Energio SENSORS

Technical data sheet

ES-TS-101

Rev A · November 2026

MINI ceiling & fixture sensors

Low-voltage 360° PIR occupancy sensor with built-in daylight sensor

Made by B.E.G. Controls

The MINI packs passive infrared motion detection and a daylight sensor into a one-inch face. It mounts in a ceiling tile or directly in a light fixture, plugs into an Energio Sensors power pack with an RJ-12 cable, and is set up and tested from a smartphone through an IR adapter, so nobody climbs a ladder to flip DIP switches.

Features

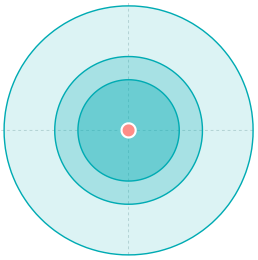
- PIR motion plus daylight sensing in one 25 mm (1 in) sensor face
- 360° coverage: 32 ft (10 m) across for walking, 19 ft (6 m) toward the sensor, 13 ft (4 m) seated
- IP65 rated for wet and high-humidity locations, -13 °F to 122 °F
- Spring clips for ceiling tiles and fixtures; OEM bracket for sensor + power pack in or on a luminaire
- Primary sensors set the zone; secondary sensors wire in parallel to extend coverage
- Clip-on blinds included to mask aisles or doorways
- Settings and test mode by smartphone app with IR adapter (adapter sold separately)
- UL 2043 plenum rated; 5-year limited warranty

32 ft
detection diameter, walking

IP65
wet location rated

1 W
power draw

Coverage



- Walking across · 32 ft Ø
- Walking toward · 19 ft Ø
- Seated · 13 ft Ø

Mounting height 8 ft (2.5 m). Standard optic.



MINI sensor (quarter for scale)



Power pack with primary and secondary MINI

Specifications

Specification	MINI primary / secondary
Power supply	24 V DC from an Energio Sensors (B.E.G.) power pack
Power consumption	1 W

Specification	MINI primary / secondary
Detection technology	Passive infrared (PIR); primary models add a daylight sensor
Detection area	360°
Detection range (8 ft mount)	Ø 32 ft / 10 m across · Ø 19 ft / 6 m toward · Ø 13 ft / 4 m seated
Protection	IP65 / Class IV
Operating temperature	-13 °F to 122 °F (-25 °C to +50 °C)
Housing	UV- and shock-resistant 5VA material, white
Sensor face	Ø 1 in (25 mm); body Ø 1 7/16 in (36 mm)
Connection	RJ-12 to power pack; RJ-12 splitter for added sensors
Set-up	Smartphone app with IR adapter (sold separately)
Plenum rating	UL 2043
Warranty	5-year limited

Ordering information

Model	Item no.	Use with	Description
MINI-P-PP-A-FC-IP20	97180	PP-A-J, PP-1C-J	Primary sensor, switching, standard optic
MINI-P-PP-DIM-FC	97181	PP-DIM-J	Primary sensor, dimming / daylight harvesting, standard optic
MINI-S-PP-FC-IP20	97183	Any MINI zone	Secondary sensor to extend a primary's coverage

Applications

- Private and open offices
- Conference rooms and classrooms
- Corridors and healthcare areas
- Warehouse aisles, gyms, multipurpose rooms
- Light fixtures with integral sensing (OEM)

Application notes

- Each zone needs one primary sensor and one power pack. Add secondary sensors in parallel with an RJ-12 splitter to enlarge the zone.
- High-bay optic versions (GH) are available for mounting heights above standard ceilings: ask Energio for the GH part numbers.
- For vacancy (manual-on) operation, pair with PP-A-J, a low-voltage momentary switch, and set the pack's mode switch to manual.

Data from B.E.G. MINI-Sensor Application Guide (US). Energio Sensors products are manufactured by B.E.G. Controls and specified, sold and supported in North America by Energio Brands. Specifications are subject to change; confirm against the manufacturer's current data before submittal. Product images courtesy of the manufacturer. All trademarks belong to their respective owners.

Power packs

120–277 V power and 20 A switching for MINI low-voltage sensors

Made by B.E.G. Controls

Energio Sensors power packs turn line voltage into Class 2 24 V DC for MINI sensors and switch the lighting circuit. Snap one onto a junction box through a ½ in knockout, plug the sensor into the RJ-12 port, and the zone is done. Choose switching, switching with an HVAC/BMS contact, or switching with 1-10 V dimming.

20 A
@ 277 V AC switching

24 V DC
200 mA Class 2 output

50
drivers on PP-DIM 1-10 V

Features

- Universal 120–277 V AC input, 50/60 Hz
- 20 A at 277 V AC switching, 1 hp motor rating (switching models)
- 24 V DC / 200 mA Class 2 output powers sensors
- RJ-12 sensor port; splitter accessory connects multiple sensors
- Low-voltage momentary switch input for override or vacancy (manual-on) mode
- LED status and fault indicators; integral short-circuit and thermal protection
- ½ in threaded nipple with two lock nuts; UL 2043 plenum rated, RoHS
- ETL listed for the U.S. and Canada (UL 60730-1, CSA E60730-1)



