Monitor ISM/xL™ Hardware Guide rev1.1

VEREX

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Foreword

The Hardware Guide is designed as a quick reference for module circuit board layout, wiring and installation. Some programming is included for e.g. Wireless, Smart and Printer modules. For Monitor ISM System programming information, refer to the Commissioning Reference Guide. For Monitor xL System programming, refer to the Monitor xL Simplified and Advanced programming guides. For software used with the Monitor ISM and Monitor xL systems, refer to the Director Software User Guide. Specific installation and programming instructions produced for each module by part number are referenced at the beginning of each module's section in this manual.

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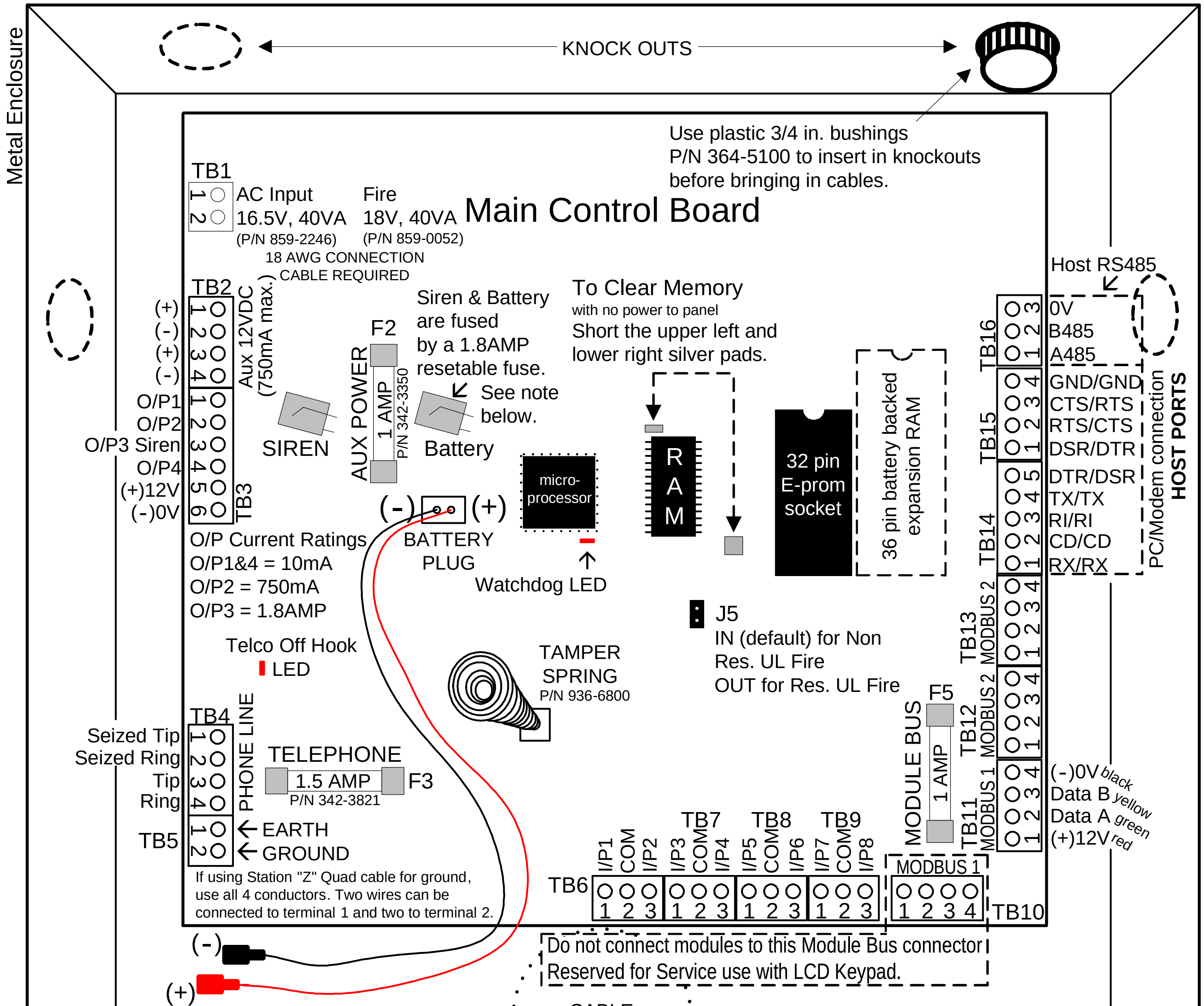
In This Issue:

V1.1 Additions/Deletions/Corrections

- Wire color for Arming Station Reader GProxI and II Keypad Area Control Communications identified.
- Arming Station Reader LED and tone descriptions added.
- Part 2, Monitor xL section updated to current status. Includes correction to Relay Expansion Board's reversed contact labels.
- ULC, CE marks added to back cover.

Part 1
Monitor ISM System Hardware

Main Control Board



Resetable Fuse Notes

Will disconnect power if DC current draw exceeds 1.8AMP.

WARNING: Very hot when triggered: 120°C.

Disconnect battery for 1 min. to reset or, silence siren. Hydro can stay connected.

Installation Notes for Further Reduction of RF Emissions

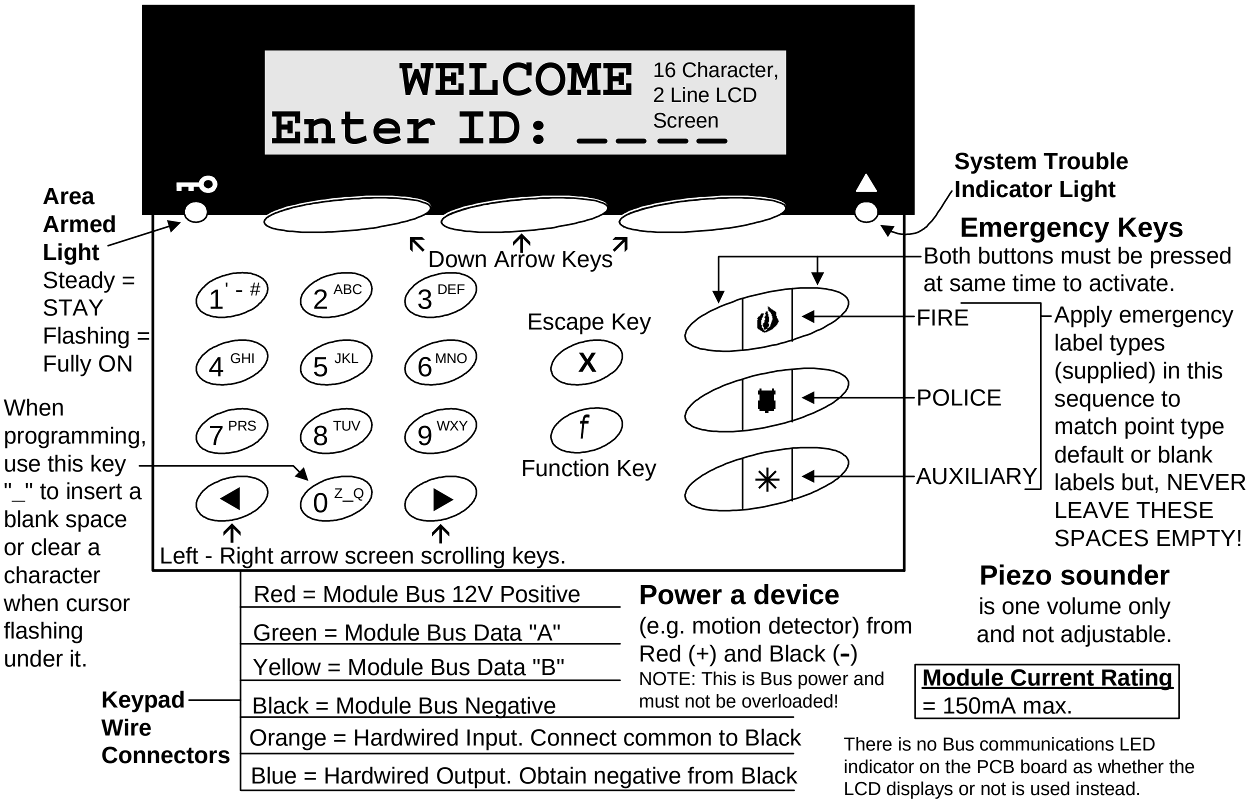
1. Terminating cables inside metal enclosure must never cross over the motherboard, behind it or on top of it. Cables must run along the sides of the board.

2. Cables being brought into the box should come in through the "knock out" nearest the terminal block it is being terminated at. E.g. A/C transformer cable should be brought in through the knock out nearest the A/C termianl block. Avoid leaving long cable lengths around the board or inside box.

