

TruTrack Data Logger

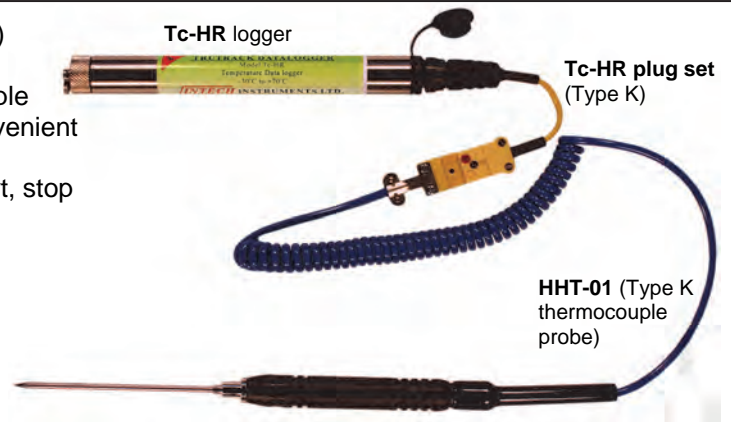
Thermocouple Temperature Logger Model Tc-HR

Two Channel High Resolution (16 bit) Temperature Data Logger.

The Tc-HR is a small Two Channel High Resolution (16 bit) Temperature data logger housed in a rugged 304 stainless steel case. The logger connects to an external Thermocouple probe and also has an internal temperature sensor for convenient logging of ambient temperature if desired. Logging can be configured to: start on time, immediate start, stop when full, loop around (overwrite oldest data).

Features.

- Over 500,000 samples can be logged (when logging thermocouple only)!
- The logger accepts Type J, K, N, R and T thermocouple probes (factory set to Type K).
- Temperature can be set to any combination of Point, Average, Maximum & Minimum readings.
- The battery voltage of the logger can be logged if required.
- The logger can be run in either “Stop when memory is Full”, “Loop Around” mode or set to stop at a future time.
- The logger can be started “Now”, started at a given time in the future or on a condition (e.g. temperature >20°C).
- The data from any logger that records Temperature can be processed, by the Omni7/OmniLog software, to give daily, weekly and monthly accumulated Grow Degree Day reports for a wide range of horticultural crops.

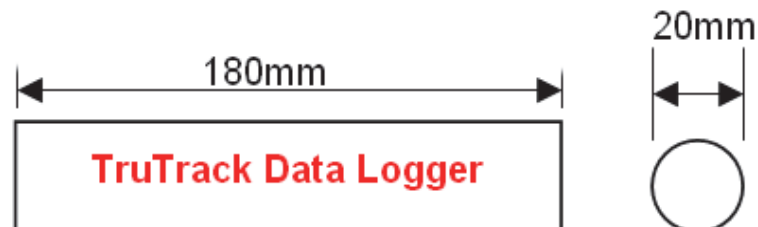


Ordering Information. Tc-HR Thermocouple Temperature data logger
Tc-HR plug set 70mm lead (specify thermocouple type)

Includes Switchcraft plug (logger end) and Mini jack (connects to T/c Mini plug). Mini plugs are also available on request.

Please Note: The Tc-HR data logger is not supplied with a thermocouple probe. These can be ordered separately from Intech Instruments Ltd if required.

Tc-HR (mark 4) Dimensions.



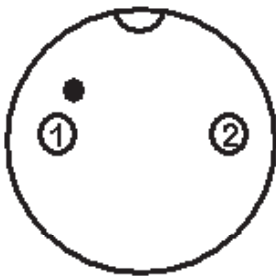
Putting into service (Using Omni7 - the original OmniLog differs slightly).

1. From the SWDL-DLC Omni7 software and Download cable kit, **first install the Omni7 software**, then plug the Download cable into a spare USB or serial port on your PC (depending on which type you have). The Omni7 has an excellent “Help”. This will need to be read to enable successful operation of the Omni7 Data Management Program and gain familiarisation of the many advanced features available.
2. Connect the data logger to the download cable. Select the correct connection type on the Omni7 screen. Omni7 requires manual connection and disconnection to the data logger using the Green 'Connect' and Red 'Disconnect' buttons. It will not connect to a data logger automatically. (Refer to “Help” for further assistance.)
3. On the “Logger Control” screen, click on “Channel and Probe Setup” button, and check the Battery Condition, plus other configurations.
4. Now click on the “Start Logger” tab for the final configurations, before putting the logger into service.

Product Liability. This information describes our products. It does not constitute guaranteed properties and is not intended to affirm the suitability of a product for a particular application. Due to ongoing research and development, designs, specifications, and documentation are subject to change without notification. Regrettably, omissions and exceptions cannot be completely ruled out. No liability will be accepted for errors, omissions or amendments to this specification. Technical data are always specified by their average values and are based on Standard Calibration Units at 25C, unless otherwise specified. Each product is subject to the ‘Conditions of Sale’.

