

GE Digital Energy  
Power Quality

# TR7000

Transient Voltage Surge Suppressor  
with Enhanced Thermal Protection



## Introduction

Voltage spikes and surges from both external and internal sources can cause damage to all electronics and directly affect the performance and life expectancy of connected equipment. From electronic lighting ballasts to computer servers, if there is a printed circuit board inside, it can be susceptible to transient voltage surge damage. As microprocessors and components that make up this equipment grow smaller and faster with each new generation, their susceptibility to transient voltage surge damage becomes ever greater.

The full-featured TR7000 series with its advanced monitoring, disconnect and enclosure options has been designed to handle the highest levels of surge activity found in the most demanding commercial and industrial facilities. These units are ideal for both new and retrofit applications where performance cannot be compromised.

Available in ratings from 65kA - 300kA per mode, (130kA - 600kA per phase) the TR7000 series is the perfect surge suppression product for protecting critical sensitive electronic equipment throughout your facility.

Recommended installation locations are service entrance and primary and secondary distribution. The TR7000 Series has been third-party tested to the ANSI/IEEE C3 (10kA, 8x20 $\mu$ s) service entrance level transient surges including all components. The entire TR7000 line up has been engineered to the highest standards and is designed for rigorous duty and long life as evidenced in our outstanding minimum repetitive surge current capacity test results.

GE engineers design and build transient voltage surge suppressors in our state-of-the-art lab and production facilities. Extensive testing is performed at GE and third-party test labs across North America.

## Minimum Repetitive Surge Current Capacity

(Per ANSI/IEEE C62.41-1991 and ANSI/IEEE C62.45-1992)

The TR7000 Series is capable of surviving the following impulses, at one-minute intervals, without failure and with less than 10% change in protective characteristics.

- > **20,000** Category C3 impulses 20kV/10kA, 8x20 $\mu$ s for devices rated 125-300kA per mode
- > **5,000** Category C3 impulses 20kV/10kA, 8x20 $\mu$ s for devices rated 65-100kA per mode
- > **5,000** 500V/2kA, 10x1000 $\mu$ s long wave impulses for all TR7000 devices

## Features and Benefits

- > Thermally protected MOVs eliminate the need for additional upstream fuses
- > The TR7000 provides maximum surge protection with outstanding clamping characteristics for ultra high, high, medium and low exposure locations with the use of industrial-grade MOV architecture and state-of-the-art engineering.
- > Third-party tested up to 200kA per mode per NEMA LS1, including all protection devices in the surge path.
- > Fast rise-times, high frequency transients and electrical line noise are reduced with standard EMI / RFI filtering technology.
- > Maximum installation flexibility is achieved in the TR7000 through its high surge suppression kA to small footprint ratio - one of the best in its class.
- > 10 modes of protection (L-N, L-G, N-G, L-L)
- > Green operational LEDs with Red service LED
- > NO/NC Form C Dry Contacts for remote monitoring
- > Industrial sized MOV technology
- > 5 year limited warranty (standard), 10 year limited warranty (optional)
- > Audible alarm with push-to-test switch, enable/disable function
- > Standard LCD surge counter
- > Optional 200kA surge rated disconnect
- > NEMA 1, 12, 4 and 4X enclosures available
- > Surface and flushmount-style enclosures

## Applications

- > Service Entrance
- > Distribution Equipment
- > Branch Panel
- > New Construction and Retrofits
- > System Expansions

## Standards

- > UL 1449 (2<sup>nd</sup> Edition, Feb. 2007 Revision), UL 1283, CSA C22.2 (cUL)
- > ANSI/IEEE C62.41 - 1991 (R1995), C62.45 - 2002
- > NEMA LS-1 - 1992 (R2000)
- > MIL-STD-220B
- > ANSI/NFPA70
- > NEC (Article 285)

# Technical Specifications

- Operating Frequency** 50/60 Hz
- Connection** 6 to 2/0 AWG Lugs, Parallel Connected
- Operating Temperature** -40° F to 140° F (-40° C to +65° C)
- Operating Humidity** 0% to 95% Non-Condensing
- Weight by Enclosure** (WMN1D) 63 lbs. (28.5 kg), (WMN12S, 12F, 4S) 44 lbs. (20.0 kg), (WMN4X) 50 lbs. (22.7 kg), (WMN4D) 56 lbs. (24.5 kg)

