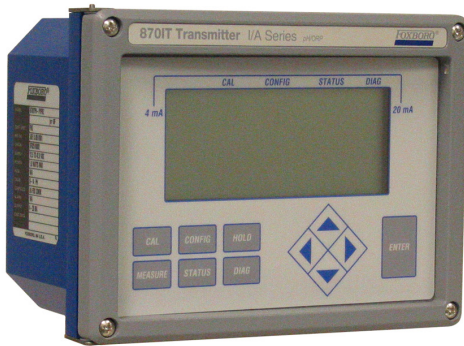


Model 870ITPH
Intelligent Electrochemical Transmitter
for pH, ORP, or Ion Selective Electrode Measurement



PANEL-MOUNTED TRANSMITTER

PIPE- OR SURFACE-MOUNTED
TRANSMITTER



The Foxboro® brand Model 870ITPH is available from Invensys Process Systems (IPS). This micro-processor based, 2-wire intelligent transmitter provides measurement indication, and a choice of analog or digital outputs for recording or control of pH, ORP, or Ion Selective Electrode (ISE) activity. A human interface guides the user through intuitive, menu-driven configuration, calibration, status, and troubleshooting procedures. On-line diagnostics for both transmitter and sensor are also provided to indicate real-time measurement faults.

FEATURES

- ▶ 4 to 20 mA or digital output, fully configurable.
- ▶ Digital output compatible with I/A Series® System.
- ▶ Foxboro PC-Based Intelligent Transmitter Configurator offered for Remote Digital Communications. Compatible with IBM (or compatible) Computer.
- ▶ Human interface for local display, status, configuration, calibration, and fault isolation.
- ▶ Continuous transmitter/sensor diagnostics.
- ▶ NEMA 4X and IEC IP65 housing. Mounts to panel, surface, or DN 50 or 2-inch pipe.
- ▶ Intrinsically safe construction.
- ▶ RFI and EMI protection.
- ▶ Digital output for process measurement and process temperature.
- ▶ Temperature compensation and ppm calibration curves.

- ▶ Sensor interface galvanically isolated.
- ▶ Compatible with high or low impedance inputs.
- ▶ Two levels of passcode protection provided.
- ▶ Preprogrammed pH buffer values for easy calibration.
- ▶ Compatible with Foxboro DolpHin™ Series PH10 and ORP10 Sensors, and also the 871PH, 871A, and EP460 Series Sensors.
- ▶ Conforms to all applicable European Union Directives. Product marked with “CE” symbol.

FLEXIBLE COMMUNICATIONS

The 870ITPH is available in two different communications platforms. For users who need only transmit a 4 to 20 mA analog output without the requirement for remote digital communication, a transmitter with analog output only (Model Code Selection “-A”) is available. Complete configuration, calibration, status checking, and fault identification is through the local human interface only.

For applications where remote communication is required, a digital platform is available (Model Code Selection “-F”). Within this digital environment, two kinds of communications are selectable. First, the transmitter may operate in a low speed (600 baud) digital mode with the digital signal superimposed over an analog 4 to 20 mA signal. Second, the transmitter may operate in a high speed (4800 baud) digital only mode. Communications with this digital version may be via one of three methods - local human interface, Foxboro PC-based configurator interface, or I/A Series System Workstation. Any of these methods allows complete configuration, calibration, status checking, and fault identification.

When operating in either of the two digital modes, the transmitter continuously delivers three measurement values, namely temperature compensated measurement, uncompensated (absolute) measurement, and temperature.

The 4 to 20 mA output is scalable and programmable as either normal or reverse acting. The user can assign the output to one of three parameters – temperature compensated measurement, uncompensated (absolute) measurement, or temperature.

Several selections of output damping are available ranging from 1 to 120 seconds. An output HOLD feature, easily accessible from the user interface, allows the output(s) to be frozen at user-defined value(s) to facilitate calibrations or sensor maintenance while not disturbing the control loop.

SENSOR AND TRANSMITTER DIAGNOSTICS

When used with Foxboro DolpHin Series, and applicable 871PH and 871A pH/ORP, and EP460 Series sensors, the 870ITPH delivers a multitude of sensor diagnostics. These include:

- ▶ Broken Glass Electrode
- ▶ Aging Glass Electrode
- ▶ Liquid Leakage into Sensor Body
- ▶ Failure of High Impedance Preamplifier in Sensor
- ▶ Failure of Temperature Compensation Element
- ▶ Excessive Coating of the Reference Electrode

In addition to sensor diagnostics, the transmitter continuously performs health checks on its own circuits. In the event of a fault in the system, one of three messages appears on the local display: “PROBE ER”, “XMTR ER”, or “CONFIG ER”. This top level message reporting allows the user to quickly isolate the problem to either the sensor or the transmitter. For additional information about the specific fault or faults, the user need only access the “DIAG” key and follow the prompts. Not only does this procedure identify the specific faults, but it also guides the user to a corrective action without referring to an instruction book.

LOCAL, HUMAN INTERFACE

The local human interface allows full configuration, calibration, and fault location without the need of a hand-held configurator. The interface consists of a 3-line LCD display and a keypad with eleven tactile keys. Refer to Figure 1.

