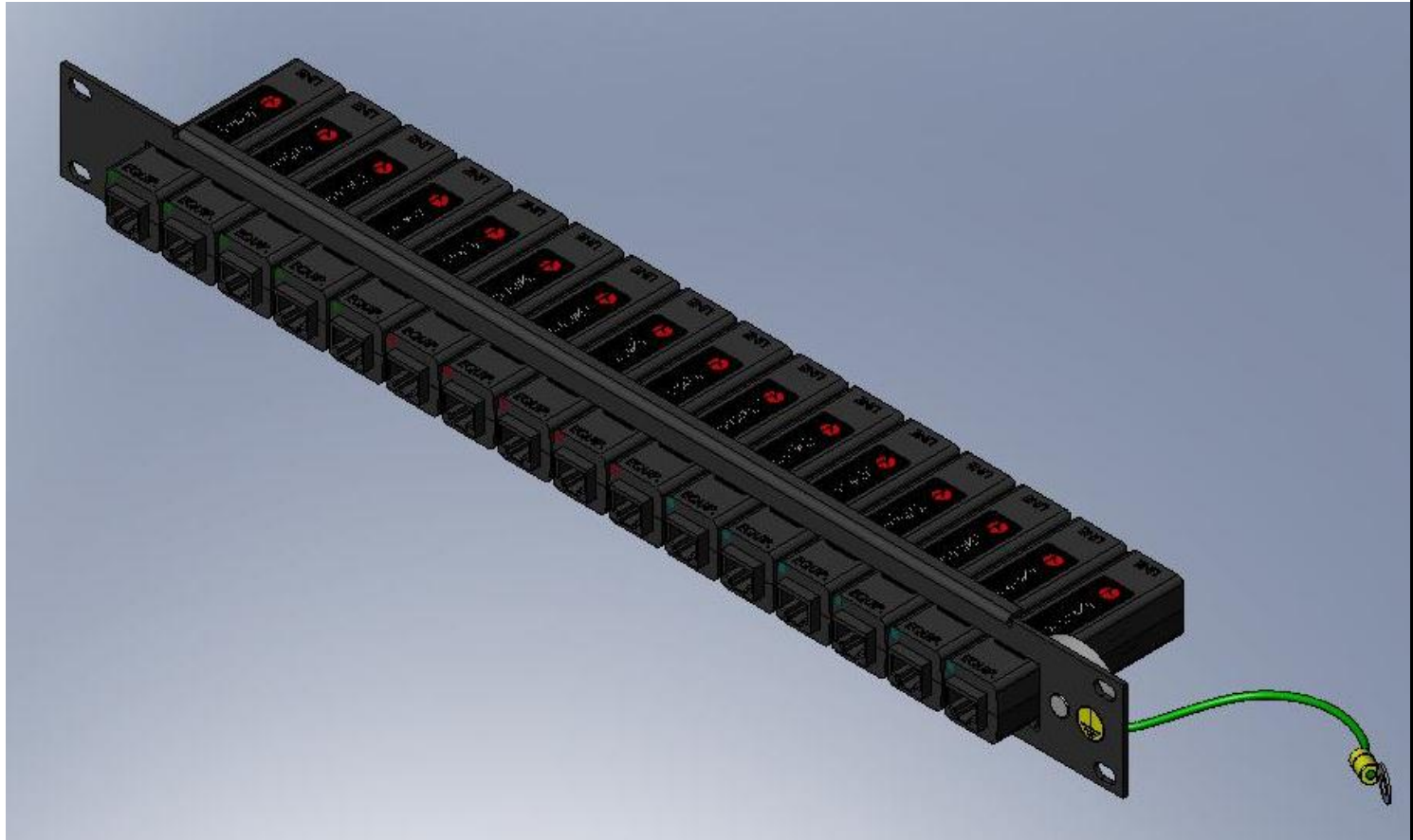



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REVISIONS

| LTR | DESCRIPTION | ECO NUM. | DATE | APPROVED |
|-----|----------------------|----------|---------|----------|
| E | UPDATE 2.3.5 | 9679 | 4/18/11 | CAP |
| F | REMOVE OBSOLETE REF | 12313 | 1/20/14 | MTH |
| G | CHG SHT 2 PER MARKUP | 12513 | 4/11/14 | MTH |
| | | | | |



