

The “2-In-1” Over/Under Motor Protection System



Why Install Surge Protection with Dedicated Motor Protection?

Transient impulses can significantly impact your facility's power quality, easily disrupting or damaging your process or equipment. While it's important to protect against high-energy events, a more frequent, yet often overlooked power quality concern is the damage caused by a phase loss, a temporary voltage sag, or a voltage swell condition. Disconnecting your sensitive loads during these longer duration PQ events is the easiest way to safeguard important equipment.

Why Install a Tier 460 Contactor with an Auto Disconnect and Restart Controller?

The Tier 460 Over/Under Motor Surge Protection system, or the “2-In-1”, will protect a motor, or an entire system, from power quality events. It runs a surge protective device with a series equipped contactor and controller. Our proprietary monitor and control system will disconnect the load at predetermined levels, and will reconnect the load at separate predetermined levels automatically. The SPD remains online while the load is disconnected.

This twofold level of protection greatly improves system defenses from power disruption damage. This unit is also available in a shunt trip configuration.

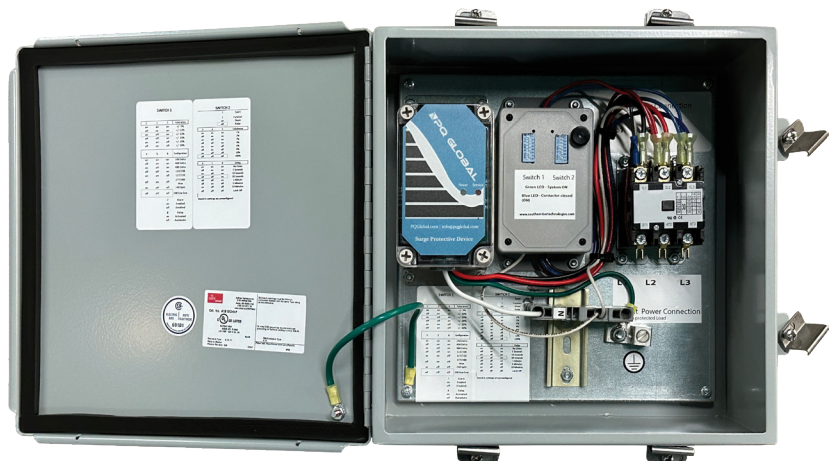
Features:

Surge

- Thermally Protected MOVs
- Surge Levels Available:
25 kA/Mode, 50kA/Phase
- ANSI/UL 1449 4th Edition, cUL
- Sine Wave Tracking: Type 2
- Surge Impulse Rated and Tested

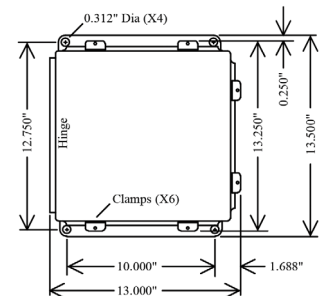
Monitoring & Control

- Monitor Under/Over Voltage, Phase Loss, Imbalance
- Audible Alarm w/ disable switch, and LED indication
- Active Load Disconnect & Reset
- User Selectable Controls:
+/- 5, 7.5, 10, 15, 20, 25% Over/Under Voltage Trip Settings
- Auto restart available with user selectable reset time. Includes: No delay, 5s, 10s, 30s, 1m, 5m, 10m, No restart

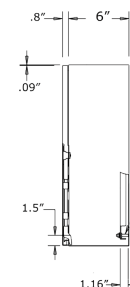
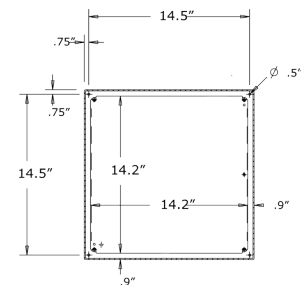
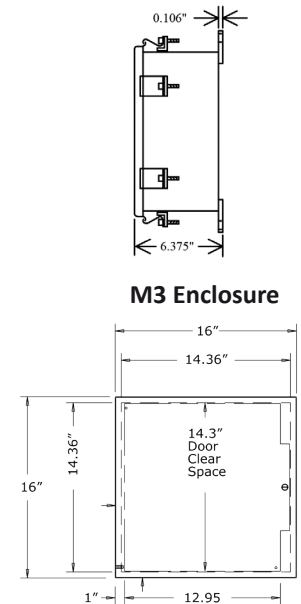


