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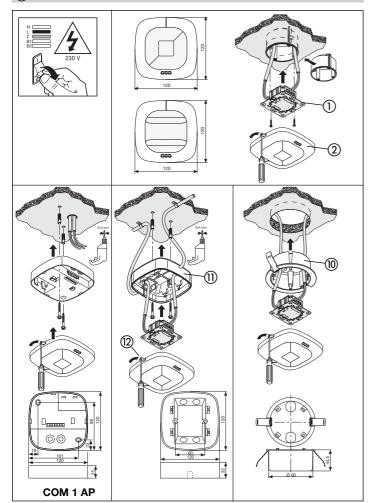
Information

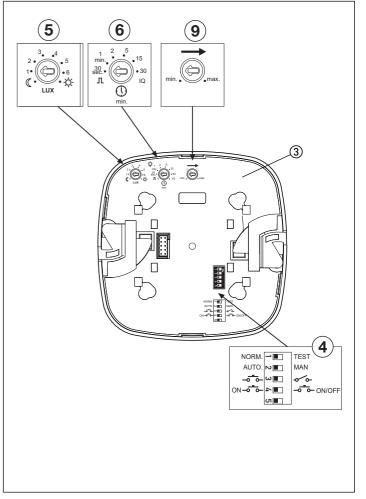
HF 360 COM 1 HF 360 COM1 AP HF 360 COM 2 HF 360 DIM

