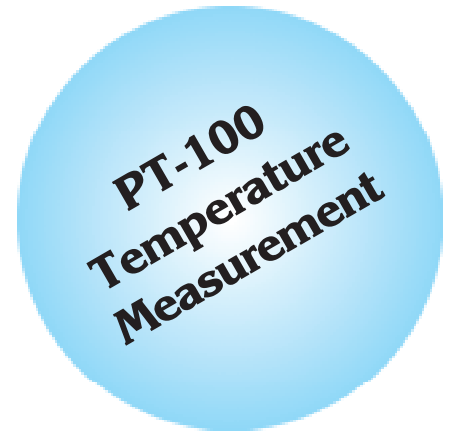
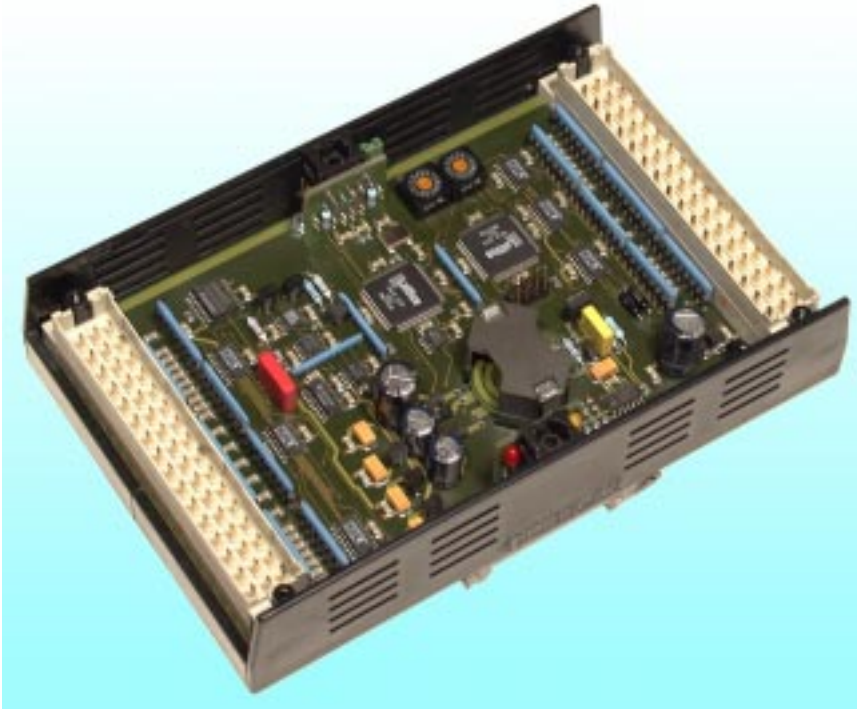


PT-100 Measuring Card

INFO-PT



Technical Data

Measurement channels

- 14xPT100 4-wire measurement inputs
- 2xreference for automatic alignment
- Wire rupture detection

