



WaterTechw² pH8000

Dip and Flowcell Sensors

PRODUCT DATASHEET

APPLICATIONS

- Intake Protection
- Discharge Monitoring
- Activated Sludge Control
- Coagulation Control
- Final Water
- River Monitoring
- Industrial Effluent Control

MEASUREMENT PRINCIPLE

Combination Double Junction ERP pH Electrode

FEATURES

- Built-In Temperature Compensation
- Self Cleaning Flat Surface Electrode
- Enhanced ERP Reference System
- Mercury (Calomel) Free

BENEFITS

- Improved Effluent Quality
- Reduced Operating Costs
- Longer Time Between Calibration

INSTALLATION OPTIONS

- Dip or Flow Cell
- Self Cleaning Flexible Coupling for Dip Assemblies

COMPATIBLE MONITORS

7300w² Monitor

ALTERNATIVE SENSORS

WaterTechw² PHEVT – Combined pH, Redox and Temperature



Measuring pH is a vital part of control systems throughout water, wastewater and process industries. In activated sludge plants, the biological process is greatly influenced by the acid or alkaline condition of the mixed liquor; on-line control is vital to maintain effluent quality. In effluent discharge regulations, pH is the most common water quality parameter; giving vital feedback on plant performance and protecting the environment from pollution events.

In sewage and industrial effluent treatment, pH control is vital for ensuring that pollutants are removed effectively. When the pH moves away from a neutral position the biological activity of the bacteria reduces, at less than 5pH or greater than 10pH then the activity ceases and the treatment system will start to breakdown. In combination with the 7300w² Monitor we provide the monitoring and control functionality to ensure that the control system remains functional and is carried out in the most cost effective manner.

pH monitoring and control also plays a vital role in the success of potable water treatment. If the water is acidic (lower than 7), lime, soda ash, or sodium hydroxide is added to raise the pH. Lime is commonly used for pH adjustment for municipal water, or at the start of a treatment plant for process water, as it is cheap, but it also increases the ionic load by raising the water hardness. Making the water slightly alkaline ensures that coagulation and flocculation processes work effectively and also helps to minimize the risk of lead being dissolved from lead pipes and lead solder in pipe fittings. Acid (HCl or H₂SO₄) may be added to alkaline waters in some circumstances to lower the pH. To ensure correct treatment, it is necessary to monitor as well as control the optimisation of the chemical dosing.

The WaterTechw² pH8000 sensor has been designed to provide highly reliable operation across the range of drinking water and wastewater applications. The flat faced electrode included the latest innovations in double junction reference with the ERP reference path. We also offer a version of the electrode that is designed to monitor pH in low conductivity (low ionic strength) applications.

For installation in applications where gross fouling is anticipated we recommend that the sensor is installed using our specially designed mounting system, with a flexible joint in the mounting shaft. The flexible joint moves the sensor in the process, reducing bio-fouling and allowing rags to fall away from the assembly. This motion is similar to that achieved by using a floating ball assembly, with the added advantage of placing the sensor below the surface of the liquid. In applications where fouling is not expected or where there is insufficient space alternative mounting arrangements are available.

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WaterTechw² pH8000

Electrode Details

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New ERP Reference
Extended length reference path to
slow contaminants

Flat Surface Self Cleaning
Electrode resists coating and fouling

Acryl-2 Gel
Heavy Duty Gel resists chemical attack

Increased Gel Capacity
For longer sensor life

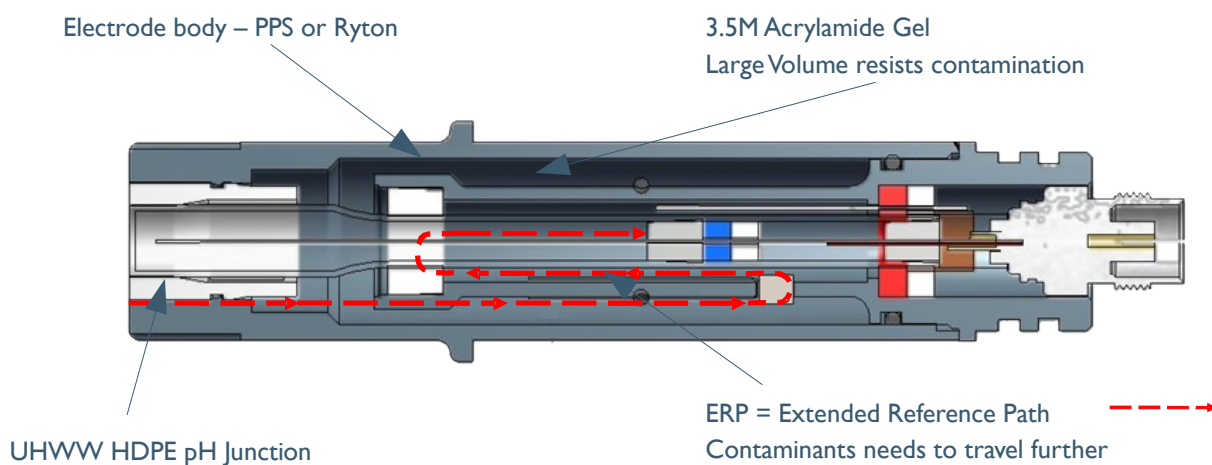
Double Junction Reference
Greater durability in harsh
environments