| | | | | | |
|---|----------------------|----------------------|---|-----------------|--|
| MATERIAL: | DRAWN: MLH | DATE 7/6/07 |  Transtector Systems, Inc. 10701 Airport Road, Hayden, ID 83835 800.882.9110 208.772.8515 www.transtector.com | | |
| | CHECKED: HS | 7/25/07 | | | |
| | ENGR. APPD: DWR | 7/25/07 | | | |
| | PROJ. APPD: DWR | 11/4/08 | TITLE: Product Specification DPR Series Data Protection Rack | | |
| | APPROVED: LC | 7/25/07 | | | |
| NOTICE: THE INFORMATION AND DESIGN CONTAINED HEREIN IS THE PROPERTY OF TRANSTECTOR SYSTEMS, WHO RESERVES ALL RIGHTS THERETO | SIZE A | CAGE 30992 | DRAWING NUMBER 1400-594 | REV G | |
| SCALE = N/A | | PAGE 1 OF 5 | | | |

SURGE SUPPRESSOR MODELS: Data Protection Rack – DPR Series

| Part Description | Part Number |
|---|-------------|
| DPR Rack fully configured with six T1, five 10/100BT, five xDSL | 1101-896 |
| xDSL Protection Module | 1101-829 |
| Powered Ethernet (POE) Protection Module | 1101-905 |
| DPR Rack Housing Kit (no protection included) | 1000-1206 |
| DPR GT | 1101-911-1 |
| DPR 10/100 BASE-TX | 1101-828-1 |
| DPR XDSL | 1101-829-1 |
| DPR T1E1 | 1101-830-1 |
| DPR 1000BASE-T PROTECTION MODULE | 1101-882-1 |

1. GENERAL DESCRIPTION: Transtector's DPR Series is engineered for high performance, compact versatile surge protection of GigE, 10/100BT, POE, T1/E1 and xDSL equipment used for communications circuits. The individual modules can be used as stand alone surge protection device that are an inline component and can be mounted to the wall or DIN rail (clip included and functions as ground connector). Configured in the 19" rack chassis, the array of 16 modules act also serve as a cross connect. For the ultimate in scalability and reliability, Transtector's non-degrading, high performance advanced surge protection devices are the solution. Except for the Gas Discharge Tube (GDT) Protection Module, all of the DPR Protection Podules utilize Silicon Avalanche Diode technology. The 16 module wide array unit consists of individual protection modules that mount onto the 19", 1U high rack chassis with connections from the front face (LINE) through to the back face (protected EQUIP). Each protection module type is marked from the front and back ends with a color dot to distinguish circuit types per the color legend on the front (Green = xDSL, Amber = T1/E1, Gold = 10/100BT, Purple = 1000BT). The DPR is a fully configured rack system with six each T1 protection modules, five each 10/100BT protection modules and five each xDSL protection modules as illustrated on page 1. The Rack Housing Kit can be bought separately and field equipped with any combination of Protection Modules, up to 16 modules total. The individual Protection Module is illustrated in Figure 1 and is available as a stand-alone protection product with a 35mm DIN rail grounding clip. The stand-alone DIN rail clip and/or 19" Rack Housing must be securely grounded for proper operation. All protection configurations offer straight through pin-outs from the input to output connectors. In the unlikely event of surge protection self sacrifice, the individual protection modules will reliably fail short to disrupt communication. The GDT Protection Module only will offer Primary surge protection and fail mode as per GR-1089-13.1.



