AC PANELBOARD TSp

50, 100, 150kA Per Mode

PANEL w/SURGE PROTECTION

THOR SYSTEMS' *TSp* combines a UL67 Listed panelboard with an Integral UL 1449 4th Edition Listed Surge Protective Device (SPD). The SPD is self-contained from the critical bus structure by adding only 9" of height to the panelboard through the use of a panelboard accessory box. Utilizing 1000APSI copper bus bars and a 200% rated Neutral Bus for Non-Linear Loads, the *TSp* Series is available with any 20"W x 5-¾"D panelboard; can be constructed for top or bottom feed and surface or flush mount applications.

GENERAL INFORMATION

Agency Listings	**UL67 (Panelboard)** **UL1449 4th Edition, UL1283**
Application	**Industrial Panelboard**
Warranty	**5 Years**

PANELBOARD INFORMATION

Manufacturer	**GE, SQ-D, C-H, Siemens**
Input	**Main Lug or Main Breaker**
Ampacity	**60A – 400A**
Circuits	**27 or 39 Available Spaces**
Voltage	**120/240 Split Phase** **120/208 3 Phase WYE** **277/480 3 Phase WYE**
Size	**20"W x 5-3/4"D (See chart below for height dimensions)**
Neutral Bus	**200% Rated for Non-Linear Loads**
Bus Bars	**1000APSI, Tin-plated Copper**

SPD/TVSS INFORMATION

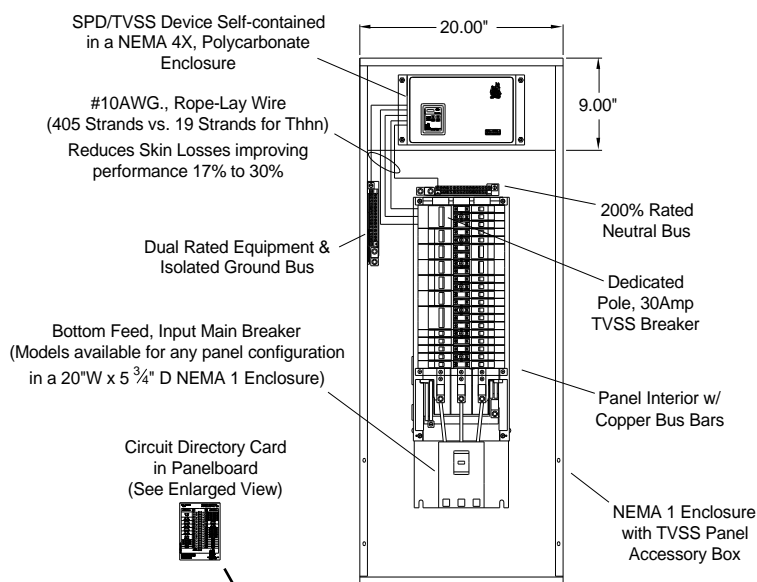|	
kA Per Mode	**50, 100, or 150kA**
Protection Modes	**All Modes**
MCOV	**150V, 320V, or 550V**
PCB "TILE' Design	**Up to 4 oz. Parallel Copper Traces (Top & Bottom), Double-Sided**
Response Time	**<1 nanosecond**
Component Technology	**TSpi: Hybrid 3-Tier (TpMOV, SAD, Capacitor)** **TSpc: Hybrid 2-Tier (TpMOV, Capacitor)**
AIC/SCCR	**100kAIC**
Enclosure	**Self-contained NEMA 4X Polycarbonate**
Connection	**Parallel Connected via 3-Pole, 30A Circuit Breaker in Panelboard**
Monitoring	**Std: Green LED (OK) and Red LED (Fault)**

Panelboard Series TSp
(Main Breaker, Bottom Feed)

20.00"

9.00"

SPD/TVSS Device Self-contained in a NEMA 4X, Polycarbonate Enclosure

#10AWG., Rope-Lay Wire (405 Strands vs. 19 Strands for Thhn) Reduces Skin Losses improving performance 17% to 30%

