cover (see Figure 9 on page 10).

**IMPORTANT:** The analog inputs option card can be calibrated with the PanaFlow Z1G/Z2G Process Gas Flowmeter’s built-in analog outputs. However, be certain that the analog outputs have been calibrated first.
2.4.5.2 Wiring an RTD Inputs Option Card

The PanaFlow Z1G/Z2G Process Gas Flowmeter RTD inputs option card provides two or four direct RTD inputs (designated as A, B, C and D). Each RTD input requires three wires, and should be connected as shown on the label in the rear cover (see Figure 9 on page 10).

Before making any connections, complete the steps in “Making the Electrical Connections” on page 10.

2.4.5.3 Wiring a Modbus Option Card

A Modbus option card uses the RS485 standard for communication, and it must be installed in Slot 2. The RS485 standard allows up to 32 nodes (drivers and receivers) on one multi-drop network, at distances up to 4000 ft (1200 m). BHGE recommends using 24-gauge (24 AWG) twisted-pair wire with a characteristic impedance of 120 Ω and 120 Ω termination at each end of the communications line.

Note: The Modbus option card provides its own RS485 connections.

2.4.5.4 Wiring The HART Interface

To connect the HART interface, refer to Figure 13 on page 19 and proceed as follows:

1. Connect the HART Net (+) wire to pin #1.
2. Connect the HART Net (-) wire to pin #2.
3. Connect the optional cable shield to pin #3.

2.4.5.5 Wiring the Foundation Fieldbus Interface

To connect the Foundation Fieldbus interface, refer to Figure 13 on page 19 and proceed as follows:

1. Connect the Fieldbus Net (+) wire to pin #1.
2. Connect the Fieldbus Net (-) wire to pin #2.
3. Connect the optional cable shield to pin #3.

! WARNING! Make sure both covers, with their o-ring seals, are installed and the set screws tightened before applying power in a hazardous environment.
Chapter 2. Installation

NOTES:
1. ALL DIMENSIONS ARE REFERENCE.
2. WEIGHT: 10 LB (4.5 KG) AL
   25 LB (11.5 KG) SS
3. DIMENSIONS ARE IN INCHES (MILLIMETERS).

Figure 11: Transmitter Electronics Enclosure - Outline & Dimensions (ref. dwg. 712-1318)
Figure 12: Remote Mount Electronics - Transducer and Preamplifier Wiring (ref. dwg. 702-731, 732)
Figure 13: Transmitter Electronics - Wiring Diagram (ref. dwg. #702-1846)
### Figure 14: Labels - Option Card Connections

<table>
<thead>
<tr>
<th>Pin 1</th>
<th>Pin 2</th>
<th>Pin 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUT A</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>I/O A</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>OUT B</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>I/O B</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>OUT C</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>Input C</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>OUT D</td>
<td>NC</td>
<td>NC</td>
</tr>
<tr>
<td>Input D</td>
<td>NC</td>
<td>NC</td>
</tr>
</tbody>
</table>

**NOTE:**
- R = RTD Input
- A = Standard Alarm
- H = Hermetic Alarm
- F = Frequency Output
- T = Totalizer Output
- I = Current Input
- C = Current Output
- O = Blank/No Connection
Chapter 3. Initial Setup

3.1 Introduction

This chapter provides instructions for programming the data required to place the PanaFlow Z1G/Z2G Process Gas Flowmeter into operation. Before the PanaFlow Z1G/Z2G Process Gas Flowmeter can begin taking measurements and displaying valid data, the current system and pipe parameters must be entered. Additional programming options provide access to the more advanced features of the PanaFlow Z1G/Z2G Process Gas Flowmeter, but this information is not required to begin taking measurements.

Note: Be sure to record all programming data in Appendix B, “Gas Process Flowmeter Service Record”.

As a guide in following the programming instructions in this chapter, see Figure 16 on page 31 for the relevant portions of the PanaFlow Z1G/Z2G Process Gas Flowmeter menu map.

3.2 Programming Methods

You can program the PanaFlow Z1G/Z2G Process Gas Flowmeter with the magnetic keypad on the electronics enclosure, or with PanaView™, BHGE’s PC-based non-resident software program that communicates with the PanaFlow Z1G/Z2G Process Gas Flowmeter via its serial port. PanaView provides additional programming capabilities, such as:

- Load and save site file data
- Create and save graph and log files
- Display text output and graphs of live measurement data
- Create custom templates for displaying text, graph, and log data
- Interface with multiple BHGE instruments.

This chapter focuses on programming via the magnetic keypad. For information on programming the PanaFlow Z1G/Z2G Process Gas Flowmeter via PanaView, refer to the PanaView User’s Manual (BHGE document #910-211).
3.3 The Magnetic Keypad

The glass window on the electronics enclosure includes the components shown in Figure 15 below.

![Figure 15: Display and Magnetic Keypad](image)

**IMPORTANT:** The PanaFlow Z1G/Z2G Process Gas Flowmeter magnetic keypad enables programming of the instrument through the glass faceplate without removing the cover. Thus, all programming procedures may be performed while the unit is installed in a hazardous area.

The six keys on the magnetic keypad (see Table 3 below) enable users to program the PanaFlow Z1G/Z2G Process Gas Flowmeter.

<table>
<thead>
<tr>
<th>Key</th>
<th>Key Name</th>
<th>Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>✗</td>
<td>Escape Key</td>
<td>To cancel a numeric entry change, or exit a menu or as Back key</td>
</tr>
<tr>
<td>✔</td>
<td>Enter Key</td>
<td>To accept a numeric entry or select a menu option</td>
</tr>
<tr>
<td>◀</td>
<td>Left Arrow Key</td>
<td>To navigate among menu choices or to set cursor position</td>
</tr>
<tr>
<td>▶</td>
<td>Right Arrow Key</td>
<td>To navigate among menu choices or to set cursor position</td>
</tr>
<tr>
<td>▲</td>
<td>Up Arrow Key</td>
<td>To navigate among menu choices or to Increment numeric entries</td>
</tr>
<tr>
<td>▼</td>
<td>Down Arrow Key</td>
<td>To navigate among menu choices or to Decrement numeric entries</td>
</tr>
</tbody>
</table>
### 3.4 Initial Power On Screens

When you power On the PanaFlow Z1G/Z2G Process Gas Flowmeter, the display first shows the model name and software version:

![Model Name and Software Version]

The meter then starts to display measured parameters.

![Measured Parameters]

To enter the Keypad Program, press the [X] key, followed by the [✓] key, and the [X] key again. Each successive key must be entered within 10 seconds of the prior key.

As a guide in following the programming instructions in this chapter, the relevant portions of the PanaFlow Z1G/Z2G Process Gas Flowmeter menu map can be found in Figure 16 on page 31. Proceed to the following sections to enter data in the Channel or GLOBL menus.

**IMPORTANT:** If the keypad has not been pressed for 10 minutes, the PanaFlow Z1G/Z2G Process Gas Flowmeter exits the Keypad Program and returns to displaying measurements. The meter retains any configuration changes that were confirmed with the [✓] key, and restarts as if the programming had been completed.
3.5 Entering Data in the GLOBL Menu

To begin programming your meter, you must select the system units from the GLOBL menu as discussed below. Refer to Figure 16 on page 31 and remember to record all programming data in Appendix B, “Gas Process Flowmeter Service Record”.

3.5.1 Entering Global System Data

The GLOBL-SYSTM submenu is used to enter several general system parameters (e.g., English or metric units). For meters with 2 channels, this menu is also used to compute parameters such as the sum, difference or average of the channel 1 and channel 2 signals. When calculating the SUM, DIF or AVE readouts, data from the GLOBL-SYSTM submenu is used. Any conflicting data entered in the CHANNEL-SYSTM submenu is overridden. Complete the following steps:

1. In the Keypad Program, scroll to PROG and press [✓].
2. In the PROG menu, scroll to GLOBL and press [✓].
3. In the Global PROGRAM menu, scroll to SYSTM and press [✓].
4. Scroll to the desired System Units selection (either metric or English) and press [✓] to display all parameters and measurements in the designated units.
5. Scroll to the desired Pressure Units selection (absolute or gauge) and press [✓].
6. Do one of the following:
   • If PSIa (absolute) was selected, skip this step.
   • If PSIg (gauge) was selected, enter the desired atmospheric pressure and press [✓].
7. The program automatically returns to the Global PROGRAM menu.
3.5.2 Selecting Volumetric Units

1. Scroll to the desired Volumetric Units for the flow rate display and press [✓]. Table 4 below lists the available volumetric units.

<table>
<thead>
<tr>
<th>English</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACF = Actual Cubic Feet</td>
<td>ACM = Actual Cubic Meters</td>
</tr>
<tr>
<td>KACF = Thousands of ACF</td>
<td>KACM = Thousands of ACM</td>
</tr>
<tr>
<td>MMACF = Millions of ACF</td>
<td>MMACM = Millions of ACM</td>
</tr>
<tr>
<td>SCF = Standard Cubic Feet</td>
<td>SCM = Standard Cubic Meters</td>
</tr>
<tr>
<td>KSCF = Thousands of SCF</td>
<td>KSCM = Thousands of SCM</td>
</tr>
<tr>
<td>MMSCF = Millions of SCF</td>
<td>MMSCM = Millions of SCM</td>
</tr>
</tbody>
</table>

2. Scroll to the desired unit of Volumetric Time (from seconds to days) and press [✓].

3. Scroll to the desired number of Vol Decimal Digits (digits to the right of the decimal point) in the volumetric flow display and press [✓].

