temperature input 3221

- **18 bit, 3-wire temperature sensing (RTD)**
- **galvanicaly isolated**
- **2 channels, multiplexed sampling**
- **differential input**

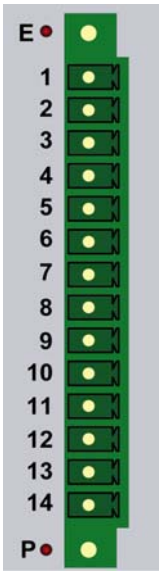
I/O

analog

input

Pinout

LED:	0; (8)	reserved
	1; (9)	reserved
	4; (12)	reserved
	5; (13)	reserved
	E:	failure, red
	P:	power supply, red



Pin	Signal
1	R0+
2	R0-
3	RLL0
4	R1+
5	R1-
6	RLL1
7	reserved
8	reserved
9	reserved
10	reserved
11	reserved
12	reserved
13	+24V=
14	0V

Attributes

Dataformat:
Standard integer (18-Bit) format :
262143 = T_{max}
0 = T_{min}

Applications:
18 bit temperature sensing, 3-wire (PT, NTC, PTC)
available prints :

- @P3221L: temperature input, left slot
- @P3221R: temperature input, right slot

Related application:
16 bit temperature sensing, 2-wire (PT, NTC, PTC)
available prints :

- @P3220L: temperature input, left slot
- @P3220R: temperature input, right slot
- @P3420L: temperature input, left slot
- @P3420R: temperature input, right slot

Related application:
18 bit temperature sensing, 4-wire (PT, NTC, PTC)
available prints :

- @P3222 : 2 channels, 18-bit temperature input

Related application: thermocouple / thermometry
available prints :

- @P3223 : 2 channels, 18-bit temperature input
- @P3423 : 4 channels, 18-bit temperature input

Electrical Data

power supply external ..... 24V= ±20%
operating current ..... 40mA at 24V=, typical
operating current @ctiveBus .....
power supply protection .....
input resistance .....
output current .....
input filter .....
input current .....
max. current per contact .....

TR-Systemtechnik GmbH, Eglishalde 6, 78647 Trossingen, Tel.: +49 (0) 7425 228-0, Fax: +49 (0) 7425 228-34, www.activeio.de, info@tr-systemtechnik.de

