Pt100 converter, loop-powered

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- High accuracy, better than 0.1% of selected range
- Slimline housing of 6 mm
- Excellent EMC performance and 50/60 Hz noise suppression
- Selectable < 30 ms / 300 ms response time
- Pre-calibrated temperature ranges selectable via DIP-switches

Application
- The 3333 temperature converter measures a standard 2-, 3- or 4-wire Pt100 temperature sensor, and provides a passive analog current output signal.
- The 3333 can be mounted in the safe area or in Zone 2 / Division 2 areas.
- Approved for marine applications.

Technical characteristics
- Flexibly loop powered by 3.3...35 VDC via connectors.
- 30 ms fast response time with simultaneous sensor error detection when selected.
- Selectable 300 ms response time when signal dampening is needed.
- High conversion accuracy in all available ranges, better than 0.1% of selected range.
- Meeting the NAMUR NE21 recommendations, the 3333 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.
- Excellent signal/noise ratio of > 60 dB.

Mounting / installation / programming
- Selectable DIP-mode for easy configuration of more than 1000 factory calibrated measurement ranges.
- The narrow 6 mm housing allows up to 165 units to be mounted per meter of DIN rail, without any air gap between units.
- Wide ambient temperature range of -25...+70°C.
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 cat. 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 mm² / AWG 26...12 stranded wire
Screw terminal torque.................................0.5 Nm

Common specifications
Supply voltage.........................................3.3...35 VDC
Voltage drop.............................................3.3 VDC
Max. power consumption..........................0.7 W
Signal / noise ratio..................................> 60 dB
Response time (0...90%, 100...10%)............< 30 ms / 300 ms (selectable)
EMC immunity influence............................< ±0.5% of sel. range
Extended EMC immunity: NAMUR NE 21, A criterion, burst.........................< ±1% of sel. range
Incorrect DIP-switch setting identification........................................3.5 mA

Input specifications
Temperature range..................................-200...+850°C
Accuracy, RTD.........................................Better than 0.1% of selected range or 0.2°C
Sensor current, RTD.................................< 150 µA
Sensor cable resistance, RTD.....................< 50 Ω per wire
Effect of sensor cable resistance (3-/4-wire), RTD...........< 0.002 Ω / Ω
Broken sensor detection...........................> 800 Ω
Shorted sensor detection..........................< 18 Ω

Output specifications
Programmable signal ranges.......................4...20 and 20...4 mA
Range limits.............................................3.8...20.5 mA NAMUR NE43
Sensor error indication.............................3.5 mA or 23 mA / acc. to NAMUR NE43 or OFF
Load resistance, current output...................5 (Vsupply - 3.3) / 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