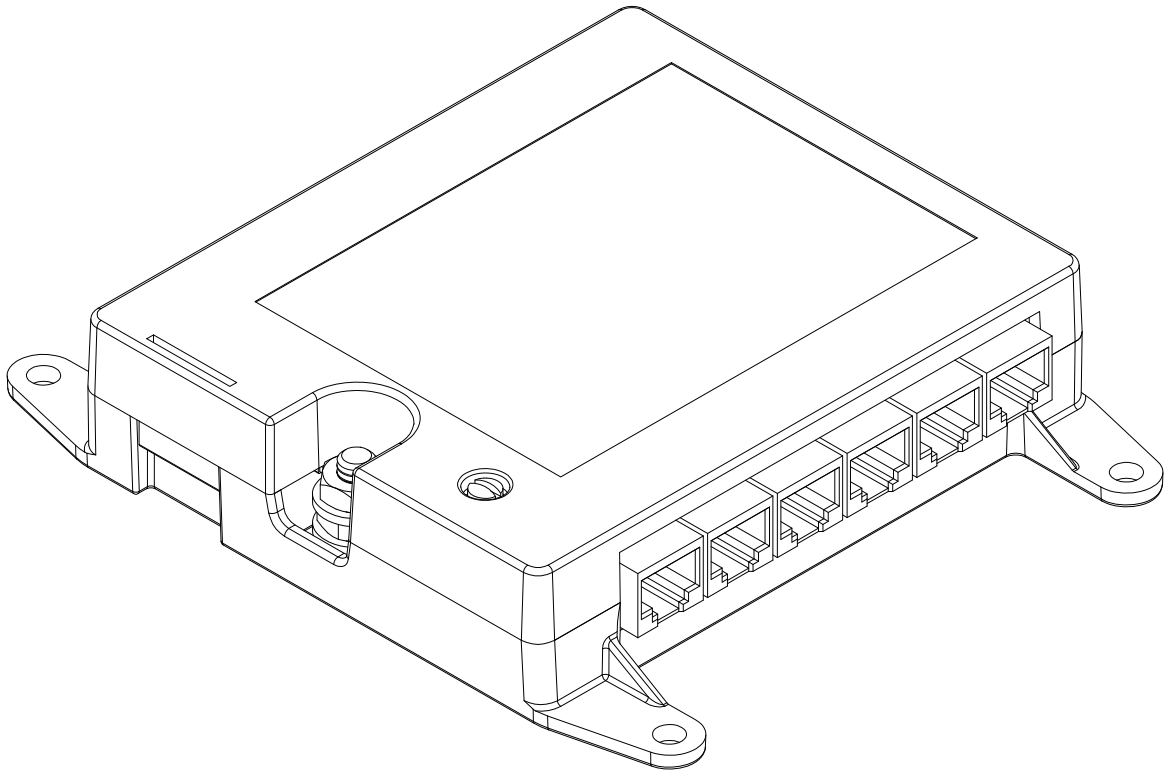


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DESIGN ACTIVITY.

## REVISIONS

LTR	DESCRIPTION	ECO NUM.	DATE	APPROVED
D	UPDATE PER MARKUPS	7889	2/24/09	DWR
E	ADD 10/100 MODULE	DD42127	2/10/10	MTH
F	UPDATE PER MARK-UPS	8611	5/17/10	MTH
G	CHG P/N AT 2.3.1. FROM 1000-1039 TO 1000-1309	9164	1/31/11	DWR



DRAWN:  
MLH

DATE  
7/1/04

CHECKED:  
DWR

10/27/08

ENGR. APPD:  
MLH

10/24/08

PROJ. APPD:  
RG

10/24/08

MATERIAL:

APPROVED:  
DWR

1/31/11



**Transtector Systems, Inc.**

10701 Airport Road, Hayden, ID 83835

800.882.9110 208.772.8515 [www.transtector.com](http://www.transtector.com)

TITLE:

**Product Specification TSJ X6 Series  
Six Circuit Line Surge Protector**

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RIGHTS THERETO

SIZE  
**A**

CAGE  
**30992**

DRAWING NUMBER  
**1400-548**

REV  
**G**

SCALE = N/A

PAGE 1 OF 4

1. **GENERAL DESCRIPTION:** The TSJ X6 A, TSJ X6 A 10/100 and TSJ 10/100 are high-speed, high-current solid state devices designed to protect equipment from transient over voltages on T1/E1 and 10/100 Base-T lines. They perform this function by utilizing **silicon avalanche diodes** to limit the magnitude of transient over voltages on the protected wire pairs. Continuous bi-polar, bi-directional, non-interrupting protection is provided. The TSJ X6 A is configured to protect six separate T1/E1 lines, the TSJ X6 10/100 is configured to protect six separate 10/100 Base-T Ethernet lines, and the TSJ 10/100 2 port is configured to protect two separate 10/100 Base-T Ethernet lines. In the unlikely event of failure, the protection module will disrupt the communication line, and the module can be replaced to aid in the system trouble shooting process. All of the protection modules connect to the service in a pass through configuration with a specific/preferred protected and in-coming cable orientation. The input and output connections for the T1/E1 model are female RJ-48C connectors, and are shielded RJ-45 Cat5 for the 10/100 Base-T model. For proper grounding, a common rail within the unit grounds and orients the suppressor modules when they are installed. This ground rail attaches to a 1/4-20, brass external ground stud. The molded plastic enclosure uses UL 94-V0 flame rated material.