Catalog # example: TPR277Y25WMN1D

- 277Y/480V, 3 Ph, 4 W + G
- 250kA per mode, 500kA per phase
- Surfacemount NEMA 1 enclosure with disconnect
- Painted steel

Catalog # **T P R 7** ----- **W M N** -----

	Nominal Voltage (Volts RMS)	System Voltage Configuration	Suppressed Voltage Rating (SVR) UL 1449, 2 <sup>nd</sup> Edition February 2007 Revision						MCOV % Max. Continuous Operating Voltage	Maximum Surge Current Capacity	
			L-N	HL-N	L-G	HL-G	N-G	L-L		Per Mode	Per Phase
<b>120S</b>	120/240	1 Ph, 3 W + G	500	—	500	—	500	800	125%		
<b>120Y</b>	120V/208	3 Ph, 4 W + G	500	—	500	—	500	800	125%	<b>06</b>	65kA 130kA
<b>220Y</b>	220V/380	3 Ph, 4 W + G	800	—	900	—	800	1500	145%	<b>08</b>	80kA 160kA
<b>240D</b>	240 Delta	3 Ph, 3 W + G	—	—	700	—	—	1500	115%	<b>10</b>	100kA 200kA
<b>240H</b>	120/240 Delta HL	3 Ph, 4 W + G	500	800	500	800	500	1000	115%	<b>12</b>	125kA 250kA
<b>240Y</b>	240V/415	3 Ph, 4 W + G	800	—	900	—	800	1500	130%	<b>15</b>	150kA 300kA
<b>277Y</b>	277Y/480	3 Ph, 4 W + G	800	—	900	—	800	1500	115%	<b>20</b>	200kA 400kA
<b>347Y</b>	347Y/600	3 Ph, 4 W + G	1200	—	1200	—	1200	2000	115%	<b>25</b>	250kA 500kA
<b>480D</b>	480 Delta	3 Ph, 3 W + G	—	—	1500	—	—	3000	115%	<b>30</b>	300kA 600kA

Also available in 600V Delta configurations. For details, please contact GE Power Quality Customer Service at 800 637 1738.

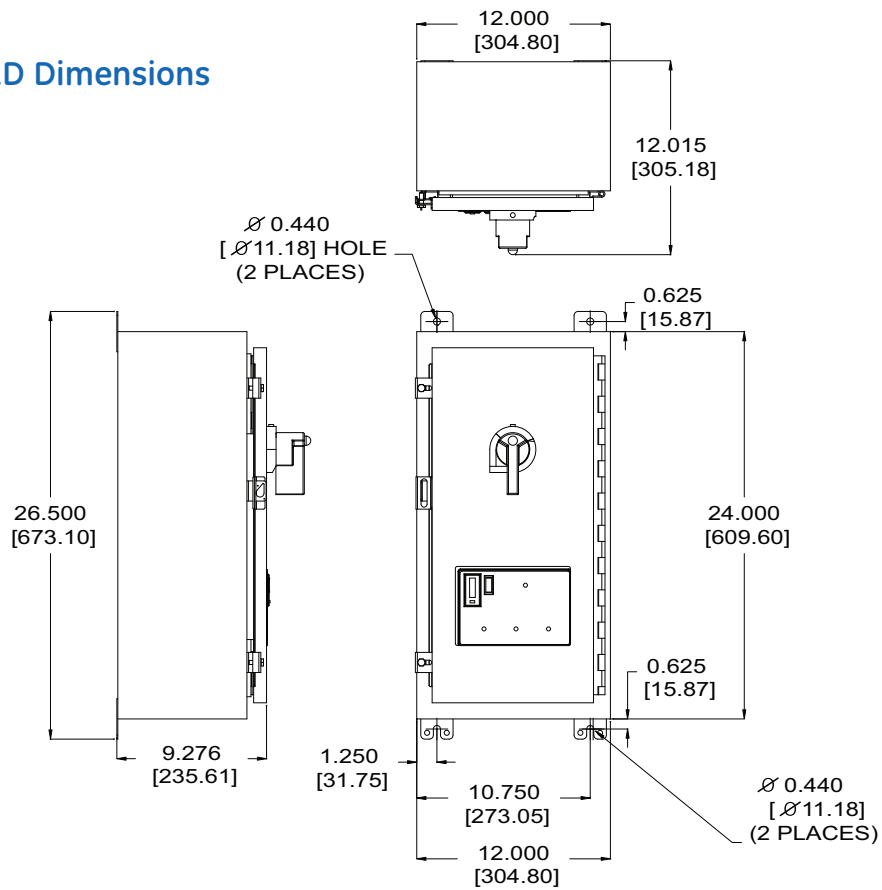
Phase Rating = (L-N + L-G)

