RP-C-EXT-MS-BLE

RP Series Expansion Multi-sensor

Multi-sensor

Introduction

The RP-C-EXT-MS-BLE multi-sensor connects to the RP-C room controllers and is used for infrared motion detection and luminosity measurements. The multi-sensor supports Bluetooth Low Energy based applications such as beaconing and remote control communication.

The multi-sensor is connected to the RP-C room controller using an RJ45 type quick connector.

The multi-sensor's three flexible mounting brackets (springs) enable quick and easy installation on a suspended ceiling tile. The multi-sensor also comes with a mounting ring, which allows the sensor to be installed on a ceiling with drywall anchors and a 76 mm (3 in.) clearance hole or to a 102 mm (4 in.) junction/gang box.

The multi-sensor is a Bluetooth Low Energy (BLE) device. The multi-sensor support for Bluetooth beacon enables nearby mobile devices with a specific app installed to interact when in close proximity to the broadcasting multi-sensor. The Bluetooth beacon can be used for services such as indoor positioning of the mobile device. The service and mobile app need to be provided by a third party. The Bluetooth connection can also be used for communication with the RP-C-RC-BLE remote control, which makes it possible to control the lighting, blinds, and air conditioning in a zone of an office building.

The multi-sensor is part of the RP Series expansion multi-sensors product range. The multi-sensor can be combined with the RP Series expansion modules for lighting and blind control to provide a connected room solution.

Features

The multi-sensor has the following features:

- Power and communications through the room bus
- Motion detection through passive infrared sensor
- Luminosity measurement through ambient light sensor
- Bluetooth Low Energy for beaconing applications such as indoor positioning - a service to be provided by third party

  Beaconing follows standard iBeacon profile - compatible with multiple indoor positioning providers
- Bluetooth Low Energy for wireless connection to RP-C-RC-BLE remote control
- Status LED for the device
- Rotary switch for address configuration

Room bus

The RP-C room bus allows RP Series expansion modules and multi-sensors to be connected to the controller for motion detection, luminosity measurements, Bluetooth Low Energy based applications, and control of electric lights and window blinds.

The RP-C room bus supports up to six connected RP Series expansion modules and multi-sensors with the following restrictions:

- Maximum of two DALI light modules
- Maximum of two SMI blind modules
- Maximum of four multi-sensors

Maximum total length of the room bus is 72 m (236 ft).

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Part Numbers

Product	Part number
RP-C-EXT-MS-BLE	SXWREMSBLE10001

Specifications

Electrical

DC input supply voltage ..... 24 VDC
..... Powered by the RP-C through the room bus (RJ45)
Maximum power consumption ..... 0.3 W

