

ILB PN 24 DI16 DIO16-EF - I/O module



2702289

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Inline, Block IO, PROFINET, RJ45 jack, Digital inputs: 32 (16 fixed and 16 freely selectable), 24 V DC, connection technology: 3-conductor, Digital outputs: 16, 24 V DC, connection technology: 2-conductor, PROFINET, -IRT, -MRP, -Fast Startup, degree of protection: IP20, including Inline connector

Product description

The module is designed for use within a PROFINET network. It is used to acquire and output digital signals.

Your advantages

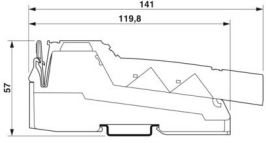
- 16/32 inputs, 24 V DC
- 16 outputs, 24 V DC, 500 mA
- 2 RJ45 jacks at a 45° angle

Commercial data

Item number	2702289
Packing unit	1 pc
Sales key	DR01
Product key	DRI1AA
Catalog page	Page 164 (C-6-2019)
GTIN	4055626073323
Weight per piece (including packing)	563.9 g
Weight per piece (excluding packing)	563.9 g
Customs tariff number	85389091
Country of origin	DE

Technical data

Dimensions

Dimensional drawing	
Width	156 mm
Height	141 mm
Depth	57 mm
Note on dimensions	Specifications with connectors

Interfaces

PROFINET

No. of channels	2
Connection method	RJ45 jack
Note on the connection method	Autonegotiation and autocrossing, X2: internally crossed to enable "Fast Startup" with patch cable
Designation connection point	X1, X2
Transmission speed	100 Mbps (acc. to PROFINET standard)
Transmission physics	Ethernet in RJ45 twisted pair

System properties

PROFINET

Device function	PROFINET device
Specification	Version 2.3
Update rate	min. 1 ms (up to max. 512 ms, adjustable)
Conformance Class	C

Input data

Digital:

Input name	Digital inputs
Description of the input	EN 61131-2 types 1 and 3
Number of inputs	32 (16 fixed and 16 freely selectable)
Connection method	Inline connector
Connection technology	3-conductor
Input voltage	24 V DC
Input voltage range "0" signal	-3 V DC ... 5 V DC
Input voltage range "1" signal	11 V DC ... 30 V DC
Nominal input voltage U_{IN}	24 V DC

ILB PN 24 DI16 DIO16-EF - I/O module



2702289

<https://www.phoenixcontact.com/us/products/2702289>

Nominal input current at U_{IN}	approx. 2.4 mA
Typical input current per channel	typ. 5 mA
Typical response time	approx. 500 μ s

Output data

Digital:

Output name	Digital outputs
Connection method	Inline connector
Connection technology	2-conductor
Number of outputs	16
Protective circuit	Short-circuit and overload protection; Free-wheeling diode, integrated per channel
Output voltage	24 V DC -1 V (At nominal current)
Limitation of the voltage induced on circuit interruption	-25.8 V ... -15 V
Maximum output current per channel	500 mA
Maximum output current per module	8 A
Nominal output voltage	24 V DC
Output current when switched off	max. 300 μ 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 Ω)
Nominal load, lamp	12 W
Nominal load, ohmic	12 W (48 Ω)
Reverse voltage resistance to short pulses	limited protection up to 0.5 A for 1 s
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
Overcurrent shut-down	as of 0.7 A

Product properties

Product type	I/O component
Product family	Inline
Type	Block design
Scope of delivery	including Inline connector
Special properties	PROFINET, -IRT, -MRP, -Fast Startup
Diagnostics messages	Short-circuit or overload of the digital outputs Message in the diagnostics register
	Short circuit sensor supply U_{S1} or U_{S2} Message in the diagnostics register
	Sensor supply U_{S1} not present Message in the diagnostics register
	Sensor supply U_{S2} not present Message in the diagnostics register

Insulation characteristics

Overvoltage category	II
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Electrical properties

Supply:

Designation	Logic (U_L)
Connection method	Inline connector
Supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Current consumption	max. 75 mA

Supply:

Designation	Sensor supply (U_{S1} , U_{S2})
Connection method	Inline connector
Supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Current consumption	max. 4 A (max. 2 A from U_{S1} and 2 A from U_{S2})

Supply:

Designation	Actuator supply (U_{A1} , U_{A2})
Connection method	Inline connector
Supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Current consumption	max. 8 A (max. 4 A from U_{A1} and 4 A from U_{A2})

Electrical isolation/isolation of the voltage ranges

Test voltage: I/Os / logic	500 V AC, 50 Hz, 1 min.
Test voltage: I/O/functional ground	500 V AC, 50 Hz, 1 min.
Test voltage: Logic/functional ground	500 V AC, 50 Hz, 1 min.
Test voltage: Ethernet interface signals / logic	1500 V AC, 50 Hz, 1 min.

