ekinex
CONTROL YOUR LIVING SPACE

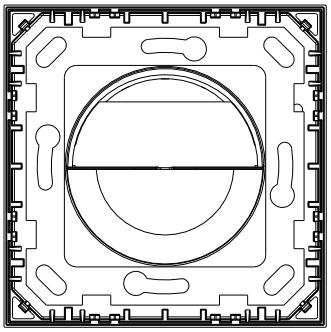
KNX standard wall presence detector with movement function

Code: EK-SN2-TP

KNX CE TP S

Datasheet STEKSN2TP_EN

Device for motion/presence detection with PIR sensors (passive infrared) in a semicircular area. The ideal use is in corridors, transit areas, services, stairwells, environments with occasional occupancy. It has dedicated channels for controlling lighting, HVAC equipment and alarms. It also allows the measurement of brightness in the environment. It has an integrated KNX bus communication module and is designed for installation in a wall-mounting box; it is powered by the KNX bus and does not require an auxiliary power supply.



REFLSN2TPD

Description

The ekinex® sensor EK-SN2-TP is a KNX standard presence detector, wall switch type, which uses passive infrared (PIR) motion detection technology to automatically switch on or off the connected lighting or HVAC devices, when the monitored space is occupied or free according to the detector settings. Simple installation and quick setup allow you to replace or complement existing wall switches. It is designed for use in interiors such as shops, offices, small rooms, living spaces such as corridors, stairs, bedrooms, etc.

Main functional characteristics

- Hidden switch, can fit single round or square wall flush-mounting box
- Simple and safe plug-in installation
- The presence detector is used to control devices, e.g. lighting and HVAC
- Learning function, to configure the device functions by reading the “ambient Lux” parameter
- Evolved lens model, with well-distributed and concentrated detection capabilities: the detection beams provide high intensity and sensitivity, to detect even small shaking movements
- Adjustable sensitivity via ETS on 4 levels
- Possibility of Master / Slave configuration (via ETS)
- Operating modes: Manual ON / AUTO / OFF
- Use in the KNX TP bus system (twisted pair) in combination with other KNX devices
- Function parameters and settings via ETS 5.0 (Engineering Tool Software) or higher

Technical data

- Rated voltage: 24 Vdc (21 - 30 Vdc) supplied by KNX bus
- Current consumption (on KNX bus): max 10 mA (operation) / 5 mA (Standby)
- Connection type: KNX bus with Ø 0.8 mm, single cable
- Outputs: 5 channels (2 for lighting, 2 for HVAC, 1 for alarm)
- Mounting height: 1.2 - 2.0 m
- Detection angle: up to 200 °
- Detection range: up to 9 m if mounted at a height between 1.2 - 1.5 m, up to 8 m at a height between 1.8 - 2.0 m
- Light measurement range: 10 ... 2000 Lux
- Housing, lens and frame in plastic material
- Safety standards: IEC 61000-6-1 / IEC 61000-6-3 / EN 55014 / EN 50491

Other characteristics

- Housing, lens and frame in plastic material
- Wall installation in flush mounting box
- Protection degree IP20 (installed device)
- Climatic classification 3K5 and mechanical 3M2 (according to EN 50491-2)
- Pollution degree 2 (according to IEC 60664-1)
- Weight 40 g (70 g with mounting support)
- Dimensions 80 x 80 x 31 mm

Environmental conditions

- Operating temperature: - 20 ... + 40°C
- Relative humidity: 95% not condensing

Versions

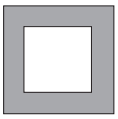
Code	Colour	Application program (## = version)
EK-SN2-TP-GAA	white	APEKSN2TP##.knxprod
EK-SN2-TP-GAE	black	

Delivery and accessories

The fixing screws and the terminal for connecting to the KNX bus are included in the supply of the device. This must be completed with a plastic adapter, a plate and eventually a frame (all have to be ordered separately).

Finishing plate

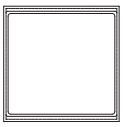
The sensor is completed with an ekinex® plate in metal or Fenix NTM® material. The plate must have (at least) a 50 x 50 mm window in combination with a plastic adapter for ‘NF, Deep or Surface series mounting.



