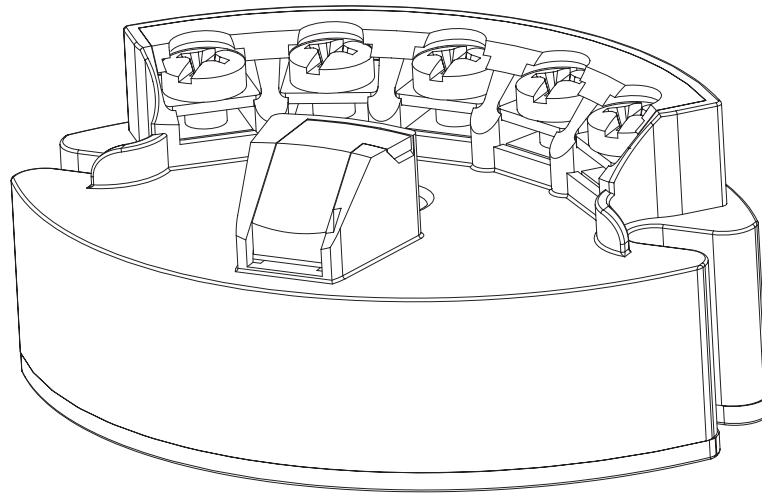


The Series 440 programmable RTD temperature transmitter is a two-wire transmitter with an analog output. It has measurement input for Pt100 resistance thermometers (RTD) in 2 or 3 wire connection. Setting up of the transmitter is done using the 440-CABLE. These small units can be mounted in Pyromation 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) settable 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 scaleable (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
-  us UL Recognized Component
-   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

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 2 3 - 4 5
3 85 U - **S (50-300) F**

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
440-CABLE	Communication Cable and Software (RS232)
440-CABLE-USB	Communication Cable and Software (USB)
440-DIN35	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	0.2 $^\circ\text{C}$ 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	$T_a = \pm (15 \text{ ppm}/^\circ\text{C} \times (\text{range end value} + 200) + 50 \text{ ppm}/^\circ\text{C} \times \text{measurement range}) \times \Delta\vartheta$ $\Delta\vartheta = \text{deviation of the ambient temperature according to the reference condition}$
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

Environmental 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	
Weight	Approximately 44 g
Materials	Housing: Polycarbonate • Potting: Polyurethane
Terminals	15 AWG (maximum)

Terminal Connections

<p>Power supply and current output</p> <p>(10 to 30) V dc (4 to 20) mA</p>	
<p>2-Wire</p>	
<p>3-Wire</p>	

Approvals

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