Halma Water Management

Palmer Environmental
The world's largest supplier of leak detection and pressure control equipment to manage leakage in water networks. Designed the first correlator in 1979 and have pioneered acoustic noise logging and fixed network systems.

Radcom Technologies
Market leader in the design and manufacture of rugged, innovative data logging and telemetry equipment for water and environmental industries. Now introducing innovative Wastewater solutions.

Hydreka
Specialised flow measurement systems for all parts of the water cycle, including open channel systems and environmental monitoring.

Fluid Conservation Systems
Market specialist in the USA for Palmer, Radcom & Hydreka products.
Halma Water Management

Four water conservation experts now working together as one, with one name, one sales force, one global distribution network and one board of directors.

HWM successfully combines the reputation, experience, innovation, knowledge, products and customer service of these four well respected companies into one global solution for the industry.
Water Management Is Our Business

- Pressure Control Solutions
- Flow Measurement Solutions
- Leak Detection Solutions
- Automatic Meter Reading Solutions
- Data Logging & Telemetry Solutions
- Environmental Monitoring Solutions
How Do You Manage Water Effectively?

The most effective way to manage water is to divide your network into zones.
How Do You Manage Water Effectively?

In the UK, each zone typically contains approximately 1,500 properties. These are known as District Metered Areas (or DMA's).
How Do You Manage Water Effectively?

Water entering each zone is monitored and logged and the data used to calculate usage within the DMA. Unexpected increases in water can indicate potential leakage.
Leak Detection Solutions
Why Detect Leaks?

“Throughout the world, water resources continue to be spoiled, wasted and degraded. The consequences for humanity are grave”

Ban Ki Moon
United Nations
Secretary-General
December 2007

Cartoon courtesy of the World Bank (Water & Sanitation Sector)
HWM Leak Detection Solutions

• Localisation (Option One) - **Noise Logging**
  
  *Permalog+, Patroller II, PermaNet*

• Localisation (Option Two) – **Step Testing**
  
  *MAST II*

• Leak Location Pinpointing – **Correlation**
  
  *MicroCorr7, MicroCorr DX, MicroCALL+, SoundSens i*

• Confirmation - **Ground Microphones**
  
  *Lmic, Xmic, XmicLite*

• Customer Side Leakage – **Meter Pulse Readers**
  
  *Leakfrog, Leak Finder, SMART View*
Noise loggers can be quickly positioned at intervals throughout the DMA to detect the noise created by leaks. They are easily deployed on valves using magnets and can be placed permanently or moved from site to site with no interruption to water supply.
Leak Localisation – Noise Logging

Each logger will listen for leak noise and transmit an alert if a leak is suspected.
Permalog+ is an intelligent noise logger designed for permanent deployment or tactical deployment to survey large areas of network quickly and effectively

- Fully automatic intelligent logger
- Adaptable to all network situations
- Innovative design for rapid deployment
- Compact size
- Low unit cost
- Long battery life (5-7 years)
- Patent protected
- Aqualog extended logging mode
- Flexible Data Collection:
  - “Lift and Shift”
  - “Drive By Mode”
  - “PermaNet via Radio Network”
  - “PermaNet via SMS Repeater”
Since the Permalog+ was launched in 2007, over 40,000 units have been deployed successfully throughout the world.

When these figures are combined with sales for older models, there are now over 200,000 Permalogs in circulation worldwide.

Made in Wales
Areas using Permalog with drive-by data capture include:
Las Vegas, El Paso, Hong Kong, Thames Provinces, Birmingham, Beijing, Murcia, Almeria & Metz
As an alternative to drive by data capture, permanently deployed Permalogs can be combined with **Network Radio** or **SMS Repeater** to send leak data directly to an office PC or mobile phone via dedicated web hosted or local software packages.
Benefits of the PermaNet fixed leak detection network

- Automatic leak alarm
- Immediate response
- Critical areas under control

Areas with a PermaNet fixed leak detection network currently include Hong Kong, Birmingham, Inverness, Barnsley, Tonsberg, Cambridge University & Metz
Leak Localisation – Noise Logging

Permalog+ unit in “Aqualog” recording mode showing noise level and spread. This profile indicates a leak.

