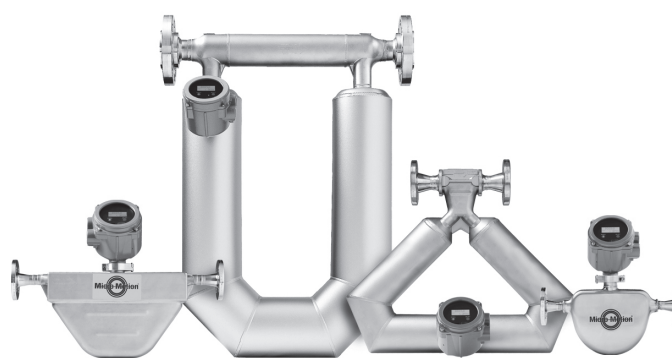


# Micro Motion® Model 2200S 2-Wire Transmitter with MVD™ Technology

The Micro Motion® Model 2200S 2-wire transmitter enables the use of reliable and accurate Micro Motion Coriolis meters virtually anywhere in your plant. The 2-wire Coriolis meter delivers measurement accuracy, repeatability, and operational savings on a level not previously possible in loop-powered applications.

- Replace existing 2-wire flow devices with minimal effort and without incurring additional power or cabling costs
- Wireless THUM™ option maximizes installation and operation flexibility
- Low energy, loop-powered design enables easy integration of Coriolis into existing processes for improved measurement and reduced maintenance for an even greater number of flow points
- Reduce the complexity and improve the performance of new process plants with loop-powered mA output and HART protocol 2-wire Coriolis
- Compact, integral 2-wire transmitter design saves electrical cost and space for use on integrated systems and skids
- Direct mass measurement improves process control while reducing number of measurement devices required
- Accurate, repeatable measurement ensures higher quality production and overall improved process profitability



2200S	2400S	1700 2700	1500 2500	3300 3350	3500 3700	5700
Compact integral 2-wire transmitter	Compact integral transmitter	Versatile field-mount transmitter	Compact control-room transmitter	Frequency-input discrete controller	Integrated control and measurement platform	Advanced field-mount transmitter



# Micro Motion® 2-Wire Coriolis flow and density meter

Utilizing Micro Motion MVD technology, the Micro Motion 2-wire Coriolis meter delivers multivariable and diagnostic information via HART® communications. Comprised of a cutting-edge Model 2200S transmitter and the proven best-in-class performance of a Micro Motion Coriolis meter, the Micro Motion 2-wire meter brings reduced costs through improved process consistency and maximized uptime. Micro Motion 2-wire Coriolis is ideally suited for use in the chemical, petrochemical and refining industries, and for continuous process and mass balance applications.

## MVD technology

MVD technology makes your Micro Motion flowmeter work smarter. Front-end digital processing dramatically reduces signal noise and gives you faster response time compared to analog devices.

Only MVD technology allows you to:

- Measure multiple variables for accurate process control
- Identify and resolve problems easily with built-in smart diagnostics
- Flexible architecture enables tuning for your application needs
- Upgrade transmitter functionality as needed, without impacting availability

## Model 2200S transmitters

The Model 2200S transmitter is suitable for a range of process conditions, including CSA Class I Div. 1 and ATEX Zone 1 approvals. To facilitate installation in hazardous areas, Micro Motion offers an adapter-barrier. Finally, the Micro Motion Model 2200S is also available with a 316L stainless steel enclosure suited for harsh environments, such as applications in the offshore and marine industries.

