

Protege DIN Rail Grounding Guidelines
Application Note

ICTProtege[®]

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Protege System

The Protege System is an advanced technology security system designed to provide integration with building automation, apartment complex control and HVAC in one flexible package. Communication is over a proprietary high speed protocol across an encrypted local area network and AES Encrypted Proprietary RS-485 module network. Using modular-based hardware design, system installers have the flexibility to accommodate any installation whether it's small, large, residential or commercial.

Application Note Information

This application note is intended for qualified personnel who plan and design installations of Protege Systems, and provides you with the basic information needed to properly wire and ground the Protege System including the Protege DIN Rail Modules and the DIN Rail Enclosures.

Application notes are provided as is without any implied warranty or intended use and are written by Integrated Control Technology as an aid in programming and connecting devices to the Protege System.

Installation Requirements

The equipment is to be installed in accordance with:

- The Product installation instructions
- The National Electrical Code, ANSI/NFPA 70
- The Canadian Electrical Code, Part I, CSA C22.1
- The Local Authority Having Jurisdiction (AHJ)

Grounding

An effectively grounded product is one that is *intentionally connected to earth ground through a ground connection or connections of sufficiently low impedance and having sufficient current-carrying capacity to prevent the build up of voltages which may result in undue hazard to connected equipment or to persons* (as defined by the US National Electric Code NFPA70, Article 100B).

Grounding of the Protege System is done for three basic reasons:

1. Safety,
2. Component protection, and
3. Noise reduction

Safety Grounding

The object of safety grounding is to ensure that all metalwork is at the same ground (or Earth) potential. Impedance between the Protege System and the building scheme ground must conform to the requirements of national and local industrial safety regulations or electrical codes. These will vary based on country, type of distribution system, and other factors. The integrity of all ground connections should be checked periodically.

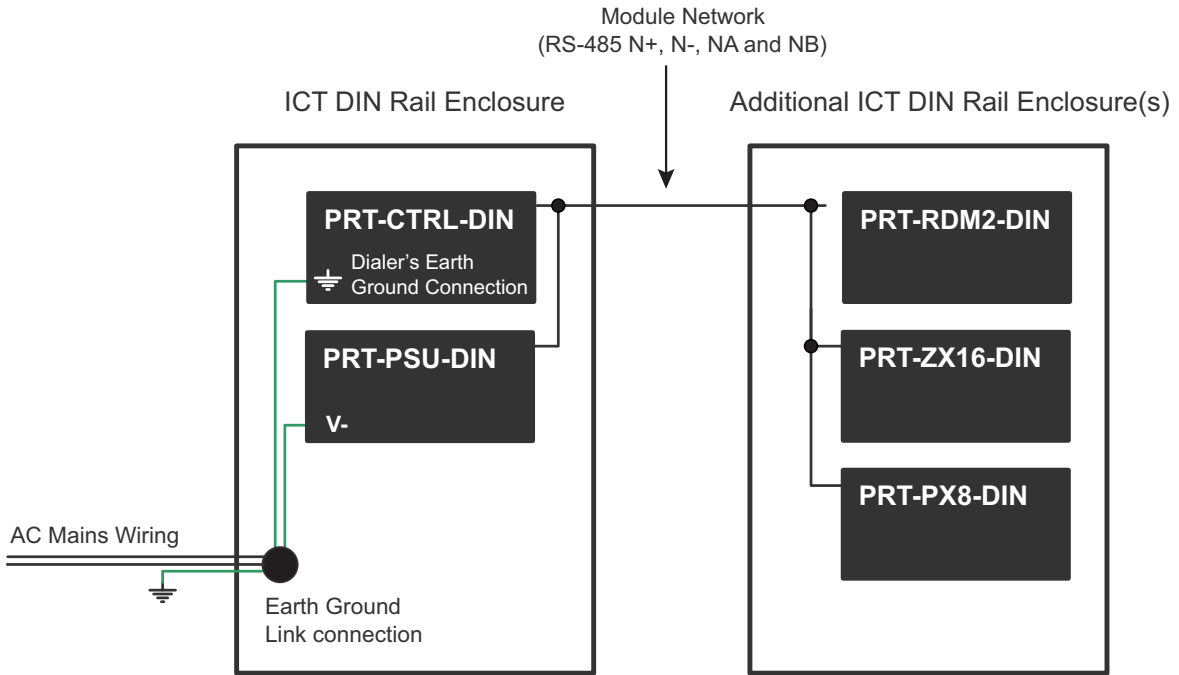
General safety dictates that all metal parts are connected to earth with separate copper wire or wires of the appropriate gauge.

