

## The “3-In-1” Power Quality System



## Why Install a Tier 470 Contactor with an Auto Disconnect and Restart Controller, a Line Reactor, and SPD?

The Tier 470 Power Quality System is a motor surge protection contactor restart device with a line reactor, or the “3-In-1”. It will protect a motor, or an entire system, from power quality events. It runs a surge protective device with a series contactor, a line reactor, and our proprietary monitor and control system.

The contactor 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. The line reactor will limit inrush current, along with starting and peak current; as well as reducing low frequency interference, current harmonics, distortion of reactive power, circuit feedback, and losses at the line transformer and in neutral wire loads.

This “3-In-1” Power Quality System rigorously defends your essential equipment from damaging disruptions. If you are experiencing power quality anomalies that you have not been able to identify or remediate, or are continuously replacing equipment due to damage from a known process; this unit may provide the solution you have been looking for.

## 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

### Line Reactor

- Inrush Current Limitation
- Starting and Peak Current Limitation
- Circuit Feedback Protection
- Harmonic Mitigation
- Reduction in Losses

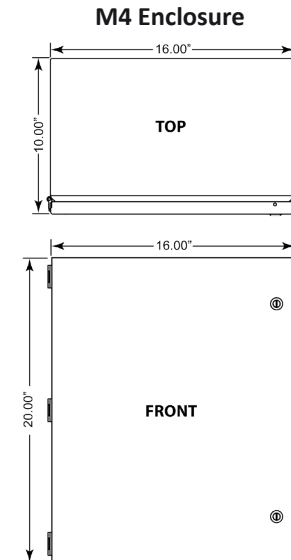
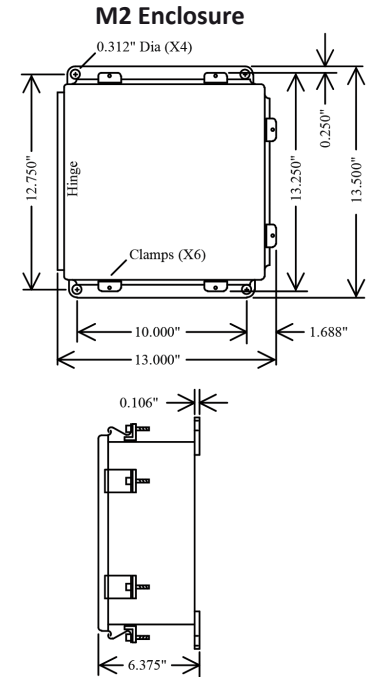
### Monitoring & Control

- 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 and Line Reactor are 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 Amps
Line Reactor Current Rating	30, 40, 50, 60(Typically matches Contactor)
Line Reactor Impedance	3% or 5%
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
3-in-1 50kA/Phase Case Size	M2 12" x 12" x 6" M4 20" x 16" x 10" Note: Different dimensions may be required as size depends on bend needed for wire per NEC
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 and Line Reactor: 5 Years



**T47**  **025 AL**     **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  
**M4** - 20x16x10

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

### Options

- 3** - 3% Line Reactor
- 5** - 5% Line Reactor

**Current Rating\***  
**03** - 30 Amp  
**04** - 40 Amp  
**05** - 50 Amp  
**06** - 60 Amp

\*Line Reactor Current Size will Match Contactor Current Size Selection in Position 17-18 of the product number.

### Example Product number:

Filled in:

Complete:

T47 120Y 025 AL M4 1 3 06 M = T47120Y025ALM41306M

## Tier 470 - 3-In-1 Power Quality Systems - Product List

Product Number	Surge Rating	Current Rating	Enclosure (HxWxD)	Weight
<b>3-In-1 Power Quality System: SPD, Contactor, Controller, and Line Reactor 3%</b>				
T47XXX025ALM2X303M	25 kA/Mode, 50 kA/Phase	30 Amps	M2 - 12" x 12" x 6"	33 lbs
T47XXX025ALM2X304M		40 Amps	M2 - 12" x 12" x 6"	37 lbs
T47XXX025ALM4X305M		50 Amps	M4 - 20" x 16" x 10"	50 lbs
T47XXX025ALM4X306M		60 Amps	M4 - 20" x 16" x 10"	51 lbs
Product Number	Surge Rating	Current Rating	Enclosure	Weight
<b>3-In-1 Power Quality System: SPD, Contactor, Controller, and Line Reactor 5%</b>				
T47XXX025ALM2X503M	25 kA/Mode, 50 kA/Phase	30 Amps	M2 - 12" x 12" x 6"	37 lbs
T47XXX025ALM2X504M		40 Amps	M2 - 12" x 12" x 6"	41 lbs
T47XXX025ALM4X505M		50 Amps	M4 - 20" x 16" x 10"	58 lbs
T47XXX025ALM4X506M		60 Amps	M4 - 20" x 16" x 10"	61 lbs

