LZR[®]-WIDESCAN

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OPENING, PRESENCE & SAFETY SENSOR FOR INDUSTRIAL DOORS





INSTALLATION & MAINTENANCE TIPS



Avoid extreme vibrations.



Keep the protection film during the mounting of the sensor. Remove it before launching a teach-in.







Do not cover the laser window screens.



Wipe the laser window with a soft, clean and damp microfibre cloth. We recommend using optical lens cleaner.



Avoid moving objects in the detection field.



Do not use aggressive products or dry towels to clean the optical parts.



Avoid exposure to sudden and extreme temperature changes.



Avoid direct exposure to high pressure cleaning.

The device contains IR and visible laser diodes. IR laser: wavelength 905nm; max. output pulse power 75W (Class 1 according to IEC 60825-1) Visible laser: wavelength 650nm; max. output CW power 3mW (Class 3R according to IEC 60825-1)

The visible laser beams are inactive during normal functioning. The installer can activate the visible lasers if needed.



CAUTION!

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



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



The metal base on which the sensor is mounted, must be correctly earthed.



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



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



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



- The device cannot be used for purposes other than its intended use. All other uses cannot be guaranteed by the manufacturer of the sensor.
- The manufacturer of the door system is responsible for carrying out a risk assessment and installing the sensor and the door system in compliance with applicable national and international regulations and standards on door safety.
- The manufacturer of the sensor cannot be held responsible for incorrect installations or inappropriate adjustments of the sensor.



- 1. main connector
- 2. protection film
- 3. laser window
- 4. USB cap
- 5. LED-display
- 6. cover
- 7. cover lock

- 8. cable passage
- 9. LCD-screen
- 10. keypad
- 11. tilt angle adjustment screw (1)
- 12. parallel angle adjustment screw (2)
- 13. lateral angle lock screw (1)
- 14. mounting bracket

BASIC PRINCIPLES: FUNCTIONS & OBJECT

There are 3 main functions that create 3 overlapping detection fields with certain detection characteristics each:



There are 4 additional functions. All detection functions can be combined to trigger a specific output (see output functions on page 16).

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Motion +: detection of other moving object type in motion field

Pull cord: detection of object in learned pull cord zone

Speed: detection of object below a maximum speed

Height: detection of object above a minimum height

The sensor carries out a 3D-object analysis and detects depending on the following characteristics: height, width & depth.



LED-SI	GNAL				
LED i	is on O LED is off	LED flash	es LED flashes quickly	s LED flas slowly	thes LED flashes
SETTINGS		DETECTION			
\bigcirc	All fields	\bigcirc	Motion detection		Remote control session
\bigcirc	Motion field	\div O	Pull cord detection		Teach-in status
0 🔆	Pull cord		Presence detection	$\frac{1}{2}$	Troubleshooting
\bigcirc	Presence field		Safety detection		
	Safety field				
SYMBO	OLS				
	Factory value	🚹 Im	portant!	Good to	know
Main fung	CTIONS: Motio	on ADE	DITIONAL FUNCTIONS:	Motion +	>>> Speed
	Prese	nce		Pullcord	T Height
	Safet	у			

OPENING THE SENSOR



Before opening the sensor, make sure the cover is **not locked** (red cover lock).



Pull the two legs on top in order to open the cover.



If neededn, remove the cover completely before installing the sensor.





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



If the red LED flashes quickly after unlocking, enter

know the access code, cut and restore the power

an access code from 1 to 4 digits. If you do not

supply. During 1 minute, you can access the

sensor without any code.



To end an adjustment session, always lock the sensor.



If necessary, select first the corresponding detection field before pushing on the parameter and changing the value. The second LED indicates the detection field.



HOW TO ADJUST THE SENSOR BY LCD



Enter the LCD-menu. Select a folder, parameter or value. Confirm a value and exit edit mode.

Activate red spots on floor.

Launch CENTRE TOOL for correct positioning of detection field.



Select to return to previous menu or display.



Scroll up or down the menu items or values.

English Deutsch	
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Select your **Language** before entering the first LCD-menu. During the first 30 seconds after power-on of the sensor or later in the diagnostics menu.

