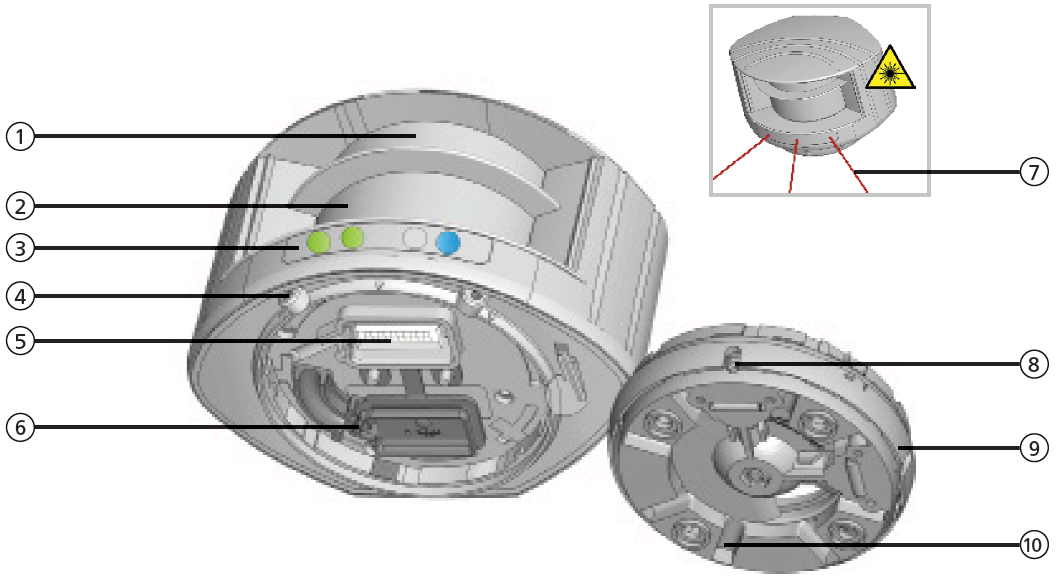
BUILDING AUTOMATION AND SECURITY

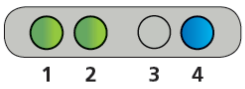
Other use of the device is outside the permitted purpose and can not be guaranteed by the manufacturer.
The manufacturer cannot be held responsible for incorrect installations or inappropriate adjustments of the sensor.

DESCRIPTION



1. laser sweep emission
2. laser sweep reception
3. LED-signal (4)
4. screw for position lock (2)
5. connector
6. protection cover
7. visible laser beam (3)
8. notch for tilt angle adjustment (2)
9. adjustable bracket
10. cable conduit (4)

LED-SIGNAL



1. Detection LED: relay 1 – field 1
2. Detection LED: relay 2 – field 2
3. Error LED
4. Power LED

DETECTION LEDs	ERROR LED	POWER LED
detection *(red)*	error *(orange)*	power *(blue)*
no detection *(green)*	no error *(off)*	no power *(off)*

- LED flashes quickly
- LED flashes
- LED flashes slowly
- LED is off

TIP! All LEDs can be switched off and on again by remote control:

SYMBOLS

Caution!
Laser radiation

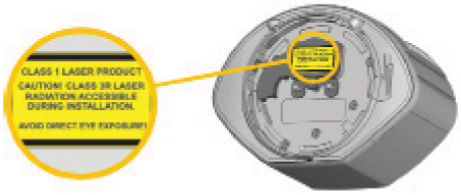
Remote control sequence

Possible remote control adjustments

Factory values

Alarm

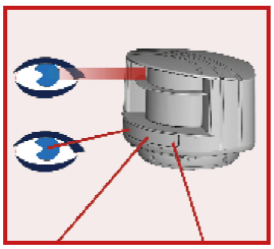
SAFETY



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 operation.
The installer can activate the visible lasers if needed.

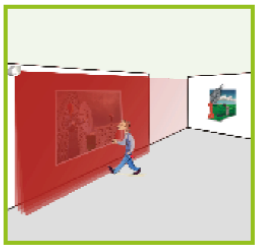
CAUTION!
Use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.



