IB IL AI 4/EF-PAC - Analog module

2878447

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CRA-READY



Inline, Analog input terminal, Analog inputs: 4, 0 V ... 5 V, -5 V ... 5 V, 0 V ... 10 V, -10 V ... 10 V, 0 mA ... 20 mA, 4 mA ... 20 mA, -20 mA ... 20 mA, connection technology: 2-, 3-, 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. It is used to acquire analog voltage and current signals.

Your advantages

- 4 differential signal inputs
- Connection of sensors in 2-, 3-, and 4-conductor technology
- Current ranges: 0 mA ... 20 mA, 4 mA ... 20 mA, ±20 mA
- Voltage ranges: 0 V ... 10 V, ±10 V, 0 V ... 5 V, ±5 V
- The channels are parameterized independently of one another via the bus system
- Parameterization via process data or PCP
- Measured values can be represented in four different formats
- Resolution depends on the representation format and the measuring range
- Process data update of all channels in max. 1 ms
- Sensor supply with channel-specific integrated short-circuit and overload protection
- Bus-synchronous provision of input values with very low jitter (< 10 µs)

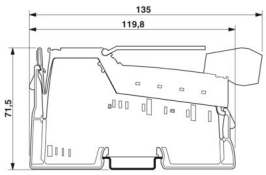
Commercial data

Item number	2878447
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DR01
Product key	DRI141
GTIN	4017918996376
Weight per piece (including packing)	252 g
Weight per piece (excluding packing)	210 g

Customs tariff number	85389091
Country of origin	DE

Technical data

Dimensions

Dimensional drawing	
Width	48.8 mm
Height	135 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

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	28 Byte
Required configuration data	4 Byte

Input data

Analog:

Input name	Analog inputs
Description of the input	Differential input, including sensor supply (24 V DC)
Number of inputs	4
Connection method	Inline shield connector
Connection technology	2-, 3-, 4-conductor
Note regarding the connection technology	shielded
Process data update	< 1 ms (bus-synchronous)
A/D conversion time	max. 10 µs
A/D converter resolution	16 bit
Limit frequency (3 dB)	500 Hz
Wire-break behavior	goes to 0 V, 0 mA or 4 mA
Permissible voltage	max. -50 V DC ... 50 V DC (Between analog voltage inputs and functional ground)
	max. -30 V ... 30 V (at the current inputs)
Protective circuit	Transient protection; Yes, via arresters
	Overload protection of the current inputs; electronic
Measured value resolution	16 bits (15 bits + sign bit)
Data formats	IB IL, IB ST, standardized representation, S7 compatible
Current input signal	0 mA ... 20 mA
	4 mA ... 20 mA
	-20 mA ... 20 mA
Input resistance current input	typ. 110 Ω
Voltage input signal	0 V ... 5 V
	-5 V ... 5 V
	0 V ... 10 V
	-10 V ... 10 V
Input resistance of voltage input	typ. 300 kΩ

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
	I/O error Error message in the process data
	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	1.4 W

Potentials: Communications power (U_L)

Supply voltage	7.5 V DC (via voltage jumper)
Current draw	max. 100 mA
	typ. 85 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. 20 mA
	typ. 13 mA

Potentials: Main circuit supply (U_M)

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. 200 mA
	min. 0 mA (No-load)

Supply:

Designation	Sensor supply U_{iS}
Supply voltage	24 V DC (via feed-in from U_M)
Current consumption	max. 50 mA (per channel)

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 ... 55 °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

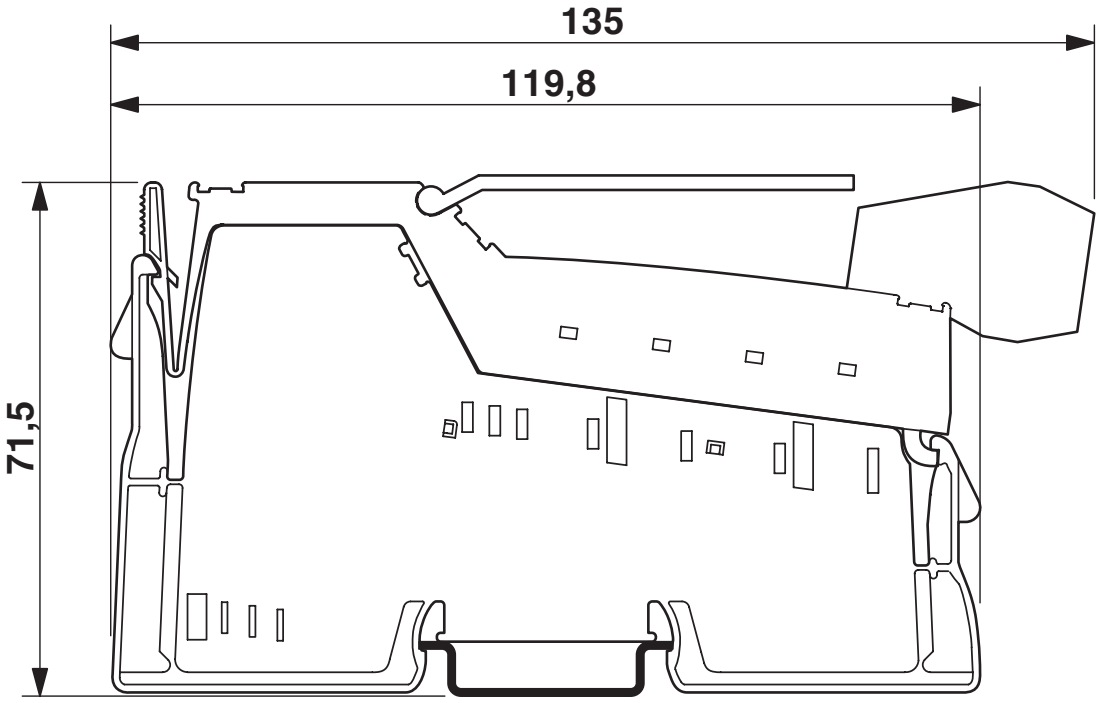
Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6	5g
Shock in accordance with EN 60068-2-27/IEC 60068-2-27	25g

