**Introduction**

Since 1980, Eaton's Innovative Technology® has provided Surge Protective Devices (SPDs) to power quality equipment users around the world. Eaton has enhanced the protection provided by the Protector™ line of transient voltage surge suppressors (TVSS) with the Innovative Technology TVSS Power Event Monitor. While the TVSS protects the electrical distribution system from harmful transient voltages, the TVSS Power Event Monitor notifies the facility personnel of where and when such surges occur. The TVSS Power Event Monitor helps users gauge and monitor power surges, whether on-site or remotely via standard communication protocols, so corrective actions can be taken.

**General Features**

The TVSS Power Event Monitor is integrated into TVSS devices without increasing the size of the footprint. Mounted on the door inside the TVSS, the TVSS Power Event Monitor continuously monitors the system while recording and storing power quality disturbances. These records help facility managers pinpoint the source of harmful power events and decide whether or not to take corrective measures.

The TVSS Power Event Monitor collects real-time data for up to 5000 events and provides immediate notification. Event data, complete with date and time stamp, can be sent via Modbus to individuals on site, at a remote data center, or to a computer. By utilizing Ethernet capabilities, technicians can instantly access all monitoring and event data by using TVSS Power Event Monitor software. This software enables users to readily access all information gathered by the TVSS Power Event Monitor, regardless of the user's location. Consequently, whether you are in the facility or at home, all data collected by the TVSS Power Event Monitor can be accessed immediately.

**The Power Event Monitor system monitors:**

- Phase voltages (L-L, L-N)

**And records events (time and date stamped) based on input voltages**

- Phase loss
- Power outages
- Surge events (based on ITIC [CBEMA] curve)
- Relative transient voltage magnitude
- Sag and swell
- Over and under voltages

Stores up to 5000 events, FIFO (i.e. oldest event is replaced with new event once memory is full)

**Communicates real time data via:**

- IrDA (Infrared)
- Modbus RTU (RS-485, 2 wire)
- Modbus TCP (10/100Base T, RJ-45)
- Local display module

**LED monitoring on each phase**

- A solid on LED indicates that the phase voltage is within  $\pm 10\%$  of the system voltage setting
- A blinking LED indicates the phase voltage is outside the  $\pm 10\%$  system voltage setting
- No LED indication indicates loss of system power or phase voltage

**Event Monitor Safety Specifications**

- Safety:
  - IEC 1010-1, Incl. Amend 1 & 2
  - EN61010-1
  - CSA C22.2 #1010.1
  - UL 61010A-1
- EMC
  - Emissions:
    - FCC part 15 Class A
    - CISPR 11/EN55011 Group 1 Class A
  - Immunity:
    - Electrostatic Discharge – EN61000-4-2/EN61000-6-2
    - Electrical Fast Transient – EN61000-4-4/EN61000-6-2
    - Radiated Immunity – EN61000-4-3/EN61000-6-2
- Conducted Immunity – EN61000-4-6/EN61000-6-2
- Surge Voltage – EN61000-4-5/EN61000-6-2
- Voltage Dips – EN61000-4-11/EN61000-6-2

