TRANSI-TRAP™ SURGE PROTECTOR

MODEL TT3G50DIN/HP (with 7/16DIN)
MODEL TT3G50 (Stud Mount)
MODEL TT3G50B (Bulkhead Mount)

SPECIFICATIONS

FREQUENCY: 0 to 3000 MHz
INSERTION LOSS:
<0.1 dB from 0 to 1000 MHz
<0.2 dB from 1000 to 2000 MHz
<0.5 dB from 2000 to 3000 MHz
VSWR: <1.10 : 1 from 0 to 1000 MHz
<1.30 : 1 from 1000 to 2000MHz
CHARACTERISTIC IMPEDANCE: 50 ohms
DC BLOCKING: None. Will pass DC for Power and Control purposes. Max.DC or peak AC is 150 V.
CONNECTORS: Female N-Type. Both ends
FIRING POINT: 350 V. ± 15%@< 100v/s
< 1000 @ 5kv/µs rise
BREAKDOWN VOLTAGE: 20 to 30V.
SURGE CURRENT: 5000 A (8/20 µs pluse)
ARC-PLUG LIFE: >600 Times @ 500A pluse (Field replaceable)
SIZE: 1w X $1\frac{1}{4}$ h X .875 (2.4 oa) inches
25 w X 32 h X 22 (61 oa) mm
MOUNTING AND GROUNDING: Single hole. $\frac{1}{4}$-20 X $\frac{7}{8}$ stud

Trans-Trap Surge Protectors are gas surge arresters designed to protect sensitive electronic equipment from damage due to excess voltage or currents generated by transient phenomena (lighting or static build-up).

The elements in the Arc-Plug™ Cartridge consist of two metal electrodes hermetically sealed in a rugged gas filled, ceramic cylinder. They preform as voltage-dependent switches which can reliably and repeatedly carry large currents for brief periods of time. In operation, a sufficient voltage across the element cause an arc to form between the electrodes, changing its impedance from greater than 10,000 megohms to a few milliohms in less than 100 nanoseconds time. While conducting in the arc mode, the voltage across the surge arrester is less than 30 volts.

The life of the Arc-Plug™ Cartridge is a function of the surge current amplitude and duration to which the device is subjected. Transients are by their very nature unpredictable in magnitude and energy level. Life mat be hundreds of operations, depending on surge current wave shape.

After a sufficient number of lighting pulses have been discharged through the Arc-Plug™ Cartridge, there is a gradual lowering of breakdown voltage and insulation resistance. Therefore, Arc-Plug™ Cartridge replacement is indicated by an increase in VSWR during transmitter tune-up, or by a "dead" receiver caused by an extremely strong near-miss lighting discharge shorting the Arc-Plug™ Cartridge. In this case, the short continues to protect the equipment until cleared.

Various connector styles available

INSTALLATION INSTRUCTIONS

WHERE TO INSTALL: On a grounding bus or point where the equipment to be protected is grounded and as close to the equipment as practicable.

HOW TO INSTALL: Use the threaded stud on the back for a single hole mounting and grounding. Either connector may be used for input or output. Pre-existing cable must be cut and each end fitted with a male connector. Connect a cable to each end of the Transi-Trap and the installation is done. NOTE: To insure that the completed installation is weatherproof, it is imperative that the mating coaxial connectors be sealed using proper materials and procedures.

REPLACEABLE ARC-PLUG CARTRIDGE: After hundreds of protective firings of the Arc Cartridge or after a catastrophic surge, the Arc Cartridge may fail requiring replacement. Failure of the Arc Cartridge will be apparent due to the fact that it fails in a shorted or "fail-safe" mode so as not to leave the equipment unprotected. The TT30G50 surge protectors are designed to allow the quick and simple replacement of the Arc Cartridge in the field without the use of tools and without removing the surge protector from the circuit. Simply unscrew the failed cartridge by gripping the knurled section and turning counter-clockwise. Replace with a new cartridge tightening only by hand until the cartridge "bottoms out" against the thru-line. Make sure that the cartridge O-ring is fully seated into the body of the protector. The TT3G50 is now restored to full operation.

The Defense Logistics Agency (DLA) has assigned National Stock Numbers (NSN) to the Alpha Delta Model TT3G50 broadband (0-3 GHz) coax surge protector and the built-in replaceable Model 3G50 gas tube ARC-PLUG (tm) module. These models are approved for use in all U.S. Military and NATO applications worldwide! Cage Code 389A5 for details.

