

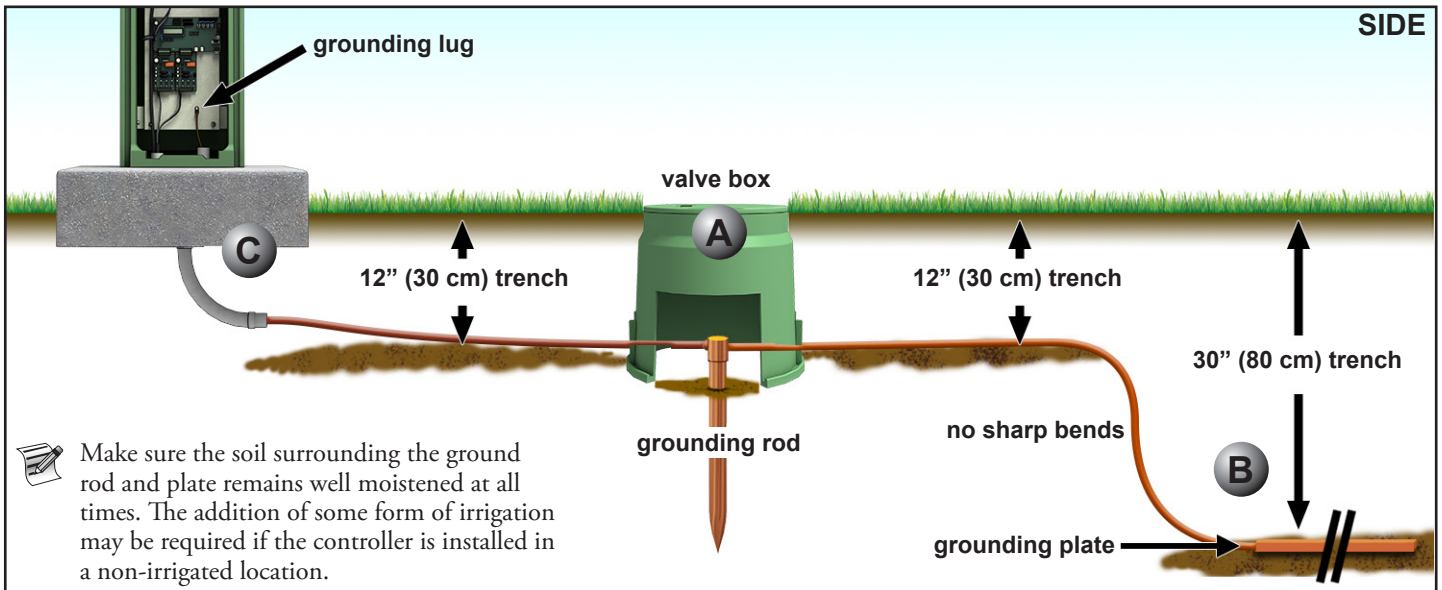
Grounding a Controller

Installation Guide

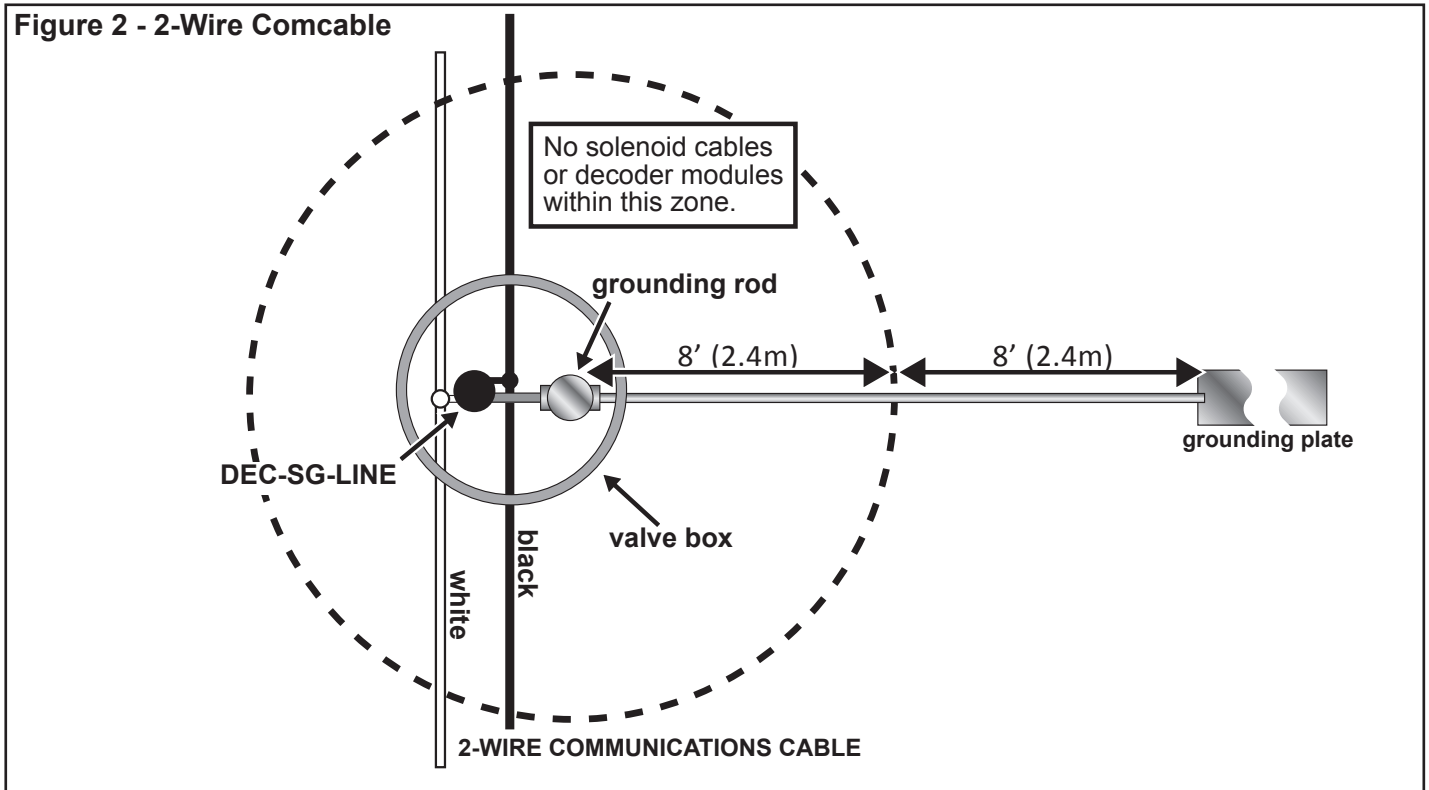
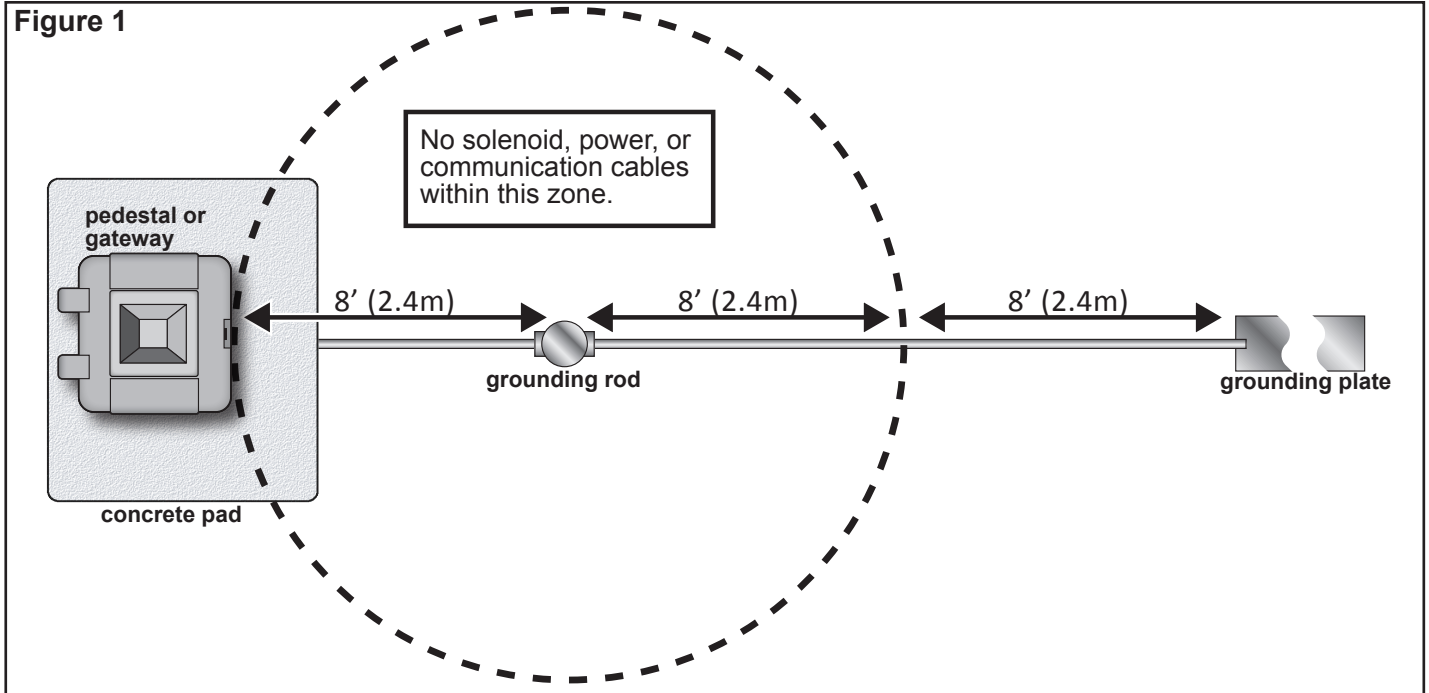
Proper grounding of a controller is important to ensure a high probability of surviving a nearby lightning strike as well as other possible electrical surges. Toro has developed these guidelines to facilitate proper grounding.

