PR1000Ex

Intrinsically Safe Pressure and Temperature Data Logger

PRODUCT USER GUIDE

To view the full MadgeTech product line, visit our website at **madgetech.com**.

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Product Overview

The PR1000Ex is an intrinsically safe pressure and temperature data logger used to accurately monitor and record at user programmable reading intervals. The enclosure is constructed of AISI 316 SS and carries hazardous location, intrinsically safe certification in accordance with the latest issue of:
IECEx 60079-0, IECEx 60079-11
Directive 2014/34/EU (known as ATEX)
The Equipment and Protective Systems intended for Use in Potentially Explosive Atmospheres Regulations 2016 (SI2016/1107)

The instructions and warnings will be provided by MadgeTech in the language requested by the end user.

Certified Intrinsically Safe for:

- Electrical Protection Concepts: IEC: 60079-11 Ex ia – Ex ic, Intrinsic Safety Zones 0-2
- Equipment Protection Level: Ga – Gc, Zones 0-2
- Gas Groups: IIC
- Temperature Class: T4

Operational Warnings

- When used in hazardous locations, the PR1000Ex is to be ***installed prior*** to the location becoming hazardous and removed only after the area is no longer hazardous.
- The maximum allowed ambient temperature for the PR1000Ex (under any circumstances) is +80 °C. The minimum rated operating temperature is -40 °C.
- The PR1000Ex is approved for use only with the Tadiran TL-2150/S battery. Replacement with any other battery will void the safety rating.
- Batteries are user replaceable, but are to be removed or replaced only in locations known to be non-hazardous.
- Tampering or replacement of non-factory components may adversely affect the safe use of the product, and is prohibited. Except for replacement of the battery, the user may not service the PR1000Ex. MadgeTech, Inc. or an authorized representative must perform all other service to the product.

Water Resistance

The PR1000Ex is fully submersible and is rated IP68.

Installation Guide

Installing the Software

The Software can be downloaded from the MadgeTech website at **madgetech.com**. Follow the instructions provided in the Installation Wizard.

Installing the Docking Station

IFC400 or IFC406 (sold separately) — Follow the instructions provided in the Installation Wizard to install the USB Interface Drivers. Drivers can also be downloaded from the MadgeTech website at **madgetech.com**.

Ordering Information

- 902264-00 — PR1000Ex-1000A, 0-100 PSIA
- 902261-00 — PR1000Ex-100A, 0-100 PSIA
- 902267-00 — PR1000Ex-100G, 0-100 PSIG
- 902262-00 — PR1000Ex-300A, 0-300 PSIA
- 902268-00 — PR1000Ex-300G, 0-300 PSIG
- 902260-00 — PR1000Ex-30A, 0-30 PSIA
- 902266-00 — PR1000Ex-30G, 0-30 PSIG
- 902265-00 — PR1000Ex-5000A, 0-5000 PSIA
- 902263-00 — PR1000Ex-500A, 0-500 PSIA
- 902269-00 — PR1000Ex-500G, 0-500 PSIG

With Key Ring End Cap:

- 902294-00 — PR1000Ex-1000A-KR, 0-1000 PSIA
- 902291-00 — PR1000Ex-100A-KR, 0-100 PSIA
- 902297-00 — PR1000Ex-100G-KR, 0-100 PSIG
- 902292-00 — PR1000Ex-300A-KR, 0-300 PSIA
- 902298-00 — PR1000Ex-300G-KR, 0-300 PSIG
- 902290-00 — PR1000Ex-30A-KR, 0-30 PSIA
- 902296-00 — PR1000Ex-30G-KR, 0-30 PSIG
- 902295-00 — PR1000Ex-5000A-KR, 0-5000 PSIA
- 902293-00 — PR1000Ex-500A-KR, 0-500 PSIA
- 902299-00 — PR1000Ex-500G-KR, 0-500 PSIG

Accessories:

- 900319-00 — IFC400 Single Docking Station
- 900325-00 — IFC406 Multiplex Docking Station
- 901745-00 — TL-2150/S Replacement Battery

Device Operation

Connecting and Starting the Data Logger

1. Once the software is installed and running, plug the interface cable into the docking station (IFC400 or IFC406).
2. Connect the USB end of the interface cable into an open USB port on the computer.
3. Place the data logger into the docking station.
4. The data logger will automatically appear under **Connected Devices** within the software.
5. For most applications, select **Custom Start** from the menu bar and choose the desired start method, reading rate and other parameters appropriate for the data logging application and click **Start**. *(**Quick Start** applies the most recent custom start options, **Batch Start** is used for managing multiple loggers at once, **Real Time Start** stores the dataset as it records while connected to the logger.)*

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6. The status of the device will change to **Running** or **Waiting to Start**, depending upon your start method.
7. Remove the data logger from the docking station and place it in the environment to measure.

Note: *The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.*

Downloading Data from a Data Logger

1. Place the logger into the docking station.
2. Highlight the data logger in the **Connected Devices** list. Click **Stop** on the menu bar.
3. Once the data logger is stopped, with the logger highlighted, click **Download**.
4. Downloading will offload and save all the recorded data to the PC.