Resolution

- As required 14 ... 16Bit
- Resolution maximum 0.01°C

Temperature range

- -40 ... +520°C
- -70 ... +850°C

Reference

- Automatic alignment of zero point and full scale

Filtering

- Adjustable 50/60Hz filter

Power supply

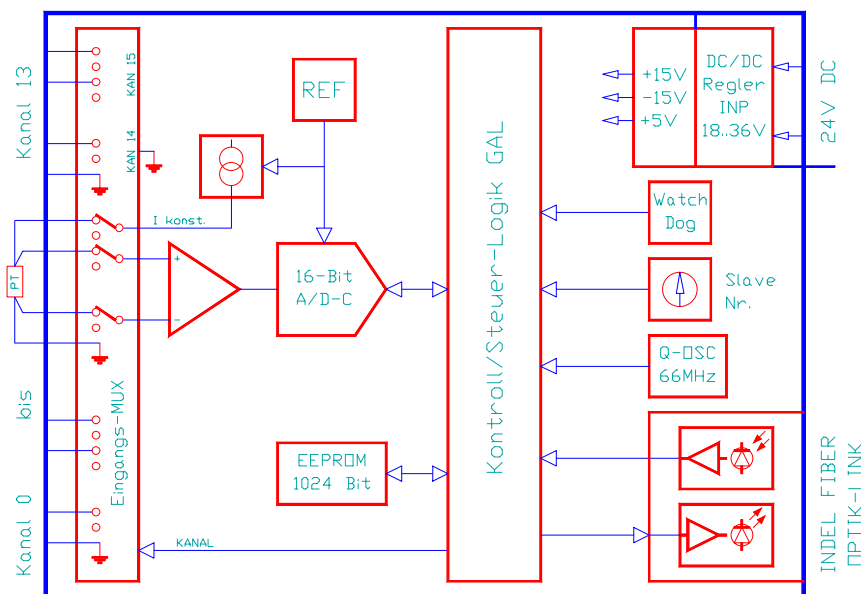
- Electrically isolated
- Power supply 18 ... 36V, 140mA max.

The INFO-PT board is the measurement element for precise registration of temperatures. Up to 14 PT-100 sensors are connected via 4-wire lines directly to the board.

The channel switchover time can be configured. As a result, the measurement current will also adjust precisely through Zener barriers. In order to pre-

vent faults due to self-heating, the measurement current only flows during the measurement. Two precise reference resistors, whose characteristics are saved in the EEPROM, are permanently incorporated on the board for automatic zero point and full scale alignment.

There are no potentiometers on the board; there is nothing to align or vary!



Mode of Operation

A temperature measurement takes place in two phases:

In the first phase, the measurement current flows through the PT100 sensor during a configurable stabilization time. Transient processes are completed during this phase.

In the second phase, the temperature is measured during the adjustable measurement time.

The measurement time per channel can be adjusted according to the following table:

Resolution:	Measurement time:
16Bit	50, 60, 80ms
15	25, 30, 40
14	12.5, 15, 20

For the stabilization time, values between 2 ... 99ms can be selected.

The measurement is performed using an integrating process so that interference, e.g. from the power supply (50/60Hz), can be filtered out. The measurement per channel lasts 100ms as standard.

For high-precision measurements, the resistance that the PT100 sensor has at 0°C can be specified in mΩ. This option is normally not used.

The field bus master automatically measures all the selected channels, checks for wire ruptures, corrects offset and gain, linearizes the measurement value, and converts it to degrees centigrade.

The processed measurement values can be addressed in the field bus master or by the PC via their names.

The channels 15 and 16 are provided with high-precision reference resistors. During operation, the INFO-Master automatically includes them in the measurement and uses them for correcting the offset and gain drift.

All alignments have been made during quality checking at INDEL. The values are saved in an on-board EEPROM. There are no potentiometers on the board; there is nothing to align or vary!

Connector Allocations

	d		b		z	
2	I	+ V 8	O	+ I 8		Shield
4	I	- V 8	O	- I 8		Shield
6	I	+ V 9	O	+ I 9		Shield
8	I	- V 9	O	- I 9		Shield
10	I	+ V 10	O	+ I 10		Shield
12	I	- V 10	O	- I 10		Shield
14	I	+ V 11	O	+ I 11		Shield
16	I	- V 11	O	- I 11		Shield
18	I	+ V 12	O	+ I 12		Shield
20	I	- V 12	O	- I 12		Shield
22	I	+ V 13	O	+ I 13		Shield
24	I	- V 13	O	- I 13		Shield
26		GND				
28		GND				
30		+ 24 V				
32		+ 24 V				