3.5.3 Selecting Totalizer Units

4. Scroll to the desired Totalizer Units for the flow rate display and press [✓]. Available units are listed in Table 4 above.

5. Scroll to the desired number of Tot Decimal Digits (digits to the right of the decimal point in the totalized flow rate display) and press [✓].

6. Do one of the following:
   - If MASS FLOW is ON, proceed to “Selecting Mass Flow Units” on page 26.
   - If MASS FLOW is OFF, the meter returns to the Global PROGRAM window. Press [✗] twice and proceed to Chapter 4, “Operation”.

Note: The following prompts appear only if Mass Flow is activated for both channels.
3.5.4 Selecting Mass Flow Units

1. Scroll to the desired Mass Flow units for the flow rate display and press [✓]. The available units for this prompt are determined by the selection made at the System Units screen. See Table 5 below for the available units.

<table>
<thead>
<tr>
<th>Table 5: Available Mass Flow Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>English</strong></td>
</tr>
<tr>
<td>LB = Pounds</td>
</tr>
<tr>
<td>KLB = Thousands of LB</td>
</tr>
<tr>
<td>MMLB = Millions of LB</td>
</tr>
<tr>
<td>Tons (2000 LB)</td>
</tr>
</tbody>
</table>

2. Scroll to the desired Mass Flow Time units for the mass flow rate display (from seconds to days) and press [✓].

3. Scroll to the desired number of Mdot Dec. Digits (digits to the right of the decimal point in the mass flow rate display) and press [✓].

4. Scroll to the desired Mass (Totalizer) units for the totalized mass flow rate display and press [✓]. The available units for this prompt are determined by the selection made at the System Units prompt.

5. Scroll to the desired number of Mass Dec. Digits (digits to the right of the decimal point in the totalized mass flow rate display) and press [✓].

6. After completing the above steps, the PanaFlow Z1G/Z2G Process Gas Flowmeter returns to the Global PROGRAM window. Press [×] and scroll to CH1 or CH2 to continue the initial setup programming.
3.6 Activating a Channel

The Channelx-ACTIV submenu permits selection of the desired measurement method. In addition, it is used to activate/deactivate one or both of the channels in a 2-Channel PanaFlow Z1G/Z2G Process Gas Flowmeter.

To access the Channelx-ACTIV submenu, proceed as follows:

1. From the Keypad Program, scroll to CH1 or CH2 and press [✓].
2. In the Channel PROGRAM menu, scroll to ACTIV and press [✓].
3. Scroll to Burst to activate the channel/path, and press [✓].

Note: Burst is automatically selected for a 1-Channel meter.

4. Scroll to one of the measurement methods described below and press [✓].
   - Skan Only is the preferred technique for locating the acoustic signal and for high velocity measurements. It is more robust in a noisy environment than the Measure technique.
   - Skan/Measure is the preferred technique to use for low velocity measurements.

If Skan Only is selected at the above prompt, the meter uses this technique exclusively. However, if Skan/Measure is selected, the meter uses Skan Only to find the acoustic signal and then tries to use the Skan/Measure technique for the actual measurement.

After completing the above step, the meter returns to the Channel PROGRAM menu. Proceed to the next section to continue programming your meter.
3.7  Entering System Data for a Channel

The Channelx-System submenu is used to enter system parameters for the channel.

### 3.7.1 Accessing the Channelx-System Submenu

1. From the Channel PROGRAM menu, scroll to SYSTM and press [✓].
2. The first prompt asks for the Channel Label. Use the four arrow keys to enter the desired label (in any numeric or text combination up to five characters), and then press [✓].
3. The next prompt asks for the Channel (Site) Message. Enter the desired text in the same manner as the channel label with up to 15 characters, and then press [✓].

### 3.7.2 Selecting Volumetric Units

1. Scroll to the desired Volumetric Units for the flow rate display and press [✓]. The available units are listed in Table 6 below.
2. Scroll to the desired Volumetric Time units for the flow rate display (from seconds to days) and press [✓].
3. Scroll to the desired number of Vol Decimal Digits (digits to the right of the decimal point in the volumetric flow rate display) and press [✓].

### Table 6: Available Volumetric/Totalizer Units

<table>
<thead>
<tr>
<th>English</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACF = Actual Cubic Feet</td>
<td>ACM = Actual Cubic Meters</td>
</tr>
<tr>
<td>KACF = Thousands of ACF</td>
<td>KACM = Thousands of ACM</td>
</tr>
<tr>
<td>MMACF = Millions of ACF</td>
<td>MMACM = Millions of ACM</td>
</tr>
<tr>
<td>SCF = Standard Cubic Feet</td>
<td>SCM = Standard Cubic Meters</td>
</tr>
<tr>
<td>KSCF = Thousands of SCF</td>
<td>KSCM = Thousands of SCM</td>
</tr>
<tr>
<td>MMSCF = Millions of SCF</td>
<td>MMSCM = Millions of SCM</td>
</tr>
</tbody>
</table>

### 3.7.3 Selecting Totalizer Units

1. Scroll to the desired Totalizer Units for the totalized flow rate display and press [✓]. The available units are listed in Table 6 above.
2. Scroll to the desired number of Tot Decimal Digits (digits to the right of the decimal point in the totalized flow rate display) and press [✓].
3. Do one of the following:
   - If MASS FLOW is ON, proceed to “Selecting Mass Flow Units” on page 29.
   - If MASS FLOW is OFF, the meter returns to the Channel PROGRAM menu.
3.7.4 Selecting Mass Flow Units

1. Scroll to the desired Mass Flow units for the flow rate display and press [✓]. The available units for this prompt are determined by the selection made at the System Units prompt (see Table 7 below).

<table>
<thead>
<tr>
<th>English</th>
<th>Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>LB = Pounds</td>
<td>Kilograms</td>
</tr>
<tr>
<td>KLB = Thousands of LB</td>
<td>Metric Tons (1000 KG)</td>
</tr>
<tr>
<td>MMLB = Millions of LB</td>
<td></td>
</tr>
<tr>
<td>Tons (2000 LB)</td>
<td></td>
</tr>
</tbody>
</table>

2. Scroll to the desired Mass Flow Time units for the mass flow rate display and press [✓].

3. Scroll to the desired number of Mdot Decimal Digits (digits to the right of the decimal point in the mass flow rate display) and press [✓].

4. Scroll to the desired Mass (Totalizer) units for the totalized mass flow rate display and press [✓]. The available units for this prompt are determined by the selection made at the System Units prompt.

5. Scroll to the desired number of Mass Dec. Digits (digits to the right of the decimal point in the totalized mass flow rate display) and press [✓].

After completing the above steps, the PanaFlow Z1G/Z2G Process Gas Flowmeter returns to the Channel PROGRAM menu.
[no content intended for this page]
Figure 16: PanaFlow Z1G/Z2G Menu Map
Chapter 4. Operation

4.1 Introduction

See Chapter 2, “Installation”, and Chapter 3, “Initial Setup”, to prepare your PanaFlow Z1G/Z2G Process Gas Flowmeter system for operation. When the meter is ready to take measurements, proceed with this chapter. The following specific topics are discussed:

- “Powering Up” on page 34
- “The Optional PanaView Display” on page 36
- “Taking Measurements” on page 37

Note: All inputs and outputs of the PanaFlow Z1G/Z2G Process Gas Flowmeter are calibrated at the factory prior to shipment. If it becomes necessary to recalibrate any of the inputs and/or outputs, consult the factory for instructions.

WARNING! To ensure the safe operation of the PanaFlow Z1G/Z2G Process Gas Flowmeter, it must be installed and operated as described in this manual. In addition, be sure to follow all applicable local safety codes and regulations for the installation of electrical equipment.
4.2 Powering Up

Because the PanaFlow Z1G/Z2G Process Gas Flowmeter does not have an ON/OFF switch, it will power up as soon as the connected power source is energized.

**WARNING!** For compliance with the European Union’s Low Voltage Directive, this unit requires an external power disconnect device such as a switch or circuit breaker. The disconnect device must be marked as such, clearly visible, directly accessible, and located within 1.8 m (6 ft) of the meter.

There are three methods for obtaining readings from the PanaFlow Z1G/Z2G Process Gas Flowmeter:

- Built-in PanaFlow Z1G/Z2G Process Gas Flowmeter LCD display
- PanaView software installed on a personal computer
- External analog device to read the PanaFlow Z1G/Z2G Process Gas Flowmeter analog output

At least one of the above display options must be installed in order to obtain flow rate readings from the meter.

Immediately upon power up, the software version display appears. Then, the meter performs a series of internal checks, which take about 45 seconds, prior to displaying the flow rate data (see “Initial Power On Screens” on page 23).

**Note:** If the PanaFlow Z1G/Z2G Process Gas Flowmeter fails any of the internal checks, try disconnecting the power and then re-powering the unit. If the meter continues to fail any of the internal checks, contact the factory for assistance.

After successfully performing the internal checks, the PanaFlow Z1G/Z2G Process Gas Flowmeter begins taking measurements and the software version display is replaced by a measurement mode display. Proceed to the appropriate section for instructions on using the LCD display and the PanaView display option.

