



### Features:

- **UL 1449 Fourth Edition Listed**
- **100kA – 500kA per phase ratings**
- **All UL required OCP & Safety Coordination included inside**
  - Type 1 SPDs intended for Line or Load Side of Main Disconnect
  - Type 2 SPDs intended for Load Side of Main Disconnect
- **20kA Inominal**
- **200kA SCCRs (most models)**
- **UL 96A Lightning Protection Master Label compliant**
- **Voltage Specific Design – Highly configurable**
- **All MOV suppression elements monitored**
- **All Modes of Protection**
- **Optional Rotary Disconnect Switch**

### Performance Specifications

Surge Capacities	L-N	L-G	N-G	L-L
<b>100kA Per Phase</b>	50kA	50kA	50kA	100kA
<b>150kA Per Phase</b>	100kA	50kA	50kA	150kA
<b>200kA Per Phase</b>	100kA	100kA	100kA	200kA
<b>250kA Per Phase</b>	150kA	100kA	100kA	250kA
<b>300kA Per Phase</b>	150kA	150kA	150kA	300kA
<b>400kA Per Phase</b>	200kA	200kA	200kA	400kA
<b>500kA Per Phase</b>	250kA	250kA	250kA	500kA

- UL 1449 Fourth Edition Listed Type 1, CSA 22.2 No. 269.1
- Optional UL 1449-4 Type 2 SPD, UL 1283 Listed, CSA 22.2 No. 269.2
- UL 1449-4 tested Inominal: 20kA
- UL 1449-4 tested SCCR: 200kA & 100kA
- UL 1449-4 Voltage Protection Ratings (VPRs):
  - 208Y/120V: as low as 600V
  - 480Y/277V: as low as 1000V
- Less than 1 nanosecond response time
- Repetitive Impulse: 5,000 hits
- AC Sinewave Tracking Filter with EMI/RFI Filtering up to -50dB from 10kHz to 100MHz (Type 2 option only, incl. UL 1283 Listing)

### Diagnostic Monitoring

- 100% monitoring – Every MOV is monitored, incl. 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 & Dry Contact (if equipped)
- N-G overvoltage detection
- Phase Loss monitoring (toggles LED & dry contacts)
- Electrically isolated circuitry ensures surges do not damage diagnostics
- Form C Dry Contacts, 240V, 5A (two sets)
- Optional Surge Counter, six-digit LCD, with test function, reset & no-maintenance Eprom memory

### Design Features

- Designed, Manufactured & Tested consistent with:
  - ANSI/IEEE C62.41.1-2002, C62.41.2-2002, C62.45-2002, C62.62-2010 and C62.72-2007
  - NEMA LS-1
  - NEC® Article 285
  - IEC 61643
- High Energy Parallel Design for Category C3 & C-High applications
- For External Mounting next to Switchgear, Motor Controls Centers or Panelboards
- Individually Fused & Thermally Protected MOVs
- Large-Block, 34mm square, 50kA MOVs
- 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: 24 lbs (11 kg)
- Standard NEMA 1/12/3R/4 enclosure
- Standard size: 12" x 12" x 7" (305mm x 305mm x 177mm)
- Lug size: #2 - #14 AWG (w/opt. disconnect: #6 - #1/0)
- Typical connection: #6 AWG and 60A breaker

### Quality, Standards & Validation

- Type 1: UL 1449 Fourth Edition, CSA 22.2 No. 269.1
- Type 2 (Opt.): UL 1449 Fourth Edition, CSA No. 269.2, UL 1283
- UL file: VZCA.E321351 at [www.UL.com](http://www.UL.com)
- RoHS-compliant
- IEC 61643, CE
- 10 year warranty (longer optional)
- Burn-In tested prior to shipment
- ISO 9001:2008 Quality Management System
- ISO 17025:2005 Laboratory Qualification



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**Voltage Code for Electrical System**

**Common North American Systems:**

- 01 = 240/120V Split Phase - 1Ø 3W+Grnd (Fig 1)
- 02 = 208Y/120V Wye - 3Ø 4W+Grnd (Fig 2)
- 03 = 240/120V High Leg Delta (B High) (Fig 3)
- 04 = 480Y/277V Wye - 3Ø 4W+Grnd (Fig 2)
- 05 = 480V Delta - 3Ø 3W+Grnd (Fig 4) & HRG Wye (450kA replaces 400kA or 500kA)
- 08 = 600Y/347V Wye - 3Ø 4W+Grnd (Fig 2)

**Other Available Systems - Confirmation encouraged:**

- 15 = 254/127V Split Phase - 1Ø 3W+Grnd (Fig 1)
- 18 = 480/277V 2-Pole, (480/240V Split Phase) (Fig 1)
- 21 = 220Y/127V Wye - 3Ø 4W+Grnd (Fig 2)
- 41 = 520Y/300V Wye - 3Ø 4W+Grnd (Fig 2)
- 42 = 415Y/240V Wye - 3Ø 4W+Grnd (Fig 2)
- 43 = 400Y/230V Wye - 3Ø 4W+Grnd (Fig 2)
- 44 = 440Y/250V Wye - 3Ø 4W+Grnd (Fig 2)
- 51 = 480V B Corner Grnd Delta, 3Ø 3W+Grnd (Fig 6) (450kA replaces 400kA or 500kA)
- 06 = 240V Delta - 3Ø 3W+Grnd (Fig 4) (450kA replaces 400kA or 500kA)
- 61 = 240V B Corner Grnd Delta, 3Ø 3W+Grnd (Fig 6) (450kA replaces 400kA or 500kA)
- 07 = 380Y/220V Wye - 3Ø 4W+Grnd (Fig 2)
- 09 = 600V Delta - 3Ø 3W+Grnd (Fig 4) & HRG Wye (Available: 100kA, 150kA, 200kA, 250kA)
- 91 = 600V B Corner Grnd Delta, 3Ø 3W+Grnd (Fig 6) (Available: 100kA, 150kA, 200kA, 250kA)
- 11 = 120V Single Phase (Fig 5)
- 12 = 240V Single Phase (Fig 5) - Not split phase
- 13 = 127V Single Phase (Fig 5)
- 14 = 300V Single Phase (Fig 5)
- 16 = 277V Single Phase (Fig 5)
- 17 = 480V Single Phase (1 Hot, 1 Neu, 1 Grnd) (Fig 5)

