

# DATA LOGGING SOLUTIONS OIL AND GAS INDUSTRIES



Pressure



Shock and  
Vibration



Flow Rate

# 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 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, 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.

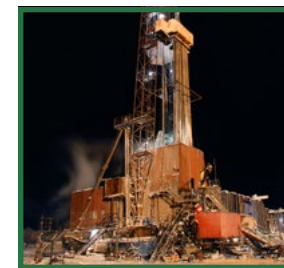
## Data Logging Solutions for Applications in the Oil and Gas Industry

MadgeTech, a leader in data logging technology, offers a number of data logging solutions to assist in the oil & gas industry. MadgeTech's data loggers are an effective means for monitoring and logging pressure, flow rate, vibration, and output signals from external transducers.

- Complying with BMPs (Best Management Practices)
- Providing data to control rooms for analysis and decision making
- Well monitoring and management
- Identifying potentially unsafe operating conditions
- Reliability studies



Pressure  
Data Logging



Shock & Vibration  
Data Logging



Flow Rate  
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# PRESSURE AND TEMPERATURE DATA LOGGERS

MadgeTech's intrinsically safe data loggers are an ideal choice for measuring and recording water and steam pressure. Rugged and easy to use in the field, they are available in multiple ranges from 30 PSI to 5000 PSI.

MadgeTech Intrinsically Safe data loggers have been Factory Mutual certified as intrinsically safe for Class I, Division I, groups A, B, C, and D, and non-incendive for Class I, Division 2, groups A, B, C, and D. This certification makes the device ideal for uses in hostile oil and gas applications. All data loggers contain non-volatile memory that will retain valuable data even if the user-replaceable battery becomes discharged.

## Rugged, Intrinsically Safe, Pressure & Temperature Data Logger

The **PRTemp1000IS** is a rugged, intrinsically safe, stand-alone 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 PRTemp1000IS comes standard with a .25 inch NPT fitting, which allows it to be connected to almost any pressure adapter. The submersible logger is also available in a non-intrinsically safe option, known as the **PRTemp1000**.



### PRTemp1000IS Pressure Range (PSI)

Range	0 to 30	0 to 100	0 to 200	0 to 300	0 to 500	0 to 1000	0 to 5000
Resolution	0.002	0.005	0.01	0.02	0.05	0.05	0.2
Accuracy	2 %FSR, 0.25 % @ 25 °C Typical						

# PRESSURE AND TEMPERATURE DATA LOGGERS

## Rugged, Intrinsically Safe, Transient Pressure Data Logger

The **PRTrans1000IS** is a transient pressure data logger with a stainless steel enclosure. It is designed to monitor and record transitory pressure drops or spikes within a three day window of time. The device samples constantly at 100 Hz, but only records to memory when the user selectable trigger settings are exceeded, only capturing the transient pressure event. The device also records pre and post trigger pressure data to memory for in depth analysis.

### PRTemp1000IS Pressure Range (PSI)

Range	0 to 30	0 to 100	0 to 300	0 to 500	0 to 1000	0 to 5000
Resolution	0.002	0.1	0.02	0.05	1.0	5.0
Accuracy	2 %FSR, 0.25 % @ 25 °C Typical					



## Process Pressure and Temperature Data Logger

The **PRTC210** is a compact pressure and thermocouple temperature data logger with a .125 inch NPT fitting. The device accepts one thermocouple input which allows customers to measure process pressure and temperature. In addition, the PRTC210 also measures ambient temperature, allowing for a complete pressure and temperature analysis.



### PRTC210 Pressure Range (PSIA)

Range	0 to 30	0 to 100	0 to 300	0 to 500	0 to 1000	0 to 5000
Resolution	0.002	0.005	0.02	0.05	0.05	0.2
Accuracy	2 %FSR, 0.25 % at 25 °C (77 °F)					

### Thermocouple Range

Thermocouple	Range (°C)	Resolution	Accuracy
J	-210 °C to +760 °C	0.1 °C	±0.5 °C
K	-270 °C to +1370 °C	0.1 °C	±0.5 °C
T	-270 °C to +400 °C	0.1 °C	±0.5 °C
E	-270 °C to +980 °C	0.1 °C	±0.5 °C
R	-50 °C to +1760 °C	0.5 °C	±2.0 °C
S	-50 °C to +1760 °C	0.5 °C	±2.0 °C
B	+50 °C to +1820 °C	0.5 °C	±2.0 °C
N	-270 °C to +1300 °C	0.1 °C	±0.5 °C

# DIFFERENTIAL DATA LOGGER

MadgeTech's differential pressure data logger simultaneously measures fluid pressure and temperature. Designed specifically for harsh environments, the devices measure fluid pressure as it moves through pipes in order to determine flow rate.

