

# BRAVO COMMUNICATIONS, INC.

## SURE/FIRE® TELECOM SURGE-PROTECTED HUBS



### Description

Bravo's Sure/Fire family of TELECOM SURGE-PROTECTED HUBS stops all forms of telecom damaging voltage transients (spikes and surges) as well as hazardous overcurrent fault conditions that are prevalent in Telecom networks. The mass of cable segments exposed in a typical telecom environment act as antennae for attracting (inducing) damaging lightning and electrostatic discharge (ESD) energy waveforms. Telecom lines represent the longest antennae usually seen in a business or home environment and their exposure to outside natural phenomenon such as storms and downed transformers can easily disrupt your business or can even be the source of a disastrous fire.

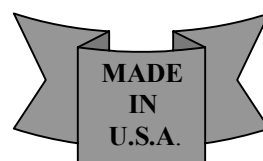
Bravo's Sure/Fire TELECOM HUBS are designed as "4-PORT EXPANDABLE SURGE PROTECTION BUILDING BLOCKS" that allow unlimited vertical and horizontal groupings of Telecom lines. The Hubs can be wall or tabletop mounted or placed in a rack in any direction, all with the convenience of single-point grounding to earth/chassis ground. These Surge-Protected Hubs safeguard telecom ports of PCs, modems, multiplexers, fax machines, answering machines, digital phone systems, CSU/DSU equipment, T1/E1/ISDN/DS1/DS2/DS3 and virtually all types of analog and digital telecom equipment.

### Features

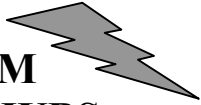
- ◆ Both modular telephone jack (**RJ**) and screw-down terminal block (**TB**) styles available.
- ◆ Protects dial-up (switched analog), dedicated (leased analog) and high-speed digital lines.
- ◆ Advanced balanced thyristor technology on all signal lines. Plus tripolar gas tube protection on Primary 25KA models.
- ◆ AUTOMATICALLY RESETTABLE high precision fuses never need replacement.
- ◆ Stops all voltage transients and high current faults repeatedly in less than a nano-second and then automatically resets itself.
- ◆ 4-Port building block architecture with single-point grounding. Each hub module includes four convenient grounding screw locations--two on the bottom and two on the sides.
- ◆ Diamond-Shaped Ringer Protection Lights are available on DDD/TEL1HUB(+) & DDD/TEL2HUB (+) models.
- ◆ High-Speed TELECOM design allows speeds up to 100 Mhz.
- ◆ Hubs come in injection molded, fire retardant plastic. Hub front and back panels can be color coded for easy port identification (Black is standard color). Heavy-Duty shielded brushed aluminum hubs are also available.
- ◆ All models available as Secondary Telecom Protectors (5KA protection) or Primary/Secondary Protectors (25KA protection).

### Benefits

- ◆ The highest performance hybrid telecom protection dedicated for protecting telecom circuits.
- ◆ The best protection available against both metallic (line-to-line) and common (line-to-ground) damaging transients.
- ◆ Eliminates "Blown Fuse" nuisance service calls and downtime.
- ◆ Ringer Protection Light indicates an incoming call, proper grounding and that TELECOM protection is active.
- ◆ Fails open if overstressed in an overcurrent fault to prevent fires from traversing telecom lines into building.
- ◆ Telecom connector styles can be mixed for Line/Load port wiring for different wiring requirements (specify at time of ordering).
- ◆ Single-Point earth/frame grounding for all ports and interconnected hub modules. Wall Mount, desk mount or equipment mount directly to premise earth grounding system or chassis/frame ground or as desired.



# SURE/FIRE® TELECOM SURGE-PROTECTED HUBS



There are Bravo TELECOM HUBS to protect all major telecom networks including Switched, Dedicated/Leased, WAN, ISDN, DDS, T1/E1/DS1/DS2/DS3, and most other types of voice/data networks. Inquire at Bravo if you need more information regarding your specific protection requirements.

