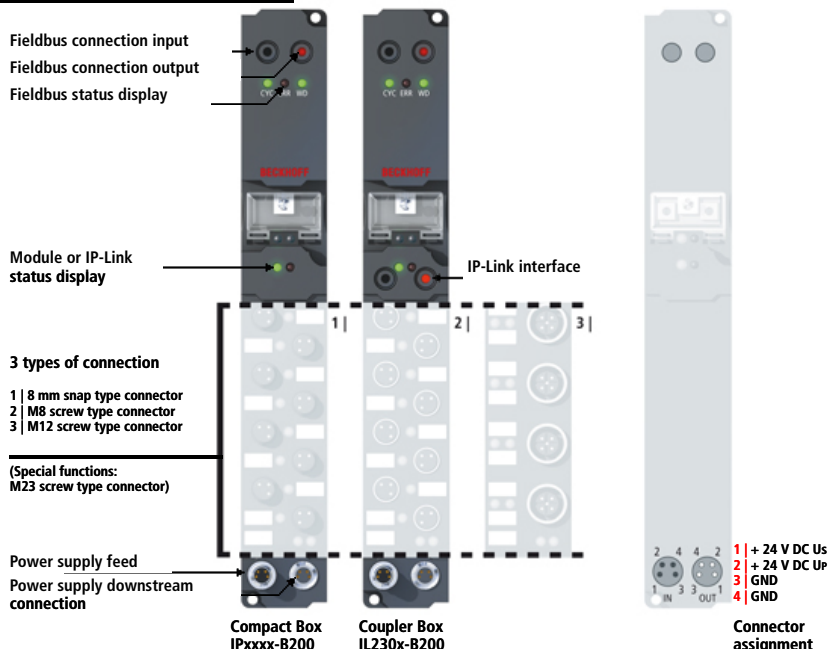


Lightbus



IPxxx-, IL230x-B200 | Fieldbus Box modules for Lightbus

LIGHTBUS The Lightbus system is a fast and secure serial fieldbus system. Immunity to electromagnetic influences, total electrical isolation of the connected modules from one another and high transmission speed even over large distances are the critical advantages of fibre optic technology. Combined with an optimised and compact telegram structure, the Lightbus achieves a very high transmission rate of 2.5 Mbaud. The Lightbus has a ring structure; up to 254 stations can be operated in one ring. Economical and easily handled standard fibre optic technology is used for the data transfer.

Configuration

The modules are automatically addressed by the master in the order they are connected. During start-up, the system will check the cable attenuation and compare the number of projected and actually connected slaves. Special I/O parameters can be set by means of the KS2000 software (serial connection to the configuration interface of the Fieldbus Box).

Diagnostics

The extensive diagnostic functions of the Beckhoff Lightbus devices allow rapid fault localisation. The error telegrams are output in special counters, so that, in case of an interruption of the fibre optic ring, the location can be determined and displayed. Additionally, each slave has various diagnostic options for reporting the current status to the master. The status of the network connection, the device status, the status of the inputs and outputs and of the power supply are displayed by LEDs.

Cables and connectors

The Beckhoff range of ready-assembled cables makes installation a great deal easier. Wiring errors are avoided, and commissioning is more rapidly completed. The range includes fieldbus cables, power supply cables, sensor cables and accessories. The plastic fibre optics are easy to make up. The Lightbus cable is identical to the fibre optic used for the IP-Link connection.

Compact Box

Compact Box modules for Lightbus are available for all relevant industrial signals. In addition to digital and analog input and output modules including thermocouple and RTD inputs, there are also incremental encoder interfaces available for displacement and angle measurement in addition to serial interfaces to solve a large number of communication tasks.

Coupler Box

The Lightbus Coupler Box gathers the I/O data from the Extension Box modules over the interference-free IP-Link fibre optic cable. It detects the connected modules and automatically allocates the input and output data to the process image. Both data consistency and a clear separation of input and output data are ensured. The Coupler Box has four digital inputs and four digital outputs. Other kinds of signals are available in the Extension Box.

