Water Treatment & Wastewater
Data Logging Solutions

Simplifying How the World Measures & Records Data

MadgeTech, Inc. is a global company, based in New England and founded on old-fashioned principles, customer service, quality and trust. MadgeTech's President, Norman Carlson, started the company in 1996 and charted the growth of the product lines and services while maintaining those solid core principles.

Our Can Do team of engineers and technical staff consistently incorporate new and innovative ideas into our data loggers. In short, we push the envelope, raising the bar in innovation and quality. Our competitors have praised us by adopting many of our ideas as their own. Over time, MadgeTech has become the industry standard in the data logger market.

MadgeTech continuously develops new, cutting-edge products, creating solutions for our customers around the world in industries across the board. Our growing network of distributors has expanded our presence to markets far beyond our home-headquarters in New Hampshire and our products are now sold in over 100 countries around the world.

Our employees are committed to quality and customer satisfaction. Behind the full range of MadgeTech's products and services is the cumulative expertise of experienced engineers, manufacturing and electronic professionals and technicians. Our knowledgeable sales team can offer technical advice to assist in selecting the right product for each application, as well as providing after-sales support.

MadgeTech is dedicated to providing customers with reliable, affordable products, hassle-free ordering and excellent service, saving customers time and money. It is our goal to earn your trust in meeting your needs and providing innovative solutions. The products and services that bear the MadgeTech name come with quality assurance and the best support in the industry today.

Norman E. Carlson,

Founder & President

Data Logging Solutions for Water Treatment & Wastewater Applications

Across the country, a vast network of municipal and private facilities ensure protection of both the environment and public health in regards to water treatment.

Whether monitoring drinking water from the source or treating wastewater before it can be released into the ecosystem, managing water resources involves multiple highly complex processes. MadgeTech, a leader in data logger technology based in Warner, New Hampshire, offers a number of data logging tools to assist in compliance with local, EPA, and National Primary Drinking Water regulations. Here are just a few areas in which MadgeTech offers water treatment solutions:

Water Level Monitoring

Water Temperature Monitoring

Water Pressure Monitoring

pH Monitoring

4-20mA Output

Water Level Data Logger

MadgeTech data loggers can accurately monitor and record water level and temperature over time in harsh, difficult environments to assist in compliance with standards enforced by the Environmental Protection Agency and National Primary Drinking Water Regulations.

Level1000
Rugged, Submersible Water Level & Temperature Data Logger

The Level1000 is a rugged, submersible, battery powered, stand alone water level and temperature data logger. Its stainless steel enclosure makes it perfect for use in lakes and streams. This is an all-in-one, compact, portable, easy-to-use device that will measure and record data for up to 16,383 measurements. The storage medium is non-volatile solid state memory, providing maximum data security, even if the battery becomes discharged. The device can be started and stopped directly from your computer, and its small size allows it to fit almost anywhere. The Level1000 data logger makes data retrieval quick and easy. Simply plug it into an empty COM or USB port and our user-friendly software does the rest. Data can be displayed in pressure measurements such as feet, inches, meters, centimeters, millimeters or PSI.

Submersible up to 30 Feet!

Temperature Data Loggers

The temperature of wastewater is a major concern because when temperature levels are too high, it can have an impact on the microorganisms in the activated sludge system. The maximum temperature of the wastewater entering a biological reactor should be less than 35 °C (95 °F). Any higher temperatures will damage the biological system in the water.

HiTemp140
Rugged, Submersible Temperature Data Logger

The HiTemp140 series data loggers are MadgeTech's solution for precise temperature monitoring. These data loggers can indefinitely withstand temperatures of up to 140 °C (284 °F) and have an accuracy of ±0.1 °C (±0.18 °F). The HiTemp140 features a rigid external RTD probe capable of measuring extended temperatures, up to 260 °C (500 °F). Varied probe lengths are available up to 7 inches to best fit user needs.

Key Ring End Cap Available!

MicroTemp
Rugged, Submersible, Miniature Temperature Data Logger

The MicroTemp is a miniature, submersible, self-contained temperature data logger. Only 2.6 inch (66 mm) tall and 0.7 inch (18 mm) in diameter, this data logger can easily fit into the smallest spaces. Don't let the diminutive size fool you — this is an industrial grade instrument which boasts an accuracy specification of ±0.5 °C and will operate in temperatures from −40 °C to +80 °C (-40 °F to +176 °F).

Temp101A
Ambient Temperature Data Logger

For many applications that require the monitoring of ambient temperature theTemp101A is the ideal solution. The Temp101A can measure ambient temperature from -40 °C to 80 °C. This compact device can be placed virtually anywhere to provide an accurate temperature record of the environment. Use several Temp101A's to capture a thorough mapping of large facilities.

