

IN-HEAD TRANSMITTER

2-wire; multirange, RTD or T/C input

IP2200.99

CE 08/1999

MT220

Description

MT220 is a family of multirange 2-wire temperature transmitters for in-head mounting in DIN B or larger connection heads.

Designed for highest reliability and cost-efficiency, MT220 represents a family of transmitters that combine attractive pricing with high quality and excellent industrial performance.

Intrinsically safe versions are available with CENELEC and FM approval.

- ✓ **MT220R FOR RTD INPUT WITH SELECTABLE RANGES**
- ✓ **MT220T FOR T/C INPUT WITH CONTINUOUS RANGE ADJUSTMENT**
- ✓ **TEMPERATURE LINEAR FOR RTD INPUT**
- ✓ **FITS STANDARD DIN B-HEADS**
- ✓ **OPTIONAL INTRINSICALLY SAFE VERSION**
- ✓ **NEEDS ONLY 6.5V FOR OPERATION**

Technical Characteristics

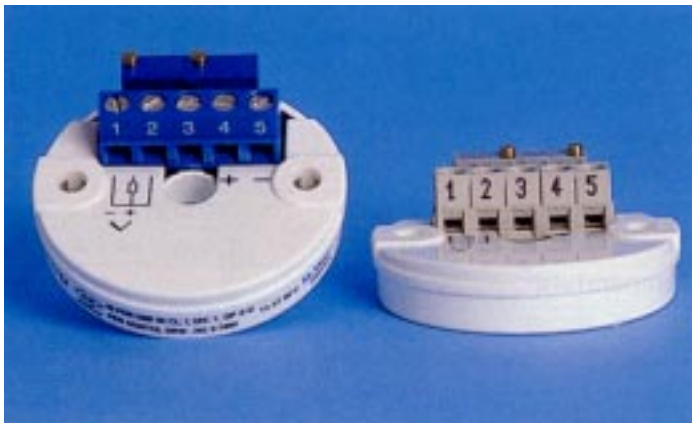
MT220 is a family of analog, 2-wire, in-head transmitters with selectable ranges for Pt100 and selectable types and continuous range adjustment for T/C input.

The "Low Profile" housing, with its protected electronics, is extremely durable and facilitates easy connections and adjustments.

MT220R is adjustable for different Pt100 ranges in both degree C and F and provides a temperature linear output.

MT220T covers 5 different thermocouple types, is continuously adjustable and provides a voltage linear output.

Adjustments are made with solder pads and potentiometers.