temperature input 3221

System Information

system ID 0x18C
system adress space ..... 32 bit in, 32 bit out

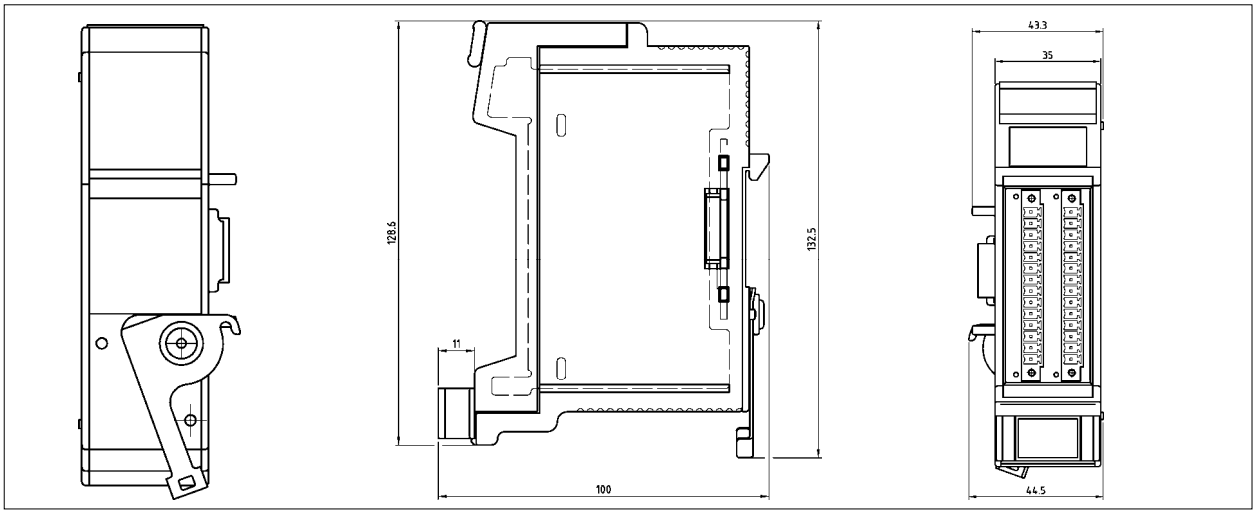
Environmental Conditions

electromagnetic compatibility (EMC) ..... EN 61000-4-2 (IEC-801-2) / EN 61000-4-4 (IEC-801-4)
operating temperature [°C] ..... 0..+55
storage temerature [°C] ..... -20 .. +70
humidity (rel) ..... 98 % (non condensing)
protection class* ..... IP 20 (DIN 40 050)
*The protection class is valid only with housing and connector installed

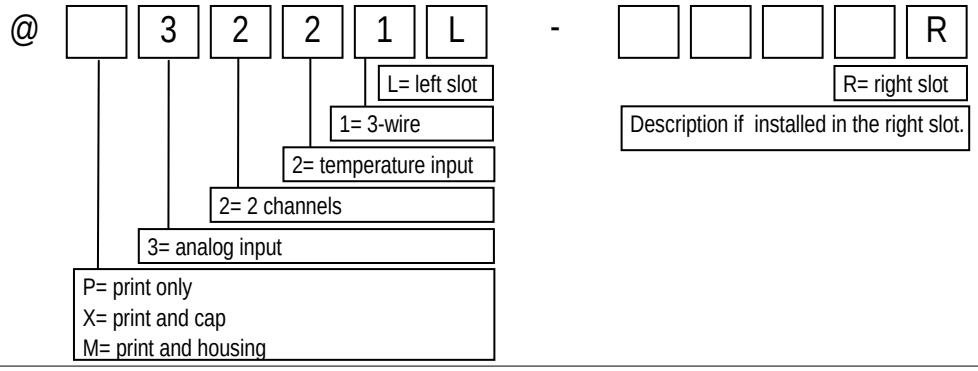
Mechanical Data **(effective if mounted in @M housing)**

weight..... approx. 0,05 kg including connector (PCB only)
dimension ..... 105mm x 80mm x 12mm (PCB only)

