



PRT-TS50-TH

Protege 5" Touchscreen

Installation Manual



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Introduction

The Protege 5" Touchscreen allows inhabitants to view and control the temperature, air conditioning mode and fan speed in a room or apartment with a Protege Room Controller system. The room controller connects to a vertical fan coil, heat pump or air conditioning unit to provide automated and energy efficient heating and cooling.

The current features of the touchscreen include:

- Temperature viewing
- Heating, cooling and fan speed control
- 5" capacitive touchscreen with a 480 x 800 color LCD display
- Available in white and black

Installation Requirements

This equipment is to be installed in accordance with:

- The product installation instructions
- The Local Authority Having Jurisdiction (AHJ)

Mounting

1. Select where to mount the touchscreen. Keep the following guidelines in mind:
 - The standard height for mounting is **1.4m (4.6ft)**.
 - The touchscreen should be mounted on a wall with adequate air flow around and through it.
 - Ensure the unit is mounted a minimum of 1.1m (3.5ft) away from other wiring such as ACM power, computer data wiring, telephone wiring and wiring to electric lock devices.

Use the technical diagram (see page 13) as a guide for correctly positioning the unit.

2. Hold the rear case half against the wall and mark the mounting holes and cable entry area. The cable entry area should align with a hole cut through the plaster wall-board. Cables are intended to be run inside the wall.
3. Use appropriate screws (not supplied) to affix the case to the wall.
4. Run the wiring. Leave about 20cm (8") of wire protruding through the center of the mounted half of the case and connect the wiring to the touchscreen electronics as shown in the [Wiring Connection](#) section.
5. Align the top of the front body onto the recessed hinge points at the top of the rear case, then press gently until the bottom portion snaps into place.

Wiring Connection

The touchscreen is connected to the control unit via RS-485 wiring.

Using the recommended cables, splice the cable together with the pigtail of the touchscreen and seal the splice. Route the cable from the touchscreen to the host module. Connect the cable to the module port as shown in the wiring diagram that follows.

The recommended cable types for RS-485 are:

- Minimum 24AWG (0.51mm) shielded twisted pair with characteristic impedance of 120 ohm

Maximum distance: 900m (3000ft)