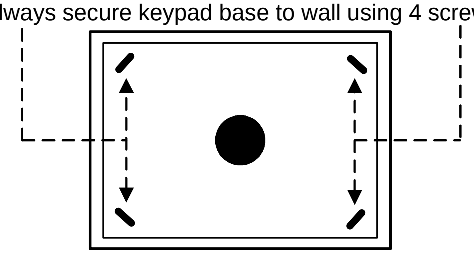
Keypad Modules

LCD Keypad

Refer to Installation Instructions P/N 21-0369 for further information.



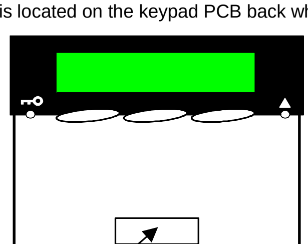
Always secure keypad base to wall using 4 screws.



Recommended mounting height: 1.5 meters (4 feet, 9 inches) from floor level to the bottom of the keypad.

WARNING: If upgrading an existing previous version Fx LCD keypad with this one, each keypad's base is a different size and their mounting holes do not align exactly the same.

XXXXX The sticker with the 5 digit serial number, for programming the module in Module Programming, is located on the keypad PCB back when the keypad base is removed.



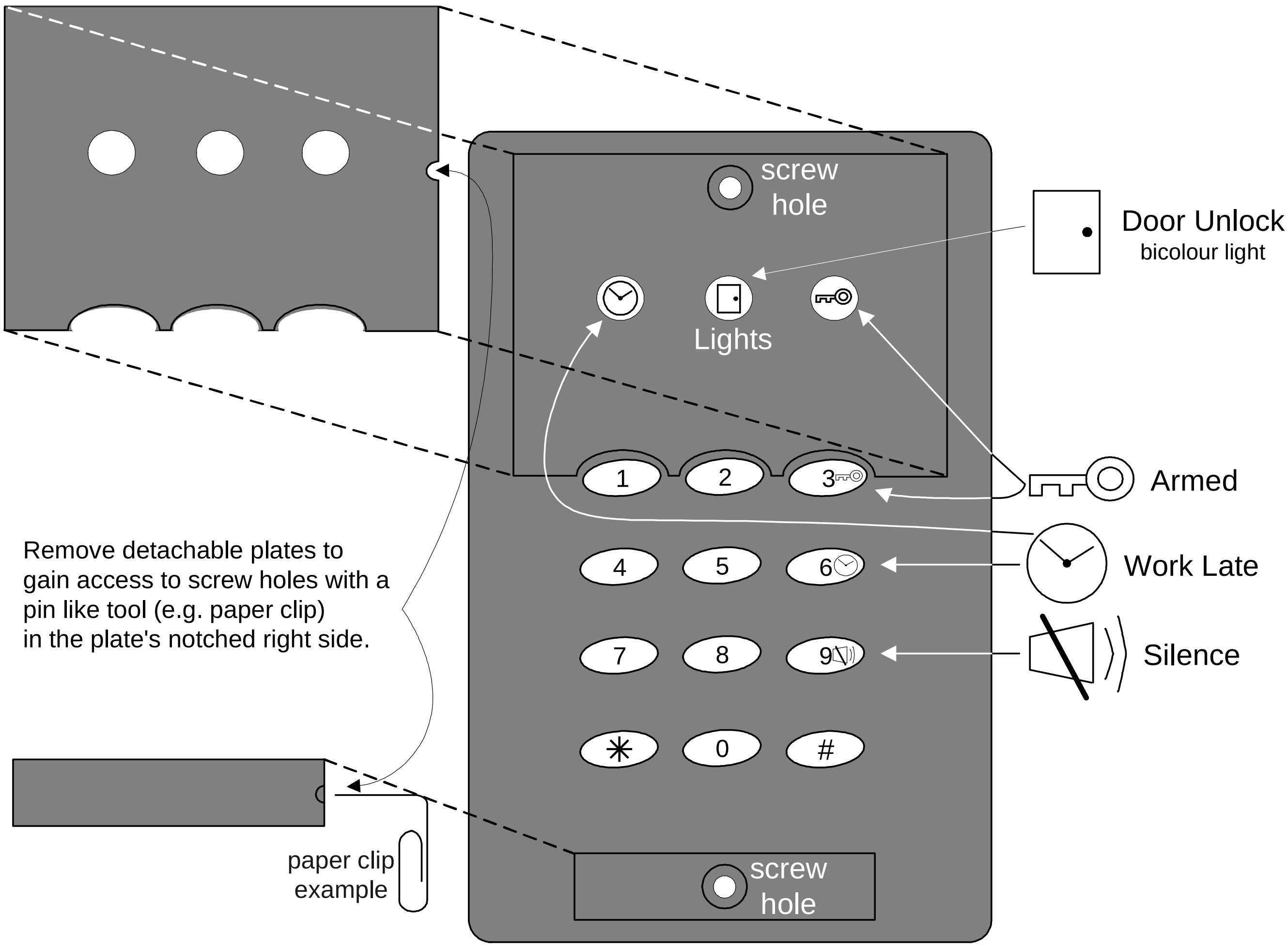
Apply dealer's logo label (supplied) in the indented space on keypad door.

After placing the keypad on its base, make sure the keypad's securing screw (supplied) is always I N !

Arming Station Reader

Refer to Installation Instructions P/N 22-0346 for further information.

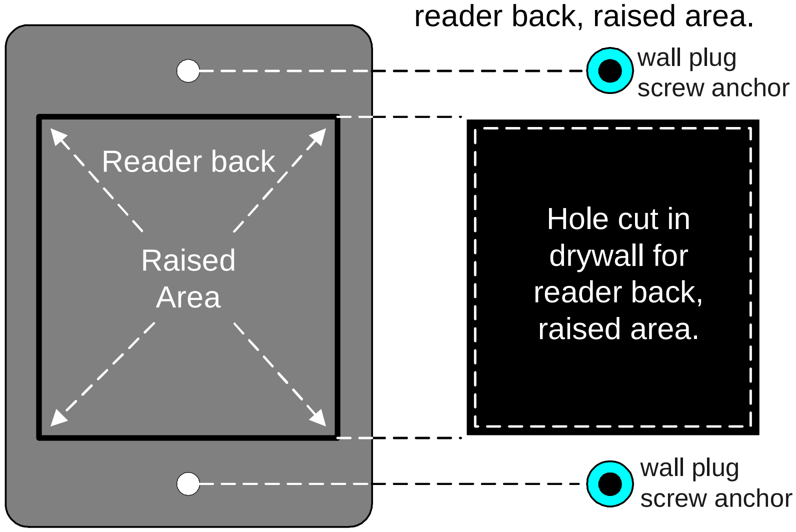
Mounting



Remove detachable plates to gain access to screw holes with a pin like tool (e.g. paper clip) in the plate's notched right side.

Mounting On Drywall

WARNING!
Insert wall anchors FIRST before cutting hole for inserting reader back, raised area.



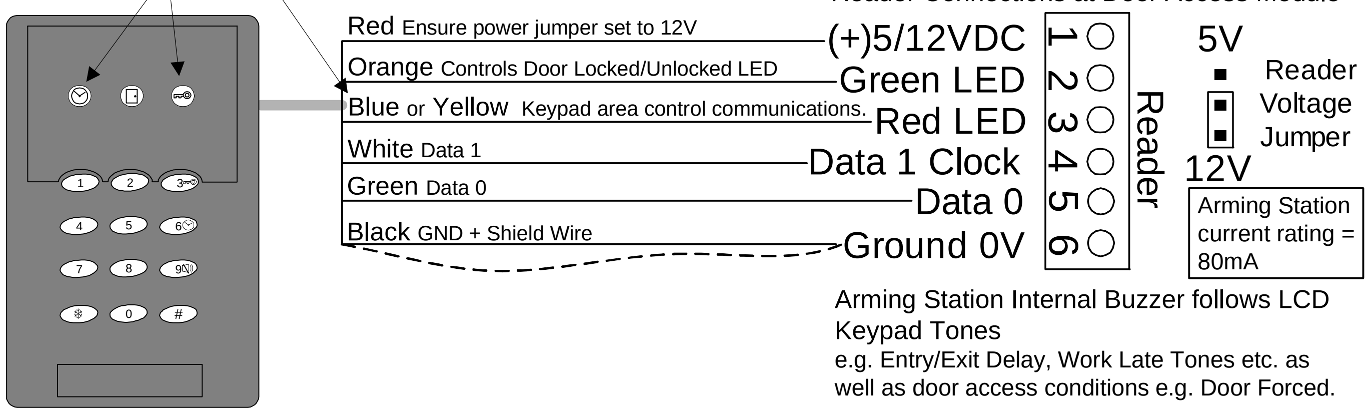
Card Reader Only Version

Wiring

NOTE: the Keypad area control communications wire must be connected or the Work Late and Armed LEDs will flash back and forth. 111-8240 GProxI wire is blue. 111-8270 (switch plate) or 111-8267 (mullion) GProxII wire is yellow.