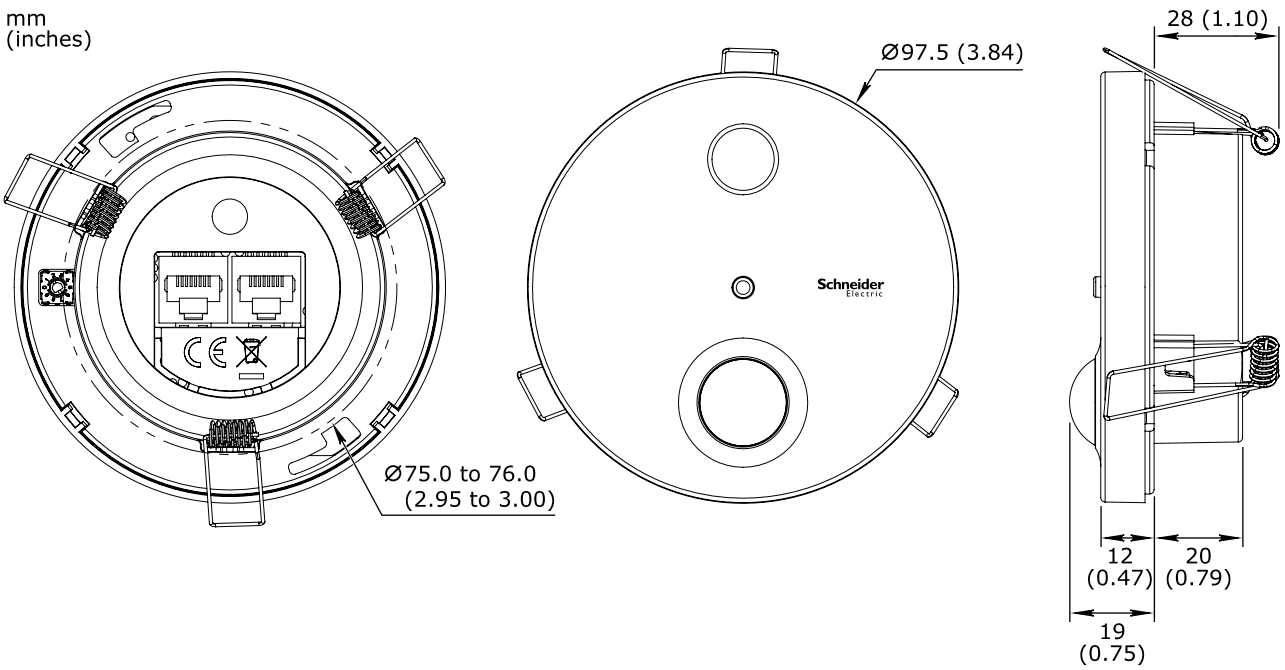
Environment

Ambient temperature, operating ..... 0 to 50 °C (32 to 122 °F)
Ambient temperature, storage ..... -20 to +70 °C (-4 to +158 °F)
Humidity ..... 20 to 90 % RH non-condensing

Material

Plastic flame rating UL94 V-0
Ingress protection rating ..... IP 20

Mechanical



Overall external diameter ..... 97.5 mm (3.84 in.)
Diameter of mounting clearance hole ..... 75.0 to 76.0 mm (2.95 to 3.00 in.)
External washer thickness ..... 12 mm (0.47 in.)

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Overall external thickness ..... 19 mm (0.75 in.)
Internal thickness ..... 20 mm (0.79 in.)
Overall internal depth ..... 28 mm (1.10 in.)
Weight, multi-sensor with mounting springs (3x) ..... 0.083 kg (0.183 lb)
Weight, multi-sensor with mounting ring ..... 0.094 kg (0.207 lb)
Installation ..... Plastic unit to be fitted flush in a suspended ceiling tile with a thickness of up to 45 mm (1.77 in.)

Software compatibility

EcoStruxure Building Operation software ..... version 3.1 and later

Agency compliances

Emission ..... RCM; EN 61000-6-3; EN 50491-5-2; FCC Part 15, Sub-part B, Class B
Immunity ..... EN 61000-6-2; EN 50491-5-3
Radio ..... EN 300 328 V2.1.1
Safety standards ..... EN 60730-1; EN 60730-2-11; EN 50491-3; UL 916 C-UL US Listed
FCC ID DVE-MS1
ISED certification number ..... IC: 24775-MS1
Fire performance in air-handling spaces[a] ..... UL 2043
a) The multi-sensor is approved for plenum applications.

Communication ports

Room bus RS-485
..... Dual RJ45 ports for daisy-chain configurations
..... Use a Cat 5 (or higher) cable
..... Maximum total length of the room bus: 72 m (236 ft)
Room bus protection ..... Transient voltage suppressors on communication and power signals

Wireless connectivity

Bluetooth Low Energy

Communication protocol ..... Bluetooth® 5.0 Low Energy compliant
Frequency ..... 2.402 to 2.480 GHz
Maximum communication distance ..... Line-of-sight: 50 m (164 ft)
Maximum output power ..... 3 dBm
Antenna ..... Integrated antenna
Beacon protocol ..... iBeacon

Hardware

CPU type ..... ARM Cortex-M4 single-core
Frequency ..... 38.4 MHz
SRAM (embedded) ..... 256 KB
Flash memory (embedded) ..... 1024 KB
Flash memory (serial) ..... 2 MB
Status indicator ..... LED (green and red) that shows the status of the device
Address switch ..... Rotary switch 0 to 9

