IB IL TEMP 4/8 RTD/EF-PAC - Temperature module

2897402

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CRA-READY



Inline, Temperature measurement terminal, Analog RTD inputs: 8 (for resistance temperature detectors), connection technology: 4-conductor, transmission speed in the local bus: 500 kbps, degree of protection: IP20, including Inline connectors and marking fields; The product is being prepared for compliance with the Cyber Resilience Act (CRA).

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

- Connection of 8 RTD temperature sensors and linear resistors in 4-conductor technology
- Pt, Ni, Cu, KTY sensor types according to DIN and SAMA
- 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

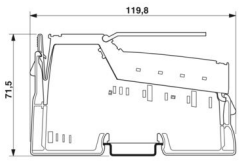


Commercial data

Item number	2897402
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DR01
Product key	DRI143
GTIN	4046356288026
Weight per piece (including packing)	211.6 g
Weight per piece (excluding packing)	220 g
Customs tariff number	85389099
Country of origin	DE

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	Only for industrial use
Note on application	As things stand now, we are preparing the product so that, as of December 11, 2027, it will comply with the requirements of the EU Cyber Resilience Act (CRA) based on the information currently available regarding the CRA.

Utilization restriction

CCCex note	Use in potentially explosive areas is not permitted in China.

Mounting

Mounting type	DIN rail mounting

Material specifications

Color (Housing)	green (RAL 6021)

Interfaces

Inline local bus

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

System properties

Programming data

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. ± 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 / ±0.0001 % (in all ranges)
Integral non-linearity	typ. 30 ppm / ±0.003 % (Pt 100)
	typ. 20 ppm / ±0.002 % (R_{Lin} 500 Ω)
	typ. 200 ppm / ±0.02 % (R_{Lin} 5000 Ω)
Linear resistance measuring range	0 Ω ... 500 Ω
	0 Ω ... 5 kΩ
	0 Ω ... 30 kΩ
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	The product is being prepared for compliance with the Cyber Resilience Act (CRA)
Diagnostics 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)
Pollution degree	2 (IEC 60664-1, EN 60664-1)

Electrical properties

Maximum power dissipation for nominal condition	1.25 W

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

Inline connector

Connection method	Spring-cage connection
Conductor cross-section, rigid	0.08 mm² ... 1.5 mm²
Conductor cross-section, flexible	0.08 mm² ... 1.5 mm²
Conductor cross-section AWG	28 ... 16
Stripping length	8 mm

Environmental and real-life conditions

Ambient conditions

Ambient temperature (operation)	-25 °C ... 60 °C
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)	-25 °C ... 85 °C
Permissible humidity (operation)	10 % ... 95 % (non-condensing)
Permissible humidity (storage/transport)	10 % ... 95 % (non-condensing)

Mechanical test

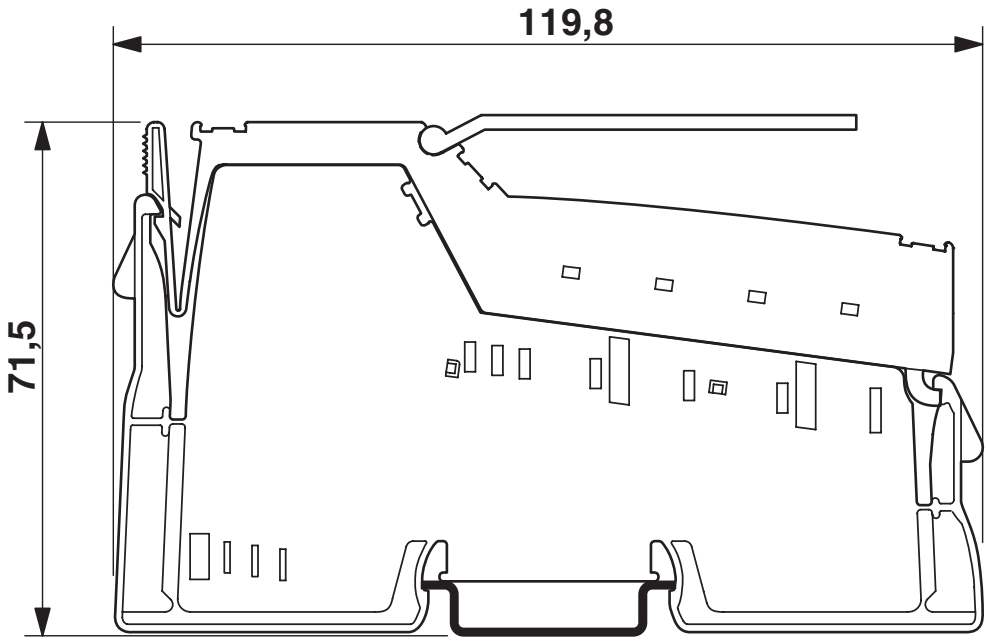
Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6	5g
Shock in accordance with EN 60068-2-27/IEC 60068-2-27	25g