Permalog+ unit in “Aqualog” recording mode showing noise level and spread. This profile indicates no leak.
The correlation formula

\[ L = \frac{D - (V \times Td)}{2} \]
Leak Detection - Correlation

- **MicroCorr 7**
  - PDA/PC based Leak Noise Correlator
  - Analogue sensors
  - PDA/PC interface
  - Highly portable
  - Bluetooth technology

- **MicroCorr DX**
  - Digital Leak Noise Correlator
  - Digital sensors, transmission and processing
  - Compact design

- **MicroCALL +**
  - Digital Leak Noise Correlator
  - Automatic 3 outstation correlation
  - Colour graphics
  - Advanced software

- **SoundSens “i”**
  - Correlating Noise Loggers
  - Infra Red download
  - Fast deployment
  - Custom recording
  - Cases can be linked
Leak Detection – Confirmation

**Lmic**
Electronic listening stick
- Portable
- Lightweight unit
- Easy “trigger” operation
- Volume/sensitivity rotary control
- Excellent performance

**Xmic**
Digital Ground Microphone
- Increased functionality, display, filters
- Minimum (noise) level profiling (MLP)
- Wind / airborne noise protected foot

**Xmic Lite**
Ground Microphone System
- High quality sound
- Auto and manual filtering
- Multi function display
- Minimum (noise) level profiling (MLP)
- Hand probe attachment
Leak Detection – Customer Side Leakage

Leakfrog
Meter leak analyser

- Used on pulse output meters
- Monitors minimum flow rate
- Innovative low cost design
- Rapid deployment
- Shows leakage, wastage and flow
- Rugged & lightweight
- Long battery life

SMART View
Automatic meter reader

- Leak alarm for the home
- Wirelessly connects to the SMART Log meter reader attached to the pulse meter
- Enables customer to view their total, average, previous and current water consumption

Leak Finder
Pinpointing system

- Primarily designed for CSL but also effective for difficult leak situations (e.g. plastic pipelines)
- Highly accurate
- Works on pipes with a smooth internal bore up to 50mm diameter
Pressure Control Solutions
Why Control Pressure?

- To save water by reducing pressure when demand is low (e.g. at night)
- To reduce the quantity of water lost through leakage
- To extend asset life
- To reduce burst frequency
HWM Pressure Management Solutions

Hydraulic Actuator
Accurate PRV Control

- Long life brass build
- Acts as the interface between hydraulic PRV and electronic controller
- Fitted in place of the adjusting screw on the standard pilot on PRV
- Easy to install

ControlMate 2
Pressure Management System

- Enables pressure into a zone to be switched between two pre-set values (low and high)
- Easy to use.
- Self contained.
- 5 year battery life.

ControlMate FM
Pressure Management System

- Enables pressure into a zone to be continually adjusted according to actual demand (flow modulation) or a pre-programmed time.
- Maximum potential water savings.

ControllerCom
High Visibility Comms

- Can be fitted to any HWM controller
- Logs data
- Two way SMS reporting
- GSM communication
- Alarm option
- Fully adaptable
- Versatile set up options.
Water Management Without PRV Controller

- Fluctuating demand
- Constant pressure
- Total week’s flow in this example: 13.6ML

Lowest demand. Pressure much too high at night.
Water Management With PRV Controller

- Fluctuating demand
- Pressure adjusted accordingly
- Pressure falls and the flow drops
- Total weeks flow in this example: 12.8ML

New nightline

Immediate water saving of 6%
Data Logging Solutions
Why use Data Loggers?