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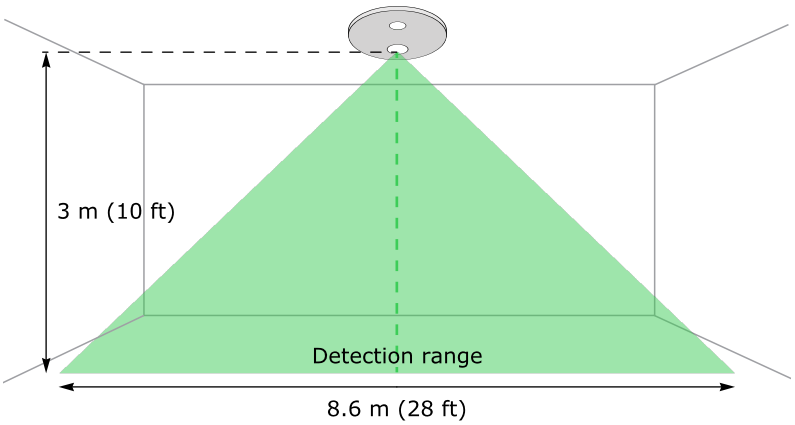
Set button ..... Push-button switch

Motion detection

Sensor ..... Quad-type passive infrared (PIR) sensor with Fresnel lens

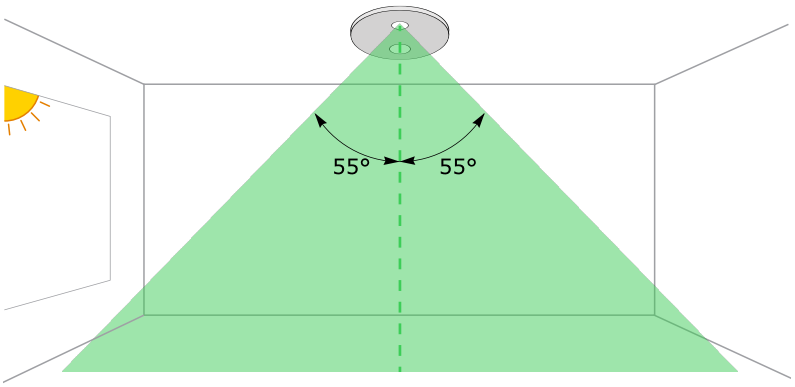
Detection range ..... See image and table below.



Sensor mounting height	Sensor detection range (diameter)
3.0 m (10 ft)	8.6 m (28 ft)
2.7 m (9 ft)	8.0 m (26 ft)
2.5 m (8 ft)	7.4 m (24 ft)

Luminosity measurements

Sensor ..... Ambient Light Sensor (ALS)



Spectral response ..... Human eye

Luminosity range ..... 0 to 10,000 lux

Field of view ..... 55 degrees from vertical

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Regulatory Notices

Federal Communications Commission
FCC Rules and Regulations CFR 47, Part 15, Class B
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. (2) This device must accept any interference received, including interference that may cause undesired operation.
FCC ID: DVE-MS1

Industry Canada
This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.
IC: 24775-MS1

Regulatory Compliance Mark (RCM) - Australian Communications and Media Authority (ACMA)
This equipment complies with the requirements of the relevant ACMA standards made under the Radiocommunications Act 1992 and the Telecommunications Act 1997. These standards are referenced in notices made under section 182 of the Radiocommunications Act and 407 of the Telecommunications Act.

CE - Compliance to European Union (EU)
2014/53/EU Radio Equipment Directive (RED)
2011/65/EU Restriction of Hazardous Substances (RoHS) Directive
2015/863/EU amending Annex II to Directive 2011/65/EU
This equipment complies with the rules, of the Official Journal of the European Union, for governing the Self Declaration of the CE Marking for the European Union as specified in the above directive(s) per the provisions of the following standards: EN 60730-1, EN 60730-2-11, and EN 50491-3 Safety Standards.

WEEE - Directive of the European Union (EU)
This equipment and its packaging carry the waste of electrical and electronic equipment (WEEE) label, in compliance with European Union (EU) Directive 2012/19/EU, governing the disposal and recycling of electrical and electronic equipment in the European community.

UL 916 Listed products for the United States and Canada, Enclosed Energy Management Equipment. UL file E80146.

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