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

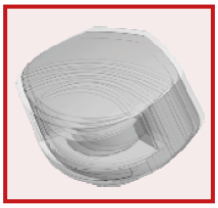
The warranty is void if unauthorized repairs are made or attempted by unauthorized personnel.

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

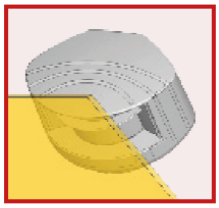


Test the proper operation of the installation before leaving the premises.

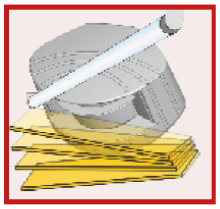
INSTALLATION AND MAINTENANCE



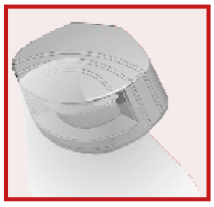
Avoid extreme vibrations.



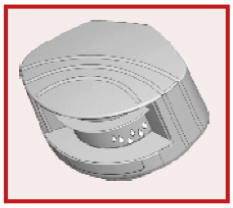
Do not cover the front screens.



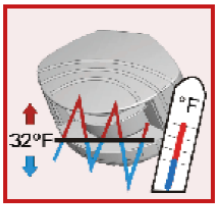
Avoid moving objects and light sources in the detection field.



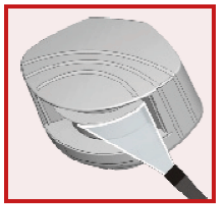
Avoid the presence of smoke and fog in the detection field.



Avoid condensation.

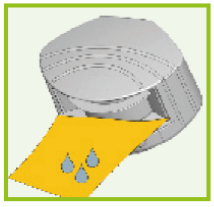


Avoid exposure to sudden and extreme temperature changes.

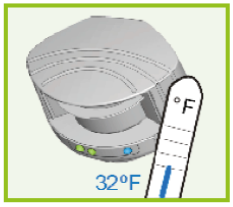


Avoid direct exposure to high pressure cleaning.

Do not use aggressive products to clean the front screens.



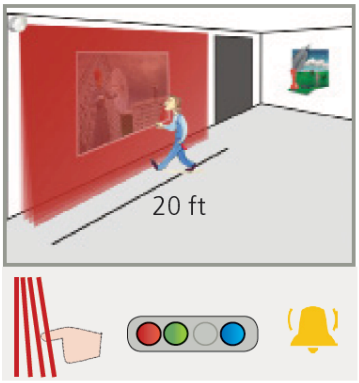
Wipe the front screens regularly with a clean and damp cloth.



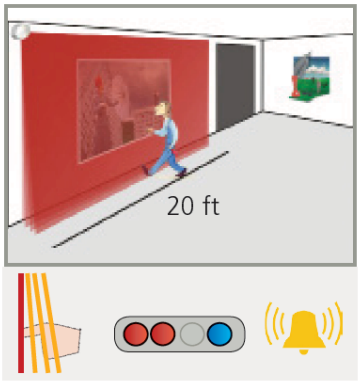
Keep the sensor permanently powered in environments where the temperature can descend below 32°F.

POSSIBLE APPLICATIONS

PROTECTION OF WORKS OF ART: WARNING & ALARM



Field 1 (4 active curtains) triggers relay 1:
WARNING

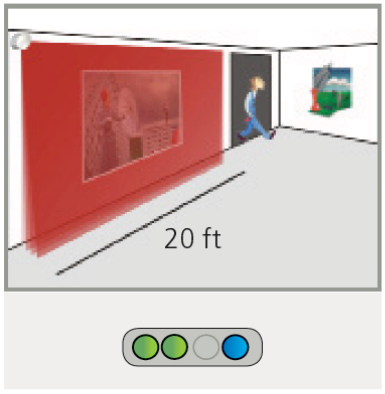


Field 2 (only curtain C1 active) triggers relay 2:
ALARM

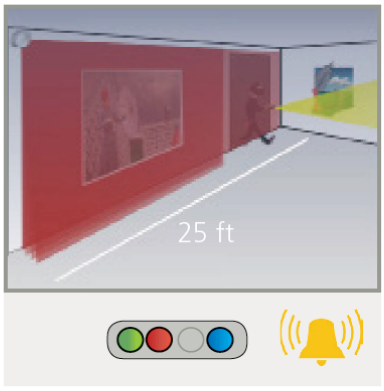
Adapt the field widths (20 ft for example):

Reduce field 2 to 1 curtain (C1):

DAY AND NIGHT FEATURE



During day time, only field 1 is active and triggers relay 1.



