THE FUTURE OF LEGIONELLA CONTROL

Remote Temperature Monitoring
Helping Businesses Remain Safe & Compliance

PTSG
PREMIER TECHNICAL SERVICES GROUP LTD
Niche Specialist Service Provider
Water Treatment

Remote Temperature Monitoring Helps Businesses Remain Safe & Compliant

Legionella poses a significant concern and compliance challenge for UK businesses. Failure to monitor it effectively can jeopardise the safety of all building users, and if not managed, lead to potential legal complications.

PTSG Water Treatment provides clients with an advanced, precise Remote Legionella Monitoring Solution to help you keep your premises compliant, and your staff and visitors safe.

Our Remote Temperature Monitoring solution provides accurate monitoring and real-time data on Legionella 24/7, allowing clients to mitigate the risk of infection and outbreaks.

The Guidance: HSG274, a Health & Safety Executive (HSE) guidance document, emphasises the importance of temperature monitoring in hot and cold-water systems to control legionella, with cold water ideally maintained below 20°C and hot water stored at least 60°C and distributed to reach 50°C (55°C in healthcare) within one minute.

Switch to remote temperature monitoring for 24/7 compliance data and save money, time and reduce your carbon footprint.

- Enhanced compliance
- Increased intelligence from real-time data
- Labour savings
- Sustainability

Enhanced Compliance

Remote temperature monitoring ensures that businesses meet regulatory standards consistently. By providing continuous and accurate data, it minimises the risk of non-compliance with Legionella control guidelines. This proactive approach demonstrates a company's commitment to health and safety, while also simplifying audits and inspections with readily available records.

Increased Intelligence From Real-time Data

With real-time data collection and analysis, businesses gain valuable insights into the conditions that could foster Legionella growth. This intelligence allows for quicker identification of anomalies or trends, enabling prompt corrective actions. The ability to monitor trends over time also supports better decision-making for long-term risk management.

Labour Savings

By automating temperature monitoring, businesses can significantly reduce the need for manual checks, which are time-consuming and can often pose building access issues for our engineers and your site teams. It also reduces costs associated with manpower and minimises the chance of human error in temperature data recording.

Sustainability

Remote temperature monitoring contributes to sustainability by reducing the need for frequent on-site visits, lowering fuel consumption and carbon emissions. Additionally, the efficient use of resources through automation helps businesses align with environmental goals while still maintaining high standards of compliance.

How It Works:

Small discreet sensors with temperature probes are fitted to water pipes on your assets.

Sensors take temperature readings every 5 mins.

Temperatures are sent to the gateway in 20-minute intervals providing continual temperature monitoring data 24/7.

Sensors send temperature data via the gateway to the cloud via secure cellular networks.

A real-time online platform is accessible on mobile or desktop devices providing powerful compliance insights to all the data gathered from your assets.

Teams are notified to urgent non compliances with email alerts. Reports are downloadable to be shared quickly and easily.

Features and Specifications:

Remote Temperature Monitoring

Sensors are designed to measure the water temperature in up to four pipes using external pipe mounted temperature probes. By continuously monitoring the pipe temperatures, it is possible to show compliance with legionella regulations, reducing site visits and costs. The remote sensor is battery powered, wireless and simple to install at any location. Configurable high/low thresholds allow different transmit intervals when thresholds are crossed providing advanced edge intelligence to the network and enable alarms to be generated by a real-time online platform.

Data from every sensor in your network is reported back through Big Data architecture either to our Monitoring and Analytics real-time online platform or to a partner cloud platform via an API, ensuring that your data is visible, actionable and valuable to your organisation.

The transmitter connects to the cloud via cellular LoRa™ gateways, providing low power, reliable communication and long battery life. We provide an in-house built real time online cloud portal to make this an ideal low-cost end-to-end solution.

The gateway is a LoRaWAN certified device and the manufacturer is a member of the LoRa alliance.
It offers both ABP and OTAA activation options and is designed to work with all LoRaWAN gateways and network servers.