Steps

1. Drive a 5/8" by 8' (17mm x 2.5m) copper clad steel rod (Paige part # 182000) into well moistened soil not less than 8' (2.5m) or not more than 12' (3.7m) from the controller cabinet (**Figure 1**). For 2-Wire systems, install the ground rod adjacent to the communication cable (**Figure 2**). The top of the ground rod should be flush with or below ground level, and should be protected from damage using a valve box (**A**).
2. Install a 4" by 96" (10cm x 2.5m) copper ground plate (Paige part # 182199IC). The plate should be at least .06" thick (1.5mm) and should have a 6 AWG x 12' (10mm² x 4m) solid copper, insulated wire welded to the plate. The plate should go into a trench that is at least 30" (80cm) deep (**B**). Use ground enhancement material (GEM) per the manufacturer's directions.
3. Using a 5/8" (17mm) clamp or exothermic-weld fastener (Paige part # 1820039P), attach an 8 AWG (10mm²) solid copper wire (Paige part # 160629) near the top of the ground rod.
4. Route the wire through conduit and into the controller cabinet, avoiding wire bends of less than 8" (20cm) radius and more than 90° (**C**). Secure the wire to the copper ground lug in the controller.
5. Measure the ground resistance per the instructions provided with the ground test instrument. A reading of 10 ohms or less is recommended.



Figures 1 and 2 below show minimum distances of controller to grounding rod and grounding plate. Note that all other electrical equipment, such as solenoids and power and communication cables, must *not* be within an 8' radius of the grounding rod.



Count on it.