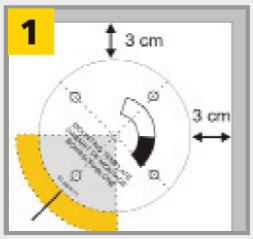
During night time field 2 is active too and triggers relay 2: intrusion alarm

Adapt the field width of field 1 (20 ft for example):

Adapt the field width of field 2 (25 ft for example):

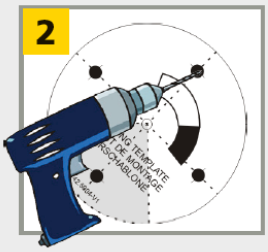
INSTALLATION STEPS

1 MOUNTING



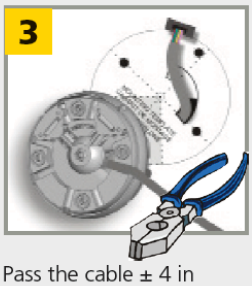
Use the adhesive mounting template to position the sensor correctly.

The grey area indicates the detection range.



Drill 4 holes as indicated on the mounting template.

Drill a hole (1/2 in min.) for the cable if possible.



Pass the cable ± 4 in though the cable opening.

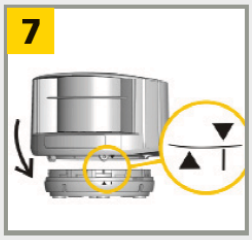
If drilling an opening is not possible, use the cable conduits on the back side of the bracket.

Position the bracket and fasten the 4 screws firmly in order to avoid vibrations.

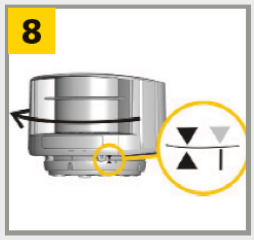
Open the protection cover, plug the connector and position the cable in the channel.

Close the protection cover and fasten it firmly.

NOTE: FACTORY WARRANTY VOIDED IF PROTECTION COVER IS NOT USED!

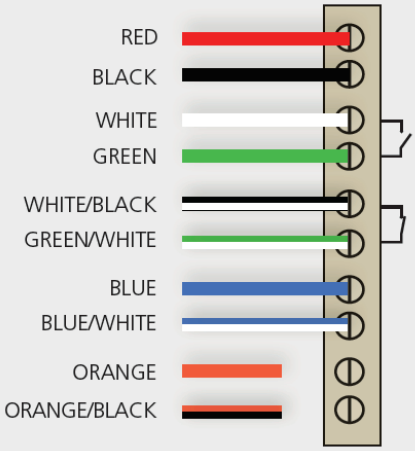


Position the housing on the bracket.



Turn the sensor until the two triangles are face to face.

2 WIRING



Power Supply +
Power Supply -

Relay 1 - OPTIONAL FIELD

Relay 2 - SAFETY FIELD

Test + *
Test -

No monitoring:
connect blue and blue/white wires to power supply (not polarity sensitive)

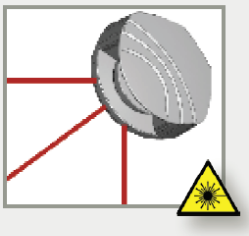
TEACH-IN *

No teach-in via input:
connect orange and orange/black wires to ground/ common

* See application notes or contact ipf for technical support

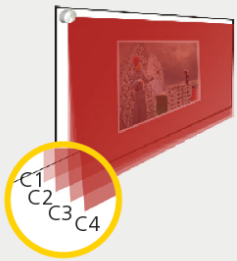
3 POSITIONING

Unlock the sensor and activate the visible laser beams.

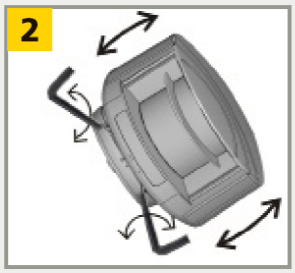


The visible laser beams indicate the approximate postion of curtain C1 and the angle of the detection field.

