IB IL 230 PWR IN/F-D (-PAC)



Inline power terminal, 230 V AC, with fuse and diagnostics

AUTOMATION

Data sheet
7187_de_01

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1 Description

This terminal is designed for use within an Inline station.
It enables input of the 230-V-AC-supply voltage into a 230-V-AC area of an Inline station.

The end clamp (IB IL AC END) that is used for terminating the 230-V-AC area is supplied as standard.

The terminal is equipped with elements for protection against surge voltage. The internal fuse protects the L phase.

The terminal is equipped with an LED for diagnostics and occupies two input data bits, which are used to indicate the presence of the supply voltage and the state of the fuse

Features

- Supplying the L phase (230 V AC)
- Diagnostic indicators
- Protecting the L phase by an internal fuse

WARNING: dangerous contact voltage

Connecting and disconnecting the Inline terminals for the 230 V AC voltage range is only permitted when the power supply is disconnected!

This data sheet is only valid in association with the IL SYS INST UM E user manual.

Make sure you always use the latest documentation.
It can be downloaded from the product at www.phoenixcontact.net/catalog.

2 Table of contents

1 Description 1
2 Table of contents 2
3 Ordering data 3
4 Technical data 3
5 Internal circuit diagram 5
6 Intended use 6
7 Local diagnostic indicators 6
8 Terminal point assignment 7
9 Connection example 7
10 Installation and startup 7
11 Process data 8

3 Ordering data

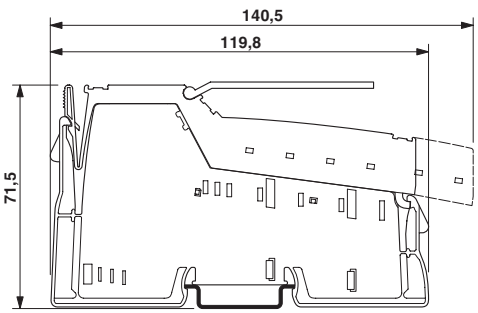
Description	Type	Order No.	Pcs. / Pkt.
Inline power terminal, complete with accessories (connector and labeling field), 230 V AC, with fuse and diagnostics	IB IL 230 PWR IN/F-D-PAC	2878971	1
Inline power terminal, without accessories, 230 V AC, with fuse and diagnostics	IB IL 230 PWR IN/F-D	2878081	1

Accessories	Type	Order No.	Pcs. / Pkt.
Connector set, for Inline input terminal blocks with AC voltage (Plug/Adapter)	IB IL AC-PWR-IN-PLSET	2740180	1
Labeling field, width: 12.2 mm (Marking)	IB IL FIELD 2	2727501	10
Insert strip for laser printer, lettering field: 62 x 10 mm (Marking)	ESL 62X10	0809492	1
Replacement fuse (Fuse)	SI 5X20 6,3 A T DIN 41662	2726104	10

Documentation	Type	Order No.	Pcs. / Pkt.
User manual, English, Automation terminals of the Inline product range	IL SYS INST UM E	-	-

4 Technical data

Dimensions (nominal sizes in mm)



Width	36.6 mm
Height	119.8 mm
Depth	71.5 mm
Wide power terminal block	24.4 mm
Wide end terminal block	12.2 mm

General data

Color	Gray
Weight	80 g
Mounting type	DIN rail
Ambient temperature (operation)	-25 °C ... 55 °C
Ambient temperature (storage/transport)	-25 °C ... 85 °C
Permissible humidity (operation)	10 % ... 95 % (according to DIN EN 61131-2)
Permissible humidity (storage/transport)	10 % ... 95 % (according to DIN EN 61131-2)

General data

Air pressure (operation)	70 kPa ... 106 kPa (up to 2000 m above mean sea level)
Air pressure (storage/transport)	70 kPa ... 106 kPa (up to 3000 m above mean sea level)
Degree of protection	IP20
Protection class	I, IEC 61140, EN 61140, VDE 0140-1

Connection data

Name	Inline connectors
Connection method	Spring-cage connection
Conductor cross section solid / stranded	0.08 mm² ... 1.5 mm²
Conductor cross section [AWG]	28 ... 16