**Note:** 150V (L-N/G) Phase A & C  
270V (L-N-G) Phase B

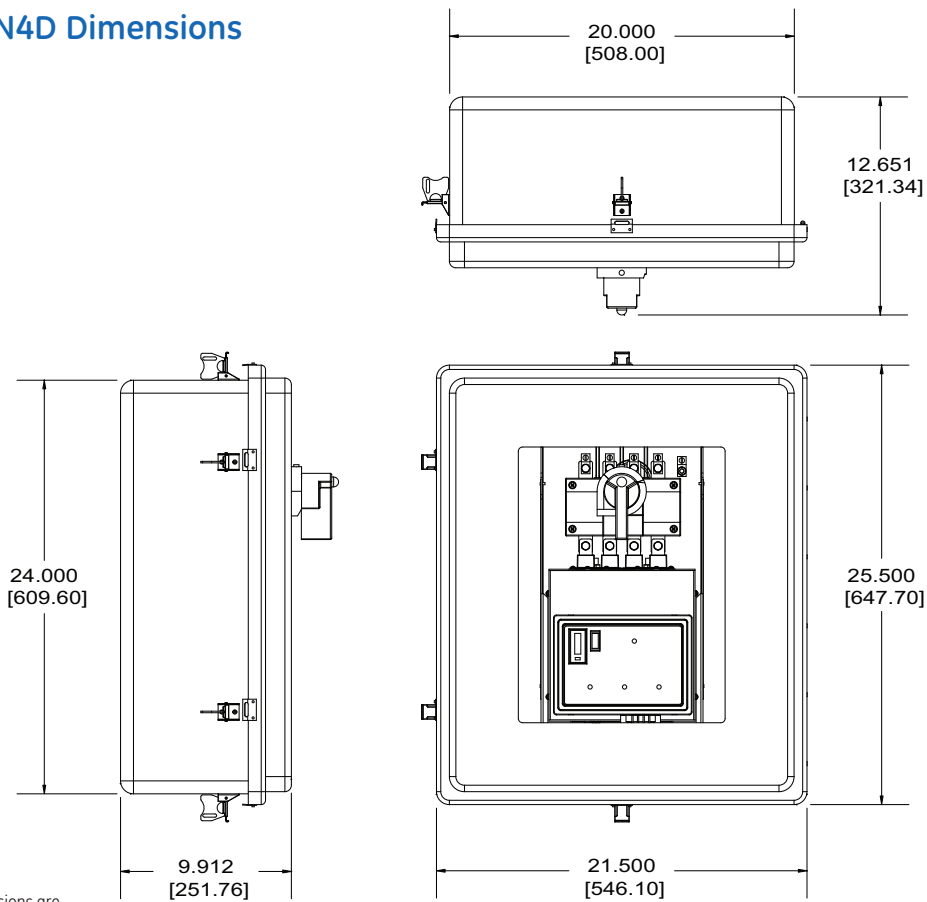
Suffix	Description	NEMA Enclosure	Mounting	Disconnect
<b>1D</b>	Painted Steel	1	Surface	Yes
<b>12S</b>	Painted Steel	12	Surface	No
<b>12F</b>	Painted Steel	12	Flush	No
<b>4D</b>	Fiberglass	4X	Surface	Yes
<b>4S</b>	Painted Steel	4	Surface	No
<b>4X</b>	Stainless Steel	4X	Surface	No