The entire device, not just the internal components as in some other brands, is listed to UL spec 497B (protectors for communications circuits). The devices are manufactured in our ISO-9001 certified production facility in the U.S.A. for the highest quality possible.

Part numbers ATT3G50 series are individually packed. Part numbers TT3G50 series are bulk packed for OEM/Military/Commercial quantity orders. Same products, difference only in the packaging.

Alpha Delta Model ATT3G50U, 200 watts, UHF female connectors, rated thru 500 MHz
Alpha Delta Model ATT3G50UHP, 2 kW, UHF female connectors, rated thru 500 MHz

Alpha Delta Model ATT3G50, 200 watts, N female connectors, rated thru 3 Ghz
Alpha Delta Model ATT3G50HP, 2 kW, N female connectors, rated thru 3 Ghz

Other connector styles and bulkhead mount types are available

VOLTAGE RATING and RESPONSE TIME Specifications:

- **200 watt models: 200 watts RF at a VSWR of 3:1 generates a voltage of 173.2 volts. The gas tube in this model is rated at 350 volts.**
- **2 kW models: 2 kW RF at a VSWR of 3:1 generates a voltage of 547.7 volts. The gas tube in this model is rated at 1000 volts.**

The primary protection for antenna connected communications equipment is the RESPONSE TIME of the protector, the time it takes to crow-bar to ground, from the initial leading edge voltage of the atmospheric surge pulse. During the response time, and until grounded, a voltage "spike" gets through the protector. The response time to ground of Alpha Delta surge protectors, due to careful electrode spacing and gaseous content, is typically 80 nanoseconds (all waveforms based on IEEE specs). This allows such a small amount of joules of energy, which does the damage, to get through that even small junction semiconductor devices (PIN diodes, MOSFETS) are effectively protected.

The transition time for each protector model is different, based on gas tube voltage rating and design, but both provide effective protection. For maximum protection, a model should be chosen that is closest to the RF power being employed. For example, a 200 watt model for a receiver or transceiver, and a 2 kW model for an amplifier. Both models can be effectively used in such a set-up. ATTENTION to proper grounding techniques is CRITICAL! Check other available publications for details.

TT3G50

Proper installation and single point ground system for the
Model TT3G50 Surge Protector

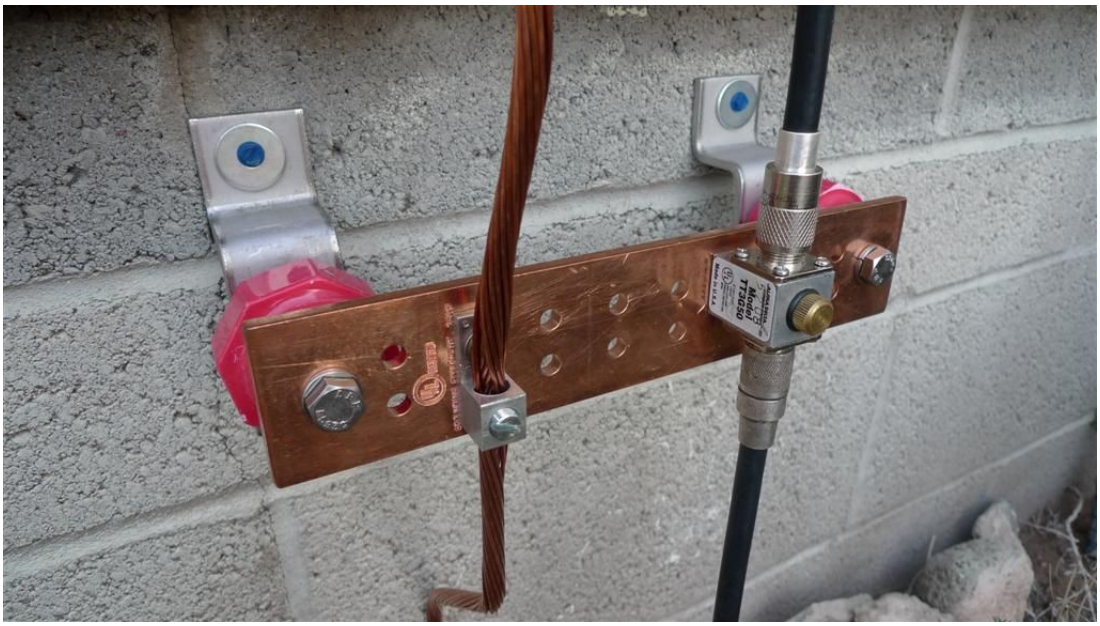

Photo courtesy Sheldon, WA6KJN, taken before sealing connectors