IB IL INC-IN-PAC - Function module

2861755

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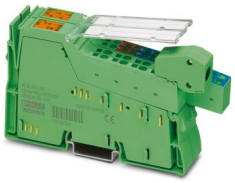
CRA-READY



Inline, Function module, Position detection, Incremental encoder; Incremental encoder input: 1, symmetrical encoders according to EIA-422 and asymmetrical encoders; Digital inputs: 3, 24 V DC; Digital outputs: 1 (0.5 A); transmission speed in the local bus: 500 kbps; degree of protection: IP20; Scope of supply: 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. The terminal is used for detecting positions, lengths, or angular positions with incremental encoders. Both symmetrical (RS-422) and asymmetrical (5 V DC to 24 V DC) encoders with rectangular signals can be connected to the terminal block. Rotary transducers or length measurement systems can be read in with or without a Z pulse. To increase operational safety, all encoder inputs are monitored for broken cables. Using a special operating mode, the terminal supports distance-coded incremental encoders, with which the reference run can be reduced to very short distances. In addition to the input for the encoder signals, the terminal also has three digital 24 V DC inputs, one input for the home position switch, and two inputs for limit position switches. Thus 2 or 3-conductor sensors can be connected. Input E3 can also be used as an "open collector" output. The terminal block records the position values using a counter, which counts up or down depending on the phase relationof the A and B signals.

Your advantages

- Supports incremental encoders with symmetrical signals in accordance with EIA standard RS-422 (line driver)
- Supports incremental encoder with asymmetrical signals (push-pull)
- Supplies encoder with 5 V or 24 V voltage
- Three digital inputs for connecting two limit switches or a home position switch
- Maximum input frequency: 300 kHz
- 25-bit actual position value
- Precise evaluation via 1x, 2x, or 4x sampling
- Direction of rotation indicator via LED

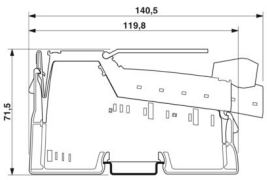


Commercial data

Item number	2861755
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DR01
Product key	DRI161
GTIN	4017918899912
Weight per piece (including packing)	169.3 g
Weight per piece (excluding packing)	143 g
Customs tariff number	85389091
Country of origin	DE

Technical data

Dimensions

Dimensional drawing	
Width	24.4 mm
Height	140.5 mm
Depth	71.5 mm

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)	02
ID code (dec.)	127
Length code (dec)	02
Process data channel	32 bit
Input address area	4 Byte
Output address area	4 Byte

Parameter channel (PCP)	0 Byte
Register length (bus)	4 Byte

Fieldbus data telegram (PROFIBUS)

Required parameter data	1 Byte
Required configuration data	5 Byte

Input data

Digital:

Input name	Digital inputs
Description of the input	EN 61131-2 type 1
Number of inputs	3
Connection method	Spring-cage connection
Connection technology	3-conductor
Input voltage range "0" signal	-3 V DC ... 5 V DC
Input voltage range "1" signal	15 V DC ... 30 V DC
Nominal input voltage U_{IN}	24 V DC
Nominal input current at U_{IN}	typ. 2.7 mA
Cable length	max. 30 m

Encoder

Number of inputs	1 (Symmetrical or asymmetrical)
Input name	Incremental encoder input
Encoder signals	symmetrical encoders according to EIA-422 and asymmetrical encoders
Cable length	max. 30 m (shielded cable, to ensure conformance with EMC Directive)

Output data

Digital:

Output name	Digital outputs
Connection method	Spring-cage connection
Connection technology	2-conductor
Number of outputs	1 (NPN, double assignment of input E3)

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 two words
Special properties	The product is being prepared for compliance with the Cyber Resilience Act (CRA)

