

**FIELD MOUNTED EXPLOSION PROOF 2 WIRE TRANSMITTER WITH HART®**

**8080HT**

- EXPLOSION PROOF CERTIFIED
- INPUTS: THERMOCOUPLE, RTD, OHM AND MV
- 2-WIRE, 4-20MA OUT WITH DIRECT DIGITAL COMMUNICATION (HART® PROTOCOL)
- INPUT/OUTPUT ISOLATED
- BUILD-IN THERMOCOUPLES, THERMAL RESISTANCE AND LINEARIZATION ALGORITHM
- EXCELLENT STABILITY
- HIGH EMI-RFI IMMUNITY
- CONFIGURABLE BY HAND-HELD TERMINAL OR PC
- OPTIONAL 4½ DIGIT LCD DISPLAY
- 3 YEAR WARRANTY



**Introduction**

IME Model 8080HT is a digital, PC/Hand-Held programmable, isolated 2-wire transmitter with HART® protocol. The unit converts 8 types of thermocouples; 5 types of RTDs, configured as 2, 3 and 4 wires; potentiometer, resistor and millivolt inputs into process current loop.

**Description**

IME Model 8080HT Universal Input Transmitters are designed for use in process industries where vibration, inclement weather and corrosive atmospheres prevail. The electronics are enclosed in a copper-free epoxy coated Aluminum housing and for more aggressive environments, a SS316 housing is optionally available. The housings meet the requirements of NEMA 4X / IP68, and are certified Explosion Proof by FM/CSA/ATEX/IECEX.

Exceptional digital accuracy of typical +/-0.1°C is provided for all the sensors regardless of the calibrated span. Extremely accurate cold-junction temperature measurement provides precise compensation throughout the entire ambient range. The unit also accurately measures and compensates the RTD sensor leads in the 3-wire connection.

The transmitter is fully configurable by connecting to a PC or a Hand-Held. The configuration parameters are stored in a non volatile memory.

Detection of sensor breakage or disconnection of input leads, forces the output to a pre-defined up/down scale value. The unit continuously monitors the sensor and automatically returns to normal operation mode when the sensor is recovered.

In applications where no local indication is required, the tempered glass cover is replaced by a solid cover and no LCD indicator is provided.

**Mounting**

A wide choice of stainless steel mounting brackets are available for mounting the Model 8080HT on either a 2" pipe or wall.

**Functional Specifications**

**Sensor**

Thermo Sensor Type B, E, J, K, N, R, S, T, Cu50, Cu100, Pt50, Pt100, Pt1000

**Basic Accuracy**

+/-0.1% of F.S

**Output Signal**

4~20mA with HART® protol ( 2 wire)

