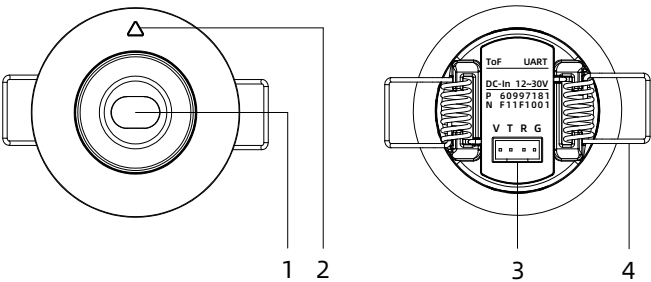


Mini-ToF-UART

The CTL-SEN-Mini/7181 is an ultra-compact, high-precision occupancy sensor leveraging advanced Time-of-Flight (ToF) ranging technology. Unlike traditional motion sensors, it measures the precise distance to a target with millimeter-level accuracy, enabling the detection of static presence and precise location within a defined zone. Designed with a miniature form factor (Φ35 mm cutout), this sensor is engineered for sophisticated smart automation requiring granular control.



Interface



1. ToF Sensing Surface
2. Orientation Marker
3. Connector (V: DC Input DC 12 to 30 V positive; T: Serial data transmission output; R: Serial data reception input; G: DC Input GND)
4. Spring Clip

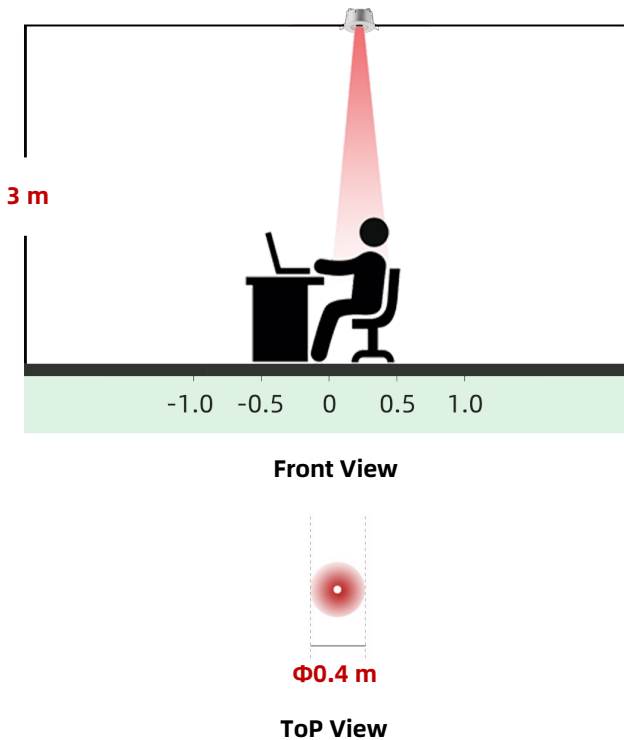
Features

- Accurately detects presence, occupancy, approach, and departure.
- Integrated high-precision sensor for accurate indoor illuminance monitoring.
- Supports multiple protocols via RS485, including Modbus-RTU and Active Reporting.
- Adjustable lighting threshold.
- Supports parameter configuration and status readout via IR remote control.
- Indicator LED brightness automatically adjusts to ambient light levels.
- Powered by a proprietary module with advanced signal processing algorithms.

