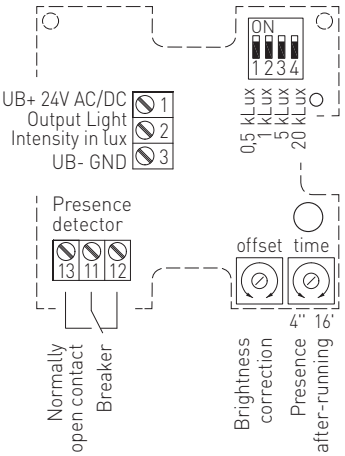
The room motion and light sensor and presence detector **KIN**ASGARD® **RBWF-LF** is a combined instrument that detects motion and light intensity using a diffuser as well as the presence of persons and is used to recognize conditions. RBWF-LF issues a standard signal of 0-10 V or 4...20 mA for light intensity and has a switching (normally open contact) output for detecting motion.

This multi-sensor is used in building automation, in corridors, at workplaces, in industrial halls, in offices and business facilities for the control of lighting as needed, e.g. to control sunshade equipment, for daylight-dependant constant light control, for activating Venetian blinds or luminaries, for automatic energy conservation, and to avoid unnecessary heating-up or cooling of unoccupied rooms.

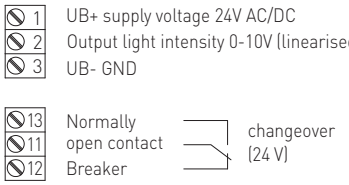
TECHNICAL DATA

Power supply:	24 V AC (±20%); 15...36 V DC for U variant 15...36 V DC for I variant, depending on working resistance, residual ripple stabilised ±0.3 V
Working resistance:	R_a (ohm) = (U_b-14 V) / 0.02 A for I variant
Load resistance:	R_L > 5 kOhm for U variant
Power consumption:	< 1 W at 24 V DC; < 2 VA at 24 V AC
Sensor:	infra-red motion sensor and light sensor with diffuser
Output, motion sensor:	without / with motion + presence, potential-free normally open contact (24 V), 1 A ohmic load
After-running time:	adjustable from 4 s to 16 min
Measuring ranges:	**multi-range switching** (via DIP switches) with 4 switchable measuring ranges **0...500 Lux / 1 kLux / 5 kLux / 20 kLux** (other individual ranges optional, e. g. 100 kLux)
Output, light sensor:	0-10 V (linearised, active, 3-wire connection) or 4...20 mA
Measuring error:	< 5% of final value
Ambient temperature:	0...+50 °C
Electrical connection:	0.14 - 1.5 mm², via terminal screws on circuit board
Enclosure:	plastic, material ABS, colour pure white (similar to RAL 9010)
Dimensions:	85 x 85 x 27 mm (Baldur 1)
Installation:	wall mounting or on in-wall flush box, Ø 55 mm, base with 4-hole for mounting on vertically or horizontally installed in-wall flush boxes for cable entry from the back, with predetermined breaking point for on-wall cable entry from top / bottom in case of plain on-wall installation
Protection class:	III (according to EN 60 730)
Protection type:	IP 20 (according to EN 60 529)
Standards:	CE conformity, electromagnetic compatibility according to EN 61 326, EMC directive 2014 / 30 / EU

Schematic diagram **RBWF/LF**



Connecting diagram **RBWF/LF**

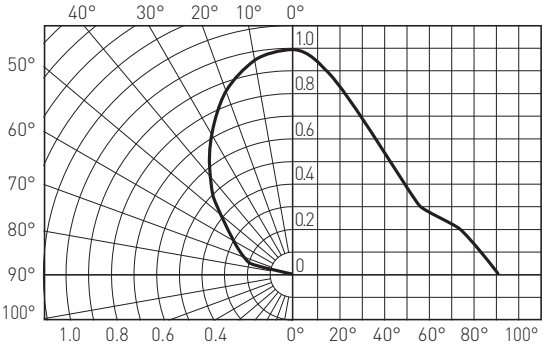


Measuring ranges selectable	DIP 1	DIP 2	DIP 3	DIP 4
0...500 Lux	**ON**	OFF	OFF	OFF
0... 1 kLux	OFF	**ON**	OFF	OFF
0... 5 kLux	OFF	OFF	**ON**	OFF
0... 20 kLux	OFF	OFF	OFF	**ON**

