Model Number

LS684-DA-EN/F1/146

Optical data coupler

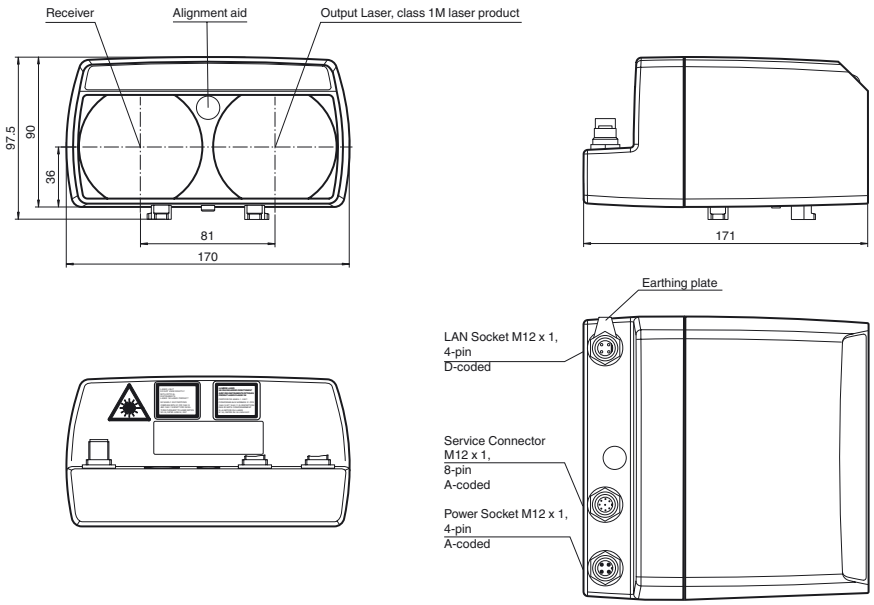
Features

- Fast Ethernet; Powerlink; EtherCAT; Profinet
- Independent of Ethernet protocol
- Optimized for real-time Ethernet such as PROFINET IRT and EtherCAT
- Version for low temperature applications
- No parameterization
- Line indicator for signal strength

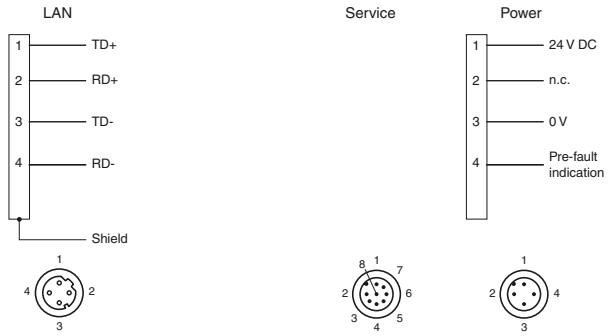
Product information

The optical data coupler connects Ethernet modules to remote modules. These can move toward each other along an axis. The devices are ideal for conditions in high-rack storage.
The physical transfer takes place protocol-free with 100 MBit/s full duplex. The device offers robust optical data transfer in real time for industrial Ethernet networks such as PROFINET IRT and EtherCAT.
The optical data coupler guarantees a consistent turnaround time for synchronous, jitter-free switching operations and control processes at both ends of the transmission range – over any distance and with any driving dynamics.

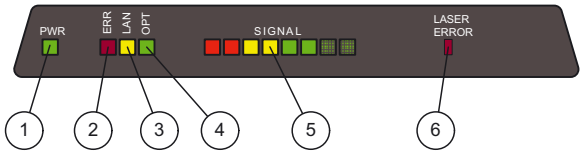
Dimensions



Electrical connection



Indicators/operating means



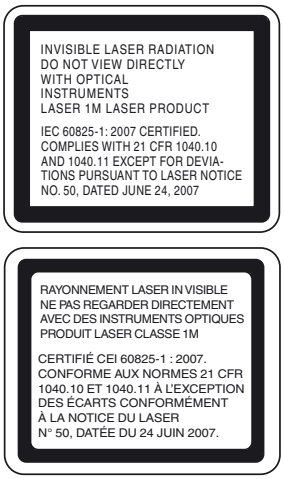
1	Operating indicator	green
2	Failure	red
3	LAN link	yellow
4	Opto link	green
5	Signal quality	
6	Error Laser	red

