

## INDICATING TEMPERATURE TRANSMITTER WITH HART®

8080HT

- UNIVERSAL SETTINGS WITH HART PROTOCOL FOR VARIOUS INPUT SIGNALS
- 2 WIRE TECHNOLOGY, 4 TO 20mA ANALOG OUTPUT
- HIGH ACCURACY IN TOTAL AMBIENT TEMPERATURE RANGE
- GALVANIC ISOLATION
- AN INTERNAL TEMPERATURE SENSOR FOR ACTIVE TEMPERATURE COMPENSATION
- WIDE VOLTAGE SUPPLY
- CUSTOMER SPECIFIC MEASUREMENT RANGE SETTINGS
- SIMPLE AND USER FRIENDLY SOFTWARE
- MULTIPLE BACKLIGHT ROTATABLE LCD DISPLAY
- CHOICE OF COPPER-FREE ALUMINUM OR SS316 ENCLOSURE
- EXPLOSION PROOF CERTIFIED
- 3 YEAR WARRANTY



### Introduction

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

### Description

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 ATEX/IECEX.



Exceptional digital accuracy of typical  $\pm 0.1$  °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 programmer. 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.

### Mounting

The Model 8080HT can be either remotely mounted or mounted directly on the thermowell/nipple assembly. For mounting the unit on a wall or 2" pipe, a wide choice of stainless steel mounting brackets are also available.

### Certification System

	II 2G D Ex db IIC T6 Gb Ex tb IIIC T85 °C Db IP68 Ta = -40 °C to +60 °C	
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	Ex db IIC T6 Gb Ex tb IIIC T85 °C Db IP68 Ta = -40 °C to +60 °C
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Input

	Type	Measurement Ranges	Min. meas. Ranges	Maximum Measured Error
Resistance Thermocouple (RTD)	Pt100	-200 °C to 850 °C (-328 °F to 1562 °F)	10K	0.2K or 0.08%
	Pt500	-200 °C to 850 °C (-328 °F to 1562 °F)	10K	0.5K or 0.20%
	Pt1000	-200 °C to 850 °C (-328 °F to 1562 °F)	10K	0.3K or 0.12%
	Cu50	-50 °C to 150 °C (-58 °F to 302 °F)	10K	0.2K or 0.08%
	Cu100	-50 °C to 150 °C (-58 °F to 302 °F)	10K	0.3K or 0.12%
	Ni100	-60 °C to 180 °C (-76 °F to 356 °F)	10K	0.2K or 0.08%
	Ni500	-60 °C to 180 °C (-76 °F to 356 °F)	10K	0.5K or 0.20%
	Ni1000	-60 °C to 180 °C (-76 °F to 356 °F)	10K	0.3K or 0.12%
Resistance Transmitter	Resistance (Ω)	0 to 400 Ω	10 Ω	± 0.1Ω or 0.08%
		0 to 2000 Ω	20 Ω	± 1.5Ω or 0.12%
		0 to 10000 Ω	100 Ω	± 7.5Ω or 0.20%
Thermocouple (TC)	B (PtRh30-PtRh6)	0 to 1820 °C (32 to 3308 °F)	500K	typ. 2.0K or 0.08%
	E (NiCr-CuNi)	-270 to 1000 °C (-454 to 1832 °F)	50K	typ. 0.5K or 0.08%
	J (Fe-CuNi)	-210 to 1200 °C (-346 to 2192 °F)	50K	typ. 0.5K or 0.08%
	K (NiCr-Ni)	-270 to 1372 °C (-454 to 2501 °F)	50K	typ. 0.5K or 0.08%
	N (NiCrSi-NiSi)	-270 to 1300 °C (-454 to 2372 °F)	50K	typ. 1.0K or 0.08%
	R (PtRh13-Pt)	-50 to 1768 °C (-58 to 3214.4 °F)	500K	typ. 2.0K or 0.08%
	S (PtRh10-Pt)	-50 to 1768 °C (-58 to 3214.4 °F)	500K	typ. 2.0K or 0.08%
	T (Cu-CuNi)	-270 to 400 °C (-454 to 752 °F)	50K	typ. 0.5K or 0.08%
Voltage Transmitters (mV)	Millivolt transmitter (mV)	-10 to 75 mV	5 mV	± 20 μV or 0.08%
		-100 to 100 mV	5 mV	± 20 μV or 0.08%
		-100 to 500 mV	6 mV	± 30 μV or 0.08%
		-100 to 2000 mV	20 mV	± 50 μV or 0.08%

