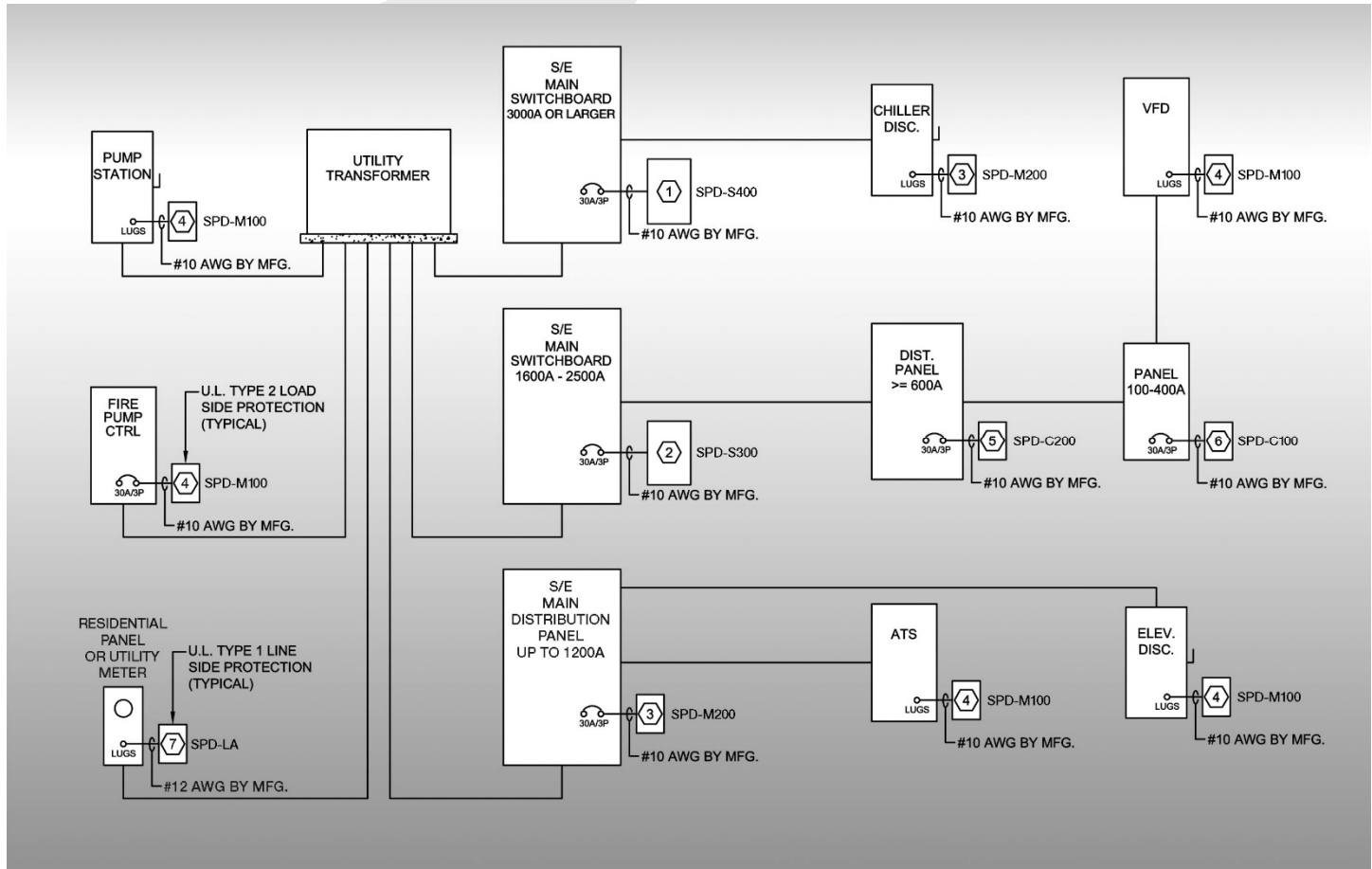


PRODUCT SHEET

Surge Protection Device Placement Guide

Application and Design Solutions for new construction, retrofit and space limited applications



SERVICE ENTRANCE/MDP

SPD's are recommended on all SE/MDP locations to protect against lightning induced transient power surges and utility grid (capacitor bank) switching induced power surges.

DISTRIBUTION PANELS

SPD's are recommended on distribution level panels which feed any outdoor equipment or when there is no upstream and/or downstream protection.

BRANCH PANELS/PANELBOARDS

SPD's are recommended on all branch panels/panelboards which are feeding any sensitive electronic loads.

NOTE: All PQI SPD's incorporate 200KAIC over current protection.