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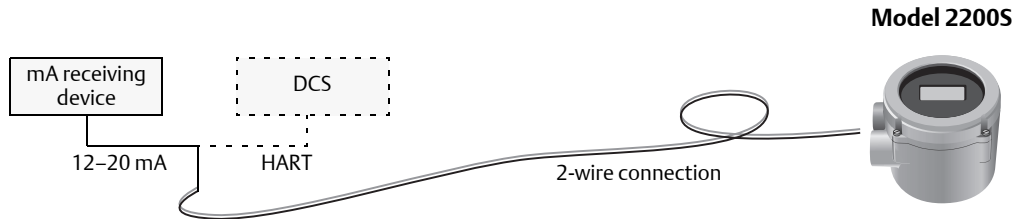
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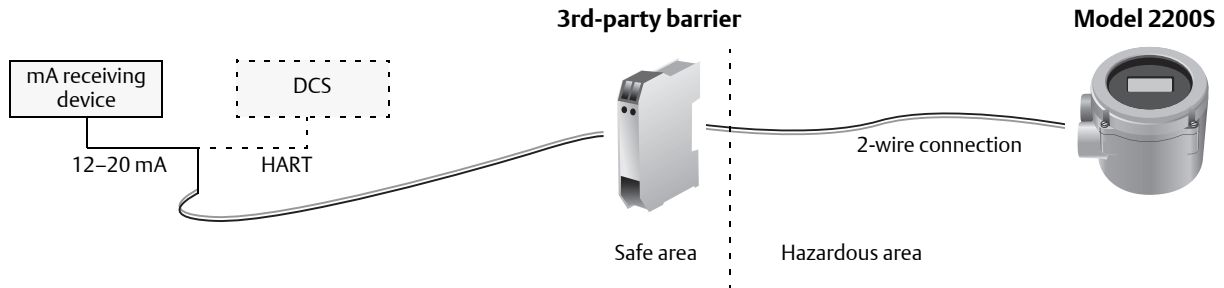
## Applications

The Micro Motion adapter-barrier provides Class I, Div. 1 and Zone 1 intrinsic safety protection, and re-spans the I/O signal from 12–20 mA to 4–20 mA.

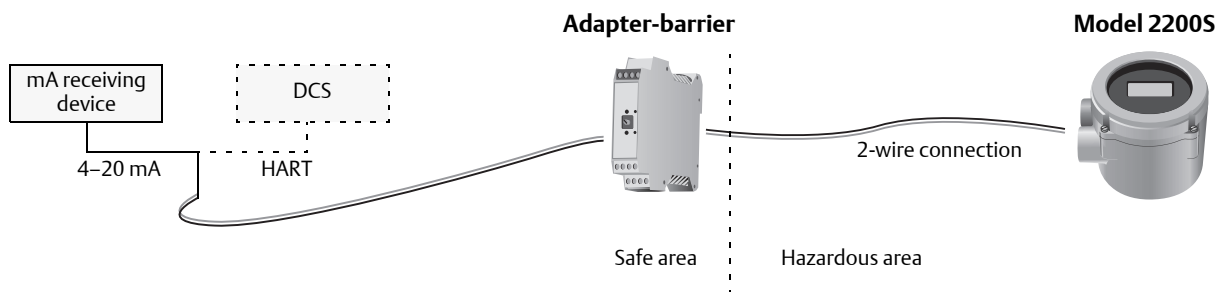
### Transmitter to host with no barrier



### Transmitter to host with third-part barrier



### Transmitter to host with Micro Motion adapter-barrier



## Electrical connections

Connection type	Transmitter	Adapter-barrier
<b>Input/Output</b>	<ul style="list-style-type: none"> <li>■ One pair of wiring terminals for transmitter input/output, digital communications, and power.</li> <li>■ Screw terminals accept solid or stranded conductors, 26 to 14 AWG (0.14 to 2.5 mm<sup>2</sup>).</li> </ul>	Wire gauge: 0.2 mm <sup>2</sup> (24 AWG) minimum, 2.5 mm <sup>2</sup> (14 AWG) maximum
<b>Digital communications administrative connection</b>	<ul style="list-style-type: none"> <li>■ Two clips on the display for a temporary connection to HART/Bell 202 terminals.</li> <li>■ Loop resistance is required on main terminals. Loop resistance must be present in the main I/O loop, but not physically on the main terminal block.</li> <li>■ No resistor is allowed on temporary connections.</li> </ul>	

## Input/output signal detail

Transmitter code	Descriptions
<b>Channel A</b>	One passive 12–20 mA output <ul style="list-style-type: none"> <li>■ Isolated to ±50 VDC from earth ground</li> <li>■ Maximum load limit: 600 Ω</li> <li>■ External power: 17 to 36 VDC</li> <li>■ Can report mass flow, volume flow, gas standard volume flow or density</li> <li>■ Output is linear with process from 11.9 to 20.25 mA</li> <li>■ Intrinsically safe (purchase option)</li> </ul>
Adapter-barrier code	Descriptions
<b>Field side: terminals 1 and 2</b>	One active 12–20 mA input <ul style="list-style-type: none"> <li>■ Over/under range: 11–21 mA</li> <li>■ HART pass-through</li> <li>■ Loop supply: &gt; 25 V</li> <li>■ HART-compliant impedance: &gt; 250 Ω</li> <li>■ Intrinsically safe (purchase option)</li> </ul>
<b>Host side: terminals 23 and 24</b>	One active or passive 4–20 mA output <ul style="list-style-type: none"> <li>■ Under/over range: 2–22 mA</li> <li>■ Maximum load limit (active output): &lt; 1 kΩ</li> <li>■ Maximum loop voltage (passive input): &lt; 36 V</li> <li>■ Trimmable endpoints (0% and 100%)</li> <li>■ Linearity: &lt; 0.05% span</li> <li>■ Conforms to NAMUR NE43 (February 2003) (depending on transmitter configuration)</li> </ul>

