



**Model Number**

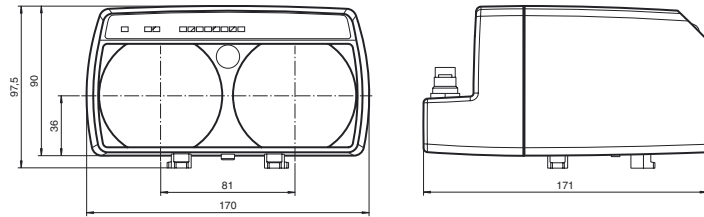
**LS610-DA-IBS/F1/146**

Optical data coupler

**Features**

- Devices for INTERBUS
- Version for low temperature applications
- Plug connection for fast mounting
- No parameterization
- Usable up to detection range 0
- Line indicator for signal strength

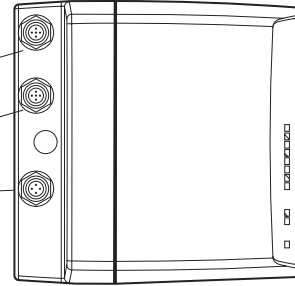
**Dimensions**



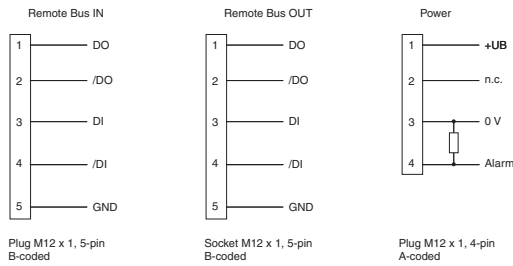
Remote Bus IN  
Connector M12 x 1, 5-pin  
B-coded

Remote Bus OUT  
Socket M12 x 1, 5-pin  
B-coded

Power  
Connector M12 x 1, 4-pin



**Electrical connection**



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## Technical data

### General specifications

Effective detection range	0 ... 120 m
Threshold detection range	140 m
Light type	modulated infrared light
Diameter of the light spot	2 m at a distance of 100 m
Angle of divergence	1.1 °
Ambient light limit	> 10000 Lux

### Functional safety related parameters

MTTF <sub>d</sub>	260 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %

### Indicators/operating means

Data flow indicator	LED green: emitter LED yellow: receiver
Function indicator	alignment aid: flashing front red LED Signal strength (8 LED: Red, yellow, green)

### Electrical specifications

Operating voltage	U <sub>B</sub>	18 ... 30 V DC
No-load supply current	I <sub>0</sub>	200 mA
Data rate		0 ... 2 MBit/s
Operation frequency		F1 = 8.25 MHz

### Interface

Interface type	RS 422 , galvanically isolated
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### Output

Pre-fault indication output	1 PNP (switches if there is sufficient stability control) short-circuit protected, max. 200 mA
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### Standard conformity

Standards	EN 60947-5-2 , CE , EN 61000-6-2
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### Ambient conditions

Ambient temperature	-30 ... 50 °C (-22 ... 122 °F) , For use in dry cold
Storage temperature	-30 ... 70 °C (-22 ... 158 °F)

### Mechanical specifications

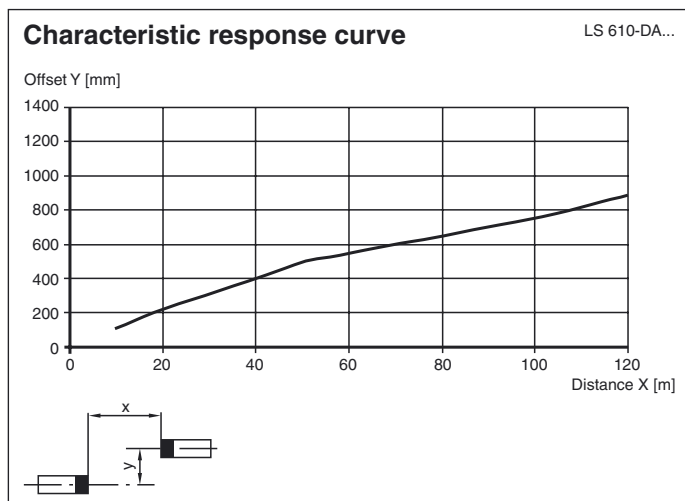
Degree of protection	IP65
Connection	4-pin, M12x1 connector, standard (supply) , 5-pin, M12x1 connector, B-coded (Remote Bus In) , 5-pin, M12x1 socket, B-coded (Remote Bus Out)

Material	
Housing	ABS / PC
Optical face	plastic
Mass	700 g

### Approvals and certificates

Approvals	CE, cULus
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## Curves/Diagrams



## Function

The LS610-DA-IBS is a device for serial data transmission in INTERBUS systems with transmission rates of up to 2 MBit/sec and ranges up to 240 m. For data rates and operating ranges lower than these values, the device can also be used with no problems.

