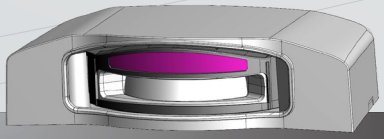
PLEASE KEEP FOR FURTHER USE - DESIGNED FOR COLOUR PRINTING

EN



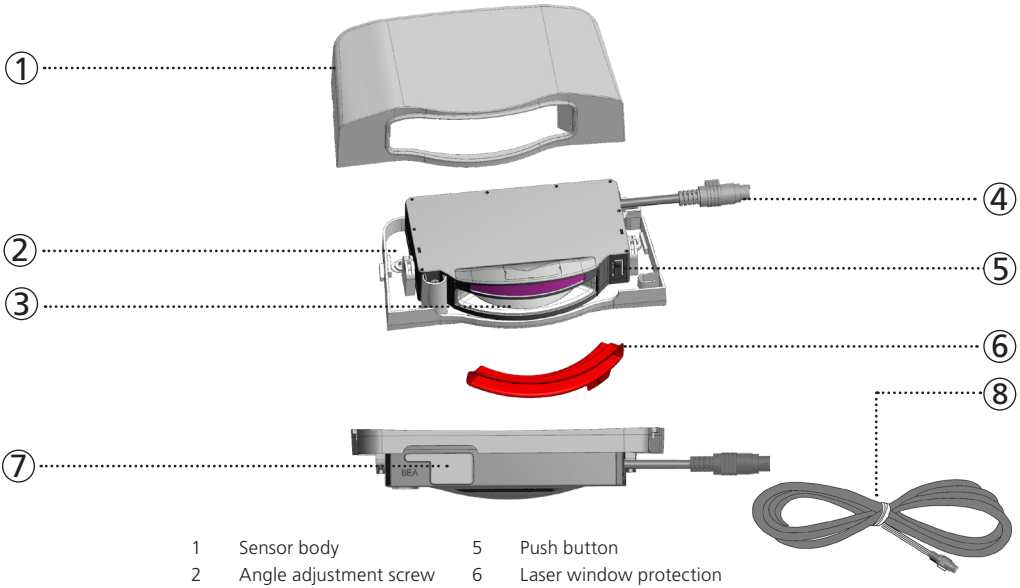
LZR®- FLATSCAN SL surface

COMPACT LASER SCANNER FOR SLIDING DOOR

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

DESCRIPTION

The LZR®-FLATSCAN SL^{surface} is a multi-functional sensor for automatic sliding doors based on laser technology. It secures the door closing area and also offers virtual push buttons for open the door. To do so, please must install the sensor in the surface of the door canopy.



1	Sensor body	5	Push button
2	Angle adjustment screw	6	Laser window protection
3	Laser screen	7	DIP-switch
4	Connector	8	Power cable

LED-SIGNALS


Safety field detection


Virtual push button detection


Calculation in progress Exit the zone and wait


LED flashes


LED flashes x times


LED flashes red-green


LED flashes slowly


LED flashes quickly


LED is off

SYMBOLS


Caution! Laser radiation


Remote control sequence

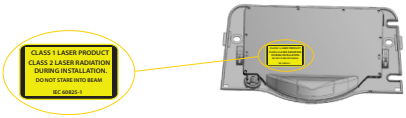

Possible remote control adjustments


Factory values


Attention

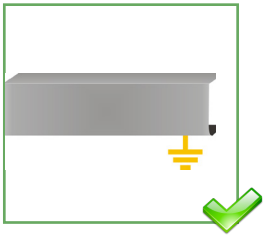

Note

SAFETY TIPS



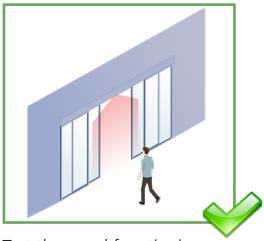
The device contains two visible laser beams that can be activated during the installation process to precisely adjust the position of the detection field.
Do not look directly into these red beams or laser emitters (Class 2). The visible laser beams are inactive during normal functioning.

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



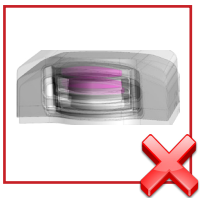
The door control unit and the door cover profile must be correctly earthed.

