

SP2 surge protective device



Surge protection for light commercial and UL 508A panel applications

Product description

The SP2 provides basic surge protection for light commercial electrical systems and OEM equipment requirements. The SP2 is available in the most popular voltage and system configurations and delivers superior surge protection using MOV thermal disconnect technology that eliminates the need for additional overcurrent protection.

Increasing importance of surge protection

Studies have shown that failure to protect sensitive electronic loads costs American manufacturing and commercial and service industries more than \$39 billion per year in lost time and revenue. Preventing these losses is a major cost-saving opportunity. The SP2 can be used to protect downstream points in the electrical distribution system along with machinery control panels to keep your facility and processes running.

Applications

By providing surge protection, the SP2 can suppress the transients that are prevalent throughout the power distribution system to support reliable operations in applications including:

- HVAC systems
- Control panels
- Automation cabinets
- Pumping systems
- Lighting systems
- Commercial facilities
- Food processing
- Warehouses
- Retail facilities
- Manufacturing operations

Standards and certifications

- UL® 1449 4th Edition Type 1 SPD File No. E109835, cULus
- UL 1283 7th Edition listed device
- Can be used for UL 96A compliance
- Can be used for NFPA 780 compliance
- Built in an ISO® 9001 facility
- Flammability rating UL 94VO
- Designed and tested in accordance with:
 - IEEE® C62.41.1
 - IEEE C62.41.2
 - IEEE C62.43-2005
 - IEEE C62.45-2002
 - IEEE C62.48-2005
 - IEEE C62.62-2010

Ease of installation

Compact design allows for easy installation on an electrical panel or meter socket, or integrated into control cabinets.



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Features, benefits, and functions

- Type 1 UL 1449 4th Edition listed SP2s are easily selected and installed on the loadside or lineside of the service entrance over-current protective device
- Thermal disconnect technology eliminates the need for additional overcurrent protection
- Compact UV-resistant NEMA® 4X enclosure for indoor or outdoor applications
- LED status indicators provide surge protection status at a glance—green when good, red to replace
- Voltage-specific models protect electrical systems and equipment, improving performance by more than 110% over “one-size-fits-all” economy surge arresters
- Compact enclosure takes up less space and can be installed in tight spaces
- Can be used on single-phase, split-phase, wye, delta, and high-leg delta systems
- All SP2 devices are individually marked with a serial number for easy tracking and identification
- Two-year warranty

Technical data

Nominal system voltage	Maximum continuous operating AC voltage (MCOV)	System type	Voltage protection ratings (VPR)	Connection points	Catalog number
120	150	Single-phase, two-wire	700 L–N	2	SP2-120
240	320	Single-phase, two-wire	1200 L–N	2	SP2-240
120/240	150	Split-phase, three-wire	700 L–N, 1200 L–L	3	SP2-240S
240	320	Three-phase delta, three-wire + ground	1200 L–G, 2500 L–L	4	SP2-240D
480	550	Three-phase delta, three-wire + ground	1800 L–G, 3000 L–L	4	SP2-480D
120/208	150	Three-phase wye, three-wire + ground	700 L–G, 1200 L–L	4	SP2-208Y
277/480	320	Three-phase wye, three-wire + ground	1200 L–G, 2500 L–L	4	SP2-480Y
347/600	420	Three-phase wye, three-wire + ground	1500 L–G, 2500 L–L	4	SP2-600Y

Specifications

Description	Specification
Markets	Light commercial and UL 508A panels
Product warranty	2 years
System types	Single, split, delta, and wye
Nominal system voltage	120, 208, 240, 480, 600 Vac
Installation	Two-, three-, four-wire
Maximum continuous operating AC voltage	Matched to nominal voltage
MCOV	150–550 Vac (see table above)
L–N protection	Yes (single-phase units)
L–L protection	Yes
L–G protection	Yes (three-phase units)
Protection	Surges and transients
SCCR	200 kA
Nominal discharge current (8 x 20 μs) I _n	10 kA
Maximum discharge current (8 x 20 μs) I _{max}	45 kA per phase
Response time t _A	<25 ns
Voltage protection ratings (VPRs)	See table above
Overcurrent device (if required by local code)	Circuit breaker or fuse sized to protect wires per local codes
Frequency	50/60 Hz
Operating status / fault indication	One bi-color LED—green (good) / red (replace)
Conductor gauge/length	10 AWG stranded copper / 18 inches
Mounting	Chase nipple (¾" NPS)
Enclosure rating	NEMA 4X—UL 94-5VA
Degree of protection (installed state)	IP20 (finger-safe)
Install location	Indoor/outdoor
Circuit location	Lineside/loadside
Standards / agency information	UL 1449 4th Edition Type 1 and UL 1283 7th Edition Listed SPD—cULus, RoHS compliant
Operating temperature	–40 °C to +65 °C
Maximum operating altitude	12,000 feet
Weight	17 oz (476 g)