## Digital communications

Transmitter output type	Descriptions
HART Bell 202 <sup>(1)</sup>	<p>HART signal is superimposed on the milliamp output, and is available for host system interface:</p> <ul style="list-style-type: none"> <li>■ Frequency: 1.2 and 2.2 kHz</li> <li>■ Amplitude: to 1.0 mA</li> <li>■ 1200 baud, one stop bit, odd parity</li> <li>■ Address: 0 (default), configurable</li> <li>■ Requires 250 to 600 W resistance</li> </ul>

(1) RS-485 connections are not supported.

## Power supply

Type	Description	
Transmitter (DC)	<ul style="list-style-type: none"> <li>■ External power: 17–36 VDC</li> <li>■ Loop resistance up to 600 Ω</li> <li>■ 0.8 W maximum</li> </ul>	
Adapter-barrier	Isolation voltage	<ul style="list-style-type: none"> <li>■ Power to field side: &gt; 1500 VAC</li> <li>■ Power to host side: &gt; 500 VAC</li> <li>■ Field to host side: &gt; 1500 VAC</li> </ul>
	Terminals 11 and 12	<ul style="list-style-type: none"> <li>■ 18–42 VDC</li> <li>■ Maximum supply current: 170 mA</li> <li>■ Maximum power: 3 W</li> </ul>

## Environmental limits

Environmental factor		°F	°C
Ambient temperature limits	Operating	-40 to +140	-40 to +60
	Storage	-40 to +158	-40 to +70
Humidity limits	5 to 95% relative humidity, non-condensing at 140 °F (60 °C)		
Vibration limits	Meets IEC 60068-2-6, endurance sweep, 5 to 2000 Hz, 50 sweep cycles at 1.0 g		
Housing rating	Transmitter	NEMA 4X (IP66/67) polyurethane-painted cast aluminum or 316L stainless steel	
	Adapter-barrier	IP20	

# Environmental effects

## EMI effects

- Complies with EMC directive 2004/108/EC per EN 61326 Industrial
- Conforms to NAMUR NE21 Version: 08.22.2007

## Ambient temperature effect

On mA output: ±0.005% of span per °C









# Hazardous area classifications

## Model 2200S transmitter

### CSA C-US

- Ambient temperature -40 to +140 °F (-40 to +60 °C)
- Class I, Div. 1, Groups C and D
- Class I, Div. 2, Groups A, B, C, and D
- Class II, Div. 1, Groups E, F, and G

### ATEX

Electronic option code H or K	 0575  II 2G Ex ib IIB/IIC T4 II 2D Ex ibD 21 T70 °C
	  II 3G Ex nA II T4 II 3D Ex tD A22 IP66/67 T70 °C
Electronic option code 5 or 6 (THUM adapter)	 0575  II 2G Ex ib IIB/IIC T4
	  II 3G Ex nA IIC T4

### IECEX

- Ex ib IIB/IIC T4
- Ex nA II T4


## Adapter-barrier

### CSA C-US

- Class I, Div. 1, Groups C and D<sup>(1)</sup>
- Class I, Div. 2, Groups A, B, C, and D
- Class II, Div. 2, Groups F and G

(1) When installed in a suitable enclosure.

