Product Specifications

873A Series Electrochemical Analyzers
pH, Contacting Conductivity, Electrodeless Conductivity, and Resistivity

METAL ENCLOSURE VERSION
MOUNTING HARDWARE NOT SHOWN

METAL ENCLOSURE VERSION
WITH PIPE MOUNTING HARDWARE

These easy-to-use electrochemical analyzers are a family of four instruments which provide measurement, display, and signal transmission of pH, contacting conductivity, electrodeless conductivity, or resistivity. Solution temperature is also measured to provide temperature display and automatic temperature compensation. A choice of isolated 0 to 20 mA, 4 to 20 mA, or 0 to 10 V dc measurement output signal is offered. The multi-function, front-panel keypad, provides for configuration and operational control. As symbolized by the "CE" marking, these Analyzers conform to the European Union directives.

EASY-TO-USE – FAMILY OF ANALYZERS

The 873A Series of easy-to-use electrochemical analyzers – pH, contacting conductivity, electrodeless conductivity, and resistivity form a family of instruments. All four instruments share similar front keypads, a common analyzer housing, common mounting hardware, and identical input/output wiring. In addition, wherever possible, similar setup codes and procedures are used for each analyzer type, which provides ease of use across the family of instruments.

The 873A family of easy-to-use electrochemical analyzers is complimentary to the 873 family of electrochemical analyzers. See PSS 6-1C1 E for complete specifications on the full-featured 873 Analyzers.

USER-FRIENDLY CONFIGURATION

The 873A Analyzers share a user-friendly menu structure which allows both new and experienced users to put the 873A on-line quickly and easily.

ANALOG OUTPUT

The 873A Analyzers retransmit a single analog output proportional to the sensor measurement. The output is isolated, with span limits continuously adjustable via the keypad to any values within the instrument's entered full scale value. Available output signals are 0 to 10 V dc, 4 to 20 mA dc, and 0 to 20 mA dc (jumper selectable).

DUAL ALARMS

Dual independent, Form C dry alarm contacts, rated 5A noninductive, 125 V ac/30 V dc are provided as a standard feature. When an alarm condition exists, the alarm status is alternately displayed with the measurement on the LED display.

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HAZARDOUS AREA CLASSIFICATION

The field-mounted, epoxy-painted, cast and extruded aluminum versions are designed to meet the requirements for Class I, Division 2, Groups A, B, C and D hazardous locations.

FRONT PANEL DISPLAY AND KEYPAD

The instrument's display consists of a four-digit bank of red LED's with decimal point, and an illuminated legend area to the right of the LED's. As one of the few instruments in its class using a 14.2 mm (0.56 in) display height, it provides visibility at a distance up to 6 m (20 ft). There are six backlit legends (mV, pH, µS/cm, mS/cm,%, MΩ•cm) contingent on model type. The digits are clearly visible through a nonreflective, protective window on the front panel.

The measurement value is the normally displayed data. During calibration or configuration, the display will show the parameters relating to these procedures. At any time, the operator may return the instrument to the measuring mode by simply pressing the MEAS key.

During normal operation, the measurement value is steadily displayed. If alarm conditions are detected, the display alternates between the measurement value and the alarm message at a one second rate.

Each instrument's front panel keypad consists of eight keys. Certain keys are for fixed functions, while other keys are for split functions. The upper function of a split function key is actuated by pressing the shift key in conjunction with the split function key.

RUGGED 1/4 DIN, METAL FIELD-MOUNTED ENCLOSURE

The metal field-mounted enclosure is suitable for either panel, pipe, or surface mounting. It is constructed of cast and extruded aluminum, coated with a tough epoxy-based paint. The enclosure is watertight, dusttight, and corrosion-resistant, meeting requirements of NEMA 4X, CSA ENCL 4X, and IEC IP65. It fits in a 92 x 92 mm (3.6 x 3.6 in) panel cutout (1/4 DIN size). The metal enclosure provides inherent protection against radio frequency interference (RFI) and electromagnetic interference (EMI).

The 873A is also available in a molded glass-filled Noryl enclosure, which is ideal for panel mounting in non-hazardous general purpose locations.

SIMPLIFIED APPLICATION FLEXIBILITY

The 873A offers application flexibility through its standard software package. To provide quick and easy configuration, the user interface has been greatly simplified. The software allows the user to define the key operating parameters: measurement range, alarm configuration, and output characterization. These parameters are retained in the EEPROM nonvolatile memory. Following power interruptions, all operating parameters are maintained.

Measurement Range

The 873A Analyzer has wide range capability built in. For example, the contacting conductivity analyzer can be configured through the set-up key to measure 17 different ranges from 0 to 1, to 0 to 20,000 µS/cm. This feature permits a user the ability to stock a single unit and apply it to any measurement range within that technology.

Temperature compensation selection is accessible through the set-up key. The user may select the type of temperature compensation which best satisfies the application. For example, the electrodeless conductivity analyzer offers a host of preprogrammed temperature compensation curves, including such electrolytes as sodium chloride (NaCl), sulfuric acid (H_2SO_4), and sodium hydroxide (NaOH).

Alarm Configuration

Each of the two alarms may be configured to the user's requirements. The configurable parameters within the alarms are measurement set point and alarm sense.

Alarm sense defines normal operation and activation of alarms on deviation from normal measurement. Each alarm may be configured as a low alarm, high alarm, or set to off. If both alarms are used, the configuration possibilities are high/low, high/high, or low/low. If alarms are not needed, they can be easily set to off.

Both alarms are set as active so that relay activation occurs when instrument goes from alarm to normal operation (fail safe). Alarm hysteresis is set for each alarm at 1% of full scale measurement.

In addition, either alarm can be used as a “power-loss” indicator because the relay is in the normally energized (fail-safe) mode.

Output Characterization

The 873A Analyzer provides isolated, jumper-selectable, 4 to 20 mA dc, 0 to 20 mA dc or 0 to 10 V dc output proportional to the measurement. The output signal may be configured to be either normal or reverse acting. The output signal may be spanned over any portion of the measurement range. An example of the use of this feature is a pH unit monitoring 0 to 14 pH. The output may be spanned for example, such that 6 pH equals 4 mA dc, and 9 pH equals 20 mA dc, providing greater readability and control on auxiliary recorders and controllers.

Output damping is provided, thus a noisy measurement signal is smoothed out to offer, for example, less tripping of alarms.

EXTENSIVE DIAGNOSTICS

Built-in self tests continuously monitor the instrument's operation. Upon initial power-up, the instrument undergoes an initialization process that performs checksum tests on the PROM and EEPROM memories, a read/write test, an A/D test, and an interrupt input test. Variations of these tests are performed continuously as background tasks as part of the normal operating function.