Connection data

Connection technology

Connection name	Inline connector
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Conductor connection

Connection method	Spring-cage connection
Conductor cross section rigid	0.08 mm ² ... 1.5 mm ²
Conductor cross section flexible	0.08 mm ² ... 1.5 mm ²
Conductor cross section AWG	28 ... 16
Stripping length	8 mm

Inline connector

Connection method	Spring-cage connection
Conductor cross section, rigid	0.08 mm ² ... 1.5 mm ²
Conductor cross section, flexible	0.08 mm ² ... 1.5 mm ²
Conductor cross section AWG	28 ... 16

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Stripping length	8 mm
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Environmental and real-life conditions

Ambient conditions

Ambient temperature (operation)	-25 °C ... 60 °C
Degree of protection	IP20
Air pressure (operation)	80 kPa ... 108 kPa (up to 2000 m above sea level)
Air pressure (storage/transport)	66 kPa ... 108 kPa (up to 3500 m above sea level)
Ambient temperature (storage/transport)	-25 °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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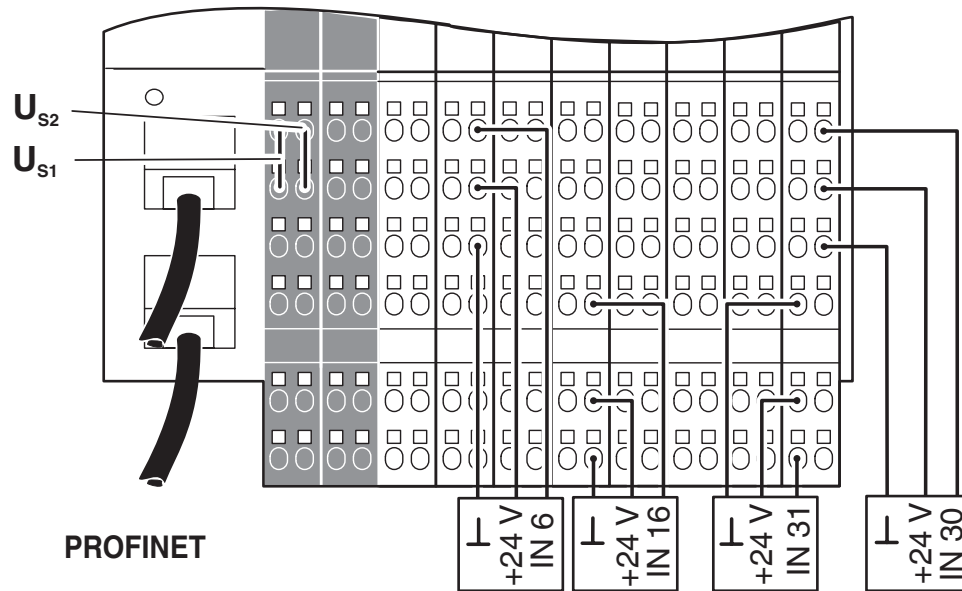
ILB PN 24 DI16 DIO16-EF - I/O module

2702289

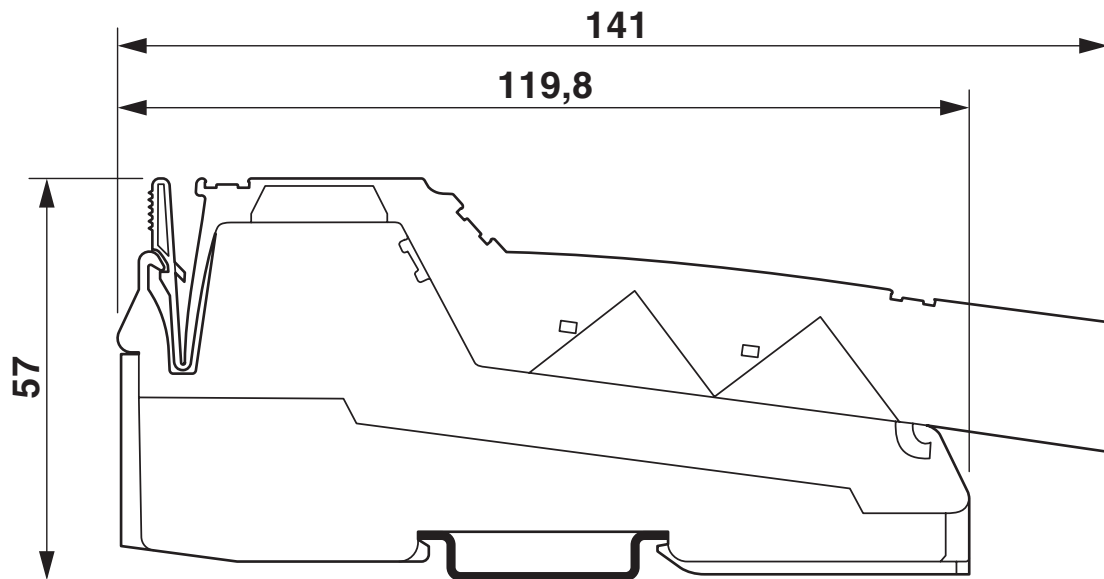
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Drawings

