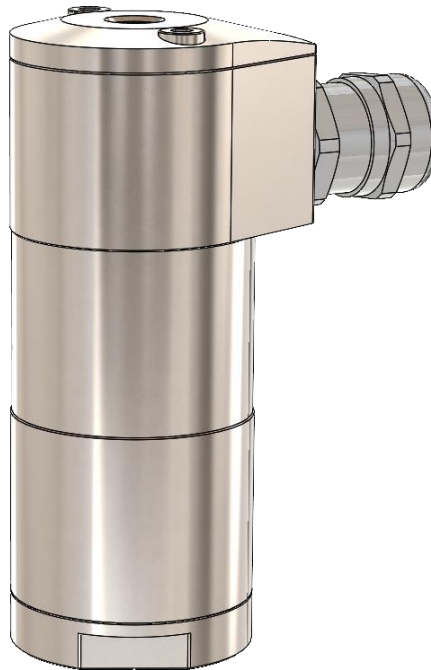


Technical Data Sheet

Insplorion NPS-P2

Document vP2.01



The intended use of the NPS-P2 detector (prelaunch version) is for validation of the NPS sensor technology and H₂ sensor applications. The NPS-P2 detector prelaunch version shall not be used to provide a safety function. The NPS-P2 detector prelaunch version is *not approved* for use in potentially explosive environments.

Nominal performance

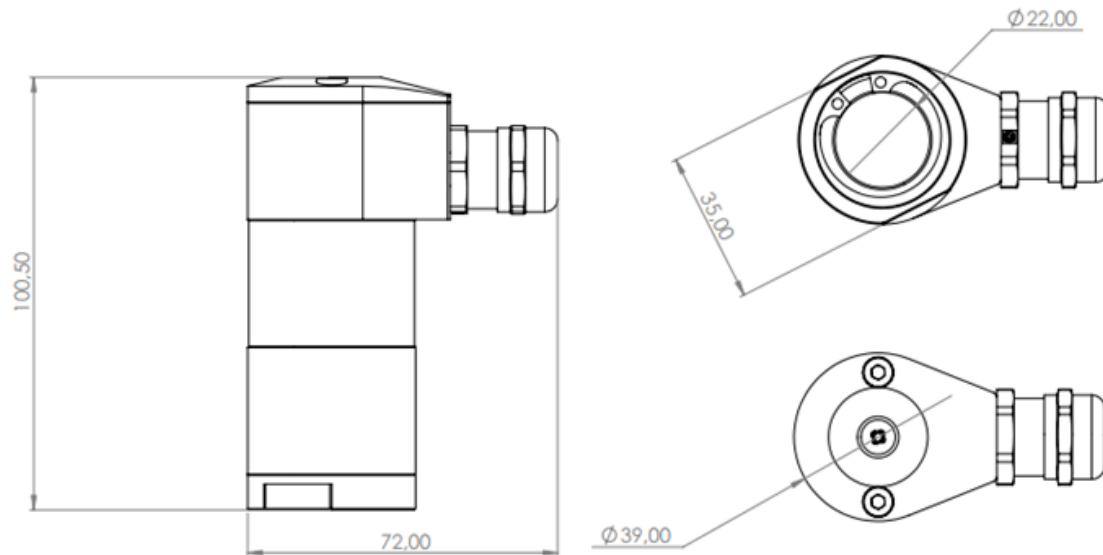
Performance	Sensing resolution	< 0.05 vol%
	Accuracy	< 0.2 vol% or $\pm 25\%$ of reading
	Response time @ 2 vol% H ₂ {t ₉₀ }	< 5 s
	Recovery time @ 2 vol% H ₂ {t ₁₀ }	< 30 s

Performance evaluated at 1 bar(a), 0% RH, room temperature, in 3 vol% O₂ in N₂. Flow rate 1l/min.