Output

Output Signal	4 to 20 mA + Hart®	
Signal On Alarm	Underranging	Linear drop to 3.8 mA
	OVERRANGING	Linear rise to 20.8 mA
	Sensor break; sensor open-circuit	<3.8 mA
Load	Max. (V <sub>power supply</sub> - 7.5 V) / 0.0208A (without display)	
	Max. (V <sub>power supply</sub> - 10.5 V) / 0.0208A (with display)	
Linearization/Transmission Behavior	Temperature linear, resistance linear, voltage linear	
Galvanic Isolation	U = 2 KV AC (input/output)	

Power Supply

Supply Voltage (polarity protected)	U <sub>b</sub> = 10.5 to 45 VDC
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Performance Characteristic

Response Time	1s
Reference Operating Conditions	Calibration Temperature : 23 °C (73.4 °F) ± 5K
Long Term Stability	≤ 0.05% / year
Switch On Delay	≤ 5s
Self Stability Configuration	0 to 2%
Filter Configuration	0 to 160 μA
Resolution	0.3 μA

Environment Condition

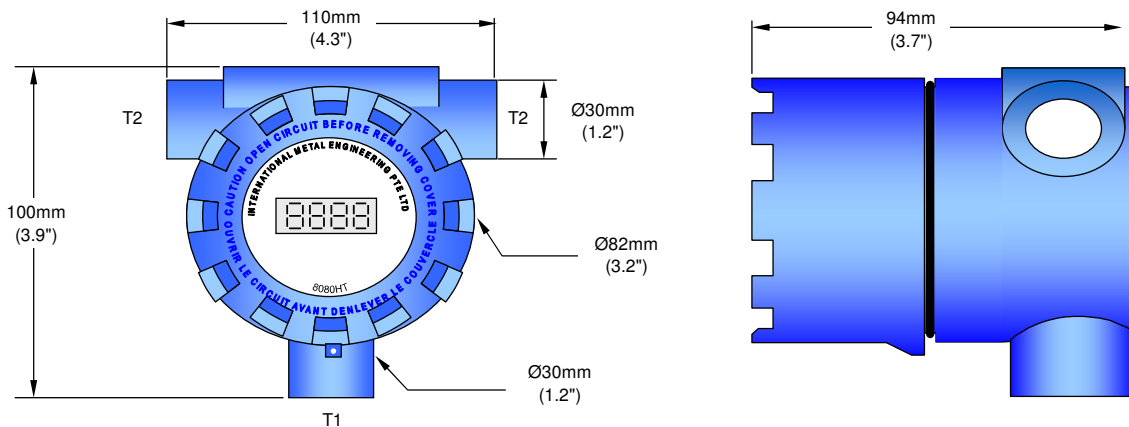
Ambient Temperature Limits	-40 to 85 °C (-40 °F to 195 °F) Without display -20 to 70 °C (-4 °F to 158 °F) With display
Storage Temperature	-40 to 100 °C (-40 °F to 212 °F)
Condensation	100%
Electromagnetic Compatibility (EMC)	Interference immunity and interference emission according to GB/T17626.2-1998), compliance with IEC 61000-4-3:1995

