One-way laser light barrier LS02/M18W

Type 0072-04

Characteristics:

- Short response time
- Choice of response to light or dark signal
- Suppression of interfering light
- Sender can be focussed
- Long range
- Small dimensions
- M18 standard housing with 90° head
- Watertight (IP65)
- several casing versions

Short description

The light barrier **LS02** requires a supply voltage of 12 ... 24VDC. Due its small dimensions and solid construction it can be used practically everywhere. As light source (sender) the **LS02** uses visible laser diode. Therefore it will be simple to align the sender. The laser modulation of 455kHz substantially increases the ability to suppress interfering light. The range exceeds 50m at a transmitter power classified as laser class 2. Higher range of transmission is available upon request (higher output power).

The output is via a short circuit protected PNP output[1)], permitting a choice of response to light or dark signal (up to 200mA). Due to the use of a laser and the very short response time, the **LS02** can be used for data transmission, time measurement, positioning etc.
The receiver has a two colour equipment-on indicator to visually indicate the switching mode.
The **LS02-Sender** is focusable.

Technical data Sender

One-way laser light barrier LS02	Sender		
Operating voltage	12 -	24 ±10%	VDC
Max. operating current	12[2)]	8[2)]	mA
Typical laser Enable turn-on delay	200	175	µs
Typical. Jitter of laser Enable turn-on delay	12	18	µs
Typical. laser Enable turn-off delay	1.39	1.4	ms
Typical Jitter of laser Enable turn-off delay	30	37	µs
Optical power	≤ 1[3)]		mW
Laser class	2[3)]		-
Wavelength	635 ... 680		nm
Typical. beam size at output	5x2		mm
Focus range	10 - infinite		mm
Typical modulation frequency	455[4)]		kHz
Weight	40		g

Unless noted, all data are valid at room temperature (21°C) and normal operating conditions
1) On request NPN output available
2) Laser on (Laser Enable = V_{cc})
3) Standard version; on request higher range of transmission available, measured average of optical power
4) pulsed, modulation hub 100 %

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Technical data Receiver

One-way laser light barrier LS02	receiver mod. 1[5]		receiver mod. 2[5]		
Operating voltage	12 - 24 ±10%		12 - 24 ±10%		VDC
Max. operating current[1]	13	19	16	19	mA
Load approx. 100mA[3]:					
Typical edge steepness t_{rise}	47	29	46	29	ns
Typical edge steepness t_{fall}	2.1	3.2	2.1	3.2	µs
Typical response time of rising edge	8	8	9	9	µs
Typical fall time of decreasing edge	16	16	13	14	µs
Voltage drop at output	1.25	1.25	1.25	1.25	V
Load approx. 200mA[4]:					
Typical edge steepness t_{rise}	45	30	46	29	ns
Typical edge steepness t_{fall}	1.2	1.7	1.2	1.7	µs
Typical response time of rising edge	7	8	8	10	µs
Typical fall time of decreasing edge	16	15	13	13	µs
Voltage drop at output	1.7	1.7	1.7	1.7	V
Typical Jitter delayed response	0.8	0.9	0.8	0.5	µs
Typical Jitter release delay	0.7	0.8	1.1	1.1	µs
Max. PNP output load[2]	200				mA
Weight	37				g

Unless noted, all data are valid at room temperature (21°C) and normal operating conditions

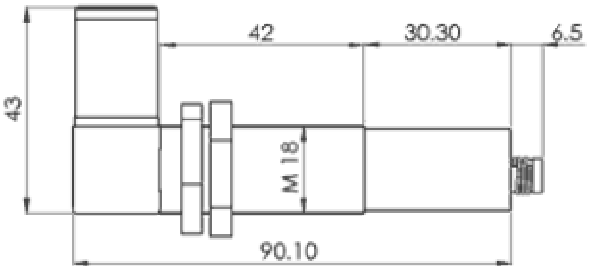
1) without load
2) Output is short circuit protected
3) 100 Ω load at 12 VDC supply voltage; 200 Ω load at 24 VDC supply voltage
4) 50 Ω load at 12 VDC supply voltage; 100 Ω last at 24 VDC supply voltage
5) Mod. 1 = Detection of laser light => Output High; Mod. 2 = Detection of laser light => output Low

Technical data System

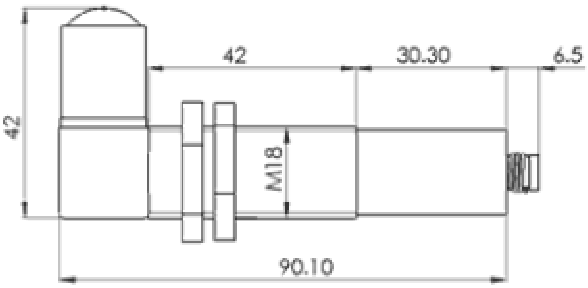
One-way laser light barrier LS02		
Operating temperature	-20 ... +40	°C
Storage temperature	-40 ... +85	°C

Dimensions Type 0072-04

Sender



Receiver



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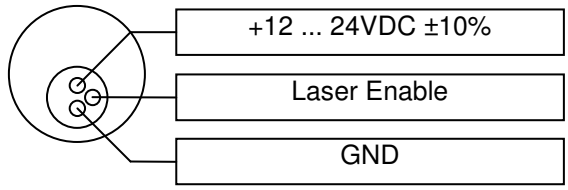
Wiring diagram Type 0072-04

Coupler plug 3 poles (Type series 768) Suitable connector available on request

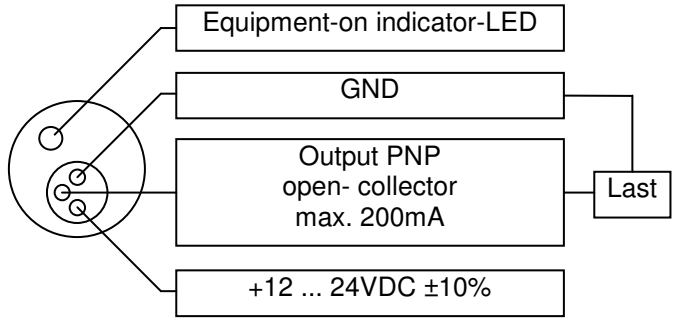
LS02 Sender: (Note: Laser head GND)



Laser Enable = 3 ...24VDC:	Laser ON
Laser Enable = 0VDC:	Laser OFF
Laser Enable = NC:	Laser OFF

Rear-view

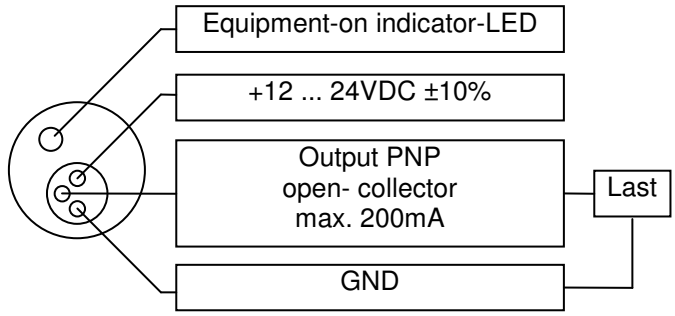
LS02 Receiver operating mode 1:



Laser detection:	PNP output switched; max. 200mA; LED = green
No Laser detection:	PNP output locked; 0mA; LED = orange

Rear-view

LS02 Receiver operating mod.2:



Laser detection:	PNP output locked; 0mA; LED = green
No laser detection:	PNP output switched; max. 200mA; LED = orange

Rear-view

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