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

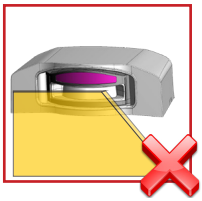


Test the good functioning of the installation before leaving the premises.

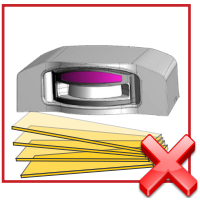
INSTALLATION AND MAINTENANCE



Avoid extreme vibrations.

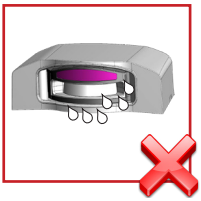


Do not cover the front screens. Remove the laser window protection before use.

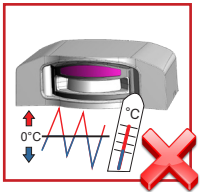


Avoid moving objects and light sources in the detection field.

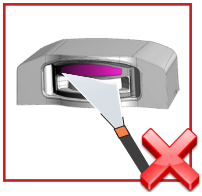
Avoid the presence of smoke and fog in the detection field.



Avoid condensation.

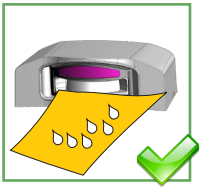


Avoid exposure to sudden and extreme temperature changes.

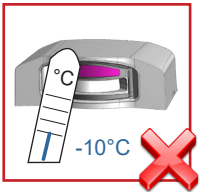


Avoid direct exposure to high pressure cleaning.

Do not use aggressive products to clean the front screen.



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



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

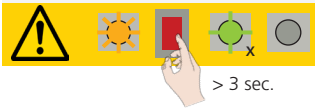
- The device cannot be used for purposes other than its intended use. All other uses cannot be guaranteed by the manufacturer of the sensor.
- The door system manufacturer is responsible for carrying out a risk assessment and installing the sensor and the door system in compliance with applicable national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

INSTALLATION

1 DIP SWITCH

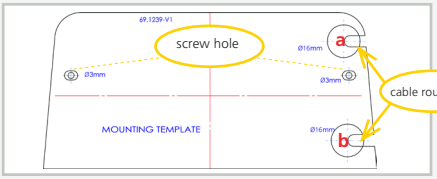
		ON	OFF	
DIP 1	OUTPUT CONFIGURATION	NO/NC	NO/NO	
DIP 2	ENVIRONMENT	standard	critical*	Switch to CRITICAL when external disturbances are likely to cause unwanted detections.
DIP 3	BACKGROUND	ON	OFF	Switch to OFF when there is no background (e.g. glass floor).
DIP 4	MONITORING	active low	active high	
DIP 5	WORK MODE	normal	JFS	

* When DIP2 is OFF (critical environments), **testbody CA** (EN 16005) might not be detected.



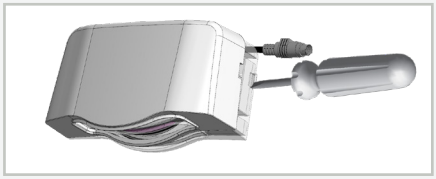
After changing a DIP switch, the orange LED flashes.
A LONG push on the push button confirms the settings.

2 INSTALLATION OF THE SENSOR

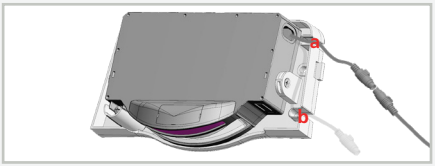


Place the template onto the suitable position. Drill 2 screw holes and 1* cable route hole for passing through the cable.

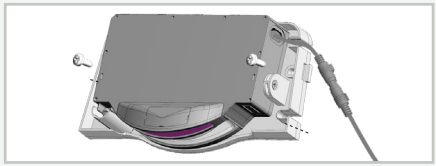
** Only drill 1 cable route hole (a or b) according to the structure of door on site.*



Remove the cover with screwdriver.