NOTE: Maximum cable distance from 2 Dr Access Module to Arming Station is 500 feet.

Reader Connections at Door Access Module



Keypad Command Entries

<login> represents the form of user identification used e.g. badging card and or ID – PIN entry.

Key Sequence	***Command***
< login > only	Access (momentary unlock of door)
✳ 1 <login>	Turn area off
✳ 1 0 <login>	Turn all areas off
✳ 2 <login>	Turn area to stay mode
✳ 3 <login>	Turn area on
✳ 3 0 <login>	Turn all areas on
✳ 5 <login>	Toggle between Lock Door and Unlock Door & Disarm area Door commands or if door is locked and area armed – unlocked and area disarmed.
✳ 6 <login>	Work Late in this area by 2 hours at a time from the current time. Scheduled area only. This command can only be used again at the end of the first entered 2 hours when the arming station will indicate closing time again with the work late LED flashing and tones. At that time, this command can be used again to extend the closing time another 2 hours.
✳ 6 n <login>	Work Late in this area for n hours where n = 1…9. Scheduled area only.
✳ 7 <login>	Activate armed state LED display for approximately 20 seconds To determine arming station’s area condition. Armed LED indicates for 20 sec: green for OFF, red for STAY and flashing red for ON.
✳ 9 <login>	Silence alarm (in all areas)
# #	Cancel any keys previously entered
#	If performing a “✳” command with UID/PIN, insert a "#" key between command and UID/PIN entry (e.g. “✳ 1 # 341 1234 ” for user 341, pin=1234 trying to arm the area ✳1).

No Commands (Simple Access)

Door Mode	<Login>	Notes
Card Only	<card>	If a UID/PIN is entered, it will be ignored
Card & PIN	<card> <pin>	UID is not required since the card automatically identifies the <uid>
Card or UID/PIN	<card> or <uid> <pin>	
UID/PIN Only	<uid> <pin>	If card is presented, it will be ignored.

<uid> – User ID

With Commands

Door Mode	✳<cmd> <Login>	Notes
Card Only	✳<cmd> <card>	If a UID/PIN is entered, it will be ignored
Card & PIN	✳<cmd> <card> <pin>	Card badging must always be done before the PIN entry.
Card or UID/PIN	✳<cmd> <card> or ✳<cmd> # <uid> <pin>	Pressing "#" is required between the command and uid/pin entry.
UID/PIN Only	✳<cmd> # <uid> <pin>	Pressing "#" is required between the command and uid/pin entry. (Note ✳<cmd> # <pin> in PIN Only systems)

<cmd> – Command

<u>NOTES:</u>
<login> requires your <card> OR alternatively, your uid/pin.
E.g. <3 digit UID> <4 digit PIN>. Leading zeros cannot be omitted in UID or PIN.

Example 1: Arm area using card – enter < ✳ 3 card >
Example 2: Work late for 3 hours using uid/pin – enter < ✳ 6 3 # 001 1234 > for user 001 with pin 1234
Example 3: Access area without using card – enter < 001 1234 > for user 001 with pin 1234.

<u>Using Duress Pin at Arming Station</u>

- A Duress Pin (reversing last 2 digits of a user's pin entered on the keypad to transmit a potential hold-up condition) can be used at an Arming Station if the duress feature has been enabled in the System Group.

<u>LED Indicators</u>
Work Late LED

- Turns on if the area the Arming Station is assigned to is scheduled.
- Turns on solid 15 minutes before scheduled closing time.
- Does not operate if the area is not scheduled.

Door State LED

- Solid red if the door is locked.
- Solid green if the door is unlocked.
- Flashing red during disarming if there had been an alarm in the area.

Armed LED

- When activated, armed LED only stays on for the duration of the area's Entry/Exit Delay during the following area arming state changes.
  - Momentarily solid green when the area is disarmed to OFF.
  - Momentarily solid red when the area is armed to STAY.
  - Momentarily flashing red when the area is armed to Fully ON.

<u>Arming Station Internal Buzzer Indications</u>

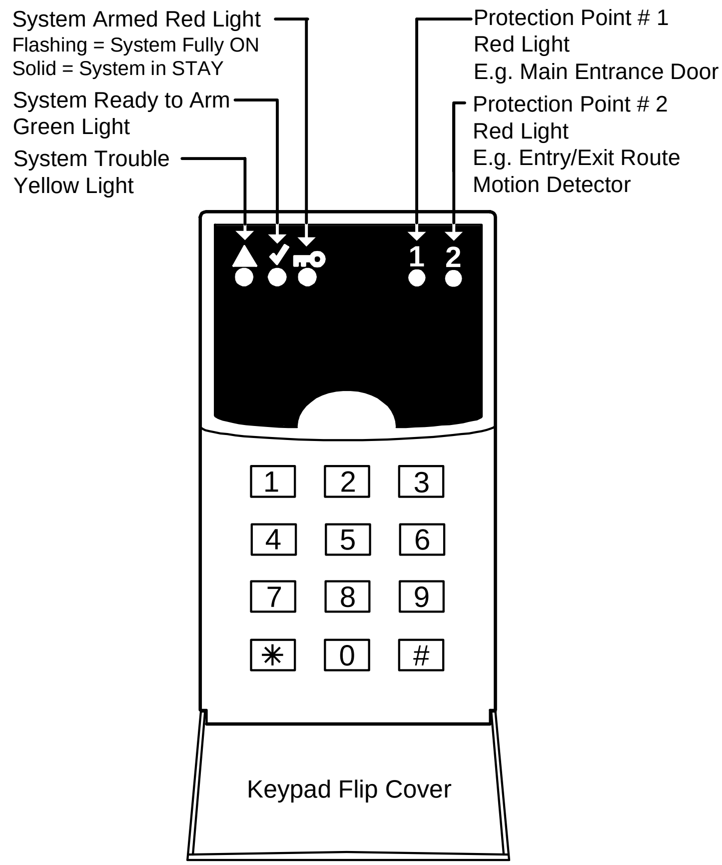
- Entry/Exit tones same as LCD keypad.
- Fire Siren – intermittent tone.
- Burglary Siren – steady tone.
- Bad Command Entry – double short beeps.
- Command accepted – single long beep.
- Unauthorized to perform command – double long beep.

Suite Security LED Keypads for Apartment and Office Protection

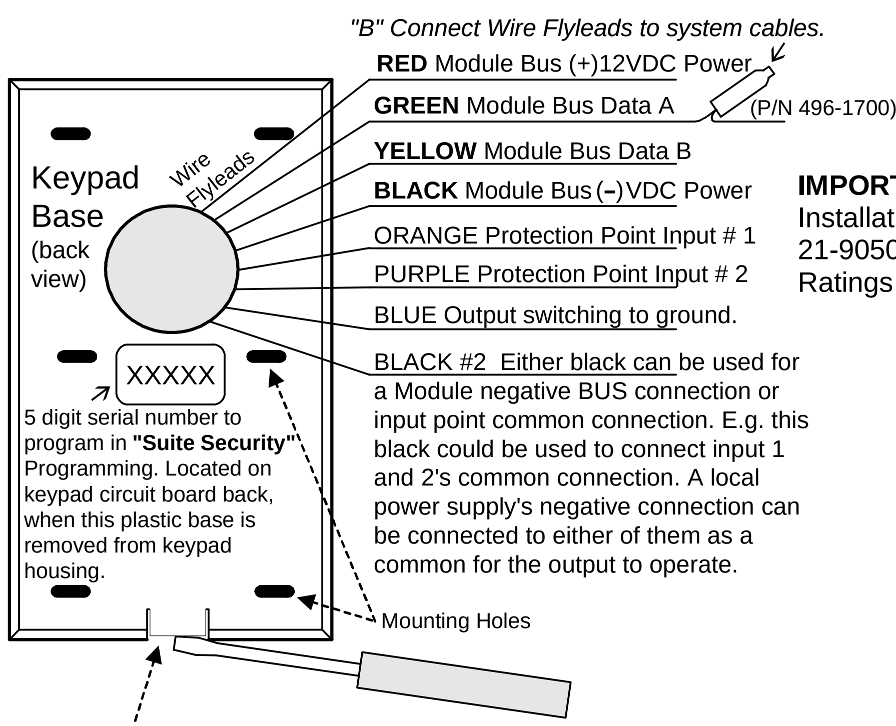
2 Zone

IMPORTANT: Must refer to Installation Instructions P/N 21-9050 for detailed information.

