

## SYSTEM FEATURES



- Providing the highest level of protection with the lowest let-through voltage in the industry
- Fail-Safe Design
- Optional Component Level Fusing
- Single pulse tested at independent 3rd party lab
- Form C dry relay contacts and audible alarm with silence button
- Two suppression technologies: MOV and all mode Enhanced Transient Filter
- UL 1283 Tracking Filter
- Ultra, Compact Footprint – efficiency and performance
- 30-Year Unlimited Free Replacement Warranty
- Weatherproof Nema 4 steel enclosure

## PRODUCT SPECIFICATIONS

### GENERAL SPECIFICATIONS

**Maximum Rated Surge Current:** 160kA per phase; 80kA per mode  
**Application:** ANSI/IEEE C62.41 Location C, B & A. Ideal for distribution panels, branch panels and critical loads  
**Design:** Optimum performing parallel hybrid with component level fusing  
**Warranty:** 30-Year Unlimited Free Replacement  
**Safety Listing:** UL 1449 3<sup>rd</sup> Ed., Type 1 for Type 1 & Type 2 locations and UL 1283

### ELECTRICAL SPECIFICATIONS

**Modes of Protection:** All Modes. L-N, L-L, L-G, & N-G  
**Input Power Frequency:** 40-440Hz (47-64 Hz with enhanced filter option)  
**Response Time:** < 1 nanosecond  
**Standard Monitoring:** Status indicator lights (one per phase & one service LED); Form C dry relay contacts for suppressor status; Audible alarm with silence button  
**Short Circuit Current Rating:** 200 kAIC on all units.  
 No upstream over-current protection required on CLF unit.  
 Non CLF units require 60A Max fuse or breaker.

### MECHANICAL SPECIFICATIONS

**Dimensions (approx.):** 11.50”H x 8.28”W x 6.28”D (292 mm H x 210 mm W x 160 mm D)  
**Enclosure:** Steel. Weather-proof. NEMA 4 (IP 56)  
**Connection:** Hardwired via internal lugs #10 AWG-#2 AWG (5.26 mm<sup>2</sup> –26.7 mm<sup>2</sup>)  
**Mounting:** Multi-point mounting feet  
**Operating Environment:** -40° C to 70° C (-40° F to 160° F)  
 5% to 95% non-condensing humidity  
**Weight:** 12 lbs. (5.4 kg)

### AVAILABLE CONFIGURATIONS

Model Number	Description
TK-ST160-1P120	120VAC, 1Ø 2-wire + grd
TK-ST160-1P240	240VAC, 1Ø 2-wire + grd
<b>TK-ST160-1S240</b>	<b>120/240VAC, 1Ø SPLIT-PHASE, 3-wire +grd</b>
TK-ST160-3Y208	120/208VAC, 3Ø WYE, 4-wire + grd
TK-ST160-3Y380	220/380VAC, 3Ø WYE, 4-wire + grd
TK-ST160-3Y415	240/415VAC, 3Ø WYE, 4-wire + grd
TK-ST160-3Y480	277/480VAC, 3Ø WYE, 4-wire + grd
TK-ST160-3Y600	347/600VAC, 3Ø WYE, 4-wire + grd
TK-ST160-3D240	120/240VAC, 3Ø high-leg DELTA, 4-wire + grd (B phase must be 208V)
TK-ST160-240NN	240VAC, 3Ø DELTA, 3-wire + grd
TK-ST160-380NN	380VAC, 3Ø DELTA, 3 wire + grd
TK-ST160-480NN	480VAC, 3Ø DELTA, 3-wire + grd
TK-ST160-600NN	600VAC, 3Ø DELTA, 3-wire + grd



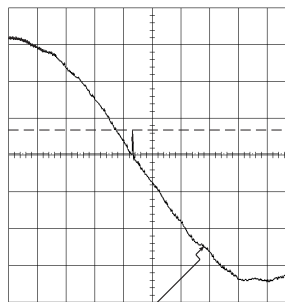
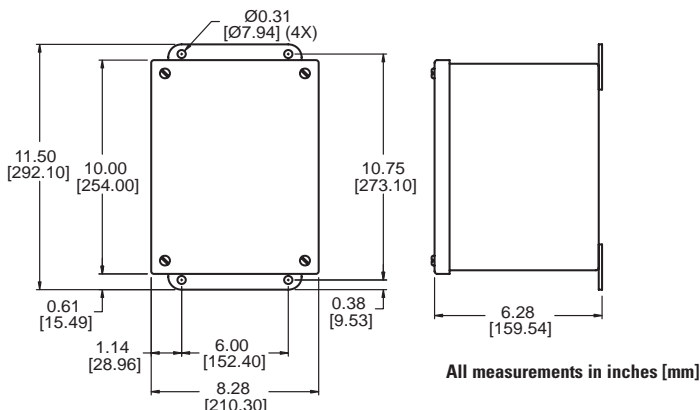
### AVAILABLE OPTIONS

- Order as a Suffix** Example: TK- ST160-3Y208-FL
- Enhanced Transient Filter (ETF): add suffix “-F”
  - Component Level Fusing (CLF): add suffix “-L”
  - Surge Counter: add suffix “-B”
  - NEMA 4X Stainless Steel Enclosure: add suffix “-XX”
- Order as a Separate Item (30 Year Warranty)**
- **Non-Fused Disconnect Switch:**  
 DN-200KAIC-60A-3/4 (for Nema 4 steel)  
 DN-200KAIC-60A-XX-3/4 (for Nema 4 stainless steel)