- To gather data on network performance
- To plan network expansion, pressure zones, DMA’s
- To create network models
- To ensure regulatory compliance
- To measure leakage
- To verify performance of Pressure Reducing Valves (PRV)
Data collected from the logger shows that when the flow of water is low during the night, the water pressure increases. This feeds leaks and increases water lost through leakage.

In this example, HWM provided the equipment needed to regulate the pressure automatically, thereby making instant savings in water consumption.

Why use Data Loggers?

Data received from a two channel logger recording flow and pressure from the same site.
HWM Data Logging Solutions

- Portable Data Logging
  *LoLog, LoLog LL/Vista, Pressure Transient*

- Data Logging with Telemetry Options
  *MultiLog LX, MultiLog SMS/GSM, MultiLog GPRS*
Data Logging – Portable Solutions

LoLog
Single Input Channel

- Can be attached to any pulse output meter.
- Can be used to help planners assess demand in residential areas.
- Waterproof and portable
- IP68 submersible
- 5 year battery life
- Infra Red
- Rugged Design

LoLogLL / Vista
Two Input Channels

- All LoLog features with one or two input channels
- Memory 16,000 readings
- LCD display (Vista only)
- Vista can be used as a solid state pressure gauge, or local indicator for other electrical signals (e.g. digital flow meters)

Pressure Transient
Specialised logger

- Ideal for monitoring rapid pressure changes in water pipes generated by pumps, Pressure Reducing Valves (PRV) and other valves.
- Supplied with one input for an external pressure transducer.
Data Logging with Telemetry Options

**MultiLog LX**
Mid Range Data Logger

- One or two digital flow input capabilities.
- Internal pressure sensor
- Advanced SMS data compression
- Ideal for monitoring flow and/or pressure to assess demand, leakage and conformance.
- 5 year battery life.

**MultiLog SMS/GSM**
Advanced Data Logger

- PSTN, SMS & GSM
- Up to 4 inputs.
- Monitors any combination of digital or analogue signals.
- No maintenance for 5 years.
- Can perform dynamic flow and pressure analysis of network models.
- Can conduct “fast sampling”.
- 5 year battery life.

**MultiLog GPRS**
Cellular Telemetry Logger

- Downloads data to PC by sending an email directly from the logger.
- Can send hourly data if required for near real time monitoring – making it ideal for dynamic flow and pressure analysis of network models.
Data Logging Projects

• Scottish Water – establishment of DMA’s across the country 6,000 loggers

• 3-Valleys – Telemetry reporting for network management

• Thames Water – Commercial Meter Logging – 10,000 logger units

• Jahor Bahru, Malaysia – 1,200 network loggers installed

There are currently over 80,000 data logger units supplied worldwide
Automatic Meter Reading Solutions
Automatic Meter Reading - SMART System

Low cost alternative to fixed network AMR

Rapid drive-by download speeds

Can be used to:

• provide accurate customer billing
• monitor customer side leakage,
• enforce drought restrictions
• apply rising block and/or seasonal tariffs
• detect meter fraud.
## Automatic Meter Reading - SMART System

<table>
<thead>
<tr>
<th>SMART Log</th>
<th>SMART USB R*</th>
<th>SMART Patrol</th>
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<tbody>
<tr>
<td><strong>Pulse Meter Reader, Logger and Transmitter</strong></td>
<td></td>
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</tr>
<tr>
<td>Can log 12 months data at 30 minute intervals</td>
<td><strong>Provides two way data transfer. Easily moved from one vehicle to another.</strong> Rapid drive by download speed. A 1 month profile at 30 minute intervals can be received in 2-3 seconds. <strong>Data is protected &amp; secure and can be received by a vehicle up to 100m away.</strong></td>
<td><strong>Drive By PC Software</strong></td>
</tr>
<tr>
<td>Transmits at 2 second intervals for rapid drive by 2 way wireless download</td>
<td><strong>User friendly display captures, analyses and constructs flow history for field and office analysis.</strong></td>
<td><strong>Meter reader can plan route and install new devices in the field. Colour coded progress indicator bars maximise efficiency</strong></td>
</tr>
<tr>
<td>Can be retrofitted to most meters in minutes Waterproof to IP68</td>
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</tbody>
</table>
With the new SMART Log meter reader, patrol teams can now collect combined data for both leak detection and meter reading via the same handheld Patroller PDA saving time, petrol and manpower.
Flow Measurement Solutions for the Water Network
HydrINS can be quickly connected to computer devices, external loggers or SCADA systems and can operate using mains or battery power.

