

# USER MANUAL

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## MODEL 552 Series High Speed Telco Surge Protectors



**PATTON**  
**Electronics Co.**



An ISO-9001  
Certified Company

Part# 07M552-E  
Doc# 074210UE  
Revised 02/27/01

SALES OFFICE  
(301) 975-1000  
TECHNICAL SUPPORT  
(301) 975-1007  
<http://www.patton.com>

## 1.0 WARRANTY INFORMATION

**Patton Electronics** warrants all Model 552 components to be free from defects, and will—at our option—repair or replace the product should it fail within one year from the first date of shipment.

This warranty is limited to defects in workmanship or materials, and does not cover customer damage, abuse or unauthorized modification. If this product fails or does not perform as warranted, your sole recourse shall be repair or replacement as described above. Under no condition shall **Patton Electronics** be liable for any damages incurred by the use of this product. These damages include, but are not limited to, the following: lost profits, lost savings and incidental or consequential damages arising from the use of or inability to use this product. **Patton Electronics** specifically disclaims all other warranties, expressed or implied, and the installation or use of this product shall be deemed an acceptance of these terms by the user.

### 1.1 SERVICE

All warranty and non-warranty repairs must be returned freight prepaid and insured to Patton Electronics. All returns must have a Return Materials Authorization number on the outside of the shipping container. This number may be obtained from Patton Electronics Technical Service at: **(301) 975-1007**; <http://www.patton.com>; or, [support@patton.com](mailto:support@patton.com).

**NOTE:** Packages received without an RMA number will not be accepted.

Patton Electronics' technical staff is also available to answer any questions about the installation or use of your Model 552. Technical Service hours are: **8AM to 5PM EST, Monday through Friday.**

### 1.2 CE NOTICE

The CE symbol on your Patton Electronics equipment indicates that it is in compliance with the Electromagnetic Compatibility (EMC) directive and the Low Voltage Directive (LVD) of the Union European (EU). A Certificate of Compliance is available by contacting Technical Support.

### 1.3 FCC COMPLIANCE

The 552 Series of surge protectors have been tested and found to comply with FCC Parts 15 and 68. A label on the device bears the Part 68 registration number.

1. This equipment complies with Part 68 of the Federal Communications Commission Rules. On the outside surface of this equipment is a label that contains, among other information, the FCC registration number. This information must be provided to the telephone company.
2. If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But, if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.
3. The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications in order to maintain uninterrupted service.
4. If trouble is experienced with any of the Model 552 Series, please contact Patton Electronics Company at 301-975-1000. If the equipment is causing harm to the network, the telephone company may request you to remove the equipment from the network until the problem is resolved.
5. Repairs are to be made only by Patton Electronics Company or its licenses. Unauthorized repairs void registration and warranty.
6. This equipment cannot be used on public coin service provided by the telephone company. Connection to Party Line Service is subject to state tariffs. (Contact the state public utility commission, public service commission or corporation commission for information).

### 1.4 INDUSTRY CANADA NOTICE

**NOTICE:** The Industry Canada label identifies certified equipment. This certification means that the equipment meets telecommunications network protective, operational and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements document(s). The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas. Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

## 2.0 GENERAL INFORMATION

Thank you for your purchase of this Patton Electronics product. This product has been thoroughly inspected and tested and is warranted for One Year parts and labor. If you have any questions while installing or using this product, please do not hesitate to contact Patton Electronics Technical Support at (301) 975-1007.

### 2.1 FEATURES

- Uses a multi-stage hybrid circuit for the best possible protection
- Handles surge energy up to 1.5 kW
- Conforms to the UL497A telco specification (except E1 versions)
- Available for ISDN-U (8-wire), ISDN-ST (4-wire), T1, E1, ISDN PRI, DDS, leased line and dial up configurations
- Diverts surges directly to chassis ground through braided metal ground strap
- Equipped with two RJ-45 jacks or four BNC connectors
- Easy to install
- Made in the U.S.A.

### 2.2 DESCRIPTION

The potential threats to ISDN and Telco hardware are vast: lightning, AC power induction, electrostatic discharge, ground potential differences, EMI/RFI interference and more. The Patton Model 552 has been designed to greatly reduce these risks. Just attach one unit to each of your telco ports and rest easy.

