K595 Motion Sensor Datasheet

Overview

The K595 wall mounted passive infrared (PIR) motion detector (Figure 1) adds occupancy sensing and peripheral-status reporting capability to INNCOM integrated guestroom control systems. The K595 is designed with a sleek screwless design that has the same look and feel as the INNCOM MODEVA system. The K595 can be a key participant in an INNCOM Integrated Room Automation System (IRAS) Deep Mesh network.

The K595, in conjunction with auxiliary input, a room controller, and an in-room communication network, helps determine guestroom occupancy. Occupancy sensing leads to better management of energy usage and security; extends heating, ventilation, and air conditioning equipment life; enhances the overall operating efficiency of the hotel; and improves guest satisfaction.

The K595 can also monitor and report on the status (e.g., open/closed) of other devices within the guestroom (see **Application** below).

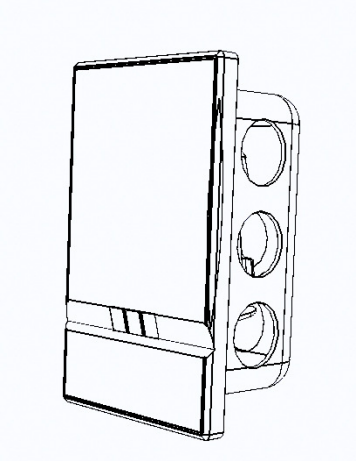

Figure 1 K595

Features

- 120° view angle
- Flush screwless magnetic mounting
- Easy installation
- No maintenance
- Long battery life
- 2.4Ghz IEEE 802.15.4 compliant RF transceiver (CC2430 radio core)
- FCC Part 15b listed

Application

The K595 microprocessor-controlled PIR detects motion in a guestroom and reports it to the room controller. Combined with information from other inputs (such as a lanai or window switch or a minibar), guestroom occupancy can be determined and used for energy control or lighting decisions. Occupancy information may also be signaled to Housekeeping using the corridor doorbell display or a floor-level terminal. The K595 can provide an audit trail for Security, and it can be networked to the hotel's central server.

On power up, the K595 will flash the LED for approximately two seconds as it configures itself using settings in nonvolatile memory (see table below) and transmits a beacon frame (SAC_ALARM_K594_REPORT). The K595 will then go into Operation Mode, where it checks the auxiliary input, the motion detector, and the Bind switch status. The K595 will process any actions instigated by those checks; after that (or if there is no action), it will enter a low-power state (Sleep Mode) to conserve battery power. (See also the *uCBL Engineering Manual.*)

The K595 can also act as a minibar server if the I/O Map is so programmed. For details, see the *uCBL Engineering Manual, Sec. 2.4.2. Factory Default NVM Configuration.*

Description	Value
Room ID	65535
RF Channel	26
TX Power	0x5F (0dB)
P5 Address	189
P5 Channel	1
I/O Map	255

Installation

The individual guestroom design determines the K595's installation location. Placement should provide maximum room coverage by the PIR motion detector while maintaining RF communication between the device and the e4 thermostat. Ideally, the K595 should be positioned on a wall in opposition to entrances and interior doors (8ft. high, 0° angle, 0° pitch). The K595 PIR lens is pitched at a downward angle of 60° for optimal range and minimized blind area below the unit. It should be positioned to view both the guestroom entry door and the bed areas.

The K595 should be mounted within operational range of the e4 thermostat and any other devices it may communicate with. Avoid possible sources of radio interference such as metallic boxes, WiFi access points, microwave ovens, water pipes, and the like.

Refer to the *K595 Installation Manual* for detailed installation instruction.

Commissioning

Refer to the *K595 Installation Manual* or the *uCBL Engineering Manual* for commissioning instructions.

K595 PIR Range Chart:

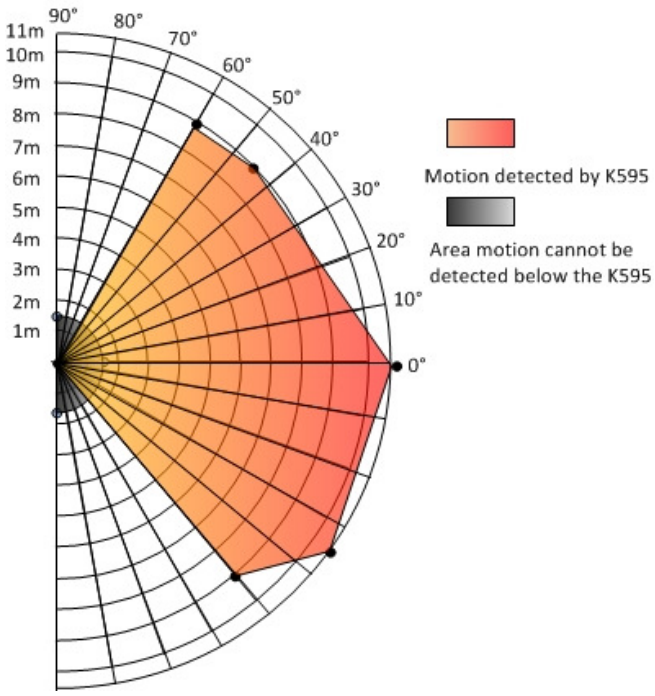

Figure 2 K595 PIR Range

Table 1 K595 Range and View Angle Data

Angle	Distance (Feet)	Distance (Meters)
-60°	27ft	9.0m
-45°	27ft	9.0m
0°	33ft	11m
+45°	28.5ft	9.5m
+60°	33ft	11m

