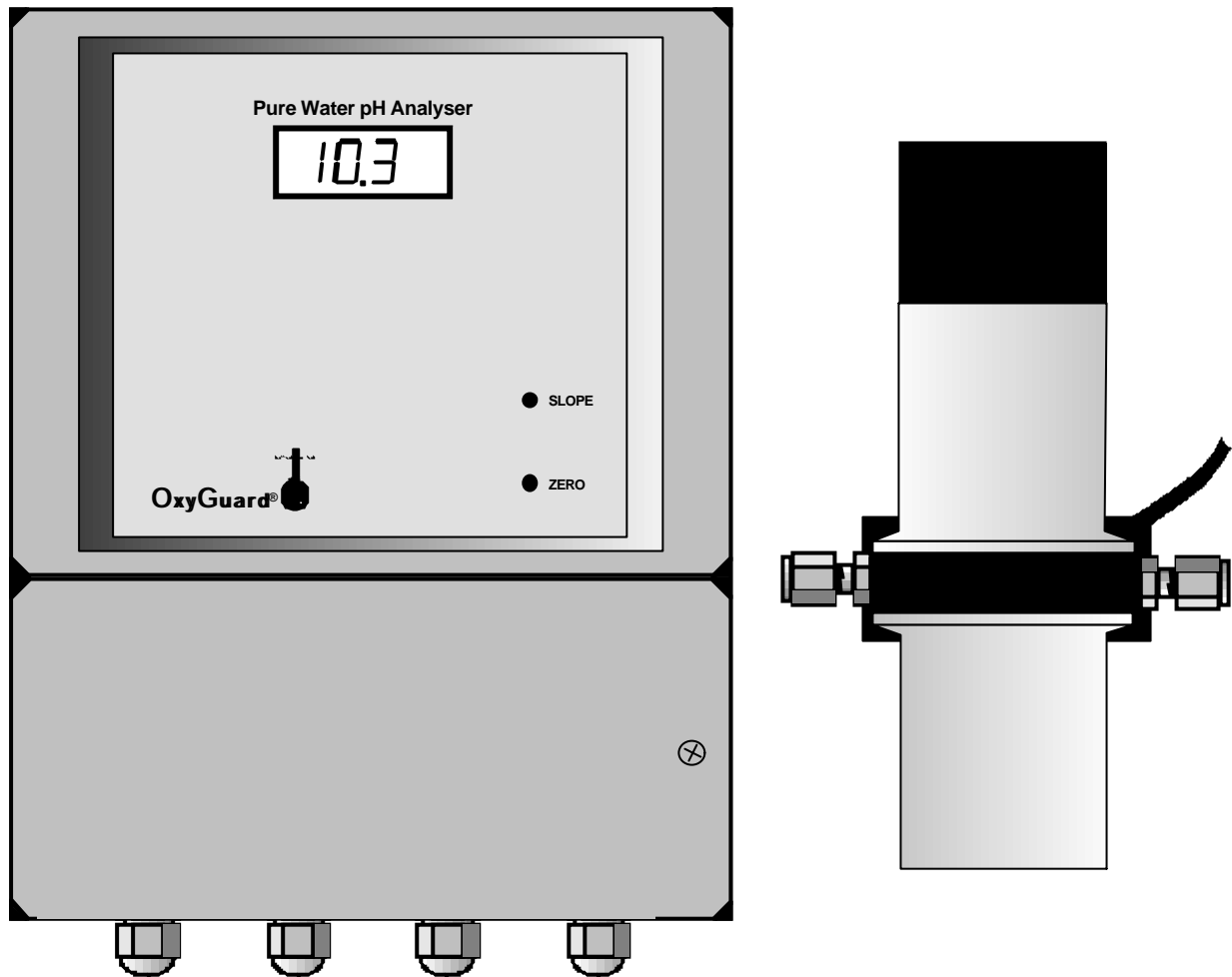


OxyGuard Pure Water pH System

for the measurement of pH in pure water - 1 μ S/cm



The OxyGuard Pure Water pH analyzer is designed to give highly accurate and very stable measurement of the pH in low conductivity water such as boiler feed water, condensate, district heating water and similar. It is available both in stationary and portable versions.

This analyzer utilizes a unique measurement principle, developed by OxyGuard, that solves all existing problems connected with the measurement of pH in very low conductivity water. This principle is based on a full and in-depth understanding of the chemistry, signal processing and mechanical considerations affecting such a measurement.

