



**Model Number**

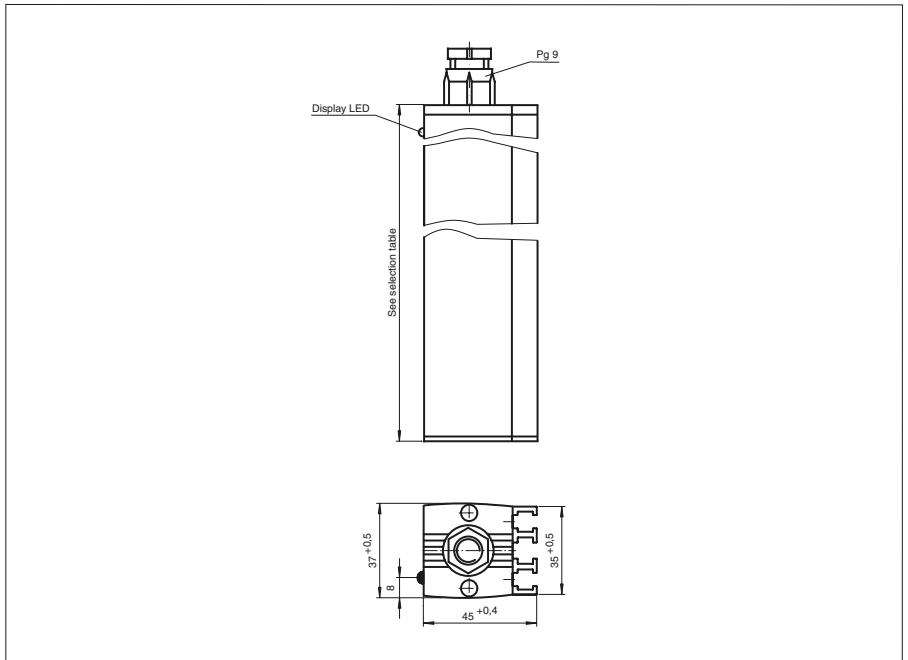
**PLVscan P 16P/817/728/20/48/K-/50/4538/1**

Profile light grid

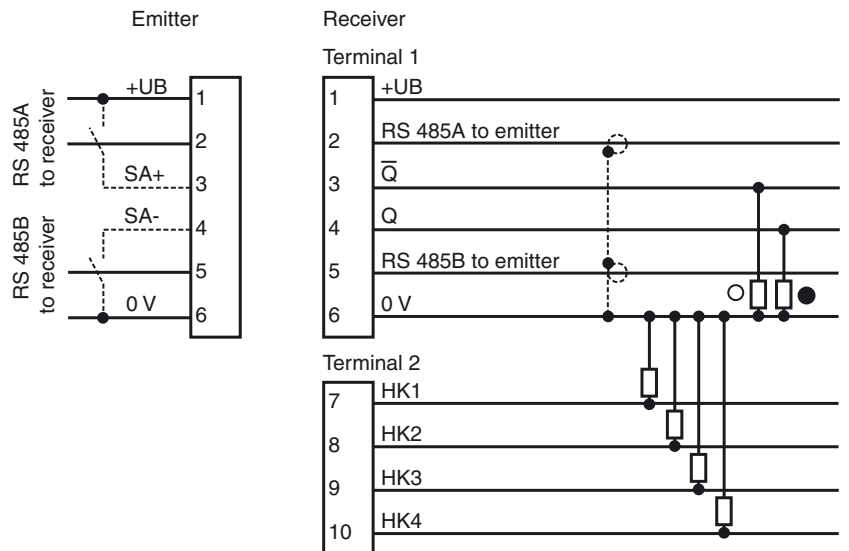
**Features**

- Sensing range up to 11000 mm
- Beam spacing 48 mm
- Light grid for profile monitoring
- Application specific, available in various lengths
- Separate outputs for height monitoring
- Programmable via Windows software
- Made suitable for measuring purposes by RS 232 interface
- Rugged housing

**Dimensions**



**Electrical connection**



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Subject to modifications without notice

Pepperl+Fuchs Group  
www.pepperl-fuchs.com

USA: +1 330 486 0001  
fa-info@us.pepperl-fuchs.com

Germany: +49 621 776-4411  
fa-info@pepperl-fuchs.com

Copyright Pepperl+Fuchs  
Singapore: +65 6779 9091  
fa-info@sg.pepperl-fuchs.com

**Technical data****General specifications**

Effective detection range	3000 ... 8000 mm
Threshold detection range	11000 mm
Sensing range	0 ... 8000 mm
Light source	IREL
Light type	modulated infrared light
Approvals	CE
Field height	728 mm
Target size	30 mm for triple beam crossing, see diagram
Beam spacing	48.5 mm
Number of beams	16
Angle of divergence	$\pm 8^\circ$
Ambient light limit	50000 Lux