HydrINS 2 Electromagnetic Insertion Flow-Meter with Optional LCD Screen

Flow and pressure measurement. Measures water velocity in full pipes. Advanced processing techniques provide high accuracy even at low flow rates. Easy installation with hot-tap capability. Choice of stem lengths. Submersible transmitter. Sturdy construction (3mm thickness on 700mm and 1000mm stem lengths)
Flow Measurement Solutions – HydrINS 2

HydrINS 2 Electromagnetic Insertion Flow-Meter with Optional LCD Screen

Flow and pressure measurement. Measures water velocity in full pipes. Advanced processing techniques provide high accuracy even at low flow rates. Easy installation with hot-tap capability. Choice of stem lengths. Submersible transmitter. Sturdy construction (3mm thickness on 700mm and 1000mm stem lengths)

- Probe head with flow direction arrow and alignment bars
- Communication Port & Pulse output
- Safety chain
- Plastic stopper C
- Brass clamping nut
- Pressure monitoring port
- Sensor
HydrINS is one of the most accurate flow measuring devices available on the market, particularly at low flows.

Probes can be supplied in 4 different insertion lengths depending on the pipe size:

- 300mm (12”)
- 500mm (20”)
- 700mm (27”)
- 1000mm (39”)

They can be used on any pipe between 100mm (4”) to 8000mm (360”)

HydrINS 2 Electromagnetic Insertion Flow-Meter with Optional LCD Screen

Flow and pressure measurement. Measures water velocity in full pipes. Advanced processing techniques provide high accuracy even at low flow rates. Easy installation with hot-tap capability.

Choice of stem lengths.
Submersible transmitter.
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Power supply 9-28 Vdc

HydrINS

4 - 20 mA

Pulses

DATA LOGGER
SCADA

RS 232
PC PDA SCADA
HydrINS 2 Electromagnetic Insertion Flow-Meter with Optional LCD Screen

Flow and pressure measurement. Measures water velocity in full pipes. Advanced processing techniques provide high accuracy even at low flow rates. Easy installation with hot-tap capability. Choice of stem lengths. Submersible transmitter. Sturdy construction (3mm thickness on 700mm and 1000mm stem lengths)

Two batteries, both site replaceable provide 30 months battery power logging at 30 second samples.

The head is 100% watertight and programmable to give spot values and totalised readings in forward or reverse direction.
Flow Measurement Solutions - ChronoFLO

ChronoFLO Clamp On Transit Time Flow-Meter

- Non invasive flow measurement
- No loss of pressure or risk of leakage
- Stable flow measurement in difficult conditions on most pipe material
- Advanced digital technology
- Highly accurate even at low flows
- Portable or fixed using battery or mains
- Rugged for field use and easy to deploy
- LCD displays flow rate in both directions
- Optional gauge measures pipe thickness

ChronoFLO has no contact with the fluid in the pipe so is suitable for drinking water and effluents

It is easy to install and can be used on a wide range of pipe sizes
ChronoFLO Clamp On Transit Time Flow-Meter

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- Measure Flow – Measure Flow now
- Site Setup – Enter site parameters
- System Setup – Your meter preferences
- Data Management – File and Logging options
- Diagnostics – Advanced functions
- Charge Battery – Charge battery
- Setup Summary – View important settings
Any Questions?