**Note:** As a minimum, the system and pipe parameters for each installed channel must be entered before the PanaFlow Z1G/Z2G Process Gas Flowmeter can display valid data. Refer to Chapter 3, “Initial Setup”, for specific instructions.
4.3 The PanaFlow Z1G/Z2G Process Gas Flowmeter LCD Display

The components of the PanaFlow Z1G/Z2G Process Gas Flowmeter LCD display are shown in Figure 17 below, along with a typical mass flow rate readout.

As shown in Figure 17 above, the PanaFlow Z1G/Z2G Process Gas Flowmeter display screen includes the following information:

- Channel Number
- Flow Parameter
- Units of Measure
- Flow Rate Value

However, the items in this list may be reprogrammed to display a variety of alternative choices (see “Programming the LCD Display” on page 37).

Note: The LCD backlight flashes to signal errors. If the backlight is Off when an error is detected, the display is illuminated briefly, but if the backlight is already On, the light is interrupted briefly. In addition, Error Code messages may appear in the upper right corner of the LCD display.
4.4 The Optional PanaView Display

The components of the PanaView text display are shown in Figure 18 below, along with a typical flow rate readout.

![Figure 18: A Typical PanaView Text Display Pane](image)

As shown in Figure 18 above, the PanaView text pane includes the following information:

- Channel Number
- Flow Parameter
- Units of Measure
- Flow Rate Value

However, the items in this list may be reprogrammed to display a variety of alternative choices (see "Programming the PanaView Display" on page 40).

**Note:** As shown in Figure 18 above, Error Code messages may appear in the lower left corner of the PanaView text display window.
4.5 Taking Measurements

The PanaFlow Z1G/Z2G Process Gas Flowmeter is capable of displaying several different variables in a variety of formats. However, this manual discusses only the basic measurement displays using the LCD display or the PanaView display. Refer to the PanaView User’s Manual (BHGE document #910-211) for details on using PanaView and the PanaFlow Z1G/Z2G Process Gas Flowmeter analog outputs to obtain the flow rate data.

4.5.1 Programming the LCD Display

**Note:** When you first initialize the PanaFlow Z1G/Z2G Process Gas Flowmeter, the number of LCD parameters is set to OFF. You must program the LCD to display any measured parameters.

Using the Keypad Program, you can program the LCD display to display up to four variables in sequence. Complete the following steps to program the LCD display:

1. Power up the PanaFlow Z1G/Z2G Process Gas Flowmeter and wait until it has initialized.
2. To enter the Keypad Program, press the \[\text{[X]}\] key, followed by the \[\text{[✓]}\] key, and the \[\text{[X]}\] key again. Each successive key must be entered within 10 seconds of the prior key.
3. In the Keypad Program window, scroll to PROG and press \[\text{[✓]}\].
4. In the PROG menu, scroll to GLOBL and press \[\text{[✓]}\].
5. Scroll to I/O and press \[\text{[✓]}\].
6. Scroll to LCD and press \[\text{[✓]}\].
7. At the # of LCD Parameters screen, scroll to the desired number (from OFF through 1-4 and KEY) and press \[\text{[✓]}\]. The OFF setting switches the measurement display Off. The KEY setting enables users to change the measurement display with the arrow keys, without accessing the Keypad Program. If you select KEY:
   - To view a parameter other than the one currently displayed, press the \[\text{[▲]}\] and \[\text{[▼]}\] keys to scroll through the various available parameters.
8. Select the desired Measurement Parameter (see Table 8 on page 38 for a list of the available parameters).
### Table 8: Available Measurement Parameters

<table>
<thead>
<tr>
<th>Option Bar</th>
<th>Description</th>
<th>Good</th>
<th>Bad</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VEL</strong></td>
<td>Displays the flow velocity.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>VOLUM</strong></td>
<td>Displays the volumetric flow.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>+TOTL</strong></td>
<td>Displays the forward totalized volume flow.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>-TOTL</strong></td>
<td>Displays the reverse totalized volume flow.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>TIMER</strong></td>
<td>Displays the total flow measurement time.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>MDOT</strong></td>
<td>Displays the mass flow.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>+MASS</strong></td>
<td>Displays the forward totalized mass flow.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>-MASS</strong></td>
<td>Displays the reverse totalized mass flow.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>SS up</strong></td>
<td>Displays the signal strength for the upstream direction.</td>
<td>50–75</td>
<td>&lt;50 or &gt;75</td>
</tr>
<tr>
<td><strong>SS do</strong></td>
<td>Displays the signal strength for the downstream direction.</td>
<td>50–75</td>
<td>&lt;50 or &gt;75</td>
</tr>
<tr>
<td><strong>SNDSP</strong></td>
<td>Displays the measured speed of sound in the gas.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>Tup</strong></td>
<td>Displays the upstream ultrasonic signal transit time.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>Tdown</strong></td>
<td>Displays the downstream ultrasonic signal transit time.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>DELTA</strong></td>
<td>Displays the transit time difference between the upstream and downstream signals.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>Tot K</strong></td>
<td>Displays the total K factor.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>PEAK%</strong></td>
<td>Displays the percentage of peak (set to +50 by default).</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>Qup</strong></td>
<td>Displays the signal quality for the upstream direction.</td>
<td>&gt;1200</td>
<td>-400 to +400</td>
</tr>
<tr>
<td><strong>Qdown</strong></td>
<td>Displays the signal quality for the downstream direction.</td>
<td>&gt;1200</td>
<td>-400 to +400</td>
</tr>
<tr>
<td><strong>AMPup</strong></td>
<td>Displays the value for the signal amplitude of the upstream direction.</td>
<td>24 ± 5</td>
<td>&lt;19 or &gt;29</td>
</tr>
<tr>
<td><strong>AMPdn</strong></td>
<td>Displays the value for the signal amplitude of the downstream direction.</td>
<td>24 ± 5</td>
<td>&lt;19 or &gt;29</td>
</tr>
<tr>
<td><strong>CNTup</strong></td>
<td>Displays the AGC DAC count for the upstream gain setting.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>CNTdn</strong></td>
<td>Displays the AGC DAC count for downstream gain setting.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>P#up</strong></td>
<td>Displays signal peaks for the upstream direction.</td>
<td>100-2300</td>
<td>&lt;100 or &gt;2300</td>
</tr>
<tr>
<td><strong>P#dn</strong></td>
<td>Displays signal peaks for the downstream direction.</td>
<td>100-2300</td>
<td>&lt;100 or &gt;2300</td>
</tr>
<tr>
<td><strong>TEMP</strong></td>
<td>Displays the gas temperature (from 0/4-20 mA input).</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>PRESR</strong></td>
<td>Displays the gas pressure (from 0/4-20 mA input).</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>AcVOL</strong></td>
<td>Displays actual volumetric flow.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>StVOL</strong></td>
<td>Displays standard volumetric flow.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>Tu S&lt;sup&gt;1&lt;/sup&gt;</strong></td>
<td>Displays Skan transit time upstream.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>Td S&lt;sup&gt;1&lt;/sup&gt;</strong></td>
<td>Displays Skan transit time downstream.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>DT S&lt;sup&gt;1&lt;/sup&gt;</strong></td>
<td>Displays Skan Delta T.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>Tu M&lt;sup&gt;1&lt;/sup&gt;</strong></td>
<td>Displays Measure transit time upstream.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>Td M&lt;sup&gt;1&lt;/sup&gt;</strong></td>
<td>Displays Measure transit time downstream.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>DT M&lt;sup&gt;1&lt;/sup&gt;</strong></td>
<td>Displays Measure Delta T.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td><strong>Vinst</strong></td>
<td>Displays the instantaneous velocity.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
</tbody>
</table>

<sup>1</sup> available only if Burst Mode = S/M
4.5.1 Programming the LCD Display (cont.)

**Note:** The measurement units that appear in these prompts are those selected in the GLOBL-SYSTM menu. Also, when differences in one channel's programming invalidates an output previously chosen for the other channel, the measurement defaults to the nearest selectable item in the parameter list.

The previous two prompts repeat until all of the specified # of LCD Parameters have been set up. When all of the display parameters have been set up, the meter returns to the Global I/O window. To leave the Keypad Program, press [×] three times.

After leaving the Keypad Program, the PanaFlow Z1G/Z2G Process Gas Flowmeter resets itself and begins to display the parameters specified in this section. If more than one parameter was set up, each of the parameters is displayed in sequence, with a pause of several seconds between display changes.

To use the programmed LCD display to obtain flow rate data, simply power on the PanaFlow Z1G/Z2G Process Gas Flowmeter as described earlier in this chapter. Then, read the flow rate directly from the display (see Figure 17 on page 35).
4.5.2 Programming the PanaView Display

Launch the PanaView software on the PC and establish communications with the PanaFlow Z1G/Z2G Process Gas Flowmeter (see the PanaView manual, BHGE document #910-211 as necessary). Then, enter the required startup parameters, as described in Chapter 3, “Initial Setup”. Proceed as follows:

1. In PanaView, open the Output menu (see Figure 19 below) and click on the Text Display option.

![Figure 19: The Output Menu](image)

**Note:** The Text Display window is actually stacked on top of any previously opened PanaView windows, such as the Meter Browser window.

2. Using the Window menu, as described in the PanaView manual, arrange the open windows in the desired format. For this discussion, Figure 20 below shows the Text Display window in its maximized (full-screen) size.