DUAL HF COM 1 DUAL HF COM 1 AP DUAL HF DIM

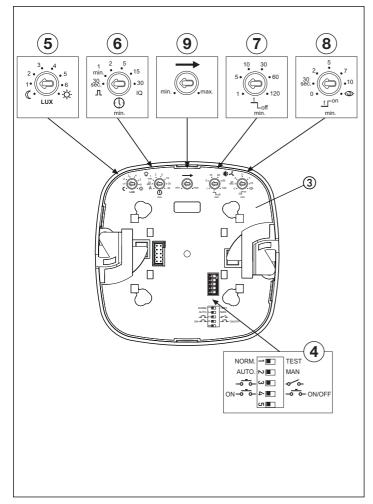
SLO 뚶

## HF 360 COM 1/COM 1 AP / DUAL HF COM 1/COM 1 AP

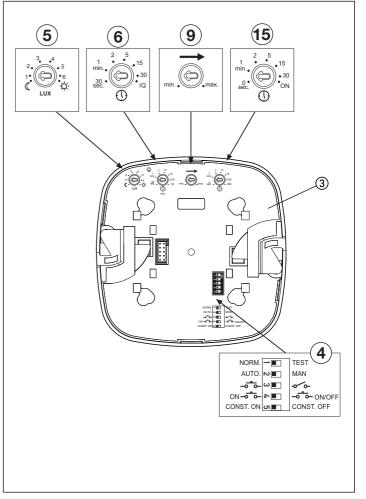




## HF 360 COM 2

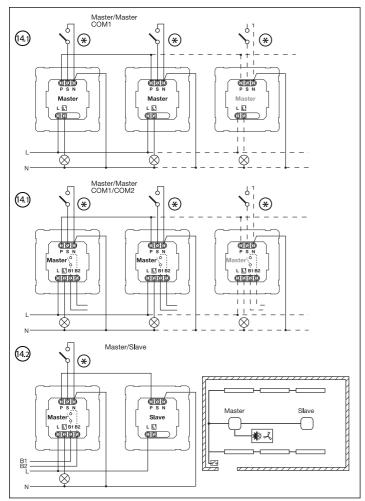


## HF 360 DIM / DUAL HF DIM

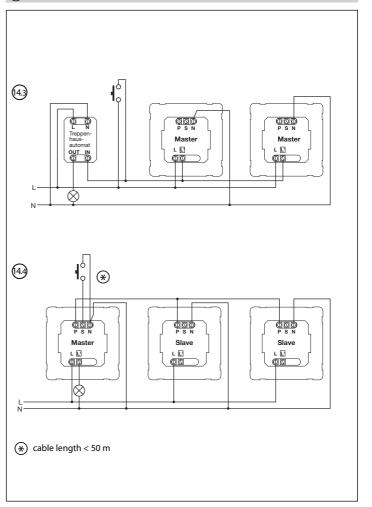


- 4 -

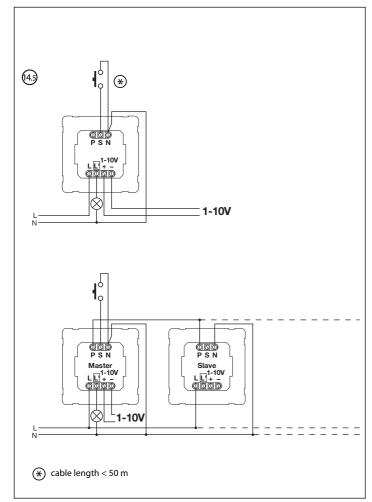




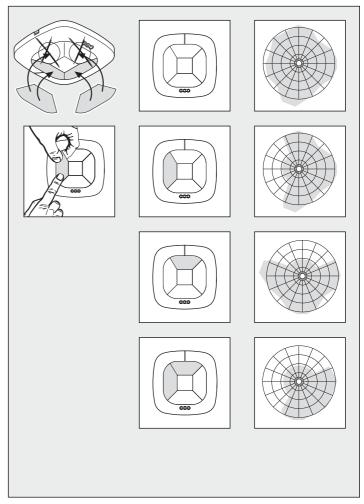








# **16** HF 360



# **GB** Operating instructions

#### Dear Customer,

Congratulation on purchasing vour new STEINEL presence detector and thank you for the confidence you have shown in us. You have chosen a high-quality product that has been manufactured, tested and packed with the greatest care.

Please familiarise vourself with these instructions before attempting to install the presence detector because prolonged, reliable and trouble-free operation will only be ensured if it is fitted and used properly.

We hope your new STEINEL sensor will bring you lasting pleasure.

# Safety warnings

- Disconnect the power supply before attempting any work on the sensor!
- During installation, the electric power cable to be connected must be dead. Therefore, switch 'OFF' the power first and use a voltage tester to make sure the wiring is off
- Installing the sensor involves work on the mains power supply. This work must therefore be carried out professionally in accordance with the applicable national wiring regulations and electrical operating conditions (VDE 0100)
- It is only permissible to use electronic ballasts with isolated control signal at the DIM 1-10 V control output.

## Assembly/Installation (3) (see chart on page 2)

The sensor is only intended for concealed, indoor installation in ceilings (apart from the COM 1 AP - surface-mounted - option). A clamping-type ceiling adapter or surface-mounting adapter is not included.

Sensor and load module come ready assembled and must be plugged together after fitting the load module and setting the potentiometers/dip switches.

Accessories:

Clamping-type ceiling adapter, EAN no.: 4007841 000370 Surface-mounting adapter. EAN no.: 4007841 000363

Guard cage. EAN no.: 4007841 003036

Service remote control. EAN no.: 4007841 000387 User remote control,

EAN no.: 4007841 003012

## System components

- Load module
- Sensor module
- (3) Sensor base (4) Dip switches
- (1) Normal/test mode (2) Semi-/fully automatic
- mode
- (3) Button/switch
- (4) 'ON' / 'ON'-'OFF' button
- (5) DIM option Constant lighting control 'ON'/'OFF'

- (5) Twilight setting
- (6) Time setting Switching output 1
- (7) HVAC stav-'ON' time Switching output 2
- (8) HVAC switch-'ON' delay Switching output 2
- (9) Reach setting
- (10) Clamping-type ceiling adapter, optional

- Surface-mounting adapter IP 54, optional
- (12) Locking mechanism
- (3) Assembly/Installation
- (A) Parallel-connected configurations
- (15) Stav-'ON' time Orientation light DIM option
- (6) Film shroud for minimising the detection zone (HF 360)