Dimensions in inches (mm)

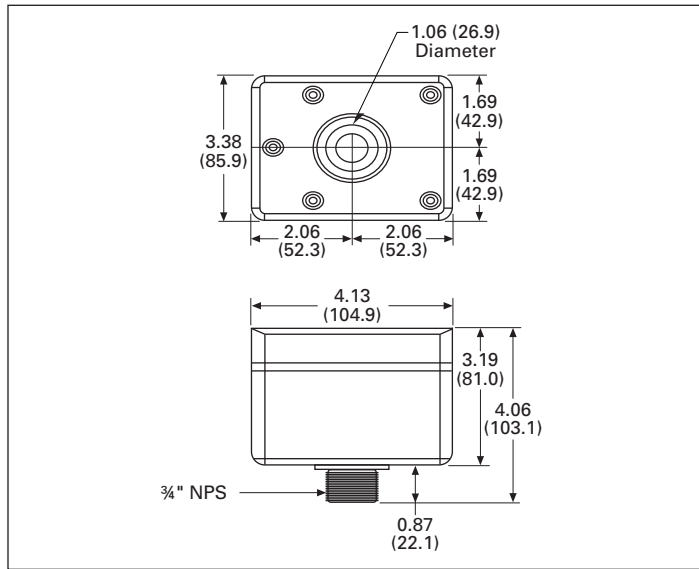


Figure 1. SP2 enclosure

Wiring connections

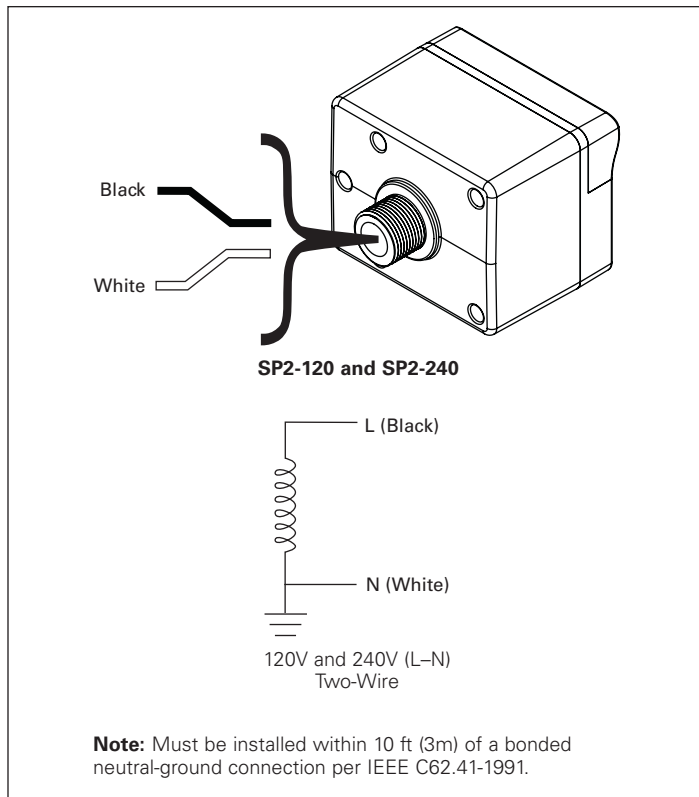


Figure 2. Single-phase

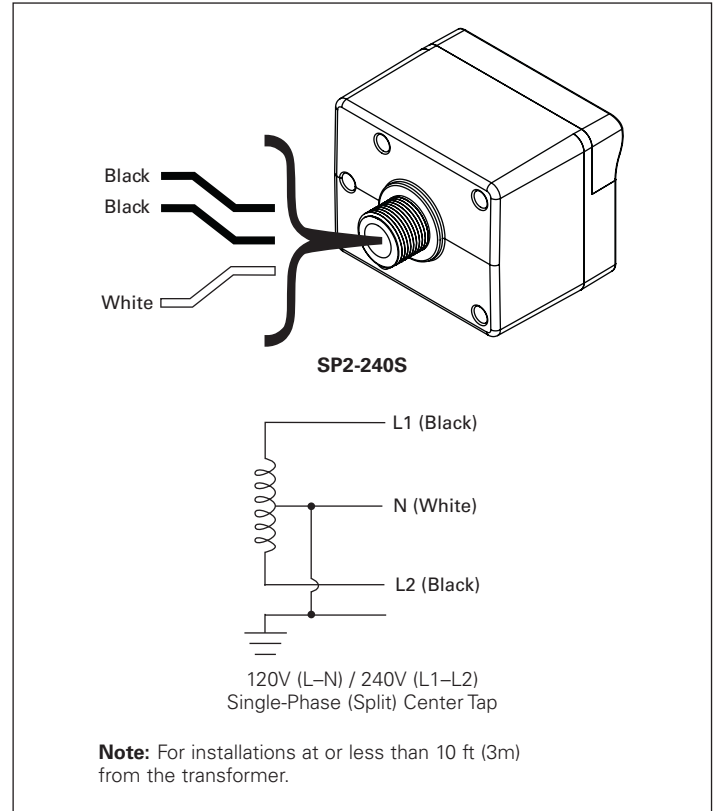


Figure 3. Split-phase with neutral

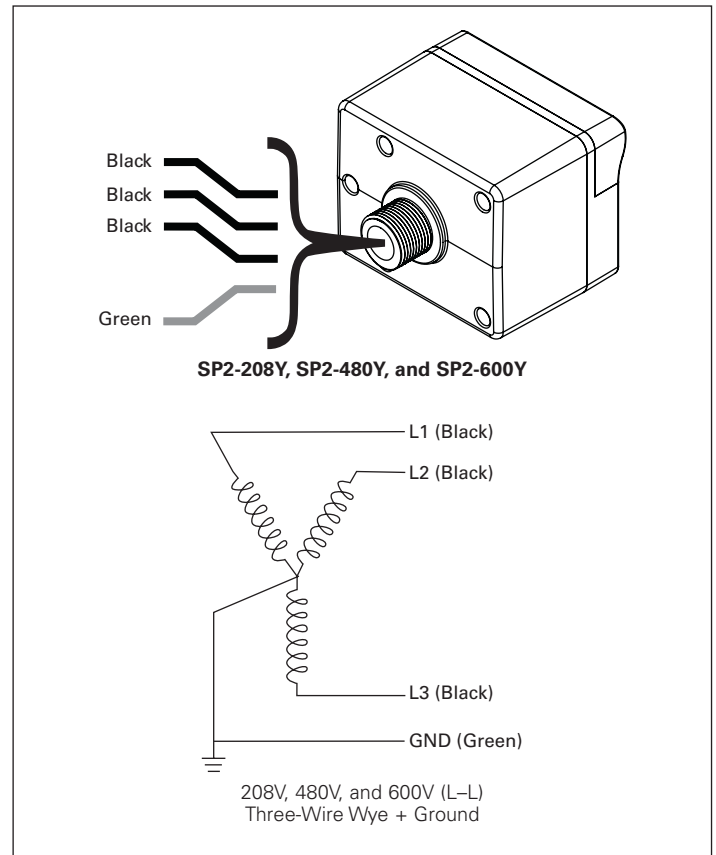


Figure 4. Wye + ground