![Figure 20: The Text Display Window](image)

3. The left pane of the Text Display window contains the standard PanaView network tree. Expand the branch for your PanaFlow Z1G/Z2G Process Gas Flowmeter model, and double-click on the desired channel. On 2-channel units, you can also display the SUM, DIFF or AVG parameters.
4.5.2 Programming the PanaView Display (cont.)

4. From the expanded tree, double-click on the desired flow parameter to display it in the right pane of the window.

5. Before actual data values can be displayed in the text pane, activate one of the following data collection modes (see Figure 20 on page 40):
   - Click on the [Get Once] option button at the bottom of the right pane in the Text Display window. The current value of the selected process parameter, as specified in the PanaView network tree, is displayed in the right pane of the Text Display window.
   - Enter an Interval in the text box at the bottom of the right pane in the Text Display window, or check the Max. Comm Rate box to collect readings as fast as the system allows (i.e., 1 sec). Then, click on the [Continuous] option button to begin collecting data for display in the right pane of the Text Display window. The right pane now appears similar to Figure 18 on page 36.

Note: Any value entered in the Interval text box is overridden if the Max. Comm Rate box is checked.

6. If the [Continuous] option was selected in Step 5, click on the [Stop] option button, which has replaced the original [Continuous] option button, to terminate data collection.

The Text Display window may be left open while other tasks are performed, or it may be closed by clicking on the lower [X] control button at the far right of the menu bar.

IMPORTANT: If you click on the upper [X] control button at the far right of the PanaView title bar, you will exit PanaView completely.
4.5.2.1 Displaying Multiple Process Parameters

The procedure for displaying a single process parameter in a text screen may be repeated to simultaneously display multiple process parameters. To do so, proceed as follows:

1. Display the first process parameter in a text screen, as described in the previous section.
2. Repeat Step 1 for any desired additional process parameters, by double clicking on them in the PanaView network tree. PanaView automatically tiles the multiple text screens in the right pane of the Text Display window, as shown in Figure 21 below.

![Figure 21: Multiple Text Screens in the Text Display Window](image)

3. As in any standard Windows® application, the multiple text screens may be resized by dragging their borders. Also, the individual panes within a parameter’s text screen may be resized by dragging the borders within that text screen.

4. To close an open text screen, right click anywhere within that screen, except in the title bar or the error section, and click on the [Remove] option that pops up in the context menu.

**Note:** After resizing or removing any of the multiple text screens, the default tiled layout may be restored by opening the Window menu (see the PanaView User’s Manual) and clicking on the Tile Output Displays option.
4.5.2.2 **Displaying Multiple Text Windows**

The procedures for displaying one or more process parameters in a single Text Display window may be repeated to open multiple Text Display windows. To do so, proceed as follows:

1. To open another Text Display window and display the desired process parameter(s) in the new window, repeat the steps in “Programming the PanaView Display” on page 40.
2. Arrange the multiple Text Display windows as desired via the Window menu (see the PanaView Manual).

4.5.3 **Pausing Measurements**

On occasion, you may wish to stop taking measurements. With PanaView, you can direct the PanaFlow Z1G/Z2G Process Gas Flowmeter to pause measurements without disconnecting the power from the meter. Proceed as follows:

1. From the meter tree in the New Meter Browser, click on the PanaFlow Z1G/Z2G Process Gas Flowmeter entry.
2. Expand the Edit Functions option, and double-click on the Pause Measurement entry to open a window similar to Figure 22 below.

![Figure 22: The Pause Measurement Window](image)

4. To restart the measurements, double-click on the Pause Measurement entry, and then on the Measure Flow option. The PanaFlow Z1G/Z2G Process Gas Flowmeter resumes flow measurement.
4.6 PT Sensor Drift and Recalibration

The PT sensor is an optional accessory, that comes with select models of Z1G/Z2G. The sensor is specified to have a maximum drift of 0.1% of full scale (FS) output per year.

Although, the output drift of this sensor reduces over time, as the innate stresses in the materials relax and stop shifting around, we recommend removing the sensor for recalibration every 5 years. However, user may decide on the recalibration frequency based on the application process needs, to have it calibrated earlier than the recommended period.

When the sensor is removed for calibration, either install the spare sensor or an approved Ex d plug to close the sensor mounting slot. Follow all the safety precautions & recommendations while removing and installing the sensor.

Send the sensor to the Customer Support Center addresses mentioned on the rear cover of this manual. We will return the calibrated sensor to the specified address, along with the calibration certificate.
Chapter 5. Specifications

5.1 Operation and Performance

Fluid Types
Acoustically conductive gases

Pipe Sizes
2 to 16 in. (50 to 400 mm)

Meter Body Materials
Carbon Steel, SA216 Gr. WCB
Low Temp Carbon Steel, SA352 Gr. LCB
Stainless Steel, SA351 Gr. CF8M
Duplex Stainless Steel, SA995 Gr. CD3MWCuN

Flange Ratings
ASME: 150 lb, 300 lb or 600 lb
DIN: PN10, PN16, PN25, PN40 or PN63

Meter Body Certifications
PED Cat III, Module B+C2
CRN (All Canadian Provinces)
NACE MR01-75/MR-01-03

Flow Measurement Range (Bi-Directional)
0.5 to 250 ft/s (0.15 to 76 m/s)
Turndown Ratio = 500:1

Flow Measurement Accuracy

• 1 Path:
  ±0.075 ft/s (±0.02 m/s) at flow range of 0.5 to 5 ft/s (0.15 to 1.5 m/s)
  ±1.5% of reading at flow range of 5 to Vmax/s (1.5 to Vmax)

• 2 Path:
  ±0.05 ft/s (0.015 m/s) at flow range of 0.5 to 5 ft/s (0.15 to 1.5 m/s)
  ±1.0% of reading at flow range of 5 to Vmax (1.5 to 76 Vmax)

Note: Accuracy/repeatability specifications assume a final installation with fully developed flow profile (typically 20 diameters upstream and 10 diameters downstream of straight pipe run), Reynolds Number > 5000 and single phase fluids. Applications with piping arrangements that induce swirl (e.g., two out-of-plane elbows) may require additional straight run and/or flow conditioning. For shorter straight pipe runs, consult the factory for a computational flow dynamic evaluation.

Repeatability
±0.2% to 0.5% of reading
5.1 Operation and Performance (cont.)

**Measurement Parameters**
Mass flow, standard and actual flow, totalized flow, and flow velocity

**Electronics Enclosure**
NEMA Type 4X explosion-proof and weatherproof (IP66)
*Standard:* Epoxy-coated aluminum
*Optional:* Stainless steel

**Hazardous Area Certifications**
*US/CAN:* Class 1, Div. 1 Group B,C,D
*ATEX:* II 2 G Ex db IIB+H2 T6... 150° C Gb
*IECEx:* Ex db IIB+H2 T6... 150° C Gb

**Input Power**
*Standard:* 90 to 240 VAC
*Optional:* 12 to 28 VDC, ±5%

**Power Consumption**
20 W maximum

**Process Temperature Range**
-40 to 302°F (-40 to 150°C)
*Note:* -40 to 257°F (-40 to 125°C) range when used with pressure & temperature sensor option.

**Ambient Temperature Range**
-40 to 140°F (-40 to 60°C) US/CAN
-4 to 140°F (-20 to 60°C) ATEX/IECEX

Below -20 Display readability will be affected

**Storage Temperature**
-40 to +185°F (-40 to +85°C)

**Digital Communication**
*Standard:* RS485
*Optional:* HART®
*Optional:* Modbus®
*Optional:* Foundation Fieldbus®
5.2 Dimensions and Weights

Table 9: Example for a 3 in. [80 mm], 2-Path Flowcell

<table>
<thead>
<tr>
<th>Flange Rating</th>
<th>A [in. [mm]]</th>
<th>C [in. [mm]]</th>
<th>D [in. [mm]]</th>
<th>X [in. [mm]]</th>
<th>Y [in. [mm]]</th>
<th>Z [in. [mm]]</th>
<th>CX [in. [mm]]</th>
<th>CY [in. [mm]]</th>
<th>CZ [in. [mm]]</th>
<th>Approx. Weight</th>
</tr>
</thead>
</table>

Table 10: Reference Drawings

<table>
<thead>
<tr>
<th>Drawing Number</th>
<th>Drawing Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>712-2158</td>
<td>General arrangement drawing, PanaFlow Z1G/Z2G, Local Mount</td>
</tr>
<tr>
<td>712-2160</td>
<td>General arrangement drawing, PanaFlow Z1G/Z2G, Remote Mount</td>
</tr>
</tbody>
</table>

Note: The drawings listed above include the dimensions and weights for all available pipe sizes.
[no content intended for this page]
Appendix A. CE Mark Compliance and High Noise Environments

A.1 Introduction

For CE Mark compliance, the PanaFlow Z1G/Z2G Process Gas Flowmeter must meet the EMC and LVD directives.

⚠️ Attention European Customers! CE Mark compliance is required for all units intended for use in EU countries, and it is also recommended for installation in high electrical noise environments.

A.2 EMC Compliance

In addition to the standard wiring requirements, the electrical connections must be shielded and grounded as described in Table 11 below for EMC compliance. After all the necessary electrical connections have been made, seal any unused cable entry holes.

