

STABILINE®

Surge Protective Devices

PT2 Series – Type 2 SPD

Installation, Operation and Maintenance Manual



Congratulations

Thank you for purchasing the PT2 Series STABILINE® Surge Protective Device . . . another Superior product!

Expect exceptional performance. The unit is built to the highest standards for your complete satisfaction.

To assure many years of uninterrupted service, please read this Installation, Operation and Maintenance Manual to familiarize yourself with the operation and proper installation of the PT2 Series unit.



Superior Electric

* Subject to change without notice.

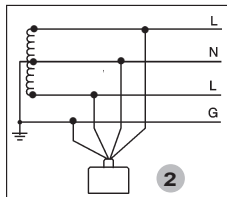
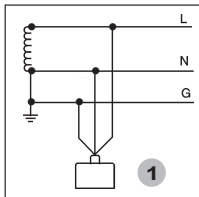
Instructions for Installation

Model Number

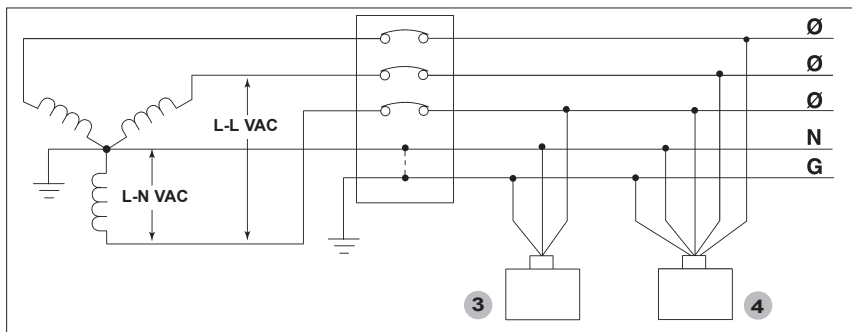
PT2-40-120-1G-L1
 PT2-40-220-1G-L1
 PT2-40-120/240-2G-L1
 PT2-40-120/208-3GY-L1
 PT2-40-220/380-3GY-L1
 PT2-40-277/480-3GY-L1

Power Configuration

120 VAC L-N, Single Phase, 50/60 Hz, 2-Wire + Ground
 220 VAC L-N, Single Phase, 50/60 Hz, 2-Wire + Ground
 240 VAC L-L, 120 L-N, Single Phase, 50/60 Hz, 3-Wire + Ground (Split Phase)
 208Y/120 VAC, Three Phase Wye, 50/60 Hz, 4-Wire + Ground
 380Y/220 VAC, Three Phase Wye, 50/60 Hz, 4-Wire + Ground
 480Y/277 VAC, Three Phase Wye, 50/60 Hz, 4-Wire + Ground



- 1 / 3 Model PT2-40-120-1G-L1
- 2 Model PT2-40-120/240-2G-L1
- 1 / 3 Model PT2-40-220-1G-L1
- 4 Models PT2-40-120/208-3GY-L1, PT2-40-220/380-3GY-L1 and PT2-40-277/480-3GY-L1



General

The PT2 Series, Type 2 Surge Protective Device (SPD) is designed for protection of downstream distribution equipment and wiring as well as most sensitive electrical and electronic loads from the effects of overvoltage transients that might be produced from lightning, induction, load or power factor capacitor switching.

All PT2 Series Surge Protective Devices are supplied with lead lengths of 18 inches - # 14 AWG Stranded Wire. A Green LED on the faceplate indicates the SPD functional status. All models covered in this Installation, Operation and Maintenance Manual are supplied with a Form C contact set for remote monitoring; the unpowered contacts are accessed at the terminal block mounted on the side of the SPD.

WARNING ... Important Safety Instructions

- A qualified electrician must install the SPD and all applicable codes, listings and ratings must be observed and followed.
- The electrical system must be properly grounded to comply with National Electrical Code requirements. Proper grounding is essential for surge protection to be effective.
- Failure to wire per installation instructions may cause personal injury or equipment/device damage.
- The PT2 unit contains no user-serviceable parts.

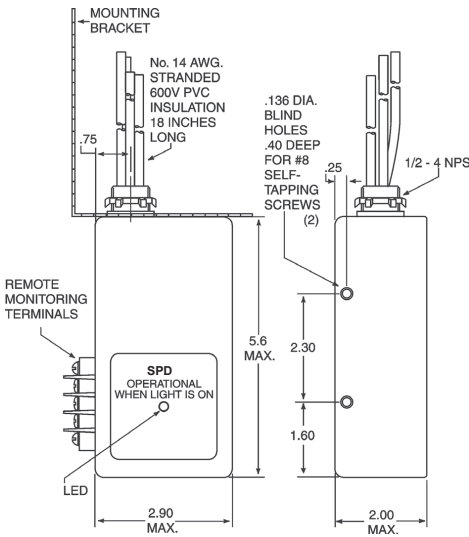


Illustration of SPD mounted through a panel knockout

Illustration of SPD right side mounting holes

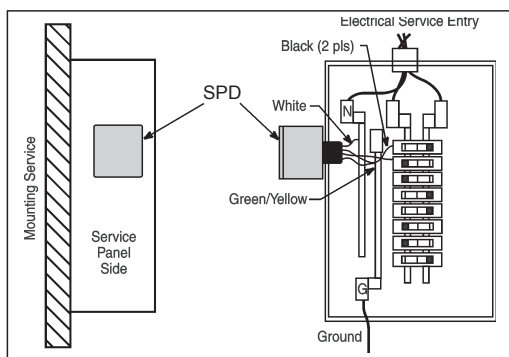
Mounting

PT2 Series units are designed to be mounted through a 1/2" knockout in the service entrance gear or other electrical panel. It can also be mounted using the two holes 2.3 inches center-to-center (58.42mm) on the right side of the SPD; use two #8 self-tapping screws that do not extend more than 3/8 inch (9.5mm) into the plastic body.

