

# HEATWATCH™ TR-1

SHOCKWATCH®

**Protect sensitive products and monitor shelf-life with HeatWatch TR-1—  
A compact way to observe temperature variations**



HeatWatch™ TR-1 Label Configuration

The HeatWatch TR-1 is a new concept in temperature and spoilage monitoring. The TR-1 is based on the Dallas Semiconductor Thermochron iButton® temperature recorder. The TR-1 tracks and calculates spoilage based upon a user-defined profile. The user can program the TR-1 to create an electronic simulation of the goods being monitored. With the TR-1 behaving and reacting like the product, the user can access the unit and poll the TR-1 database to determine the condition and remaining shelf life. These critical factors are determined by the history of the storage environment and the specific spoilage characteristics of the good.

## TR-1 Features

- Operational temperature: -40°C to +85°C (-40°F to +185°F)
- Accuracy: +/- 1°C -20°C to +70°C (4°F to +158°F)
- Clock Accuracy: +/- 2 minutes per month (0°C to 45°C, 32°F to 113°F)
- Programmable mission start time
- Mission sample rate: 1 to 255 minutes
- Memory size: 2048 samples
- Histogram resolution: 2°C
- Meets UL#913 - Intrinsically safe apparatus
- Hermetically sealed stainless steel case
- High and low alarms
- Future Storage Temperature vs. Shelf Life Calculator
- FDA approved mounting adhesive in clip configuration (pending)
- Expected service life: 10 years @ 25°C (77°F)
- Software is compatible with Windows 95, Windows 98, and Windows NT

## Available Configurations

The TR-1 is available in three basic configurations; label, clip, and standalone.

The **label** configuration is normally for application of the TR-1 to packages. The label is clearly visible to everyone handling the package. This style emphasizes that the goods are being monitored and encourages attention and special care.



A **clip** configuration is suggested where size is a consideration. The clip provides a 1" diameter footprint for placement in confined areas.

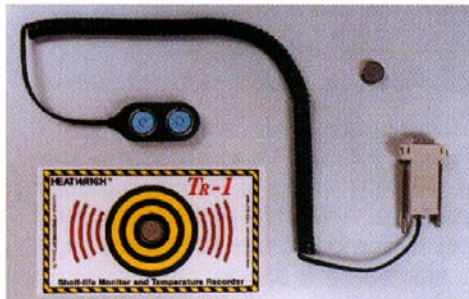


The **standalone** configuration provides the smallest form factor. Standalone devices can easily be "thrown in" with bulk shipments.

Data collected by the HeatWatch TR-1 Thermochron iButton can be extracted and read on a PC running TR-1 software when the serial interface cable is used.

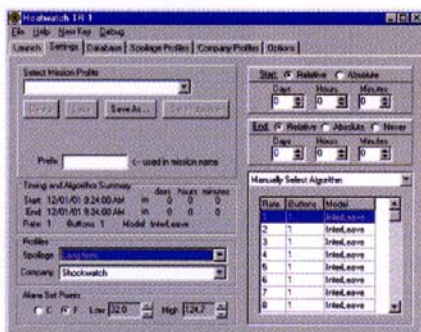
## Software

The TR-1 utilizes a patent pending software package for programming and data retrieval. TR-1 software is very user friendly and utilizes a minimal number of screens to provide the required functionality. The primary screens are Settings, Database, and Spoilage Profile.



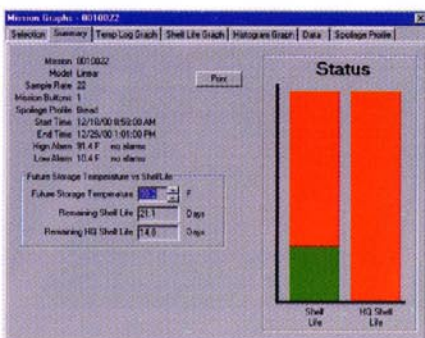
HeatWatch Label,  
HeatWatch Interface  
Cable and  
Thermicron iButton

The **Settings** screen is used to program the HeatWatch TR-1 unit and launch a recording mission. Specific information such as the spoilage profile to be referenced, the sample rate, alarm set points, mission name, and the quantity of TR-1 devices to be used are selected and programmed from this screen.



The **Spoilage Profile** screen is used to construct the specific profile that will be referenced. Up to 40 data points can be entered to describe the time/temperature relationship for the product. The user may also select and construct a "High Quality" profile based on the minimal spoilage profile but providing leeway for quality.

The **Summary** screen details the mission name, spoilage profile used, start time, stop time, high and low alarm times, as well as



a graph of the remaining Shelf Life. This screen also includes a future storage temperature calculator that details how long a product may be stored at a given temperature based upon shelf life already depleted.

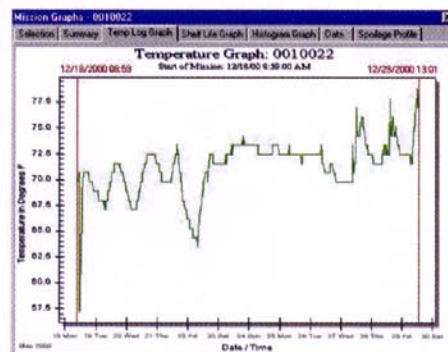
Your HeatWatch Reseller:

A **Database** screen displays previously downloaded missions. When a specific mission is accessed various graphs can be reviewed that depict different aspects of that mission.

Examples of such graphs are:

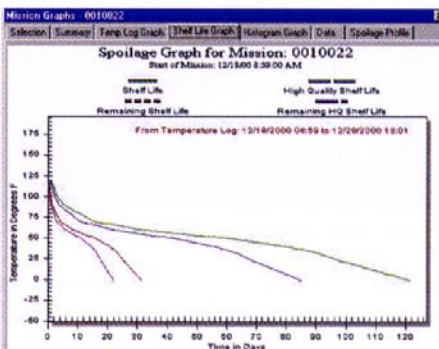
### Temperature Graph

Shows the mission temperature history as a function of time.



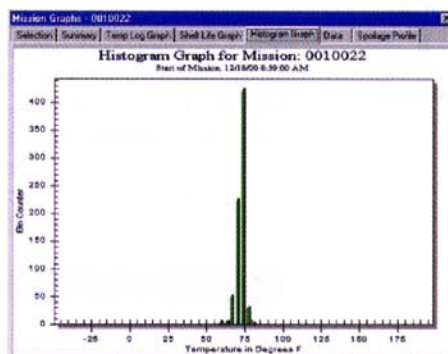
### Spoilage Graph

Shows the original shelf life and high quality shelf life as well as the current remaining shelf life and high quality shelf life.



### Histogram Graph

Shows the distribution of all samples taken during a mission. Can be used to quickly ascertain the mean mission temperatures as well as general deviations.



## About Shockwatch

Shockwatch develops, manufactures and markets a broad range of impact, tilt and environmental monitoring products built to prevent damage and enhance safety standards. Shockwatch products are recognized for their high quality, excellent reliability and forward-thinking technology. These products are distributed worldwide by a network of strategic partners and resellers. Founded in 1974, the company is headquartered in Dallas, TX and is privately owned.

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