



LZR[®] - FLATSCAN RS305

COMPACT LASER SCANNER
FOR PRESENCE DETECTION OF PLATFORM SCREEN DOORS

User's Guide for product version 0100 and higher
See product label for serial number

INTRODUCTION IN GENERAL

FLATSCAN RS305 is a detective laser scanner with single curtain which is especially suitable to secure the hazardous area between the platform screen doors and train doors.

Thanks to the compact and slim design it can be installed in the narrow gap easily and accurately monitoring the zone between the train doors and platform screen doors to prevent passengers from getting trapped in between.

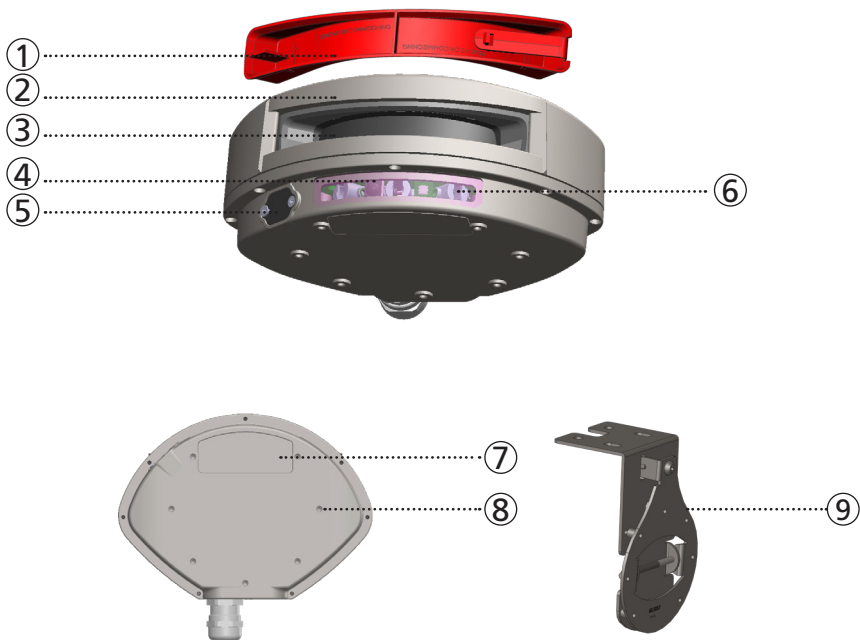
The laser scanner is CLASS 1 certified device according to IEC 60825-1, which has no damage or impact on human eyes & bodies. The visible laser spots are CLASS 2, which can be shut down during normal work.

The opening angle of FLATSCAN RS305 is 90 degree which can well cover the rectangle area defined by doors. With 400 spots scanning within the curtain, the scanner covers the detection area with high resolution, and configuration of objective size can be defined according to application.



- Please read through the user's guide carefully.
- Please install, configure and use the devices in the given conditions illustrated in the user's guide.
- Please do not disassemble the device without authority of the manufacturer, otherwise the manufacturer will not take any responsibility for the defect of devices.
- Please evaluate the application if the device is suitable before use it.

DESCRIPTION



- | | | |
|-----------------------------------|------------------------------------|-----------------------|
| 1. Front Cover (protective cover) | 5. USB connector (factory use) | 9. Bracket (optional) |
| 2. Housing | 6. Visible laser beams | |
| 3. Laser window | 7. Internal calibration interface* | |
| 4. LED-signal | 8. Screw hole (with screw kit) | |



* DO NOT OPEN

LED-SIGNALS



detection



error LED



LED flashes quickly



LED flashes slowly



power on



no power



LED flashes



LED is off

SYMBOLS



Caution!
Laser radiation



Remote control
sequence



Possible
remote control
adjustments



Factory values



Attention



Note

SAFETY TIPS



The device contains IR and visible laser spots.

IR laser: Wavelength 905nm; Max. output pulse power 25W
(Class 1 according to IEC 60825-1)

Visible laser: Wavelength 635nm; Max. output CW power 0.95mW
(Class 2 according to IEC 60825-1)

The visible laser spots can be deactivate during normal functioning.
The installer can activate the visible spots if needed.



CAUTION!

Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

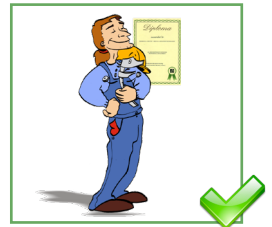
Test the good functioning of the installation before leaving the premises.



Do not look into the laser emitter or the visible red laser beams.



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



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

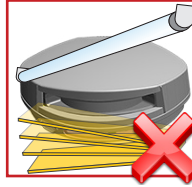
INSTALLATION AND MAINTENANCE



Avoid extreme vibrations.



