

**Benefits:**

- UL 1449 Fourth Edition Listed & CSA 22.2 No. 269.2
- 120kA & 160kA per phase ratings
- Type 2 SPD
  - All UL required OCP & Safety Coordination included inside
  - Can be installed load-side of main disconnect
- Replaceable module construction
- 200kA SCCRs
- Voltage Specific Design – Highly configurable
- MOV suppression elements monitored
- 10 Year Warranty (longer optional)

**Performance Specifications**

Surge Capacities	L-N	L-G	N-G
<b>120kA Per Phase</b>	120kA	120kA	120kA
<b>160kA Per Phase</b>	160kA	160kA	160kA
UL 1449 Fourth Edition Listed, UL 1283 Listed & CSA 22.2 No. 269.2			
UL 1449 Fourth Edition Type 2 SPD			
UL 1449 Fourth Edition tested SCCR: 200kA			
UL 1449 Fourth Edition Voltage Protection Ratings (VPRs):			
– 208Y/120V: as low as 600V			
– 480Y/277V: as low as 1000V			
AC Sinewave Tracking Filter with EMI/RFI Filtering up to -50dB from 10kHz to 100MHz			
Repetitive Impulse: 5,000 hits			
Less than 1 nanosecond response time			

**Physical Specifications**

Relative Humidity Range: 0 - 95% non-condensing
Operating Frequency: 47 - 63Hz
Operating Temperature: -25°C (-15°F) to +60°C (140°F)
Weight: 25 lbs (11.4 kg)
Standard NEMA 1/12/3R/4 enclosure
Standard size: 12" x 12" x 7.5" (30.5cm x 30.5cm x 19cm)
Lug size: #1/0 - #14 AWG
Typical connection: #6 AWG and 60A breaker

**Quality, Standards & Validation**

UL 1449 Fourth Edition, UL 1283 Listed & CSA 22.2 No. 269.2
UL file: VZCA.E321351 at www.UL.com
RoHS-compliant
Burn-In tested prior to shipment
ISO 9001:2008 Quality Management System
ISO 17025:2005 Laboratory Qualification

**Design Attributes**

Designed, Manufactured & Tested consistent with:
– ANSI/IEEE C62.41.1-2002, C62.41.2-2002, C62.45-2002, C62.62-2010, C62.72-2016, IEEE SA 1100-2005 (Emerald Book)
– NEC® Article 285
– NEC® Articles 620.51(E), 645.18, 670.6, 695.15, 700.8 & 708 requiring SPDs
– IEC 61643, CE
High Energy Parallel Design for Category C-High applications
For External Mounting next to Switchgear, Motor Controls Centers or Panelboards
Individually Fused Suppression Modules
Large-Block 34mm square MOVs
Replaceable Phase Module Construction
Thermal Cutout in Each Mode
Busbar Construction
Solid State Bidirectional Operation

**Diagnostic Monitoring**

Green LED Status indicator per phase
Red LED service indicator
Audible Alarm with Silence Switch
Test Function: toggles Red Service LED, Audible Alarm
Redundant monitoring LEDs on modules
Phase Loss monitoring (toggles LED & dry contacts)
Electrically isolated circuitry ensures surges do not damage diagnostics
Optional Form C Dry Contacts, 240V, 5A (two sets)
Optional Surge Counter, six-digit LCD, with test function, reset & no-maintenance SuperCap energy storage device

# Model 456 Number Configurator & Options

**456**  
Model 456  
Product Line

□□□□  
Voltage Codes

**P**  
Per Phase  
kA Rating  
System

□□  
kA Rating  
Per Phase

**A**  
Modes of  
Protection  
(Default)

**C**  
Connec-  
tion Type

□  
Monitoring  
Options

□  
Enclosure

**2**  
UL 1449  
Type

□  
Accessory/  
Option(s)

## Common Systems

- 120S = 240/120V Split Phase - 1Ø, 3W+Gnd, (Fig 1)
- 120Y = 208Y/120V Wye - 3Ø 4W+Gnd, (Fig 2)
- 240H = 240/120V High Leg Delta (B High), (Fig 3)
- 277Y = 480Y/277V Wye - 3Ø 4W+Gnd, (Fig 2)
- 347Y = 600Y/347V Wye - 3Ø 4W+Gnd, (Fig2)
- 480D = 480V Delta - 3Ø 3W+Gnd, (Fig4) & HRG Wye

## Other Available Systems - Confirmation Encouraged

- 120N = 120V Single Phase (Fig 5)
- 220Y = 380Y/220V Wye - 3Ø 4W+Gnd (Fig 2)
- 240N = 240V Single Phase (Fig 5) - Not split phase
- 240C = 240V B Corner Grnd Delta, 3Ø 3W+Gnd (Fig 6)
- 240D = 240V Delta - 3Ø 3W+Gnd (Fig 4)
- 480C = 480V B Corner Grnd Delta, 3Ø 3W+Gnd (Fig 6)
- 600C = 600V B Corner Grnd Delta, 3Ø 3W+Gnd (Fig 6)
- 600D = 600V Delta - 3Ø 3W+Gnd (Fig 4) & HRG Wye