**Optional Output**

5V, 0.7mA

**Isolation**

500V AC between input and output

**Burnout Protection**

Upscale / Downscale Programmable

**Supply Voltage**

12~45V DC

**Operating Temperature**

Circuit Board: -40~+85°C

LCD: -20~+70°C

**Weight**

0.9Kg (2LBS) for Aluminum unit and 1.4Kg(3LBS) for SS316 Unit

**Material of Construction**

Enclosure epoxy coated Copper-Free Aluminum or SS316 as specified

**O Rings**

Buna N

SPECIFICATIONS 1

Input	
Input Impedance	>10 <sup>7</sup> Ω
Maximum Input Voltage	<1V

Thermocouple and Millivolts


Type	Standard	Input Range		Minimum Span °C / °F	Digital Accuracy (note 3) °C	Digital/Analog Accuracy (note 2)
		°C	°F			
B Pt30Rh Pt16Rh	IEC584-1 1995	100~1800	212~3272	50 / 90	+/- 0.75 (note4)	+/-0.1% FS
E NiCr-Con	IEC584-1 1995	-100~1000	-148~1832	50 / 90	+/- 0.20	+/-0.1% FS
J Fe-Con	IEC584-1 1995	-210~1200	-346~2192	50 / 90	+/- 0.25	+/-0.1% FS
K NiCr-Ni	IEC584-1 1995	-200~1370	-328~2498	50 / 90	+/- 0.25 (note 5)	+/-0.1% FS
N NiCrSi-NiSi	IEC584-1 1995	-200~1300	-328~2372	50 / 90	+/- 0.40	+/-0.1% FS
R Pt13Rh-Pt	IEC584-1 1995	0~1750	32~3182	50 / 90	+/- 0.60	+/-0.1% FS
S Pt10Rh-Pt	IEC584-1 1995	0~1760	32~3200	50 / 90	+/- 0.50	+/-0.1% FS
T Cu-Con	IEC584-1 1995	-200~400	-328~752	50 / 90	+/- 0.25	+/-0.1% FS
Resistance Input		0~100Ω		1Ω	+/- 0.01Ω	+/-0.1% FS
		0~200Ω		2Ω	+/- 0.02Ω	+/-0.1% FS
		0~400Ω		4Ω	+/- 0.04Ω	+/-0.1% FS
		0~4000Ω		40Ω	+/- 0.4Ω	+/-0.1% FS
Voltage Input		-20~20mV		0.4mV	+/- 0.003mV	+/-0.1% FS
		-80~80mV		1.6mV	+/- 0.008mV	+/-0.1% FS


Resistor Temperature Detector (RTD)

Type	Standard	Input Range (note 1)		Minimum Span °C / °F	Digital Accuracy °C	Digital/Analog Accuracy (note 2)
		°C	°F			
Pt-50	IEC-751 α=0.00385Ω/Ω (ITS-90) 1995	-200~850	-328~1562	10 / 50	+/- 0.1	+/-0.1% FS
Pt-100		-200~850	-328~1562	10 / 50	+/- 0.1	+/-0.1% FS
Pt-1000		-200~850	-328~1562	10 / 50	+/- 0.1	+/-0.1% FS
Cu-50	a=0.00428W/W	-50~150	-58~302	10 / 50	+/- 0.1	+/-0.1% FS
Cu-100		-50~150	-58~302	10 / 50	+/- 0.1	+/-0.1% FS
Connection type	2, 3 or 4 wire					
Mode	Single sensor					
Sensor Current	<0.3mA					
Sampling Rate	4 S/sec			Potentiometer; 3 S/sec		

- Note:
- The recommended minimum range is 20°C
  - The general analog accuracy is the sum of digital accuracy plus digital/analog accuracy.
  - Digital accuracy of thermocouple=digital accuracy+/-0.25°C (additional error of cold terminal temperature compensation.)
  - Digital accuracy of thermocouple B is +/-2°C between 100°C and 300°C.
  - Digital accuracy of thermocouple K is +/-0.5°C between -180°C and 0°C.

Certification System

	I M2	or	II 2G D
	Ex d I Mb	or	Ex D IIC T6 Gb
	Ex tb IIIC T85 °C Db IP68		
	Ta = -40 °C to +60 °C		

	Ex d I Mb	or	Ex D IIC T6 Gb
	Ex tb IIIC T85 °C Db IP68		
	Ta = -40 °C to +60 °C		

SPECIFICATIONS 2

Output

Output Signal	4~20mA with HART protocol (two wires)
Optional Output	+5V, 0.7mA
Under Range	Linear to 3.9mA
Over Range	Linear to 21mA
Burnout	<3.9mA or >21mA (User configurable)
Isolation	Isolation (500V AC ) between input and output
Output Linearity	For temperature sensors - linear with temp For potentiometer - linear with potentiometer ratio For millivolt input - linear with the measured voltage
Maximum Loop Resistance	According to $R_{max} (\Omega) = (V_{supply}-13)/0.02$
Calibration Accuracy	At 24V supply, at room temperature: 0.05% of span
Damping Factor	1~32s adjustable
Analog Step-Response	200~500ms (Depends on the sensor and the mode of operation)
Setup Time	5 seconds after power on

Supply

Supply Voltage	12~45V DC
Supply Variation Effect	0.05%/VCMR
Polarity Protection	Yes
CMR	

