

# IB IL TEMP 4/8 RTD-EF-XC-PAC - Inline terminal



2701218

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The figure shows the standard item

Inline, Temperature measurement terminal, Analog RTD inputs: 8 (for resistance temperature detectors), connection technology: 4-conductor, transmission speed in the local bus: 500 kbps, Extreme conditions version, degree of protection: IP20, including Inline connectors and marking fields

## Product description

The terminal is designed for use within an Inline station. This terminal provides an 8-channel input module with three linear resistance ranges for resistance temperature detectors. The terminal supports all common platinum sensors in accordance with DIN EN 60751 and SAMA, as well as nickel sensors in accordance with DIN 43760. Cu10, Cu50, and Cu53 sensors as well as KTY81 and KTY84 sensors are also supported. Communication either takes place via the parameter channel (PCP, all eight measuring channels) or via four process data words (always four channels in multiplex mode).

## Your advantages

- Pt, Ni, Cu, KTY sensor types according to DIN and SAMA
- Connection of 8 RTD temperature sensors and linear resistors in 4-conductor technology
- High precision and noise immunity
- Temperature stability
- High-resolution temperature and resistance measurement
- Resistance values can be preset separately via parameterization bits
- The channels are parameterized independently of one another via the bus system
- Parameterization of wire-break detection sensitivity (firmware 1.10 or later)
- Additional representation in float format according to IEEE754
- Channel scout functionality, for optical channel identification during startup
- Can be used under extreme ambient conditions
- Extended temperature range of -40 °C ... +70 °C (see "Tested successfully: use under extreme ambient conditions" in the data sheet)
- Coated PCBs

## Commercial data

Item number	2701218
Packing unit	1 pc
Note	Made to order (non-returnable)
Sales key	DR01
Product key	DRI143
GTIN	4046356728836
Weight per piece (including packing)	260 g

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Weight per piece (excluding packing)	222 g
Customs tariff number	85389091
Country of origin	DE

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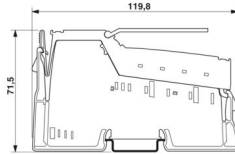


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## Technical data

### Dimensions

Dimensional drawing	
Width	48.8 mm
Height	119.8 mm
Depth	71.5 mm
Note on dimensions	Housing dimensions

### Notes

#### Note on application

Note on application	Only for industrial use
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### Material specifications

Color (Housing)	green (RAL 6021)
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### Interfaces

#### Inline local bus

Number of interfaces	2
Connection method	Inline data jumper
Transmission speed	500 kbps
Transmission physics	Copper

### System properties

#### Programming data (LocalbusSlave)

Length code (hex)	05
ID code (dec.)	223
Length code (dec)	05
Process data channel	80 bit
Input address area	10 Byte
Output address area	10 Byte
Parameter channel (PCP)	2 Byte
Register length (bus)	96 bit

#### Fieldbus data telegram (PROFIBUS)

Required parameter data	31 Byte
Required configuration data	5 Byte

## Input data

### Analog:

Input name	Analog RTD inputs
Description of the input	Input for resistive temperature sensors
Number of inputs	8 (for resistance temperature detectors)
Connection method	Spring-cage connection
Connection technology	4-conductor
Note regarding the connection technology	shielded
A/D converter resolution	24 bit
Sensor types (RTD) that can be used	Pt, Ni, KTY, Cu sensors, linear resistors
Tolerance, relative	see tables for tolerance values
Tolerance, absolute	typ. $\pm 0.05$ K (Pt 100 with 4-conductor connection) see tables for tolerance values
Data formats	IB IL, S7-compatible
Measuring principle	Sigma/Delta process
Measured value representation	16 bits (15 bits + sign bit)
Input filter time	100 ms 120 ms 200 ms 480 ms (adjustable)
Differential non-linearity	typ. 1 ppm / $\pm 0.0001$ % (in all ranges)
Integral non-linearity	typ. 30 ppm / $\pm 0.003$ % (Pt 100) typ. 20 ppm / $\pm 0.002$ % ( $R_{Lin}$ 500 $\Omega$ ) typ. 200 ppm / $\pm 0.02$ % ( $R_{Lin}$ 5000 $\Omega$ )
Linear resistance measuring range	0 $\Omega$ ... 500 $\Omega$ 0 $\Omega$ ... 5 k $\Omega$ 0 $\Omega$ ... 30 k $\Omega$
Process data update	1.8 s (Up to 3.3 s possible depending on operating mode)

## Product properties

Product type	I/O component
Product family	Inline
Type	modular
Scope of supply	including Inline connectors and marking fields
Operating mode	Process data mode with 5 words/1 word PCP
Special properties	Extreme conditions version
Diagnosics messages	Failure of the internal I/O supply I/O error message sent to the bus coupler Failure of or insufficient communications power $U_L$ I/O error message sent to the bus coupler User error Error message in the process data

## Insulation characteristics

Overvoltage category	II (IEC 60664-1, EN 60664-1)
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Pollution degree	2 (IEC 60664-1, EN 60664-1)
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## Electrical properties

### Potentials: Communications power ( $U_L$ )

Supply voltage	7.5 V DC (via voltage jumper)
Current draw	max. 120 mA
	typ. 95 mA

