

FUNCTION

LS light grids monitor a defined control area with several invisible, infrared light beams. The light grid systems consist of a transmitter (TX) and a receiver (RX) profile made from anodized aluminum. They operate on the principle of several through beam sensors with linked output signals. Any interrupted light beam is recognized by the evaluation electronics and activates a corresponding antivalent signal outputs (NPN & PNP).

INTENDED USE

LS light grids are used as a part of a higher-level overall system for detection of objects in defined control areas.

CONFORMITY

The product complies with the following standards:

EC Directive	2004/108/EC
EMC Emissions	CISPR 22:2008
EMC Immunity	CISPR 24:2010
IP Rating	EN 60529
Proximity Switches	EN 60947-5-2
cCSAus	UL 61010-1 (Third Edition):2012-05;



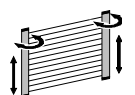
SAFETY AND LEGAL NOTICE

Please see the separate printout.

TECHNICAL DATA

Enclosure	Anodized aluminium, front foil dark red
Connection	4 pin M8-plug
Cables (optional)	4 pin cable with M8-plug in various lengths
Operating voltage	24 VDC (18...30 VDC) with max. 10% ripple
(DC voltage)	
Power consumption	nominal: 3.1 W
Inrush current	Max. ~7,5 A for ~40 µs
Outputs	Push/pull, short-circuit-proof, max. 150 mA
Environmental Range	-30 °C to +55 °C, humidity < 90%, non-condensing
Response time	Cycle time ~1 ms/beam plus base time (~ 4 ms)
max. beam	160 logical beams
number Spacing:	5 / 10 / 12.5 / 25 / 46 / 50 / 100 mm
IP Rating	IP54, interior and exterior usage optional: IP65
Altitude	< 2000 m
Pollution index	2

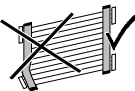
MOUNTING RECOMMENDATIONS



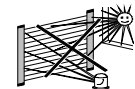
Perform the initial light grid setup carefully and in accordance to our mounting instructions, the technical documentations and the relevant regulations.

Do not expose the profiles to mechanical stress.

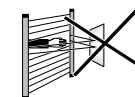
In general a rough alignment of the profiles is sufficient.



The monitored area between the transmitter and receiver must be clear of obstructions so that the grids can "see" each other.

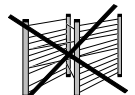


For the optical synchronisation of transmitter and receiver either the bottom or top beam (configurable) are used. The sync beam must not be interrupted or blanked for a lengthy period.



Profiles must be off-circuit when connecting or disconnecting the power supply.

A voltage difference of 60V between the light grid housing and the supply voltage must not be exceeded.



Avoid ground loops: Profiles must have the same ground potential.

Avoid the effects of external light sources (e.g., from flashlights or sunlight) on the receiver.

Ensure that different optical sensors do not mutually influence each other (e.g., other light grids/curtains, ...).

CALIBRATION

Calibration is important to ensure the proper device functionality. Always run a calibration cycle after every change made to the light grids. The monitoring range must be free of obstructions and when ready both LEDs on the receiver must be illuminated.

Attach Pin 2 of the receiver to +24 VDC and Power-up the device.

→ Calibration starts

Both LEDs on receiver illuminate.

→ Calibration successful

Remove voltage from Pin 2 while light grid remains powered.

→ Sensitivity data stored

Verify switching functionality.

→ Calibration finished

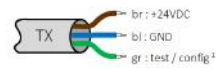
All interrupted beams (during calibration) will be automatically blanked.

Pin 4 must be connected in NPN systems.

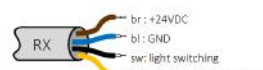
PARAMETERIZATION

PA-62-00011	Receiver
PA-82-00002	Transmitter

CONNECTION DIAGRAM CABLE VERSION (not compliant to cCSAus)

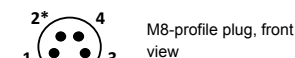
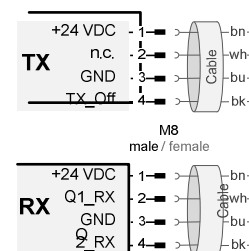


¹ adhere to the addendum TX deactivation



* used during calibration

CONNECTION-DIAGRAM M8



Pin	TX	R
1,3	X +24 VDC, GND	
2*	n.c.	dark switching
4	TX_Off ¹⁾	light switching

* used during calibration (Rx)

¹⁾ adhere to the addendum TX deactivation

ASSIGNMENT OF FUNCTIONALITIES

By inverting the polarity of supplies on transmitter and receiver the system can be switched between preassigned device functionalities:

Transmitter	Pin1	Pin3	Description
	+24VDC	GND	Range 1: 1.0 ... 5.0 m
	GND	+24 VDC	Range 2: 0.3 ... 1.3 m (reduced)

Receiver	Pin1	Pin3	Beschreibung
	+24VDC	GND	parallel beams
	GND	+24 VDC	parallel and diagonal beams

The depicted assignments represent a standardized configuration. The allotted functions can be modified and customized. For any configurations deviating from the standard please see recommendations and additional documentation sent with the product or the technical product documentation.

LED STATUS

LEDs on both the transmitter and the receiver are used for diagnostics.



Receiver			Transmitter	
LED1	LED2	Status	LED	Status
○	○	not ready	○	not ready
●	○	ready, interrupted	●	ready
●	●	beam ready	⊗	Error
⊗	○	Error		
⊗	○	Error, interrupted beam		
⊗	○	Configuration error		
⊗	⊗	grave error*		

* during calibration