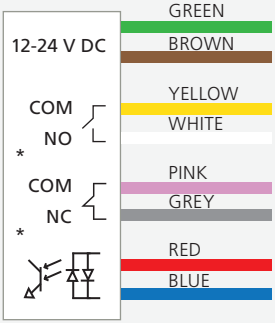


Connect the cable through the cable route hole (a or b, for an example of a).



Fix the sensor with screws on the door frame firmly.

3 WIRING



* Output status when the sensor is operational without detection.
The safety field responded relay will switches automatically to output status with detection during the remote control access.

** Only the safety field responded relay would respond for the test.

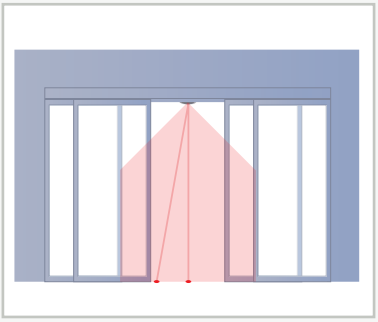
4 PUSH BUTTONS

Quickly double click	to activate or deactivate the visible laser spots.
Press for 2 seconds	to launch a safety field teach-in process.
Press for 3 seconds	to confirm the setting after changing the DIP switch.
Press for 5 seconds	to acknowledge the 6x flashing error message and confirm that you want the sensor to be mounted higher than 4m. Note that installation height higher than 4m, the test body CA (EN16005) might not be detected.

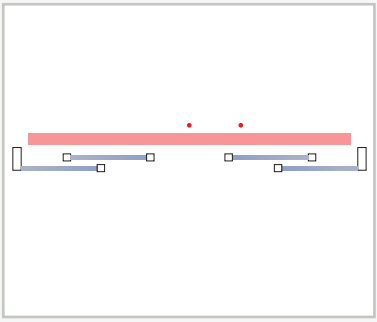
ADJUSTMENTS & SETTINGS

1 VISIBLE SPOTS

Quickly press the push button twice to activate the visible spots, they will help you position the curtain.



front view

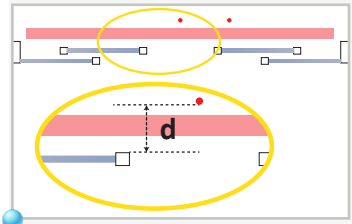


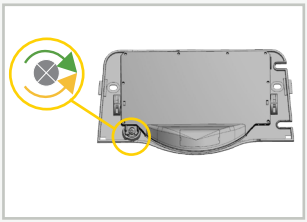
top view

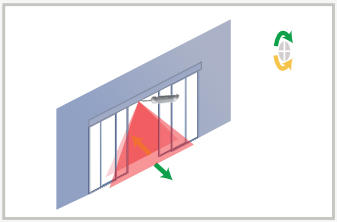
Do not look directly into the visible beams!

2 CURTAIN POSITION

Quickly double-click the push button within 1 second to show the visible spots, and then adjust the tilt angle (range: 0 to +5°) with the screwdriver until the visible spots are at the correct position.







Recommended position for the visible spots:
If 2 m mounting height: d≥4cm
If 3 m mounting height: d≥5cm
If 4 m mounting height: d≥6cm
If 5 m mounting height: d≥7cm

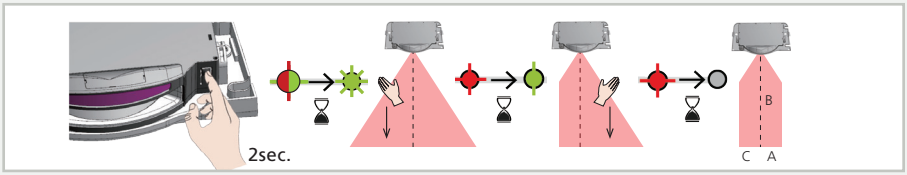
FACTORY VALUES

3 DETECTION ZONE SETTING & TEACH-IN

Set the detection range either automatically or with the remote control:

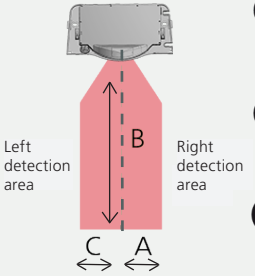
Safety field teach-in

1. To launch a teach-in, press 2 seconds the push button by remote control (+ + 0). The sensor starts flashing red-green quickly and automatically learns the installation height. (Please make sure to stand outside the detection field before starting the teach-in process.)
2. Wait until the sensor flashes green. Stretch out your arm in front of you and make an up and down movement to define the left/right limit of the detection field. The LED flashes red while calculating.
3. Wait until the sensor flashes green again. Stretch out your arm in front of you and make an up and down movement to define the right/left limit of the detection field. The LED flashes red while calculating.
4. Once the LED is off, the teach-in is complete.