**Surge Current Rating**

- 10 = 100kA/Phase
  - 15 = 150kA/Phase
  - 20 = 200kA/Phase
  - 25 = 250kA/Phase
  - 30 = 300kA/Phase
  - 40 = 400kA/Phase
  - 45 = 450kA/Phase
  - 50 = 500kA/Phase
- (Voltage Codes 05, 51, 06 & 61)

**Options**

- X = Surge Counter, six-digit LCD counter includes maintenance-free Eprom memory backup
- E = Remote Locatable Display on 4 ft Cable custom cable lengths available
- F = Noise Filtering - Extended Range & Attenuation (available on 400kA & 500kA models)
- D = Rotary Disconnect Switch, ABB, UL98
- T = Thru-Door Rotary Disconnect Switch, ABB, UL98, E1 enclosure only (Consult factory for other disconnect switch options)
- 2 = Type 2 SPD, incl. UL 1283 EMI/RFI Filters

Delete Options - Consult Factory for Order Code  
 Delete L-N Protection (reduces kA rating)  
 Delete L-G Protection (reduces kA rating)  
 Delete N-G Protection (reduces kA rating)  
 Delete Noise Filtering

Available Accessory (order separately)  
 RM = Remote Monitor

**Enclosure Rating**

- E1 = NEMA 1/12/3R/4 (size: 12" x 12" x 7")
- 4X = NEMA 4X Non-Metallic (size: 14" x 12" x 6") (polycarbonate, display inside clear front door)
- 4S = NEMA 4X Stainless Steel (size: 12" x 12" x 6") (display inside door)
- FM = NEMA 1 Flush Mount (wall cavity size: 12" x 12" x 6" deep)
- P1 = NEMA 1 pullbox 'indoor' (size: 12" x 12" x 6") includes 'E' option (Optional rotary disconnect increases enclosure sizes to 16" x 14" x 6" on models > 300kA)

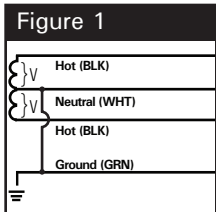


Figure 1  
 SPLIT  
 2 Hots, 1 Neu, 1 Grnd

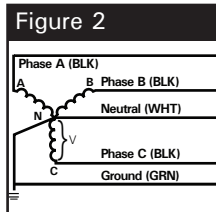


Figure 2  
 WYE  
 3 Hots, 1 Neu, 1 Grnd

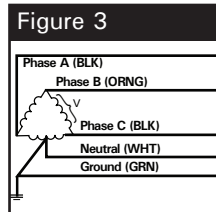


Figure 3  
 HI-LEG DELTA (B High)  
 3 Hots, (B HIGH),  
 1 Neu, 1 Grnd

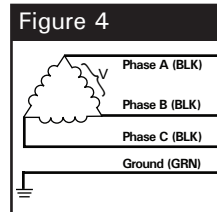


Figure 4  
 DELTA & HRG WYE  
 3 Hots, 1 Grnd

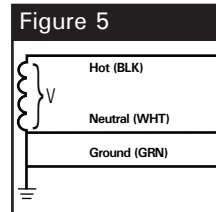


Figure 5  
 SINGLE POLE  
 1 Hot, 1 Neu, 1 Grnd

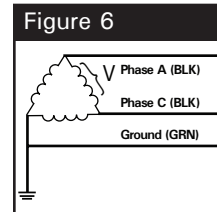


Figure 6  
 CORNER GROUND  
 DELTA (B grounded)  
 2 Hots, 1 Grnd

**Performance Data**

Common North American Systems	UL 1449 Fourth Edition Test Data						
	Voltage Protection Ratings (VPR - 3kA)						
	L-N	L-G	N-G	L-L	I <sub>n</sub>	SCCR	MCOV
01 = 240/120V Split Phase (<300kA)	700	700	700	1200	20kA	100kA	150
01 = 240/120V Split Phase (=>300kA)	700	600	600	1000	20kA	100kA	150
02 = 208Y/120V 3Ø Wye (<300kA)	700	700	700	1200	20kA	200kA	150
02 = 208Y/120V 3Ø Wye (=>300kA)	700	600	600	1000	20kA	200kA	150
03 = 240Y/120V B High Leg Delta	700/1200	700/1200	700	1800	20kA	200kA	150 / 320
04 = 480Y/277V 3Ø Wye (<300kA)	1200	1200	1200	2000	20kA	200kA	320
04 = 480Y/277V 3Ø Wye (=>300kA)	1200	1000	1000	1800	20kA	200kA	320
05 = 480V 3Ø Delta (<300kA)	-	1800	-	1800	20kA	200kA	550
07 = 380Y/220V 3Ø Wye (<300kA)	1200	1200	1200	2000	20kA	200kA	320
08 = 600Y/347V 3Ø Wye (<300kA)	1500	1500	1500	2500	20kA	200kA	420

**Other Available Systems:**

Please see supplementary data sheet, contact us at info@aptsurge.com or confirm at www.UL.com using CCN of VZCA. Optional disconnect switch may increase VPRs.

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