



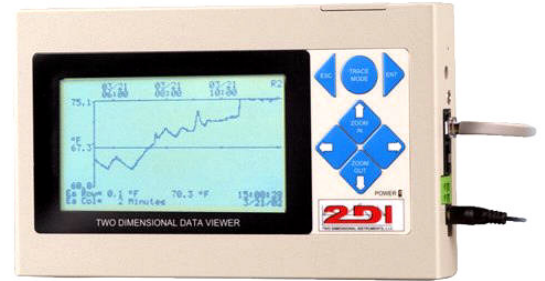
# APPLICATION NOTE: 303

## Monitoring vaccines stored in Refrigerators and freezers

Hospitals, laboratories, doctors, health clinics, and even National Guard units store temperature sensitive medicines and vaccines in refrigerators and freezer. They are required to monitor and document the storage temperatures by various government agencies. They also need to know if the refrigerator or freezer begins to get too hot or cold. Paired with the auto dialer the unit will call four phone numbers if the temperature moves outside the preset limits.

The ThermaViewer is an ideal instrument for monitoring the temperature of a refrigerator and a freezer. It is accurate and automatic, easy to setup and interfaces with the autodialer for emergency notification. It provides continuous monitoring and indicates trends so that corrective action can be taken.

Using a ThermaViewer is simple, with minimum set-up time required. It needs no programming or maintenance. It needs no paper or pens. Simply plug the ThermaViewer into a wall socket and begin collecting temperature information immediately.



**ThermaViewer**

Installation of the ThermaViewer is a simple 5 step process:

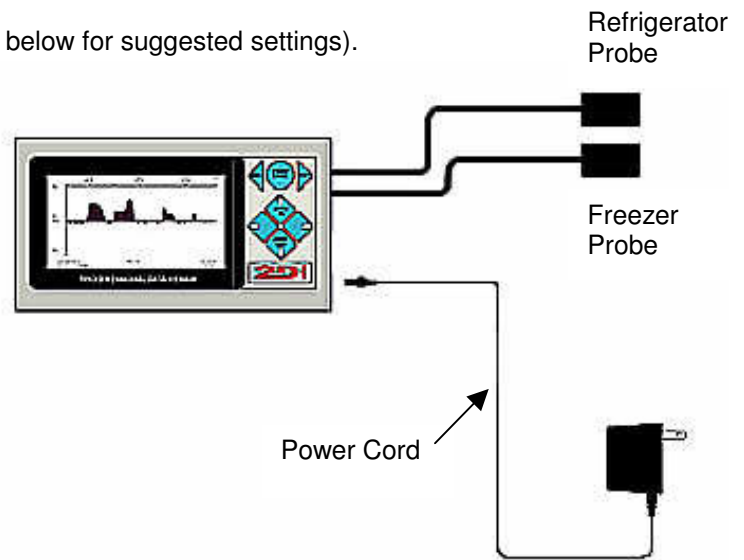
1. Position the two sensor modules in the refrigerators and/or freezers to be monitored.
2. Route and Plug in the two 20 foot cables (Longer cables are available as an option).
3. Plug the power adaptor into a wall socket and into the ThermaViewer.
4. Attach the auto dialer (if purchased).
5. Set the time and monitoring frequency (see below for suggested settings).

**What to Order:**

- TDVD-01 ( $\pm 1^{\circ}\text{C}$ )                      \$ 549.00

**Optional Items:**

- TDVD-02 ( $\pm 0.2^{\circ}\text{C}$ )                      \$ 649.00
- Auto-dialer with cable<sup>2</sup>                \$ 169.00
- 100 foot cable                              \$ 45.00



**Two Dimensional Instruments**



# APPLICATION NOTE: 303

## Installation and Setup

Mount the ThermaViewer display unit near the refrigerator and freezer. Position one probe in the refrigerator and one in the freezer to monitor the temperature of each. The probes are normally placed about ½ way up from the floor and about ½ way back inside the unit to monitor the average temperature maintained within that appliance. (If your standards call for positioning the probes in other locations you should follow those guidelines.) You should avoid mounting the probe near the ceiling of a freezer because during the defrost cycle the air temperature in this area could be as high as 55° for the duration of the cycle. This will trigger a false alarm or cause a very high temperature reading to appear on the display unit.

