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TSnc & TSni Product Spec Sheet

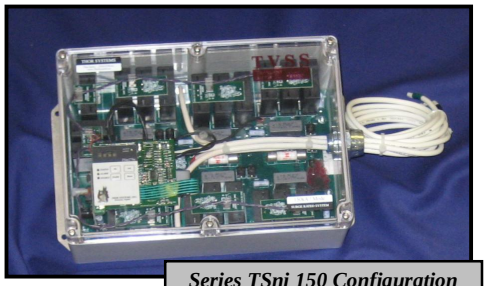
SERIES TSnc/TSni

50, 100, 150kA Per Mode — **SURGE PROTECTIVE DEVICE (SPD)**

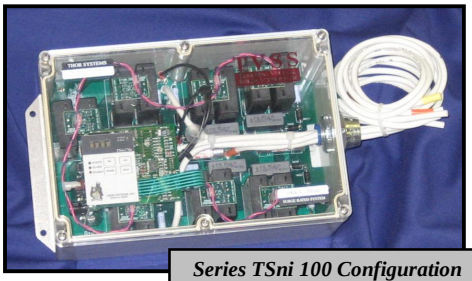
THOR SYSTEMS ***TSn*** Series is a non-field replaceable, UL 1449 3rd Edition, Type 1 and Type 2 Surge Protective Device (SPD). These high performance SPDs are suitable for service entrance or distribution panel applications. Our Single-**TILE** Architecture (using the patent pending StakTraks™ design) is the base building block for the ***TSn*** product platforms, offering 50, 100, and 150kA/mode surge protection utilizing an optional two-or three-tier hybrid design. The TSn Series is available in two configurations for all three surge ratings. The ***TSnc*** (commercial) is a two-tier hybrid design (**TpMOVs** and EMI/RFI **Filter Capacitors**) configuration. The ***TSni*** (industrial) is a three-tier hybrid design (**TpMOVs**, **SADs**, and EMI/RFI **Filter Capacitors**) with high strand count Corona wire which improves suppression performance by reducing skin-effect losses.

KEY FEATURES & BENEFITS

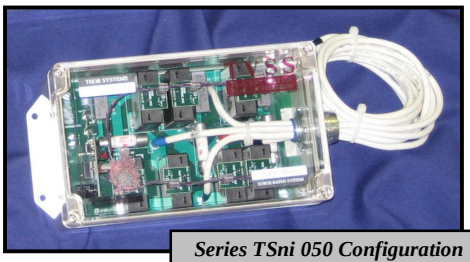
GENERAL INFORMATION	
Agency Listings	***UL1449 3rd Ed., UL 1283 5th Ed., CUL***
Application	***Industrial or Commercial***
Warranty	***5 Years***
ELECTRICAL SPECIFICATIONS	
Configuration	***Parallel***
Voltages (AC)	***240/120; 208/120; 480/277; 480; 240 Hi-Leg***
Wire Size	***#10AWG***
Breaker Size	***30A when required by NEC***
AIC or SCCR	***100k AIC***
Operating Freq	***50Hz – 60Hz***
Operating Temp	***0° – 60°C***
Operating Humidity	***0% – 95% Non-condensing***
Operating Altitude	***0 – 12,000 feet***
MECHANICAL SPECIFICATIONS	
Enclosure/Rating	***NEMA 4X Polycarbonate***
Input Connection	***TSni: #10 Corona High Voltage Wire*** ***TSnc: #10AWG MTW***
SURGE SPECIFICATIONS	
kA Per Mode	***50, 100, or 150kA***
Protection Modes	***All Modes***
MCOV	***150V, 320V, or 550V***
"Type Designation"	***Type 1*** *(replaces Secondary Surge Arrestor designation)* ***or Type 2***
PCB "TILE" Design	***Up to 4 oz. Parallel Copper Traces (Top & Bottom), Double-Sided***
Response Time	***<1 nanosecond***
Component Technology	***TSni: Hybrid 3-Tier*** *(TpMOV, SAD, Capacitor)* ***TSnc: Hybrid 2-Tier*** *(TpMOV, Capacitor)* ***TSnc: Hybrid 1-Tier*** *(TpMOV ONLY)*
Monitoring	***Std: Green LED (OK) and Red LED (Fault)***
PRODUCT OPTIONS	
- Form C Contact	***- 15kW SADs*** ***- Audible Alarm***
- Surge Counter with 8 Sensitivity Settings (User Selectable)	
ADDITIONAL FEATURES/BENEFITS	
- Surge conduction paths are 2x the surge current rating of suppression components	
- Fewer, larger TpMOVs provide lower let-through voltage and 100x greater pulse life	
- Each TpMOV is thermally protected ("fail-safe" technology) providing full-rated surge capacity	



Series TSni 150 Configuration
L2 Monitor & Surge Counter
(10-3/4" x 7-1/4" x 4")



Series TSni 100 Configuration
L2 Monitor & Surge Counter
(9-3/8" x 6-1/4" x 4")



Series TSni 050 Configuration
L1 Monitor
(7-7/8" x 4-3/4" x 4")

