

# Hart Temperature Transmitter Type M-155

LCD display

- 2 wire transmitter galvanic isolation
- Field mounted temperature transmitter M-155 for resistance thermometers (RTD), thermocouples (TC), resistance and voltage transmitters, settable via HART-protocol
- High performance, high reliability
- Variety of sensor inputs
- Digital communication
- Self-diagnostics function
- LCD display with bargraph



M-155 is integrated temperature transmitter uses resistance RTD'S and thermocouples ( K, J, E, N, R, S, T) and other resistance and voltage inputs, through the circuit processing module to convert the resistance signal into a standard 4-20mA current signal.

Widely used in chemical automatic control systems, and transmitted to Indicators, recorders and other controlling industrial systems.

Universal setting using an HART protocol makes the unit flexible for various input signals and scalable of the 4-20Ma range output.

M-155 has high performance and high accuracy due to its internal temperature sensor for active temperature compensation.

All the components which can cause a spark, are sealed in an EX junction box (IP-66).  
With its multiparametric backlight LCD display -make it easy to read.

The transmitter is high precision, low power consumption, wide temperature range, stable and reliable operation, and is resistant to shock and moisture due to its sealing structure (IP-66) , which is suitable for use in harsh field environments.

# Technical Specifications

Power supply	
Supply voltage	7.5 to 45 VDC(without display) , polarity protected
Output	
Output signal	4 to 20 mA
Signal on alarm	Underranging Linear drop to 3.8 mA
	Overranging linear rise to 20.5 mA
	Sensor break; sensor open-circuit 3.6 mA
Load	max.(V <sub>power supply</sub> -7.5 V)/0.022 A
Linearisation/transmission behaviour	Temperature linear, resistance linear, voltage linear
Galvanic isolation	U=2000V AC (input/output)
Installation conditions	
Installation instructions	Installation angle:no limit
	Installation area:Connection head accord. To DIN 43 729 Form B; TAF 10 field housing

Input			
Input	Type	Measurement ranges	Min.meas.Ranges
Resistance thermometer(RTD)	Pt100	-200°C to 850°C (-328°F to 1562°F)	10K
	Pt500	▲ -200°C to 250°C (-328°F to 482°F)	10K
	Pt1000	▲ -200°C to 250°C (-328°F to 482°F)	10K
	Cu50	-50°C to 150°C (-58°F to 302°F)	10K
	Cu100	-50°C to 150°C (-58°F to 302°F)	10K
	*Ni100	-60°C to 180°C (-76°F to 356°F)	10K
	*Ni500	▲ -60°C to 180°C (-76°F to 356°F)	10K
	*Ni1000	▲ -60°C to 150°C (-76°F to 302°F)	10K
Resistance transmitter	Resistance(Ω)	0 to 400 Ω	10 Ω
		▲ 0 to 2000 Ω	20 Ω
Connection type:2-,3- or 4-wire connection			
Thermocouples(TC)	B(PtRh30-PtRh6)	0 to 1820°C ( 32 to 3308°F)	500K
	E(NiCr-CuNi)	-270 to 1000°C(-454 to 1832°F)	50K
	J(Fe-CuNi)	-210 to 1200°C(-346 to 2192°F)	50K
	K(NiCr-Ni)	-270 to 1372°C(-454 to 2501°F)	50K
	N(NiCrSi-NiSi)	-270 to 1300°C(-454 to 2372°F)	50K
	R(PtRh13-Pt)	-50 to 1768°C (-58 to 3214.4°F)	500K
	S(PtRh10-Pt)	-50 to 1768°C(-58 to 3214.4°F)	500K
	T(Cu-CuNi)	-270 to 400°C(-454 to 752°F)	50K
Voltage transmitters(mV)	Millivolt transmitter(mV)	-10 to 75mV	5mV
		▲ -100 to 100mV	5mV
		▲ -100 to 500mV	6mV
		▲ -100 to 2000mV	20mV
▲ on request			