The following are suggested settings. You should use the settings required by your standards based on your HACCP plan.

### Suggested settings:

<b>Refrigerator Probe</b>	
Sample Data every	15 seconds
Store Data every	10 minutes
Recorded Temperature	Average
Temperature Scale	F°
Maximum Display Temperature	50°
Minimum Display Temperature	30°
Reference Line	40°
Relay Enabled <sup>3</sup>	
Activate Relay for	0:10 (min:sec)
When Temp >	50° for 6 stored temperatures
When Temp <	32° for 6 stored temperatures

<b>Freezer Probe</b>	
Sample Data every	15 seconds
Store Data every	10 minutes
Recorded Temperature	Average
Temperature Scale	F°
Maximum Display Temperature	20°
Minimum Display Temperature	-20°
Reference Line	5°
Relay Enabled <sup>3</sup>	
Activate Relay for	0:10 (min:sec)
When Temp >	-5° for 3 stored temperatures
When Temp <	-20° for 6 stored temperatures

Setting the probes to sample data every 15 seconds and store data every 10 minutes causes the ThermaViewer to take forty samples then plot and store the average of those forty readings. This insures that the graph actually reflect the internal temperature of the stored vaccines and medicines rather than the air temperature of the refrigerator or freezer. Momentary dips and rises of the air temperature, which occur when the door is opened or the defrost cycle kicks in are not enough to affect the actual vaccine or medicine temperature and can safely be averaged over the 10 minute period between readings.

### Downloading data:

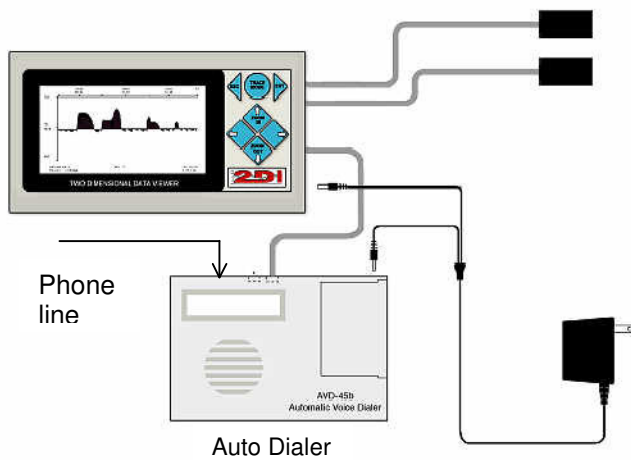
The ThermaViewer will hold ten months of temperature data for each probe with the settings listed above. A regular schedule for downloading data from the ThermaViewer should be established so that a back up copy of the data is maintained in your computer. You can also print out a copy of the graph with the same program that downloads data to your computer (TView).

<sup>3</sup> Enable the relay only if you have an alarm or the optional auto-dialer wired to the relay.

# APPLICATION NOTE: 102

## Optional Auto-Dialer

The ThermaViewer comes equipped with a dry-contact relay that can be used to trigger an alarm or auto dialer if alarm conditions are met. If an auto dialer is ordered with a ThermaViewer, a power supply with two leads is supplied to provide power for both the ThermaViewer and the auto-dialer. The auto dialer will call four phone numbers (i.e. phone, pager, answering machine or service) and leave a 16 second message when triggered by the ThermaViewer. It will keep calling the four numbers until someone picks up and the message is delivered.



The auto dialer should be set as follows:

- 60 second exit delay
- 20 second entry delay
- N.O. (meaning that the relay is normally open).
- MOM (meaning that it only takes a momentary activation from the relay to trigger the dialer).

A relay test function on the System Parameter of the ThermaViewer causes the relay to be immediately triggered. Entering 'yes' in this field causes the ThermaViewer causes the auto dialer to immediately call the four phone numbers stored in its memory. Allow 90 seconds to elapse between the time you exit the programming mode of the auto dialer and you activate the relay.