

# IL ETH BK DI8 DO4 2TX-XC-PAC - Bus coupler



2701388

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Inline, Bus coupler, Modbus/TCP (UDP), RJ45 jack, Digital inputs: 8, 24 V DC, connection technology: 3-conductor, Digital outputs: 4, 24 V DC, 500 mA, connection technology: 3-conductor, Extreme conditions version, transmission speed in the local bus: 500 kbps / 2 Mbps, degree of protection: IP20, including Inline connectors and marking fields

## Product description

The bus coupler with integrated I/Os is intended for use within a Modbus/TCP (UDP) network and represents the link to the Inline I/O system. Up to 61 Inline devices can be connected to the bus coupler. The bus coupler supports a maximum of 16 PCP devices.

## Your advantages

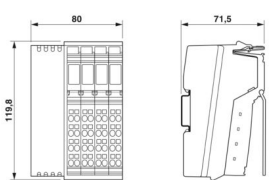
- 2 Ethernet ports (with integrated switch)
- Auto negotiation
- Autocrossing
- Transmission speed of 10 Mbps and 100 Mbps
- Automatic detection of the transmission speed in the local bus (500 kbps or 2 Mbps)
- 8 digital inputs, 4 digital outputs (on-board)
- Data exchange via OPC server supported
- Software interface for access via TCP/IP: Device Driver Interface (DDI)
- Web-based management
- 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	2701388
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DR01
Product key	DRI11B
GTIN	4046356743709
Weight per piece (including packing)	349 g
Weight per piece (excluding packing)	349 g
Customs tariff number	85176200
Country of origin	DE

## Technical data

### Dimensions

Dimensional drawing		
Width		80 mm
Height		119.8 mm
Depth		71.5 mm
Note on dimensions		Specifications with connectors

### Notes

#### Note on application

Note on application	Only for industrial use
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### Interfaces

#### Modbus/TCP (UDP)

Number of interfaces	2
Connection method	RJ45 jack
Note on the connection method	Auto negotiation and autocrossing
Transmission speed	10/100 Mbps
Transmission physics	Ethernet in RJ45 twisted pair

#### Inline local bus

Number of interfaces	1
Connection method	Inline data jumper
Transmission speed	500 kbps / 2 Mbps (automatic detection, no combined system)

#### Fieldbus: Local bus gateway

Max. number of local bus devices	61 (The on-board I/Os are two devices)
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### System properties

#### System limits

Number of supported devices	max. 63 (per station)
Number of local bus devices that can be connected	max. 61 (The on-board I/Os are two devices)
Number of devices with parameter channel	max. 16
Number of supported branch terminals with remote bus branch	0

#### Module

ID code (hex)	none
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Input address area	8 bit
Output address area	4 bit
Register length	16 bit

## Input data

Digital:

Input name	Digital inputs
Description of the input	EN 61131-2 type 1
Number of inputs	8
Connection method	Inline connector
Connection technology	3-conductor
Input voltage	24 V DC
Input voltage range "0" signal	-30 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. 3 mA
Typical input current per channel	typ. 3 mA
Typical response time	approx. 500 $\mu$ s
Delay at signal change from 0 to 1	1.2 ms
Delay at signal change from 1 to 0	1.2 ms
Protective circuit	Reverse polarity protection; Suppressor diode

## Output data

Digital:

Output name	Digital outputs
Connection method	Inline connector
Connection technology	3-conductor
Number of outputs	4
Protective circuit	Short-circuit and overload protection; Freewheeling circuit in the output driver
Output voltage	24 V DC -1 V (At nominal current)
Maximum output current per module	max. 2 A
Nominal output voltage	24 V DC
Output current when switched off	max. 10 $\mu$ A (When not loaded, a voltage can be measured even at an output that is not set.)
Nominal load, inductive	12 VA (1.2 H, 48 $\Omega$ )
Nominal load, lamp	12 W
Nominal load, ohmic	12 W
Reverse voltage resistance to short pulses	Reverse voltage proof
Behavior with overload	Auto restart
Behavior with inductive overload	Output can be destroyed
Behavior at voltage switch-off	The output follows the power supply without delay
Signal delay	typ. 1.2 ms
Overcurrent shut-down	min. 0.7 A

## Product properties

Product type	I/O component
Product family	Inline
Type	modular
Scope of supply	including Inline connectors and marking fields
No. of channels	12
Special properties	Extreme conditions version
Diagnostics messages	Short-circuit or overload of the digital outputs yes
	Sensor supply failure yes
	Failure of the actuator supply yes

## Electrical properties

Maximum power dissipation for nominal condition	6.3 W
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### Potentials

Protective circuit	Surge protection (segment supply, main supply, bus coupler supply); Suppressor diode, 35 V DC
	Reverse polarity protection (segment supply, main supply, bus coupler supply); Suppressor diode, 35 V DC

Potentials: Bus coupler supply  $U_{BK}$ ; Communications power  $U_L$  (7.5 V) and the analog supply  $U_{ANA}$  (24 V) are generated from the bus coupler supply.

