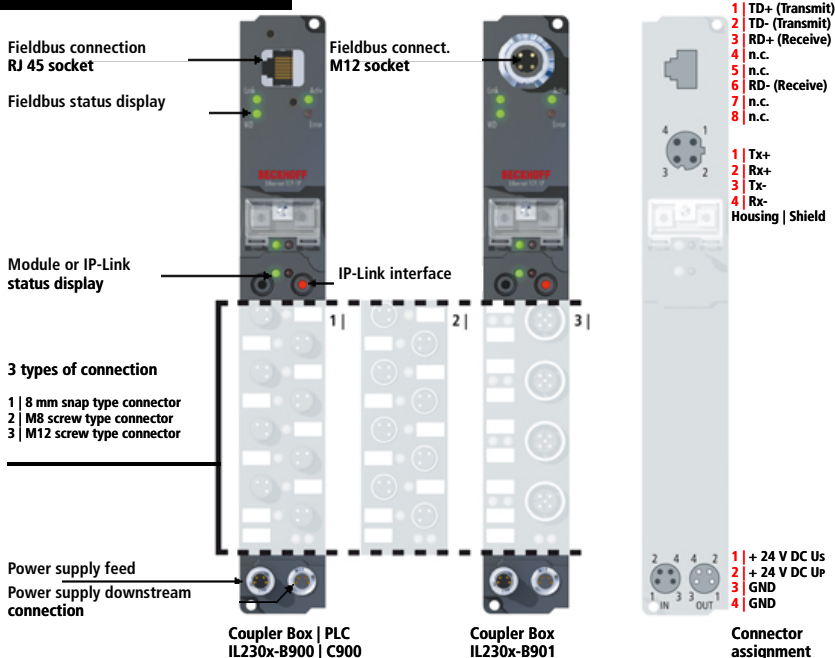


## Ethernet



# IL230x-B90x, IL230x-C900 | Fieldbus Box modules for Ethernet

**Ethernet TCP/IP** High speed, simple twisted-pair wiring, availability of industrial hubs/switches, development of appropriate application protocols – all these factors extend the range of applications for Industrial Ethernet and make it suitable for the sensor/actuator level, i.e. the typical application area of Beckhoff Fieldbus Components.

The application of Ethernet as a sensor/actuator bus is of particular interest where an Ethernet infrastructure already exists or is planned – for example in applications using PC-based control technology or in building automation.

The Ethernet Fieldbus Box supports 10 Mbit/s and 100 Mbit/s Ethernet. The Ethernet connection is established via encapsulated RJ45 connectors (-B900/-C900) or via a D-coded M12 connector (-B901). 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.

The Fieldbus Box modules for Ethernet support ADS TwinCAT system communication and real-time Ethernet. TwinCAT I/O makes available configuration tools and Windows/2000/XP drivers for programs in any desired high-level language (DLLs) and for Visual Basic applications (ActiveX). Applications with OPC interfaces can access ADS, and therefore the Ethernet Fieldbus Box, via an OPC server. In addition to ADS, the modules support Modbus (Modbus TCP), a simple, widely used master/slave protocol based on TCP/IP and real-time Ethernet.

### 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 Ethernet 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.

### PLC Box

The PLC Box is an intelligent Ethernet node that can perform decentralised processing of I/O data and execute control tasks independently of the function of the Ethernet network. The PLC Box, like the Coupler Box, has four digital inputs and four digital outputs. Up to 120 further Extension Box modules can be connected via IP-Link. The PLC Box is programmed using TwinCAT over Ethernet or through the configuration interface.

| System data               | Ethernet   IL230x-B90x, IL230x-C900                |
|---------------------------|--|
| 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 Ethernet I/O module) |
| Data transfer rates       | 10/100 Mbaud                                       |
| Topology                  | star over Ethernet hub or Ethernet Switch          |

| Technical data                   | IL230x-B900, IL230x-C900   | IL230x-B901                     |
|----------------------------------|--|---------------------------------|
| Extension modules                | max. 120 with max. 512 byte input and 512 byte output data                             |                                 |
| Digital peripheral signals       | max. 964 inputs and 964 outputs  |                                 |
| Analog peripheral signals        | max. 127 inputs and 127 outputs  |                                 |
| Protocol                         | TwinCAT ADS, Modbus TCP, Beckhoff real-time Ethernet (only IL230x-B90x)                |                                 |
| Configuration possibility        | via KS2000   |                                 |
| Data transfer rates              | 10/100 Mbaud, automatic recognition of the transmission rate                           |                                 |
| Bus interface                    | 1 x RJ45 socket  | 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               | 30 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 |  |
|-------------|--|
| KS2000      | configuration software for extended parameterisation |
| TX1200      | programming system conforms to IEC 61131-3           |
| Cordsets    | cordsets and connectors                              |

| System          |   |
|-----------------|---|
| Ethernet TCP/IP | For further Ethernet TCP/IP products please see the <a href="#">system overview</a> . |

