

temperature input 3220

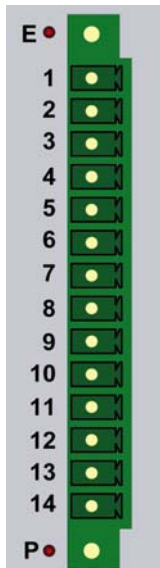


- 16 bit, 2-wire temperature sensing (RTD)
- galvanically isolated
- 2 channels, multiplexed sampling
- differential inputs

I/O

Pinout

LED:	0; (8)	reserved
	1; (9)	reserved
	2; (10)	reserved
	3; (11)	reserved
	4; (12)	reserved
	5; (13)	reserved
	6; (14)	reserved
	7; (15)	reserved
E:		failure, red
P:		power supply, red



Pin	Signal
1	RL0+
2	RL0-
3	AGND
4	RL1+
5	RL1-
6	AGND
7	reserved
8	reserved
9	reserved
10	reserved
11	reserved
12	reserved
13	+24V=
14	0V

Attributes

Dataformat:

Standard integer (16-Bit) format :

$$65535 = T_{max}$$

$$0 = T_{min}$$

Application:

16 bit temperature sensing, 2 channels, 2-wire RTDs:

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

Related application:

16 bit temperature sensing, 4 channels, 2-wire RTDs:

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

18 bit temperature sensing, 3-wire RTDs:

- @P3221L: 2 channels, 18-bit temperature input
- @P3221R: 2 channels, 18-bit temperature input
- @P3421L: 4 channels, 18-bit temperature input
- @P3421R: 4 channels, 18-bit temperature input

18 bit temperature sensing, 4-wire RTDs:

- @P3222L: 2 channels, 18-bit temperature input
- @P3222R: 2 channels, 18-bit temperature input

18 bit temperature sensing, thermocouples

- @P3223L: 2 channels, 18-bit temperature input
- @P3223R: 2 channels, 18-bit temperature input
- @P3423L: 4 channels, 18-bit temperature input
- @P3423R: 4 channels, 18-bit temperature input

analog

input

Electrical Data

power supply external.....	24V= ±20%
operating current	< 20mA at 24V=, typical
operating current @ctiveBus	
power supply protection.....	30V overvoltage, surge
input resistance	>1MΩ

