Temperature Monitoring System with 4 Sensors for ship (cargo area, hull etc.)

Salient Features:

- 4 Sensors (Temperature or Temperature & Humidity)
- The whole system works independently without any computer connection. A laptop can be connected through USB cable for downloading the data as and when required.
- Each sensor can be programmed separately for high and low level of alerts
- Storage upto 1.5 years
- Free Software for data download (Excel or Chart)
- Voice call, SMS & Email alert(optional)
- Audible alarm / Strobe / Beacon light (optional)
- Simple plug and play device. Can be installed and commissioned without our technical supervision.
- Temperature monitoring from -100°C to 1250°C
- No annual charges

Applications

The device is suitable for the following applications:

- Places where computer connectivity & LAN network is not always available
- When sensor wire has to be extended for long distances
- Recording & monitoring of temperature for freezers, refrigerator, ship hull, hazardous areas, chemical rooms, cold rooms, freezer rooms etc

The TV2 stores over 80,000 temperatures for each sensors, which means that it will store over 1.5 year of temperature history if you are sampling temperature once every 10 minutes. If you are logging temperature and humidity it will store nine months of history for each of the four sensors. Although the TV2 can store and display temperature from absolute zero to thousands of degrees, the actual temperatures collected depends on the type of sensors being used.

In addition to showing the current conditions the TV2 can display the temperature history. Touching one of the temperatures causes the temperature history to be shown in an easy-to-read chart format. The chart can be scrolled backwards and forward. It can also be zoomed into or out of to show more or less data.

Downloads to a PC with our free TView software

The TView software is a powerful part of the Master Thermometer. It runs on your computer and can be configured to automatically copy the stored temperatures to your computer, in addition to downloading data on-demand. This ensures that you will always have a backup of your temperature history.

The data can be downloaded as an Excel Sheet or as a chart.

It can also be used to display current temperatures on your computer from multiple TV2s. So if you are using five monitors to keep tabs on twenty different refrigerators you could have a minichart displayed for each one of them on your computer.
This mini chart would show the last 100 saved temperature readings along with the current temperature. And should an alarm occur, the temperature immediately turns red.

Our optional Email software will send an email or text message when an alarm occurs as long as the Master Thermometer is attached to a USB port on your computer. The USB power/interface cable can be plugged into any USB port on your computer. Once the connection between your computer and the TV2 has been established an automatic download can be started so that every few seconds the collected data stored in the TV2 will be copied onto your computer. This automatic backup can be accessed at any time to view the temperature history or print out charts for audits.

Each Master Thermometer can monitor four different areas.

Since the Master Thermometer can track four different temperatures and humidity readings simultaneously you only need one display for all four sensors. This lowers the cost of monitoring multiple areas and means that you only have to look at one display to see what the current conditions are for all four areas.

The picture above is of one fourth of the current status display showing the current conditions for one of the four sensors and the maximum and minimum temperature recorded. The current battery charge for the sensor is also displayed.

In addition to the current status display you can also view the historical conditions for each area. The Master Thermometer has an ‘Easy Touch’ display for simple operation. To look at detailed information for one of the sensors you simply touch that temperature.

With one touch on the display a temperature chart immediately opens up so you can see what happened last night, last week, last month or even last year.

To see additional temperature history just touch the display again and scroll bars will appear on the chart.

The chart can be scrolled to the left or right to show earlier data. It can also be zoomed into or out of to show much more historical information. The chart is not only paperless it is never ending. Once all of the non-volatile memory is filled with data the newer data will roll over oldest data, so you will always have the last 80,000 measurements stored for each sensor.
**Technical Specifications:**

**Display**
- Temperature only - Four Channels
- Temperature/humidity - Eight Channels (4 temp & 4 RH)
  (In either case the screen will be divided into 4 sections and current readings will be shown continuously)
  Shows:
  1. Temperature of each sensor (4)
  2. Low battery indicator
  3. Max/Min temperature of each sensor
  4. Date and time

**Channels**
- Temperature only - Four Channels
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**Current Conditions Display**
- Shows:
  1. Temperature of each sensor (4)
  2. Low battery indicator
  3. Max/Min temperature of each sensor
  4. Date and time

**Display Resolution**
- 0.1° on LCD, 0.0001 on PC

**Monitoring**
- Continuous with active display

**Max/Min Display**
- Shows on active display. Resets with Easy Touch.

**Sensor Accuracy**
- Sensor dependent. *(See sensor specs below)*

**Size**
- 8 3/8" x 5" x 1 3/8"

**Sample Interval**
- User selectable: 1/min - 1/24hrs

**Temperature Range:**
- Sensor dependent *(see below)*

**Sensors**

**Thermistor sensor**
- -20°C to 75°C (±0.3°C), ( ±.2°C option) for glycol bottle

**Thermistor/Humidity sensor**
- -20°C to 75°C (±0.3°C), RH 0% to 100% ±3.0% w 0.5% Repeatability

**K Thermocouple sensors**
- -200°C to 1250°C. Accuracy ~±2.2°C

**E Thermocouple sensors**
- -200°C to 900°C. Accuracy ~±1.7°C

**J Thermocouple sensors**
- 0°C to 750°C. Accuracy ~±2.2°C

**T Thermocouple sensors**
- -250°C to 350°C. Accuracy ~±1.0°C

Note: All thermistor and thermocouple sensors come with a 3-foot wire ending in a 2 inch stainless steel probe.
1. Out of temperature range (high and low)
2. Low battery
3. Low sensor battery
4. Power outage
5. Sensor out of range.

Alarm output
NO/NC contact is available which can be programmed to generate
external alert devices such as strobe/beacon light/phone dialer etc.

Calibration:
Optional NIST traceable

Characterization:
One - three point calibration table

Data Storage Technique
Battery backed-up non-volatile memory

Non-volatile memory
80000 samples per channel

Power
Via USB cable or screw terminals 5-24vdc

Battery Backup
>40 hrs while in sleep mode. 3 AA batteries.

Output to PC
USB cable

PC Software
Site license included

Indicators
LCD & LED

Controls
Easy Touch display response to a finger touch

User Settings
On board password-protected menu

LCD Pixels
488 horizontal x 270 vertical

LCD Temperatures
Operating 0°C to 50°C, storage -20°C to 68°C

LCD size
2.5" x 4.5"

LED
Green indicates AC power present

Relay
Dry N/O with 2 terminal clamp<30v fused for .5 amp

Mounting
Wall mount - Velcro.

Display weight
1 lb

Shipping weight
4.5 lbs with power adaptor, sensors & cables

Optional accessories (to be specified at the time of ordering)
1. Sensors of extra length
2. Phone dialer with SMS which operates on SIM card
3. Strobe (Siren) with 100 dB sound level
4. Calibration certificate