ACTIV8 ONE ON
USER'S GUIDE

COMBINED RADAR OPENING AND ACTIVE INFRARED SAFETY SENSOR

## 1 DESCRIPTION

- Cover
- 2nd Radar Antenna
- Radar motion sensor
- Push Buttons
- IR- sensor
- IR-prism
- Radar Antenna clip
- Main Connector
- 45° 30° 15°
- Radar tilt angle indication
- IR curtain adjustment screw
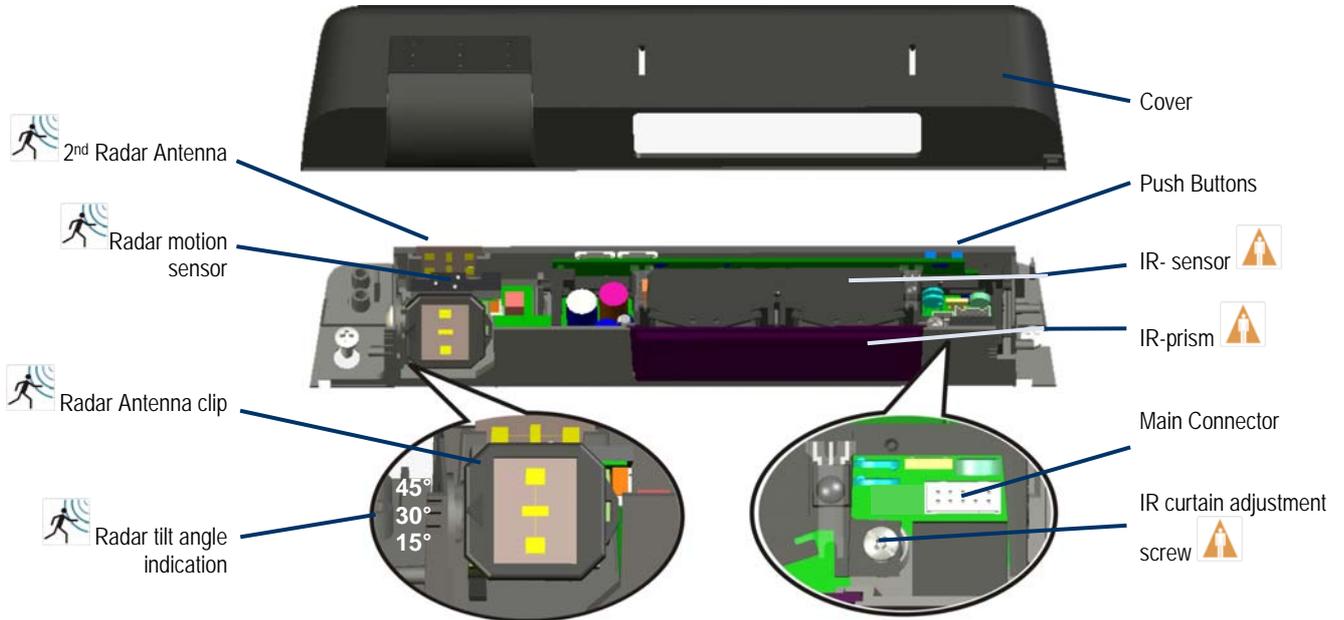
2 SYMBOLS AND LED

LED turns on	LED flashing slowly	LED flashing quickly	Motion detection	Presence detection	See page x	Factory value

LED display during normal function

	GREEN LED	Motion detection
	RED LED	Presence detection
	ORANGE LED	Troubleshooting [7]

3 INSTALLATION

Use the Remote Control to adjust the sensor.	Use the Spotfinder to locate the safety curtains.	Insert the prism correctly into the guiding grooves!	Make sure the door controller cover is fixed properly and electrically earthed.	Avoid touching electronic and/or optical parts!
Avoid vibrations!	Do not cover the sensor!	Avoid moving objects in proximity to the sensor!	Avoid HF lamps and fluorescent lighting in the infrared field!	Avoid highly reflective objects in the infrared field!

1   Mounting the sensor

Mount the sensor at a maximum height of 5 cm from the bottom line of the door controller.

Use the mounting template to drill holes and position the sensor.