The Model 552 connects directly between twisted pair telco cables and their respective I/O ports. Grounding is accomplished using an external ground strap that provides a separate unit-ground to chassis-ground connection. By shunting threatening voltages directly to chassis ground, the Model 552 insures data integrity and protects connected equipment from damage.

The Model 552 uses a solid state design and sophisticated multistage hybrid circuits to achieve maximum protection without performance loss. Eight versions are available: Model 552-ST, 552-D8, and 552-L8 protect all 8 pins; Model 552-D6 protects six pins; Models 552-DDS, 552-D4, 552-U, 552-L4, 552-E1, 552-E1 CX, and 552-T1 protect four pins; and, Model 552-D2 protects two pins. All versions provide up to 1500 Watts of data line protection.

**NOTE:** Model 552-L8 may be used to protect Leased Line, DDS, T1, E1, ISDN PRI, and ISDN BRI "U" and "ST" interfaces.

**WARNING!** This product will not provide complete protection should your equipment or building be subject to a direct lightning hit.

### 3.0 INSTALLATION

Patton's Model 552 is easy to install and should give you years of trouble-free service. Here are a few simple instructions to help you get things hooked up right.

1. Unplug (disconnect) the existing connection between the network cable and the equipment's I/O port.
2. Install the Model 552 between the incoming network cable and the protected equipment using the 6 inch (15.2cm.) modular patch cable (supplied). Place the surge protector as close as possible to the device being protected.

**NOTE:** To ensure proper operation of the Model 552, make sure that your equipment is connected to the protected side of the Model 552. See Figure 1 below.

**NOTE:** The Model 552-E1 CX has two pairs of BNC jacks that connect one to one through the device. See Figure 2 below.

3. Connect the braided ground strap directly to a chassis ground connection on the protected device. If you are not sure where to locate a chassis ground connection on your equipment, consult the equipment's user manual or contact the manufacturer. Correct ground connection is critical for proper operation of the Model 552.

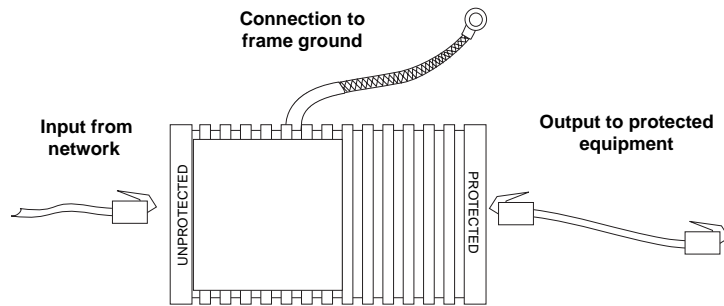


Figure 1. How to Connect the Model 552

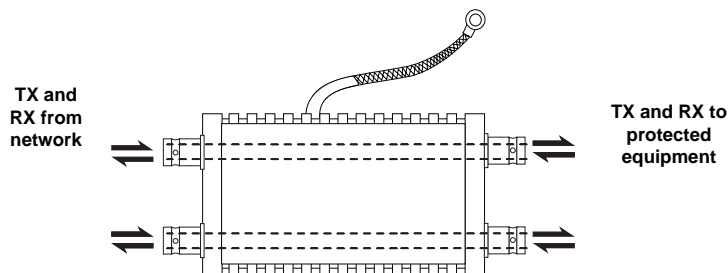


Figure 2. Model 552-E1CX One to One Connection

### APPENDIX A

#### MODEL 552 SPECIFICATIONS

##### General

<b>Series Resistance:</b>	0.340 Ohms
<b>In Line Fuse Rating:</b>	250V, 3/4A, 2.95 (A <sup>2</sup> sec) Nominal Melting Point
<b>Approvals:</b>	UL497A Telco Specification (except E1 versions) CE (EMC Directive/EN 50082-1)
<b>Connectors:</b>	Two female RJ-45 or 4 BNC jacks

##### Model 552-DDS

<b>Pins Protected:</b>	Pins 1, 2, 7, 8
<b>Clamping Voltage:</b>	62 Volts in 500 nsec
<b>Surge Capacity:</b>	1500 Watts for 1 msec; 400A with an 8/20 µsec pulse
<b>Protection Mode:</b>	Common Mode Pins 1, 2, 7, 8 to shielding braid Differential Mode Pins 1, 2, 7, 8