Do not cover the laser window.



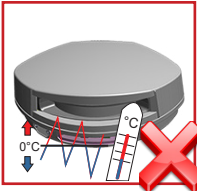
Avoid moving objects and light sources in the detection field.



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



Avoid condensation.



Avoid exposure to sudden and extreme temperature changes.



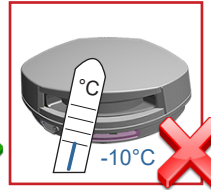
Avoid direct exposure to high pressure cleaning.



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



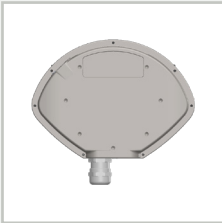
Clean the laser window with compressed air. When needed, wipe the laser window only with a soft, clean and damp microfibre cloth.



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

INSTALLATIONS

1 MOUNTING



Please do a thorough inspection and evaluation to the installation field to make sure the way of installing the scanner is suitable to the application.

- Please strip away the front cover and make sure the laser window is not covered by anything before power on and configuration.
- Always take appropriate action to secure the safety of installer and implement the installation and configuration during the non-operation time.
- Grounding: Connect to the earth.

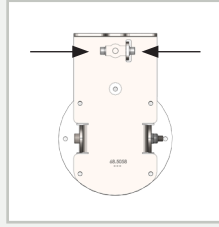
Bracket installation

- Choose appropriate or universal bracket according to the filed condition.
- Fix the scanner on the bracket in a proper position, where can make sure the laser window at its right angle.
- Fix the bracket with the scanner on a firm wall or pole where the laser curtain could shoot on the right place.

* The bracket is an optional accessory.



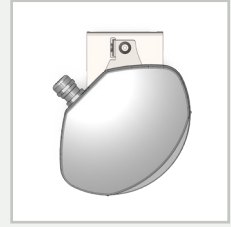
Prepare the bracket for installation.



Loosen the screws on the top of the back side.



Fix the laser scanner on the bracket at right position.

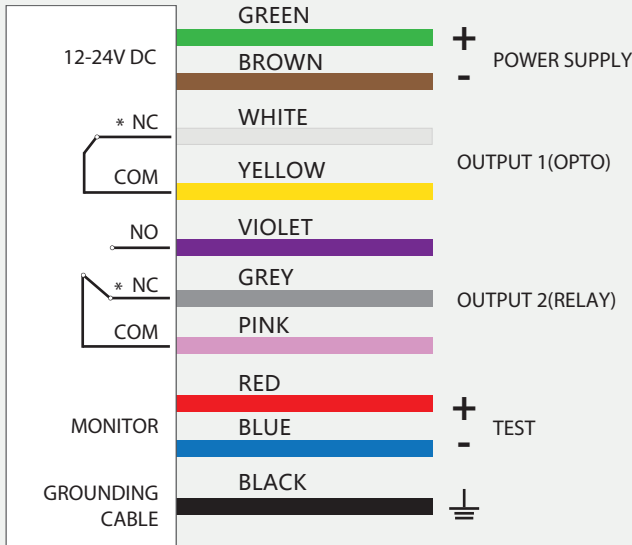


Install the bracket with laser scanner at a solid and appropriate place. Then tighten the screws.



- Only the authorized installer could implement the installation and configuration.
- If the environment temperature is lower than -10°C, please make sure the scanner keep power on.
- Avoid to use the scanner in environment with heavy rain/fog/vibration.

2 WIRING



* Output status when scanner is operational. (Factory default connection)



If the monitor is not connected, the cable must be wired to the power cable.

HOW TO USE THE REMOTE CONTROL

Before use the remote control, please check the following points:

1. The effective control distance is 4 meters, please always use remote control within 4 meters of the scanner.
2. The scanner curtain should not be perpendicular to the high reflective surface, a 3-degree angle in between is necessary to guarantee communication between the scanner and the remote control.
3. To avoid unexpected operation, the authorized operator or installer could set a password to get into the parameter setting process.



After unlocking, the red LED flashes and the scanner can be adjusted by remote control.



If the red LED flashes quickly after unlocking, you need to enter an access code from 1 to 4 digits.



To end an adjustment session, always lock the scanner.