The temperature compensation is unique in that all measurements are referred to the calibration temperature, regardless of the actual measurement temperature. The resulting measurement therefore represents a true concentration value. The construction of the measurement chamber, together with the unique measurement principle, eliminates any sensitivity to changes in sample flow over a very wide range of flow. Similar considerations apply to the signal processing – the OxyGuard Pure Water pH System measures reliably and steadily in industrial environments where electrical signal disturbance is otherwise often met.

The unit has a 3½ digit display and galvanically isolated analogue output.

Technical Advantages

Application considerations

Most attempts of measuring pH online in high purity water fail when using classic pH instrumentation. The common problems are large drift, unacceptable flow sensitivity and poor temperature compensation. Electrical noise and interference complicate matters further.

The Armature and Electrodes

The armature is a flow-through construction of stainless steel for wall mounting. The symmetrical design ensures that the inlet and outlet can be changed allowing easy adaptation to the actual sample installation. The armature contains two identical glass electrodes with high impedance converters plugged directly in. The buffer for the reference system is fed into the reference system through a fitting in the armature body.

Reference System

The reference system is the heart of this system design. The classic reference electrode is replaced with a glass electrode integrated in a reference system. The reference electrolyte has been exchanged with a reference buffer with the same thermal pH behaviour as the pure water. In this way a stable reference potential is generated with a good electrical connection to the medium.

Transmitter

The transmitter is built into an 1P65 cabinet and designed for industrial use with an LCD display in the front. The analogue output is a 420 mA signal, galvanically isolated from the input. Because of the preamplifiers plugged directly to the electrodes and the special construction of the system, this pH transmitter is much more stable than conventional pH transmitters. "Zero" and "Slope" adjustments are available from the front. The transmitter is highly immune to the electromagnetic industrial environment.

Calibration and Use

The isothermal intersection point can be chosen as desired e.g. pH 9.4 which is practical with boiler feed water. Two buffer solutions are used for calibration. One close to pH 9.4 (zero) and the other close to pH 7 (slope). The removable sample cup is filled with buffer when calibrating. Because of the relatively small volume of the sample cup the consumption of expensive test buffers is limited.

Service and Maintenance

Electrodes for this application can typically be in operation for five years. The electrodes are paired and must therefore be replaced together. The reference buffer electrolyte consumption is about 2 ml/ day. Topping up the buffer container and calibration of the system once per month is recommended.

Portable Version

This is essentially the same as the fixed-mount version, but has the transmitter and measurement chamber mounted on each side of a console containing sealed rechargeable lead-acid batteries. A mains charger is supplied with the unit. The batteries will, if fully charged, power the unit for four days, and for measurements of longer duration the charger can be continuously connected.

Technical Data

Armature

Materials of construction:	Stainless steel and POM
Dimensions:	See drawing overleaf
Process connection:	Compression fittings for 6 mm pipe
Cable length:	3 meter shielded cable or on request (5 wires)
Sample temperature:	+5°C to 50°C recommended, 0 to 80°C acceptable
Sample flow rate:	Approx. 100 ml/minute.
Sample pressure:	The measurement should ideally be kept pressureless
Volume of sample cup:	200 ccm
Electrolyte reservoir:	Included, contains 135 ml

Electrodes Two paired glass electrodes

Transmitter

Construction:	Cast metal enclosure with front plate with display, and calibration adjustments.
Dimensions & Weight:	W x H x D: 190 x 240 x 100 mm. Weight approx. 3 kg
Enclosure:	IP65.
Supply:	230, 110 or 24 VAC, specify on order.
Consumption:	10 VA
Operating Conditions:	10°C to +60°C.
Input:	+/- mV signal from electrode pH preamplifiers
pH preamplifier supply:	+/- 5 VDC
Isolation:	Input, output, and supply are all galvanically separated
Range:	pH 4.00 to 14.00
Analogue Output:	4-20 mA / max. 700 ohm. (0-20 mA on request)
Accuracy:	0.5% or 0.05 pH
Repeatability:	0.25%
Transmitter non-linearity:	Less than 0, 1%
Zero point:	pH 9.4 to match isothermal intersection of electrodes