##### Model 552-D2

<b>Pins Protected:</b>	Pins 4, 5 on the RJ-45 Interface; Pins 3, 4 on the RJ-11 Interface
<b>Clamping Voltage:</b>	310 Volts in 500 nsec
<b>Surge Capacity:</b>	1500 Watts for 1 msec; 250A with an 8/20 µsec pulse
<b>Protection Mode:</b>	Common Mode Pins 4, 5 to shielding braid Differential Mode Pins 4, 5

##### Model 552-D4

<b>Pins Protected:</b>	Pins 3, 4, 5, 6 on the RJ-45 Interface Pins 2, 3, 4, 5 on the RJ-11 Interface
<b>Clamping Voltage:</b>	310 Volts in 500 nsec
<b>Surge Capacity:</b>	1500 Watts for 1 msec; 250A with an 8/20 µsec pulse
<b>Protection Mode:</b>	Common Mode Pins 3, 4, 5, 6 to shielding braid Differential Mode Pins 3, 4, 5, 6

### **Model 552-D6**

**Pins Protected:** Pins 2, 3, 4, 5, 6, 7 on the RJ-45 Interface  
Pins 1, 2, 3, 4, 5, 6 on the RJ-11 Interface  
**Clamping Voltage:** 310 Volts in 500 nsec  
**Surge Capacity:** 1500 Watts for 1 msec;  
250A with an 8/20  $\mu$ sec pulse  
**Protection Mode:** Common Mode Pins 2, 3, 4, 5, 6, 7 to  
shielding braid  
Differential Mode Pins 2, 3, 4, 5, 6, 7

### **Model 552-D8**

**Pins Protected:** Pins 1, 2, 3, 4, 5, 6, 7, 8  
**Clamping Voltage:** 310 Volts in 500 nsec  
**Surge Capacity:** 1500 Watts for 1 msec;  
250A with an 8/20  $\mu$ sec pulse  
**Protection Mode:** Common Mode Pins 1, 2, 3, 4, 5, 6, 7, 8 to  
shielding braid  
Differential Mode Pins 1, 2, 3, 4, 5, 6, 7, 8

### **Model 552-T1 and 552-E1**

**Pins Protected:** Pins 1, 2, 4, 5  
**Clamping Voltage:** 62 Volts in 500 nsec  
**Surge Capacity:** 1500 Watts for 1 msec;  
400A with an 8/20  $\mu$ sec pulse  
**Protection Mode:** Common Mode Pins 1, 2, 4, 5 to shielding  
braid  
Differential Mode Pins 1, 2, 4, 5

### **Model 552--E1 CX**

**Pins Protected:** All shields and center pins  
**Clamping Voltage:** 62 Volts in 500 nsec  
**Surge Capacity:** 1500 Watts for 1 msec;  
400A with an 8/20  $\mu$ sec pulse  
**Protection Mode:** Common Mode Center Pins and Shield to  
shielding braids  
Differential Mode Center Pins to Shields

### **Model 552-L4 and 552-U**

**Pins Protected:** Pins 3, 4, 5, 6  
**Clamping Voltage:** 62 Volts in 500 nsec  
**Surge Capacity:** 1500 Watts for 1 msec;  
400A with an 8/20  $\mu$ sec pulse  
**Protection Mode:** Common Mode pins 3, 4, 5, 6 to shielding  
braid  
Differential Mode Pins 3, 4 5, and 6

### **Model 552-L8\* and 552-ST**

**Pins Protected:** Pins 1, 2, 3, 4, 5, 6, 7, 8  
**Clamping Voltage:** 62 Volts in 500 nsec  
**Surge Capacity:** 1500 Watts for 1 msec  
400 A with an 8/20  $\mu$ sec pulse  
**Protection Mode:** Common Mode pins 1, 2, 3, 4, 5, 6, 7, 8 to  
shielding braid  
Differential Mode Pins 1, 2, 3, 4, 5, 6, 7, 8

**\*NOTE:** In addition to protecting leased line modem interfaces, the Model 552-L8 may also be used to protect DDS, T1, E1, ISDN PRI, and ISDN BRI "U" and "ST" interfaces.

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