System data	Lightbus IPxxx-B200, IL230x-B200
Number of I/O stations	254
Number of I/O points	16,192
Data transfer medium	fibre optic conductor: APF (plastic) fibre (1,000 µm)
Distance between stations	45 m
Data transfer time	0.26 ms in the case of 10 modules for 32 bit input and output each (without IP-Link)

Technical data	IPxxxx-B200	IL230x-B200
Extension modules	–	max. 120 with max. 512 byte input and 512 byte output data
Digital peripheral signals	according to I/O type	max. 960 inputs and 960 outputs
Analog peripheral signals	according to I/O type	max. 124 inputs and 124 outputs
Configuration possibility	via KS2000 or the controller	
Data transfer rates	2.5 Mbaud	
Bus interface	2 x fibre optic socket for plug ZS1020-0010	
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	
Auxiliary power current	according to I/O type	
Electrical isolation	control voltage/fieldbus: yes, 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
Cordsets	cordsets and connectors

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

Compact Box

The Compact Box modules for Lightbus offer a wide range of I/O functionality. All relevant industrial signals are supported. The digital inputs and outputs can be connected either with snap type 8 mm diameter plugs, screw type M8 or M12 connectors. For analog signals the M12 version is used.

IPxxxx-B200	Compact Box for Lightbus systems	Plug
Digital input		
IP1000-B200	Compact Box, 8 digital inputs 24 V DC, 3.0 ms filter	8 mm
IP1001-B200	Compact Box, 8 digital inputs 24 V DC, 3.0 ms filter	M8
IP1002-B200	Compact Box, 8 digital inputs 24 V DC, 3.0 ms filter	M12
IP1010-B200	Compact Box, 8 digital inputs 24 V DC, 0.2 ms filter	8 mm
IP1011-B200	Compact Box, 8 digital inputs 24 V DC, 0.2 ms filter	M8
IP1012-B200	Compact Box, 8 digital inputs 24 V DC, 0.2 ms filter	M12
IP1502-B200	Compact Box, 2 up/down counter, 24 V DC, 100 kHz	M12
Digital output		
IP2000-B200	Compact Box, 8 digital outputs 24 V DC, I _{MAX} = 0.5 A	8 mm
IP2001-B200	Compact Box, 8 digital outputs 24 V DC, I _{MAX} = 0.5 A	M8
IP2002-B200	Compact Box, 8 digital outputs 24 V DC, I _{MAX} = 0.5 A	M12
IP2020-B200	Compact Box, 8 digital outputs 24 V DC, I _{MAX} = 2 A (Σ 4 A)	8 mm
IP2021-B200	Compact Box, 8 digital outputs 24 V DC, I _{MAX} = 2 A (Σ 4 A)	M8
IP2022-B200	Compact Box, 8 digital outputs 24 V DC, I _{MAX} = 2 A (Σ 4 A)	M12
IP2040-B200	Compact Box, 8 digital outputs 24 V DC, I _{MAX} = 2 A (Σ 12 A)	8 mm
IP2041-B200	Compact Box, 8 digital outputs 24 V DC, I _{MAX} = 2 A (Σ 12 A)	M8
IP2042-B200	Compact Box, 8 digital outputs 24 V DC, I _{MAX} = 2 A (Σ 12 A)	M12
IP2512-B200	Compact Box, 2 digital pulse width outputs 24 V DC, I _{MAX} = 2.5 A	M12
Digital combi		
IP2300-B200	Compact Box, 4 digital inputs 24 V DC, 3 ms filter, 4 digital outputs 24 V DC, I _{MAX} = 0.5 A	8 mm