## 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  $\pm 0.25\%$  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 .25 inch NPT connections for easy installation.

The PRTemp1000D is available in four pressure ranges. The pressure range determines the amount of differential pressure the device will measure between the dual .25 inch NPT connections.

### PRTemp1000D Pressure Range (PSIA)

Range	0 to 30	0 to 100	0 to 300	0 to 500
Resolution	0.002	0.005	0.02	0.05



# REAL-TIME PRESSURE DATA LOGGERS

Featuring the ability to connect directly to pipes through NPT port, real-time pressure data loggers can provide users with immediate readings on the large LCD screen. These heavy duty loggers are ideal for long field deployments and can withstand even the harshest conditions.

## Real-Time Pressure Data Logger

The **PR2000** is a pressure data logger equipped with an LCD screen. The 8 button key pad 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. The PR2000 is ideal for applications requiring precise displayed pressure readings, such as the real-time monitoring of outdoor geothermal pipelines.

### PR2000 Pressure Range (PSIA)

Range	0 to 30	0 to 100	0 to 300	0 to 500	0 to 1000	0 to 5000
Resolution	0.002	0.005	0.02	0.05	0.05	0.2

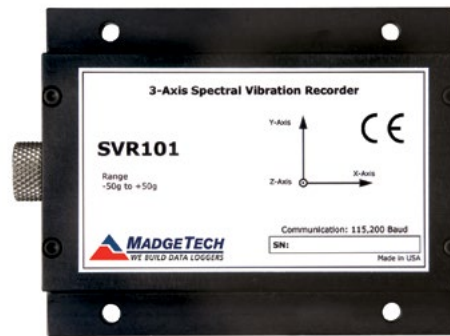


# SHOCK & VIBRATION DATA LOGGERS

Valuable equipment can be damaged by high impacts caused by other machinery if exposed to excessive amounts of vibration. When failure occurs, it can be difficult to determine when the impact/vibration occurred, how much occurred and what caused the failure. Using the MadgeTech shock and vibration data logger, and shock and vibration data can be gathered to correlate outside factors causing machinery or equipment failure.

## Spectral Vibration Data Logger

The **SVR101** is a spectral vibration data logger capable of measuring accelerations from  $\pm 50g$ , and spectral intensities from 0-128 Hz. This device is great for determining at what frequency a certain magnitude occurred. Like the PRTrans1000, the SVR101 is trigger-based, meaning that it will only collect data when it meets or exceeds a user-programmable threshold.



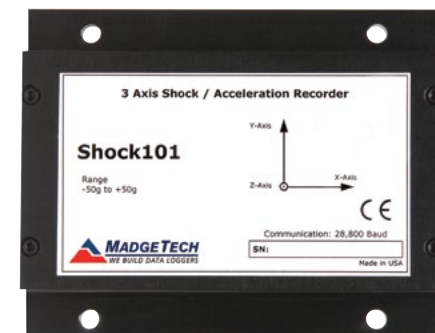
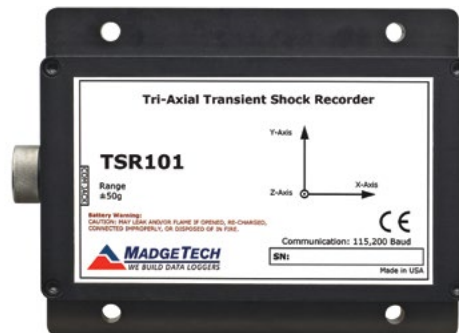
## Tri-Axial Shock Data Logger

The **Shock101** is a high speed, battery powered, stand alone, tri-axial shock data logger. Continuously sampling at 512 Hz and at the specified reading rate, the device records the peak (high and low) magnitude to memory.