Standard Accessories

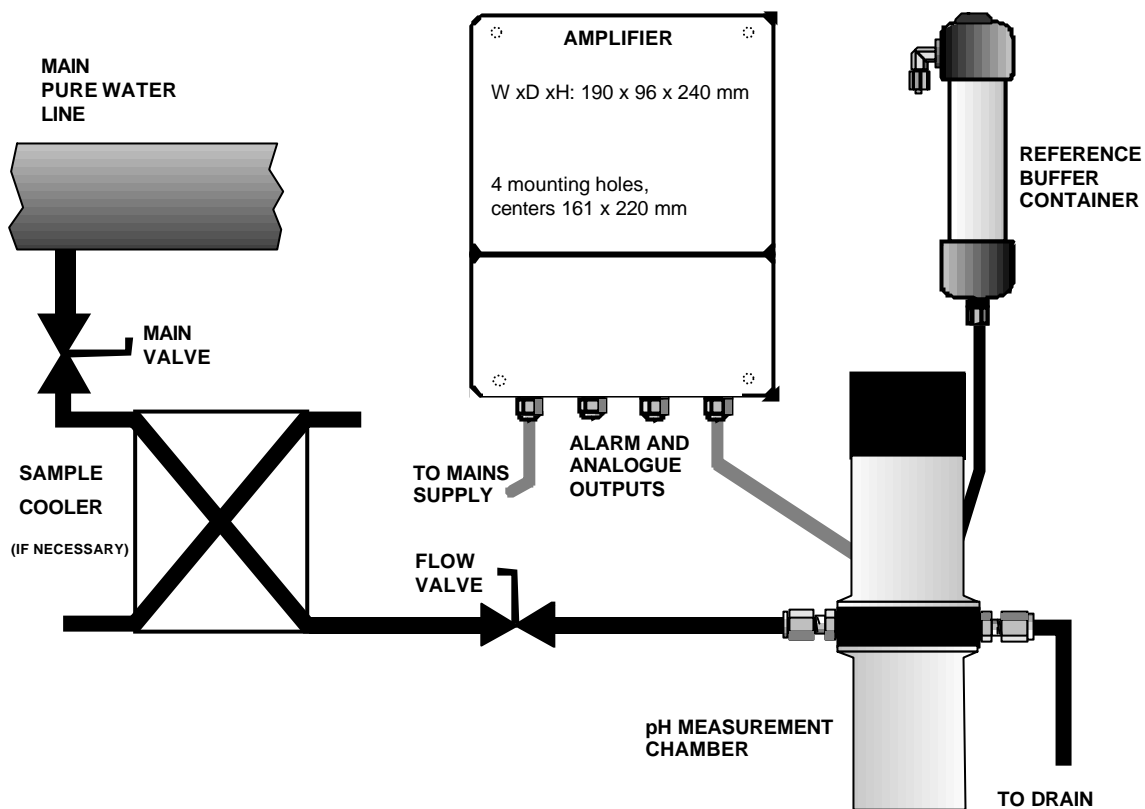
- 1 m flexible tubing for reference buffer connection.
- One reference buffer container
- Reference buffer
- Calibration buffer solution
- User manual

Ordering Information

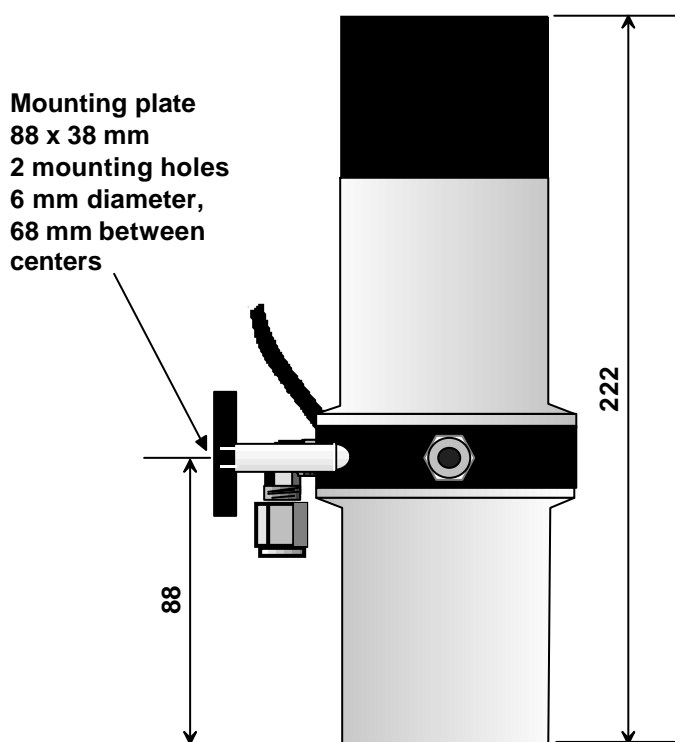
M01P: Portable Pure Water pH Meter	M01XEL: Set of 2 electrodes.
M01S: Stationary Pure Water pH Meter	M01XE250: 250 ml reference solution.

Please state the desired mains voltage, measuring range and isothermal point when ordering.

Installation Data



Dimensions - Measurement Chamber



Portable Model side view

