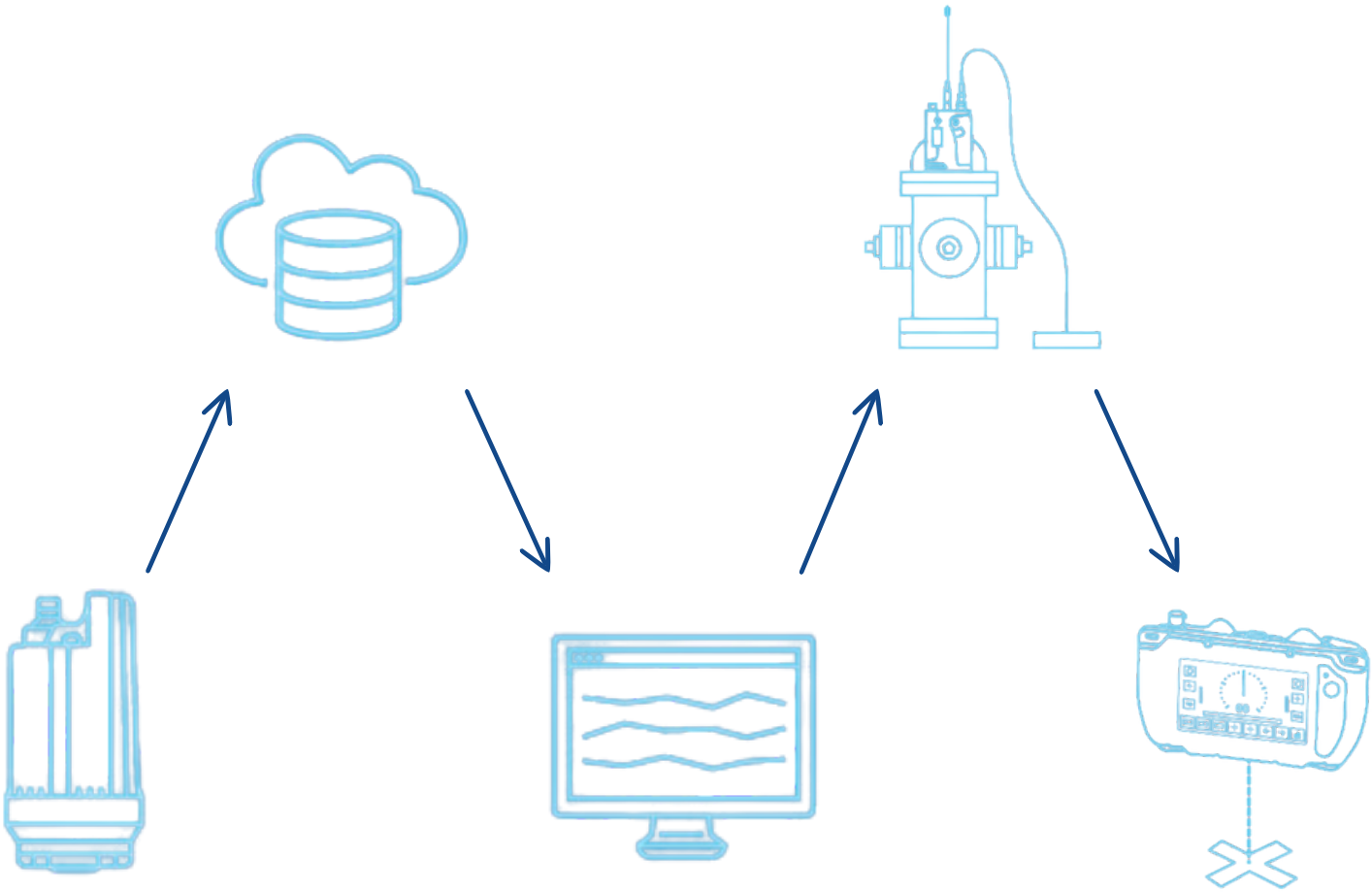
FCS™ | The Sound Choice for Leak Detection.™

2024 **Clean Water** Product Brochure



About FCS

Fluid Conservation Systems Inc. (FCS), a pioneer in water management since our inception in 1978. Globally, an astounding 8.5 trillion gallons of water vanish yearly, with the US alone losing 7 billion gallons daily, constituting 30% of the world's water loss.

FCS stands committed to partnering with utilities, municipalities, and engineering firms to reduce this staggering non-revenue water loss.

Known for our forward-thinking approach, we specialize in innovative water network monitoring solutions. Our cutting-edge technologies and data monitoring systems, empower water authorities, utilities, and engineers to proactively detect leaks in clean water systems, thus safeguarding our precious water resources.