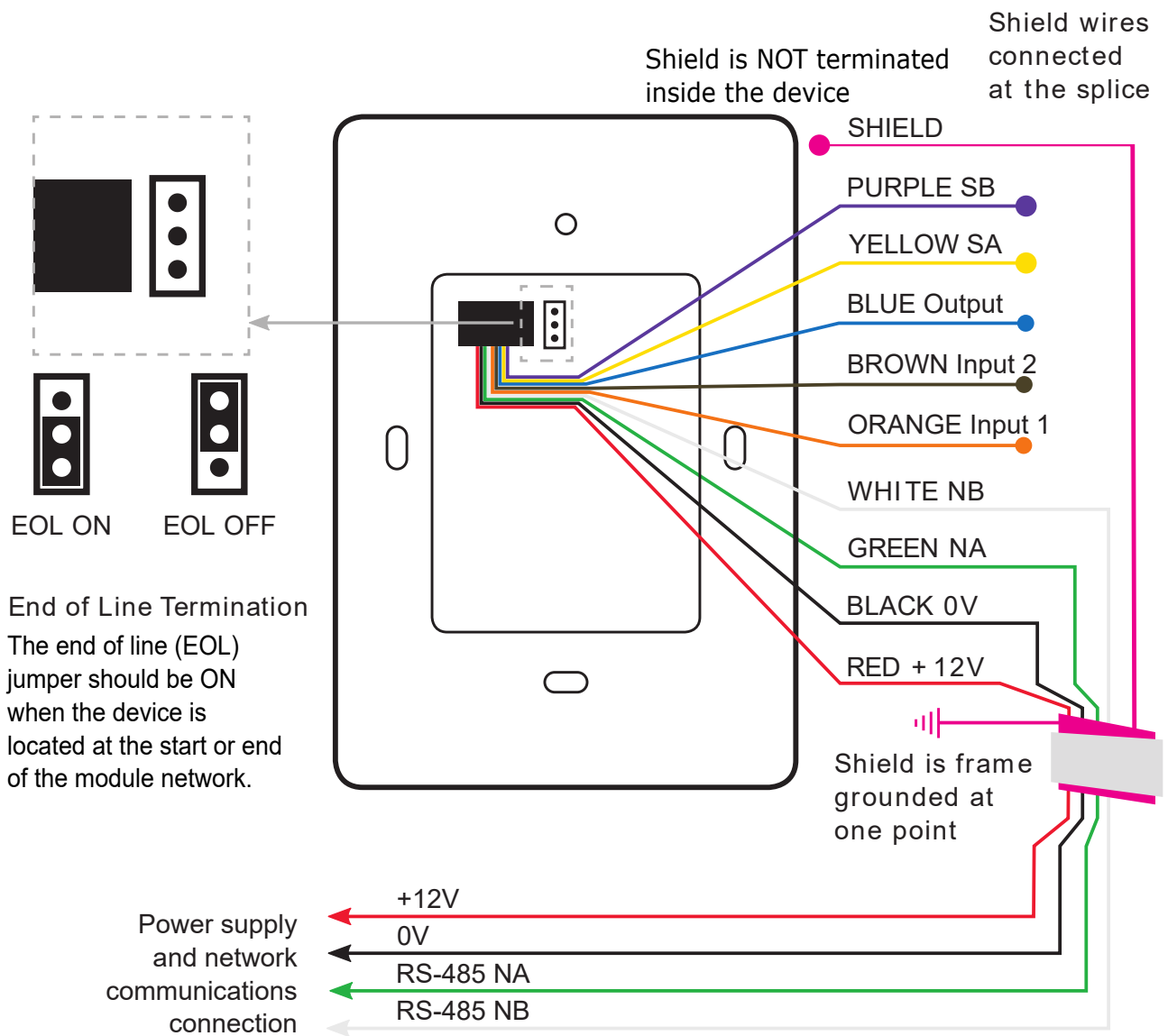
Shield Connection

Connect the touchscreen and cable shield wires together at the pigtail splice. Connect the cable shield to a suitable earth point. **Do not** connect the cable shield to a ground or AUX connection. **Do not** terminate the touchscreen shield wire inside the touchscreen.

Important:

- The touchscreen must be connected to the module port using a shielded cable.
- The shield must only be connected at one end of the cable in the metallic enclosure (frame grounded).
- Do not connect the cable shield to an AUX-, 0V or V- connection on the module.
- Do not connect the cable shield to any shield used for isolated communication.
- The touchscreen and cable shield wires must be joined at the touchscreen pigtail splice.
- Do not join the shield and black wires at the touchscreen device.
- Do not terminate the touchscreen shield wire inside the touchscreen.

