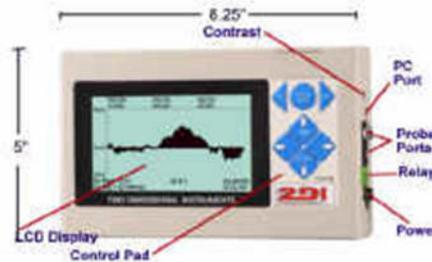


CAESA-LAB INC.

ThermaViewer Specifications

Description:

ThermaViewer is a carefully engineered temperature only or temperature/RH recorder, which displays days, weeks, months and even years of temperature history on its large LCD panel display. The encrypted temperatures can be downloaded (typically once every few months), to a computer with the [TView program](#) for archiving or printing. Archived data can be stored to disk and examined in graphic or tabular form.



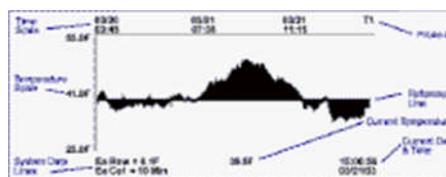
Details:

The **ThermaViewer** stores **80,000 data samples** per channel, which means that it will store over 1.5 year of data if you are sampling temperature only. If you are logging temperature and humidity it will store slightly less than one year of history for each of the four channels (2-temp & 2 RH) if data is recorded every ten minutes. Although the **ThermaViewer** can store and display temperature from absolute zero to thousands of degrees, the actual temperatures collected depends on the sensors being used.

Sensors with accuracy to $\pm 0.3^{\circ}\text{C}$, suitable for monitoring refrigerators, freezers, super cold freezers, incubators, computer rooms, laboratories, ovens, etc are available.

A password-protected menu is used to set system and display parameters such as high and low temperatures, sampling intervals, display interval and alarm/relay levels. Since the menu system is password protected the **ThermaViewer** can be placed in high traffic areas so that every staff member can be part of your quality control process.

The **ThermaViewer** is powered by a 15vdc power adapter with a 9vdc battery backup. It enters battery mode where the display 'sleeps' if power is interrupted. While the display is asleep, the sensors continue to collect temperatures for several days. In the event that power is not restored before the 9vdc battery is depleted, the stored data will still be retained for a while, although the unit will not collect new data. Once power is restored, the display wakes up.



The ThermaViewer Display:

The Liquid Crystal Display is a black & white, backlit, graphic display, controlled by a microprocessor which displays 180 columns of temperature data at all times. This means that three hours of data is displayed if data is being recorded once a minute, or thirty hours of data is displayed if data is being recorded once every ten minutes. However, it is possible to view more than 180 temperatures on the display at one time. Each time the '**zoom out**' button is pressed, the number of temperatures displayed doubles. This unique feature makes it possible to display over 23,000 temperatures on the LCD at one time. While in a zoomed-out mode a solid black vertical **data bar** (High-Low Bar or HL Bar) is drawn in each column showing temperature. The top of the data bar is the high temperature for the interval and the bottom end of the bar shows the low temperature. This feature works like the stock market charts which show months of data with daily high and low prices graphed in each column.

To view previous temperatures, the user scrolls backwards using the '**left arrow button**'. Continuing to scroll beyond the left margin of the LCD will cause additional data to scroll into view. This makes it possible to see months of data in great detail a few days or hours at a time.

The bottom two rows of the display are used for system-data showing the scale for both row and column values as well as the current temperature, date, and time.

Technical Specifications:

Number of Channels	Temperature only - 2, temp/RH - 4
Size	8 3/8" x 5" x 1 3/8"
Sample Interval	User selectable 5 sec-24 hrs
Display Resolution	0.1° on LCD, 0.0001 on PC
Temp Range:	Sensor dependent.
Digital sensor :	-20°C to 75°C (~±1.0°C Typical) (cannot be calibrated)
Thermistor :	-20°C to 75°C (±0.3°C), (±2°C option)
Thermistor/RH :	-20°C to 75°C (±0.3°C), ±2.5% RH 0.5% Repeatability
Thermistor with SS sensor:	-62°C to 120°C (±0.3°C)
K Thermocouple :	-200°C to 1250°C (±1.2°C CJC Typical).
<i>CJC = cold junction compensation</i>	
-200°C to -74°C	2%
-168°C to +285°C	±2.3°C or ±0.75%
+285°C to +816°C	.75%
+816°C to 1250°C	1.75%.

