APPLICATON NOTE: 102

Using the ThermaViewer for HACCP compliance.

The past few years have seen an increasing number of food related illnesses. From “Stomach Flu” to food poisoning, food has been blamed for an assortment of ills. The one controllable factor that can prevent this is the temperature at which food is stored in refrigerators and freezers. Not only does improper storage temperature lead to increased likelihood of illness, but can seriously affect the quality and taste of your product.

The US government recommends that each food service business have an HACCP plan in place. Your HACCP plan should require that refrigerated food be stored between 32°F and 41°F and that frozen foods be stored below 32°F[1] and that these temperatures be monitored and documented.

The ThermaViewer is an ideal instrument for monitoring the temperature of a refrigerator and a freezer. It is accurate and automatic. It provides continuous monitoring and indicates trends so that corrective action can be taken; all requirements by the FDA for HACCP compliance.

ThermaViewer

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.

Installation of the ThermaViewer is a simple 5 step process:

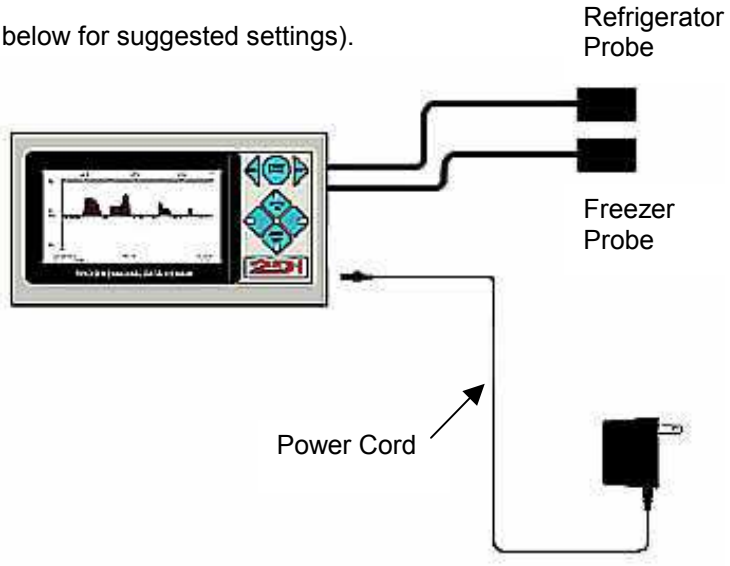
1. Position the two sensor modules in the cooler and freezer to be monitored.
2. Route and Plug in the two 20 foot cables (100 foot cables are available as an option).
3. Plug the power adaptor into a wall socket and into the ThermaViewer.
4. Attach the auto dialer (if purchased).
5. Set the time and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

What to Order:

- TDVD-01 (±1°C) $ 549.00

Optional Items:

- TDVD-02 (± 0.2°C) $ 649.00
- Auto-dialer with cable[2] $ 169.00
- 100 foot cable $ 45.00



Order from your local distributor or:

Two Dimensional Instruments

[1] See USDA reference on HACCP @ http://vm.cfsan.fda.gov/~dms/fcannex5.html
[2] A contact output is supplied to trigger an optional alarm, or Auto-Dialer.

P O Box 159 • Crestwood, KY 40014 • (877) 241-0042 • info@e2di.com • www.e2di.com

APPLICATON NOTE: 102

TWO DIMENSIONAL INSTRUMENTS, LLC

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:

Refrigerator Probe	
Sample Data every	15 seconds
Store Data every	10 minutes
Recorded Temperature	Average
Temperature Scale F°	
Maximum Display Temperature	55°
Minimum Display Temperature	30°
Reference Line	41°
Relay Enabled[3]	
Activate Relay for	0:10 (min:sec)
When Temp >	50° for 6 stored temperatures
When Temp<	32° for 6 stored temperatures

Freezer Probe	
Sample Data every	15 seconds
Store Data every	10 minutes
Recorded Temperature	Average
Temperature Scale F°	
Maximum Display Temperature	55°
Minimum Display Temperature	-20°
Reference Line	-5°
Relay Enabled[3]	
Activate Relay for	0:10 (min:sec)
When Temp >	-2° for 6 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 causes the graph to more accurately reflect the internal temperature of the stored food 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 food 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).

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