The 3-line display provides a digital bar graph (which is activated while in the MEASURE mode) at the top and two lines of alphanumeric. The bar graph comprises twenty segments and indicates %-of-range of the 4 to 20 mA output. When in the CAL, CONFIG, STATUS, or DIAG mode, two segments are lit to indicate the present mode of operation. The bar graph also “zips” to confirm that a configuration entry has been accepted.

The second and third lines of the display are the alphanumerics relating to measurement values, measurement error indications, message reporting, and configuration and calibration prompts. These prompts simplify programming the transmitter and greatly reduce the need for instruction manuals. The primary measurement (e.g., pH) is shown on the

second line of the display. A secondary measurement (temperature, absolute mV, or output in mA) which is user-configurable, is shown on the third line of the display. The display characters are 15 mm (0.60 in) high, and allow easy reading from a distance.

INTELLIGENT CALIBRATIONS

Calibration routines are designed for simplicity and elimination of errors. All procedures are self-prompting. Two calibration routines are available. A “manual” calibration is for users who prefer to edit and enter the pH values of their buffer solutions, and an “automatic” calibration that provides a buffer-recognition mechanism which locks in on the buffer value most closely representing the combination of millivolts and temperature values being reported from the sensor. User-programmable stability parameters prevent the transmitter from accepting calibration data until both the pH and temperature signals from the probe have stabilized. Three tables of buffer values are preprogrammed in the transmitter. For flexibility, a custom buffer table may be user-programmed for unusual application requirements.

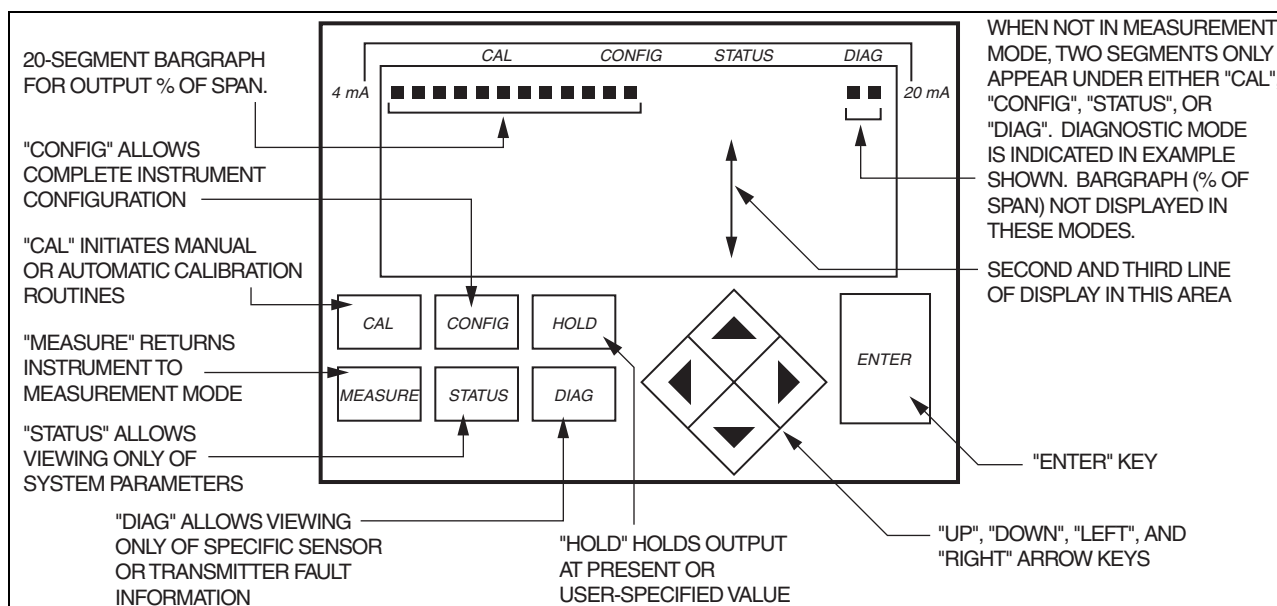


Figure 1. Human Interface – Display and Keypad

SECURE DATA AND CALIBRATIONS

Multiple levels of security protect against unauthorized configuration/calibration changes, loss of data, and/or invalid measurement signals. Two levels of passcode protection are provided. The first level permits access to routine maintenance functions, including calibration and output hold.

The second level permits changes to configuration parameters by authorized personnel. Data is stored in EEPROM, obviating the need for battery backup. Measurement loop security is enhanced by a user programmable “fail signal” parameter activated by any transmitter fault and certain serious sensor faults. This “fail signal” parameter forces the transmitter output to any user-defined value between 3.8 and 20.5 mA (or equivalent percentages of full scale when operating with digital communications).

QUICK AND INFORMATIVE STATUS

At the touch of a single key, the user gains access to all the information necessary to assess the performance of the pH loop. Among the parameters this “read only” key accesses are:

- ▶ Process Temperature
- ▶ Slope of pH Sensor
- ▶ Absolute (Uncompensated) Millivolt Value from pH Sensor
- ▶ Analog Output Value in Milliamps
- ▶ Status of Glass Electrode
- ▶ Asymmetry Potential
- ▶ Resistance of Reference Electrode
- ▶ Resistance of Temperature Compensator
- ▶ Date of Last Calibration

INTRINSICALLY SAFE DESIGN

The 870ITPH Transmitter is designed for compliance to FM, CSA, and ATEX standards for intrinsically safe and nonincendive apparatus in hazardous locations. Refer to Electrical Safety Specifications section.