User Guide P/N 22-9050



Wiring

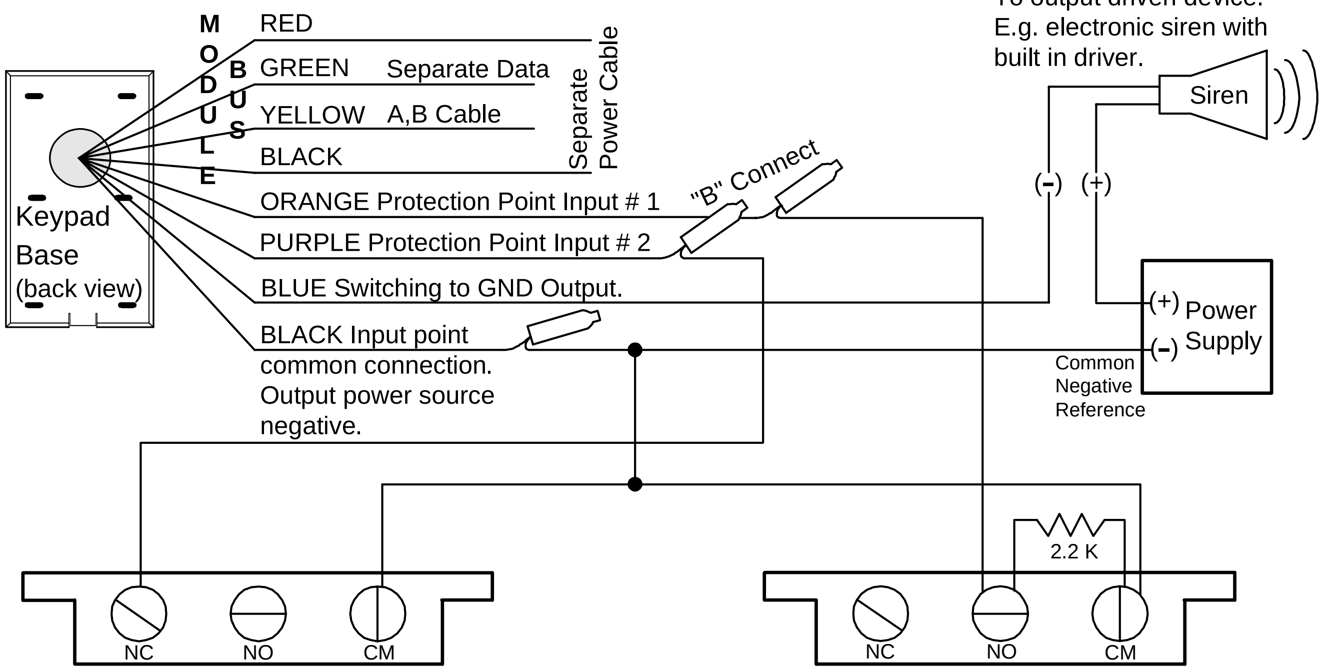


Release Tab. Insert flat head screw driver to push tab forward and release base from keypad enlcosure to mount base.

IMPORTANT: Refer to Installation Instructions P/N 21-9050 for Power & Cable Ratings / Requirements.

2 Zone Wiring cont.

Protection Input points 1 & 2 and Output Wiring Example

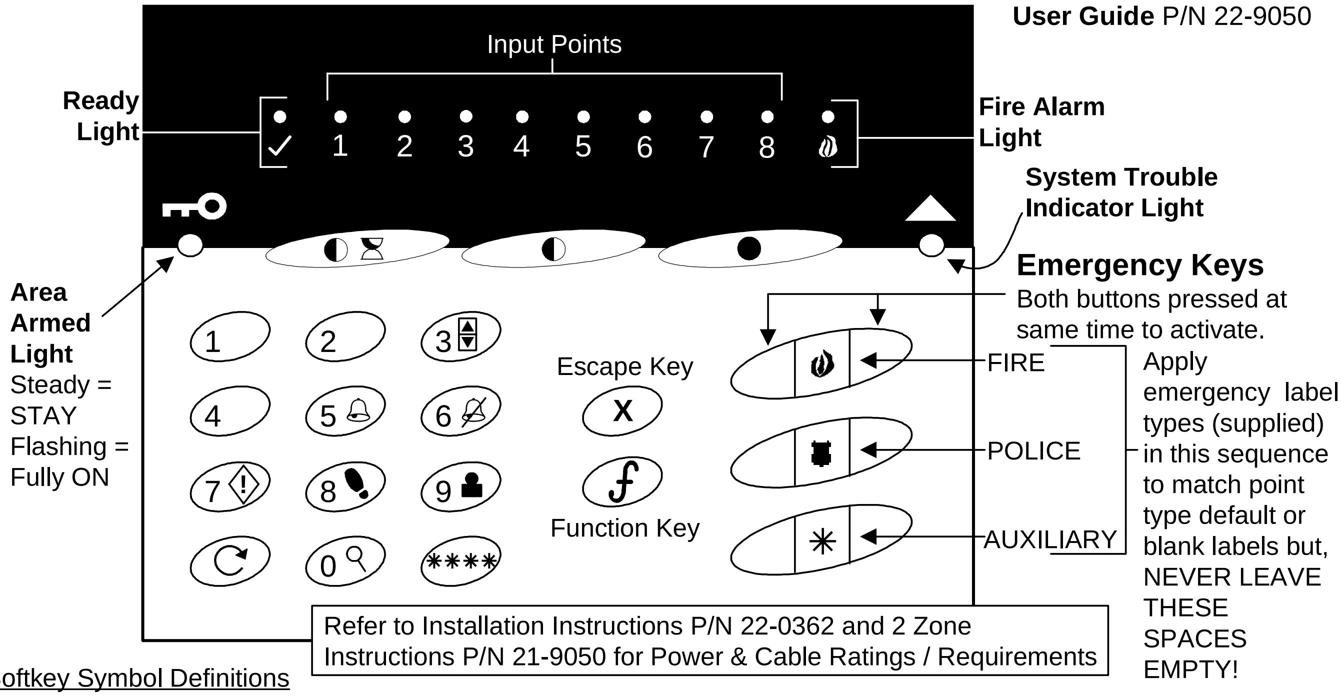


Input # 2 e.g. Motion detector alarm contact. Programmed and wired as normally closed.

Input # 1 e.g. Main entrance door contact. Programmed and wired as normally open with 2.2K end of line resistor.

8 Zone **IMPORTANT:** Must refer to Installation Instructions P/N 22-0362 for detailed information.

User Guide P/N 22-9050



Softkey Symbol Definitions

These keys can be used for Quick Arming from OFF with out having to include a PIN. Pressing the Function key and then one of these keys will silence the arming tone.

- Arm to Stay with an Entry delay.
- Arm to Stay with out an Entry delay. Instant alarm if entry made.
- Arm to Fully On

✻ Enter a user PIN only, to disarm the system or silence an alarm condition.

The system trouble indicator light will flash fast if there is communication trouble with the Module Bus. Flash slowly if the main control has AC Hydro failure. On solid if the keypad or input with tamper supervision, is in tamper.

Key Symbol Definitions and Functions *f* = function key

Pressing:

f + 1 or 2 + PIN = Output control. Pressing 1 can turn on output 1 and 2 can turn on output 2, depending on configurations. Repeat to turn them off.

f + 3 + PIN = Grant lobby access.

f + 4 + PIN = Verify User. Sends the main controller user identification in the event of a false alarm.

f + 5 + PIN = Enable Chime. Keypad tones when entry door opened.

f + 6 + PIN = Disable Chime

f + 7 + PIN = System test. LEDs, sounders turn on for 5 secs.

f + 8 + PIN = Walk Test. As protection points are tripped, their keypad lights lock in for 5 min. or press "X" to stop.