LONG



Enter a Password if necessary.

More

Select **More** to access advanced adjustments.



Select **Diagnostics** to go to the diagnostics menu



Displayed value = factory value



Displayed value = saved value

For detailed information about adjustments via LCD, please refer to the application note WIDESCAN LCD SETTINGS.

INSTALLATION STEPS

1a MOUNTING & WIRING

Mounting height: **as high as possible (max. 6 m)**. The size of the detection field depends on the mounting height.

Mounting position: **centre of door or left corner.** Recommended: centre if outside, left if inside. Mounting on the right side of the door should be avoided.

The UNIVERSAL BRACKET ACCESSORY can be used if the environment requires it.

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Screw the mounting bracket on the wall. You can also install the sensor directly without using the mounting bracket.



Turn the sensor as shown to fasten the sensor onto the mounting bracket.

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Unscrew the angle lock screw if necessary.



Plug the connector and pass the cable through the cable passage without making a loop.



Connect the wires. The output functions can be configured if necessary, see p. 17.





Push OK to return to detection display.

* output status when sensor is powered during non-detection with factory values ** only output 2 is tested

1b POSITIONING OF DETECTION FIELD

Remove the blue protection film from the laser window and launch the following procedure to position the detection field correctly centred in front of the door:



Push long on OK to enter the CENTRE-TOOL and activate the visible spots.



Make sure the curtain is parrallel to the door by adjusting one or both screws on the side.



Rotate the sensor in order to align the centre of the red spots with the centre of the door.



Position the curtain closer to or further away from the door by turning the screw at the top. Push OK to confirm.



Rotate the sensor in order to align the centre of the detection field with the centre of the door using the LCD-screen. When the sensor is in the centre of the door, the position is OK.



Carefully lock the sensor position by firmly fastening the angle lock screw. Make sure the red spots have not moved.

Push OK to exit and deactivate the visible spots.





2. Close the cover.



Lock the cover by turning the lock screw clockwise.

2 TEACH-IN: INSTALL

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The teach-in zone (square in front of the 2 visible spots) must be empty and even. If not, see troubleshooting.
This teach-in must be launched each time a sensor angle has been changed.
Make sure the blue protection film is removed and the sensor is closed!



3 PRESETTINGS

Choose one of the following presettings. They adjust a number of parameters automatically according to your application. If necessary, you can also adjust a parameter independently via remote control (see p. 10).



OVERVIEW OF REMOTE CONTROL SETTINGS (OPTIONAL)

0	• 0	0	1	2	3	4	5	6	7	8	9	
				When I	aunching	a walk tear	h-in you c	an shane ti	he detectio	n fields as	desired b	walking along
\mathbf{S}	Teach-in	install	walk	the des	ired field.	To use this	option, ple	ease conta	ct our supp	port and a	sk for the a	application note.
\bigcirc	Presettings				dard	corridor	corner					
8C	Service Mode	The ser a mech	vice mode anical tea	e deactivate ch-in of the	es the pres door or r	ence and s naintenanc	afety dete e work. Ex	ction durin it the servi	ig 15 minu ice mode b	tes and ca y using th	n be usefu e same sec	l during an installation, quence.
	Factory Reset				full: cor partial:	nplete rese reset of al	et of all values exc	ues cept IN/OU	т	full	partial	
00	Red spots	Activate	es the red	spots on th	ne floor. Th	ne spots sta	ay active du	uring 15 m	inutes or c	an be swit	ched off th	ne same way.
			ightarrow									\bigtriangleup
С	Field width	00	0-0	999	000 - 9	99 cm	999 cm		field s	top:		<u></u>
D	Field stop (depth)	00	0-0	999	000 - 9	99 cm	999 cm		the fiel	d tart:		START B
В	Field start	00	0-0	999	000 - 9	999 cm	000 cm		from se beginn	ensor to ing of the	field	
	Object type	vehicle:	XL: only la only vehic	arge vehicle les are det	s are dete ected (all t	cted sypes)			vehicle XL	vehicle	any	
	Direction	uny: un	bi	Uni CTR				uni INV	uni CTR+		uni	CTR: cross traffic rejection INV: inverted
A	Immunity		1	2	3	4						
			✻)								
	Teach-in		# 1	# 2	# 3							pedestrian: only pedes- trians are detected
	Object type		pedes- trian						vehicle XL	vehicle	any	vehicles are detected vehicle: only vehicles are
0	Min. presence tin	ne ^{0 s}	1 s	2 s	3 s	4 s	5 s	6 s	7 s	8 s	stop	detected (all types) any: all objects are detected
	PRESENCE	•										
C	Field width	00	0-6	999	000 - 9	99 cm	999 cm					
D	Field stop (depth)	00	0-6	999	000 - 9	99 cm	300 cm	: :				START B
в	Field start	00	0-0	999	000 - 9	999 cm	000 cm	1				< @ →→
	Object type	vehicle vehicle:	XL: only la only vehic	irge vehicle les are det	s are dete ected (all t	cted ypes)	: :		vehicle	vehicle	any	
	Immunity	any: all	objects are	2	3	4	5		AL			
6	Max presence tim	ne	30 s	1 min	2 min	5 min	10 min	30 min	60 min	120 min	infinite	
	SAFETY	r										
C	Field width	00	0-0	99	000 - 99	99 cm	999 cm					
D	Field stop (depth)	00	0-0	99	000 - 99	99 cm	040 cm					
	Immunity		1	2	3	4	5					

