



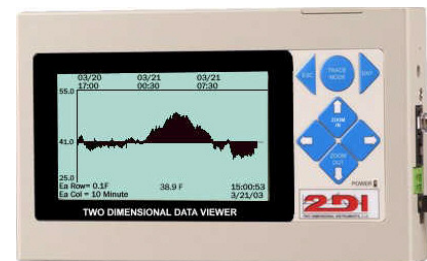
## APPLICATION NOTE: 304

### Using the ThermaViewer to monitor incubators

It is critical that the temperature be monitored and documented in incubators. These temperature records can become part of test results and procedures as well as serving as trouble shooting tools if equipment fails or becomes erratic. [Additionally, ISO 9000 standards may require continuous monitoring and documentation of temperature for a facility.](#)

The ThermaViewer is an ideal instrument for monitoring and documenting the temperature for incubators. It is supplied with two temperature ( $\pm 1.0^{\circ}\text{C}$ ) sensors, to monitor and document the temperature for two different incubators.

It is accurate and automatic, providing continuous monitoring and requires no special skills to read and interpret the data. The data is constantly displayed so that any person who comes near the large LCD display is aware of the temperature that has been maintained over the last several hours or days. **It stores 1.5 years of temperature history** that can be displayed or paged through. Once downloaded to a computer the data is stored in encrypted files and can be printed out as a graph or in tabular format. It is also equipped with a dry-contact relay to trigger an alarm or auto dialer (see below) if out-of-spec conditions occur.



Using a ThermaViewer is simple, with minimum set-up required. It needs no programming, maintenance, paper or pens to monitor and document temperature and humidity over time. Simply plug the ThermaViewer into a wall socket and begin collecting temperature/RH data immediately.

Installation of the ThermaViewer is a simple 6-step process:

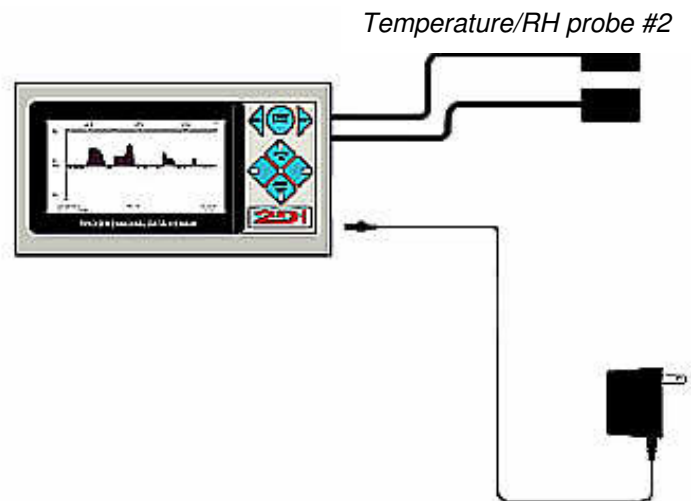
1. Position the two sensor modules in the incubators to be monitored.
2. Route and plug in the two 20 foot cables (100 foot cables are available as an option).
3. Plug the power adaptor into a wall socket and into the ThermaViewer.
4. Attach the auto dialer (if purchased).
5. Set the time and monitoring frequency (see below for suggested settings).
6. Set the alarm settings (if used)

#### What to Order:

- TDVDR-01 ( $\pm 1.0^{\circ}\text{C}$ ) (digital) \$ 579.00
- **OR**
- TDVDR-02 ( $\pm 0.3^{\circ}\text{C}$ ) (thermistor) \$ 679.00

#### Optional Items:

- Auto-dialer with cable \$ 189.00
- Local alarm (strobe & siren) \$ 50.00
- 100 foot cable \$ 50.00
- International power supply \$ 30.00  
(100-240vac, 50-60hz)





# APPLICATION NOTE: 304

## Installation and setup

Mount the ThermaViewer display unit in the room or office area near the incubators to be monitored. Position each probe in a separate space and attach the auto dialer (if purchased) to the relay connection.

