

**Protege 16 PGM Output Expander
Installation Manual**

ICTProtege®.

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1 Introduction

The ICT Protege System is a powerful integrated alarm and access control management 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 from small to large, residential or commercial.

The Protege 16 PGM Output Expander extends the number of PGM outputs by 16. All 16 PGM Outputs feature 7A FORM C High Current Relays with fire control and power supply cut off integrated.

Flexible module network architecture allows large numbers of modules to be connected to the RS-485 Module Network. Up to 250 modules can be connected to the Protege System in any combination to the network up to a distance of 900M (3000ft). Communication beyond this distance requires the use of a RS-485 Network Extender or the Slave Communications Port on a PRT-RDI2 or PRT-RDE2 Reader Expansion Module for simple cost effect integrated elevator floor control with local autonomous operation. Locking a network prevents the removal, substitution or addition of modules to the module network effectively preventing any tampering with the system.

The current features of the Protege 16 PGM Output Expander include:

- Secure Encrypted RS-485 Module Communications
- 16 High Current FORM C PGM Outputs
- 1 Open Collector Status Output
- 1.5A Switching Power Supply
- Intelligent Battery Charge and Monitoring
- Online and Remote upgradeable firmware
- Optically Isolated Fire Control Input For Elevator Systems

For more information on the Protege 16 PGM Output Expander and other Integrated Control Technology products please visit the ICT website (<http://www.ict.co>).

2 Installation

2.1 Package Contents

When receiving the PRT-PX16 Protege 16 PGM Output Expander you should find the kit contains the items listed below. When receiving this product you should find the kit contains the items listed below. If you do not have the correct contents, please contact your distributor immediately.

PRT-PX16-PCB - Protege 16 PGM Output Expander PCB Only

- PGM Output Expander Printed Circuit Board
- 6 X Plastic Mounting Standoffs
- Red/Black Backup Battery Wires

2.2 Location and Mounting

The PGM Expander is available as a PCB Only (Printed Circuit Board) or complete unit supplied with a metal cabinet. We recommend that the cabinet is used wherever possible as this provides the best mounting and installation solution as well as the required cable entry and termination space.

When installing the PGM Expander ensure that there is adequate clearance around all sides of the enclosure and air flow to the vents of the enclosure are not restricted.

We recommend the PGM Expander is installed in a location that will facilitate easy access for wiring. We also recommend that the PGM Expander is installed in electrical rooms, communication equipment rooms, closets or in an accessible area of the ceiling.

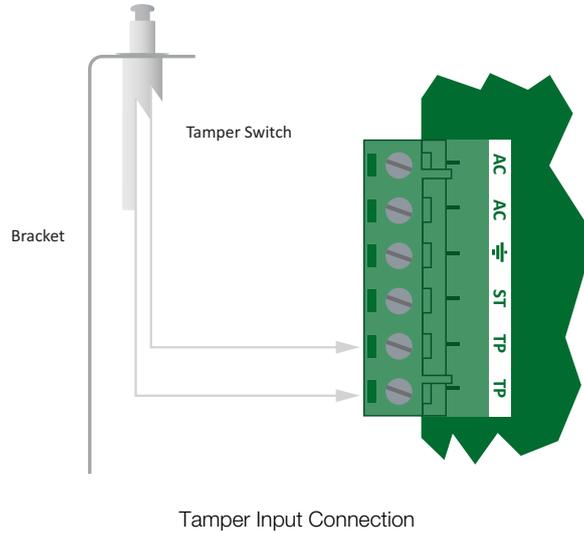
1. Insert the plastic stand-offs in to the locations to mount the PCB board.
2. Calculate the location and position of the enclosure and mark the holes for the keyhole points in the top left and right locations. This will allow you to screw in the screws and then hang the box on them adjusting the location to suit.
3. Ensure a solid fixing point and screw in the two screws. Before tightening the top screws insert the tamper bracket in the slot provided on the right side of the enclosure.
4. Fix the enclosure securely using the remaining mounting holes on the bottom left, right and centre of the enclosure.
5. Insert the PCB in to the enclosure and mount using the plastic standoffs inserted during step one.



Install the enclosure when the circuit board is NOT installed on the plastic stand-offs. This will reduce the risk of damage caused by debris during the installation process.

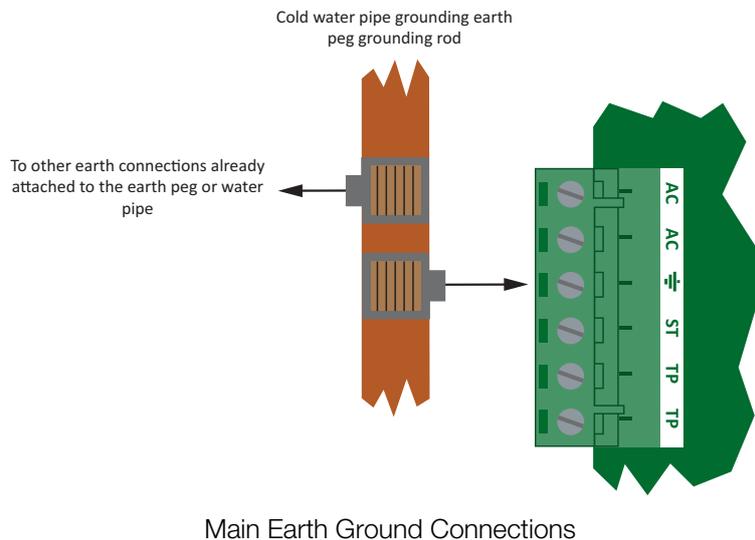
2.3 Cabinet Tamper Switch

The enclosure tamper input signals to the monitoring station or remote computer that the Analog Output Expander enclosure has been opened. The tamper input switch shall be mounted into the steel bracket provided and connected to the tamper connection terminals as shown in the diagram below. The tamper input opens and closes trouble zone PXxxx:01 on the Analog Output Expander.



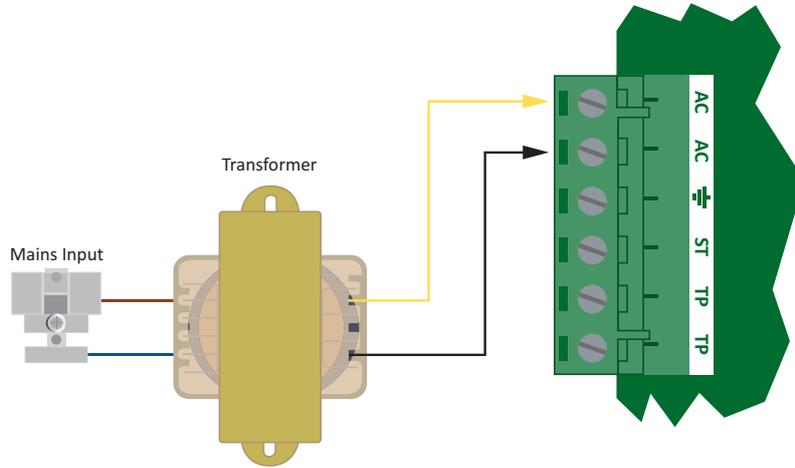
2.4 Earth Ground Connection

The Analog Output Expander has a connection for 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 shall be used from the Analog Output Expander's earth connection point 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.



2.5 AC Power

The Protege PGM Expander should be supplied by a dedicated electrical power source rated for a minimum 10Amp Load and have a dedicated circuit breaker. Do not use a switch controlled breaker or a switched electrical point to supply electrical power. Connect the primary of a 16.5VAC, 50/60Hz, 40VA Transformer to the electrical circuit and run the secondary to the AC input on the controller terminals.



