



APPLICATION NOTE
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Electrostatic Discharge Protection

Overview

Electrostatic discharge (ESD) is the familiar spark that you feel from static electricity after touching an object when your body is statically charged. If your building is subject to static electricity issues, it is possible to disrupt the operation of the BAYweb Thermostat by touching the keypad.

An ESD to the keypad may cause the display to blank out or show random characters and the keypad may become unresponsive. This will not cause permanent damage, but may require cycling power to the keypad module to restore proper operation.

If you are experiencing an ESD problem in your building, the keypad module can be earth grounded to prevent this issue.

Application

ESD protection is only required for installations that do not utilize a standard grounded electrical box for mounting the keypad, and that have experienced ESD issues.

Proper Source of Ground

In order to provide a high level of protection, the keypad module metal enclosure must be properly earth grounded. Acceptable sources of ground include:

- A water pipe connected to the municipal water system.
- A solid ground from the electrical system.
- Metallic electrical conduit.
- The metal frame of the building structure.

Ground Wire Selection

Nearly any wire may be used for grounding the system. The wire should be of 18 gauge or larger. Stranded wire is preferred, but solid wire is acceptable.

Ground Wire Installation

The ground wire must be run from the keypad to the ground source. The run should be kept as short as practical. It must be secured solidly to ground in a permanent manner.

The end of the wire in the keypad should be terminated with a small crimp ring terminal. It may be either insulated like the one shown to the right, or uninsulated. The wire is secured to the unused stud on the back of the keypad with two SAE 2-56 nuts. Place one nut on the stud, then the ring terminal and then the second nut. Tighten enough to ensure that it will not come loose but not so tight as to cause damage to the stud or keypad.