WARNING!

Installation and servicing should only be done by qualified personnel. Do not assume the circuit is de-energized!

Installation



*Illustration shown is typical of
Model PT2-40-120/240-2G-L1*

- Connect the **Green** wire to the **Ground** bar.
- Connect the **White** wire to the system **Neutral** bar.
- Connect the **Black** wire(s) to each pole of the breaker.

Connecting the Surge Protective Device

Verify that the power configuration for the model chosen agrees with the actual service to which the SPD is to be connected. It is important to keep the connecting leads of the SPD as short and as straight as possible. Depending upon the service configuration, the SPD may be required to be connected with overcurrent circuit protection. Refer to Table 1 to determine if an upstream overcurrent protection device is required.

The SPD must be installed on either the line or load side of the main service disconnect. The SPD must be installed in parallel to the electrical distribution system. Careful consideration should be made in selecting the knockout location because excess lead length and sharp bends in the wire drastically decrease the effectiveness of the SPD. For this reason choose a knockout location that minimizes lead length and sharp bends. The SPD may also be mounted within the equipment enclosure.

Connecting the Surge Protective Device cont.

1. Disconnect all power supplying the electrical panel.
2. Remove the panel screws and cover. Retain these parts for re-installation.
3. Remove a knockout 0.5 inches. (13mm)
4. Remove lock washer from the SPD's threaded nipple. Carefully feed the wires through to avoid cutting wire insulation. Slide lock washer over the wires to anchor the threaded nipple. Rotate the SPD so that the function status LED indicators can be easily viewed. Tighten the lock washer to secure the SPD.
5. Locate the neutral bar inside the electrical panel and connect the white or blue wire to the neutral bar and tighten to torque specified on inside of panel. Keep conductor length as short as possible to avoid sharp bends in the wire.
6. Locate the ground bar inside the electrical panel. Connect the green or green/yellow wire to the ground bar and tighten the terminal to the torque specified on the panel. Keep conductor length as short as possible and avoid sharp bends. If neutral is bonded to ground, green wire may be terminated to neutral.
7. Black or brown wires should be connected to either the breaker or the bus of the panel, as long as the short circuit current rating does not exceed 65 or 100 kAIC (see Table 1 for specific model ratings.) If you would like to be able to turn the unit off, then you may consider connecting it to a breaker (# of positions determined by the # of black or brown wires provided with the unit.) Tighten terminals to torque specified on inside of panel. Keep lead lengths as short as possible to avoid sharp bends.
8. Re-install panel cover.

Table 1 - Overcurrent Protection Required

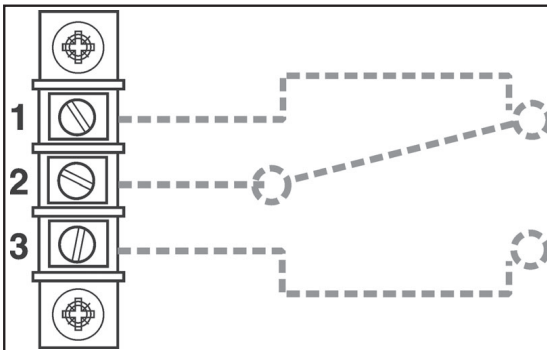
Model	ⓘ kAIC Rating	Upstream Overcurrent Protection
PT2-40-120-1G-L1	100	No Breaker Required
PT2-40-220-1G-L1	100	30A Breaker Required
PT2-40-120/240-2G-L1	100	No Breaker Required
PT2-40-120/208-3GY-L1	100	No Breaker Required
PT2-40-220/380-3GY-L1	65	20A Breaker Required
PT2-40-277/480-3GY-L1	65	20A Breaker Required
ⓘ Suitable for use on a circuit capable of delivering not more than 65 or 100 kA RMS symmetrical amperes		

Operation

1. Apply power to the panel. The Green function status LED will illuminate. If the LED is not on, remove power and review all of the previous installation procedures.
2. Troubleshooting – If after a known heavy lightning strike has occurred and the LED is not on, reset the circuit breaker if the SPD is tied to the breaker. If the function LED comes back on, then the protector is fine. If the LED is still off, or you cannot reset the breaker, the protector must be replaced.

Connecting the Remote Contacts to an Alarm

For “Fail-Safe” form C monitoring, connect the alarm leads to terminals 2 and 3. Terminals 2 and 3 will be closed during normal (Power ON) operation and the SPD is functioning properly. If the SPD should fail, contacts 2 and 3 will open and contacts 1 and 2 will close. Relay contacts are rated at 5A at 250 VAC or 30 VDC maximum, 50mVA minimum.



Relay contacts shown in the relaxed position (SPD alarm or loss of power)

NOTE: Maximum torque on terminals is 10 in-lb.

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- POWERSTAT®** Variable Transformers
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Voltage Control Components are available worldwide through an extensive Authorized Stocking Distributor network. These Distributors offer literature, technical assistance and a wide range of models off the shelf for fastest possible delivery and service.

Power Quality Solutions

- STABILINE®** Automatic Voltage Regulators
- STABILINE®** Surge Protective Devices
- STABILINE®** Uninterruptible Power Supplies
- STABILINE®** Power Conditioners

STABILINE Power Quality Solutions are available worldwide through an extensive Authorized Distributor and Reseller network which offer literature, technical assistance and a select range of models off-the-shelf for fastest possible delivery and service.

In addition, Superior Electric Manufacturer's Representatives are available to provide prompt attention to customer needs. Call or Fax for ordering and application information or for the address of the closest Manufacturer's Representative, Authorized Distributor or Reseller.



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