

# Category 3 Hurricane-RDU Surge Protective Device



## Installation and Operation Guide



**IMPORTANT: Reading and understanding this installation guide in its entirety is essential prior to installing and commissioning the surge protective device**

### Safety Precautions

The electrical system on which this surge protection device will be installed must be in proper working condition. Consult with trained personnel before proceeding with the installation, if there are any questions regarding system status. The potential exists for this unit to be damaged if the requirements of this manual are not followed. Failure to comply with the applicable requirements of this manual may result in warranty void.



### Introduction

Proper installation of the Category 3 Hurricane-RDU Surge Protective Device (SPD) is essential to maximize performance and effective protection. Read the entire Installation and Operation Manual prior to beginning installation. This manual does not replace national and local electrical codes. Verify compliance with all electrical codes.

### Package Contents & Inspection

Upon receipt of the unit(s), inspect the entire package to ensure there are no signs of damage or mishandling. Remove packing material and inspect device for any obvious shipping damage. Immediately file a claim with the shipping company and inform PSP Products, Inc. if any damage is found that is a result of shipping or handling. Each package contains the following:

- (1) Prewired Surge Enclosure + Remote Display
- (1) Installation and Operation Manual



### Product Description

The Category 3 Hurricane-RDU SPD is designed to protect electrical equipment from damaging effects of transient voltages created by direct and indirect lightning strikes, equipment switching or other surge causing disturbances. Metal Oxide Varistor (MOV) and Gas Discharge Tube (GDT) technology is utilized to achieve a high level of protection performance. Each unit comes standard with surge enclosure and remote display; status lights, alarm, and auxiliary contacts, EMI filter and surge counter. The SPD described in this manual are UL Listed, conforming to UL 1283 and latest edition of UL 1449 and CSA 22.2 No.8. The enclosure is rated NEMA 4. All ratings are in accordance with ANSI C62.11, C62.33, C62.41 and NEMA LS1.

The Category 3 Hurricane-RDU is designed so that upon the end of life of a MOV, it will disconnect from the circuit, and signal the need for replacement visually, by auxiliary contacts, and audibly.

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**Important: Risk of electrical shock. This device should only be installed by qualified personnel.**

Part Number Breakdown

C3H(#)-(###)-4XM-RDU

- **Surge Rating Identifier:** 120=120kA/phase, 240=240kA/phase
- **Voltage Identifier:** 1=120/240 1-phase, 2=120/208 3-phase Wye, 3=120/120/240 3-phase high-leg Delta, 4=277/480 3-phase Wye, 5=480 3-phase Delta, 6=347/600 3-phase Wye, 7=600 3-phase Delta, 8=220/380 3-phase Wye, 9=240 3-phase Delta

Description		C3H1	C3H2	C3H3	C3H4	C3H5	C3H6	C3H7	C3H8	C3H9
System Voltage	VAC	120/240	120/208	120/120/240	277/480	480	347/600	600	220/380	240
System Wiring		3W+G (1-Phase)	4W+G (3-Phase Wye)	4W+G (3-Phase High-Leg Delta)	4W+G (3-Phase Wye)	3W+G (3-Phase Delta)	4W+G (3-Phase Wye)	3W+G (3-Phase Delta)	4W+G (3-Phase Wye)	3W+G (3-Phase Delta)
Maximum Operating Voltage (MCOV)	L-N	150	150	150/350	350		460		300	
	N-G	150	150	150	350		460		300	
	L-G	150	150	150/350	350	700	460	920	300	300
	L-L	300	300	300/450	700	700	920	920	600	300
Voltage Protection Rating (VPR)	L-N	700	700	700/1,200	1,200		1,500		900	
	N-G	800	800	800/1,200	1,500		1,500		1,200	
	L-G	800	800	800/1,200	1,200	1,800	1,500	2,500	1,200	1,200
	L-L	1,200	1,200	1,200/2,000	1,800	3,000	2,500	3,000	1,500	1,500
Operating Current (Ic)		<10 mA	<10 mA	<30 mA	<10 mA	<30 mA	<10 mA	<30 mA	<10 mA	<30 mA
Follow Current (If)		None								
Maximum Leakage Current (Ipe)		1 mA								
Frequency (f)		50/60/400 Hz								
Nominal Discharge Current Per Mode (In)		20kA								
Maximum Discharge Current (Imax)		120kA, 240kA (Depending on Model)								
Short Circuit Current Rating (SCCR)		200kA								
EMI/RFI Filtering		1283 Electromagnetic Interference Filter (-40 dB)								
Thermal Disconnecter		Internal to Each Component								
Overload Disconnecter		Internal to Each Device								
Operating Temperature		-40 to +85°C								
Housing-Enclosure Material		NEMA 4X Aluminum								
Mounting Type		Nipple/Wall Mounting or Flush Mount (Cover Not Included)								
Environmental Rating		NEMA 4/12, NEMA 4X, IP66, Indoor/Outdoor								
Connection Type		Lead Length: 36" / #10 AWG								
Standards Compliance or Recognition		UL 1449 5th Edition Type 1 Listed, UL Listed to US and Canadian Safety Standards								

