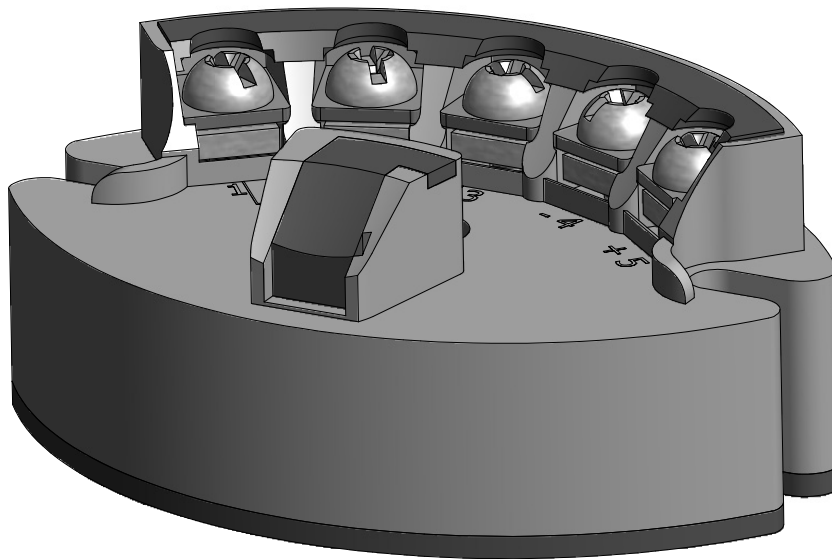


The Series 440 programmable RTD temperature transmitter is a 2-wire transmitter with an analog output. It has measurement input for Pt100 resistance thermometers (RTD) in 2- or 3-wire connections. Setting up of the transmitter is done using the communication cable. These small units can be mounted in Pyromation connection heads or they can be used for surface mounting by using a 35 mm DIN-rail mounting clip.

TEMPERATURE HEAD TRANSMITTER

Universal head transmitter for Pt100 resistance thermometers (RTD), programmable using a PC, for installation in a sensor head.



Patent #D350, 596

Application Areas

- PC programmable temperature head transmitter for converting Pt100 input signal into an scalable (4 to 20) mA analog output signal
- Platinum resistance thermometer (RTD)
- Online configuration using PC with SETUP connector.

Features and Benefits

- Universally PC programmable for Pt100 signals
- 2-wire technology, (4 to 20) mA analog output
- High accuracy in total ambient temperature range
- Fault signal on sensor break or short circuit
- RFI/EMI Protected, **CE** marked
- **UL** US UL Recognized Component
- **FM** **CS** General Purpose and non-incendive for use in hazardous locations
- Online configuration during measurement using SETUP connector
- Output simulation

ORDER CODES

Unconfigured Order Number: 440-00^[1]

Example Configured Order Number: **4 4 0** - **3 85 U** - **S (50-300) F**

1

CODE	DESCRIPTION
2	RTD (2-wire)
3	RTD (3-wire)

2

CODE	DESCRIPTION
85	100 ohm platinum ($\alpha = 0.00385 \text{ } ^\circ\text{C}^{-1}$)

[1] Default setting for unconfigured transmitter is 3-wire Pt100 (0 -100) $^\circ\text{C}$.



3

CODE	DESCRIPTION
U	Upscale Burnout $\geq 21.0 \text{ mA}$
D	Downscale Burnout $\leq 3.6 \text{ mA}$

4

RANGE
S (lower limit – upper limit)

5

CODE	DESCRIPTION
C	Celsius
F	Fahrenheit

Accessories

CODE	DESCRIPTION
10303	Communication Cable and Software (USB)
10307	35 mm DIN-rail mounting clip

Resistance Thermometer Input (RTD)

