

## Signal calculator

### 2289



- Two analog inputs
- Multiple functions
- Front-programmable
- 3-digit LED display
- Version with a Pt100 input
- Analog output



#### Advanced features

- Programmed via the user interface which consists of a 3-digit display and 3 function keys in the front panel.

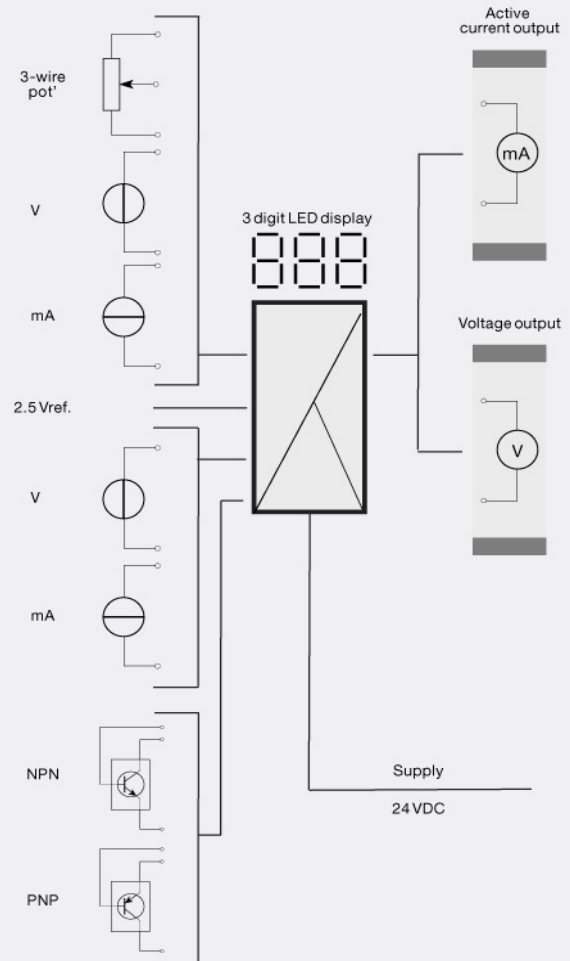
#### Application

- Operates as a PID controller with an analog or a Pt100 input.
- Functions include a manual / automatic controller, an analog calculator with a scale function on both inputs, a samplehold transmitter, a peak-hold transmitter, a delay transmitter, a signal limiter, averaging of noisy signals, monitoring of a signal's slope, or an analog multiplexer.

#### Technical characteristics

- The A and B inputs can be programmed to receive current signals in the range 0...20 mA (eg. 4...20 mA), or voltage signals in the range 0...10 VDC.
- Input A is a linearized Pt100 with a 3-wire connection. input B is an analog current / voltage input.
- Digital inputs are jumper selectable NPN or PNP.
- Analog standard current / voltage output of 0/4...20 mA / 0/2...10 VDC.
- Both the input signals and the output signal can be inverted.
- Mounting for a standard 11-pole socket which can be adapted for DIN rail or plate use with PR's 7023 adaptor and 7024 mounting keying. In environments with strong vibrations the PR 7002 can be mounted as an additional safety catch for system 2200 devices on the relay socket.

#### Connections



**Order:**

Type	Input
2289	Current / voltage : A Pt100 & current / voltage : B

**Environmental Conditions**

Specifications range.....	-20°C to +60°C
Calibration temperature.....	20...28°C
Relative humidity.....	< 95% RH (non-cond.)
Protection degree.....	IP50

**Mechanical specifications**

Dimensions (HxWxD).....	80.5 x 35.5 x 84.5 mm (D is without pins)
Weight approx.....	130 g

**Common specifications**

Supply voltage.....	19.2...28.8 VDC
Max. power consumption.....	2.7 W
Internal consumption.....	2.4 W
Signal / noise ratio.....	Min. 60 dB
Response time.....	< 60 ms
Updating time.....	20 ms
Signal dynamics, input.....	20 bit
Signal dynamics, output.....	16 bit
Proportional band (XP).....	0.01...999%
Gain, 1/XP = .....	0.1...10000
Integrating time (TI).....	0...999 s
Differentiating time (TD).....	0...999 s
Effect of supply voltage change.....	< ±0.002% of span / %V
Auxiliary voltages: Reference voltage.....	2.5 VDC ±0.5% / 15 mA
Temperature coefficient.....	< ±0.01% of span / °C
Linearity error.....	< 0.1% of span
EMC immunity influence.....	< ±0.5%

**Input specifications**

Max. offset.....	50% of selected max. value
Current input: Measurement range.....	0...20 mA
Min. measurement range (span), current input.....	4 mA
Input resistance, current input.....	Nom. 50 Ω
Voltage input: Measurement range.....	0...10 VDC
Min. measurement range (span), voltage input.....	200 mV
Input resistance, voltage input.....	Nom. 10 MΩ
NPN, digital input.....	Pull up 24 VDC / 6.9 mA
PNP, digital input.....	Pull down 0 VDC / 6.9 mA
Pulse length.....	> 50 ms
RTD input.....	Pt100 (2289B)
Cable resistance per wire (max.), RTD.....	25 Ω
Sensor current, RTD.....	Nom. 1.25 mA

**Output specifications**

Max. offset.....	50% of selected max. value
Current output: Signal range.....	0...20 mA
Min. signal range.....	5 mA
Load (max.).....	20 mA/600 Ω/12 VDC
Load stability, current output.....	≤0.01% of span / 100 Ω
Current limit.....	20.5 mA
Voltage output through internal shunt.....	See manual for details
*of span.....	= of the presently selected range

**Approvals**

EMC.....	EN 61326-1
EAC TR-CU 020/2011.....	EN 61326-1