A software watchdog timer in the microprocessor continuously monitors the activity of the instrument's software. A 1-second timeout time is set in the watchdog timer during initialization.

Subsequently, the software must reset the time at a rate less than the timeout time in order to prevent a RESET from occurring. If RESET occurs, the instrument undergoes a restart as it does during power-up. If the fault persists, the instrument does not attain normal operation. In this situation, the software version code is frequently displayed, thus indicating watchdog timeout.

A voltage level detector constantly monitors the microprocessor's +5 V dc power. When the microprocessor's voltage drops below the normal operating level, the RESET is activated. If the level remains below normal, the microprocessor will not restart. If the level goes above and below the normal level, the microprocessor attempts to restart, likewise displaying the software version code.

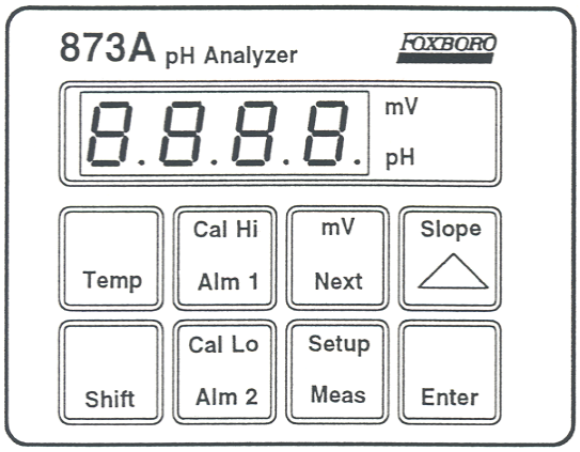
Dynamic temperature readings are constantly compared against preset upper and lower temperature limits to ensure that temperature compensation continues to function.

COMPATIBLE SENSORS

The following sensors are compatible with the 873A Analyzer:

- 871PH Series pH Sensors
- 871A Series pH Sensors
- AS100 Series pH Sensors
- 871EC Series Sensors for Electrodeless Conductivity
- 871CC Series Sensors for Contacting Conductivity and Resistivity
- 871FT Series Conductivity Flowcells

873APH pH ANALYZER
FEATURES AND BENEFITS



INTEGRAL PREAMPLIFIER

The 873APH Analyzer contains an integral preamplifier, making it compatible with either high impedance or preamplified sensor inputs.

DEDICATED SLOPE AND MILLIVOLT DISPLAYS

A single keystroke combination allows the user to display the Nernst slope (mV per pH unit) determined by the last 2 point calibration, as well as the absolute voltage generated by the sensor. This feature aids troubleshooting by providing information about the health of the sensor and the validity of the calibration.

INSTRUMENT SPECIFICATIONS

(For general 873A Analyzer specifications, see 873A ANALYZER - COMMON SPECIFICATIONS on page 12)

Measurement Range
-2 to +16 pH (pH measurement)

Units of Measure
pH

Display Resolution
-2.00 to +16.00 pH (pH measurement)

Temperature Compensation
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.

Temperature Compensation Range
-5 to +105°C (23 to 221°F) for pH

Required Temperature Compensation Element
100Ω Platinum RTD

Sensor Cable Length
152 m (500 ft) maximum (preamplified sensor)
15 m (50 ft) maximum (non-preamplified sensor)

Analog Output
pH

Ambient Temperature Effect
±0.2 mV/°C under normal operating conditions

Accuracy
ANALOG OUTPUT
±0.25% of Upper Range Limit
DIGITAL DISPLAY
±0.1% of Upper Range Limit

Input Impedance
$10^{13}\Omega$ minimum; for use with or without external preamplifier; screen (shield) drive provided

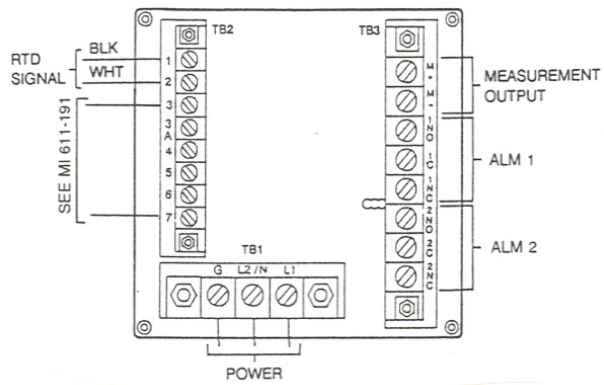
Preamplifier Power
±6.4 V dc at 10 mA, regulated

MODEL CODE – pH Electrochemical Analyzer

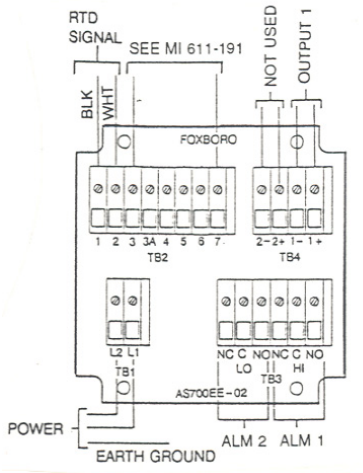
Description	**Model**
pH Electrochemical Analyzer	873APH
Supply Voltage and Frequency	
120 V ac, 50/60 Hz	–A
220 V ac, 50/60 Hz	–B
240 V ac, 50/60 Hz	–C
24 V ac, 50/60 Hz	–E
100 V ac, 50/60 Hz	–J
Measurement Output	
0 to 20 mA dc, Isolated	E
4 to 20 mA dc, Isolated	I
0 to 10 V dc, Isolated	T
Enclosure	
General Purpose, Plastic, Panel Mounting	P
Field, Metal, Panel Mounting	W
Field, Metal, Surface Mounting - Fixed	X
Field, Metal, Pipe Mounting	Y
Field, Metal, Surface Mounting - Movable	Z
Electrical Certification	
CSA, Ordinary Locations (For use with Supply Voltages -A, -J, -E)	CGZ
CSA, Class I, Division 2, Groups A, B, C, and D Hazardous Locations (For use with Enclosures W, X, Y, Z and Supply Voltages -A, -J, -E)	CNZ
FM, Ordinary Locations	FGZ
FM Approved as Nonincendive; Zone 2; Division 2 (For use with Enclosures W, X, Y, Z)	FNZ
No Electrical Certification	ZZZ
Optional Selections	
NEMA 12 Rear Cover, Used with “P” Enclosure Only	–1
OEM Labeling	–2
Storm Door	–7
Example: 873APH–AIWFNZ–7	