Warning: These products are not designed for use in, and should not be used for patient connected applications. In any critical installation an independent fail-safe back-up system must always be implemented.

Specifications.

Thermocouple Input:	External Sensor Connector	2 pin Switchcraft Plug (EN3C2M)			
		Weatherproof; IP66			
	Pinout	1 Positive			
		2 Negative			
	Temperature Coefficient	±0.1% per °C of logger Temperature			
	Temperature Range	Type	Min Temp	Max Temp	
		J	-200°C	900°C	
		K	-250°C	1300°C	
		N	-250°C	1300°C	
		R	-50°C	1760°C	
		T	-250°C	400°C	
	Accuracy	Type	Min Temp	At 0°C	Max Temp
This is the logger accuracy only and does not include inaccuracies in the particular thermocouple probe used.		J	±1.0°C	±0.5°C	±1.0°C
		K	±1.0°C	±0.5°C	±1.0°C
		N	±2.0°C	±1.0°C	±1.0°C
		R	±3.5°C	±2.0°C	±2.0°C
		T	±1.0°C	±0.5°C	±0.5°C
	Resolution	±0.1°C			
The thermocouple input can also be used as a -50mV to +50mV DC input.		Resolution	0.01mV		
		Accuracy	±0.02mV		
Internal Temperature:	Sensor Type	Thermister			
	Linear accuracy over range	±0.3°C (0°C to 70°C)			
	Repeatability	±0.1°C			
	Long term stability	±0.1°C			
Logger:	Working Temperature	-30°C to +70°C			
	Storage Temperature	-30°C to +70°C			
	Sampling Rate	1 second minimum, 10 hours maximum; in 1 second intervals			
	Storage capacity	522,240 samples logging thermocouple only			
		362 days with 1min logging interval; 4.9 years with 5min logging interval			
	Alarms	Two independent Alarms			
		Triggered on any combination of six user configurable Alarm Conditions			
		Both alarms can be configured to send SMS messages			
		Alarms can be visually checked using the Omni7/OmniLog Software			
	Start modes	Start immediately / Start on date/time /			
		Start on condition (e.g. temperature > 20°C)			
	Stop modes	Stop when memory is full / Stop on date/time /			
		Loop around (continues logging)			
	Logging modes	Each channel can be set to log any combination of:			
		- Point readings	- Maximum reading		
		- Average reading	- Minimum reading		
	Warning:	When using the Average, Maximum or Minimum reading(s), the logger reads the attached sensor(s) every second. This will reduce battery life.			
	Battery	One to Five year life depending on usage as above			
		Using the logger in temperatures below -5°C (23°F) will reduce battery life			
		One TruTrack 7.2V lithium cell; User Replaceable			
		The data is retained in the case of battery failure			
		Battery Status Monitor in Omni7/OmniLog software			
	Download time	9 minutes 30 seconds for Full Logger			
	Case material	304 Stainless tube			
	Screw on end cap	Plated brass			
	Weight	140g			
	Size	20mm diameter X 180mm long			

A **DLC3USB [USB]** or **DLC3 [RS232]** **download cable** is required to connect the Tc-HR to a computer.

Thermocouple Probe Setup.

The Tc-HR is factory set for use with type K thermocouple probes.

For other thermocouple probe types the Tc-HR needs to be setup for the correct thermocouple probe type using a computer and the Omni7/OmniLog software. There is no need to alter these settings if you are using a type K thermocouple probe!

To set the Thermocouple probe type of the Tc-HR:

- Run the Omni7/OmniLog software.
- Connect to the logger using a **DLC3USB** [USB] or **DLC3** [RS232] **download cable**.
- Select the Logger Control window.
- Select the 'Channel and Probe Setup' tab.
- Select the 'Ext Temperature (Ch1)' tab.
- In the Probe box, select the required Thermocouple Probe Type.
- Click on the "Write Unit Scaling and Calibration Values to the Logger" button.

The screenshot displays the 'Logger Control' software interface. The 'Channel and Probe Setup' tab is active, showing settings for 'Ext Temperature (Ch1)'. The 'Probe' dropdown menu is open, listing various thermocouple types: K Thermocouple Digital, J Thermocouple Digital, N Thermocouple Digital, T Thermocouple Digital, R Thermocouple Digital, and ±50mV Digital. The 'K Thermocouple Digital' option is selected. The 'Units and Scaling' section includes fields for Offset (0.00000000), Gain (1.00000000), Units (°C), and Decimal Places (1). The 'Calibration' section shows 'First Point' and 'Second Point' fields, with the 'Second Point' value set to 0.00 mV. A 'Write Unit, Scaling and Calibration values to the Logger' button is located at the bottom right.

Note: For complete calibration instructions for each Thermocouple probe type, please refer to the Omni7/OmniLog Help.

Tc-HR plug set.

The **Tc-HR plug set** is designed to make connecting thermocouple probes with the Tc-HR logger easy!