Downloadable Master Spec available at: www.powerquality.net

- 1 Provide Type SPD-S400*
- 2 Provide Type SPD-S300*
- 3 Provide Type SPD-M200*
- 4 Provide Type SPD-M100*
- 5 Provide Type SPD-C200
- 6 Provide Type SPD-C100
- 7 Provide Type SPD-LA

**M/S Series are modular with internal servicing disconnect in 100kA, 200kA, 300kA & 400kA surge current ratings. Modules are redundant per phase and per mode as well as indicator lights. Additional features shown on reverse side.*

S Series includes surge counter standard - to add surge counter to M Series, change to S Series.

Surge Protection Device Placement Guide

SERVICE ENTRANCE PANELS

Surge protection is recommended on all SE/MDP panels to protect against lightning and utility generated surges as follows:

SERVICE ENTRANCE/MDP – 3,000 Amp & Larger

SPD-S400, 400kA Surge Current Rating (L-N + L-G)
Dimensions: 10.31"H x 10.31"W x 3.25"D, weight 13 lbs.

SERVICE ENTRANCE/MDP – 1,600-2,500 Amp

SPD-S300, 300kA Surge Current Rating (L-N + L-G)
Dimensions: 10.31"H x 10.31"W x 3.25"D, weight 13 lbs.

SERVICE ENTRANCE/MDP – 1,200Amp or Less

SPD-M200, 200kA Surge Current Rating (L-N + L-G)
Dimensions: 9.45"H x 5.2"W x 3.1"D, weight 6.2 lbs.

STANDARD FEATURES OF ABOVE UNITS

- Type 1 & 2 Rated by UL for line or load side installation
- 200KAIC Rated
- Modular Design – Per Mode & Per Phase
- Standard Integral Disconnecting Means
- Redundant Status Indication Per Mode & Per Phase
- Audible Alarm
- Dry Contacts
- Surge Event Counter (Standard on PQS300 & PQS400)
- Factory supplied with 36", #10AWG

OPTIONAL FEATURES

- Switchboard Mounting Kit
- Surge Event Counter (Optional for PQM200))



DISTRIBUTION PANELS

Surge protection is recommended on distribution panels feeding any outdoor equipment or where there is no upstream protection, as follows:

SPD-C200, 200kA

Surge Current Rating (L-N + L-G)
Dimensions: 10.9"H x 3.25"W x 3"D, weight 4.5lbs.

STANDARD FEATURES OF ABOVE UNITS

- Type 1 & 2 Rated by UL for line or load side installation
- 200KAIC Rated
- Non-Modular, Compact Design
- Status Indicators per phase
- Dry Contacts
- Factory supplied with 36", #10AWG

OPTIONAL FEATURES

- Flush Mount Kit

BRANCH PANELS

Surge protection is recommended on branch/subpanels feeding any sensitive loads as follows:

SPD-C100,

100kA Surge Current Rating (L-N + L-G)
Dimensions: 6"H x 3.25"W x 3"D, weight 2.2lbs.

STANDARD FEATURES OF ABOVE UNITS

- Type 1 & 2 Rated by UL for line or load side installation
- 200KAIC Rated
- Non-Modular, Compact Design
- Status Indicators per phase
- Dry Contacts
- Factory supplied with 36", #10AWG

OPTIONAL FEATURES

- Flush Mount Kit
- Panel-Side Mount Kit

PQI Product Family Includes: SPD-LA, SPD-C50, SPD-C100, SPD-C200, SPD-M100, SPD-M200, SPD-S300 & SPD-S400

Voltage Configuration Options: 120/240, 240D, 120/208, 120/240D, 277/480 & 480D

Example Model Number: SPD-M100-120/208

Models with "C" indicates compact-non-modular, "M/S" indicates modular with field replaceable modules per phase and per mode and internal disconnect. To add surge counter to a "M" Series, change "M" to "S". (Ex. SPD-S200)

TYPICAL DRAWING SPECIFICATIONS

Provide UL 1449-4th Edition listed SPD(s). SPD's shall comply to requirement of UL96A where a LPS (Lightning Protection System) is installed and requires Master Labeling SPD's to be Type I or Type 2 and 20kA (In) rated with a 200KAIC withstand rating. SPD's are supplied with 36" lead length, and shall be connected to a 30 Amp dedicated circuit breaker unless shown otherwise. SPD's shall have a ten (10) year replacement warranty.

LEVEL 1 – At all service entrance locations, Type SPD-S300 Series*.

LEVEL 2 – At any/all distribution level panels feeding outdoor equipment of any type, provide Type SPD-C200.

LEVEL 3 – At any/all branch panels feeding any kind of sensitive load(s), provide Type SPD-C100.

