

# APPLICATION NOTE: 205

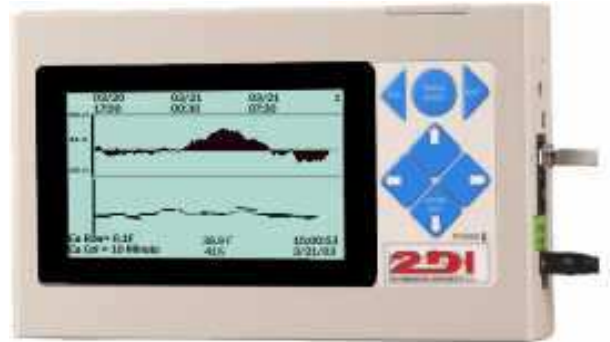
## Monitoring temperature/RH in computer rooms

It is critical that the temperature and humidity in computer rooms be monitored and kept within a fairly narrow range. Computers, particularly when several are placed near each other, generate a lot of heat, which if not dissipated quickly can cause problems with stored data and the computers themselves. Microprocessors and ram memory can easily malfunction if allowed to get too warm. Additionally, high temperatures cause moving parts in disk drives to swell so that the clearance between the arms and platters of the drives decreases. They get too close to each other and can even crash into each other completely destroying the data stored there.

High humidity conditions brings its own set of problems increasing the wear and tear on the moving parts found in disk drives, fans, and printers. Having humidity drop too low can cause even worse problems. If it drops low enough, static electricity will build, which when discharged into electronic equipment, can and will blow micro-chunks of material out of the PCB's and chips inside the computers. This creates problems, which might not be immediately apparent, but which will severely compromise stored data and hardware components.

The ThermaViewer is an ideal instrument for monitoring, documenting, and alarming computer rooms. It is equipped with two temperature/RH sensors ( $\pm .2^{\circ}\text{C}$  &  $\pm 2\%$ ), to monitor and document temperature and humidity in two different rooms, and a relay to trigger alarms. It is accurate and automatic, providing continuous monitoring and indicating trends so that corrective action can be taken. It requires no special skills to read and interpret the data that is displayed on the large LCD display so every employee will become part of quality control.

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



**ThermaViewer**

Installation of the ThermaViewer is a simple 5-step process:

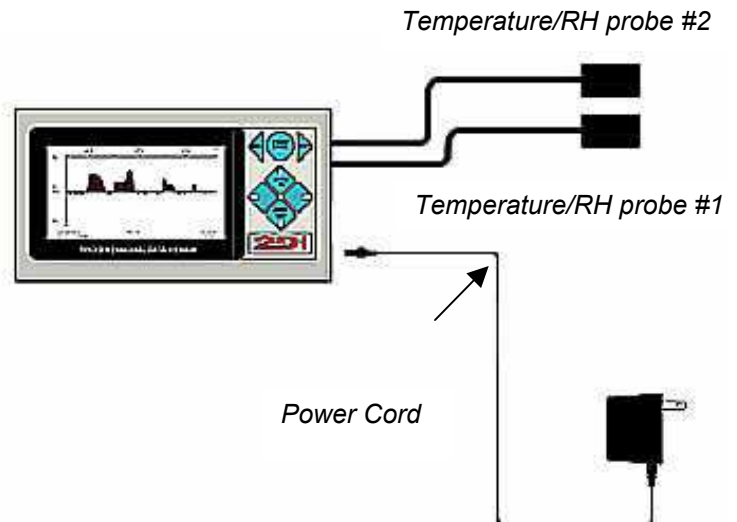
1. Position the two sensor modules in the areas to be monitored.
2. Route and plug in the two 20 foot cables (100 foot cables are available as an option).
3. Plug the power adaptor into a wall socket and into the ThermaViewer.
4. Attach the auto dialer (if purchased).
5. Set the time and monitoring frequency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

**What to Order:**

- TDVDR-02 ( $\pm .2^{\circ}\text{C}$ )                      \$ 749.00

**Optional Items:**

- TDVD-02 ( $\pm 0.1^{\circ}\text{C}$ )                      \$ 799.00
- Auto-dialer with cable                      \$ 169.00
- 100 foot cable                              \$ 45.00



Order from your [local distributor](#) or:  
**Two Dimensional Instruments**



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## Installation and setup

Mount the ThermaViewer display unit in the room or office area near the area 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:

Room 1 Probe		Room 2 Probe	
Sample Data every	15 seconds	Sample Data every	15 seconds
Store Data every	10 minutes	Store Data every	10 minutes
Recorded Temperature	Average	Recorded Temperature	Average
Temperature Scale	F°	Temperature Scale	F°
Maximum Display Temperature	80°	Maximum Display Temperature	80°
Minimum Display Temperature	60°	Minimum Display Temperature	60°
Reference Line	70°	Reference Line	70°
Relay Enabled <sup>1</sup>		Relay Enabled <sup>1</sup>	
Activate Relay for	0:10 (min:sec)	Activate Relay for	0:10 (min:sec)
When Temp > 80° for 6 stored temperatures		When Temp > 80° for 6 stored temperatures	
When Temp < 60° for 4 stored temperatures		When Temp < 60° for 4 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 temperature/RH of the room. Momentary dips and rises of the air temperature and humidity, which can occur when a door is opened are not usually enough to affect the internal environment and can safely be averaged over the 10 minute period between readings.

There is a one-point temperature and RH characterization table built into the ThermaViewer that can be used to adjust the temperature and RH readings. The sensors used with the ThermaViewer should remain in calibration for years, however is they do drift, it is not necessary to send the sensors back to the factory for recalibration.

On the System Parameter menu, an 'offset' value can be keyed in to adjust each temperature and RH reading. An offset up to  $\pm 9.9^\circ\text{F}$  for temperature and  $\pm 9.9\%$  for humidity can be entered for each temperature and RH sensor. The offset will be added or subtracted to or from the measured value of each sensor before it is stored in memory or displayed on the LCD display. (Each sensor should be compared to a calibrated instrument traceable to NIST standards, by a qualified metrologist before adjusting this value).

The ThermaViewer will hold ten months of temperature/RH data for each probe with the settings listed above (10 minute store interval). If you want to hold more data lengthen the store data interval. An interval of 60 minutes will allow five years of data to be stored for each sensor.

Downloading data: 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>1</sup> Enable the relay only if you have an alarm or the optional auto-dialer wired to the relay. See note102