SEMARS DIGITAL

SEMARS

Smart Equipment Monitoring and Resolution System

SENSORS
DATA SHEET

SEMARS DIGITAL

India : MSR North Tower, 16th Floor, MS Ramaiah North City, Manyata, Bengaluru - 560045
UAE : FDRK5907, Compass Building, Al Hamra Ind Zone-FZ, UAE
Oman : OFC 2/16, Focus Business Center, Way56, Muscat, Oman
Netherlands : 23-Aramstraat, 1336 HR, Almere, Netherlands
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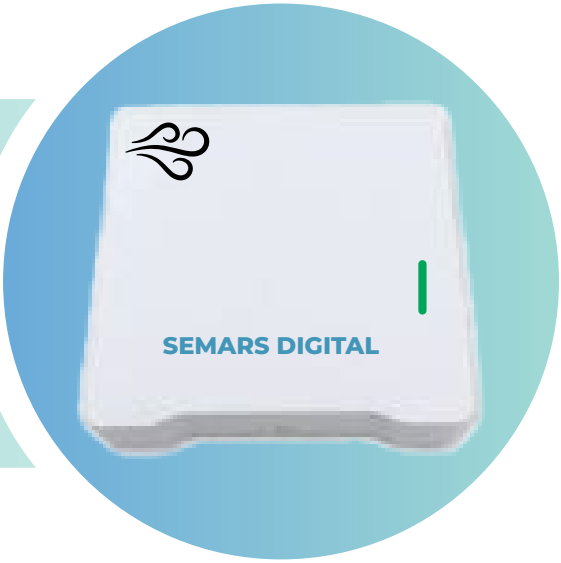
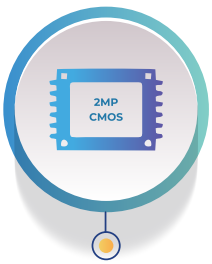
Air quality - Carbon Dioxide Sensor

Measures the concentration of carbon dioxide (CO_2) in the air. It typically uses NDIR (Non-Dispersive Infrared) technology or electrochemical sensing to detect CO_2 levels accurately. These sensors are essential for monitoring indoor and outdoor air quality, ensuring proper ventilation, and maintaining healthy environments.

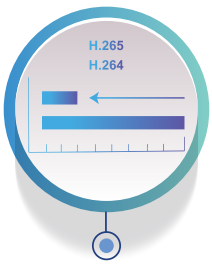


Its features and applications are as follows:

1.1 Key Features:



Temperature, Humidity, CO_2, TVOC, PM2.5, PM10, Barometric Pressure, Light, Motion
Integrated sensors



NB-IoT connectivity with excellent penetration and coverage
3GPP NB-IoT frequency bands

Protocol stack: IPv4/IPv6, UDP, CoAP, LwM2M, DTLS, TCP, MQTT
OTA firmware upgrade capability

Local data storage (~18,000 entries) with retransmission

Multiple display modes (E-Ink screen for Nb319)
Manageable via Semars Cloud

1.2 Applications:

- **Indoor Air Quality Monitoring**
- **HVAC & Ventilation Control**
- **Smart Buildings & IoT**
- **Greenhouses & Agriculture**
- **Industrial Safety**
- **Transportation**
- **Public Spaces**

This type of sensor is particularly suitable for industrial or commercial environments requiring precise monitoring and integration with existing systems.

1.3 Specifications

SL No.	Specification	Value
1	Technology	NB-IoT , LoRaWAN optional
2	EM500-CO_2	LoRaWAN primary; NB-IoT variant
3	Temperature	Digital CMOSens (MEMS)
4	Humidity	Digital CMOSens (MEMS)
5	CO_2	Photoacoustic
6	TVOC	MOX (MEMS)
7	PM2.5 & PM10	Laser scattering
8	Barometric Pressure	Piezoresistive (MEMS)
9	CO_2	NDIR
10	Temperature	Thermistor
11	Humidity	Capacitive
12	Range	
13	Digital CMOSens (MEMS)	-20 to 60 °C
14	Digital CMOSens (MEMS)	0 to 100 %RH
15	Photoacoustic	400–2000 ppm
16	MOX (MEMS)	IAQ rating or 0–2000 µg/m³
17	Laser scattering	0–1000 µg/m³
18	Accuracy	
19	Temperature	±0.3 °C (-20–0), ±0.2 °C (0–60)
20	Humidity	±2 %RH (25 °C)
21	CO_2	±(50 ppm + 5% of reading)
22	TVOC	±15% (1–500 µg/m³)
23	PM2.5 & PM10	±10%
24	Barometric Pressure	±0.5 hPa
25	Resolution	
26	Temperature	0.1 °C
27	Humidity	0.5 %RH
28	CO_2	1 ppm
29	TVOC	1 µg/m³
30	PM2.5 & PM10	1 µg/m³
31	Barometric Pressure	0.1 hPa

1.4 Note:

Operating and storage conditions :

- -20 to 60 °C; 10–90% RH (non-condensing); indoor use
- Dry, dust-free; 15–30 °C; avoid moisture and direct sun

Certifications :

- CE Certified
- RoHS Compliant
- IPV6 Packing
- ISO 9001 Manufacturing Standards

Attention :

- Mount at breathing zone height; avoid vents/direct sunlight; periodic calibration for CO2/TVOC if applicable