

PR16A Precision one-way light curtain

Applications

- Detection of any shaped objects
- Hole detection
- Detection of objects in any positions
- Used in packing machines
- Detection of transparent objects
- Developed for a rough industrial use
- Measuring size and position of objects: absolute and relative



Features

- The special automatic calibration guarantees a safe operation.
- High immunity to all types of ambient light.

Functional overview

The product is an one-way light-curtain. This means the emitter and the receiver is mounted in separate housings. The receiver housing contains two indication LEDs. An orange LED to indicate the state "ready" and a red LED to indicate the state of control. During an interruption of the light curtain the red LED lights up.

Calibration

After the operating voltage is switched on, the calibration starts automatically. This process is during about 5 seconds. After the calibration the orange LED lights up.

- **DURING THE CALIBRATIONPROCESS; IT IS NOT ALLOWED THAT AN OBJECT IS IN THE WORKING AREA OF THE LIGHT CURTAIN!**

Otherwise wrong conditions would be stored in the calibration data.

- **THE POSITION OF TRANSMITTER AND RECEIVER HAS NOT TO BE CHANGED AFTER THE CALIBRATION!**

Attention!!!

After a new installation the red LED lights up. This means, the old calibration data have to be overwritten by a new CAL-order.

It is recommended to calibrate once a day.

Factory-delivered programming

1. Variation [W] = calibration after power on

A calibration is always performed automatically after the operating voltage is switched on.

It is also possible to calibrate during operation by activating the CAL-input (orange wire).

2. Variation [F] = fixed memory

A calibration follows only after an order by the orange CAL-input wire. These calibration data are stored and used again after power on.

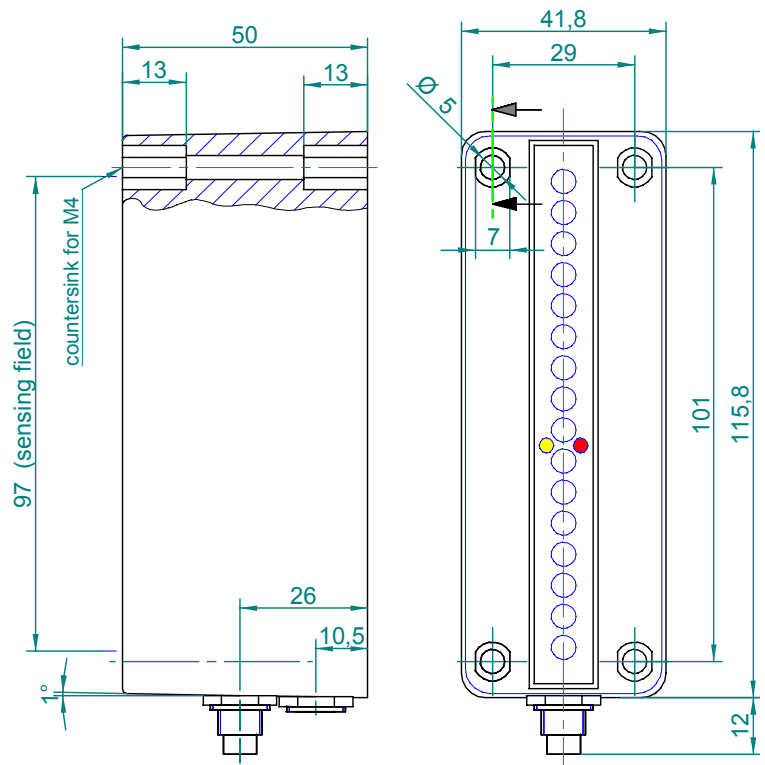
3. Sensitivity [level 1, 2, 3 or 4]

Look: „advisable setting of sensitivity“ on the back of this sheet.

4. Beams evaluation [P] or [K]

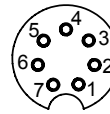
The beams can be factory-delivered in a parallel mode [P] or crossed mode [K].

Housing dimensions (mm)



Connecting chart

- | | |
|--------|------------------------------------|
| 1 = RD | +UB (24-28 VDC) |
| 2 = BK | GND (0 V) |
| 3 = BL | Analog output (0-10 VDC) |
| 4 = YE | PNP-output (100 mA), red LED |
| 5 = OR | CAL-input (4 kΩ) |
| 6 = GN | PNP-ready out (100 mA), orange LED |
| 7 = BN | program in/+UB (24-28 VDC) |



Notes

The brown connection wire is only used for programming and has to be connected to +24VDC operating voltage.

The ANALOG-output (blue wire) is valid only by using the PARALLEL mode. By using the CROSSED mode, the ANALOG-output has no function.

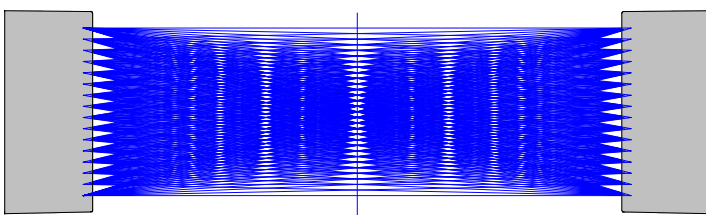
By mounting two or more light curtains there must be taken care, that the RECEIVER receives only the light beams of the belonging EMITTER.

Because of the high precision and resolution of the light curtain, avoid reflected (mirrored) beams.