Trigger Settings (Transient Mode)

The PR1000Ex samples up to 128 Hz (7.8 ms) and begins recording after exceeding user defined setpoints. After triggering, the device will record a chosen number of samples (Window Mode) or until reaching the stop setpoint (Two Point Mode). The device can take as many as 762,228 readings with both channels enabled and 838,451 pressure only readings. The data logger will record up to 50 samples of "pre-trigger" data.

1. In the **Connected Devices** panel, click the device desired.
2. On the **Device** Tab, in the **Information** Group, click **Properties**. Or, right-click the device and select **Properties** in the context menu.
3. Select **Trigger** in the Properties window.
4. Trigger formats are available in **Window** or **Two Point Mode**. Window mode allows a high and/or low trigger set point, and a trigger sample count or "window" of time recorded when set points are exceeded to be defined. Two point allows for different Start and Stop setpoints to be defined for both the high and low triggers.

Refer to the **Trigger Settings - MadgeTech 4 Data Logger Software** video on **madgetech.com** for instructions on how to configure Trigger Settings.

Communication

To ensure desired operation of the PR1000Ex, **please keep the surface clear of any foreign objects or substances**. The PR1000Ex's data is downloaded through external contact with the IFC400 or IFC406 docking station. Covering the surface with foreign objects **(i.e. Calibration Labels)** can prevent the communication and/or downloading process.

Device Maintenance

O-Rings

O-ring maintenance is a key factor when properly caring for the PR1000Ex. The O-rings ensure a tight seal and prevent liquid from entering the inside of the device. Please refer to the application note **O-Rings 101: Protecting Your Data**, found at **madgetech.com**, for information on how to prevent O-ring failure.

Recalibration

MadgeTech recommends annual recalibration. To send devices back for calibration, visit **madgetech.com**.

Battery Replacement

Materials: TL-2150/S Battery

1. Move device to a non-hazardous location before replacing battery.
2. Observe Operational Warnings when removing and replacing the battery.
3. Unscrew the bottom of the data logger and remove the battery.
4. Place the new battery into the logger. *Caution: Observe correct battery polarity when installing. It is important to insert the battery with the positive polarity pointing upwards towards the sensor.*
5. Screw the cover onto the data logger.

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APPENDIX A

EU Declaration of Conformity

No. DC-202101

According to EN ISO/IEC 17050-1:2004

The name and address of the manufacturer:
MadgeTech, Inc.
6 Warner Road
Warner, NH 03278 USA

Product model and description: Temperature and Pressure Data Logger as a Gauge Pressure Recorder or Absolute Pressure Recorder and at various pressure ranges, with and without Key Ring feature

902260-00 PR1000EX-30A	902290-00 PR1000EX-30A-KR
902261-00 PR1000EX-100A	902291-00 PR1000EX-100A-KR
902262-00 PR1000EX-300A	902292-00 PR1000EX-300A-KR
902263-00 PR1000EX-500A	902293-00 PR1000EX-500A-KR
902264-00 PR1000EX-1000A	902294-00 PR1000EX-1000A-KR
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902267-00 PR1000EX-100G	902297-00 PR1000EX-100G-KR
902268-00 PR1000EX-300G	902298-00 PR1000EX-300G-KR
902269-00 PR1000EX-500G	902299-00 PR1000EX-500G-KR

This product conforms with the following Union harmonization legislation:
2014/34/EU – ATEX Directive

The following harmonized standards and other technical specification were used in support of the declaration:

Harmonized Standards:	EN 60079 - 0	Edition 2018
	EN 60079 -11	Edition 2012

Notified body SGSNA, number 3015 performed EU-Type examination in accordance with Annex III of the directive and issued the certificate: SGSNA24ATEX013001

Notified body SGSNA, number 3015 performed Conformity to type based on quality assurance of the production process in accordance with Annex IV of the directive and issued the QA Notification document

Additionally, product complies with the essential requirements, and carries the CE marking accordingly with:
2014/30/EU – EMC Directive
2015/863/EU – RoHS3 Directive
1907/2006/EU – REACH Directive

And conforms with the following product standards and/or normative documents:
IEC 61326-1 Edition 2013

Emission Requirements
CISPR 11 Edition 5: 2009, +A1:2010, Radiated Emissions, 30 MHz to 1 GHz
Limit: CISPR 11, Group 1, Class A

Enclosure Port
IEC 61000-4-2: 2008, Electrostatic Discharge Level: 4 kV Contact, 8 kV Air Discharges

IEC 61000-4-3: 2006, +A1:2007, +A2:2010 Radiated Immunity (EM Field) -
Level: 10 V/M, 80 to 1000 MHz 3 V/M, 1.4 to 2.0 GHz
1 V/M, 2.0 to 2.7 GHz

Supplementary Information:
The products were tested in a typical usage configuration.
RoHS Exemptions applied 6(a)), 7(c)-II

Declared on behalf of MadgeTech, Inc.

Maybelle Delong, Quality Manager
Issued from: MadgeTech, Inc. Warner, NH USA
Issued on:

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