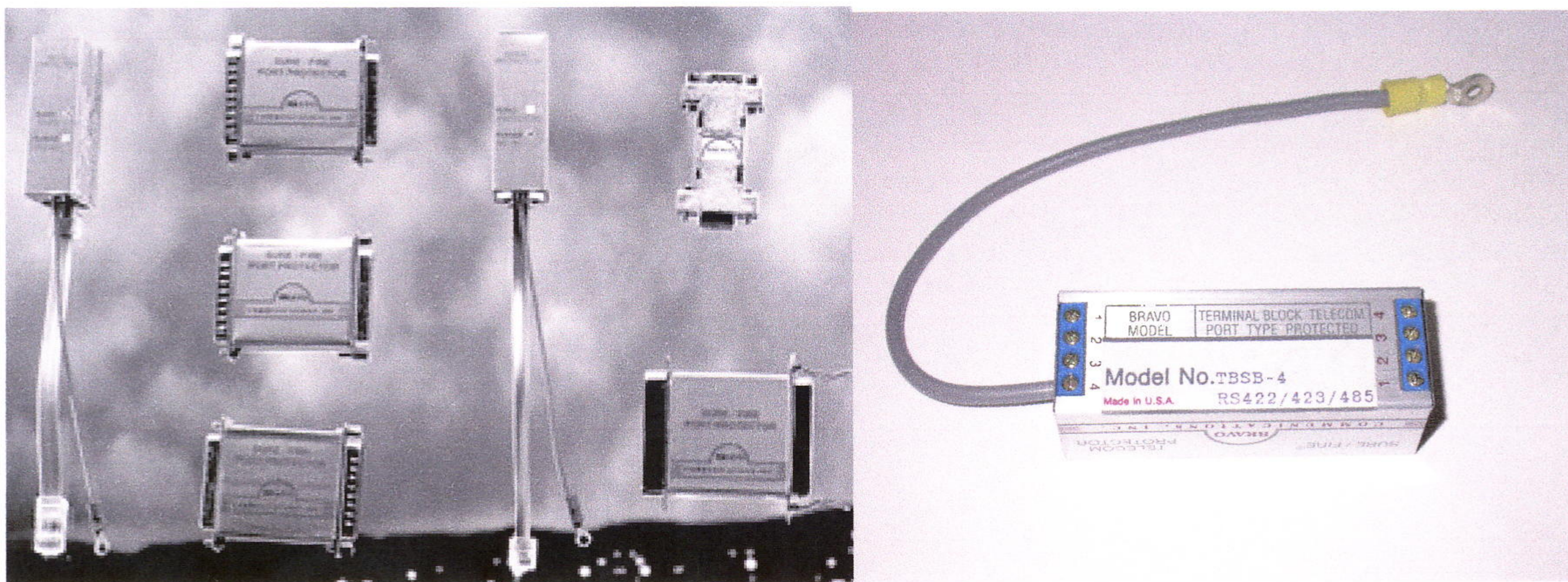


BRAVO

COMMUNICATIONS, INC.

SURE/FIRE® DATACOM PROTECTORS

The "Sure/Fire" DATACOM Protection For Networks and Computer Peripherals



Description

Bravo's Sure/Fire family of DATACOM Port Protectors stops all forms of DATACOM damaging voltage transients (spikes and surges) that are prevalent in the typical DATACOM/Office cable environment. All network and peripheral equipment cables are exposed in a company's office environment because they act as antennae (at any cable length) for attracting (inducing) damaging lightning and electrostatic discharge (ESD) energy waveforms.

The worldwide IEEE, ISO, UL and NEC Standards cite various electrical and safety hazards which Office and Datalines are susceptible to and recommend precautions from...

1. Direct contact between DATACOM network components and power or lighting circuits.
2. Static charge build-up on network cables and components.
3. High-energy transients coupled onto dataline cables through induction due to other cables being installed in the general proximity.
4. Potential differences between safety grounds to which various peripherals and network components are connected both within a building and between buildings.

DATACOM spikes and surges are also caused by fluctuating AC lines, blackouts, brownouts, elevators, motors, generators, office copiers, and office lights. AC power strips, power conditioners, UPS systems and power regulators cannot prevent Dataline transient damage... They can only protect your building's AC power line.

Features

- ◆ Unique Avalanche Diode Array protects ALL interface signal lines.
- ◆ Stops all voltage transients greater than normal dataline interface signal levels @ 600 Watts of energy per line in less than a pico-second.
- ◆ Shielded all-metal enclosures and connectors.
- ◆ Automatic Self Recovery.
- ◆ High-Quality Data Signal Design allows high speeds to 50 Mhz and is bidirectional.
- ◆ 100% Complete Package includes any required patch cable and heavy-duty grounding wire.
- ◆ Every unit has passed a rigorous set of signal and functional tests.
- ◆ Fails Short if overstressed.

Benefits

- ◆ Maximum protection and quick response for damaging spikes and surges saves thousands of dollars of equipment damage and downtime.
- ◆ Prevents degradation of network performance and computer peripheral components while preserving data integrity. Helps prevent keyboard lock-ups, corrupted CRT screens and corrupted data files.
- ◆ Immunity to EMI/RFI interference and safety hazards.
- ◆ Protects DATACOM equipment repeatedly and then automatically resets itself.