## Coupler Box

The Coupler Box for Ethernet has 4 digital inputs and 4 digital outputs, optionally with snap type 8 mm diameter connectors, screw type M8 or M12 connectors. Up to 120 Extension Box modules can be connected via the IP-Link communication facility.

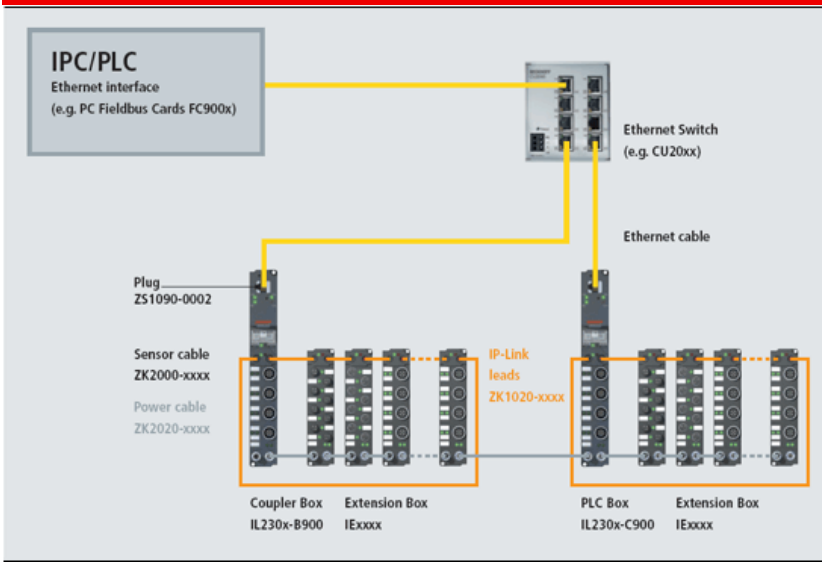
| IL230x-B900          | Coupler Box for Ethernet systems   | Plug |
|----------------------|--|------|
| <b>Digital combi</b> |  |      |
| IL2300-B900          | Coupler Box, 4 digital inputs 24 V, 3 ms filter, 4 digital outputs 24 V, 0.5 A | 8 mm |
| IL2301-B900          | Coupler Box, 4 digital inputs 24 V, 3 ms filter, 4 digital outputs 24 V, 0.5 A | M8   |
| IL2302-B900          | Coupler Box, 4 digital inputs 24 V, 3 ms filter, 4 digital outputs 24 V, 0.5 A | M12  |

## PLC Box

The PLC Box for Ethernet, programmable in accordance with IEC 61131-3, has four digital inputs and four digital outputs, optionally with snap type 8 mm diameter connectors, screw type M8 or M12 connectors. Up to 120 Extension Box modules can be connected via the IP-Link communication facility.

| IL230x-C900          | PLC Box with controller IEC 61131-3 for Ethernet systems                   | Plug |
|----------------------|--|------|
| <b>Digital combi</b> |  |      |
| IL2300-C900          | PLC Box, 4 digital inputs 24 V, 3 ms filter, 4 digital outputs 24 V, 0.5 A | 8 mm |
| IL2301-C900          | PLC Box, 4 digital inputs 24 V, 3 ms filter, 4 digital outputs 24 V, 0.5 A | M8   |
| IL2302-C900          | PLC Box, 4 digital inputs 24 V, 3 ms filter, 4 digital outputs 24 V, 0.5 A | M12  |

## System overview



## Coupler Box

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

| IL230x-B901          | Coupler Box for Ethernet systems   | Plug |
|----------------------|--|------|
| <b>Digital combi</b> |  |      |
| IL2300-B901          | Coupler Box, 4 digital inputs 24 V, 3 ms filter, 4 digital outputs 24 V, 0.5 A | 8 mm |
| IL2301-B901          | Coupler Box, 4 digital inputs 24 V, 3 ms filter, 4 digital outputs 24 V, 0.5 A | M8   |
| IL2302-B901          | Coupler Box, 4 digital inputs 24 V, 3 ms filter, 4 digital outputs 24 V, 0.5 A | M12  |

## System overview

