

## 2-wire programmable transmitter



### 5331D

- RTD, TC, Ohm, or mV input
- Extremely high measurement accuracy
- 1.5 kVAC galvanic isolation
- Programmable sensor error value
- For DIN form B sensor head mounting



#### Application

- Linearized temperature measurement with Pt100...Pt1000, Ni100...Ni1000, or TC sensor.
- Conversion of linear resistance variation to a standard analog current signal, for instance from valves or Ohmic level sensors.
- Amplification of a bipolar mV signal to a standard 4...20 mA current signal.

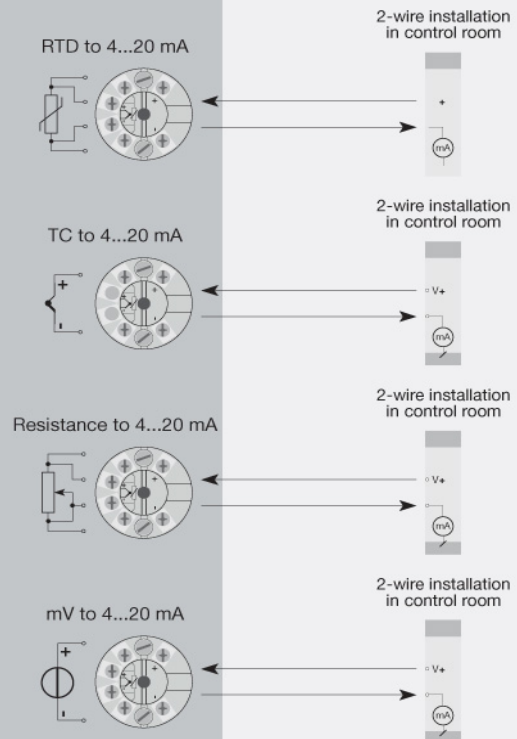
#### Technical characteristics

- Within a few seconds the user can program 5331D to measure temperatures within all ranges defined by the norms.
- The RTD and resistance inputs have cable compensation for 2-, 3- and 4-wire connection.
- Continuous check of vital stored data for safety reasons.

#### Mounting / installation

- For DIN form B sensor head mounting.

#### Applications



Order:

Type	Ambient temperature	Galvanic isolation
5331D	-40°C...+85°C : 3	1500 VAC : B

### Environmental Conditions

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

### Mechanical specifications

Dimensions.....	Ø 44 x 20.2 mm
Weight approx.....	50 g
Wire size.....	1 x 1.5 mm <sup>2</sup> stranded wire
Screw terminal torque.....	0.4 Nm
Vibration.....	IEC 60068-2-6
2...25 Hz.....	±1.6 mm
25...100 Hz.....	±4 g

### Common specifications

#### Supply

Supply voltage.....	7.2...30 VDC
Internal power dissipation.....	25 mW...0.7 W

#### Isolation voltage

Isolation voltage, test / working.....	1.5 kVAC / 50 VAC
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#### Response time

Response time (programmable).....	1...60 s
Voltage drop.....	7.2 VDC
Warm-up time.....	5 min.
Programming.....	Loop Link
Signal / noise ratio.....	Min. 60 dB
EEPROM error check.....	< 3.5 s
Accuracy.....	Better than 0.05% of selected range
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 NE 21, A criterion, burst.....	< ±1% of span

### Input specifications

#### Common input specifications

Max. offset.....	50% of selected max. value
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#### RTD input

RTD type.....	Pt100, Ni100, lin. R
Cable resistance per wire (max.).....	5 Ω
Sensor current.....	Nom. 0.2 mA
Effect of sensor cable resistance (3-/4-wire).....	< 0.002 Ω / Ω
Sensor error detection.....	Yes

#### Linear resistance input

Linear resistance min....max.....	0 Ω...5000 Ω
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#### 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.....	Yes
Sensor error current: When detecting / else.....	Nom. 33 µA / 0 µA

#### Voltage input

Measurement range.....	-12...800 mV
Min. measurement range (span).....	5 mV
Input resistance.....	10 MΩ

### Output specifications

#### Current output

Signal range.....	4...20 mA
Min. signal range.....	16 mA
Load (@ current output).....	≤ (Vsupply - 7.2) / 0.023 [Ω]
Load stability.....	≤ 0.01% of span / 100 Ω
Sensor error indication.....	Programmable 3.5...23 mA
NAMUR NE 43 Upscale/Downscale.....	23 mA / 3.5 mA

#### Common output specifications

Updating time.....	440 ms
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\*of span..... = of the presently selected range

### I.S. / Ex marking

ATEX.....	II 1 G Ex ia IIC T4...T6 Ga, II 1 D Ex ia IIIC Da, I M1 Ex ia Ma
IECEX.....	Ex ia IIC T4...T6 Ga, Ex ia IIIC Da, Ex ia I Ma
FMus.....	Cl. I, Div. 1, Gp. A, B, C, D T4/T6; Cl. I Zone 0, AEx ia IIC T4/T6; Cl. 1, Div. 2, Gp. A, B, C, D, T4/T6
CSA.....	Cl. I, Div. 1, Gp. A, B, C, D Ex ia IIC, Ga
INMETRO.....	Ex ia IIC T6...T4 Ga, Ex ia IIIC Da

### Observed authority requirements

EMC.....	2014/30/EU
RoHS.....	2011/65/EU

### Approvals

DNV-GL Marine.....	Stand. f. Certific. No. 2.4
EAC.....	TR-CU 020/2011
ATEX 2014/34/EU.....	KEMA 06ATEX0062X
IECEX.....	DEK 13.0035X
FM.....	FM17US0013X
CSA.....	1125003
INMETRO.....	DEKRA 13.0001 X
CCOE.....	P337392/2
EAC Ex TR-CU 012/2011.....	RU C-DK.GB08.V.00410

### Additional Documents Link

User Manual: <http://www.itsirl.com/datasheets/5331D MANUAL.pdf>

ATEX Cert: <http://www.itsirl.com/datasheets/5331D ATEX CERT.pdf>

IEC Cert: <http://www.itsirl.com/datasheets/5331D IEC.pdf>

Conformity: <http://www.itsirl.com/datasheets/5331D CONFORMITY.pdf>