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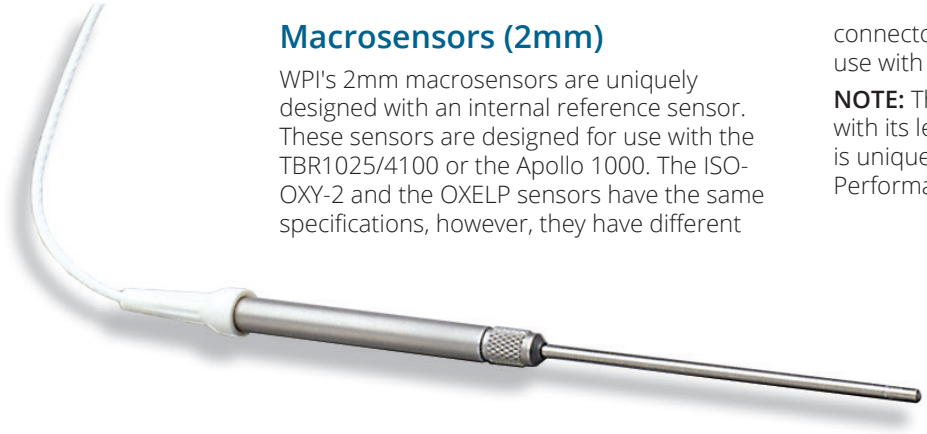
Instrumenting scientific ideas

Biosensors

WPI offers a range of biosensors for monitoring nitric oxide, hydrogen peroxide, oxygen and hydrogen sulfide.

- Macrosensors are 2mm "wet" sensors. These sensors are installed in a metal "sleeve" that looks like a tiny soda straw. The sleeve has a gas permeable membrane at the tip, and it is filled with an electrolyte. When it is immersed in a solution, the gas in solution (for example, nitric oxide) diffuses through the membrane, and the sensor measures it.
- The microsensors are "dry" sensors. Most microsensors monitor nitric oxide, and there is also a hydrogen peroxide microsensor available.



Macrosensors (2mm)

WPI's 2mm macrosensors are uniquely designed with an internal reference sensor. These sensors are designed for use with the TBR1025/4100 or the Apollo 1000. The ISO-OXY-2 and the OXELP sensors have the same specifications, however, they have different connectors, because the OXELP is designed for use with the ISO2 dissolve oxygen meter.

NOTE: The sensitivity of WPI sensors varies with its length and diameter. Each sensor is unique and will come with it own Sensor Performance Evaluation sheet.

MACRO SENSORS

SPECIES	Carbon Monoxide	Nitric Oxide	Hydrogen Peroxide	Oxygen	Hydrogen Sulfide
Order Number	**ISO-COP-2**	**ISO-NOP**	**ISO-HPO-2**	**ISO-OXY-2 OXELP**	**ISO-H2S-2**
Available Diameters	2 mm	2 mm	2 mm	2 mm	2 mm
Response Time	< 10 sec	< 5 sec	< 5 sec	< 10 sec	< 5 sec
Detection Limit/Range	10nM to 10µM	1 NM to 40µM*	< 100nM to 100µM	0.1%-100%	< 5nM-100µM
Sensitivity	~0.5 pA/nM	≤ 2 pA/nM	8 pA/µM	0.3-0.6nA/%	2 pA/nM
Drift	<1pA/min	<1pA/min	0.1pA/min	< 1%/min	
Temperature Dependent	Yes	Yes	Yes	Yes	Yes
Physiological Interference	nitric oxide	$NaNO_2$ (10^{-6} or better)	None	None	None
Replacement Sleeves (pkg of 4)	**#95620**	**#5436**	**#600012**	**#5378**	**#600016**
Filling Solution	**#95611**	**#7325**	**#100042**	**#7326**	**#100084**
Start-up Kit	**#95699**	**#5435**	**#600011**	**#5377**	**#600015**

**Higher detection limit available on request — call for custom pricing.*

Biosensors

MICRO SENSORS

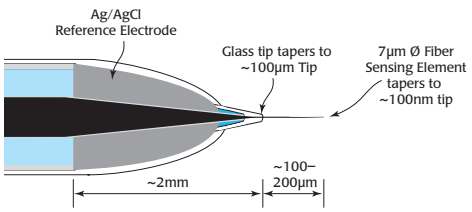
	ISO-NOPF200	ISO-NOPF200-Lxx[3]	ISO-NOPF100 ISO-NOPF100-Lxx[3]	ISO-NOP70L[3]	ISO-NOPF500-Cxx	ISO-NOP3005	ISO-NOP3020	ISO-NOP30L[3]	ISO-NOP007	ISO-NOPNM	ISO-HPO-100 ISO-HPO-100-L	ISO-H2S-100-Cxx
Species	Nitric Oxide										H_2O_2	H_2S
Fiber Diameter (µm)	200	200	100	70	500	30	30	30	7	7 Conical tip: 100nm	100	100
Tip Length[2] (mm)	1-5[1]	1-10[1]	1-5[1]	3	5–10	0.5	2	3	2	2	1–4[1]	2-5[1]
Response Time (sec.)	< 5	< 5	< 5	< 3	< 10	< 3	< 3	< 3	< 3	< 3	< 5	~5
Lowest Detection Limit/Range (nM)	0.2	0.2	0.2	1	0.2	1	1	1	0.5	0.5	1	<5
Nominal Sensitivity-New Sensor[2] (pA/nM)	≥20	≥50	≥10	≥10	≥ 20	≥1	≥1.5	≥1	≥1	≥0.5	≥1	1-4
Baseline Drift (pA/min)	none	none	none	none	none	none	none	none	none	none	<2.0	<2

[1]Sensor available in 1mm length increments (for example, 1mm, 2mm, 3mm...).

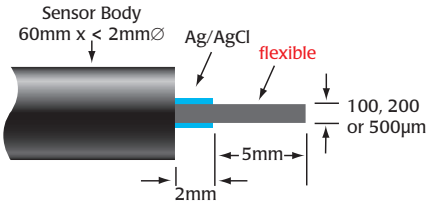
[2]Sensor sensitivity varies with length and diameter.
Any 100µm sensor can be purchased with a hypodermic sheath. Add a -H to the end of the part number (for example, ISO-HPO-100-H).

[3]L-shaped sensor for use with a tissue bath.

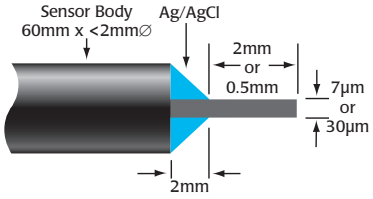
Some nitric oxide sensors are available in custom lengths. When ordering custom lengths, use the part numbers **ISO-NOPF100-C*xx*** or **ISO-NOPF200-C*xx*** and replace the ***xx*** with the desired length. For example, for a 1mm flexible sensor tip, the part number should be **ISO-NOPF200-C01**. Sensors can be ordered in the following custom lengths: 1mm, 2mm, 3mm, 4mm or 5mm.



NOPNM



ISO-NOPF



ISO-NOP007, ISO-NOP30

ISO-HPO-100

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