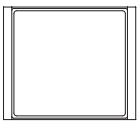
'NF, Surface oe Deep Series square plate
with 50 x 50 mm window
Code EK-PQN-...(*) ('NF)
Code EK-SQN-...(*) (Surface)
Code EK-DQS-...(*) (Deep)

Frame

The device is completed with a square ekinex® frame of the form or flank series in metal or Fenix NTM® material. The 'NF (No Frame) versions, on the other hand, must be mounted without a frame.



Form square frame
EK-FOQ-...(*)



Flank square frame
EK-FLQ-...(*)

(*) To be completed with the extension for colour and finishing

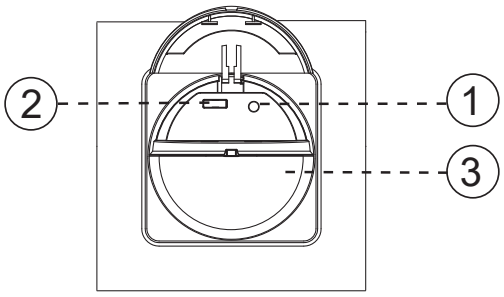
Switching, display and detection elements

The device is equipped with 2 switching elements, located under the cover:

- a KNX programming button (1)
- a switch to select the operating mode Manual / ON / OFF (2)

The following signaling and detection elements are also visible through the lens:

- a blue programming LED (3),
- a red signaling LED (3),
- a PIR sensor, a light sensor and an IR receiver



1) Programming mode button
2) Switch for selecting the operating mode
3) Signalling and programming LED

Operation

The sensor reacts to the thermal radiation emitted by moving bodies. A person walking in the detection area across the sections triggers the sensor.

The measurement of the room brightness is carried out by an integrated light sensor; the brightness value, measured in Lux, can be transmitted on the bus.

The internal brightness sensor can also be used to maintain a constant ambient brightness if a dimmable light source is available.

Warning! The electrical connection of the device can be carried out only by qualified personnel. The incorrect installation may result in electric shock or fire. Before making the electrical connections, make sure the power supply has been turned off.

The lighting channels have two operation modes, Automatic or Semi-automatic:

- the automatic mode controls both switch-on and switch-off, when a movement is detected;
- the semi-automatic mode requires manual switch-on, which is maintained until movement is detected; it will swich-off only when no more movement is detected.

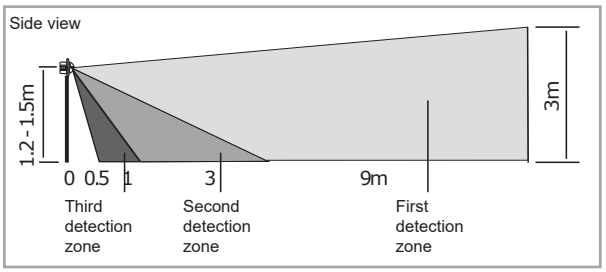
In automatic mode, a load connected to a lighting channel will be switched on when movement is detected and (if desired) the ambient light level is below a preset brightness value.

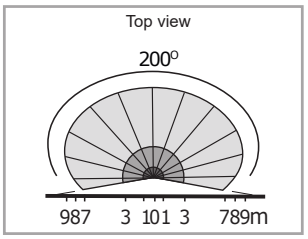
When no movement has been detected for a programmable time duration, a stand-by phase can be entered, during which the light can be dimmed to a lower intensity.

The HVAC channels act in a similar way as the Light Control channels, but with neither the standby time nor the dependence from the light level.

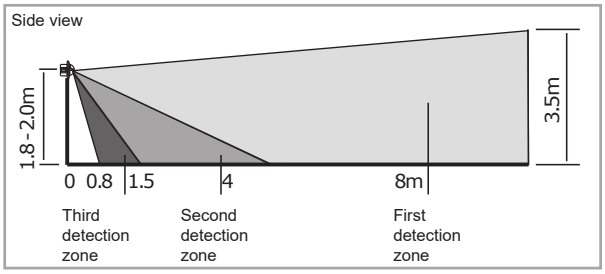
Positioning

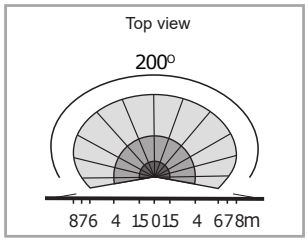
The actual detection range of the sensors depends on the mounting height. It is recommended to install the device at a height of 1.2 m - 2.0 m. The detection range is 9 m at a height of 1.2 m - 1.5 m and up to 8 m at a height of 1.8 m - 2.0 m.