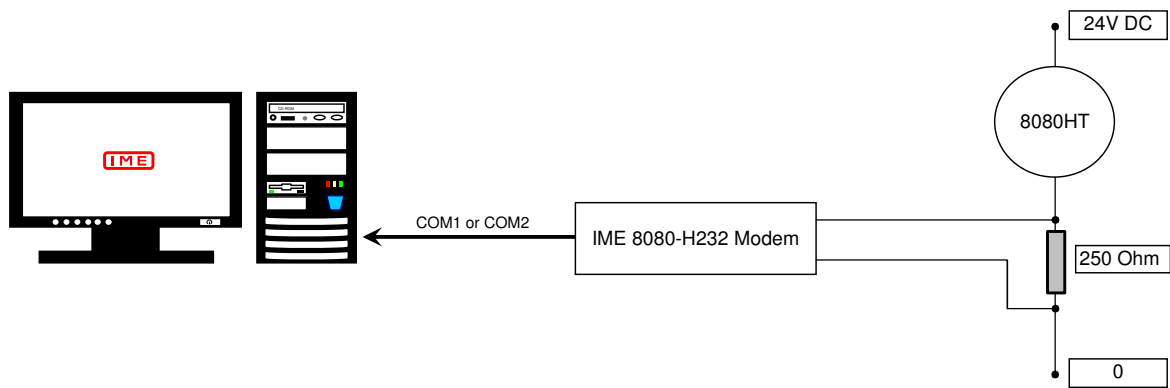
Environmental Influence

Operating Temperature Range	-50~+85°C / -122~185°F
Operating Temperature Range (LCD)	-20~+70°C / -68~158°F
Temperature Stability	<0.1%/year
Humidity	20%~90% (40°C)
EMC	

Programming

Software Package	8080-H232 PC Modem Communication System
Modem	IME Model 8080-H232, HART®Smart Transmitter Config/Debug System with 9-pin D-Type Connector
Configured Parameters	Tag information, Sensor type, Input range, Selection of connection type, Output Offset, Damping factor, Burnout Type, Output current mode, Sensor Calibration.

Transmitter Configuration



**FIELD MOUNTED EXPLOSION PROOF 2 WIRE TRANSMITTER WITH HART®**

**8080HT**

Both the Aluminum and the SS316 housing are certified NEMA 4X / IP68. As indicated below. IME Model 8080HT can be optionally provided with certification and a stainless steel name plate for use in Hazardous Area applications.