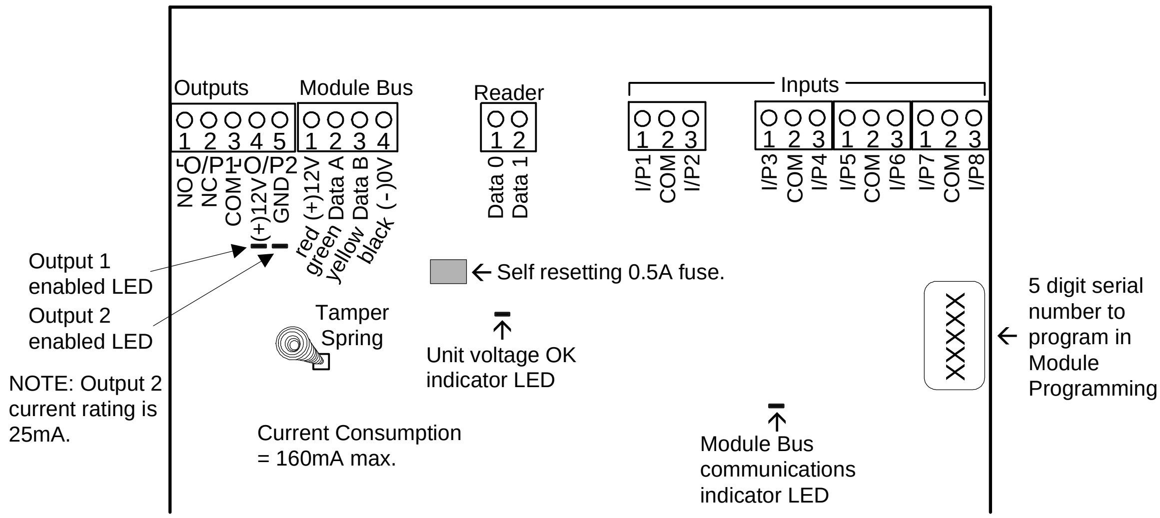
f + 9 + PIN = Master User assigns new User's Authority Level and PIN.
F9 + master PIN + new user # (1 - 8) + Authority Level # + user's PIN # + confirm the same PIN #.
A user can be deleted by making the same entires but entering "0000" as their PIN #, twice.
The user's Authority Level must be "Suite Security Unassigned" to begin with in the Director 2 Software to assign the user to this Suite Security Keypad.

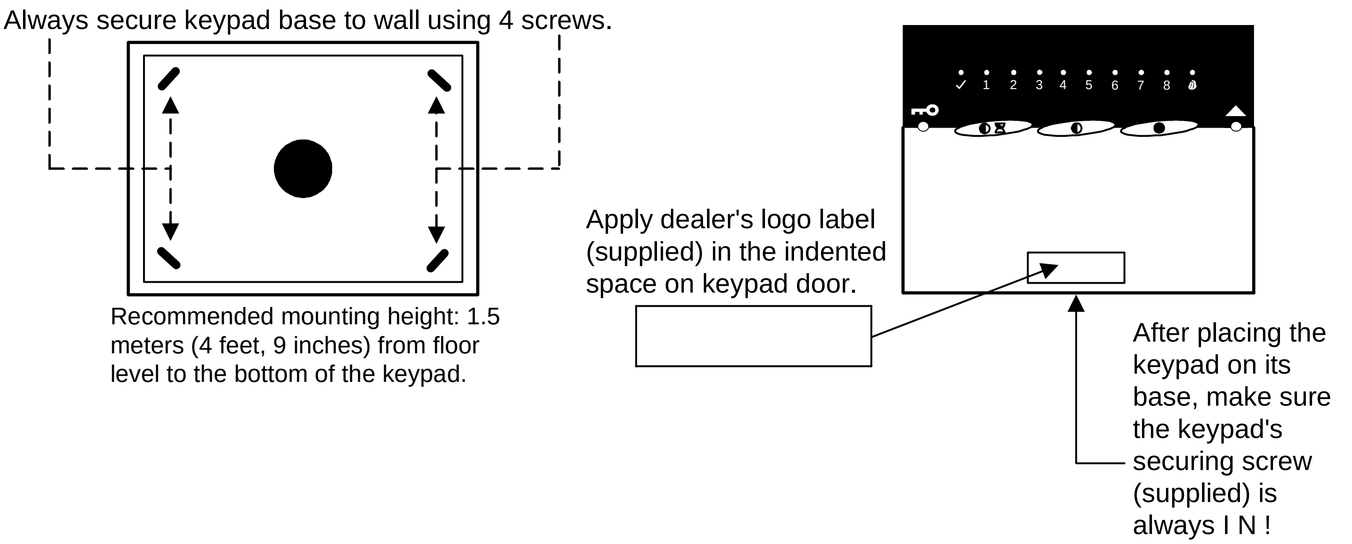
f + ⟳ + Protection Point # + PIN = Bypass/Unbypass input point.

f + 0 + Master PIN + User's PIN = Displays user's ID number 1 - 8.

f + **** + old PIN + new PIN + confirm new PIN = Change PIN #.

8 Zone Wiring and Mounting





- **Each 8 Zone Module 5 digit serial address sticker on the printed circuit board is entered in the <u>"Suite Security" programming. Not the Module programming</u>.**
- Output 1 is a form "C" contact that changes state when this output turns on.
- Output 2 is a standard output that turns on 12VDC when it is enabled. It has a low current rating of 25mA to trigger e.g. a low current relay.
- Input points can be configured as normally closed or open end of line (with 2.2K resistor) only.
- The Master Suite Security User can edit only Suite Security Authority Levels at the Suite Security Keypad and LCD keypad. All other configurations must be done through the Director Software.
- Director Suite Security Authority Level "0", System Authority Only means the user has no Suite Security abilities.
- Suite Security user groups can be allocated in blocks of 8 users. These are Director Suite Security Authority Level "1", Suite Security Unassigned. The F + 9 + PIN at a Suite Security keypad requires the user to be predefined in the Director software database although you do not actually have to assign them to the suite (i.e. Suite Security Authority of unassigned). A user assigned with suite Security Master Authority or through the Director software by an Operator can do this via the Suite Security keypad MODULE at a later time. It simply allocates the space in the database for the possible 8 users per Suite Security keypad similar to how you allocate points for possible future use. The Director software restricts User's 1-8 to Suite Security keypad MODULE #1, User's 9-16 for Suite Security keypad MODULE #2, etc.

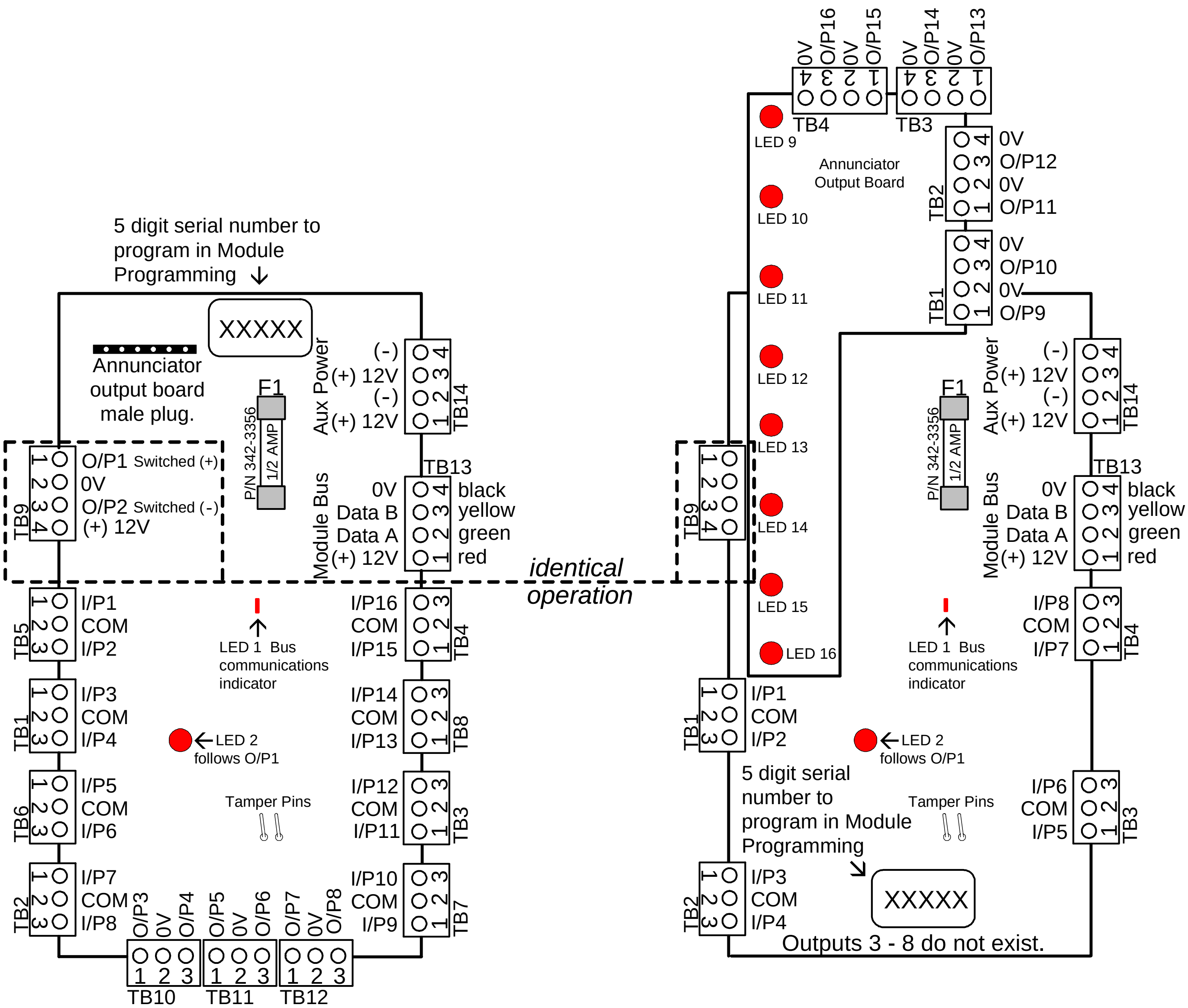
Authority Levels	Turn System ON	Turn System OFF	Turn System to STAY	Bypass Zones	Remove Bypass	Test System	Edit Users	Reset Alarms	Output Key Use
MASTER enter “2”	✓	✓	✓	✓	✓	✓	✓	✓	✓
RESIDENT enter “3”	✓	✓	✓	✓	✓	✓		✓	✓
GUEST enter “4”	✓	✓	✓						✓
CLEANER enter “5”	✓								