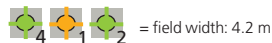
ADJUSTING ONE OR MORE PARAMETERS



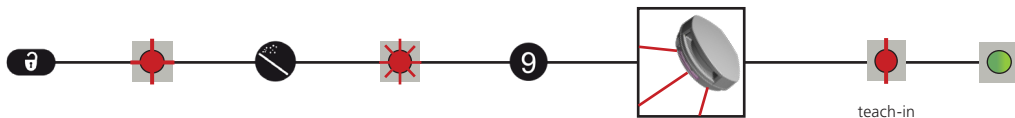
CHECKING A VALUE



X = THE NUMBER OF FLASHES INDICATES THE VALUE OF THE PARAMETER.



RESTORING TO FACTORY VALUES



SAVING AN ACCESS CODE

The access code is recommended for scanners installed close to each other.



* Setting will take effect 1 minute later.

DELETING AN ACCESS CODE

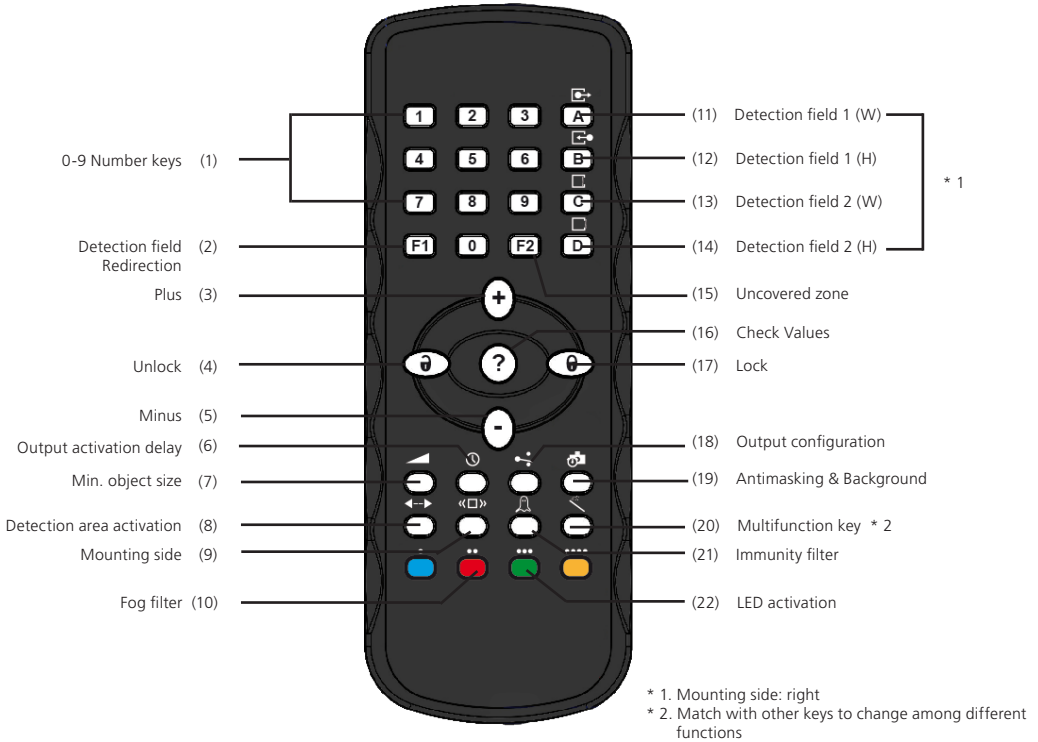


* Please complete this setting within 1 minute after power on.



30 minutes after last use, the scanner locks the access to the remote control session. Cut and restore power supply. The remote control session is accessible again during 30 minutes.

PARAMETER SETTINGS

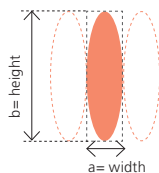
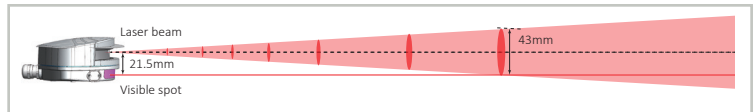


VISIBLE SPOTS



ALIGNMENT

- Confirm the wiring of the scanner.
- Power on.
- Switch on the visible spots, then align the curtain position precisely (refer to remote control instruction). Adjust the tilt angle (with universal bracket) to make sure the curtain covers the detection area approximately if necessary .
- The shape of laser spot is oval, the further the laser spot shoots ,the bigger the spot diffuses, refer to below diagram to calculate the position to prevent spot shooting on train body.
- Visible spots are used for the estimation of curtain coverage during the initial adjustment stage. For precise installation of the sensor, please evaluate your detection field and adjust curtain accordingly.



Distance (m)	b (mm)	a (mm)
1	12.5	1.5
2	25	3
3	37.5	4.5
4	50	6
5	62.5	7.5

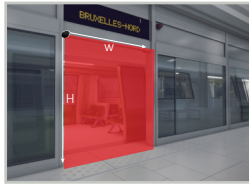


Do not look into the visible beams directly!