Figure 1. Individual module on din rail

2. ELECTRICAL:

2.1 xDSL DIGITAL SIGNAL SERVICE PROTECTION MODULE:

| | | |
|--------|--|---------------------------------------|
| 2.1.1. | Data Rate..... | 6.312Mb/s |
| 2.1.2. | Nominal Operating Voltage..... | 3Vpeak |
| 2.1.3. | Maximum Continuous Operating Voltage | 5.5Vpeak |
| 2.1.4. | Protected Pins | (1,2) and (4,5) Straight pass through |
| 2.1.5. | Connector Style..... | RJ48 Cat5 UTP 110ohms |
| 2.1.6. | Unprotected Pins – Shorted to Ground | 3, 6, 7, 8 |
| 2.1.7. | Insertion Loss..... | < -0.5dB @ 6.312MHz |
| 2.1.8. | Surge Suppression | < 25Vpeak @ 100A 10/1000µs |

2.2 T1/E1 SIGNAL PROTECTION MODULE:

| | | |
|--------|--|---|
| 2.2.1 | Data Rate..... | 1.544/2.048Mb/s |
| 2.2.2 | Nominal Operating Voltage..... | 3Vpeak |
| 2.2.3 | Maximum Continuous Operating Voltage | 6Vpeak |
| 2.2.4 | Connector Style..... | RJ45 Cat5 UTP 100ohms |
| 2.2.5 | Protected Pins | (1,2) and (4,5) Straight pass through t |
| 2.2.6 | Unprotected Pins – Shorted to Ground | 3, 6, 7, 8 |
| 2.2.7 | Insertion Loss..... | < -0.5dB @ 772kHz |
| 2.2.8 | Return Loss | < -26dB @ 772kHz |
| 2.2.9 | Isolation/Crosstalk..... | < -60dB @ 772kHz |
| 2.2.10 | Surge Suppression | < 25Vpeak @ 100A 10/1000µs |

2.3 10/100Base-T(X) ETHERNET SIGNAL PROTECTION MODULE:

| | | |
|-------|--|---|
| 2.3.1 | Data Rate | 100Mb/s |
| 2.3.2 | Nominal Operating Voltage..... | 5Vpeak |
| 2.3.3 | Maximum Continuous Operating Voltage | 6Vpeak |
| 2.3.4 | Connector Style..... | RJ45 Cat5 unshielded 100ohm, 50ohm single ended |
| 2.3.5 | Protected Pins | (1,2) (3,6) (4,5) (7,8) |
| 2.3.6 | Impedance | 85 to 115ohms |
| 2.3.7 | Attenuation | < -1dB @ 16MHz |
| 2.3.8 | Surge Suppression | < 25Vpeak @ 100A 10/1000µs |

2.4 1000Base-T GIGABIT ETHERNET SIGNAL PROTECTION MODULE:

| | | |
|-------|--|---|
| 2.4.1 | Data Rate | 1000Mb/s |
| 2.4.2 | Nominal Operating Voltage..... | 3.3Vpeak |
| 2.4.3 | Maximum Continuous Operating Voltage | 6Vpeak |
| 2.4.4 | Connector Style..... | RJ45 Cat5 unshielded 100ohm, 50ohm single ended |
| 2.4.5 | Protected Pins | (1,2) (3,6) (4,5) and (7,8) pass through |
| 2.4.6 | Impedance | 85 to 115 Ohms |
| 2.4.7 | Surge Suppression | 22Vpeak @ 100A 2/10µs |

2.5 60V POE 10/100Base-T(X) Ethernet PROTECTION MODULE:

| | | |
|-------|--|---|
| 2.5.1 | Data Rate | 100Mb/s |
| 2.5.2 | Nominal Operating Voltage..... | 48Vpeak |
| 2.5.3 | Maximum Continuous Operating Voltage | 60Vpeak |
| 2.5.4 | Connector Style..... | RJ45 Cat5 UTP |
| 2.5.5 | Protected Pins | (1,2), (3,6), (4,5), and (7,8) pass through |
| 2.5.6 | Impedance | 100 Ohms |
| 2.5.7 | Attenuation | < -1 dB @ 16MHz |
| 2.5.8 | Surge Suppression | < 75Vpeak @ 100A 10/1000µs |



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| SIZE | CAGE | 1400-594 | G |
| A | 30992 | | |
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2.6 10/100/1000Base-T(X)/POE Gas Discharge Tube PROTECTION MODULE:

- 2.6.1 Data Rate 1000Mb/s
- 2.6.2 Nominal Operating Voltage all POE circuits up to 60Vpeak
- 2.6.3 Maximum Continuous Operating Voltage 60Vpeak
- 2.6.4 Connector Style RJ45 Cat5 UTP
- 2.6.5 Protected Pins (1,2), (3,6), (4,5), and (7,8) pass through
- 2.6.6 Impedance 115 Ohms
- 2.6.7 Attenuation < -1 dB @ 16MHz
- 2.6.8 Surge Suppression < 100Vpeak @ 100A 10/1000µs
< 100Vpeak @ 10kA 8/20 µs all wires to ground (metallic mode)
< 100Vpeak @ 2.5kA 8/20 µs each wire to ground (longitudinal mode)
- 2.6.9 Nominal Gas Tube Spark Over Voltage 75Vpeak

3. ENVIRONMENTAL:

- 3.1. Operating/Storage Temperature: -40°C to +75°C
- 3.2. Relative Humidity: 99% (non-condensing)

4. MECHANICAL:

- 4.1. Rack Chassis Material 14 gauge aluminum, black powder coat
- 4.2. Weight, Individual Module15lbs (.07kg)
- 4.3. Weight, Fully Configured 5.2lbs (2.4kg)
- 4.4. Rack Chassis Dimensions (see figure 2) 19" wide, 1U high
- 4.5. Module Case Material Black ABS Plastic, UL94V0 Flame Rating

5. APPLICABLE INDUSTRY STANDARDS:

- 5.1. Bonding and Grounding NEC 800.100 and 830.100
- 5.2. Surge Suppression GR-1089-2006
- 5.3. 10/100BT (Ethernet) Communication Protocol IEEE 802.3
- 5.4. T1/E1 and xDSL Communication Protocol ITU 703

6. INSTALLATION: The DPR is intended to be installed indoors, using one rack space within a 19" RS-310-C standard rack frame. Attach the DPR into the 19" rack using the four each 10-32 screws at each corner of the rack chassis (hardware provided). A dedicated ground strap on the front of the unit must be connected to the nearest master ground bar system. All data cabling is connected through the front and rear of the DPR rack chassis. Each protection module is marked with the respective T1, 10/100BT, 1000BT, xDSL or 10/100BT 60V POE signal type. Individual protection modules can be installed or replaced by access to the screw attachment along the bottom of the rack. The module mounting screw must be securely fastened to assure proper grounding and surge protection. It is up to the user to swap between the Transmit and Receive wire pairs if required. Cable management products are available from Transtector for 19" rack applications with high cable count as like server room environments.

Each module may be installed as a stand alone protector on standard 35mm DIN rail strut. The individual protection modules are provided with a ground clip that must be securely snapped onto a well grounded DIN strut. Ensure the strut is bonded back to the best local master ground system and that paint does not obscure the fastener and bonded surfaces. Bare metal copper DIN is suggested for optimum integrity. Figure 3 portrays the ground clip and module dimensions.



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| SIZE | CAGE | 1400-594 | G |
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| SCALE = N/A | | Page 4 of 5 | |