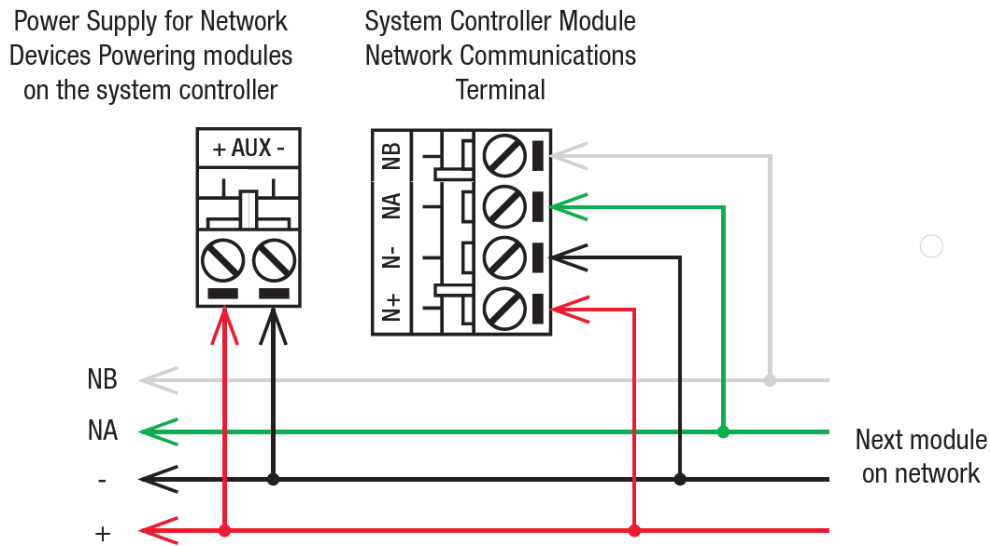
Wiring Diagram



Communication

RS-485 Communication

The Protege system incorporates encrypted RS-485 communications technology for its module network.



The EOL (End of Line) jumper should be placed in the ON position when the keypad is inserted as the **first or last** module on the RS-485 network.



EOL Jumper OFF



EOL Jumper ON

Bluetooth® Wireless Technology

The touchscreen includes Bluetooth® Wireless Technology capability for remote access.

Addressing the Touchscreen

The touchscreen comes online in Protege GX as an **analog expander**. By default it has an address of 254, which is outside the range that the controller will accept. You will need to change this to bring the touchscreen online.

To set the address on the touchscreen:

1. Power cycle the unit.
2. Open the **Settings** page.
3. The **Address** will be editable for 2 minutes. Use the **+/-** buttons to set the required address.

Trouble Inputs

Each touchscreen can monitor up to 8 trouble inputs.

Trouble inputs are used to monitor the module status and in most cases are not physically connected to an external input.

The following table details the trouble inputs that are configured in the system and the trouble groups that they are associated with.

| Trouble Input | Function | Default Trouble Group | Default Trouble Group Option |
|---------------|--|-----------------------|------------------------------|
| AEXXX:01 | Module Tamper Opens when the touchscreen is removed from the wall. | System | Module Tamper |
| AEXXX:02 - 07 | Reserved | - | - |
| AEXXX:08 | Module Offline The touchscreen has either been removed from the system or lost communications. | System | Module Lost |

Replace 'xxx' with the appropriate address of the module that you are programming.

Error Messages

Error messages are displayed beneath the On/Off button on the touchscreen.

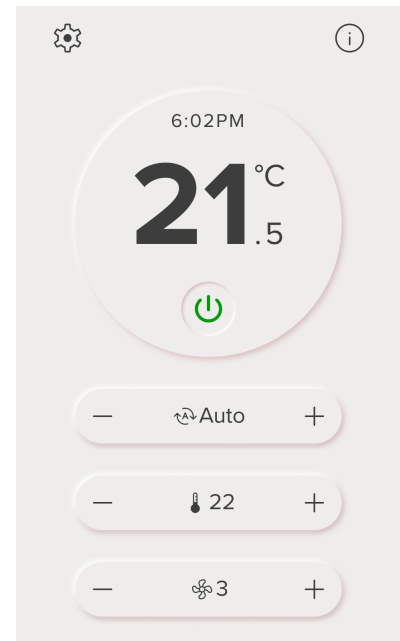
- **Network status offline:** The touchscreen has no connection to the control unit. Check the address and programming.
- **Locked out:** The room controller system has been disabled by the building manager. Contact the building manager.
- **Leak detected:** A leak has been detected in the air conditioning unit. Contact the service company.
- **Balcony door left open:** An external door has been left open. The air conditioner will be deactivated automatically (see page 12).

Operation

Using the Touchscreen

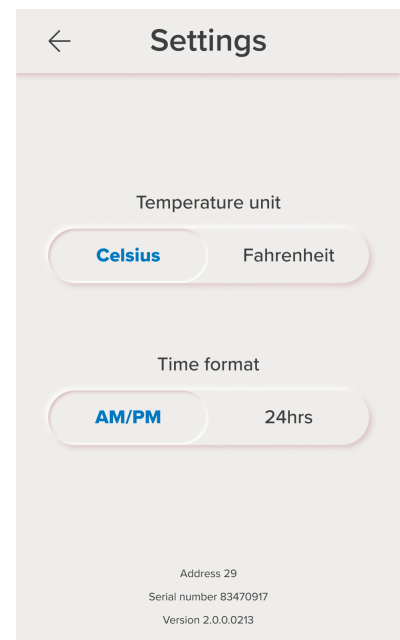
The touchscreen sleeps after 30 seconds of inactivity. To wake the touchscreen, tap the screen.

