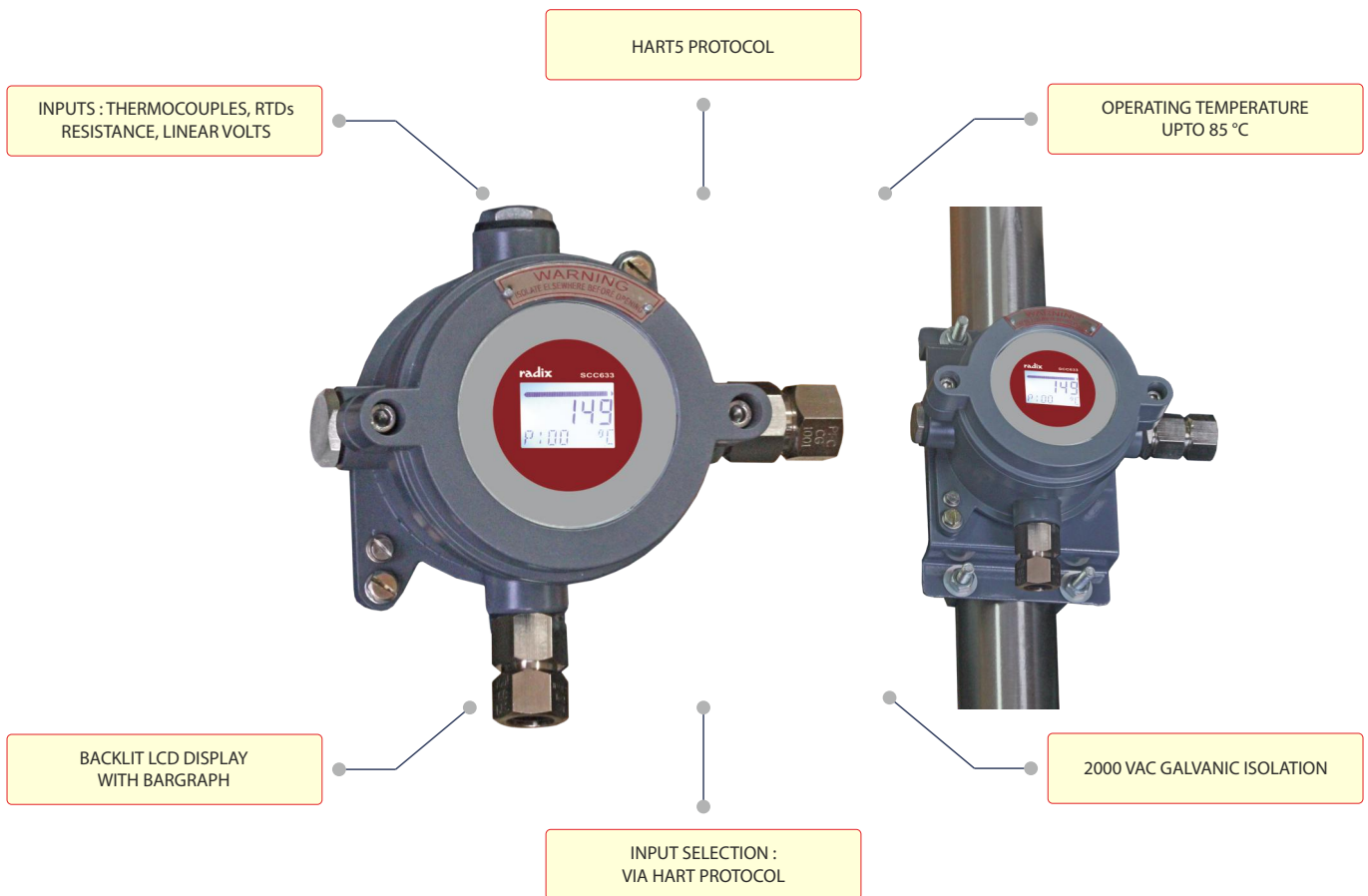


2-WIRE TEMPERATURE TRANSMITTER

UNIVERSAL, ISOLATED, HART, FLAMEPROOF



APPLICATION AREAS

- Field mount temperature transmitter with HART protocol to convert RTD/Resistance/TC input signals into a scalable 4 to 20 mA analog output signal
- Inputs :
Resistance thermometers (RTD)
Thermocouples (TC)
Resistance
Voltage

FEATURES

- User programmable with PC based utility software and Hart configurator
- 2-wire technology, 4~20 mA analog output
- Accuracy over total ambient temperature range
- Galvanic isolation
- Active temperature compensation
- Supply range 10.5~45 VDC
- User programmable measurement range, unit, bias, preset output, etc
- Expanded resistance input (max 10KΩ)
- Expanded voltage input (max 2000mV)

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SPECIFICATIONS

All specifications at ambient of 25 °C, 24VDC unless specified otherwise

INPUT

Input type	B, E, J, K, N, R, S, T
Thermocouple	Pt100, Pt500, Pt1000, Cu50, Cu100
RTD	0~400 Ω, 0~2000 Ω, 0~10000 Ω
Resistance	-10~75 mV, -100~100 mV,
Linear voltage	-100~500 mV, -100~1000 mV
Range limits	See Table 1

