

# Bus coupler - IL ETH BK DI8 DO4 2TX-PAC - 2703981

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Modbus/TCP(UDP) bus coupler, 8 inputs, 24 V DC, 4 outputs, 24 V DC, 500 mA, complete with I/O connectors

## Product Description

The bus coupler for the Modbus/TCP(UDP) protocol has 4 digital outputs and 8 digital inputs. This package contains all the necessary Inline connectors for connecting the supply and the I/Os. The Inline terminals can be labeled using pull-out labeling fields. The fields have insert cards that can be labeled individually to suit the application. Additionally, there is the ZBFM-6... Zack marker strip for labeling the terminal points.

## Product Features

- Up to 61 terminals (16 PCP devices) can be connected
- 80 mm design width
- Can be programmed with C, C++, C#, Visual Basic or other high-level languages
- Data exchange via OPC server supported
- Automatic speed detection of the system bus
- Web-based management
- 8 digital inputs, 4 digital outputs onboard
- 2 RJ45 connections
- Software interfaces for access via TCP/IP: Device Driver Interface (DDI) and High-Level Language Fieldbus Interface (HFI)

Modbus/TCP (UDP)

## Key commercial data

<b>package_quantity</b>	1
<b>GTIN</b>	4046356041157

## Technical data

### Note

<b>Utilization restriction</b>	EMC: class A product, see manufacturer's declaration in the download area
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### Dimensions

<b>Width</b>	80 mm
<b>Height</b>	119.8 mm
<b>Depth</b>	71.5 mm
<b>Note on dimensions</b>	Specifications with connectors

### Ambient conditions

<b>Ambient temperature (operation)</b>	-25 °C ... 55 °C
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## Technical data

### Ambient conditions

<b>Ambient temperature (storage/transport)</b>	-40 °C ... 85 °C
<b>Permissible humidity (operation)</b>	10 % ... 95 % (according to DIN EN 61131-2)
<b>Permissible humidity (storage/transport)</b>	10 % ... 95 % (according to DIN EN 61131-2)
<b>Air pressure (operation)</b>	70 kPa ... 106 kPa (up to 3000 m above sea level)
<b>Air pressure (storage/transport)</b>	70 kPa ... 106 kPa (up to 3000 m above sea level)
<b>Degree of protection</b>	IP20

### General

<b>Weight</b>	375 g
<b>Note on weight specifications</b>	with connectors
<b>Mounting type</b>	DIN rail
<b>Protection class</b>	III, IEC 61140, EN 61140, VDE 0140-1
<b>Conformance with EMC directives</b>	Noise immunity test in accordance with EN 61000-6-2 Electrostatic discharge (ESD) EN 61000-4-2/IEC 61000-4-2 Criterion B; 6 kV contact discharge, 8 kV air discharge
<b>Conformance with EMC directives</b>	Noise immunity test in accordance with EN 61000-6-2 Electromagnetic fields EN 61000-4-3/IEC 61000-4-3 Criterion A; Field intensity: 10 V/m
<b>Conformance with EMC directives</b>	Noise immunity test in accordance with EN 61000-6-2 Fast transients (burst) EN 61000-4-4/IEC 61000-4-4 Criterion A; all interfaces 1 kV Criterion B; all interfaces 2 kV
<b>Conformance with EMC directives</b>	Noise immunity test in accordance with EN 61000-6-2 Transient surge voltage (surge) EN 61000-4-5/IEC 61000-4-5 Criterion B; supply lines DC: 0.5 kV/0.5 kV (symmetrical/asymmetrical); fieldbus cable shield 1 kV
<b>Conformance with EMC directives</b>	Noise immunity test in accordance with EN 61000-6-2 Conducted interference EN 61000-4-6/IEC 61000-4-6 Criterion A; Test voltage 10 V
<b>Conformance with EMC directives</b>	Noise emission test as per EN 61000-6-4 EN 55011 Class A
<b>Mechanical tests</b>	Vibration resistance in acc. with EN 60068-2-6/IEC 60068-2-6 5 g
<b>Mechanical tests</b>	Shock in acc. with EN 60068-2-27/IEC 60068-2-27 Operation: 25 g, 11 ms duration, semi-sinusoidal shock impulse
<b>Diagnostics messages</b>	Short-circuit / overload of the digital outputs Yes
<b>Diagnostics messages</b>	Sensor supply failure Yes
<b>Diagnostics messages</b>	Failure of the actuator supply Yes