Specify the Thermocouple Type when ordering.

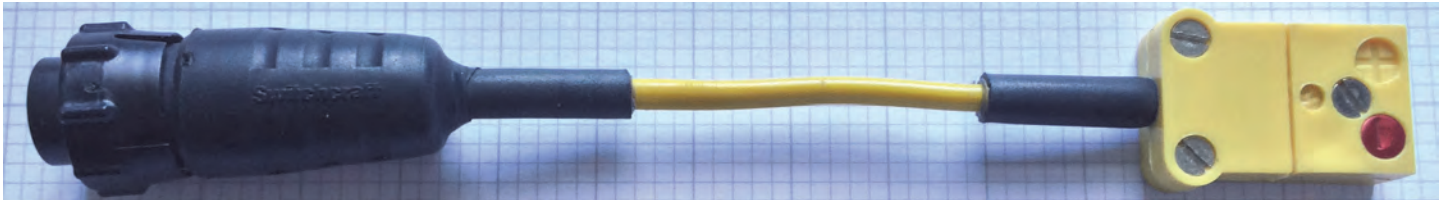
Note: Thermocouple Type K, J & T Mini jacks/plugs are held in stock. Type N or R are on request only.

The plug set includes a Switchcraft plug (connects to the Tc-HR logger end), 70mm lead and a Mini Jack (connects to a thermocouple Mini Plug).

As the vast majority of thermocouple probes have a Plug connector (male), the **Tc-HR plug set** is supplied with a Jack connector (female).

Mini plugs can be supplied by Intech on request (which you would wire the thermocouple probe wires into).

Example Tc-HR plug set (Type K):



Example Mini Plug (Type K):
(Available on request)



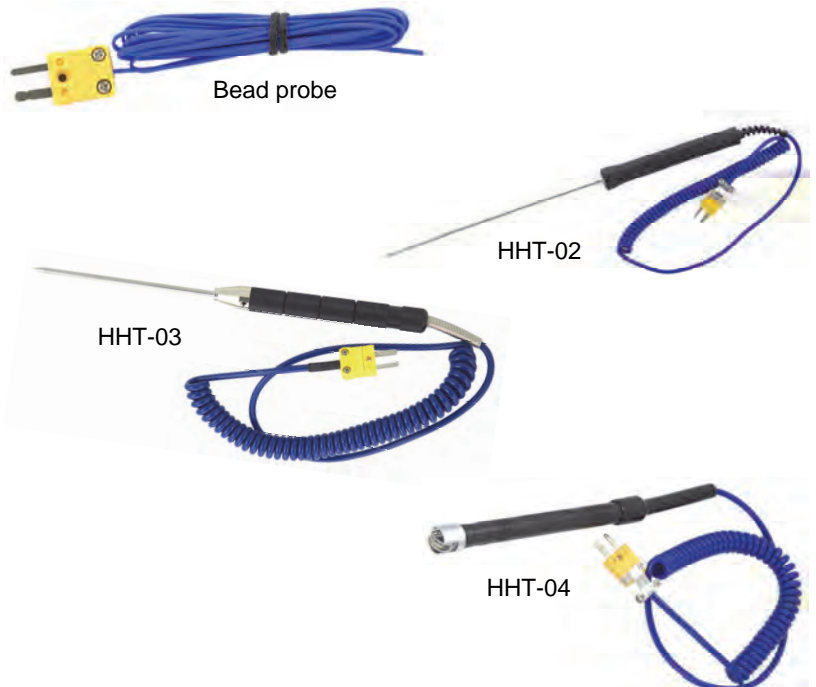
Thermocouple Probes.

The Tc-HR data logger is not supplied with a thermocouple probe. These can be ordered separately from Intech Instruments Ltd if required.

Handheld Thermocouple Probes available from Intech include:

All these probes are fitted with a 2-pin miniature plug for connection to the **Tc-HR plug set (Type K)**.

CODE	DESCRIPTION
Bead probe	Miniature plug and cable. Type K. Probe: Bead tip. Cable: 2m Teflon. Temp: min/max of probe: 0/100°C.
HHT-01	Industrial food probe. Type K. Probe: 4.7 x 100mm Spear tip. 316 Stainless steel. Cable: 900mm PVC. Curly cord. Temp: min/max of probe: -30/400°C.
HHT-02	Insertion probe. Type K. Probe: 3.2 x 200mm. Stainless steel. Cable: 900mm PVC. Temp: min/max of probe: -30/600°C.
HHT-03	Mini spear probe. Type K. Probe: 3.2 x 100mm. Stainless steel. Cable: 900mm PVC. Temp: min/max of probe: -30/300°C.
HHT-04	Surface probe. Type K. Probe: Foil sensor. Fast response. Cable: 900mm PVC. Temp: min/max of probe: 0/400°C



Note: The above covers the more common Hand-Held Thermocouple probes. We can supply thermocouple probes to your particular specification.

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