PPS (Ryton) Construction
Improved chemical and temperature
performance



The WaterTechw² pH8000 Sensor has been designed to provide highly reliable pH and Temperature measurements. The sensor uses a flat surfaced electrode which includes an extended reference path, these features combine to provide an extremely robust pH measurement, suitable for use in surface water, waste water and drinking water applications.

The electrode uses field proven flat surface, self-cleaning technology. The reference system is enhanced by the Extended Path Reference (ERP) design which provides a complex path to protect the reference in the presence of interacting ions such as proteins, silver and sulphides.



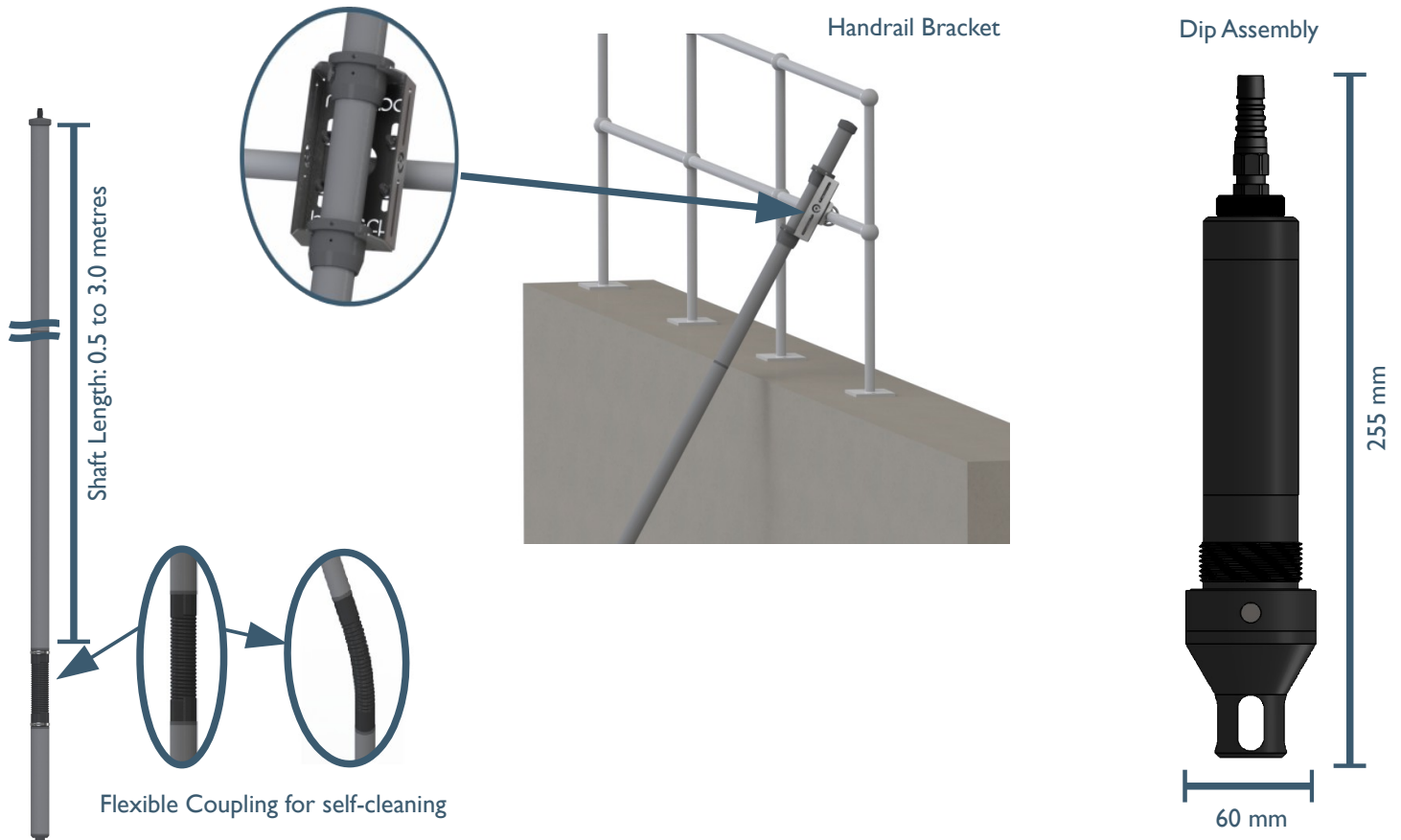
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WaterTechw² pH8000