RUGGED FIELD-MOUNTED ENCLOSURE

Housed in a tough, epoxy-painted cast aluminum housing, the 870ITPH is designed to withstand the harshest field conditions. The enclosure provides the environmental and corrosion-resistant protection of NEMA 4X, CSA Enclosure 4X, and IEC IP65. It also protects against RFI and EMI. Its efficient DIN panel-size design allows easy mounting for panel, pipe, or surface applications. A hinged front door provides easy front access to field connections. Large spade lug terminals for sensor and communications connections facilitate quick maintenance and calibration procedures. The keypad overlay is constructed of polycarbonate material.

The transmitter can also be provided with an optional polycarbonate storm door to prevent accidental activation of the front panel controls.

APPLICATION FLEXIBILITY

Microprocessor technology, coupled with a simple user interface, allows rapid customization of the transmitter to specific application requirements. ORP or ISE applications can be handled by simply reconfiguring the basic pH transmitter to the desired measurement. Temperature compensation is equally as flexible, as the transmitter offers the standard Nernst compensation for glass pH electrodes, as well as optional solution compensation for pure water and user-defined transforms.

COMPATIBLE WITH WIDE RANGE OF SENSORS

The transmitter contains an integral high impedance preamplifier, thus permitting it to be used with virtually any glass pH or noble metal ORP sensor. Also, the transmitter can be programmed to accept any of the three common temperature compensator inputs – 100 Ω platinum RTD, 1000 Ω platinum RTD, and Balco 3000 Ω RTD. This facilitates the use of the 870ITPH with many common non-Foxboro pH and

ORP sensors. When a nonpreamplified sensor is used, the Foxboro sensor cable length is limited to 15.2 m (50 ft). Where the distance between the sensor and transmitter is greater than 15.2 m (50 ft), the Foxboro 871PH and 871A pH/ORP sensors are offered with integral preamplifiers, thus allowing the cable length to extend to 152 m (500 ft). See Figure 2 for Foxboro sensors compatible with the 870ITPH Transmitter.

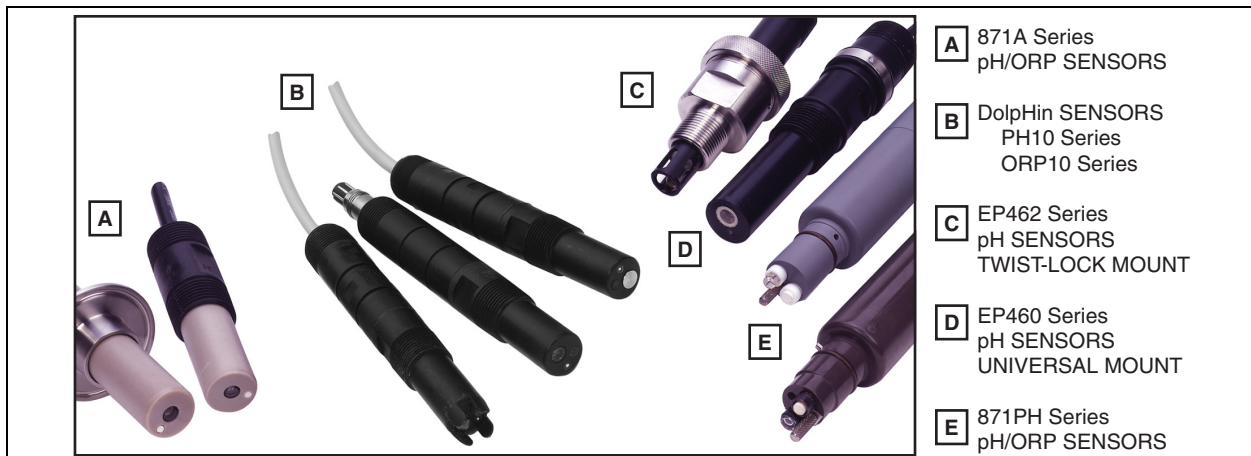


Figure 2. Foxboro pH and ORP Sensors

OPERATING, TRANSPORTATION, AND STORAGE CONDITIONS

Influence	Reference Operating Conditions	Normal Operating Conditions	Operative Limits	Transportation and Storage Limits
Ambient Temperature ▶ without Display (LCD) ▶ with Display (LCD)	▶ 23 ± 2°C (73 ± 4°F) ▶ 23 ± 2°C (73 ± 4°F)	▶ -25 to +55°C(c) (-13 to +131°F) ▶ -25 to +55°C(a)(c) (-13 to +131°F)	▶ -40 and +85°C(c) (-40 and +185°F) ▶ -30 and +60°C(a)(c) (-22 and +140°F)	▶ -55 and + 85°C (-67 and 185°F) ▶ -55 and + 85°C (-67 and 185°F)
Relative Humidity	50 ±10%	5 to 95%(b) Noncondensing	5 and 95%(b) Noncondensing	5 and 95% Noncondensing
Supply Voltage Over 4 to 20 mA 2-Wire Line	24 ± 2 V dc	12.5 to 42 V dc See Figure 5	12.5 and 42 V dc See Figure 5	Not Applicable
Output Load	250 Ω	0 to 1450 Ω (Figure 5)	0 and 1450 Ω (Figure 5)	Not Applicable
Isolation	±1 V dc	For Intrinsically Safe Applications: ±24 V dc For General Purpose (Ordinary) Locations: ±42 V dc		Not Applicable
Vibration	Negligible	For Panel Mounting: 2.5 m/s ² (0.25 “g”) from 5 to 200 Hz For Pipe or Surface Mounting: 10 m/s ² (1 “g”) from 5 to 200 Hz		Protected by Shipping Container

- (a) The LCD Indicator may have degraded performance between -20 and -30°C (-4 and -22 °F).
- (b) The transmitter will operate at a low limit of 0% RH but with a possible degradation of performance.
- (c) Refer to the Electrical Safety Specifications section for a restriction in ambient temperature with certain electrical certifications.