Water Pressure Data Loggers

Maintaining correct pressure is necessary to guarantee that water treatment systems are operating as intended. Low pressure may be indicative of problems within the system that lead to sluggish operation while higher-than desired pressures can be damaging to sensitive equipment. MadgeTech manufactures several data loggers that carefully monitor pressure throughout water treatment to ensure process efficacy and protect system integrity.

PRTemp1000D
Differential Pressure & Temperature Data Logger

The PRTemp1000D is a rugged, submersible data logger that records ambient temperature and differential pressure. The device is designed to record over long periods of time at the user selected reading rate and has a pressure accuracy of ±.25 % over the Full Scale Range, making the device extremely accurate. The stainless steel enclosure allows it to withstand harsh environments and the flexible cable is equipped with dual 0.25 inch NPT connections for easy installation.

PRTemp1000 (Intrinsically Safe version also available!)
Rugged Pressure & Temperature Data Logger

The PRTemp1000 is a pressure and temperature data logger that accurately records data at user programmable reading rates over long periods of time. The device can be deployed in the field to record data for weeks or even months based on the user selected reading rate. The rugged stainless steel design allows it to be placed in harsh environments, which makes it well suited for steam pressure systems. The PRTemp1000 comes standard with a 0.25 inch NPT fitting, enabling connectivity with almost any pressure adapter.

PRTrans1000
Rugged, Submersible Transient Pressure Data Logger

The PRTrans1000 is rugged, submersible transient pressure data logger that records time and date stamped transient pressure event data at user-defined intervals and threshold triggers. Its stainless steel enclosure is designed for use in harsh, industrial environments. This logger features a 0.25 inch NPT fitting for easy connection to water pressure lines.

Pressure Range (PSIA)

	Range	0 to 30	0 to 100	0 to 300	0 to 500	0 to 1000	0 to 5000
Resolution	PRTemp1000D	0.002	0.005	0.02	0.05	n/a	n/a
	PRTemp1000	0.002	0.005	0.02	0.05	0.05	0.2
	PRTrans1000	0.02	0.1	0.2	0.5	1	5

pH Data Logger

Whether treating drinking water for human consumption or preparing wastewater to be released back into the environment, monitoring pH is one of the most important aspects of the treatment process. Monitoring the pH of drinking water is crucial because acidic (low pH) water will leach metal from pipes, causing health risks and damaging infrastructure while basic (high pH) water often has an off-putting taste. In wastewater applications, pH adjustment helps remove heavy metals and other dangerous toxins from the water. To support these processes and more, MadgeTech offers user-friendly pH logging solutions.

pHTemp2000
pH Data Logger

The pHTemp2000 is a pressure data logger equipped with an LCD screen. The 8 button keypad and large LCD provide convenient access to current data and recorder setup. Available on-screen data include: statistics (min, max and average), recording status (start, stop and recording rate) and calibration information (data calibrated, date for recalibration). The LCD also displays a graph of the last 100 readings to show data trends.

This rugged, splash-proof (IP65) device has one of the largest memory capacities of any similar data recorder on the market, logging up to 262,143 readings. The non-volatile memory will retain recorded data, even when battery power is lost.

4-20mA Output Data Logger

MadgeTech's process data loggers are ideal for measuring and recording 4-20mA output from wastewater instrumentation, such as flow meters. The devices are engineered for accuracy and flexibility unequaled in the 4-20mA loop sensor and control industry. MadgeTech loggers can be inserted almost anywhere because they add very little resistance to the loop (10Ω typical). Additionally, customized Engineering Units can be defined to map the measured data to almost any unit imaginable.


Process101A
Low Level DC Current Data Logger

Flow rate can be recorded for analysis and record keeping, which aids in accountability reports for applications such as wastewater monitoring, storm water studies, stream flow recording and irrigation channel research. The Process101A data logger, used to record flow rates, is simply connected to a flow meter, then programmed to start and deployed in the field.
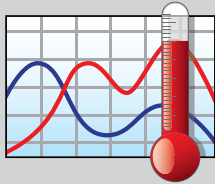
MadgeTech Data Logger Software