AC Transformer 16VAC, 50/60Hz, 40VA MAX

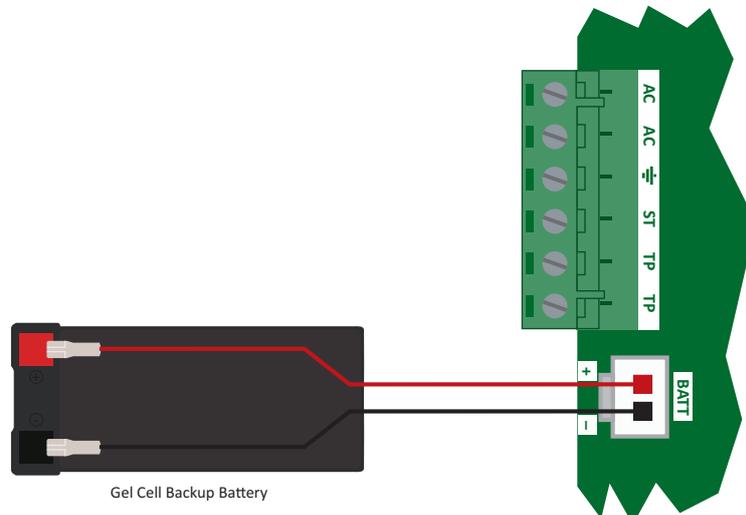
Specific regional regulations may allow the transformer to be mounted inside the enclosure. In this case wire the electrical circuit to the electrical termination point inside the enclosure and the secondary wires of the transformer to the AC Input on the controller.



Termination of wiring to the PGM Expander while power is applied or the battery is connected may cause serious damage to the PGM Expander and will VOID ALL WARRANTIES OR GUARANTEES. Power the PGM Expander ONLY after all wiring, configuration and jumper settings are completed and verified.

2.6 Backup Battery

It is recommended that a minimum of a 4Ah battery is used as the main backup battery. From the accessory bag provided, connect the RED and BLACK battery termination wires to the B+ and B- terminals. Connect the spade terminals to the battery as shown below. Connection of the battery in reverse will not damage the PGM Expander but will cause the battery fuse (5A Fast Blow) to blow and require replacement.



Battery Connection

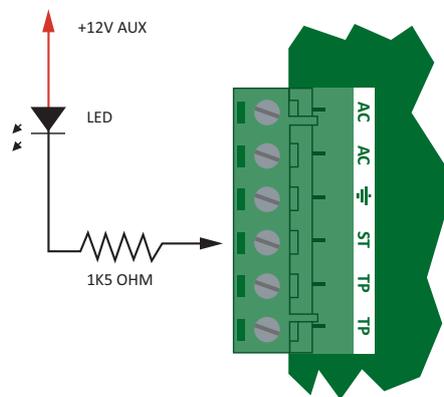
The battery test procedure uses a special algorithm to prevent deep discharge and increase battery endurance. A dynamic battery test is performed every ten minutes when AC power is present and a battery condition alarm will be generated if the battery is either disconnected or shows poor capacity. Battery fault conditions will activate the battery trouble zone associated with the address assigned to the PGM Expander.

If AC is not present the Protege PGM Expander will monitor the battery for a low voltage level and will activate the battery trouble zone. The next dynamic battery test will occur 30 minutes after AC power has been restored. This delay allows the battery to achieve optimal charging during the first 30 minutes when power is initially restored to the unit. Once the first test is completed the dynamic battery testing will return to 10 minute intervals.

When power is first applied to the Protege PGM Expander a dynamic battery test will be performed after 30 seconds, this allows the status and condition of the battery to be detected. On completion of this first test the normal testing period of 10 minutes will be resumed.

2.7 Status Indicator

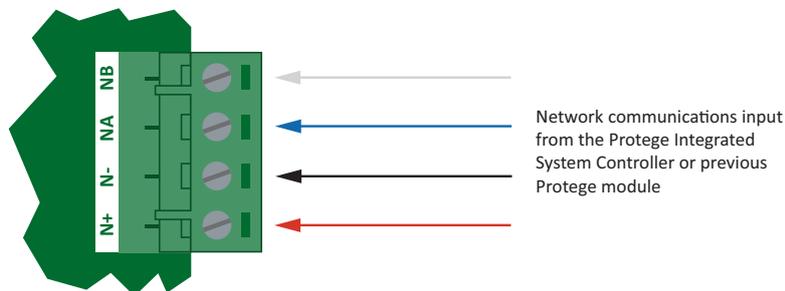
The status output will activate according to the status indicator on the Protege PGM Expander and can be used to provide signalling or indication of the PGM Expander status outside the enclosure. The following diagram shows the connection of an LED indicator to the status output.



External Status LED Connection

2.8 Encrypted Module Network

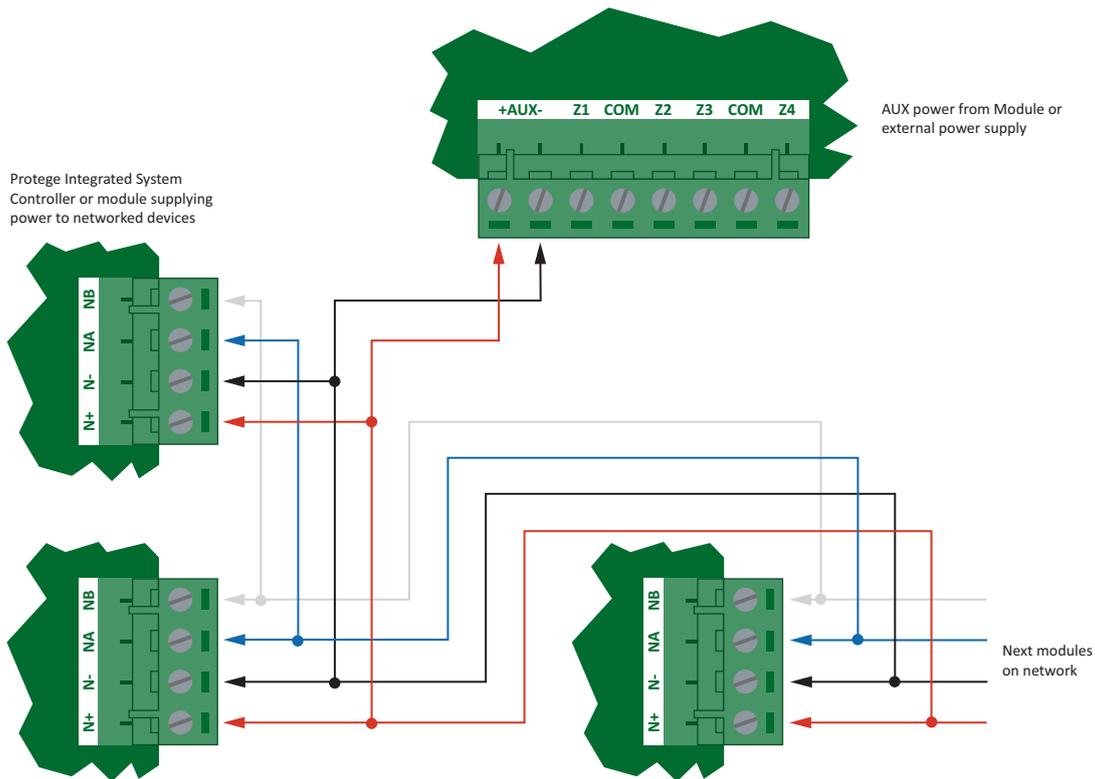
The Protege PGM Expander incorporates encrypted RS-485 communications technology. The isolated communications interface offers full galvanic isolation to prevent ground loop noise and cross phase ground differential between network devices.



Standard Communication Connection

Connection of the communications should be performed according to the diagram shown above. It is important that the N+ Network Communications Power be supplied from an independent battery backed power supply unit or a networked module capable of supplying the required voltage to all devices on the RS485 network.

Always connect the PGM Expanders NA and NB terminals to the NA and NB terminals of the communication network. The N+ and N- must go to a 12V power supply source as shown in the following diagram and connected at ONLY one +12V power source.