Type / WG01	Detection, Measuring Range	Output	Item No.
RBWF / LF	**Room motion sensor and light sensor**		
RBWF-LF-U	Presence + Motion: Yes / No (relay on / off)	Changeover contact	1401-41A1-1100-000
	Light Intensity: 0...500 Lux / 1 kLux / 5 kLux / 20 kLux	**0-10 V** (linearised)	
RBWF-LF-I	Presence + Motion: Yes / No (relay on / off)	Changeover contact	1401-41A1-3200-000
	Light Intensity: 0...500 Lux / 1 kLux / 5 kLux / 20 kLux	**4...20 mA**	
RBWF	**Room motion sensor**		
RBWF-W	Presence + Motion: Yes / No (relay on / off)	Changeover contact	1401-41A0-4000-000
RHKF	**Room light intensity sensors**		
RHKF-I	Light Intensity: 0...500 Lux / 1 kLux / 5 kLux / 20 kLux	**4...20 mA** (linearised)	1601-41A2-2000-000
RHKF-U	Light Intensity: 0...500 Lux / 1 kLux / 5 kLux / 20 kLux	**0-10 V** (linearised)	1601-41A1-2000-000
Extra charge:	Other individual measuring ranges optional, e. g. 100 kLux		on request

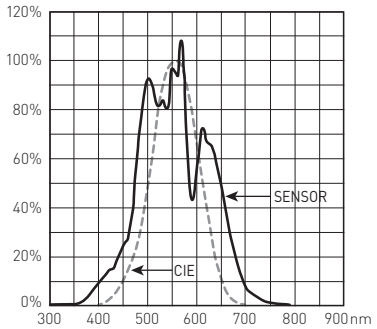
GB Light sensor and motion detector

Light sensor **PHOT**ASGARD®



Characteristic curve showing the sensor's sensitivity in function of the angle of incidence of light.

Light sensor **PHOT**ASGARD®



Characteristic curve showing the sensor's sensitivity in respect of the wavelength of light. The broken line represents the light perception of the human eye.

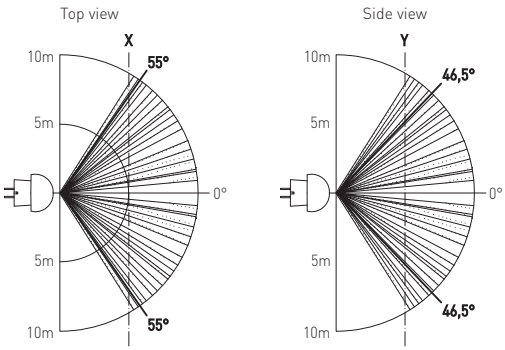
The sensor used in **PHOT**ASGARD® light intensity sensors was specifically adapted to the sensitivity of the human eye. Its greatest sensitivity is in the range of 350 nm to 820 nm. Therefore with its special filter the sensor is predestined for exposure measurement of daylight and / or for measuring artificial light of high colour temperature (similar to sunlight).

NOTES (W):

This device is used for the detection of persons in up to 10 meters distance. The temperature difference between persons to be detected and ambience must be greater than 5 K. When motion is detected, the potential-free relay output switches. The hold time for the output, measured from the time when last motion was detected, can be pre-set between 4 seconds and ca. 16 minutes. The sensor is characterized by its wide reach while being small in size. The potential-free changeover contact is used for switching extra-low voltage only.

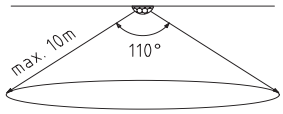
In all **KIN**ASGARD® motion sensors and presence detectors, a high-end variant infrared sensor with enlarged angle of aperture is exclusively used. Because of the patented lens system with 20 individual lenses, only very small dark areas are resulting, which even at a distance of 10 m are only a few centimeters wide, safely detecting also small motions. The sensor recognizes changes in the infrared radiation spectrum, so in heat radiation, resulting form the movement of persons or objects. Such movements generate a temporary change of the temperature gradient in the field. Because of the always present body (heat) radiation, this sensor is excellently suitable for the detection of persons. The temperature difference between sensor and object must be > 5 K.

Aperture angle **KIN**ASGARD®

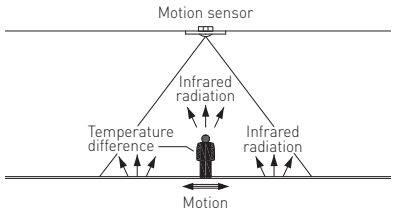


High-end variant infrared sensor with enlarged aperture angle of 100° respectively 110° over 360 degrees circumference and 10 m of reach.