This simple, easy-to-use, Windows-based software enables the user to effortlessly collect, display and analyze data. A variety of powerful tools can be used to examine, export and print professional quality reports with just a click of the mouse. The user-friendly MadgeTech software is available for free download from www.madgetech.com.
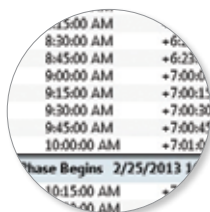
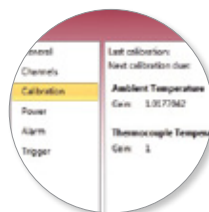## Easy-to-use Windows-based Software
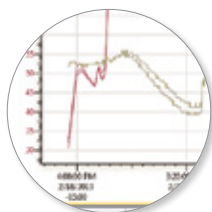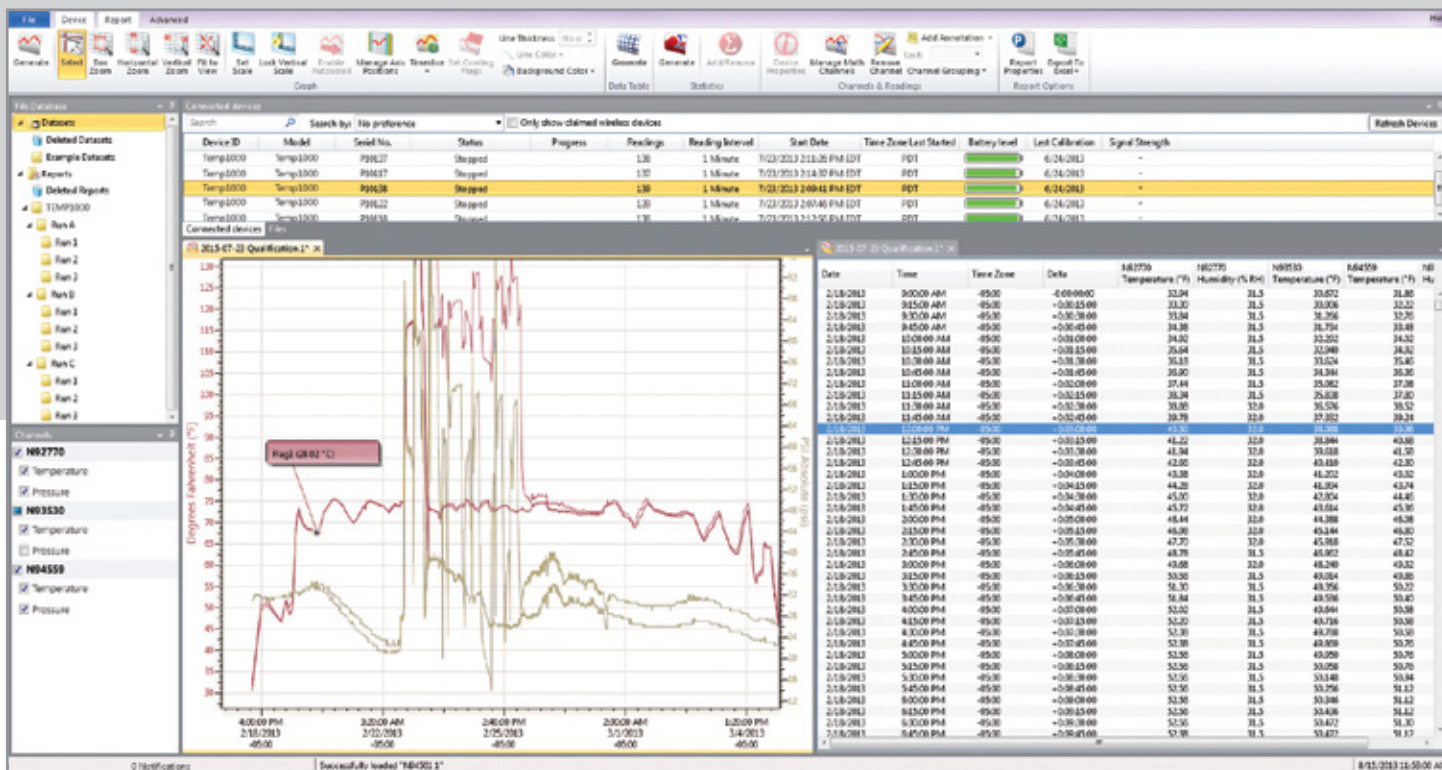
Customizable Graphs

Tabular Data View

Automatic Statistics Calculation

Digital Calibration

Copy to Excel

Software Features

- Multiple Graph Overlay
- Statistics
- Digital Calibration
- Zoom In / Zoom Out

- Timeslice
- Lethality Equations (F0, PU,Fh, Fd)
- Mean Kinetic Temperature
- Full Time Zone Support

- Data Annotation
- User Friendly File Management
- Min / Max / Average Lines
- Data Table View