Network Power Supplied By Network Module



Warning: The 12V N+ and N- Communication input must be supplied from only ONE point. Connections from more than one 12V supply may cause failure or damage to the PGM Expander or device supplying network power.

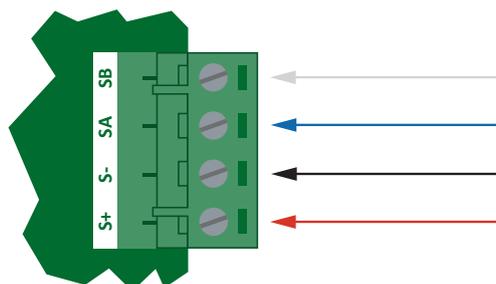


The EOL (End Of Line) jumper setting MUST be set in the ON position for the LAST module on the RS485 network. EOL is ON when the jumper is closest to the EOL text.

2.9 Slave Device Network

The Protege PGM Expander can be connected in Elevator Control Mode (see configuration section (see page 21)) to allow floor control of elevators using the RDI2 and PX16 modules.

Connection of the communications should be performed according to the following diagram. It is important that the S+ Slave Communications Power be supplied from an either independent battery backed power supply unit or a module connected to the slave communication interface capable of supplying the required voltage to all devices on the slave RS485 network.

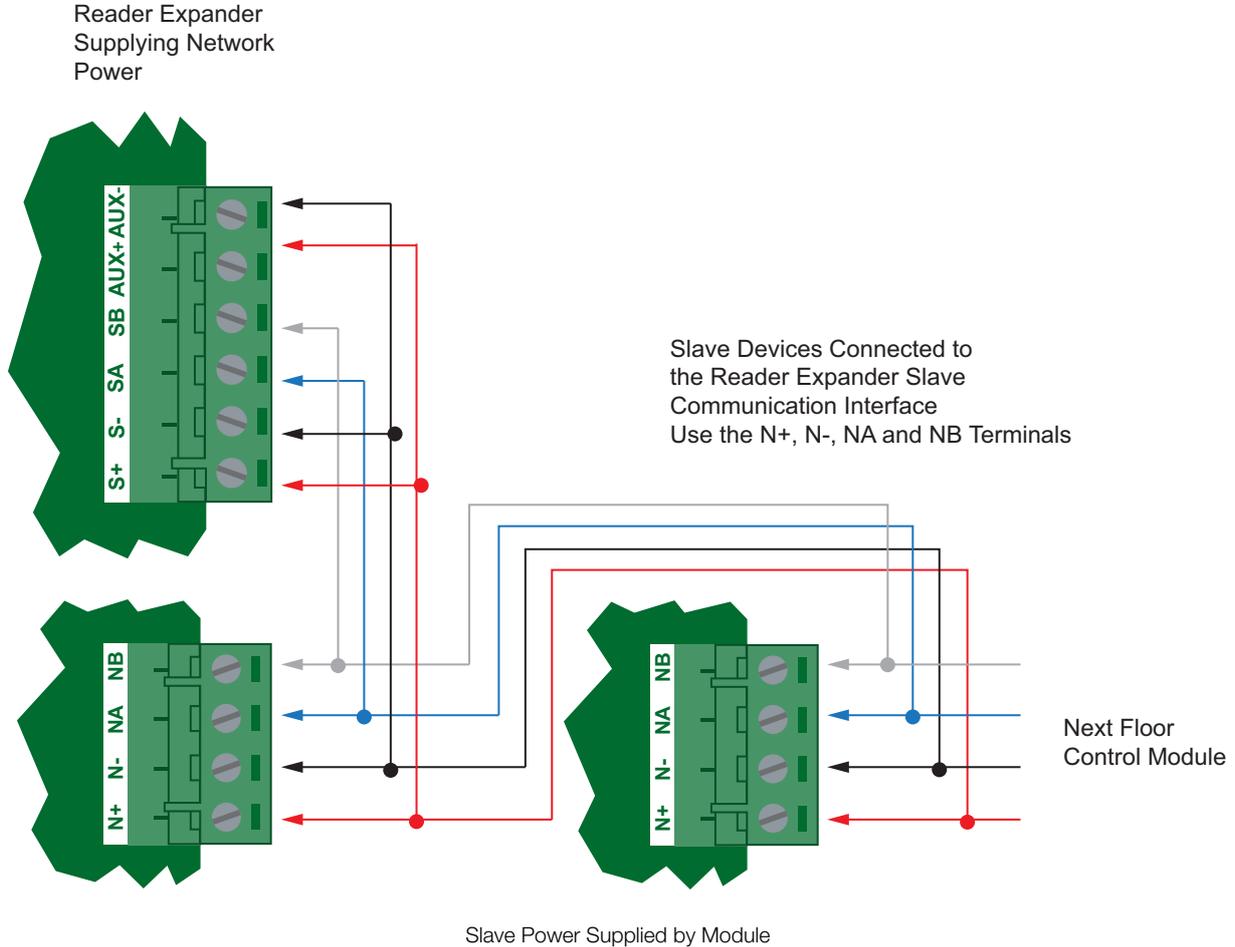


Slave Communications Connection



When the Protege 16 PGM Output Expander is operating in Elevator Mode the configuration switch settings need to be set to the correct mode and address. This should be done BEFORE connecting and powering the unit.

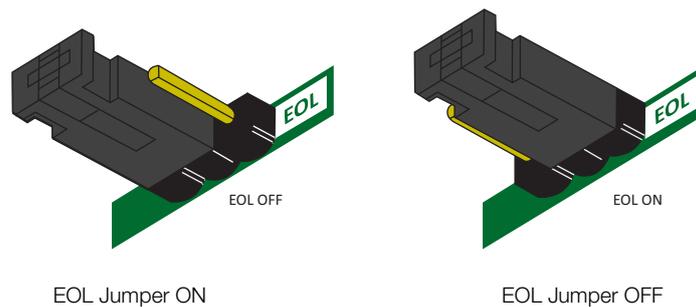
Always connect the PRT-RDI2 or PRT-RDE2 Reader Expanders SA and SB terminals to the NA and NB terminals of the slave 16 PGM Output Expanders. The S+ and S- must go to a 12V power supply source as shown in the following diagram.



The 12V S+ and S- Communication input must be supplied from only ONE point. Connections from more than one 12V supply may cause failure or damage to the Output Expander or device supplying slave communication power.



The EOL (End Of Line) jumper setting MUST be set in the ON position for the LAST slave module on the RS485 network. EOL is ON when the jumper is closest to the EOL text.



2.10 RS-485 Biasing Settings

The Protege 16 PGM Expander has biasing settings for the network communication port. Biasing can be configured for either high or low (L indicates a low bias and H indicates high bias configuration). Both jumpers MUST be set to the same bias type.

In most cases the Biasing will be on either the controller or the reader expander when in elevator mode. In normal operation the biasing must be set to no biasing (Jumper removed or in the middle).



Biasing should only be set to LOW on ONE point on any single segment of the RS-485 network. All other devices on the same segment should be set to the middle position which is no biasing.

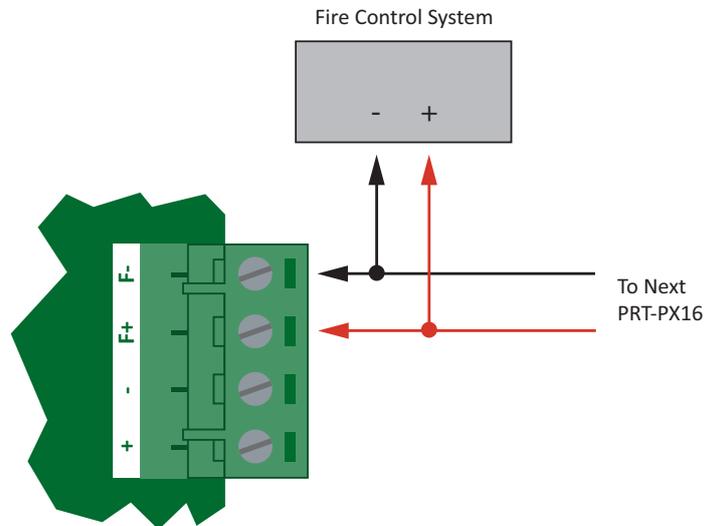


By default, the PRT-CTRL System Controller has the jumpers for the biasing set to low and the EOL jumper on. This is also the same default configuration for the slave communication port on the PRT-RD12 Protege Intelligent Reader Expander.

