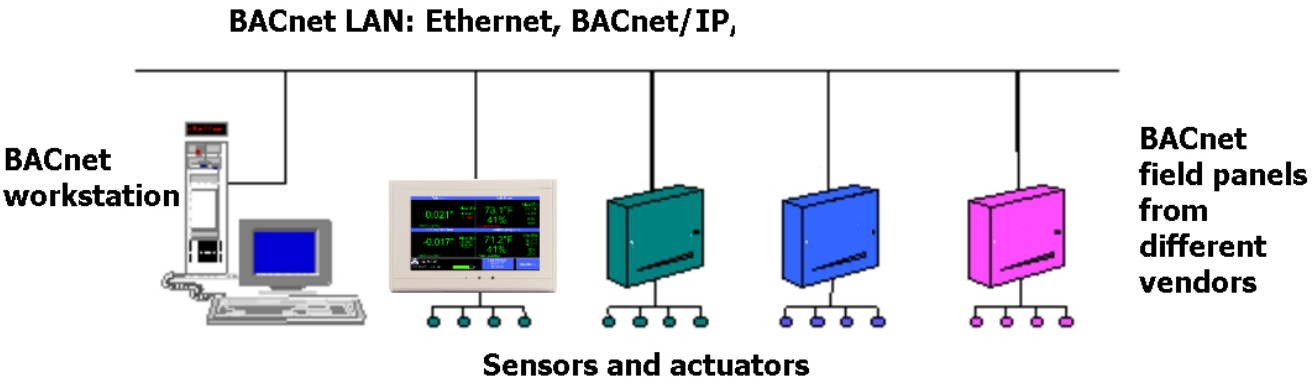
TV2 BACnet Endpoint

Description:

The TV2 Monitor/Alarm with BACnet is a fully functioning BACnet end point, which can be used with any BACnet/IP system. As soon as it is plugged into any Building Automation and Control Network it will be immediately recognized by that network and its data accessible.

BACnet is "a data communication protocol for building automation and Control networks." This means that any BACnet enabled device, such as the TV2, can communicate with any other BACnet enabled device, so no matter what hardware and software your system uses if it is BACnet capable it will 'talk' to the TV2 monitor.

Typical BACnet system



The advantages of using the TV2 system as part of a building automation and control network are numerous. They include:

1. Real-time end-point display updated every 3-4 seconds.
2. Up to four different wired or wireless sensors integrated into one access point.
3. Displays multiple environmental variables, such as temperature, temperature/humidity, pressure on one monitor.
4. Logged data for each sensor can be seen on the local monitor.
5. Local alarm (save/unsafe, Power out) can be sounded at the monitor location.
6. Cost per sensor is much lower than typical BACnet sensors.

TV2 Display

Each TV2 endpoint has sockets for four wired or wireless sensors. The sensors can be temperature only, extreme temperature, temperature/humidity, pressure or 4/20mA. The display continually samples the conditions sensed by each sensor and is refreshed every 3-4 seconds. Data is logged for each sensor at intervals between once a minute to once a day. The logged data is stored in non-volatile RAM. The display also includes an internal rechargeable LI battery capable of running the unit for at least 72 hours.

The display is color coded to show the safe/unsafe condition of each sensor.

The TV2 Easy Touch display shows current and maximum/minimum conditions as well as a data history charts for each of its remote sensors. All logged data is encrypted to comply with 21 CFR 11 requirements.

Logged data:

Although the TV2 stores over 80,000 data points for each sensor, most BACnet systems continually download the data directly from the TV2.

Any user can see the logged data directly on the Monitor without logging onto a computer by simply touching a data point. The displayed chart can be scrolled

through, backwards and forward. It can be zoomed into or out of to show more or less data. In fact, it is possbile to see a full year of logged data on one screen.

All logged data is fully protected by being stored in non-volatile RAM memory and a 72-hour internal rechargable battery, so that during power failures the TV2 will continue to operate normally.

Newer data rolls over oldest data once the storage space is full.

