

# Ventostat TR

## Early Warning of Battery Venting/Thermal Runaway

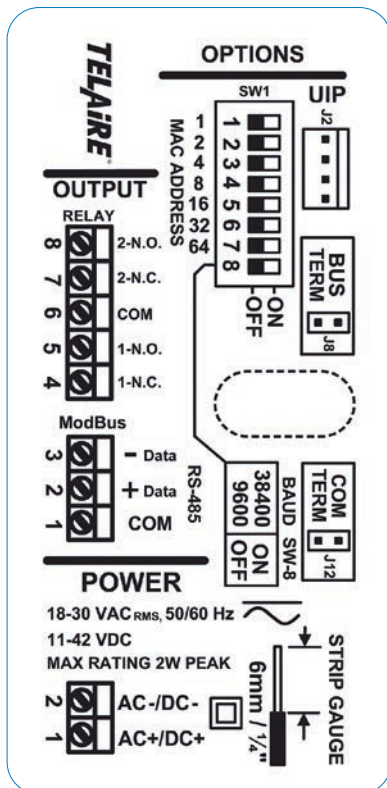


Telaire Ventostat TR Transmitter is designed to provide early warning of battery failure in industrial energy storage systems, which can lead to Thermal Runaway. If battery failure conditions are detected, the transmitter alerts the user so that proper countermeasures can be taken.

With its multi-measurement capabilities, including Carbon Dioxide (CO<sub>2</sub>), Hydrogen (H), Relative Humidity (RH), Pressure and Temperature, the Ventostat TR allows for continuous monitoring of the surrounding environment and connection to automation systems, as well as local control of ventilation equipment using onboard relays.

### Applications

- Detection of Thermal Runaway



### Features

- Multi-measurement capabilities:
  - Carbon Dioxide (CO<sub>2</sub>) – Patented, Absorption Infrared (IR) gas sensing engine provides high accuracy with dynamic pressure compensation
  - Hydrogen (H) – Pre-calibrated, cutting edge technology
  - Relative Humidity (RH)
  - Pressure
  - Temperature
- Mounting plate with two-piece terminal blocks allows for quick, easy wiring
- Standard Modbus output enables local and remote monitoring
- Relay – Output with programmable setpoints
- Sensors are shipped factory-calibrated
- Two-piece design allows unit to be replaced without the need for rewiring
- Modbus RTU Output

# Telaire Ventostat TR Specifications

## Transmitter

### Power Supply Requirements

- 18-30 VAC RMS, 50/60 Hz, or 11-42 VDC
- Polarity protected

### Power Consumption

- Typical 0.8 W at nominal voltage of 24V AC RMS

### Operating Conditions

- 32°F to 122°F (0°C to 50°C)
- 0 to 95% RH, non-condensing

### Storage Conditions

- -40°F to 158°F (-40°C to 70°C)

### Flammability Classification

- UL94 5VA

### Modbus

- RTU
- Baud rates 38400 or 9600
- Additional programmable baud rates available.