PERFORMANCE SPECIFICATIONS

(Transmitter Specifications under Reference Operating Conditions unless otherwise specified. Refer to Sensor Literature for Sensor Specifications.)

Accuracy – Measurement (Includes Linearity)

DIGITAL – PH

±0.009 pH

DIGITAL – ORP

±0.5 mV

ANALOG

Digital Accuracy ±0.04% of Full Scale

Accuracy – Solution Temperature

WITH 3-WIRE 100 Ω PLATINUM RTD

±0.1°C (±0.18°F)

WITH 3-WIRE 1000 Ω PLATINUM RTD

±0.03°C (±0.05°F)

Repeatability

Same performance as Accuracy

Ambient Temperature Effect

DIGITAL MEASUREMENT

±0.03% of full scale per °C

DIGITAL TEMPERATURE

±0.05% of full scale per °C

ANALOG

Digital ±0.03% of full scale per °C

PERFORMANCE SPECIFICATIONS (CONT.)

Relative Humidity Effect (5 to 95% RH)

Less than 0.1% of full scale

Supply Voltage and Load Effect

DIGITAL

Less than 0.005% of scale/V

ANALOG

Less than 0.005% of scale/V

Output Load Effect

Less than 0.05% of span. Effect is on output for a change in resistance of series circuit containing transmitter overload limits specified in Figure 3.

Vibration Effect (Sensor not included)

Less than 0.1% of full scale

Mounting Position Effect

Less than 0.01% of full scale for all mounting positions.

Output Noise

Less than 0.25% of full scale

Response Time

TEMPERATURE

3-wire RTD: < 14 seconds

2-wire RTD: < 9 seconds

MILLIVOLTS

< 1 second

Measurement Stability

±0.25% of full scale (temperature compensated and after six months)

Temperature Measurement Stability

±0.1% of full scale (noncumulative and after six months).

Common Mode Rejection Ratio

120 dB, dc; or 50/60 Hz, ac; between loop and sensor (42 volts peak)

Minimum Output Span

28 mV for all measurement types

Isolation

±24 V dc for intrinsically safe operations

±42 V dc for ordinary locations

RFI Immunity

Output error of < 0.5% of full scale when tested with field strength of 10 V/m (with 80% amplitude modulation) with conduit, from 80 to 1000 MHz.

High Frequency Transient

Can withstand a high frequency transient on the dc power lines of 2 kV, 5 x 50 ns impulse. (Per IEC Standard 61000-4-4.)

Lightning Transients

Withstands a transient of 2 kV on the dc power line (per IEC Standard 61000-4-5).

Radiated RFI Emissions

Meets CISPR Standard 11, Class A

Electrostatic Discharge

Meets IEC Standard 61000-4-2, 6 kV

FUNCTIONAL SPECIFICATIONS

Communications and Measurement Output

NO DIGITAL COMMUNICATIONS

4 to 20 mA Analog Output

I/A Series COMMUNICATION, SOFTWARE CONFIGURABLE

IT1 Mode

4 to 20 mA Analog Output and Low Speed Digital Communications, 600 Baud

IT2 Mode

High Speed Digital Communications, 4800 Baud

Measurement Range – Selectable

pH (HYDROGEN ION CONCENTRATION)

-2 to +16 pH

ORP (OXIDATION REDUCTION POTENTIAL)

-2000 to +2000 mV

ISE (ION SELECTIVE ELECTRODE CONCENTRATION)

0 to 2000 ppm

SOLUTION TEMPERATURE

-20 to +200°C (-4 to +392°F)

Temperature Compensation (pH Only)

Adjusts the Nernst slope factor to correct for the variation of the measuring electrode's potential with temperature. Thus, the displayed pH is the actual pH of the solution at process temperature. Optional solution temperature compensations for 1 ppm ammonia and user-programmed custom curves are available.

Temperature Compensation Range

-5 to +105°C (23 to 221°F) for pH or ISE only

Digital Outputs

1st MEASUREMENT

Primary measurement in units of primary display

2nd MEASUREMENT

Solution temperature

3rd MEASUREMENT

Absolute primary measurement

Analog Outputs

- ▶ Configurable to pH, ORP, ISE, or Temperature.
- ▶ Linear output within measurement range.
- ▶ Analog output hold.
- ▶ Analog output is programmable to any value between 3.8 mA and 20.5 mA upon failure.

Measurement Damping

1, 5, 10, 20, 40, and 120 seconds

Temperature Inputs

100 Ω platinum RTD, two or three wires

1000 Ω platinum RTD, two or three wires

3000 Ω Balco RTD, two wire

Input Impedance

10¹² Ω minimum on reference and pH electrode inputs; for use with or without external preamp.; screen (shield) drive provided.