- ◆ Negligible network loading effect with low capacitance, won't disturb normal operation.
- ◆ Makes installation a snap and error free.
- ◆ Sacrifices itself due to an extreme transient effectively disconnecting your unprotected equipment.
- ◆ Parallel models are IEEE 1284 Bi-directional Parallel "COMPLIANT".

There are Bravo Port Protectors to protect all major DATACOM and Peripheral Interfaces, including RS 232/V.24 Serial, RS 422/423/485 Serial, and both Centronics Parallel & IEEE 1284 Bi-directional Parallel. Inquire at Bravo if you need more information regarding your specific protection requirements.

Installation & Operation _____

- ◆ Bravo Port Protectors simply plug into the DATACOM interface port of the equipment you want to protect and you fasten the enclosed ground wire between your equipment's chassis ground and the Bravo Protector.
- ◆ Normal dataline network interface signals are allowed to flow passively through the protector without interruption. If an abnormal voltage level is sensed, the Bravo Port Protector will activate instantly and clamp the damaging voltage transient and divert it through its heavy-duty ground wire and other grounding paths to earth ground, thereby safeguarding your valuable computer equipment. Afterwards, the Protector safely resets itself and assumes its normal guardian/watchdog operation.
- ◆ A Port Protector is recommended for every DATACOM port you want to protect. Because damaging voltage transients can originate anywhere on a cable conductor or be induced through the cable jacket anywhere along the cable run path, only computer equipment ports having properly installed Protectors will be safeguarded.

- ◆ Computer & DATACOM I/O cards, modems, printers, plotters, multiplexers, and related equipment can all be protected.

Warranty

- ◆ 5-year limited warranty.
- ◆ Extended warranty option.

Transient Protection

- ◆ 600 Watt Avalanche Diode energy dissipation per line in less than a pico-second response time. “+” models also include tripolar gas tube crowbar protection.
- ◆ **All** interface signal lines are protected for **All** models for universal interface protection.
- ◆ Parallel Models clamp voltages above 5 volts.
- ◆ RS 232/V.24 Serial Models clamp bidirectional voltages above ± 25 volts.
- ◆ RS 422/423/485 Serial Models clamp bidirectional voltages above ± 8 volts.
- ◆ All Models effectively disconnect the protected equipment in the event of an extremely severe voltage transient.

Physical

- ◆ Size: All models are within these maximum dimensions 1.0" H x 2.6" W x 2.6" D; 2.5 cm H x 6.6 cm W x 6.6 cm D.
- ◆ Weight: All models are 2 oz. (.06 kg.).

Environment

- ◆ Operating Temperature: $-40^{\circ}\text{C} - 85^{\circ}\text{C}$.
- ◆ Relative Humidity: 0 - 90% (non-condensing).

Certifications

- ◆ Meets or exceeds all applicable CCITT, R.E.A., UL and worldwide standards.
- ◆ UL 94 V-0 transient voltage suppressors.

Avalanche Diode Protection Stops Lightning, ESD & All Damaging Voltages

Model#	Description & Equipment Protected
25 P	25-Pin Male/Female Parallel Port Protector. Protects PC Parallel Ports. Shunts to pin 24 and connector shield.
36 P	36-Pin Centronics Male/Centronics Female Parallel Port Protector. Protects ALL Parallel Printers and Computers. Shunts to pin 17 and connector shield.
9 S	9-Pin Male/Female RS 232/V.24 Serial Port Protector. Protects ALL 9-Pin Serial Ports such as AT & MAC computers, printers, modems and I/O cards. Shunts to connector shield.
9 SB	9-Pin Male/Female RS 422/423/485 Serial Port Protector. Protects ALL 9-Pin Differential Serial Ports for high-speed balanced, unbalanced and multipoint applications. Shunts to connector shield.
25 S	25-Pin Male/Female RS 232/V.24 Serial Port Protector. Protects ALL 25-Pin Serial Ports such as PCs, modems, printers, plotters, bar code readers and I/O cards. Shunts to pin 1 and connector shield.
RJ45 S	Universal Modular RS 232/V.24 Serial Port Protector. Protects ALL RJ11, RJ12 & RJ45 Serial Ports and comes complete with both RJ12 & RJ45 insertion cables. Shunts via the attached ground wire.
25 SB	25-Pin Male/Female RS 422/423/485 Serial Port Protector. Protects ALL 25-Pin High-Speed Serial Ports such as high-speed modems, multiplexers, computers, printers, short-haul modems and I/O cards. Shunts to pin 1 and connector shield.
RJ45 SB	Universal Modular RS 422/423/485 Serial Port Protector. Protects ALL RJ11, RJ12 & RJ45 Serial Ports and comes complete with both RJ12 & RJ45 insertion cables. Shunts via the attached ground wire.
TBS-4 & TBS-4+	4-Pin Terminal Block RS 232/V.24 Serial Port Protector. Protects ALL Hardwired Serial Equipment. Shunts via the attached ground wire. TBS-4 is used for normal protection up to 3 KVA. Model TBS-4+ is used for enhanced 20 KVA protection.
TBSB-4 & TBSB-4+	4-Pin Terminal Block RS 422/423/485 Serial Port Protector. Protects ALL Hardwired Serial Equipment. Shunts via the attached ground wire. TBSB-4 is used for normal protection up to 3 KVA. Model TBSB-4+ is used for enhanced 20 KVA protection.

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