With the remote control

Use the remote control to define the left width C and the right width A, then launch an environment learn. (+ + 1) . LED goes off after finishing the environment learning process. No need to define the width of the field with your hand in this mode.

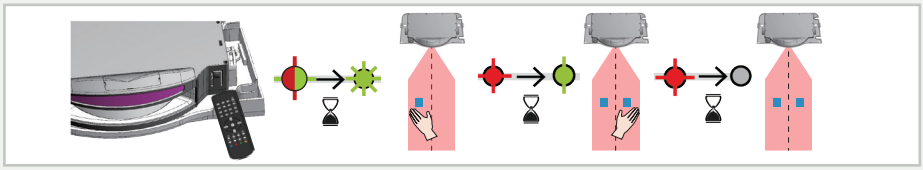


A ↔	000	001 – 300			
	no field	001	-	300	cm
B ↕	000	001 – 500			
	no field	001	-	500	cm
C ↔	000	001 – 300			
	no field	001	-	300	cm

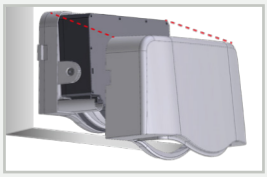
Installation height > 4m, the test body CA (EN16005) might not be detected.

Virtual push button teach-in

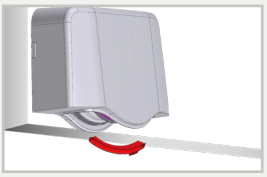
1. To launch a teach-in by remote control (+ + 2). The sensor starts flashing red-green quickly and automatically learns the environment. (Please make sure to stand outside the detection field before starting the teach-in process.)
2. Wait until the sensor flashes green. Put your hand in front of the first virtual push button and keep until the red LED flashes. Move away from your hand when the red LED flashes.
3. Wait until the sensor flashes green again. Put your hand in front of the second virtual push button and keep until the red LED flashes. Move away from your hand when the red LED flashes.
4. Once the LED is off, the two virtual push button teach-in is complete.



4 FRONT FACE



Clasp the front cover to finish the installation.



Protect the laser window in case of construction works.

PARAMETER SETTINGS

SAFETY FIELD

A new teach-in overwrites these values.

WIDTH (right) A2 ↔ 000 001 – 300

no field	001	-	300	cm

HEIGHT B2 ↕ 000 001 – 500

no field	001	-	500	cm

WIDTH (left) C2 ↔ 000 001 – 300

no field	001	-	300	cm

PUSH BUTTON FIELD

0-9	0-9	0-9	0-9	
VPB1 WIDTH	VPB1 HEIGHT	VPB2 WIDTH	VPB2 HEIGHT	
1	1	1	1	×10cm

Example: + 2335

VPB1 (virtual push button 1) size = 20 × 30 cm
VPB 2 (virtual push button 2) size = 30 × 50 cm

OUTPUT CONFIGURATION

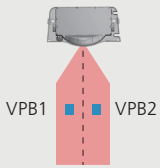
In order to change these settings by remote control, adjust DIP switch 4 to ON.

	1	2	3	4
R1 (RELAY)	NO	NC	NC	NO
R2 (OPTO)	NC	NO	NC	NO

	NO	NC
NO POWER		
NO DETECTION		
DETECTION		

NO = normally open
NC = normally closed

OUTPUT REDIRECTION



F1	0	1	2	3	4	5
R1(RELAY)	VPB1	VPB2	VPB1 or VPB2	Left or right	VPB1 or VPB2	Left
R2(OPTO)	VPB2	VPB1	Left or right	VPB1 or VPB2	VPB1 or VPB2	Left or right

The LED turns green if there is a detection in VPB areas. The LED turns red if there is a detection in safety areas. The LED also turns green if there is a detection in both areas.