WIRING DIAGRAM OF 873APH ELECTROCHEMICAL ANALYZERS (SEE MI 611-191)

WITH PLASTIC ENCLOSURE

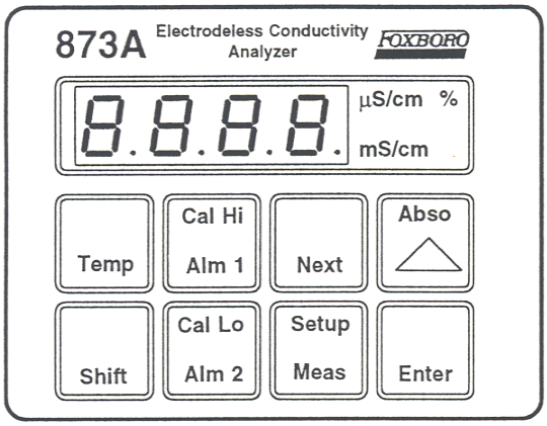


WITH METAL ENCLOSURE



873AEC ELECTRODELESS CONDUCTIVITY ANALYZER

FEATURES AND BENEFITS



CONDUCTIVITY OR CONCENTRATION

The 873AEC can be configured to read µS/cm, mS/cm, or % concentration. A series of preprogrammed temperature compensation and % concentration curves are available as a standard feature, allowing for the measurement of conductivity or concentration.

CHEMICAL CONCENTRATION CONTROL

On/Off Control of chemical concentration can be accomplished with the 873AEC by using alarm relays. Noncontacting sensors provide reliable chemical concentration measurement, saving money by minimizing chemical waste.

HIGH SENSITIVITY EC

When the 873AEC is used with a Foxboro high sensitivity PEEK sensor, solution conductivity as low as 5 µS/cm can be accurately measured. EC sensors can then replace contacting sensors, reducing sensor fouling and maintenance.

INSTRUMENT SPECIFICATIONS

(For general 873A Analyzer specifications, see 873A ANALYZER - COMMON SPECIFICATIONS on Page 12)

Measurement Range
50, 100, 200 and 500 µS/cm 1, 2, 5, 10, 20, 50, 100, 200, 500, 1000, and 2000 mS/cm. See "Temperature Compensation Curves" below for chemical concentration ranges.

Temperature Compensation Curves
NaCl, dilute at 25°C
HCl, 0–15% at 25°C
H_2SO_4, 0–25% at 25°C
H_2SO_4, 93–99.5% at 50°C
NaOH, 0–15% at 25°C
NaOH, 0–20% at 100°C

Chemical Concentration Ranges
HCl, 0–15% (25°C)
H $_2SO_4$, 0–25% (25°C); 93–99.5% (50°C)
NaOH, 0–15% at (25°C); 0–20% (100°C)

Units of Measure
µS/cm, mS/cm, %

Display Resolution
0.000 to 999.9 µS/cm or 0.000 to 2000 mS/cm

Required Temperature Compensation Element
100 Ω Platinum RTD or 100 KΩ Thermistor

Sensor Cable Length
30.5 meters (100 feet) maximum

Analog Output Selections
Conductivity or % Concentration

Ambient Temperature Effect
±0.05% of Upper Range Limit/°C under normal operating conditions

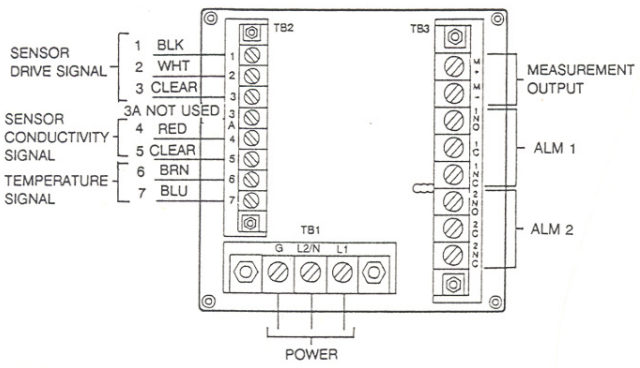
Accuracy
ANALOG OUTPUT
±0.5% of Upper Range Limit
DIGITAL DISPLAY
±0.5% of Upper Range Limit

MODEL CODE – Electrodeless Conductivity Electrochemical Analyzer

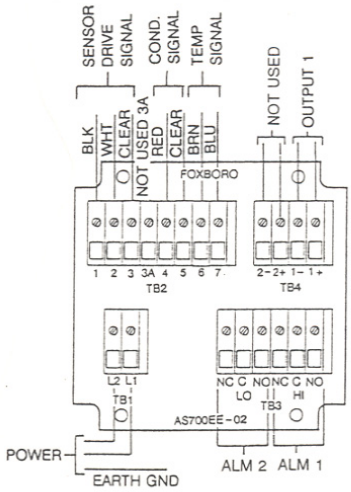
Description	**Model**
Electrodeless Conductivity Electrochemical Analyzer	873AEC
Supply Voltage and Frequency	
120 V ac, 50/60 Hz	–A
220 V ac, 50/60 Hz	–B
240 V ac, 50/60 Hz	–C
24 V ac, 50/60 Hz	–E
100 V ac, 50/60 Hz	–J
Measurement Output	
0 to 20 mA dc, Isolated	E
4 to 20 mA dc, Isolated	I
0 to 10 V dc, Isolated	T
Enclosure	
General Purpose, Plastic, Panel Mounting	P
Field, Metal, Panel Mounting	W
Field, Metal, Surface Mounting - Fixed	X
Field, Metal, Pipe Mounting	Y
Field, Metal, Surface Mounting - Movable	Z
Electrical Certification	
CSA, Ordinary Locations (For use with Supply Voltages -A, -J, -E)	CGZ
CSA, Class I, Division 2, Groups A, B, C, and D (For use with Enclosures W, X, Y, Z and Supply Voltages -A, -J, -E)	CNZ
FM Certified, Ordinary Locations	FGZ
FM Approved as Nonincendive; Zone 2; Division 2 (For use with Enclosures W, X, Y, Z)	FNZ
No Electrical Certification	ZZZ
Optional Selections	
NEMA 12 Rear Cover, Used with “P” Enclosure Only	–1
OEM Labeling	–2
Storm Door	–7
Example: 873AEC–AIPFGZ–7	

WIRING DIAGRAM OF 873AEC ELECTROCHEMICAL ANALYZERS (SEE MI 611-193)