Alerts and Alarms

One of the big advantages of using the TV2 as part of your Building system is that the display will turn red as soon as any monitored data becomes unsafe. And if the condition remains unsafe for long enough the TV2 goes into alarm mode beeping and flashing to catch the attention of anyone nearby. Additionally the alarm is noted in the logged data stream.

Downloading the data to a PC

In addition to being BACnet capable the logged data can also be downloaded to a PC or server running the free TView software. Or the data can be downloaded automatically creating an accessible backup on any computer in your network.

Free PC Interface Software

The TView software can be installed on a networked PC or server for additional features. This free software can be used to:

1. View logged data;
2. Send text or email alerts if alarms occur at the site;
3. Automatically back up data from multiple TV2s;
4. View current conditions;
5. Print historical data charts;
6. Exported logged data into Excel worksheets;
7. View alarm logs.

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Mix and match sensors in any combination on the TV2 display

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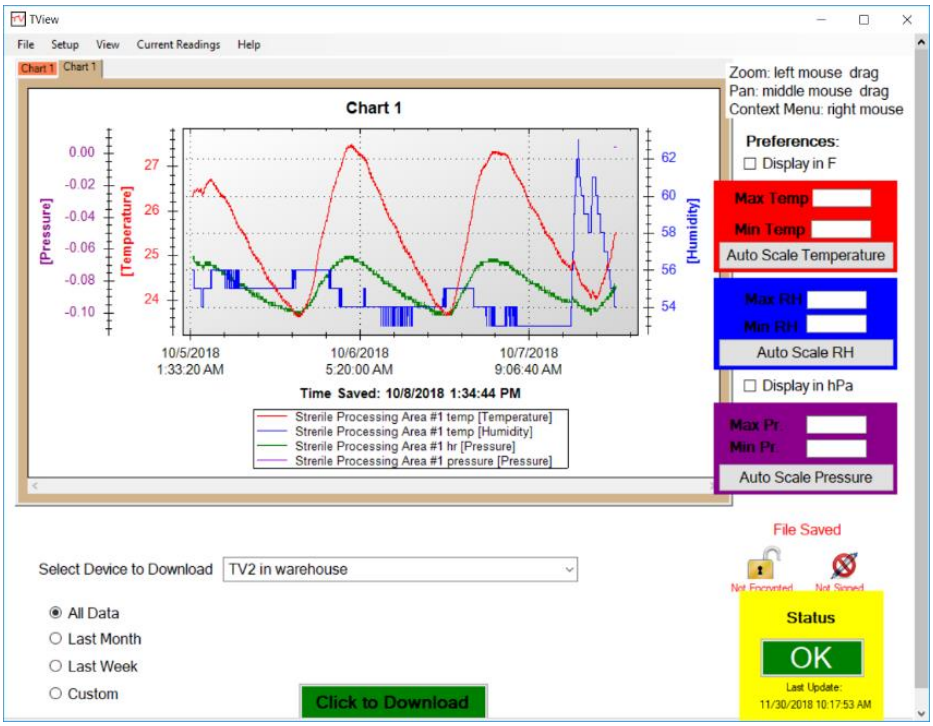
PC Interface Software with data downloaded from a TV2



Typical configuration

1 TV2-204 pth $ 1,780.00
   a. Monitor with four ports;
   b. 1 pressure and 1 t/rh sensor;
   c. BACnet interface;
   d. Internal rechargeable backup battery;
   e. 1 yr swap out warranty.

2 TV2-202 $ 528.00
   a. Monitor with four ports;
   b. 1 temperature only sensor;
   c. BACnet interface;
   d. Internal rechargeable backup battery;
   e. 1-yr swap out warranty.

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Create your own dashboard on any PC in the network

Put any sensor or combination of sensors plugged into any TV2 in your network onto a dashboard using the TView software. Each sensor chart updates every 4 seconds adding the latest value to its chart.