Switching power pack



PP-DIM dimming power pack

Specifications

Specification	PP-1C-J	PP-A-J	PP-DIM-J
Supply	120–277 V AC, 50/60 Hz	120–277 V AC, 50/60 Hz	120–277 V AC, 50/60 Hz
Sensor power output	24 V DC / 200 mA, Class II	24 V DC / 200 mA, Class II	24 V DC / 200 mA, Class II
Control inputs	1 (motion); N.O. momentary switch or dry contact	2 (motion and HVAC); N.O. momentary switch or dry contact	1 (motion); N.O. momentary switch or dry contact
Switching	20 A @ 277 V AC, 1 hp	20 A @ 277 V AC, 1 hp	Switching relay
Auxiliary output	—	HVAC / BMS relay	—
Dimming output	—	—	1-10 V, max. 50 drivers

Specification	PP-1C-J	PP-A-J	PP-DIM-J
Protection	IP20 / Class III	IP20 / Class III	IP20 / Class III
Operating temperature	-4 °F to 122 °F (-20 °C to +50 °C)	-4 °F to 122 °F (-20 °C to +50 °C)	-4 °F to 122 °F (-20 °C to +50 °C)
Housing	UV- and shock-resistant 5VA	UV- and shock-resistant 5VA	UV- and shock-resistant 5VA
Mounting	½ in trade-size nipple, J-box	½ in trade-size nipple, J-box	½ in trade-size nipple, J-box
Listings	ETL (UL 60730-1, CSA E60730-1), UL 2043	ETL (UL 60730-1, CSA E60730-1), UL 2043	ETL (UL 60730-1, CSA E60730-1), UL 2043

Ordering information

Model	Item no.	Description
PP-1C-J-120-277V	97036	Single-relay switching power pack, J-box mount
PP-A-J-120-277V	97020	Switching power pack with auxiliary HVAC/BMS relay, J-box mount
PP-DIM-J-120-277V	97017	Switching + 1-10 V dimming power pack, daylight harvesting, J-box mount

Applications

- Offices, classrooms and conference rooms
- Warehouses and gymnasiums
- Corridors, healthcare and lab spaces
- Open-air parking garages, canopies, loading docks
- Any MINI sensor zone

Application notes

- One power pack per control zone. Connect the primary MINI sensor to the RJ-12 port; add secondaries with a splitter.
- Vacancy (manual-on): PP-A-J with a low-voltage momentary switch and the mode switch set to manual.
- PP-DIM-J output is 1-10 V (sinking); confirm driver compatibility for 0-10 V drivers.
- Values for PP-1C-J are from the PP-1-J published data; confirm against the current B.E.G. sheet before submittal.

Data from B.E.G. MINI-Sensor Application Guide (US), power pack data. Energio Sensors products are manufactured by B.E.G. Controls and specified, sold and supported in North America by Energio Brands. Specifications are subject to change; confirm against the manufacturer's current data before submittal. Product images courtesy of the manufacturer. All trademarks belong to their respective owners.

WAVE wall switch sensors

Line-voltage PIR and dual-technology sensors that replace a standard switch

Made by B.E.G. Controls

WAVE sensors drop into a single-gang box in place of a wall switch, so a small office, restroom or storage room gets automatic shutoff without new wiring. PIR models cover open sight lines; dual-technology models add ultrasonic detection for partitions and stalls. The O/V line can run occupancy (auto-on) or vacancy (manual-on); the V line is vacancy only.

1,200
sq ft max coverage

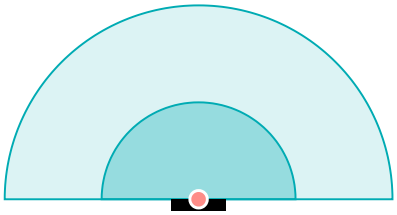
800 W
@ 120 V resistive

15 s–30 min
time delay

Features

- Up to 1,200 sq ft (40 ft) maximum coverage; best performance to 20 ft / 320 sq ft
- PIR or dual technology (PIR + ultrasonic)
- Single relay or dual relay (two loads or bi-level) models
- Integral photocell holds lights off when there is enough daylight
- Adjustable time delay 15 seconds to 30 minutes
- 120/277 V AC dual voltage; no minimum load
- Occupancy/vacancy (O/V) and vacancy-only (V) versions for code-driven spaces
- Indoor dry locations; fits a decorator wall plate

Coverage



Maximum · 40 ft
Best performance · 20 ft

Wall mount at switch height. Pattern shown is typical.



Single relay



Dual relay (DR)

Specifications

Specification	All WAVE models
Operating voltage	120/277 V AC, 60 Hz
Max load, resistive	800 W
Max load, fluorescent/LED driver	800 VA @ 120 V AC · 1,600 VA @ 277 V AC
Max load, motor	1/4 hp

Specification	All WAVE models
Minimum load	None
Max sensor range	40 ft / 1,200 sq ft
Best performance	20 ft / 320 sq ft
Time delay (follow-up time)	15 s – 30 min
Light threshold	30 lux to daylight
Operating temperature	32 °F to 131 °F (0 °C to +55 °C)
Storage temperature	14 °F to 140 °F (-10 °C to +60 °C)
Location	Indoor, dry