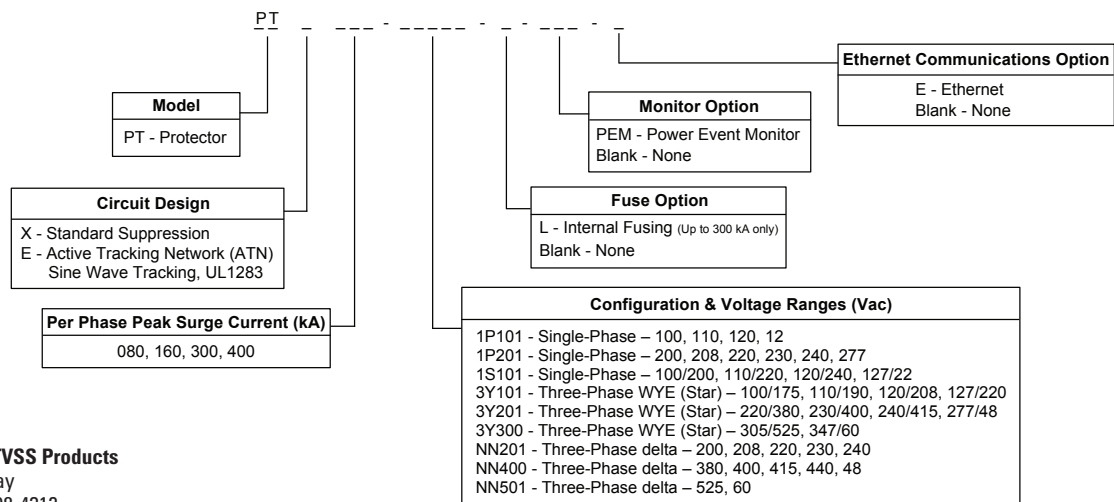
## Power Event Monitor Specifications

- Enclosure – NEMA 4, approved and tested per UL1449
- Environment:
  - Maximum Altitude – 3000 meters
  - Operating Temperature – -20° to 50°C
  - Storage Temperature – -30° to 85°C
  - Relative Humidity – 80% for temperatures up to 3°C (non-condensing) decreasing linearly to 50% at 50°C
- Voltage Inputs – 90 to 600 Vac nominal  $\pm 10\%$
- Input Impedance – 2 M $\Omega$
- Measurement Accuracy:
  - Voltage, L-L –  $\pm 2\%$  of full scale
  - Voltage, L-N –  $\pm 2\%$  of full scale
- Measurement Ranges:
  - Voltage – 0–660 Volts
  - Frequency – 50 / 60 Hz
- Transient Capture – 200, 300 & 400% of system voltage
- Sag / Swell Capture:
  - Sag – -10, -20, and -30% of system voltage
  - Swell – +10 and +20% of system voltage
- Overload Withstand – 660 Vac continuous
- Sampling – 256 samples/cycle (per phase, simultaneous)
- MODBUS RTU Communication speeds – 9600 & 19.2k Baud
- Pollution Degree – 1 (IEC 664)
- Transient Overvoltage – Category III
- Input/Output Isolation Voltage – 3750 Vrms
- Power Supply:
  - Input Voltage
    - Low Voltage System – 100–240 Vac
    - High Voltage System – 380–600 Vac
  - Externally Powered – 90–280 Vac, or 48–150 Vdc
  - Frequency Range – 50/60 Hz
  - Burden – 800 mA, 12 W

## Power Event Monitor Accessories

Description	Catalog Number
Local Display	PEMLD

## Ordering Information



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## Surge Events

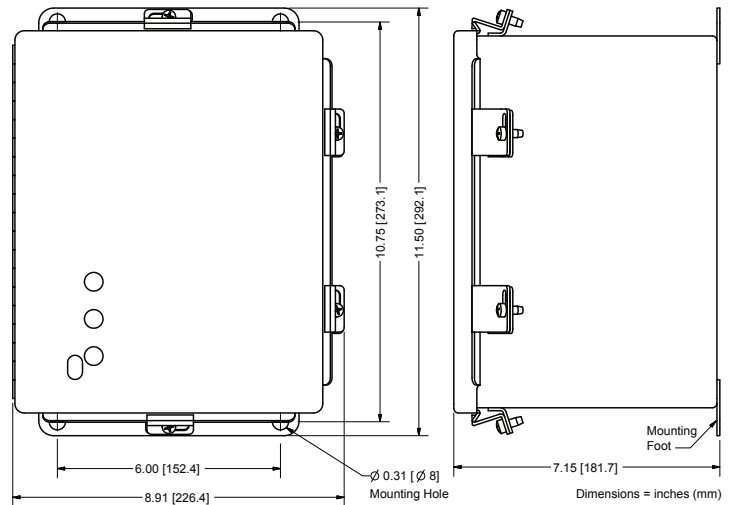
Surge Events are displayed on a per phase basis. Surge events are counts of voltage spikes that have crossed one of three voltage thresholds. The thresholds are 200%, 300%, and 400% of nominal voltage. Refer to the ITIC (CBEMA) curve in Appendix E of installation manual (publication # IM01005003E).

## Non-Surge Events

Non-Surge events are displayed on a per phase basis. Non-Surge events are RMS values above or below thresholds for specific periods of time. Refer to the ITIC (CBEMA) curve in Appendix E of installation manual (publication # IM01005003E). Non-Surge events consist of one of the following:

- Over 120% of nominal for > 0.5 cycle
- Over 110% of nominal for > 0.5 second
- Under 90% of nominal for > 10 seconds
- Under 80% of nominal for > 0.5 second
- Under 70% of nominal voltage for > 0.5 cycle

## Standard Dimensions



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