**Note:** If the instructions in this appendix are followed, the unit will comply with the EMC Directive.

<table>
<thead>
<tr>
<th>Connection</th>
<th>Cable Type</th>
<th>Termination Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transducer</td>
<td>Shielded cable</td>
<td>Terminate the shield using the cable glands (already done).</td>
</tr>
<tr>
<td>Power</td>
<td>Shielded cable</td>
<td>Terminate the shield to the case using the cable glands.</td>
</tr>
<tr>
<td>Shielding</td>
<td>Wires enclosed in a properly-grounded metal conduit do not require additional shielding.</td>
<td></td>
</tr>
<tr>
<td>All Input/Output Options</td>
<td>Shielded cable</td>
<td>Terminate the shields to the case using the cable glands or to the closest screw on the bus bar inside the enclosure.</td>
</tr>
</tbody>
</table>

**IMPORTANT:** Make sure to connect the PanaFlow Z1G/Z2G Process Gas Flowmeter case to the earth ground with a grounding cable, using the external ground screws found on either side of the enclosure. The connection should be less than 9.8 feet (3 meters) long.
[no content intended for this page]
Appendix B. Gas Process Flowmeter Service Record

B.1 Option Cards Installed

Whenever an option card is installed or changed in the PanaFlow Z1G/Z2G Process Gas Flowmeter, record the type of card and any additional setup information in the appropriate row of Table 12 below.

<table>
<thead>
<tr>
<th>Slot #</th>
<th>Type of Option Card</th>
<th>Additional Setup Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Analog Outputs (A, B)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
B.2 Data Entry

Record complete and detailed service data for the Panaflo\(\text{\textregistered}\)w Z1G/Z2G Process Gas Flowmeter in Table 13 below. Make additional copies of this table as needed.

<table>
<thead>
<tr>
<th>Date</th>
<th>Description of Service</th>
<th>Performed By</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 13: Service Record (cont.)

<table>
<thead>
<tr>
<th>Date</th>
<th>Description of Service</th>
<th>Performed By</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
B.3 Setup Data

After the PanaFlow Z1G/Z2G Process Gas Flowmeter has been installed, setup data must be entered via the User Program prior to operation. Record that information in Table 14 below.

<table>
<thead>
<tr>
<th>Table 14: Setup Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Information</strong></td>
</tr>
<tr>
<td>Model #</td>
</tr>
<tr>
<td>Software Vers.</td>
</tr>
<tr>
<td><strong>Channel - Status</strong></td>
</tr>
<tr>
<td>Channel 1</td>
</tr>
<tr>
<td>Channel Status</td>
</tr>
<tr>
<td>Measure Mode</td>
</tr>
<tr>
<td><strong>Channel - System</strong></td>
</tr>
<tr>
<td>Channel Label</td>
</tr>
<tr>
<td>Site/Channel Msg.</td>
</tr>
<tr>
<td>Vol. Units</td>
</tr>
<tr>
<td>Vol. Time Units</td>
</tr>
<tr>
<td>Totalizer Units</td>
</tr>
<tr>
<td>Mass Flow</td>
</tr>
<tr>
<td>Mass Flow Time</td>
</tr>
<tr>
<td>MDOT Dec. Dig.</td>
</tr>
<tr>
<td>Mass Totalizer</td>
</tr>
<tr>
<td><strong>Channel - Input/Output</strong></td>
</tr>
<tr>
<td>Zero Cutoff</td>
</tr>
<tr>
<td>Temp. Input</td>
</tr>
<tr>
<td>Base Temp.</td>
</tr>
<tr>
<td>Pressure Input</td>
</tr>
<tr>
<td>Base Pressure</td>
</tr>
<tr>
<td>Low Press. Switch</td>
</tr>
<tr>
<td>Pressure Limit</td>
</tr>
<tr>
<td><strong>Channel - SETUP - V Averaging</strong></td>
</tr>
<tr>
<td>Response Time</td>
</tr>
</tbody>
</table>
### Table 14: Setup Data (cont.)

#### Channel - SETUP - Advanced Features - Multi K Factors

<table>
<thead>
<tr>
<th>K-Factor #</th>
<th>Reynolds Number</th>
<th>K-Factor</th>
<th>K-Factor #</th>
<th>Reynolds Number</th>
<th>K-Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td></td>
<td>12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td></td>
<td></td>
<td>14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td>16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td></td>
<td></td>
<td>17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td>20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Channel - SETUP - Advanced Features - Mass Flow Calculation

<table>
<thead>
<tr>
<th>Mass Flow</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density Type</td>
<td>Fluid Dens.</td>
<td>Mole. Wgt.</td>
</tr>
<tr>
<td>Qact or Qstd?</td>
<td>Actual</td>
<td>Standard</td>
</tr>
<tr>
<td>Fluid Density</td>
<td>Mole. Weight</td>
<td></td>
</tr>
</tbody>
</table>

#### Global - System

<table>
<thead>
<tr>
<th>Totalizer Units</th>
<th>Tot. Dec. Digits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mass Flow</td>
<td>Mass Flow Time</td>
</tr>
<tr>
<td>MDOT Dec. Digit</td>
<td>Mass Totals</td>
</tr>
<tr>
<td>Mass Dec. Digits</td>
<td></td>
</tr>
</tbody>
</table>

#### Global - Input/Output - Error Handling

<table>
<thead>
<tr>
<th>Error Handling</th>
<th>2-Path Error</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

#### Global - Communications Port
<table>
<thead>
<tr>
<th></th>
<th>MOD. Parity</th>
<th>MOD. Stop Bits</th>
<th>MOD. Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meter Address</td>
<td>MOD. Parity</td>
<td>MOD. Stop Bits</td>
<td>MOD. Address</td>
</tr>
<tr>
<td>Baud Rate</td>
<td>MOD. Stop Bits</td>
<td>MOD. Address</td>
<td></td>
</tr>
<tr>
<td>MOD. Baud Rate</td>
<td>MOD. Address</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>+MASS</td>
<td>38</td>
</tr>
<tr>
<td>+TOTL</td>
<td>38</td>
</tr>
</tbody>
</table>

### A

- Activating a Channel: 27
- AcVOL: 38
- AMPdn: 38
- AMPup: 38

**Analog Inputs Option Card**
- Connecting: 15
- Pin Assignments: 15
- Rating: 15

**Analog Outputs (Slot 0)**
- Connecting: 12

### C

- CE Mark Compliance: 49
- Channel Label: 28
- Channel Message: 28

**Channel System Data**
- Accessing the Submenu: 28
- Entering: 28
- Mass Flow Units: 29
- Totalizer Units: 28
- Volumetric Units: 28
- Channel, Activating: 27
- CNTdn: 38
- CNTup: 38

**Connectors, Electrical**: 10

### D

- DELTA: 38
- Diagnostics
  - Service Record: 52
- Display Data: 34
- DT M: 38
- DT S: 38

### E

- Electrical Connections
  - CE Mark Compliance: 49
- Electrical Connectors: 10
- Error Codes: 35, 36

### F

- Flow
  - Profile: 1
- Flowcell
  - Description: 9

### G

- **Global**
  - Menu: 24
  - Submenus: 24
- **Global Menu**
  - LCD Option: 37
- **Global System Data**
  - Mass Flow Units: 26
  - Totalizer Units: 25

### I

- **I/O (Global) Submenu**
  - LCD Option: 37
- **Initial Setup**
  - Minimum Required: 21
  - Input Voltage: 11
  - Internal Tests: 34

### K

- Keypad Program
  - Entering: 23, 37
  - Exiting if Unused: 23
- LCD Option: 37

### L

- **LCD Option**: 37
- **Liquid Crystal Display (Transmitter)**
  - Setting Up: 37
- LVD Statement: 11
- LVD, See CE Mark Compliance: 49

### M

- Magnetic Keypad, Using: 22
- -MASS: 38
- Mass Flow Data, Entering: 26
- Mass Flow Units: 29
- MDOT: 38
- Measurement Parameters: 38
Index

VOLUM ........................................ 38

W

Warranty ........................................ v
Windows
  Resizing ...................................... 42
  Tiling ........................................ 42
Wiring
  CE Mark Compliance ...................... 49
  Option Card ............................... See Card Name
  Terminal Block ......................... See Block Name
Certification & Safety Statements for the PanaFlow Z1G/Z2G Ultrasonic Gas Flow meters

When installing this apparatus in potentially hazardous areas, the following requirements must be met:

• Field wiring shall be rated at least 5°C above maximum ambient or fluid temperature, whichever is greater.

• Connecting cables shall be mounted securely and protected from mechanical damage, pulling and twisting.

• Conduit seals are required within 18 inches of the enclosure.

• Cable entries are 3/4” or ½” NPT.

• Cable glands of an approved flameproof design are required. These must be installed according to the manufacturer’s instructions. Where the cable glands are provided by GE, the manufacturer’s instructions, as supplied, to GE, will be included in the documentation.

• The system is covered by the certificate numbers FM14ATEX0045X and IECEx FMG 14.0021X as shown on the labels below. The system is certified as ATEX and IECEx: II 2 G Ex d IIB +H2 T6 Gb in Ta = -20°C to +60°C ambient, Type 4X and IP66. The system temperature code is dependent upon the process fluid temperature ranges of -20°C to +150°C. Refer specific conditions of use for ATEX and US/Canada for more information about temperature code.

• Unused entries must be sealed using a suitably certified threaded plug.

• Modifications to the flameproof enclosure are not permitted.

• The apparatus should be de-energized before opening.

• Installation shall be in accordance with the installation instructions and the National Electrical Code® ANSI/NFPA 70, the Canadian Electrical Code C22.1, or IEC/EN 60079-14, as applicable.

