

5331A

Temperature Transmitter



The 5331A is a high accuracy head-mounted programmable transmitter suitable for RTD and Thermocouple inputs. The transmitter is loop powered and converts the input signal into a 4 to 20mA current output. The 5331A is also Namur NE43 compliant and can be programmed for Upscale or Downscale sensor error detection. The RTD and resistance inputs have cable compensation for 2, 3 and 4-wire connection.

Connections:

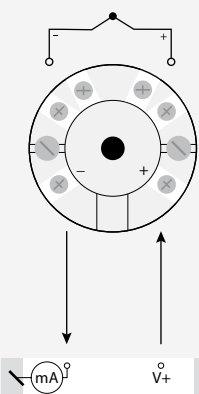
Linear Resistance Input:

Type	Min. Value	Max. Value	Min. Span
Pt100	-200°C	+850°C	10°C
Ni100	-60°C	+250°C	10°C
Lin. R	0 Ω	7000 Ω	10 Ω

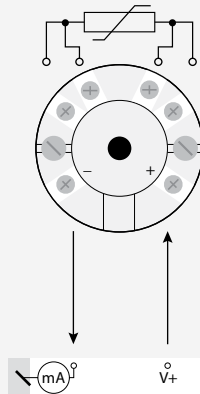
Thermocouple Input:

Type	Min. Temp.	Max. Temp.	Min. Span
B	0°C	+1820°C	100°C
E	-100°C	+1000°C	50°C
J	-100°C	+1200°C	50°C
K	-180°C	+1372°C	50°C
L	-200°C	+900°C	50°C
Lr	-200°C	+800°C	50°C
N	-180°C	+1300°C	50°C
R	-50°C	+1760°C	100°C
S	-50°C	+1760°C	100°C
T	-200°C	+400°C	50°C
U	-200°C	+600°C	50°C
W3	0°C	+2300°C	100°C
W5	0°C	+2300°C	100°C

TC to 4...20 mA

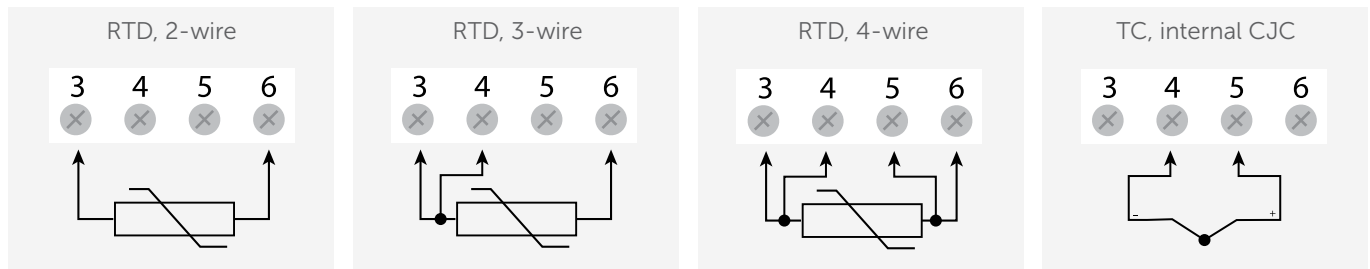


RTD to 4...20 mA



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Environmental Conditions

Specifications range	-40°C to +85°C
Calibration temperature	+20°C to +28°C
Relative humidity	< 95% RH (non-cond.)
Protection degree (enclosure/terminal)	IP68 / IP00

Mechanical Specifications

Dimensions	Ø44 mm x 20.2 mm
Weight approx	50 g
Wire size	1 x 1.5 mm ² stranded wire
Screw terminal torque	0.4 Nm
Vibration	IEC 60068-2-6 Test FC
Lloyd's specification no. 1	4 g / 2...100 Hz

Common Specifications

Supply voltage	7.2...35 VDC
Internal consumption	25 mW...0.8W
Voltage drop	7.2 VDC
Isolation voltage, test / working	1.5kVAC / 50 VAC
Warm-up time	5 min.
Communications interface	Loop Link
Signal / noise ratio	Min. 60 dB
Response time (programmable)	1...60 s
EEPROM error check	< 3.5 s
Signal dynamics, input	20 bit
Signal dynamics, output	16 bit
Effect of supply voltage change	< 0.005% of span / VDC
EMC immunity influence	< ±0.5% of span
Extended EMC immunity:	
NAMUR NE21, A criterion, burst	< ±1% of span

Input Specifications

Maximum offset	50% of selected max. value
RTD input	Pt100...Pt1000, Ni100, Lin. R
Cable resistance per wire (max.), RTD	5 Ω
Sensor current, RTD	Nom. 0.2 mA
Effect of sensor cable resistance (3-/4), RTD	< 0.002 Ω/ Ω
Sensor error detection, RTD	Yes
TC input:	
Thermocouple type	B, E, J, K, L, N, R, S, T, U, W3, W5, LR
Cold junction compensation (CJC)	< ±1.0°C
Sensor error detection, TC	Yes
Sensor error current:	
When detecting / else	Nom. 33 µA / 0 µA

Output Specifications

Current output: Signal range	4...20 mA
Minimum signal range	16 mA
Updating time	440 ms
Load resistance, current output	≤ (Vsupply - 7.2) / 0.023 [Ω]
Load stability, current output	≤ 0.01% of span/100 Ω
Sensor error detection, current output	Programmable 3.5...23 mA
NAMUR NE 43 Upscale/Downscale	23 mA / 3.5 mA

Approvals

EMC	EN 61326-1
ATEX	KEMA 03ATEX1537
GOST R	Yes
DNV Marine	Stand. f. Certific. No. 2.4