Drawing **(effective if mounted in @M housing)**

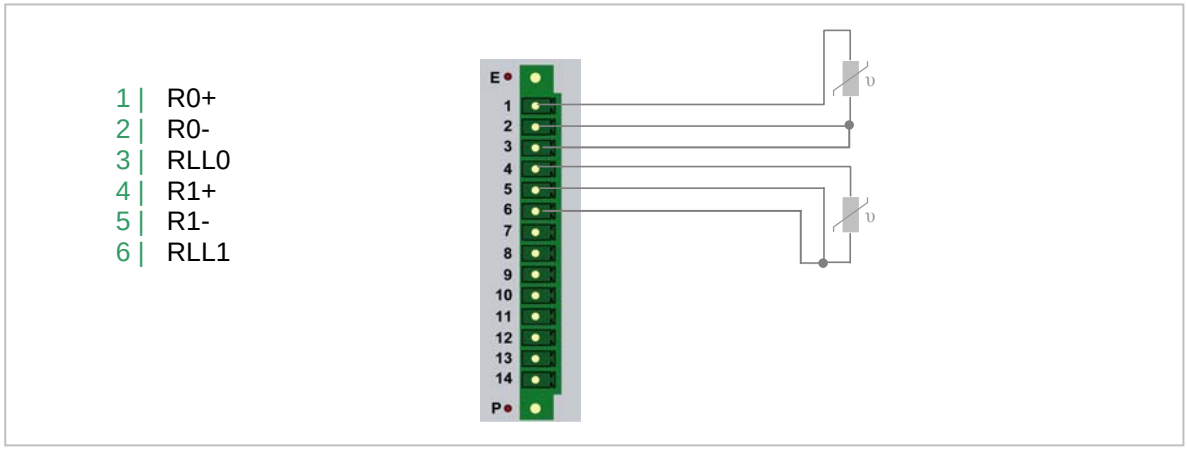


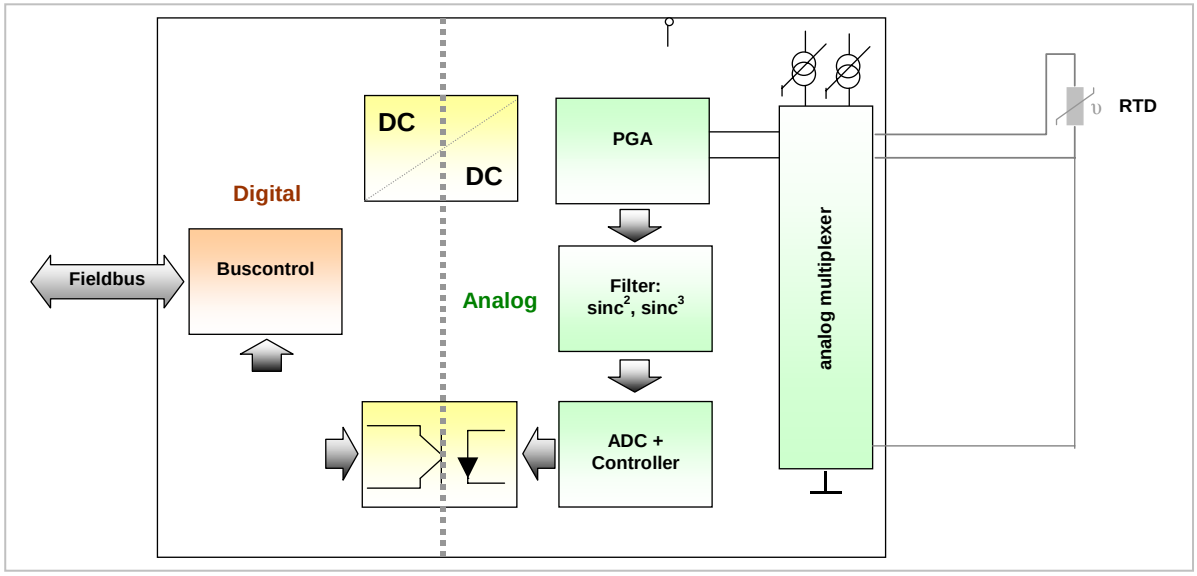
Ordering Key



TR-Systemtechnik GmbH, Eglishalde 6, 78647 Trossingen, Tel.: +49 (0) 7425 228-0, Fax: +49 (0) 7425 228-34, www.activeio.de, info@tr-systemtechnik.de

Example of Application





TR-Systemtechnik GmbH, Eglishalde 6, 78647 Trossingen, Tel.: +49 (0) 7425 228-0, Fax: +49 (0) 7425 228-34, www.activeio.de, info@tr-systemtechnik.de

temperature input 3221

The measuring current (adjustable from 200µA up to 1,5mA) is switched between the input channels. RTD excitation is provided from the module by two matched current sources. When using a three-wire RTD, this method allows an equal current to flow in each RTD lead, which cancels the effects of lead resistances. Another current source submits burn-out detection, so that sensor malfunctions, such as broken or shorted wires, can be observed and indicated by the module. The input filter and associated conversion times can be set within a wide range, and several data output formats may be chosen.

The inputs can, if required, be scaled differently. The input range is resolved by the converter with an effective resolution of 18-Bit. In most cases this is quite enough to achieve a temperatur resolution of >0.05°C. Automatic limit monitoring is also available. The sampling rate is adjustable from 10Hz up to 1KHz.

Note: Lower sampling rates result in higher stability and precision of measured data.

TR-Systemtechnik GmbH, Eglishalde 6, 78647 Trossingen, Tel.: +49 (0) 7425 228-0, Fax: +49 (0) 7425 228-34, www.activeio.de, info@tr-systemtechnik.de