SENSOR BREAK DETECTION

Preset output	Upscale ~ 20.8 mA Downscale ~ 3.8 mA
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OUTPUT

Output signal	4~20 mA
Load	Max (V power supply - 7.5V) / 0.0208A
Input/output relation	Temperature linear, resistance linear, voltage linear
Response time	Approx 1 s
Switch on delay	≤ 5s
Input/output isolation	2000 VAC, 1 minute

ACCURACY

Accuracy	See Table 1
Long term stability	≤ 0.05% / year
Reference operating conditions	Calibration temperature : 23 °C (73.4 °F) ±5K
Ambient temperature effect	Negligible
Load effect	Negligible
Power supply effect	Negligible
Resolution	0.3 μA
Maximum measured error	See Table 1

POWER SUPPLY

Supply voltage	10.5~45 VDC
Reverse polarity	Protected

INDICATION

Display type	Visible area : 32.5x22.5mm 5-digit, 7-segment main display, digit height 8mm; 8-digit, 14-segment additional display, digit height 5mm; 52-bar graph indicator with 2% resolution
Display range	-19999 to 99999

ENVIRONMENTAL CONDITIONS

Ambient, storage	-40 to 100 °C (-40 to 212 °F)
Ambient, operation	-40 to 85 °C (-40 to 185 °F) -30 to 70 °C (-4 to 158 °F)
Relative humidity	0 ~ 95%
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

ENCLOSURE

Dimensions	142(H) x 84(D) mm See fig. 1
Material	Light Alloy (Lm6)
Protection	IP66 as per IS/IEC:60529-2009
Cable gland	Two 1/2" NPT cable entry
Certification	IS/IEC:60079-1-2007 for gas groups IIA & IIB

PROGRAMMABLE PARAMETERS *

List of parameters	Input type Unit Sensor break detection Offset for PV Digital filter Range
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* This requires HART configurator DCC503 USB to HART converter connected to PC & utility software

2-WIRE TEMPERATURE TRANSMITTER

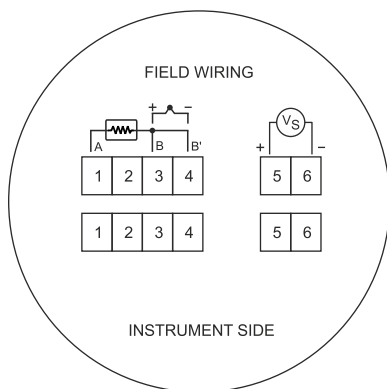
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TABLE 1

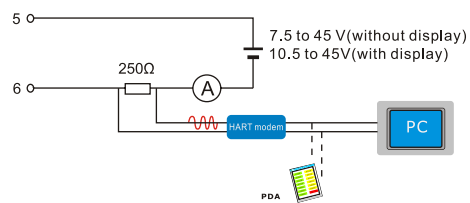
SENSOR / INPUT	RANGE LIMITS		MINIMUM SPAN (°C)	ACCURACY AT 25 °C (°C / EU)
	LOW SCALE	HIGH SCALE		
Pt - 6% Rh / Pt - 30% Rh (B)	0 °C	1820 °C	500 °C	± 2.0 °C or 0.08% of span
Chromel / Constantan (E)	-270 °C	1000 °C	50 °C	± 0.5 °C or 0.08% of span
Iron / Constantan (J)	-210 °C	1200 °C	50 °C	± 0.5 °C or 0.08% of span
Chromel / Alumel (K)	-270 °C	1372 °C	50 °C	± 0.5 °C or 0.08% of span
Nicrosil / Nisil (N)	-270 °C	1300 °C	50 °C	± 1 °C or 0.08% of span
Pt / Pt - 13% Rh (R)	-50 °C	1768 °C	500 °C	± 2 °C or 0.08% of span
Pt / Pt - 10% Rh (S)	-50 °C	1768 °C	500 °C	± 2 °C or 0.08% of span
Copper / Constantan (T)	-270 °C	400 °C	50 °C	± 0.5 °C or 0.08% of span
Pt100 *	-200 °C	850 °C	10 °C	± 0.2 °C or 0.08% of span
Pt500 *	-200 °C	250 °C	10 °C	± 0.5 °C or 0.20% of span
Pt1000 *	-200 °C	250 °C	10 °C	± 0.3 °C or 0.12% of span
Ni100 (6180ppm/K) *	-60 °C	180 °C	10 °C	± 0.2 °C or 0.08% of span
Ni500 (6180ppm/K) *	-60 °C	180 °C	10 °C	± 0.5 °C or 0.20% of span
Ni1000 (6180ppm/K) *	-60 °C	150 °C	10 °C	± 0.3 °C or 0.12% of span
Cu50 *	-50 °C	150 °C	10 °C	± 0.2 °C or 0.08% of span
Cu100 *	-50 °C	150 °C	10 °C	± 0.3 °C or 0.12% of span
0 to 400 Ω *	0 Ω	400 Ω	10 Ω	± 0.1 Ω or 0.08% of span
0 to 2000 Ω *	0 Ω	2000 Ω	20 Ω	± 1.5 Ω or 0.12% of span
0 to 10000 Ω *	0 Ω	10000 Ω	100 Ω	± 7.5 Ω or 0.20% of span
-10 to 75 mV	-10 mV	75 mV	5 mV	± 20 μV or 0.08% of span
-100 to 100 mV	-100 mV	100 mV	5 mV	± 20 μV or 0.08% of span
-100 to 500 mV	-100 mV	500 mV	6 mV	± 30 μV or 0.08% of span
-100 to 1000 mV	-100 mV	2000 mV	20 mV	± 50 μV or 0.08% of span

