

Part Number	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
Sample Rate	1 second up to 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), 0 to 95%RH non-condensing
Material	ABS plastic
Dimensions	1.4" x 2.2" x 0.6" (36mm x 56mm x 16mm)
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).**

Specifications subject to change.

See MadgeTech's terms and conditions at [www.madgetech.com](http://www.madgetech.com)

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### TC101A

Thermocouple Based Temperature Recorder

## 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.

### Connecting the Data Logger

- Launch the MadgeTech 4 Software. Plug one end of the interface cable into the IFC200 and the opposite end into the data logger.

### Starting the Data Logger

- Click **Device** tab in the MadgeTech 4 Software.
- The data logger should appear in the connected devices list.
- Choose the desired **Start** method and a **Reading Rate** suitable for your application.
- Enter in any other desired parameters and click **Start**.
- Wait until the status of the connected data logger displays "Running" to confirm it has started successfully.
- 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.*

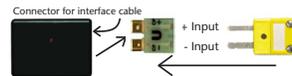
### Downloading data from a data logger

- Connect the data logger to the interface cable on the PC.
- Click on the device in the connected devices list, right click and select **download**.

## Wiring the Data Logger

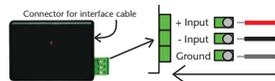
### MP Model Wiring

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.

## Product Notes

### Thermocouple Type

To change the thermocouple type:

- Select the Device Menu, then Identify Device and Read Status.
- Select the Device Detail tab, then Thermocouple Type.
- Click on the **Change** button in the Thermocouple Type window.
- Select the correct thermocouple type from the drop down list.
- Click on the **Save** button to store the thermocouple type in the device then click **OK**.

### 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 set an alarm, click Device Menu: Identify Device and Read Status: Device Detail Tab or Device Menu: Start Device. Select Alarm Settings. Check the Enable Alarm Settings box to program the alarm. Enter the high and low values into the corresponding fields. Check the Cumulative Alarm Delay box to enable the time duration alarm. With this selected, the device will only alarm after it has recorded the same amount of data as the time duration of data entered. 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.

## 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 0mV for the Thermocouple channel.

### Pricing:

Recalibration traceable to NIST	\$70.00
Recalibration	\$40.00

*Prices and specifications subject to change. See MadgeTech's terms and conditions at [www.madgetech.com](http://www.madgetech.com).*

*To send the devices back, visit [www.madgetech.com](http://www.madgetech.com), select Services then RMA Process.*