**Indicators/operating means**

Function display	LED green: power on LED yellow (emitter) flashes when stability control is insufficient, otherwise on, LED yellow (receiver) flashes when the beam field is interrupted, otherwise off
Controls	sensitivity adjustment

**Electrical specifications**

Operating voltage	$U_B$	15 ... 30 V DC
Ripple		10 %
Power consumption	$P_0$	max. 7 W

**Input**

Test input	emitter deactivation with $+U_B$ on terminal 3 or 0V on terminal 4
Function input	RS 232 interface for system programming

**Output**

Switching type	light/dark on	
Signal output	2 PNP complementary, short-circuit protected (beam field), 4 pnp, short-circuit proof, light ON (height monitoring)	
Switching voltage	30 V DC	
Switching current	200 mA	
Switching frequency	f	20 Hz
Response time	24 ms for triple beam crossing	
Timer function	Off-delay programmable from 0 ... 1.25 s in 5 ms steps	

**Standard conformity**

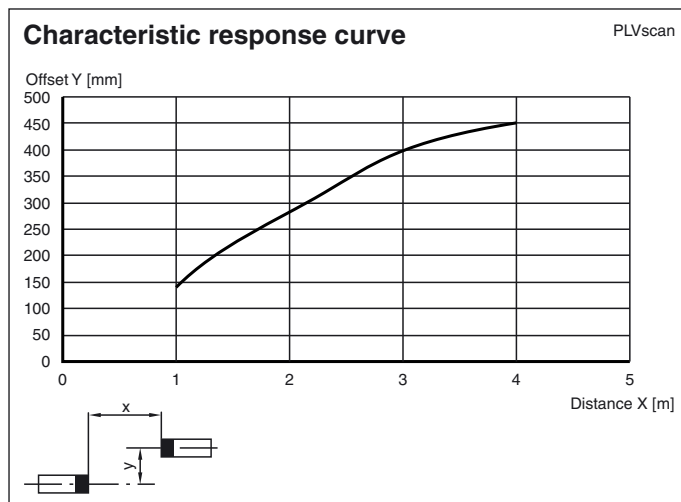
Standards	EN 60947-5-2
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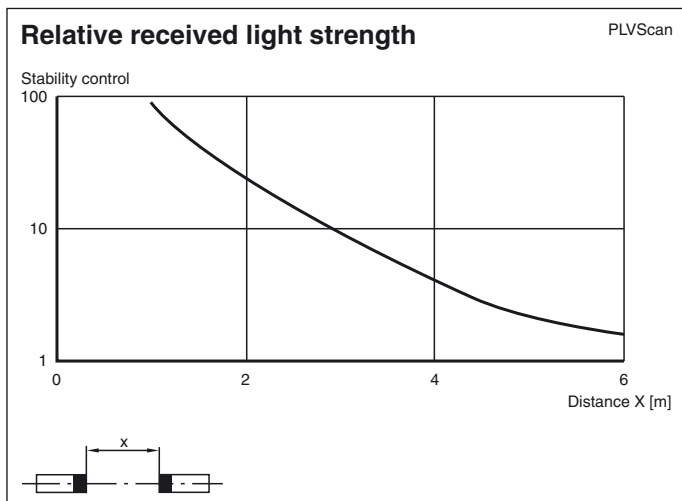
**Ambient conditions**

Ambient temperature	-10 ... 60 °C (14 ... 140 °F) In North America: -10 ... 40 °C (14 ... 104 °F)
Storage temperature	-20 ... 70 °C (-4 ... 158 °F)

**Mechanical specifications**

Protection degree	IP50
Connection	PG9 terminal compartment with screw terminals
Material	
Housing	aluminum
Optical face	PMMA
Mass	1200 g (device)

**Curves/Diagrams**



### Selection table

Height of the protected area	Number of emitters	Housing length
340 mm	8	429 mm
728 mm	16	817 mm
1116 mm	24	1205 mm
1504 mm	32	1593 mm
1892 mm	40	1981 mm
2280 mm	48	2369 mm
2628 mm	56	2757 mm
3056 mm	64	3145 mm

### Arrangement and function

The PLVscan series consists of high-resolution single-path grid light-beam switches for surface-covering monitoring of a protected area and for profile monitoring. Even small objects in surfaces with large areas can be detected with high resolution. The switching command is initiated if an object is present in the protected area or if it has penetrated.

The housings consist of two aluminum section bars that are each equipped with infrared emitters or receivers. The control interface is integrated into the bars. The emitter bar and the receiver bar communicate via an RS 485-Interface. The RS485 A and B connections of the emitter and receiver must be connected by a highly twisted cable. The receiver has separate outputs for height monitoring.

#### LED functional displays

A green LED for function display of power ON and a yellow status LED with a diagnostic function are located on the connection side of the profiles behind the optical system covering.

In normal operation, the yellow LED in the emitter is continuously lit if there is sufficient functional reserve.