Why monitor **Clean Water Networks?**

Demand for clean drinking water is rapidly increasing, while environmental factors such as climate change and population growth are challenging water networks.

Leak Detection is a proven method of safeguard water. If leaks are not detected quickly then immense quantities of water may be wasted. Significally, it is estimated that 90% of leaks never show at ground level, making them much harder to identify.

Networking monitoring can also be used for the prevention of leaks. Efficient **pressure management** can reduce the strain on a network, reducing pressure spikes and preventing bursts.

How do we monitor **Clean Water Networks?**

We have developed an innovative range of clean water network monitoring products that fall under the following categories:

Wide-ranging leak detecting solutions, including award-winning acoustic noise loggers, correlators and electronic ground microphones

Two-way communicating devices that support remote management of pressure reducing valves

Market-leading loggers that use advances cellular communication to securely deliver customer data

PermaNET SU

The innovative Award Winning leak detection system combines a **leak noise sensor** with **versatile cellular technology** in **one robust single-unit**

Retaining the industry-leading features of the PermaNET+ system, PermaNET SU combines a **leak noise sensor** and **cellular technology** into a compact single unit.

PermaNET SU is durable and designed specifically for smaller, more challenging installation areas. Its expected battery life is five years, and it features a sensor detection indicator that alarms if an acoustic sound is detected. With these features, leakage teams can be confident that PermaNET SU is effectively monitoring their network.

The PermaNET SU, the cutting-edge solution for survey and pipe replacement projects, is proudly manufactured in the USA. Designed to meet the stringent standards of the Build America, Buy America program, this innovative product ensures high quality while supporting local industries.

The PermaNET SU is an ideal choice for infrastructure projects of any scale. Its advanced features enable seamless integration into existing systems, providing efficiency and cost-effectiveness.

Key Features and Benefits

- fixed network monitoring continually scans for leaks, even in challenging installation areas
- full underground installation with remote cellular communication
- auto-correlation functionality automatically locates leak position
- works with HWM Deployment App for fast and accurate installation
- compatible with PermaNET Web online viewing platform, supporting correlation, Google Map view and more
- compatible with LTE-M cellular networks with fallback for future-proofing

Acoustic Leak Detection
Products

PermaNET TM GPS

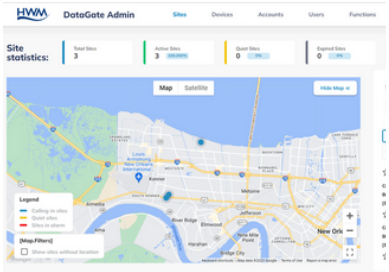
PermaNET Trunk Main (TM) GPS is an acoustic monitoring system for trunk mains, plastic pipelines, and sensitive pipelines that uses GPS Time Synchronization to produce highly accurate correlations over long distances.

The system is available with flow and pressure channels and fast logging capability.

Hydrophone 2

Hydrophone 2 is our new hydrophone sensor that delivers unrivalled leak detection performance.

Designed for our correlators and leak noise loggers, Hydrophone 2 is particularly effective on plastic pipes.



PermaNET Web

PermaNET Web is a digital platform created to gather, collate and easily display leak noise data collected by PermaNET devices

PermaNET Web is a secure, east to use and available on any internet-enabled device.

Portable Leak Detection **Products**

PR4 Bundle

Permalog+ features Aqualog extended logging functionality. This advanced system records noise at preset intervals over an extended period, storing up to twenty-nine days of level and spread history. Users can effortlessly distinguish between leak and non-leak noise by analyzing noise trends presented in graph format, empowering informed decision-making and precise action. Our 10-pack Permalog Kit is ideal for NRW (Non-Revenue Water) loss management needs.

Patroller 4

Patroller 4 is a discreet, wireless Bluetooth®-compatible transceiver used for the collection of data from PCorr+ and Permalog+ devices.

Compatibility with WebCorr supports on-site correlation and data upload to PermaNET Web.

Ground Microphone
Products

DXmic Pro

DXmic Pro is the latest generation digital ground microphone developed to precisely localize the position of a leak.

Delivering the highest quality sound, DXmic incorporates a wide variety of features, including auto filtering and frequency display.

S30

The S30 System is a leak noise amplification system that can be used to listen at various contact points (valves, hydrants, etc.) to determine whether a pipe is leaking.

The S30 System can also be used as a ground microphone. The user can place the sensor above the pipe by attaching the surface ground plate to the sensor.

Ground Microphone
Products

Bmic

Bmic is an easy to use, electronic leak monitoring tool ideal for general water leak detection operations.

Bmic is a cost-effective, simple tool designed to minimize disruption and reduce repair times for any leakage technicians.

Lmic

Lmic is an easy to use combined electronic listening stick and ground microphone.

