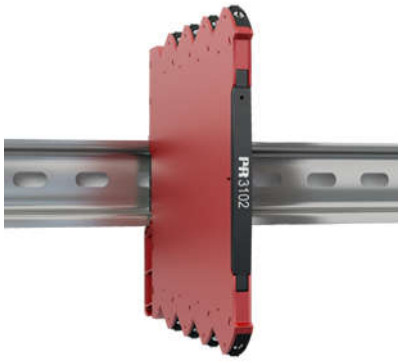
PERFORMANCE MADE SMARTER



Pt100 converter

3102

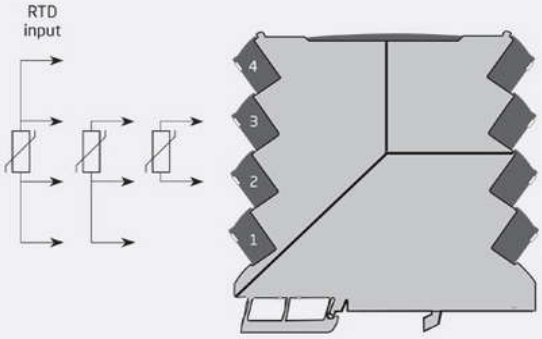
– High accuracy, better than 0.1% of span
– Slimline housing of 6 mm
– Excellent EMC performance and 50/60 Hz noise suppression
– Selectable < 30 ms / 300 ms response time
– Pre-calibrated temperature ranges are selectable via DIP-switches

Application
- The 3102 temperature converter measures a standard 2-, 3- or 4-wire Pt100 temperature sensor, and provides an analog voltage or current output.
- The 3102 can be mounted in the safe area or in Zone 2 / Division 2 areas.
- Approved for marine applications.

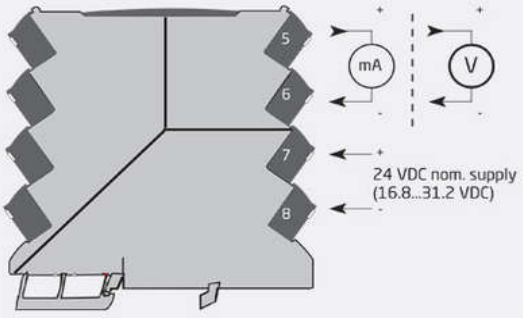
Technical characteristics
- Flexibly powered by 24 VDC (±30%) via connectors.
- < 30 ms fast response time with simultaneous sensor error detection when selected.
- Selectable 300 ms response time when signal dampening is needed.
- High conversion accuracy in all available ranges, better than 0.1% of span.
- Meeting the NAMUR NE21 recommendations, the 3102 provides top measurement performance in harsh EMC environments.
- The device meets the NAMUR NE43 standard defining out of range and sensor error output values.
- A visible green LED indicates operational status of the unit and the input sensor.
- All terminals are protected against overvoltage and polarity error.
- Excellent signal/noise ratio of > 60 dB.

Mounting / installation / programming
- Selectable DIP-settings 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.

Applications



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



This page is automatically generated on the basis of information provided on www.prelectronics.com and affiliated websites. It is provided to you as a service and for information purpose only. While we have attempted to maintain the information as accurately as possible, the page may contain errors or omissions for which we disclaim any and all liability

Order:

Type
3102

Environmental Conditions

Operating temperature	-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 & meas. / 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...2.5 mm^2 / AWG 26...12 stranded wire
Screw terminal torque	0.5 Nm
Vibration	IEC 60068-2-6
2...25 Hz	±1.6 mm
25...100 Hz	±4 g

Common specifications

Supply

Supply voltage	16.8...31.2 VDC
Max. required power	0.52 W
Max. power dissipation	0.52 W

Response time

Response time (0...90%, 100...10%)	< 30 ms / 300 ms (selectable)
Signal / noise ratio	Min. 60 dB
Programming	DIP-switches
Signal dynamics, input	23 bit
Signal dynamics, output	18 bit
Accuracy	Better than 0.1% of sel. range
EMC immunity influence	< ±0.5% of span
Extended EMC immunity: NAMUR NE21, A criterion, burst	< ±1% of span
Incorrect DIP-switch setting identification	0 V / 0 mA output; LED 0.5 s / 1 Hz

Input specifications

RTD input

Temperature range, Pt100	-200...+850°C
Min. measurement range (span)	10°C
Accuracy: the greater of	Better than 0.1% of span or 0.2°C
Temperature coefficient: the greater of	0.02°C/°C or ≤ ±0.01%/°C
Sensor current	< 150 µA
Sensor cable resistance	< 50 Ω per wire
Effect of sensor cable resistance (3-/4-wire)	< 0.002 Ω / Ω
Sensor error detection	Yes - selectable via DIP-switch
Broken sensor detection	> 800 Ω
Shorted sensor detection	< 18 Ω

Output specifications

Common output specifications

Updating time	10 ms

Current output

Signal range	0...23 mA
Programmable signal ranges	0 / 4...20 mA
Sensor error indication (0...20 mA)	0 mA or 23 mA / OFF
Sensor error indication (4...20 mA)	3.5 mA or 23 mA / acc. to NAMUR NE43 or OFF
Load (@ current output)	≤ 600 Ω
Load stability	≤ 0.01% of span / 100 Ω
Current limitation @ low output load	< 60 mA peak / < 4 mA average

Voltage output

Programmable signal ranges	0/1...5 and 0/2...10 V
Sensor error indication	0 V / 10% above the max. / none
Load (@ voltage output)	≥ 10 kΩ
Open output	< 18 V

I.S. / Ex marking

ATEX	II 3 G Ex nA IIC T4 Gc
IECEx	Ex nA IIC T4 Gc
FM, US	Cl. I, Div. 2, Gp. A, B, C, D T4 or Cl. I, Zone 2, AEx nA IIC T4
FM, CA	Cl. I, Div. 2, Gp. A, B, C, D T4 or Cl. I, Zone 2, Ex nA IIC T4

Observed authority requirements

EMC	2014/30/EU
LVD	2014/35/EU
RoHS	2011/65/EU
EAC	TR-CU 020/2011

Approvals

ATEX 2014/34/EU	KEMA 10ATEX0147 X
IECEx	KEM 10.0068X
FM	FM17US0004X / FM17CA0003X
DNV-GL Marine	Stand. f. Certific. No. 2.4
UL	UL 61010-1