



Installation Instructions

Network 8000 Satellite

Communication Surge Protection Kit 91-1453

Introduction

Due to the unpredictable magnitude of high voltage transients caused by lightning, surge protection devices in general cannot control all power surge conditions. However, when properly installed and grounded, the surge protection module included in this kit will provide the maximum surge protection possible for the Network 8000 communication modem.

Installing the surge protection kit is relatively easy due to its modular design and plug-in wiring harness. To determine the tools and additional materials required to complete the installation, please read through the instructions completely prior to starting the installation procedure.



WARNING: DISCONNECT POWER TO CONTROLLER AT SOURCE. FAILURE TO COMPLY MAY RESULT IN SERIOUS INJURY AND/OR EQUIPMENT DAMAGE.

AVERTISSEMENT: DEBANCHER LE SECTEUR ARRIVANT AU PROGRAMMATEUR. SI L' ON NE SE CONFORME SERIEUX DOMMAGES CORPORELS ET / OU MATERIAIS.

WARNUNG: TRENNEN SIE DIE STROMVERSORGUNG ZUM STEUERGERÄT AB. ANDERNFALLS KANN ES ZU ERNSTHAFTEN VERLETZUNGEN UND / ODER SCHÄDEN AN DEN GERÄTEN KOMMEN.

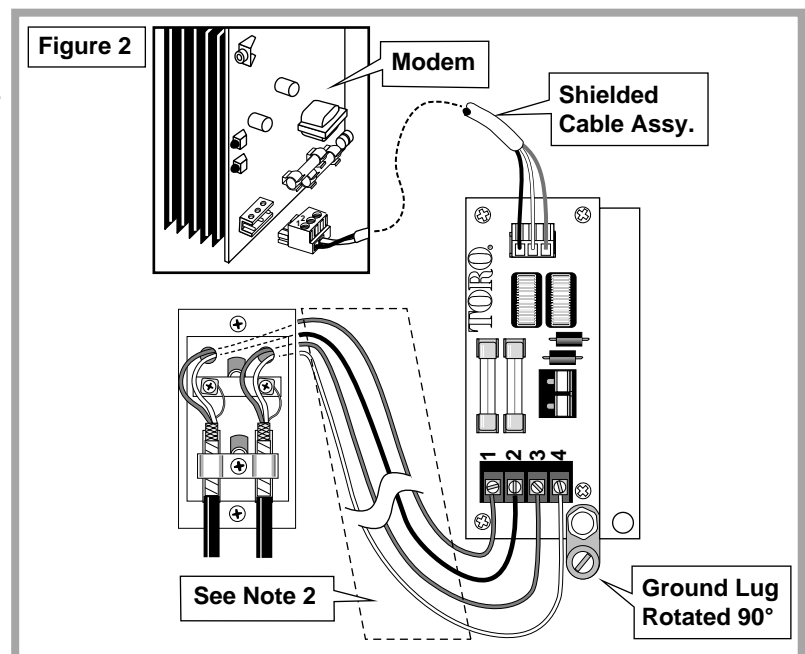
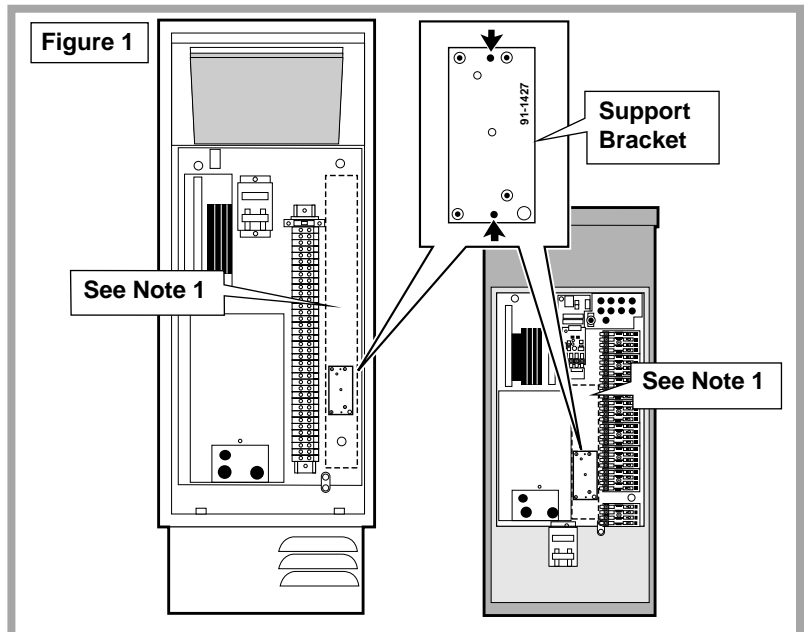
Installation Procedure

Note 1: Due to the variations in controller rear plate configuration, specific location for the surge protection module is not given. Suggested areas for installation (represented by dashed lines) are shown in **Figure 1**. If no space is available on the rear plate, attach module support bracket to cabinet side wall using Velcro strips (not supplied). **Without rear plate contact, ground lug/wire connection is essential for proper operation of surge protection components.**

1. Unlock and remove pedestal cabinet door(s).
2. Using surge protection module support bracket (91-1427) as a template, mark location of two mounting screw holes on controller rear plate assembly. See **Figure 1**.
3. Center punch and drill two screw holes in rear plate using a #32 (3mm) drill bit.
4. Secure support bracket to rear plate assembly with two self tapping screws provided.
6. Secure surge protection module to support bracket using four machine screws provided.
7. Loosen nut securing ground lug on surge protection PCB. Rotate ground lug clockwise 90° and retighten. See **Figure 2**.
8. Route communication cable wires to surge protection module and connect to terminals 1 – 4 as shown in **Figure 2**.

Note 2: Comm cable wires are shown separated for illustration clarity. In actual installation, comm wire pairs should remain twisted.

9. Connect surge protection module to satellite modem PCB using shielded cable assembly provided as shown in **Figure 2**. Plug is correctly oriented in surge protection PCB receptacle as follows: Black wire to "Gray", White wire to "Yellow" and Drain wire to "Gnd".



Installing Earth Ground

Low resistance earth ground conductors must be installed and connected to the controller cabinet ground lug and the surge protection module ground lug for proper operation of the surge protection devices. A ground conductor (or conductors) with a total resistance of 10 Ohms or less must be installed within 12 feet (3.6 m) of the surge protection devices. Use one or both of the following recommended methods to achieve proper grounding:

- Drive one or more 5/8 in. (16 mm) by 8 ft. (2.5 m) copper clad steel rods into well moistened soil within 12 ft. (3.6 m) of controller.

- Bury one or more 1/8 in. x 1 ft. x 1-1/2 ft. (3 mm x 30.5 cm x 46 cm) copper plates in well compacted, moistened soil within 12 ft. (3.6 m) of controller.

1. Using an earth resistance testing instrument,* measure resistance of ground conductor(s). To calculate total resistance (R_t) of multiple ground conductors, use the following formula:

$$R_t = 1.1 (R_m/n)$$

where: R_m = average conductor resistance
 n = number of ground conductors

2. Clamp two separate lengths of 6 AWG non-insulated copper wire to ground conductor(s). Route wires into pedestal through field wire conduit. Connect one wire to controller cabinet ground lug and to surge protection module ground lug as shown in **Figure 3**.

* *Megger Direct Reading Earth Resistance Testing Instrument, James G. Biddle Company, Plymouth Meeting, PA, U.S.A.*

Note: Ground wires should be routed to ground lugs in the most direct route using the slightest bends possible. In addition, the ground wires should not be touching other wires, components or pedestal surfaces.