#### How it works / Basic function

The high-frequency presence detectors from the Control PRO range control lighting as well as heating, ventilation and air-conditioning (COM 2 only), e.g. in offices, WCs, public buildings or at home, in relation to ambient light level and the presence of persons. Modern, high-frequen-

cy technology guarantees that movement is detected absolutely anywhere irrespective of radiated temperature. Sensing movement in two directions, the DUAL HF sensor is ideal for corridors in hotels, schools and office buildings. The presence detector's switching outputs and

reach are set at the potentiometers and dip switches or by means of the optional remote control. Presence Control has a low intrinsic power consump-

#### Presence Control PRO

### HF 360 COM 1 / COM 1 AP DUAL HF COM 1 / COM 1 AP

1 switching output operating in relation to brightness setting and presence of persons.

#### Settings:

- Brightness setting
- Stay-'ON' time, pulse mode, IO mode

## Presence Control PRO HF 360 COM 2

1 switching output, such as COM 1. Plus a 2nd switching output for HVAC (heating / ventilation / air conditioning) governed by presence.

#### Settinas:

- Stav-'ON' time
- Switch-'ON' delay
- Room surveillance

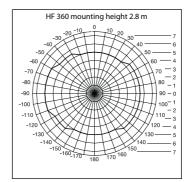
### Presence Control PRO HF 360 DIM **DUAL HF DIM**

1 switching output operating in relation to brightness setting and presence of persons.

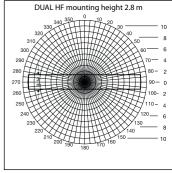
#### Settings:

- Brightness setting
- Stav-'ON' time, IO mode
- Orientation light
- Constant lighting control

### **Detection zone**



The reach of the HF 360 is electronically adjustable. 1 or 2 detection directions can be masked out for adjustment to the room situation. An angle of coverage of 360° provides a max, reach of 8 m.

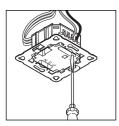


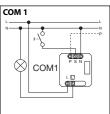
The DUAL HF sensor has 2 special HF sensors that detect movement from the ceiling in both directions. Controlled electronically, reach is infinitely variable in both directions from 3 x 3 m - 10 x 3 m.

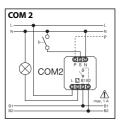
## **Electrical installation/Automatic mode**

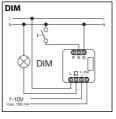
In selecting the wiring leads, it is important to meet the wiring regulations laid down in VDE 0100 (see Safety warnings on page 19). The following applies to wiring presence detectors: According to

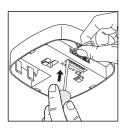
section 6 of VDE 0100 520, a multiple-core lead containing both the mains voltage leads and the control leads (e.g. NYM 5 x 1.52) may be used for wiring between the sensor and electronic ballast. The mains connection lead must be no greater than 10 mm in diameter. The clamping range of the mains terminal is designed for a maximum of  $2 \times 1.5$  mm<sup>2</sup> or  $1 \times 2.5$  mm<sup>2</sup>.

