

# IL PB BK DI8 DO4/EF-XC-PAC - Bus coupler



2702132

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Inline, Bus coupler, PROFIBUS DP, D-SUB-9 female connector, 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 PROFIBUS network and represents the link to the Inline I/O system. Up to 61 Inline devices can be connected to the bus coupler. A corresponding GSD file is available for integrating the Inline station into the programming system. This file can be downloaded via the product at [www.phoenixcontact.com/products](http://www.phoenixcontact.com/products).

## Your advantages

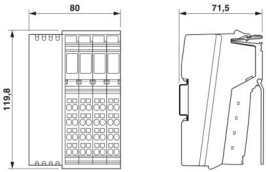
- PROFIBUS connection via 9-pos. D-SUB socket
- 8 digital inputs, 4 digital outputs (on-board)
- Connection of a maximum of 16 PCP devices
- DP/V1 for class 1 and class 2 masters
- PROFIBUS data transmission speed of 9.6 kbps to 12 Mbps
- I&M functions
- Diagnostic and status indicators
- IO-Link call
- 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                          | 2702132                        |
| Packing unit                         | 1 pc                           |
| Note                                 | Made to order (non-returnable) |
| Sales key                            | DR01                           |
| Product key                          | DRI112                         |
| GTIN                                 | 4046356981774                  |
| Weight per piece (including packing) | 339.9 g                        |
| Weight per piece (excluding packing) | 339.9 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                                                     |  |

### Material specifications

|       |       |
|-------|-------|
| Color | green |
|-------|-------|

### Interfaces

#### PROFIBUS DP

|                     |                          |
|---------------------|--------------------------|
| No. of channels     | 1                        |
| Connection method   | D-SUB-9 female connector |
| Number of positions | 9                        |
| Transmission speed  | 9.6 kbps ... 12 Mbps     |

#### Inline local bus

|                    |                                                             |
|--------------------|-------------------------------------------------------------|
| 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) |
|----------------------------------|----------------------------------------|

### 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                                                                                   |
| Response time of I/Os                                       | typ. 4 ms (aligned I/Os; transmission speed: PROFIBUS 1.5 Mbps, local bus 500 kbps) |

#### Module

|                     |                                              |
|---------------------|----------------------------------------------|
| ID code (hex)       | 0B50                                         |
| Input address area  | 8 bit (or 1 byte, selection in the GSD file) |
| Output address area | 4 bit (or 1 byte, selection in the GSD file) |

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|                 |        |
|-----------------|--------|
| 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 µs                                |
| Delay at signal change from 0 to 1 | 2.9 ms                                        |
| Delay at signal change from 1 to 0 | 2.9 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 µA (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 Ω)                                                                        |
| 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. 2.9 ms                                                                                |
| Overcurrent shut-down                      | min. 0.7 A                                                                                 |

## Product properties

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|                      |                                                      |
|----------------------|------------------------------------------------------|
| Product type         | I/O component                                        |
| Product family       | Inline                                               |
| Type                 | modular                                              |
|                      | Inline                                               |
| 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

|                   |                            |
|-------------------|----------------------------|
| Power dissipation | typ. 1.7 W (entire device) |
|-------------------|----------------------------|

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 |
|----------------|----------|

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) |

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) |
| 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) |
| Current draw         | max. 8 A DC                                                        |
|                      | min. 6 mA (without connected peripherals)                          |

## Connection data

Connection technology

|                 |                  |
|-----------------|------------------|
| Connection name | Inline connector |
|-----------------|------------------|

Conductor connection

|                               |                                              |
|-------------------------------|----------------------------------------------|
| Connection method             | Spring-cage connection                       |
| Conductor cross-section rigid | 0.08 mm <sup>2</sup> ... 1.5 mm <sup>2</sup> |

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|                                  |                                              |
|----------------------------------|----------------------------------------------|
| 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                                         |

## 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<br>-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 % (according to DIN EN 61131-2)                                                                                                 |