*The following are suggested settings. You should use the settings required by your standards.*

### Suggested settings:

Incubator 1 Probe		Incubator 2 Probe	
Store Data every	10 minutes	Store Data every	10 minutes
Type of Averaging	Med	Type of Averaging	Med
Maximum Display Temperature	60°	Maximum Display Temperature	60°
Minimum Display Temperature	40°	Minimum Display Temperature	40°
<b>Alarm Menu</b>		<b>Alarm Menu</b>	
Relay Enabled <sup>1</sup>		Relay Enabled <sup>1</sup>	
Activate Relay for	0:10 (min:sec)	Activate Relay for	0:10 (min:sec)
If Temp > 50° for more than	00:60:00 HHMMSS	If Temp > 50° for more than	00:60:00 HHMMSS
If Temp < 35° for more than	00:50:00 HHMMSS	If Temp < 35° for more than	00:50:00 HHMMSS

**Averaging temperature:** Setting the sensors to use the 'Med' averaging will cause the sensors to sample data every 5 seconds and store data every 10 minutes. This causes the chart to more accurately reflect the internal temperature of the stored materials 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 are not enough to affect the actual stored materials and can safely be averaged over the 10 minute period between readings.

**The alarm:** In addition to the temperature alarm the **power failure alarm** will also sound (if enabled) and close the relay if the unit is operating on battery power.

**Calibration:** The Thermistor used in the TDVD-02 model sensors can be calibrated and any corrections entered into a three-point calibration table. The sensor carries the calibration corrections so that it can be moved from display to display without losing accuracy. (Note: The digital sensors used for the TDVD-01 model can not be calibrated)

### Downloading data:

The ThermaViewer will hold and chart approximately 1.5 years of temperature history for each sensor with the above settings. 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). Access to the unlicensed TView software is provided with the ThermaViewer. It can be installed on multiple computers to download the stored data.

<sup>1</sup> Enable the relay only if you have an alarm or the optional auto-dialer wired to the relay.

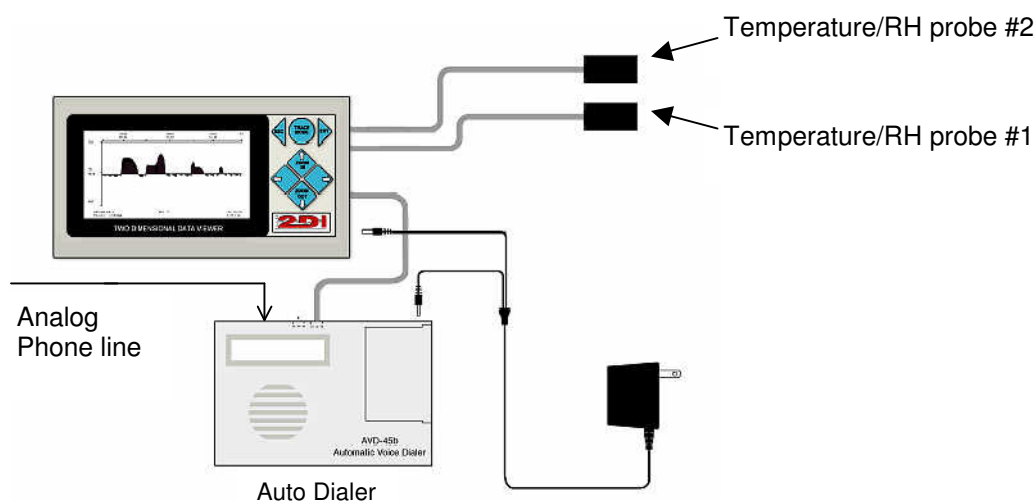
## APPLICATION NOTE: 102

### Optional Auto-Dialer

The ThermaViewer comes equipped with a dry-contact relay that can be used to trigger an alarm or auto dialer. Each probe has its own high and low trigger point. The relay, for example, can be closed when temperature rises above 50°C for more than 30 minutes or falls below 35°C for more than 20 minutes, if the suggested settings above are used. Once the relay has been triggered, the alert clock is reset. Therefore in this example, after the relay is triggered, the temperature will have to rise above 50°C for more than 30 minutes or falls below 35°C for more than 20 minutes before the relay will be triggered again.

If you need faster response time you can decrease the number of stored temperatures in the probe menus. Setting this value for 1 instead of 6 will result in triggering the relay if one measurement is above or below the set values.

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.

**Technical support for Auto Dialer only (858) 413-0149**