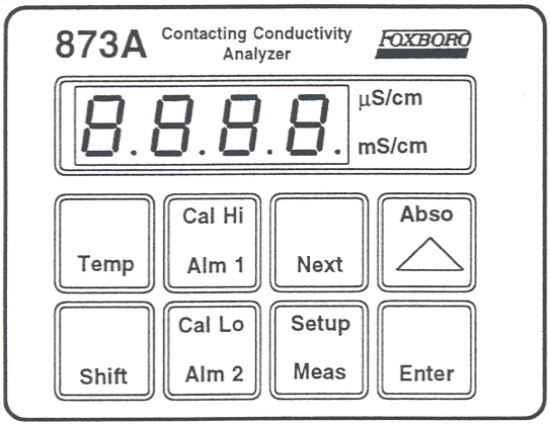
WITH PLASTIC ENCLOSURE



WITH METAL ENCLOSURE



873ACC CONTACTING CONDUCTIVITY ANALYZER
FEATURES AND BENEFITS



PROGRAMMABLE CELL FACTORS

Each Foxboro 871CC Conductivity Sensor of nominal 0.1 cm^{-1} cell factor is factory tested and labeled with the actual cell factor data, and with the actual temperature response at 25×C. The 873ACC Analyzer can be programmed with these values so that the analyzer can be specifically calibrated with that sensor's cell factor and temperature response. This feature ensures the highest possible accuracy. It also allows for the flexibility of changing the cell factor in the field.

ABSOLUTE CONDUCTIVITY VIA KEYPAD

A single keystroke combination allows the user to view uncompensated conductivity data, providing useful diagnostic information and greatly simplifying troubleshooting efforts.

INSTRUMENT SPECIFICATIONS

(For general 873A Analyzer specifications, see 873A ANALYZER - COMMON SPECIFICATIONS on Page 12)

Measurement Range
1, 2, 5, 10, 20, 50, 100, 200, and 500 µS/cm
0.1, 0.2, 0.5, 1, 2, 5, 10, 20 mS/cm

Units of Measure
µS/cm and mS/cm

Display Resolution
0.000 to 999.9 µS/cm
0.000 to 20.00 mS/cm

Temperature Compensation
Dilute NaCl solution with water subtraction referenced to 25°C

Temperature Compensation Range
-5 to +121°C (0 to 250°F) for 100 KΩ Thermistor
0 to 199°C (32 to 390°F) for 100 RTD

Sensor Cable Length
152 meters (500 feet) maximum

Analog Output
Conductivity

Ambient Temperature Effect
±0.05% of Upper Range Limit/°C under normal operating conditions

Required Cell Factor
0.1 cm^{-1} (for ranges of 1 through 100 µS/cm)
10 cm^{-1} (for ranges of 0.1 through 20 mS/cm)

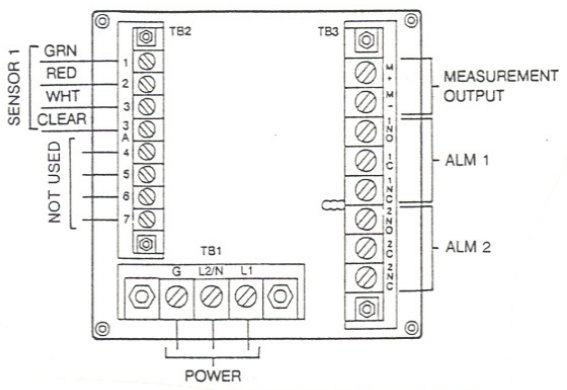
Accuracy
ANALOG OUTPUT
±0.5% of Upper Range Limit
DIGITAL DISPLAY
±0.5% of Upper Range Limit

MODEL CODE – Contacting Conductivity Electrochemical Analyzer

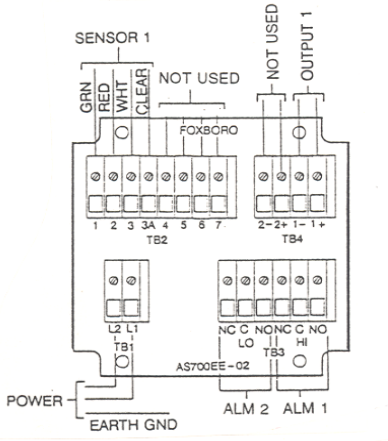
Description	**Model**
Contacting Conductivity Electrochemical Analyzer	873ACC
Supply Voltage and Frequency	
120 V ac, 50/60 Hz	–A
220 V ac, 50/60 Hz	–B
240 V ac, 50/60 Hz	–C
24 V ac, 50/60 Hz	–E
100 V ac, 50/60 Hz	–J
Measurement Output	
0 to 20 mA dc, Isolated	E
4 to 20 mA dc, Isolated	I
0 to 10 V dc, Isolated	T
Enclosure	
General Purpose, Plastic, Panel Mounting	P
Field, Metal, Panel Mounting	W
Field, Metal, Surface Mounting - Fixed	X
Field, Metal, Pipe Mounting	Y
Field, Metal, Surface Mounting - Movable	Z
Electrical Certification	
CSA, Ordinary Locations (For use with Supply Voltages -A, -J, -E)	CGZ
CSA, Class I, Division 2, Groups A, B, C, and D Hazardous Locations (For use with Enclosures W, X, Y, X and Supply Voltages -A, -J, -E)	CNZ
FM, Ordinary Locations	FGZ
FM Approved as Nonincendive; Zone 2; Division 2 (For use with Enclosures W, X, Y, Z	FNZ
No Electrical Certification	ZZZ
Optional Selections	
NEMA 12 Rear Cover, Used with “P” Enclosure Only	–1
OEM Labeling	–2
Storm Door	–7
Example: 873ACC–AIPFGZ–7	

WIRING DIAGRAM OF 873ACC ELECTROCHEMICAL ANALYZERS (SEE MI 611-192)

WITH PLASTIC ENCLOSURE

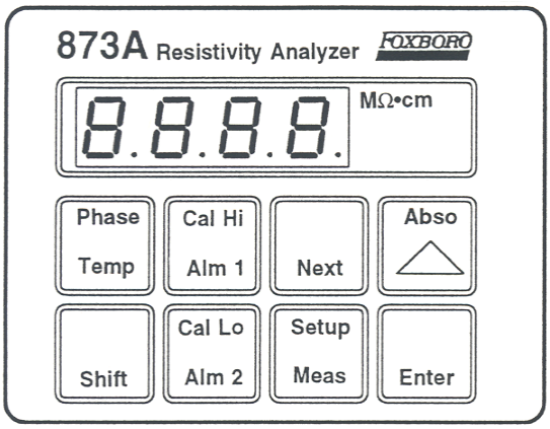


WITH METAL ENCLOSURE



873ARS RESISTIVITY ANALYZER

FEATURES AND BENEFITS



PROGRAMMABLE CELL FACTORS

Each Foxboro 871CC Resistivity Sensor is factory tested and labeled with the actual cell factor correct to four decimal places, and with the actual temperature response at 25°C. The 873ARS Analyzer can be programmed with these values so that the analyzer can be specially calibrated with that sensor's cell factor and temperature response. This feature ensures the highest possible accuracy, and also allows for the flexibility of changing the cell factor in the field.