Summary- General specifications

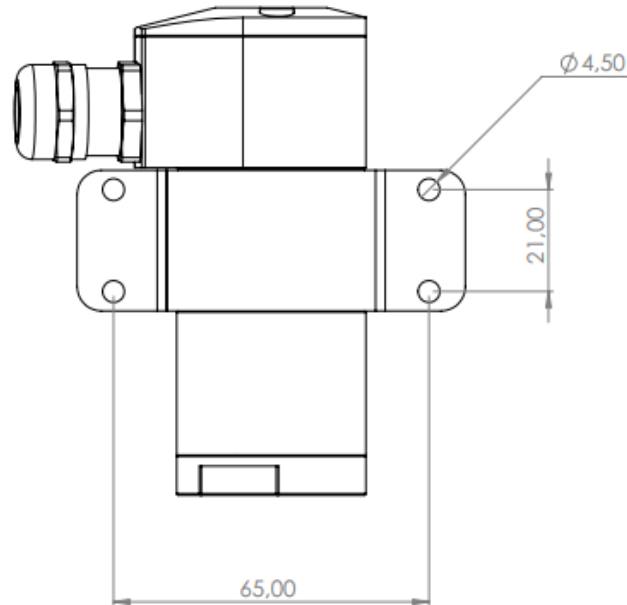
General properties	Weight	500 g
	Size	105 x 50 x 40 mm
	Power requirement	< 5 W
	Power input	+24 V DC
	Cable gland	5-10 mm Ø
	Communication	Serial Analog 0-20 mA
	Connection terminal	5 positions; 0.2-1.5 mm ²
	Ingress protection level	IP 64
	Self-diagnostic	Yes
	Anticipated minimum lifetime	5 years
	ATEX information (Not certified, designed to meet specification)	Flame proof enclosure Equipment protection level B Equipment category II Class 2C
Operation	Range	0 – 4 vol% H ₂
	Lower setpoint	0.4 vol%
	Default span point (configurable)	1 vol%
	Carrier gas	1 - 5 vol% O ₂ in N ₂
	Humidity @ 25°C	Less than 11 g / m ³ or 50% RH
	Temperature	+5 °C – +40 °C
	Ambient pressure (constant)	0.8 to 1.2 bar(a)
	Startup time	10 s
	Stabilization time	Recommended 24 h in background gas

Mechanical specifications



Mechanical	Size (without cable gland)	105 x 50 x 40 mm
	Size (with cable gland)	105 x 75 x 40 mm
	Weight	500 g
	Enclosure material	SS 2348/1.4401 Quartz glass window
	Seals	Viton + NBR
	Flame arrestor	Sintered stainless steel 60 µm
	IP code	64

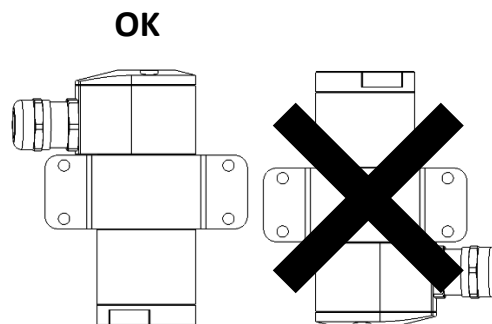
Mounting bracket



The NPS-P2 can be fixated using the included mounting bracket.

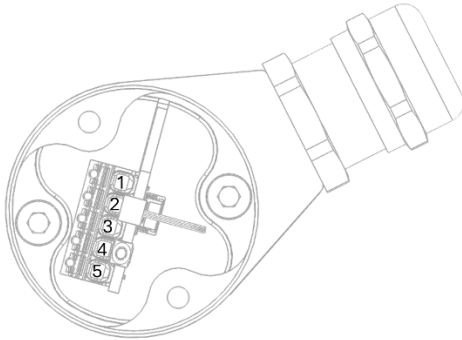
When equipped with the diffusion sampling opening, the NPS-P2 must be installed with the opening facing downwards to maintain ingress protection.

The NPS-P2 will function equally well in a different orientation but the ingress protection code will be invalidated.



Electrical specifications

Electrical connection to the NPS-P2 is established through the 5-pin terminal connector on the main PCB.

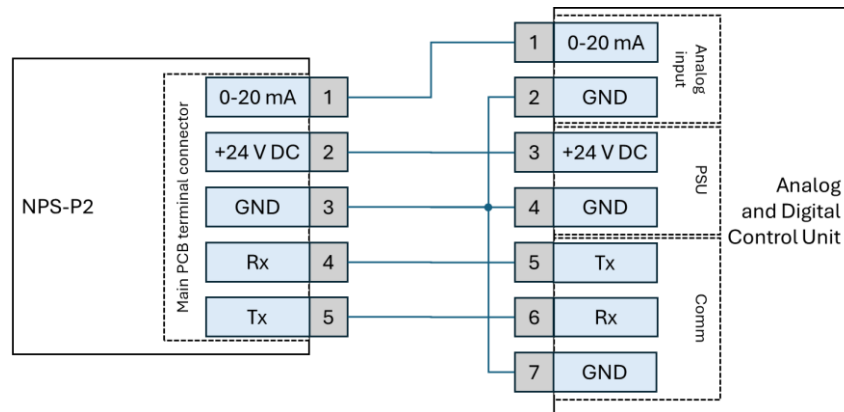


Terminal	Name	Type
1	Analog out	0-20 mA
2	VDD	+24 V DC
3	GND	Ground
4	Rx	Comm
5	Tx	Comm

