

# 720II SENSOR SELECTION GUIDE

## pH and ORP Monitor/controllers



### GENERAL DESCRIPTION

All Myron L Company pH and Oxidation Reduction Potential or ORP (REDOX) sensors are combination pH/reference, or ORP/reference. These sensors are designed to operate exclusively with the Myron L Company 720 Series II pH and ORP Monitor/controllers. Each sensor has a uniquely designed, built-in isolated preamplifier that guarantees accurate and reliable measurements — completely eliminating ground-loops and noise issues. The preamp allows for longer distances between the sensor and our Monitor/controller without the loss of accuracy or reliability due to cable capacitance, resistance, or noise.

Our preamp is so simple and low cost that we build it right into the sensor, thus allowing for a truly sealed sensor system — no O-rings to become damaged and leak, no BNC connectors to corrode and cause unreliable readings. It is actually no more expensive than the BNC connectors and coax cable it replaces.

All pH sensors include a built-in Temperature Sensor for automatic Temperature Compensation (TC). The TC may be disabled, requirements per USP, or if a separate temperature device is required for your SCADA system.

All bodies are made of Schedule 80 Chlorinated Polyvinyl Chloride (CPVC) or Ryton® Polyphenylene Sulfide (PPS) to withstand the demanding requirements of most applications. Choice of double ended 1/2" or 3/4" MNPT body allows for ease of installation in either in-line or submersion applications. All Myron L sensors are completely encapsulated and sealed to keep out moisture and to assure long life under demanding conditions. Just install and use. Overall length is ~165 mm/6.5 in. Standard cable length is 3 meters/ 10 ft. Sensors may be ordered with 8 meter/25 ft. or 30 meter/100 ft. lengths. Cable may be extended simply and without problems. We recommend a junction box to protect the splice.

For in-line use, simply install sensor into female threaded fitting or tee. For submersion use, simply install into user supplied pipe coupling and extension pipe.

- Built-in isolated preamp guarantees accurate, trouble free operation.
- Temperature Sensor built-in for automatic Temperature Compensation (may be disabled as required).
- All sensors are double ended MNPT for simple in-line or submersion applications.
- All sensors are pH/reference, or ORP/ reference, or a combination of the two.
- CPVC/Ryton® bodies assure compatibility in most applications.
- All sensors are completely encapsulated and sealed.
- Sensor cable may be extended simply, without problems.
- All ORP sensors have an extended tip Platinum electrode except "F" models.
- Heavy Duty "F" models may be installed in **ANY** direction, including inverted.

### SPECIFICATIONS

<b>pH</b>	0-14 pH Offset (ZERO): 7.00 ±0.2 pH (±12 mV) Span: Better than 95% of theory; i.e. 56.2 and 59.2 mV.
<b>ORP:</b>	±2000 mV
(REDOX)	Offset (ZERO) — ±12 mV

In the specific descriptions below, substitute ORP for pH where applicable.

#### **General Purpose Single Junction**

*Low Cost In-line/Submersion pH and ORP Sensors.*

The **Single Junction "S"** reference sensor is used for simple, non-demanding applications. It uses Potassium Chloride (KCl) reference gel. Response time, generally 95% in one second. For intermittent use up to 100°C/212°F @ 3,45 bar/50 psi. Twelve (12) month shelf life. This is our most economical sensor.

#### **Special Purpose Double Junction**

*Low Cost In-line/Submersion pH and ORP Sensors.*

The **Double Junction "D"** reference sensor is used in more demanding applications where "poisoning" of the reference is a possibility or a concern. It uses Potassium Nitrate (KNO<sub>3</sub>) gel where the reference meets the solution. This sensor is an ideal, cost effective alternative for demanding environmental applications not requiring the added advantages of the Heavy Duty Flat Tip sensor listed below. Response time, generally 95% in one second. When in doubt it is best to select a Double Junction sensor. Twelve (12) month shelf life. This sensor is the ideal, most cost effective Double Junction sensor on the market.

#### **Low Conductivity**

*Low Cost In-line/Submersion pH and ORP Sensors.*

The **Low Conductivity "LC"** sensor is recommended when the pH or ORP of low conductivity (low ionic strength) solutions must be measured. This sensor utilizes a porous polyethylene **Double Junction** with a low molar (0.1) KCl gel in the reference meeting the solution. This low molar reference more closely matches the low ionic strength of the solution, which allows more stable readings and cuts down in the contamination of the solution being measured. The LC sensor is recommended for use in RO/DI applications with solutions less than 100 µM/ µS/ppm. Twelve (12) month shelf life. This sensor is made for special, low conductivity applications.

