NovaPID TVOC Sensor

Advanced Photoionization Detector (PID)

for TVOC Detection

Nanova Environmental, Inc.

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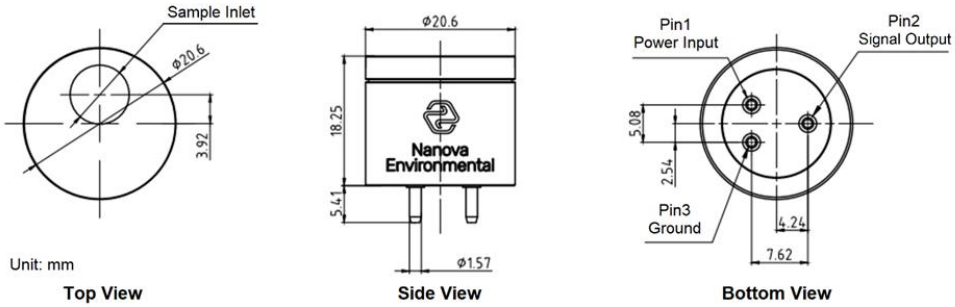
NovaPID – TVOC Sensor

The NovaPID TVOC Sensor is a plug-in photoionization detector, sensitive to volatile organic compound concentrations. It can be easily installed into handheld portable and online VOC monitoring instruments. NovaPID sensors are available in several ranges, and are an excellent choice for Environmental, Health and Safety, Industrial and Residential VOC instrument development or retrofit projects. The intrinsically safe design ensures an easy integration and reduces R&D timelines and costs.

PID's operate by first ionizing gas molecules by UV Photoionization. Any VOC with an ionization potential that is less than the UV photon energy is ionized, and subsequently converted to electrical signals that can be converted to concentration values.

10.6 eV (Isobutylene)	10000 ppm	5000 ppm	2000 ppm	200 ppm	20 ppm
MDQ (Isobutylene)	500 ppb	250 ppb	150 ppb	15 ppb	2 ppb
Linearity (R2)	≥0.99	≥0.99	≥0.995	≥0.995	≥0.995
T90	≤ 3 s	≤ 3 s	≤ 3 s	≤ 5 s	≤ 5 s



The NovaPID is designed according to an industry standard packaging, compatible with most handheld devices and instruments on the market. It consists of a metal housing, removable metal cap and 3 pins at the bottom. The gas molecules diffuse into the detection channel when passing the metal cap and generate electrical signals under the voltage in the sensor.

Pinouts:

- ✓ Pin #1: power supply, 3.2 V - 5.5 VDC
- ✓ Pin #2: signal output
- ✓ Pin #3: ground

Features

- ✓ Metal case protects against EMI
- ✓ Cutting-edge sample channel structure
- ✓ Fast response time
- ✓ Excellent linearity R2≥0.995 (full scale)
- ✓ Simple, low-cost 2-point calibration
- ✓ Options 10000 ppm, 5000 ppm, 2000 ppm, 200 ppm, 20 ppm