• Equipment is of type flameproof “d” design and complies with the standards listed in table below.

• The product contains no exposed parts which produce surface temperature infrared, electromagnetic ionizing, or non-electrical dangers.

• The product must not be subjected to mechanical or thermal stresses more than those permitted in the certification documentation and the instruction manual.

• The product cannot be repaired by the user; it must be replaced by an equivalent certified product. Repairs should only be carried out by the manufacturer or by an approved repairer.

• Only trained, competent personnel may install, operate and maintain the equipment.

• The product is an electrical apparatus and must be installed in the hazardous area in accordance with the requirements of the EU Type Examination Certificate. The installation must be carried out in accordance with all the appropriate international, national and local standard codes and practices and site regulations for flameproof apparatus and in accordance with the instructions contained in the manual. Access to the circuitry must not be made during operation.
Standards

|-----------------|---------------------------|

ATEX

Specific Conditions of Use:

1. The flameproof joints of the equipment are not intended to be repaired. Consult the manufacturer if dimensional information on the flameproof joints is necessary.
2. Follow the manufacturer’s instructions to reduce the potential of an electrostatic charging hazard.
3. Consult the manufacturer for genuine replacement flange fasteners. M10x35 hexagon socket cap screws of ISO 12.9 DIN912 grade steel (zinc-plated) or better with a minimum yield strength of 135,000 psi are acceptable alternatives.
4. Consult the manufacturer for genuine replacement enclosure/adapter fasteners. M6x16 and M6x30 hexagon socket cap screws of ISO 12.9 DIN912 grade steel (zinc-plated) or better with a minimum yield strength of 135,000 psi are acceptable alternatives.
5. Care should be taken to avoid creating an ignition hazard due to impact or friction on the titanium transducers which form part of the flameproof enclosure.
6. The electronics enclosure is rated for an ambient temperature range of -20°C to +60°C (when local or remote mounted). The remote mount junction box and flow body is rated for an ambient temperature range of -20°C to +60°C (when local mounted) or -40°C to +60°C (when remote mounted).
7. The equipment temperature class is dependent on the maximum process temperature and mounting configuration according to the following table:

<table>
<thead>
<tr>
<th>Mounting Configuration</th>
<th>Maximum Process Temperature</th>
<th>Temperature Class</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Enclosure</td>
</tr>
<tr>
<td>Local Remote</td>
<td>85°C</td>
<td>T6</td>
</tr>
<tr>
<td>Remote</td>
<td>100°C</td>
<td>T6</td>
</tr>
<tr>
<td>Remote</td>
<td>135°C</td>
<td>T6</td>
</tr>
<tr>
<td>Remote</td>
<td>150°C</td>
<td>T6</td>
</tr>
</tbody>
</table>
US/Canada:

Specific Conditions of Use:

1. The electronics enclosure is rated for an ambient temperature range of -20°C to +60°C (when local or remote mounted). The remote mount junction box and flow body is rated for an ambient temperature range of -20°C to +60°C (when local mounted) or -40°C to +60°C (when remote mounted).

2. The equipment temperature class is dependent on the maximum process temperature and mounting configuration according to the following table:

<table>
<thead>
<tr>
<th>Mounting Configuration</th>
<th>Maximum Process Temperature</th>
<th>Temperature Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Remote</td>
<td>85°C</td>
<td>T6 Enclosure, T6 Remote Junction Box/Flow body</td>
</tr>
<tr>
<td>Remote</td>
<td>100°C</td>
<td>T6 Enclosure, T5 Remote Junction Box/Flow body</td>
</tr>
<tr>
<td>Remote</td>
<td>120°C</td>
<td>T6 Enclosure, T4A Remote Junction Box/Flow body</td>
</tr>
<tr>
<td>Remote</td>
<td>135°C</td>
<td>T6 Enclosure, T4 Remote Junction Box/Flow body</td>
</tr>
<tr>
<td>Remote</td>
<td>150°C</td>
<td>T6 Enclosure, T3C Remote Junction Box/Flow body</td>
</tr>
</tbody>
</table>

Markings

1. Shall appear on the meter as shown below for the AC and DC powered versions.
2. Shall appear on the meter as shown below.

3. Following marking shall additionally appear on the flowcell:
Connection & Wiring Diagram (ref. dwg. 702-1846)

- **OPTION CONTACT TERMINAL BLOCK**
  - **RS232/RS485/4-20 ANALOG OUTPUT TERMINAL BLOCK**
    - PIN 1 Description: TX (RS485+)
    - PIN 2 Description: RX (RS485-)
    - PIN 3 Description: COM (SHLD)
    - PIN 4 Description: CTS
    - PIN 5 Description: DTR
    - PIN 6 Description: AOUT B-
    - PIN 7 Description: AOUT B+
    - PIN 8 Description: AOUT A-
    - PIN 9 Description: AOUT A+

- **OPTIONAL MODBUS CONNECTION**
  - PIN 1 Description: MODBUS+
  - PIN 2 Description: MODBUS-
  - PIN 3 Description: N/C

- **OPTIONAL FOUNDATION FIELD BUS**
  - PIN 1 Description: FIELD BUS NET (+)
  - PIN 2 Description: FIELD BUS NET (-)
  - PIN 3 Description: SHIELD

- **OPTIONAL HART**
  - PIN 1 Description: HART NET (+)
  - PIN 2 Description: HART NET (-)
  - PIN 3 Description: SHIELD

- **OPTIONAL CH2 TRANSDUCER CONNECTION TERMINAL BLOCK**
  - PIN 1 Description: CH2UP
  - PIN 2 Description: CH2RTN
  - PIN 3 Description: CH2DN

- **OPTIONAL CH1 TRANSDUCER CONNECTION TERMINAL BLOCK**
  - PIN 1 Description: CH1UP
  - PIN 2 Description: CH1RTN
  - PIN 3 Description: CH1DN

- **AC WIRING SHOWN**
  - SUPPLY VOLTAGE: 85V TO 250VAC OR 12 TO 28 VDC
  - DC WIRING (OPTIONAL)
  - PIN 1 Description: LINE POWER CONNECTION
  - PIN 2 Description: NEUTRAL CONNECTION
  - PIN 3 Description: EARTH GROUND CONNECTION

- **OPTIONAL MODBUS CONNECTION**
  - PIN 1 Description: MODBUS+
  - PIN 2 Description: MODBUS-
  - PIN 3 Description: N/C

- **OPTIONAL FOUNDATION FIELD BUS**
  - PIN 1 Description: FIELD BUS NET (+)
  - PIN 2 Description: FIELD BUS NET (-)
  - PIN 3 Description: SHIELD

- **OPTIONAL HART**
  - PIN 1 Description: HART NET (+)
  - PIN 2 Description: HART NET (-)
  - PIN 3 Description: SHIELD

- **OPTIONAL CH2 TRANSDUCER CONNECTION TERMINAL BLOCK**
  - PIN 1 Description: CH2UP
  - PIN 2 Description: CH2RTN
  - PIN 3 Description: CH2DN

- **OPTIONAL CH1 TRANSDUCER CONNECTION TERMINAL BLOCK**
  - PIN 1 Description: CH1UP
  - PIN 2 Description: CH1RTN
  - PIN 3 Description: CH1DN
We, GE Infrastructure Sensing, 1100 Technology Park Drive, Billerica, MA 01821, USA declare under our sole responsibility that the PanaFlow ZxG measurement system, consisting of a meter electronics and associated transducers and a pressure retaining flow cell, is in conformity with the following harmonising directives:

- 2014/30/EU EMC
- 2014/35/EU LVD
- 2014/34/EU ATEX II 2 G
- 2014/68/EU PED Category III, Modules B + C2
- 2011/65/EU RoHS

Conformity is declared based on assessment against the following harmonised standards:

- EN 61326-1: 2013 Group 1, Class A, Industrial EM Environments
- EN 61326-2-3: 2013
- EN 60079-0:2012+A11:2013
- EN 60101-1:2010 Ex db IIB+H2 T6 Gb

Notified Body involvement:

A product type examination was performed and a PED Type Examination Certificate was issued by HSB UK.

- Hartford Steam Boiler UK Ltd, UK NoBo # 2561
  Unit 7, Brewery Yard, Deva City Office Park, Trinity Way, Salford M3 7BB, UK
  HSUK-18-03-007 EU Type Examination Certificate
  HSUK-18-03-008 Marking Permission per Module C2

A product type examination was performed and an ATEX Type Examination Certificate was issued by FM UK.

- FM Approvals Ltd, UK NoBo # 1725
  FM14ATEX0045X

Production of ATEX product is monitored and Quality Assurance Notification, QAN, is issued by SGS Baseefa.

- SGS Baseefa Ltd, UK NoBo# 1180
  License 0794 (Billerica), 0795 (Shannon) and 7700 (Pune).

Other information:

While the products named above were initially assessed for compliance with the Essential Health and Safety Requirements of the ATEX Directive using earlier harmonised standards, a subsequent review has determined that the apparatus meets by the current harmonised standards listed above.

Note: The numbers in superscripts are for ease of use of language specific content.