### Product Pre-Installation

Prior to installing any enclosed SPD, please read and understand the operation manual, ensure that all safety precautions are taken and follow all applicable electrical codes.

1. Power must be disconnected prior to installation. Failure to do so may cause injury, death and/or equipment damage.
2. Ensure that the Category 3 Hurricane-RDU model selected is the proper one for the electrical system and voltage ratings.
3. NEC Article 285 states that Type 2 SPDs may only be placed on the load side of the main breaker or fuse at each utility service entrance. Type 1 can go before the breaker.
4. Per National Electric Code (NEC), ensure that a proper neutral-ground bond has been made when power is supplied from an upstream transformer or any other type of separately derived power source. NEC Article 250.30 states this bond must be in place on all 3-phase WYE and 1-phase split systems.

### WARNING

**Verify that a proper neutral-ground bond has been made when power is supplied from an upstream transformer or any other type of separately derived power source. Power must be disconnected prior to installation, inspection or servicing. Failure to do so may cause injury, death and/or equipment damage.**

**Failure to provide this bond, as required by NEC 250.30 will void the warranty and can result in elevated phase to ground source voltage potentials. These voltages can cause damage to electrical equipment, pose a fire hazard or a safety hazard such as electrical shock, injury or death.**

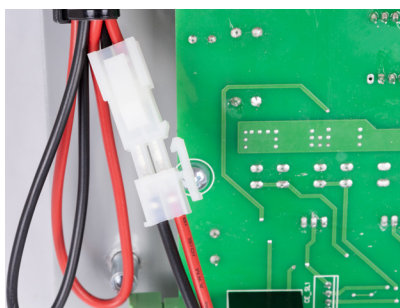
### Installation Instructions

#### 1. Mounting Instructions

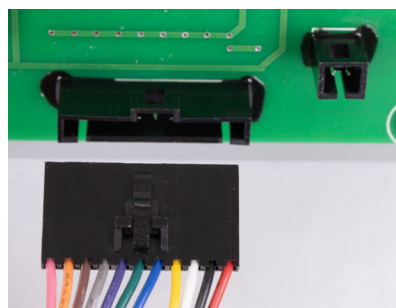
Category 3 Hurricane-RDU enclosures are constructed with a NEMA 4X painted aluminum enclosure. Refer to dimensions (see dimension drawings). The Category 3 Hurricane-RDU enclosure can be installed in indoor locations as close to the protected circuit as possible. Avoid long wire runs between the SPD and protected circuit, as this will reduce performance. Take care to ensure the surface or structure the unit will be mounted on is stable and capable of bearing the load. Mounting brackets are preassembled on enclosure.

Type 4X enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against access to hazardous parts; to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt and windblown dust); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow, splashing water, and hose directed water); and that will be undamaged by the external formation of ice on the enclosure.

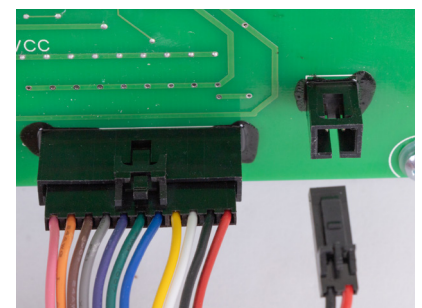
2. Wire colors to ensure proper connection. L1 is black, L2 is black, L3 is black, N (neutral) is white, and ground is green.
3. Power on remote display by connecting the cables below as shown in the pictures.