Ideal for general sounding operations, Lmic can be fitted with either a tripod foot or probe rods to deliver excellent leak detection performance.

Pegasus 2

Our advanced, two-way **pressure control system for** remote pressure modulation, **delivering a sophisticated level of targeted, level of targeted,** demand-based **control**

With the capability to set target pressure by **time, flow or a combination of both** (with different table settings per day), Pegasus 2 delivers a intricate level of targeted control, even on a time basis.

Pegasus 2 features a secondary channel for **fast logging** down to **25Hz.** This is invaluable for investigating system transient events.

Featuring our **advanced modem**, Pegasus 2 transmits data through **LTE-M**, with a **2G fallback,** ensuring reliable and consistent communication.

Pegasus 2 is supported by our **PressView app**, delivering **easy set-up** and programming functionalities.

Key Features and Benefits

- built-in pressure failsafe, set at installation, including on-site manual safe override
- intelligent pressure control proven to minimize leakage and reduce the frequency of pipe bursts LTE-based cellular communication standard with fallback 2G capability
- optional latching solenoids to fully vent the PRV top chamber in tight headloss conditions
- true max and min flow and investigation of pressure spikes through Pseudo logging
- optional 4th logging channel to record top chamber PRV pressure

Pressure Monitoring
Products

Pressure Transient

Featuring an innovative ‘Event Window Selection’ and our advanced modem, Pressure Transient is designed for effective network transient logging.

Logging at up to 100 times a second, Pressure Transient is ideal for monitoring transient changes.

PressView

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Logging at up to 100 times a second, Pressure Transient is ideal for monitoring transient changes.

Multilog LX2

The highly versatile, battery powered **telemetry data logger that supports compatibility with a wide** variety of sensors **and meters, including** Modbus**.**

Designed to fit inside very shallow Atplas box installations, Multilog LX2 is ideal for many applications, including **monitoring flow** and/or **pressure** in a district or zone to assess demand, **leakage** and **pressure conformance.**

Multilog LX2 contains our innovative modem that is capable of connecting by **LTE-M.** The modem includes a **2G fallback** which automatically engages should an NBIoT signal not be available, ensuring consistently reliable connectivity.

The logger is battery-powered, with an expected five-year life as standard. Additional battery packs can be added to support more frequent dial-in rates.

Built for versatility, Multilog LX2 is a **powerful fast logging solution** that delivers **effective data recording** and dependable transmission.

Key Features and Benefits

- pulse interval timing smooths reading set times of infrequent pulses e.g. minimum night flow
- up to 2x digital flow inputs and 1x analogue input (internal or external pressure, 4-20mA)
- LTE-based cellular communication standard with fallback 2G capability
- fully waterproof with an IP68 rating that has been tested at 10m over a 24 hour period
- true max and min flow and investigation of pressure spikes through Pseudo logging
- serial input for connection to digital meters, SonicSens 3, Permalog+ leak noise logger

Data Logging
Products

Multilog 2

Multilog 2 is the highly advanced and versatile multi-channel data logger designed to monitor any combination of digital and analogue signals.

Multilog 2 is ideal for a variety of specialized applications, including monitoring PRV flow and pressure.

DataView

DataView is the customer-facing digital platform for viewing and analyzing the data that has been collected in the field by HWM devices.

Accessible online, users can connect to DataView on any internet-enabled device.

Antenna **Options**

Signal strength within the cellular network can vary dramatically even within the same cell proximity to the transceiver.

The type of antenna, position and angular orientation of the antenna each has a significant effect on the ability of a device to reliably communicate with the cellular network.

To ensure reliable cellular data communications, it is essential that the most suitable antenna is selected and mounted in the most appropriate location.

Antenna	Frequency Range	Dimensions	Operating Temp.	Mounting Method
T-Bar	698~960/1710~2655MHz	115 x 16.2 x 0.8mm	-40°C - +50°C	Adhesive
I-Bar	698~960/1710~2655MHz	26 x 125 x 7mm	-40°C - +85°C	Adhesive
Hanging Antenna	700~2700MHz	61 x Ø33 mm	-40°C - +85°C	Magnetic
Magmount	700/850/900/1700/1800/1900/2100MHz	280 x Ø50 mm	-40°C - +85°C	Magnetic
Button	850/863/900/1800/1900/2100 MHz	115 x 16.2 x 0.8mm	-40°C - +85°C	Bolted
Dipole	850/900/1700/1800/1900/2100MHz	160 x 45 mm	-20°C - +60°C	Magnetic
Dome	890~960/1710~1880 MHz	104 x Ø32 mm	-40°C - +80°C	Bolted
Magpot	698-960/1710-2655MHz	61 x Ø33 mm	-40°C - +85°C	Magnetic
1/4 Wave	700~2700MHz	80 x 7 mm	-30°C - +65°C	Direct to Logger
Stubby (FME)	700MHz ~ 2700MHz	115 x 8.5 mm	-40°C - +85°C	Direct to Logger
GPS Antenna	L1:1575.42 ± 3mhz; L2: 1602±5mhz	16±2 x Ø46 mm	-40oC ~ +85oC	M12 Screw