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

Encoder

Number	1
Nominal output voltage	5 V DC
Voltage range	4.75 V DC ... 5.25 V DC
Current carrying capacity	max. 250 mA
Protective circuit	Short-circuit protection; Electrical and thermal
Number	1
Nominal output voltage	24 V DC
Voltage range	19.2 V DC ... 30 V DC
Current carrying capacity	max. 250 mA
Protective circuit	Short-circuit protection; Electronic and thermal
Number	max. 1 (A, /A, B, /B, Z, /Z)
Designation	Symmetrical incremental encoders
Encoder supply voltage	5 V DC
	24 V DC
Signal voltage level	Differential signal (signal – inverted signal) ±0.5 V, minimum; ±6 V, maximum
Common mode voltage range signal - ground	-10 V DC ... 13.2 V DC
Input frequency	max. 300 kHz
Number	max. 1 (A, B, (Z))
Designation	Asymmetrical incremental encoder
Encoder supply voltage	5 V DC
	24 V DC
Signal voltage level	Low ≤ 2.5 V, high ≥ 3.5 V (up to 27 V, maximum)
Input frequency	max. 300 kHz

Potentials: Communications power (U_L)

Supply voltage	7.5 V DC (via voltage jumper)
Current draw	max. 70 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. 1 A
	typ. 340 mA

Electrical isolation/isolation of the voltage ranges

Test voltage: 7.5 V supply (bus logics)/24 V supply (I/O)	500 V AC, 50 Hz, 1 min
Test voltage: 24 V supply (I/O) / functional ground	500 V AC, 50 Hz, 1 min
Test voltage: 7.5 V supply (bus logic)/functional ground	500 V AC, 50 Hz, 500 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

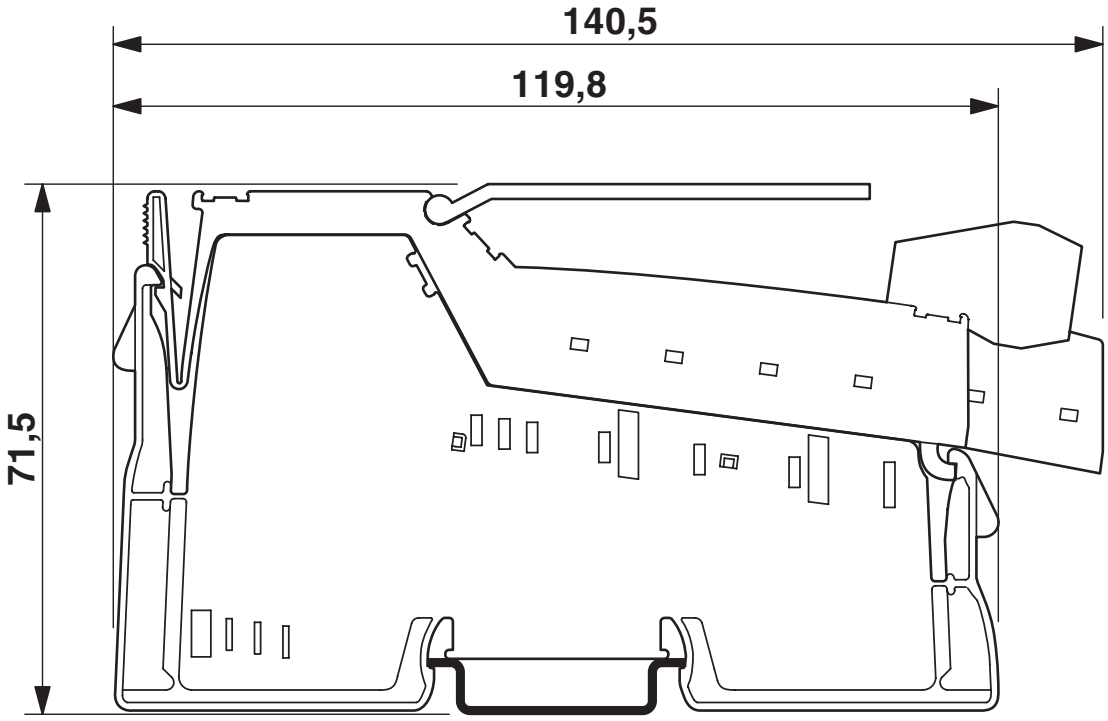
Vibration resistance in accordance with EN 60068-2-6/IEC 60068-2-6	5g
Shock in accordance with EN 60068-2-27/IEC 60068-2-27	25g

