

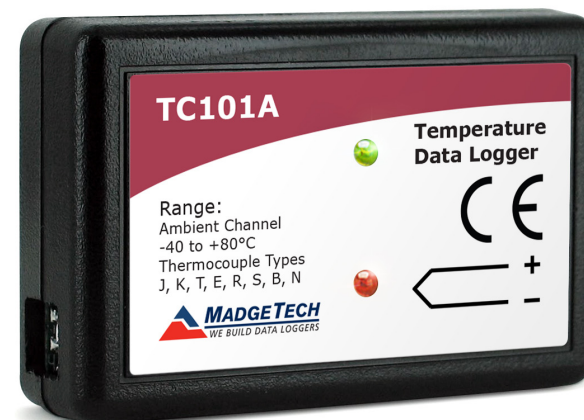
| Description                                                     | TC101A                                                                                    |
|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Internal Channel Temperature Sensor                             | Semiconductor                                                                             |
| Internal Channel Temperature Resolution                         | 0.1 °C (0.18 °F)                                                                          |
| Internal Channel Accuracy                                       | ±0.50 °C                                                                                  |
| Remote Channel Temperature Sensor, Range, Resolution & Accuracy | *See Table for Details                                                                    |
| Cold Junction Compensation                                      | Automatic                                                                                 |
| Channels                                                        | 1 internal & 1 remote                                                                     |
| Memory                                                          | 1,000,000 readings; 500,000 readings in multiple start/stop mode or trigger settings mode |
| Wrap Around                                                     | Yes                                                                                       |
| Reading Rate                                                    | 1 reading every second up to 1 reading every 24 hours                                     |
| LED Indicator                                                   | Red and Green                                                                             |
| Required Interface Package                                      | IFC200                                                                                    |
| Baud Rate                                                       | 115,200                                                                                   |
| Typical Battery Life                                            | 10 years at a 15 minute reading rate                                                      |
| Operating Environment                                           | -40 °C to +80 °C (-40 °F to +176 °F),<br>0 %RH to 95 %RH non-condensing                   |
| Material                                                        | ABS plastic                                                                               |
| Dimensions                                                      | 1.4 in x 2.2 in x 0.6 in (36 mm x 56 mm x 16 mm)                                          |
| Weight                                                          | 0.9 oz (24 g)                                                                             |
| Approvals                                                       | CE                                                                                        |

\* Remote Channel Range, Resolution & Accuracy

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

### Battery Warning

**WARNING: FIRE, EXPLOSION, AND SEVERE BURN HAZARD. DO NOT SHORT CIRCUIT, CHARGE, FORCE OVER DISCHARGE, DISASSEMBLE, CRUSH, PENETRATE OR INCINERATE. BATTERY MAY LEAK OR EXPLODE IF HEATED ABOVE 80 °C (176 °F).**



### TC101A

Thermocouple Based Temperature Recorder

## Product Notes

### Thermocouple Type

To change the thermocouple type:

- In the **Connected Devices** panel, click the device desired.
- On the **Device** Tab, in the **Information** Group, click **Properties**. Or, right-click the device and select **Properties** in the context menu.
- On the **General** Tab, change the **Thermocouple type** in the drop down menu.
- Apply these changes, there will be a prompt to reset the device, select **yes**.

### LEDs

- **Green LED blinks**: 10 seconds to indicate logging and 15 seconds to indicate delay start mode
- **Red LED blinks**: 10 seconds to indicate low battery and/or memory and 1 second to indicate an alarm condition

### Password Protection

An optional password may be programmed into the device to restrict access to configuration options. Data may be read out without the password.

### Multiple Start/Stop Mode Activation

- **To start device**: Press and hold the pushbutton for 5 seconds, the green LED will flash during this time. The device has started logging.
- **To stop the device**: Press and hold the pushbutton for 5 seconds, the red LED will flash during this time. The device has stopped logging.

### Alarm and Cumulative Alarm Delay

To change the alarm setting of a device:

- In the **Connected devices** panel, select the intended device to change the alarm settings.
- On the **Device** tab, in the **Information** group, click **Properties**. Users can also right-click on the device and select **Properties** in the context menu.
- Click the **Alarm** tab. If the Alarm tab is missing, the device does not have any alarm settings.

Configure the alarm settings:

- The **High** and **Low** settings indicate reading thresholds at which the alarm becomes active.
- The **Warn high** and **Warn low** settings indicate reading thresholds at which the alarm warning becomes active.
- The **Delay** setting indicates how long to wait before the alarm becomes active after passing an alarm threshold.
- The **Use cumulative alarm delay** checkbox indicates whether the alarm delay should reset when reading values fall back within the alarm threshold. *Note: Available settings vary per model.*
- Click the **Apply** button. *Note: Time durations between 12 hours to 23 hours, 59 minutes and 59 seconds may not be programmed. Only time durations up to 11 hours, 59 minutes and 59 seconds may be set in the hh:mm:ss field and the day field represents a 24 hour period.*

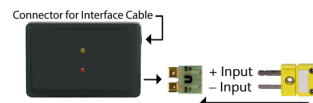
### Trigger Setting

The device can be programmed to only record based off user configured trigger settings. Choose Trigger Settings from the Device Menu: Start Device or Identify Device and Read Status. Trigger formats are available in Window and Two Point (*bi-level*) mode. Window allows for one range of temperature monitoring and two point mode allows for two ranges.

## Wiring the Data Logger

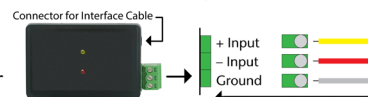
### MP Model Wiring

The standard connector is the SMP connection which allows for the user to insert a subminiature thermocouple plug into the connector on the device.



### ST and TB Model Wiring

The TC101A-ST and TC101A-TB have a three position removable screw terminal. This enables the data logger



to be connected to most 3-wire thermocouples with lead wires. *Note: Be sure to connect the thermocouple with the right polarity as marked on the device case.*

The TC101A-ST and TC101A-TB have the ability to shield the thermocouple with the ground connection. When using a 2-wire thermocouple, leave the ground input unconnected.

## Installation and Operation

### Installing the software

Insert the MadgeTech 4 Software USB flash drive into an available USB port on the PC. If the autorun does not appear, locate the drive on the computer and double click **Autorun.exe**. Follow the instructions in the Wizard.

### Installing the Interface Cable

- IFC200: Insert the device into a USB port. The drivers will install automatically.

### Starting the Data Logger

- Once the software is installed and running, plug the interface cable into the data logger.
- Connect the USB end of the interface cable into an open USB port on the computer.
- The device will appear in the Connected Devices list, highlight the desired data logger.
- 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.*)
- The status of the device will change to **"Running"**, **"Waiting to Start"** or **"Waiting to Manual Start"**, depending upon your start method.
- Disconnect the data logger from the interface cable 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

- Highlight the data logger in the Connected Devices list. Click **"Stop"** on the menu bar.
- Once the data logger is stopped, with the logger highlighted, click **"Download"**. You will be prompted to name your report.
- Downloading will offload and save all the recorded data to the PC.

## Device Maintenance

### Battery Replacement

Materials:

**Small Phillips Head Screwdriver and a Replacement Battery (LTC-7PN)**

- Puncture the center of the back label with the screw driver and unscrew the enclosure.
- Remove the battery by pulling it perpendicular to the circuit board.
- Insert the new battery into the terminals and verify it is secure.
- Screw the enclosure back together securely.

*Note: Be sure not to over tighten the screws or strip the threads.*

### Recalibration

The TC101A standard calibration is two points at 25 °C and 60 °C for the internal sensor and 0 mV for the Thermocouple channel.