SELL SHEET

Biosensors

HIGHLY SELECTIVE, LOW DETECTION LIMIT

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.

	NOP	HPO-2	OXY-2/OXELP	H2S-2
Species	Nitric Oxide	Hydrogen peroxide	Oxygen	Hydrogen Sulfide
Outside Diameter	2mm	2mm	2mm	2mm
Response Time	< 5 sec.	<5 sec.	<10 sec.	<5 sec.
Lowest Detection Limit/Range	1nM	<100nM	0.1%	<5nM
Upper Detection LImit/Range	80µM (beyond 80µM, sensor accuracy is not guaranteed)	100mM	100%	100µM
Nominal Sensitivity-New Sensor	≤2pA/nM	8pA/µM	0.3-0.6nA/%	2pA/nM
Interferent (Selectivity Coefficient)	$NaNO_2$ (10^{-6} or better)			
Baseline Drift	<1pA/min	0.1pA/min.	<1%/min.	0.1pA/min.
Poise Voltage	865mV	400mV	-700mV	150mV
Typical Quiescent Baseline Current, 25ºC	3,000pA	850pA	15-40nA	15nA
Acceptable Baseline Range	1,000-8,000 pA	20-4,000pA	15-80nA	2.5-75nA
Typical Polarization Time	12+ hrs	2+ hours	1+ hours, 95%	12+ hours
Recommended Polarization Solution	0.1M KI/H_2SO_4	0.1M PBS	0.1M PBS	0.1M PBS
Temperature Dependent	Yes	Yes	Yes	Yes
Physiological Interference	None	None	None	None

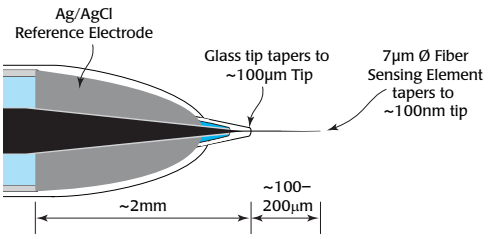
MICROSENSORS

	NOPF200	NOPF200-Lxx	NOPF100	NOPF100-L	NOP70-Lxx	NOPF500-Cxx	NOP3005	NOP3020	NOP30-L	NOP007	NOPNM	HPO-100	H2S-100
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	
Poise Voltage (mV)	865	865	865	865	865	865	865	865	865	865	400	150	
Typical Quiescent Base-line Current, 25ºC (pA)	2500	3500	2000	3500	5000	1000	500	500	300	300	<1000	1000	
Acceptable Baseline Range (pA)	500-8000	500-8000	500-8000	2000-6000	3000-25000	150-3500	500-5000	20-6500	200-1500	50-100	150-1200	100-2000	
Typical Polarization Time (hrs)	2+	8+	2+	2+	8+	1+	1+	1+	1+	1+	1+	4+	

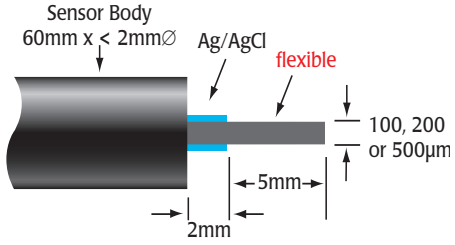
[1]Sensor available in 1mm length increments (for example, 1mm, 2mm, 3mm...).

[2]Sensor sensitivity varies with length and diameter.

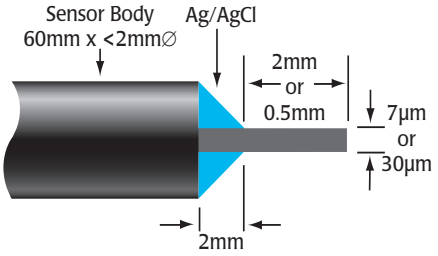
Any 10µm sensor can be purchased with a hypodermic sheath. Add a -H to the end of the part number (for example, ISO-HPO-100-H).



NOPNM



ISO-NOPF



ISO-NOP007, ISO-NOP30

ISO-HPO-100

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