Release date: 2017-09-26 09:47 Date of issue: 2017-10-06 309508_eng.xml

Technical data

General specifications		
Effective detection range		0 ... 150 m
Threshold detection range		180 m
Light source		laser diode
Light type		modulated infrared light
Laser nominal ratings		
Note		INVISIBLE LASER RADIATION , DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS
Laser class		1M
Wave length		785 nm
Beam divergence		15 mrad
Pulse length		8 ns
Repetition rate		62.5 MHz
Maximum optical power output		60 mW
Diameter of the light spot		1.5 m at a distance of 100 m
Angle of divergence		1 °
Ambient light limit		> 10000 Lux
Functional safety related parameters		
$MTTF_d$		58.6 a
Mission Time (T_M)		10 a
Diagnostic Coverage (DC)		0 %
Indicators/operating means		
Data flow indicator		LED green: OPTO-Link LED yellow: LAN-Link LED red: ERROR
Function indicator		Signal strength (8 LED: Red, yellow, green)
Electrical specifications		
Operating voltage	U_B	18 ... 30 V DC
No-load supply current	I_0	200 mA
Data rate		100 MBit/s (Fast Ethernet)
Signal delay		2.9 µs (across the entire effective operating distance)
Interface		
Interface type		100 BASE-TX
Output		
Pre-fault indication output		1 PNP, inactive when falling short of the stability control , short-circuit protected, max. 200 mA
Ambient conditions		
Ambient temperature		-30 ... 50 °C (-22 ... 122 °F)
Storage temperature		-40 ... 70 °C (-40 ... 158 °F)
Mechanical specifications		
Degree of protection		IP65
Connection		4-pin, M12x1 connector, standard (supply) , 8-pin, M12x1 connector, service , 4-pin, M12x1 socket, D-coded (LAN)
Material		
Housing		ABS / PC
Optical face		plastic
Mass		700 g
Compliance with standards and directives		
Directive conformity		
EMC Directive 2004/108/EC		EN 61000-6-2:2005; EN 60947-5-2:2007
Standard conformity		
Laser class		IEC 60825-1:2007 EN 60825-1:2007
Approvals and certificates		
UL approval		cULus Listed

Laserlabel



Accessories

OMH-LS610-01
Mounting bracket for optical data coupler

OMH-LS610-02
Direct mounting set consisting of 4 x M4 threaded inserts

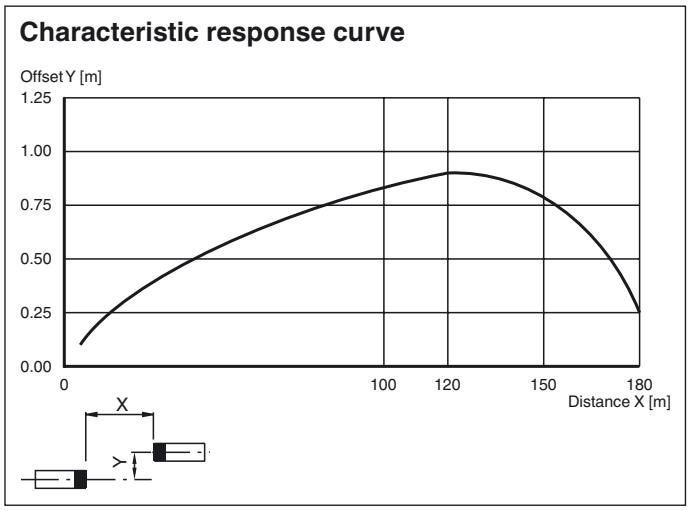
OMH-LS610-03
Mounting bracket with deviation mirror for optical data coupler

OMH-LS610-05
Mounting bracket for optical data coupler and distance measurement devices

Other suitable accessories can be found at www.pepperl-fuchs.com

Release date: 2017-09-26 09:47 Date of issue: 2017-10-06 309508_eng.xml

Curves/Diagrams



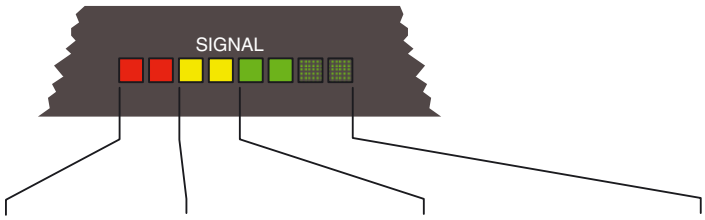
Function

The LS682-DA-EN is a device for serial data transfer in Ethernet systems. One F1 and one F2 device is needed for each data transfer link.

Data is transferred in both directions simultaneously by means of modulated light.

Function Displays/Excess Gain

A red alignment LED, which can be seen from a long way off, is located on the front of the device to serve as an alignment aid. As soon as a receiver detects the emitted light of the device opposite it, the flashing frequency of the alignment aid decreases. If the light goes out, this indicates that the devices are aligned with sufficient excess gain. For fine adjustment, the optical data coupler features a bar graph display (signal display) for optimum alignment.



Signal display	Red area	Yellow area (at least one LED)	Green area (at least one LED)
Status	Weak signal	Sufficient excess gain	Signal with excess gain weak signal output active
Transmission	Blocked	Released	Transmission with excess gain

Mounting

The device is mounted using appropriate accessories, e.g., OMH-LS610-01 for wall mounting.

The x-y adjuster is delivered preassembled. It is fixed in the required beam direction (±90° rotation possible) on the mounting bracket.

Laser notice laser class 1M

- The irradiation can lead to irritation especially in a dark environment. Do not point at people!
- Caution: visible and invisible laser radiation, do not observe laser light with optical instruments such as magnifying glasses, microscopes, telescopes or binoculars!
- Maintenance and repairs should only be carried out by authorized service personnel!
- Attach the device so that the warning is clearly visible and readable.
- Caution: use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiaton exposure.

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