Interface

Interface	Inline local bus
Connection method	Inline data jumper

Power consumption

Main circuit supply U_M	230 V AC (nominal value)
Peripherals voltage range	207 V AC ... 253 V AC (including all tolerances, including ripple)
Power supply at U_M	8 A (nominal value)
Communications power U_L	7.5 V DC (via voltage jumper)
Current consumption from U_L	25 mA

Programming Data

ID code (hex)	BE
ID code (dec.)	190
Length code (hex)	C2
Length code (dec.)	194
Process data channel	2 Bit
Input address area	2 Bit
Output address area	0 Byte
Parameter channel (PCP)	0 Byte
Register length	2 Bit

For the programming data/configuration data of other bus systems, please refer to the corresponding electronic device data sheet (e.g., GSD, EDS).

PROFIBUS telegram data

Required parameter data	1 Byte
Need for configuration data	4 Byte

Electrical isolation/isolation of the voltage areas

5 V supply, incoming remote bus/7.5 V supply (bus logics)	500 V AC , 50 Hz , 1 min
5 V supply, outgoing remote bus/7.5 V supply (bus logics)	500 V AC , 50 Hz , 1 min
7.5 V supply (bus logic) / peripheral range 230 V AC	2500 V AC , 50 Hz , 1 min
7.5 V supply (bus logic) / peripheral range 230 V AC (routine test)	1200 V AC , 50 Hz , 1 min
Peripheral range 230 V AC / PE	500 V AC , 50 Hz , 1 min
Output / Phase	500 V AC , 50 Hz , 1 min

Approvals

For the latest approvals, please visit www.phoenixcontact.net/catalog.

5 Internal circuit diagram

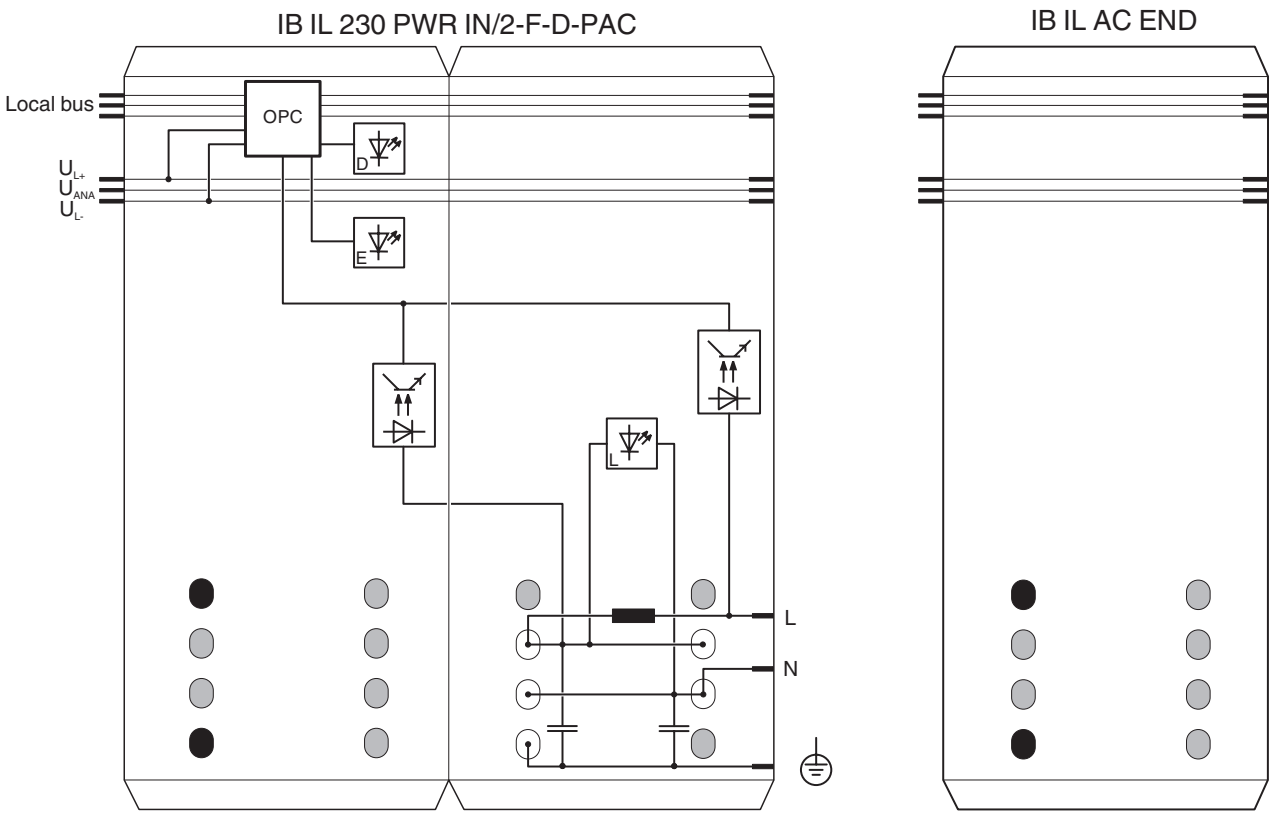
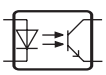


