

SEMARS DIGITAL

SEMARS

Smart Equipment Monitoring
and Resolution System

SENSORS DATA SHEET

SEMARS DIGITAL

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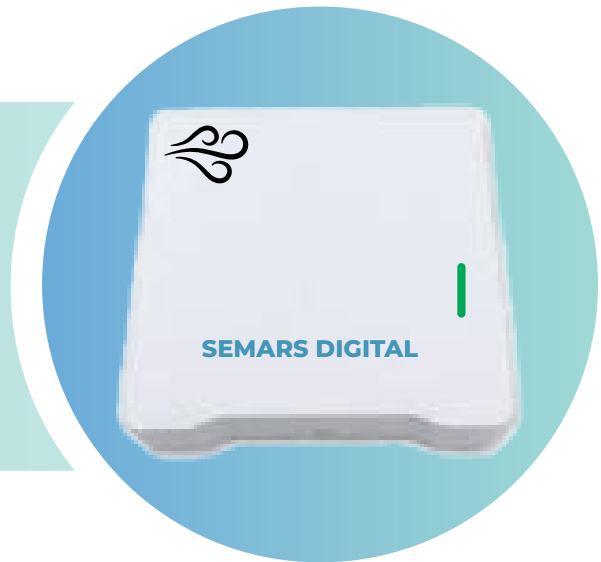
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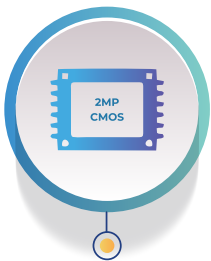
Air Quality Sensor

Multi-parameter IAQ sensor (Temp, RH, CO₂, TVOC, PM2.5/PM10, pressure, light, motion) with NB-IoT/LoRaWAN connectivity for smart buildings/HVAC. An electronic device designed to detect and measure the concentration of pollutants and gases in the surrounding environment. These sensors typically monitor parameters

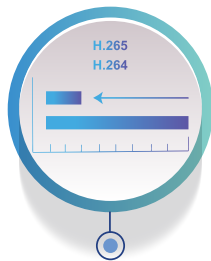


Its features and applications are as follows:

1.1 Key Features:



Temperature, Humidity, CO₂, 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:

- Environmental Monitoring
- Smart Cities
- Industrial Safety
- Indoor Air Quality
- Automotive Applications
- Healthcare & Public Health
- Agriculture
- Disaster Management

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
2	Bands	Depends on region
3	Work Mode	Standard NB-IoT protocols
4	Other	LoRaWAN variant also available
5	Temperature	Digital CMOSens (MEMS)
6	Humidity	Digital CMOSens (MEMS)
7	Motion (PIR)	Passive Infrared
8	Light	Photodiode
9	TVOC (IAQ mode)	MOX (MEMS)
10	TVOC (Conc mode)	MOX (MEMS)
11	Barometric Pressure	Piezoresistive (MEMS)
12	CO ₂	Photoacoustic
13	PM2.5 & PM10	Laser scattering
14	Formaldehyde (HCHO)	Electrochemical (optional)
15	Range	
16	Temperature	-20 to 60 °C
17	Humidity	0 to 100 %RH
18	Motion (PIR)	80° H, 55° V, ≤5 m
19	Light	0–60000 lux (6 levels)
20	TVOC (IAQ mode)	Rating 1.00–5.00
21	TVOC (Conc mode)	0–2000 µg/m ³
22	Barometric Pressure	260–1260 hPa
23	CO ₂	400–2000 ppm
24	PM2.5 & PM10	0–1000 µg/m ³
25	Formaldehyde (HCHO)	0–1.25 mg/m ³ (0–1 ppm)
26	Ozone (O ₃)	0–10 ppm
27	Accuracy	
28	Temperature	±0.3 °C (-20–0), ±0.2 °C (0–60)
29	Humidity	±2 %RH (25 °C)
30	Motion (PIR)	Vacant/Occupied
31	Light	—
32	TVOC (IAQ mode)	Accuracy ±1
33	TVOC (Conc mode)	20 µg/m ³ ±15% (1–500 µg/m ³)

SL No.	Specification	Value
34	Barometric Pressure	±0.5 hPa
35	CO ₂	±(50 ppm + 5% of reading)
36	PM2.5 & PM10	0–100: ±10 µg/m ³ ; 100–1000: ±10%
37	Formaldehyde (HCHO)	±10%
38	Ozone (O ₃)	±5% FS
39	Temperature	0.1 °C
40	Humidity	0.5 %RH
41	Motion (PIR)	—
42	Light	—
43	TVOC (IAQ mode)	0.01
44	TVOC (Conc mode)	1 µg/m ³
45	Barometric Pressure	0.1 hPa
46	CO ₂	1 ppm
47	PM2.5 & PM10	1 µg/m ³
48	Formaldehyde (HCHO)	0.01 mg/m ³ / 0.001 ppm
49	Ozone (O ₃)	0.01 ppm
50	Power Supply	5V/1A via Type-C
51	Operating Temperature	-20 to 60 °C (E-Ink: 0 to 40 °C)
52	Relative Humidity	10–90% (non-condensing)
53	Ingress Protection	IP30
54	Housing & Color	ABS (UL94 HB), White
55	Weight	Approx. 148 g
56	Dimensions	100.8 × 114 × 22 mm
57	Installation	Wall mounting via tape or screws
58	Buttons	Power + Reset
59	LED & Buzzer	Traffic light + buzzer for alarms
60	USB	Type-C for power/configuration
61	IAQ Rating	TVOC (mg/m ³)

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