OVERVIEW OF REMOTE CONTROL SETTINGS (OPTIONAL)

ð	• •	0	1	2	3	4	5	6	7	8	9
6) 6) 6)	Out 1 Function Out 2 Function Relay Function	no change no change no change	motion presence motion	mot or pull safety pull cord	mot/pull/ safe pres/ safety presence	mot/pull/ pres & height safety	pull cord motion+	motion+ height	motion+ & height speed	motion+ & speed pres & height	OUT1 OUT2 REL E1 0 6 C3 0 0 C3 0 0 C3 0 0
C) C) C)	Out 1 Logic* Out 2 Logic* Relay Logic*		passive	active	NO	NC NC	freq 100 hZ**				Always enter 3 digits for output parameters: - 1st digit refers to output 1 - 2nd to output 2 - 3rd to the relay Enter 0 to keep the value unchanged. See p. 16-17 for more info on
000000000000000000000000000000000000000	Out 1 Holdtime Out 2 Holdtime Relay Holdtime	100 ms 100 ms 100 ms	1 s 1 s 1 s	3 s 3 s 3 s	5 s 5 s 5 s	10 s 10 s 10 s	30 s 30 s 30 s	1 min 1 min 1 min	5 min 5 min 5 min	10 min 10 min 10 min	20 min 20 min

FACTORY VALUES

* output status during non-detection

** during non-detection

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Without selecting a colour key, you adjust the width of all 3 detection fields (motion, presence & safety) at the same time.

Heating function via LCD: Quick Start > More > Heating

Choose AUTO to continuously remove condensation on the laser window (higher power consumption).

QR-code via LCD: Diagnostics > QR-code

To quickly send an overview of all selected values, scan the QR-code on the LCD-screen using your smartphone scanner app. If needed use the flashlight to improve contrast. A string of digits will be visible on your phone. Send this string via email to our technical support team.



FIELD		000 cm - (no field)	- 9999		START B
FIELD STOP	D	000 cm -	- 9999		STOP
OBJECT TYPE		vehicle vehicle xL vehicle XL: only large veh vehicle: only vehicles are any: all type of objects are	8 9 ehicle any icles are detected detected (all types) e detected		
DIRECTION		bi uni C	TR uni INV	7 uni CTR+	9 uni
	ВІ	r site	bidirectional detection approaching and going a	way	0
	UNI		unidirectional detection approaching in any direct (distance between object	tion and sensor dec	(9 streases)
	UNI CTR (100%)		unidirectional detection approaching with cross t	raffic rejection	2
	UNI CTR + (100% +)		unidirectional detection approaching with cross t + 1 m in front of door : b without cross traffic reject	raffic rejection vidirectional det ction	ection 7
	UNI INV		unidirectional detection v only going away	with inversion	6



minimal position = vertical axis of sensor

PULL CORD



The door only opens when an object is detected in the virtual pull cord zone during at least 2 seconds (factory value).