Figure 1 Internal wiring of the terminal points

Key:



Optocoupler



LED



Protocol chip
(Bus logic including voltage conditioning)

Terminal point without metal contact

Terminal point without metal contact with filler plugs



Explanation for other used symbols has been provided in the IL SYS INST UM E user manual.

6 Intended use

The terminal is only to be used within an Inline station in accordance with the specifications in the data sheet and IL SYS INST UM E user manual. Phoenix Contact accepts no liability when used for anything other than its intended purpose.

7 Local diagnostic indicators

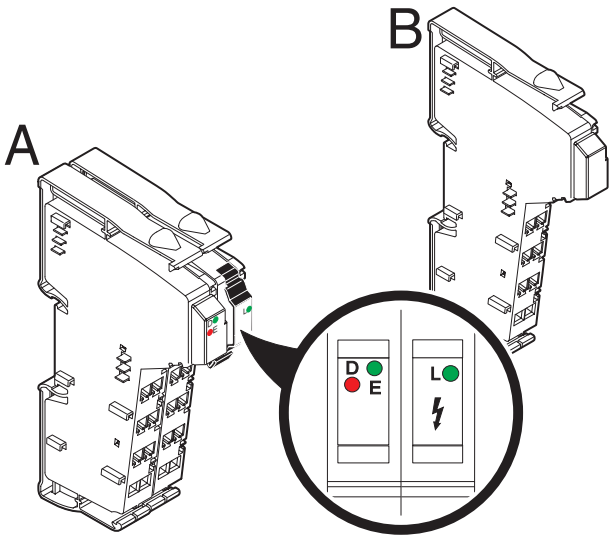


Figure 2 Local diagnostic indicators

A	Power terminal
B	End terminal

LED	Color	Meaning
D	Green	Diagnostics (bus and logic voltage)
E	Red	Fuse
	Red off	Fuse OK
	Red off	Fuse blown
L	Green	Supply voltage 230 V AC
	Green OFF	No supply voltage
	Green ON	Supply voltage is available

If there is no L phase or the fuse has blown or is missing, an I/O error message is generated for the higher-level control or computer system.

A blown or missing fuse is indicated via both diagnostics displays. The LED E lights up and the green LED D flashes at 2 Hz.