## ORDERING INFORMATION FOR 8080HT

Model	Description					
8080HT	Indicating Temperature Transmitter With HART					
	<b>Code</b>	<b>Options, Housing</b>				
	A	Die cast Aluminum, Epoxy Coated				
	T	SS316, Electro Polished				
	<b>Code</b>	<b>Instrument Connection (T1)</b>	<b>Conduit Size (T2)</b>			
	01	M16 x 2P (See note 1)	3/4" NPT			
	02	M16 x 2P (See note 1)	1/2" NPT			
	03	M16 x 2P (See note 1)	M20 x 1.5P			
	04	1/2" NPT	3/4" NPT			
	05	1/2" NPT	1/2" NPT			
	06	1/2" NPT	M20 x 1.5P			
	07	3/4" NPT	3/4" NPT			
	08	3/4" NPT	1/2" NPT			
	09	3/4" NPT	M20 x 1.5P			
	10	1/2" BSP	3/4" NPT			
	11	1/2" BSP	1/2" NPT			
	12	1/2" BSP	M20 x 1.5P			
	13	3/4" NPT	None			
	14	M20 x 1.5P	None			
	16	1/2" BSP	None			
	17	1/2" NPT	None			
	<b>Code</b>	<b>Certification</b>				
	NN	None				
	E1	ATEX / IECEx Explosion Proof Certified, NEMA 4X, IP68, T6				
	<b>Code</b>	<b>Accessories</b>				
	RC	Model 175RC Mounting Bracket (See note 1)				
	PM	Model 175PM Mounting Bracket (See note 1)				
	NR	Model 175NR Mounting Bracket				
	MM	Model 175MM Mounting Bracket				
	<b>Code</b>	<b>2 Inch "U" Bolt with Nuts and Washers</b>				
	00	None				
	01	Model 17508, 1 Set (For Model 175RC)				
	02	Model 17508, 2 Sets (For Model 175PM & 175NR)				
<b>8080HT</b>	<b>A</b>	<b>02</b>	<b>E1</b>	<b>PM</b>	<b>02</b>	<b>Typical Model Number</b>

Note:

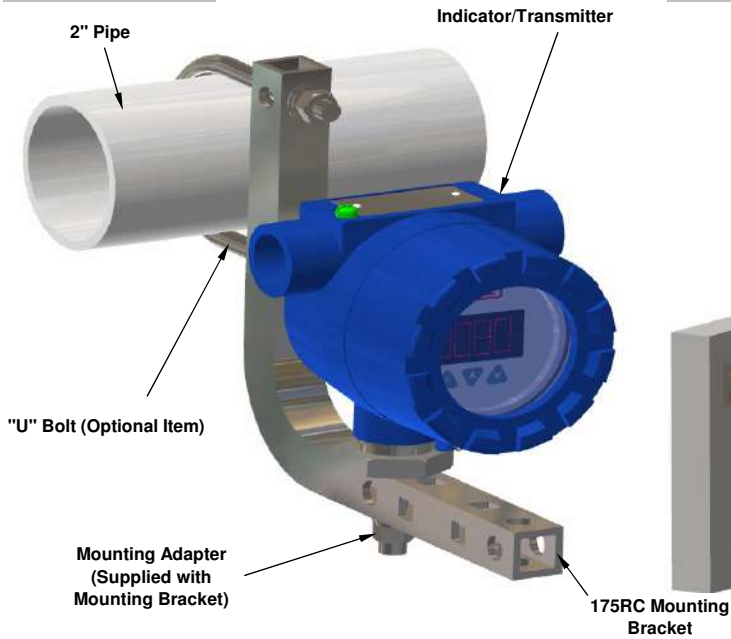
- 1 Ports with M16 x 2P thread are not through holes, they are for use with Model 175RC and 175PM Mounting Brackets only.
- 2 BSP threads are not approved by FM, CSA, ATEX & IECEx.



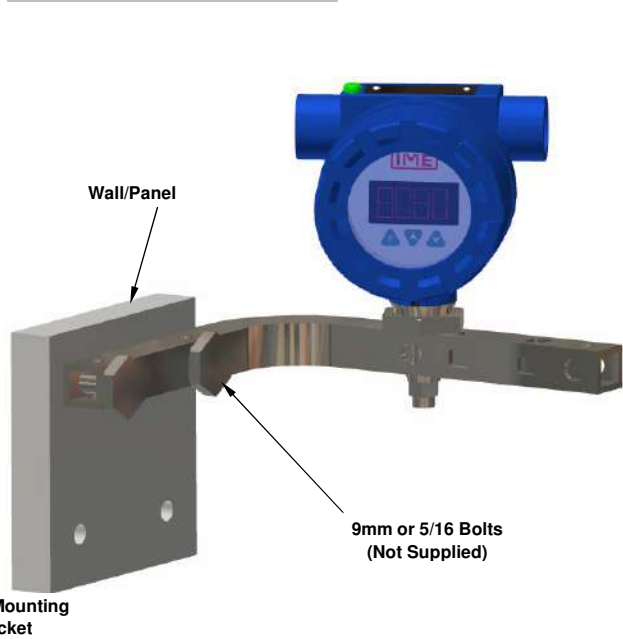
**MOUNTING BRACKETS FOR INDICATORS AND TRANSMITTERS**