ABSOLUTE RESISTIVITY VIA KEYPAD

A single keystroke combination allows the user to view uncompensated resistivity data, providing useful diagnostic information and greatly simplifying troubleshooting efforts

INSTRUMENT SPECIFICATIONS

(For general 873A Analyzer specifications, see 873A ANALYZER - COMMON SPECIFICATIONS on Page 12)

Measurement Range
0 to 20 MΩ•cm

Units of Measure
MΩ•cm

Display Resolution
00.00 to 20.00 MΩ•cm

Temperature Compensation
Ultrapure water temperature correction referenced to 25°C (treated as a dilute NaCl curve)

Temperature Compensation Range
0 to 120°C (32 to 248°F)

Required Temperature Compensation Element
100Ω RTD or 100 KΩ Thermistor

NOTE
For best system accuracy at elevated temperatures, use RTD input sensors.

Sensor Cable Length
152 meters (500 feet) maximum

Analog Output
Resistivity

Ambient Temperature Effect
±0.05% of Upper Range Limit/°C under normal operating conditions

Required Cell Factor
0.1 cm^{-1}

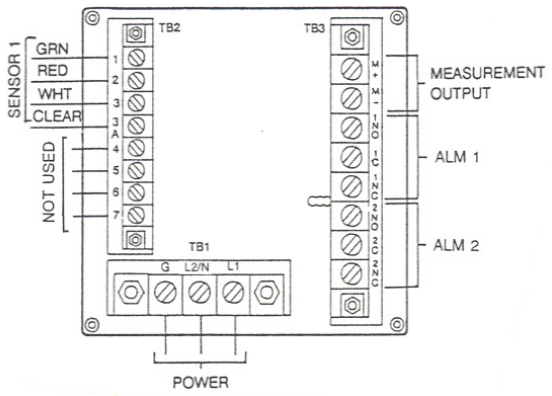
Accuracy
ANALOG OUTPUT
±0.5% of Upper Range Limit
DIGITAL DISPLAY
±0.5% of Upper Range Limit

MODEL CODE – Resistivity Electrochemical Analyzer

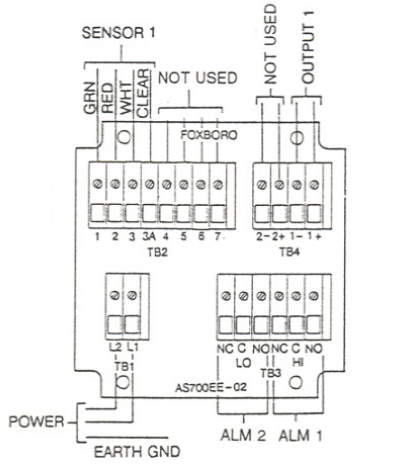
Description	**Model**
Resistivity Electrochemical Analyzer	873ARS
Supply Voltage and Frequency	
120 V ac, 50/60 Hz	–A
220 V ac, 50/60 Hz	–B
240 V ac, 50/60 Hz	–C
24 V ac, 50/60 Hz	–E
100 V ac, 50/60 Hz	–J
Measurement Output	
0 to 20 mA dc, Isolated	E
4 to 20 mA dc, Isolated	I
0 to 10 V dc, Isolated	T
Enclosure	
General Purpose, Plastic, Panel Mounting	P
Field, Metal, Panel Mounting	W
Field, Metal, Surface Mounting - Fixed	X
Field, Metal, Pipe Mounting	Y
Field, Metal, Surface Mounting - Movable	Z
Electrical Certification	
CSA, Ordinary Locations (For use with Supply Voltages -A, -J, -E)	CGZ
CSA, Class I, Division 2, Groups A, B, C, and D Hazardous Locations (For use with Enclosures W, X, Y, Z and Supply Voltages -A, -J, -E)	CNZ
FM, Ordinary Locations	FGZ
FM Approved as Nonincendive; Zone 2; Division 2 (For use with Enclosures W, X, Y, Z)	FNZ
No Electrical Certification	ZZZ
Optional Selections	
NEMA 12 Rear Cover, Used with “P” Enclosure Only	–1
OEM Labeling	–2
Storm Door	
Example: 873ARS–AIYFNZ	

WIRING DIAGRAM OF 873ARS ELECTROCHEMICAL ANALYZERS (SEE MI 611-194)

WITH PLASTIC ENCLOSURE



WITH METAL ENCLOSURE



873A ANALYZER - COMMON SPECIFICATIONS

(For measurement-specific specifications, refer to the specification page for the appropriate instrument)

PERFORMANCE SPECIFICATIONS

Accuracy - Temperature Measurement
±1% of Upper Range Limit

Accuracy - Temperature Compensation
±0.2% of Upper Range Limit, based on reference solution

Linearity
±0.1% of Upper Range Limit

Repeatability
±0.1% of Upper Range Limit

Drift
Less than ±0.25% of Upper Range Limit per month, noncumulative

Zero and Span Interaction
±0.05% of Upper Range Limit

Power Supply Effect
±0.5% of Upper Range Limit for a ±10% voltage shift
±0.75% of Upper Range Limit for a -15% voltage shift
±0.1% of Upper Range Limit for a ±3 Hz frequency shift

FUNCTIONAL SPECIFICATIONS

Instrument Response - Measurement
Two seconds maximum (when zero measurement damping is selected)

Instrument Response - Temperature
Five seconds maximum

Measurement Damping
10 seconds

Alarms
- Two alarms configurable via front keypad as measurement alarms (Hi/Lo, Lo/Lo, Hi/Hi)
- Individual setpoints continuously adjustable to any point within full scale
- Hysteresis for both alarms is 1% of full scale value

Alarm Contacts
Two independent, nonpowered Form C contacts.
Rated 5 A noninductive, 125 V ac/30 V dc.
Minimum contact current, 1 A.
Inductive loads can be driven with external surge absorbing devices across contact terminations.

RFI Susceptibility
PLASTIC ENCLOSURE
< 0.5 V/m from 27 to 1000 MHz
METAL ENCLOSURE
10 V/m from 27 to 1000 MHz

Isolated Analog Output
Provides a single analog output

NOTE
Output ranges are continuously adjustable via the front keypad to any values within full scale range (minimum span is 10% of full scale).

