

# DC SURGE PROTECTOR

P/N: TSP-WG6-xxxVDC-10A-01

where: xxx = Input Voltage

## Features

- Handles large current surges and voltage spikes without wear and tear to the circuitry of the protector
- Protection against closer (stronger) lightning strikes
- Hybrid design features reflection of surge energy as well as MOV suppression
- LED indicator ensures continued protection and avoids unnecessary replacement costs
- 100% redundancy
- CE marking
- Compact WEG 6 pin DIN rail mount

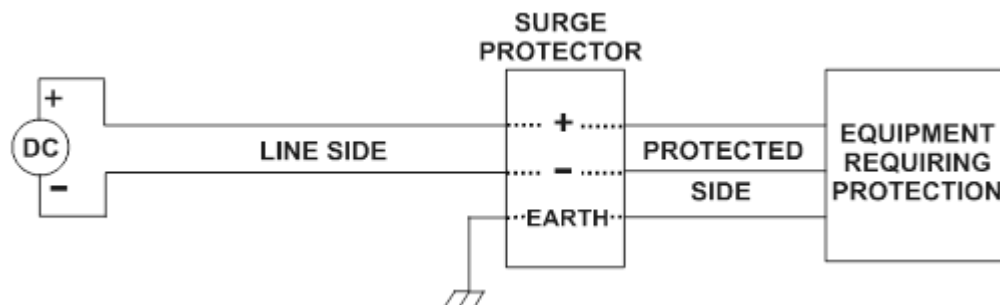


## Application

Transient surge protectors provide common and differential mode protection for toll booths, drawbridges, street light controllers and railroad crossing gates/signals. Electronic equipment is extremely susceptible to transient voltages and surge currents due to its relatively fragile semiconductor construction. A surge protector is a cost-effective method of ensuring that equipment will have maximum life.

## Function

The module has a PROTECTED - LIVE, NEUTRAL and EARTH side which is connected to the equipment supply lines requiring protection. It also has a LINE - LIVE, NEUTRAL and EARTH side which is connected to the AC supply power conductors. The EARTH connection of the modules must be terminated to earth by low impedance heavy gauge wire.



## Description

The TSP-WG6-xxxVDC-10A-01 is a three-stage transient protection module which provides over-voltage and surge current protection for 2 wire DC supply lines. The first stage provides transient rise time reduction. The second stage provides the primary transient voltage clamping and a LED circuit to indicate that the device is still fully functional. Under normal operating circumstances, the LED will automatically be extinguished before the useful life of the device has expired. This will provide ample time for the device to be replaced ensuring continued protection of the connected equipment. The third stage is the most rugged and provides the bulk of the protection.

## Ordering Part Number

13.8V	TSP-WG6-13.8VDC-10A-01
24V	TSP-WG6-24VDC-10A-01
32V	TSP-WG6-32VDC-10A-01
48V	TSP-WG6-48VDC-10A-01
110V	TSP-WG6-110VDC-10A-01
125V	TSP-WG6-125VDC-10A-01

### STAGE 1



Consists of an inductor that results in an impedance mismatch which reflects some of the energy back down the line in the case of a surge. None of the actual clamping occurs at this stage.

### STAGE 2

Consists of a fuse, LED and a single MOV. Provides less than 5% of the protection, but it does start clamping some surges. After many clamping cycles, the MOV will become resistive and the fuse will blow. The indicator LED will go out, which is an advanced warning that the surge protector is starting to wear out. It will still function, but it should be replaced soon.

### STAGE 3

The bulk of the protection takes place at this stage. It consists of numerous MOVs that clamp surges and can handle large amounts of power.

## Technical Specifications

*Specifications are indicative and subject to change. Actual performance will vary depending on the application and operating conditions. Users should satisfy themselves that the product is suitable for use in the intended application. All our products carry a limited warranty against defects in material and workmanship. Please refer to our Warranty, Application Approvals/Limitations and Return Materials Process as described on <https://www.axiomatic.com/service/>.*

*All voltages are RMS unless otherwise specified.*

*All specifications are typical at nominal input voltage and 25 degrees C unless otherwise specified.*

