



Benefits:

- UL 1449 Fourth Edition recognized
- 300kA – 500kA per phase ratings
- Type 1: UL 1449 4th Edition, CSA 22.2 No. 269.1
- Type 2 (optional): UL 1449 4th Edition, CSA No. 269.2, UL 1283
- 20kA Inominal (I_n)
- 200kA SCCR's (most models)
- Complies with UL 96A 12th Edition master label requirements for lighting protection systems
- Voltage Specific Design – Highly configurable
- All MOV suppression elements monitored
- All modes of protection
- Display on 28" cable
- 10-year limited warranty

Performance Specifications

Surge capacities	L-N	L-G	N-G
300kA per phase	150kA	150kA	150kA
400kA per phase	200kA	200kA	200kA
500kA per phase	250kA	250kA	250kA
UL 1449 4th Edition recognized type 1 CA, CSA 22.2 No. 269.4-1			
Optional UL 1449 4th Edition Type 2 CA, UL 1283 Recognized, CSA 22.2 No. 269.4-2			
UL 1449 Fourth Edition tested Inominal (I_n): 20kA			
UL 1449 Fourth Edition tested SCCR: 200kA & 100kA			
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 (Type 2 option only, including UL 1283 Rec.)			
Repetitive impulse: 5,000 hits			
Less than 1 nanosecond response time			

Diagnostic Monitoring

100% monitoring – every MOV is monitored, including N-G
Green LED Status indicator per phase
Red LED service indicator
Audible alarm with silence switch
Test function: toggles red service LED, audible alarm and dry contact
N-G overvoltage detection
Phase loss monitoring (toggles LED & dry contacts)
Form C dry contacts, 240V, 5A (two sets)
Optional surge counter, six-digit LCD, with test function, reset and no-maintenance eeprom memory
Installer-locatable display on 28" cable

Design Attributes

Designed, manufactured and 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
– Complies with UL 96A 12th Edition master label requirements for lighting protection systems and NFPA 780 Lightning Protection
– IEC 61643, CE
High energy parallel design for category C-high applications
For mounting internal to switchgear, motor controls centers, panelboards or control panels
Individually fused and thermally protected MOVs
Large-Block, 34mm square
Replaceable module construction
Solid state bidirectional operation

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: 7 lbs (3.2 kg)
Standard size: 9 x 11 x 5.3 in (229 x 280 x 135 mm)
Lug size: #2 - #14 AWG (with optional disconnect switch: #6 - #1/0)
Typical connection: #6 AWG and 60A breaker

Quality, Standards & Validation

Type 1: UL 1449 4th Edition, CSA 22.2 No. 269.4-1
Type 2 (Opt.): UL 1449 4th Edition, CSA No. 269.4-2, UL 1283 recognized
UL file: VZCA.E321351 at www.UL.com
RoHS-compliant
Operational test performed before shipment
ISO 9001:2008 quality management system
ISO 17025:2005 laboratory qualification

Model 452 Number Configurator and Options

452

Model 452 Product Line

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Voltage Codes

P

Per Phase kA Rating System

□□

kA Rating Per Phase

□

Modes of Protection

□

Connection Type

□

Monitoring Options

N

Enclosure (Default)

□

UL 1449 Type1/Type 2

0

Accessory/Option(s)

Common Systems

- 120S = 240/120V Split Phase - 1Ø, 3W + ground, (Fig 1)
- 120Y = 208Y/120V Wye - 3Ø 4W + ground, (Fig 2)
- 240H = 240/120V High Leg Delta (B High), (Fig 3)
- 277Y = 480Y/277V Wye - 3Ø 4W + ground, (Fig 2)
- 347Y = 600Y/347V Wye - 3Ø 4W + ground, (Fig 2)
- 480D = 480V Delta - 3Ø 3W + ground, (Fig 4) & HRG Wye (Available: 300kA, 450kA)

- 20 = 200kA (600C & 600D only)
- 25 = 250kA (600C & 600D only)
- 31 = 300kA
- 40 = 400kA
- 45 = 450kA (480D, 480C, 240D & 240C only)
- 50 = 500kA

- C = Compression lugs
- R = Internal rotary disconnect switch
- A = All standard modes for that voltage code (default)
- L = Delete L-N protection
- G = Delete L-G protection
- N = Delete N-G protection

- 1 = UL 1449 type 1
- 2 = UL 1449 type 2, (Includes UL1283 filter)
- 0 = No trailing accessory/option
- A = LEDs/audible alarm/relay
- C = LEDs/audible alarm/relay/surge counter