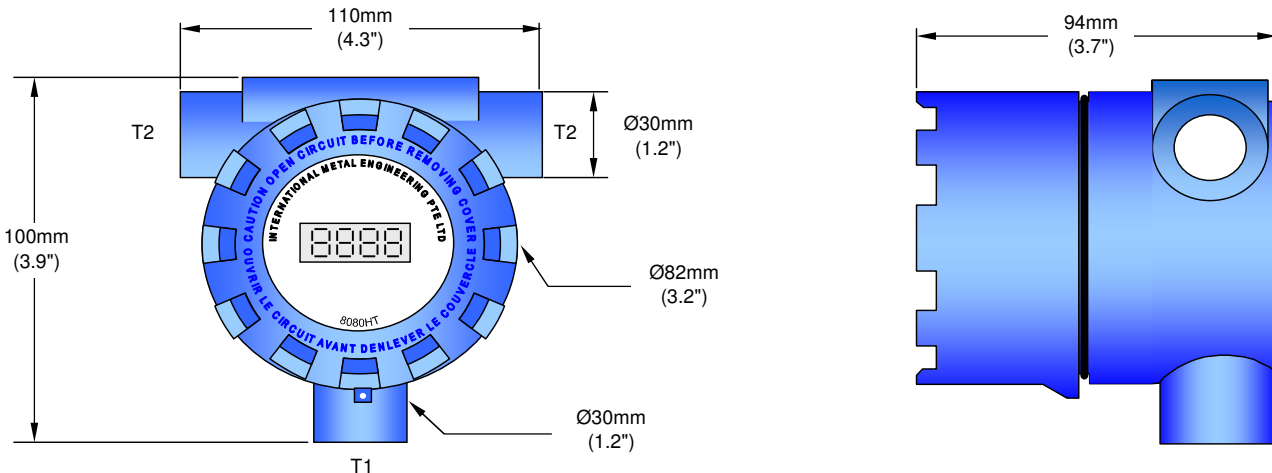
**Ordering Information**

Model	Description																																																			
8080HT	Field Mounted 2-Wire Indicating Transmitter with Hart® Protocol																																																			
	<table border="1"> <thead> <tr> <th>Code</th> <th>Options, Housing</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Die cast Aluminum, Epoxy Coated</td> </tr> <tr> <td>T</td> <td>SS316, Electro Polished</td> </tr> </tbody> </table>	Code	Options, Housing	A	Die cast Aluminum, Epoxy Coated	T	SS316, Electro Polished																																													
Code	Options, Housing																																																			
A	Die cast Aluminum, Epoxy Coated																																																			
T	SS316, Electro Polished																																																			
	<table border="1"> <thead> <tr> <th>Code</th> <th>Instrument Connection (T1)</th> <th>Conduit Size (T2)</th> </tr> </thead> <tbody> <tr><td>01</td><td>M16 x 2P (See note 1)</td><td>¾" NPT</td></tr> <tr><td>02</td><td>M16 x 2P (See note 1)</td><td>½" NPT</td></tr> <tr><td>03</td><td>M16 x 2P (See note 1)</td><td>M20 x 1.5P</td></tr> <tr><td>04</td><td>½" NPT</td><td>¾" NPT</td></tr> <tr><td>05</td><td>½" NPT</td><td>½" NPT</td></tr> <tr><td>06</td><td>½" NPT</td><td>M20 x 1.5P</td></tr> <tr><td>07</td><td>¾" NPT</td><td>¾" NPT</td></tr> <tr><td>08</td><td>¾" NPT</td><td>½" NPT</td></tr> <tr><td>09</td><td>¾" NPT</td><td>M20 x 1.5P</td></tr> <tr><td>10</td><td>½" BSP</td><td>¾" NPT</td></tr> <tr><td>11</td><td>½" BSP</td><td>½" NPT</td></tr> <tr><td>12</td><td>½" BSP</td><td>M20 x 1.5P</td></tr> <tr><td>13</td><td>¾" NPT</td><td>None</td></tr> <tr><td>14</td><td>M20 x 1.5P</td><td>None</td></tr> <tr><td>16</td><td>½" BSP</td><td>None</td></tr> <tr><td>17</td><td>½" NPT</td><td>None</td></tr> </tbody> </table>	Code	Instrument Connection (T1)	Conduit Size (T2)	01	M16 x 2P (See note 1)	¾" NPT	02	M16 x 2P (See note 1)	½" NPT	03	M16 x 2P (See note 1)	M20 x 1.5P	04	½" NPT	¾" NPT	05	½" NPT	½" NPT	06	½" NPT	M20 x 1.5P	07	¾" NPT	¾" NPT	08	¾" NPT	½" NPT	09	¾" NPT	M20 x 1.5P	10	½" BSP	¾" NPT	11	½" BSP	½" NPT	12	½" BSP	M20 x 1.5P	13	¾" NPT	None	14	M20 x 1.5P	None	16	½" BSP	None	17	½" NPT	None
Code	Instrument Connection (T1)	Conduit Size (T2)																																																		
01	M16 x 2P (See note 1)	¾" NPT																																																		
02	M16 x 2P (See note 1)	½" NPT																																																		
03	M16 x 2P (See note 1)	M20 x 1.5P																																																		
04	½" NPT	¾" NPT																																																		
05	½" NPT	½" NPT																																																		
06	½" NPT	M20 x 1.5P																																																		
07	¾" NPT	¾" NPT																																																		
08	¾" NPT	½" NPT																																																		
09	¾" NPT	M20 x 1.5P																																																		
10	½" BSP	¾" NPT																																																		
11	½" BSP	½" NPT																																																		
12	½" BSP	M20 x 1.5P																																																		
13	¾" NPT	None																																																		
14	M20 x 1.5P	None																																																		
16	½" BSP	None																																																		
17	½" NPT	None																																																		
	<table border="1"> <thead> <tr> <th>Code</th> <th>Certification</th> </tr> </thead> <tbody> <tr> <td>NN</td> <td>None</td> </tr> <tr> <td>E1</td> <td>FM / CSA / ATEX / IECEx Explosion Proof Certified, NEMA 4X, IP68, T6</td> </tr> </tbody> </table>	Code	Certification	NN	None	E1	FM / CSA / ATEX / IECEx Explosion Proof Certified, NEMA 4X, IP68, T6																																													
Code	Certification																																																			
NN	None																																																			
E1	FM / CSA / ATEX / IECEx Explosion Proof Certified, NEMA 4X, IP68, T6																																																			
	<table border="1"> <thead> <tr> <th>Code</th> <th>Accessories</th> </tr> </thead> <tbody> <tr> <td>RC</td> <td>IME Model 175RC Mounting Bracket</td> </tr> <tr> <td>PM</td> <td>IME Model 175PM Mounting Bracket</td> </tr> <tr> <td>NR</td> <td>IME Model 175NR Mounting Bracket</td> </tr> <tr> <td>MM</td> <td>IME Model 175MM Mounting Bracket</td> </tr> </tbody> </table>	Code	Accessories	RC	IME Model 175RC Mounting Bracket	PM	IME Model 175PM Mounting Bracket	NR	IME Model 175NR Mounting Bracket	MM	IME Model 175MM Mounting Bracket																																									
Code	Accessories																																																			
RC	IME Model 175RC Mounting Bracket																																																			
PM	IME Model 175PM Mounting Bracket																																																			
NR	IME Model 175NR Mounting Bracket																																																			
MM	IME Model 175MM Mounting Bracket																																																			
	<table border="1"> <thead> <tr> <th>Code</th> <th>2 Inch "U" Bolt with Nuts and Washers</th> </tr> </thead> <tbody> <tr> <td>00</td> <td>None</td> </tr> <tr> <td>01</td> <td>IME Model 17508, 1 Set (For IME Model 175RC)</td> </tr> <tr> <td>02</td> <td>IME Model 17508, 2 Sets (For IME Model 175PM &amp; 175NR)</td> </tr> </tbody> </table>	Code	2 Inch "U" Bolt with Nuts and Washers	00	None	01	IME Model 17508, 1 Set (For IME Model 175RC)	02	IME Model 17508, 2 Sets (For IME Model 175PM & 175NR)																																											
Code	2 Inch "U" Bolt with Nuts and Washers																																																			
00	None																																																			
01	IME Model 17508, 1 Set (For IME Model 175RC)																																																			
02	IME Model 17508, 2 Sets (For IME Model 175PM & 175NR)																																																			