Phone: (703) 237-2774

Fax: (703) 237-6687

ipiuwe@intproducts.com

www.intproducts.com

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Specifications

	MT220R	MT220T
INPUT		
FI100 (-0.00385), 3-Wire Connection	Adjustable to specific ranges within: +50...+550 °C / +80...+1120 °F	
Thermocouples		Selectable, type J, L, T, K, N with ranges within -5...55mV
Sensor Current	-1.1mA	
Input Impedance		> 5MΩ
Max. Sensor Wire Resistance	15 Ω/m Wire	500 Ω/m (total loop)
MONITORING		
Sensor Breakdown detection, selectable	Upscale -2.5mA, Downscale -3mA	Upscale -2.5mA, Downscale -3mA
ADJUSTMENTS		
Zero	+50...+500°C / +80...+1200°F	±10% of span
Span, selectable	50...+500°C / 100...+1000°F	10...50mV
Span, fine adjustment	±10% (±5% for 600/800/1000 °F)	±10%
OUTPUT		
Current	4...20mA	4...20mA
Linearity	Temperature Linear	Voltage Linear
Current Limitation	-25mA	-25mA
Permissible Load Standard	700 Ω/m @ 2.4VDC, 25mA	700 Ω/m @ 2.4VDC, 25mA
EEEx	620 Ω/m @ 2.4VDC, 25mA	620 Ω/m @ 2.4VDC, 25mA
TEMPERATURE		
Ambient, storage	-40...+100°C / -40...+212°F	-40...+100°C / -40...+212°F
Ambient, operating Standard	-40...+85°C / -40...+185°F	-40...+85°C / -40...+185°F
EEEx	see "Intrinsic Safety Specifications"	see "Intrinsic Safety Specifications"
GENERAL DATA		
Response Time 10% - 90%	< 0.2s	< 0.2s
Humidity (non-condensing)	0...95%RH	0...95%RH
Intrinsic Safety	CENELEC: EEx ia IIC T4, T5, T6 FM: Class I, Div. 1, Gr. A-D	CENELEC: EEx ia IIC T4, T5, T6 FM: Class I, Div. 1, Gr. A-D
POWER SUPPLY, polarity protected		
Supply Voltage Standard	8.5...32VDC	8.5...32VDC
EEEx	8.5...30VDC	8.5...30VDC
Permissible Ripple	4Vpp @ 50/60 Hz	4Vpp @ 50/60 Hz
ACCURACY		
Linearity	±0.1% of span	±0.1% of span
Calibration	±0.1% of span	±0.1% of span
Cold Junction Compensation (CJC)		±1.0°C / ±1.8°F
Temperature Influence	±0.6% of span / 25°C; ±0.7% of span / 50°F	±0.6% of span / 25°C; ±0.7% of span / 50°F
Temperature Influence CJC		±1.25°C / 25°C; ±2.5°F / 50°F Type T: ±2.5°C / 25°C; ±5.0°F / 50°F
Sensor Wire Influence	±0.005°C / Ω/m; ±0.005°F / Ω/m per wire	0.4 μV / Ω/m
RFI Influence, 0.15-1000MHz, 10V/m	±0.2% of span (typical)	±0.2% of span (typical)
Supply Voltage Influence	±0.02% of span/V	±0.02% of span/V
Supply Ripple Influence, 50/60 Hz, 4Vpp	±0.05% of span	±0.05% of span
Long-term Stability	±0.1% of span/ year	±0.1% of span/ year
HOUSING		
Material/ Flammability (UL)	Zinc Alloy + ABS/V0	Zinc Alloy + ABS/V0
Mounting	DIN B-head or larger	DIN B-head or larger
Connection, Single/Stranded Wires	<2.5 mm ² , AWG 14	<2.5 mm ² , AWG 14
Weight	40 g	40 g
Protection, Housing with Cover/Terminals	IP 20 / IP 10	IP 20 / IP 10

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Subject to change without notice

RANGE ADJUSTMENTS MT220R

Zero Adjustment	-50...+50°C	-60...+120°F
Span Selection	50°C	100°F
	100°C	200°F
	150°C	300°F
	200°C	400°F
	300°C	600°F
	400°C	800°F
	500°C	1000°F



RANGE ADJUSTMENTS MT220T

Zero Adjustment Adjustable $\pm 10\%$ of span

Span Selection	mV	T/C J*	T/C L*	T/C T*	T/C K*	T/C II*
	10...50	186...870°C	183...855°C	213...>400°C	246...1232°C	319...1300°C
	(no gap)	335...1566°F	329...1540°F	383...>720°F	443...2218°F	574...>2340°F

* The temperature spans correspond to the mV spans with zero adjustment = 0% of span

INTRINSIC SAFE SPECIFICATIONS

	DEMKO/ CENELEC	FACTORY MUTUAL
Approval	EEEx ia IIC T4, T5, T6	Class I, Div. 1,
Classification	T4/+85°C, T5/+65°C, T6/+40°C	Group A - D, T4/+80°C
Certificate No.	96D.121000X, Appendix III	Approval Pending
Output/ Supply		
Max. voltage to transmitter	U _i = 30VDC	
Max. current to transmitter	I _i = 100mA	
Max. power to transmitter	P _i = 700mW	
Internal Inductance	L _i = 0mH	
Internal Capacitance	C _i = 0nF	
Input (Sensor)		
Max. voltage from transmitter	U _o = 30VDC	
Max. current from transmitter	I _o = 100mA	
Max. power from transmitter	P _o = 700mW	
Max. Inductance (input loop)	L _o = 5mH	
Max. Capacitance (input loop)	C _o = 66nF	

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CONNECTIONS AND DIMENSIONS