Function identification

Flashing white light

8 Terminal point assignment

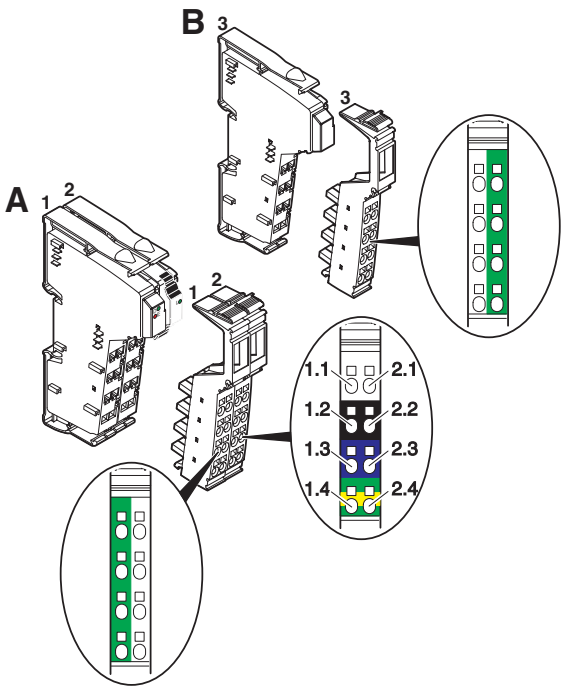


Figure 3 Terminal point assignment

Terminal point	Designation	Assignment
Power terminal (A)		
Connector 1		
All		Not used
Connector 2 (marked according to function)		
1.1 / 2.1		Not used
1.2 / 2.2	L	Supply points for the phase of the L supply; Terminal points bridged internally
1.3 / 2.3	N	Neutral conductor connection; terminal points bridged internally
1.4	PE	Protective conductor connection; the contact is connected directly to the PE potential jumper. Ground the terminal via the PE connection! This ensures protective earth ground connection of all terminals within this area when the 230 V AC area is correctly established.
2.4		Not used
End clamp (B)		
Connector 3		
All		Not used

9 Connection example

WARNING: dangerous contact voltage

Protect the 230 V AC supply via an external fuse!

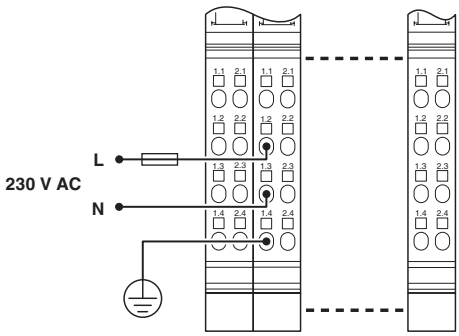


Figure 4 Typical connection of the supply voltage

10 Installation and startup

Strictly observe the instructions in the data sheet and the IL SYS INST UM E user manual during installation and startup.

Installing the system

Install the system according to the requirements of EN 50178!

Only qualified personnel may work on low voltage area Inline terminals.

Qualified personnel are people who, because of their education, experience and instruction and their knowledge of relevant standards, regulations, accident prevention and service conditions, have been authorized by those responsible for the safety of the plant, to carry out any required operations and who are able to recognize and avoid any possible dangers. (definitions for skilled workers according to EN 50110-1:1996).

WARNING: dangerous contact voltage

Please be aware of dangerous voltages when working on circuits that do not meet SELV requirements.

Connecting and disconnecting the Inline terminals for the 230 V AC voltage range is only permitted when the power supply is disconnected!

When working on the terminals and wiring, always switch off the supply voltage and ensure it cannot be switched on again.

Failure to observe these instructions can lead to damage to health or even life-threatening injuries.

WARNING: dangerous contact voltage in the event of ground faults

(if for example, the FI switch is triggered or star point is "exposed")

Only operate Inline terminals for 230 V AC voltage range in grounded AC voltage networks.

WARNING:multiple supplies are not permitted!

The supply voltage may only be connected to the intended power terminal.

The connecting cables of all actuators and sensors may only be connected to the Inline AC terminals.

Do not use external busbars for group potentials!

Installing the Inline station

The maximum total current flowing through the potential jumpers is 8 A.

WARNING:

Use the intended power connector for supplying the voltage.
The full current carrying capacity is ensured by internal bridging of the terminal points (see connection assignment).

If it is necessary to establish another voltage range behind the 230 V AC area, terminate the 230 V area with an end clamp and begin the new voltage area with a new power terminal.

Startup of an Inline station

An Inline station may only be put into operation when it is completely installed. That means:

– all terminals must be properly snapped in with their connectors.
– The station must be terminated with the end plate and the two end clamps.

Observe the specifications in the
IL SYS INST UM E user manual on the low voltage area.

11 Process data

The input process data only maps the status of the fuse and the main voltage.

(Byte.Bit) view		0.1	0.0
Assignment	Phase L exists, fuse is OK	1	1
	Phase L exists, fuse has blown or is missing	0	1
	Phase L does not exist, fuse has blown or is missing	0	0

For the assignment of the illustrated (byte.bit) view to your INTERBUS control or computer system, please refer to the
DB GB IBS SYS ADDRESS data sheet.