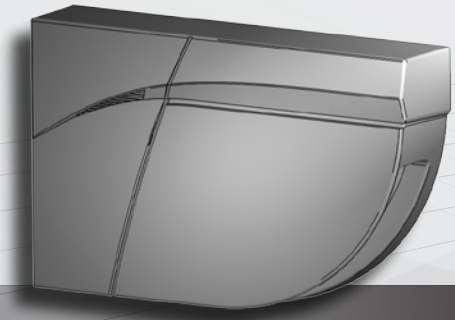
PLEASE KEEP FOR FURTHER USE - DESIGNED FOR COLOUR PRINTING

EN

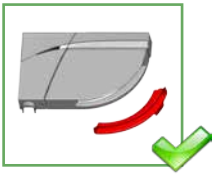


LZR®-FLATSCAN U

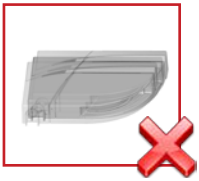
LASER MEASUREMENT DEVICE WITH BIDIRECTIONAL BUS COMMUNICATION

User's Guide for product version 0200 and higher
See product label for serial number

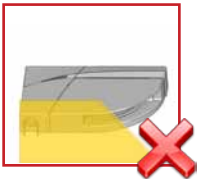
INSTALLATION TIPS



Remove the laser window protection before the commissioning of the sensor.



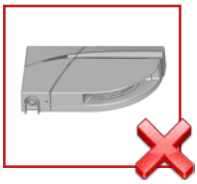
Avoid vibrations.



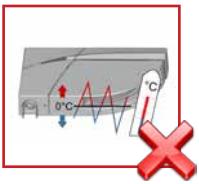
Do not cover the laser window.

Avoid moving objects and light sources in the detection field.

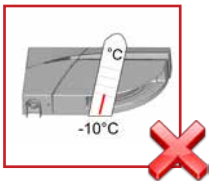
Avoid the presence of smoke and fog in the detection field.



Avoid condensation.



Avoid exposure to sudden and extreme temperature changes.



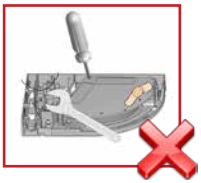
Keep the sensor permanently powered in environments where the temperature can descend below -10°C.

MAINTENANCE TIPS

Clean the laser window with compressed air.
If needed, wipe only with a soft, clean and damp microfibre cloth.

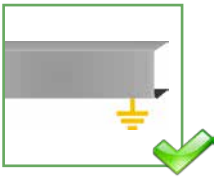
Do not use dry or dirty towels or aggressive products to clean the laser window.

Avoid direct exposure to high pressure cleaning.



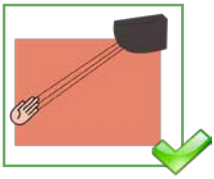
The warranty is invalid if unauthorized repairs are made or attempted by unauthorized personnel.

SAFETY TIPS

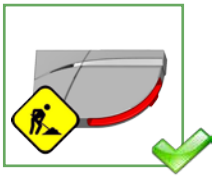


The controller and the supports must be correctly grounded.

Only trained and qualified personnel may install and setup the sensor.



Always test the good functioning of the installation before leaving the premises.



Do not remove the laser window protection when buiding works are still in progress on site.

- The installer needs to validate the functionning according to his specific application.
- The system provider is responsible for carrying out a risk assessment and installing the sensor.
  The system provider must check the compliance with applicable national and international regulations and standards.
- The manufacturer of the sensor cannot be held responsible for incorrect installations or inappropriate adjustments of the sensor.

APPLICATIONS

The LZR-FLATSCAN U is a LASER-based device measuring distances with 1 curtain.
It can be installed to scan in any direction and is designed to provide the highest degree of flexibility.