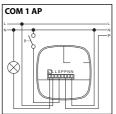












# **Technical Specifications**

Dimensions	HF 360	Dual HF	
(w x h x d)	120 x 120 x 56 mm	120 x 120 x 76 mm	
Supply voltage	230 – 240 V, 50 Hz / 60 Hz		
Capacity, <b>switching output 1</b> (COM 1/COM 2)	Relay 230 V Resistive load 2000 W max. (cos $\phi=1)$ 1000 VA max. (cos $\phi=0,5)$		
Electronic ballast: (COM 1/COM 1 AP/ COM 2/DIM)	Max. 'ON' current 800 A/200 $\mu$ s 30 $\times$ (1 $\times$ 18 W), 25 $\times$ (2 $\times$ 18 W), 25 $\times$ (2 $\times$ 36 W), 15 $\times$ (2 $\times$ 36 W) 20 $\times$ (1 $\times$ 58 W), 10 $\times$ (2 $\times$ 58 W) Pay attention to specific 'ON' currents of electronic ballasts! A relay or contactor must be provided on line side for higher switching capacities.		
Capacity, <b>switching output 2</b> (COM 2 only) (HF 360 only)	Presence 230 W max. / 230 V 1A max. (cos $\varphi$ = 1) for HVAC (heating/ventilation/air-conditioning)		
Application	indoors		
Mounting height (mounted to ceiling)	2.5 m – 3.5 m ceiling height		
Detection angle	HF 360 360° with 140° aperture angle also through glass, wood and stud walls. 1 or 2 detection directions can be masked out for adjustment to the room situation.	<b>Dual HF</b> see diagrams on p. 21 also through glass, wood and stud walls	
Reach	HF 360 8 m max. all round, electronically and infinitely variable	<b>Dual HF</b> 10 x 3 m max. in each direction, electronically and infinitely adjustable	
Switching output 1 Time setting	30 sec. – 30 min., pulse mode (approx. 2 sec.) IQ mode (automatic adjustment to use profile)		
Switching output 2 Time setting	COM2 only for HVAC 0 sec. – 10 min. switch-'ON' delay 1 min. – 2 h stay-'ON' time		
(HF 360 only)	Automatic room surveillance		
DIM: Time setting	30 sec 30 min. IQ mode (automatic adjustment to use profile)		
Control output	1 – 10 V / max. of 50 electronic ballasts, max. of 100 mA		
Sensor system	High-frequency 5.8 GHz, transmission power < 1mW		
Function setting by DIP switches	DIP 1 Normal / test mode DIP 2 Semi- / fully automatic mode DIP 3 Button / switch mode DIP 4 'ON' button / 'ON'-'OFF' button DIP 5 Constant-lighting control 'ON'-'OFF' (DIM)		
Parallel connections	Master/slave Master/master		
User-friendly setting capability	Teach-in (with optional remote control RC3)		
Light-level setting	10 – 1000 lux, ∞ / daylight DIM 100 – 1000 lux		
IP rating	IP 20 (IP 54 with surface-mounted box)		
Safety class			
Temperature range	0° to +40° C		
Housing	UV-resistant, paintable		

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## **Functions - Settings by DIP switch**

## **COM 1 + COM 2**

### DIP<sub>1</sub>

#### Normal mode / Test mode (NORM / TEST)

Test mode has priority over all other settings on the presence detector and serves the purpose of checking for proper working order as well for testing the detection zone. Irrespective of am-

bient light level, the presence detector activates the light to stay 'ON' for approx. 8 sec. in response to movement in the room (blue LED flashes when movement is detected). All userselected potentiometer settings apply in normal mode. The presence detector can also be set by means of the blue LED without any load connected.

#### DIP<sub>2</sub>

#### Semi-automatic mode (MAN) / fully automatic mode (AUTO)

#### Semi-automatic mode: (MAN)

The light now only switches 'OFF' automatically. Light is switched 'ON' manually. Light must be requested using the

button and stays 'ON' for the time set at the potentiometer. (pressing twice switches 'ON' for 4 hours).

### Fully automatic mode: (AUTO)

The light automatically switches 'ON' and 'OFF' in relation to brightness when someone is present. Light can be switched 'ON' and 'OFF manually at any time. This temporarily interrupts

the automatic switching function. Irrespective of the settings selected, light stays 'ON' for 4 hours after manually pressing the button twice or switches 'OFF' after manually pressing the button once. Pressing the button before the 4 hours elapse returns the Presence Control IR Quattro to the normal operating mode.

## DIP 3

#### **Button/switch**

Tells the sensor how to interpret the incoming signal. Assigning external buttons/switches allows you to operate the detector as a semi-automatic unit and override it manually at any time.

- Operation either by button or switch
- Several buttons possible on one control input
- Only use illuminated pushbutton with neutral conductor connected

■ Cable length between sensor and switch < 50 m</p>

## DIP 4

#### 'ON'/'ON'-'OFF' button

In the 'ON'-'OFF' setting, the light can be switched 'ON' and 'OFF' manually at any time (except in pulse mode: no manual 'OFF'). In the 'ON' setting, light can no longer be switched 'OFF' manually. The stay-'ON' time starts from the beginning again each time the button is pressed.