IP2301-B200	Compact Box, 4 digital inputs 24 V DC, 3 ms filter, 4 digital outputs 24 V DC, I _{MAX} = 0.5 A	M8
IP2302-B200	Compact Box, 4 digital inputs 24 V DC, 3 ms filter, 4 digital outputs 24 V DC, I _{MAX} = 0.5 A	M12
IP2310-B200	Compact Box, 4 digital inputs 24 V DC, 0.2 ms filter, 4 digital outputs 24 V DC, I _{MAX} = 0.5 A	8 mm
IP2311-B200	Compact Box, 4 digital inputs 24 V DC, 0.2 ms filter, 4 digital outputs 24 V DC, I _{MAX} = 0.5 A	M8
IP2312-B200	Compact Box, 4 digital inputs 24 V DC, 0.2 ms filter, 4 digital outputs 24 V DC, I _{MAX} = 0.5 A	M12
IP2320-B200	Compact Box, 4 digital inputs 24 V DC, 3 ms filter, 4 digital outputs 24 V DC, I _{MAX} = 2 A (Σ 4 A)	8 mm
IP2321-B200	Compact Box, 4 digital inputs 24 V DC, 3 ms filter, 4 digital outputs 24 V DC, I _{MAX} = 2 A (Σ 4 A)	M8
IP2322-B200	Compact Box, 4 digital inputs 24 V DC, 3 ms filter, 4 digital outputs 24 V DC, I _{MAX} = 2 A (Σ 4 A)	M12
IP2330-B200	Compact Box, 4 digital inputs 24 V DC, 0.2 ms filter, 4 digital outputs 24 V DC, I _{MAX} = 2 A (Σ 4 A)	8 mm
IP2331-B200	Compact Box, 4 digital inputs 24 V DC, 0.2 ms filter, 4 digital outputs 24 V DC, I _{MAX} = 2 A (Σ 4 A)	M8
IP2332-B200	Compact Box, 4 digital inputs 24 V DC, 0.2 ms filter, 4 digital outputs 24 V DC, I _{MAX} = 2 A (Σ 4 A)	M12
IP2400-B200	Compact Box, 16 digital combination inputs/outputs 24 V DC, 3 ms filter, I _{MAX} = 0.5 A	8 mm
IP2401-B200	Compact Box, 16 digital combination inputs/outputs 24 V DC, 3 ms filter, I _{MAX} = 0.5 A	M8
Analog input		
IP3102-B200	Compact Box, 4 differential analog inputs ±10 V, 16 bit	M12
IP3112-B200	Compact Box, 4 differential analog inputs 0/4...20 mA, 16 bit	M12
IP3202-B200	Compact Box, 4 analog inputs for resistance thermometer (RTD), PT100...1000, Ni100, 16 bit	M12
IP3312-B200	Compact Box, 4 analog inputs for thermocouple, types J, K, L, B, E, N, R, S, T, U, 16 bit	M12
Analog output		
IP4112-B200	Compact Box, 4 analog outputs 0/4...20 mA, 16 bit	M12
IP4132-B200	Compact Box, 4 analog outputs ±10 V, 16 bit	M12
Special functions		
IP5009-B200	Compact Box, 1 SSI encoder interface	M23
IP5109-B200	Compact Box, 1 incremental encoder interface with complementary inputs, 1 MHz	M23
IP5209-B200	Compact Box, 1 SinCos encoder interface, 1 V _{SS}	M23
IP6002-B200	Compact Box, 1 serial interface RS232C	M12
IP6012-B200	Compact Box, 1 serial interface, 0...20 mA (TTY)	M12
IP6022-B200	Compact Box, 1 serial interface, RS422, RS485	M12

Coupler Box

The Coupler Box for Lightbus 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-B200	Coupler Box for Lightbus systems	Plug
Digital combi		
IL2300-B200	Coupler Box, 4 digital inputs 24 V, 3 ms filter, 4 digital outputs 24 V, 0.5 A	8 mm
IL2301-B200	Coupler Box, 4 digital inputs 24 V, 3 ms filter, 4 digital outputs 24 V, 0.5 A	M8
IL2302-B200	Coupler Box, 4 digital inputs 24 V, 3 ms filter, 4 digital outputs 24 V, 0.5 A	M12

System overview