Earth Ground Connection

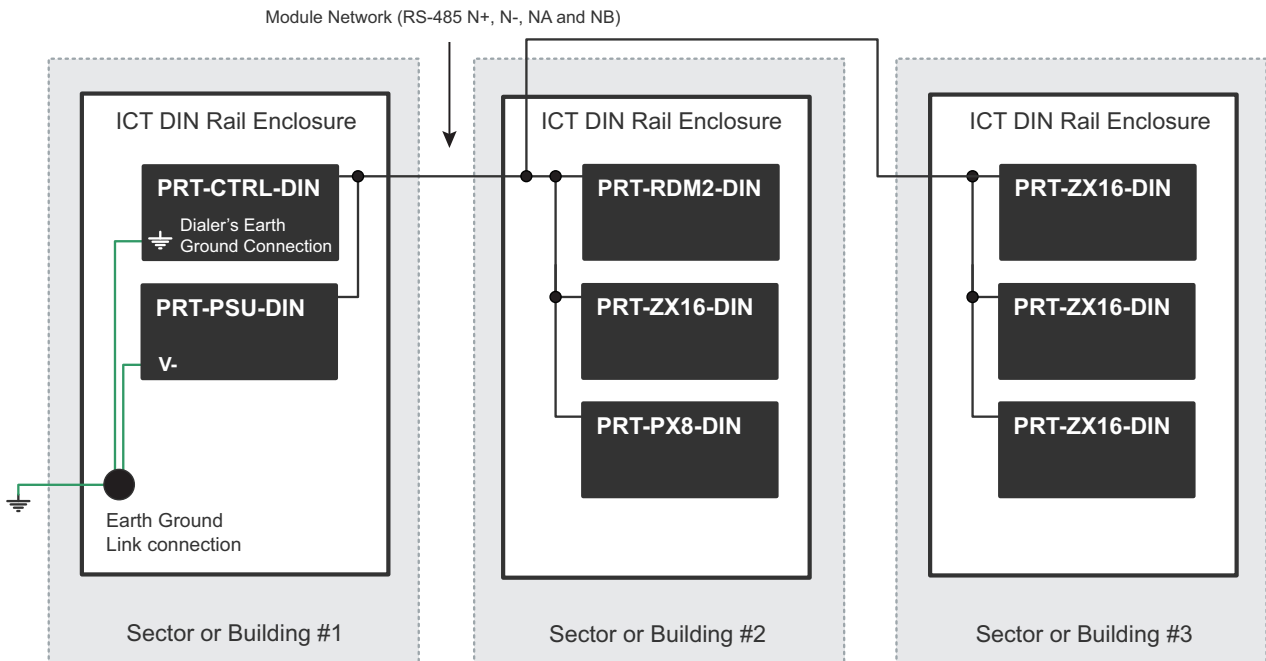
The Protege DIN Rail Enclosure and the Protege DIN Rail Modules shall be grounded to a single point earth ground. For best results, a cold water pipe should be used with a pipe wiring clamp. If a cold water pipe is not available, connect to a suitable ground connection in the installation. A minimum 14AWG solid copper wire (or thicker in accordance to local authorities) shall be used from the Protege DIN Rail System's earth connection points to the clamp on the cold water pipe. If other earth clamps are present at the same connection point, connect the clamp below the existing units.

The Protege DIN Rail Enclosure includes an earth ground single point link connection via the metallic enclosure. This single point link is the Protege DIN Rail System's earth ground. All Protege DIN Rail Modules that have earth ground connections and that are installed in the same Protege DIN Rail Enclosure shall be connected to this single point. A single point earth ground connection avoids the creation of ground loops in the system and provides a single reference point to earth ground.

Protege DIN Rail Ground Connections (one or more cabinets installed in the same room)



Protege DIN Rail Ground Connections (multiple cabinets in different rooms, sectors, or buildings)



Notice that the Protege DIN Rail Enclosure earth terminal is connected to the DIN PSU V- terminal.



There must only be **one** single earth grounding point per system.

Contact

Integrated Control Technology welcomes all feedback.

Please visit our website (<http://www.incontrol.co.nz>) or use the contact information below.

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