Dip Assembly

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Shaft Assemblies

When used in dip format the WaterTechw² pH8000 sensor can be supplied with a shaft assembly and accompanying handrail/wall brackets. These parts have been designed to be suit the majority of installations, alternatives and bespoke solutions can be supplied if necessary. Shaft lengths up to 3 metres are offered as standard with longer lengths being catered for when required subject to safety and shipping considerations.

Self-Cleaning Flexible Coupling

In applications where fouling is likely we offer a flexible coupling in the mounting shaft, as illustrated above. This coupling allows the sensor to move in the flow, this means that fouling does not get a chance to build up on the electrodes flat face. Ragging is also swept away from the assembly by the flow rather than wrapping round the shaft. This method of cleaning has consistently proven effective and at a much lower cost than complex air purge or water jet cleaning alternatives.

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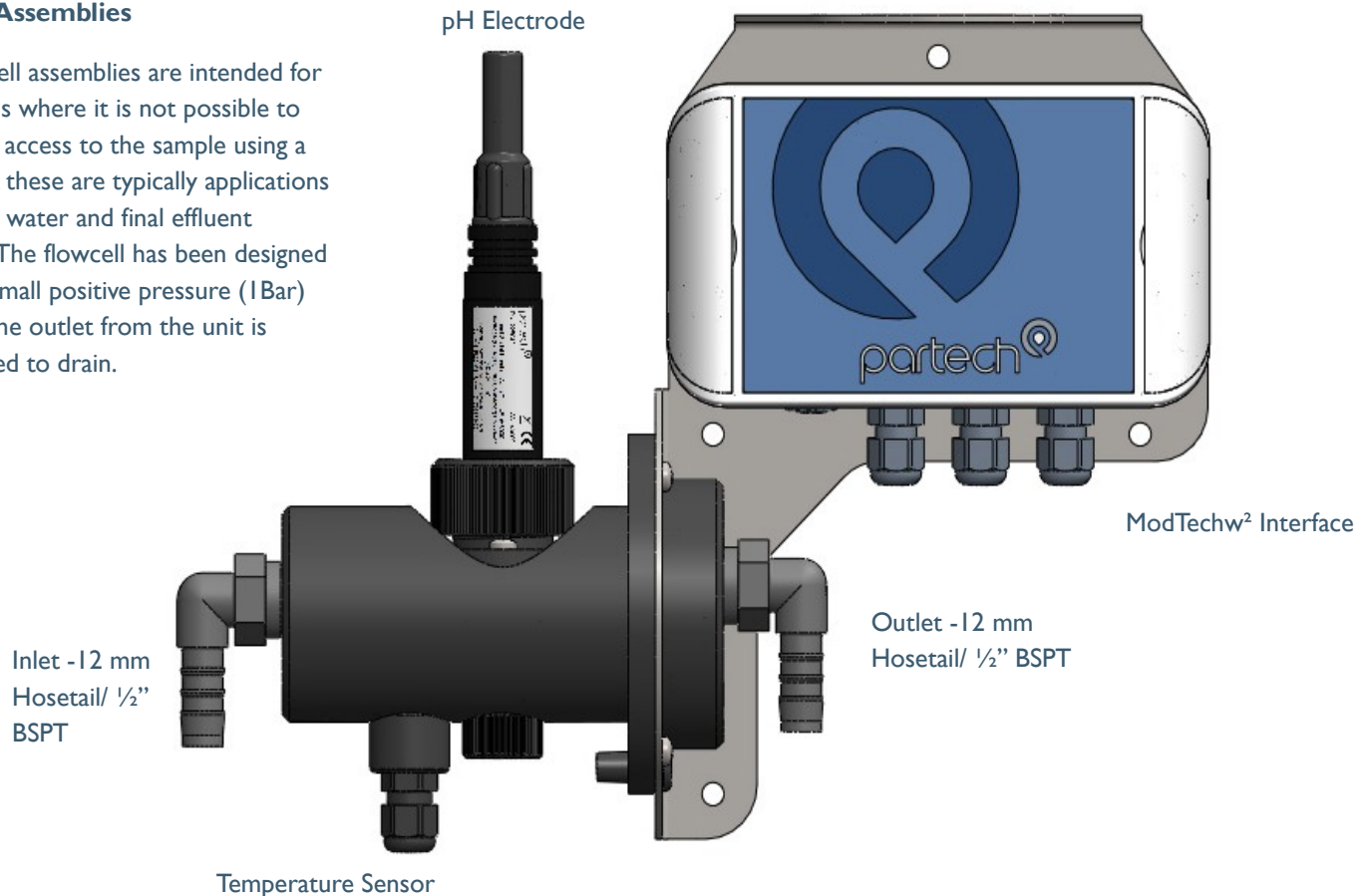
WaterTechw² pH8000