Sensor Compatibility

- ▶ DolpHin PH10 and ORP10 Series
- ▶ 871PH-3, -4, -5, and -6 Series
- ▶ 871A-1, -3, and -4 Series
- ▶ EP460 Series
- ▶ EP462 Series
- ▶ EP466 Series
- ▶ Non-Foxboro sensors without integral preamplifiers, and with compatible TC elements.

FUNCTIONAL SPECIFICATIONS (CONT.)

Supply Voltage Requirements and External Loop Load Limitations

DIGITAL OUTPUT

Power supplied through I/A Series system

4 TO 20 mA OUTPUT (See Figure 3)

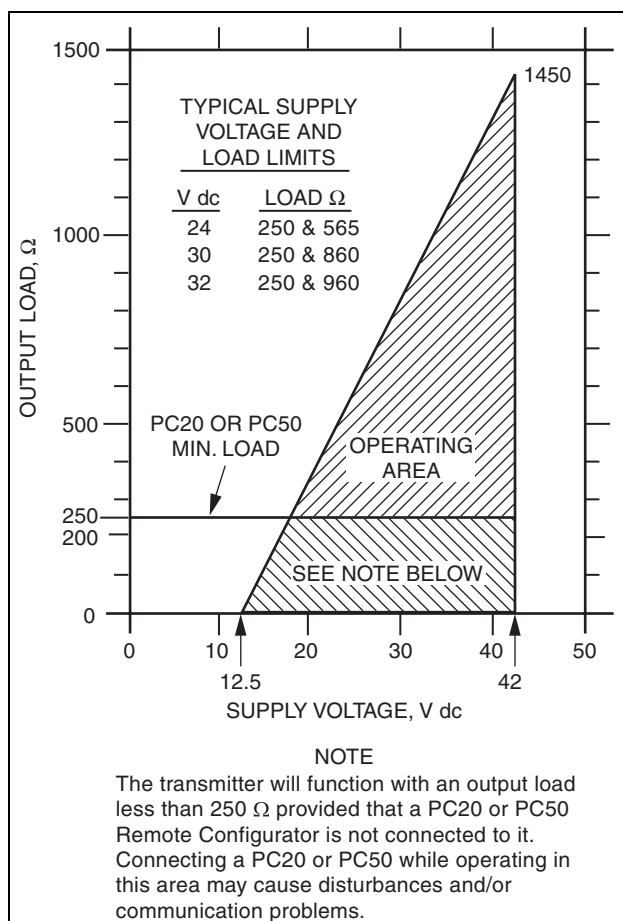


Figure 3. 4 to 20 mA Output, Supply Voltage vs. Output Load

Continuous Diagnostics

DIGITAL

Complete check every four seconds

ANALOG

Complete check every eight seconds

Background Sensor Diagnostics

- ▶ Broken Glass Electrode
- ▶ Liquid Leakage into Sensor
- ▶ Shorted RTD Temperature Compensator
- ▶ Open RTD Temperature Compensator
- ▶ Failed Preamplifier
- ▶ Fouled Reference Junction

Calibration Diagnostics

- ▶ Measurement Range Checks
- ▶ RTD Range Checks
- ▶ Measurement Slope (pH and ISE only)
- ▶ Aging Glass Electrode

On-Demand Diagnostics

- ▶ Solution Temperature Display
- ▶ Absolute Input (mV) Display
- ▶ Measurement Slope % Display
- ▶ Time of Last Calibration Display
- ▶ Other Device Status Displays

Background Electronics Self-Diagnostics

- ▶ Checksum, EEPROM, EPROM, and RAM Image of Database
- ▶ Code Space Checksum
- ▶ Stack Checking
- ▶ Watch-Dog Timer
- ▶ Verify Readable Processor Registers

Auto Buffer Recognition

The transmitter has three tables of preprogrammed pH buffer values, identified as American, European, and National Institute of Standards and Testing (NIST). Also, one user programmable table is available. Each table contains three value sets of pH and temperature.

PHYSICAL SPECIFICATIONS

Transmitter Enclosure

The housing and its gasketed cover are made from a cast low copper aluminum alloy, finished and protected by a textured epoxy paint.

Enclosure Protection

The enclosure is dusttight and weatherproof as defined by IEC IP65, and provides the environmental and corrosion resistant protection of NEMA Type 4X.

Transmitter Mounting

The transmitter can be panel-mounted, surface-mounted, or mounted to a DN 50 or 2-in pipe. Refer to “Dimensions–Nominal” section for mounting details.

Sensor Cable Length

SENSOR WITH INTEGRAL PREAMPLIFIER

152 m (500 ft) maximum

SENSOR WITHOUT PREAMPLIFIER

15.2 m (50 ft) maximum

Approximate Mass

PANEL-MOUNTED TRANSMITTER

2.2 kg (4.9 lb)

SURFACE-MOUNTED TRANSMITTER

2.8 kg (6.2 lb)

PIPE-MOUNTED TRANSMITTER

2.8 kg (6.2 lb)

OPTIONAL STORM DOOR

Negligible

Electrical Connections

Field wires enter through three cable entry holes at the lower surface of the housing, and terminate at screw terminals located on the power and signal PWA located within the enclosure. These terminals are accessible by swinging back the hinged front cover. The cable entry holes are sized to accommodate standard wiring conduit or cable

glands. Refer to Figure 4 for the wiring to the screw terminals, and to the “Dimensions–Nominal” section for the location and size of the cable entry holes.