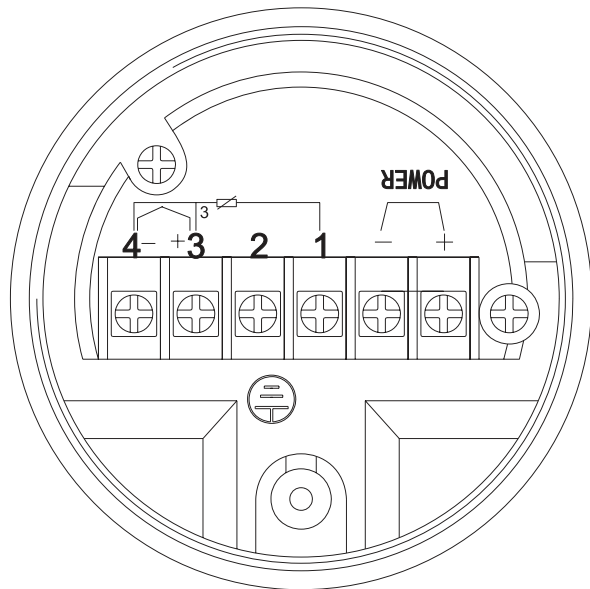
# Technical Specifications

Performance characteristics			
Response time	1 s		
Reference operating conditions	Calibration temperature: 23°C (73.4°F) 5K		
Long term stability	≤0.05%/year		
Switch on delay	≤5s		
Influence of ambient	Negligible		
Load influence	Negligible		
Power supply influence	Negligible		
Self stability configuration	0 to 2%		
Filter configuring	0 to 160 μ A		
Resolution	0.3 μ A		
Maximum measured error	Input	Type	Measurement accuracy
	RTD	Pt100, Ni100	0.2K or 0.08%
		Pt500, Ni500	0.5K or 0.20%
		Pt1000, Ni1000	0.3K or 0.12%
		Cu50	0.2K or 0.08%
Cu100		0.3K or 0.12%	
TC	K, J, T, E N S, B, R	typ.0.5K or 0.08% typ.1.0K or 0.08% typ.2.0K or 0.08%	
Ω	0 to 400 Ω 0 to 2000 Ω	± 0.1Ω or 0.08% ± 1.5Ω or 0.12%	
mV	-10 to 75mV -100 to 100mV -100 to 500mV -100 to 2000mV	± 20 μ V or 0.08% ± 0 μ V or 0.08% ± 0 μ V or 0.08% ± 0 μ V or 0.08%	

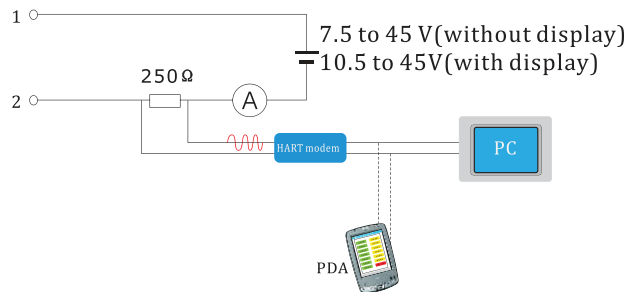
Environment conditions	
Ambient temperature limits	-40 to 85°C (-40°F to 185°F)
Storage temperature	-40 to 100°C (-40°F to 212°F)
Condensation	Allowable
Degree of protection	IP 00, IP66 (installed)
Shock and vibration resistance	4g/2 to 150 Hz as per IEC 60 068-26
Electromagnetic compatibility (EMC)	Interference immunity and interference emission according to GB/T17626.2-1998), compliance with IEC 61000-4-3:1995.
Explosion	Intrinsically safe: Exia II CT4
Others	
Display Type	Visible range 32.5X22.5mm; 5-digit 7-segment main display, digit height 8mm, 8-digit 14 segment additional display, digit height 5mm; 52 bars meter with 2% resolution
Weight	Approx. 800g
Display Range	-1.9.9.9.9-9.9.9.9.9
Materials	Housing: ADC12

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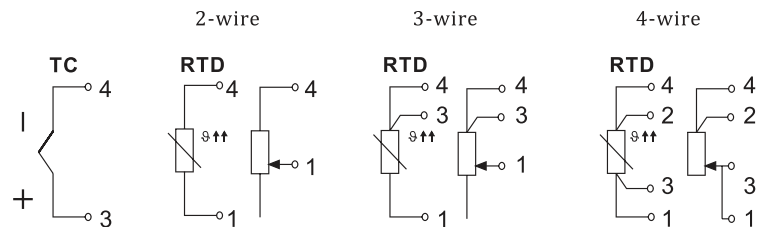
## Connection Diagram