Ordering information

Model	Item no.	Technology	Relays	Neutral	Mode
WAVE-PIR-120/277	97344	PIR	Single	Not required	Occupancy / vacancy
WAVE-PIR-120/277-DR	97346	PIR	Dual	—	Occupancy / vacancy
WAVE-DT-120/277-N	97348	PIR + ultrasonic	Single	Required	Occupancy / vacancy
WAVE-PIR-V-120/277-N	97332	PIR	Single	Required	Vacancy only
WAVE-PIR-V-120/277-DR	97336	PIR	Dual	—	Vacancy only
WAVE-DT-V-120/277-N	97338	PIR + ultrasonic	Single	Required	Vacancy only

Applications

- Private offices
- Restrooms (dual technology)
- Storage rooms and closets
- Custodial and electrical rooms
- Break rooms and small meeting rooms

Application notes

- Use dual-technology (DT) models where occupants can be out of the sensor's line of sight, such as restroom stalls.
- Dual-relay (DR) models control two loads, or provide bi-level switching, from one gang.
- The V suffix denotes the vacancy-only line; confirm the mode with B.E.G. data before submittal.
- Order a decorator wall plate separately.

Data from B.E.G. WAVE technical data (begcontrols.com). Energio Sensors products are manufactured by B.E.G. Controls and specified, sold and supported in North America by Energio Brands. Specifications are subject to change; confirm against the manufacturer's current data before submittal. Product images courtesy of the manufacturer. All trademarks belong to their respective owners.

ISI smart sensors

App-configured PIR presence and daylight sensors with 0-10V, DALI or switched output

Made by DANLERS Lighting Controls

ISI sensors work on their own, with no gateway or network. Mount one, open the free ISI app on a phone, and set the occupancy style, time-out and daylight threshold over Bluetooth. Firmware updates arrive over the air. One platform covers flush and surface ceilings, high bays and a luminaire module that builds sensing into a fixture, each with a 0-10V, DALI or switched output.

23 ft
ceiling detection Ø

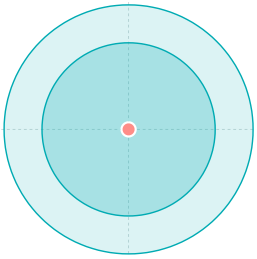
91 ft
high bay detection Ø

12 V DC
Class 2 supply

Features

- PIR occupancy detection with an integrated photocell (5–2,000 lux)
- Set up from the free ISI app (iOS and Android); over-the-air updates
- 0-10V (40 mA, up to 20 drivers), DALI, or switched (12 V DC, 6 A) outputs
- Ceiling flush, ceiling surface, high bay wide detection and luminaire module formats
- Low-voltage 12 V DC, built-in Class 2
- UL 60730-1 / CSA E60730-1 (file E522272)
- Matte white (RAL 9003) flame-retardant polycarbonate
- 5-year warranty from date of manufacture
- MOD17M module builds sensing into a luminaire, in the field or at the factory (private label)

Coverage



Secondary zone · 23 ft Ø
Strong zone · 16 ft Ø

Ceiling flush/surface models at 7–16 ft.
High bay: up to 91 ft Ø at up to 46 ft.



Ceiling flush (CEFL)



Ceiling surface (CESR)



High bay (HBWD)



Luminaire module (MOD17M)

Specifications

Specification	Ceiling flush (CEFL)	Ceiling surface (CESR)	High bay (HBWD)	Luminaire module (MOD17M)
Supply	11.5–13 V DC	11.5–13 V DC	11.5–13 V DC	11.5–13 V DC (ISI-PSU12VDC)
Current, max / standby	52 mA / 38 mA	52 mA / 38 mA	58 mA / 38 mA	52 mA / 38 mA

Specification	Ceiling flush (CEFL)	Ceiling surface (CESR)	High bay (HBWD)	Luminaire module (MOD17M)
Detection	PIR + photocell	PIR + photocell	PIR + photocell	PIR + photocell
Coverage	16 ft strong / 23 ft secondary (Ø)	16 ft strong / 23 ft secondary (Ø)	Up to 91 ft (28 m) Ø	66 ft strong / 79 ft secondary
Mounting height	7–16 ft (2.4–5 m)	7–16 ft (2.4–5 m)	Up to 46 ft (14 m)	56 ft (17 m) recommended
Photocell range	5–2,000 lux	5–2,000 lux	5–2,000 lux	5–2,000 lux
Radio	2.4 GHz, +4 dBm	2.4 GHz, +4 dBm	2.4 GHz, +4 dBm	2.4 GHz, +4 dBm
Protection	IP40	IP20	IP20	IP20
Dimensions	3.07 × 3.35 × 3.35 in	2.48 × 3.58 × 3.58 in	2.48 × 3.58 × 3.58 in	Control unit 25 × 50 × 38 mm
Mounting	Ø 2.87–2.95 in cut-out; 3.07 in min. void	Surface plate to ceiling or box	Solid ceiling or back box	Bezel in luminaire
Operating temperature	-4 to 104 °F	-4 to 104 °F	-4 to 104 °F	-4 to 104 °F