Operational Coverage for K595

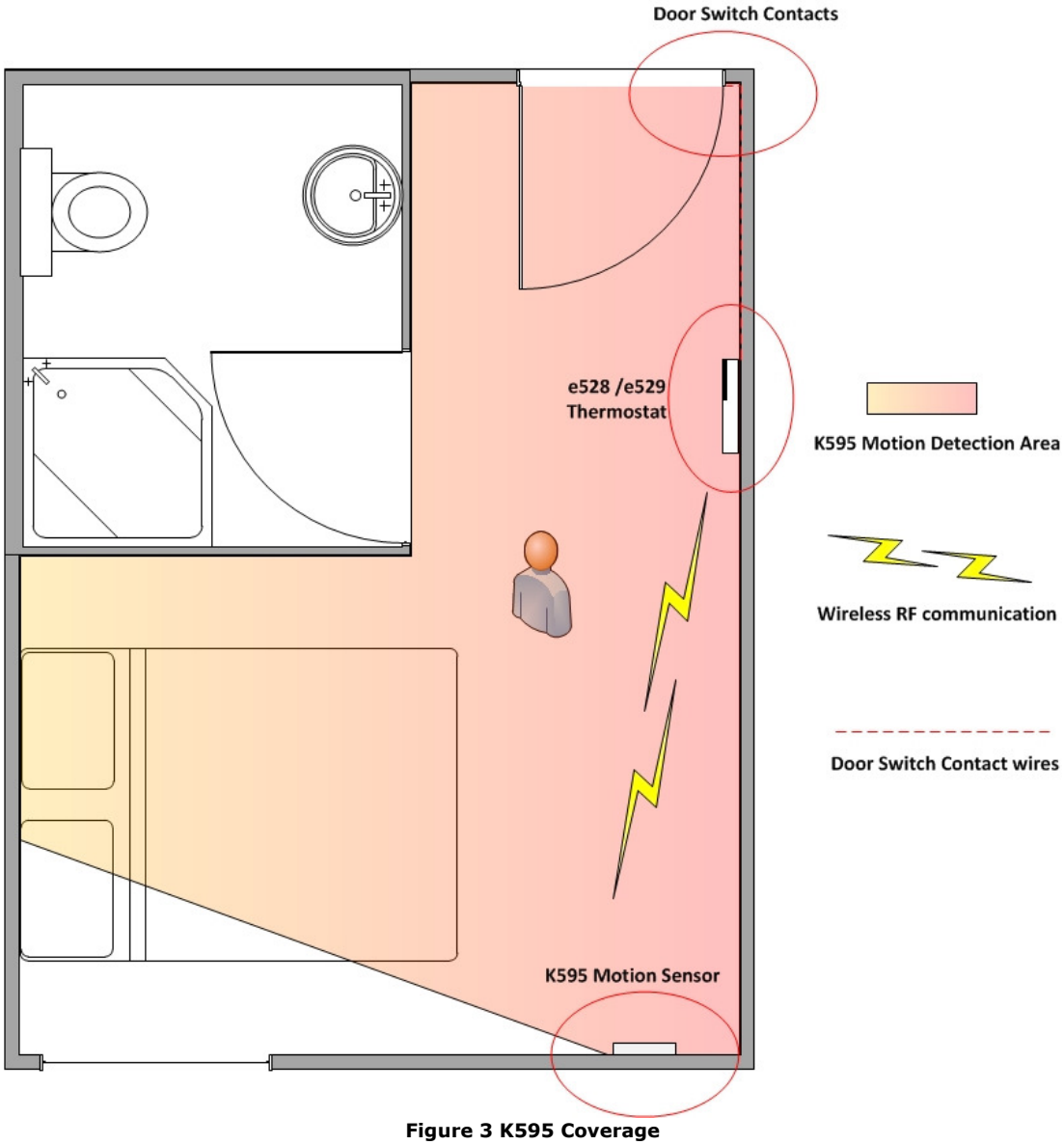

Figure 3 K595 Coverage

PIR Specification

Parameter	K595
No. of Fresnel beams	27
No. of curtain beams	9 + 5
Max. coverage	See Figure 2
Sensitivity	0.5m–12m (1.64-40 ft.)

RF Specification

Parameter	K595
RF Data Rate	250kbps
Antenna Type	SMT
Indoor Range	70ft
Transmit Power	1mW (+0dBm)
Receive Sensitivity	-94.6dBm
Frequency Band	2.4Ghz
Encryption	AES-128
Protocol	802.15.4
Frequency Channels	11-26

Technical Specification

Parameter	K595
Input voltage	4xAA Batteries
Battery Life	2.2 years
Operating temperature	0 °C to 60 °C (32 °F to 140 °F)
Storage temperature	-20 °C to 60 °C (-4 °F to 140 °F)

Headers and Connectors

Header	Connector
H1	Digital Input
H2	ICP
H3	Battery Input

Deleted: H2

Safety/Regulatory

Parameter	Condition	Status
FCC	Part 15b	

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.

- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

re ordering Information

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Part Number	OPN	Description
201-595	K595	Wall Mounted Motion Detector

Formatted Table

References

Title	Location
uCBL Device Engineering Manual v1.4	T:\Library\INNCOM Products\Systems\IRAS Reference\uCBL
K595 Installation Manual v1.0	T:\Library\INNCOM Documentation Library\Product Documentation\Product Documentation Source

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Document Revision History

Revision	Date Issued	Reason
0.1	02-May-2012	Initial Draft.
v1.0	07-May-2012	First release