### Interfaces

<b>Fieldbus system</b>	Modbus/TCP (UDP)
<b>Designation</b>	Modbus/TCP(UDP)
<b>Connection method</b>	RJ45 socket, auto negotiation
<b>Transmission speed</b>	10/100 MBit/s
<b>Transmission physics</b>	Ethernet in RJ45 twisted pair
<b>Fieldbus system</b>	Lokalbus
<b>Designation</b>	Inline local bus
<b>Connection method</b>	Inline data jumper
<b>Transmission speed</b>	500 kBit/s / 2 MBit/s (Automatic detection, no combined system)

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### System limits of the bus coupler

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

### Power supply for module electronics

Connection method	Spring-cage connection
Designation	Bus coupler supply $U_{BC}$ ; 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)
Supply current	70 mA
Current consumption	max. 0.98 A (from $U_{BK}$ )
Power loss	typ. 3 W (entire device)
Communications power $U_L$	7.5 V DC
Current consumption	0.8 A
Power consumption	typ. 1.7 W

### Inline potentials

Communications power $U_L$	7.5 V DC $\pm 5\%$
Power supply at $U_L$	max. 0.8 A DC
Main circuit supply $U_M$	24 V DC
Supply voltage range $U_M$	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Power supply at $U_M$	max. 8 A DC (Sum of $U_M + U_S$ ; 4 A, maximum, when used in potentially explosive areas.)
Current consumption from $U_M$	max. 8 A DC
Segment supply voltage $U_S$	24 V DC
Supply voltage range $U_S$	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Power supply at $U_S$	max. 8 A DC (Sum of $U_M + U_S$ ; 4 A, maximum, when used in potentially explosive areas.)
Current consumption from $U_S$	max. 8 A DC
I/O supply voltage $U_{ANA}$	24 V DC
Supply voltage range $U_{ANA}$	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Power supply at $U_{ANA}$	max. 0.5 A DC

### Digital inputs

Input name	Digital inputs
Connection method	Inline connector
Connection method	2, 3-wire
Number of inputs	max. 8 (EN 61131-2 type 1)
Typical response time	approx. 500 $\mu$ s
Protective circuit	Protection against polarity reversal Polarity protection diode
Input voltage	24 V DC

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## Technical data

### Digital inputs

Input voltage range "0" signal	-30 V DC ... 5 V DC
Input voltage range "1" signal	15 V DC ... 30 V DC
Nominal input current at U <sub>IN</sub>	typ. 3 mA
Typical input current per channel	typ. 3 mA
Delay at signal change from 0 to 1	1.2 ms
Delay at signal change from 1 to 0	1.2 ms

### Digital outputs

Output name	Digital outputs
Connection method	Inline connector
Connection method	2, 3-wire
Number of outputs	4
Protective circuit	Short-circuit and overload protection Free running circuit
Output voltage	24 V DC -1 V (At nominal current)
Nominal output voltage	24 V DC
Maximum output current per channel	500 mA
Maximum output current per module / terminal block	2 A
Maximum output current per module	2 A
Nominal load, inductive	12 VA (1.2 H; 48 Ω)
Nominal load, lamp	12 W
Nominal load, ohmic	12 W

## classifications

### eCl@ss

eCl@ss 4.0	27250203
eCl@ss 4.1	27250203
eCl@ss 5.0	27250203
eCl@ss 5.1	27242608
eCl@ss 6.0	27242608
eCl@ss 7.0	27242608
eCl@ss 8.0	27242608

### ETIM

ETIM 2.0	EC001434
ETIM 3.0	EC001604
ETIM 4.0	EC001604
ETIM 5.0	EC001604

### UNSPSC

UNSPSC 6.01	43172015
UNSPSC 7.0901	43201404
UNSPSC 11	43172015

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## classifications

### UNSPSC

<b>UNSPSC 12.01</b>	43201404
<b>UNSPSC 13.2</b>	43201404

## approvals

ATEX / UL Listed / cUL Listed / cULus Listed / LR / GL / BV / DNV / ABS / RINA / GL-SW / UL Recognized / cUL Recognized / GL / cULus Recognized /

### Approval details

<b>ATEX</b>	
Nominal voltage UN	
Nominal current IN	
mm <sup>2</sup> /AWG/kcmil	

<b>UL Listed</b>
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<b>cUL Listed</b>
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<b>cULus Listed</b>
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<b>LR</b>	
Nominal voltage UN	
Nominal current IN	
mm <sup>2</sup> /AWG/kcmil	

<b>GL</b>
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<b>BV</b>	
Nominal voltage UN	
Nominal current IN	