Dual Rated Equipment & Isolated Ground Bus

Bottom Feed, Input Main Breaker (Models available for any panel configuration in a 20"W x 5 ¾" D NEMA 1 Enclosure)

Circuit Directory Card in Panelboard (See Enlarged View)

200% Rated Neutral Bus

Dedicated Pole, 30Amp TVSS Breaker

Panel Interior w/ Copper Bus Bars

NEMA 1 Enclosure with TVSS Panel Accessory Box

Circuit Directory Card
(Enlarged View)

PANEL DESIGNATOR MDP1		CIRCUIT DIRECTORY PANELBOARD No. 269	
DESCRIPTION	CKT No.	CKT No.	DESCRIPTION
3P 30A TVSS	1	2	1P 20A LGHT #1
	3	4	1P 20A LGHT #2
	5	6	1P 20A LGHT #3
2P 50A Pump #1	7	8	1P 20A LGHT #4
	9	10	1P 20A LGHT #5
2P 50A Pump #2	11	12	2P 30A Tank #1
	13	14	
2P 50A Pump #3	15	16	2P 30A Tank #2
	17	18	
2P 50A Pump #4	19	20	1P 20A SRPD
	21	22	1P 20A SRPD
2P 50A Pump #5	23	24	1P 20A SRPD
	25	26	1P 20A SRPD
3P 60A SDP #1	27	28	1P 20A SRPD
	29	30	1P 20A SRPD
	31	32	Spare
1P 20A Recpt	33	34	Spare
1P 20A Recpt	35	36	Spare
1P 20A Recpt	37	38	Spare
Spare	39	40	Spare
Spare	41	42	Spare

NEUTRAL A B C

for ADDITIONAL INFORMATION
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Fax Toll Free 866-963 8900
www.ThorSystems.us
sales@ThorSystems.us

THOR SYSTEMS, INC.
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PANEL HEIGHT DIMENSIONS
(Consult Factory for other Panel Mfrs)

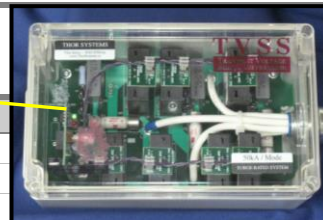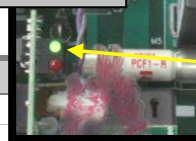| MFG	TYPE	CIRCUITS	AMPACITY		
			≤100 AMP	125 - 225 AMP	250 - 400 AMP
SQ-D	Main Lug	30	38"	N/A	N/A
	Main Lug	42	N/A	47"	62"
	Main Breaker	30	41"	N/A	N/A
	Main Breaker	42	N/A	59"	77"
GE	Main Lug	30	40-1/2"	46-1/2"	58-1/2"
	Main Lug	42	46-1/2"	52-1/2"	64-1/2"
	Main Breaker	30	40-1/2"	46-1/2"	64-1/2"
	Main Breaker	42	46-1/2"	52-1/2"	73-1/2"