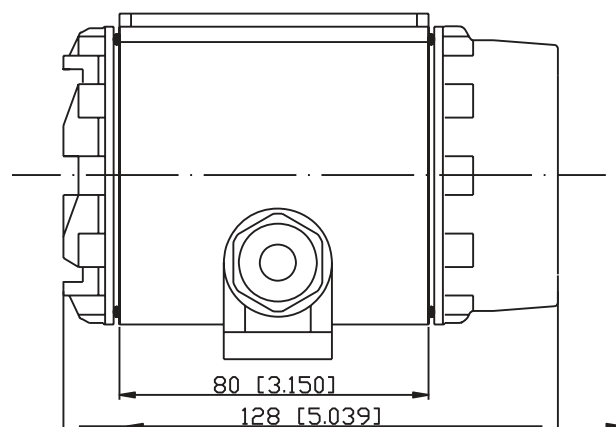
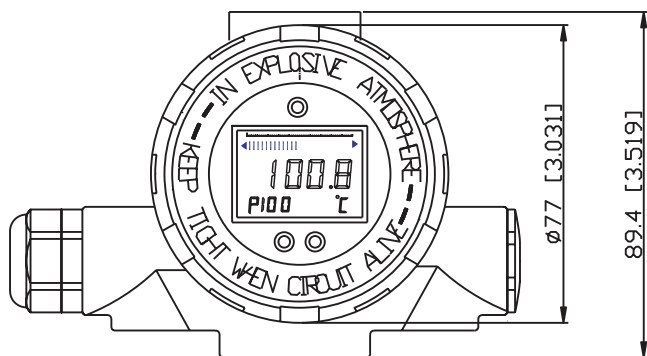
### A. Power supply: XS1