Installation at a height of 1.2 - 1.5 m





Installation at a height of 1.8 - 2.0 m

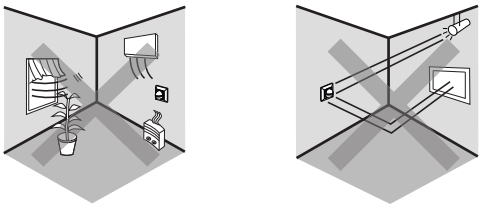
The optimal range is achieved walking through several portions of the detection area.

Since the detector responds to temperature change, be aware that the following conditions may cause lower sensitivity:

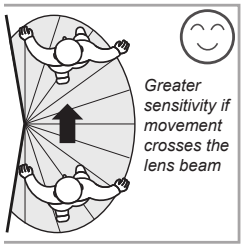
- In very foggy days, the sensitivity may be less due to moisture collecting on the lens.
- In very hot days, the sensitivity may be less since high ambient temperature is close to body temperature.
- In very cold days when heavy clothing is worn, especially if the facial area is covered, very little heat will be emitted from the body causing the unit to be less sensitive.

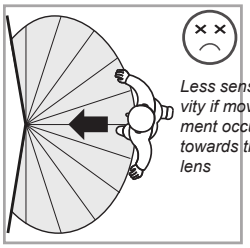
Please also verify following conditions during installation:

- Avoid pointing the detector toward objects with highly reflective surfaces, such as mirrors, glass, etc.
- Avoid mounting the detector very close to heat sources, such as heating vents, air conditioners, lights, etc.
- Avoid pointing the detector toward objects which may sway in air currents, such as curtains, tall plants, etc.



The direction of movement affects the sensitivity of the detection.



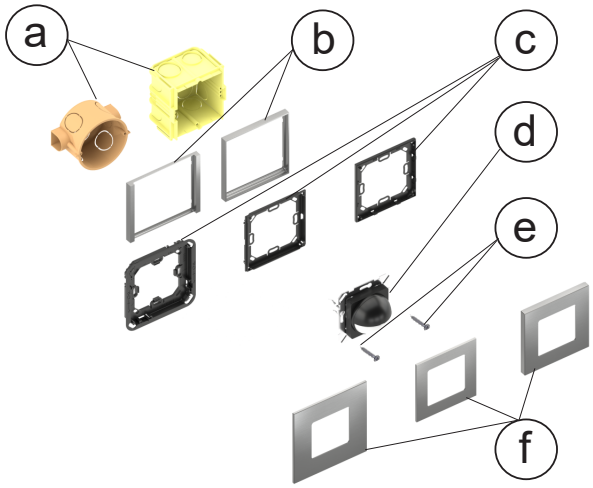


Mounting

The device has an IP20 degree of protection and is therefore suitable for use in dry indoor environments. The device can be assembled on a round or square box.

To assemble the device, carry out the following operations:

- insert the plastic adapter (c) on the device (d);
- insert the bus terminal, previously connected to the bus cable (see: “Connecting to the KNX bus network”), in the appropriate seat on the back of the sensor;
- fix the adapter-device assembly (c+d) by means of the pair of screws (e) on the flush-mount wall box (a) with suitable holes, possibly inserting (if applicable) the frame (b) between the box and the adapter;
- snap-fit the plate (f).