## TR7000 Series Dimensions

## WMN1D Dimensions



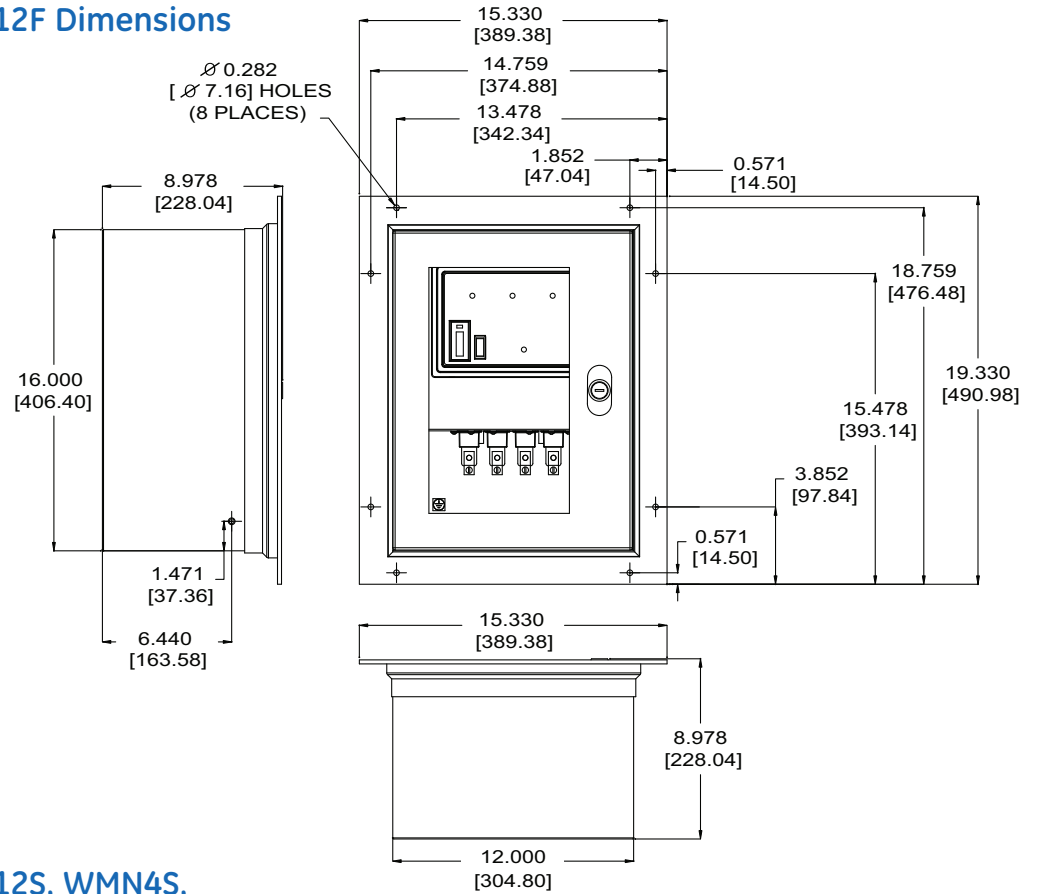
## WMN4D Dimensions



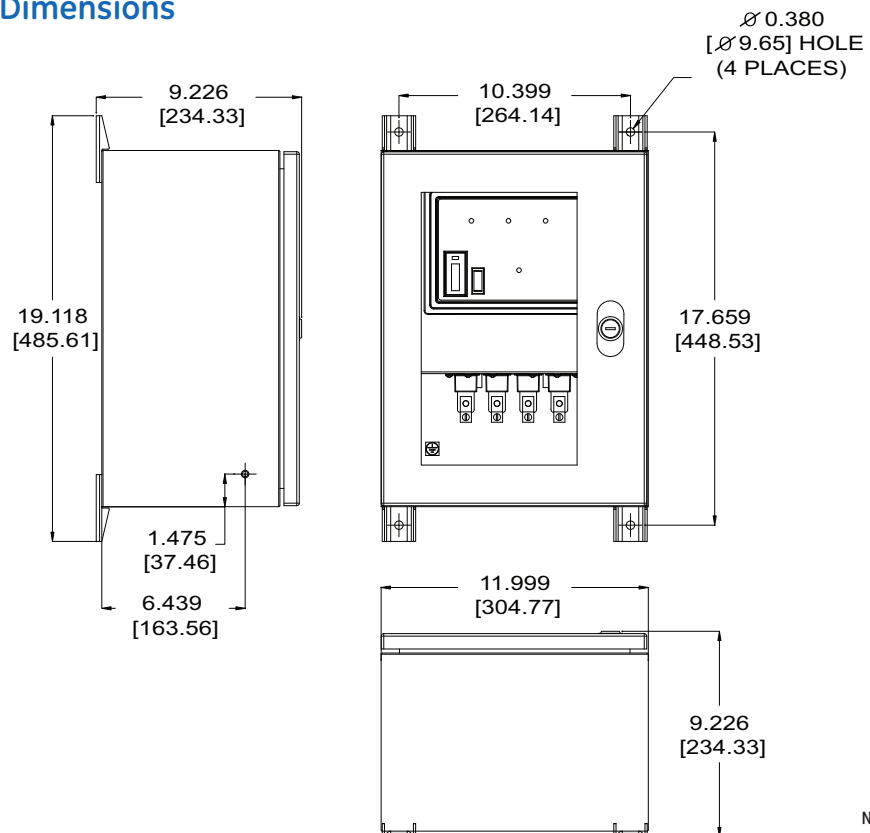
**NOTE:**  
All dimensions are  
for reference only  
and are shown in  
Inches (millimeters)

## TR7000 Series Dimensions

### WMN12F Dimensions



### WMN12S, WMN4S, WMN4X Dimensions



**NOTE:**  
All dimensions are for reference only and are shown in Inches (millimeters)



## Extensive Customer Service and Support

Supported by a worldwide network of factory-trained Authorized Service Centers, our Technical Service Representatives can provide you with field service, equipment parts and preventive maintenance.

Because emergency power systems are required to operate under the most adverse circumstances, site personnel may be called upon at any time to make decisions regarding the operation of the system, therefore training of these personnel is critical to the future of any installation.

GE Power Quality offers a variety of training options including on-site classes for project personnel, factory instruction on your equipment prior to shipment and service schools.



## Product Overview

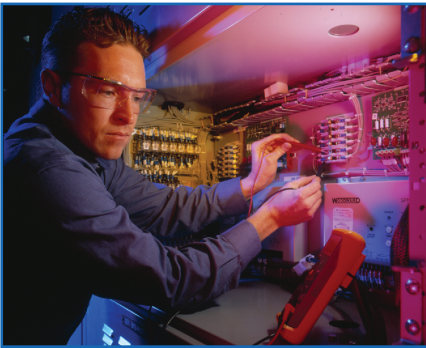
When you purchase emergency power equipment, reliability and quality are a necessity. GE Power Quality is committed to providing the highest level of quality demanded by the industry. Our complete product line will allow you to specify a total power management system while maintaining overall compatibility and the most comprehensive warranty in the industry.

## Commitment to the Customer

All team members at GE Power Quality are aware of the critical situations in which our products are called upon to perform. With that understanding comes an obligation beyond merely fulfilling an order or turning out a product. Serving that obligation is our mission at GE Power Quality.

GE Power Quality's team works with you from the first phone call through completed start-up. Then, working hand in hand with the consulting engineer, the contractor and the facility owner/operator, we'll ensure that the system fulfills both current and future needs.

"Commitment to our customer" has been GE Power Quality's driving force for more than 100 years in the power control industry. This same sense of purpose and responsibility will continue as we address future power control challenges.



imagination at work

GE Digital Energy – Power Quality  
701 E 22nd Street, Lombard, IL 60148 USA  
800 637 1738 [www.getvss.com](http://www.getvss.com)

Information subject to change without notice. Please verify all details with GE.  
DEA-434 (4/08) © 2008 General Electric Company All Rights Reserved