Signed for and on behalf of GE Sensing

Mr. Chris Frail
Engineering Manager
Billerica - June 6th, 2018
EU Directive 2011/65/EU for the Restriction of Hazardous Substances in the manufacture of specific electrical & electronic equipment. Although this restriction does not apply to components, per 2011L0065, Article 2 (Scope), item 4(c), we recognize that some customers may require compliant components to satisfy their compliance requirements. For this purpose, GE Infrastructure Sensing, LLC has taken all reasonable steps to assure that the manufacturing process for our products, and the components used within those products do not contain the restricted substances (below) at levels that exceed the maximum concentrations indicated unless otherwise listed as exempt within the directive.

- Lead 0.1% *
- Mercury 0.1%
- Hexavalent Chromium 0.1%
- Polybrominated Biphenyls (PBB) 0.1%
- Polybrominated Diphenyl Ethers (PBDE) 0.1%
- Cadmium 0.01%

*This product leverages the following exemptions listed in Annex III 6a, 6c, 7a, 7c1 and Annex IV 14 & 15. As such, the product(s) listed below has been manufactured to comply with the EU RoHS directive.


Additional Parts:

Certifying signature

Mr. Chris Frail, Engineering Manager
Date - 1 July 2017
BG

ЕС ДЕКЛАРАЦИЯ ЗА СЪОТВЕТСТВИЕ
(№ XXXX)
1. Модел на продукта/производ (номер на продукта, тип, партия или серийен номер).
2. (2a) Номенклатура и адрес на производителя или, когато е приложимо, (2b) на неговия упълномощен представител.
3. Нощейнова декларация за съответствие е издалена на отговорност на производителя.
4. Предмет на декларацията (идентификация на продукта, позволяващо проследяването му, това може, когато това е необходимо за идентифициране на продукта, да включва изображение).
5. Предмет на декларацията, описан по-горе, отговаря на съответния законодателен акт на Съюза за хармонизация:
6. (4) Позволява на използваните хармонизирани стандарти или позоваване на друг техничен спецификация, по (6b) отношение на което се декларира съответствието
7. Когато е приложимо, позоваване на орган – (назовете, номери)… извършени е (назовете) и издалено сертификата.
8. Допълнителна информация: първо за и от име на:
i. (името и дата на издаване)
ii. (името на предприятие) (подпис)

CS

EU PROHLÁŠENÍ O SHODĚ
(I. XXXX)
1. Model výrobku/produktu (produkt, type, batch or serial number).
2. (2a) Název a adresa výrobce a případně (2b) jeho zpřísněněným zástupce.
3. Toto prohlášení o shodě se výrobce, který bývá původy, lze nebo na jiné technické specifikace, na jejichž základě se shoda prohlásuje:
4. Předmět prohlášení (identifikace výrobku, umožňující jej spolehlivě vysledovat) je-li to nezbytné pro identifikaci daného výrobku, může zahrnovat vyobrazení:
5. Více papsaný předmět prohlášení je ve shodě s příslušnými harmonizačními právními předpisy Uni:
6. (6a) Uvedky na příslušné harmonizované normy, které byly použity, lze nebo na jiné technické specifikace, na jejichž základě se shoda prohlásuje:
7. Případně: (jméno, funkce) (podpis):
8. Další informace:
   i. Podepsano za a jmémen:
   ii. (imho a datum- vydáno)
   iii. (jméno, funkce) (podpis):
9. Suplementarne podatke: 
   i. Zašeno za a od vega ve:
   ii. (Ime, datum zašeta)

DA

EU-OVERENSSTEMMELSEERKLÆRING
(I. XXXX)
1. Produktmodel/produkt (produkt, type, type, batch or serial number).
2. (2a) Navn og adresse af leverandør og i tilfælde (2b) til det anerkendte repræsentant.
3. Denne overensstemmelseserklæring omfatter tekniske spærlifikationer, som der er erklæret overensstemmende med:
4. Oplysningerne, som er nødvendig for identifikation af produktet, er udarbejdet af:
5. Oplysningerne omkring produktets spærlifikationer, som er nødvendig for identifikation af produktet, er udarbejdet af:
6. (6a) Angabe der einschlägigen harmonisierten Standarden oder (6b) der anwendungsnötigenfalls kann zur Identifizierung des Produkts ein Bild hinzugefügt werden.)
7. Oplysningerne er erklærede harmoniserede standarder eller (6b) til de andre tekniske specifikationer, som der er erklærede overensstemmelse med:
8. (6c) Referencer til de relevante anvendte harmoniserede standarder eller (6b) til de andre tekniske specifikationer, som der er erklærede overensstemmelse med:
9. Zusatzangaben: 
   i. Unterzeichnet für und im Namen von:
   ii. (Datum und Datum der Ausstellung)
   iii. (Name, Funktion) (Unterschrift):

DE

EU-KONFORMITÄTSERKLÄRUNG
(I. XXXX)
1. Produktmodell/Produkt (Produkt-, Typen-, Chargen- oder Seriennummer).
2. (2a) Name und Anschrift des Herstellers und gegebenenfalls (2b) seines Bevollmächtigten.
3. Die allgemeine Verantwortung für die Darstellung dieser Konformitätserklärung trägt der Hersteller.
4. Gegenstand der Erklärung (Identifizierung des Produkts) würde der Geltungs begrenzungs der Hersteller, wobei das auf die übertragung der Konformitätserklärung an die Hersteller nur mit dem Produktnamen, der Herstel lungsnummer, der Leistung und der Art des Produkts geschlagen.
5. Der oben beschriebene Gegenstand der Erklärung umfasst die einschlägigen harmonisierten Normen oder (6b) der anderen technischen Spezifikationen, die von der Konformitätserklärung zugrunde gelegt wurden:
6. (6c) Angabe der einschlägigen harmonisierten Normen oder (6b) der anderen technischen Spezifikationen, die von der Konformitätserklärung zugrunde gelegt wurden:
7. Zusatzangaben: 
   i. Unterzeichnet für und im Namen von:
   ii. (Datum und Datum der Ausstellung)
   iii. (Name, Funktion) (Unterschrift):

EL

ΔΗΛΩΣΗ ΣΥΜΜΟΡΦΩΣΗΣ ΕΕ
(ορ. XXXX)
1. Μοντέλο προϊόντος/προϊόν λαθειού προϊόντος, γύρος, σειρά, ή σαφή.
2. (2a) Όνομα και διεύθυνση του κατασκευαστή, και, κατά περίπτωση, (2b) του εξυπηρετούντος αντιπροσώπου του κατασκευαστή.
3. Η παρούσα δήλωση συμμόρφωσης εκδίδεται με αποκλειστική εύθυνη του κατασκευαστή.
4. Στόχος της δήλωσης παραδοσίας προϊόντος που καταλαμβάνει η γνωστοποίηση. Μπορεί, εάν χρειάζεται για το προϊόν παραδοσίας του προϊόντος, να περιλαμβάνεται εκδίδεται.
5. Ως στόχος της δήλωσης που περιγράφεται παραπάνω είναι σχετικά με τη σχετική ευθύνη και ευθύνονται να γίνουν τέτοιες αναφορές με της σειράς της δηλώσας εκδίδεται στον αντιπροσώπο του.
6. (6a) Τα μεταφραστικά των σχετικών ευθύνων ή παραπάνω ειδικοποιήσεων που χρησιμοποιήθηκαν ή (6b) τα παρεχόμενα στις υπογεγραμμένες σειρές της επίσημης αντιμετώπισης.
7. Όπως έχει εισαχθεί, ο κατασκευαστής οργανισμός… ονοματο στην παρεμβολή… με την παράγονταται και γίνεται το αντικείμενο:
8. Πρόσθετα πληροφορίες:
   i. Υπογραφή για λογαριασμό και εξ ανόμλια:
   ii. (όνομα και ημερομηνία έκδοσης):
9. Άλλα στοιχεία (επιστολή).

EN

EU DECLARATION OF CONFORMITY
(No XXXX)
1. Product model/produkt (product, type, batch or serial number).
2. (2a) Name and address of the manufacturer and, where applicable, (2b) has authorised representative.
3. This declaration of conformity is issued under the sole responsibility of the manufacturer.
4. Object of the declaration (identification of the product allowing traceability; it may, where necessary for the identification of the product, include an image).
5. The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:
6. (6a) References to the relevant harmonised standards used or (6b) references to the other technical specifications in relation to which conformity was declared:
7. Where applicable, the notified body … (name, number) performed … (description of intervention) and issued the certificate:
8. Additional information:
   i. Signed for and on behalf of:
   ii. (place and date of issue):
9. Lisateave:
   i. (kell pool ja nimel):
   ii. (nimi, number) kohti ja kuupäev:
10. Lisateave:
   i. (nimi, ametinimes) (alliksi)
EU DECLARATION OF CONFORMITY

I. Firmato a nome e per conto di:

II. (luogo e data del rilascio):

III. (nome, funzione) (firma):

5. L’oggetto della dichiarazione di cui sopra è includere un’immagine:

3. La presente dichiarazione di conformità è e stabilità, se necessario per l’identificazione del prodotto, tipo, lotto o serie):