## DIM

#### DIP 5

#### Constant light 'ON'/'OFF'

Provides a constant level of brightness. Detector measures the prevailing level of daylight and activates sufficient artificial light to achieve the required level of brightness. As daylight changes, the switched-in artificial lighting component is adjusted accordingly. In addition to the daylight component, artificial light is also switched 'ON' and 'OFF' in relation to whether or not persons are present.

## Functions – Settings by potentiometer

## **COM 1 + COM 2**

## Potentiometer (5)

#### **Twilight setting**

The chosen response threshold can be infinitely varied from approx. 10 – 1000 lux.

Control dial turned fully clockwise: MAX daylight mode Control dial turned fully anti-clockwise: MIN night-time operation Depending on the site of installation, the setting may need to be corrected by 1-2 marks on the scale.

Examples of use	Brightness settings
Night-time mode	min
Corridors, foyers	1
Stairs, escalators, moving walkways	2
Washrooms, toilets, switchrooms, canteens	3
Sales floor, kindergartens, nursery school rooms, sports halls	4
Work environments: Offices, conference and meeting rooms, precision assembly activities, kitchens	5
Working areas requiring good light: Laboratory, technical drawing, precision work	>=6
Daylight mode	max

Note: Depending on the site of installation, the setting may need to be corrected by 1 – 2 marks on the scale.

# Potentiometer **6**

#### Time setting

Stay-'ON' time for switching output 1 Setting 30 sec. – 30 min. The chosen stay-'ON' time is infinitely variable from a minimum of approx. 30 sec. to a maximum of 30 min. Light is calibrated after 3 min. When the threshold is exceeded, the sensor switches 'OFF' after the stay-'ON' time expires.

## Pulse mode (except DIM) $\Box$

If the dial is set to  $\mathbb{I}$  (fully anticlockwise), the unit is in pulse mode, i.e. the output is switched 'ON' for approx. 2 sec. (e.g. for stairwell lighting timer). Afterwards, the sensor does not respond to movement for approx. 8 sec. Day mode is the only mode possible here because of dazzle by light from external sources.

#### IQ mode

Turned fully clockwise: The stay-'ON' time is self-learning and adjusts dynamically to user behaviour. The optimum time cycle is determined by means of a learning algorithm.

The shortest time is 5 min., the longest 20 min.

## COM 2

## Potentiometer (7)

#### Stay-'ON' time for switching output 2 HVAC

- · Setting 1 sec. 2 hr.
- · Turned fully clockwise: max
- · Turned fully anti-clockwise: min

## Potentiometer ®

#### Switch-'ON' delay for switching output 2 HVAC

- Setting 0 sec. 10 min.Turned fully clockwise:
- Room surveillance 
  Turned fully anti-clockwise:

0 sec. ('OFF')

Turning the potentiometer to the "Surveillance" setting reduces the sensitivity of the "Presence" switching output. The contact only closes on detecting a pronounced movement, signalising with a high degree of certainty that persons are present. The stay-'ON- time remains active. The switch-'ON' delay is inactivated.

## Potentiometer(15)

#### Basic brightness (DIM option)

Provides basic illumination for the selected stay-'ON' time when ambient light falls below the selected brightness threshold that is set. This can be dimmed to 10% of maximum light intensity. As soon as a person enters the scene, the detector switches either to 100% light

intensity (constant-lighting controller 'OFF') or adjusts to the preselected brightness level (constant-lighting controller 'ON). When no movement is being detected, the detector dims back to basic brightness after the stay-'ON' time expires. This is switched 'OFF' when stay-'ON' time (1 min. – 30 min.) has expired or the daylight component is sufficient to exceed the selected level of brightness. In the 'ON' setting, the detector switches basic brightness 'ON' and 'OFF' as soon as the level of light falls below the brightness threshold

## **Reach adjustment**

## Potentiometer (9)

The reach required (response threshold) is infinitely variable.