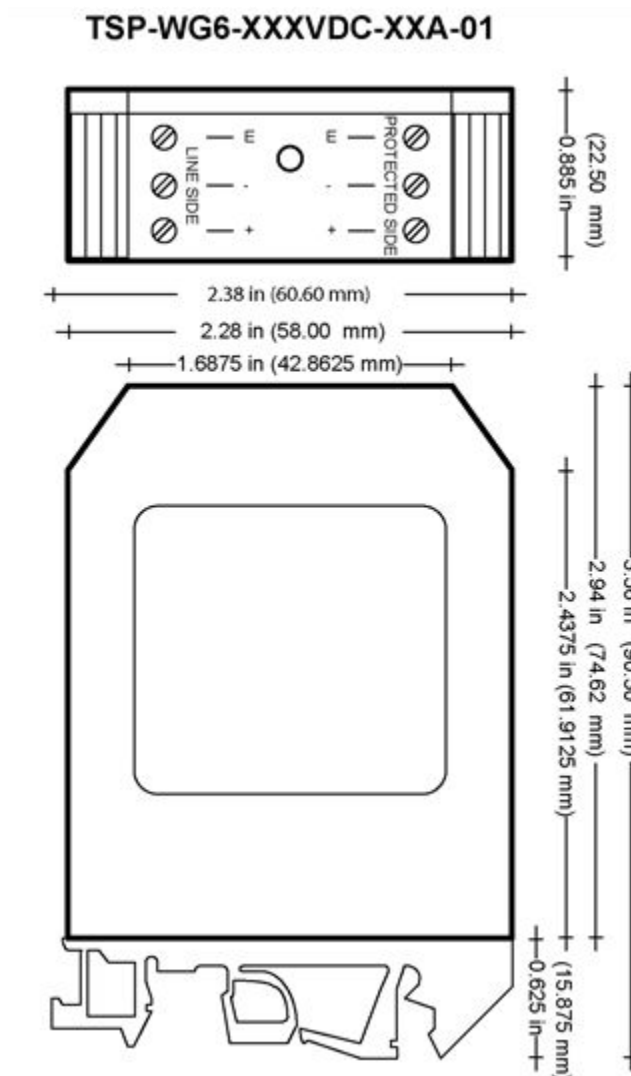
Operating Voltage:	13.8VDC	24VDC	32VDC	48VDC	110VDC	125VDC
LINE Side Max. Input Voltage	18V	26V	38V	56V	125V	150V
PROTECTED Side Voltage						
Level Suppression Begins:						
Stage Two	20V	30V	41.5V	61V	140V	160V
Stage Three	25V	35V	50V	73V	160V	185V
Max. Clamp Volts for Max. Transients on Line:						
Stage Two	43V	65.0V	93.0V	135V	250V	300V
Stage Three	53V	77.0V	110.0V	135V	300V	340V
Surge Current:						
8/20µSec Pulse						
+ TO -	9000A	9000A	9000A	27000A	27000A	36500A
+ TO E	4000A	4000A	4000A	13000A	13000A	16000A
- TO E	4000A	4000A	4000A	13000A	13000A	16000A
2mSec Pulse						
+ TO -	60J	94J	141J	131J	265J	326J
+ TO E	28J	44J	66J	54J	120J	148J
- TO E	28J	44J	66J	54J	120J	148J
Maximum Load	10A	10A	10A	10A	10A	10A

Response Time	<5 nSec	<5 nSec	<5 nSec	<5 nSec	<5 nSec	<5 nSec
Resistance to Earth: Max Over-Voltage Operating Voltage	0.01 Ohm > 1 MOhm	0.01 Ohm > 1 MOhm	0.01 Ohm > 1 MOhm	0.01 Ohm > 1 MOhm	0.01 Ohm > 1 MOhm	0.01 Ohm > 1 MOhm

## Packaging / Dimensions

WEG 6 terminal modular housing, #12 to #22 AWG terminals

Size: 60.6 mm x 90.5 mm x 22.5 mm (2.39" x 3.56" x 0.89") (W x H x D excluding DIN Rail)



**Operating Conditions:** -40 to +85°C (-40 to 185°F), 0 to 93% Relative Humidity

**Storage Temperature:** -55 to 125°C (-67 to 257°F)

**Weights:** 125Vdc model: 81.8 g; 110Vdc model 82 g; 48Vdc model: 84.2 g; 32Vdc model: 91.8 g; 24Vdc model: 87 g; 13.8Vdc model: 86.8 g

**Approvals:** CE marking

**Indicator:** LED ON indicates the device is fully functional. If the LED turns OFF, this means the unit has experienced a surge and provided the protection it was designed to do. This indicates it is time to replace the protector.

Form: TD0101AX-01/17/2024