1. Modello di prodotto/prodotto (numero di identificazione del prodotto è possibile

2. (2a) Gamintojo ir, kai taikytina, (2b) jo

1. Uzorak proizvoda/proizvod (broj proizvoda

6. (6a) Références des normes harmonisées

7. Le cas échéant, l’organisme notifié … (nom,

8. Information aggiuntive:

6. (6) Pozvanoja na relevantne primjene

8. További információk:

3. Za izdavanje EU izjave o sukladnosti

1. Uzorak proizvoda/proizvod (broj proizvoda,

6. Informazioni aggiuntive:

5. Iepriekš aprakstītā deklarācijas objekts

1. Mudell tal-prodott/Prodott (numru

3. Ezt a megfelelőségi nyilatkozatot tettek:

8. Dodate informacije:

7. Adott esetben: a(z) … (név, szám) …

4. A nyilatkozat tárgya (a cím:

2. (2a) L-isem u l-indirizz tal-manifattur u, fejn

1. Uzorak proizvoda/proizvod (broj proizvoda

4. A nyilatkozat tárgya (a cím:

2. (2a) Ražotāja un attiecīgās godīmāju

1. Uzorak proizvoda/proizvod (broj proizvoda

4. A nyilatkozat tárgya (a cím:

5. A fent ismertetett nyilatkozat tárgya

2. (2a) Ražotāja un attiecīgās godīmāju

1. Uzorak proizvoda/proizvod (broj proizvoda

5. A fent ismertetett nyilatkozat tárgya

4. A nyilatkozat tárgya (a cím:

2. (2a) L-isem u l-indirizz tal-manifattur u, fejn

1. Uzorak proizvoda/proizvod (broj proizvoda

4. A nyilatkozat tárgya (a cím:

2. (2a) Ražotāja un attiecīgās godīmāju

1. Uzorak proizvoda/proizvod (broj proizvoda

5. L’objet de la déclaration décrit ci-dessus est établi conformément à la législation d’harmonisation de l’Union applicable:

6. (6) Pozvanoja na relevantne primjene

7. Adott esetben: a(z) … (név, szám) …

2. (2a) L-isem u l-indirizz tal-manifattur u, fejn

1. Uzorak proizvoda/proizvod (broj proizvoda

5. L’objet de la déclaration décrit ci-dessus est établi conformément à la législation d’harmonisation de l’Union applicable:

6. (6) Pozvanoja na relevantne primjene

7. Adott esetben: a(z) … (név, szám) …

2. (2a) L-isem u l-indirizz tal-manifattur u, fejn

1. Uzorak proizvoda/proizvod (broj proizvoda

5. L’objet de la déclaration décrit ci-dessus est établi conformément à la législation d’harmonisation de l’Union applicable:

6. (6) Pozvanoja na relevantne primjene

7. Adott esetben: a(z) … (név, szám) …

2. (2a) L-isem u l-indirizz tal-manifattur u, fejn

1. Uzorak proizvoda/proizvod (broj proizvoda

5. L’objet de la déclaration décrit ci-dessus est établi conformément à la législation d’harmonisation de l’Union applicable:

6. (6) Pozvanoja na relevantne primjene

7. Adott esetben: a(z) … (név, szám) …
EU CONFORMITEITSVERKLARING

[1. Productmodel/product (produkt-, type-, part) of serialnummer]
2. [De naam en adres van de fabrikant en, in voorkomend geval, [l]bij zijn gemachtigde]
3. [Deze conformiteitsverklaring wordt verstrekt onder volledige verantwoordelijkheid van de fabrikant,]
4. [Voorwerp van de verklaring (beschrijving aan de hand waarvan het product kan worden geïdentificeerd). Wanneer dat voor de identificatie van het product noodzakelijk is, mag er een afbeelding worden toegevoegd.]
5. [Het hierboven beschreven voorwerp is in overeenstemming met de desbetreffende harmonisatiewetgeving van de Unie:]
6. [Vermelding van de toegepaste relevante geharmoniseerde normen of (6b) omschrijving van de van de overige technische specificaties waarop de conformiteitsverklaring betrekking heeft.]
7. [Indien van toepassing: De aangemelde instantie (naam, nummer) heeft een … (opis zásahu) … aanzegde tekenen:
   i. Assinado por e em nome de:
   ii. Ipklaas en datum van afgifte
   iii. (naam, functie) (handtekening):
8. [Aanvullende informatie:
   i. Ondertekend voor en namens:
   ii. (plaats en datum van afgifte)]

EU CONFORMITEITSVERKLARING

[1. Model produkту/model produkту (produkt-, type-, part) of serialnummern]
2. [De naam en adres van de fabrikant en, in voorkomend geval, [l]bij zijn gemachtigde]
3. [Deze conformiteitsverklaring wordt verstrekt onder volledige verantwoordelijkheid van de fabrikant,]
4. [Voorwerp van de verklaring (beschrijving aan de hand waarvan het product kan worden geïdentificeerd). Wanneer dat voor de identificatie van het product noodzakelijk is, mag er een afbeelding worden toegevoegd.]
5. [Het hierboven beschreven voorwerp is in overeenstemming met de desbetreffende harmonisatiewetgeving van de Unie:]
6. [Vermelding van de toegepaste relevante geharmoniseerde normen of (6b) omschrijving van de van de overige technische specificaties waarop de conformiteitsverklaring betrekking heeft.]
7. [Indien van toepassing: De aangemelde instantie (naam, nummer) heeft een … (opis zásahu) … aanzegde tekenen:
   i. Assinado por e em nome de:
   ii. Ipklaas en datum van afgifte
   iii. (naam, functie) (handtekening):
8. [Aanvullende informatie:
   i. Ondertekend voor en namens:
   ii. (plaats en datum van afgifte)]

EU CONFORMITEITSVERKLARING

[1. Model produkту/model produkту (produkt-, type-, part) of serialnummern]
2. [De naam en adres van de fabrikant en, in voorkomend geval, [l]bij zijn gemachtigde]
3. [Deze conformiteitsverklaring wordt verstrekt onder volledige verantwoordelijkheid van de fabrikant,]
4. [Voorwerp van de verklaring (beschrijving aan de hand waarvan het product kan worden geïdentificeerd). Wanneer dat voor de identificatie van het product noodzakelijk is, mag er een afbeelding worden toegevoegd.]
5. [Het hierboven beschreven voorwerp is in overeenstemming met de desbetreffende harmonisatiewetgeving van de Unie:]
6. [Vermelding van de toegepaste relevante geharmoniseerde normen of (6b) omschrijving van de van de overige technische specificaties waarop de conformiteitsverklaring betrekking heeft.]
7. [Indien van toepassing: De aangemelde instantie (naam, nummer) heeft een … (opis zásahu) … aanzegde tekenen:
   i. Assinado por e em nome de:
   ii. Ipklaas en datum van afgifte
   iii. (naam, functie) (handtekening):
8. [Aanvullende informatie:
   i. Ondertekend voor en namens:
   ii. (plaats en datum van afgifte)]

EU CONFORMITEITSVERKLARING

[1. Model produkту/model produkту (produkt-, type-, part) of serialnummern]
2. [De naam en adres van de fabrikant en, in voorkomend geval, [l]bij zijn gemachtigde]
3. [Deze conformiteitsverklaring wordt verstrekt onder volledige verantwoordelijkheid van de fabrikant,]
4. [Voorwerp van de verklaring (beschrijving aan de hand waarvan het product kan worden geïdentificeerd). Wanneer dat voor de identificatie van het product noodzakelijk is, mag er een afbeelding worden toegevoegd.]
5. [Het hierboven beschreven voorwerp is in overeenstemming met de desbetreffende harmonisatiewetgeving van de Unie:]
6. [Vermelding van de toegepaste relevante geharmoniseerde normen of (6b) omschrijving van de van de overige technische specificaties waarop de conformiteitsverklaring betrekking heeft.]
7. [Indien van toepassing: De aangemelde instantie (naam, nummer) heeft een … (opis zásahu) … aanzegde tekenen:
   i. Assinado por e em nome de:
   ii. Ipklaas en datum van afgifte
   iii. (naam, functie) (handtekening):
8. [Aanvullende informatie:
   i. Ondertekend voor en namens:
   ii. (plaats en datum van afgifte)]

EU CONFORMITEITSVERKLARING

[1. Model produkту/model produkту (produkt-, type-, part) of serialnummern]
2. [De naam en adres van de fabrikant en, in voorkomend geval, [l]bij zijn gemachtigde]
3. [Deze conformiteitsverklaring wordt verstrekt onder volledige verantwoordelijkheid van de fabrikant,]
4. [Voorwerp van de verklaring (beschrijving aan de hand waarvan het product kan worden geïdentificeerd). Wanneer dat voor de identificatie van het product noodzakelijk is, mag er een afbeelding worden toegevoegd.]
5. [Het hierboven beschreven voorwerp is in overeenstemming met de desbetreffende harmonisatiewetgeving van de Unie:]
6. [Vermelding van de toegepaste relevante geharmoniseerde normen of (6b) omschrijving van de van de overige technische specificaties waarop de conformiteitsverklaring betrekking heeft.]
7. [Indien van toepassing: De aangemelde instantie (naam, nummer) heeft een … (opis zásahu) … aanzegde tekenen:
   i. Assinado por e em nome de:
   ii. Ipklaas en datum van afgifte
   iii. (naam, functie) (handtekening):
8. [Aanvullende informatie:
   i. Ondertekend voor en namens:
   ii. (plaats en datum van afgifte)]
Customer Support Centers

U.S.A.
The Boston Center
1100 Technology Park Drive
Billerica, MA 01821
U.S.A.
Tel: 800 833 9438 (toll-free)
978 437 1000
E-mail: sensing@ge.com

Ireland
Sensing House
Shannon Free Zone East
Shannon, County Clare
Ireland
Tel: +353 61 61470200
E-mail: gesensingsnnservices@ge.com