TYPE 1 MONITORING
SERIES Vertical PCB

Enlarged View of LEDs

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

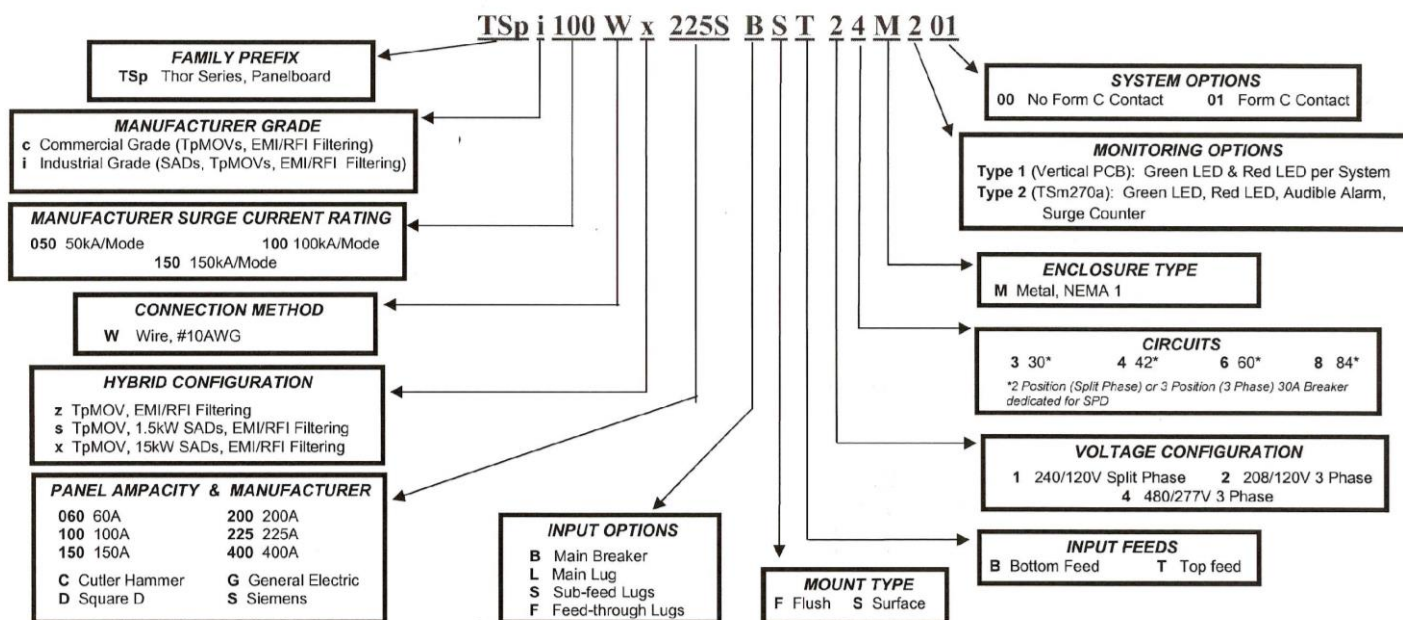Smart alphanumeric display (4-digit, 5x7 dot matrix) indicates total surge events:
- Displays up to 27,000 events
- Stores event level in an EE PROM to ensure the event total is not lost if a power outage occurs
- If there is a protection mode loss, display will alternate between the count total and 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 TSp MODEL NO. NOMENCLATURE

TSp i 100 W x 225S B S T 24 M 2 01

FAMILY PREFIX
TSp   Thor Series, Panelboard

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

MANUFACTURER SURGE CURRENT RATING
050   50kA/Mode   100   100kA/Mode
150   150kA/Mode

CONNECTION METHOD
W   Wire, #10AWG

HYBRID CONFIGURATION
z   TpMOV, EMI/RFI Filtering
s   TpMOV, 1.5kW SADs, EMI/RFI Filtering
x   TpMOV, 15kW SADs, EMI/RFI Filtering

PANEL AMPACITY & MANUFACTURER
060   60A   200   200A
100   100A   225   225A
150   150A   400   400A

C   Cutler Hammer   G   General Electric
D   Square D   S   Siemens

INPUT OPTIONS
B   Main Breaker
L   Main Lug
S   Sub-feed Lugs
F   Feed-through Lugs

MOUNT TYPE
F   Flush   S   Surface

SYSTEM OPTIONS
00   No Form C Contact   01   Form C Contact

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

ENCLOSURE TYPE
M   Metal, NEMA 1

CIRCUITS
3   30*   4   42*   6   60*   8   84*
*2 Position (Split Phase) or 3 Position (3 Phase) 30A Breaker dedicated for SPD

VOLTAGE CONFIGURATION
1   240/120V Split Phase   2   208/120V 3 Phase
4   480/277V 3 Phase

INPUT FEEDS
B   Bottom Feed   T   Top feed