NOTE

Each cable entry hole must be fitted to conduit, or sealed to maintain the level of integrity required by IEC IP65 and NEMA 4X (see previous Enclosure Protection paragraph).

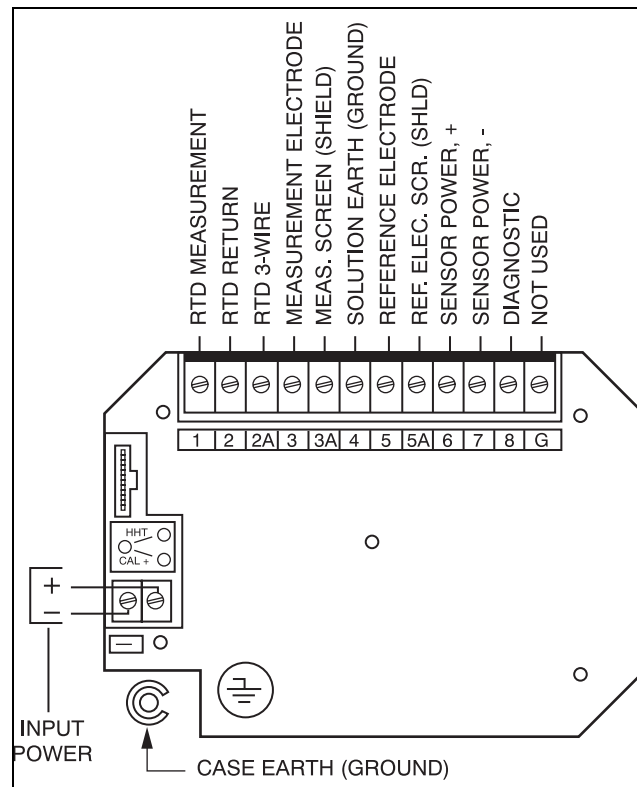


Figure 4. Wiring Diagram

ELECTRICAL SAFETY SPECIFICATIONS

Testing Laboratory, Type of Protection, and Area Classification	Application Conditions	Electrical Safety Design Code
ATEX Type ia for II I G, EEx ia IIC hazardous locations.	Refer to MI 611-208. Temperature Class T4 - T6; Ta = -20 to +40°C	AAA
ATEX Type n energy limited for II 3 G EEx nL IIC hazardous locations.	Refer to MI 611-208. Temperature Class T4 - T6; Ta = -20 to +60°C	ANN
CSA intrinsically safe for Class I, II, and III, Groups A, B, C, D, E, F, and G, Division 1 hazardous locations.	Connect per MI 611-206. Temperature Class T4.	CAA
CSA suitable for use in Class I, Groups A, B, C, D, F, and G, Division 2 hazardous locations.	Temperature Class T4.	CNZ
FM intrinsically safe for Class I, II, and III, Groups A, B, C, D, E, F, and G, Division 1 hazardous locations.	Connect per MI 611-206. Temperature Class T4.	FAA
FM nonincendive for Class I, II, and III, Groups A, B, C, D, F, and G, Division 2 hazardous locations.	Temperature Class T4.	FNZ

NOTE

1. Transmitters have been designed to meet the electrical safety descriptions listed in table above. For status of the testing laboratory approvals or certifications, contact IPS.
2. MI 611-206 contains Intrinsic Safety Connector Diagrams relating to FM and CSA approvals and certifications.
3. MI 611-208 contains Electrochemical Products Safety Information relating to ATEX certifications. Also provides additional information regarding higher allowable ambient temperature (Ta) limits.
4. With intrinsically safe and nonincendive certifications/approvals, a certified energy barrier is required.

MODEL CODE

<u>Description</u>	<u>Model</u>
Intelligent Electrochemical Transmitter for pH, ORP, or ISE Measurement	870ITPH
<u>Communications and Measurement Output</u> No Digital Communication, 4 to 20 mA Analog Output only Intelligent; I/A Series Digital FoxCom and 4 to 20 mA dc, Configurable to: <ul style="list-style-type: none"> ▶ IT1 Mode: 4 to 20 mA Output and Low Speed Digital Communications, 600 Baud ▶ IT2 Mode: High Speed Digital Communications only, 4800 Baud 	-A -F
<u>Enclosure Mounting</u> Panel Mounting Surface Mounting Pipe Mounting (DN 50 or 2-in Pipe)	W X Y
<u>Electrical Safety (also see “Electrical Safety Specifications” section)</u> ATEX Type ia for II 1 G, EEx ia IIC. ATEX Type n energy limited for II 3 G, EEx nL IIC. CSA certified intrinsically safe, Class I, II, III, Groups A, B, C, D, E, F, and G, Division 1. CSA certified suitable for use in Class I, Groups A, B, C, D, F, and G, Division 2. FM approved intrinsically safe, Class I, II, and III, Groups A, B, C, D, E, F, and G, Division 1. FM approved nonincendive, Class I, II, and III, Groups A, B, C, D, F, and G, Division 2.	AAA ANN CAA CNZ FAA FNZ
<u>Optional Selections</u> Special per Engineering Order Storm Door French Language Menu German Language Menu Spanish Language Menu	-1 -7 -F -G -S
Example: 870ITPH-FXFAA-7	

OPTIONAL FEATURES

Option -7: Storm Door

This door is attached to the front surface of the enclosure and hinges upward. It is used to prevent accidental or inadvertent actuation of front panel controls, particularly in field mounting applications. The door is clear plastic to allow viewing of the display when closed, and also hinged to allow ready access to front panel controls. Select Option “-7”.