### Enclosure

- Standard modern wall-mount enclosure

### Relays (Hydrogen and CO<sub>2</sub> Response)

- Normally open and normally closed contact

### Relay Setpoints and Hysteresis

- Adjustable setpoints allow you to match application

### Rated Load (Typical)

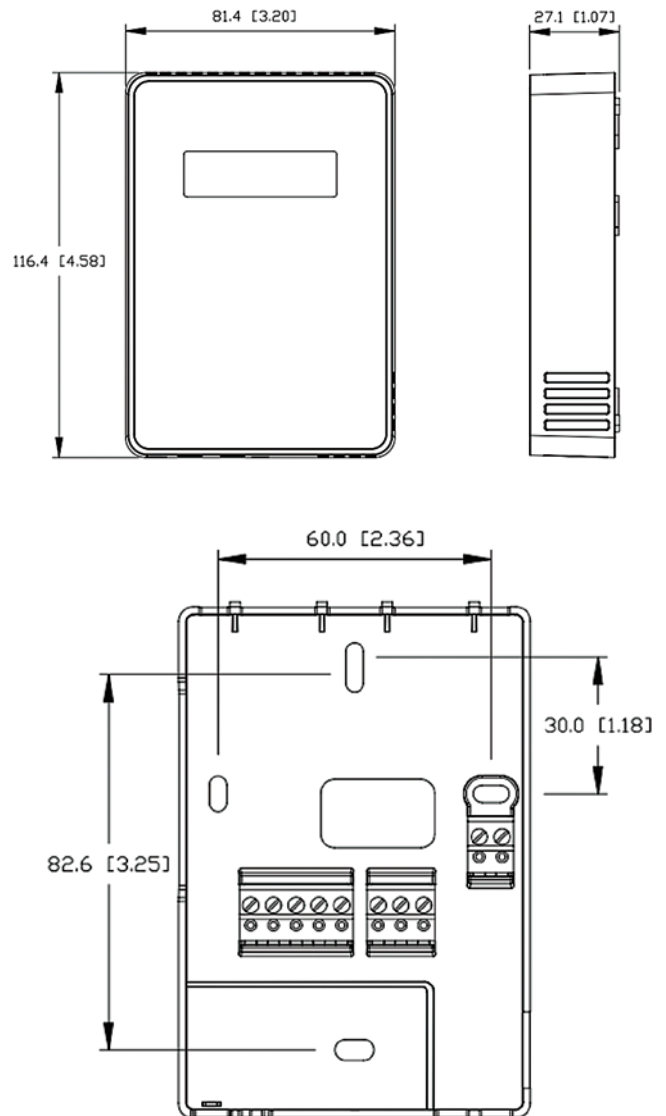
- 350V, 120mA, 35Ω, 1-Form-C solid state relay

### Certifications

- CE and RoHS, REACH, and WEEE compliant, UL 9540

### Warranty

- 12 months on mechanical defects



Ventostat Wall Mound Dimensions

# Telaire Ventostat TR Specifications *(cont.)*

## Carbon Dioxide (CO<sub>2</sub>)

### Sensing Method

- Non-dispersive infrared (NDIR) absorption
- Gold-plated optics

### CO<sub>2</sub> Measurement Range

- 0 to 50000 ppm

### CO<sub>2</sub> Accuracy

- $\pm 10\%$  of reading

### Temperature Dependence

- 0.2% FS per °C ( $\pm 0.11\%$  per °F)

### Stability

- $<5\%$  of FS or  $<10\%$  reading annual over life of sensor (10 years)

### CO<sub>2</sub> Warm-up Time

- $< 2$  minutes (operational)
- 10 minutes (maximum accuracy)

## Relative Humidity (RH) and Temperature

### RH Sensing Element

- Capacitive polymer sensor

### RH Range

- 0% to 99% RH (non-condensing)

### RH Accuracy (25°C)

- $\pm 2.5\%$  RH (20 to 80% RH)
- $\pm 3.5\%$  RH ( $<20\%$  and  $>80\%$  RH)

### Active Temperature Accuracy

- $\pm 0.8^\circ\text{C}$  @  $22^\circ\text{C}$

### Active Temperature Range

- $32^\circ\text{F}$  to  $122^\circ\text{F}$  ( $0^\circ\text{C}$  to  $50^\circ\text{C}$ )

## Hydrogen (H)

### Range

- H<sub>2</sub> Sensing Element: 0 - 160,000 ppm

### Accuracy

- $\pm 5\%$  of full scale or  $\pm 8000$  ppm

### Warm-up Time

- $< 1$ sec

## Pressure

### Pressure Sensing Element

- MEMS based sensor

### Absolute Pressure Range

- 50kPa to 200kPa

### Pressure Accuracy

- $\pm 2.0\%$  FSO