2   Wiring the sensor

|	
12-24V AC-DC	GREEN
	BROWN — SENSOR POWER SUPPLY
RADAR	YELLOW
	WHITE — OPENING INPUT OPENS DOOR
IR +	PINK
−	GREY — SAFETY INPUT BEAM RECEIVER KEEPS DOOR OPEN
MONITORING INPUT +	RED
−	BLUE — MONITORING OUTPUT BEAM TRANSMITTER
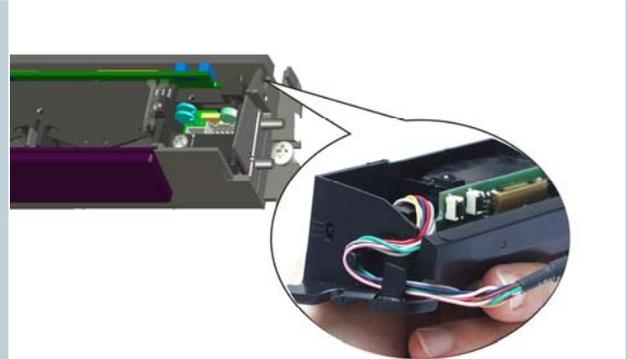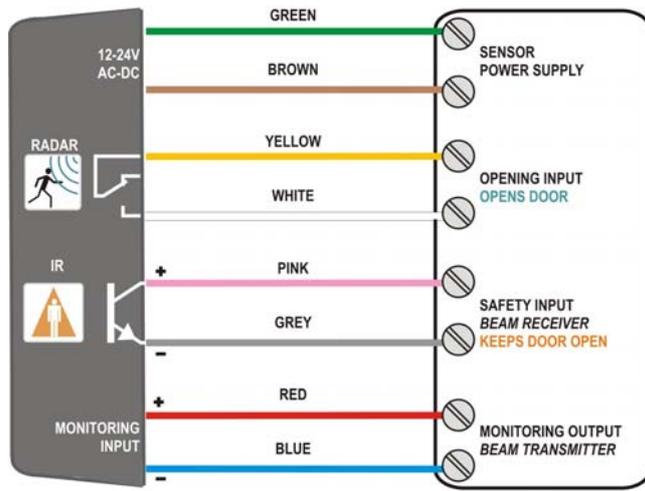
To ensure waterproof installation, place the cable as shown above.

## 3   Width of radar motion sensing field: choice of antenna
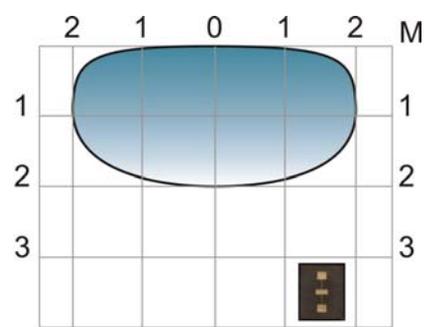
Sensitivity = 9
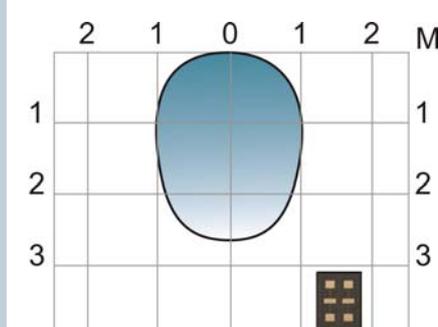
Sensitivity = 9

Touching the antenna patches will not cause any damage!

4   Depth of radar motion sensing field: tilt angle of radar-module
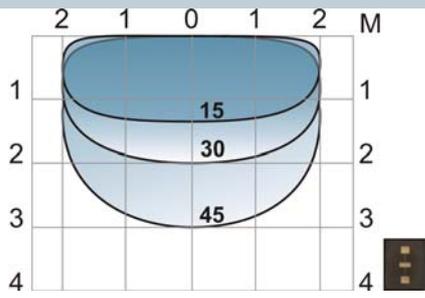
Sensitivity = 9
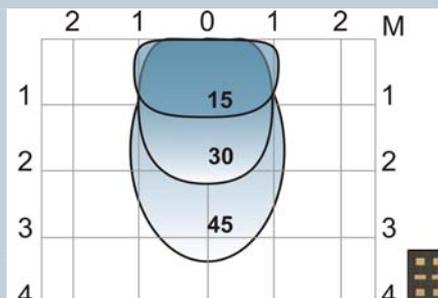
Sensitivity = 9
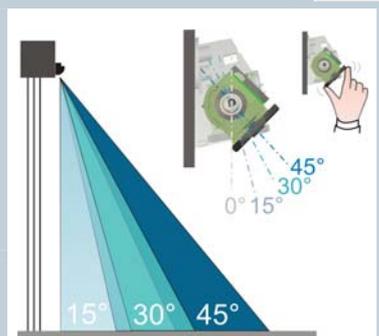
5 Width of IR presence sensing field: choice of prism
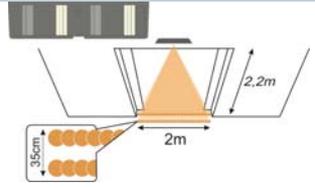
2 curtains of
24 overlapping spots
(no gaps)
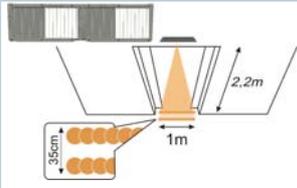
2 curtains of
12 overlapping spots
(no gaps)