### B. How to connect a sensor

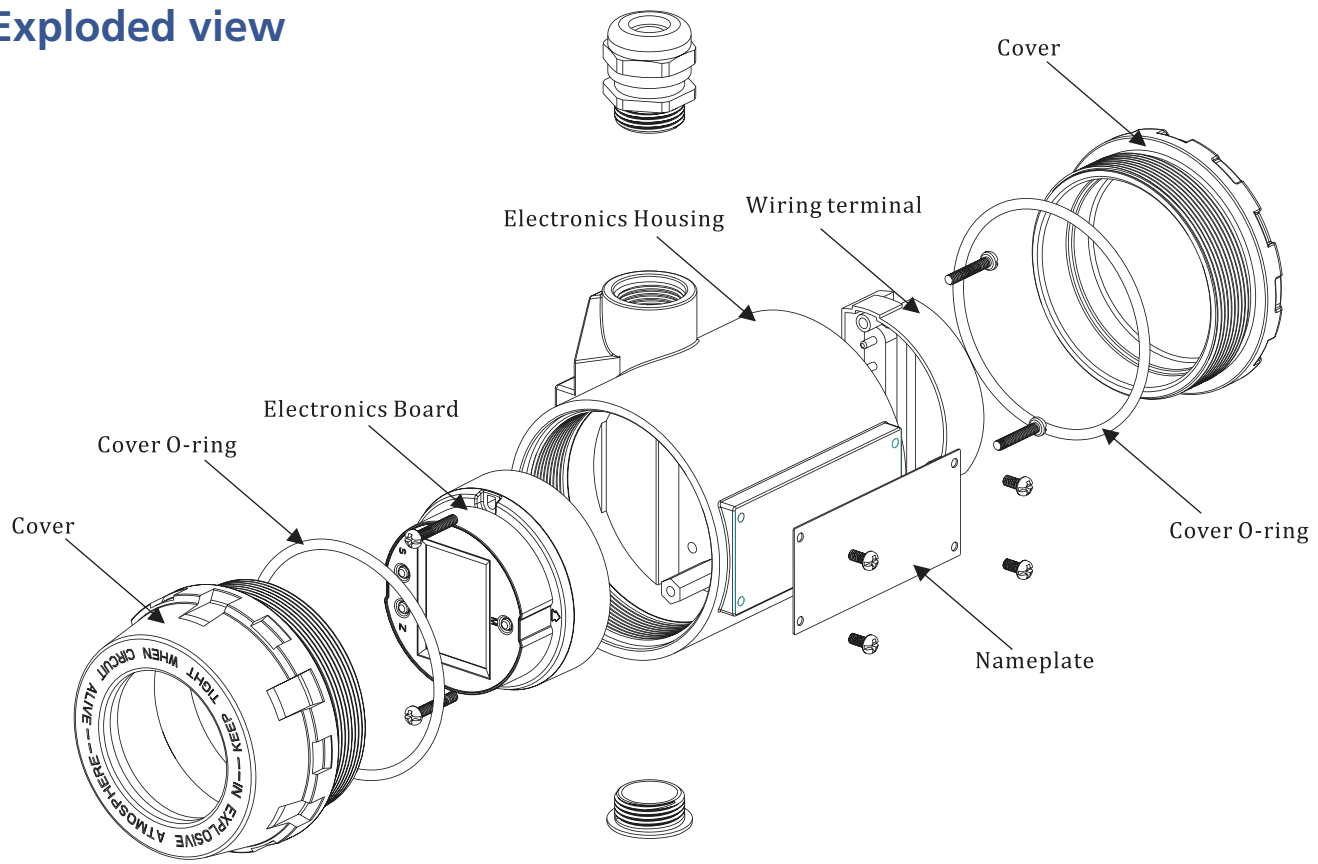


## Dimensions



# Technical Specifications

## Exploded view

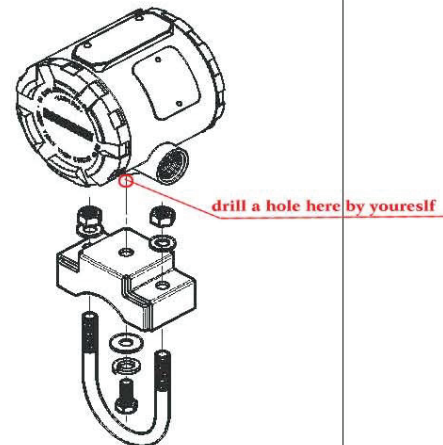
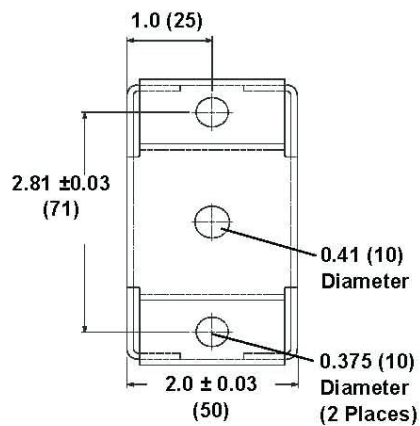
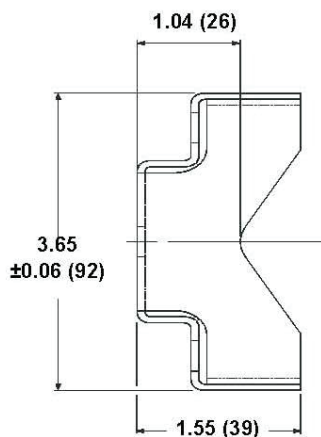


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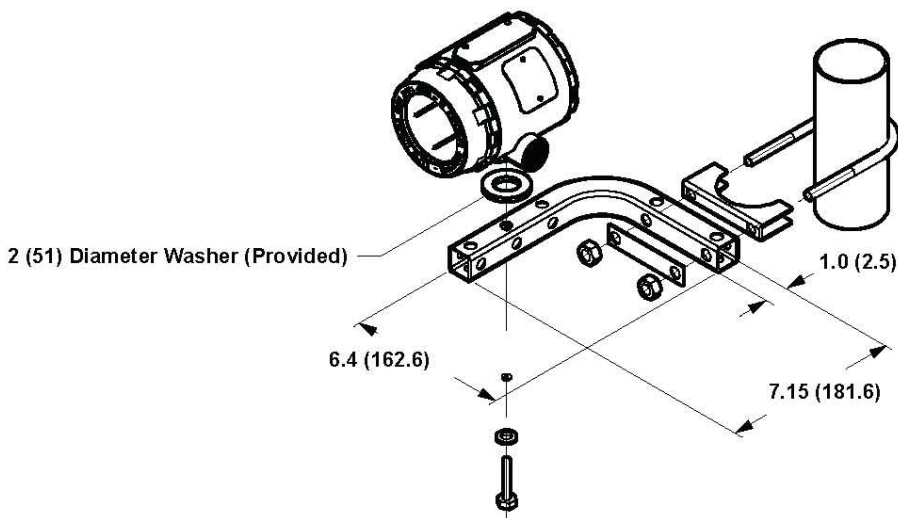
## Installation Diagram

### Optional Transmitter Mounting Brackets

#### Option Code B4 Bracket



#### Option Code B5 Bracket



Dimensions are in inches (millimeters)

## How to order:

M-155 / PT100 / -50 / 200 / C

Basic Type    Input    Temp' Min.    Temp Max.    °C or °F