Installation for round and square flush mounting box

a) Wall mounting box (not provided by ekinex)
b) Frame (eventual) for Form o Flank Series (to be ordered separately)
c) Plastic adapter (to be ordered separately)
d) EK-SN2-TP-... sensor
e) Fixing screws (for metal support)
f) Square plate of ‘NF, Surface o Deep series (to be ordered separately) with 50 x 50 mm window

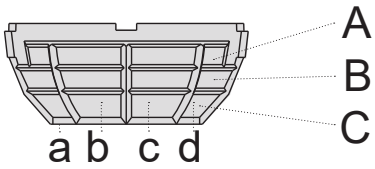
Limitazione of the detection area

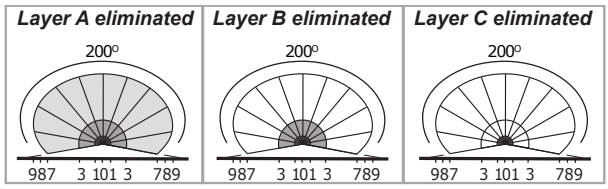
The detection area can be limited, in order to avoid unwanted activations, by means of the supplied optical shielding filters. The shield consists of three layers, each divided into four units, capable of masking an angle of approx. 50 ° each.

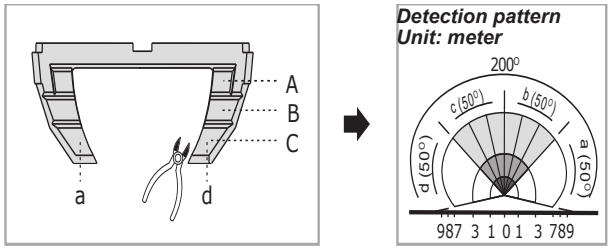
When mounting the device at a height of 1.2 m - 1.5 m, the detection range is:

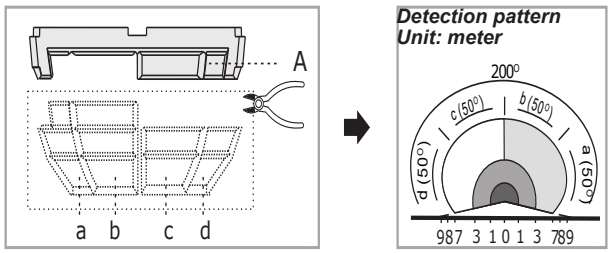
- Layer A: masks the area with a circle from about 0m to 9m.
- Layer B: masks the area with a circle from about 0m to 3m.
- Layer C: masks the area with a circle from about 0m to 1m.

Cut the screen for the lens provided, to remove the sectors related to the desired detection area.

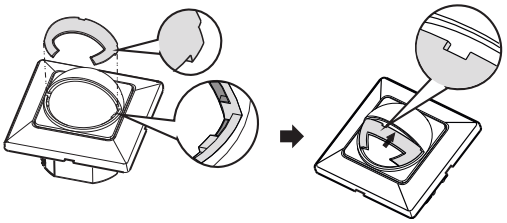




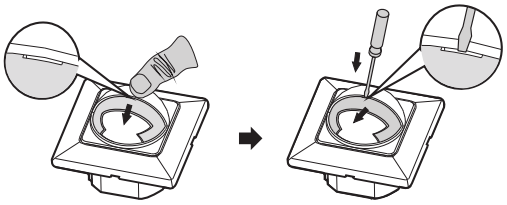




Apply the screen by inserting the edge between the lens and the external ring, in the central and lateral grooves.

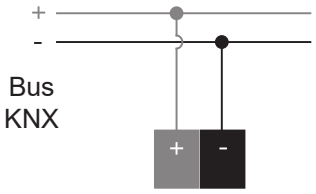


To remove the screen, press slightly with a screwdriver in the central groove and remove it carefully.



Connection of the KNX bus line

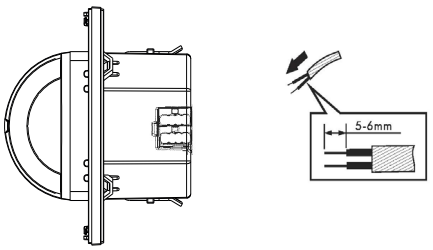
The connection of the KNX bus line is made with the terminal block included in delivery and inserted into the slot of the housing.



The connection procedure is as follows:

- strip the KNX bus cables with the appropriate tool (not included in the supply), exposing about 5-6 mm);
- finish the end with the clamp
- connect the device to the bus cable terminated by the standard terminal block on the back of the device.

At this point it is recommended to carry out the commissioning of the device (see “Commissioning”), or at least the download of the physical address, using the programming button placed close to the bus connector.