2. **PART NUMBERS:**

- 2.1. TSJ X6 A T1/E1 6 Port Protector ..... 1101-772-A
- 2.2. TSJ X6 10/100 BT 6 Port Protector..... 1101-995
- 2.3. TSJ 10/100, 2 Port Protector ..... 1101-995-2
- 2.3.1. Module Kit 10/100BT for TSJ 10/100, 2 Line Protector (adds another line) .. 1000-1309

3. **ELECTRICAL:**

- 3.1. T1/E1 Signal Protector
  - 3.1.1. Data Rate.....1.54-2.048 Mb/s
  - 3.1.2. Nominal Operating Voltage.....3 Vpk
  - 3.1.3. Maximum Continuous Operating Voltage.....12 Vpk
  - 3.1.4. Connector.....RJ-45 Cat5 unshielded 100Ω
  - 3.1.5. Protected Pins - Protected – Pass Through.....(1,2) and (4,5)
  - 3.1.6. Unprotected Pins – Pass Through.....3, 6, 7, 8
  - 3.1.7. Insertion Loss.....<0.20 dB @ 772 kHz
  - 3.1.8. Return Loss.....<30dB @ 772 kHz
  - 3.1.9. Isolation/Crosstalk.....<-60dB @ 772 kHz
  - 3.1.10. Surge Suppression (per GR-1089-CORE-2006).....<26 Vpk @ 100 A 10/1000 μs
  - 3.1.11. Suppression Response Time.....<5 ns
  - 3.1.12. Grounding.....1/4-20 Ground Stud, Silicon Bronze
- 3.2 10/100 BT Signal Protector (6 Port and 2 Port option)
  - 3.2.1 Data Rate..... 100 Mb/s
  - 3.2.2 Nominal Operating Voltage..... 5 Vpk
  - 3.2.3 Maximum Continuous Operating Voltage ..... 12 Vpk
  - 3.2.4 Connector ..... RJ-45 Cat5 shielded (shield tied to ground)
  - 3.2.5 Protected Pins ..... (1,2) and (3,6)
  - 3.2.6 Unprotected Pins – Shorted To Ground ..... (4,5) and (7,8)
  - 3.2.7 Insertion Loss..... <0.720 dB @ 1 MHz
  - 3.2.8 Isolation/Crosstalk..... >-70dB @ 1 MHz
  - 3.2.9 Surge Suppression (per GR-1089-CORE-2006).....<26 Vpk @ 100 A 10/1000 μs
  - 3.2.10 Surge Suppression (per GR-1089-CORE-2006).....<41 Vpk @ 500 A 2/10 μs
  - 3.2.11 Surge Suppression (per GR-1089-CORE-2006).....<29 Vpk @ 100 A 10/350 μs
  - 3.2.12 Suppression Response Time..... <5 ns
  - 3.2.13 Grounding..... 1/4-20 Ground Stud, Silicon Bronze



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**4. ENVIRONMENTAL:**

- 4.1. **Operating/Storage Temperature:** .....-40°C to +85°C  
4.2. **Relative Humidity:**.....99% (noncondensing)

**5. MECHANICAL:**

- 5.1. **Enclosure Material** .....GE Noryl N190  
5.2. **Weight** ..... 0.5 lbs (0.2 kg)  
5.3. **Dimensions** (see Figure 1 next page) 5.3" high , 5.7" wide, 1.2" deep (13.5 cm x 14.5 cm x 3.0 cm)