**Note to specifying engineer: The SPD-M & SPD-S Series incorporates an internal disconnecting means, which can take the place of a breaker if desired.*

INSTALLATION NOTES

- Keep connected lead lengths as short and straight as possible and follow manufacturer's installation instructions.
- Connect SPD to a 20 or 30Amp, dedicated circuit breaker as a disconnecting/servicing means unless otherwise shown on drawings or required by the manufacturer.
- AIC rating of SPD shall be equal to or greater than that of the connected panel per NEC 285.6.
- SPD shall comply UL 1449-4th Edition, IEEE, NEC & IEC and comply with requirements of UL96A LPS Master Labeling.

CURRENT U.L. 1449 STANDARDS U.L. 1449- 4TH EDITION

- UL performs a Nominal Discharge Test to all Type 1 and Type 2 SPD's (e.g., "In" nominal current test), 20kA "In" is the highest rating.
- UL SPD Product Locations are now referred to as:
 - Type 1-Line side of the first overcurrent device at the service entrance (IEEE Cat. C), or load side anywhere downstream
 - Type 2-Load side of the first overcurrent device at service entrance or distribution and panelboard locations (IEEE Cat. B & C)
 - Type 3-Outlets & Receptacles (IEEE Cat. A)
- UL 96A – Lightning Protection System Master Labeling required on all service entrance SPD's. Only UL 3rd Edition SPD's rated at 20kA "In" in either Type 1 or Type 2 locations qualify for this.

*For a full version of the updates, please visit www.pqprotection.com

SPD INDUSTRY TERMINOLOGY

- UL 1449, 4th Edition Listed – This is the current UL standard for Surge Protection Devices (previously referred to as TVSS).
- 200KAIC Fault Current Rated – per NEC 285.6 – The SPD must have a fault current rating equal to or greater than the point of connection. (NOTE) Fault current ratings apply to 50/60hz events rather than high frequency lightning events.
- Transient (surge) current ratings from 50kA per phase to 400kA per phase – Please refer to the PQI Product Location Placement Guide on reverse side.
- UL 1449 VPR (Voltage Protection Rating), otherwise referred to as clamping voltage – This is the primary performance test of UL 1449. All manufacturer's VPR's can be viewed at UL.com/VZCA.
- UL 1449 repetitive, nominal current test resulting in a 20kA "In" rating or a 10kA "In" rating from UL – Refer to UL96A standard below for application of this testing.
- Type 1 and Type 2 – Type 1 allows connection on the line side of the main without the requirement for additional overcurrent protection. Type 2 allows connection on the load side, either to a breaker or not. A breaker acts as a disconnecting/servicing means for an SPD without an internal disconnect. Type 1 listed SPD's can be installed in either a Type 1 or Type 2 location.
- UL96A – Structural Lightning Protection (LPS) Master Labeling requires Type 1 or Type 2 devices at all service entrance locations and requires a 20kA "In" rating.

Visit our UL file at www.ul.com/VZCA.E335441

Visit our website at www.powerquality.net

PQI SURGE PROTECTION PRODUCT FEATURES & BENEFITS

- SPD Dimensions – Most electrical rooms are small and keeping the connected wire length short means having an SPD that will physically fit in the space allocated without sacrificing the SPD performance rating with long connection lengths. PQ Protection SPD's were designed with that in mind and the products are small and slim.
- Safety Listing – UL 1449-4th Edition
- Location Rating – Type 1 (Line side of the first overcurrent device) & Type 2 (All panel locations load side)
- UL 1449 Nominal Current performance test – All PQ Protection products are 20kA "In" rated, the highest rating available
- UL 1449 VPR (voltage protection rating) – Previously referred to as clamping voltage, PQ Protection has the best ratings available.

Please visit our UL file at www.ul.com/VZCA, E335441

- LPS (Lightning Protection System) – All PQ Protection products are UL 96A LPS Master Labeling compliant. *
- Surge Current Rating – The products ability to withstand transients rated per phase from 50kA to 400kA per phase.
- AIC Rating – Per NEC 285.6 the SPD's AIC rating shall be equal to or greater than the point of connection on the electrical system. All PQ Protection SPD's are 200kAIC rated.
- Modular Design – Allows for in-field serviceability without removing the SPD. *All PQI SPD modular devices incorporate an integral disconnecting means without additional physical size or additional cost. The integral disconnecting means eliminates the need for a dedicated breaker.*
- Compact Non-Modular Design – Smaller physical size and requires complete replacement if replacement is needed.
- Connection Method – 20 to 30Amp, dedicated breaker or SPD integral disconnect are the recommended methods.
- Monitoring Features – Visual indication of power and proper operation, remote alarm contacts, and a surge counter are offered with the PQ Protection SPDs.
- Enclosure Rating – All PQ Protection enclosures are rated indoor/outdoor use.
- Warranty – PQ Protection offers a Ten (10) Year replacement warranty.
- Physical Mounting Options – Side, bottom, or top of panel. Flush mounting kits, side mount kit and switchboard top mounting kits are available.

*Exception: The SPD-C50 model is the only model rated at 10kA "In" and not compliant to UL96A.