



APPLICATION NOTE: 401

Monitoring and documenting oven temperatures

Many manufacturing processes use heat from heaters or ovens. It is important to monitor and document the temperature of these heater or ovens over time for quality assurance. The ThermaViewer with its flexibility in sample rates and displaying data makes is ideally suited for this purpose.

It can be set to sample and store temperatures at different rates. This allows for electronically buffering the temperature. For example, the ThermaViewer can be set to sample temperature every 15 seconds and store a value every 30 minutes. In this example, it will take 120 samples and then store some value. It can store the average of these 120 samples, or the maximum of the samples. It could also store the minimum value or the exact middle of the range.

In most cases a thermocouple probe is required to sample heat. Two K-type thermocouples are supplied with the unit.

Using a ThermaViewer is simple, with minimum set-up time required. It stores and display months and even years of temperature history for each of its two probes. Because it doesn't need paper charts or pens to draw the graph, there is no ongoing labor or expense of replacing charts or pens. The graph, unlike the old paper charts, is very easy to interpret, which means that every employee will become part of your quality assurance. Each time they glance at the ThermaViewer they will see a record of the past temperatures.



It needs no programming or maintenance. Simply plug the ThermaViewer into a wall socket and begin collecting documenting temperature immediately.

Installation of the ThermaViewer is a simple 5 step process:

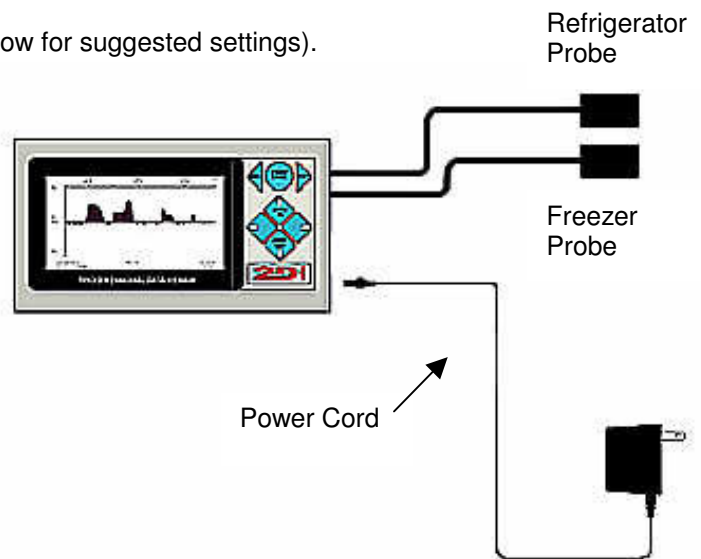
1. Position the two thermocouples in the oven or near the heater..
2. Route and Plug in the two 20 foot cables (100 foot cables are available as an option).
3. Plug the power adaptor into a wall socket and into the ThermaViewer.
4. Attach the auto dialer (if purchased).
5. Set the time and monitoring frequency (see below for suggested settings).

What to Order:

- TDVD-05 (2 K-type TC probes) \$ 649.00

Optional Items:

- Auto-dialer with cable² \$ 165.00
- 100 foot cable \$ 45.00



Order from your local distributor



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Installation and Setup

Mount the ThermaViewer display in an area that can easily be seen by everyone. Position each probe in the area to be measured.

The following are suggested settings for a hypothetical example. We will assume that we want to monitor two ovens: One that is normally maintained at 150°C and the other at 300°F. We also want to be alerted if the first oven rises to over 180°C for more than 30 minutes or falls below 100°C for more than 40 minutes. We want the second oven to maintain 300°F and want to be alerted if the temperature rises above 310°F for more than 60 minutes or falls below 280° for more than 10 minutes.

You should use the settings required by your standards based on your quality assurance plan.

Suggested settings:

1 Probe		Probe 2	
Sample Data every	15 seconds	Sample Data every	15 seconds
Store Data every	1 minutes	Store Data every	1 minutes
Recorded Temperature	Average	Recorded Temperature	Average
Temperature Scale	C°	Temperature Scale	F°
Maximum Display Temperature	200°	Maximum Display Temperature	450°
Minimum Display Temperature	100°	Minimum Display Temperature	300°
Reference Line	150°	Reference Line	400°
Relay Enabled ¹		Relay Enabled ¹	
Activate Relay for	0:10 (min:sec)	Activate Relay for	0:10 (min:sec)
When Temp > 180° for 30 stored temperatures		When Temp > 310° for 60 stored temperatures	
When Temp < 100° for 40 stored temperatures		When Temp < 280° for 10 stored temperatures	

Setting the probes to sample data every 15 seconds and store data every 1 minute causes the ThermaViewer to take four samples then plot and store the average of those four readings. In this example both probes are set to sample and store data at the same rates, but this is not a requirement of the instrument. One probe could be set to sample temperature every 15 seconds and store data every 60 seconds and the second probe could be sampling data every 30 seconds and storing data every 30 minutes. Likewise one probe could be monitoring a freezer and the second one a 1000°C oven.

Downloading data:

The ThermaViewer will hold one month of temperature data for each probe with the settings listed above. If the stored interval is longer, a longer period of time will be covered. For example, if temperature is stored once every 10 minutes the ThermaViewer will store ten months of data for each probe.

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. The ThermaViewer can also be programmed to automatically download data at regular intervals. Of course a cable between your computer and the ThermaViewer would have to remain in place. You can also print out a copy of the graph with the same program that downloads data to your computer (TView).

¹ Enable the relay only if you have an alarm or the optional auto-dialer wired to the relay. See application note 102