*Continued*

**MYRON L  
COMPANY**  
Water Quality Instrumentation  
Accuracy • Reliability • Simplicity

### Heavy Duty

Low Cost In-line/Submersion pH and ORP Sensors.

The **Heavy Duty "F"** utilizes a **FLAT-TIP** self cleaning sensor (flat glass in place of a round bulb) for use where the most demanding applications are found, such as wastewater. The flat tip will last longer in most abrasive and/or oily solution environments. These sensors utilize a HDPE (High Density Polyethylene) Double Junction reference with a high temperature — chemical resistant acrylamide gel. Response time, generally 95% in five seconds. For continuous use 100°C/212°F @ 3,45 bar/50 psi, 81°C/178°F @ 5,86 bar/85 psi, and 76°C/169°F @ 6,9 bar/100 psi. Six (6) month shelf life. This sensor may be installed in **ANY** direction including **INVERTED**, and is simply the **BEST** sensor for tough applications.

**Note:** High flow reference junctions (HDPE, Kynar and Teflon) are available on above models upon special order. These special junctions will help keep the reference from clogging as easily — in some applications, however, they will deplete the reference gel more quickly, and thus have a shorter shelf/use life.

### STORAGE/SHELF LIFE

ALL pH and ORP sensors are life limited. For this reason, it is recommended that extra sensors be kept on hand for all process applications. To obtain the maximum life, **ALWAYS** store sensor in pH/ORP Sensor Storage Solution when not in use. **DO NOT** allow sensor to dry out.

## pH/ORP SENSOR PART NUMBERS

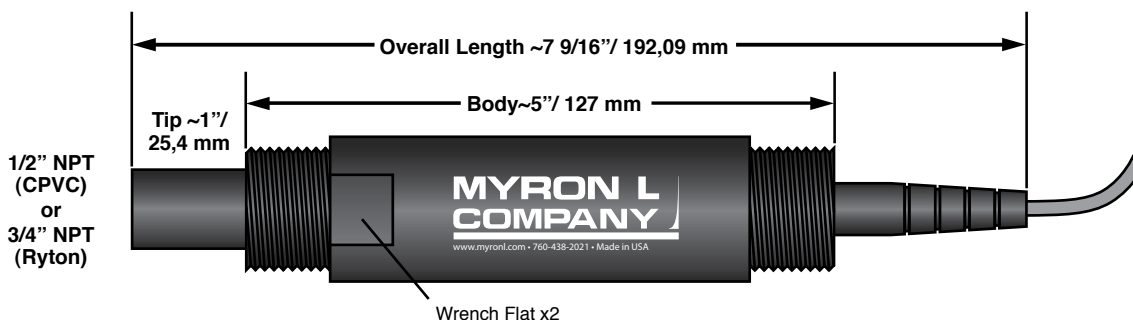
### Part Number Description:

- First location = Sensor type, i.e. P = pH, or O = ORP
- Second location = Monitor/controller model, i.e. 7 = 720II
- Third location = Sensor size, i.e. 2 = 1/2" MNPT
- Fourth location = Sensor option, i.e. S = Single Junction, D = Double Junction, LC = Low Conductivity, or F = Flat.

SIZE	SINGLE JUNCTION	DOUBLE JUNCTION	LOW CONDUCTIVITY	HEAVY DUTY FLAT TIP
<b>pH Sensors</b>				
1/2" NPT	P72S	P72D	P72LC	P72F
3/4" NPT	P74SR	P74DR	P74LCR	P74FR
<b>ORP Sensors</b>				
1/2" NPT	072S	072D	072LC	072F
3/4" NPT	074SR	074DR	074LCR	074FR

## pH/ORP SENSOR DIAGRAM

Heavy Duty "P74F" Model Sensor Shown



**Note:** 1/2" NP Diameter = .840" or 21,3 mm  
 3/4" NP Diameter = 1.050" or 25,5 mm

\*Ryton® is a registered trademark of Chevron Phillips Chemical Company.

2450 Impala Drive  
 Carlsbad, CA 92010-7226 USA  
 Tel: +1-760-438-2021  
 Fax: +1-800-869-7668 / +1-760-931-9189  
 www.myronl.com

**Built On Trust.** Founded in 1957, the Myron L Company is one of the world's leading manufacturers of water quality instruments. Because of our commitment to product improvement, changes in design and specifications are possible. You have our assurance any changes will be guided by our product philosophy: accuracy, reliability, and simplicity.