## Accessories

### V15SB-G

Cable connector, M12, for PROFIBUS, adjustable

### V15B-G

Cable socket, M12, for PROFIBUS, adjustable

### V15-G-PG9

Female connector, M12, 5-pin, field attachable

### Funktionserdung LS610/VDM100 Zubehör

Function grounding for LS610 / LS611 / VDM100 series

### Schutzkappe LS610 Zubehör

M12 protective cap set (connector + socket) for series LS610 / LS611

### OMH-LS610-01

Mounting bracket for optical data coupler

### OMH-LS610-02

Direct mounting set consisting of 4 x M4 threaded inserts

### OMH-LS610-03

Mounting bracket with deviation mirror for optical data coupler

### OMH-LS610-05

Mounting bracket for optical data coupler and distance measurement devices

### OMH-LS610-31

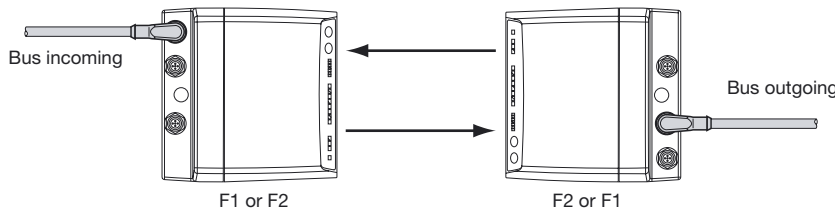
Mounting bracket for optical data coupler and distance measurement devices

### OMH-LS610-32

Mounting bracket for optical data coupler and distance measurement devices

For one data transmission connection, an LS 610-DA-IBS unit with a mean frequency of F1 **and** an LS 610-DA-IBS unit with mean frequency F2 are required.

The LS610-DA-IBS is intended for the direct connection of Interbus S units ("extension of bus cables"). It contains no bus connection logic, and is thus not suited for spur line installations. For this reason, only one of the M12 connectors should be used at a time.



**Data transmission**

Data is transmitted in both directions using modulated infrared light. The information carried on the incoming bus is modulated on the carrier signal in real time using frequency shift keying (FSK). In the receiver, the corresponding demodulation is performed and the data is output on the outgoing bus. The complete transmission process is performed using no protocols. The LS610 DA-IBS includes level-type regeneration as well as complete voltage isolation of the data transmission circuits from the power supply.

**Function displays/function reserves**

For alignment, there is an alignment LED on the unit's face which is visible from a distance. As soon as a receiver detects the transmission light of the opposite unit, the blink frequency of the alignment aid is lowered. When it is extinguished, this signals that the units are optimally aligned with one another, and enough functional reserve is available. For fine adjustment, the data system is equipped with a bar graph display (signal display) which enables optimal alignment.

State	weak signal	sufficient signal strength	signal with function reserve
Transmission	blocked	released	transmission with function reserve
Alignment-LED	fast flashing	slow flashing	off
Signal-indicator	red area	yellow area (at least one LED)	green area

**Connection between display and operational status**

If the bus is active, a yellow LED "RX" is lit for received data and a green LED "TX" for transmitted data.

**Installation**

Installation is done with the corresponding accessories, for instance, OMH-LS610-01 for wall mounting. The x/y adjustment is premounted at the factory. It is fastened to the mounting bracket in the desired transmission direction ( $\pm 90^\circ$  rotation possible) with the two M4 screws and a central M6 screw. The middle screw is for fastening after adjustment and should only be tightened afterwards. The data photo sensor is inserted into the notches of the adjustment device while holding both of the front bolts together with holding tabs. After insertion, the bolts are released and hold the unit securely by springing back. Using the two adjustment screws (Inbus 5mm), the transmission axis can now be directed in the X and Y directions, and the adjustment fixed in place by tightening the middle screw.

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