Isolated Output Signal
The output is isolated from earth ground. Available outputs are 0 to 20 mA dc, 4 to 20 mA dc, or 0 to 10 V dc (individually jumper selectable).

Isolated Output Load
CURRENT OUTPUTS (0 to 20 and 4 to 20 mA dc)
800Ω maximum
VOLTAGE OUTPUTS (0 to 10 V dc)
1 kΩ minimum

Power Consumption
12.5 W maximum
20 VA maximum

Electromagnetic Compatibility, CE Certification
Certified in accordance with European CENELEC standard for electromagnetic compatibility for generic emissions EN50081-2 and immunity EN50082-2 (Part 2: Industrial Environment). Applies to 220 and 240 V ac, 50/60 Hz units only. Excluding the general purpose plastic panel-mount enclosure.

PHYSICAL SPECIFICATIONS

Enclosure

PLASTIC ENCLOSURE
Molded, glass-filled, Noryl plastic NEMA 1 enclosure, with a NEMA 12 front panel.

METAL FIELD ENCLOSURE
Cast and extruded aluminum, NEMA 4X, CSA ENCL 4X, IEC IP65 enclosure with all exposed surfaces coated with a tough epoxy-based paint.

Mounting (also see Dimensions–Nominal section)

PLASTIC ENCLOSURE
Panel Mounting only

METAL FIELD ENCLOSURE
Panel Mounting, pipe mounting, surface mounting – fixed position, and surface mounting – movable position.

Dimensions

See Dimensions–Nominal section.

Electrical Connections (also see Dimensions–Nominal section)

PLASTIC ENCLOSURE
Terminal strips for power, alarms, sensor input, and output wiring are located on the rear cover.

METAL FIELD ENCLOSURE
Conduit fittings for power, alarms, sensor input, and output wiring are located on the bottom surface of the enclosure.

Approximate Mass

PLASTIC ENCLOSURE
0.68 kg (1.5 lb)

METAL FIELD ENCLOSURE (WITH BRACKETS)
Panel Mounting, 1.54 kg (3.4 lb)
Pipe Mounting, 2.31 kg (5.1 lb)
Surface Mounting – Fixed, 2.22 kg (4.9 lb)
Surface Mounting – Movable, 3.13 kg (6.9 lb)

PRODUCT SAFETY SPECIFICATIONS

Electrical Classification

Testing Laboratory, Types of Protection and Area Classification	Condition of Certification	Electrical Certification Code
CSA: Ordinary (non-hazardous) locations.	For 24, 100, and 120 V ac (Supply Options –A, –E, and –J only). Temperature Class T6.	CGZ
CSA: Suitable for Class I, Groups A, B, C, and D; and Class II, Groups F and G, Division 2 hazardous locations.	For metal enclosure versions only.	CNZ
FM: Ordinary (non-hazardous) locations.	–	FGZ
FM: Nonincendive for Class I, Groups A, B, C, and D; and Class II, Groups F and G, Division 2 hazardous locations.	For instruments with metal enclosure only. Temperature Class T6.	FNZ

NOTE

The Analyzer has been designed to meet the electrical classifications listed in the table above.

OPERATING CONDITIONS

Influence	Reference Operating Conditions	Normal Operating Condition Limits	Transportation and Storage Limits(a)
Ambient Temperature	23±2°C (73±4°F)	-25 and +55°C (-13 and +131°F)	-40 and +85°C (-40 and +185°F)
Relative Humidity	50 ±10%	50 and 95%	0 and 100%
Supply Voltage	24, 100, 120, 220, or 240 V ac, ±1%	Rated Voltage +10%, –15%	–
Supply Frequency	50 or 60 Hz, ±0.5 Hz	Rated Frequency, ±5 Hz	–
Vibration	Negligible	1 “g” (1 m/s ^{2}) from 5 to 200 Hz	Protected by Shipping Container
Mechanical Shock	–	–	1.1 m (41 in) Drop while in Shipping Container

(a) Instrument may require adjustment to restore specified performance upon placing into operation within normal operating condition limits.

OPTIONAL FEATURE

Storm Door

This door is attached to top front surface of the enclosure. 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. Specify Optional Selection –7.