Power Connection



Diagnostic Cable Connection



Dry Contact Connection

#### 4. Final Check and Energizing

Ensure that all requirements of this manual have been met and the unit is installed properly. Upon verifying this, power can be re-connected and the unit energized. Once energized check the remote display to observe green LEDs. The unit is now connected and is protecting the circuit.

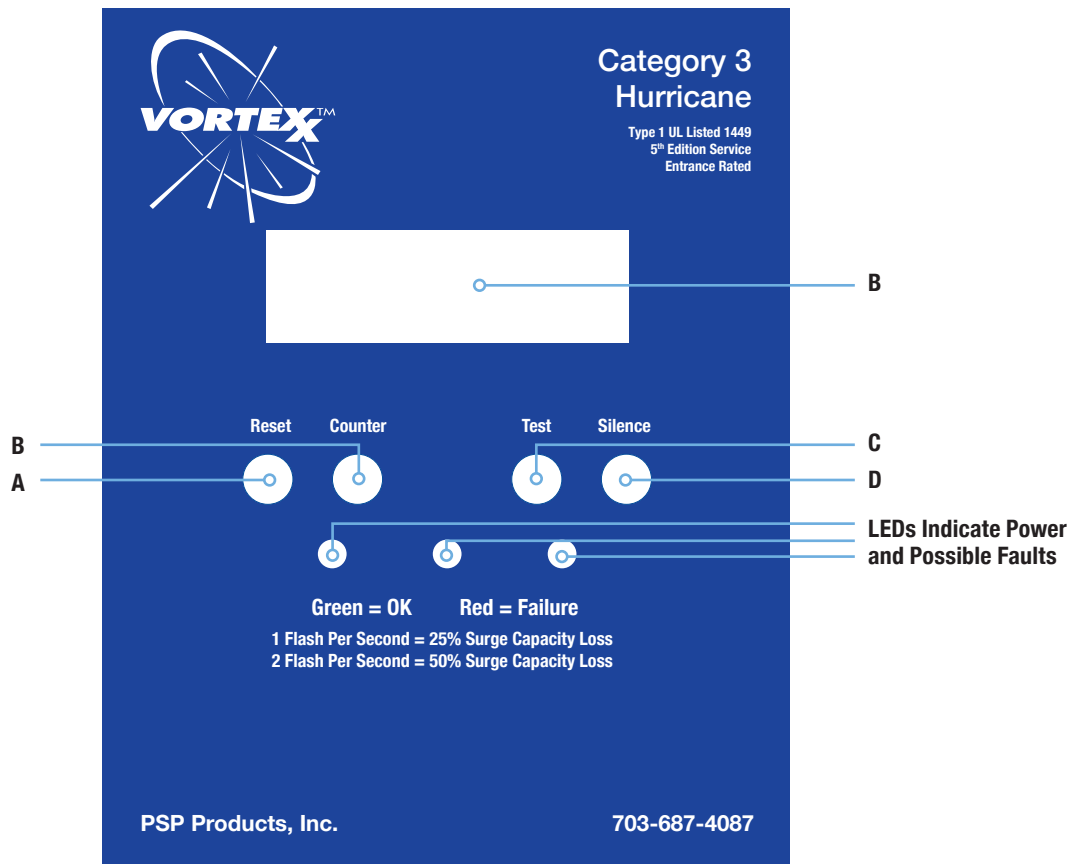
### Maintenance

The design of the Category 3 Hurricane-RDU eliminates the need for preventative maintenance. The remote display will indicate status of SPD and surge capacity remaining. Remote contacts can be wired to allow for notification when a fault is present. Qualified personnel should be used for any inspection or replacement of module within the Category 3 Hurricane-RDU .

### Diagnostics

Upon energizing the unit, check to ensure proper operation. The remote display will show green LEDs when no faults are present. Should LEDs appear RED or RED BLINKING check to make sure the electrical network is in good working order and all instructions in this manual have been followed. For technical support please contact PSP Products at 703-687-4057.