- Automatic Report Generation
- Summary View

Matrix

Product	Level1000	HiTemp140	MicroTemp	Temp101A
Measurement Range	-40 °C to 80 °C (-40 °F to +176 °F)	-200 °C to +260 °C (-328 °F to +500 °F)	-40 °C to +80 °C (-40 °F to +176 °F)	-40 °C to +80 °C (-40 °F to +176 °F)
Resolution	0.1 °C (0.18 °F)	0.01 °C (0.018 °F)	0.1 °C (0.18 °F)	0.01 °C (0.018 °F)
Calibrated Accuracy	±0.5 °C (±0.9 °F)	±0.1 °C/±0.18 °F (20 °C to +140 °C/68 °F to +284 °F) ±0.3 °C/±0.54 °F (-20 °C to +19.99 °C/-4 °F to +67.98 °F) ±0.4 °C/±0.72 ºF (-40 °C to -20.01 °C/-40 °F to +-4.02 °F)	±0.5 °C (±0.9 °F)	±0.5 °C (±0.9 °F)
Operating Range	-40 °C to +80 °C (-40 °F to +176 °F), 0 %RH to 100 %RH	-40 °C to +140 °C (-40 °F to +284 °F), 0 %RH to 100 %RH	-40 °C to +80 °C (-40 °F to +176 °F), 0 %RH to 100 %RH	-40 °C to +80 °C (-40 °F to +176 °F), 0 % RH to 95 %RH non-condensing
Memory	16,383 Readings Per Channel	32,700 Readings	32,767 Readings	1,000,000 readings; software configurable memory wrap 330,000 readings in multiple start/stop mode
IP Rating	IP68	IP68	IP68	IP20
Material	303 Stainless Steel	316 Stainless Steel	316 Stainless Steel	ABS plastic
Required Interface Cable	IFC110 or IFC200	IFC400	IFC102 or IFC202	IFC200
Probe	Internal Sensor	External RTD Probe	Internal Sensor	External Probe
More Details	Refer to page 4	Refer to page 5	Refer to page 5	Refer to page 5

Data Logger Calibration

Why Calibrate?
All physical sensors become less accurate over time due to factors including the environment, usage, and stress. The degree to which these changes occur varies from device to device. For example, a voltage device will drift very little over the years whereas a humidity sensor can drift significantly in several weeks if subjected to a corrosive environment.

Calibration Certificates
Calibration certificates are generated at the end of the manufacturing process. Each certificate indicates the date and conditions of calibration. These certificates provide the documentation needed to satisfy most requirements, certifying that a product has been properly calibrated.

PRTemp1000D	PRTemp1000	PRTrans1000	pHTemp2000	Process101A
-20 °C to +80 °C (-4 °F to +176 °F)	-40 °C to +80 °C (-40 °F to +176 °F), 0 to 30, 100, 300, 500 PSIA/G; 1000 and 5000 PSIA	0 to 30, 100, 300, 500 PSIA/G; 0 to 1000 or 5000 PSIA	-40 °C to +110 °C (-40 °F to +230 °F)	20 mA: -2 to 30mA ±160 mA: ±160 mA ±3 A: ±3 A
0.1 °C (0.18 °F)	0.1 °C (0.18 °F) Refer to Table on Page 4 for Pressure Resolution	Refer to Table on Page 7 for Pressure Resolution	0.01 °C (0.018 °F)	20 mA: 0.5 mA ±160 mA: 5 mA ±3 A: 100 mA
±0.5 °C	±0.5 °C (±0.9 °F), 2 %FSR, 0.25 % at 25 °C (77°F) typical	2 %FSR, 0.25 % at 25 °C (77 °F) typical	±0.15 °C	20 mA, 160 mA: ±0.05 %FSR 3 A: ±0.15 %FSR
-20 °C to +80 °C (-4 °F to +176 °F), 0 %RH to 100 %RH	-40 °C to +80 °C (-40 °F to +176 °F) 0 %RH to 100 %RH	-40 °C to +80 °C (-40 °F to +176 °F), 0 %RH to 100 %RH	-5 °C to +50 °C (+23 °F to +122 °F), 0 %RH to 95 %RH non-condensing	-40 °C to +80 °C (-40 °F to +176 °F), 0 %RH to 95 %RH non-condensing
16,383 Readings Per Channel	16,383 Readings Per Channel	262,143 Readings	262,143 Readings	1,000,000 Readings
IP63	IP68	IP68	IP65	IP20
303 Stainless Steel	303 Stainless Steel	303 Stainless Steel	Black anodized aluminum	ABS plastic
IFC110 or IFC200	IFC110 or IFC200	IFC200	IFC200	IFC200
Internal Sensor	Internal Sensor	Internal Sensor	External RTD Probe	External Probe
Refer to page 6	Refer to page 6	Refer to page 6	Refer to page 7	Refer to page 8

Calibration Services

MadgeTech's calibration laboratory offers a variety of standard and customized calibration services. The scope of MadgeTech's calibration services include the following parameters:

- **Temperature**
- **Humidity**
- **Pressure**
- **Voltage**
- **Current**

A certificate of conformance is of offered for the Pulse, Event and State data loggers which do not require calibration.
For details on MadgeTech's calibration services, please contact the services department.