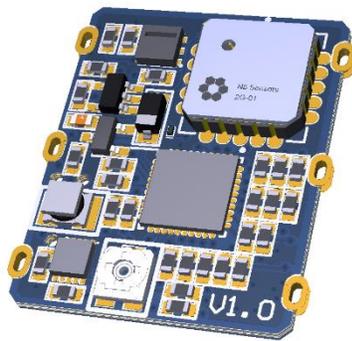


Digital Gas Sensor Module – Nitrogen Dioxide

PRODUCT SUMMARY

The N1-21-20 sensor integrated with a digital gas module (DGM) is designed for the measurement of NO₂ gas concentration. It utilizes N5's unique specific gas sensor technology with tailored selectivity. The module provides calibrated, ppm readings of gas concentration with an on-board humidity and temp. sensor for automatic result compensation.



KEY FEATURES & BENEFITS

- Better selectivity than commercially available sensors
- Improved stability in harsh environment
- Industry leading reliability
- Integrable with plug-in module
- UV assisted sensing enables room-temp. operation
- Ultra-low power operation
- Small form factor & Lightweight
- Integrated RH & T sensors
- Efficient I²C communication
- Siloxane resistant
- RoHS compliant

APPLICATIONS

- IoT and Connected Devices
- Toxic Gas Detection
- Smart Cities
- Environmental Monitoring
- Distributed Sensor Systems
- Smart Homes
- Appliances

TECHNICAL SPECIFICATIONS

PERFORMANCE CHARACTERISTICS

Measurement Range	0.5-50 ppm
Maximum Overload	500 ppm
Lower Detection Limit	10 ppb
Sensitivity	10 mV/ppm
Response Time (T90)	~100 s
Resolution	0.1 ppm
Repeatability	< +/- 3 % of reading

ELECTRICAL

Operating Voltage	1.8 – 5.5 V
Power Consumption	100 mW
Calibration	Via PCB mounted button & potentiometer

MECHANICAL

Dimensions	20 x 25 mm (0.8" x 1")
Weight	1g
Housing Material	Ceramic

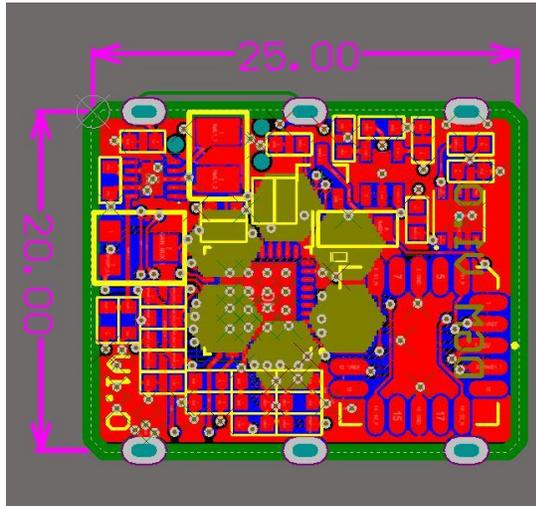
ENVIRONMENTAL

Operating Temperature Range	-20 to 80 C
Operating Humidity Range	0 to 95% RH
Operating Pressure	1 atm ± 10%

LIFETIME

Expected Operating Life	4 years
Long-Term O/P Drift	3% /month
Storage Life	2 years in original packaging
Warranty	1 year

PRODUCT DIMENSIONS



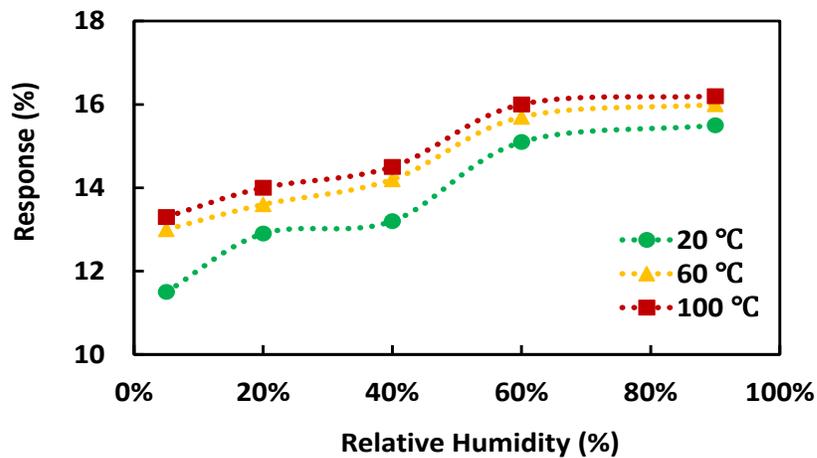
All Dimensions are in millimeters

CROSS-SENSITIVITY TABLE

Gas	Concentration Used (ppm)	Reading (ppm)
Nitrogen Dioxide	10	10
Sulfur Dioxide	20	0.5
Hydrogen	2000	0
Methane	500	0
Ethanol	1000	0
Carbon Dioxide	5000	0

Note: The cross-sensitivity test is performed at 20 C in dry air, and not limited to the above gases. The data in the table above may vary from different batches of sensors and the changes of test environment.

TEMPERATURE AND HUMIDITY DATA



The above plot exhibits responses of N5 sensor at various humidity and temperature conditions for 1 ppm of NO₂ exposure. (Ref: M.A.H. Khan et al. Nanotechnology 2019)

PRECAUTIONS

Because applications of use and device implementation are outside N5's control, customers should test under their own conditions to ensure the sensors are suitable for their requirements. We recommend that all sensors and instruments using these sensors are checked for response to gas before use. Contact N5 customer service to discuss specific concerns that might damage the sensor performance or life.