

# Wallace & Tiernan<sup>®</sup> Analysers HydraClam<sup>®</sup> Water Quality Monitor

The Drinking Water Inspectorate (DWI) is concerned that water quality is maintained throughout the water distribution network. To that end, the DWI have issued requirements and expectations to ensure that consideration is given to water supply quality and distribution network maintenance within Distribution Operation and Maintenance Strategies or DOMS.

## The Challenge

The implication of DOMS is being widely felt by the main water supply companies who are budgeting within the AMP4 period to implement or continue the existing extensive renovation of the distribution systems within their care. These changes in legislation, technology and consumer perceptions, coupled with the ageing pipe network means that in-line monitoring of drinking water quality is becoming increasingly important.

## Benefits

- Continuous water quality monitoring via hydrants
- Multi parameter monitoring
- Quick and easy installation
- Single push-button operation
- Low maintenance
- Submersible (IP68)
- Internal battery lasts 1 year on hourly sampling

Where sampling was previously carried out at waterworks, or by samplers connected to the network, to enable analysis at a laboratory, this does not provide the sort of feedback that the DWI expects from the DOMS and highlights the possible risks to water quality. As a result, Siemens Water Technologies, in conjunction with Salamander, have introduced the purpose-built HydraClam<sup>®</sup> water quality monitor.



HydraClam<sup>®</sup> water quality monitor fitted to standard hydrant

Product Sheet

Water Technologies

**SIEMENS**

## Our Solution

The HydraClam® water quality monitor is a purpose-built system for the online monitoring of water quality in the distribution system. It fits directly onto standard water hydrants which are typically found in chambers located in most streets or on end-user premises. Once fitted the HydraClam® water quality monitor will measure, at an operator set frequency, four of the key water quality measurands, namely Turbidity, Pressure, Conductivity and Temperature.

## Easy to fit

The HydraClam® water quality monitor is designed to fit standard hydrants with a simple twist and go action. With no requirement for specialist equipment or engineering work, the unit is extremely versatile and can be used for both targeted monitoring within identified problem areas and/or as a fixed place monitor.

## System Integrity

Having attached the factory calibrated HydraClam® water quality monitor to a standard hydrant, data is recorded internally and retrieved through a Palm® hand-held PDA or PC. The intelligent onboard data logger also acts as a controller and ensures that before each measurement, water is purged from the system so that only 'fresh' water enters the unit for monitoring purposes. The purged water is allowed to simply drain away within the chamber. Up to 8,760 data readings, for all four parameters, can be recorded and stored with time and date information within a non-volatile flash memory. The data can then be downloaded onto a Palm® PDA or PC, for analysis.



HydraClam® water quality monitor fitted to standard hydrant

## Applications

### Mains water quality measurement

- Municipal and private water supplies
- Data collection to assist in meeting new DWI DOMS requirements
- Water quality compliance monitoring

### Network monitoring

- Provision of targeted network planning data for system modelling
- Operational data for rezoning of distribution networks and valve adjustment
- Targeted monitoring of water quality problems in specific zones

### Network integrity monitoring

- Identification of network problems and poor infrastructure
- Identification of network supply leakage

### Industrial process water quality monitoring

- Monitoring of supply water quality to industrial process water users

## Features

### Cost-effective monitoring of measurands

- Monitors turbidity from 0.1 to 10 NTU
- Monitors pressure from 0 to 10 bar
- Monitors conductivity from 0 to 2500  $\mu$ S
- Monitors temperature from 0 to 30° C

### Built-in data logging

- Non-volatile Flash memory
- 8,760 time and date stamped readings
- Each sample contains readings for all four parameters

### Low maintenance

- No consumables
- Calibration required after 6 to 12 months
- Battery powered operation for total portability

### Robust design

- Corrosion-resistant aluminium body
- Sealed, totally submersible unit
- Vandal-resistant construction
- Fits standard hydrants
- Single point of entry
- Simple programming and data logging connections

### System Security

Due to the fact the HydraClam® water quality monitor is used and fitted to a standard hydrant below ground level, it has a low profile and therefore provides additional security. This is an obvious advantage as all water companies are concerned with protecting their supply against terrorist threats. The use of the internal non-return valve also provides additional security as water can only flow out of the unit and not in.

### Remote Communications

The Hydraclam® water quality monitor is also available with remote communications. The unit fits directly onto standard water hydrants with an adjustable aerial that is fitted just below the chamber lid.