In order to use this function:

- the sensor must know its environment: teach-in install is OK.
- the corresponding wires must be connected to the door activation input (out 1 by default)
- the output or relay function must be set to motion or pull cord (factory value) or pull cord.

To create a virtual pullcord:



By remote control you can choose the object type and its minimum presence time to activate the door:



stop: only a complete stop activates the door

To delete the virtual pull cord zone, simply relaunch a pull cord teach-in (step 1) without standing in the scanning zone. After 1 minute the sensor flashes 5x orange. Push unlock + lock to exit the adjustment mode:

HEIGHT TRIGGER

All objets higher than 2.25 m will activate the selected output.

This option is typically used to open the door completely or partially depending on the height of the object. The wiring and logic of the output configuration are related to the door controller.



The door opens partially (motion detection - out 1)

The door opens completely (height detection - relay)

You can adjust the minimum height limit via LCD: Others > Height min. (1.75 - 4 m)

SPEED TRIGGER

All objets moving slower than 5 km/h will activate the selected output.

This option is typically used in confined areas with no frontal traffic and is included in the presetting «corridor».





The door opens.

The door stays closed.

You can adjust the maximum speed limit via LCD: Others > Speed max. (5 - 50km/h)

OUTPUT FUNCTIONS

There are 7 detection functions, 3 main functions and 4 additional opening functions:

\bigtriangleup	Motion	detection of moving object in motion field - door opens	\bigcirc	\bigcirc
	Presence	detection of object in presence field - door does not close	0	
-	Safety	detection of everything in safety field - door does not close	0	₩
_				
	Motion +	detection of other type of moving object in motion field - door opens $\!\!\!\!*$	\bigcirc	\bigcirc
	Pull cord	detection of object in learned pull cord zone - door opens	☆	\bigcirc
>	Speed	detection of object below max. speed (< 5 km/h) - door opens	0	\bigcirc
₹	Height	detection of object above min. height (> 2.25 m) - door opens	0	\bigcirc

* For more information on the motion + function, please contact our support and ask for the application note.

These functions can be combined and assigned to the 3 available outputs (see next page)

To adjust the output functions by remote control, always enter 3 digits, 1 for each output:

- 1st digit refers to output 1
- 2nd digit refers to output 2
- 3rd digit refers to the relay function

If you do not want to change the setting of an output, select 0.

Examples:







motion no change

speed

16

OUT 1	DOOR A	ACTIVATION FUNCTIONS			
_	1	Motion	\bigtriangleup		
[📒 [2	Motion or pull cord	\bigtriangleup	1	
-	3	Motion or pull cord or safety	\bigtriangleup		
	4	Motion or pull cord or presence	\bigtriangleup		
	5	Pull cord		1	
	6	Motion +			
	7	Motion + and height		₹	
	8	Motion + and speed		»	







