

# IL MOD BK DI8 DO4-PAC - Bus coupler



2878696

<https://www.phoenixcontact.com/in/products/2878696>

Please be informed that the data shown in this PDF document is generated from our Online Catalog. Please find the complete data in the user documentation. Our General Terms of Use for Downloads are valid.



Inline, Bus coupler, Modbus/RTU, 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, transmission speed in the local bus: 500 kbps / 2 Mbps, degree of protection: IP20, including inline connectors, marking fields, and end plate

## Product Description

The bus coupler with integrated I/Os is intended for use within a Modbus RTU/ASCII 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 8 PCP devices.

## Your advantages

- Modbus connection via 9-pos. D-SUB socket
- Electrical isolation between Modbus interface and logic
- 8 digital inputs, 4 digital outputs (on-board)
- Data transmission speed in Modbus of 1.2 kbps to 115.2 kbps (configurable)
- Rotary coding switches for setting the Modbus address and for configuration
- Supported Modbus addresses from 1 to 99
- Automatic detection of the transmission speed in the local bus (500 kbps or 2 Mbps)
- Shipbuilding and UL approvals

## Commercial Data

|                                      |                     |
|--------------------------------------|---------------------|
| Item number                          | 2878696             |
| Packing unit                         | 1 pc                |
| Minimum order quantity               | 1 pc                |
| Sales Key                            | DRI                 |
| Product Key                          | DRI115              |
| Catalog Page                         | Page 108 (C-6-2019) |
| GTIN                                 | 4046356099967       |
| Weight per Piece (including packing) | 331.1 g             |
| Weight per Piece (excluding packing) | 316 g               |
| Customs tariff number                | 85176200            |
| Country of origin                    | DE                  |

# IL MOD BK DI8 DO4-PAC - Bus coupler

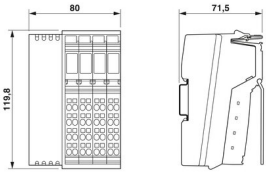


2878696

<https://www.phoenixcontact.com/in/products/2878696>

## Technical Data

### Dimensions

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

### Notes

#### Utilization restriction

|            |   |
|------------|---|
| CCCex note | Use in potentially explosive areas is not permitted in China. |
|------------|---|

### Material specifications

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

### Interfaces

#### Modbus/RTU

|                               |   |
|-------------------------------|---|
| Number of interfaces          | 1   |
| Connection method             | D-SUB-9 female connector  |
| Note on the connection method | Electrically isolated supply, shielding directly connected to functional ground |
| Transmission speed            | 1.2 kBit/s ... 115.2 kBit/s (can be parameterized)                              |

#### Inline local bus

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

### 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. 8                                      |
| Number of supported branch terminals with remote bus branch | 0   |

#### Module

|               |      |
|---------------|------|
| ID code (hex) | none |
|---------------|------|

# IL MOD BK DI8 DO4-PAC - Bus coupler



2878696

<https://www.phoenixcontact.com/in/products/2878696>

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

## 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   |

## Product properties

|      |         |
|------|---------|
| Type | modular |
|------|---------|

# IL MOD BK DI8 DO4-PAC - Bus coupler



2878696

<https://www.phoenixcontact.com/in/products/2878696>

|                      |  |
|----------------------|--|
| Product type         | I/O component  |
| Product family       | Inline   |
| Scope of delivery    | including inline connectors, marking fields, and end plate |
| No. of channels      | 12   |
| Diagnostics messages | Short-circuit or overload of the digital outputs yes       |
|                      | Sensor supply failure yes                                  |
|                      | Failure of the actuator supply yes                         |

## Insulation characteristics

|                      |                              |
|----------------------|------------------------------|
| Overvoltage category | II (IEC 60664-1, EN 60664-1) |
| Pollution degree     | 2 (IEC 60664-1, EN 60664-1)  |

## Electrical properties

|   |        |
|---|--------|
| No. of channels                                 | 12     |
| Maximum power dissipation for nominal condition | 23.5 W |

## Potentials

|                   |                          |
|-------------------|--------------------------|
| Power consumption | typ. 3 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. 0.94 A (with max. number of connected I/O terminal blocks)    |
|                      | typ. 40 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. 3 mA (without connected peripherals)                          |

## Connection data

Connection technology

# IL MOD BK DI8 DO4-PAC - Bus coupler



2878696

<https://www.phoenixcontact.com/in/products/2878696>

|                 |                  |
|-----------------|------------------|
| 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> |
| 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 ... 60 °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)  | -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) |
|------------------|---------------------------------------|