Please check the user manual for further details on installation and commissioning.

Warning! *In order to supply the KNX bus lines use only KNX bus power supplies (e.g. ekinex EK-AB1-TP, EK-AG1-TP or EK-AM1-TP). The use of other power supplies can compromise the communication and damage the devices connected to the bus.*

Configuration and commissioning

Configuration and commissioning of the device require the use of the ETS® (Engineering Tool Software) program V4 or later releases. These activities must be carried out according to the design of the building automation system done by a qualified planner. For the configuration of the device parameters the corresponding application program or the whole ekinex® product database must be loaded in the ETS program. For detailed information on configuration options, refer to the application manual of the device available on the website www.ekinex.com.

Important: *After a download, it takes approximately 60 s for the sensor to stabilize before it enters normal operation mode. During this settling period, the sensor may not appear to react or perform its programmed functions.*

For the commissioning of the device the following activities are required:

- make the electrical connections as described above;
- turn on the bus power supply;
- switch the device operation to the programming mode by pressing the programming pushbutton; the blue programming LED (visible through the device lens) turns ON;
- download into the device the physical address and the configuration with the ETS® program.

Warning! Do not mount on conductive surface. Do not open the enclosure frequently. The sensor is a low voltage circuit; never connect it with the 230V line network. Do not run the KNX wiring in the same conduit used by line network wiring.

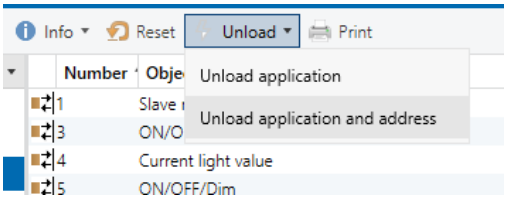
At the end of the download the operation of the device automatically returns to normal mode; during the programming process, the programming LED is turned off. Now the device is programmed and ready for use.

Note. *The configuration and commissioning of KNX devices require specialized skills. To acquire these skills, you should attend the workshops at KNX certified training centers.*

Reset of the device

The device can be reset from ETS®, with the following procedure:

- select the “Unload” - “Unload application and address” option from the ETS® header;
- press the programming button on the device.

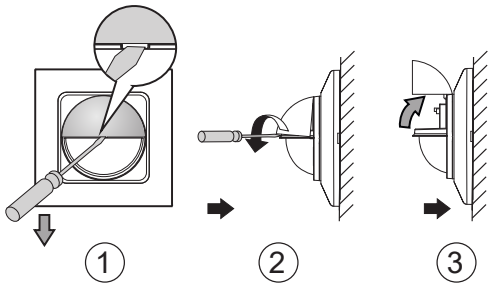


At the end of the operation the device is reset and brought back to the factory conditions.

Warning! *The reset restores the device back to the state of delivery from the factory. The address and the value of the parameters set during configuration will be lost.*

Access to the slide switch

Using a screwdriver in the center groove (1), slightly pull out the detector top cover (2). Rotate it up to access the switch (3), then rotate it down and fix it in its original position once the setting is complete.

