

OUTPUT

Output (Analog)

Output signal	Analog (4 to 20) mA or (20 to 4) mA	
Transmission as	Temperature linear, resistance linear, voltage linear	
Maximum load	$(U_{b \max} - 11V) / 0.023 \text{ A}$ (current output)	
Digital filter 1st degree	(0 to 120) s	
Minimum current required	3.5 mA, multidrop mode 4 mA	
Current limit	$\leq 23 \text{ mA}$	
Switch on delay	10 s (during switch-on operation $I_a \leq 3.8 \text{ mA}$)	
Response time	Resistance thermometer (RTD)	0.9 to 1.3 s (depends on the connection method 2/3/4-wire)
	Thermocouples (TC)	0.8 s
	Reference temperature	0.9 s

Failure Mode

Underranging	Linear drop from 4.0 mA to 3.8 mA
Overranging	Linear increase from 20.0 mA to 20.5 mA
Failure, e.g. sensor breakage; sensor short circuit	$\leq 3.6 \text{ mA}$ or $\geq 21 \text{ mA}$ (configurable 21.5 mA to 23 mA)

Electrical Connection

Supply Voltage	$11V \leq V_{cc} \leq 42 \text{ V}$ non-hazardous area, reverse polarity protected, see XP documentation for hazardous locations
Entry	3/4 inch NPT conduit connection x 1/2 inch NPT process connection
Residual	$U_{ss} \leq 3 \text{ V}$ at $U_b \geq 13.5 \text{ V}$, $f_{\max} = 1 \text{ kHz}$

ACCURACY

Reference conditions	Calibration temperature $(25 \pm 5) ^\circ\text{C}$ $[77 \pm 9] ^\circ\text{F}$ Supply voltage: 24 V dc 4-wire circuit for resistance adjustment
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Resistance Thermometer (RTD)

TYPE	MEASUREMENT ACCURACY - DIGITAL ^[1]	MEASUREMENT ACCURACY - D/A ^[2]
Pt100, Ni100, Ni120	0.1 °C [0.18 °F]	0.03%
Pt500	0.3 °C [0.54 °F]	0.03%
Cu50, Pt50, Pt1000	0.2 °C [0.36 °F]	0.03%
Pt200	1.0 °C [1.8 °F]	0.03%

Thermocouple (TC)

TYPE	MEASUREMENT ACCURACY - DIGITAL ^[1]	MEASUREMENT ACCURACY - D/A ^[2]
K, J, T, E, L, U	0.25 °C [0.45 °F]	0.03%
N, C, D	0.5 °C [0.9 °F]	0.03%
S, B, R	1.0 °C [1.8 °F]	0.03%

Resistance (Ω)

TYPE	MEASUREMENT ACCURACY - DIGITAL ^[1]	MEASUREMENT ACCURACY - D/A ^[2]	MEASUREMENT RANGE
Resistance	$\pm 0.04 \Omega$	0.03%	(10 to 400) Ω
	$\pm 0.8 \Omega$	0.03%	(10 to 2000) Ω

Voltage (mV)

TYPE	MEASUREMENT ACCURACY - DIGITAL ^[1]	MEASUREMENT ACCURACY - D/A ^[2]	MEASUREMENT RANGE
Voltage	$\pm 10 \mu\text{V}$	0.03%	(-20 to 100) mV

[1] Using HART® transmitted measured value

[2] % refers to the set span. Accuracy of current output = digital + D/A accuracy

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