Make sure to introduce the prism into the guiding grooves in front of the lenses and not into the cover!
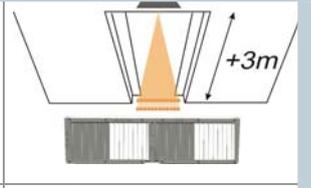
If installed at a mounting height of 3 m or more, use the narrow prism.

6 Depth of IR presence sensing field: angle of IR-module (negative angle available)
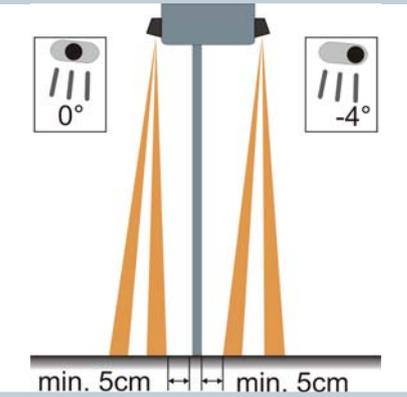
Keep a minimum distance of 5cm between the door and first curtain.

DISTANCE BETWEEN CURTAIN AND DOOR

To reduce the distance between curtain and door, turn the screw clockwise. To increase the distance, turn the screw counterclockwise. The pin indicates the angle.
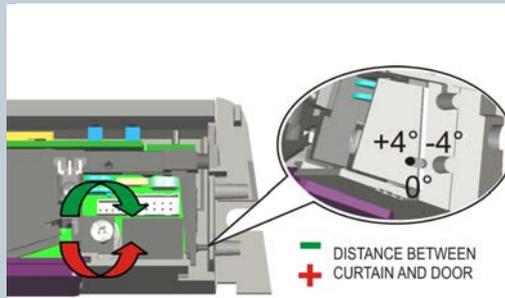
Use the Spotfinder to locate and adjust the position of the curtains.

When mounting one sensor on each side of the door above a highly reflective threshold, select different frequencies to avoid crosstalk between the sensors.

7 | Remote control adjustments (only if factory values do not match)

Unlock the sensor to enter into adjustment session (see p.5 for info on the use of an access code)	🔓	RED LED flashes slowly			🔢 ⁶
To **change** the value of a parameter (ex. IR curtain immunity)	👻	RED LED flashes quickly	0-9	RED LED flashes slowly	
To **change** any other parameters (ex. Output Configuration)	⌁	RED LED flashes quickly	0-9	RED LED flashes slowly	
To **check** the value of a parameter (ex. Max duration of presence detection)	⏱	RED LED flashes quickly	?	GREEN LED — Number of flashes = value of this parameter ...	RED LED flashes slowly
Lock the adjustment session and go back to normal function	🔒	🔒	LED OFF		

7.1 | Important remote control adjustments

UNLOCK 🔓
CHECK VALUES ?
LOCK 🔒

SENSITIVITY
0-9   0 (min) > 9 (max)

IR CURTAIN IMMUNITY
1 **normal**
2 increased
3 rain mode
4 snow mode
5 snow mode enhanced

NUMBER OF IR CURTAINS
1 1 curtain (curtain closest to door)
2 **2 curtains**
3 2nd curtain in dynamic mode

OUTPUT CONFIGURATION

	OPENING	SAFETY
1	**active - NO**	**passive - NC**
2	passive - NC	active - NO
3	passive - NC	passive - NC
4	active - NO	active - NO