## Standards and regulations

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

## Mounting

|               |                   |
|---------------|-------------------|
| Mounting type | DIN rail mounting |
|---------------|-------------------|

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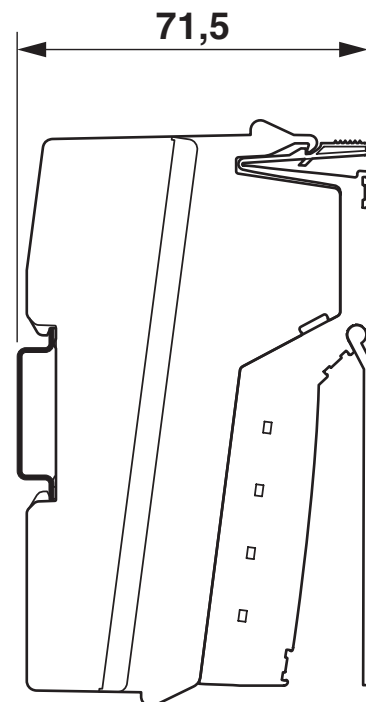
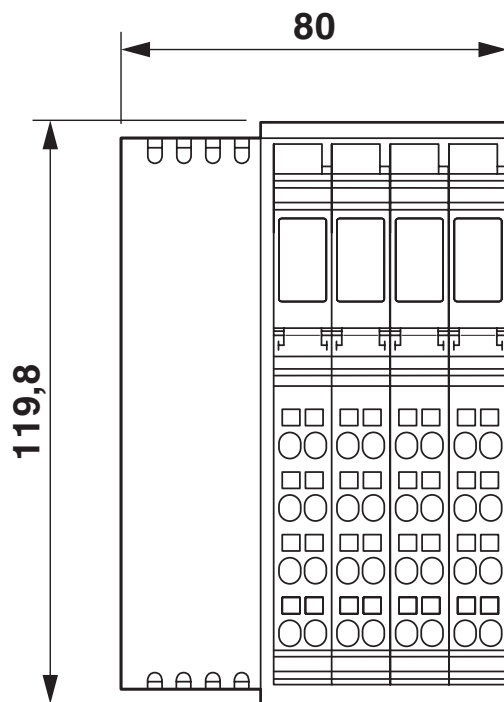
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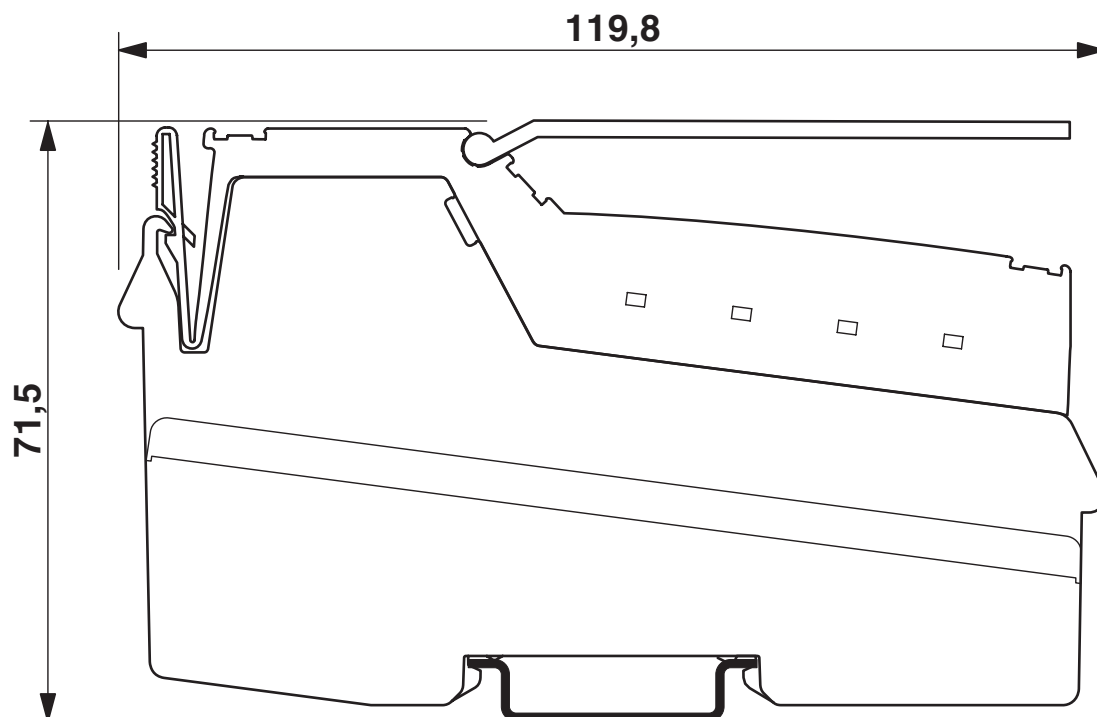


