Fieldbus connection
M12 socket

Fieldbus status display

1 | Tx+
2 | Rx+
3 | Tx-
4 | Rx-
Housing | Shield

Module or IP-Link
status display

IP-Link interface

3 types of connection

1 | 8 mm snap type connector
2 | M8 screw type connector
3 | M12 screw type connector

Power supply feed

Power supply downstream
connection

1 | + 24 V DC Us
2 | + 24 V DC Up
3 | GND
4 | GND

Coupler Box
IL230x-B903

Connector
assignment
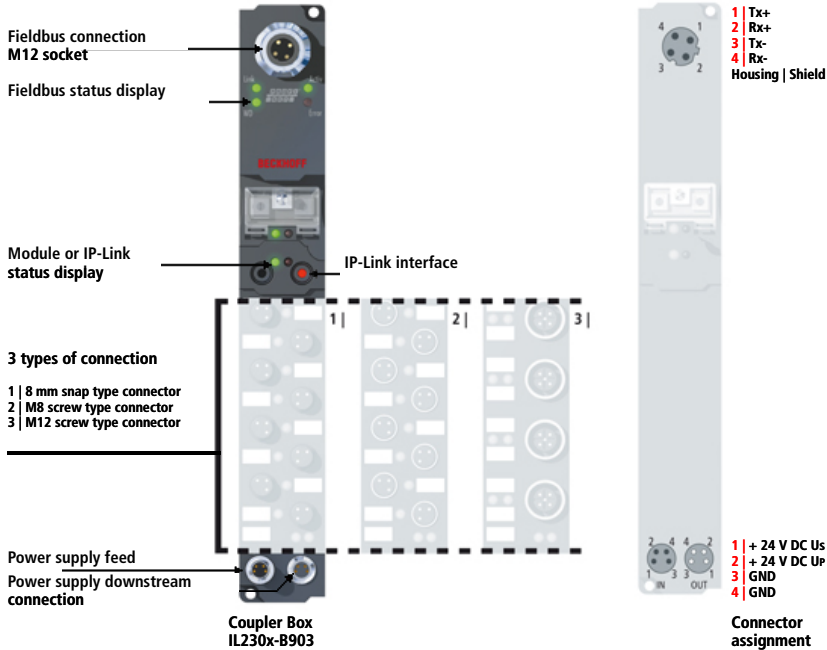
IL230x-B903 | Fieldbus Box modules for PROFINET

PROFINET is the open Industrial Ethernet standard of the PNO (PROFIBUS user organisation). Internationally established IT standards such as TCP/IP are used for communication. PROFINET IO describes data exchange between controllers and field devices. It can be used in standard Ethernet networks and networked via commercially available switches.

The IL230x-B903 Fieldbus Coupler Box connects PROFINET with the modular Extension Box modules. A configuration consists of a Coupler Box and up to 120 different Extension Box modules. The Coupler Box detects automatically the connected extensions and allocates the inputs/outputs to the process image words.

The PROFINET Fieldbus Box supports 10 Mbit/s and 100 Mbit/s PROFINET. The PROFINET connection is established via a D-coded M12 connector. The IP address is set via a rotary switch (offset to a freely selectable start address). In networks with DHCP (a service for the allocation of the logical IP address to the physical node address [MAC-ID]) the Fieldbus Box obtains its IP address from the DHCP server.

Configuration
The IP address and other Ethernet parameters are set via two rotary selection switches. Special I/O parameters, for example the type of thermocouple that is used, can be set via KS2000.

Diagnostics
The extensive diagnostic functions of the Beckhoff devices allow rapid fault localisation. Diagnostic messages are transmitted via Ethernet and collected by the master. LEDs on the module indicate the status of the network connection, the device status, the status of the inputs and outputs and of the power supply.

Coupler Box
The PROFINET Coupler Box gathers the I/O data from the Extension Box modules over the interference-free IP-Link optical fibre cable. It detects the connected modules and automatically allocates the input and output data to the process image. The Coupler Box has four digital inputs and four digital outputs; all other signal types are available in the form of an Extension Box.

System data	PROFINET	IL230x-B903
Number of I/O stations	only limited by the IP address range
Number of I/O points	depending on controller
Data transfer medium	2 x 2 twisted pair; CAT 5 (100 Mbaud)
Distance between stations	100 m (between hub/switch and IL230x-B903)
Data transfer rates	10/100 Mbaud
Topology	star over Ethernet hub or Ethernet Switch

Technical data	IL230x-B903
Extension modules	max. 120 with max. 512 byte input and 512 byte output data
Digital peripheral signals	max. 512 inputs and 512 outputs
Analog peripheral signals	max. 127 inputs and 127 outputs
Protocol	PROFINET IO
Configuration possibility	via KS2000
Data transfer rates	10/100 Mbaud, automatic recognition of the transmission rate
Bus interface	1 x M12 socket, 4-pin (D-coded)
Power supply	control voltage: 24 V DC (-15 %/+20 %); load voltage: according to I/O type
Power supply connection	feed: 1 x M8 male socket, 4-pin; downstream connection: 1 x M8 female socket, 4-pin
Box supply current	typ. 150 mA + current consumption of sensors, max. 0.5 A
Auxiliary power current	according to I/O type
Electrical isolation	control voltage/fieldbus: no, control voltage/inputs or outputs: according to I/O type
Weight	approx. 250 g
Operating/storage temperature	0…+55 °C/-25…+85 °C
Vibration/shock resistance	conforms to EN 60068-2-6/EN 60068-2-27
EMC immunity/emission	conforms to EN 61000-6-2/EN 61000-6-4
Protect. class/installation pos.	IP 65/66/67 (conforms to EN 60529)/variable
Approvals	CE, UL

Accessories	
TS6271	license for using the TwinCAT PROFINET RT Controller
KS2000	configuration software for extended parameterisation
Cordsets	cordsets and connectors

System	
PROFINET	For further PROFINET products please see the system overview.

Coupler Box

The Coupler Box for PROFINET has four digital inputs and four digital outputs, optionally with snap type 8 mm diameter connectors, screw type M8 or screw type M12 connectors. Up to 120 Extension Box modules can be connected via the IP-Link communication facility.

IL230x-B903	Coupler Box for PROFINET systems	Plug
Digital combi		
IL2300-B903	Coupler Box, 4 digital inputs 24 V, 3 ms filter, 4 digital outputs 24 V, 0.5 A	8 mm
IL2301-B903	Coupler Box, 4 digital inputs 24 V, 3 ms filter, 4 digital outputs 24 V, 0.5 A	M8
IL2302-B903	Coupler Box, 4 digital inputs 24 V, 3 ms filter, 4 digital outputs 24 V, 0.5 A	M12

System overview