Antenna Disconnect

THE INEXPENSIVE WAY TO PROTECT YOUR VALUABLE RADIO
FROM LIGHTNING SURGES

Operating Manual
May 2017

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General

The Antenna Disconnect Actuator is the inexpensive way to save your radio from damage from lightning and static surges.

The Actuator automatically disconnects the (HF + 6M) antenna from your radio and grounds the antenna. It prevents voltage surges from static-discharges and lightning strikes from damaging your radio and associated equipment. The Actuator is installed at the output from your transceiver, power amplifier, or antenna tuner in line with the antenna’s feedline. Power for the Actuator comes from the transceiver or the power supply.

When the transceiver is turned OFF, the antenna’s coax signal and shield are shorted together and grounded, and are totally disconnected from the radio. When the transceiver is powered ON, the Actuator re-connects the antenna’s coax for normal operating. Note that the Actuator also contains a gas discharge tube (GDT) for reasonable lightning surge protection while operating.

Installation

Antenna Disconnect Actuator

The Actuator is placed at the output of the transceiver, amplifier, or the antenna tuner. The Actuator requires a connection to an effective earth ground via its ¼-inch stud. The device may be placed close to the radio, outside the radio shack, or near or on the antenna or tower. Note that the Actuator is in a water-proof enclosure.

Grounding is extremely important. For effective operation, the Antenna Disconnect requires a direct conduction path to earth ground. Use a number 10 wire, or heavy braided strap. Connect to a copper pipe that is driven a few feet into the earth, the deeper, the better.

Connecting to the transceiver’s ground strap system at the radio is incorrect because the will obviate the “coax-unplug” feature of the Disconnect unit.

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The Antenna Disconnect Actuator requires 10 to 18 volts to switch the relays. There are two connection methods to apply this voltage when powering up your station for operating:

1. For radios that have an accessory 12 volt jack, just plug in the wire from the Actuator (Figure 1A). When the radio is turned ON, 12 volts appears on this jack, and the actuator is switched ON. Most radios use an RCA-phono plug. If you need another connector, wire the RED lead to plus, and the BLACK to common.

2. For radios that do not have an accessory 12 volt jack, you can connect the Actuator’s wire to the power supply. The red lead is plus 13.8 volts and the black lead is common (Figure 1B). Then when you turn ON the power supply, the Actuator connects the antenna for transmitting.

Note that the current required for switching is 60 mA.

If you need to extend the power lead, use the barrel connectors to crimp on the wire extension. Also install Anderson Powerpoles for use with some power strips.
Operating the Antenna Disconnect

The Antenna Disconnect Actuator is in the protection mode whenever the Radio’s power is OFF; the antenna’s coax is disconnected shorted is grounded. When the radio is powered ON, the antenna is reconnected and the green LED is illuminated.

If you are using the radio’s 12 volt accessory output to drive the Actuator, simply unplug the connector while listening to a station. Just observe that the station went silent (or very low). This confirms that the antenna properly disconnects.

If the Actuator is powered from the radio’s dc power supply, you must unplug the power wire to hear the station go from loud to soft. This confirms performance.

Because the Actuator is in series with your antenna, it is very important that you see the green LED light up when you turn ON the radio. Also listen to the radio to confirm that the antenna is connected.

IMPORTANT:

It is very important to check the SWR initially before operating. Adding a coax link can modify the SWR of the antenna system. Re-adjust your tuner if needed.

Specifications:

Actuator:
1. Operating Voltage: 10-18 Volts dc
2. Current: 60 mA when turned ON to connect antenna
3. Insertion Loss: <0.05 dB @ 29 mHz, <0.1 dB @ 54 mHz
4. Power Handling: 1.5 kW
5. LED: Illuminates green when relays connect the antenna
6. Relays: Two relays with 15 Amp contacts, protected for reverse spikes
7. Case: Grounded to the antenna’s coax connector
   Isolated from the radio’s coaxial connector but then connects to the radio’s coaxial connector ground when actuated.
8. Control Wire: Two-conductor AWG 18 with RCA phono plug
   This wire may be lengthened: RED wire goes to center pin, BLACK wire
go to shell on the RCA plug
9. Control Input: Diode protected against reverse polarity. RF filtered.
10. Active Lightning Protection: Gas Discharge Tube on antenna coax input
11. Case Ground Stud: One-quarter inch with washers, lock washer and nut
12. Case: Die-cast aluminum, black powder coat, white print, water
resistant
13. Size: 4.8 x 2.6 x 1.6 in., mtg. tabs w/4 holes @ 5.25 and 1.5 in. centers
14. Weight: 13 oz., 360 grams

Warranty: The Auto Antenna Disconnect Actuator is warranted against failure due
to defects in workmanship or materials for one year after the purchase date. This
does not cover damage by abuse or incorrect installation or use.

Disclaimer: Fewer lightning related surge damages to radio equipment, such as
static buildup and discharge, “Saint Elmo’s Fire”, and other corona discharges,
 occur when antenna feedlines are grounded, and radios are disconnected. This
product is intended to provide this aforementioned known measure of protection
against effects of lightning strikes. When the radio is turned on, the Gas Discharge
Tube offers additional documented lightning protection.
Antenna Disconnect Actuator

Operational Diagram

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