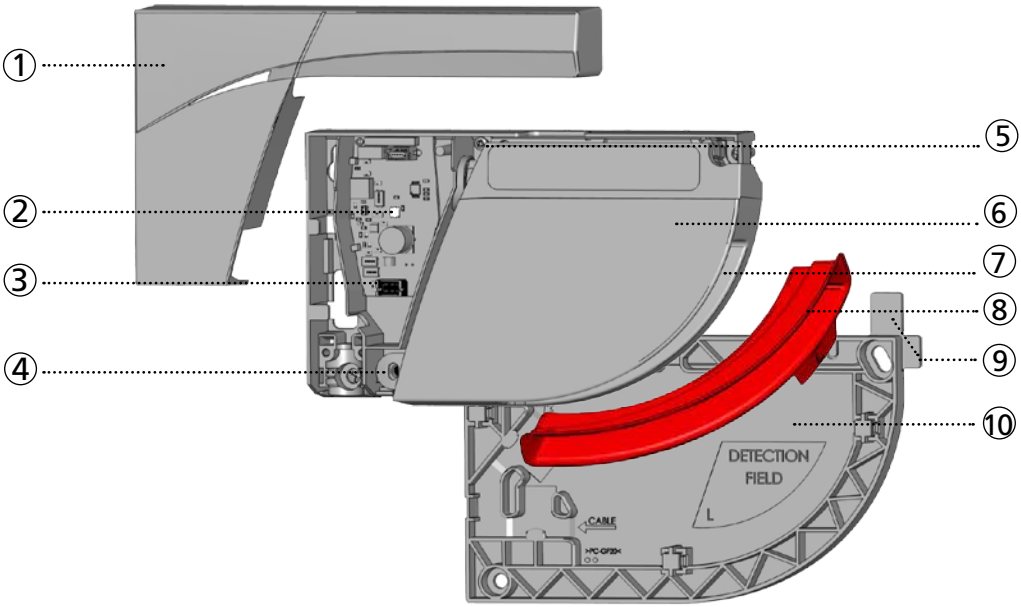
- Profile analysis
- Traffic control
- Navigation of Automated Guided Vehicles
- Navigation monitoring
- Object measurement / detection
- Position measurement
- Counting

The LZR-FLATSCAN U existis in 2 different types:

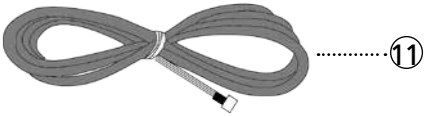
- without housing
- with housing

In this user's guide the installation of the LZR-FLATSCAN U with housing is explained.

DESCRIPTION



1. cover
2. LED
3. main connector
4. angle adjustment screw
5. lock screw
6. laser head
7. laser window
8. laser window protection
9. positioning aids
10. mounting base
11. power/ communication cable



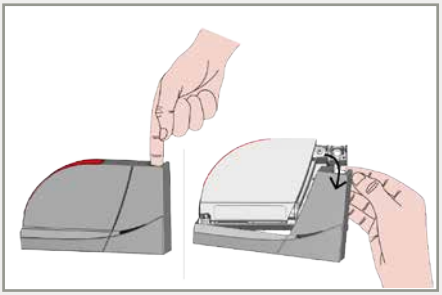
LED-SIGNALS

Power

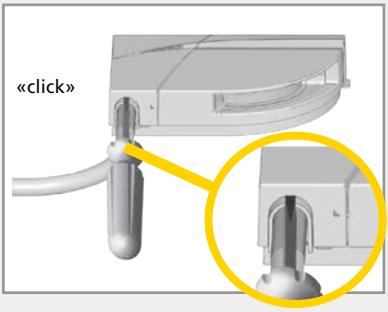
Laser head initialisation phase (2-3 sec.)

Sensor is switched ON and running

1 OPENING THE SENSOR

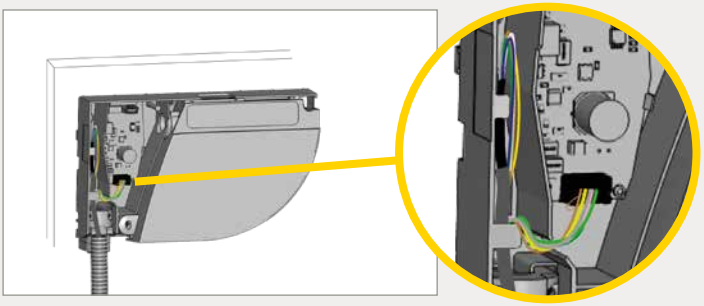


Take the sensor and remove the cover:
- put your finger in the hole
- pull firmly towards you in one movement.

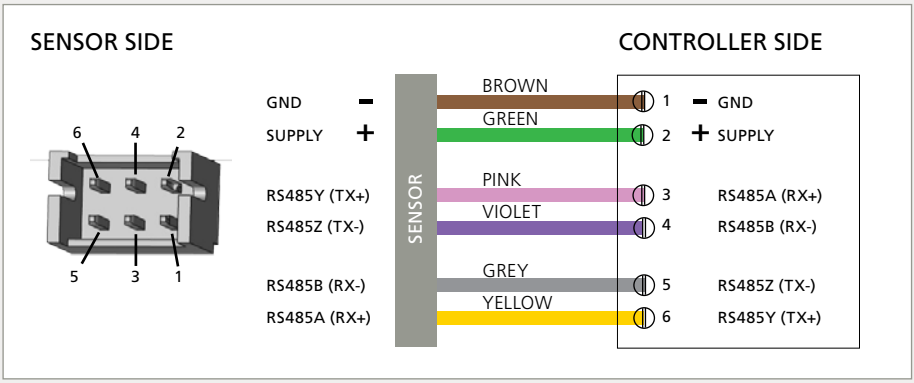


To open the sensor once fixed, position a screwdriver in the notch and pull upwards until the cover comes loose.