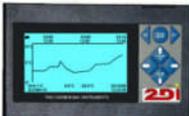
Humidity	2% - 99% ($\pm 2\%$ at 23°C) Noncondensing
Calibration	Optional NIST traceable
Characterization:	One - three point table stored on 02 or 05 sensors
Data Storage Technique	Battery backed-up SRAM
SRAM	80000 samples per channel
Power	15-18vdc, 50/60hz (wall adaptor) 400-700mA
Battery Backup	>40 hrs w sleep mode set to 30 seconds. 9vdc battery.
Output to PC	RS232 via custom cable
PC Software	Site license included
Indicators	LCD & LED
Controls	Seven buttons on membrane switch
User Settings	Via onboard password protected menu system
LCD Pixels	240 horizontal x 128 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	Contact with 2 terminal clamp<30v fused for .1 amp
Alarm conditions	min & max for time interval
Mounting	Wall mount via screw slots or industrial Velcro.
Display weight	1 lb
Shipping weight	4.0 lbs with power adaptor, sensors & cables

ThermaViewers with 2 sensors

TDVD-01

ThermaViewer for 2 refrigerators/freezers with 2 sensors (-20°C to 85°C), 2 sensor cables, power supply, PC interface cable, PC interface software, battery backup, 1 year warranty. No characterization for this sensor. Accuracy $\sim \pm 1.0^\circ\text{C}$ @ 25°C.



TDVD-02	<p>High Accuracy ThermaViewer w/ 2 thermistor sensors (-20°C to 85°C). Ships with 2 sensors, 2 twenty foot sensor cables, PC interface software, PC interface cable, battery backup, 1 year warranty. 3 point characterization on sensor. Accuracy $\pm 0.3^{\circ}\text{C}$.</p>	
TDVD-05	<p>ThermaViewer w 2 K-type thermocouple sensors for temperatures between -250°C to 1250°C. Ships with 2 sensors, 2 twenty foot sensor cables, PC interface software, PC interface cable, battery backup, 1 year warranty. 3 point characterization on sensor. Accuracy $\sim \pm 1.5^{\circ}\text{C}$.</p>	
TDVDR-02	<p>ThermaViewer w 2 thermistor/RH sensors (-20°C to 85°C). Ships with 2 sensors, 2 twenty foot sensor cables, PC interface software, PC interface cable, battery backup, 1 year warranty. 3 point characterization on sensor. Accuracy $\pm 0.3^{\circ}\text{C}$.</p>	
<p>ThermaViewers with 1 sensor</p>		
TDVD-01-1	<p>ThermaViewer for 1 refrigerators or freezer with 1 sensors(-20°C to 85°C), 1 sensor cables, power supply, PC interface cable, PC interface software, battery backup, 1 year warranty. No characterization for this sensor. Accuracy $\sim \pm 1.0^{\circ}\text{C}$ @ 25°C.</p>	
TDVD-02-1	<p>High Accuracy ThermaViewer with 1 thermistor sensors (-20°C to 85°C). Ships with 1 sensor, 1 twenty foot sensor cables, PC interface software, PC interface cable, battery backup, 1 year warranty. 3 point characterization on sensor. Accuracy $\pm 0.3^{\circ}\text{C}$.</p>	
TDVD-05-1	<p>ThermaViewer w 1 K-type thermocouple sensor for temperatures between -250°C to 1250°C. Ships with 1 sensor, 1 twenty foot sensor cables, PC interface software, PC interface cable, battery backup, 1-year warranty. 3 point characterization on sensor. Accuracy $\sim \pm 1.5^{\circ}\text{C}$.</p>	
TDVDR-02-1	<p>ThermaViewer w 1 thermistor/RH sensors -20°C to 85°C). Ships with 1 sensor, 1 twenty foot sensor cables, PC interface software, PC interface cable, battery backup, 1 year warranty. 3 point characterization on sensor. Accuracy $\pm 0.3^{\circ}\text{C}$.</p>	
APD-10	<p>Automatic Phone Dialer - Calls 4 phone numbers (phones, pagers, cell phones, answering machine, etc.) and leaves a 16 second message. Can be used with PM-1 power supply.</p>	
ACC	<p>Accessories for ThermaViewer. Alarm, dialer, sensors, accuracy upgrades, calibration, extra-long cables, etc.</p>	

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