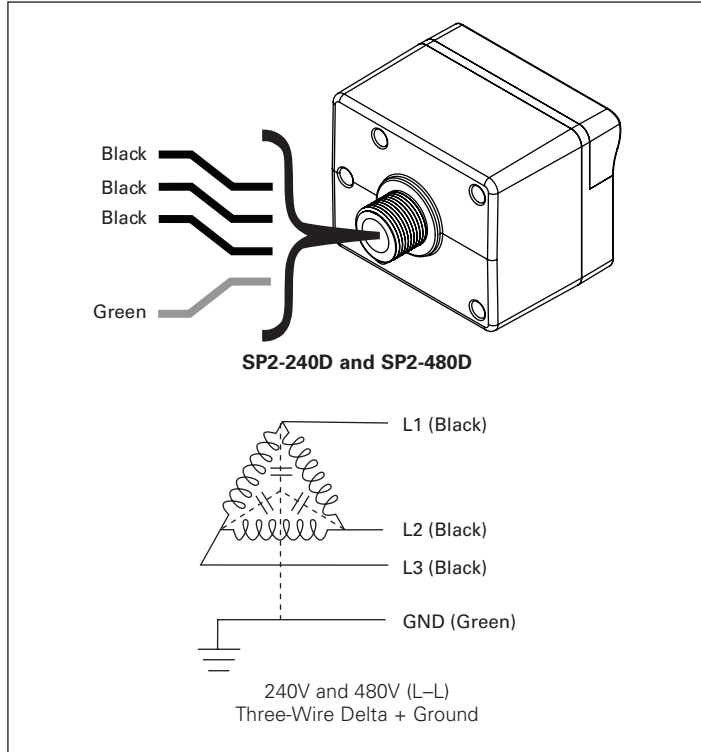


Figure 5. Delta + ground

Mounting

The SP2 is a panelmount device. It may also be mounted using a customer supplied bracket or mounted directly onto a female threaded conduit fitting.

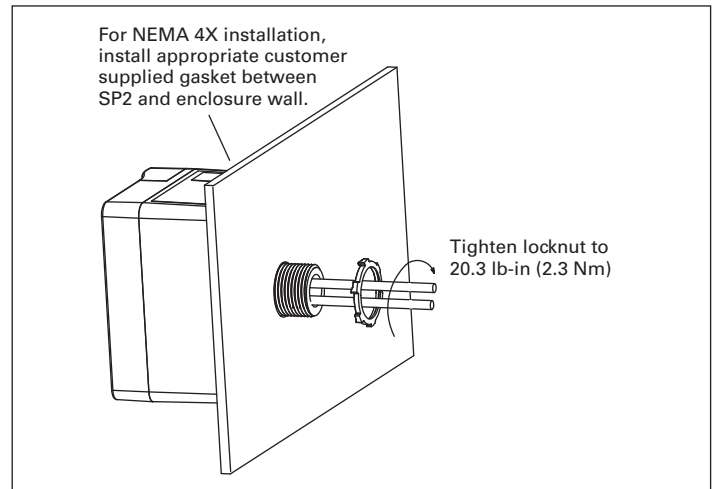


Figure 6. SP2 installation