**Mounting Methods For Model 175RC**

**Pipe Mounting**

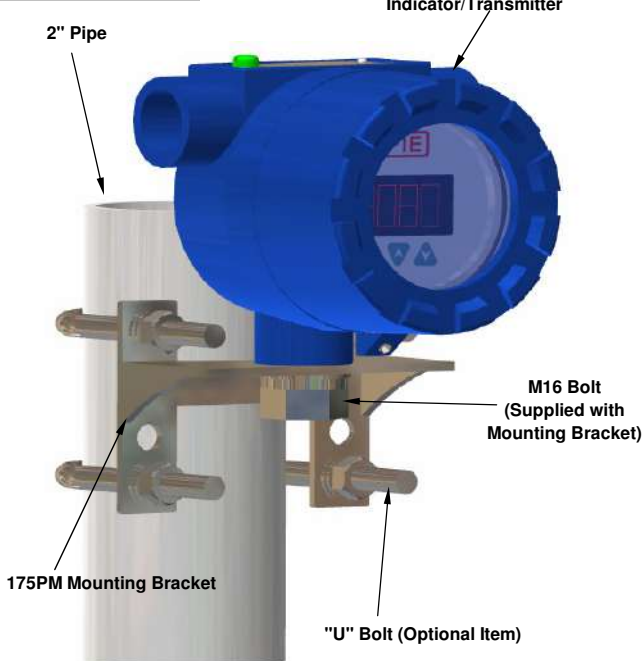


**Wall / Panel Mounting**

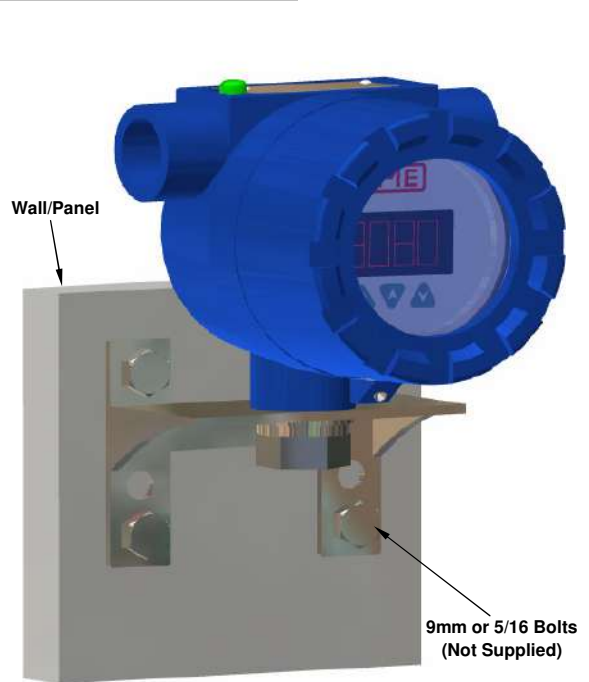


**Mounting Methods For Model 175PM**

**Pipe Mounting**



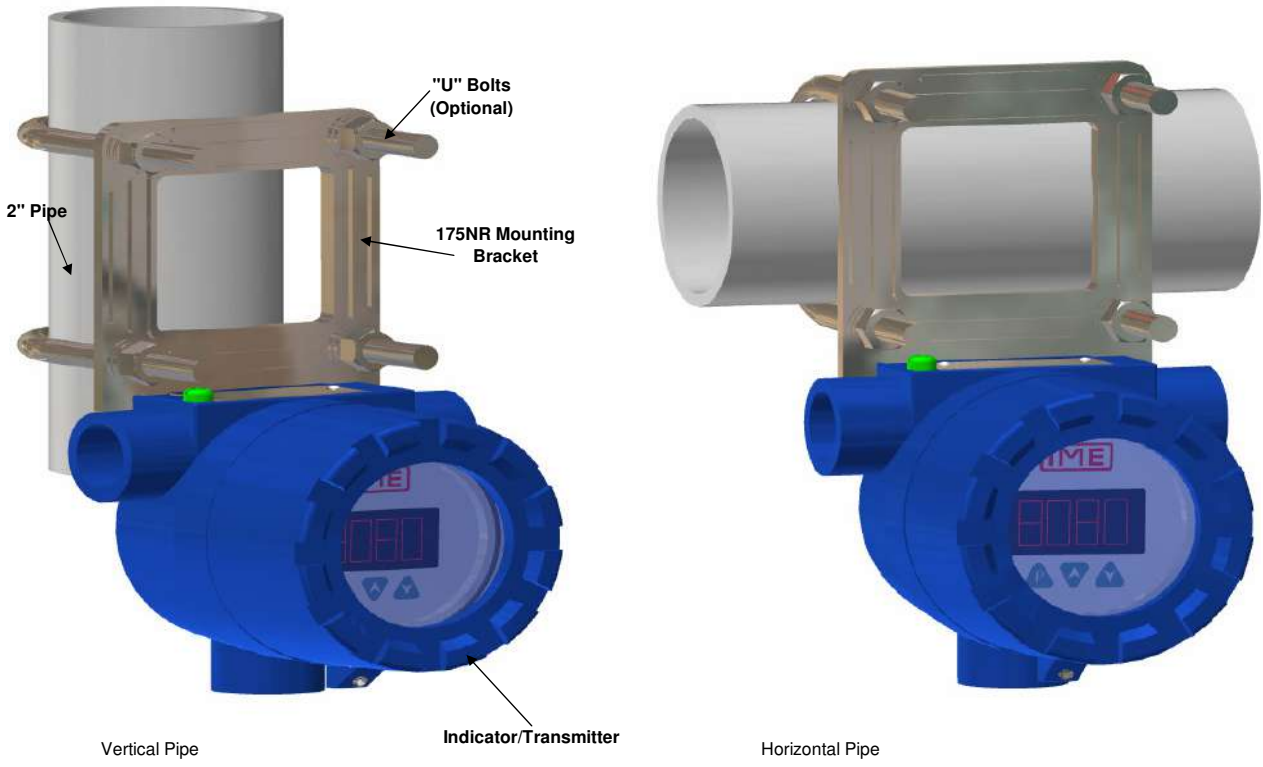
**Wall / Panel Mounting**



**MOUNTING BRACKETS FOR INDICATORS AND TRANSMITTERS**

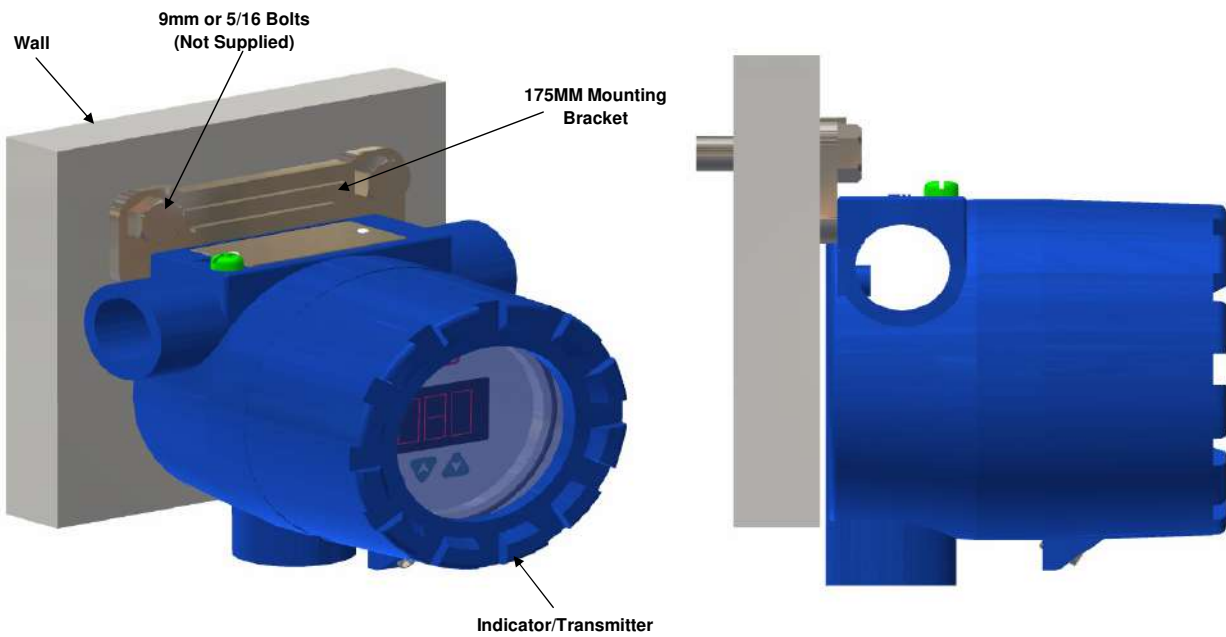
**Mounting Methods For Model 175NR**

**Pipe Mounting**



**Mounting Methods For Model 175MM**

**Wall/Panel Mounting**



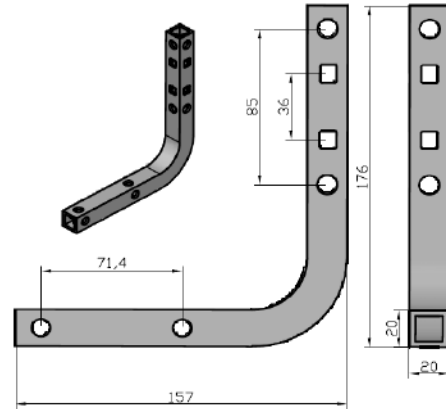
**Mounting Bracket**

**175RC**

**Introduction**

This simple hollow square mounting bracket constructed out of SS316 Stainless Steel, can be used to mount a variety of field devices, either on a wall or panel or a 2" Pipe.