### EMI / RFI FILTER ATTENUATION – MIL STANDARD 220B

Frequency	Attenuation
1kHz	2 dB
10kHz	17 dB
100kHz	40 dB
1MHz	18 dB
10MHz	6 dB
100MHz	1 dB
Max. Attenuation Frequency	41 dB @ 106 kHz





Peak Let-Through Voltage Level - 40V  
Reference Level Zero Crossing of AC Sine Wave

For 120/208V Configuration

ANSI/IEEE C62.41.1  
Category A1 Ring Wave  
2000V, 67A Test Plot

L-N Mode, Dynamic,  
180° Phase Angle,  
6" Leads, Positive Polarity  
500 Mega samples/sec  
55V/div Vertical

Model Number	System Voltage	System Configuration	Protection Mode	MCOV	ANSI/IEEE C62.41.1-2002, C62.41.2-2002, & C62.45-2002 Measured Limited Voltage			UL Voltage Ratings	
					ETF Models	All Models	All Models	UL 1449 2 <sup>nd</sup> Edition/ UL 1449 3 <sup>rd</sup> Edition	
					A1 Ring Wave 2kV, 67A 180° Phase Angle	B3/C1 Impulse Wave 6kV, 3kA 90° Phase Angle	C3 Impulse Wave 20kV, 10kA 90° Phase Angle	Voltage Protection Ratings	
TK-ST160-1P120	120V	1-Phase 2-wire+grnd	L-N	150V	40V	651V	960V	400/700	
			L-G	150V	76V	640V	1010V	400/700	
			N-G	150V	54V	646V	860V	400/700	
TK-ST160-1P240	240V	1-Phase 2-wire+grnd	L-N	320V	42V	978V	1437V	800/1000	
			L-G	320V	61V	969V	1523V	800/1000	
			N-G	320V	50V	979V	1340V	800/1000	
TK-ST160-1S240	120/240V	1-Phase 3-wire+grnd	L-N	150V	40V	651V	960V	400/700	
			L-G	150V	76V	640V	1010V	400/700	
			L-L	300V	46V	1041V	1310V	800/1200	
			N-G	150V	54V	646V	860V	400/700	
TK-ST160-3Y208	120/208V	3-Phase WYE 4-wire+grnd	L-N	150V	40V	651V	960V	400/700	
			L-G	150V	76V	640V	1010V	400/700	
			L-L	300V	46V	1041V	1310V	800/1200	
			N-G	150V	54V	646V	860V	400/700	
TK-ST160-3Y380	220/380V	3-Phase WYE 4-wire+grnd	L-N	320V	42V	968V	1437V	800/1000	
			L-G	320V	61V	979V	1523V	800/1000	
			L-L	640V	60V	1792V	2190V	1500/1800	
			N-G	320V	50V	967V	1340V	800/1000	
TK-ST160-3Y415	240/415V	3-Phase WYE 4-wire+grnd	L-N	320V	42V	968V	1437V	800/1000	
			L-G	320V	61V	979V	1523V	800/1000	
			L-L	640V	60V	1792V	2190V	1500/1800	
			N-G	320V	50V	967V	1340V	800/1000	
TK-ST160-3Y480	277/480V	3-Phase WYE 4-wire+grnd	L-N	320V	42V	968V	1437V	800/1000	
			L-G	320V	61V	979V	1523V	800/1000	
			L-L	640V	60V	1792V	2190V	1500/1800	
			N-G	320V	50V	967V	1340V	800/1000	
TK-ST160-3Y600	347/600V	3-Phase WYE 4-wire+grnd	L-N	420V	56V	1295V	1710V	1200/1500	
			L-G	420V	99V	1295V	1783V	1200/1500	
			L-L	840V	76V	2130V	2893V	2000/2500	
			N-G	420V	88V	1292V	1610V	1200/1500	
TK-ST160-3D240	120/240V	3-Phase high-leg DELTA 4-wire+grnd	L-N	150V	40V	654V	960V	400/700	
			H-N	320V	42V	984V	1437V	800/1000	
			L-G	150V	76V	645V	1010V	400/700	
			H-G	320V	61V	988V	1523V	800/1000	
			L-L	320V	46V	1044V	1310V	800/1000	
			H-L	470V	46V	1250V	1640V	1500/1500	
TK-ST160-240NN	240V	3-Phase DELTA 3-wire+grnd	L-G	320V	565V	980V	1150V	800/1000	
			L-L	320V	31V	981V	1303V	800/1000	
TK-ST160-380NN	380V	3-Phase DELTA 3-wire+grnd	L-G	550V	912V	1689V	1870V	1500/1800	
			L-L	550V	39V	1697V	1950V	1500/1800	
TK-ST160-480NN	480V	3-Phase DELTA 3-wire+grnd	L-G	550V	912V	1689V	1870V	1500/1800	
			L-L	550V	39V	1697V	1950V	1500/1800	
TK-ST160-600NN	600V	3-Phase DELTA 3-wire+grnd	L-G	750V	1253V	2202V	2420V	2000/2500	
			L-L	750V	36V	2217V	2410V	2000/2500	

ETF = Enhanced Transient Filter (-F suffix). All tests performed with 6" (152 mm) lead length, positive polarity.  
All voltages are peak values (±10%) measured from the zero reference point at the phase angles referenced above using a 10 µs/div display rate and 500 Mega samples/sec sampling rate.  
Specifications subject to change without notice. See web site www.TPSSurge.com for latest revisions.