2.11 Fire Control Input

The fire control input is an optically isolated input that allows the output relays of the Protege PGM Expander to be deactivated in the case of an emergency. This input must be activated by a voltage from 12-32VDC and it is recommended that it is isolated from the access control system.

The Protege PGM Expander is designed for simple fire control connection and this allows all of the Fire Control terminals to be connected in parallel reducing the need for external relays at each unit.



Fire Control Input Connection



The relays of the Protege PGM Expander WILL NOT activate unless there is a voltage supplied to these terminals. To check if the relay voltage is activated ensure the RELAY OK LED indicator is illuminated. The LED is located on the right side of the PGM Expander circuit board.



Fire Control can be overridden using the Fire Control override configuration jumper. By default this jumper is shipped in the disabled position requiring the installer to enable the override option or power the F+ and F- fire control inputs.

2.12 Fire Control Override

A fire control override configuration option is provided on the Protege PGM Expander to disable the Fire Control Input when it is not being used. Using this configuration jumper a wire loop is not required from the + and - terminals to the F+ and F- input terminals. By default the fire control override option is disabled.



Fire Control Override Disabled (Default)



Fire Control Override Enabled

3 Zone Inputs

The Protege PGM Expander has no physical zone input connections. The PGM expander monitors 8 trouble zones used to report trouble conditions. A trouble zone is in most cases not physically connected with an input in to the PGM Expander; rather it is related to a status condition within the system. For example a module communication fault causes a trouble zone to open as a result of the communication failure.

3.1 Trouble Zone Inputs

Each PGM expander can monitor up to 8 trouble zones. Trouble zones are used to monitor the status of the PGM expander and in most cases are not physically connected to an external zone input. For example, trouble zone PX001:04 is used to monitor the auxiliary voltage output and will generate an alarm if the auxiliary fails.

The following table details the trouble zones that are configured in the system and the trouble type and group that they activate.

Zone Number	Description	Type	Group
PXxxx:01	Module Tamper	System Tamper	System
PXxxx:02	AC failure	Power Fault	General
PXxxx:03	Low Battery	Power Fault	General
PXxxx:04	Aux Failure	Power Fault	General
PXxxx:05	Fire Control	Power Fault	General
PXxxx:06	Reserved	None	None
PXxxx:07	Reserved	None	None
PXxxx:08	Module Offline	Module Offline	System

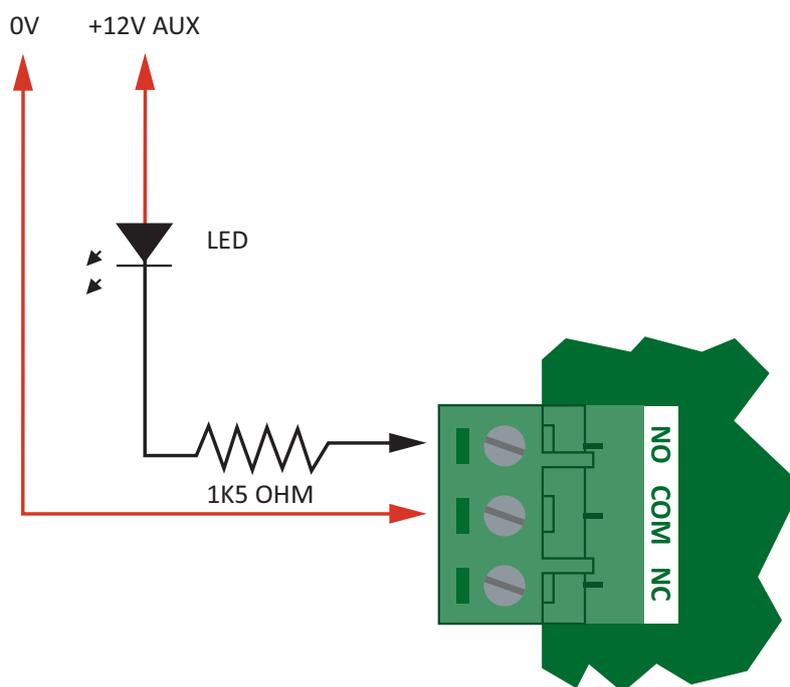
Replace 'xxx' with the appropriate address of the PGM Expander that you are programming.

4 Programmable Outputs

The Protege PGM Expander has 16 Programmable Outputs (PGMs). The PGMs are used to activate Bell Sirens, Lighting Control and Automation Points. A full FORM C relay output the units are ideal for the interface to building automation and control.

4.1 PGM Outputs (1 to 16)

The 16 PGM Outputs each have a FORM C output relay and an indicator showing the relay status. The connection example below shows the control of an external LED indicator from the auxiliary supply of the 16 PGM Output Expander.



Example PGM Connection (PGM 1 Shown)



Switching inductive loads that can produce high back EMF voltages or large voltage induced spikes can cause the 16 PGM Output Expander to behave unexpectedly and should be avoided. A suitable isolation circuit must be installed between the relay contacts of the 16 PGM Output Expander and the inductive load.

5 Elevator Floor Relay Connections

When using the Protege 16 PGM Output Expander as an elevator floor controller the relays can be connected in either a normally open connection (fail secure) or a normally closed connection (fail safe). It is recommended that the relays be connected in the fail safe operation and is mandatory if the installation is to comply with UL specifications.

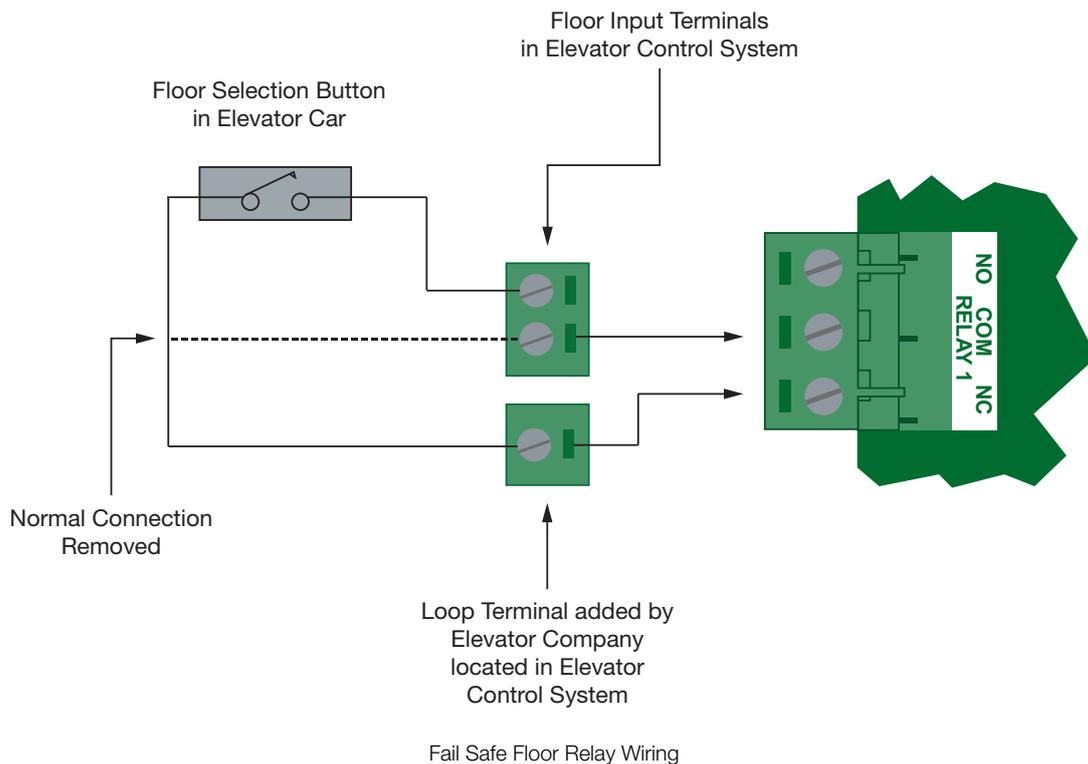
Fire Control operation will NOT operate when being used in a fail secure mode of operation and it is therefore not recommended.