Data is recorded internally and is transmitted via GPRS / GSM technology to a central data base which can be accessed via a secure web based interface from any computer connected to the internet. The frequency of the update is typically 4 times per day. Data can also be accessed by direct connection to a Palm® PDA or a PC.

In addition to viewing the data online, it is possible to export the data directly to a PC in MS Excel format. The data can then be stored locally and distributed to additional personnel.

### Alarms

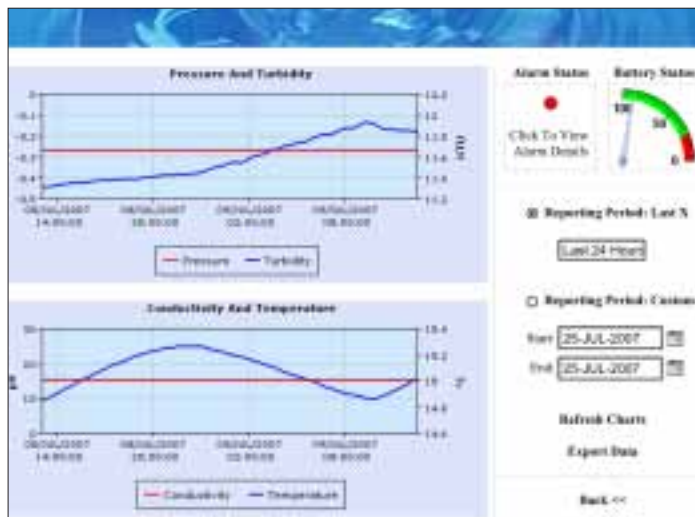
The Hydraclam® water quality monitor with remote communications can set a high and low alarm point for Turbidity, Conductivity, Pressure and Temperature. If the alarm limits are exceeded an email is generated and sent to the designated person.

### Network Compatibility

Compatible with all standard mobile phone networks. Signal strength survey recommended before installation. This can be done by a Siemens Water Technologies representative. Signal strengths at hydrant surface of 20+ (RSI) will give typically greater than 90% upload success.

### Additional Features for the HydraClam® water quality monitor with remote communications

- Data typically uploaded to server 4 times per day
- Data can be accessed via secure login on any PC connected to the internet
- Data can be downloaded locally via a Palm® PDA or PC
- High and low alarms linked via email alerts for Turbidity, Conductivity, Pressure and Temperature



## Technical Specifications

Parameter Measurements	
<b>Turbidity</b>	
Method/Type	Nephelometric
Range	0.1 - 10 NTU
Accuracy	±5% (of reading) or ± 0.1 NTU
Repeatability	±0.1 (NTU) OR ±5% of reading whichever is greater
Resolution	0.05 NTU

Pressure	
Method/Type	Transducer
Range	0 - 10 bar
Accuracy	±0.25% FS (typical) ±1.5% (max)
Repeatability	±0.1 FS
Resolution	0.01 bar

Conductivity	
Method/Type	4 pole measurement with temperature compensation
Range	0 - 2500 µS
Accuracy	±2% of reading or ±5% µS
Repeatability	±2% of reading or ±5% µS

Temperature	
Method/Type	PT100
Range	0 - 30°C
Accuracy	±0.25% (°C)
Repeatability	±0.1% (°C)
Resolution	0.1% °C

Power	
2 x LSH20 3.6V High Discharge Lithium battery (Saft)	

Logger Battery	
Sampling Frequency	Expected Battery Life
2 minutes	3 weeks
20 minutes	24 weeks
40 minutes	40 weeks
1 hour	52 weeks

Remote Communications Battery (Option)	
Upload Frequency	Expected Battery Life
4 x daily	52 weeks

Memory	
8,760 time and date stamped readings (each sample contains readings for all four parameters) non-volatile flash memory	

RS232 Interface	
Connector provided for PDA (configuration & data download) 9600 Baud, proprietary protocol	

Environmental	
IP 68	
Operation	0 - 30°C
Storage	-20 - 70°C

Calibration	
Calibration is typically required after 6 to 12 months. Units to be returned to Siemens Water Technologies for calibration.	

Factory Calibration	
Turbidity	2 points at 1 and 10 NTU
Conductivity	2 points at 447 and 1413 µS
Pressure	2 points at 1 and 10 bar
Temperature	2 points at 1 and 30°C

EMC	
Hydraclam	BS EN 61326-1
Hydraclam with comms	EN 301-489

Approvals	
CE, EMC	

Calibration	
PDA application software based on Palm® operating system (Garnet Vs 5.4.5 or above)	

Physical Characteristics	
Corrosion-resistant aluminium alloy body	

Weight	
2.5 kg approx.	

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