Adding an Electronic Siren

- If it is necessary to add an electronic siren with a built in driver, the recommended connection is to use the on board form “C” relay.
- An additional power supply must be added, as the Suite Security module does not have sufficient power to run a siren.
- Connect the siren’s negative power connection to the power supply’s negative supply.
- Connect the power supply’s positive connection to the Suite Security module’s output # 1 relay common connection.
- Connect the siren’s positive connection to output # 1 relay normally open connection. Program output # 1 to follow when the area is in alarm (fire/burglary).
- When the area is in alarm, output # 1 will trigger and supply power to run the siren.
- The maximum number of Suite Security Modules that can be connected to one Main Panel is 60 and is separated into 30 daisy chained on data connection: Module Bus 1 and 30 daisy chained on data connection: Module Bus 2 of the main control board.
- The ratio between the number of Suite Security Modules that can be used and regular modules that can be used on one Main Panel is 5 Suite Security Modules for every 1 regular module.
- It is important to consider power requirements in big Suite Security Module systems. Adequate power supplies must be added to the Suite Security Module cable runs and paralleled onto the Module Bus connections of the Suite Security Module on the run that is designated where more power will be needed. Remember to add an isolating diode to the Module Bus 12VDC connection at the Main Panel’s control board end as described in Appendix “A”, “Adding a power supply to the Module Bus”, of this document. Otherwise, “Battery Trouble” will occur.

8 and 16 Input/Output Expansion Modules

Refer to Installation Instructions P/N 22-0363 for further information.



16 Input (8 Output) Expander Module

16 Outputs with Annunciator Output Board

Current rating = 25mA without annunciator card. 60mA with annunciator card and all LEDs on.

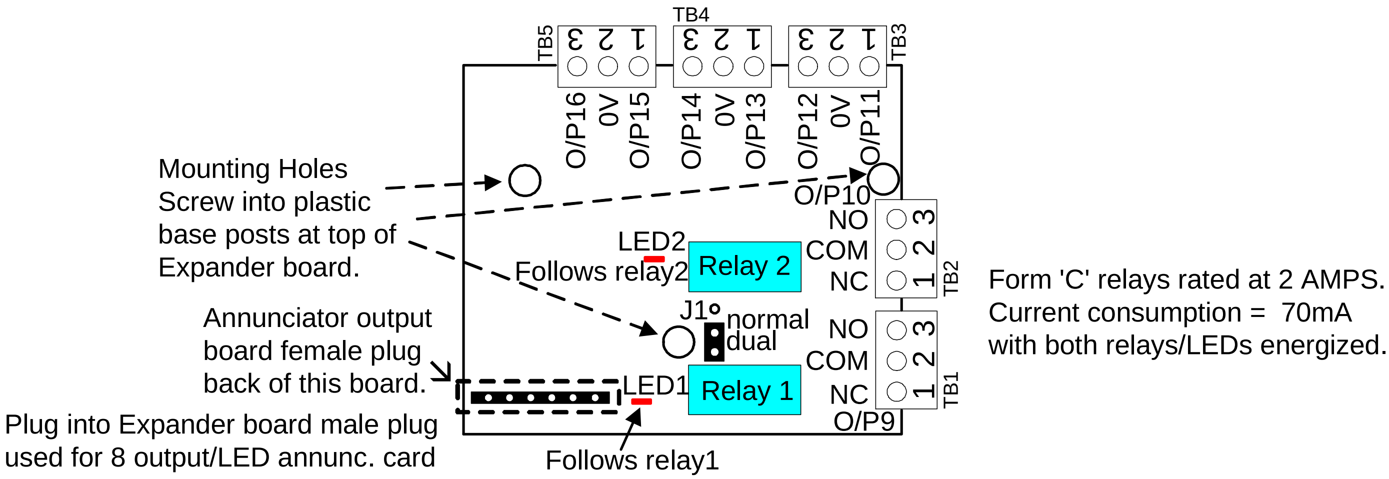
8 Input (2 Output) Expander Module

10 outputs with Annunciator Output Board

Current rating = 25mA without annunciator card. 52mA with annunciator card and all LEDs on.

- The Annunciator Output Board (P/N 650-2660) can be used on either Input / Output module.
- When used on the 8 Input module, outputs 1 and 2 can be programmed but, in order to program outputs and LEDs 9 – 16 on the annunciator card, outputs 3 – 8 must be skipped.
- The 8 Input module must still be assigned 16 outputs in order to program outputs/LEDs 9 – 16 on the annunciator card.
- Outputs 1 and 2 are identical operation on both modules.
- 16 Inputs and 16 outputs are available on the 16 Input module using the annunciator card.

Output/Relay Card



- Can be used in place of the 8-output/LED-annunciator card on 8 and 16 point Expander pods to reduce installation of additional separate relays.
- Output 9 and 10 are relay outputs that can be configured the same as regular outputs but whose contacts will change state upon activation.
- Outputs 11 to 16 act as standard voltage outputs that will turn 12VDC high upon activation.
- When using the card with the 8-pt. Expander, the pod is configured with 16 outputs and outputs 1 and 2 on the board can be programmed. Outputs 3 to 8 must be skipped, as they do not exist. Programming for the card would then begin at 9 to 16.
- With the 16-pt. Expander, a full 16 outputs can be programmed.

Dual Action Relays

- When jumper J1 is in the lower position (dual), programming output 9 will cause both relays 1 and 2 to trigger at the same time. Output 10 can not be programmed or used.
- When jumper J1 is in the upper position (normal), relay 1 will respond to output 9's programming and relay 2 will respond to output 10's programming.
- In either jumper position, outputs 11 to 16 will react normally.
- If jumper J1 is not connected at all, relay 1 will follow output 9 but relay 2 and output 10 will not function at all.

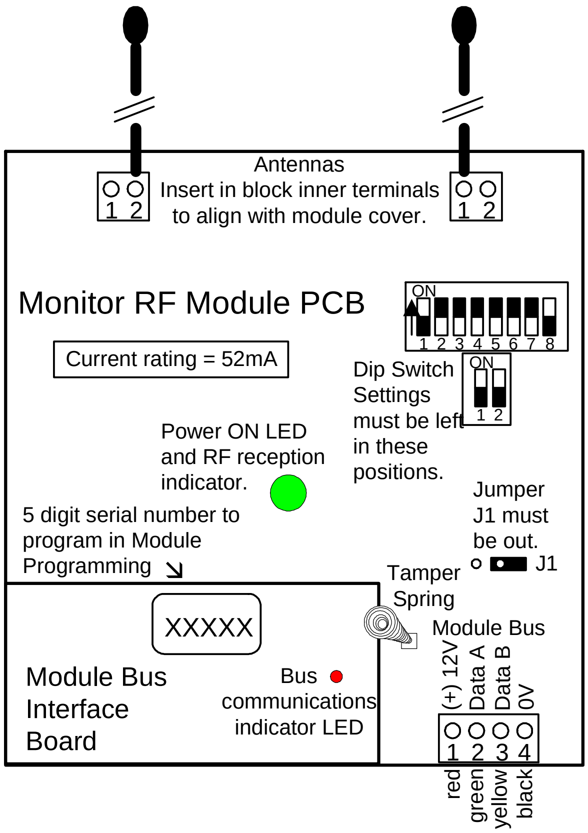
- LED 1 follows relay 1 when triggered and LED 2 follows relay 2 when triggered for Service use only.