**ATEX**

CE 0575  II (2) G [Ex ib] IIB/IIC  
II (2) D [Ex ibD]

**IECEX**

[Ex ib] IIB/IIC

## Physical specifications

### Transmitter

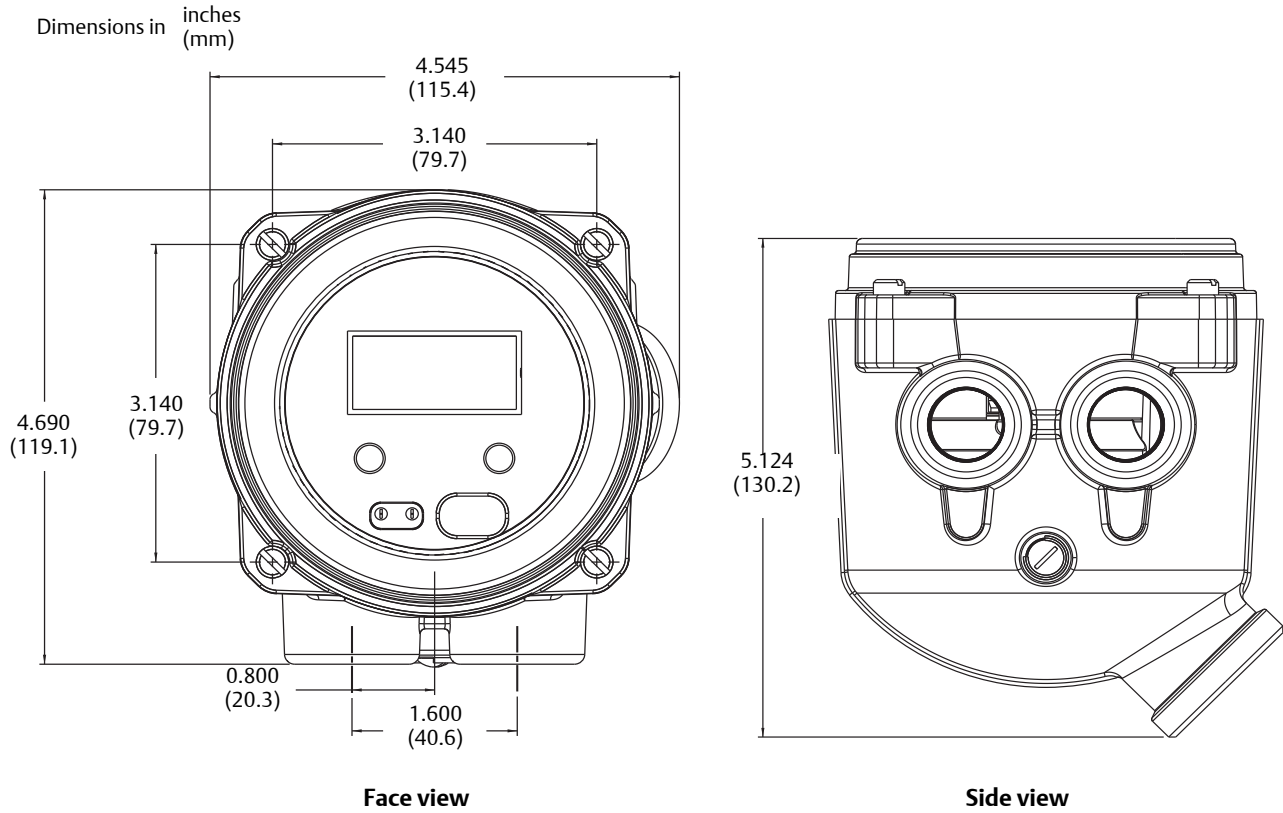
Specification	Value
<b>Housing</b>	NEMA 4X (IP66/67) polyurethane-painted cast aluminum or 316L stainless steel. Available with 1/2" NPT or M20 conduit connections
<b>Weight</b>	See the sensor Product Data Sheet for combined weight of the flowmeter
<b>Cable gland entrances</b>	One 1/2"–NPT or M20 x1.5 female conduit port for output and power supply
<b>Mounting</b>	<ul style="list-style-type: none"> <li>■ Integral-mount or extended-mount</li> <li>■ Available integrally mounted to Micro Motion ELITE and F-Series sensors</li> <li>■ The transmitter can be rotated on the mounting in 45° increments, for eight different orientations.</li> </ul>
<b>Interface/display</b>	<p>Standard user interface with LCD panel</p> <ul style="list-style-type: none"> <li>■ Suitable for hazardous area installation.</li> <li>■ User interface module can rotate 360° on the transmitter in 90° increments.</li> <li>■ Two clips for HART/Bell 202 connections (requires removing transmitter housing cover).</li> <li>■ Two membrane pushbuttons for local operation (requires removing transmitter housing cover).</li> <li>■ Depending on purchase option, transmitter housing cover has glass or plastic lens.</li> <li>■ User interface module includes LCD panel. LCD line 1 displays process variable; line 2 displays engineering unit of measure, with optional alarm indication.</li> <li>■ LCD panel can be configured to scroll through display list at user-specified scroll rate. Display list includes user-selected process variables and, optionally, all active alarms.</li> <li>■ Display update rate is user-configurable: 100 to 10,000 milliseconds.</li> </ul>