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System Information

system ID	0x18B
system adress space	32 bit in, 32 bit out / multiplexed protocol

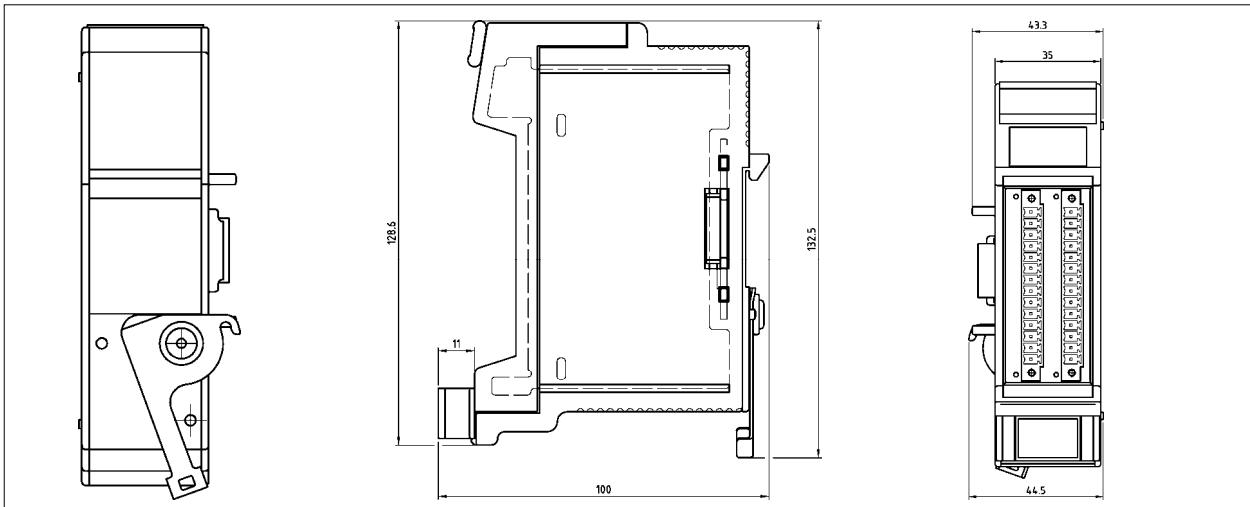
Environmental Conditions

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

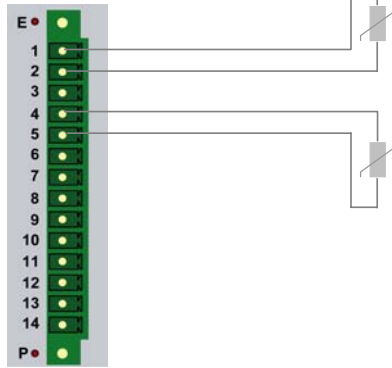
@	[]	3	2	2	0	L	-	[]	[]	[]	[]	R
						L= left slot						R= right slot
						0= standard		Description if installed in the right slot.				
						2= temperature input						
						2= 2 channels						
						3= analog input						
						P= print only						
						X= print and cap						
						M= print and housing						

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Example of Application

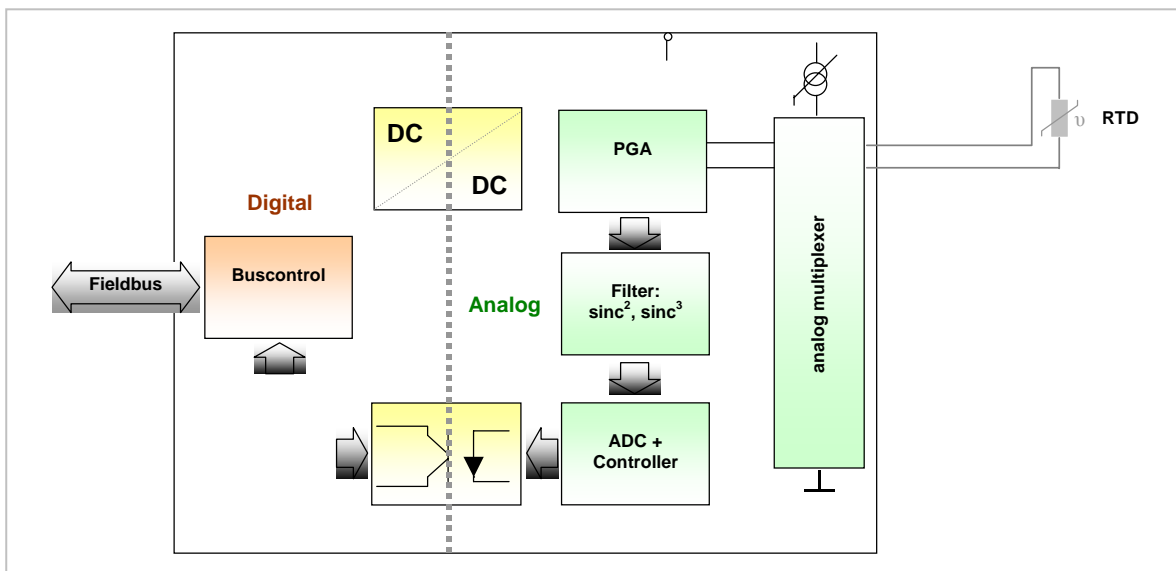
Connection methods:

- 1 | RL0+
- 2 | RL0-
- 3 | AGND
- 4 | RL1+
- 5 | RL1-
- 6 | AGND



Functional description:

The @P3220 temperature input module allows resistance sensors (PT, NTC, PTC) to be connected directly. All standard types of resistance temperature detectors are supported, in the range of 100Ω up to 2KΩ. The internal circuitry can handle two sensors using 2-wire connection technique. The temperature range can be selected free. Linearisation over the full temperature range is realised with the aid of a microprocessor and free configurable data tables. This makes the @P3220 module a quite versatile and customizable measurement unit, not only for temperature detection, but also for simple resistance measurement. Parameterisation may be carried via the fieldbus. The default linearisation-tables indeed are selected in such a way, that in most cases no configuration or alteration is needed.



Block Diagram:

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I/O

analog

input

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The measuring current (adjustable from 200µA up to 1,5mA) is switched between the input channels. 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 16-Bit. In most cases this is quite enough to achieve a temperatur resolution of 0.1°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.