Specifications

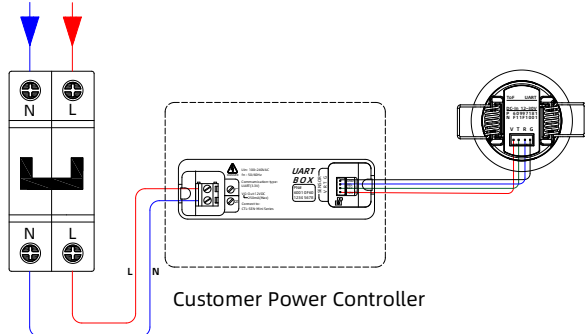
Communication Type	UART
Input Voltage	DC 12 to 30 V
Power Consumption	0.5 W (Max)
Serial Port Settings	Baud Rate: 1200 to 115200 Data Bits: 8 Parity: None, Even, Odd Stop Bits: 1, 2 Default: 115200, 8, None, 1
Address Range	01 to 99 (Decimal)
Indicator Light	LED
Detection Mode	ToF Time of Flight Sensor
Light Source	940 nm
Laser Safety	Class 1 (IEC 60825-1:2014)
Update Rate	15Hz / 30 Hz
Installation Method	Recessed Ceiling Mount
Mounting Height	2.0 to 4.0 m
Detection Angle	20°
Detection Coverage	≤ 0.4 m
Detection Range	0.1 to 3.2 m (sensor to target)
Illuminance Monitoring	0 to 32,000 Lux (Accuracy ±4%)
Delay Time	1 to 3,600 seconds
Product Size	Φ43 mm × 25 mm
Cutout Size	Φ35 mm
Product Weight	17.5 g
Cable Assembly	UL1007 22AWG Cable Length: 150 mm
Operating Environment	Indoor -20 to 45°C Humidity < 95% RH (Non-condensing)
Storage Temperature	-40 to 85°C
Protection Level	IP20
Housing Material	PC

Detection Range



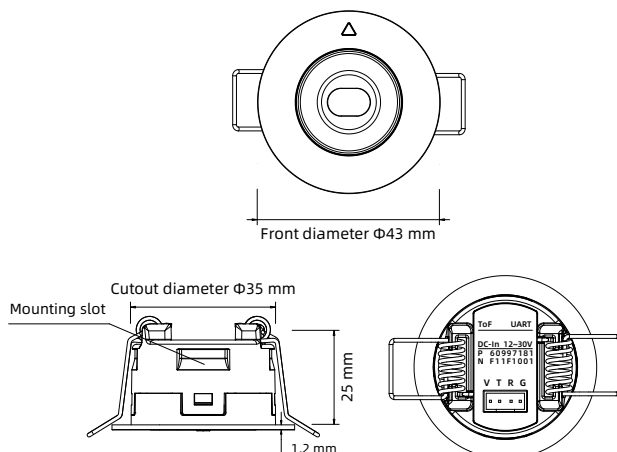
Wiring Diagram

AC 100 to 240 V



Dimensions

Measuring 43 mm in diameter and 25 mm in depth, this recessed unit fits a 35 mm cutout. Optional kits allow for surface, wall, or universal bracket mounting.



Installation Notes

Environmental Requirements: Avoid moving objects, direct light, or reflections to prevent false triggers. Dark materials may reduce sensitivity. Ensure the lens remains free of heavy soiling or scratches, as this may compromise detection accuracy.

Unpacking: Unpack carefully and inspect contents immediately. Dispose of packaging per local regulations.

Electrical Safety: Disconnect power before wiring. Follow the wiring diagram using certified cables and ensure the system has short-circuit and overload protection. Avoid direct contact with circuit components.

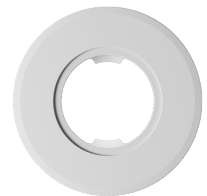
Wiring Safety: Mount at least 30 cm above the floor with 1 meter clearance from walls or obstacles. Ensure an unobstructed view of the detection zone.

Disclaimer: Specifications subject to change without notice. Follow wiring diagrams strictly. The manufacturer assumes no liability for improper installation.

Available Accessories



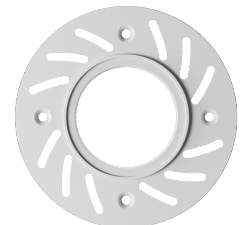
Remote Controller
(60.99.00C1)



Cover Ring
(60.99.0A55)



In-wall Mounting 86 Panel Frame
(60.99.0A86)



Borderless Embedded Parts
(60.99.0A40)



Surface Mounting Socket
(60.99.0A50)



Surface Mounting Universal Bracket
(60.99.A360)

Ordering Information

P/N	Short Name	Model	Remarks
60.99.7181	Mini-ToF-UART	CTL-SEN-Mini/7181	White (Default)
60.9B.7181	Mini-ToF-UART/B	CTL-SEN-Mini/7181B	Black
60.99.00C1	RC1	RC1	Accessory
60.99.0A55	Mini-ASSY-55	A55	Accessory
60.99.0A86	Mini-ASSY-86	A86	Accessory
60.99.0A40	Mini-ASSY-BL	A40	Accessory
60.99.0A50	Mini-ASSY-CYL	A50	Accessory
60.99.A360	Mini-ASSY-360	A360	Accessory