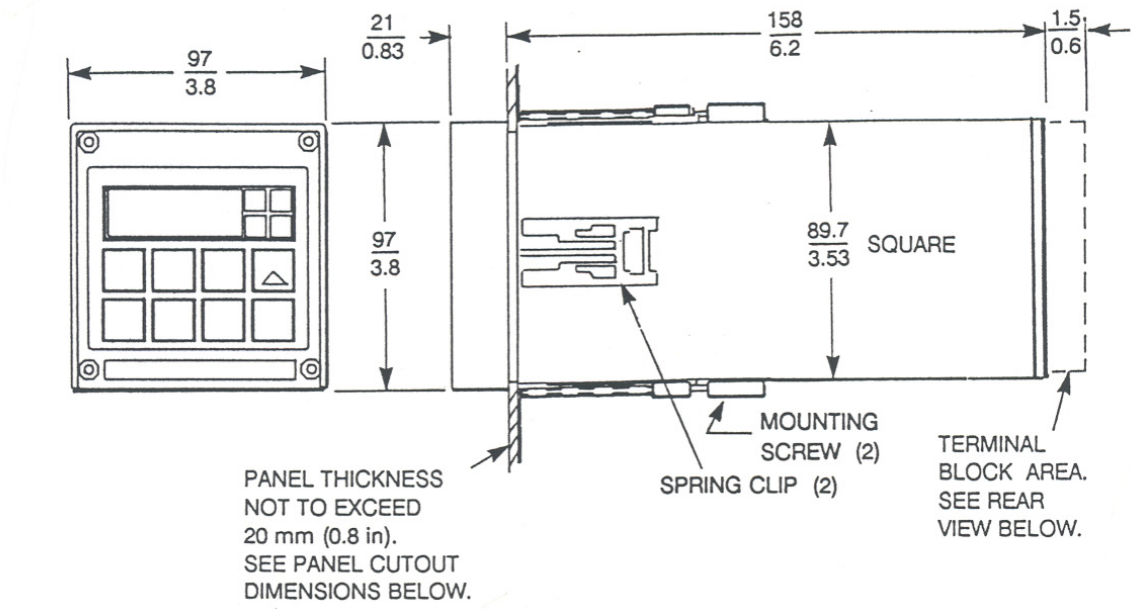
ORDERING INSTRUCTIONS

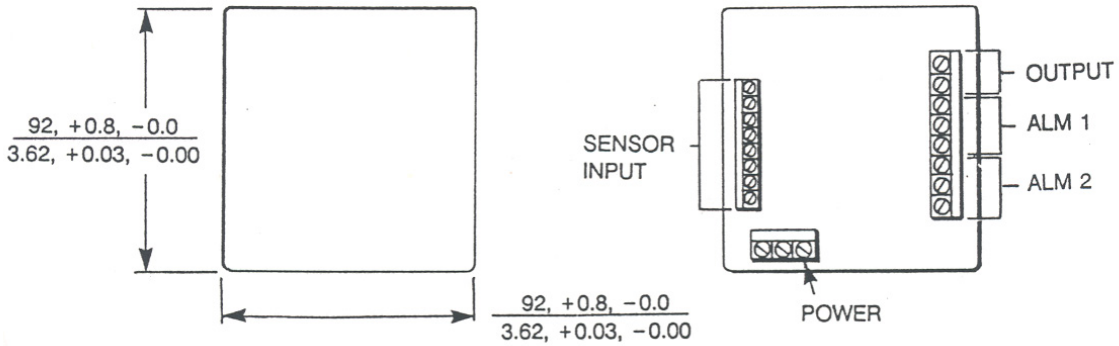
1. Model Number.
2. Measurement Range.
3. Sensor Type for 873AEC only (-SP, -RE, -LB, -HP, -BW, -UT, -NL, -TF, -EV, or -FT).
4. Temperature Compensation Input for 873ARS, 873ACC, and 873AEC only. (100 kΩ Thermistor or 100 Ω RTD)
5. User Tag Data and Application.

DIMENSIONS—NOMINAL

mm
in

GENERAL PURPOSE ENCLOSURE – PANEL MOUNTING





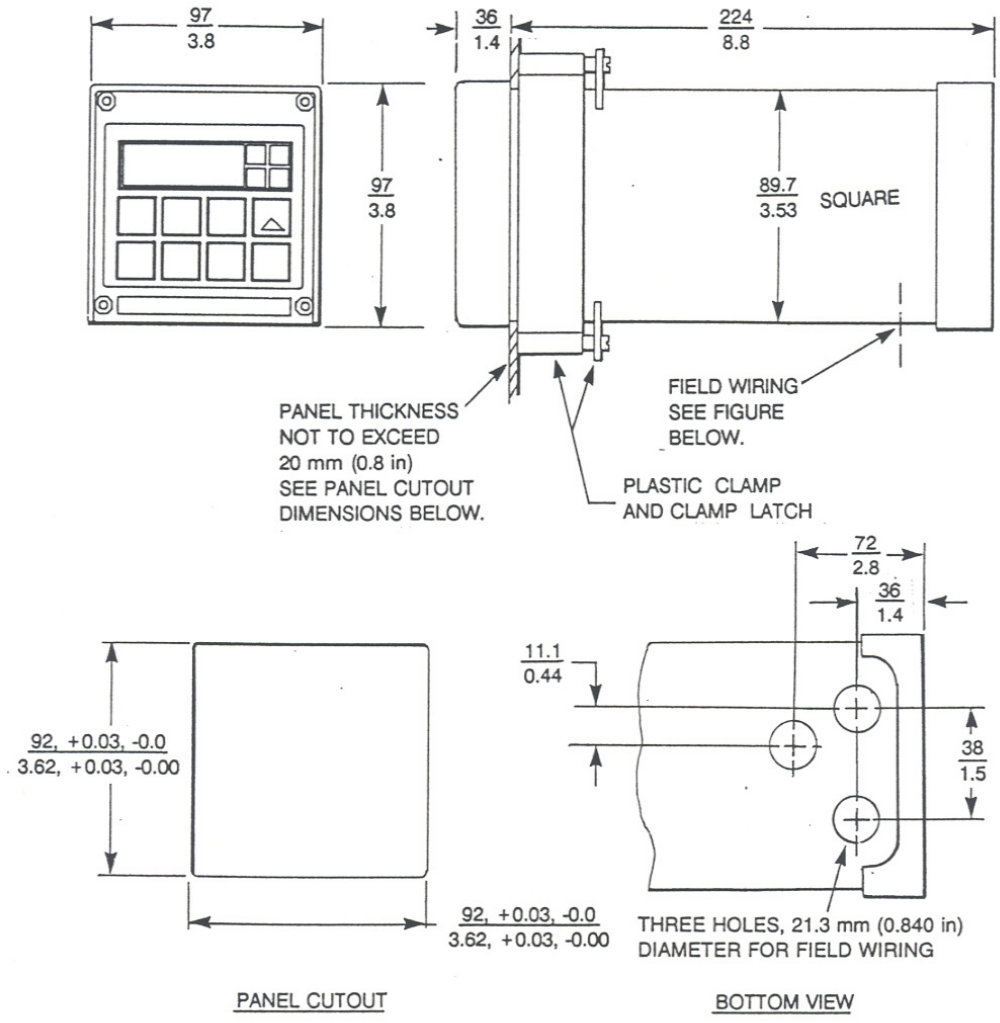
PANEL CUTOUT

REAR VIEW

DIMENSIONS—NOMINAL (Cont.)

mm
in

FIELD ENCLOSURE - PANEL MOUNTED



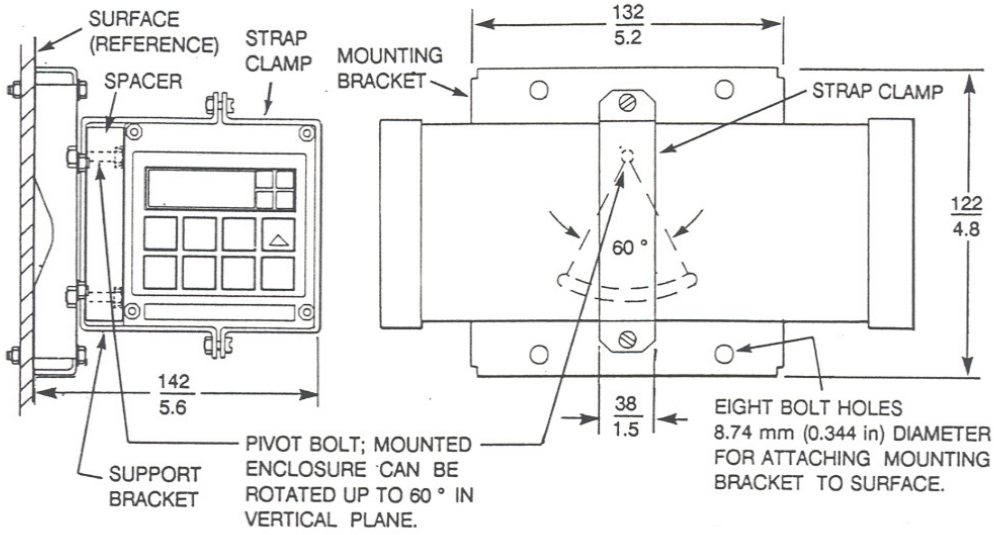
NOTE

SEE THE NEXT PAGE FOR SURFACE MOUNTING - FIXED AND PIPE MOUNTING OF THE FIELD ENCLOSURES. DIMENSIONS AND FIELD WIRING HOLES ARE THE SAME FOR ALL FIELD ENCLOSURES.