## Mounting

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

# IL MOD BK DI8 DO4-PAC - Bus coupler

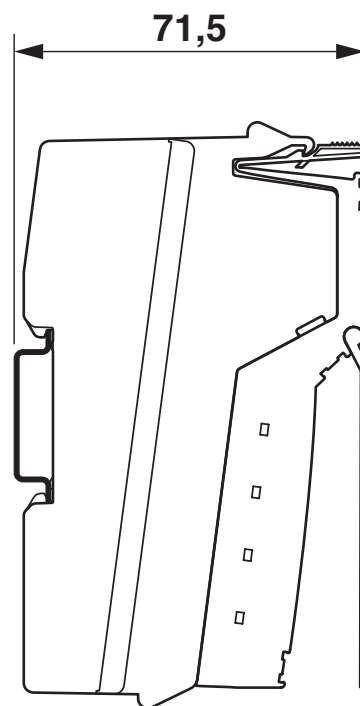
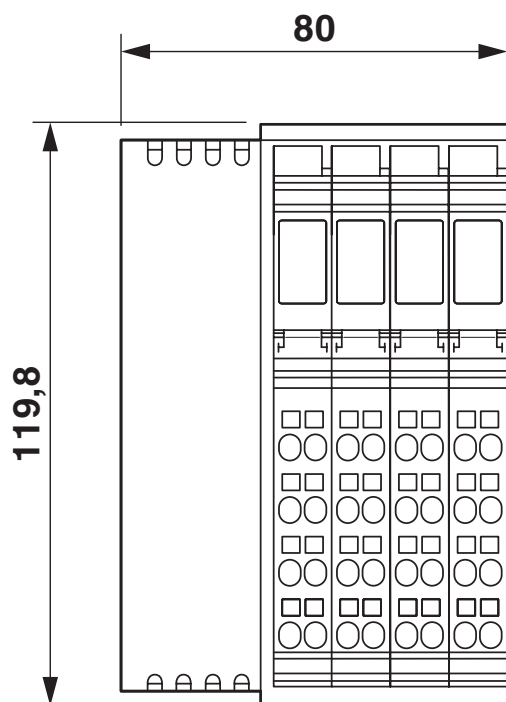
2878696

