Pt100 converter - isolated

3112

- Excellent accuracy, better than 0.05% 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 3112 temperature converter measures a standard 2-, 3- or 4-wire Pt100 temperature sensor, and provides an isolated analog voltage or current output.
- High 3 port isolation provides surge suppression and protects the control system from transients and noise.
- The 3112 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 power rail or connectors.
- < 30 ms fast response time with simultaneous sensor error detection when selected.
- Selectable 300 ms response time when signal dampening is needed.
- Excellent conversion accuracy in all available ranges, better than 0.05% of selected range.
- Meeting the NAMUR NE21 recommendations, the 3112 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.
- High galvanic isolation of 2.5 kVAC.
- 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.

Connections

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

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### 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

### 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**: 16.8...31.2 VDC
- **Max. power consumption**: 0.7 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)
- **Extended EMC immunity: NAMUR NE 21, A criterion, burst**: < ±1% of sel. range
- **Incorrect DIP-switch setting identification**: 0 V / 0 mA output; LED 0.5 s / 1 Hz

### Input Specifications

- **Temperature range**: -200...+850°C
- **Accuracy, RTD**: Better than 0.05% of selected range or 0.1°C
- **Sensor current, RTD**: < 150 µA
- **Sensor cable resistance, RTD**: < 50 Ω per wire
- **Effect of sensor cable resistance (3-wire, RTD)**: < 0.002 Ω / Ω
- **Broken sensor detection**: > 800 Ω
- **Shorted sensor detection**: < 18 Ω

### Output Specifications

- **Programmable signal ranges**: 0 / 4...20 mA
- **Range limits (0...20 mA)**: 0...20.5 mA
- **Sensor error indication (0...20 mA)**: 0 mA or 23 mA / OFF
- **Range limits (4...20 mA)**: 3.8...20.5 mA acc. to NAMUR NE43
- **Sensor error indication (4...20 mA)**: 3.5 mA or 23 mA / acc. to NAMUR NE43 or OFF
- **Load (@ current output)**: ≤ 600 Ω (12.6 V/21 mA)
- **Open output**: < 18 V
- **Load stability, current output**: 50.01% of span/100 Ω
- **Programmable signal ranges, VDC**: 0/1...5 V and 0/2...10 V
- **Sensor error indication, voltage output (when selected)**: 0 V / 10% above the max. / none
- **Load (@ voltage output)**: ≥ 10 kΩ
- **Current limitation @ low output load**: ≤ 60 mA peak / < 4 mA average

### Approvals

- **EMC**: EN 61326-1
- **LVD**: EN 61010-1
- **ATEX**: KEMA 10ATEX0147 X
- **IECEx**: KEM 10.0068X
- **FM**: 3041043-C
- **DNV Marine**: V1-7-2
- **GL**: Yes
- **GOST R**: Yes
- **UL**: UL 61010-1