* Accuracy specified is for 2 and 3-wire RTD & resistance inputs. For 2-wire, lead resistance is taken as '0' ohms.

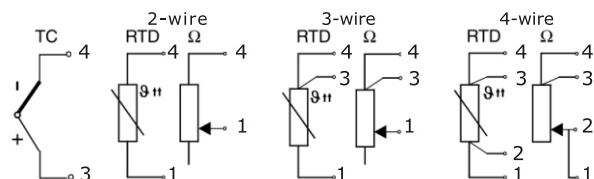
ELECTRICAL CONNECTIONS



A. Power supply, HART programmer



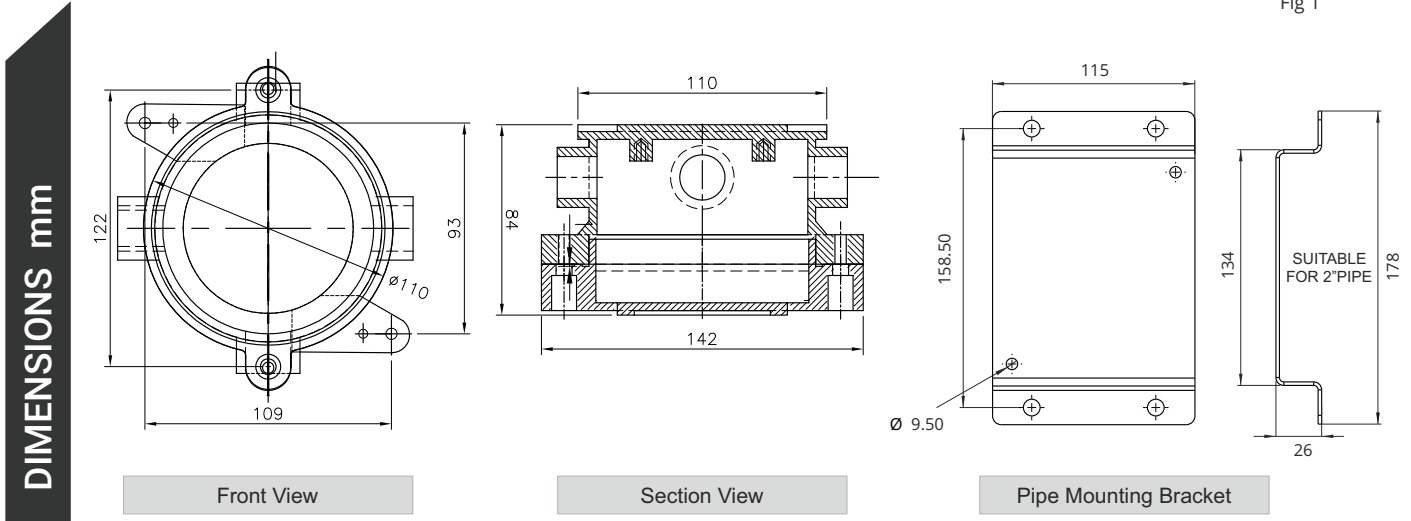
B. How to connect a sensor



2-WIRE TEMPERATURE TRANSMITTER

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Fig 1



DIMENSIONS mm

ORDERING INFORMATION

Example	2331	0	2331 0
Order code	2331		
Mounting		0	Surface Mount
		1	Pipe Mount

EXAMPLE

2331 0
 └── Mounting : Flameproof - Surface Mount

ACCESSORIES*	RADIX PART NO.
1/2" NPT CABLE GLAND**	AMA-365

ITEM	MODEL	ORDER CODE
USB to Hart Converter *	DCC503	2556

** For FLP Enclosure

*Accessories & Converter to be purchased separately

Default Parameters

Input type : Pt100, 3-wire
 Range : 0~150 °C
 Sensor break : Upscale, 22mA
 Mounting : Surface

If customer has not specified different values.

If user wishes to program the input and range, user must purchase separately the USB to Hart Converter DCC503.

ENQUIRIES

Instruments: sales@radix.co.in
Sensors: sensors@radix.co.in
Gauges: gauges@radix.co.in
Automation: automation@radix.co.in
Level: level@radix.co.in

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