The visible spot has around $\pm 1.5\text{cm}$ deviation at 3m distance, please make sure the curtain is in the right position.

* For more information on the visible spot and its calculations, please refer to our **Application Note**.

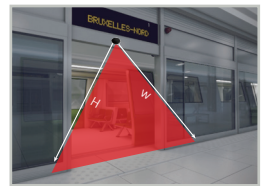
MOUNTING SIDE



left



right



center

The scanner can be configured at left side, right side and central.

Please note that this parameter must be defined before setting the configuration, as the detection area will link to this parameter.

* The sensor will automatically launch teach-in with every adjustment. Please leave the detection field and make sure it is clear before the teach-in process begins.

DETECTION FIELD

FIELD 1

W	A	000	-	550	
					400 cm
					0 - 550 cm
H	B	000	-	550	
					400 cm
					0 - 550 cm

FIELD 2*

W	C	000	-	550	
					400 cm
					0 - 550 cm
H	D	000	-	550	
					400 cm
					0 - 550 cm



Detection area: detection will only happen when objects locate in the detection area. The dimension of detection area could be adjusted by adjusting the parameter.

* Please note that the detection range can be guaranteed with 5% reflectivity @4m diagonal when fog filter value is set to 0, if the fog filter value is not 0, then the guaranteed detection distance will be shortened with 5% reflectivity.

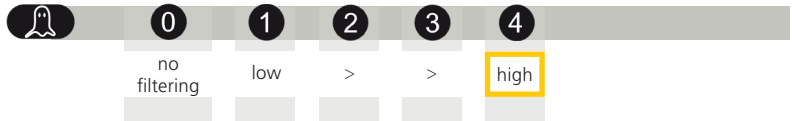


UNCOVERED ZONE



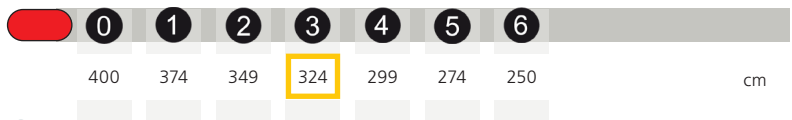
Uncovered zone: increase in case of snow, dead leaves, etc. Measured in specific conditions and determined by application and installation.

IMMUNITY FILTER



Immunity Filter: when there's interference from environment such as rain, snow which could create some false detection, occasional false detection could be decreased by increasing immunity level.

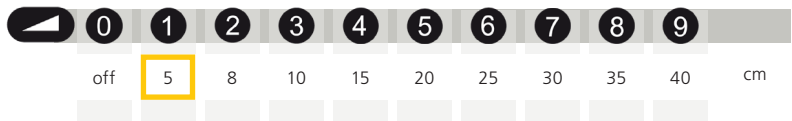
FOG FILTER*



Fog filter: different values means different max. detection distances with 5% reflectivity.

* The sensor will automatically launch teach-in with every adjustment. Please leave the detection field and make sure it is clear before the teach-in process begins.

MIN. OBJECT SIZE



Min. object size: we guarantee all objects above the minimum object size will be detected, but objects below minimum object size are not always rejected.

OUTPUT ACTIVATION DELAY




Output activation delay: the detection will generate output only when detection lasts longer than the given number.



FACTORY VALUES

DETECTION AREA ACTIVATION

	0	1	2	9
	OFF	field 1	field 2	field 1 and field 2

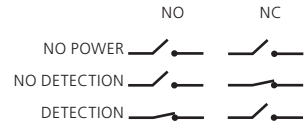
 Detection area activation: detection field 1 or detection field 2 can be activated or deactivated.

DETECTION FIELD REDIRECTION

	F1	0	1	2	3
R1		field 1	field 2	field 1 or field 2	error alarm
R2		field 2	field 1	error alarm	field 1 or field 2