Ordering information

Model	Format	Output
ISI-CEFL10V12V	Ceiling flush	0-10V
ISI-CEFLDALI12V	Ceiling flush	DALI
ISI-CEFLSW12V	Ceiling flush	Switched
ISI-CESR10V12V	Ceiling surface	0-10V
ISI-CESRDALI12V	Ceiling surface	DALI
ISI-CESRSW12V	Ceiling surface	Switched
ISI-HBWD10V12V	High bay wide detection	0-10V
ISI-HBWDDALI12V	High bay wide detection	DALI
ISI-HBWDSW12V	High bay wide detection	Switched
ISI-MOD17M10V12V	Luminaire module	0-10V
ISI-MOD17MDALI12V	Luminaire module	DALI

Applications

- Stand-alone retrofit, no gateway or network
- Offices, classrooms, corridors
- Warehouses and high bay aisles
- Sensors built into Energio Lighting private-label fixtures

Application notes

- Requires a 12 V DC Class 2 supply. Sensors with the same output can be wired in parallel.
- Target and background must differ by at least 7.2 °F for PIR detection; avoid heat sources, fans and ventilated voids.
- Coverage and current for 10V models shown; DALI and switched variants share the housing. Confirm per-model data with DANLERS.

Data from DANLERS America user guides: ISI-CEFL10V12V, ISI-CESR10V12V, ISI-HBWDSW12V, ISI-MOD17M10V12V. Energio Sensors products are manufactured by DANLERS and specified, sold and supported in North America by Energio Brands. Specifications are subject to change; confirm against the manufacturer's current data before submittal. Product images courtesy of the manufacturer. All trademarks belong to their respective owners.

Energio SENSORS

Technical data sheet

ES-TS-105

Rev A · November 2026

Self-powered wireless sensors

Solar-harvesting occupancy, light and contact sensors on EnOcean 902 MHz and Bluetooth

Made by ILLUMRA™ Self-Powered Wireless Controls

These sensors power themselves from indoor light, so they mount anywhere with no wire and no battery change. They talk to Energio Sensors wireless controllers on the EnOcean 902 MHz protocol, or to Bluetooth mesh fixtures, and a coin-cell tray is there for dark corners.

Features

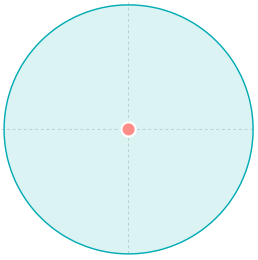
- Integrated solar cell harvests indoor light; optional CR2032 backup
- 902 MHz EnOcean radio; one sensor can signal unlimited controllers in range
- Ceiling, high bay and wall occupancy sensors with 360° or directional coverage
- Motion + light combination sensors for daylight harvesting
- Window/door contact sensors for HVAC interlocks
- Bluetooth mesh and 0-10V wired fixture sensors for fixture-level control
- Built-in tests confirm operation at the installed location
- Pre-linking available to cut on-site commissioning

0
wires or batteries

80 ft
transmission range (E9T-OSC)

80 h
operation in darkness

Coverage



E9T-OSC · 34 ft Ø at 7–10 ft

E9T-OSH covers 60 ft Ø at 33 ft mounting height.



E9T-OSC ceiling



E9T-OSW wall



PIR and light sensor



Window/door sensor



Fixture sensor

Specifications

Specification	E9T-OSC ceiling	E9T-OSH high bay	E9T-OSW wall
Power	Indoor light harvesting; CR2032 or 3–5 V DC option	Indoor light harvesting; CR2032 or 3–5 V DC option	Indoor light harvesting; CR2032 or 3–5 V DC option
Radio	902 MHz EnOcean (EEP A5-07-01)	902 MHz EnOcean	902 MHz EnOcean (EEP A5-07-01)
Transmission range	80 ft (25 m)	160 ft (50 m)	80 ft (25 m)

Specification	E9T-OSC ceiling	E9T-OSH high bay	E9T-OSW wall
Detection	PIR, 360°, 34 ft (10 m) Ø	PIR, 360°, 60 ft (18 m) Ø at 33 ft	PIR; 50 ft wide-angle / 100 ft long-range lens
Mounting height	7–10 ft (2–3 m)	15–40 ft (5–12.2 m)	6–8 ft (2–3 m)
Operation in darkness	80 h after full charge	—	—
Dimensions	6.5 × 2.36 × 1.47 in	6.5 × 2.35 × 1.47 in	5.83 × 2.52 × 1.8 in
Compliance	FCC SZV-STM300U	FCC, IC, CE, RoHS	FCC SZV-STM300U

Ordering information

Model	Description
E9T-OSC	Ceiling-mount occupancy sensor, 360°, self-powered
E9T-OSH	High bay ceiling occupancy sensor, self-powered
E9T-OSW	Wall-mounted occupancy sensor, wide-angle and long-range lenses
E9T-MDS	Motion detector & illumination sensor, NFC set-up
E9T-OBP	Wireless PIR and light sensor
E9T-LLS	Battery-free light level sensor
E9T-MCS	Window/door contact sensor, battery backup
E9T-MDCCP	Solar window/door contact sensor
NWO-DUV-OCC	0-10V high bay fixture sensor
BTX-DUV-OCC	Bluetooth mesh motion + light fixture sensor
NWO-OFX	Bluetooth PIR wired occupancy sensor

Applications

- Conference rooms, classrooms, offices
- Warehouses and high bay (E9T-OSH)
- Glass walls, historic and hard-to-wire buildings
- HVAC interlock on windows and doors

Application notes

- Link each sensor to an E9X controller (see ES-TS-107). Default unoccupied transmissions at 10 and 30 minutes after last motion (E9T-OSC).
- In very low light, fit the CR2032 battery or wire 3–5 V DC.
- E9T-MDS operates up to four days in darkness when fully charged; default off time 15 minutes.