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240	320	Three-phase delta, three-wire + ground	1200 L–G, 2500 L–L	4	SP2-240D
480	550	Three-phase delta, three-wire + ground	1800 L–G, 3000 L–L	4	SP2-480D
120/208	150	Three-phase wye, three-wire + ground	700 L–G, 1200 L–L	4	SP2-208Y
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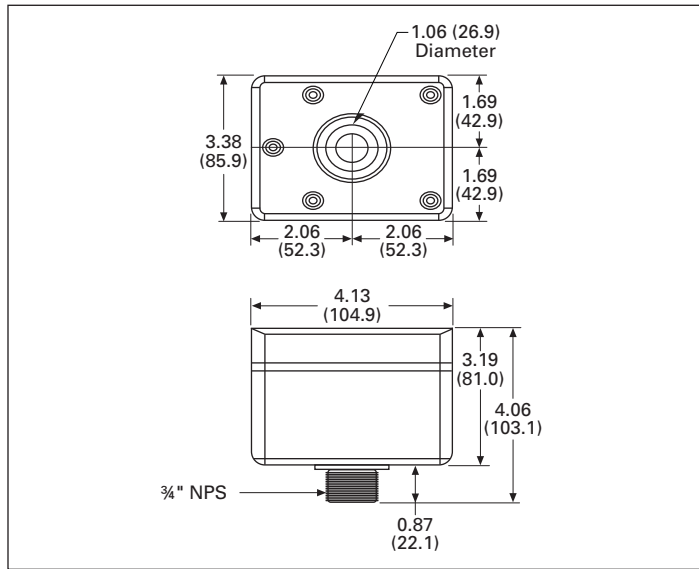