<https://www.phoenixcontact.com/in/products/2878696>



## Drawings

Dimensional drawing



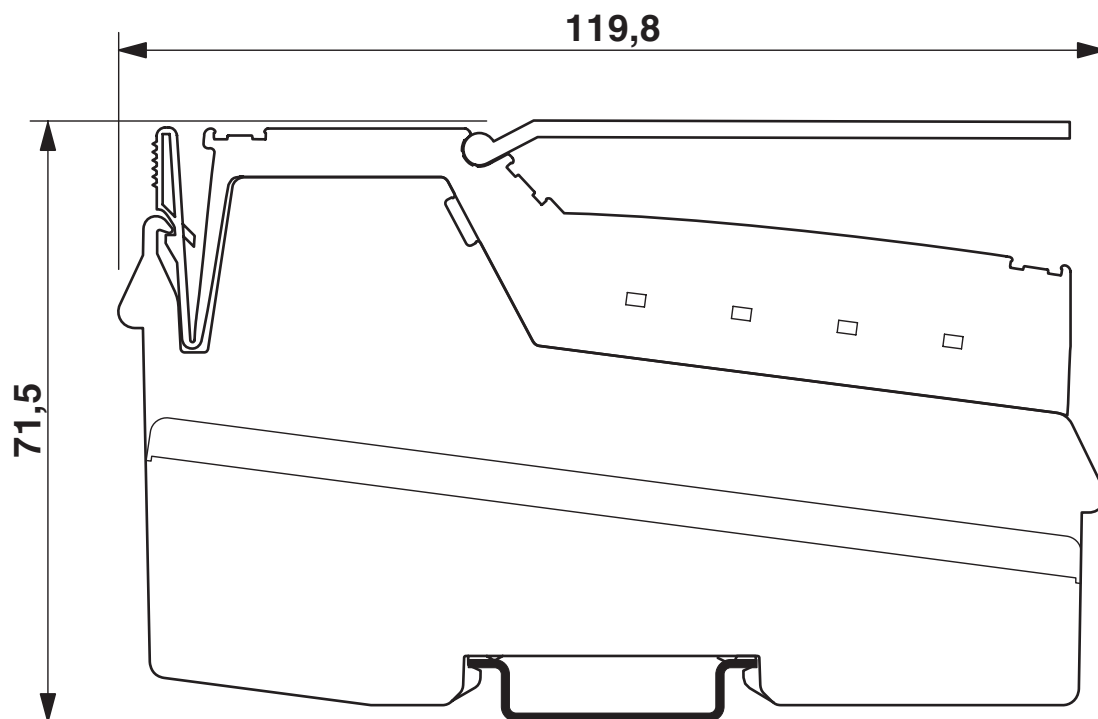
# IL MOD BK DI8 DO4-PAC - Bus coupler

2878696

<https://www.phoenixcontact.com/in/products/2878696>



Dimensional drawing



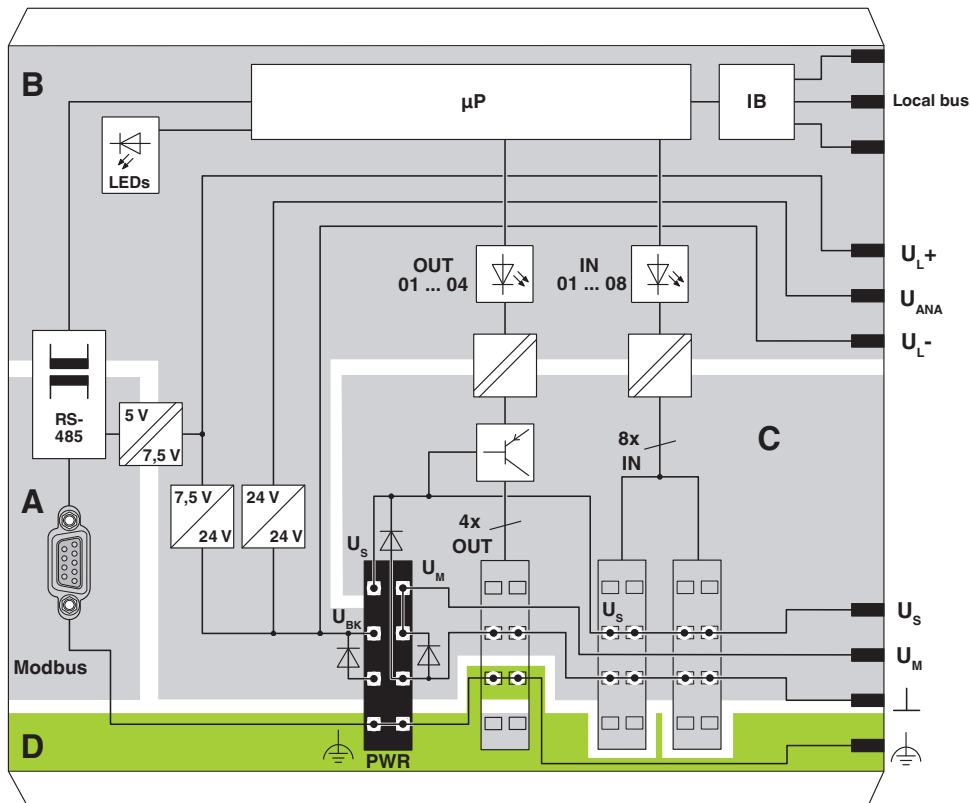
# IL MOD BK DI8 DO4-PAC - Bus coupler



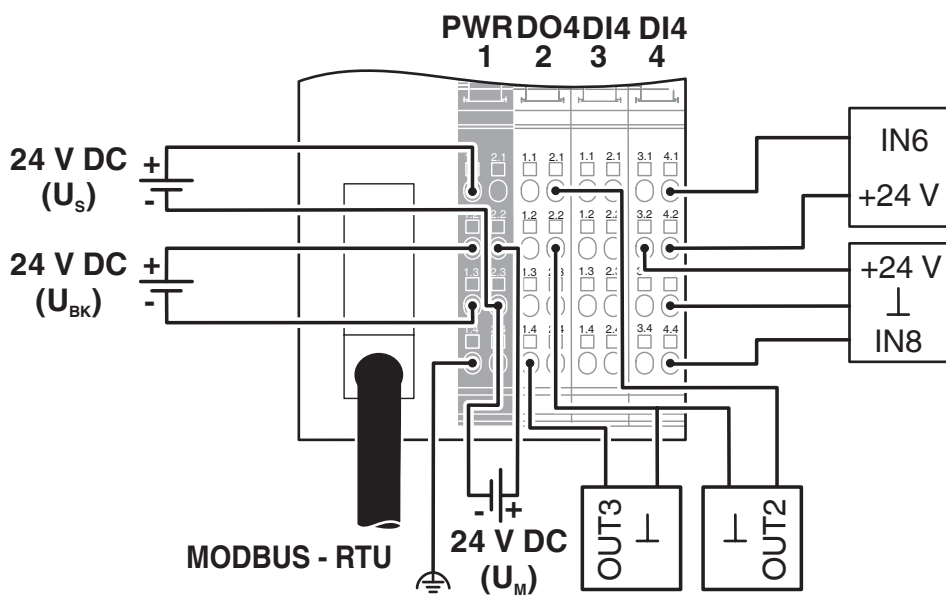
2878696

<https://www.phoenixcontact.com/in/products/2878696>

Block diagram



Connection diagram





# IL MOD BK DI8 DO4-PAC - Bus coupler



2878696

<https://www.phoenixcontact.com/in/products/2878696>

## Approvals



**cUL Recognized**  
Approval ID: FILE E 140324



**UL Recognized**  
Approval ID: FILE E 140324



**EAC**  
Approval ID: TR TS\_S\_03508-21



**DNV GL**  
Approval ID: TAA00001KV



**LR**  
Approval ID: LR22191720TA



**BV**  
Approval ID: 21595/C0 BV



**UL Recognized**  
Approval ID: FILE E 140324



**EAC**  
Approval ID: TR TS\_S\_03508-21



**cUL Recognized**  
Approval ID: FILE E 140324



**BV**  
Approval ID: 21595/C0 BV



**DNV GL**  
Approval ID: TAA00001KV



**LR**  
Approval ID: LR22191720TA

# IL MOD BK DI8 DO4-PAC - Bus coupler



2878696

<https://www.phoenixcontact.com/in/products/2878696>



**ATEX**

Approval ID: PxCIF05ATEX2878696X



**ATEX**

Approval ID: PxCIF05ATEX2878696X

# IL MOD BK DI8 DO4-PAC - Bus coupler



2878696

<https://www.phoenixcontact.com/in/products/2878696>

## Classifications

### ECLASS

|             |          |
|-------------|----------|
| ECLASS-11.0 | 27242608 |
| ECLASS-12.0 | 27242608 |
| ECLASS-13.0 | 27242608 |

### ETIM

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

### UNSPSC

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

# IL MOD BK DI8 DO4-PAC - Bus coupler



2878696

<https://www.phoenixcontact.com/in/products/2878696>

## Environmental Product Compliance

|            |   |
|------------|---|
| China RoHS | Environmentally friendly use period: unlimited = EFUP-e |
|            | No hazardous substances above threshold values          |

# IL MOD BK DI8 DO4-PAC - Bus coupler

2878696

<https://www.phoenixcontact.com/in/products/2878696>