The yellow LED in the receiver indicates the switching state of the light grid.

#### Diagnostic function of the yellow LED

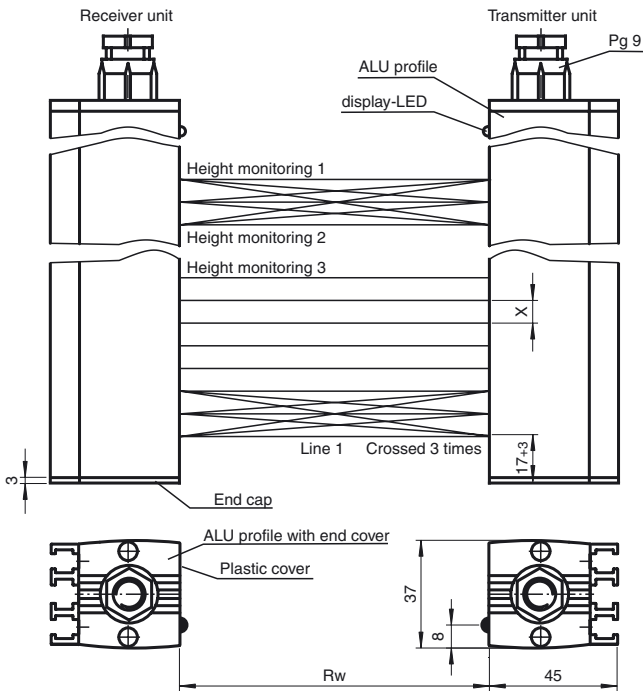
Function	Diagnostic description
The LED of the emitter is lit statically. The LED of the receiver is not lit.	Normal status with free protected area, system is active, all light lines are free and have sufficient function reserve.
LED of the emitter is flashing.	Insufficient function reserve because of poor alignment of the light grid, receiver or RS485 bus is incorrectly connected.
LED of the receiver not lit, output protected area active.	Emitter or RS bus connected incorrectly.
LED of the receiver flashes, output protected area active.	At least one light line is covered.
LED on the receiver is flashing (about 2 Hz).	The system is in test mode and the programming connector is plugged in.
LED on the receiver is flashing quickly (about 7 Hz).	No valid values in EEPROM or the system is not programmed ⇒ Re-program.
LED on the receiver flashes continuously.	The system is in programming mode.

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### Resolution and beam distance

The mechanical beam distance determines the smallest size of object that can still be detected. For PLVscan-P.../48/... the beam distances are 48.5 mm (see illustration, dimension X). The resolution of the light grid can be increased by crossing light beams. The detection ranges can be adjusted on the transmission unit with a potentiometer.

The units are delivered without any programming for height monitoring. The course of the beam is not crossed.



Representation of the course of the beam as straight/crossed, design example with three light lines for height monitoring

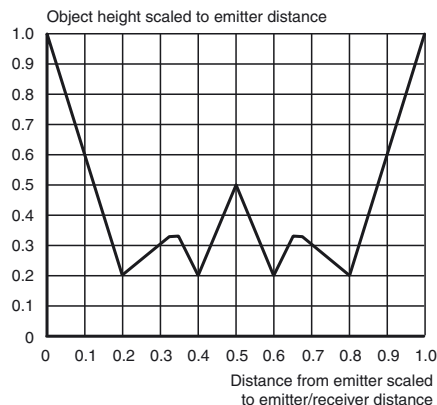
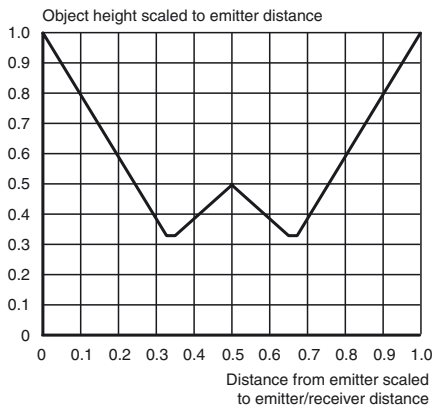
### Resolution of the crossed beam arrangement

#### Triple crossing

If a triple crossing of beams is programmed, the resolution is increased. To be able to use the increased resolution, you should select the distance between the emitter and receiver so that the resolution that is offered is actually used in the work area. For a triple crossing this means that the increased resolution is available after 25% of the emitter or receiver distance RW. You must therefore ensure that all objects fit with the emitter or receiver with a distance of this magnitude.

#### Five-fold crossing

If a five-fold crossing of beams is programmed, the resolution is increased. To be able to use the increased resolution, you should select the distance between the emitter and receiver so that the resolution that is offered is actually used in the work area. For a five-fold crossing this means that the increased resolution is available after 15 % of the emitter or receiver distance RW. You must therefore ensure that all objects fit with the emitter or receiver with a distance of this magnitude.



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