- 6. INSTALLATION:** The TSJ X6 series protectors are intended to be installed indoors or within a suitably rated NEMA enclosure for the application. The TSJ X6 series protectors can be mounted to any flat surface by use of the four 0.23" diameter holes on the sturdy mounting feet. Allow clearance around the device to access the side connectors as needed. These mounting feet holes are sized for use with up to #8 drywall or similar type screws. A ground wire must be installed from the closest ground bar to the TSJ X6 protector #1/4-20 ground stud. This ground wire should be as large a wire gauge (8 AWG minimum) as possible and as short a wire length as possible (3 ft maximum). Data cables are easy to install into the RJ connectors located on each side. Be sure to note each independent data circuit with the cable orientated with incoming cables from the left and the "Protected" cables feeding out from the right as referenced with ground stud down. The unit is clearly marked for this reference. For shielded Cat5 applications with the TSJ X6 10/100, the unit's shielded jacks provide a convenient connection for shield to ground. For shielded Cat5 T1 cable applications with the TSJ X6 A, the user may wish to bond each incoming and outgoing shield to the internal ground stud for each suppressor. Trim back approximately 3 inches of shield wire and terminate with a #6 ring lug. Loosen the single screw fastener on the cover face near the ground stud and swing the door out of the way. This fastener is self retained in the plastic to avoid misplacement. Carefully loosen the #6-32 mounting nut on the suppressor board and slip the shield ring lug onto the stud. Reattach all #6-32 suppressor mount hardware and reattach the front cover.

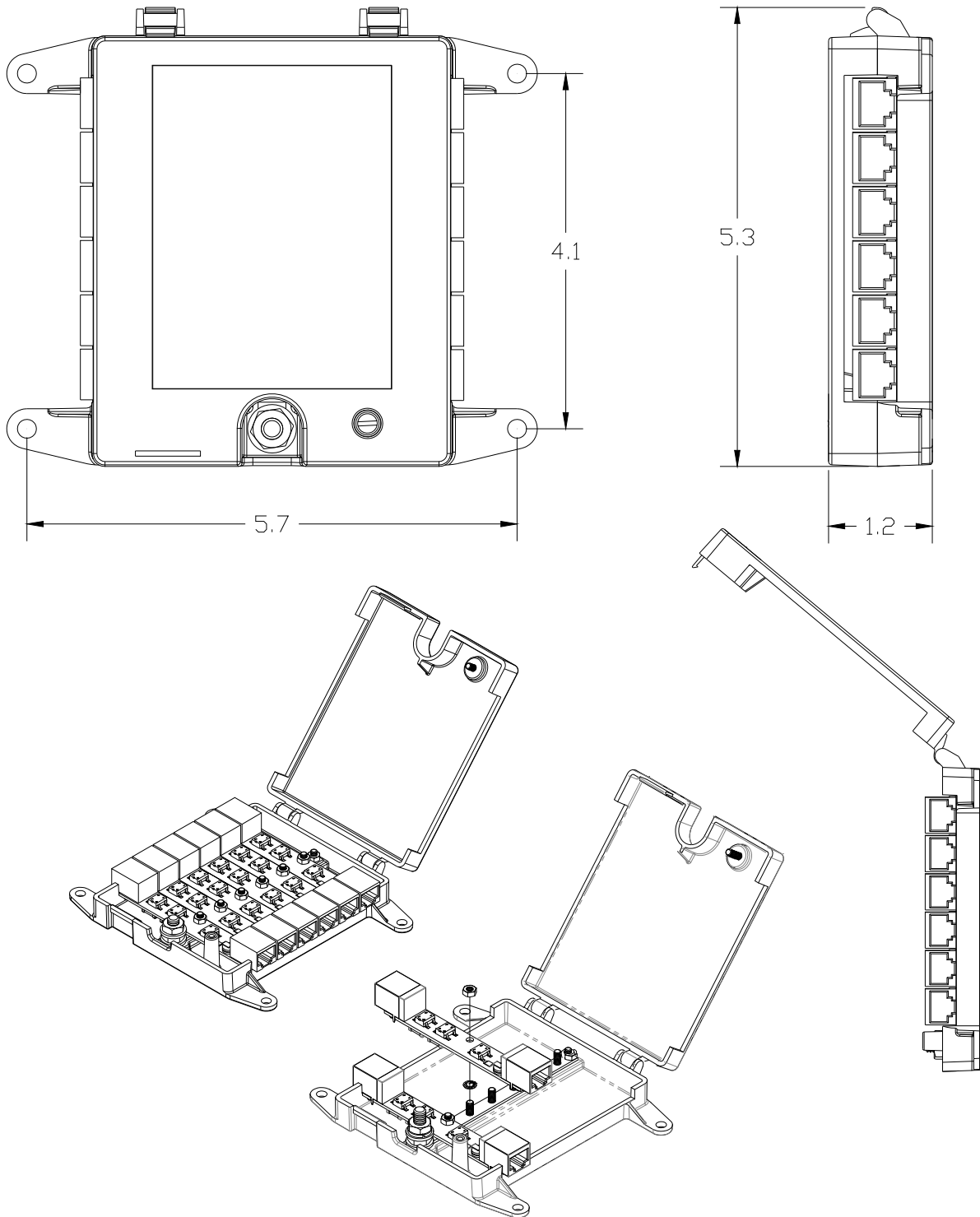


Figure 1. Mechanical outline drawing (inches)