Features

- Connection for up to four external temperature probes
- Battery powered
- Two pulse inputs
- Wall bracket mounting options
- High and low thresholds, hysteresis and actions configurable by end user for edge intelligence
- ‘Data as a service’ offering
- Built in antenna
- Configurable measure interval
- Configurable transmit interval for each mode (standard, warning and alarm)
- Configured over the air from a LoRa™ USB dongle
- Auto-calibration

Compliance and Regulations

Why Temperature Control Matters:

- **Legionella Growth:** Legionella bacteria thrive in water temperatures between 20°C and 45°C.
- **Risk Reduction:** By maintaining water temperatures outside this range, you significantly reduce the risk of legionella growth and the potential for Legionnaires' disease.
- **Compliance:** HSG274 and ACoP L8 (another HSE guidance document) outline the importance of temperature monitoring as a key part of legionella risk management.

Our remote monitoring solution helps you meet your obligations under:

- **Health & Safety at Work Act 1974:** Fulfils the general duty to ensure safe premises
- **Control of Substances Hazardous to Health (COSHH) Regulations 2002:** Supports risk assessment requirements
- **Management of Health & Safety at Work Regulations 1999:** Facilitates required risk assessments
- **HSE's Approved Code of Practice (ACoP) L8**: Aligns with guidance on temperature control

HSG274, a Health & Safety Executive (HSE) guidance document, emphasises the importance of temperature monitoring in hot and cold-water systems to control legionella, with cold water ideally maintained below 20°C and hot water stored at least 60°C and distributed to reach 50°C (55°C in healthcare) within one minute.

Key Temperature Requirements:

- **Cold Water:** Maintain cold water temperatures below 20°C where possible.
- **Hot Water Storage:** Store hot water at a minimum of 60°C.
- **Hot Water Distribution:** Ensure hot water reaches a temperature of at least 50°C (55°C in healthcare premises) within one minute at the outlets.

Monitoring Control:

- **Sentinel Outlets:** Regularly check temperatures at "sentinel outlets" (furthest and closest to each tank or cylinder).
- **Hot Water Storage Cylinders:** Check hot water storage cylinder temperatures monthly.
- **Cold Water Tanks:** Check cold water tank temperatures at least every 6 months.
- **Regular Testing:** Conduct monthly temperature testing of both hot and cold-water systems.
- **Record Keeping:** Maintain records of temperature checks for at least five years.

By installing remote temperature sensors to sentinel outlets, hot water storage cylinders and cold-water tanks, temperatures are continually taken from these points providing a real-time compliant picture of your building's water system.

Cost and Environmental Savings

Significant Cost Savings

The financial case for remote monitoring becomes compelling when considering both direct operational savings and the potential costs of legionella outbreaks, regulatory fines and reputational damage.

Return on investment is delivered through:

- **Labour reduction:** Eliminate or drastically reduce resource-intensive manual temperature testing requirements
- **Maintenance optimisation:** Target maintenance activities only where needed, rather than routine scheduled interventions
- **Water conservation:** No need to run taps for extended periods during manual testing, saving thousands of litres annually
- **Energy efficiency:** Identify temperature control issues that waste heating energy in hot water systems
- **Travel efficiency:** Fewer site visits for routine monitoring means reduced travel expenses
- **Extended asset life:** Better temperature control extends the operational life of water system components

Environmental Sustainability

Our remote monitoring solution supports your organisation's environmental and sustainability goals through multiple channels:

- **Water conservation:** Eliminate thousands of litres of water wastage from manual testing flush cycles
- **Carbon reduction:** Fewer site visits means reduced vehicle emissions from maintenance staff travel
- **Energy optimisation:** Identify and resolve temperature control inefficiencies that waste heating energy
- **Digital transformation:** Paperless operation eliminates physical documentation and storage requirements
- **Resource efficiency:** Optimise use of water treatment chemicals through better system understanding
- **Extended asset lifecycle:** Better system management extends equipment life, reducing manufacturing impact

Going Live: From Assessment to Implementation

Transitioning to remote temperature monitoring is a straightforward process. Our experienced team handles every aspect of the implementation, ensuring minimal disruption to your operations and maximum system performance.

