Wireless CO2, Temperature & Humidity Sensor

RCT

Overview

The RCT sensor is a wireless transmitter monitoring indoor CO2, temperature and relative humidity levels. It is designed for commercial facilities where indoor environmental quality is of concern and potential savings from utilizing CO2 based demand controlled ventilation is desired.

The sensor is equipped with a solar panel that harvests light energy from natural or artificial light sources. Excess energy is stored for use in periods of darkness allowing the sensor to operate for as long as 75 hours with no light. An battery is installed to provide backup power for up to five years in continued low light applications.

The RCT incorporates our latest diagnostic and configuration features to ensure calibrated CO2 values and solar harvesting capability. At the push of a button, the RCT sensor can indicate the current CO2 level via three colored LEDs. In addition, simple button press and hold sequences can display solar energy harvesting performance.

Sensor status updates are dynamically controlled driven by power management logic that determines the messaging rate to insure consistent and timely updates. Further control logic monitors quick changes in data values and can push immediate sensor updates to receivers.

An on-board absolute pressure sensor provides correction for CO2 readings when at higher altitudes insuring accuracy with each reading. CO2 calibration can be initiated manually or as an automatic self-calibration routine.

The Echoflex RCT sensor works with many gateways from common BEMS manufactures to provide explicit accurate and timely monitoring of a facilities interior spaces.
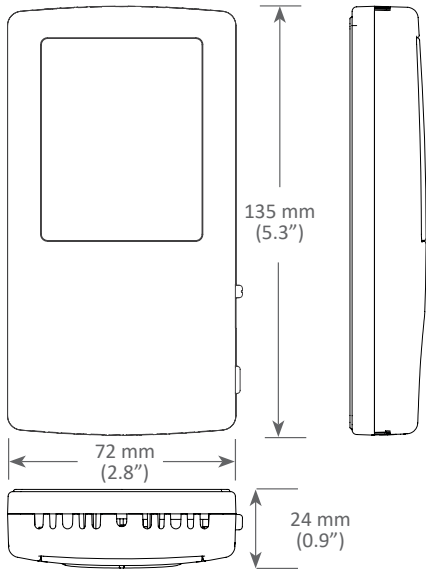
Features

- Solar powered, wireless CO2, temperature and relative humidity sensor
- Wall mount with removable back plate
- Easily calibrated in ambient air
- Integrated self-calibration feature eliminates maintenance
- Built-in absolute pressure sensor corrects CO2 reading for altitude
- Integrated solar harvesting energy level via LED indication
- Reliable radio reception range of 24 m (80 ft)
  - commercial office spaces (typical), up to 100 m (330 ft) line of sight
- Smart power management logic manages sampling and message transmission based on real time ambient light levels
- Current CO2 level can be displayed at sensor via LED indication
- Coin cell battery included for low light conditions
- Operates in light conditions as low as 5 foot candles (50 lux)

Ordering Information

Description	902 MHz Model	902 MHz PN	868 MHz Model	868 MHz PN	928 MHz Model	928 MHz PN
CO2, Temperature & Humidity Sensor	RCT-1H-UW	8188A1188-X-1	RCT-1H-YW	8188A1388-X-1	RCT-1H-JW	8188A1688-X-1

Equipment Profiles

EEP A5-09- 04	CO2 Sensor + Temperature Sensor + Humidity Sensor

Dimensional Diagram

135 mm (5.3")

72 mm (2.8")

24 mm (0.9")

Agency listing & Compliance

RoHs compliant product

902 MHz Model
FCC Part 15.231
Remote Control Transmitter
IC RSS-210

FC

868 MHz Model
CE Mark

C E

928 MHz Model
Japanese Radio Law

Hardware Specifications

Carbon Dioxide Sensing	0 - 2000 ppm measurement range
Technology	Ultra Low Power, LED based NDIR
Accuracy	± 50 ppm with resolution of 10 ppm
Altitude/Pressure Compensation	Built-in correction
Self- Calibration	Automatic Background Calibration
Temperature Sensing	32°F to 124°F (0°C to 51°C)
Accuracy	± 0.5°C (± 0.3°C)
Resolution	0.36°F (0.2°C)
Relative Humidity	0% - 100% RH range
Accuracy	± 0.3 RH @ 10-90%, ±7% @ 0-10% and 90-100%
Resolution	0.5%
Power Supply	Integrated solar panel
Operational light level	5 foot candles (50 lux)
Min. charge for operation	10 minutes @ 18.5 foot candles (200 lux)
Charging light level	18.5 foot candles (200 lux)
Maintain charge time	18.5 foot candles (200 lux) for 6 hours
Maximum charge time	16 hours at 18.5 foot candles (200 lux)
Operating life at full charge	75 hours @ 0 lux
Battery	CR2032 coin cell
Inputs	Link Button, Test Button
Outputs	LEDs - red, green, and amber

Communications

Radio Frequency	902 MHz(U) or 868 MHz(Y) or 928 MHz (J)
Antenna	Integrated whip
Transmission Range	24 m (80 ft) - commercial office spaces(typical), up to 100m (330 ft) line of sight

Temperature Monitoring

Ambient Light Level	Temp/RH Sampling Rate	CO2 Sampling Rate	Heartbeat Rate
> 200 lux (18.5 fc)	16 seconds	300 sec (5 min)	300 sec (5 min)
< 200 lux (18.5 fc)	32 seconds	600 sec (10 min)	600 sec (10 min)
< 50 lux (5 fc) for 16 hrs	64 seconds	1200 sec (20 min)	1200 sec (20 min)

Mechanical Specifications

Operating Temperature	-25°C to 65°C (-13°F to 145°F)
Weight	115 g (4 oz)
Dimensions	135 x 72 x 24 mm (5.3 x 2.8 x 0.9")
Mounting	Screws or double sided tape (not supplied)

Specifications are subject to change without notification.

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