## Installation & Operation

- ◆ The Bravo TELECOM Surge-Protected Hub simply can sit on a desktop or be secured to a wall or surface with the supplied grounding/mounting brackets. You can also ground the hub by attaching the enclosed and isolated 12 AWG ground wire from the hub ground to a proper AC system bonding ground.
- ◆ For models DDD/TEL1HUB(+) & DDD/TEL2HUB(+), The diamond-shaped Ringer Protection Light will flash "RED" when the phone line rings indicating an incoming caller, that you have properly installed and grounded the hub, that the resettable fuse has not tripped, and that telecom protection is active.
- ◆ Connect your unprotected telecom cables/wires to the hub's network/line connectors (RJ modular or terminal blocks). Then connect your equipment/load cables/wires to the hub's protected equipment/load connectors (RJ modular or terminal blocks).
- ◆ Normal telecom network interface signals are allowed to flow passively through the hub module ports without interruption. If an abnormal voltage level is sensed, the Bravo TELECOM protection will instantly activate and clamp the damaging voltage transient to earth ground. Afterwards, the hub safely resets itself and assumes its normal guardian/watchdog operation.
- ◆ In addition, Bravo TELECOM Protected Hubs feature a unique resettable line fuse for each signal line that will effectively disconnect the telecom line in the event of a hazardous and damaging overcurrent condition such as a power transformer fault. Once the hazardous overcurrent condition is removed from the line, the Bravo hub module port will automatically reset its' fuse circuit and reconnect the line.
- ◆ It is highly recommended that every telecom node/port be protected by a Bravo Protector because damaging voltage and current transients can originate anywhere along a cable conductor run path or be induced through the cable jacket.

Bravo Communications, Inc. reserves the right to change any specification without prior notice.  
Copyright © 2003 Bravo Communications, Inc.  
TELECOM/HUB-001-00M 5/03 Printed in USA. All rights reserved.

## Transient Protection

- ◆ Advanced Balanced Thyristor Crowbar Protection on all lines with a nominal voltage clamping of  $\pm 265$  volts for all DDD/TELHUB models and a nominal  $\pm 77$  volts for LL/TELHUB and HS/TELHUB models. Clamps in less than a nano-second.
- ◆ High precision Automatically Resettable Fusing Technology on all lines that effectively disconnects a line with a current fault above 150 ma of current.
- ◆ Metallic and Common telecom line protection.
- ◆ Plus Tripolar Gas Tube Protection on all Primary "+" models
- ◆ All Secondary Telecom Models Protect up to 5KA.  
All Primary Telecom Models Protect up to 25KA.

## Physical

- ◆ All models are approximately 1.5"H x 4.2"W X 3.5"D .
- ◆ All models weigh approximately 1 lb. (0.45 kg.).

## Environment

- ◆ Operating temperature: -20° to +80° C; -4° to 176° F.
- ◆ Relative Humidity: 0-90% (non-condensing).

## Certifications

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

## Warranty

- ◆ 5-year limited warranty.

Model Number	Description & Equipment Protected (4-PORTS)
DDD/TEL1HUB	Secondary Single Voice Circuit/RJ Style/ 5KA
DDD/TEL1HUB+	Primary Single Voice Circuit/RJ Style/25KA
DDD/TEL2HUB	Secondary Single Voice Circuit/TB Style/ 5KA
DDD/TEL2HUB+	Primary Single Voice Circuit/TB Style/25KA
DDD/TEL3HUB	Secondary Two Voice Circuit/RJ Style/ 5KA
DDD/TEL3HUB+	Primary Two Voice Circuit/RJ Style/25KA
DDD/TEL4HUB	Secondary Two Voice Circuit/TB Style/ 5KA
DDD/TEL4HUB+	Primary Two Voice Circuit/TB Style/25KA
LL/TEL1HUB	Secondary Leased Line Circuit/RJ Style/ 5KA
LL/TEL1HUB+	Primary Leased Line Circuit/RJ Style/25KA
LL/TEL2HUB	Secondary Leased Line Circuit/TB Style/ 5KA
LL/TEL2HUB+	Primary Leased Line Circuit/TB Style/25KA
HS/TEL1HUB	Secondary Hi-Speed Digital Circuit/RJ Style/ 5KA
HS/TEL1HUB+	Primary Hi-Speed Digital Circuit/RJ Style/25KA
HS/TEL2HUB	Secondary Hi-Speed Digital Circuit/TB Style/ 5KA
HS/TEL2HUB+	Primary Hi-Speed Digital Circuit/TB Style/25KA

**BRAVO COMMUNICATIONS, INC.**  
3463 MEADOWLANDS LN, SAN JOSE, CA 95135 U.S.A.  
PH: (408) 297-8700 FAX: (408) 297-8701 SALES: (800) 366-0297  
WEB: BRAVOBRAVO.COM EMAIL: sales@bravobravo.com

*Cost-Effective Networking Solutions*