### Potentials: Supply of analog modules ( $U_{ANA}$ )

Supply voltage	24 V DC (via voltage jumper)
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Current draw	max. 15 mA
	typ. 6 mA

### Electrical isolation/isolation of the voltage ranges

Test voltage: 7.5 V supply (bus logic), 24 V supply $U_{ANA}$ / I/O	500 V AC, 50 Hz, 1 min
Test voltage: 7.5 V supply (bus logic), 24 V supply $U_{ANA}$ / functional ground	500 V AC, 50 Hz, 1 min
Test voltage: I/O/functional ground	500 V AC, 50 Hz, 1 min

## Connection data

### Connection technology

Connection name	Inline connector
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### Inline connector

Connection method	Spring-cage connection
Conductor cross-section, rigid	0.08 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section, flexible	0.08 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross-section AWG	28 ... 16
Stripping length	8 mm

## Environmental and real-life conditions

### Ambient conditions

Ambient temperature (operation)	-25 °C ... 60 °C (Standard)
	-40 °C ... 70 °C (Extended, see section "Tested successfully: use under extreme ambient conditions" in the data sheet.)
Degree of protection	IP20
Air pressure (operation)	70 kPa ... 106 kPa (up to 3000 m above sea level)
Air pressure (storage/transport)	70 kPa ... 106 kPa (up to 3000 m above sea level)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	10 % ... 95 % (non-condensing)

### Mechanical test

Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6	5g
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Shock in accordance with EN 60068-2-27/IEC 60068-2-27	25g
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## Standards and regulations

Protection class	III (IEC 61140, EN 61140, VDE 0140-1)
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## Mounting

Mounting type	DIN rail mounting
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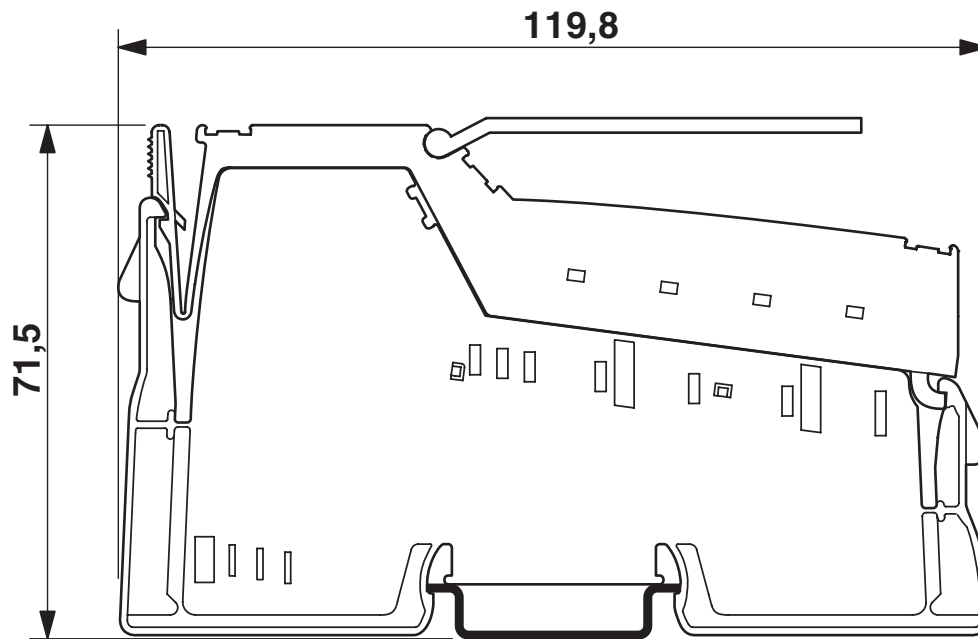
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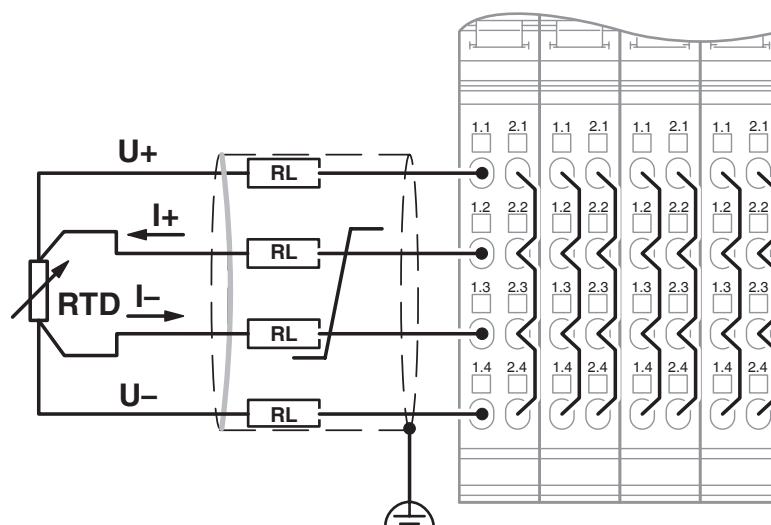
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## Drawings

Dimensional drawing



Connection diagram



Connection example: 4-conductor connection

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## Environmental product compliance

### China RoHS

Environment friendly use period (EFUP)	EFUP-E
	No hazardous substances above the limits

### EU REACH SVHC

REACH candidate substance (CAS No.)	No substance above 0.1 wt%
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