MAX. DURATION OF PRESENCE DETECTION
0 30 seconds
1 **1 minute**
2 2 minutes
3 5 minutes
4 10 minutes
5 20 minutes
6 60 minutes

SETUP
launch setup
launch assisted setup — 0
select presetting — 1-4
restore factory settings — 9

7.2 Launching a setup

Unlock the sensor to enter into adjustment session.	🔓 👆	⚫ RED LED flashes slowly	
To launch an assisted setup → recommended after mechanical adjustments of the IR sensor module. → recommended once after the first installation	👆	**0** 👆	🔴🟢 RED/GREEN LED alternating	The sensor performs a door opening and closing cycle to check the influence of the door leaves to the safety curtains. See Troubleshooting if RED LED flashes quickly after setup.

This setup is only effective if the relay output (opening) has been wired to the door controllers opening impulse input. This is required to create a door opening/closing cycle.

To launch a setup → recommended after change of parameters by remote control	👆	👆	🔴🟢 RED/GREEN LED alternating	The sensor only takes a new reference picture.

LED display during sensor assisted setup

Setup process active:	After finishing the setup process, the sensor shows the following behaviour:		
🔴🟢 RED/GREEN LED alternating	⚫ RED LED flashing quickly	The sensor 'sees' the door movement and can not finish its setup.	
	🔴 RED LED continuously on	The sensor signals a faulty IR monitoring.	7
	🟠 ORANGE LED continuously on	The sensor encounters signal saturation (ex. due to highly reflective floor).	7
	⚪ No LED turns on	The sensor successfully finished its setup.	

7.3 Additional remote control adjustments

F1 SAFETY OUTPUT REDIRECTION 🏃
0 **no redirection**
1 transfer presence detection to motion output
2 motion output only activated if motion <u>and</u> presence detection

🕐 HOLD TIME 🏃
0-9 **0 (0.5s) > 9 (9s)**

◄--► DETECTION MODE 🏃
1 bidirectional mode
2 **unidirectional mode**
3 unidirectional mode with MTF
4 unidirectional mode REVERSE

«□» IMMUNITY 🏃
1 detection of quasi presence
2 **normal**
3 increased
4-9 additional increased immunities
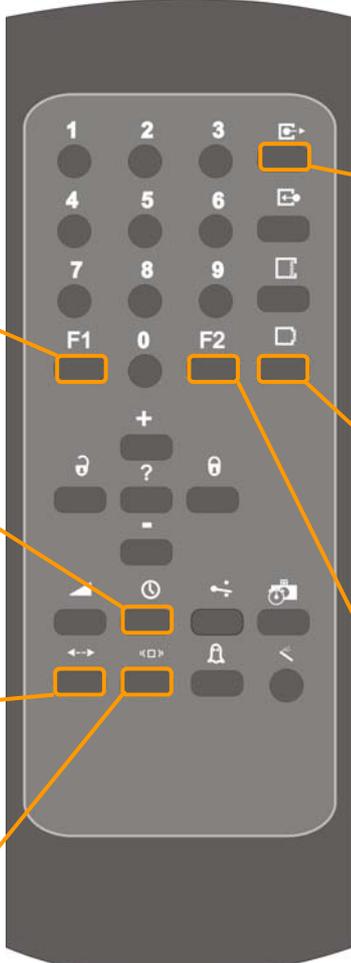
⊡→ EXTERNAL MONITORING
0 monitoring disabled (OFF)
1 **monitoring enabled (ON)**

INSTALLATION CONFIGURATION

	MOUNTING HEIGHT	PULSE FREQUENCY
1	**low**	**low**
2	high	low
3	low	high
4	high	high

F2 DOOR CONTROL
1 **normal**
   (LED in normal mode)
2 door permanently open (red LED ON)
3 door permanently closed (red LED OFF)

TÜV Requirements in Germany	To be TÜV compliant for the German market, please make sure to adjust the sensor as follows:

TÜV NORD Baumuster geprüft

	Number of IR curtains	2
	Max. duration of presence detection	1 or higher (min. 1minute)
	External Monitoring Enabled	1 (ON)
	IR curtain immunity	1 to 3

High mounting height (>3m)	If the sensor is installed higher than 3m above the floor, make sure to use the narrow prism. In addition set the mounting height to "high mounting":	**3+5**

	2	Installation Configuration	High Mounting Height
	4	Installation Configuration	High Mounting Height

Inside installation

Outside installation

According to the location and use of the sensor, choose one of the following presettings:

	1	Presetting 1	Internal installation, vulnerable users
	2	Presetting 2	Internal installation, normal or trained users
	3	Presetting 3	External installation, vulnerable users
	4	Presetting 4	External installation, normal or trained users

Rain/Snow

If the sensor is exposed to rain or snow, use the URC (Universal Rain Cover). Set the sensor to presetting 3 or 4 to increase the immunity of the sensor. You can reduce the influence of rain and snow even more when selecting the RAIN or SNOW mode for the IR curtain immunity: **4**

	3	RAIN mode	
	4	SNOW mode	
	5	SNOW mode enhanced	

Reflective environments

The additional increased radar immunity modes (4-9) reduce disturbances of the motion sensor in highly reflective environments (airlocks, curved and round sliding doors, metallic environments etc.). **5**

	4-9	Additional increased immunities

Setup

	0	Assisted Setup (~14sec)	Sensor checks the influence of the door leaves on the IR curtains (performs a door open/door close cycle)	**5**
		Standard Setup (~4sec)	Sensor only learns its environment	

After adjusting the sensor for the first time, it is recommended to launch an "assisted Setup". If the IR sensor module "sees" the door movement, move the curtains out of the door leaves.

Access Code

The access code is recommended to set sensors that are installed close to each other with remote control. If you forget the access code, you can still gain access to the sensor during the first minute after powering up (unlocking the sensor does not require entering an access code). You can program a new code or remove the code by entering LOCK 0000.

		1-9	1-9	1-9	1-9		Save an access code (between 1 and 4 digits)
		0	0	0	0		Delete the access code (0 or 0000)

Overlapping IR-curtains

Overlapping IR-curtains from sensors installed side-by-side may cause disturbances due to crosstalk. Select different frequencies on each sensor to avoid crosstalk. Attention: avoid curtains that are overlapping by more than 30 cm (at 2,2m, using wide prism). **5**

No monitoring on IR curtain

If no monitoring of the IR sensor is required, but the product has the monitoring enabled by default, set "monitoring" to "0":

	0	External Monitoring Enabled	OFF

Only one single impulse input on door controller

If your door controller has only one single impulse input for motion impulse (open the door) and no safety input (keep the door open), use the "Safety Output Redirection" to transfer the safety detection (IR sensor module) to the motion impulse output and connect only the motion output to your door controller. Note that the monitoring function is no longer active.

F1	1	Safety Output Redirection	Transfer presence detection to the motion output

PULSE monitoring of safety sensor (beams)

If your door controller monitors its safety sensors using PULSE (ex. RECORD, ATS, DORMA ES-90 EM2/EM3), make sure you have a PULSE compatible product (ACTIV8 PULSE).

Check the wiring

Push the left push button to release the outputs. The door should close and the LED should switch off.

Push Buttons

For more information on the use of the push buttons, ask our quick reference guide "How to use push buttons".