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## approvals


mm <sup>2</sup> /AWG/kcmil	


<b>DNV</b>	
Nominal voltage UN	
Nominal current IN	
mm <sup>2</sup> /AWG/kcmil	

<b>ABS</b>	
Nominal voltage UN	
Nominal current IN	
mm <sup>2</sup> /AWG/kcmil	


<b>RINA</b>
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<b>GL-SW</b>
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UL Recognized 
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cUL Recognized 
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cULus Recognized 
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## accessories

### End block

CLIPFIX 35 - 3022218



# Bus coupler - IL ETH BK DI8 DO4 2TX-PAC - 2703981

accessories

E/UK - 1201442



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## Terminal marking

ESL 62X46 - 0809502



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ESL 62X10 - 0809492



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## Labeling panel

IB IL FIELD 8 - 2727515



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IB IL FIELD 2 - 2727501



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## Configuration and diagnostics

## Bus coupler - IL ETH BK DI8 DO4 2TX-PAC - 2703981

accessories

CD FL IL 24 BK - 2832069



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### Plug

FL PLUG RJ45 GR/2 - 2744856



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FL PLUG RJ45 GN/2 - 2744571



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### Data cable by the meter

FL CAT5 HEAVY - 2744814



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FL CAT5 FLEX - 2744830



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### Universal tools



# Bus coupler - IL ETH BK DI8 DO4 2TX-PAC - 2703981

## accessories

FL CRIMPTOOL - 2744869



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## Connector set

IL BKDIO-PLSET - 2878599



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## accessories

IPASSIGN - 2701094



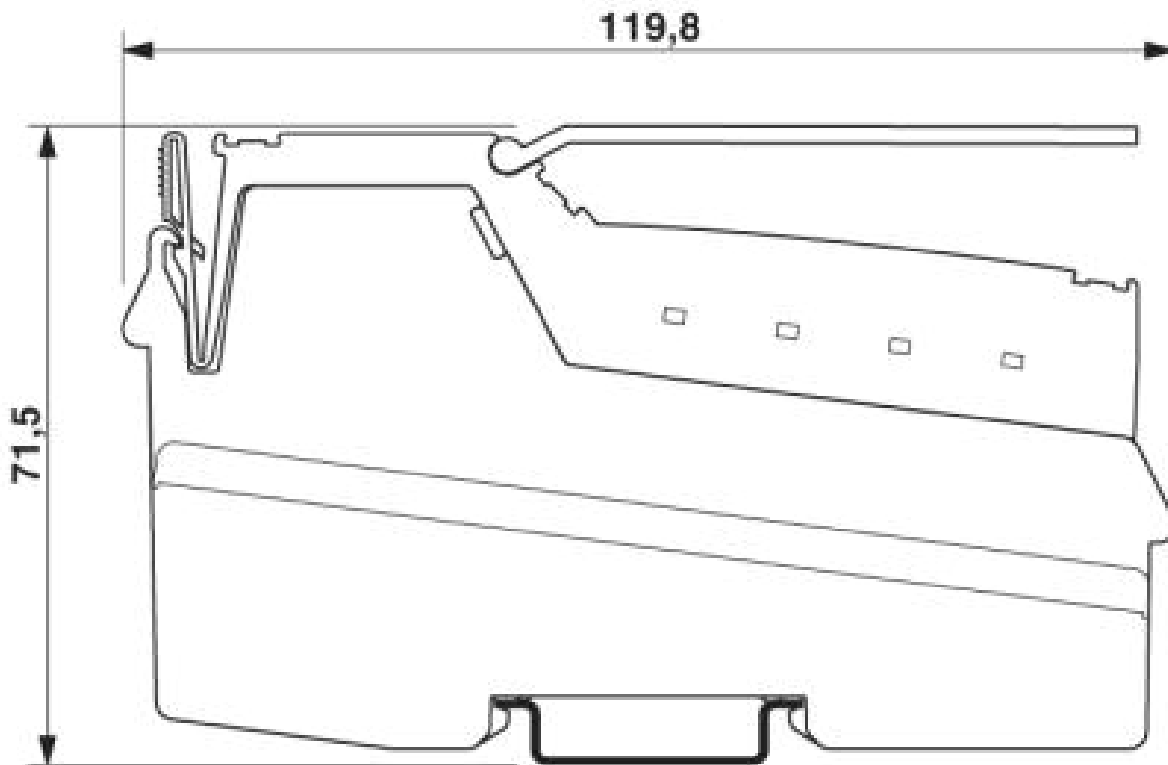
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## Drawings



# Bus coupler - IL ETH BK DI8 DO4 2TX-PAC - 2703981

Dimensioned drawing



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