Connection diagram



Dimensional drawing



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Classifications

ECLASS

ECLASS-11.0

27242604

ETIM

ETIM 8.0

EC001599

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-E
	No hazardous substances above the limits

EU REACH SVHC

REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
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Accessories

FL PLUG RJ45 GR/2 - RJ45 connector

2744856

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RJ45 connector, design: RJ45, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5 (IEC 11801:2002), material: Plastic, connection method: Crimp connection, connection cross section: AWG 26- 24, cable outlet: straight, color: gray, Ethernet

FL PLUG RJ45 GN/2 - RJ45 connector

2744571

<https://www.phoenixcontact.com/us/products/2744571>



RJ45 connector, design: RJ45, degree of protection: IP20, number of positions: 8, 1 Gbps, CAT5 (IEC 11801:2002), material: Plastic, connection method: Crimp connection, connection cross section: AWG 26- 24, cable outlet: straight, color: green, Ethernet

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CLIPFIX 35-5 - End bracket

3022276

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Quick mounting end clamp for NS 35/7,5 DIN rail or NS 35/15 DIN rail, with marking option, with parking option for FBS...5, FBS...6, KSS 5, KSS 6, width: 5.15 mm, color: gray

IB IL FIELD 2 - Marking field

2727501

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Marking field, width: 12.2 mm



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ESL 62X10 - Insert strip

0809492

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Insert strip, Sheet, white, unlabeled, can be labeled with: Office printing systems, CMS-P1-PLOTTER, mounting type: insert, lettering field size: 62 x 10 mm, Number of individual labels: 72



ZBF 6:UNBEDRUCKT - Zack Marker strip, flat

0808710

<https://www.phoenixcontact.com/us/products/0808710>

Zack Marker strip, flat, Strip, white, unlabeled, can be labeled with: PLOTMARK, CMS-P1-PLOTTER, mounting type: snapped, for terminal block width: 6.2 mm, lettering field size: 5.15 x 6.15 mm, Number of individual labels: 10



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ZBFM 6/WH:UNBEDRUCKT - Flat zack marker sheet

0803618

<https://www.phoenixcontact.com/us/products/0803618>

Flat zack marker sheet, Sheet, white, unlabeled, can be labeled with: CMS-P1-PLOTTER, PLOTMARK, mounting type: snapped, for terminal block width: 6.2 mm, lettering field size: 5 x 5.5 mm, Number of individual labels: 100



FL CAT5 HEAVY - Data cable

2744814

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CAT5-SF/UTP cable (J-02YS(ST)C HP 2 x 2 x 24 AWG), heavy-duty installation cable, 2 x 2 x 0.22 mm², solid conductor, shielded, outer sheath: 7.8 mm diameter, inner sheath: 5.75 mm ± 0.15 mm diameter



ILB PN 24 DI16 DIO16-EF - I/O module

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FL CAT5 FLEX - Installation cable

2744830

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By the meter, Installation cable, Ethernet CAT5 (100 Mbps), shielded, PUR halogen-free, water blue RAL 5021, 4-wire (2x2xAWG26/7, SF/UTP), color single wire: white/orange-orange, white/green-green, cable length: Free entry (1.0 ... 1000.0 m)

FL CRIMPTOOL - Assembly tool

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Crimping pliers, for assembling the RJ45 plugs FL PLUG RJ45..., for assembly on site

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IB IL SCN-PWR IN-CP - Inline connector

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Connector, colored, for Inline power and segment terminal blocks



IB IL SCN-12-ICP - Inline connector

2727611

<https://www.phoenixcontact.com/us/products/2727611>

Connector, color coded, for digital 4, or 16-channel Inline input terminals



IB IL SCN-12-OCP - Inline connector

2727624

<https://www.phoenixcontact.com/us/products/2727624>

Connector, colored identification, for digital 4, or 16-channel Inline output terminal blocks



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