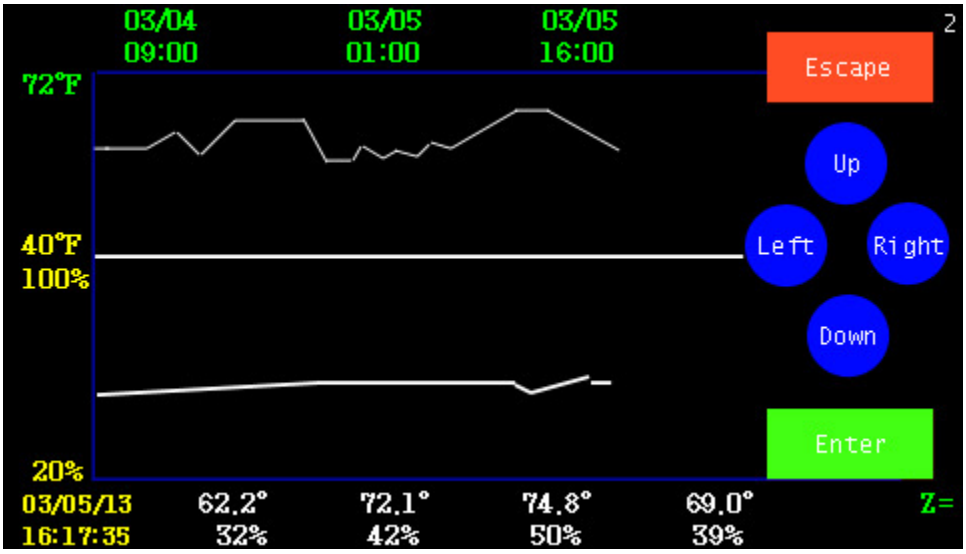
APPLICATON NOTE: 202

Hygrometer with wireless sensors

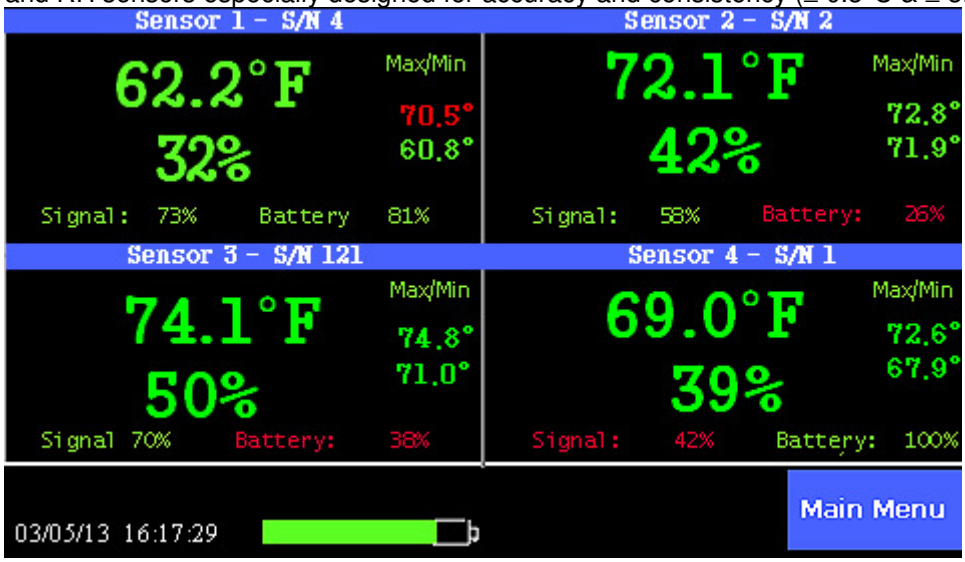
If you need to monitor temperature and humidity this is the instrument to do it with. It receives temperature and humidity from four wireless sensors. Each sensor samples the temperature and humidity, storing the data in non-volatile memory and draws a chart on the LCD display. If you sample conditions once every 10 minutes it will store almost a year of data for each sensor.



Indoor environments such as clean rooms, operating rooms, or museums usually have temperature/RH limits. In clean rooms, humidity can cause many problems resulting in high reject rates and loss of

product. Expensive equipment can be harmed if temperature or humidity gets too high in operating rooms. Low temperatures or humidity can also cause problems, allowing static electricity to develop that can harm stored data and computer equipment.

The TV2 is an ideal instrument for monitoring and documenting the temperature and humidity of enclosed spaces such as labs, clean rooms and computer rooms. Each sensor has a Thermistor and RH sensors especially designed for accuracy and consistency (± 0.3°C & ± 3.0%).



It requires no special skills to read and interpret the data and has a dry-contact relay to trigger an alarm or auto dialer if out-of-spec conditions occur.

The TV2 needs no programming, maintenance, paper or computers to monitor, document, chart and alarm for temperature and humidity. The sensors stay accurate so there is not need to constantly reset or calibrate them.

APPLICATON NOTE: 202

TWO DIMENSIONAL INSTRUMENTS, LLC

Installation and setup

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

*The following are **suggested** settings for two rooms maintained at 72°F and 50% RH. (You should use the settings required by your standards).*

Suggested settings:

Sensor #1
Sample Data every 00:10:00 HHMMSS
Type of Averaging: Med

Maximum Display Temperature 80°
Minimum Display Temperature 60°

Maximum RH line 70%
Minimum RH line 20%

Sensor #2
Sample Data every 00:10:00 HHMMSS
Type of Averaging: Med

Maximum Display Temperature 80°
Minimum Display Temperature 60°

Maximum RH line 60%
Minimum RH line 40%

Alarm Settings Example:

Sensor 1 – Thermistor/RH Relay: Enabled
Trigger relay for 10:00 MMSS
If temperature>78° for more than 00:30:00 HHMMSS
If temperature<65° for more than 00:20:00 HHMMSS
If RH>65% for more than 01:00:00 HHMMSS
If RH<40% for more than 02:00:00 HHMMSS

Sensor 2 – Thermistor/RH Relay: Enabled
Trigger relay for 10:00 MMSS
If temperature>78° for more than 00:30:00 HHMMSS
If temperature<65° for more than 00:20:00 HHMMSS
If RH>65% for more than 01:00:00 HHMMSS
If RH<40% for more than 02:00:00 HHMMSS

Power out alarm: If the AC power alarm is set to enabled, the internal alarm sounds, the screen blinks with the error condition, and the relay is triggered if a power failure occurs and the unit is operating on its backup battery.

Calibration: A three-point temperature and RH calibration table is built into the ThermaViewer that can be used to characterize the temperature and RH readings. They can be recalibrated in-house and any correction factors entered into this table

Downloading data: The TV2 will hold and graph more than 1 year of temperature/RH history for each sensor with the settings listed above (10 minute interval). If you want to hold more data you can lengthen the store data interval. An interval of 60 minutes will allow almost 10 years of data to be stored for each sensor. A regular schedule for downloading data from the TV2 can be established so that a back up copy of the data is maintained in your computer or you can automatically copy the data to your computer if it is being powered by your PC through the USB cable. You can easily print out a copy of the chart with the same program that downloads data to your computer (TView).