General Technical Specifications	
Connection Type	Contactor is Series
Voltage, Phase Configuration	120/240 Split Phase, (3W+G) 120/208V Three Phase Wye, (4W+G)* (127/220V Three Phase Wye, (4W+G))* (220/380V Three Phase Wye, (4W+G))* 277/480V Three Phase Wye (4W+G)** 240V Three Phase Delta (3W+G) 480V Three Phase Delta, (3W+G)
Maximum Continuous Operating Voltage	120V, 150 VAC (125%); 127V, 150 VAC (118%); 220V, 320 VAC (145%); 240V, 320 VAC; 277V, 320 VAC; 480V, 550 VAC; All Others 115%
Short Circuit Current Rating (SCCR)	200kAIC Surge; 22kAIC Contactor
Contactor Current Rating	30, 40, 50, 60, or 90 Amp
Protection Modes	All Connected Modes: L-N, L-L, L-G, N-G
Operating Frequency Range	47 - 63 Hz
UL 1449 Location Type	Type 1 or Type 2
Nominal Discharge Current (In)	10 kA
Connection	Terminals
Status Indication	Blue/Red LEDs, Form C, Audible Alarm w/ disable switch
Monitoring	Under Voltage/ Over Voltage + activation LED, Phase loss, Phase Imbalance
Enclosure	NEMA 4, 12, &13 Rated (16 Gauge Steel)
50 Ohm EMI/RFI Attenuation	-50 db max(Type 2), -45db max(Type 1); from 10 kHz to 100MHz. The system provides up to 120dB insertion loss from 100 kHz to 100 MHz when used in a coordinated facility system.
Response Time	<0.5 nanoseconds
Operating Temperature	-40°C to +75°C
Operating Humidity	0% to 95% non-condensing
50 kA/Phase Case Size	M2 - 12" x 12" x 6" M3 - 16" x 16" x 6"
Selectable Over/Under Voltage Trigger Levels	+/- 5%, 7.5%, 10%, 15%, 20%, 25%
Contactor Options for Auto Reset	Selectable resets: No Delay, 5s, 10s, 30s, 1m, 5m, 10m, No Restart
Warranty	SPD: 10 years; Control System: 5 years

M2 Enclosure



M3 Enclosure



T46  **025 AL**   **S**  **M**

Voltage & Phase Configuration Code

- 120S** = 120/240V Split Phase (3W+G)- Fig 1
- 120Y** = 120/208V 3 Phase Wye, (4W+G)* - Fig 2
- 127Y** = 127/220V 3 Phase Wye, (4W+G)* - Fig 2
- 220Y** = 220/380V 3 Phase Wye, (4W+G)** - Fig 2
- 277Y** = 277/480V 3 Phase Wye (4W+G)** - Fig 2
- 240D** = 240V 3 Phase Delta (3W+G) - Fig 3
- 240H** = 240/480V 3 Phase Delta Hi-Leg (4W+G) - Fig 4
- 480D** = 480V 3 Phase Delta, (3W+G) - Fig 3

*This is a 120/208V unit, and can be used in 127/220V applications

**This is a 277/480V unit, and can be used in 220/380V applications

You may place the order as either part number.

Enclosure

- M2** - 12x12x6
- M3** - 16x16x6

Enclosure size is determined based on selected options. Please see pre-configured options on product list.

1449 Location

- 1** - UL Type 1
- 2** - UL Type 2

Current Rating

- 03** - 30 Amp
- 04** - 40 Amp
- 05** - 50 Amp
- 06** - 60 Amp
- 09** - 90 Amp

Example Product number:

Filled in:

Complete:

T46 120Y 025 AL M3 1 S 09 M = T46120Y025ALM31S09M

Tier 460 - 2-In-1 Over/Under SPD - Product List

Product Number	Surge Rating	Current Rating	Enclosure (HxWxD)	Weight
2-In-1 Over/Under Motor Surge System: SPD, Contactor, and Controller				
T46XXX025ALM2XS03M	25 kA/Mode, 50 kA/Phase	30 Amps	M2 - 12" x 12" x 6"	21 lbs
T46XXX025ALM2XS04M		40 Amps	M2 - 12" x 12" x 6"	21.5 lbs
T46XXX025ALM3XS05M		50 Amps	M3 - 16" x 16" x 6"	26.5 lbs
T46XXX025ALM3XS06M		60 Amps	M3 - 16" x 16" x 6"	27 lbs
T46XXX025ALM3XS09M		90 Amps	M3 - 16" x 16" x 6"	28 lbs

Fig. 1

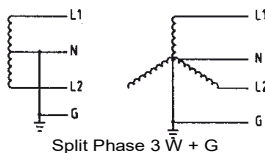


Fig. 2

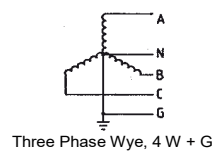


Fig. 3

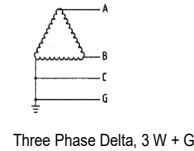


Fig. 4