8080HT	A	02	E1	PM	02	← Typical Model Number
--------	---	----	----	----	----	------------------------

Note:

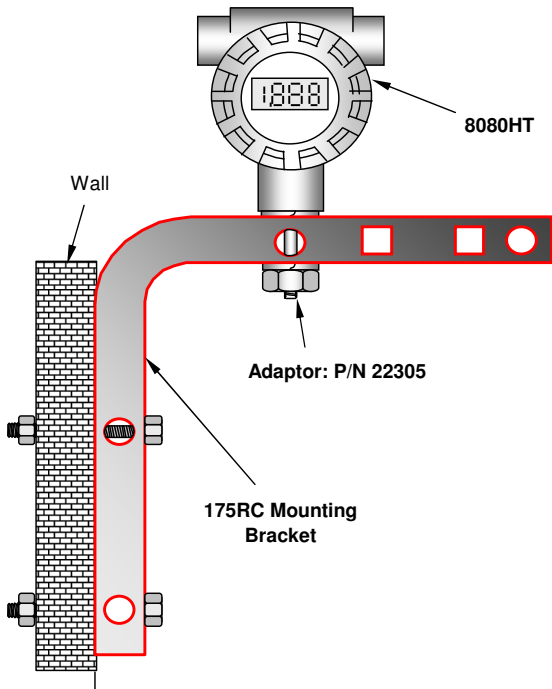
1 Ports with M16 x 2P thread are not through holes, they are for Mounting only.