All antenna options are suitable for LTE-M and 2G data transmission

Antenna
Products

Magmount

T-Bar

Magpot

The Antennas below are special order

I-Bar

Hanging Antenna

Dome

Stubby

Button

GPS Antenna

1/4 Wave Atenna

Dipole

Applications and Softwares

To deliver effective results, FCS products are supported by a variety of applications and software solutions.

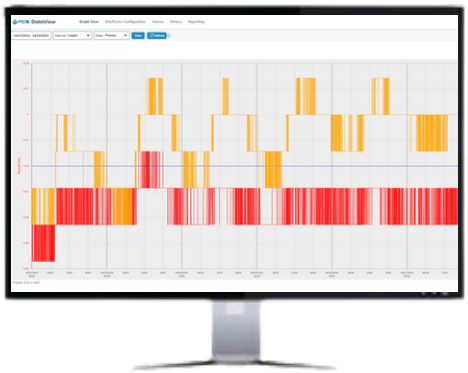
Each of the apps and software solutions that supports our products is designed and programmed in-house by our dedicated team.

We have developed various applications and software solutions to support our range of loggers and sensors, including:

DataGate

DataGate is our online data server that provides fast, convenient and secure remote data management.

Through a variety of methods (FTP, VMN, modem etc.), DataGate has the capability to receive data from all mobile networks and processes over 1.7 million messages a day.



DataView

DataView is the customer-facing digital platform for viewing and analyzing the data that has been collected in the field.

Accessible online, users can connect to DataView on any internet-enabled device.

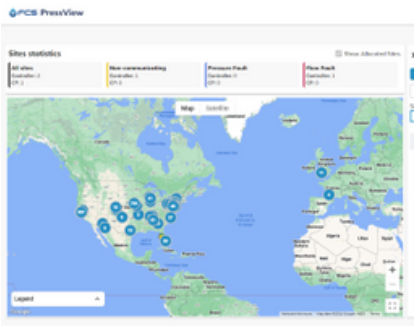
Applications and Software
Products

IDT

IDT is an installation and diagnostic app that both supports quick and reliable deployment and the on-site programming and updates of HWM Bluetooth® enabled loggers.

IDT can also be used to download data from deployed loggers.

PressView



PressView is a web-based dedicated platform for managing Pegasus and Sentinel pressure controllers.

PressView delivers zonal pressure management operations and self-learning closed loop control through a ‘fleet’ mapping view.

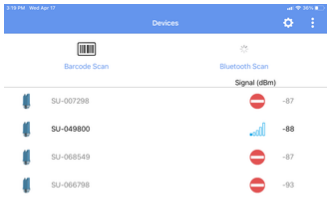
PermaNET Web

PermaNET Web is a digital platform created to gather, collate and easily display the leak noise data collected by PermaNET devices.

PermaNET Web is secure, easy to use and available on any internet-enabled device.

Applications and Software
Products

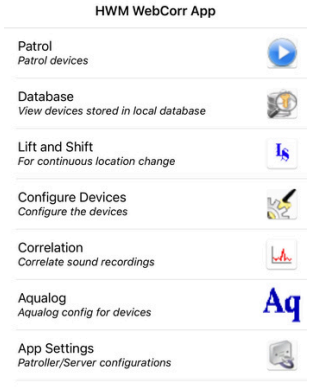
Deployment App



The HWM Deployment App is an installation tool that supports the quick and effective deployment of HWM manufactured data loggers.

Using the app, installation simply becomes activating the unit, scanning the barcode and fitting the unit within the network.

WebCorr



WebCorr is a mobile application that delivers rapid in-field correlation of data collected by PCorr+ data loggers.

Using wireless connectivity to retrieve data, WebCorr can quickly provide correlation of leak noise for effective leak location.

CLEAN WATER

WASTE WATER

We are experienced and respected manufacturers of monitoring equipment for clean water and wastewater

Clean Water Network Monitoring

With over 30 years in the water industry, HWM is skilled at addressing the challenges of water network monitoring. With increased pressure on water globally, we can solve the problems of effective water network management, providing data on performance and enabling effective network management.

Waste Water Network Monitoring

Control of waste water networks is a key public health challenge. Effective monitoring of waste water networks reduces both frequency and impact of pollution events. Permanent installation of remote monitoring equipment helps to alert network operators to immediate problem sites. Inquire about our array of wastewater products by contacting: sales@fluidconservation.com

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