Supply voltage	24 V DC (via Inline connector)
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Current draw	max. 0.98 A (with max. number of connected I/O terminal blocks)
	min. 80 mA (without connected I/O terminal blocks)

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

Supply voltage	7.5 V DC
Power supply	max. 0.8 A DC

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

Supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Power supply	max. 0.5 A DC

### Potentials: Main circuit supply ( $U_M$ )

Supply voltage	24 V DC (via Inline connector)
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Power supply	max. 8 A DC (sum of $U_M + U_S$ )
Current draw	max. 8 A DC
	min. 3 mA (without connected peripherals)

### Potentials: Segment circuit supply ( $U_S$ )

Supply voltage	24 V DC (via Inline connector)
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Power supply	max. 8 A DC (sum of $U_M + U_S$ )

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Current draw	max. 8 A DC
	min. 3 mA (without connected peripherals)

## 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 ... 55 °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)

## 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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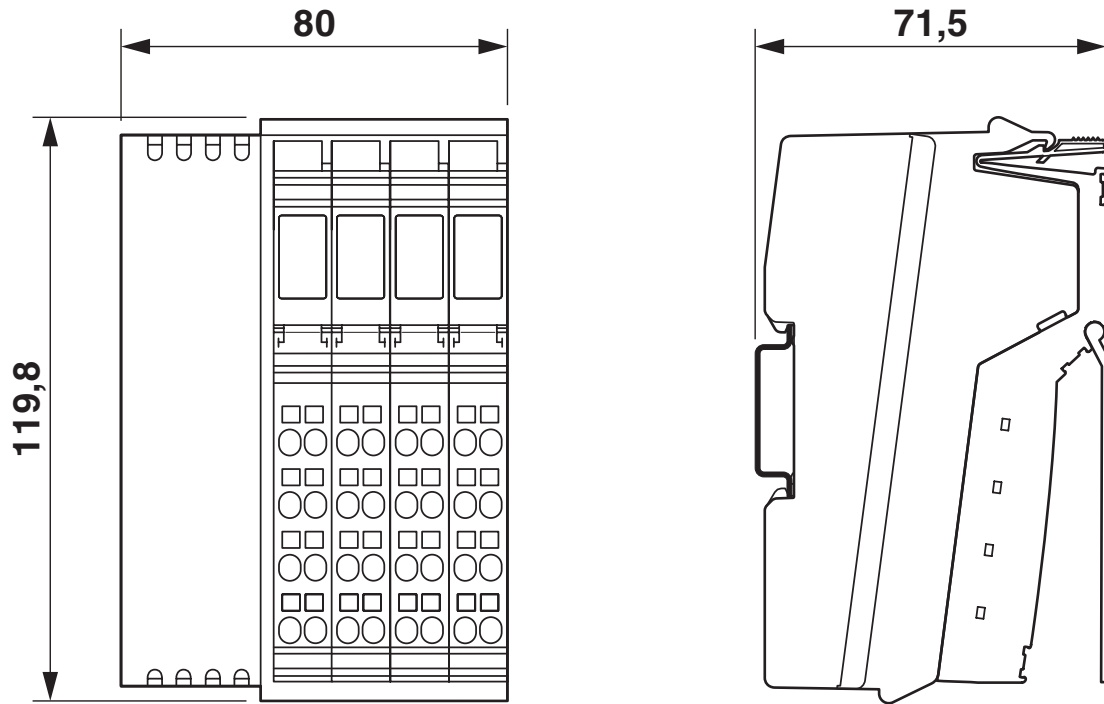