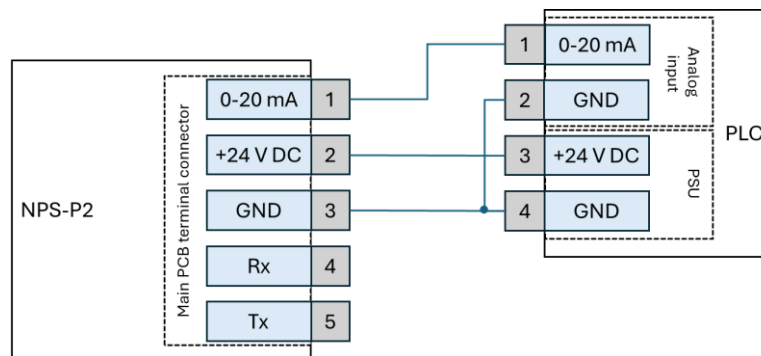
Electrical	Cable gland thread	M16x1.5
	Thread length	12 mm
	Supplied cable gland	AGRO EX1126.17.100 Nickel-plated brass clamping range Ø5-10 mm wrench size 24 mm
	PCB terminal	5 positions wire cross section: 1.5 mm ² AWG: 24 ... 16 conductor cross section: 0.2 mm ² ... 1.5 mm ² (ferrule with plastic sleeve): 0.2 mm ² ... 0.75 mm ² wire stripping length: 8 mm
	Suggested cable	Lapp Ölflex EB CY Control Cable 5 cores, 0.75 mm ² , YY, Screened, 18 AWG
	Supply power	+24 V DC Typically less than 80 mA Reverse polarity protected
Communication	Serial communication	UART TTL at 0 – 3.3 or 5 V Rx and Tx via terminal connector Baud rate: 115 200 Data bits: 8 Stop bits: 1 No parity, No flow control
	Analog communication	Range: 0-20 mA Current sourced by the sensor and returned in GND. Maximum load resistance to ground: 250 Ω

Wiring diagrams

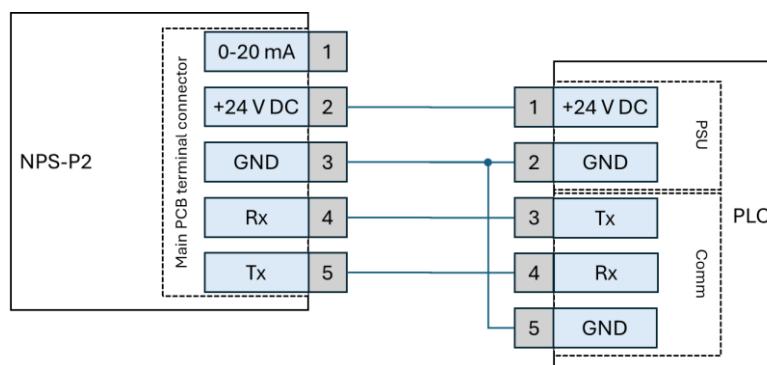
The NPS-P2 supports an analog and digital interface simultaneously and may be connected in either of three ways.



Wiring option a) Analog acquisition and digital communication simultaneously.



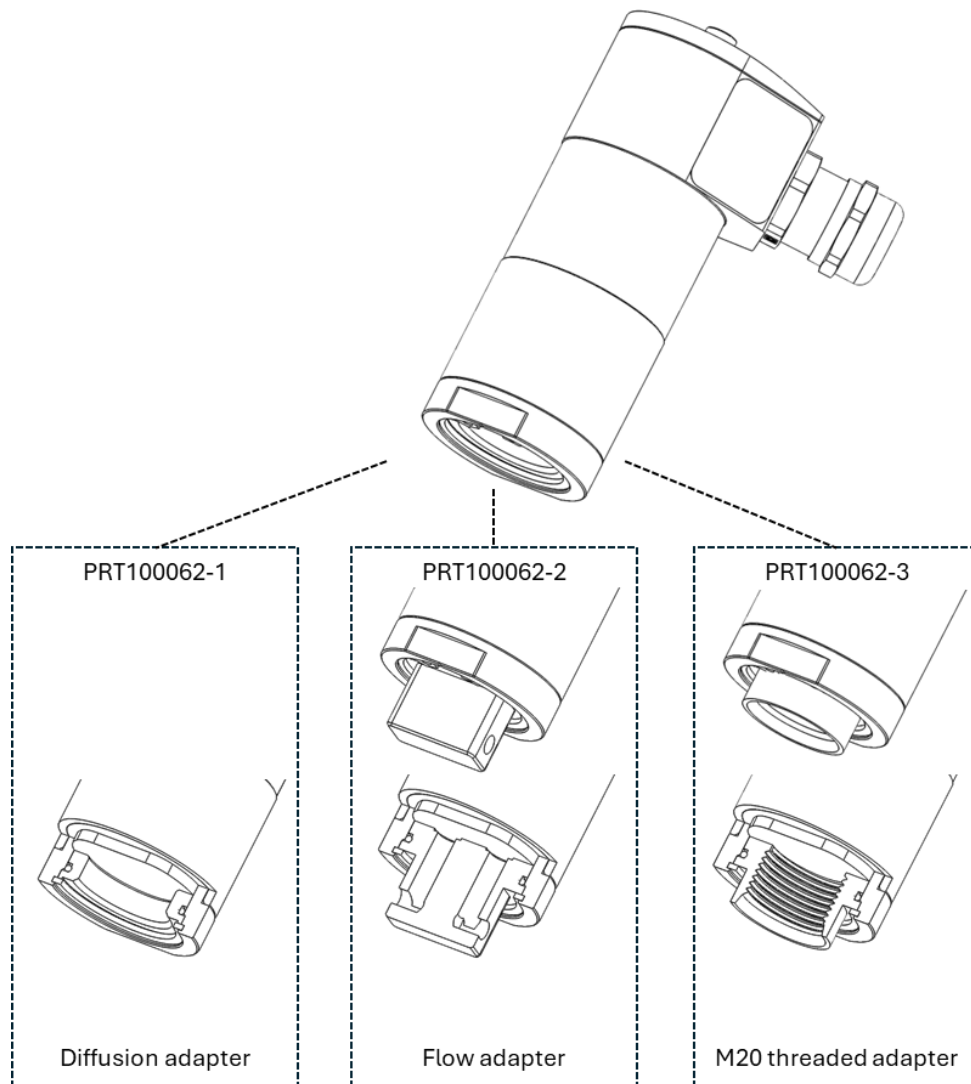
Wiring option b) Analog signal acquisition. Power GND and analog GND shall be connected.