## Accessories

### CLIPFIX 35 - End clamp

3022218

<https://www.phoenixcontact.com/in/products/3022218>



Quick mounting end clamp for NS 35/7,5 DIN rail or NS 35/15 DIN rail, with marking option, width: 9.5 mm, color: gray

---

### ESL 62X46 - Insert strip

0809502

<https://www.phoenixcontact.com/in/products/0809502>



Insert strip, Sheet, white, unlabeled, can be labeled with: Office printing systems: Laser printer, mounting type: insert, lettering field size: 62 x 46 mm, Number of individual labels: 15

# IL MOD BK DI8 DO4-PAC - Bus coupler

2878696

<https://www.phoenixcontact.com/in/products/2878696>



## IB IL FIELD 8 - Labeling field

2727515

<https://www.phoenixcontact.com/in/products/2727515>

Labeling field, width: 48.8 mm



---

## ESL 62X10 - Insert strip

0809492

<https://www.phoenixcontact.com/in/products/0809492>

Insert strip, Sheet, white, unlabeled, can be labeled with: Office printing systems:  
Laser printer, mounting type: insert, lettering field size: 62 x 10 mm, Number of  
individual labels: 72



# IL MOD BK DI8 DO4-PAC - Bus coupler

2878696

<https://www.phoenixcontact.com/in/products/2878696>



## IB IL FIELD 2 - Labeling field

2727501

<https://www.phoenixcontact.com/in/products/2727501>

Labeling field, width: 12.2 mm



---

## IL BKDIO-PLSET - Connector set

2878599

<https://www.phoenixcontact.com/in/products/2878599>

Connector set, for Inline bus coupler with I/Os mounted in rows



# IL MOD BK DI8 DO4-PAC - Bus coupler

2878696

<https://www.phoenixcontact.com/in/products/2878696>



## SUBCON-PLUS-MODBUS/IL/BK - D-SUB bus connector

2310808

<https://www.phoenixcontact.com/in/products/2310808>



D-SUB connector, 9-pos., male connector, two 35° cable entries, bus system: for Inline Modbus RTU/ASCII bus coupler termination resistance can be connected via slide switch, pin assignment: 3, 5, 6, 8; screw connection terminal blocks

---

Phoenix Contact 2023 © - all rights reserved

<https://www.phoenixcontact.com>

PHOENIX CONTACT (I) Pvt. Ltd.

A-58/2, Okhla Industrial Area, Phase - II, New Delhi-110 020

+91.1275.71420

[info@phoenixcontact.co.in](mailto:info@phoenixcontact.co.in)