NOTE: Also compatible with Chubb Smart Commercial Concentrator. Connected to a Chubb Smart alarm system, card outputs would be 1 – 8. On a Smart commercial concentrator connected to a Fx/ISM Smart Pod, card outputs would be the same as stated here, 9 – 16.

RF Wireless Modules

Version 1

Refer to Installation Instructions P/N 22-0365 for further information.



NOTE: If the system's Feature Set is greater than 5, Module, Input number Type and Name are programmed in the Director software program and sent to the panel. All other wireless sensor programming described here is done at the system's LCD keypad 'Configs' screens. Regardless that after entering Configs, "No Local Edits" displays.

- Referred to as an Application Module.
- Uses ITI learn mode wireless sensors at 319.5 frequency.
- Maximum 32 sensors can be programmed per one Version 1 RF module.
- 16 wireless hand held keypads can be programmed per one V1 RF module.
- Programming is done locally through the LCD keypad. The RF module must be connected to the Module bus to program.
- Mount centrally to the wireless sensors.
- Range approximately 31 meters (100 feet).
- If more than one V1 RF module is used, separate them 2.5 meters (8.5 feet) apart to prevent interference.

Programming

- Enter the module's 5-digit address in Module programming and assign required number of input points for the number of sensors being used. Do not assign outputs, as there are none. Turn on tamper and all other settings may remain defaulted. Exit the Module programming and then go back to Module programming and the same address. This initializes the module.

Hand Held Keypads

- When back at the same Module programming 5 digit address, press **Save**.
- Display reads **No Keypad →Learn**. The first keypad-programming screen is e.g. M002↓A (A = 1st keypad). Keypad programming screens following this one are e.g. M001↓B – P for a total of 16 hand held keypads that can be programmed.
- Press the right arrow key. Display reads **Enroll Keypad**.
- Press the " f " (function) key on the hand held keypad.
- LCD keypad display changes to **00•000**.
- The first 2 zeros represent the area the keypad is assigned to.
- The next 3 zeros represent the input # the hand held keypad's panic button (police badge icon) is assigned to. Reserve a point # in the group of inputs assigned to the RF module for this.

RF Handheld Keypad Operation

User Code + Command Key + 1	Turns Area OFF
User Code + Command Key + 2	Turns Area to STAY
User Code + Command Key + 3	Turns Area to Fully ON
User Code + Command Key + 4	System Test (turns on LCD keypad lights/sounder, system siren for 5 seconds.
User Code + Command Key + 9	Clears or silences alarms.
User Code + Function Key + 1, 2 … 9	Engage Programmable Outputs Functions
Function Key	Press once to learn RF Hand Held Keypad into system.
✳ (Escape Key)	Used to clear incorrect entries.
Police Badge Icon Button	Panic Button. Press and hold until rapid beeps heard to enable.

NOTE: If “Allow User Entry Delay” in System programming is enabled, and a user arms to STAY, they are prompted with a next screen message if they want an Entry Delay or not while in STAY. If the area the Handheld Keypad is assigned to is turned to STAY using the Handheld KP, this feature will default to “User Entry Delay Allowed”.

Sensors

- Enter Point programming and the first input point # assigned to the RF module.

  TIP: An easy way to find points assigned to this module and any modules with inputs and outputs is to press the middle button when in the point’s main screen where its point type is configured. E.g. P001↓0, middle button displays: ↓✳ (or ↓**?** for other modules).

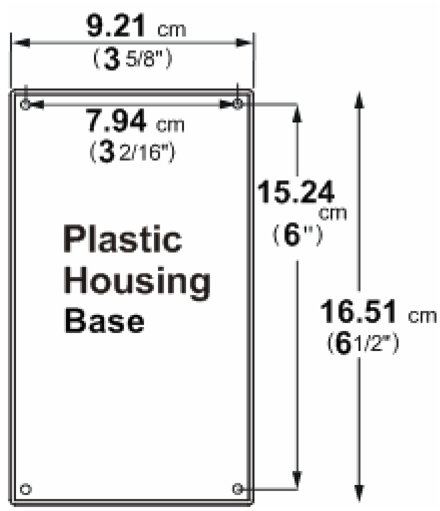
- Pressing the button below this will indicate on a help screen what module the point you are at is connected to. E.g. screen displays: **002** (module # 2) **Wireless** (RF module) **p013 – 016** (input point range 13 to 16) **S#10097** (5 digit module address). Outputs do not show, as the RF module has none. A module with outputs would also include **b000 – 000** in place of the mod address number. bCAPL output group and the output number range applicable, in this special screen.
- Wireless sensor’s circuit types are always “0” – normally closed.
- Press **Save** and enter the Sensor’s name (12 characters max.) e.g. PIR JOHNS RM
- Press **Save** and a different screen displays saying **No Sensor →Learn**.
- Press the right arrow key. Screen changes to **Enroll…**, **Stop**, **Force**.
- Trigger the tamper on the sensor or if there is no tamper, cause it to alarm.
- If it is not convenient to tamper the sensor, then it can be force learned by pressing the button beneath Force. Cause the sensor to alarm to learn it into the system. Pressing the button beneath Stop can stop the Force method.
- When the sensor has been learned, the screen will change to default: **3 •✓•✓**.
- 3 represents the sensor’s supervisory signal time limit (0=disabled, 1=2hrs, 2=6hrs, 3=12hrs, 4=24hrs). The first check mark is sensor tamper on or off. The second check is the hardwire input. Normally closed = ✓ normally open = ☐. With the LCD screen cursor flashing under a check mark or a box, pressing any key number on the keypad will toggle it.
- Press **Save**. Screen displays “**Programming**” and changes to the sensor’s wireless address e.g. **Cnt:56DB5**. Cnt = wireless door window contact.
- The sensor has now been learned.

SENSOR CATEGORY	DESCRIPTION	DEFAULT SETTINGS
Cnt	Door Window Contact (surface mount) - also used as an RF transmitter for hard wire inputs - e.g. Overhead Door Contacts	3.✓.✓
FrP	Fire Pull	3. ☐.✓
Frz	Freeze Temperature Detector	3.✓.☐
Gls	Glass Break Detector	3.✓.✓
HKP	Hand Held Keypad	0. ☐.☐
PIR	Passive Infra-red Detector	3.✓.✓
Pnc	Panic Pendant OR Hand Held Double Button Panic	0. ☐.☐
Rcn	Recessed Contact	3.✓.✓
RoR	Rate of Rise Detector	3. ☐.☐
Smk	Smoke Detector	3. ☐.☐
SoS	Shock and Sound Detector	3.✓.✓
???	Unknown sensor type – delete this sensor and re-learn	

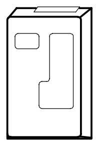
Testing (Signal Strength)

- Use the Service PIN to go to the TEST menu.
- Select ↓**App** for application module and then ↓**W/L** for wireless.
- Select ↓**Scan**. Activate a sensor.
- The screen will display information about each sensor it receives. E.g. **Cnt56DB5** (door/window contact and its address), **014** (input #14), **80 02 4** (sensor transmit codes).
- Press XESC escape to return to the TEST screen. Press ↓Signal.
- Activate a sensor. Screen indicates signal strength of sensor it receives. E.g. "**Strength is 8 !**". Signal strength of 7 to 8 is acceptable. Signal strength of 6 or less is poor to unacceptable. The input point # transmitting will also indicate: **(Tx: 014)**.
- Another method to check if a sensor is transmitting is to stand near the RF module holding a sensor and activate the sensor. The large green LED, visible through the module's cover will flash upon activating the sensor to indicate signal transmission.
- RF Module sensor inputs OK or Not OK and Tamper can be checked in System Status/Area/Points.
- **RF Module, hand held keypad(s) and sensor status** can be checked in System Status under App – Wireless using the left or right arrow LCD keypad keys for conditions such as low battery, sensor loss. Disregard any codes in lower right corner of these screens.