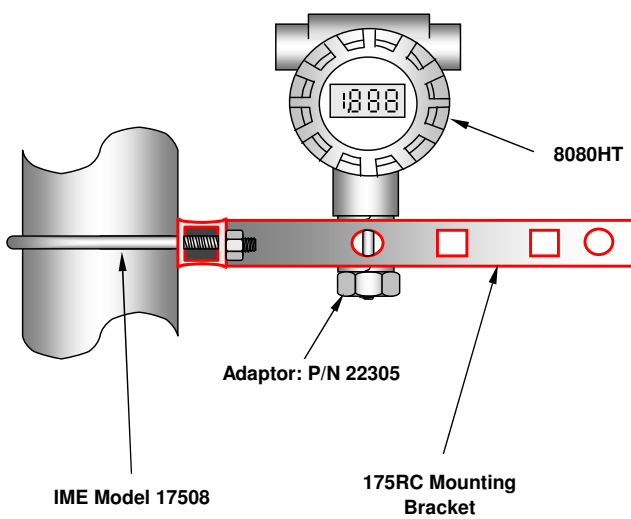
**MODEL 175RC MOUNTING BRACKET**

**IME MODEL 175RC**

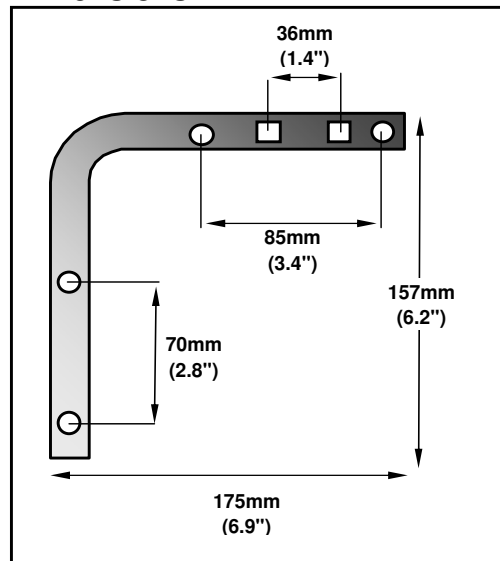
PANEL / WALL MOUNTING CONFIGURATION  
 9 mm or 5/16 bolts for mounting bracket to wall or panel  
 (Not Supplied)  
 Adaptor P/N: 22305 (Optional)



2" PIPE MOUNTING CONFIGURATION  
 2 Inch "U" Bolt with Nuts and Washers (Optional)  
 Adaptor P/N: 22305 (Optional)