Standards and regulations

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

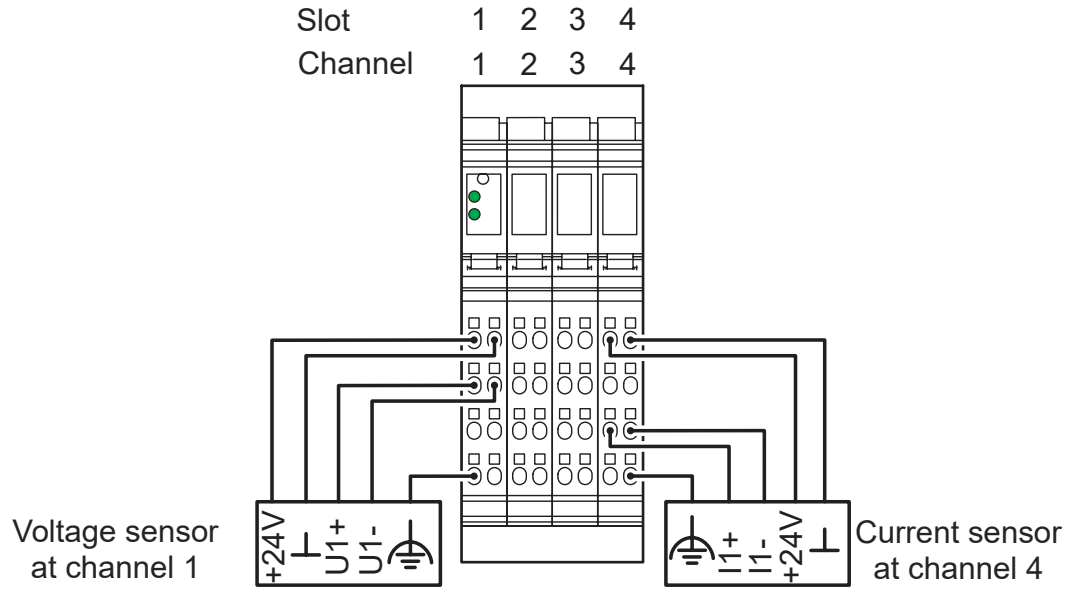
Drawings

Dimensional drawing



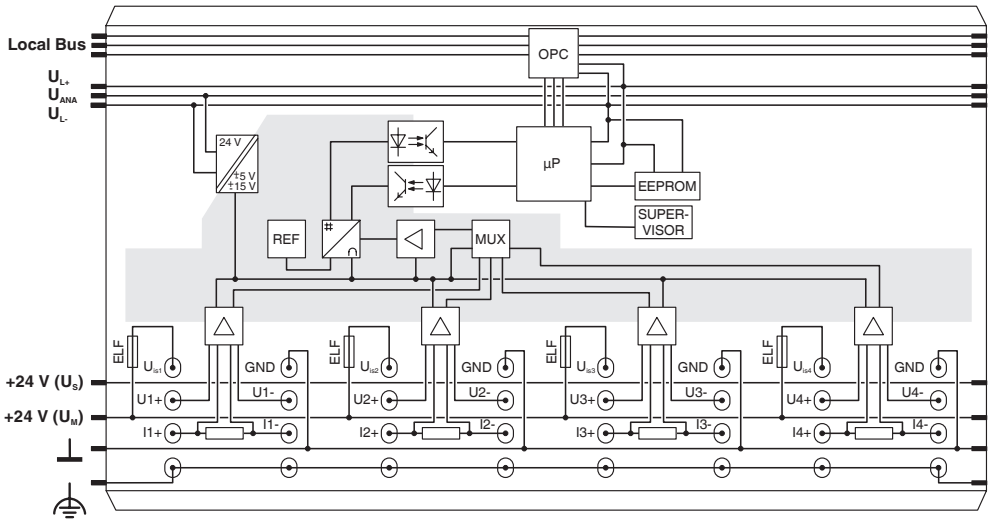
Dimensions (in mm)

Connection diagram



Connection example

Block diagram



Internal wiring of the terminal points

Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2878447

LR
Approval ID: LR23398855TA

BV
Approval ID: 20989_C1 BV

BSH
Approval ID: 658a

RINA
Approval ID: ELE121121XG

ABS
Approval ID: 22-2226444-PDA

cULus Recognized
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)
	6,6'-di-tert-butyl-2,2'-methylenedi-p-cresol(CAS: 119-47-1)
SCIP	65d3ee3f-eeca-4650-b44c-1b47cf964fe2

EF3.1 Climate Change

CO2e kg	12.644 kg CO2e

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