12 = 120kA  
16 = 160kA

C = Compression  
Lugs or  
Terminals  
(No Wires Included)

2 = UL 1449 Type 2,  
(Includes UL1283  
Filter)

0 = No Trailing Accessory/Option  
X = Yes Trailing Accessory/Option

E = NEMA 1/12/3R/4 (Standard) (Metal)  
Size - 12" x 12" x 7.5"

J = NEMA 4X Non-Metallic  
(Polycarbonate, Display Inside Clear  
Door)  
Size - 14" x 12" x 6"

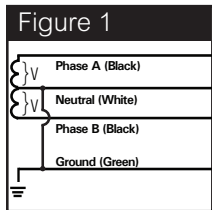
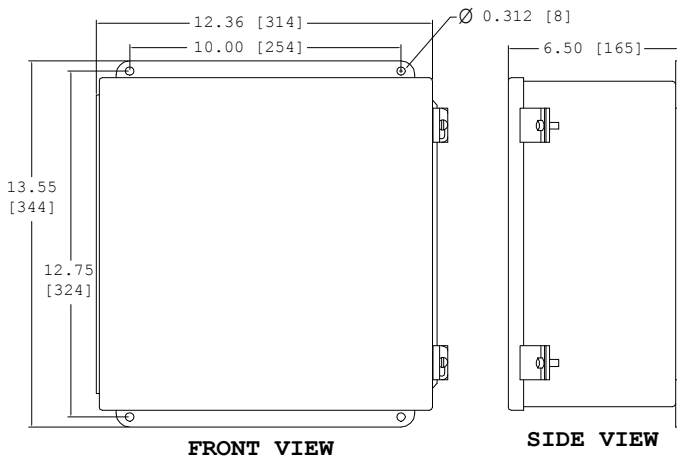
H = NEMA 4X Stainless Steel  
(Stainless, Display Inside Door)  
Size - 12" x 12" x 6"

Q = NEMA 1 Flush Mount  
Wall Cavity Size - 12" x 12" x 6"

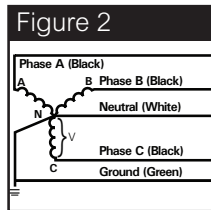
U = LEDs/Audible Alarm

A = LEDs/Audible Alarm/Relay

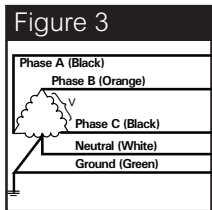
C = LEEDs/Audible Alarm/Relay/  
Surge Counter



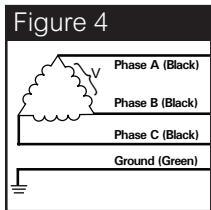
**Figure 1**  
SPLIT  
2 Phases, 1 Neutral,  
1 Ground



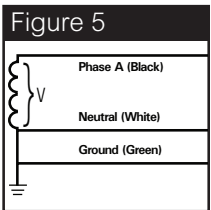
**Figure 2**  
WYE  
3 Phases, 1 Neutral,  
1 Ground



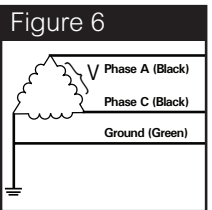
**Figure 3**  
HIGH LEG DELTA  
(B High) 3 Phases,  
(B High), 1 Neutral,  
1 Ground



**Figure 4**  
DELTA & HRG WYE  
3 Phases, 1  
Ground



**Figure 5**  
SINGLE POLE  
1 Phase, 1 Neutral,  
1 Ground



**Figure 6**  
CORNER GROUND  
DELTA (B grounded)  
2 Phases, 1 Ground

## Performance Data

Common Power Systems		UL 1449 Fourth Edition Test Data						
		Voltage Protection Ratings (VPR - 3kA)			Type	I <sub>n</sub>	SCCR	MCOV
		L-N	N-G	L-L				
120S	= 240/120V Split Phase	800	600	1200	Type 2	5kA	200kA	150
120Y	= 208Y/120V 3Ø Wye	800	600	1200	Type 2	5kA	200kA	150
240H	= 240Y/120V B High Leg Delta	800/1200	600	1200	Type 2	5kA	200kA	150 / 320
277Y	= 480Y/277V 3Ø Wye	1200	1000	1800	Type 2	5kA	200kA	320
480D	= 480V 3Ø Delta	—	—	1800	Type 2	5kA	200kA	552
347Y	= 600Y/347V 3Ø Wye	1500	1200	2500	Type 2	5kA	200kA	420