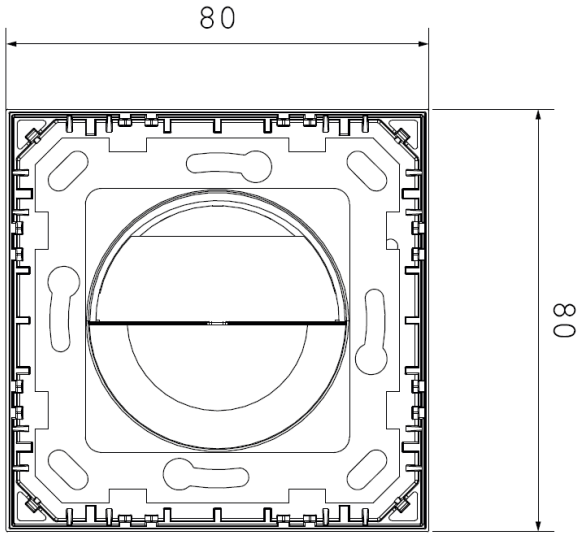


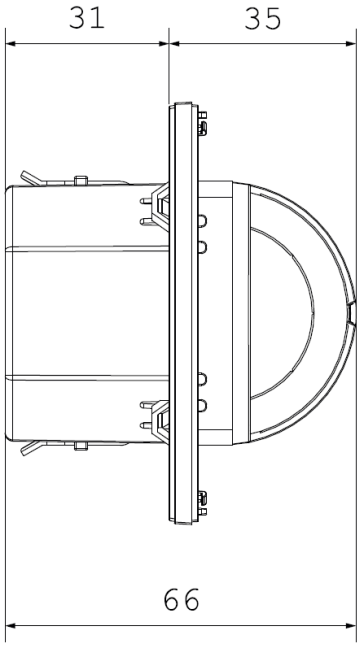
Slide switch commands

- AUTO: by placing the switch in the central position, the detector is in AUTO mode.
- ON: In ON mode, the load remains ON for 8 hours and the LED flashes for 1 second every 5 seconds. After 8 hours, the detector automatically returns to AUTO mode.
- OFF: in the OFF position, the load remains OFF for 8 hours and the LED flashes for 1 second every 5 seconds. After 8 hours, the detector automatically returns to AUTO mode.

In the event of a power failure, the detector enters AUTO mode once the power is supplied again, even the switch is set to ON or OFF.

Dimensions [mm]





Marks

- KNX
- CE: the device complies with the Electromagnetic Compatibility Directive (2014/30/EU) and the RoHS III Directive ((2011/65/EU).

Maintenance

The device is maintenance-free. To clean it, use only a dry cloth; absolutely avoid the use of detergents, solvents or other aggressive substances, particularly on the lens.

Disposal

At the end of its useful life the product described in this datasheet is classified as waste from electronic equipment in accordance with the European Directive 2012/19/EU (WEEE recast), and cannot be disposed together with the municipal undifferentiated solid waste.

Documents

This technical datasheet refers to the A1.0 release of the ekinex® EK-SN2-TP-... devices and is available for download on the website www.ekinex.com in PDF format (Portable Data Format).

File name	Device release	Updated
STEKSN2TP_EN.pdf	A1.0	11 / 2022

Warnings

- Installation, electrical connection, configuration and commissioning of the device can only be carried out by qualified personnel in compliance with the applicable technical standards and laws of the respective countries
- Opening the housing of the device causes the immediate end of the warranty period
- In case of tampering, the compliance with the essential requirements of the applicable directives, for which the device has been certified, is no longer guaranteed
- ekinex® KNX defective devices must be returned to the manufacturer at the following address: EKINEX S.p.A. Via Novara 37, I-28010 Vaprio d'Agogna (NO) Italy