1. **Consultation & Assessment:** Thorough assessment of your specific needs and water system characteristics
2. **System Design & Proposal:** Development of a comprehensive monitoring solution for optimal coverage
3. **Professional Installation:** Non-invasive installation by qualified water hygiene engineers
4. **System Configuration & Calibration:** Precise configuration to ensure optimal performance
5. **Comprehensive Training & Handover:** Interactive training sessions for your team
6. **Proactive Service & Support:** Ongoing system health monitoring and technical support

Comprehensive Water Safety Management

While remote temperature monitoring represents a significant advancement in legionella control, it works most effectively as part of a comprehensive water safety management programme. PTSG Water Treatment offers the complete spectrum of water safety services, allowing for truly integrated risk management:

- **Legionella risk assessment and review:** Comprehensive evaluation of your water systems
- **Water sampling and analysis:** UKAS accredited laboratory testing
- **Tank cleaning and disinfection:** Professional cleaning and disinfection of water storage tanks
- **TMV servicing and maintenance:** Expert servicing of thermostatic mixing valves
- **Expansion vessel servicing:** Regular purging and maintenance
- **Calorifier inspection and maintenance:** Comprehensive servicing of hot water generation systems
- **Remedial plumbing works:** Repairs or corrective actions taken to fix issues identified or failures
- **Legionella awareness training:** Accredited training programmes
- **Shower head cleaning and disinfection:** Regular maintenance to eliminate biofilm
- **Water treatment programmes:** Specialised chemical treatments

Technical Data

Comms

Frequency/Band (LoRa)	EU 868MHZ
Frequency/Band (LoRaWAN)	EU863-870
Expected Range (line of sight)	Up to 10km
Power	LoRaWAN: 25mW (14 dBm) LoRa: 100mW (20 dBm)

Approvals

Approvals	CE, FCC, IC
FCC ID	Contains module VPYCMABZ
IC ID	Contains module 772C-CMABZ

Environmental/General

Dimensions (mm)	70x70x24
Enclosure Colour	White
Expected Range (line of sight)	ABS
Operating Temp Range	-20°C to +60°C
Battery	1 x AA (2400 mAh)
Battery Type	Lithium Thionyl Chloride
Expected Battery Life (6min Tx int)	Up to 2.6 years
Expected Battery Life (6hr Tx int)	Up to 10 years
Operating Lifetime	Up to 10 years
Power	Battery 3.6VDC

Sensor Features

General

Measurement Interval Range	30 secs - 60 mins
Tx Interval Range	1 min - 6 hours

Approvals

Measurement Range	-20°C to +60°C
Accuracy	0.3°C
Resolution/Step-Size	0.5°C
Drift	< 0.05 °C/yr
Sensor Characteristics	Digital
Calibration	Optional
Probe	Up to 4
Cable	1m PVC Ribbo
Digital Status Inputs	2
Pulse Measurement Frequency	2Hz
Cable	1m 4-core PVC (optional)

Technical Specifications Table

Feature	Specification
Sensor Accuracy	±0.3°C
Resolution/Step-Size	0.5°C
Temperature Range	-20°C to +60°C
Measurement Frequency	Every 30 seconds
Transmission Interval	Configurable (standard: every 20 minutes)
Battery Type	Lithium Thionyl Chloride
Battery Capacity	2400 mAh (AA size)
Expected Battery Life	Up to 5 years (standard operation)
Sensor Dimensions	70x70x24mm
LoRaWAN Frequency	EU868MHz

Feature	Specification
Gateway Range	Up to 10km line of sight
Signal Power	LoRaWAN: 25mW (14 dBm) / LoRa: 100mW (20 dBm)
Approval Standards	CE, FCC, IC certified
Operating Temperature	-20°C to +60°C
Sensor Drift	< 0.05°C/year
Cloud Storage	Minimum 2 years accessible, 5 years archived
Data Security	End-to-end encryption, AWS cloud hosting
External Connections	Up to 4 temperature probes per sensor

"The remote monitoring system gives us real-time visibility of our compliance status across all our sites, while significantly reducing our operational costs."

Change Grow Live (CGL)

Get in Touch

Switch to remote temperature monitoring for 24/7 compliance data and save money, time and reduce your carbon footprint.