Detection range **KIN**ASGARD®



Principle **KIN**ASGARD®



Sensor recognizes the temperature difference resulting from the movement of persons or objects.

(GB) General notes

- The sensor is mounted inside the enclosure cover. Take care not to damage the cable/sensor when opening enclosure.
- If necessary for mounting and/or electric wiring, unplug connector carefully and plug it back in again in the same position afterwards.
- Protect sensor surface against any kind of dirt and/or damage.
- Scratches, dirt, and also partial shading falsify the measuring result.
- Applying overvoltage will destroy the device.
- If this device is operated beyond the specified range, all warranty claims are forfeited.

Our "General Terms and Conditions for Business" together with the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry" (ZVEI conditions) including supplementary clause "Extended Retention of Title" apply as the exclusive terms and conditions.

In additionIn addition, the following points are to be observed:

- These instructions must be read before installation and putting in operation and all notes provided therein are to be regarded!
- Devices must only be connected to safety extra-low voltage and under dead-voltage condition. To avoid damages and errors the device (e.g. by voltage induction) shielded cables are to be used, laying parallel with current-carrying lines is to be avoided, and EMC directives are to be observed.
- This device shall only be used for its intended purpose. Respective safety regulations issued by the VDE, the states, their control authorities, the TÜV and the local energy supply company must be observed. The purchaser has to adhere to the building and safety regulations and has to prevent perils of any kind.
- No warranties or liabilities will be assumed for defects and damages arising from improper use of this device.
- Consequential damages caused by a fault in this device are excluded from warranty or liability.
- These devices must be installed by authorised specialists only.
- The technical data and connecting conditions of the mounting and operating instructions delivered together with the device are exclusively valid. Deviations from the catalogue representation are not explicitly mentioned and are possible in terms of technical progress and continuous improvement of our products.
- In case of any modifications made by the user, all warranty claims are forfeited.
- Operating this device close to other devices that do not comply with EMC directives may influence functionality.
- This device must not be used for monitoring applications, which serve the purpose of protecting persons against hazards or injury, or as an EMERGENCY STOP switch for systems or machinery, or for any other similar safety-relevant purposes.
- Dimensions of enclosures or enclosure accessories may show slight tolerances on the specifications provided in these instructions.
- Modifications of these records are not permitted.
- In case of a complaint, only complete devices returned in original packing will be accepted.

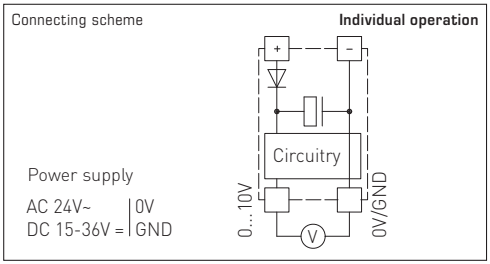
These instructions must be read before installation and putting in operation and all notes provided therein are to be regarded!

SUPPLY VOLTAGE:

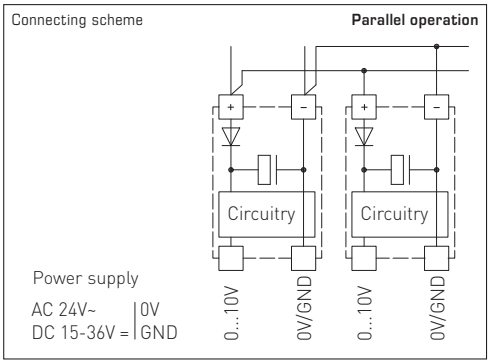
For operating voltage reverse polarity protection, a one-way rectifier or reverse polarity protection diode is integrated in this device variant. This internal one-way rectifier also allows operating 0-10V devices on AC supply voltage.

The output signal is to be tapped by a measuring instrument. Output voltage is measured her against zero potential (0V) of the input voltage!

When this device is operated on **DC supply voltage**, the operating voltage input UB+ is to be used for 15...36V DC supply and UB– or GND for ground wire!



When several devices are supplied by one 24V **AC voltage supply**, it is to be ensured that all "positive" operating voltage input terminals (+) of the field devices are connected with each other and all "negative" operating voltage input terminals (–) (= reference potential) are connected together (in-phase connection of field devices). All outputs of field devices must be referenced to the same potential!

In case of reversed polarity at one field device, a supply voltage short-circuit would be caused by that device. The consequential short-circuit current flowing through this field device may cause damage to it.

Therefore, pay attention to correct wiring!