Data from ILLUMRA data sheets E9T-OSC, E9T-OSH, E9T-OSW; EnOcean Alliance listings. Energio Sensors products are manufactured by ILLUMRA and specified, sold and supported in North America by Energio Brands. Specifications are subject to change; confirm against the manufacturer's current data before submittal. Product images courtesy of the manufacturer. All trademarks belong to their respective owners.

Wireless switches & keypads

Battery-free switches, key card and keypads on EnOcean 902 MHz, Bluetooth and Zigbee

Made by ILLUMRA Self-Powered Wireless Controls

Press the rocker and the press itself powers the radio message, so these switches need no wire and no battery for decades. Stick one to glass, brick or a desk, link it to a controller in seconds, and move it when the floor plan changes.

150 ft
open-air range, 902 MHz

300,000+
presses tested

0
batteries

Features

- Kinetic energy harvesting: no wires, no batteries
- Tested to over 300,000 presses, up to 30 years of service
- Standard US switch size; fits decorator wall plates
- One switch controls an unlimited number of controllers in range
- Single and dual rocker, European style, handheld and key card options
- Bluetooth 4-, 5- and 8-button keypads for scenes
- Zigbee rocker versions for Zigbee systems
- Custom engraving service available



Rocker switches


Keypads


Handheld remote


Key card switch

Specifications

Specification	E9T rockers (902 MHz)	BTT rockers (Bluetooth)	E9T-C2AWH key card
Power	Self-generated on press	Self-generated on press	Electrodynamic, card insertion
Frequency	902 MHz EnOcean	2.4 GHz Bluetooth	902 MHz EnOcean
Range	Up to 150 ft (45 m) open air	30–100 ft typical	—
Transmit power	10 mW (10 dBm), DSSS	—	—
Buttons	2 (single rocker) or 4 (dual rocker)	2 (single) or 4 (dual)	Card in / out
Dimensions	Standard US switch size	2.75 × 4.5 × 0.62 in	3.05 × 4.65 × 1.04 in
Operating temperature	—	—	-13 °F to 149 °F
Enclosure	—	—	NEMA 1 (IP40), ABS UL94 V-0

Specification	E9T rockers (902 MHz)	BTT rockers (Bluetooth)	E9T-C2AWH key card
Addressing	Factory-set unique ID	Factory-set unique ID (1 of 4 billion)	Factory-set unique ID

Ordering information

Model	Description
E9T-S1A / E9T-S2A	Single / dual rocker switch, 902 MHz (WH and other colors)
E9T-S1E / E9T-S2E	Single / dual rocker, European style, 3.16 × 3.16 × 0.40 in
E9T-S2H	Handheld 4-button remote, 50–150 ft
E9T-B1S	Push-button switch
E9T-C2AWH	Key card switch
BTT-S1A / BTT-S2A	Single / dual rocker switch, Bluetooth
BTT-B1S	Push-button switch, Bluetooth
BTT-S4B / BTX-S5BWH / BTT-S8BWH	4-, 5- and 8-button keypads, Bluetooth
ZBT-S1A / ZBT-S2A	Single / dual rocker switch, Zigbee
E9K-B11WH / E9K-B21WH / E9K-BF12WH	Kits: basic, 3-way, fan/light
NWO-IP710	Wired 0-10V dimming slider
SRV-PRINT	Custom engraving service

Applications

- Glass walls and open plans
- Historic buildings and retrofits
- Hotels and dorms (key card)
- Conference rooms (scene keypads)

Application notes

- Link a switch to a controller by pressing the controller's learn button, then the switch's ON button three times.
- 902 MHz switches pair with E9X controllers; Bluetooth and Zigbee switches pair with their own systems.

Data from ILLUMRA data sheets (E9T-SxA, E9T-SxE, E9T-C2AWH/E9T-S2H, BTT-S1A/S2A); distributor listings. Energio Sensors products are manufactured by ILLUMRA and specified, sold and supported in North America by Energio Brands. Specifications are subject to change; confirm against the manufacturer's current data before submittal. Product images courtesy of the manufacturer. All trademarks belong to their respective owners.

Wireless load controllers

20 A area and 5 A fixture controllers that receive wireless switches and sensors

Made by ILLUMRA™ Self-Powered Wireless Controls

Controllers are where the load connects. Each one listens for up to 25 linked switches and sensors, switches or dims its circuit, and can repeat signals to stretch range. Area controllers handle full 20 A circuits; fixture controllers fit inside a single luminaire. Specialty models cover phase dimming, LED tape, plug loads and HVAC setback.