Wiring option c) Digital communication.

Gas connection variants

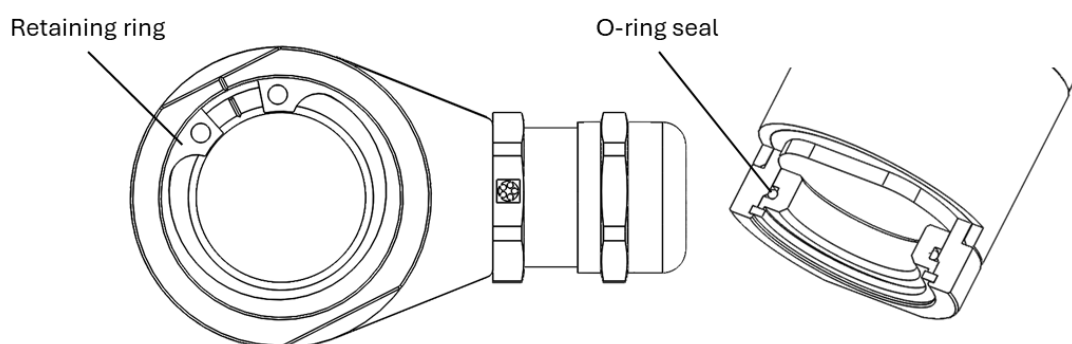
The NPS-P2 detector can be configured for measurements in gas in the ambient through diffusion (PRT100062-1), or via forced flow through the detector (PRT-100062-2). A third variant features an internal M20 thread for attachment to an adapter (SAE J2244, ISO 6149).



The gas connection variants are interchangeable and locked in place through a retaining ring.
An O-ring seal provides ingress protection.

Note:

The detector has not been verified for operation outside the specified operation range, 0.8 – 1.2 bar(a). The detector is not guaranteed gas tight.



Gas connection	PRT100062-1 Diffusion adapter	Ø 22 mm
	PRT100062-2 Flow adapter	M5 threaded holes Suggested fitting (1): Festo QSM-M5-6 Suggested fitting (2): Swagelok SS-6MO-1-0046 Seal kit for fitting (2): Festo OL-M5 P.No. 34634
	PRT100062-3 M20 threaded adapter	Designed according to SAE J2244 (ISO 6149) M20x1.5 Depth: >14.5 mm O-ring seal: 17.3x2.2
	O-ring seal	FPM 27x1.5
	Retaining ring	DIN 472-31x1.2

Order information

Product	Included parts	Variants	Product code
NPS-P2	<ul style="list-style-type: none">• NPS-P2 detector• Mounting clamp	NPS-P2 with diffusion adapter	NPS-P2 1
		NPS-P2 with flow adapter	NPS-P2 2
		NPS-P2 with M20 threaded diffusion adapter	NPS-P2 3
NPS-P2 Detector Evaluation Kit	<ul style="list-style-type: none">• NPS-P2 detector• Mounting clamp• Cable connection kit• GPBUtility Software• ASM100208 Flow adapter with support		NPS-P2 DEK
Custom	Custom configurations and variants are possible		

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