

Smart Photoionization Module PIDS3

The PIDS3 – Smart Photoionization Module is an OEM module to detect volatile organic compounds with an ionization potential < 10.6 eV (Standard). The module comes with a built-in linearization and temperature / humidity compensation and a digital-analogue interface. It provides a flexible and easy way to use the module in a measurement system.

Extended measuring range

A new sensor unit allows an extended measuring range of up to 2 000 ppm (isobutene) with high resolution even at low concentrations. (20 ppm and 5000 ppm measurement range also available)

High performance PID lamp

The ionization source is a high stable hollow cathode lamp with an energy of 10.6 eV. With its ceramic discharge channel, the stability is improved and a longer service life of up to 15 000 hours and more will achieve.

Wide power supply range

Since the power supply of the PID lamp is integrated, the unit works with a wide input range power supply.

Temperature / humidity compensation

The integrated humidity / temperature sensor measures in addition to the sensor signal the physical environment data and compensates their influence on the measuring result.

Barometric pressure

One integrated barometric pressure sensor measures continuously at the gas inlet of the measurement chamber.

Gas flow monitoring

The integrated pressure sensors measure continuously the pressure drop over the measurement chamber to ensure proper flow. (a version with integrated pump is available)



Flexible connections

The galvanic isolated RS485 interface supports reading measurement, diagnostic results, remote calibration and configuration. The RS485 interface allows additional flexibility to choose the right interface for industrial and laboratory applications. The optional analog 4 ... 20 mA output represents the linearized and compensated concentration value in different scaling.

Signal processing

A microcontroller handles the measurement and control functions, performs all calculations and provides the result. There is no knowledge of the operation of the PID sensors required.

Technical Data

Detector principle	VUV-Photoionization with 10.6 eV hollow cathode lamp with Ceramic Discharge Channel technology and integrated high voltage supply. (optional 11.8 eV)
Detection ranges	R0 – 0 ... 2 000 ppm Isobutene * (R1 – 0 ... 20 ppm and R2 – 0 ... 5 000 ppm also available)
Lower detection limit	R0 – typisch 0,050 ppm Isobutene * R1 – typisch 0,005 ppm Isobutene * R2 – typisch 0,5 ppm Isobutene *
Signal resolution	Dynamic
Response time	T90 < 10 s *
Signal integrity	Up to 100 ppm typical > 98 % * Up to 2 000 ppm typical > 95 % *
Influence of humidity	Humidity and temperature compensation at 0 ... 50 °C and 0 ... 90 % rH residual effect less than < 10 %
Operating conditions	-20 ... +50 °C and 0 ... 90 % rH, non-condensing (-10 ... +50 °C with integrated pump)
Storage conditions	-20 ... +60 °C and 0 ... 95 % rH, non-condensing
Gas flow	Required 200 ... 300 ml/min, Sample inlet with dust and water protection filter Optional with integrated pump available
Gas connection	Viton tube 1/8" ID (recommended) Dust and water protection filter required
PID lamp lifetime	10,6 eV: Min. 8 000 hours, typical more than 15 000 hours 11.8 eV: 4 months from date of delivery
Handling	Device configuration via RS485 UART
Digital interface	RS485 (UART or MODBUS) galvanic isolated
Analog interface	Current loop, 4 ... 20 mA (optional) optional 3 SPDT 30 V / 2 A Relays (surge current)
Power supply	10 ... 28 V DC, approx. 1.5 W at recommended 24 V DC
Cable gland	Cable gland for cable diameter 5 mm ... 9 mm Screw connection inside Conductor cross section solid max. 1.5 mm ² Conductor cross section stranded max. 1.5 mm ²
Calibration	Two-point calibration
Ingress Protection	IP65 enclosure only, IP53 in operation due to gas inlet requirement
Dimension, weight	191 mm x 133 mm x 60 mm (L x W x H), about 1000 g
Warranty	2 years, except for components in gas path and wearing parts

* The indicated values were obtained under standardized conditions.
Test gas was isobutene in synthetic air.

Contact

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