Standards and regulations

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

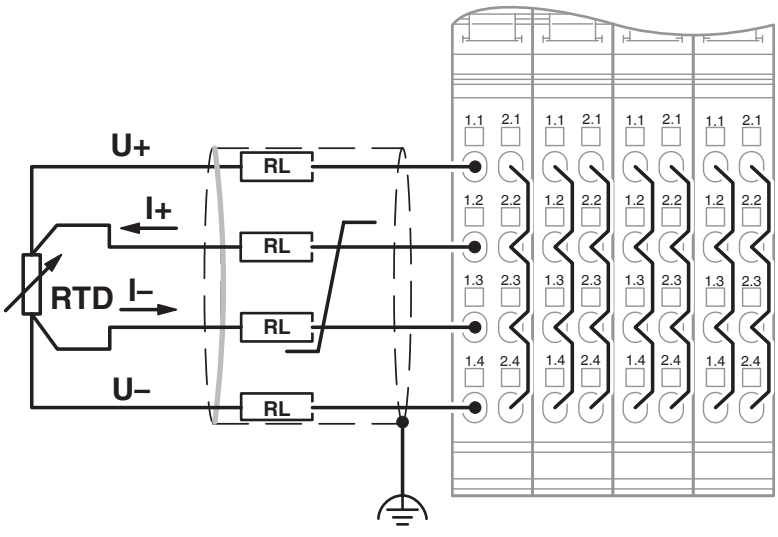
Drawings

Dimensional drawing



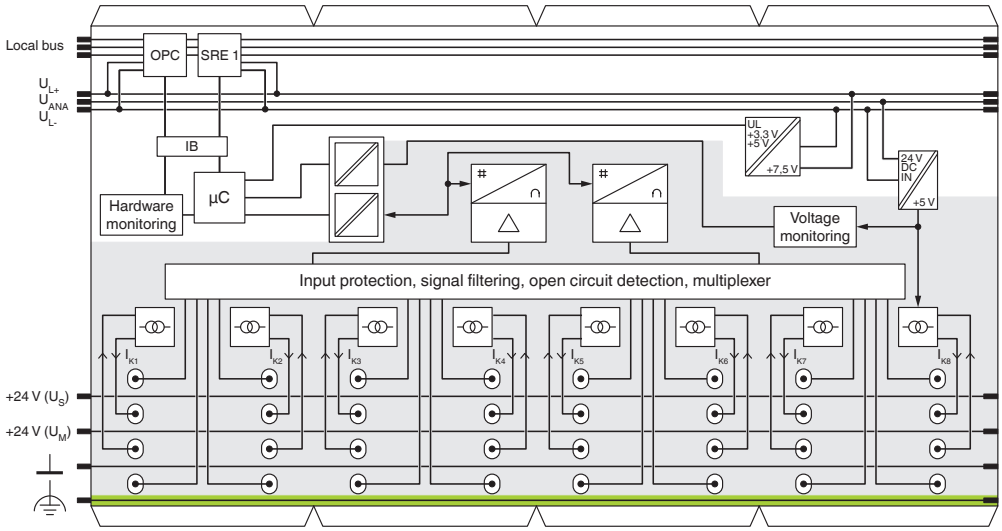
Dimensions (in mm)

Connection diagram



Connection example: 4-conductor connection

Block diagram



Internal wiring of the terminal points

Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2897402

BV
Approval ID: 20989_C1 BV

ABS
Approval ID: 22-2226444-PDA

DNV
Approval ID: TAA00002CU

cULus Listed
Approval ID: E140324

cULus Listed
Approval ID: E199827

Classifications

ECLASS

ECLASS-13.0	27242601
ECLASS-15.0	27242601

ETIM

ETIM 10.0	EC001596

UNSPSC

UNSPSC 21.0	32151600

Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-I

China RoHS

Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	594065db-bc39-4aa9-a5ef-5abff0563a03

EF3.1 Climate Change

CO2e kg	10.067 kg CO2e

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