You must still supply a voltage to the fire control input to allow the floor control relays to activate during normal operation. Refer to Fire Control Input (see page 12).

5.1 Fail Safe Wiring

The fail safe wiring connection is the most common interface method. By interfacing the floors that require security to the normally closed connection of the relay as shown below the Elevator Controller will operate in a fail safe mode Fire, Complete Power Failure or Communications Loss if enabled will still allow access to the floors that are being controlled.



Connection is achieved by breaking the button input that comes from the elevator system and connecting either end to the COM and NC connection for the appropriate floor relay.

Although you can break either side of the button wiring and it will provide the same functionality it is recommended that the elevator company break the control signal and not the common for the button. This method will allow a very simple migration to the destination reporting option if required in the future.



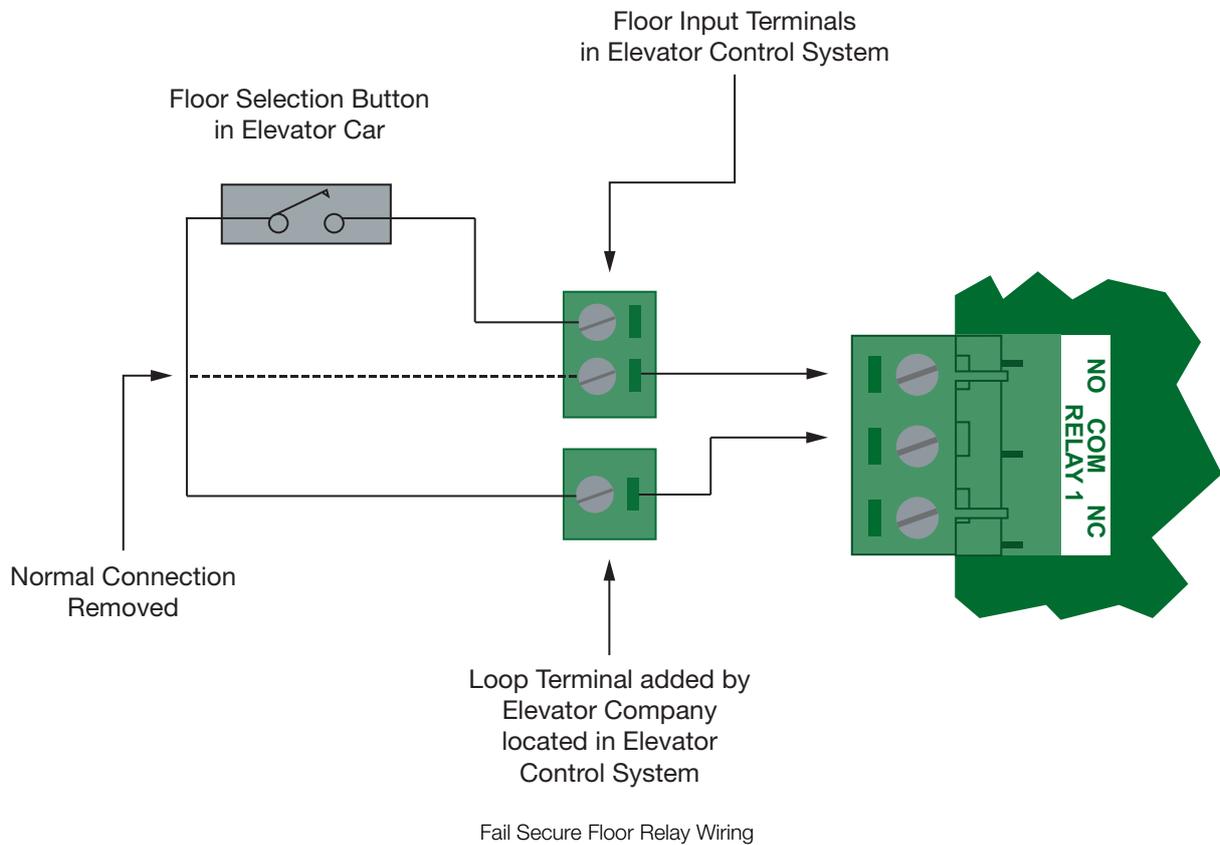
UL Installations MUST be wired according to the fail safe method.

For fail safe wiring connection to operate correctly the relays must be inverted. This is selected by turning on the inverted relay configuration option in the reader expander configuration.

5.2 Fail Secure Wiring

The fail secure mode of operation is provided as a solution to provide a high level of security to installations that require NO access in the case of any failure. This is not recommended for use in modern installations.

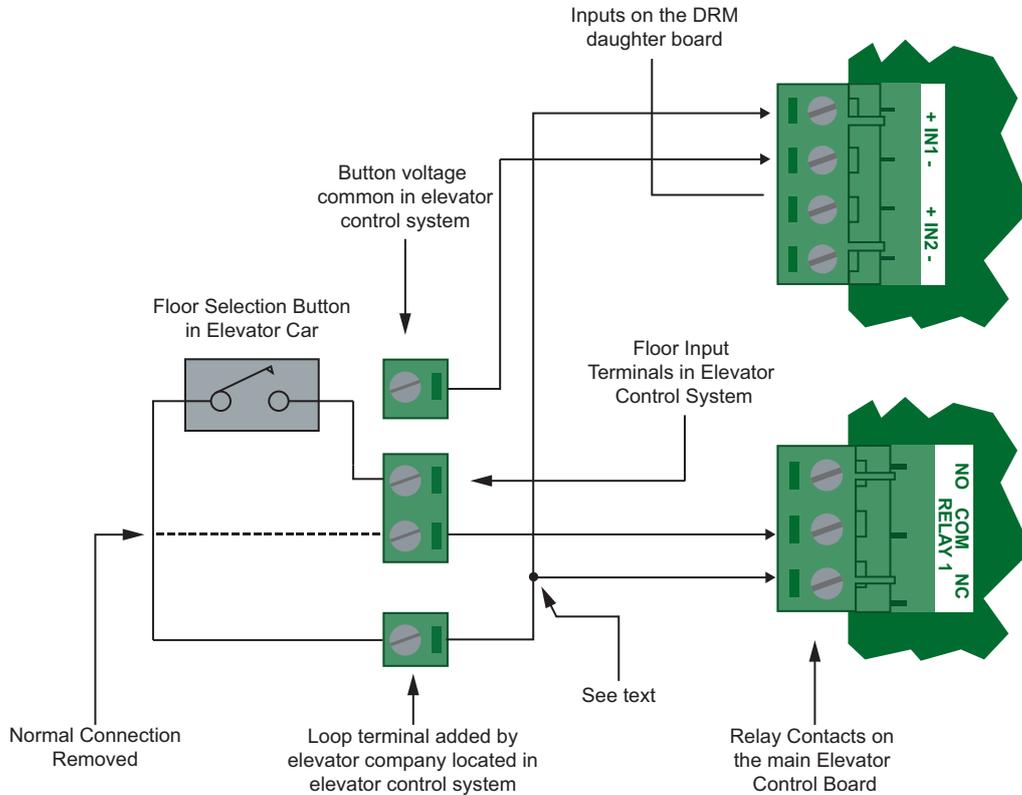
The floor control relays must be wired using the NO and COM relay contacts as shown in the following diagram. This will only allow access to a floor if the relay is activated. Deactivation of the relay or complete power failure will PREVENT any access to the floor.