OUTPUT CONFIGURATION

	1	2	3	4	
R1	NO	NC	NC	NO	
* R2	NC	NO	NC	NO	




NO = normally open
NC = normally closed

* R2 default connection: Pink/ Grey

ANTIMASKING & BACKGROUND

	0	1	2	3
antimasking	OFF	OFF	ON	ON
background	OFF	ON	OFF	ON

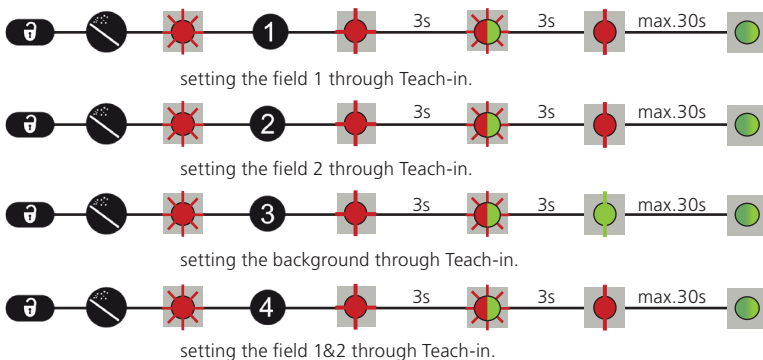
 Antimasking: when laser window is covered, the scanner will go into error mode.
Background: when background is changed, the scanner will go into error mode.

LED ACTIVATION

	0	1
LED OFF		LED ON

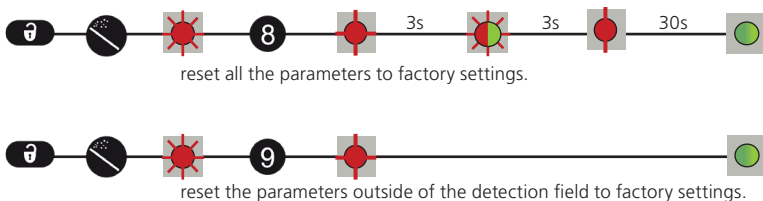


TEACH-IN



Teach-in: the scanner could automatically learn the environment profile as its detection field with self-learning function; this feature provides great convenience when there are irregular objects exist within the detection field which should be considered as background.

RESET TO FACTORY SETTINGS



! IMPORTANT: Test the good functioning of the installation before leaving the premises.

TROUBLESHOOTING

The FLATSCAN RS305 is designed to be able to give trouble shooting through LED.

	The ORANGE LED is on permanently.	The scanner encounters a memory problem.		Send the scanner back for a technical check-up.
	The ORANGE LED flashes 1 x /2 x /3 x every 3 seconds.	The scanner signals an internal fault. If the internal error still exists after 3 resettings, the LED will flash 9 times and the scanner will be locked.	1	Cut and restore power supply.
			2	If orange LED flashes again, send the scanner back to manufacturer.
	The ORANGE LED flashes 4 x every 3 seconds.	Error for antimasking or boundary.	1	Check if there's pollution on front window.
			2	Check if there's problem of background.
	The ORANGE LED flashes 5 x every 3 seconds.	Error happened during the teach-in process.		Relaunch a teach-in process.

TECHNICAL SPECIFICATIONS

Technology	LASER scanner, time-of-flight measurement
Detection mode	Presence
Max. detection range	Max. 5.5m*5.5m (4m@5% reflectivity)
Opening angle	90°
Angular resolution	0.23° (400 spots within 90°)
Testbody	700mm x 300mm x 200mm (for your reference)
Emission characteristics	Wavelength 905nm; Max. output pulse power 25W (CLASS 1) Wavelength 635nm; Max. output CW power 0.95mW (CLASS 2) Visible spot
Supply voltage	12-24V DC ± 15%
Power consumption	≤ 2.3W, peak current: 1A
Response time	Max. 50ms (+ output activation delay)
Output	1 opto (galvanic isolation - polarity free) Max. switching voltage: 42V AC/DC Max. switching current: 100mA 1 Relay (free of potential contact) Max. contact voltage: 42V AC/DC Max. contact current: 1A (resistive) Max. switching power: 30W DC/60VA AC
LED-signals	1 tri-colored LED: detection / output status
Dimensions	124mm (L) × 90mm (H) × 50mm (D) (without bracket)
Colour	Black
Tilt angles	±3° (with bracket)
Protection degree	IP66 (EN 60529)
Temperature range	-30°C to +60°C if powered
Humidity	0-95% non-condensing
Vibrations	< 2G
Norm conformity	IEC 60825-1; EN 60950-1; EN 61000-6-2; EN 61000-6-3; EN 60529:2001; EN 50121-3-2:2006

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



SAFETY INSTRUCTIONS

The manufacturer of system is responsible for carrying out a risk assessment and installing the scanner and the system in compliance with applicable national and international regulations and standards.

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

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

Avoid touching any electronic and optical components.

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BEA hereby declares that the LZR@-FLATSCAN RS305 is in compliance with European directives 2014/30/EU and 2011/65/EU. The full text of the EU declaration of conformity is available on our website



FOR EC COUNTRIES: THIS PRODUCT SHOULD BE DISPOSED OF SEPARATELY FROM UNSORTED MUNICIPAL WASTE.