Standards and regulations

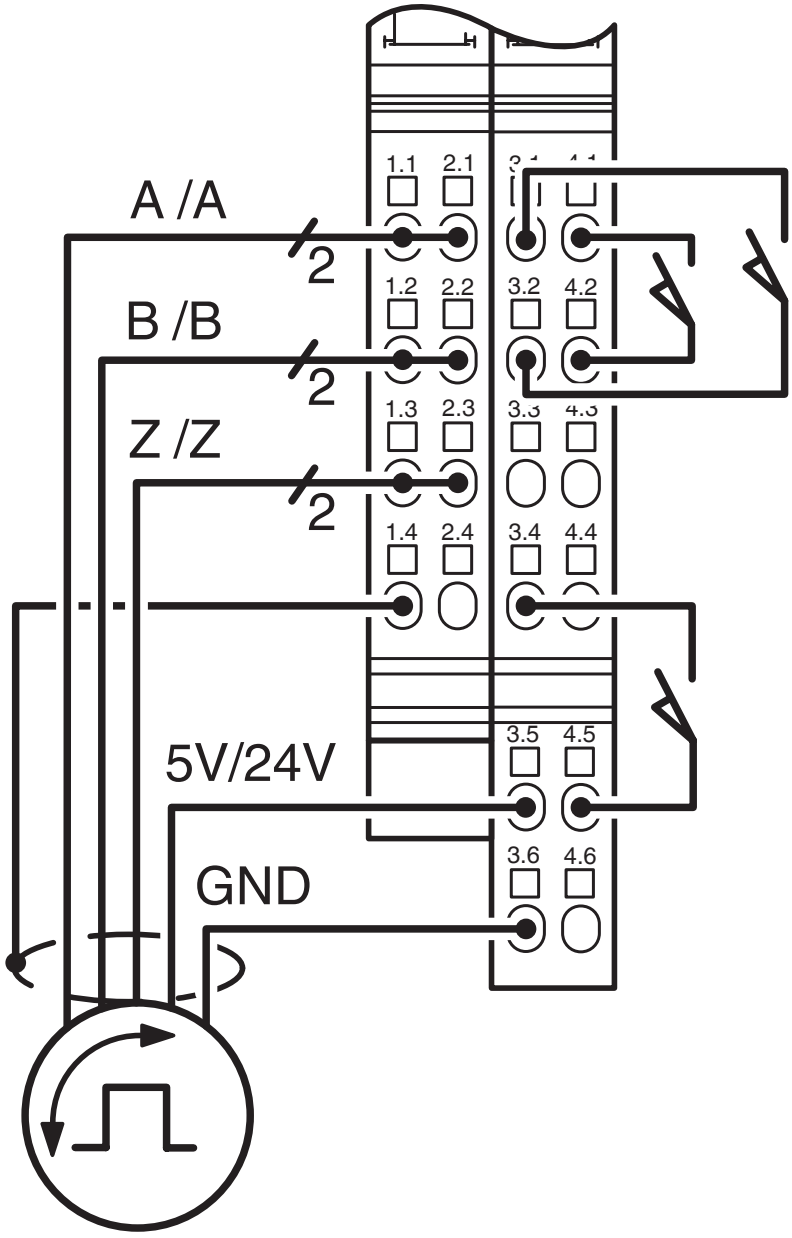
Protection class	III (IEC 61140, EN 61140, VDE 0140-1)