### Display



- A. Reset: Resets the surge counter to zero.**
- B. Counter: Displays number of surge events.**
- C. Test: Simulates a fault by lighting up LEDs and playing the audible alarm.**
- D. Silence: Silences audible alarm when a fault has occurred.**

Diagram 1

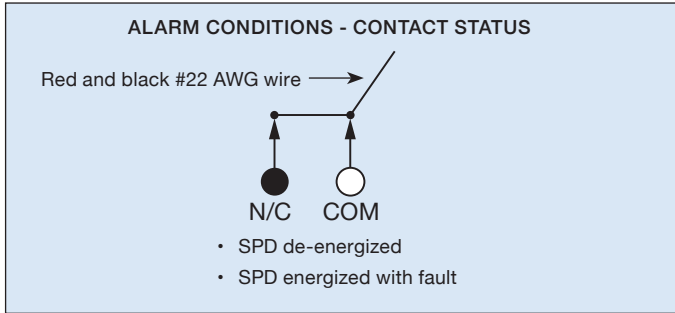


Figure 1

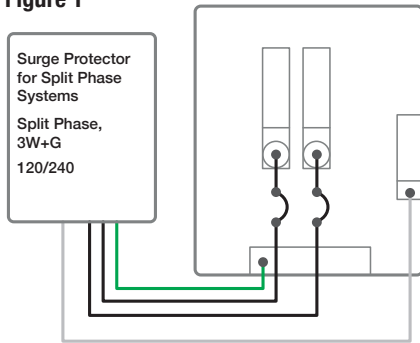
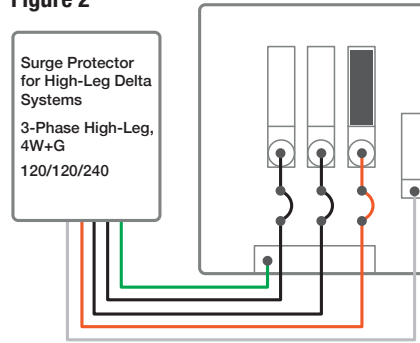


Figure 2\*



*\*Figure 2. Please verify voltage on all three legs before installing surge protector. Incorrect installation will void warranty.*

Figure 3

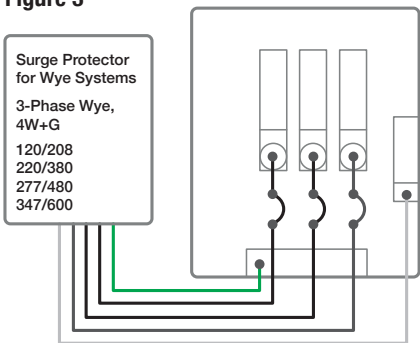
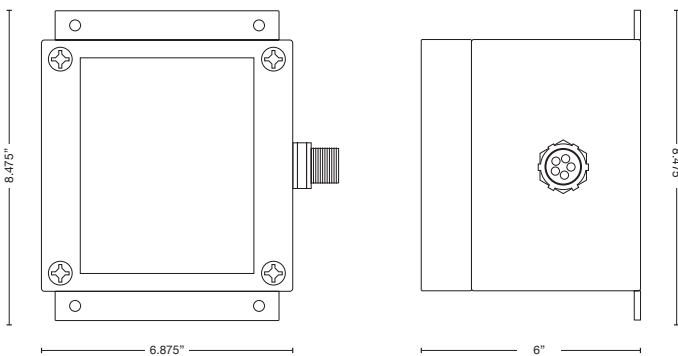
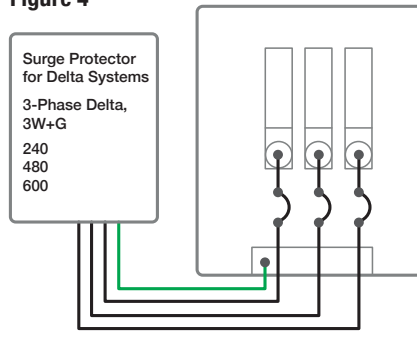
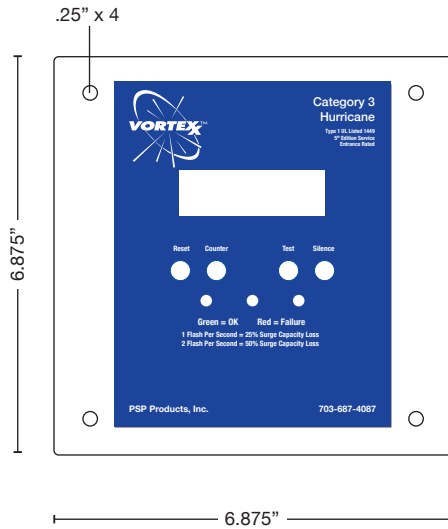