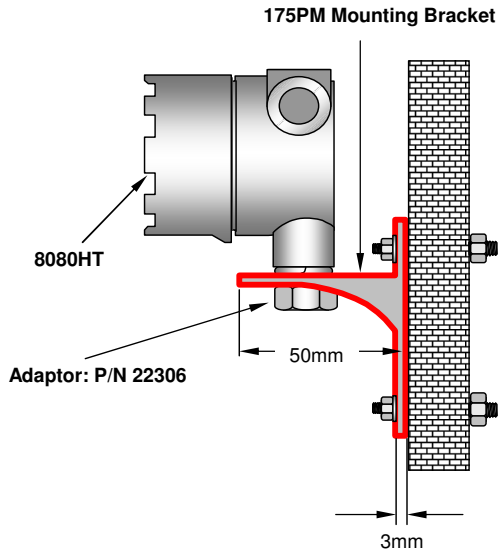
**Dimensions**



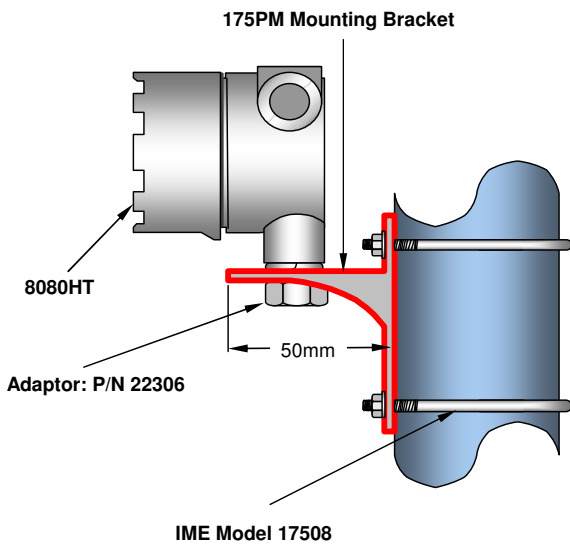
**MODEL 175PM MOUNTING BRACKET**

**IME MODEL 175PM**

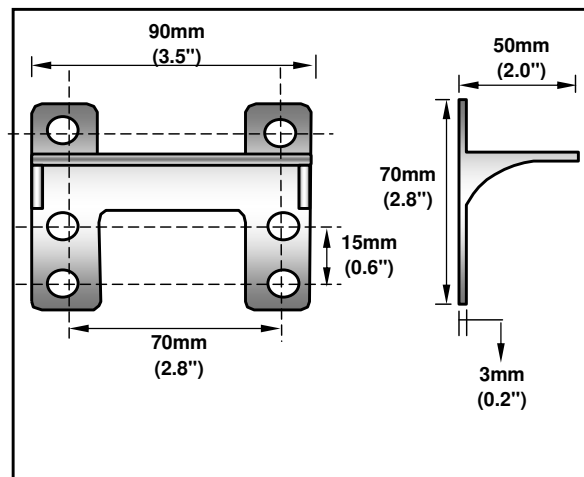
PANEL / WALL MOUNTING CONFIGURATION  
 9 mm or 5/16 bolts for mounting bracket to wall or panel  
 (Not Supplied)  
 Adaptor P/N: 22306 (Optional)



2" PIPE MOUNTING CONFIGURATION  
 2 Inch "U" Bolt with Nuts and Washers (Optional)  
 Adaptor P/N: 22306 (Optional)



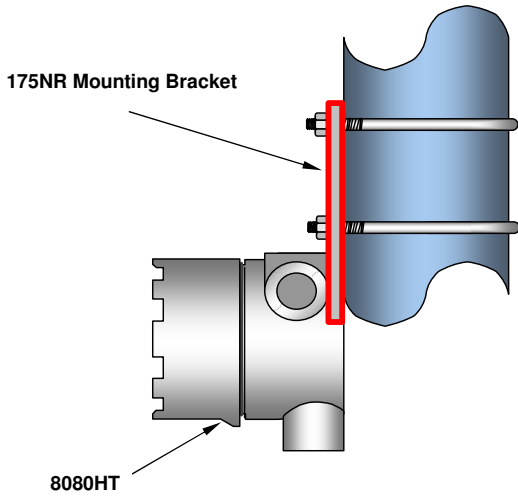
**Dimensions**



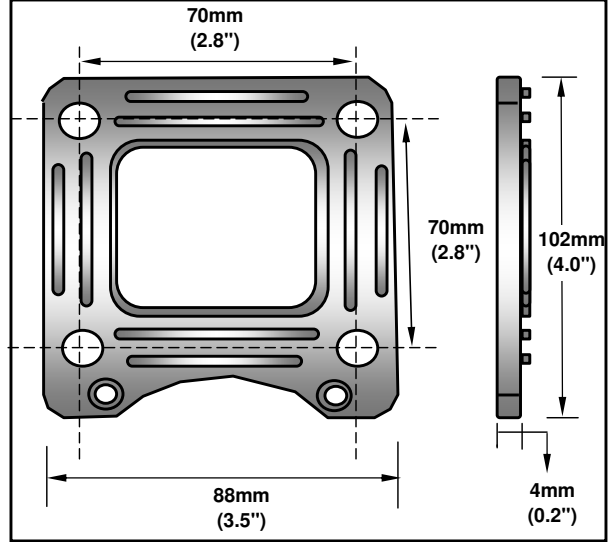
MODEL 175NR AND 175MM MOUNTING BRACKET

IME MODEL 175NR

2" PIPE MOUNTING CONFIGURATION  
2 Inch "U" Bolt with Nuts and Washers

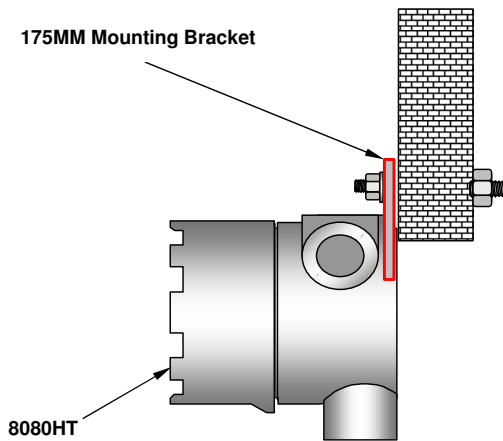


Dimensions



IME MODEL 175MM

PANEL / WALL MOUNTING CONFIGURATION  
9 mm or 5/16 bolts for mounting bracket to wall or panel  
(Not Supplied)



Dimensions