Other Available Systems - Confirmation Encouraged

- 120N = 120V Single Phase (Fig 5)
- 127N = 127V Single Phase (Fig 5)
- 127S = 254/127V Split Phase - 1Ø 3W + ground, (Fig 1)
- 127Y = 220Y/127V Wye - 3Ø 4W + ground (Fig 2)
- 220Y = 380Y/220V Wye - 3Ø 4W + ground (Fig 2)
- 230Y = 400Y/230V Wye - 3Ø 4W + ground (Fig 2)
- 240N = 240V Single Phase (Fig 5) - Not split phase
- 240S = 480/240V Split Phase, or Two legs of Wye, (Call)
- 240Y = 415Y/240V Wye - 3Ø 4W + ground (Fig 2)
- 240C = 240V B Corner Grnd Delta, 3Ø 3W + ground (Fig 6) (Available: 300kA, 450kA)
- 240D = 240V Delta - 3Ø 3W + ground (Fig 4) (Available: 300kA, 450kA)
- 254Y = 440Y/250V Wye - 3Ø 4W + ground (Fig 2)
- 277N = 277V Single Phase (Fig 5)
- 277S = 480/240V Split Phase, or Two legs of Wye, (Call)
- 300N = 300V Single Phase (Fig 5)
- 300Y = 520Y/300V Wye - 3Ø 4W+Grnd (Fig 2)
- 480N = 480V Single Phase (1 Hot, 1 Neu, 1 Ground) (Fig 5)
- 480C = 480V B Corner Grnd Delta, 3Ø 3W + ground (Fig 6) (Available: 300kA, 450kA)
- 600C = 600V B corner ground delta, 3Ø 3W+Grnd (Fig 6) (Available: 200kA, 250kA)
- 600D = 600V Delta - 3Ø 3W + ground (Fig 4) & HRG Wye (Available: 200kA, 250kA)

Dimensions (in. / mm)

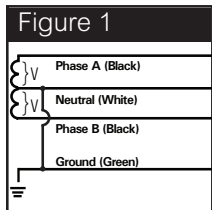
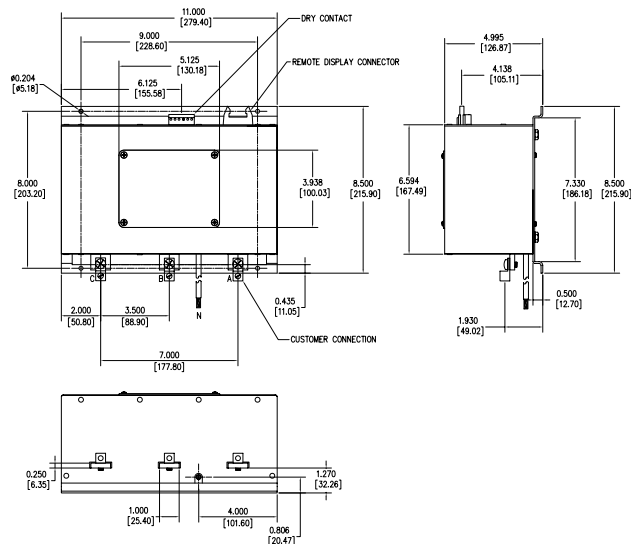


Figure 1
SPLIT
2 Phases, 1 Neutral,
1 Ground

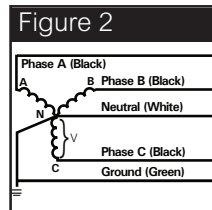


Figure 2
WYE
3 Phases, 1 Neutral,
1 Ground

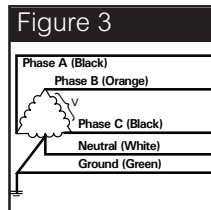


Figure 3
HIGH LEG DELTA
(B High) 3 Phases,
(B High), 1 Neutral,
1 Ground

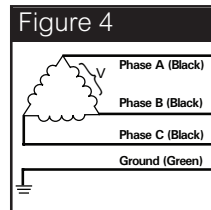


Figure 4
DELTA & HRG WYE
3 Phases, 1 Ground

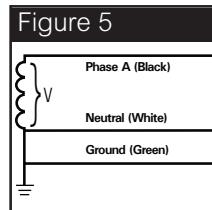


Figure 5
SINGLE POLE
1 Phase, 1 Neutral,
1 Ground

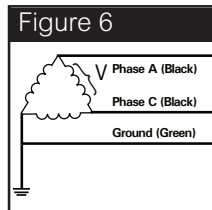


Figure 6
CORNER GROUND
DELTA (B grounded)
2 Phases, 1 Ground

Performance Data

Common Power Systems		UL 1449 Fourth Edition Test Data						
		Voltage Protection Ratings (VPR - 3kA)				I _n	SCCR	MCOV
		L-N	L-G	N-G	L-L			
120S	= 240/120V Split Phase	800	700	700	1200	20kA	100kA	150
120Y	= 208Y/120V 3Ø Wye	800	700	700	1200	20kA	200kA	150
240H	= 240Y/120V B High Leg Delta	700/1200	700/1000	700	1000/1500	20kA	200kA	150 / 320
277Y	= 480Y/277V 3Ø Wye	1200	1200	1200	2000	20kA	200kA	320
480D	= 480V 3Ø Delta	-	1800	-	1800	20kA	200kA	552
347Y	= 600Y/347V 3Ø Wye	1500	1500	1500	2500	20kA	200kA	420

*VPRs with disconnect switch option could vary. Contact the factory for details.