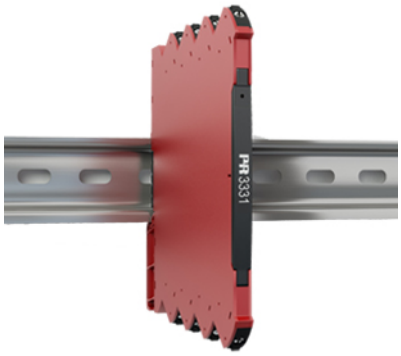
PERFORMANCE MADE SMARTER



Temperature converter, loop-powered - isolated

3331

– Excellent accuracy, better than 0.05% of selected range
– Slimline housing of 6 mm
– Excellent EMC performance and 50/60 Hz noise suppresion
– Selectable < 30 ms / 300 ms response time
– Pre-calibrated temperature ranges selectable via DIP-switches

Application

- The 3331 temperature converter measures a standard Pt100, TC J and K temperature sensor, and provides an isolated passive analog current output signal.
- The narrow 6 mm housing and very low power consumption allows up to 165 units to be mounted per meter of DIN rail, without any air gap between units.
- High 2 port isolation provides surge suppression and protects the control system from transients and noise.
- The 3331 can be mounted in the safe area or in Zone 2 / Division 2 areas.
- Approved for marine applications.

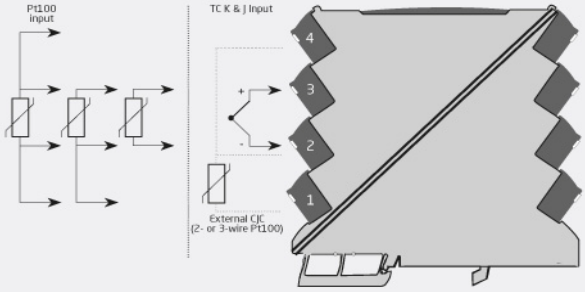
Technical characteristics

- Flexibly loop powered by 6...35 VDC via connectors.
- Selectable < 30 ms / 300 ms response time provides either fast response or signal dampening as needed.
- Excellent conversion accuracy in all available ranges, better than 0.1°C or 0.05% (Pt100) and better than 0.5°C or 0.05% (TC J & K) of selected range input.
- Meeting the NAMUR NE21 recommendations, the 3331 provides top measurement performance in harsh EMC environments.
- The device meets the NAMUR NE43 standard defining out of range and sensor error output values.
- All terminals are protected against overvoltage and polarity error.
- High galvanic isolation of 2.5 kVAC.
- Excellent signal/noise ratio of > 60 dB.

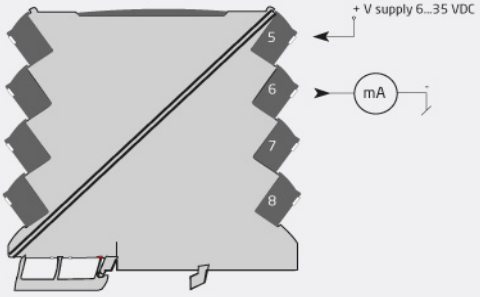
Mounting / installation / programming

- Easy configuration of more than 1000 factory calibrated measurement ranges via DIP-switches.
- A very low power consumption allows DIN rail mounting without the need for any air gap.
- Wide ambient temperature range of -25...+70°C.

Connections



Safe Area or Zone 2 & Cl. 1, Div. 2, gr. A-D



Order:

Type
3331

Environmental Conditions

Specifications range	-25°C to +70°C
Storage temperature	-40°C to +85°C
Calibration temperature	20...28°C
Relative humidity	< 95% RH (non-cond.)
Protection degree	IP20
Installation in	Pollution degree 2 & measurement / overvoltage category II

Mechanical specifications

Dimensions (HxWxD)	113 x 6.1 x 115 mm
Weight approx	70 g
DIN rail type	DIN EN 60715 - 35 mm
Wire size	0.13 x 2.5 mm^2 / AWG 26...12 stranded wire
Screw terminal torque	0.5 Nm

Common specifications

Supply voltage	6...35 VDC
Voltage drop	6.0 VDC
Max. power consumption	1 W
Internal consumption	Max. 0.65 W
Isolation voltage, test	2.5 kVAC (reinforced)
Isolation voltage, working	300 VAC / 250 VAC (I.S.)
Signal / noise ratio	> 60 dB
Response time (0...90%, 100...10%)	< 30 ms / 300 ms (selectable)
Accuracy	Better than 0.05% of selected range
EMC immunity influence	< ±0.5% of span
Extended EMC immunity: NAMUR NE 21, A criterion, burst	< ±1% of span
of span	= of the selected input range

Input specifications

Temperature range	-200...+850°C
Sensor current, RTD	< 0.2 mA
Sensor cable specifications	50 Ω per wire or 50 nF
Effect of sensor cable resistance (3-/4-wire), RTD	< 0.002 Ω / Ω
Open Thermocouple detection	Yes - selectable via DIP-switch
Broken sensor detection	> 800 Ω
Shorted sensor detection	< 18 Ω
Temperature range, TC J & K	TC J -100...+1200°C
Temperature range, TC J & K	TC K -180...+1372°C
Sensor and cable specifications, TC J & K	5 kΩ per wire or 50 nF
Cold junction compensation (CJC) accuracy via external CJC (Pt100)	< 0.3°C + accuracy of the used Pt100 sensor
CJC via internally mounted sensor	< ±(2.0°C + 0.2°C * Δt)
Δt =	Internal temperature-ambient temperature

Output specifications

Programmable signal ranges	4...20 and 20...4 mA
Current output: Range limits, NAMUR NE43 out of range	0 / 3.8 and 20.5 mA
Sensor error detection, current output	3.5 mA / 23 mA / none
Incorrect DIP-switch setting identification	3.5 mA
Load resistance, current output	≤ (Vsupply - 6) / 0.023 [Ω]
Load stability, current output	≤0.01% of span/100 Ω

Approvals

EMC	EN 61326-1
LVD	EN 61010-1
ATEX	KEMA 10ATEX0147 X
IECEx	KEM 10.0068X
FM	3041043-C
DNV Marine	Stand. f. Certific. No. 2.4
GL	V1-7-2
GOST R	Yes
UL	UL 61010-1