TYPE	MEASUREMENT RANGE	MINIMUM RANGE
Pt100 ($\alpha = 0.00385 \text{ } ^\circ\text{C}^{-1}$)	(-200 to 650) $^\circ\text{C}$ [-328 to 1202] $^\circ\text{F}$	10 $^\circ\text{C}$ [18 $^\circ\text{F}$]
Connection Type	2- or 3-wire connection cable resistance compensation possible in the 2-wire system (0 to 20) Ω	
Sensor cable resistance	maximum 11 Ω per cable	
Sensor current	$\leq 0.6 \text{ mA}$	

Output (Analog)

Output signal	(4 to 20) mA or (20 to 4) mA
Transmission as	Temperature linear
Maximum load	$(V_{\text{power supply}} - 10 \text{ V}) / 0.023 \text{ A}$ (current output)
Digital filter 1st degree	(0 to 8) s
Induced current required	$\leq 3.5 \text{ mA}$
Current limit	$\leq 23 \text{ mA}$
Switch on delay	4 s (during power $I_a = 3.8 \text{ mA}$)
Electronic response time	1 s

Failure Mode

Undershooting measurement range	Decrease to 3.8 mA
Exceeding measurement range	Increase to 20.5 mA
Sensor breakage/short circuit	$\leq 3.6 \text{ mA}$ or $\geq 21.0 \text{ mA}$

Electronic Connection

Power supply	$U_b = (10 \text{ to } 30) \text{ V}$ dc, polarity protected
Allowable ripple	$U_{ss} \leq 5 \text{ V}$ at $U_b \geq 13 \text{ V}$, $f_{\text{max}} = 1 \text{ kHz}$

Resistance Thermometer Accuracy (RTD)

TYPE	MEASUREMENT ACCURACY
Pt100	$\pm 0.2 \text{ } ^\circ\text{C}$ or 0.08% ^[1]
Reference conditions	Calibration temperature (23 \pm 5) $^\circ\text{C}$ [73 \pm 9] $^\circ\text{F}$

General Accuracy

Influence of power supply	$\pm 0.01\%/V$ deviation from 24 V ^[2]
Load influence	$\pm 0.02\%/100 \Omega$ ^[2]
Temperature drift	$T_d = \pm (15 \text{ ppm}/^\circ\text{C} \times (\text{range end value} + 200) + 50 \text{ ppm}/^\circ\text{C} \times \text{measurement range}) \times \Delta\vartheta$ $\Delta\vartheta = \text{deviation of the ambient temperature according to the reference condition}$
Long term stability	$\leq 0.1 \text{ } ^\circ\text{C}/\text{year}$ ^[3] or $\leq 0.05\%/year$ ^{[1][3]}

[1] % is related to the adjusted measurement range (the value to be applied is the greater)

[2] All data is related to a measurement end value of 20 mA

[3] Under reference conditions

Ambient Conditions

Ambient temperature	(-40 to 85) °C [-40 to 185] °F
Storage temperature	(-40 to 100) °C [-40 to 212] °F
Climatic class	EN 60 654-1, Class C
Condensation	Permitted
Shock resistance	4 g / (2 to 150) Hz according to IEC 60 068-2-6
EMC immunity	Interference immunity and interference emission according to EN 61 326-1 (IEC 1326)

Mechanical Construction

Dimensions	<p style="text-align: center;">DIMENSIONS IN INCHES [mm]</p>
Weight	Approximately 44 g
Materials	Housing: Polycarbonate • Potting: Polyurethane
Terminals	15 AWG (maximum)

Terminal Connections

<p>Power supply and current output</p> <p>5 + (10 to 30) V dc 4 - (4 to 20) mA</p>	<p style="text-align: right;">— SETUP SOCKET</p>
<p>2-Wire</p> <p>3 1</p> <p>3-Wire</p> <p>3 2 1</p>	

Approvals

	Unit complies with the legal requirements set forth by the EU regulations.
	UL Recognized Component
	General Purpose and non-incendive for use in hazardous locations Class I, Division 2 Groups A, B, C and D