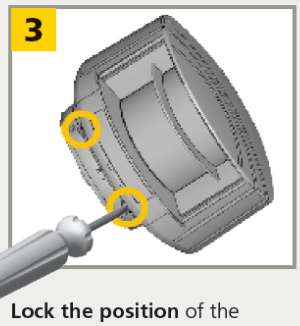
The visible laser beams will remain active for 15 minutes or can be turned off the same way they were activated.



Adjust the **lateral position** of the detection field.



Adjust the **tilt angle** of the detection field with the 3 mm hex key.



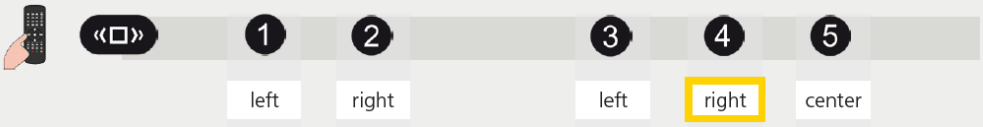
Lock the position of the mounting bracket to avoid malfunctioning in case of extreme vibrations.

4 MOUNTING SIDE

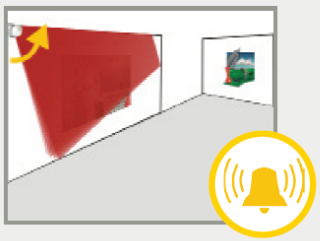
Select the corresponding mounting side.

The sensor learns its environment and automatically determines the detection field(s). Both red LEDs flash slowly and the 3 visible laser beams automatically light up for 30 seconds.

Stay outside of the detection zone to avoid disturbances.

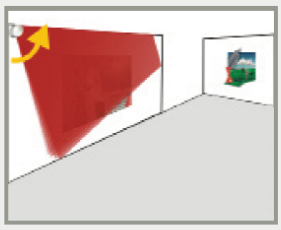


WITH BACKGROUND



The sensor memorizes the floor as reference point and signals a fault when its orientation is changed.

WITHOUT BACKGROUND



No reference point is memorized, no alarm in case of interference.

5 FIELD DIMENSIONS

FIELD 1

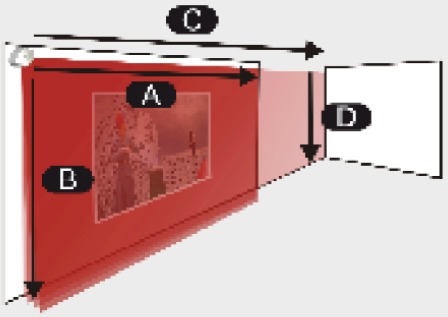
WIDTH — AE 002 - 984 000
2 in - 984 in — field 2 = field 1
400 in

HEIGHT — BE 002 - 984 000
2 in - 984 in — no field
400 in

FIELD 2

WIDTH — CE 002 - 984 000
2 in - 984 in — no field
400 in

HEIGHT — DE 002 - 984
2 in - 984 in
400 in



EXAMPLES

AE 062 for a field width of 62 in

BE 045 for a field height of 45 in

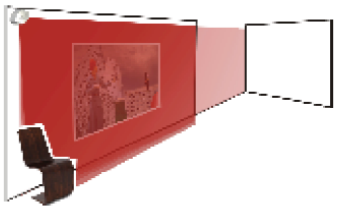
IMPORTANT: Test the proper operation of the installation before leaving the premises.

TEACH-IN

The teach-in can be launched either via remote control or via connecting the white/red and white/blue wires together.

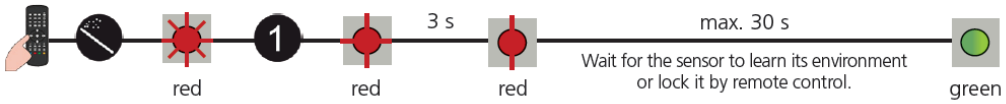
Launch a teach-in:
- after changing the sensor position
- when new objects are added to or changed in the detection zone.

During teach-in, the sensor learns its surroundings and adapts the detection zone shape. Objects in the detection field will be cut out.