Flowcell Assembly

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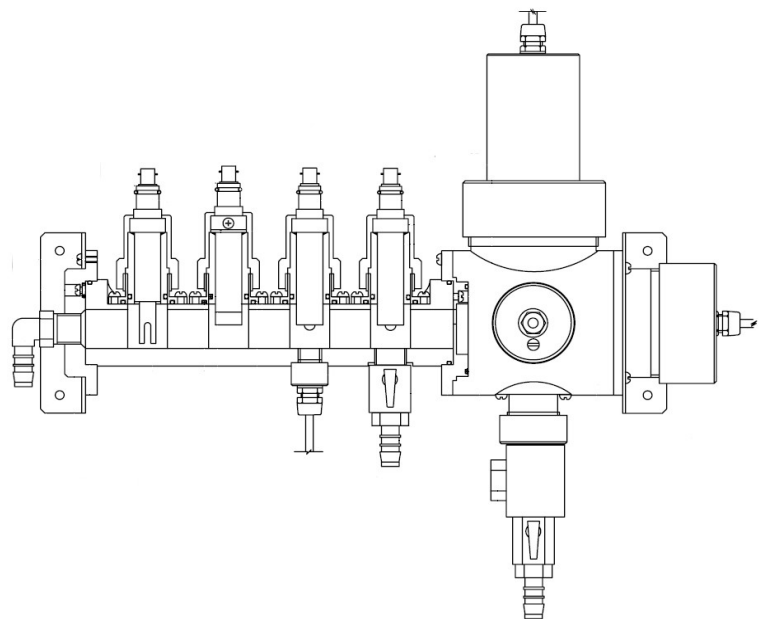
Flowcell Assemblies

Our flowcell assemblies are intended for applications where it is not possible to gain direct access to the sample using a dip sensor; these are typically applications in drinking water and final effluent discharge. The flowcell has been designed to take a small positive pressure (1Bar) however the outlet from the unit is normally fed to drain.



Multiparameter Options

The WaterWatch² platform has been designed to accommodate multiple sensors and multiple parameters in the same 7300w² Monitor. Versions of this flowcell are available to combine pH measurement with Turbidity, Redox and DO. These combinations provide an extremely cost effective way of monitoring for regulatory or control purposes.



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WaterWatch² Range

7300w² Monitor

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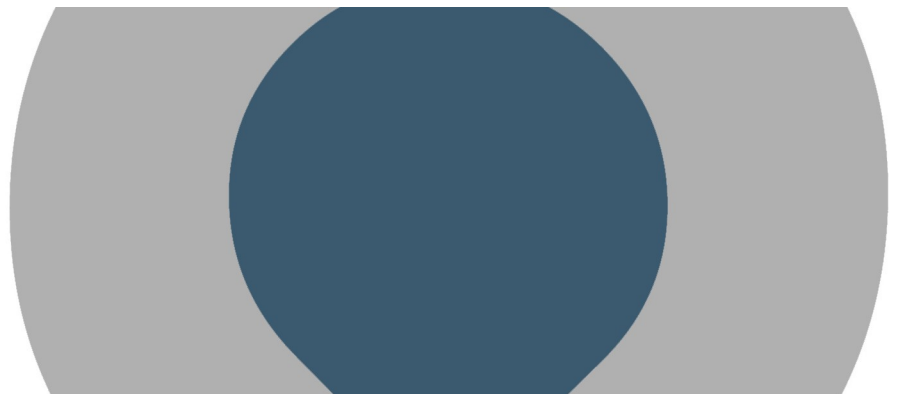
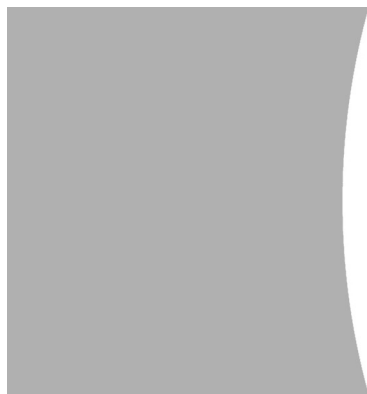
The WaterTechw² pH8000 sensor is part of the comprehensive WaterWatch² range. This product range covers applications in surface water, drinking water and wastewater treatment. The product range includes parameters such as:

- ⦿ Suspended Solids and Sludge Density
- ⦿ Turbidity
- ⦿ Conductivity, pH and Redox
- ⦿ Dissolved Oxygen
- ⦿ Oil on Water
- ⦿ Colour
- ⦿ Chlorine
- ⦿ Organic Pollution



These measurements are brought together in the 7300w² Monitor/Controller which provides all the user interfacing and output signals. The 7300w² can accept 1 or 2 sensors directly or by the addition of an interface box up to 8 sensors. This makes it a very flexible and cost effective solution. The sensors all communicate with the monitor using the ModTechw² communication system, this allows easy sensor addition and replacement. The sensors can be installed up to 100 metres from the monitor/controller providing further versatility.

The 7300w² Monitor has in-built features that go beyond simple monitoring, this highly flexible product can provide control features from basic ON/OFF pump control through fully featured PID control to bespoke algorithms developed to suit the needs of specific applications.



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PRODUCT SPECIFICATION

Measurement

Accuracy
Resolution
Range
Measurement Principle

Service Requirement

Electrical

Power Supply
Interface to Monitor
Cable Entries
Cable Type

Environmental Data

Operating Temperature
Storage Temperature
Pressure
Location

Physical (Dip excluding shaft)

Dimensions
Weight
Protection Class
Enclosure Material
Electrode body
Cable Length

Physical (Flowcell)

Dimensions (HxWxD)
Weight
Protection Class
Enclosure Material
Electronics Housing
Electrode body
Cable Length

pH

+/- 0.05 pH
0.01 pH
0 – 14 pH
pH:

Temperature

+/- 0.5°C
0.01°C
0 – 70°C
Combined electrode (pH/reference), Ag/AgCl reference, Gel Electrolyte (Acrylamide), Double Junction ERP Reference
NTC (Negative Temperature Coefficient Thermistor)

Temperature:

Electrode Replacement

Periodic calibration and cleaning are required at a frequency determined by the application

12 Volts from Monitor

RS485

Integral Cable Gland

4 core, Polyurethane Coated

0 to 70°C

0 to 70°C

7.5 Bar, de-rated at higher temperature

Indoor/Outdoor

60 mm diameter x 255 mm long

0.35 kg (inc 10 metres of cable)

IP68

Black PVC with Nylon Cable Gland

PPS (Ryton)

10 metres standard, 100 metres maximum

235 x 310 x 155 mm

0.35 kg (inc 2 metres of cable)

IP65

Black Acetal Co-Polymer with Stainless Steel Mounting Plate

IP65, Polycarbonate

PPS (Ryton)

2 metres standard, 100 metres maximum

Order Codes

Part No Description

- 224717 WaterTechw² pH8000 Dip Assembly includes pH Electrode and Temperature Sensor (0-14 pH, Temperature Range: 0-50°C, Cable Length: 10 metres)
- 224718 WaterTechw² pH8000 Dip Assembly includes pH Electrode and Temperature Sensor (0-14 pH, Temperature Range: 0-50°C, Cable Length: 20 metres)
- 224458 WaterTechw² pH8000 Flowcell Assembly includes pH Electrode and Temperature Sensor (pH Range: 0-14 pH, Temperature Range: 0-50°C, Cable Length: 2 metres)
- 224687 WaterTechw² pH8000LC Flowcell Assembly includes pH Electrode and Temperature Sensor (pH Range: 0-12 pH - Low Ionic Strength, Temperature Range: 0-50°C, Cable Length: 2 metres)

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The company reserves the right to alter the specification without prior notice. E&OE

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