



Model Number

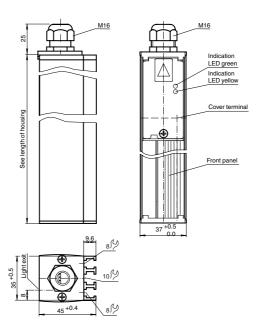
PLVScanP24-1116-48/47/86

Light grid with terminal compartment

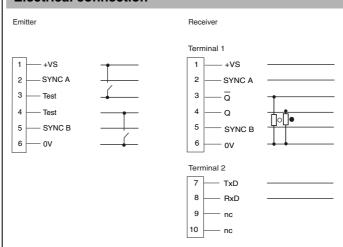
Features

- Measuring light grid
- Beam spacing 48.5 mm
- RS 232 interface for data transmission and configuration
- Adjustable beam crossover and emitted optical power
- Separate outputs for height monitoring
- Programmable via Windows software

Dimensions



Electrical connection

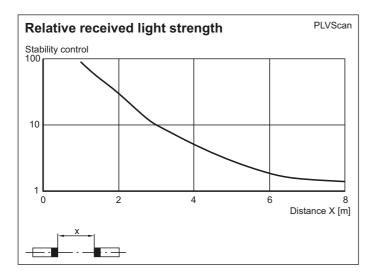


O = Light on ● = Dark on

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Technical data		
General specifications		
Effective detection range		3 8 m , can be reduced to > 0.3 m
Threshold detection range		12 m
Sensing range		0 8000 mm
Light source		IRED
Light type		modulated infrared light
Field height		1116 mm
Chipping		5X
Beam spacing		48.5 mm
Number of beams		24
Angle of divergence		Emitter: ± 13 °, Receiver: ± 8 °
Ambient light limit		50000 Lux
Indicators/operating means		
Operating display		LED green
Function display		Emitter: LED yellow, light with free light beam, off when falling short of the function reserve , Receiver: LED yellow: flashes when the beam field is interrupted, otherwise off
Controls		Potentiometer for adjustment of the transmitting power (in the terminal compartment)
Electrical specifications		
Operating voltage	U _B	20 30 V DC
Ripple		10 %
Power consumption	P_0	max. 10 W
Interface		
Interface type		RS 232
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 (monitoring field) and 1 x RS 232 interface with serial data output
Switching voltage		30 V DC
Switching current		200 mA
Switching frequency	f	20 Hz
Response time		24 ms without crossing of beams
Timer function		Off-delay programmable from 0 1.25 s in 5 ms steps
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		
Housing length L		2427 mm
Protection degree		IP50
Connection		PG9 terminal compartment with screw terminals
Material		
Housing		silver-anodized aluminum
Optical face		PMMA
Mass		1600 g (device)
Compliance with standards and d ves	irecti-	
Standard conformity		FN 60047 F 0:0007
Product standard		EN 60947-5-2:2007 IEC 60947-5-2:2007
Approvals and certificates		
CE conformity		yes
UL approval		cULus
CCC approval		Products with a maximum operating voltage of ≤36 V do not
the street of		bear a CCC marking because they do not require approval.

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Arrangement and function

Principle of operation

Light grids consist of an emitter bar and a receiver bar. The surface to be monitored is in between the two. The switching command is initiated by a body or object penetrating into the monitoring field.

The light grid PLVScan ensures an overall monitoring of the evaluation range with a max. of 64 light beams (infrared emitter and receiver). The integrated signal processing saves an additional mounting of a separate controlgear. Due to the modular design of the system, different distances of the light beams can be implemented. This makes it possible to use the light grids of the PLVScan series optimally and adapt them specifically to a given application.

In addition the system is equipped with up to four switch outputs which can be used for height monitoring (option /139) or with a serial data output across which the state of the beams can be queried(option /86). The system programming is accomplished via a RS 232 interface. For this purpose, the software WINPLV is required which can be ordered separately.

Safety Instructions:

The device must only be operated with an extra-low safety voltage with safe electrical separation. Only your supplier is authorised to make repairs or changes to the device!

The system must be regularly maintained and monitored. The programming cable can only be plugged in when the light grid is turned on and working correctly.

A clean, soft cloth can be used for cleaning. Aggressive, abrasive and scratching cleaners that could scour or damage the surface must be avoided. The device must not be exposed to strong jolts or vibrations.

Commissioning

Preconditions:

- The emitter and receiver bars must be correctly mounted and aligned.
- The electrical connection must have been set up according to the connection diagram.
 Important: The sync lines must be connected to each other (A to A) and (B to B).
- The signal output responds to object detection or heavy accumulation of dirt and dust on the transparent outline covering.
- In the case of interruption of at least one light beam, the output remains active as long as the object or the soiling is detected.

ATTENTION!

Supply +UB / GND(0 V)

Connection is reverse-polarity protected. If the housing of the PLVScan is earthed and the operating voltage is reverse polarity protected, a short circuit current can flow through both housings to earth. If polarity is reversed and the light grid is earthed, components in the device may be destroyed as a result.

Error detection

- Measuring the operating voltage
- Control of the wiring (sync leads connected?)
- Control of emitter- and receiver bar for soiling effects, cleaning, if necessary.

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 transmitter 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

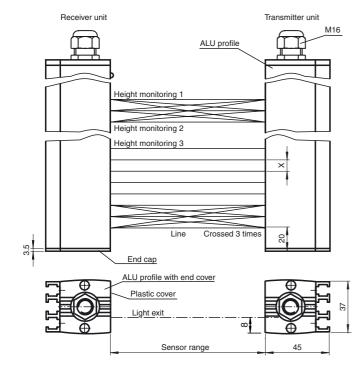
Function	Diagnostic description
The LED of the transmitter is lit statically The LED of the receiver is not lit	Normal status with free protected area, system is active, all light lines are free and have sufficient function reserve.
LED of the emitter flashes slowly (approx. 0.5 Hz)	Insufficient function 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	Transmitter or RS bus connected incorrectly.
LED on the receiver is flashing (approx. 1 Hz) output protected area active	at least one light line is covered.
LED on the receiver is flashing (approx. 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 program- med⇒Pε–προγραμ.
LED of the receiver flashes continuously	The system is in programming mode.

Resolution and beam spacing

The mechanical beam spacing (see illustration, dimension X) determines the smallest size of object that can still be detected. 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 variants with the option /86 (RS232-output) can be operated only without crossing of beams.

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



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