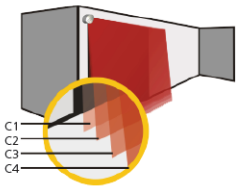
Stay outside of the detection zone to avoid disturbances.

To launch a teach-in via input, please contact SENSORIO for more information.
To launch a teach-in via remote control, use the following sequence:



REMOTE CONTROL ADJUSTMENTS (OPTIONAL)

DETECTION CURTAINS



--X X X X

CURTAIN C1 C2 C3 C4

0 deactivate curtain on both fields
1 activate curtain only on field 1
2 activate curtain only on field 2
9 activate curtain on both fields

EX: --1 1 2 2
C1 + C2 active on field 1 only
C3 + C4 active on field 2 only

--9 2 2 0
C1 active on both fields
C2+C3 active on field 2 only
C4 deactivated

--9 9 9 9
All curtains active on both fields

The distances between the curtains depend on the mounting height and side. When mounted on the left, the distance between the first and the last curtain is approximately 0.3 ft for every foot (mounting height).

Example: at 10 ft the distance is 1.5 ft.

UNCOVERED ZONE

F2	0	1	2	3	4	
	2	4	6	8	10	in

IMMUNITY FILTER

	1	2	3	4	5	6	7	8
	indoor	**outdoor low**	outdoor med	outdoor high	indoor	**outdoor low**	outdoor med	outdoor high

Increased immunity to rain, snow, fog...

Increased sensitivity (detection of black objects, ...)

MIN. OBJECT SIZE
approximate values

	0	1	2	3	4	
	off	**2**	4	8	16	in

OUTPUT ACTIVATION DELAY
approximate values

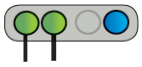
The outputs are triggered after a constant detection time of x ms (ex. value 3= 300 ms).

	0	1	2	3	4	5	6	7	8	9
	off	100	200	300	400	500	600	700	800	900

DETECTION FIELD REDIRECTION

F1	0	1
R1	**field 1**	field 1 or field 2
R2	**field 2**	field 2

OUTPUT CONFIGURATION *



	1	2	3	4
R1	**A – NO**	P – NC	P – NC	A – NO
R2	**P – NC**	A – NO	P – NC	A – NO

A = active
P = passive

NO = normally open
NC = normally closed

□ FACTORY VALUES Rx= RELAY OUTPUT

* See application notes or contact ipf for technical support

HOW TO USE THE REMOTE CONTROL

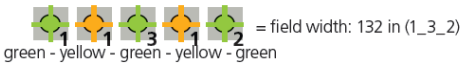
After unlocking, the red LED flashes and the sensor can be adjusted by remote control.

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 sensor.

ADJUSTING ONE OR MORE PARAMETERS

CHECKING A VALUE



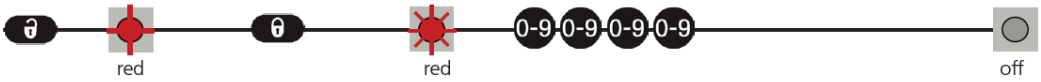
= field width: 132 in (1_3_2)

= field width is defined by teach-in

RESTORING TO FACTORY VALUES

SAVING AN ACCESS CODE

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



DELETING AN ACCESS CODE

30 minutes after last use, the sensor locks the access to the remote control session. To regain access, cycle the power. The remote control session will then be accessible for another 30 minutes.