Option -1: Special Option per Engineering Order

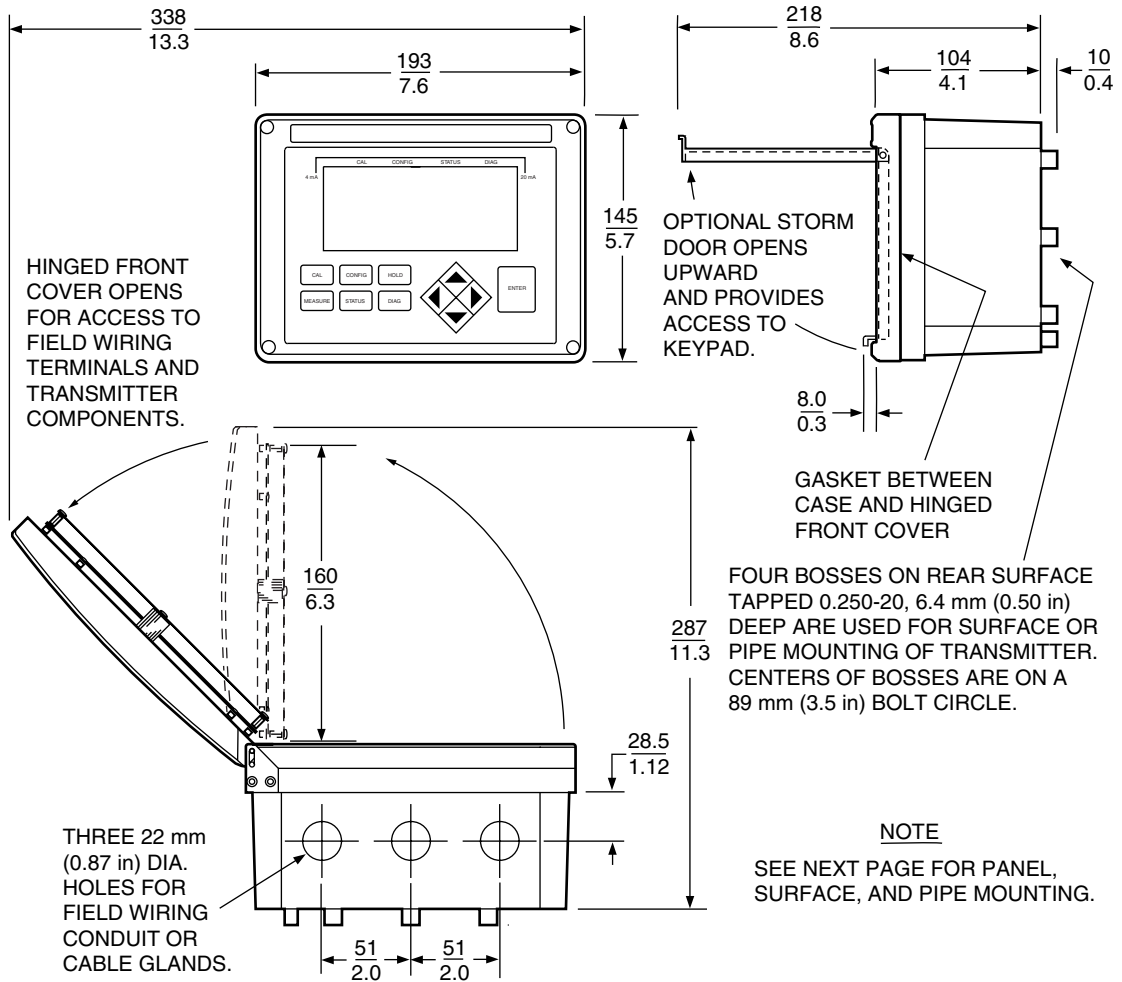
This option is normally used to provide the ability to preconfigure custom (nonstandard) temperature compensation curves into the instrument. Contact Foxboro for other applicable requirements. Select Option “-1” and describe special option desired.

Options -F, -G, -S: Foreign Language Menus

Menus are available in the French, German, and Spanish languages. See Model Code above.

