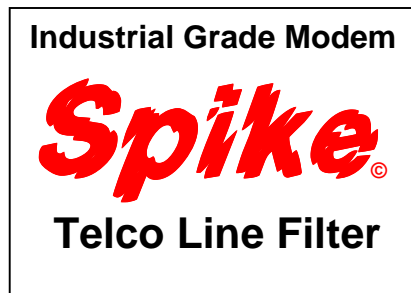


# INDUSTRIAL GRADE MODEMS

Your Communications Solutions Provider

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## NEW PRODUCT RELEASE



Dual Mode Telco Line Surge Suppressor

**“LIGHTNING FAST”**

**Spike**® Surge Suppressor provides secondary transient voltage surge suppression for (per UL 497A) Telco line protocols. Units provide protection against transients that exceed the nominal operating voltage of Dial-Up, DDS, Dedicated/Leased and T1 lines.

Telephone lines are usually copper wires from central office to your building. The wire can be between a few hundred feet to 5 miles or more. They are connected in the central office to the telephone center/exchange. Normally there is only the 48V DC voltage from central office battery on the line, and the ring cycle of 70-130V AC voltage.

Weather, lightning in particular, with it's millions of volts and thousands of amperes affect every wire in the ground or in the air. Near lightning strikes can generate a surge pulse of thousands of volts to telephone lines, and of course any connected electronic equipment. The surge can destroy electronics in both subscriber's and central office end.

The Telephone Companies have installed surge suppression devices at the central office. They usually install some sort of protection at the subscriber's side of the line at the place where telephone cable enters the building.

There are two types of surges: differential and common mode. Differential surge is a voltage surge, which is generated between the telephone wire pair. That requires suitable protection between the telephone line pair. The other type of surge is common mode. The potential of the telephone line raises thousands of volts above ground, the common mode surges are usually larger and require suitable protection.

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Modems are more prone to lightning surges than telephones. There are two reasons for that: modems have more dedicated microelectronics than simple telephones and modems are connected to computers, which are connected to mains electricity. For those reasons modem electronics are prone to be damaged by both differential and common mode surges.

- Clamping voltage: 200V+-10%
- Rise time: 15 ns
- Interface: 2-wire PSTN
- Connectors: Screw terminals for up to 19 AWG wire
- Size: 1 x 2.3 x 3.5 inches
- Weight: 0.1 kg
- Protection mechanism: 10 kA gas discharge tube and high speed clamp diodes

The circuit is quite straight forward, made of gas arrestors, resistors and transorb diodes. First protection for large surges are one gas arrestor connected between line leads and two other gas arrestors connected between line leads and ground connection.

Protection is also provided against induced transients caused by lightning or other natural phenomena.

The "Spike" transient surge protection devices have two stages of protection. The modules have a line side, which is connected to the Tip and Ring, and a protected side, which connects to the equipment that is to be protected. The input of the module includes a gas discharge circuit, which clamps larger voltage spikes, and large current pulses to the ground circuit. The second stage of protection is then provided by a set of transorbs. The transorbs suppress large surge currents and clamp the voltage spikes that are just above the 48 VDC plus the 30 VAC. All destructive voltages and currents are absorbed into an EARTH connection. This EARTH connection must go to a proper earth ground point using low impedance heavy gauge wire.

Specifications:

|   |              |            |
|---|--------------|------------|
| Input Voltage Range                                 | 120 + - 20 % | VAC        |
| Series Impedance                                    | 5            | Ohms       |
| Current Range                                       | 1 – 750      | MA         |
| DC Spark over Voltage                               | 230 + 20%    | Volts      |
| Impulse Spark over Voltage at 100V/ us              | <500         | Volts      |
| Nominal impulse discharge current, wave 8/20 us     | 20           | K Amps     |
| Peak Pulse Power Capability, wave 10/100 micro sec. | 600          | Watts      |
| Response Time                                       | 1.0          | Micro Sec. |