TROUBLESHOOTING

E1	\diamond	E1: CPU-XXX	The sensor encounters an internal problem.	1	Replace sensor.
E2	- <mark>-</mark> 2	E2: XXX PWR	The internal power supply is faulty.	!	Replace sensor.
		E2: IN SUPPLY	The power supply is too low or too high.	1	Verify power supply > Diagnostics - LCD.
		E2: TEMP	The internal temperature is too low or too high.	1 2	Verify the sensor temperature > Diagnostics - LCD. Protect the sensor from direct exposure to heat or cold.
E5	.	INSTALL	The sensor requests a teach-in.	1	Launch teach-in after angle adjustment. All presence/safety-outputs are activated.
		E5: FLATNESS	Faulty teach-in.	1 2 3	Make sure the teach-in zone is empty and even. Launch install teach-in: If zone is clear on the left, select: If zone is clear on the right, select:
		E5: TILT	Faulty teach-in because of tilt angle.	1 2	Adjust tilt angle (max. 15° > Diagnostics - LCD). Launch install teach-in.
		E5: AZIMUTH	Faulty teach-in because of lateral angle.	1 2	Adjust lateral angle (max. 45° > Diagnostics - LCD) Launch install teach-in.
		E5: HEIGHT	Faulty teach-in because of mounting height.	1 2	Adjust mounting height (max. 6 m, min. 2 m) Launch install teach-in.
		e5: TIME-OUT	Faulty teach-in because of movement in the detection field.	1	Launch install teach-in. Make sure there is no motion detection during at least 5 seconds when the LED starts flashing red-green. Slightly change your position and relaunch install teach-in
		E5: MASKING	Obstacle high up in front of the door (traffic mirror).	1	Reduce the number of curtains by LCD (Quick start > More > Nb curtains). Ignore warning : 0 0
E6	-	E6: FQ OUT	Faulty sensor output 1.	!	Replace sensor.
E8	- <mark></mark> 8	E8:	Faulty detection engine.	1 2	If temperature is lower than -20°C, wait until the heating process is completed. If not, replace sensor.
	\bigcirc	ORANGE LED is on.	The sensor encounters a memory problem.	1	Replace sensor.
		The LED and the LCD- display are off.		1 2	Check wiring. Check pinning and connection on sensor side.
		The door does not react.	The service mode is activated.	1	Exit the service mode (see p. 10)
		The product does not react to the remote control.	The sensor is protected by a password.	1	Enter the right password. If you forgot the code, cut and restore the power supply to access the sensor without entering a password during 1min.
		The motion detection starts too late.	The sensor has a big negative angle.	1	Reduce the angle of the sensor.

TECHNICAL SPECIFICATIONS

Technology	LASER scanner, time-of-flight measurement (7 laser curtains)
Detection mode	Motion, presence, height and speed
Max. detection field	Width: 1 x mounting height; Depth: 1 x mounting height
	(adjustable and depending on user settings)
Thickness of first curtain	2 cm / m (mounting height)
Typ. mounting height	2 m to 6 m
Min. reflectivity factor	> 2 % (of floor and object) (measured at max. 6 m in safety field)
Typ. min. object size	15 cm @ 6 m (depending on mounting height and position in detection field)
Emission characteristics	IR LASER: Wavelength 905 nm; max. output pulse power 25 W; Class 1 Visible LASER: Wavelength 650 nm; max. output CW power 3 mW; Class 3R
Supply voltage	12 V - 24 V AC +/-10% ; 12 V - 30 V DC +/-10% @ sensor terminal
Power consumption	heating off: < 2.5 W
	heating auto: typ. < 10 W, max. 15 W
Response time	Typ. 80 ms; max. 800 ms
Output	2 solid-state relays (galvanic isolation - polarity free) 30 V AC/DC (max. switching voltage) - 100 mA (max. switching current) - in switching mode: NO/NC - in frequency mode: pulsed signal (f= 100 Hz +/- 10%)
	1 electro-mechanic relay (galvanic isolation - polarity free) 42 V AC (max. switching voltage) - 500 mA (max. switching current)
Test input	30 V DC (max. switching voltage) - low < 1 V, high > 10 V (voltage threshold)
LED-signals	2 tri-coloured LED: Output status/ remote control response / error signals
Dimensions	200 mm (H) x 150 mm (W) x 100 mm (D) (approx.)
Material / Colour	PC/ASA / Black
Rotation angles on bracket	45° to the right, 15° to the left (lockable)
Tilt angles on bracket	-10° to +5°
Protection degree	IP65
Temperature range	-30 °C to +60 °C
Vibrations	< 2 G
Norm conformity	EN 61000-6-2; EN 61000-6-3; EN 60950-1; EN 60825-1; EN ISO 13849-1 PI "d"/ CAT2; EN 62061 SIL 2; EN 61496-1 ESPE Type 2; EN 12978; EN 50581

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

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BEA hereby declares that the LZR®-WIDESCAN is in conformity with the basic requirements and the other relevant provisions of the directives EMC 2014/30/EU, LVD 2014/35/EU, MD 2006/42/EC and RoHS2 2011/55/EU.

Angleur, April 2017 Pierre Gardier, authorized representative and responsible for technical documentation

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)