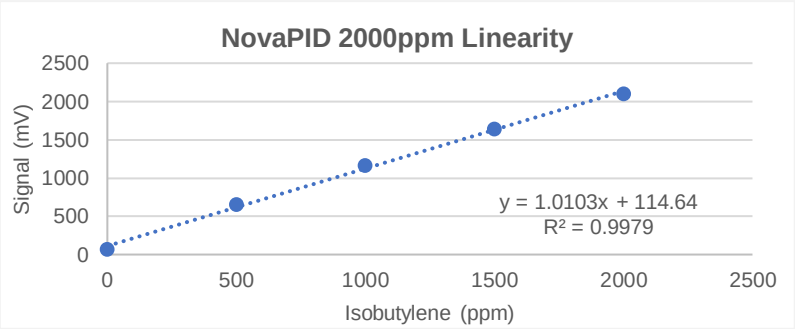
Applications

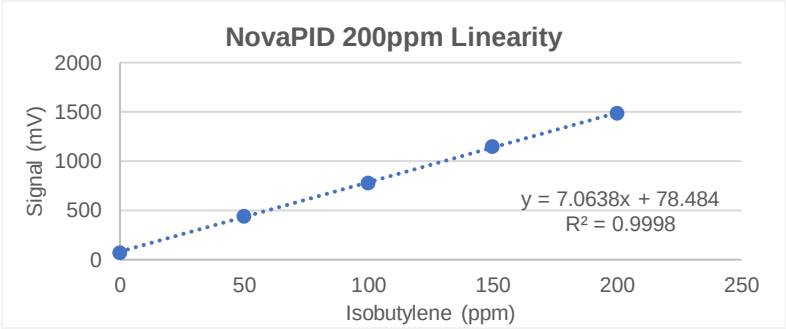
- ✓ Industrial hygiene safety evaluations
- ✓ VOC emissions – fence line monitoring
- ✓ Leak detection
- ✓ Soil remediation
- ✓ Arson investigation

Linearity

Most available PIDs in the market need to be calibrated with at least 5 points, and the linearity range decreases for compounds with higher response. With NEI patented technology, the gas molecules are detected more efficiently, resulting in better sensitivity and accuracy. The R^2 for the whole range is greater than 0.995, which means

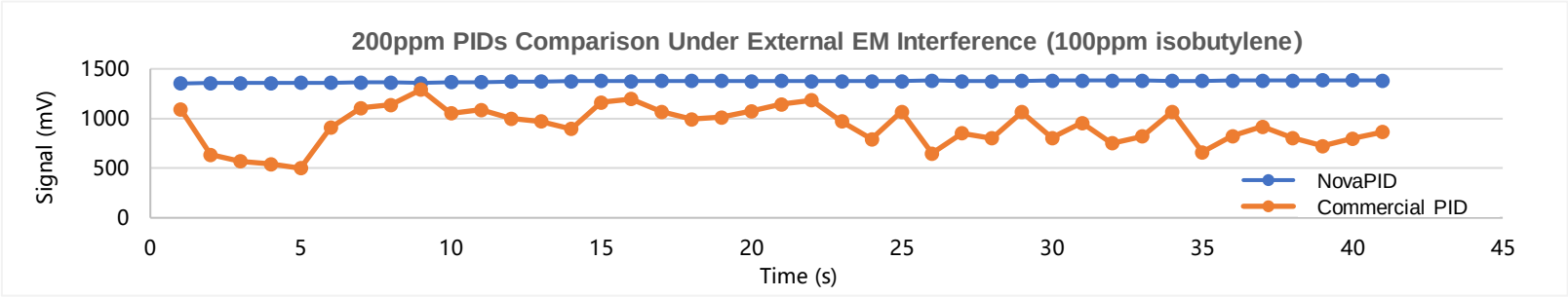
The NovaPID provides great accuracy with 2 calibration points, reducing calibration time 60%.





EMI Protection

The metal enclosure of the NovaPID dramatically improves the signal stability under electromagnetic interference. A comparison between NovaPID and a commercial PID sensor is as below:



Specifications

Electrical Properties

Supply Voltage	3.2 V – 5.5 VDC
Current	30 mA – 45 mA
Power Consumption	90 mA – 250 mW (Depending on supply voltage and temperature)
Signal Output	0.045 V – 2.5 V (Linear, maximum 2.9 V)

Physical Properties

Weight	<22 g
Packaging Type	Industrial standard 3 pins
Housing	Nickel plated brass
Components	Ionization Chamber, filters (2), UV lamp, spacer (2)
Lamp Life	>10000 h
Warranty	18 mo after delivery or 12 mo after installation whichever is earlier
Warm Up Time	1 min

Operational Conditions

Temperature	-40 °C – 55 °C
Relative Humidity	0 – 93% RH (non-condensing)
Temperature Response	± 5%
Humidity Response	< 1% @90% RH
Humidity Quenching Effect	< 15% @90% RH

Performance

Detectable Compound	Volatile organic compounds and inorganics with ionization potential less than 10.6 eV
Lamp Energy	10.6 eV
Range	20 ppm, 200 ppm, 2000 ppm, 5000 ppm, 10000 ppm
Accuracy	3%
EMI Shielding	Yes

Notes

For more information about the device, please visit us at

www.nanovaenv.com

3334 Brown Station Rd, Columbia

MO 65202, United States

www.nanovaenv.com

service@nanovaenv.com

+1 (573)-607-9007

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