Please get in touch with us for further information and to discuss a trial site.

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0141 2127247

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0151 257 9302

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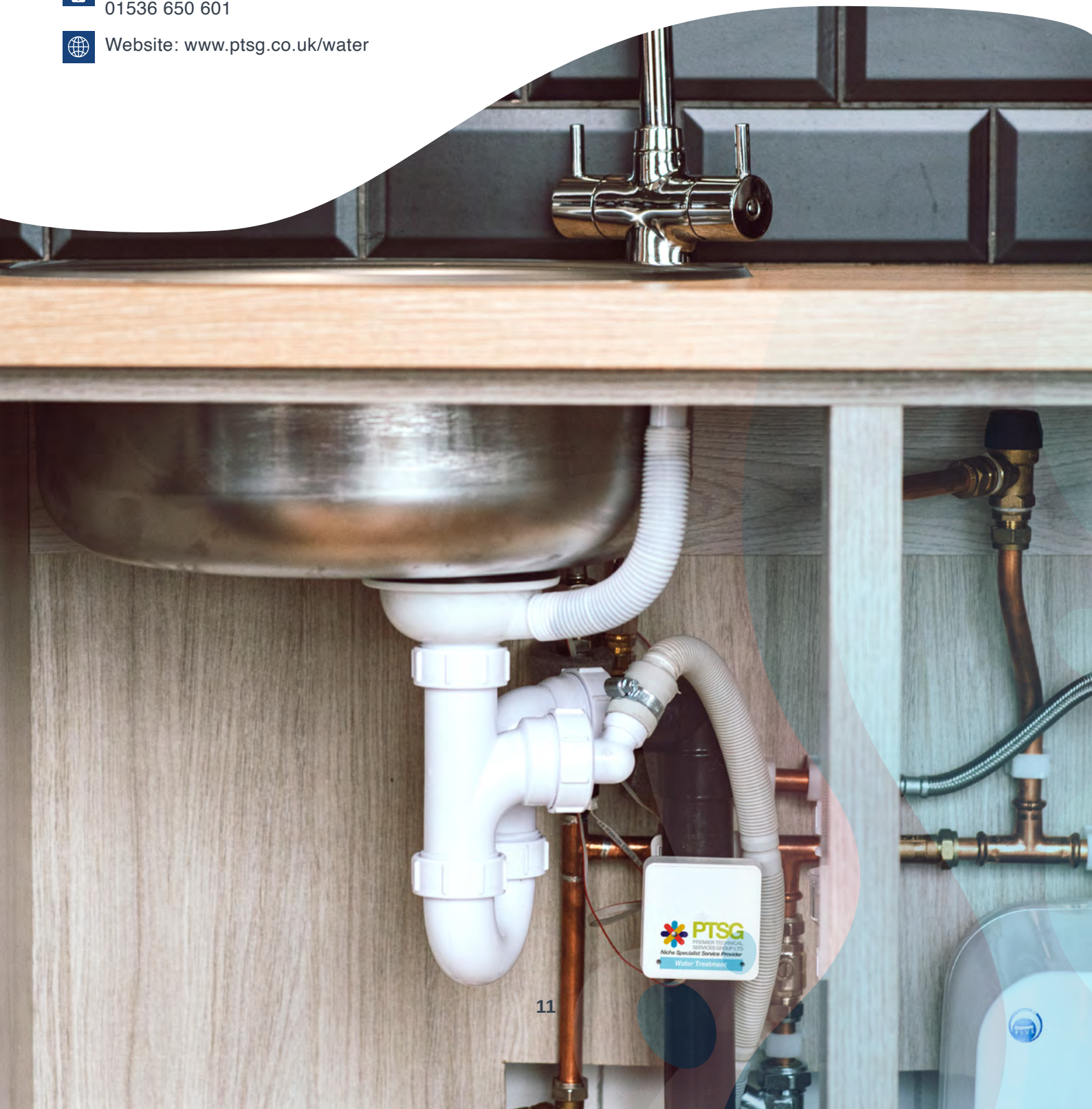
01536 650 601

Website: www.ptsg.co.uk/water



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