

# Carbon Dioxide Sensor

Featuring LoRaWAN®

EM500-CO<sub>2</sub>

**Milesight**



EM500-CO<sub>2</sub> is designed for measuring CO<sub>2</sub>, temperature, humidity and barometric pressure in harsh environments and transmitting data using LoRaWAN® technology. With this low power consumption technology, EM500-CO<sub>2</sub> can work up to 10 years with 19000 mAh battery. Combining with Milesight LoRaWAN® gateway and Milesight IoT Cloud solution, users can manage all sensor data remotely and visually.

EM500-CO<sub>2</sub> is widely used for applications like smart agriculture, smart city, forest fire detection, etc.

## ◆ Features

- Integrated with multiple sensors like CO<sub>2</sub>, temperature, humidity, etc.
- Ultra-wide-distance transmission up to line of sight of 10km
- IP65 waterproof enclosure for harsh environment applications
- Built-in 19000 mAh replaceable battery and work for 10 years without replacement
- Equipped with NFC for easy configuration
- Compliant with standard LoRaWAN® gateways and network servers
- Quick and easy management with Milesight IoT Cloud solution

## ◆ Applications

- Warehouse environment monitoring
- Basement and underground parking monitoring
- Smart agriculture
- Forest fire detection
- Smart building

## ◆ Specifications

### Wireless Transmission

|             |                                                         |
|-------------|---------------------------------------------------------|
| Technology  | LoRaWAN®                                                |
| Frequency   | CN470/IN865/RU864/EU868/US915/AU915/KR920/AS923-1&2&3&4 |
| Tx Power    | 16dBm(868)/20dBm(915)/19dBm(470)                        |
| Sensitivity | -137dBm @300bps                                         |
| Mode        | OTAA/ABP Class A                                        |

### Sensors

#### Carbon Dioxide (CO<sub>2</sub>)

|             |                                                     |
|-------------|-----------------------------------------------------|
| Sensor Type | NDIR                                                |
| Range       | 400 - 5000 ppm                                      |
| Accuracy    | ± (30 ppm + 3 % of reading) (0°C - 50°C, 0 - 85%RH) |
| Resolution  | 1 ppm                                               |

#### Temperature

|             |                                                     |
|-------------|-----------------------------------------------------|
| Sensor Type | MEMS                                                |
| Range       | -30°C to + 70°C                                     |
| Accuracy    | 0°C to + 70°C (+/- 0.3°C), -30°C to 0°C (+/- 0.6°C) |
| Resolution  | 0.1°C                                               |

#### Humidity

|             |                                                             |
|-------------|-------------------------------------------------------------|
| Sensor Type | MEMS                                                        |
| Range       | 0% to 100% RH                                               |
| Accuracy    | 10% to 90% RH (+/- 3%), below 10% and above 90% RH (+/- 5%) |
| Resolution  | 0.5% RH                                                     |

#### Barometric Pressure

|             |                               |
|-------------|-------------------------------|
| Sensor Type | MEMS                          |
| Range       | 300 - 1100 hPa (-40°C - 85°C) |
| Accuracy    | ±1 hPa                        |
| Resolution  | 0.1 hPa                       |

### Operation

|                   |                                                                  |
|-------------------|------------------------------------------------------------------|
| Power On & Off    | NFC, Power Button (Internal)                                     |
| Configuration     | Mobile App(via NFC) or PC software(via USB Type-C)               |
| Advanced Features | Data Storage (1000 pieces), Data Retransmission, Threshold Alarm |

### Physical Characteristics

|              |                                                  |
|--------------|--------------------------------------------------|
| Power Supply | 19000 mAh Li-SOCL <sub>2</sub> Battery (ER34615) |
|--------------|--------------------------------------------------|

|                       |                                                                              |
|-----------------------|------------------------------------------------------------------------------|
| Battery Life*         | 10 years (10 min interval)                                                   |
| Operating Temperature | -30°C to +70°C                                                               |
| Relative Humidity     | 0% to 100% (non-condensing)                                                  |
| Ingress Protection    | IP65                                                                         |
| Dimension             | 147.9 × 71 × 69.5 mm (5.8 × 2.8 × 2.7 in)                                    |
| Installation          | Pole, Wall or DIN Rail Mounting                                              |
| <b>Approvals</b>      |                                                                              |
| Regulatory            | CE, FCC, RoHS, LoRaWAN® Certified, ISED, ICASA                               |
| EMC                   | EN 55032, EN 55035                                                           |
| EMS                   | IEC 61000-4-2 Level 3                                                        |
|                       | IEC 61000-4-3 Level 2                                                        |
|                       | IEC 61000-4-8 Level 4                                                        |
| Radio Frequency       | FCC Part 15B, FCC Part 15.247, EN 300 330, EN 301 489-1/3,<br>EN 300 220-1/2 |
| Safety                | EN62368-1                                                                    |

\* Tested under laboratory conditions and for guideline purposes only.