FACTORY VALUES

UNCOVERED ZONE

In order to change these settings by remote control, adjust DIP-switch 2 to ON.

F2	1	2	3	4	5	6	7	8	9	
	2	4	**6**	8	10	12	14	16	18	cm*

Uncovered zone: increase in case of snow, dead leaves, etc.
In case of false detection, button 1 and 2 are not recommended.
When DIP 2 is OFF, F2 will change automatically to 5 (10cm).

*Measured in specific conditions and dependant on application and installation.

HOLD TIME

	0	1	2	3	4	5	6	7	8	9	
	0.1	0.3	**0.5**	1	1.5	2	3	5	7	9	sec

VPB OUTPUT DELAY

	0	1	2	3	4	5	6	7	8	9	
	0	**0.2**	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	sec

LONG PUSH* TIME

	0-5	0-5	
	VPB1	VPB2	
	0	**0**	sec

* Long push function: If the push time is longer than 'long push time,' the output will keep activation until the next push.
The option '0' means disable this long push function.

HOW TO USE THE REMOTE CONTROL

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

If the red LED flashes quickly after unlocking, you need to enter an access code from 1 to 4 digits.
If you do not know the access code, **cut and restore the power supply**. During 1 minute you can access the sensor without introducing any access code.

To end an adjustment session, always lock the sensor.

When there are several sensors it is recommended to use a different access code for each sensor in order to avoid changing settings on all of them at the same time.

ADJUSTING ONE OR MORE PARAMETERS

FACTORY VALUES

CHECKING A VALUE

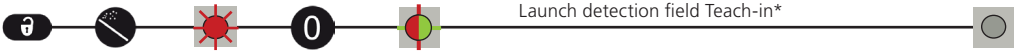
x = number of flashes = value of the parameter

= field width: 2.35 m

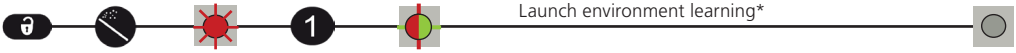
DETECTION FIELD ADJUSTMENT

increase/decrease the detection field of 1cm.

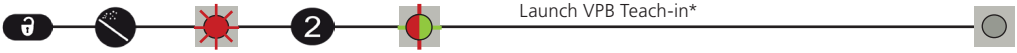
TEACH-IN



Launch detection field Teach-in*



Launch environment learning*



Launch VPB Teach-in*

* refer to the teach-in process on page 5.

VISIBLE SPOTS

turn on/ off the visible spots.

SERVICE MODE

disable the output and LED for 15 minutes and can be helpful during an installation, a mechanical teach-in of the door or maintenance work.

RESET TO FACTORY SETTINGS

factory reset of all values.

factory reset of all values except field dimensions, output redirection and configuration.

TROUBLESHOOTING

In case of unwanted reactions of the door, verify whether the sensor or the controller causes the problem.
To do so, activate the service mode (no safety) and launch a door cycle. If the door cycle is complete successfully, check the sensor. If not, verify the door controller or the wiring.

	VPB bad teach-in.	Learning position outside the curtain.		Relearn the VPB in the correct area.
		Learning position is far away from the sensor, or learning object is too small.		Select a position near the sensor, or relearn the VPB with a more significant object.
	VPB can not trigger door opening.	Approach the VPB from the side.		Reach forward from the front to trigger the button.
		The size of VPB is set too small.		Appropriately increase the VPB size.
		The output delay time is set too long.		Set a appropriate output delay time.
		The learning position of the VPB is incorrect.		Relearn the VPB in the appropriate position.
		The output reset is incorrect.		Set correct output reset.
	The door triggers opening but can not close as expected.	If the red LED is ON, a object trigger the safety area.		Remove the object in the curtain, or start the safety area teach-in.
		If the green LED is ON, VPB is set and trigger the long push function.		Quick push VPB or set a correct long push time.
	The RED LED is ON sporadically or permanently and the door does not react as expected.	Bad teach-in.		Launch a new safety field teach-in.
		Unwanted detections (due to environment or external conditions).	1	Make sure the laser curtain at the correct position.
			2	Verify if the laser window is dirty and clean it carefully with a damp and clean microfibre cloth if necessary (attention: the surface of the laser window is delicate).
			3	Switch DIP 2 to off (critical environment).
	The sensor does not react at power-on.	Inverted power supply.		Check wiring (green +, brown -).
		Faulty cable.		Replace cable.
		Faulty sensor.		Replace sensor.
	The sensor does not react when powered.	Test error.		Check voltage between red and blue wires.
		The service mode is activated.		Exit the service mode.
	It is not possible to adjust a setting with the remote control.	Wrong DIP-switch position.		Adjust the required DIP-switches to ON.
		The sensor is password protected.		Enter the right password. If you forgot the code, cut and restore the power supply to access the sensor without entering a password during 1 minute.