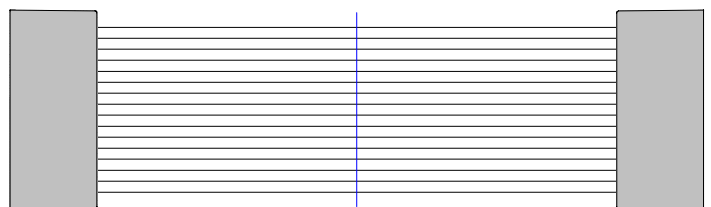
The light curtain has to be mounted and programmed by an authorised person.

To guarantee the proper function of the light curtain, all technical data has to be respected. The usage outside the listed technical data may destroy the equipment.

Crossed beams evaluation (256 beams)

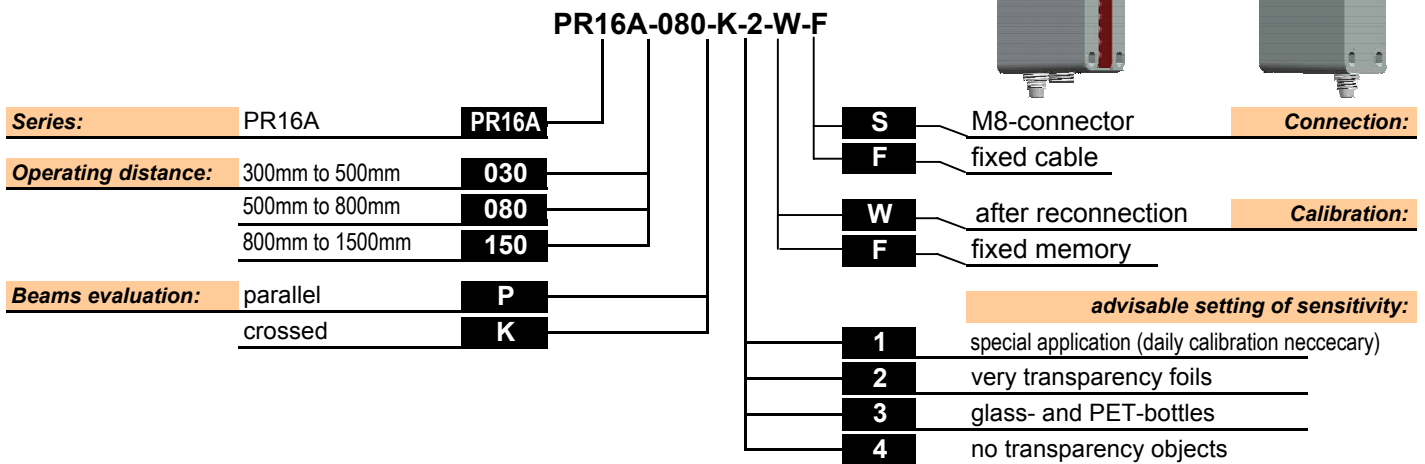


Parallel beams evaluation (16 beams)



Technical data	PR16A-030-...	PR16A-080-...	PR16A-150-...
Number of beams	16		
Light type	infrared, pulsed		
Sensing field	97 mm		
Beam spacing	6,5 mm		
Operating distance	300 - 500	500 - 800	800 - 1500
Resolution (parallel mode)	Ø6 mm	Ø6,5 mm	Ø7 mm
Resolution (crossed mode)	Ø1 mm	Ø1,5 mm	Ø2 mm
Power supply	24 - 28 VDC		
Current consumption	about 100 mA without load		
PNP output	PNP-transistor, open collector, 100 mA, short circuit protected		
Analog output (for measurement)	0-10 VDC (only true for parallel mode)		
Response time (parallel mode)	2 ms	4 ms	8 ms
Response time (crossed mode)	5 ms	5 ms	10 ms
On / off cycles (parallel mode)	40/s	40/s	20/s
On / off cycles (crossed mode)	20/s	20/s	10/s
Mode of operation	dark mode		
Indicators	orange LED and red LED		
Calibration variation F (fixed memory)	min 10 ms GND activ (teach-in)		
Calibration variation W (after reconnection)	period ca. 5 s		
Sensitivity	level: 1, 2, 3, 4		
Housing material	black glas fibre strengthen plastic		
Housing dimensions (mm)	50 x 41.7 x 115.7		
Optic material	PMMA, red colour		
Mechanical protection	IP 65 (EN60529)		
Connection	fixed cable or connector (M8, 7 pin)		
Operating temperature	-10°C to +50°C		
Storage temperature	-20°C to +70°C		
Weight	receiver: 160g emitter: 130g		

Ordering example



Accessoirs

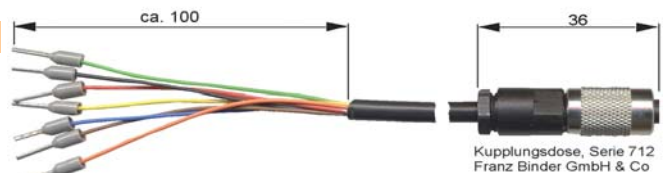
Connection cable (between receiver and emitter device):

Available lengths: 2,5m and 4m
Connections: Female connector, M8x1, 7-pole
Male connector, M8x1, 7-pole
Mechanical protection of the connectors: IP 65



Connect up cable (for receiver):

Available lengths: 5m and 10m
Connection: Female connector, M8x1, 7-pole
Mechanical protection of the connector: IP 65



Used cable

Technical data: 7-wires, AWG 26, outside diameter ca. 4,8mm, cable sheath made of special-PVC, colour matt black
Approbation: UL-Style-No. 2464 und UL-Style-No. 1061
VDE 0881 und VDE 0472 § 803 b