LWL-I/O-System FOB

Features

- Interference-free fibre optic point-to-point transmission (unidirectional)
- Up to 8 digital or 4 analogue standard signals (0…10 V / 0…20 mA)
- Integrated fault monitoring (fibre break, transmitter failure)
- Outputs drop to 0 V in the event of a fault
- External monitoring via integrated relay contact
- Signal frequency 50…200 Hz (depending on device version)
- Easy installation and commissioning (plug-and-play, no programming required)

Application examples

- Process technology and automation technology: Transmission of sensor and actuator signals
- Energy technology: Control of generation plants (e.g. photovoltaics, wind, biogas)
- Traffic control technology: Transmission of flashing signal pulses
- Building automation (smart buildings): Signal transmission from central control systems to remote sub-distribution boards
- Security and surveillance technology

Description

With the fibre optic I/O system FOB, up to 8 digital signals – such as switching, control, clock, synchronisation and fault signals – or up to 4 analogue measured values can be transmitted unidirectionally. Transmitters and receivers are available for different types of fibre optic cables (singlemode or multimode). Each system requires one transmitter and one receiver. Signals are transmitted via fibre optic cables, ensuring fast, interference-free data transmission even in harsh industrial environments or in the field.
Complete potential separation reliably prevents problems that can arise from potential carryover, interference voltages or similar influences. The system works on the plug-and-play principle – no software installation, parameterisation or adjustment is required, making installation and commissioning particularly easy and efficient.

Function

The input signals are recorded and transmitted 1:1 to the remote station. The receiver continuously monitors the reception of the valid transmission protocol and has an integrated relay contact which, in addition to optical signalling via a red LED, can also be used as a fault signal contact. In the event of a fault, the normally open contact opens, making the system self-securing and ensuring that the fault message is reliably retained even in the event of a power failure.

Transmitter FOB84-S-ME22-SM-ST

Receiver FOB84-E-ME22-R-0-SM-ST

Technical data	
Transmission	Unidirectional
Fibre optic connection	F-ST (single- and multimode) or F-SMA (POF and optional for multimode)
Optical budget (typ.)	9...15 dB (dep. on fibre type, see separate table)
Range	≤ 40 km (dep. on the fibre type)
Fault message (Receiver only)	LED (red) and relay contact 60 V / 1 A AC, drops out in case of fault (factory setting)
Signal transmission	Analogue signals: 0 | 2 | 4 Digital signals: 0 | 4 | 8 Maximum transmissible signal frequency for digital signals: 200 Hz (for FOB40 | FOB80) 50 Hz (for FOB02 | FOB04 | FOB42 | FOB84)
Signal delay (In -> Out)	ca. 2 ms (for FOB40 | FOB80) ca. 6 ms (for FOB02 | FOB04 | FOB42 | FOB84)
Electrical connections	Pluggable screw terminals
Power supply	12 V DC | 24 V DC
Power consumption	Dep. on fibre type, see separate table
Mounting type	DIN rail TH 35 (EN 60715)
Dimensions (W x H x D)	22.5 x 100 x 127 mm (without connector)
Protection class	IP20
Operating temperature	-20...+50 °C
Storage temperature	-40...+70 °C

Safety instructions

Please be sure to observe the instructions in the connection plan.

Installation instructions

Installation and commissioning may only be carried out by properly qualified personnel or specialist companies in accordance with the guidelines and recognised rules of technology!

System versions			
Signals	**0x analogue**	**2x analogue**	**4x analogue**
0x digital		FOB02	FOB04
4x digital	FOB40	FOB42	
8x digital	FOB80		FOB84

Further technical data		
	Transmitter	**Receiver**
Analogue signals	0...10 V or 0/4...20 mA Input resistance 120 Ω	0...10 V or 0/4...20 mA Load max. 500 Ω
Digital signals	24 V DC / 1 mA	max. 8x 24 V DC / 0.7A total max. 2.5 A
Precision		± 0.2 % of range

Setting the analogue values

The analogue values are factory preset and calibrated. Subsequent changes are not possible.

Technical data depending on fibre type					
	Singlemode E9/125 µm 1300 nm	**Multimode G50/125 µm 820 nm**	**Multimode G62.5/125 µm 820 nm**	**Multimode G62.5/125 µm 1300 nm**	**4x analog POF 990/1000 µm 660 nm**
Budget (typ.)	9 dB	9.5 dB	15 dB	11 dB	15 dB
Power consumption of transmitter	ca. 55 mA	ca. 45 mA	ca. 45 mA	ca. 45 mA	ca. 40 mA
Power consumption of receiver*	ca. 65 mA	ca. 35 mA	ca. 35 mA	ca. 65 mA	ca. 35 mA

* Current consumption in idle state (all outputs inactive)

Order code

Please note the color code in this table!
Color-coded features can only be combined with device versions that have the same color code.

Number of signals
- **80** 8 digital signals 24 V DC
- **84** ● 8 digital signals 24 V DC, 4 analogue signals 0...10 V or 0...20 mA DC

Signal direction
- **S** Transmitter (analogue/digital inputs)
- **E** ● Receiver (analogue/digital outputs)

Enclosure
- **ME22** Module housing made of polyamide for DIN rail (TH 35): 22.5 x 100 x 127 mm
- **ME22B** Module housing made of polyamide for DIN rail (TH 35) with 10-pin bus interface: 22.5 x 100 x 127 mm

Error monitoring
- **0-R** ● Relay 60 V / 1 A, signals in case of error: drop to 0V
- **R** ● Relay 60 V / 1 A, signals in case of error: frozen at last received value

Fibre type + wavelength
- **SM** Singlemode E9/125 µm, 1300 nm
- **MM** ● Multimode G50/125 µm or G62.5/125 µm, 820 nm
- **POF** ● POF 990/1000 µm, 660 nm

Fibre optic connector
- **ST** F-ST (standard for SM and MM)
- **SMA** ● F-SMA (standard for POF, optional for MM)

Analogue signals
- **mA** ● Input: 0/4...20 mA DC (Input resistance: 120 Ω)
  Ouput: 0/4...20 mA DC (Load: max. 500 Ω)
- **V** ● Input: 0...10 V
  Ouput: 0...10 V

Power supply
- **12V** 12 V DC ± 10 %
- **24V** 24 V DC ± 10 %

FOB84-E-ME22-0-R-SM-ST-mA-24V