■ HF 360 1 m min. – 8 m max.

■ DUAL HF min. 3 x 3 m - 10 x 3 m in each direction Turned fully anticlockwise (factory setting) = minimum reach

Turned fully clockwise (factory setting) = maximum reach

## **Parallel-connected configurations**

When using several detectors, they must be connected to the same phase!

## (14.1) Master/master

A parallel-connected configuration also permits the use of several masters. In this case, each master operates the lighting group in accordance with the level of

brightness it measures. Delay times and brightness thresholds are selected at each master as required. The switched load is spread among the individual masters. Presence is still detected collectively by all detectors. The presence output can be picked off from any master.

(14.2) Master/slave

The master/slave configuration permits detection of movement in large-type rooms or spaces (load connected = master, no load =

slave). The level of brightness prevailing in the room is only evaluated at the master. The slaves report movements detected to the master. Lighting or HVAC is switched 'ON' and 'OFF' by the master only.

(4.3) Two detectors linked with an external stairwell lighting timer

ked with an Old building / building modernilighting sation External light source activated by button. No twilight mode, day mode only.

(4.4) Detector as stairwell lighting

(14.3) DIM detector

### Remote control

Using the remote control (optional), functions can be conveniently activated from the floor.

Note: The pulse mode cannot be overridden by the remote control. Switch pulse mode 'OFF' manually.

Presence Control remote control unit: EAN no.: 4007841 000387

Malfunction	Cause	Remedy
Manufiction	cause	Remedy
Light does not switch 'ON'	<ul><li>No supply voltage</li><li>Lux setting too low</li></ul>	<ul> <li>Check supply voltage</li> <li>Slowly increase lux setting until light switches 'ON'</li> </ul>
	■ No motion detection	<ul> <li>Ensure unobstructed sensor vision</li> <li>Check detection zone</li> </ul>
Light does not switch 'OFF'	■ Lux setting too high ■ Stay-'ON' time running out	■ Reduce lux setting ■ Wait until stay-'ON' time elapses; reduce stay-'ON' time if necessary
	■ Interference from sources of heat, e.g.: fan heater, open doors and windows, pets, light bulb/halogen floodlight, moving objects	<ul> <li>Use stickers to mask out stationary sources of interference</li> </ul>
Sensor switches 'OFF' in spite of persons being present	■ Stay-'ON' time too short ■ Light-level threshold too low	■ Increase stay-'ON' time ■ Change light threshold
Sensor does not switch 'OFF' quickly enough	■ Stay-'ON' time too long	■ Reduce stay-'ON' time
Sensor does not switch 'ON' quickly enough when approached from the front	Reach is reduced when approached from the front	■ Install additional sensors
		<ul> <li>Reduce distance between two sensors</li> </ul>
Sensor does not switch 'ON' when persons are present in spite of it being dark	■ Lux setting too low	■ Sensor deactivated by switch/button? ■ Semi-automatic mode? ■ Increase light-level threshold

## **(€ Declaration of Conformity**

This product complies with

- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC
- RoHS Directive 2011/65/EC
- WEEE Directive 2012/19/EC

## **Functional Warranty**

This Steinel product has been manufactured with utmost care, tested for proper operation and safety and then subjected to random sample inspection. Steinel guarantees that it is in perfect condition and proper working order.

Functional 36 month Warranty The warranty period is 36 months and starts on the date of sale to the consumer. We will remedy defects caused by material flaws or manufacturing faults. The warranty will be met by repair or replacement of the defective parts at our own discretion. The warranty shall not cover damage to wear parts, damage or defects caused by improper treatment or maintenance. Further consequential damage to other objects is excluded.

Claims under the warranty will only be accepted if the product is sent fully assembled and well packed complete with a brief description of the fault as well as a receipt or invoice (date of purchase and dealer's stamp) to the appropriate Service Centre.

Repair service: Please ask your nearest service centre how to proceed for repairing faults not covered by the warranty or occurring after the warranty expires.

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