### Adapter-barrier

Specification	Value
<b>Housing</b>	IP20
<b>Weight</b>	0.33 lb (0.15 kg)
<b>Mounting</b>	<ul style="list-style-type: none"> <li>■ DIN rail mounting type: DIN 46277</li> <li>■ Can be stacked side-to-side</li> </ul>

# Dimensions

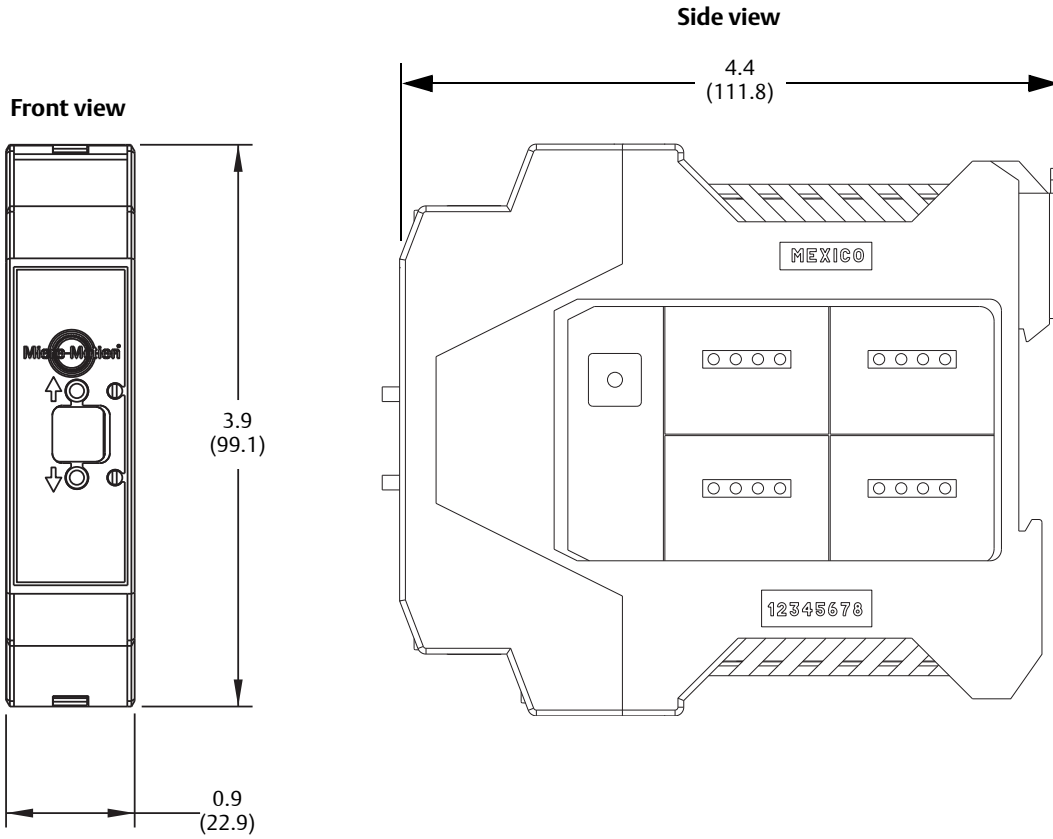
## Transmitter





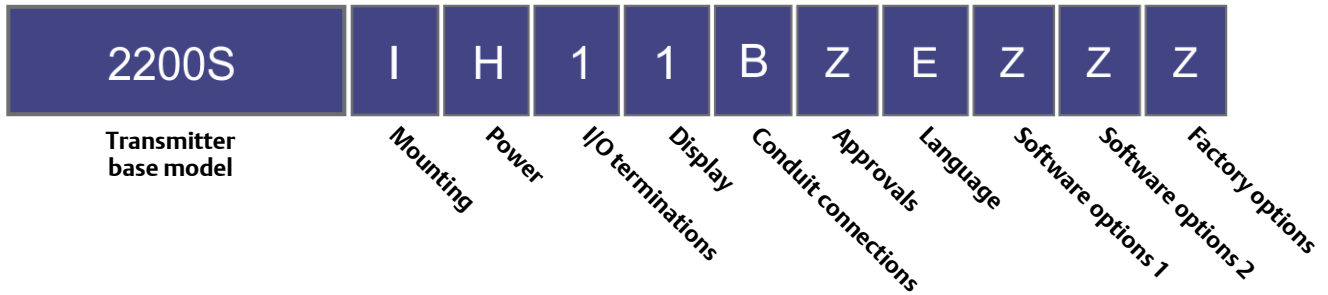
### Adapter-barrier

Dimensions in inches  
(mm)



# Ordering Information

## Product code structure for Model 2200S



### Base model

Model	Product description
2200S	Micro Motion Coriolis 2-wire MVD transmitter. Must be ordered with a sensor.

### Mounting

Code	Mounting options
I	Integral mount transmitter, polyurethane-painted aluminum
J <sup>(1)</sup>	Integral mount transmitter, 316L stainless steel

(1) Not recommended for truck-mount

### Power

Code	Output options / power supply
H <sup>(1) (2)</sup>	One 12–20 mA output with HART (loop power)
5	One 12–20 mA output with HART (loop power), wireless HART (775 integrally mounted, order separately)
K	One 4–20 mA output with HART (loop power), supplied with a Micro Motion adapter-barrier
6 <sup>(1) (3)</sup>	One 4–20 mA output with HART (loop power), supplied with Micro Motion adapter-barrier, wireless HART (775 integrally mounted, order separately)

(1) Not recommended for truck-mount

(2) Display code 4 available with approval code M

(3) Not available with approval codes T, S, or J

### I/O terminations

Code	I/O termination option
1	Compression screw terminals

### Display

Code	Transmitter display options
1	Dual-line display for process variables and totalizer reset
4 <sup>(1)</sup>	Non-glass dual-line display for process variables and totalizer reset

(1) Available with only approval code M.

**Conduit connections**

Code	Conduit connection options
B	1/2-inch NPT – no gland
C	1/2-inch NPT with brass/nickel cable gland
D	1/2-inch NPT with stainless steel cable gland
E	M20 – no gland