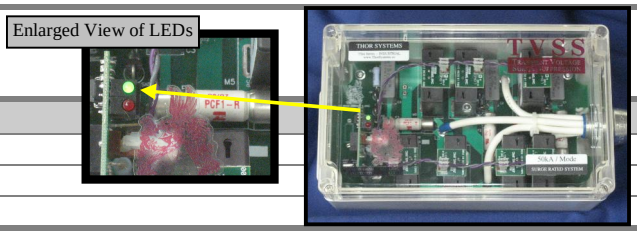
PERFORMANCE LET-THROUGH RESULTS

VOLTAGE	Surge Voltage Ratings (SVR) 500A 8x20µs Impulse				Voltage Protection Ratings (VPR) 3000A 8x20µs Impulse				Category C3 Ratings 10,000A 8x20µs Impulse			
	L:N	L:G	N:G	L:L	L:N	L:G	N:G	L:L	L:N	L:G	N:G	L:L
208/120 Vac	403	405	440	736	700	700	800	1000	1200	1093	1280	1547
480/277 Vac	869	853	520	1627	1200	1200	900	1800	1813	1707	1440	2613

All tests reflect Models using 6" Leads. Test impulses were dynamic and applied to the 90° phase angle of the sine wave. Test results DO NOT reflect subtraction of the sine wave peak from the let-through voltage measured at zero (0).

Source of Supply;
A Marketing & Service Co.
Alvaro "AL" Rodriguez
San Antonio, Texas 78268-1195
tel. (210) 684-1635 * fax (210)684-2464
e-mail: protector@stic.net

TYPE 1 MONITORING SERIES Vertical PCB



DISPLAY FEATURES

Green LED indicates all suppression elements are good

Red LED indicates loss of any protection mode

TYPE 2 MONITORING SERIES TSm270a

DISPLAY & OVERLAY FEATURES

Overlay has 4 membrane-style switches providing protection against outside contaminants and clear window for the bright, clear LED Counter

Overlay has 4 LED windows:

- Yellow ***ACTIVE SURGE*** LED (upper right corner) indicates an active surge event mode
- Green ***STATUS*** LED indicates power is supplied to the device
- Red ***ALARM*** LED indicates loss of a protection mode
- Yellow ***ENABLE*** LED indicates Audible Alarm is enabled

Power ***On*** button turns the display "ON" and "OFF"

Audible Alarm (horn) sounds in the event of a protection mode loss.

Silence (***Ack***) button on the overlay silences the alarm.

Yellow ***Enable*** button enables/disables the Audible Alarm (illuminated = enabled)

SURGE COUNTER

Smart alphanumeric display (4-digit, 5x7 dot matrix) indicates total surge events:

- Displays up to 27,000 events
- Stores event level in an EE PROM to ensure the event total is not lost if a power outage occurs
- If there is a protection mode loss, display will alternate between the count total and an "ALRM" display

Surge Counter has 8 levels of sensitivity, allowing adjustment of the Counter trigger level by the end user

Sensitivity **Level #3** is calibrated to increment using a combination (1.2µs x 50µs Voltage and 8µs x 20µs Current) waveform. This sensitivity level is the standard setting based on a nominal 500A current impulse.

Adjustment of each Sensitivity Level results in an approximate 80A increment from the previous setting (340A to 900A range).

SERIES TSni MODEL NO. NOMENCLATURE

TSn i 150 W s 3Y4 P 1 01

MANUFACTURER SERIES
TSn TSn Series, Non-replaceable (Single Surge **TILE**)

MANUFACTURER GRADE
c Commercial Grade (TpMOVs & EMI/RFI Filtering)
i Industrial Grade (TpMOVs, SADs; & EMI/RFI Filtering)

MANUFACTURER SURGE CURRENT RATING
050 050kA/Mode **100** 100kA/Mode
150 150kA/Mode

CONNECTION METHOD
W #10 AWG Wire*
2 Ft provided for each Phase Conductor
3 Ft provided for each Ground & Neutral Conductor
**TSnc (Commercial): #10 AWG MTW Wire*
**TSni (Industrial): #10 AWG High Voltage Corona Wire*

HYBRID CONFIGURATION
s TpMOV, 1.5kW SADs, EMI/RFI Filtering*
x TpMOV, 15kW SADs, EMI/RFI Filtering*
z TpMOV, EMI/RFI Filtering**
**TSni Industrial Series Only*
***TSnc Commercial Series Only*

ADDITIONAL SYSTEM OPTIONS
00 No Options (Standard)
01 Form C Contact

MONITOR TYPE
Type 1 (Vertical PCB): Green LED & Red LED per System
Type 2 (TSm270a): Green LED, Red LED, Audible Alarm, Surge Counter

ENCLOSURE TYPE
P Polycarbonate NEMA 4X

VOLTAGE CONFIGURATION

1S1	120Vac	Single Ø, L-N-G	(150 MCOV)
2S1	240/120Vac	Split Ø, L-L-N-G	(150 MCOV)
2S2	240Vac	Single Ø, L-L-G	(320 MCOV)
2S4	480Vac	Single Ø, L-L-G	(550 MCOV)
3Y2	208/120Vac	3Ø, L-L-L-N-G	(150 MCOV)
3Y4	480/277Vac	3Ø; L-L-L-N-G	(320 MCOV)
3D2*	240Vac	3Ø, L-L-L-G	(320 MCOV)
3D4*	480Vac	3Ø, L-L-L-G	(550 MCOV)
3Ha	240/208/120Vac	3Ø High-Leg (AØ) Delta	(150, 320 MCOV)
3Hb	240/208/120Vac	3Ø High-Leg (BØ) Delta	(150, 320 MCOV)
3Hc	240/208/120Vac	3Ø High-Leg (CØ) Delta	(150, 320 MCOV)

**Built in TSn150 Box Size*