Connector 1

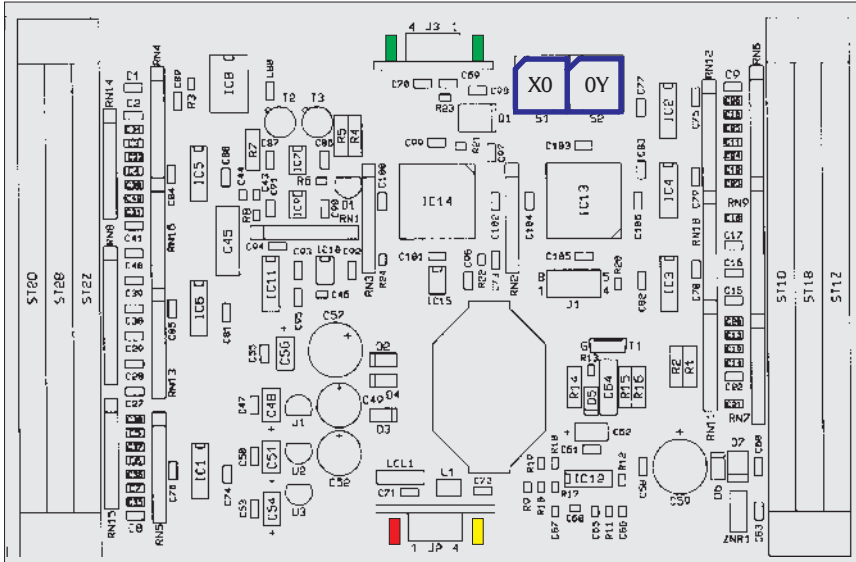
vertical
DIN 41612, Type F-48
2.8mm pins

	d		b		z	
2	I	GND	O	+ I 0	I	+ V 0
4		Shield	O	- I 0	I	- V 0
6		Shield	O	+ I 1	I	+ V 1
8		Shield	O	- I 1	I	- V 1
10		Shield	O	+ I 2	I	+ V 2
12		Shield	O	- I 2	I	- V 2
14		Shield	O	+ I 3	I	+ V 3
16		Shield	O	- I 3	I	- V 3
18		Shield	O	+ I 4	I	+ V 4
20		Shield	O	- I 4	I	- V 4
22		Shield	O	+ I 5	I	+ V 5
24		Shield	O	- I 5	I	- V 5
26		Shield	O	+ I 6	I	+ V 6
28		Shield	O	- I 6	I	- V 6
30		Shield	O	+ I 7	I	+ V 7
32		Shield	O	- I 7	I	- V 7

Connector 2

vertical
DIN 41612, Type F-48
2.8mm pins

Assembly



Addressing (blue)

S2 (X0)	S1 (OY)	Measurement board
0	0	0
...
F0	0F	255

Jumpers (green)

The jumpers influence the illumination intensity of the emitting LED and thereby the segment length of the fiberoptic cable to the next board.

Segment length	Jumper position
0 ... 10m	no jumper
8 ... 30m	> 10
20 ... 50m	> 30

LEDs on receiver module

LED-red	=	+5V power supply
LED-yellow	=	INFO-Link receiver signal OK

Customized modifications, e.g. temperature range, are available as needed.

Specifications

Power supply

- +18 ... 34V, 140mA max

Climatic conditions

- Ambient temperature:
 - Storage: -20...+80°C
 - Operation: 0 ... +45°C
- Board temperature:
 - Operation: 0...+70 °C
- Relative air humidity no condensation: 95%

Measurement ranges, resolution

- 14 independent msmt. channels
- -40 ... +520 °C
- -70 ... +850 °C
- Resolution: 0.01 K 16Bit

0.02	14
0.04	13

Precision and drift

- Better than 0.1 degree at 25 degrees ambient temperature
- Drift: 5ppm/degree change in the ambient temperature

Measurement current, time

- Measurement current: 4mA
- Measurement time:
 - 80, 60, 50ms (16Bit)
 - 25, 30, 40ms (15Bit)
 - 12.5, 15, 20ms (14Bit)
- Stabilization time: 2ms ... 99ms

Warm-up time

- The optimal stability of the measurement values is reached after 15min operating time.