This is an all-in-one, compact, portable, easy to use device that measures and records data up to 349,525 measurements per axis. The storage medium is non-volatile solid state memory, providing maximum data security should the battery become discharged.

## Tri-Axial Transient Shock Data Logger

The **TSR101** is great for monitoring and logging transient impacts. The TSR101 can be configured to sample at 1024Hz. The TSR101 is also a trigger based data logger, allowing for only relevant data to be captured, streamlining analysis time. There are 15 reading rates to choose from ranging from 1024 Hz to 1 Hz.



# FLOW RATE DATA LOGGER

Easily connect data loggers directly to a variety of flow meters to accurately record thousands of readings to create a complete overview of flow rate over an extended period of time. MadgeTech Data Logger Software's build in engineering units to convert data into flow rate for easy, automatic record keeping.

## Pulse Data Logger

The **Pulse101A** is a compact data logger compatible with many flow meters. This multipurpose pulse recording device is designed to accurately monitor and record events occurring within a specified time frame.

The Pulse101A has a maximum pulse rate of 10KHz to capture rapid events for a wide range of applications. With a ten year battery life and the ability to store up to 500,000 readings, the Pulse101A can be deployed for long term assignments and configured to start and stop logging as specified by the user.





# MADGETECH DATA LOGGER SOFTWARE

The 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. This software can be downloaded for free from the MadgeTech website.



## MadgeTech 4 Software Customizable Features and Options

**MadgeTech 4 Software** can communicate with multiple loggers through multiple interface cables. Capable of simultaneous start, stop and download of over 100 devices, this software serves as your virtual command center for large scale facilities and small. Display your data in graphs, with tabbed views and multi-monitor support. Utilize the infinite graphing flexibility by combining channels and datasets as desired. All graphing makes use of accelerated graphics hardware for real-time updating and high performance visuals.

MadgeTech 4 Software is designed with a built-in database for automatic storage of downloaded data. The look and feel is organized much like standard email programs to aid in user friendliness and ease of use. MadgeTech 4 Software also offers extensive alarming options across multiple devices, wireless and non-wireless. Alarm output options include email, on-screen, text message and run-a-program alerts.

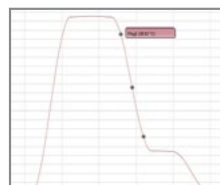
MadgeTech 4 Software has a powerful and comprehensive statistics system that allows the user to customize and view statistics as desired. Another feature is customizable engineering units. This enables users to support and program devices with many different unit types as well as the ability to display them as an alternate unit if desired.

### Software Features

- Multiple Graph Overlay
- Statistics
- Digital Calibration
- Zoom In / Zoom Out
- Cooling Flags
- Lethality Equations (F0, PU)
- Mean Kinetic Temperature
- Full Time Zone Support
- Data Annotation
- User Friendly File Management
- Min. / Max. / Average Lines
- Timeslice
- Data Table View
- Automatic Report Generation
- Summary View
- Workflows / Automation



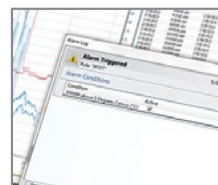
Cooling Flags



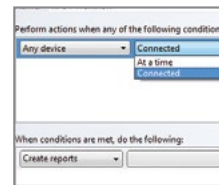
Graph View

Time	Time Zone	Delta
1:13:37 PM	-04:00	-00:00:00
1:14:37 PM	-04:00	+00:01:00
1:15:37 PM	-04:00	+00:02:00
1:16:37 PM	-04:00	+00:03:00
1:17:37 PM	-04:00	+00:04:00
1:18:37 PM	-04:00	+00:05:00
1:19:37 PM	-04:00	+00:06:00
1:20:37 PM	-04:00	+00:07:00
1:21:37 PM	-04:00	+00:08:00
1:22:37 PM	-04:00	+00:09:00
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1:25:37 PM	-04:00	+00:12:00

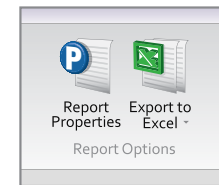
Tabular Data View



Alarm Notifications



Automation



Export to Excel