Correct operation of the Fire Control input will not occur if using the fail secure wiring connection.

5.3 Fail Safe Destination Reporting Wiring

Destination reporting will allow the monitoring of floor selection by the user. The difference between standard fail safe operation and destination reporting operation is that the relay is only deactivated (Invert Floor Control Relays Option Enabled in the Reader Expander Configuration) when a user selects a floor preventing more than one floor from being selected. The selected floor is also reported back to the control unit and logged as an event allowing a full audit of users floor selections to be recorded.



Destination Reporting Fail Safe Wiring

As shown in the above diagram, the wiring is similar to standard fail safe wiring with the exception that an additional wire is required from the contacts of the relay to the input terminal on the PRT-PX16-DRI Destination Reporting Interface. A button voltage common wire is also required from the elevator control system. The button common voltage wire is typically looped to all the inputs. The diagram above shows a connection using a negative common. It is possible that the common may be positive and not negative.

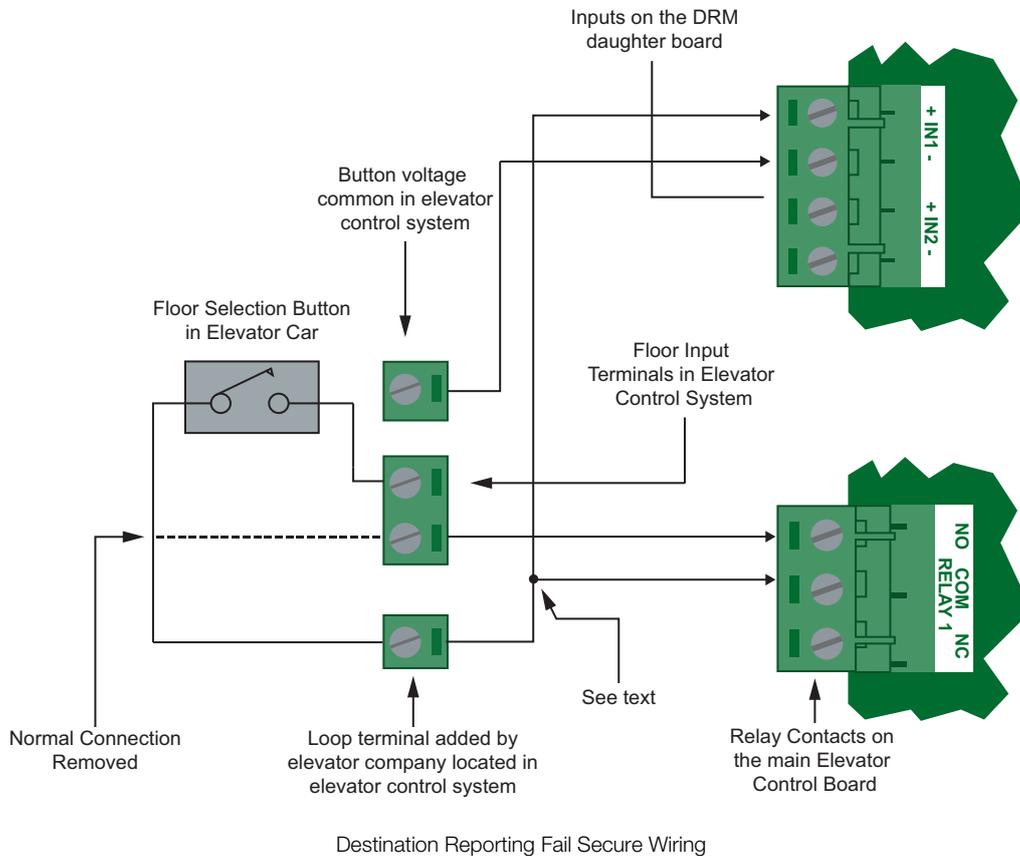


It is important and is indicated by the "SEE TEXT" caption in the diagram that the active input to the PRT-PX16-DRI Destination Reporting Interface is linked from the side of the relay that is NOT switched.

All forms of Destination reporting require the addition of one PRT-PX16-DRI Destination Reporting Interface per Elevator Controller.

5.4 Fail Secure Destination Reporting Wiring

Destination reporting will allow the monitoring of floor selection by the user. The difference between normal fail secure operation and destination reporting operation is that the relay is only activated when a user selects a floor preventing more than one floor from being selected. The selected floor is also reported back to the control unit.



As shown in the above diagram, the wiring is similar to standard fail secure wiring with the exception that an additional wire is required from the contacts of the relay to the input terminal on the PRT-PX16-DRI Destination Reporting Interface. A button voltage common wire is also required from the elevator control system. The button common voltage wire is typically looped to all the inputs. The diagram above shows a connection using a negative common. It is possible that the common may be positive and not negative.



It is important and is indicated by the "SEE TEXT" caption in the diagram that the active input to the PRT-PX16-DRI Destination Reporting Interface is linked from the side of the relay that is NOT switched.

All forms of Destination reporting require the addition of one PRT-PX16-DRI Destination Reporting Interface per 16 PGM Output Expander.

5.5 Communication Failure Floor Operation

The Elevator Controller can be set to ensure that any communication failure will either prevent or allow access to the floors that it will control. It is recommended that this feature be enabled on the device by setting configuration option in the Reader Expander Configuration settings. Refer to the Protege System Controller Reference Manual for more information.

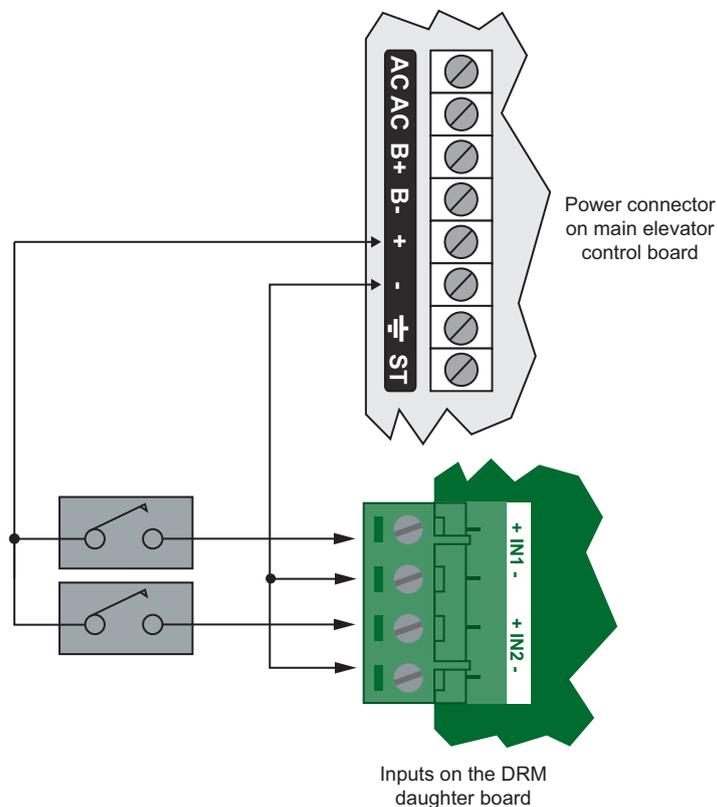


On complete power failure fail secure wiring will always result in NO ACCESS being obtained by any user regardless of the communication or configuration options.

5.6 Testing Destination Reporting Interface

Installations using the Protege 16 PGM Output Expander and PRT-PX16-DRI Destination Reporting Interface can be complicated and must be planned carefully. It is recommended that you consult the Elevator Company well in advance before providing a solution to your client.