TROUBLESHOOTING

	The ORANGE LED is on permanently.	The sensor encounters a memory problem.		Send the sensor back for a technical check-up.
	The ORANGE LED flashes quickly.	DIP-switch setting awaiting confirmation.		Corfirm the DIP-switch setting: long push on the push button.
	The ORANGE LED flashes 1 x every 3 seconds.	The sensor signals an internal fault.		Cut and restore power supply. If orange LED flashes again, replace sensor.
	The ORANGE LED flashes 2 x every 3 seconds.	Power supply is out of limit.	1	Check power supply (tension, capacity).
			2	Reduce the cable length or change cable.
	The ORANGE LED flashes 3 x every 3 seconds.	The sensor signals an internal fault.		Cut and restore power supply. If orange LED flashes again, replace sensor.
	The ORANGE LED flashes 4 x every 3 seconds.	Something close to the sensor is masking part of the detection field.	1	Make sure the laser window is not scratched. If it is, replace sensor.
			2	Remove all masking elements (insects, spider web, flexible tube, laser window protection).
			3	Verify if the laser window is dirty and clean it with compressed air. Then wipe it carefully with a damp and clean microfibre cloth if necessary (attention: the surface of the laser window is delicate).
		The sensor does not see its background.		Switch DIP 3 to off (deactivates background).
	The ORANGE LED flashes 5 x every 3 seconds.	Teach-in error.	1	Check whether all teach-in requirements are fulfilled and launch a new teach-in.
			2	Adjust the tilt angle of the laser curtain and launch a new teach-in.
			3	Make sure there are no objects on the ground during teach-in and launch a new teach-in.
	The ORANGE LED flashes 6 x every 3 seconds.	Installation height higher than limitation.		Press the push button during at least 5 seconds to confirm the installation height of sensor is higher than 4m.

TECHNICAL SPECIFICATIONS

Technology	LASER scanner, time-of-flight measurement
Detection mode	Presence
Max. installation height	4m (with reflectivity of 5%) 5m (with reflectivity of 8%)
Opening angle	90°
Angular resolution	0.23° (400 spots within 90°)
Testbody	700 mm x 300 mm x 200 mm (test body CA according to EN 16005, <4m)
Optical characteristics IEC/EN 60825-1	Wavelength 905 nm; average output power 0.05 mW; CLASS 1 Wavelength 650 nm; max. output CW power 3 mW (CLASS 2) - visible spot
Supply voltage	12-24V DC ± 15%
Power consumption	≤ 2.2 W
Response time	Max. 90 ms
Output	1 optocoupler (galvanic isolation - polarity free) Max. switching voltage: 42V AC/ 60V DC Max. switching current: 100 mA 1 Relay (free of potential change-over contact) Max. contact voltage: 60V AC / 125V DC Max. contact current: 1.0A (resistive) Max. switching power: 30W (DC) / 60VA (AC)
LED-signals	1 bi-coloured LED: detection/output status
Dimensions	168 mm (L) × 93 mm (H) × 42.5 mm (D)
Material - Colour	PC/ABS - Black - Aluminium
Tilt angles	0° to +5°
Protection degree	IP54 (IEC/EN 60529)
Temperature range	-30°C to +60°C if powered
Humidity	0-95 % non-condensing
Vibrations	< 2 G
Conformity	EN 61000-4-3:2006 + A1:2008 + A2:2010 EN 61000-4-8:2010 EN 61000-4-16:2016 EN 61000-6-3:2007 + A1:2011 EN IEC 61000-6-2:2019

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

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