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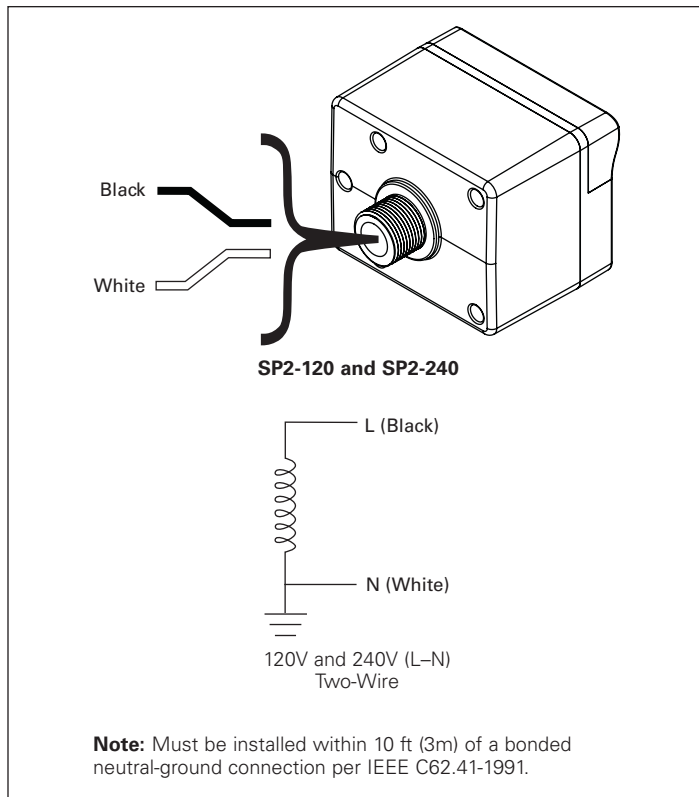