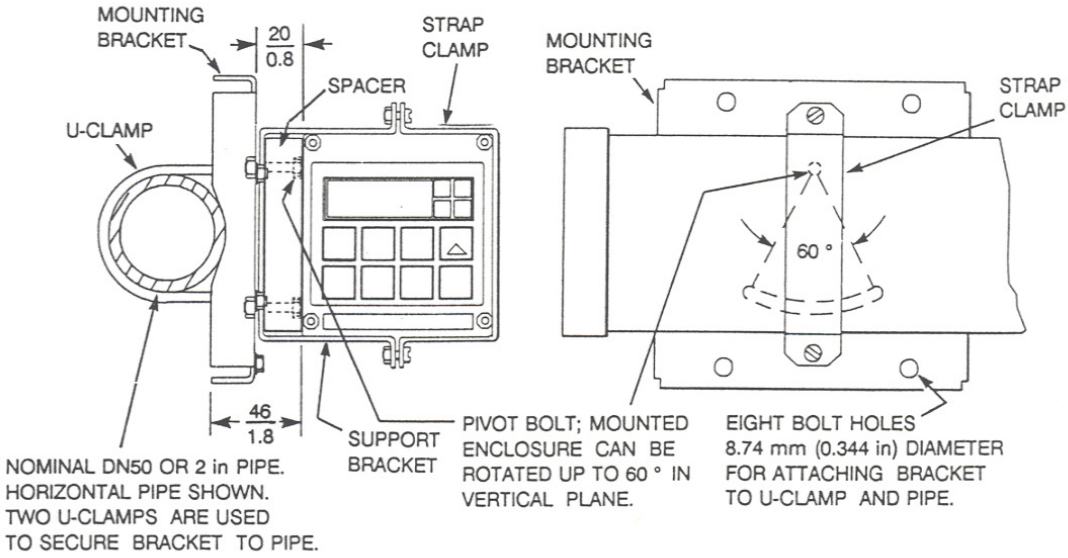
DIMENSIONS—NOMINAL (Cont.)

mm
in

FIELD ENCLOSURE – SURFACE MOUNTING – FIXED



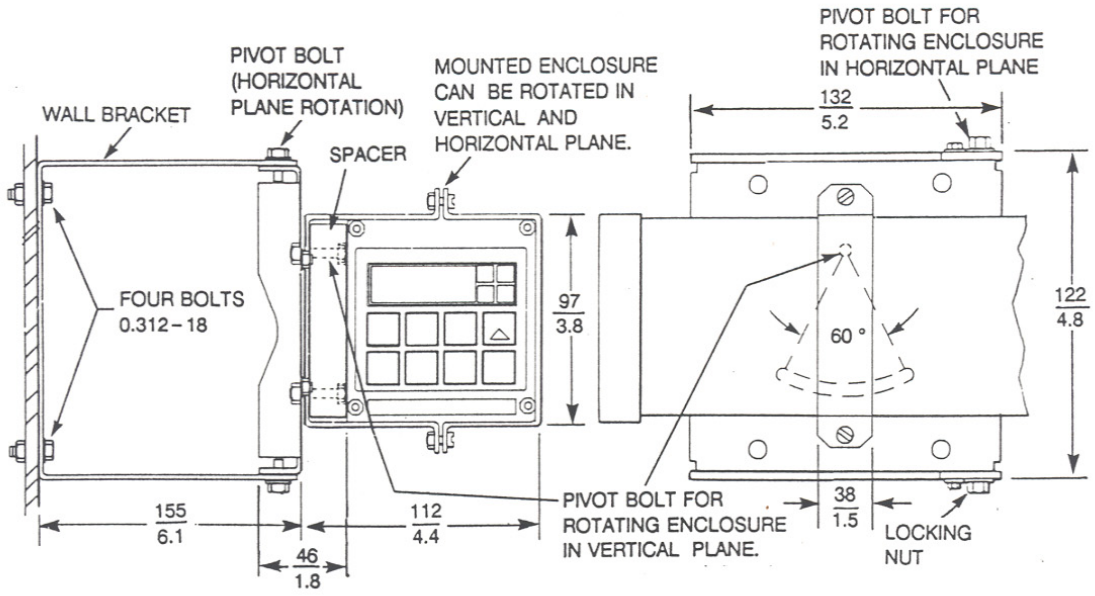
FIELD ENCLOSURE – PIPE MOUNTING

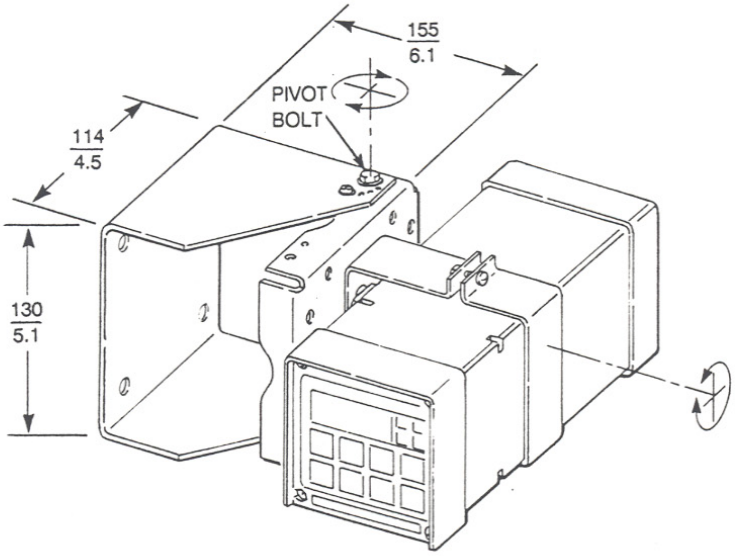


DIMENSIONS—NOMINAL (Cont.)

mm
in

FIELD ENCLOSURE – SURFACE MOUNTING – MOVABLE





OTHER M&I PRODUCTS

Invensys Foxboro 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 Invensys Foxboro web site at:

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Foxboro, MA 02035-2099
United States of America
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