We also recommend that you configure and set up a unit with Destination Reporting enabled using the simple test circuit below. This will allow you to understand the principles and operation of the unit prior to the installation taking place.



Destination Reporting Testing Interface

As shown in the above diagram, use two standard normally open switches and wire these to the Auxiliary output. Connect the common to the - of each input. Pressing the switch, you should see the LED illuminate on the PRT-PX16-DRI Destination Reporting Interface corresponding to the input.



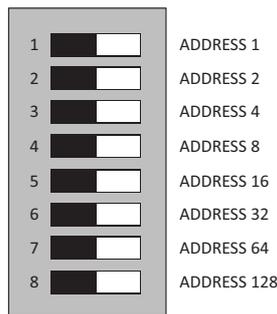
The LED indicators on the PRT-PX16-DRI Destination Reporting Interface board will illuminate regardless of the destination reporting mode that is configured in the Reader Expander settings.

6 Configuration Switch

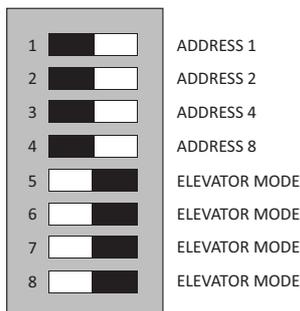
The addressing of the Protege PGM Expander allows up to 128 devices to be connected to the Protege System Controller. The 'CONFIG' configuration DIP switch allows each PGM Expander to have a unique address.

6.1 Address Configuration

The switch positions 1 to 7 select the device address from 1 to 128. When setting an address, the PGM expander must be powered down (Battery and AC) and restarted for the new address to take effect. When changing the address, the PGM Expander will automatically default the internal configuration and require a network update. See the Protege System reference manual for information on performing a module update.



Normal CONFIG Switch Functions

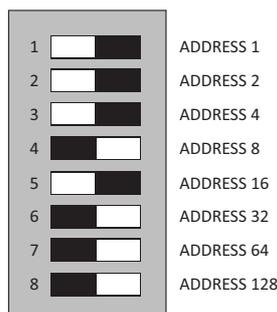


Elevator Mode CONFIG Switch Functions



If switch positions 5, 6, 7 and 8 are turned on and the 16 Output PGM Expander is restarted the PGM Expander will operate as an Elevator Floor Controller and will be able to be connected to a PRT-RDI2 or PRT-RDE2 Slave Communication Port. Refer to Elevator Floor Address Configuration (see page 22).

The device address is determined by adding the value of each switch that is selected in the ON position and then adding 1 to this value. In the example below the address 024 can be calculated using the following formula $(16+4+2+1) + 1 = 024$. Setting all address switches to OFF results in the default address of 001.



PGM Expander Configured for Address 024

6.2 Elevator Floor Address Configuration

When the PRT-PX16 PGM Expander is operated in elevator floor control mode the switch positions 5,6,7 and 8 are turned on. The lower switch positions 1,2,3 and 4 select the address of the PGM Expander and the floors that it will control. Reader 1 floor 1 starts at address 1 and reader 2 floor 1 starts at address 9.



Elevator Car 1 Floor Address Configuration



Elevator Car 2 Floor Address Configuration



To allow the elevator floors to be added in multiples of eight floors each PGM Expander can be enabled in a split mode. This allows more flexible configuration. The split mode is a configuration setting under the reader expander settings in the Protege System Management Suite and the keypad programming menus.

7 Status Indication

The PGM Expander includes comprehensive diagnostic indicators that can aid the installer in diagnosing faults and conditions. In some cases, an indicator may have multiple meanings depending on the status indicator display at the time.

7.1 Status Indicator

The Status Indicator is located in the centre of the PCB and indicates the status of the Protege PGM Expander. If the Protege PGM Expander is operating normally the LED will indicate this by **FLASHING** at 1 second intervals. **FLASHING** rapidly at 250ms intervals indicates that the PGM Expander is attempting to register with the system controller, or that communication has failed and the PGM Expander is retrying the request.



When the fault indicator is ON the status indicator will show an error code. Refer to the section on Error Code Display for more information.

7.2 Fault Indicator

The fault indicator LED is identified by the text 'FAULT' and is located in the centre of the PCB. When the fault indicator is **FLASHING** the PGM Expander is operating in firmware update mode, or there is no firmware loaded. The fault indicator when **ON** indicates that an error has occurred while trying to register with the system controller. The status indicator will flash a number of times indicating an error code. Refer to the section on Error Code Display for more information.

7.3 Charge/Test Indicator

The charge and test indicator serves two functions; it will indicate that a Battery Test is in progress, and that Battery Charging is being performed. When AC is present the battery charging current will be indicated by a varying intensity level on this indicator. This indicator will be **ON** when a battery test is in progress by illuminating brightly for 30 seconds every 10 minutes.

This indicator is identified by the text **CHARGE/TEST**. This indicator does not function when AC is not present. For more information, refer to the section on Battery Backup.

7.4 Auxiliary OK Indicator

Auxiliary voltage is supplied to the AUX+ outputs through the auxiliary fuse. If auxiliary supply is normal the the **AUX OK** indicator will be illuminated. If the auxiliary fuse is damaged, the indicator will be off.

7.5 AC OK Indicator

When a valid AC input is provided, the **AC OK** indicator will illuminate. When the AC is disconnected or has failed, the indicator will be off.

7.6 5V Isolated Power Indicator

The PGM Expander communicates using an isolated RS-485 interface for optimal performance and this requires an isolated supply on the N+ and N- terminals. When a valid power supply is available the '5V ISO' indicator will be **ON** for the interface. The '5V ISO' indication is located at the top of the network isolated interface.

7.7 Relay Ok

Power to the relays onboard is controlled by the F+ and F- terminals and can be overridden by the FIRE OVERRIDE jumper. When power is supplied to the relays the 'RELAY OK' indicator will be **ON**.

7.8 Network RX/TX Indicator

The Network Receive and Transmit Data indicators are located on the top right side of the PCB beside the network communication interface. The indicator shows when the Protege PGM Expander is transmitting and receiving information from the module communications interface and is identified by the text 'RX' and 'TX'. When the indicator is **ON** data is being transmitted or received.

8 Error Code Indication

When the Output Expander attempts to register or communicate with the system controller a registration error can be generated indicating that it was not successful.

8.1 Error Code Display

The following table is only valid if the FAULT indicator is **CONSTANTLY ON** and the STATUS indicator is **FLASHING RED**.

If the fault indicator is **FLASHING** the Output Expander requires a firmware update or is currently in firmware update mode.

The status indicator will **FLASH RED** with the error code number. The error code number is shown with a 250ms **ON** and **OFF** period (duty cycle) with a delay of 1.5 seconds between each display cycle.

Flash	Error Description
1	Unknown Error Code The error code returned by the system controller could not be understood by the Output Expander. Contact Integrated Control Technology.
2	Firmware Version The firmware version on the Output Expander is not compatible with the system controller. To clear this error, update the module using the module update application.
3	Address Too High The Output Expander address is above the maximum number available on the system controller. To clear this error change the address to one within the range set on the system controller, restart the Output Expander by disconnecting the power.
4	Address In Use The Address is already in use by another Output Expander. To clear this error set the address to one that is not currently occupied. Use the view network status command to list the attached devices, or the network update command to refresh the registered device list.
5	Controller Secured Registration Not Allowed Controller is not accepting any module registrations. To allow module registrations use the network secure command to change the secure setting to not secured.
6	Serial Number Fault The serial number in the device is not valid. Return the unit to the distributor for replacement.
7	Locked Device The Output Expander or system controller is a locked device and cannot communicate on the network. Return the unit to the distributor for replacement.

9 Technical Specifications



The following specifications are important and vital to the correct operation of the PRT-PX16 Protege 16 PGM Output Expander. Failure to adhere to the specifications will result in any warranty or guarantee that was provided becoming null and void.