Figure 2. Single-phase

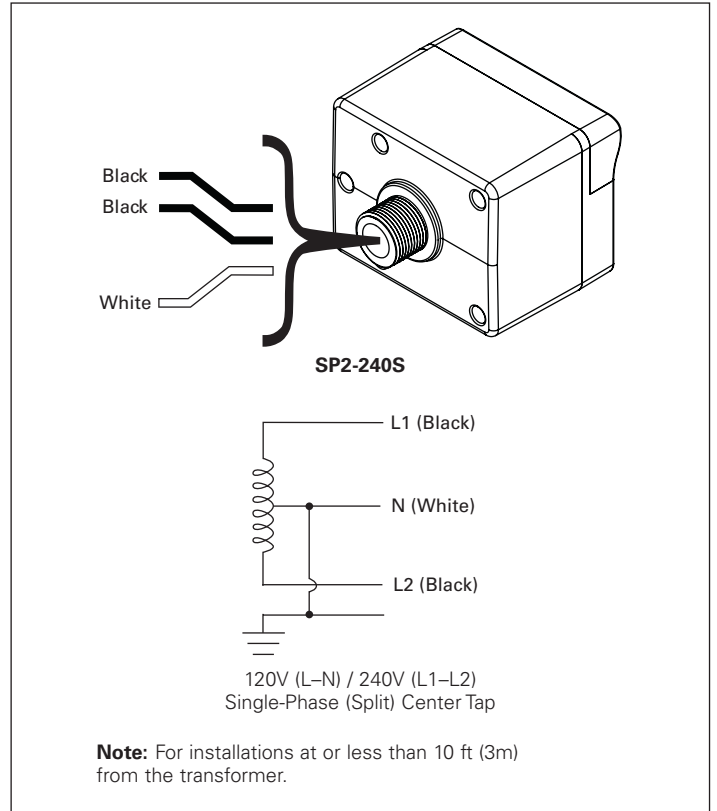


Figure 3. Split-phase with neutral

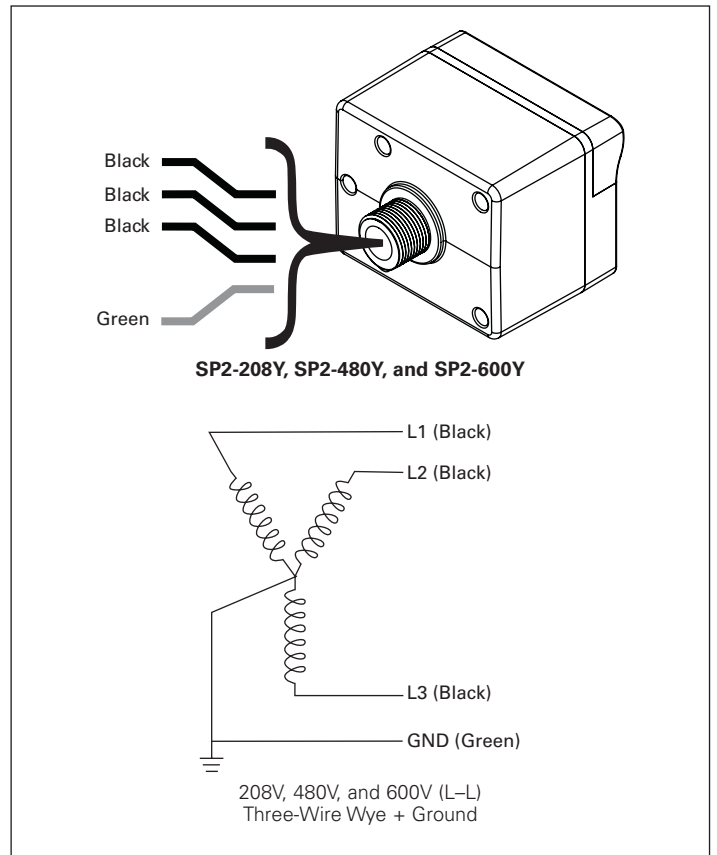


Figure 4. Wye + ground

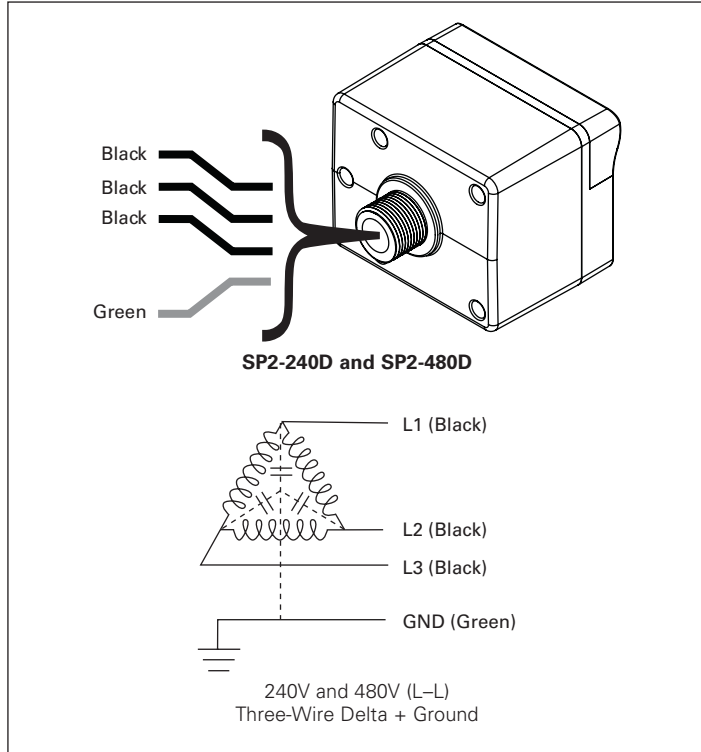


Figure 5. Delta + ground

Mounting

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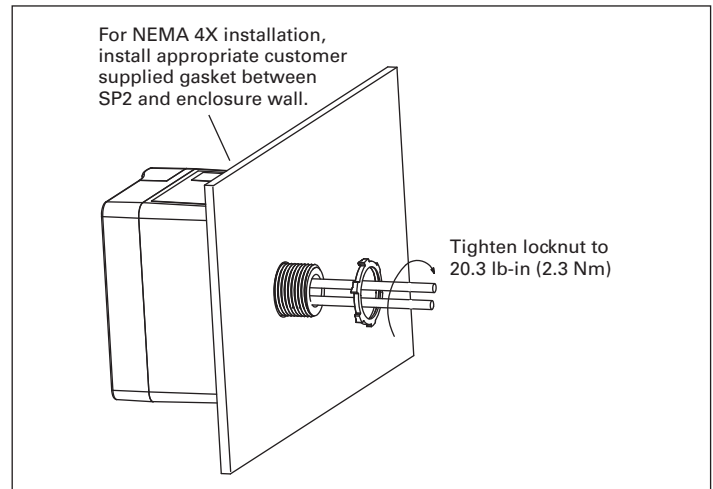


Figure 6. SP2 installation

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