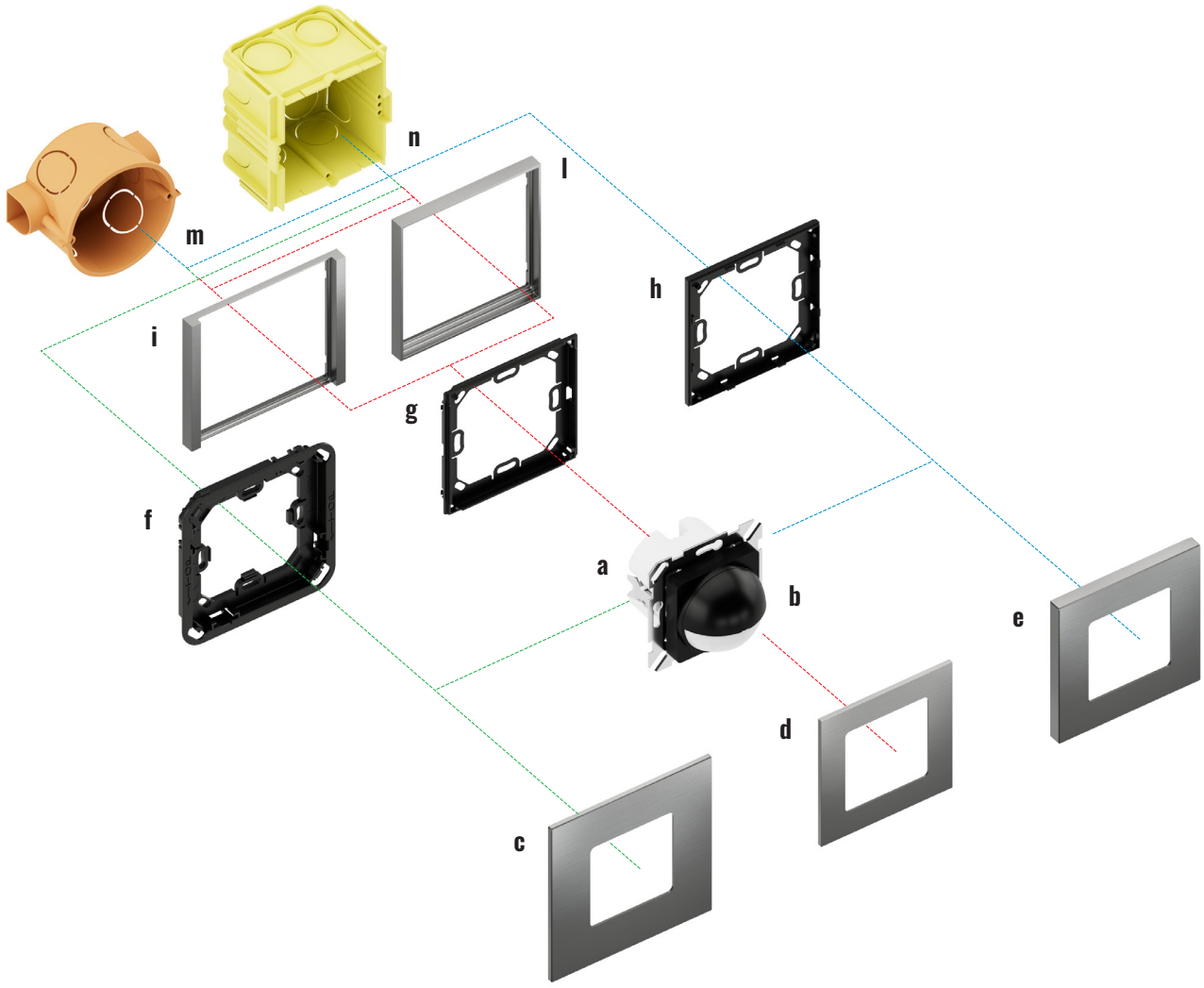
Other information

- This datasheet is aimed at installers, system integrators and planners
- For further information on the product, please contact the ekinex® technical support at the e-mail address: support@ekinex.com or visit the website www.ekinex.com
- Each ekinex® device has a unique serial number on the label. The serial number can be used by installers or system integrators for documentation purposes and has to be added in each communication addressed to the EKINEX technical support in case of malfunctioning of the device
- KNX® and ETS® are registered trademarks of KNX Association cvba, Brussels

Annex 1. Installation

The ekinex® EK-SN2-TP-... motion/presence detection sensor contains a KNX communication module inside. It is suitable for installation on a wall flush-mounting box, round (m) or square (n), equipped with fixing holes with 60 mm center distance. Each device is supplied with mounting screws and a connection terminal to the KNX bus line.

The button must be completed with a plastic material adapter (f, g, h), a possible frame for the form (l) or flank (i) series and a square plate with a 50x50 mm window. The plate can be from the 71 series or from a junction point equipped with civil series components normally on the market (d), or from the Surface (c) or Deep (e) series. The square plates are also available in plastic, aluminum or Fenix NTM® and in numerous color and finish variants.



Legend

Description	Code
a) Movement sensor with metallic support	EK-SN2-TP-GA_
b) Cover with lens	
c) Square plate Surface version*	EK-SQN-...
d) Square plate*	EK-PQN-...
e) Square plate Deep version*	EK-DQN-...
f) Adapter for Surface square plate	EK-TAS-Q-1

Description	Code
g) Adapter for square plate	EK-TAQE-1
h) Adapter for 'NF and Deep square plate	EK-TAQE-1-NF
i) Square frame of Flank version	EK-FLQ-...
l) Square frame of Form version	EK-FOQ-...
m) Round flush-mounting box	not delivered by ekinex®
n) Square flush-mounting box	not delivered by ekinex®
*) 50 x 50 mm window	