2 WIRING TO CONTROLLER

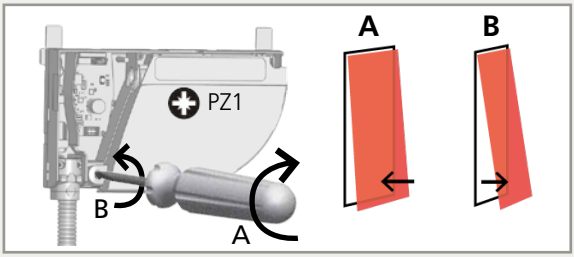


Make a loop with the wires of the power cable and pass them through the notch as indicated.
Block the cable behind the notches.



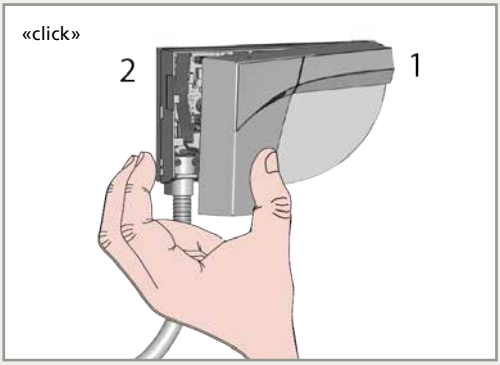
Cut the power cable to the right length, strip the 6 wires and connect all wires as indicated.
The polarity of the power supply is important.

3 ADJUSTING THE CURTAIN ANGLE



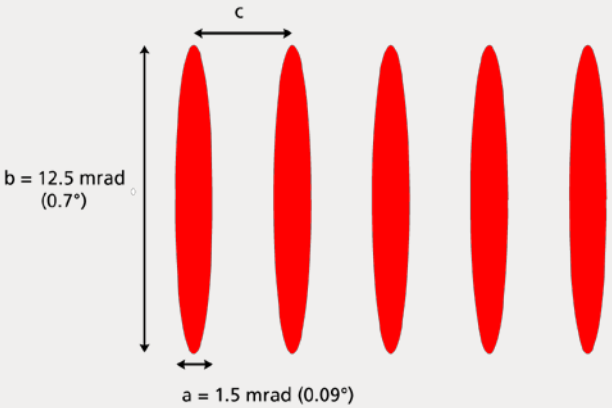
If necessary, adjust the tilt angle of the laser curtain by turning the tilt angle adjustment screw.

4 CLOSING THE SENSOR



Close the cover starting on the narrow side (1).
Do not hesitate to push.

5 SPOT SIZE

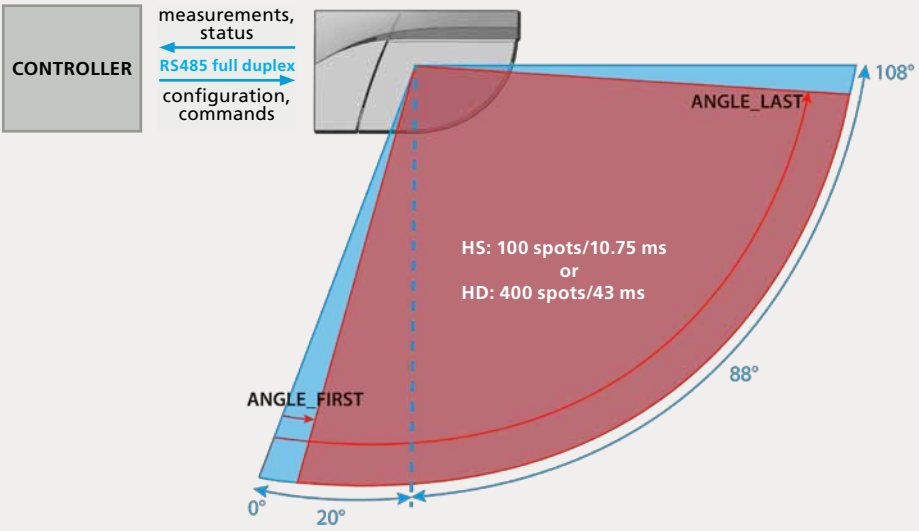


SPOT SIZE

@ 1 m: a = 1,5 mm; b = 12,5 mm
@ 4 m: a = 6 mm; b = 50 mm
@ 8 m: a = 12 mm; b = 100 mm

a = spot width
b = spot length
c = angular resolution

6 ANGULAR COVERAGE*



configured angular coverage
max. range

HS: High Speed
HD: High Definition

For more information see the LZR®-Flatscan U Protocol.