Figure 4

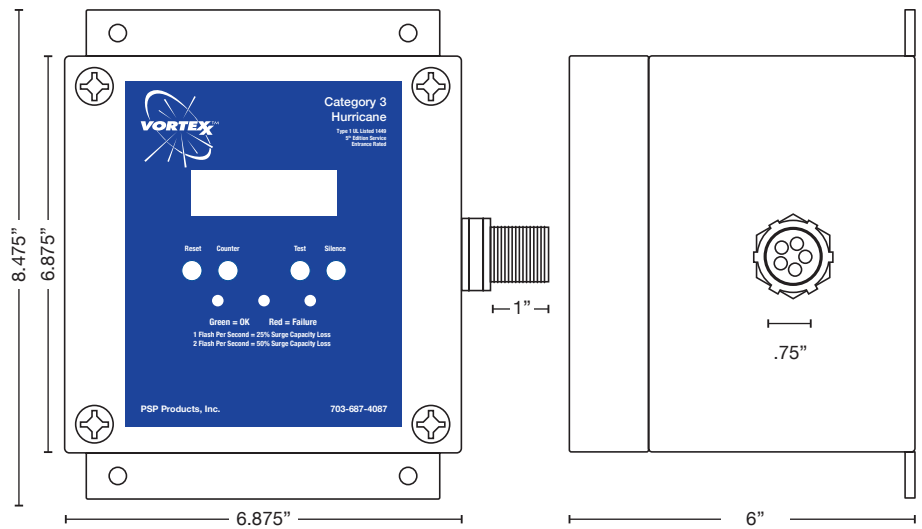


Voltage	Phases	Wires	Neutral	Diagram
120/240 VAC	Split Phase	3W+G	Yes	Fig. 1
120/120/240 VAC	3-Phase High-Leg Delta	4W+G	Yes	Fig. 2
120/208 VAC	3-Phase Wye	4W+G	Yes	Fig. 3
220/380 VAC	3-Phase Wye	4W+G	Yes	Fig. 3
277/480 VAC	3-Phase Wye	4W+G	Yes	Fig. 3
347/600 VAC	3-Phase Wye	4W+G	Yes	Fig. 3
240 VAC	3-Phase Delta	3W+G	No	Fig. 4
480 VAC	3-Phase Delta	3W+G	No	Fig. 4
600 VAC	3-Phase Delta	3W+G	No	Fig. 4

Remote Display



Surge Enclosure



## Category 3 Hurricane-RDU Warranty

### PSP Product Warranty 25 Year Limited Commercial Warranty Coverage for the Category 3 Hurricane-RDU Surge Protection Device

PSP will, at its sole discretion, repair or replace any Category 3 Hurricane-RDU Commercial Surge Protection Device (SPD) that is defective or is damaged by a transient electrical spike (including those caused by lightning) for a period of twenty-five (25) years from the date of installation by the original owner or owner of record of premises.

#### Exclusions

The above coverage applies to the original end user purchaser only and is the exclusive remedy under this warranty, whether based in contract, tort, including negligence, or otherwise. Claims must be made within 30 days of damage. This warranty does not cover damage associated with sustained over voltages, vandalism, theft, normal wear and tear, obsolescence, abuse, unauthorized modification or alteration, misuse, improper installation or catastrophic events.

PSP Products disclaims liability for any incidental, indirect, special or consequential damages arising out of the sale or use of any PSP products (including, without limitation, lost business profits, loss of data and all freight, mileage, travel time and insurance charges associated with warranty coverage claims).

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusions may not apply to you. This warranty gives you specific legal rights and you may have other rights which vary from state to state. *This warranty is valid in the United States and Canada only.*

#### Claim Procedure

1. Contact PSP Products at 1-703-687-4057 to obtain a Return Authorization (RA) number.
2. Return PSP device to PSP Products, freight prepaid.
3. PSP Products returns working device, freight prepaid.

**Caution: Effective surge suppression requires correct wiring. All surge protection devices must be properly grounded for the warranty to be honored.**



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