

# One-way laser light barrier LS02M18W-C



Type 0072-07

## Characteristics:

- Short response time
- Choice of response to light and dark signal
- Suppression of interfering light
- Sender can be focussed
- Long range
- M18 sensor housing with 90° head
- Cable connection 4-Pole
- Solid construction
- Watertight (IP65)
- Accepts wide range of operating voltage

## Short description

The light barrier **LS02** requires a supply voltage of 12 ... 24V<sub>DC</sub> and has a protection against reverse polarity. Due to its small dimensions (M18 sensor housing) and solid construction it can be used practically everywhere. The connection is by a 4-pole cable. As light source (sender) the **LS02** uses a visible laser light. Therefore it will be simple to align the sender. The laser's 455kHz modulation 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).

Two short-circuit protected PNP outputs are provided, permitting a choice of response to light and dark signal (up to 200mA) at the same time. Due to the use of laser light and the very short response time, the **LS02** can be used for data transmission, time measurement, positioning etc.

The receiver has two built-in LED indicators (red and green) to attend visually the output state.

## Technical data Sender

One-way laser light barrier LS02	Sender		
Operating voltage	12	- 24 ±10%	V <sub>DC</sub>
Max. operating current	40 <sup>1)</sup>	35 <sup>1)</sup>	mA
Typical laser turn-on delay (Disable pos. edge)	920	900	µs
Typical jitter of laser's turn-on delay	15	12	µs
Typical laser turn-off delay (Disable neg. edge)	65	77	µs
Typical jitter of laser's turn-off delay	3	2	µs
Optical power	≤ 1 <sup>2)</sup>		mW
Laser class	2 <sup>2)</sup>		-
Wavelength	635 ... 680		nm
Typical beam size at output	5x2		mm
Focus range	10 - infinite		mm
Typical modulation frequency	455		kHz
Weight	42		g

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

1) Laser on (Laser Disable = V<sub>cc</sub> or open)

2) Standard version; extended range available on request.

## Technical data Receiver

One-way laser light barrier LS02	receiver values		unit
Operating voltage	12	- 24 ±10%	V <sub>DC</sub>
Max. operating current <sup>1)</sup>	16	12	mA
Load approx. 100mA <sup>3)</sup> :			
Typical rise time, t <sub>rise</sub>	2	1	µs
Typical fall time, t <sub>fall</sub>	6	10	µs
Typical response delay (rising edge)	11	10	µs
Typical release delay (falling edge)	14	18	µs
Dropout voltage at output	1.2	0.9	V
Load approx. 200mA <sup>4)</sup> :			
Typical rise time, t <sub>rise</sub>	3	1	µs
Typical fall time, t <sub>fall</sub>	4	6	µs
Typical response delay (rising edge)	11	10	µs
Typical release delay (falling edge)	11	15	µs
Dropout voltage at output	1.7	1.3	V
Typical jitter of response delay (rising edge)	1	1	µs
Typical jitter of release delay (falling edge)	3	2	µs
Max. PNP output load <sup>2)</sup>	200		mA
Weight	32		g

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

- 1) without output load
- 2) Output is short-circuit protected
- 3) 110Ω load at 10.8V<sub>DC</sub> supply voltage; 250Ω load at 26.4V<sub>DC</sub> supply voltage
- 4) 54Ω load at 10.8V<sub>DC</sub> supply voltage; 150Ω last at 26.4V<sub>DC</sub> supply voltage

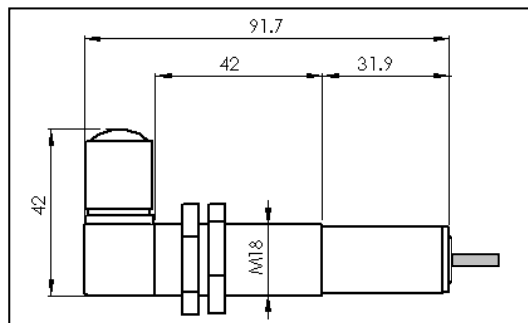
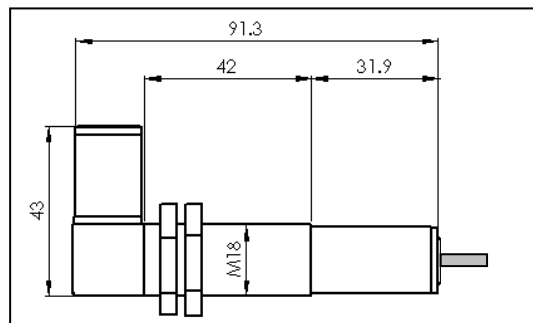
## Technical data System

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

## Dimensions Type 0072-07

Sender:  
Alu anodized /Polyamide

Receiver:  
PVC/Polyamide



## Wiring diagram Type 0072-07

### **LS02 Sender:**

1 Colour = Brown = +12 ... 24V<sub>DC</sub> ±10%

2 Colour = Green = Laser Disable (active low)

- Laser disable = > 10V<sub>DC</sub>: Laser ON
- Laser disable = < 2V<sub>DC</sub>: Laser OFF
- Laser disable = open: Laser ON

3 Colour = White = GND

4 Colour = Yellow = NC

### **LS02 Receiver:**

1 Colour = Brown = +12 ... 24V<sub>DC</sub> ±10%

2 Colour = Green = Output PNP open-collector max. 200mA

3 Colour = White = GND

4 Colour = Yellow = Output PNP open-collector max. 200mA

Laser detection: PNP output #4 switched on, max. 200mA;  
PNP output #2 switched off, 0mA;  
LED: green on

No laser detection: PNP output #4 switched off, 0mA;  
PNP output #2 switched on, max. 200mA;  
LED: red on

Operation indicator: LEDs are placed inside the transparent connector. If neither red nor green light is on, a failure or missing power is indicated.