Connection

- 4-wire lead with shield
- The sensor is connected directly to the measurement current output $\pm V$ and to the measurement leads $\pm V$.

Mounting

- Connector DIN 41612, Type F-48
- 35mm DIN-bar mounting
- Dimensions: 165 x 105 x 45 mm (LxWxH)

Connections

Board power supply

For the board power supply, a 3-phase rectifier without electrolytic capacitor will suffice. But in order to prevent interference, an electrolytic capacitor of 4,700... 10,000µF is recommended. The 24V power supply must pass through a line filter.

Shielded lines

It is essential to install the PT100 sensors with shielded lines. The shield must be connected at the sensor and at the PT100 board.

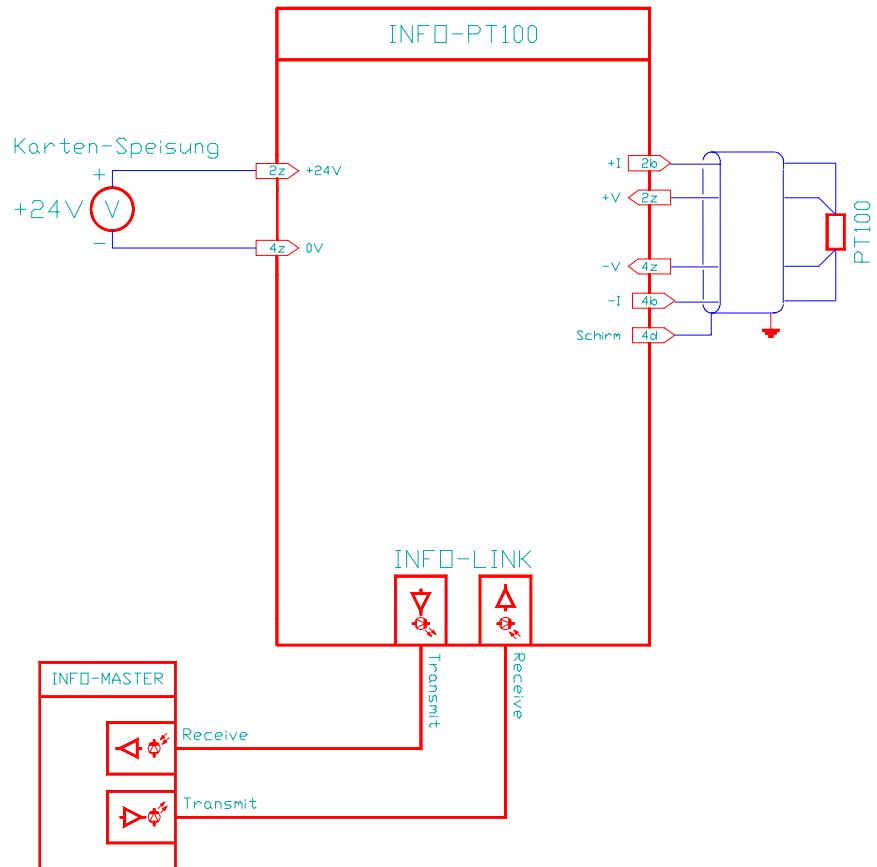
In order to prevent undesired leakage currents through the shield, it may be necessary to provide a bonding conductor, especially in case of long distances.

Grounding

The PT100 is grounded through the housing. Make sure that the mounting bar has very good contact with the mounting plate or the chassis to allow interference to be discharged

See also INDEL Wiring Guidelines and INDEL Design Guidelines.

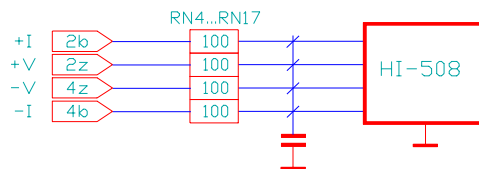
Connection Example



Interfaces

Wiring

Inputs



Inputs

All measurement leads are provided with 100Ω resistors.

Customized modifications are available as needed.