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## Drawings

Dimensional drawing



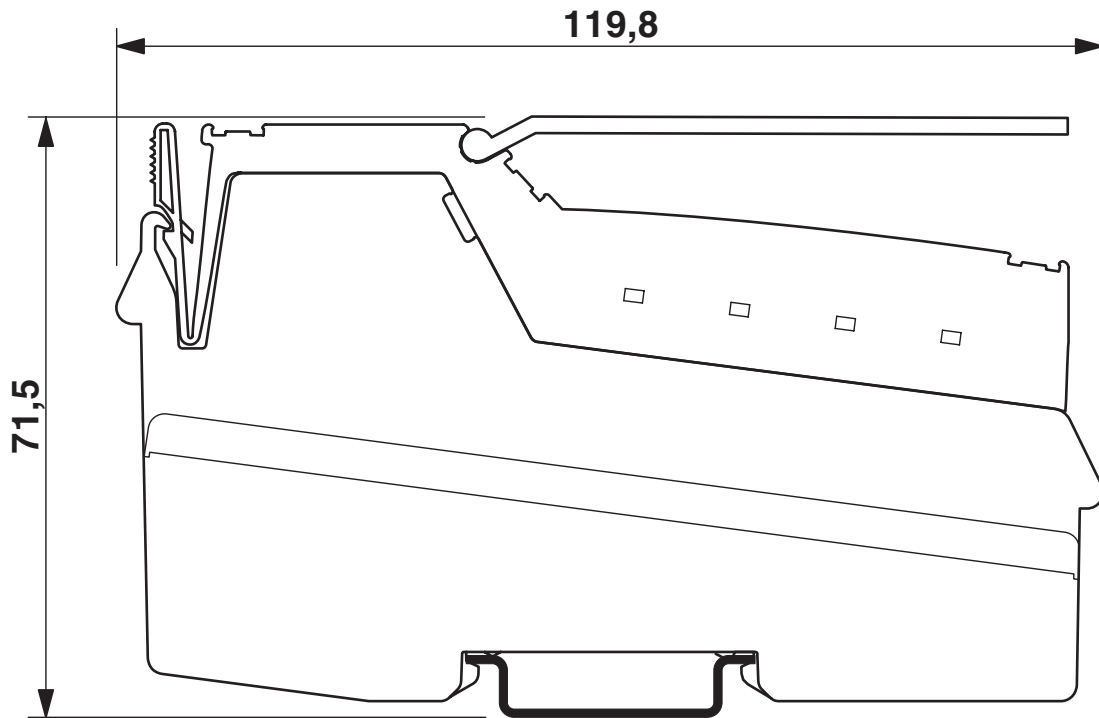
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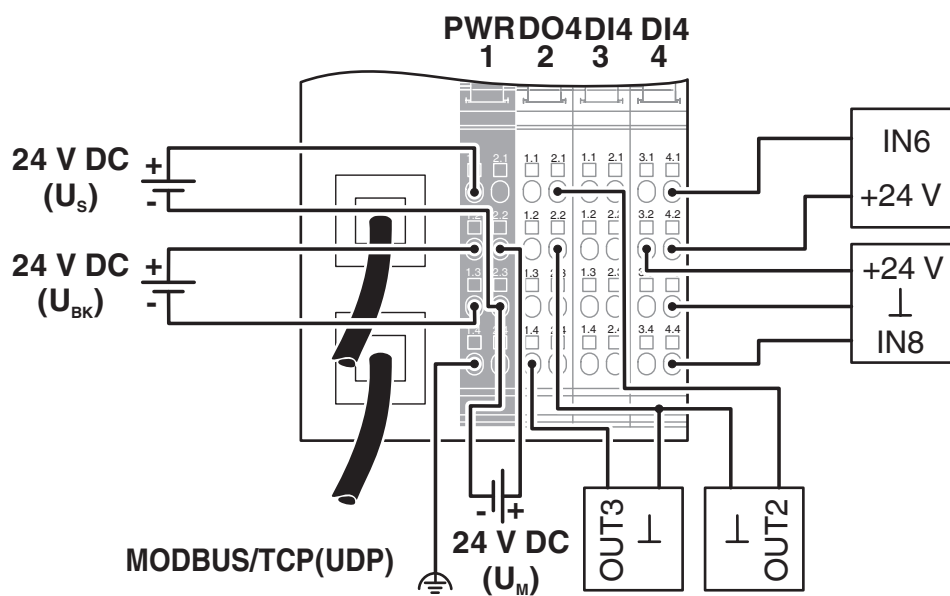
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Dimensional drawing



Connection diagram



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## Approvals

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**EAC**

Approval ID: TR\_TS\_D\_00850-20



**cULus Recognized**

Approval ID: E140324

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## Classifications

### ECLASS

ECLASS-13.0	27242608
ECLASS-15.0	27242608

### ETIM

ETIM 9.0	EC001604
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### UNSPSC

UNSPSC 21.0	32151600
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## 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)
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