## Drawings

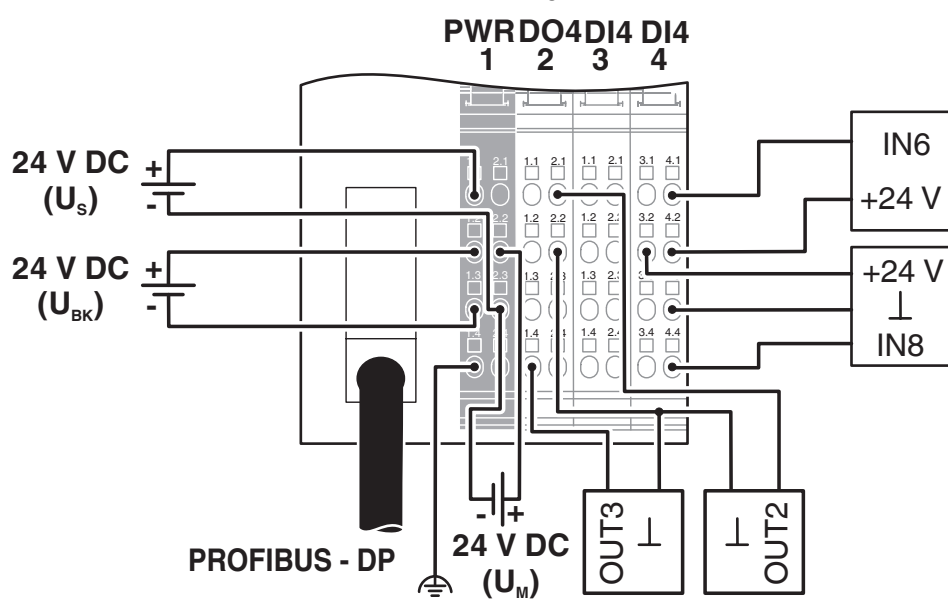
Dimensional drawing



Dimensional drawing



Connection diagram



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## Classifications

### ETIM

|          |          |
|----------|----------|
| ETIM 8.0 | EC001604 |
|----------|----------|

### UNSPSC

|             |          |
|-------------|----------|
| UNSPSC 21.0 | 32151600 |
|-------------|----------|

Environmental product compliance

|                                        |                                                                                                                                                                                                                                                                 |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| China RoHS                             |                                                                                                                                                                                                                                                                 |
| Environment friendly use period (EFUP) | <div>EFUP-50</div> <div>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.</div> |
| EU REACH SVHC                          |                                                                                                                                                                                                                                                                 |
| REACH candidate substance (CAS No.)    | No substance above 0.1 wt%                                                                                                                                                                                                                                      |

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Phoenix Contact USA  
586 Fulling Mill Road  
Middletown, PA 17057, United States  
(+717) 944-1300  
[info@phoenixcon.com](mailto:info@phoenixcon.com)