20 A
full-circuit switching

25
linked inputs per controller

< 0.5 W
standby power

Features

- Full 20 A circuit switching, 160 A inrush, 1 hp (area controllers)
- 0-10V dimming with adjustable dimming curve and high/low-end trim
- Receives up to 25 switch or sensor signals
- Built-in repeater: about 150 ft per hop, up to two hops
- Relay arc suppression; < 0.5 W standby
- Scene modes, daylight harvesting, load shedding
- BACnet compatible through a gateway; scan-and-link app commissioning
- UL 60730, UL 2043 plenum, CSA C22.2 #14


E9X area controller


Fixture controller


Bluetooth controller

Specifications

Specification	E9X-DUV-10VTP	E9X-RUV-4IBTP
Function	0-10V dimming area controller	On/off area controller, dry-contact capable
Supply	100–277 V AC, 50/60 Hz	100–277 V AC
Load	20 A all loads, 160 A inrush, 1 hp	20 A all loads, 1 hp
Inputs	Up to 25 switches / sensors	Up to 25 switches / sensors
Radio	902 MHz EnOcean	902 MHz EnOcean
Range / repeater	50–150 ft typical; repeater function	Up to 150 ft; repeater function
Standby power	< 0.5 W	< 0.5 W

Specification	E9X-DUV-10VTP	E9X-RUV-4IBTP
Dimensions	2.11 × 1.73 × 1.09 in (54 × 44 × 28 mm)	2.11 × 1.73 × 1.09 in (54 × 44 × 28 mm)
Operating temperature	32 °F to 122 °F (0 to 50 °C)	32 °F to 122 °F (0 to 50 °C)
Storage temperature	-4 °F to 176 °F	-4 °F to 176 °F
Listings	UL 60730, UL 2043, CSA C22.2 #14-05, CE; FCC SZV-STM300U	UL 60730, UL 2043, CSA C22.2 #14-05, CE; FCC SZV-STM300U

Ordering information

Model	Description
E9X-DUV-10VTP	20 A 0-10V dimming area controller
E9X-RUV-4IBTP	20 A on/off area controller
E9X-DUV-10VTP-FX	5 A 0-10V fixture controller
E9X-RUV-3HOTP	5 A on/off fixture controller
E9X-ER6CD	600 W phase-cut dimmer
E9X-D02FL	Constant-voltage PWM controller for LED tape
E9X-ERNR	Split duplex switched receptacle
BTT-R12-GP	Bluetooth wall plug controller
BTX-DUV-10VFX	Bluetooth mesh 0-10V power pack
E9X-CUV	Control transmitter
E9X-HSM-2	HVAC setback module

Applications

- Re-zoning without rewiring
- Classrooms, offices, conference rooms
- Plug-load control
- Hotel HVAC setback with key card

Application notes

- Area controllers suit daisy-chained zones; fixture controllers give per-fixture control with no inter-fixture wiring.
- E9X-RUV-4IBTP's isolated relay can interrupt a thermostat circuit for window/door HVAC interlocks.

Data from ILLUMRA data sheets E9X-DUV-10VTP (AHD0566C), E9X-RUV-4IBTP (AHD0578B); distributor listings. Energio Sensors products are manufactured by ILLUMRA and specified, sold and supported in North America by Energio Brands. Specifications are subject to change; confirm against the manufacturer's current data before submittal. Product images courtesy of the manufacturer. All trademarks belong to their respective owners.

Energio SENSORS

Technical data sheet

ES-TS-108

Rev A · November 2026

RC-plus next outdoor motion detectors

Stand-alone line-voltage PIR motion detectors for building exteriors, parking and high-bay areas

Made by B.E.G. Controls

RC-plus next is B.E.G.'s outdoor motion detector family: a line-voltage PIR detector with a built-in relay and light sensor that switches the lights on its own, with no network, gateway or software. A swivelling ball-head optic and mechanical range adjustment let it be aimed to fit the space, and a plug-in base makes wall, ceiling and corner mounting quick. Three models cover 130°, 230° and 280° detection angles.

66 ft
range across (20 m)

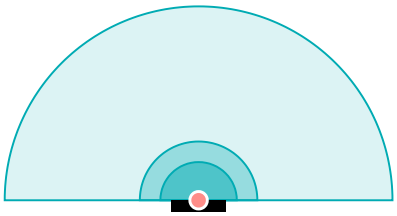
280°
widest detection angle

IP54
outdoor rated

Features

- Stand-alone: built-in relay and light sensor, works out of the box
- 130°, 230° or 280° horizontal detection, up to 66 ft (20 m) across
- Anti-creep zone under the sensor, up to 13 ft (4 m)
- Adjustable ball head and mechanical range adjustment per zone
- Plug-in base for wall, ceiling and corner mounting; socket compatible with earlier RC-plus and Vario
- Different time-out depending on direction of movement
- Factory set to 3 min and 20 lux; more functions by optional IR remote or B.E.G. app
- IP54, UV-resistant polycarbonate housing, -13 °F to 122 °F

Coverage



- Across · up to 66 ft (20 m)
- Toward · up to 20 ft (6 m)
- Anti-creep · up to 13 ft (4 m)

Wall mount at 8 ft (2.5 m). Simplified pattern; detection angle is 130°, 230° or 280° by model.