- **Settings:** Tap to open the settings page.
- **Information:** Tap to open the information page, where you can scan a QR code to get more information about using the room controller system.
- **Time:** The current time. The touchscreen uses the time zone and daylight saving settings configured on the connected room controller.
- **Current temperature:** The current temperature in the room. Select from Celsius or Fahrenheit in the settings.
- **On/Off:** Tap this button to turn the air conditioning on or off.
- **Error message:** If there is an error message, it will be displayed beneath the On/Off button. For more information, see [Error Messages](#) (previous page).
- **Mode:** Select the air conditioning mode: Auto, Off, Cool or Heat.
- **Set temperature:** Set the preferred temperature for the room.
- **Fan speed:** Set the preferred fan speed: Auto or 1-3.



Touchscreen Settings

- **Temperature unit:** Select from Celsius or Fahrenheit.
- **Time format:** Select from AM/PM (12 hour) or 24 hour time.
- **Address:** The address of the touchscreen module in the room controller system. This can be changed within 2 minutes of the unit starting up.
- **Serial number:** The touchscreen's serial number.
- **Version:** The touchscreen's current firmware version.



Open Doors

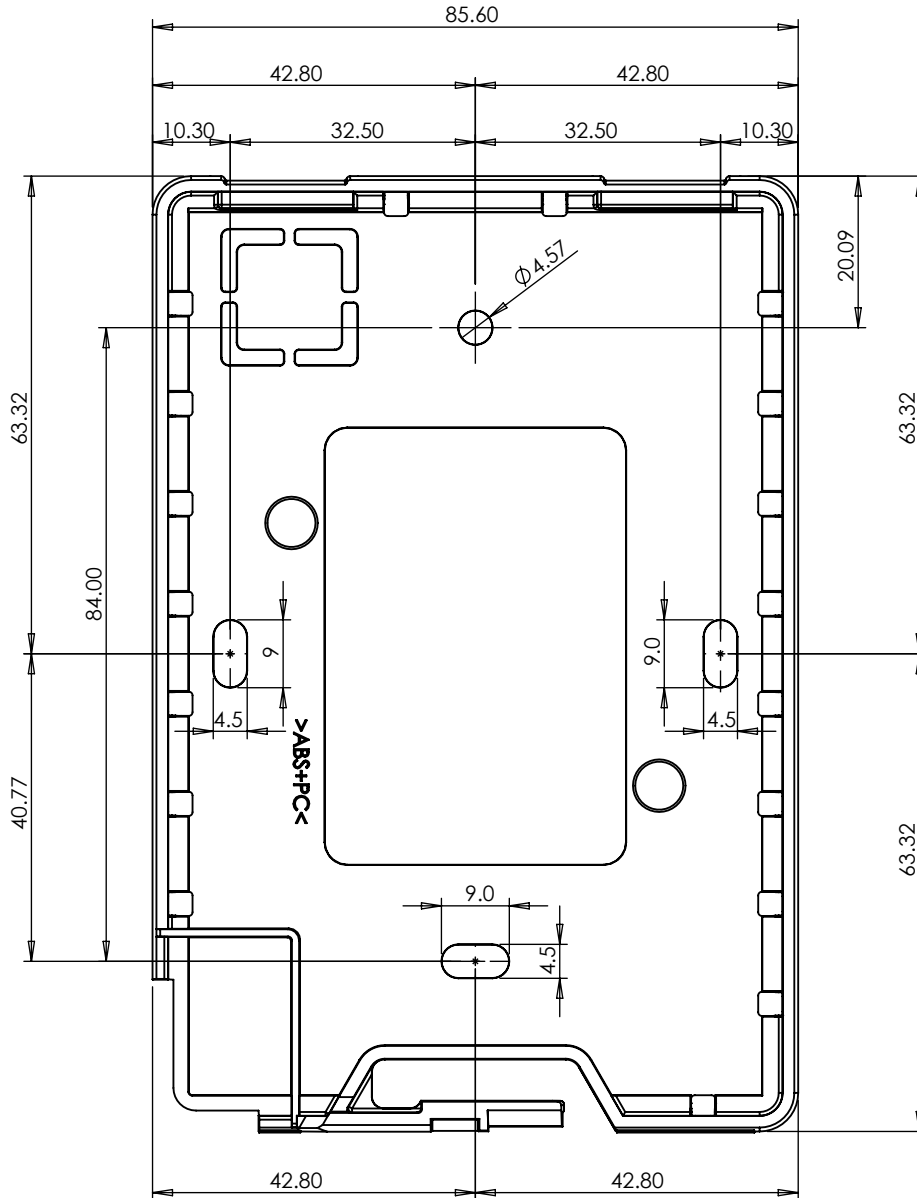
Air conditioners cannot operate efficiently when external doors or windows are open. The room controller will automatically deactivate the air conditioning when specific doors and windows are open.