Drawings

Dimensional drawing

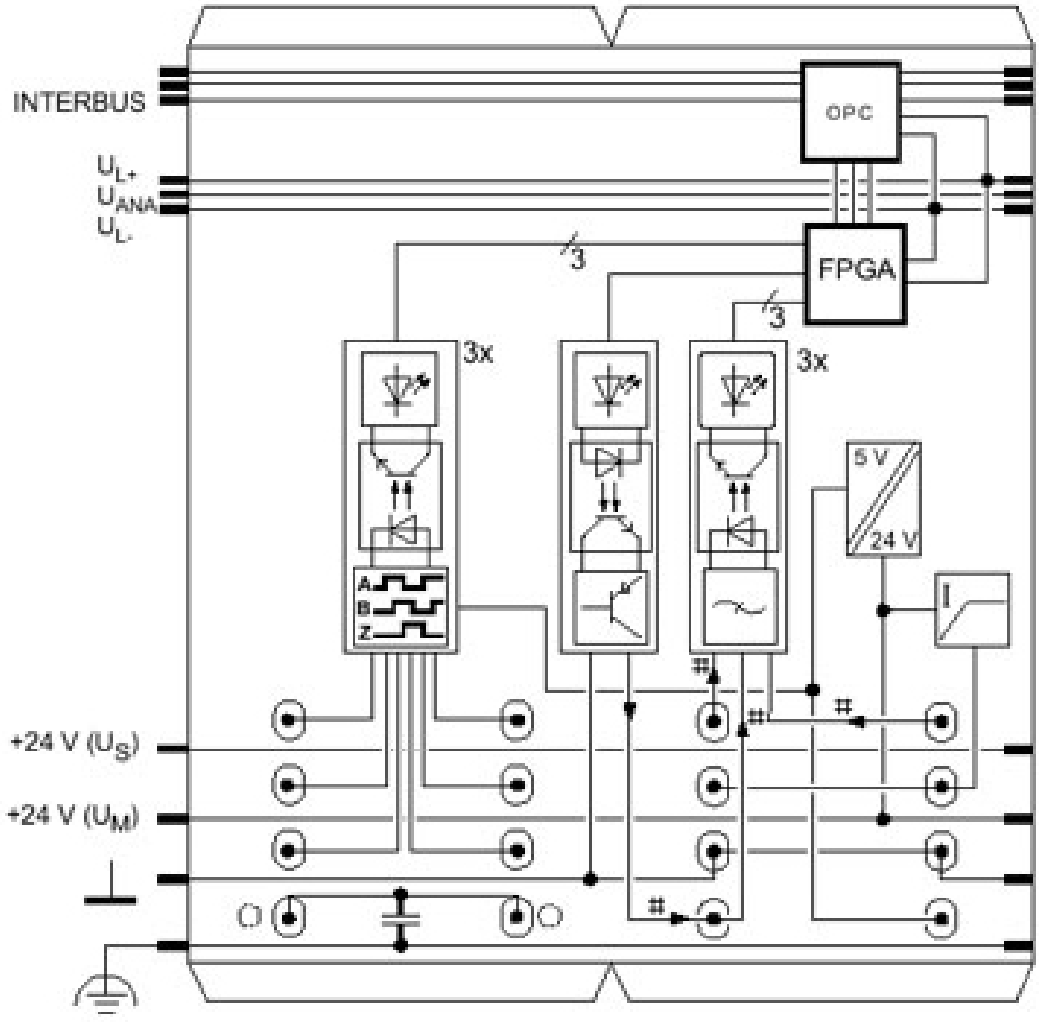


Connection diagram



Quadrature encoder with 24 V supply

Block diagram



Internal wiring of the terminal points

Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/2861755

cULus Listed
Approval ID: E140324

cULus Listed
Approval ID: E199827

Classifications

ECLASS

ECLASS-13.0	27242605
ECLASS-15.0	27242605

ETIM

ETIM 10.0	EC001601

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	6b4dacf9-3a17-4f9b-8af4-b32882f2f18a

EF3.1 Climate Change

CO2e kg	12.716 kg CO2e

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