TECHNICAL SPECIFICATIONS

Technology	LASER scanner, time-of-flight measurement
Measurement range	max. 8 m 4 m @ 2% remission factor, 8 m @ 8% remission factor
Number of planes	1
Number of points/plane*	max. 400 pts
Angular resolution*	min. 0,18°
Angular coverage*	max. 108°
Scanning rate	93 scans/sec. @ angular resolution ≥ 0,74° 23,25 scans/sec. @ angular resolution < 0,74°
Emission characteristics	IR LASER: Wavelength 905 nm; max. output pulse power 25 W; Class 1
Supply voltage	12 - 24 V DC ± 15 %
Power consumption	< 2 W
Response time	measurements are refreshed every: 10,75 ms @ angular resolution ≥ 0,74° measurements are refreshed every: 43 ms @ angular resolution < 0,74°
Measurement error	@4m: ± 30 mm @8m: ± 70 mm
Repeatability	@4m: ± 5 mm @8m: ± 10 mm
Peak current at power-on	0,8 A (max. 20 ms @ 24 V)
Cable length	2,5 m
Connector	DF11-6DS-2C
Serial communication	see *LZR®-Flatscan U Protocol* (available for download on our website)
Type	asynchronous
Interface	RS 485
Communication mode	full-duplex
Transmission speed	max. 921600 bit/sec (configurable)
Topology	point to point
Symbol coding	1 start bit, 1 stop bit, no parity bit
File type	8 bits
Byte order	little endian, LSB first
LED-signal	1 tri-coloured LED: sensor/communication status
Dimensions	142 mm (L) × 85 mm (H) × 23 mm (D) (mounting base + 7 mm)
Material - Colour	PC/ASA - Black
Tilt angles	-2° to +6° (with mounting base) +2° to +10° (without mounting base)
Protection degree	IP54 [EN 60529]
Temperature range	-30 °C to +60 °C if powered; -10 °C to +60 °C unpowered
Humidity	0-95 % non-condensing
Vibrations	< 2 G
Expected lifetime	20 years
Norm conformity	EN 61000-6-2 EMC - Industrial level EN 61000-6-3 EMC - Industrial level EN 60950-1; EN 60825-1 Laser Class 1; EN 50581

* These parameters can be configured via the RS 485 communication interface.
For more information on the existing options, see *LZR®-Flatscan U Protocol.*

Specifications are subject to change without prior notice.
All values measured in specific conditions.

TROUBLESHOOTING

○	LED is off.	There is no power.	1	Check cable and connections.
		The polarity of the power supply is inverted.	1	Check the polarity of the power supply.
1	The ORANGE LED flashes 1x.	The sensor signals an internal fault.	1	Cut and restore power supply. LED flashes again, replace sensor.
2	The ORANGE LED flashes 2x.	Power supply is out of limit.	1	Check power supply (tension, capacity).
			2	Reduce the cable length or change cable.
3	The ORANGE LED flashes 3x.	Internal communication error.	1	Cut and restore power supply. LED flashes again, replace sensor.

⚠ Some errors may not relate to the LED. In this case, refer to the *LZR®-Flatscan U Protocol*.

©BEA | Original instructions | **47.0101 / V2** - 09.17

BEA EUROPE | LIEGE Science Park | BEA SA - ALLÉE DES NOISETIERS 5 - 4031 ANGLEUR [BELGIUM] | T +32 4 361 65 65 | F +32 4 361 28 58 | INFO@BEA.BE | WWW.BEA-SENSORS.COM

BEA ASIA | 4TH, 5TH FLOOR, M8 BUILDING, NO. 1 JIUXIANQIAO EAST ROAD | CHAOYANG DISTRICT | 100015 BEIJING [CHINA] | T +(86 10) 57 76 16 30 | F +(86 10) 62 62 87 75 | INFO@BEACHINA.CN | WWW.BEA-SENSORS.COM

BEA USA | 100 ENTERPRISE DRIVE - 15275 PITTSBURGH, PA, [USA] | T +1 4 12 249 4100 | F +1 4 12 249 4101| INFO@BEAINC.COM | WWW.BEA-SENSORS.COM

CE BEA hereby declares that the LZR®-FLATSCAN U is in conformity with the basic requirements and the other relevant provisions of the directives 2014/30/EU, 2014/35/EU and 2011/65/EU.

The complete declaration of conformity is available on our website.

Only for EC countries: According to the European Guideline 2012/19/EU for Waste Electrical and Electronic Equipment (WEEE)