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**Products:** [DUAL for I-Core](#),<sup>[1]</sup> [ACC-99D Decoder](#),<sup>[2]</sup> [I-Core®](#)<sup>[3]</sup>

**Topics:**

- FAQs, Installation Procedures

Proper grounding of decoder systems is part of the installation that requires consideration. Properly grounded decoder systems perform very well even in high-lightning regions. Poor grounding often results in unnecessary equipment losses and irrigation down time.

Earth grounding rules for the I-Core decoder controllers are the same as for the conventional I-Core controllers. A large ground lug is provided for connection of bare copper wire to earth grounding hardware.

Hunter DUAL-S surge arrestors must be used on all DUAL two-wire systems. The DUAL-S surge arrestor attaches directly to the two-wire path to minimize the damage from lightning strikes. The amount of surge protection needed depends on how exposed the area is to lightning and on how well the installation needs to be protected. In addition to grounding the controller, the minimum recommended level of protection is one DUAL-S grounded at the end of each two-wire path and one DUAL-S grounded every 1000 ft/ 300 m or 12th decoder. For higher levels of protection, attach surge arrestors more often.

## In-Line Surge Arrestor Installation

1. Controller power must be OFF when installing surge protection on the two-wire path.
2. Select the location for the DUAL-S surge arrestor.
3. Locate the two-wire path coming from the controller, typically red and blue. The wire path must be cut to insert the surge arrestor, unless you are replacing an existing arrestor.
4. Connect one of the red wires from the DUAL-S to the incoming red wire from the two-wire path. Twist the red wires together and seal the connection with the waterproof connectors supplied. Repeat for the blue wire.
5. Connect the second pair of red and blue wires from the DUAL-S to the other side of the two-wire path. Seal the connections with the waterproof connectors supplied.
6. Attach grounding device to the copper wire from the DUAL-S using manufacturer's installation recommendations. Wire to ground hardware must be run at right angles to the two-wire path, a minimum of 8 feet/2.5 m away from the two-wire path. The ground hardware should not be in the same valve box as the surge suppresser.



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## End of Line Surge Arrestor Installation

1. Controller power must be OFF when installing surge protection in the two-wire path.
2. Locate the end of the two-wire path from the controller (typically red and blue wires).
3. Identify the two pair of red/blue wires from the DUAL-S surge arrestor. Twist the three red wires together and



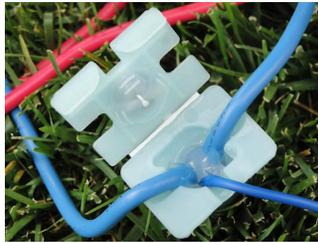
thread them securely into the wire nut supplied. Seal the connection by inserting the wire nut into the connector's waterproof grease, and snap the cap over the wires.

4. Repeat the procedure for the blue wires.
5. Attach ground plate or ground rod to the bare copper wire from the DUAL-S per manufacturer's installation recommendation.



[5]

Similar to the DUAL decoders, the DUAL-S is sealed from moisture and should be placed in its own valve box. It is important that both the controller and the surge arrestors are grounded to ground rods or plates with less than 10 ohms resistance. Use grounding electrodes that are UL listed or meet the minimum requirements of the National Electrical Code (NEC) as well as local codes. At minimum, the grounding circuit for controllers will include a copper clad steel ground rod, or copper ground plate.



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#### **DBRY-6 Waterproof Connector, top view**

Copper ground rods should have a minimum diameter of 5/8"/1.5 cm and a minimum length of 8 feet/2.5 m. There are to be driven into the ground at a location 8 to 10 feet/2.4 to 3 m from the equipment or wires connected to it, at right angles to the two wire path. Install all grounding circuit components in straight lines. When it is necessary to make bends, do not make sharp turns.

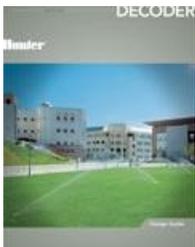
Copper grounding plate assemblies intended for grounding applications have minimum dimensions of 4" X 36" X 0.0625" (100 mm X 2.4 m X 1.58 mm). A 25 foot (8 m) continuous length (no splices allowed unless using exothermic welding process) of 6 AWG solid bare copper wire is to be attached to the plate using an approved welding process.

The earth to ground resistance measured should be no more than 10 ohms. If the resistance is more than 10 ohms, then additional ground plates and ground enhancement products, such as "Powerset" can be installed.

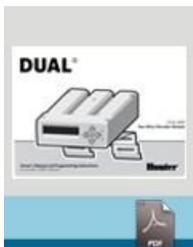


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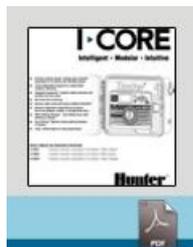
## Resources



[8] [DECODER DESIGN GUIDE](#)



[16] [DUAL OWNER'S MANUAL](#)



[23] [I-CORE OWNER'S MANUAL](#)

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