

TRANSI-TRAPTM SURGE PROTECTOR

MODEL TT3G50 (Stud Mount)
MODEL TT3G50B (Bulkhead Mount)
WEATHER PROOFED



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 2000 MHz

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/us rise

Breakdown Voltage: 20 to 30 V.

Surge Current: 5000 A (8/20 us pulse

ARC-PLUG Life: >600 Times @ 500A

pulse (Field Replaceable)

Size: 1w x 1 ¼ h x .875 (2.4 oa) inches

25 w x 32 h x 22 (61 oa) mm

Mounting and

Grounding: Single Hole ¼ -20 x 7/8 stud

Transi-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 (lightning or static buildup).

The elements in the Arc-PlugTM Cartridge consist of two metal electrodes hermetically sealed in a rugged gas filled, ceramic cylinder. They perform 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 meg-ohms to a few milli-ohms 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-PlugTM Cartridge is a function of the surge current amplitude and duration to which the the device is subjected. Transients are by their very nature unpredictable in magnitude and energy level. Life may be hundreds of operations, depending on surge current wave shape.

After a sufficient number of lightning pulses have been discharged through the Arc-PlugTM Cartridge, there is a gradual lowering of breakdown voltage and insulation resistance. Therefore, the Arc-PlugTM 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 lightning discharge shorting the Arc-PlugTM 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 buss 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 TT3G50 surge protectors are designed allow the quick and simple replacement of the Arc Cartridge in the field without the use of tools and without removing the surge protector om 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.

NOTE: Insertion Loss and VSWR numbers are "typical" numbers dependent on lab equipment calibration, dummy load type and jumper cables, and may vary based on test conditions.

ATT models individually packed. TT models bulk packed. Model TT3G50 issued NSN number by Defense Logistics Agency for use in all U.S. Military/NATO apps worldwide. Cage Code 389A5.

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 ratings 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, 200 watt model for a receiver or transceiver, 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.

Model ATT3G50UB is a bulkhead UHF F/F type with the bulkhead connector 3/4 in. long which will go through a grounding panel up to 1/8 in. thick. All hardware provided on both models.

Model ATT3G50UBXL is a bulkhead UHF F/F type with bulkhead connector 1.5 in. long.

UB Models MUST be installed on a station ground panel for proper surge discharge performance.



Note: These devices are not intended to protect equipment, personnel or structures from the effects of a direct lightning strike as these events are unpredictable in strength and vary widely in severity. Direct strikes can cause building damage, including damage to AC connected appliances and equipment induced through AC power lines.

However, Model ATT/TT3G50 devices are designed to provide effective equipment protection from antenna induced surge voltages resulting from electrical static voltage discharges (eg. high wind driven snow and sand in low humidity) and nearby lightning induced voltage discharges (cloud to cloud, cloud to ground), within the ratings of these devices. Service departments tell us approx. 90% of equipment damage comes from these events and not direct strikes.