If a door is open, you will see the message: "Balcony door left open". Close the door to keep the air conditioning running.

After 5 minutes, the touchscreen will deactivate the air conditioner. Close the door to restart it automatically.

Technical Diagram

The dimensions shown below outline the essential details needed to help ensure the correct installation of the touchscreen.



Technical Specifications

The following specifications are important and vital to the correct operation of this product. Failure to adhere to the specifications will result in any warranty or guarantee that was provided becoming null and void.

| Ordering Information | |
|------------------------|--|
| PRT-TS50-TH-B | Protege 5" Touchscreen (Black) |
| PRT-TS50-TH-W | Protege 5" Touchscreen (White) |
| Power Supply | |
| Operating Voltage | 11-14VDC |
| Operating Current | 130mA (150mA Max) |
| Undervoltage Lockout | Connection at > 11V DC Disconnection at < 9.0V DC |
| User Interface | |
| User Interface Display | 480 x 800 Color LCD display |
| User Input | 5" capacitive touchscreen |
| Dimensions | |
| Dimensions (L x W x H) | 131 x 90 x 15mm (5.15 x 3.54 x 0.59") |
| Net Weight | 160g (5.6oz) |
| Gross Weight | 220g (7.8oz) |
| Operating Conditions | |
| Operating Temperature | -10° to 60°C (14° to 140°F) |
| Storage Temperature | -10° to 85° C (14° to 185° F) |
| Humidity | 0%-93% non-condensing, indoor use only (relative humidity) |

It is important that the unit is installed in a dry cool location that is not affected by humidity. Do not locate the unit in air conditioning or a boiler room that can exceed the temperature or humidity specifications.

Integrated Control Technology continually strives to increase the performance of its products. As a result these specifications may change without notice. We recommend consulting our website (www.ict.co) for the latest documentation and product information.

FCC Compliance Statements

FCC PART 15, WARNINGS: INFORMATION TO USER

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not authorized by the party responsible for compliance could void the user's authority to operate this product.

This device complies with Part 15 of the FCC rules.

Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

NOTE: THE GRANTEE IS NOT RESPONSIBLE FOR ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

Industry Canada Statement

This device complies with ISED Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'ISDE Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

IC: 10012A-PRTTS50TH

Model Number (HIVN): PRT-TS50-TH

Disclaimer and Warranty

Disclaimer: Whilst every effort has been made to ensure accuracy in the representation of this product, neither Integrated Control Technology Ltd nor its employees shall be liable under any circumstances to any party in respect of decisions or actions they may make as a result of using this information. In accordance with the ICT policy of enhanced development, design and specifications are subject to change without notice.

For warranty information, see our [Standard Product Warranty](#).

Designers & manufacturers of integrated electronic access control, security and automation products.
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