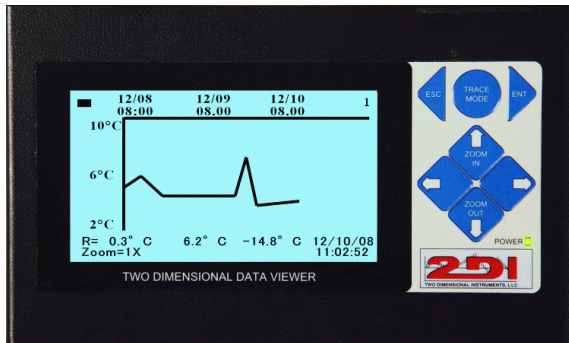




APPLICATION NOTE: 8010

Wireless Fridge-Freezer Alarm

- **Easy to install** (*installs in minutes*).
- **Easy to use** (*easy to read chart*).
- **Easy to download to a computer** (*cable & software included*).
- **Works with any refrigerator and/or freezer.**
- **Monitors 24/7.**
- **Stores & displays 9 months of temperature history.**
- **Optional auto dialer calls up to 4 different numbers.**



A quick look at the large display is all that is needed to insure that the proper temperature has been maintained over the last day, week, month or year. It shows the current temperature and over a year of temperature history for two different freezers. Its relay will trigger the audio/visual alarm and the optional auto dialer if the temperature gets too warm or cold.

It complies with 21 CFR 11 and JCAHO standards storing over 9 months of temperature history that can be downloaded to a computer for a printed chart.

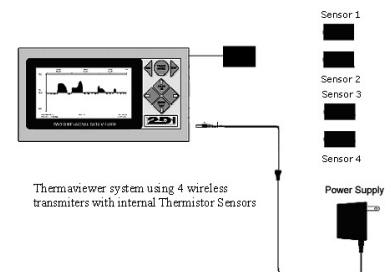
Because the display is easy to read and the chart easy to interpret, each employee becomes part of your quality control effort every time they glance at it. If the temperature was ever unsafe it is immediately obvious.

Installation of the ThermoViewer is a simple five-step process:

1. Position each sensor in the freezer and/or refrigerator
2. Plug the power adaptor into a wall socket and into the display unit
3. Attach the auto dialer (if purchased).
4. Set the time and monitoring frequency (see below for an example of settings).
5. Set the alarm parameters.

What to Order:

WTDVD	Display & base station for wireless sensors	\$ 499.00
Sensors		
WS4ITM	Sensor w 1-internal thermistor	\$ 89.00 ea
WS4ETM	Sensor w 1-external thermistor	\$ 99.00 ea
WSH4ITCK	Hi precision K thermocouple (-80°C)	\$ 149.00 ea



Optional Items:

- Auto Dialer with cable \$ 189.00
- Serial to IP converter (single port) \$ 149.00
- Serial to IP converter (dual port) \$ 169.00
- Calibration to NIST stds Call



APPLICATION NOTE: 8010

Monitor, Document and Alarm

Setup

Mount the ThermaViewer display near the two freezers (in this example) to be monitored. Position one sensor in each freezer. The sensors 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. (Note: One display can receive data from up to 4 sensors).

The following are suggested settings.

Suggested settings for –20°C Freezer and a –80°C Freezer:

Freezer Probe #1

Sample data every 00:10:00 HHMMSS

Type of averaging: Med

Maximum Display Temperature - 5°

Minimum Display Temperature -25°

Freezer Probe #2

Sample data every 00:10:00 HHMMSS

Type of averaging: Med

Maximum Display Temperature -50°

Minimum Display Temperature -90°

Alarm Settings:

Sensor 1 – Temperature

Trigger relay for 10:00 MMSS

If temperature > -5° for more than 00:30:00 HHMMSS

If temperature < -30° for more than 00:20:00 HHMMSS

Sensor 2 – Thermistor/RH

Trigger relay for 10:00 MMSS

If temperature > -50° for more than 00:30:00 HHMMSS

If temperature < -90° for more than 00:20:00 HHMMSS

Averaging temperature: Setting the sensors to use the 'Med' averaging will cause the sensors to sample data every 30 seconds and store data every 10 minutes in the example above. This causes the chart to more accurately reflect the internal temperature of the stored materials rather than the air temperature of the 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 should 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 sensors can be calibrated and any corrections entered into the calibration table, which can be accessed through the on-board menu system.

Downloading data:

The ThermaViewer will hold and chart approximately 9 months of temperature history for each sensor with the above settings. A regular schedule for downloading data from the ThermaViewer can 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 chart with the same program that downloads data to your computer (TView). The download software can be copied from our servers to your PC desktop.

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

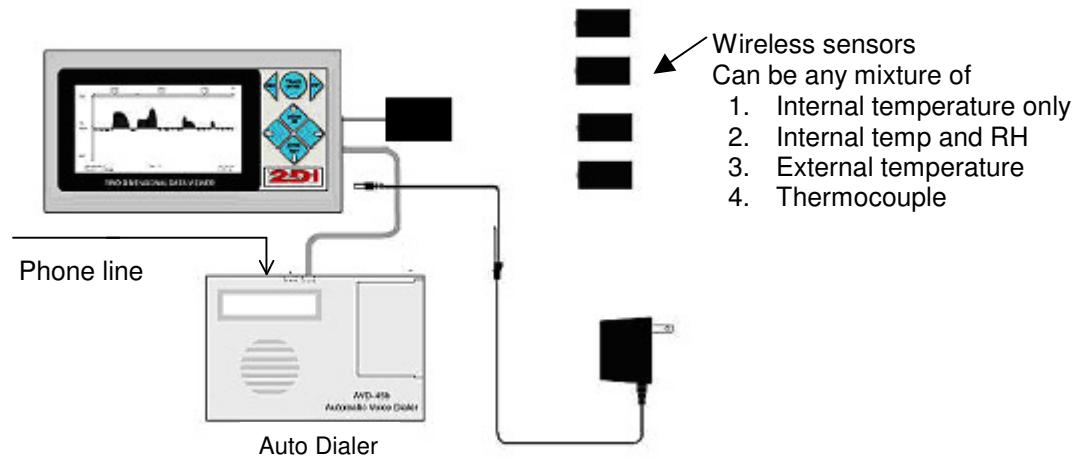
APPLICATION NOTE: 102

Optional Auto-Dialer

The ThermaViewer has a relay to trigger an external alarm and/or auto dialer. Each sensor has its own high and low alarm settings. The relay will be closed when temperature rises above or below the high or low set points for a certain length of time. Once the relay has been triggered, the alert is reset. In the above example, if the temperature rises above the set point (-5°C for sensor 1 or -50°C for sensor 2) for more than 30 minutes the relay will be closed for 10 seconds.

If you need faster response time you should decrease the 30-minute delay time.

The auto dialer will call up to four phone numbers (i.e. phones, pagers, answering machines, etc...) and leave your 16 second message. It will keep calling the four numbers until someone or an answering machine responds.



The auto dialer should be set as follows:

60 second exit delay

20 second entry delay

N.C. (meaning that the relay is normally closed).

MOM (meaning that it only takes a momentary activation from the relay to trigger the dialer).