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

Power Supply	
AC Input Voltage	16VAC @ 40VA (Max)
Operating Current	280mA (Typical) ~1.2A (Max) (All Relays Activated)
DC Output (Auxiliary)	200mA (Max)
Battery Charging	350mA/700mA
Battery Low	10.5VDC
Battery Restore	11.5VDC
Communication	
RS-485	Isolated Module Network
Outputs	
16 Relay Form 'C'	7A, 250V (Max) Non Inductive Loads Only
Status Output	50mA (Max) Open Collector
Inputs	
Tamper	Normally Closed
Fire Control	12-32VDC (6-21mA) Voltage Input
Button Inputs (Optional)	16 (Requires PRT-PX16-DRI Interface)
Dimensions	
PCB Dimensions	183mm X 234mm (7.2" X 9.2")
Enclosure	330mm X 406mm X 89mm (13" X 16" X 3.5")
Temperature	
Operating	5° - 55° Celsius (41° - 131° Fahrenheit)
Humidity	0%-85% (Non-Condensing)
Storage	-10° - 85° Celsius (14° - 185° Fahrenheit)
Miscellaneous	
Destination Reporting	Yes (Optional Input Unit)
Fail Safe Operation	Yes (Configurable Option)



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.



The isolated communications interface on the Protege PGM Expander uses full galvanic isolation to prevent ground loop noise and cross phase ground differential. This is a very important feature of the product family and the correct connection of power to this isolated section will ensure the correct operation of the communications network. Failure to apply power to the communication interface will prevent the operation of the communication interface.

10 New Zealand and Australia

General Product Statement

The RCM compliance label indicates that the supplier of the device asserts that it complies with all applicable standards.



11 European Standards

CE Statement

Conforms to European Union (EU) Low Voltage Directive (LVD) 2014/35/EC, Electro-Magnetic Compatibility (EMC) Directive 2014/30/EU and RoHS Recast (RoHS2) Directive: 2011/65/EU.

The CE mark indicates that this product complies with the European requirements for safety, health, environmental and customer protection.



Information on Disposal for Users of Waste Electrical & Electronic Equipment

This symbol on the product(s) and / or accompanying documents means that used electrical and electronic products should not be mixed with general household waste. For proper treatment, recovery and recycling, please take this product(s) to designated collection points where it will be accepted free of charge.

Alternatively, in some countries you may be able to return your products to your local retailer upon purchase of an equivalent new product.

Disposing of this product correctly will help save valuable resources and prevent any potential negative effects on human health and the environment, which could otherwise arise from inappropriate waste handling.

Please contact your local authority for further details of your nearest designated collection point.

Penalties may be applicable for incorrect disposal of this waste, in accordance with your national legislation.

For business users in the European Union

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

Information on Disposal in other Countries outside the European Union

This symbol is only valid in the European Union. If you wish to discard this product please contact your local authorities or dealer and ask for the correct method of disposal.

EN50131 Standards

This component was tested by the accredited testing laboratory No. 1172 of the company TESTALARM Praha s.r.o. and met the requirements and conditions for full compliance with EN50131 series of standards for equipment classification;

Security Grade 3

Environmental Class II

Equipment Class: Fixed

EN 50131-1:2006, EN 50131-3:2009, EN 50131-6:2008

Recognition class 2 (for readers without a keypad)

Recognition class 3 (for readers with a keypad)

Access class B

EN 50133-1:1998

ICT enclosure all products, CAB-JMB-NOT, has been tested and certified to EN50131. By design, the ICT enclosure for all products, CAB-FBY-NOT, complies with the EN50131 standards. Tamper protection against removal of the cover as well as removal from mounting is provided by tamper switch.

Warning:

Enclosures supplied by 3rd parties may not be EN50131-compliant, and should not be claimed as such.

EN 50131

In order to comply with EN 50131-1 the following points should be noted:

Ensure for Grade 3 compliant systems, the minimum PIN length is set for 6 digits.

To comply with EN 50131-1 Engineer access must first be authorized by a user, therefore Installer codes will only be accepted when the system is unset. If additional restriction is required then Engineer access may be time limited to the first 30 seconds after the system is unset.

Reporting delay –Violation off the entry path during the entry delay countdown will trigger a warning alarm. The warning alarm should not cause a main alarm signal and is not reported at this time. It can be signaled locally, visually and or by internal siren type. If the zone is not disarmed within 30 seconds, the entry delay has expired or another instant is violated, the main alarm will be triggered and reported.

To comply with EN 50131-1 neither Internals Only on Part Set Zone Alarm nor Internals Only on Part Set Tamper Alarm should be selected.

To comply with EN 50131-1 Single Button Setting should not be selected.

To comply with EN 50131-1 only one battery can be connected and monitored per system. If more capacity is required a single larger battery **must** be used.

Anti Masking

To comply with EN 50131-1 Grade 3 for Anti Masking, detectors with a separate or independent mask signal should be used and the mask output should be connected to another input zone.

I.e. Use 2 input zones per detector. One zone input for alarm/tamper and one zone input for masking.

To comply with EN 50131-1:

- do not fit more than 10 unpowered detectors per zone,
- do not fit more than one non-latching powered detector per zone,
- do not mix unpowered detectors and non-latching powered detectors on a zone.

To comply with EN 50131-1 the Entry Timer should not be programmed to more than 45 seconds.

To comply with EN 50131-1 the Bell Cut-Off Time should be programmed between 02 and 15 minutes.

EN 50131-1 requires that detector activation LEDs shall only be enabled during Walk Test. This is most conveniently achieved by using detectors with a Remote LED Disable input.

To comply with EN 50131: Only one battery can be connected and monitored per system. If more capacity is required, a single, larger battery must be used.

12 Ordering Information

Please use the following product codes when placing an order for the Protege PGM Expander.

- PRT-PX16-PCB - Protege 16 PGM Output Expander (PCB Only)

Includes Accessory Bag

Manuals and literature are available at www.incontrol.co.nz in the documentation section.

13 Disclaimer

Controlling elevator systems requires the interface of high voltage and electrical signals that relate to life safety. Please read the following disclaimer notice prior to completing any wiring on the PRT-PX16 16 PGM Output Expander when operating in Elevator Control mode. If you are not sure about any portion of the interface to the elevator system ask a qualified elevator engineer.

13.1 Disclaimer Notice

It is very important that a trained and registered elevator service company connect wiring associated with any component of the elevator system. This includes the wiring of the Elevator Controller's floor control relay terminals. Under no circumstances does Integrated Control Technology or any associated company accept any liability for the improper installation or commissioning of any Elevator Controller or associated products.

It is the responsibility of the installation company and the elevator company to ensure the personal safety of occupants using the elevator. We recommend that all installations of the Elevator Controller use the fire control input and is correctly wired to the fire control switch in the elevator controller as well as the floor control relays being wired in the fail safe mode. This ensures operation of the elevator floor access in trouble, complete failure or emergency situations.

14 Warranty

Integrated Control Technology (ICT) warrants its products to be free from defects in materials and workmanship under normal use for a period of two years. Except as specifically stated herein, all express or implied warranties whatsoever, statutory or otherwise, including without limitation, any implied warranty of merchantability and fitness for a particular purpose, are expressly excluded. ICT does not install or connect the products and because the products may be used in conjunction with products not manufactured by ICT, ICT cannot guarantee the performance of the security system. ICT's obligation and liability under this warranty is expressly limited to repairing or replacing, at ICT's option, any product not meeting the specifications. In no event shall ICT be liable to the buyer or any other person for any loss or damages whether direct or indirect or consequential or incidental, including without limitation, any damages for lost profits, stolen goods, or claims by any other party caused by defective goods or otherwise arising from the improper, incorrect or otherwise faulty installation or use of the merchandise sold.

15 Contact

Integrated Control Technology welcomes all feedback.

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

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

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