F	M20 with brass/nickel cable gland
G	M20 with stainless steel cable gland

**Approvals**

Code	Terminal options
M	Micro Motion standard (no approval with CE/EAC markings)
L	ATEX – Equipment Category 3 (Zone 2)
3	IECEX Zone 2
A	CSA (U.S.A. and Canada)
Z	ATEX – Equipment Category 2 (Zone 1)
I	IECEX Zone 1
J <sup>(1)</sup>	TIIS – Hardware ready
T	TIIS – IIC sensor
S	TIIS – IIB sensor
G	County-specific approval – Requires a selection in the Add-on options table

(1) Available with only T and S approval codes

**Language**

Code	Display and documentation language
E	English installation manual and English configuration manual
F <sup>(1)</sup>	French installation manual and French configuration manual
G <sup>(1)</sup>	German installation manual and German configuration manual
J	Japanese installation manual and Japanese configuration manual
M <sup>(1)</sup>	Chinese installation manual and Chinese configuration manual
S <sup>(1)</sup>	Spanish installation manual and Spanish configuration manual

(1) Not available with approval codes T, S, or J

**Software options 1**

Code	Software options 1
Z	No software options 1

**Software options 2**

Code	Software options 2
Z	No software options 1

**Factory options**

Code	Factory applications
Z	Standard product
X	ETO product

**Add-on options**

<b>Code</b>	<b>Add-on options (optional)</b>
For output and power option 5 or 6 only	
PI	Model 775 integrally mounted at the factory, wiring completed in the field
NI	Model 775 not installed, installation and wiring completed in the field
County-specific approvals. Must select only one when approval option G is selected.	
R1 <sup>(1)</sup>	EAC Zone 1 – Hazardous area approval
R3 <sup>(1)</sup>	EAC Zone 2 – Hazardous area approval
B1 <sup>(1)</sup>	INMETRO Zone 1 – Hazardous area approval
B3 <sup>(1)</sup>	INMETRO Zone 2 – Hazardous area approval

(1) Available with only approval G.







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