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Technical Specifications:

Display	
Channels	Temperature only sensors- Four Channels Temperature/humidity sensors - Eight Channels (4 temp & 4 RH) Pressure sensors - Four channels
Current Conditions Displayed	1. One, two, three or four, sensors (Temp, Humidity or pressure) 3. Low backup battery icon 4. Max/Min value of each sensor 5. Alarm enabled/disabled for each sensor 6. Sensor battery icon (for wireless sensors only) 7. Date and time 8. Last time data reviewed
Display Resolution	0.1° C/F, 1.0% RH, 0.000" or hPA LCD, 0.0001 on PC
Monitoring	Continuous with active display (Updating every 4 seconds for wired sensors. Wireless sensors update every 20 seconds)
Alerts	Audible and visual indication on Display Text: uses local internet connection Email: uses local internet connection Phone (requires separate dialer)
Alarm Settings	High temperature High Humidity Low Temperature Low Humidity High Pressure Low Pressure Power out Low battery Missing sensor for wireless sensors
Max/Min Display	Shows on active display. Resets by touch.
Accuracy & Range	Sensor dependent. *(See sensor specs below)*
Size of TV2 Monitor	8 3/8" x 5" x 1 3/8"
Sample Interval	User selectable: 1/min - 1/24hrs

Sensors

Note: Wired and wireless sensors can not be mixed on the same monitor

Wireless Sensors	
Thermistor sensor	-30°C to 75°C (±0.3°C), (±0.2°C option) submersible
Thermistor/Humidity sensor	-30°C to 75°C (±0.3°C) 0% to 100% RH (±3.0%) w ±0.5% Repeatability
Extreme Temperature Wireless Sensors	
K Thermocouple sensors*	-200°C to 1250°C. Accuracy ±2.2°C or ±0.75%, below 0°C ±2%
E Thermocouple sensors*	-200°C to 900°C. Accuracy ±1.7°C or ±0.5%, below 0°C ±1%
J Thermocouple sensors*	-0°C to 750°C. Accuracy ±2.2°C or ±0.75%
T Thermocouple sensors*	-250°C to 350°C. Accuracy ±1.0°C or ±0.75%, below 0°C ±1.5%

Wired Sensors	
Digital temperature sensor	-30°C to 80°C (±0.2°C) submersible ±0.005°C repeatability
Thermistor sensor	-20°C to 75°C (±0.3°C), (±0.2°C option) submersible
Thermistor/Humidity sensor	-20°C to 75°C (±0.3°C) 0% to 100% RH (±3.0%) 0.5% Repeatability
Extreme Temperature Wired Sensors	
K Thermocouple sensors*	-200°C to 1250°C. Accuracy ±2.2°C or ±0.75%, below 0°C ±2%
E Thermocouple sensors*	-200°C to 900°C. Accuracy ±1.7°C or ±0.5%, below 0°C ±1%
J Thermocouple sensors*	-0°C to 750°C. Accuracy ±2.2°C or ±0.75%
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Differential Pressure Sensors for Positve or Negative Pressurized Areas	
Pressure Sensor	±1"wg (Accuracy ±0.002"wg)

Technical Stuff	
Calibration	Optional NIST traceable (1,2 or 3 points)
Characterization	Three point calibration table for each sensor
Controls	Easy-Touch™display responds to a finger touch
Data Storage Technique	Non-volatile memory storage of 80,000 samples per sensor
Power	Via USB cable or optional power adaptor (90 to 240vac)
Battery Backup	~72 hrs while in sleep mode. 1100mAh rechargable lithium battery. Not user serviceable.
Output to PC	6' USB cable *(Note: if USB cable is plugged into PC, power is supplied by PC)*
PC Software	Free site license included with text/Email alert
Indicators	LCD & LED (red/green)
User Settings	On board password-protected menu
LCD Pixels	488 horizontal x 270 vertical
LCD Temperature Range	Operating 0°C to 50°C, storage -20°C to 68°C
LCD size	2.5" x 4.5"
LCD color display life	~4.5 years
LED	Green indicates AC power present. Red - operating on battery.
Relay	Dry N/O with 2 terminal clamp <30v. Fused for .5 amp
Mounting	Wall mount - Velcro.
Flush Mount	6.5" x 8" or 7.5" x 9" - four holes for molly bolts or screws
Instrument Case Mount	12" x 12" x 4" with knockout ports
Display weight	1 lb
Shipping weight	~3 lbs with power adaptor, sensors & cables