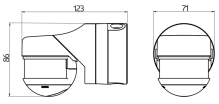
RC-plus next N 130



RC-plus next N 230



RC-plus next N 280



Dimensions (mm)

Specifications

Specification	RC-plus next N 130 / N 230 / N 280
Supply voltage	110–240 V AC, 50/60 Hz
Power consumption	approx. 0.5 W

Specification	RC-plus next N 130 / N 230 / N 280
Detection angle (wall mount)	130° / 230° / 280°
Range	66 ft (20 m) across · 20 ft (6 m) toward · 13 ft (4 m) anti-creep
Monitored area (8 ft mount)	4,840 / 8,610 / 10,440 ft² (450 / 800 / 970 m²)
Mounting height	6.5–16 ft (2–5 m); 8 ft (2.5 m) recommended
Switching	1 NO relay with tungsten pre-make contact; 800 W LED, 3000 W resistive (B.E.G. international rating)
Time-out	15 s – 16 min, or pulse
Light threshold	2 – 500 lux
Protection	IP54 / Class II, IK03
Operating temperature	-13 °F to 122 °F (-25 °C to +50 °C)
Housing	UV-resistant polycarbonate; white (N 230 also black, brown, silver)
Dimensions	4.8 × 2.8 × 3.3 in (121 × 71 × 85 mm)

Ordering information

Model	B.E.G. item no.	Description
RC-plus next N 130	93321	130° outdoor motion detector, white
RC-plus next N 230	93331	230° outdoor motion detector, white (also black, brown, silver)
RC-plus next N 280	93341	280° outdoor motion detector, white
IR-RC / IR-RC-Mini	92000 / 92090	Optional IR remote controls for settings
BLE-IR-Adapter	93067	Bluetooth adapter for set-up with the B.E.G. app
Corner sockets	97004 / 97005	Outside / inside corner socket
Wire basket BSK	92467	Impact guard for sports halls and loading areas
Blinds RC-plus next	32697	Masks to block unwanted detection zones

Applications

- Building entrances and access roads
- Parking lots and parking garages
- Loading docks and yards
- Walkways, gateways and narrow passages (N 130)
- High-bay warehouses

Application notes

- RC-plus next switches the load itself and needs no network. Several detectors can be wired in parallel to cover a larger area.
- Item numbers and ratings are from B.E.G.'s international catalog. Confirm UL listing, 120 V ratings and North American part numbers with Energio before submittal.
- Faulty switching from animals can be reduced by lowering the sensitivity.

Data from B.E.G. product data, RC-plus next N 130 (93321), N 230 (93331) and N 280 (93341). Energio Sensors products are manufactured by B.E.G. Controls and specified, sold and supported in North America by Energio Brands. Specifications are subject to change; confirm against the manufacturer's current data before submittal. Product images courtesy of the manufacturer. All trademarks belong to their respective owners.

Energio SENSORS

Technical data sheet

ES-TS-201

Rev A · November 2026

Casambi sensors

Mesh network sensors: native Casambi PIR presence and daylight sensors

Made by DANLERS Lighting Controls

CBU sensors join a Casambi network as native nodes, so presence and daylight readings drive any Casambi fixture, group or scene on the project. Set-up runs in the Casambi app alongside the rest of an Energio Controls system. The range uses the same DANLERS 12 V platform and housings as the ISI line.

Features

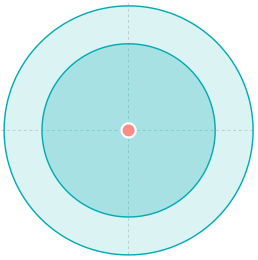
- Casambi-enabled: forms a wireless mesh with other Casambi products
- PIR occupancy detection plus integrated photocell for daylight harvesting
- Time-out and daylight threshold adjusted in the Casambi app
- 0-10V, DALI or switched output for the local load
- Ceiling flush, ceiling surface, high bay and OEM luminaire module formats
- Low-voltage 12 V DC models for the North American market
- Matte white finish, IP20 (surface, high bay)
- 5-year warranty

Casambi
native mesh node

3
output types: 0-10V, DALI, switch

12 V DC
Class 2 supply

Coverage



Secondary zone · 23 ft Ø
Strong zone · 16 ft Ø

Typical ceiling pattern of the DANLERS 12 V platform; confirm CBU data.



CBU ceiling flush



CBU ceiling surface



CBU high bay



CBU OEM module

Specifications

Specification	CBU ceiling (CEFL / CESR)	CBU high bay (HBWD)	CBU OEM module (MOD17M)
Network	Casambi (Bluetooth-based mesh)	Casambi (Bluetooth-based mesh)	Casambi (Bluetooth-based mesh)
Supply	12 V DC Class 2	12 V DC Class 2	12 V DC Class 2
Detection	PIR + photocell	PIR + photocell	PIR + photocell
Coverage (platform)	16 ft strong / 23 ft secondary (Ø)	Up to 91 ft (28 m) Ø	Long-range luminaire optic

Specification	CBU ceiling (CEFL / CESR)	CBU high bay (HBWD)	CBU OEM module (MOD17M)
Mounting height (platform)	7–16 ft	Up to 46 ft	Up to 56 ft
Local output	0-10V, DALI or switched	0-10V, DALI or switched	0-10V or DALI
Configuration	Casambi app	Casambi app	Casambi app
Mounting	Flush: Ø 2.87–2.95 in cut-out · Surface: plate	Solid ceiling or back box	Bezel in luminaire