DIMENSIONS-NOMINAL

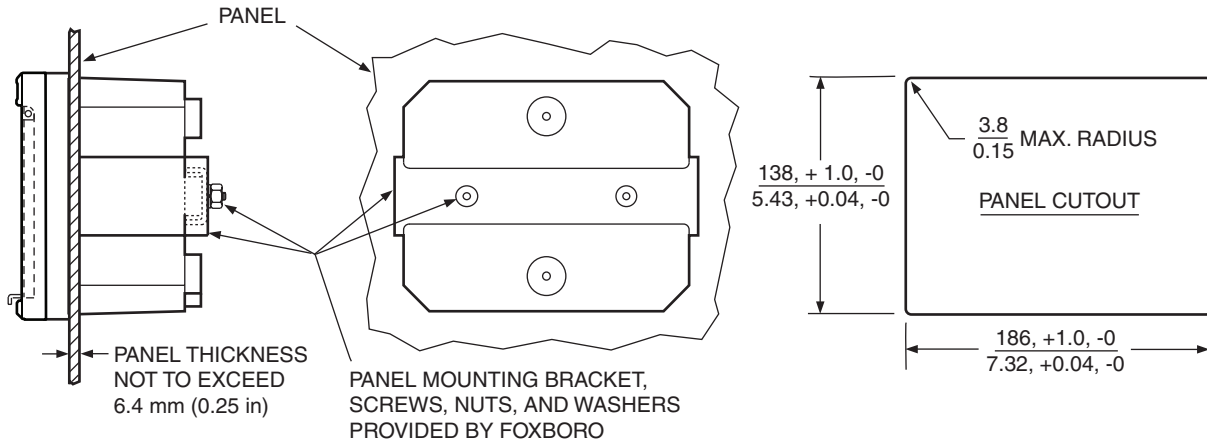
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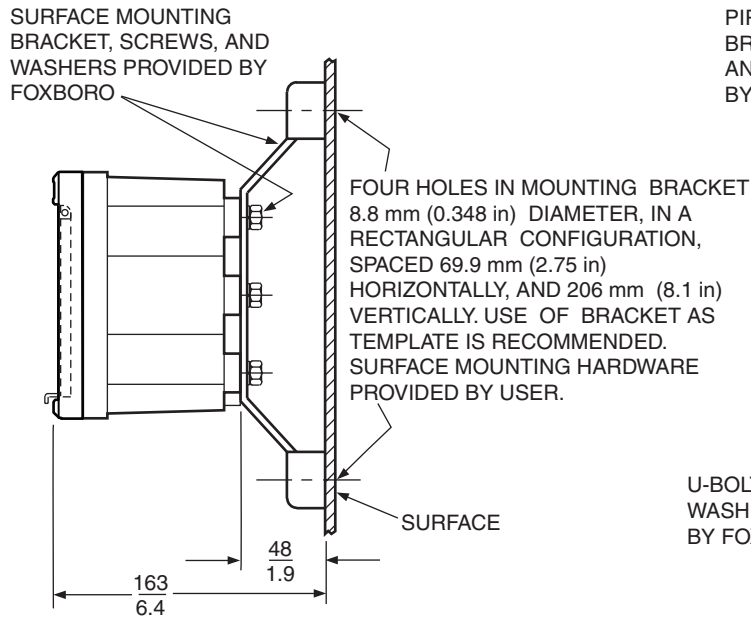
DIMENSIONS—NOMINAL (CONT.)

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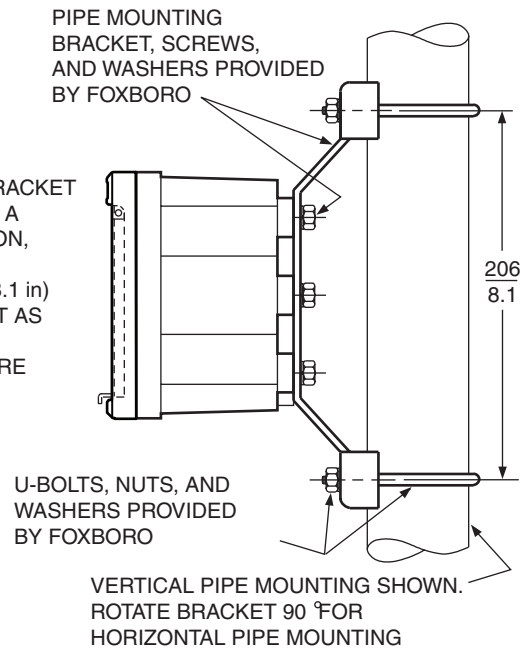
PANEL MOUNTING



SURFACE MOUNTING



PIPE MOUNTING



REFERENCE DOCUMENTS

Document Number	Document Description
PSS 2A-1Z3 G	Model PC50 Field Device Tool for Use with Intelligent Field Devices
PSS 6-1C2 A	871PH Series pH and ORP Sensors and Accessories
PSS 6-1C2 B	871A Series pH and ORP Sensors and Accessories
PSS 6-1C3 A	Dolphin Series pH and ORP Sensors and Accessories
MI 611-206	Intrinsic Safety Connector Diagrams - FM and CSA
MI 611-208	Electrochemical Products Product Safety Information - ATEX
MI 611-211	870ITPH Intelligent Transmitter for pH, ORP, and ISE Measurements
Bulletin K99-2	EP460 Series, pH Sensors, Universal Mount
Bulletin K99-3	EP462 Series, pH Sensors, Twist-Lock Mount
Bulletin K99-4	EP466 Series, pH Sensors, Insertion/Retractable Mount

ORDERING INSTRUCTIONS

1. Model Number.
2. Measurement Range.
3. Measuring Electrode Type; Specify Glass pH, Antimony pH, ORP, or ISE (specify type).
4. Temperature Compensation Input (100 Ω RTD, 1000 Ω RTD, or Balco 3000 Ω RTD).
5. User Tag Data and Application.

OTHER M&I PRODUCTS

IPS provides a broad range of measurement and instrument products, including solutions for pressure, flow, analytical, positioners, temperature, controlling and recording. For a listing of these offerings, visit the IPS web site at:

www.ips.invensys.com



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5601 Granite Parkway Suite 1000
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Foxboro Global Client Support
Inside U.S.: 1-866-746-6477
Outside U.S.: 1-508-549-2424 or contact
your local Foxboro representative.
Facsimile: 1-508-549-4999

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