|	SYMPTOMS	POSSIBLE CAUSES	CORRECTIVE ACTION	
	Red LED flashing quickly after an assisted setup.	The sensor 'sees' the door movement and can not finish its setup.	Adjust the position of the IR curtains.	3
	Red LED permanently ON after an assisted setup.	The sensor fails the IR test.	1. Cut and restore the power supply. 2. Launch a new assisted setup. If the LED still stays ON, replace the sensor.	5
	Red LED ON	The sensor detects a presence.	Wait as long as the time set in the "maximum duration of presence detection" setting or launch an assisted setup (with the remote control or right push button).	4-5
	Red LED ON The presence detection is disturbed by the rain.		Increase the immunity of the curtains (value 3 - 5)	4
	Green LED ON The radar detection is disturbed by the rain.		1. Check whether the unidirectional mode is selected and the MTF function is disabled. 2. Increase the radar immunity.	5
	Orange LED flashes	The sensor signals an internal fault.	Cut and restore the power supply. If the orange LED flashes again, replace faulty sensor.	
	Orange LED ON	The sensor encounters signal saturation.	1. Use the wide field prism and/or slightly increase the IR-curtains angle (turning the screw counterclockwise). 2. Launch an assisted setup.	3+5
	The door is not closing. LED OFF	1. On-Off switch at door control is in wrong position or is faulty.	Check to insure that On-Off switch for door is in ON or AUTOMATIC position.	
		2. Improper output configuration on the sensor.	Check the output configuration setting on each sensor.	4
		3. Faulty sensor monitoring of the door controller.	1. Check if the monitoring mode is ON or PULSE depending on the door controller. 2. Check the wiring. 3. Verify that 'Door Control' (F2) is set to 'AUTO'.	3+5
	The door closes slowly. LED OFF	Faulty sensor monitoring of the door controller.	1. Check if the monitoring mode is ON or PULSE depending on the door controller. 2. Check the wiring. 3. Verify that 'Door Control' (F2) is set to 'AUTO'.	3+5
	After a power on, there is no LED-signal, even during a motion detection. The motion output is active and the presence output is fixed.	The sensor's monitoring input is not correctly supplied.	Check the wiring and the power supply (voltage and polarity) of the monitoring input. Disable the monitoring of the sensor if the door controller cannot monitor the sensor.	3+5
	Door keeps recycling open-closed.	The sensor is disturbed by the door motion because it sees the door or feels vibrations.	Green LED signals motion detection: Increase radar angle and radar immunity. Red LED signals infrared detection: Increase IR curtains angle (turning the screw counterclockwise).	2+3
	In airlock vestibules, the sensor sees the opposite door.	.	Increase radar immunity.	
	In metallic environments, the sensor detects objects outside of its detection field.		Increase radar immunity.	
	Unwanted presence detection	1. The sensor is not placed properly.	Fasten the sensor firmly.	
		2. The front face is not properly fixed.	Check whether the front face prism is placed into the guiding grooves and not in the sensor cover.	3
	The sensor does not respond to the remote control.	1. Batteries in the remote control are not installed properly or dead.	Verify whether the batteries are installed correctly or replace batteries.	
		2. Remote control badly pointed.	Point the remote control towards the sensor.	
	The sensor does not unlock when access code is entered.	Wrong code being entered.	Cut and restore power supply. No code is required to unlock during the first minute after powering. Press on "unlock", then on "lock" and introduce a new access code.	6

TECHNICAL SPECIFICATIONS

Supply voltage	: 12V (– 5%) to 24V (+10%) AC/DC
Mains frequency	: 50 - 60 Hz
Power consumption	: < 3 W
Mounting height	: 1.8m to 4m
Sensitivity of the monitoring input	: 10-30V DC
Delay of the output activation after stimulation	: < 1ms
3-coloured LED	: RED (presence detection) - GREEN (motion detection) - ORANGE (signal saturation, error)
Temperature range	: -25°C to +55°C
Degree of protection	: IP54
Norm conformity	: R&TTE 1999/5/EC; EMC 89/336/EEC
Dimensions	: 262 mm (L) x 55 mm (H) x 44 mm (D)
Weight	: 250 g
Housing material	: ABS + LURAN S
Minimum length of cable	: ± 2.6 m
Range of Remote Control	: 5m

	MOTION SENSOR		PRESENCE SENSOR	
Detection mode	Motion Minimum detection speed: 5 cm/s (measured in sensor axis)		Presence Typical response time: < 128 ms (max. 500 ms)	
Technology	Microwave and microprocessor Transmitter frequency: 24.175 GHz Transmitter radiated power: < 20 dBm EIRP Transmitter power density: < 5 mW/cm²		Focused active infrared and self-monitored microprocessor Spot diameter (standard): 0.1m max Number of spots: 24 or 12 spots by curtain Number of curtains: 2	
Detection field		Width Depth Wide 4 m 2 m Narrow 2 m 2,5 m		Width Depth Wide 2 m 0,35 m Narrow 1 m 0,35 m
Angle	From 15° to 50° in elevation (adjustable)		From - 4° to + 4° (adjustable)	
Output specification	Relay (free of potential contact): Max. contact voltage: 42V AC/ DC Max. contact current: 1A (resistive) Max. switching power: 30W (DC) / 60VA (AC)		Transistor (optocoupled transistor) Max. output current: 100 mA Max. switching power: 42 V DC	
Output holdtime	0.5s to 9s (adjustable)		0,1/1s (fixed)	
Response time of monitoring request			< 30 ms	

Sensing field dimensions given at 2.2m mounting height.
Specifications are subject to changes without prior notice.

ACCESSORIES

Remote Control

Spotfinder

ACA

ABA

Antenna narrow field

Antenna wide field

Prism 1 m

Prism 2 m