Ordering information

Model	Format	Output
CBU-CEFL10V12V	Ceiling flush	0-10V
CBU-CEFLDALI12V	Ceiling flush	DALI
CBU-CEFLSW12V	Ceiling flush	Switched
CBU-CESR10V12V	Ceiling surface	0-10V
CBU-CESRDALI12V	Ceiling surface	DALI
CBU-CESRSW12V	Ceiling surface	Switched
CBU-HBWD10V12V	High bay	0-10V
CBU-HBWDDALI12V	High bay	DALI
CBU-HBWDSW12V	High bay	Switched
CBU-MOD17M10V12	OEM luminaire module	0-10V
CBU-MOD17MDALI12V	OEM luminaire module	DALI
Thermal sensor, Casambi version	Ceiling flush, PIR + thermal people counting	Part number from DANLERS

Applications

- Casambi projects designed by Energio Controls
- Open offices and classrooms with daylight zones
- Warehouses and high bay aisles
- Fixtures shipped Casambi-ready (OEM)

Application notes

- CBU sensors work only with Casambi-enabled equipment.
- A Casambi version of the DANLERS thermal people-counting sensor is also available; it requires a Casambi system (see ES-TS-202).
- Coverage, mounting and supply values are from the matching DANLERS 12 V ISI platform documents. Confirm CBU-specific data with DANLERS before submittal.
- Energio Controls designs and commissions Casambi systems throughout North America.

Data from DANLERS America product listings; DANLERS 12 V platform user guides; Casambi ecosystem listings. Energio Sensors products are manufactured by DANLERS and specified, sold and supported in North America by Energio Brands. Specifications are subject to change; confirm against the manufacturer's current data before submittal. Product images courtesy of the manufacturer. All trademarks belong to their respective owners.

INGY fixture modules & thermal sensor

Mesh network sensors: INGY modules for standard luminaires or factory integration, plus camera-free people counting on INGY or Casambi

Made by DANLERS Lighting Controls

INGY modules add presence and daylight sensing to a luminaire, either retrofitted to standard fixtures in the field or built in at the factory. That makes them a natural fit for Energio Lighting private-label fixtures. The thermal sensor goes further, combining PIR with thermal sensing and on-board AI to count people and locate them without a camera. It comes in INGY and Casambi versions and works as part of one of those systems, not on its own.

0
cameras for people counting

4
formats: flush, surface, high bay, module

OEM
factory or field install

Features

- Works with standard luminaires or integrated during production
- PIR occupancy plus photocell for daylight harvesting
- 0-10V, DALI or switched outputs
- Ceiling flush, ceiling surface, high bay and MOD17 module formats
- Thermal sensor: PIR + thermal sensing with embedded AI, INGY or Casambi version
- Privacy-protective head count and location detection, no camera
- Thermal sensor requires an INGY or Casambi system; it does not operate stand-alone
- 12 V DC low-voltage platform


INGY luminaire module


Thermal sensor


Thermal sensor, side view

Specifications

Specification	INGY sensors	Thermal sensor
Detection	PIR + photocell	PIR + thermal sensing with embedded AI
Data	Presence, daylight	Presence, head count, location
Outputs	0-10V, DALI or switched	DALI control lines
System	INGY mesh	Requires an INGY or Casambi system (not stand-alone)

Specification	INGY sensors	Thermal sensor
Versions	—	INGY or Casambi
Supply	12 V DC Class 2	12 V DC Class 2
Mounting	Ceiling flush, surface, high bay, luminaire module	Ceiling flush
Listing	UL 60730-1 / CSA E60730-1 (DANLERS 12 V platform)	UL (per model designation)

Ordering information

Model	Format	Output
INGY-CEFL10V12V	Ceiling flush	0-10V
INGY-CEFLDALI12V	Ceiling flush	DALI
INGY-CEFLSW12V	Ceiling flush	Switched
INGY-CESR10V12V	Ceiling surface	0-10V
INGY-CESRDALI12V	Ceiling surface	DALI
INGY-CESRSW12V	Ceiling surface	Switched
INGY-HBWD10V12V	High bay	0-10V
INGY-HBWDDALI12	High bay	DALI
INGY-HBWDSW12V	High bay	Switched
INGY-MOD17M10V12V	Luminaire module	0-10V
INGY-MOD17MDALI12V	Luminaire module	DALI
INGY-THFLDALI12VUL	Thermal sensor, ceiling flush, INGY version	DALI
Casambi version	Thermal sensor, ceiling flush, Casambi version	Part number from DANLERS

Applications

- Private-label Energio Lighting fixtures
- Retrofit of existing luminaires
- Meeting rooms and space planning on INGY or Casambi projects (thermal)
- HVAC demand control from real headcount

Application notes

- Detection ranges and mechanical data follow the matching DANLERS 12 V platform formats (see ES-TS-104).
- The thermal sensor needs an INGY or Casambi system to work. Specify the version that matches the project's system; it cannot run stand-alone.
- Thermal sensor coverage, accuracy and dimensions are not yet published; request the DANLERS data sheet before specifying.

Data from DANLERS America product listings (INGY controls, thermal sensor). Energio Sensors products are manufactured by DANLERS and specified, sold and supported in North America by Energio Brands. Specifications are subject to change; confirm against the manufacturer's current data before submittal. Product images courtesy of the manufacturer. All trademarks belong to their respective owners.