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

TROUBLE SHOOTING

No Blue LED.	There is no power.	1 Check cable and connection.
	The polarity of the power supply is inverted.	1 Check the polarity of the power supply.
	All LEDs have been de-activated by remote control.	1 Activate the LEDs by remote control.
Only the blue LED is on.	The test input is not connected.	1 Check wiring. The blue and blue/white wires have to be connected to the test input or the power supply.
The detection LED remains green.	The detection field is too small or deactivated.	1 Check the size of the fields. 2 Launch a teach-in.
	The object size is too small.	1 Decrease the min. object size.
The Detection LED remais red.	Someone or something is in the detection field.	1 Step out of the field and/or remove the any object(s) from the field.
	The field is touching the floor, the wall or the door, which leads to detection.	1 Activate the 3 red beams and check if the position of the sensor is correct. If not, adjust the hex screws. 2 Verify the field size. 3 Launch a teach-in.
The orange LED is flashing and the detection LEDs are red.	No background (reference point) is found.	1 Check the position of the sensor. 2 Check the mounting side setting. If there is no background, set the mounting side to value 3 to 5. 3 Launch a new teach-in.
	The sensor is masked.	1 Verify and clean the front screens with a clean, damp cloth.
The orange LED is on. Both detection LEDs are orange.	The power supply voltage is exceeding the acceptable limits or is unstable.	1 Check the power supply voltage. 2 Cycle the power.
	The sensor exceeds its temperature limits.	1 Verify the outside temperature where the sensor is installed. If needed, protect the sensor from sunlight using a cover.
	Internal error	1 Wait a few seconds. If the LED remains ON, cycle the power supply. If the LED turns on again, replace the sensor.
The sensor does not respond to the remote control.	30 minutes after last use of the remote control, the sensor locks the access to the remote control session.	1 Cycle the power supply. The remote control session will then be accessible for another 30 minutes.
	The batteries in the remote control are not installed properly or dead.	1 Verify or replace the batteries.
	The remote control is poorly oriented.	1 Point the remote control towards the sensor, but with a slight angle. The RC should not be pointed in a right angle in front of the sensor.
	A reflective object is in close proximity to the sensor.	1 Avoid highly reflective material in proximity to the sensor.
	Monitoring wires are not connected.	1 Connect the blue and blue/white wires to the power supply.
The sensor does not unlock.	You have to enter a code or the wrong code was entered.	1 Cycle the power. No code is required during the first minute after powering.

TECHNICAL SPECIFICATIONS

Technology:	Laser scanner, time-of-flight measurement
Detection Mode:	movement and presence
Detection Range:	default: 33 ft x 33 ft @ 2% remission factor max: 82 ft x 82 ft
Angular Resolution:	0.3516°
Min. Detected object size (typ.):	0.8 in @ 10 ft; 1.4 in @ 16 ft; 2.8 in @ 33 ft; 6.9 in @ 82 ft (in proportion to object distance)
Emission Characteristics: IR Laser: Red Visible Laser:	 wavelength 905 nm; max. output pulse power 75 W (CLASS 1) wavelength 650 nm; max. output CW power 3 mW (CLASS 3R)
Supply Voltage:	10-35 V DC @ sensor side
Power Consumption:	< 5 W
Peak Current at Power-on:	1.8 A (max. 80 ms @ 35 V)
Cable Length:	30 ft
Response Time:	typ 20 ms; max. 80 ms (+ output activation delay)
Output: Max. Switching Voltage: Max. Switching Current: Switching Time: Output Resistance: Voltage Drop on Output: Leakage Current:	2 electronic relays (galvanic isolated - polarity free) 35 V DC / 24 V AC 80 mA (resistive) tON=5 ms; tOFF=5 ms typ 30 Ω < 0.7 V @ 20 mA < 10 µA
Input: Max Contact Voltage: Voltage Threshold:	2 optocouplers (galvanic isolated - polarity free) 30 V DC (over-voltage protected) Log. H: >8 V DC; Log. L: <3 V DC
Response Time Monitoring Input:	< 5 ms
LED Signal:	1 blue LED: power-on status 1 orange LED: error status 2 bi-coloured LEDs: detection/output status (green: no detection; red: detection)
Dimensions (D x W x H):	5.00 in x 3.66 in x 2.75 in (mounting bracket + 0.55 in)
Material:	PC / ASA
Color:	Black
Mounting Angles on Bracket:	-45°, 0°, 45°
Rotation Angles on Bracket:	-5° to +5°
Tilt Angles on Bracket:	-3° to +3°
Protection Degree:	NEMA 4 / IP65
Temperature Range:	Powered: -22° F to +140° F; Unpowered: +14° F to +140° F
Humidity:	0-95 % non-condensing
Vibrations:	< 2 G
Pollution on Front Screens:	max. 30%; homogenous
Norm Conformity:	2006/95/EC: LVD; 2002/95/EC: RoHS; 2004/108/EC: EMC EN 60529:2001; IEC 60825-1:2007 Laser Class 1 & 3R; EN 60950-1:2005; EN 61000-6-2:2005 EMC - Industrial level EN 61000-6-3:2006 EMC - Commercial level

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