When mounting on a 2" pipe, a "U" Bolt is required, which can be supplied optionally.  
 IME Model 17508 consists of a complete assembly of a 2" U bolt along with the nuts and washers required.



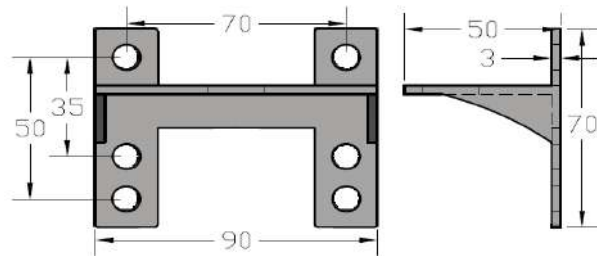
**Mounting Bracket**

**175PM**

**Introduction**

This simple "L" Shape mounting bracket constructed out of SS316 Stainless Steel, can be used to mount a variety of field devices, either on a wall or panel or on a 2" pipe.

When mounting on a 2" pipe, a "U" Bolt is required, which can be supplied optionally.  
 IME Model 17508 consists of a complete assembly of a 2" U bolt along with the nuts and washers required.



**Mounting Bracket**

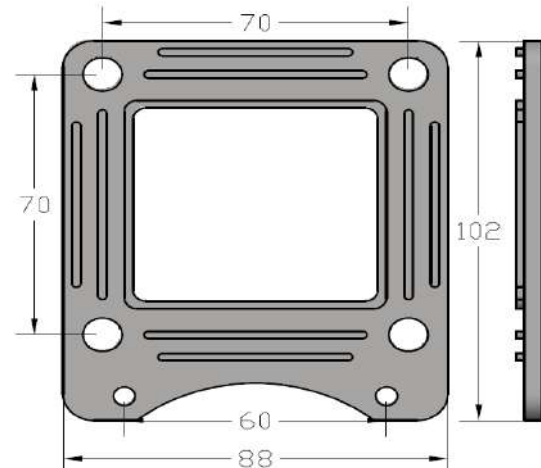
**175NR**

**Introduction**

IME MODEL 175NR is Stainless Steel Mounting Brackets made exclusively for IME MODEL 8080 Instrument Enclosure to mount on a 2" Pipe.

This Bracket is available for customers who require all 3 ports on the enclosure for other purposes.

The 175NR is symmetrical, so it can be rotated 90° to suit the viewing position of the Indicator/Transmitter.



**Mounting Bracket**

**175MM**

**Introduction**

IME MODEL 175MM is Stainless Steel Mounting Brackets made exclusively for IME MODEL 8080 Instrument Enclosure to mount on wall.

This low cost Bracket is available for customers who require all 3 ports on the enclosure for other purposes.