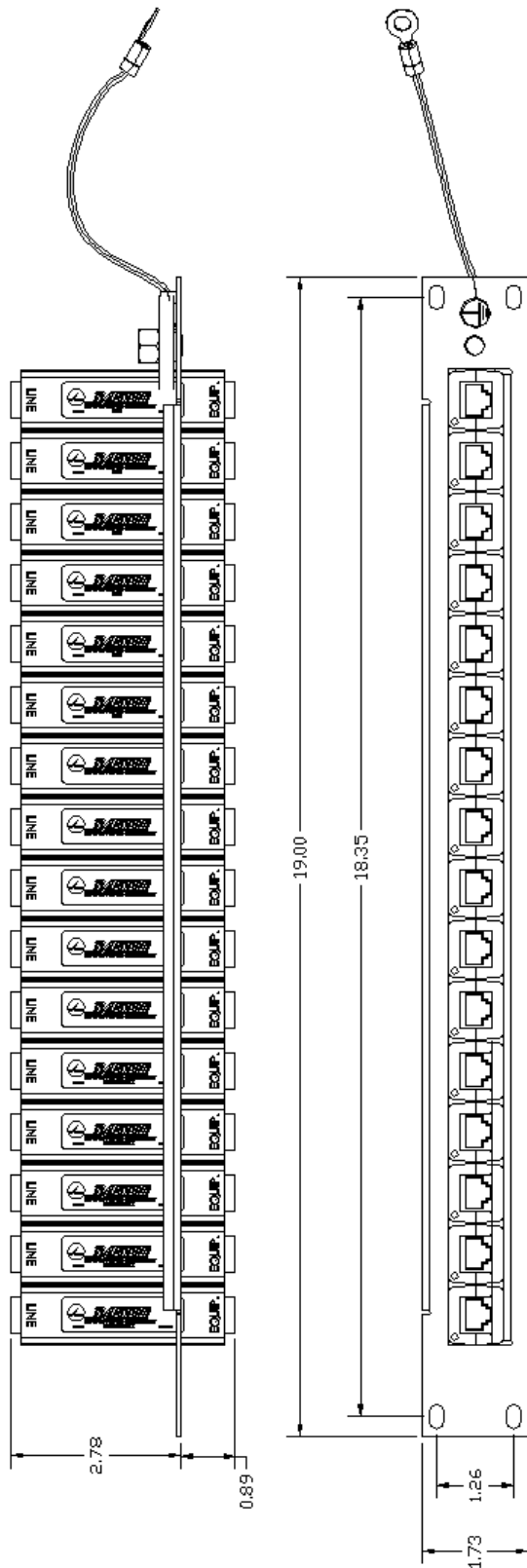
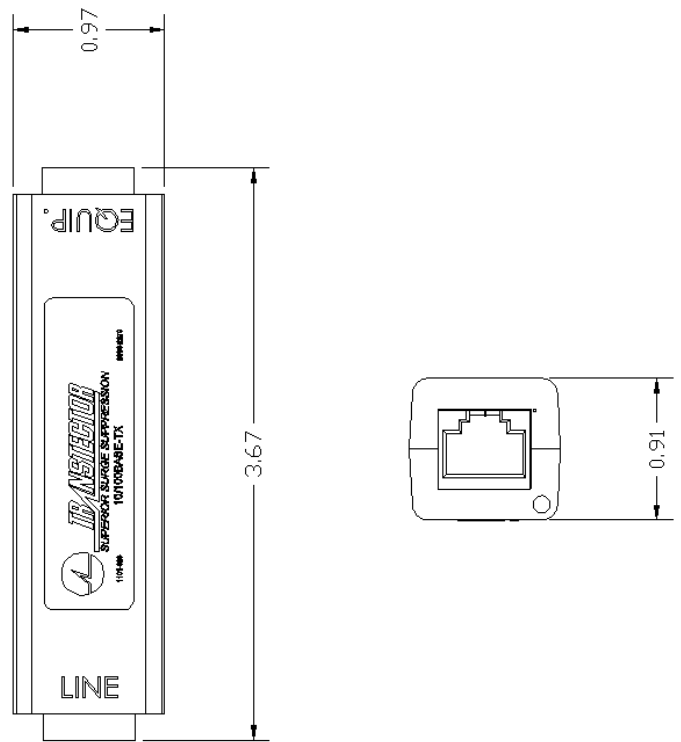


Figure 2. Mechanical outline (inches)



The DIN rail mount ground clip attaches to the bottom of the individual DPR module and offers secure ground point attachment for signal integrity and surge protection onto DIN strut. The clip may be rotated 90 degrees for panel mount, but a separate ground wire must be attached for that type of mount method.

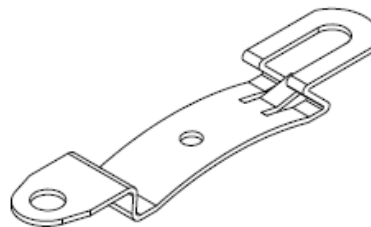


Figure 3. Module Mechanical Outline