Version 2 Wireless

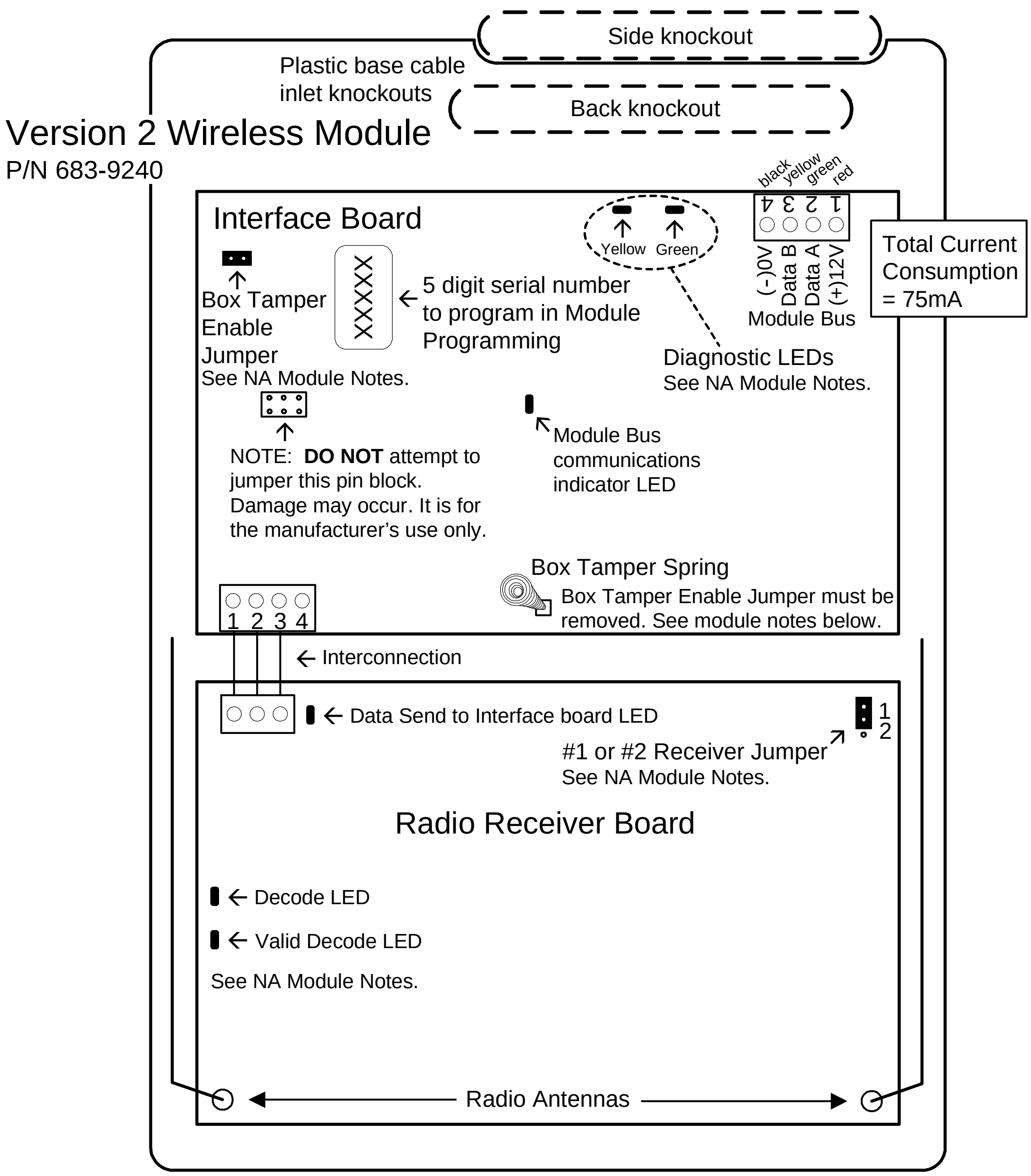


North American and European Versions are in the same enclosures.



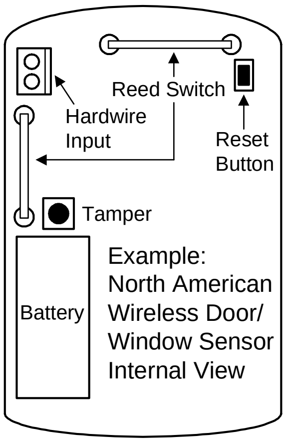
Antennas enclosed

North American Module (Refer to Installation Instructions P/N 22-9240 for further information.)



Version 2 North American Wireless General Information

- The V2 Wireless Module communicates with Inovonics learn mode wireless sensors. They transmit with Frequency Agile 900MHz spread spectrum radio transmissions.
- For each sensor's instructions, consult the Inovonic's instructions packed with each sensor.
- Each wireless (RF) module supports a maximum of 32 wireless sensors. The V2 wireless module must be connected to the module bus to enable programming.
- For programming information, see the MONITOR Commissioning Reference Guide, mentioned at the beginning of these installation instructions.
- Mount the module centrally to the wireless sensors.
- Install module away from large metal objects.
- Mounting the module on metal surfaces will impair performance.
- This module is intended for indoor use only. Use in outdoor applications may impair performance.
- If a sensor reports a 'low battery' and the sensor's battery is replaced, the sensor's reset button must be pressed to restore the sensor.



NOTE: Some sensors can have reed switches and a hardwire input and some can only have a hardwire input. Check your sensor's model/part number in your sales order to ensure you have the correct version.

A North American version door/window sensor has 2 reed switches and one hardwire input. Either position reed switch and the hardwire input can be used for e.g. 2 doors. However, if only a reed switch is used, the hardwire input must be closed with a wire short. If only the Hardwire input is used, the magnet must be installed next to one of the reed switches to close the circuit.

NA Module Notes

Tamper Enable Jumper

- **Enable Box Tamper Detection:** While the module is de-powered, remove this jumper. When power is applied to the module, the spring box tamper on the Interface board will be active.
- **Disable Box Tamper** (factory default)**:** While the module is de-powered, replace this jumper if it had been removed. Re-power the module and the box tamper is disabled.

Diagnostic LEDs

Yellow LED	Green LED	Condition	Description
0 to 9 pulses to indicate module serial number, 5 digit value.	On for 1 second per serial number digit.	Module Serial Five Number display	When the board is first powered up, the serial number is displayed in an encoded format. The number of times the yellow LED flashes while the green LED is ON steady gives the digit value. E.g. green on, count 3 flashes on yellow, green off, first digit is "3". Green turns back on, yellow flashes 9 times, green off, second digit is "9". Etc. etc. until the entire serial number is displayed, one digit at a time. It takes several seconds to complete the entire process. NOTE: "0" is indicated by the green LED turning on and the yellow LED does not flash.
Off	Flashing slowly.	All ok	System operating normally.
On	Flashing slowly.	Sensor Trouble	One or more of the RF sensors enrolled is having trouble (supervision fail, sensor tamper or low battery). Wireless test and status menus can be checked at the system LCD keypad to identify the sensor trouble. Consult the Commissioning Reference Guide for these procedures.

Flashing slowly.	Flashing slowly.	Receiver Failure	The receiver board is not communicating properly with the interface board. Check the condition of the three wire interconnection between the two boards and check power.
Flashing fast, alternating with the green LED.	Flashing fast, alternating with the yellow LED.	The Module serial number is not programmed.	The non-volatile module memory is not programmed or has failed. If (re)programming fails, return the module to the factory for a replacement, .

<u>Data Send to Interface Board LED</u>

- Flashes as data is transmitted to the Interface, which then transmits the information over the module bus to the main panel.

<u>Decode LED</u>

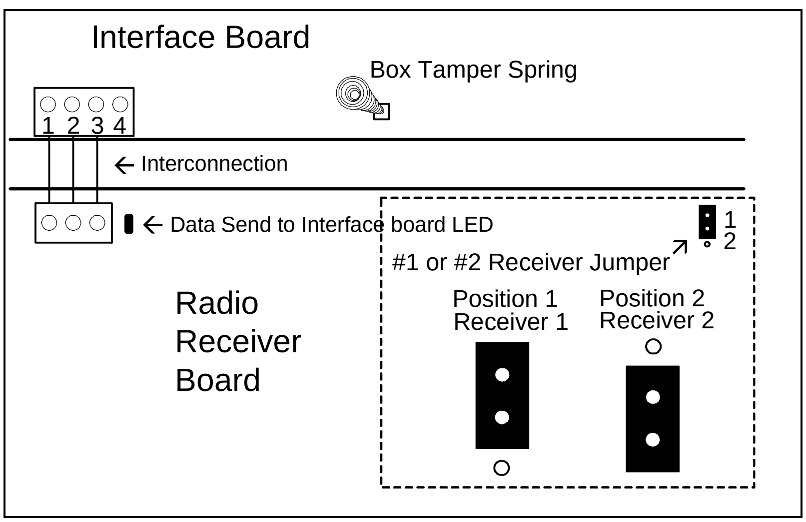
- Flashes as any RF data is being received.

<u>Valid Decode LED</u>

- Flashes as the receiver decodes a message.

<u># 1 or # 2 Receiver Jumper</u>

- WARNING: Disconnect the module bus connector, to remove power, before re-positioning this jumper.
- If it is necessary to mount two receivers close to each other, they must be at least 91.4 cm apart (3 feet).
- This jumper on one of the receivers must be set in the # 1 position. This jumper on the other receiver must be in the # 2 position.
- When there is only one receiver in a general area, this jumper is left in the # 1 position (default).
- Never leave this jumper out.



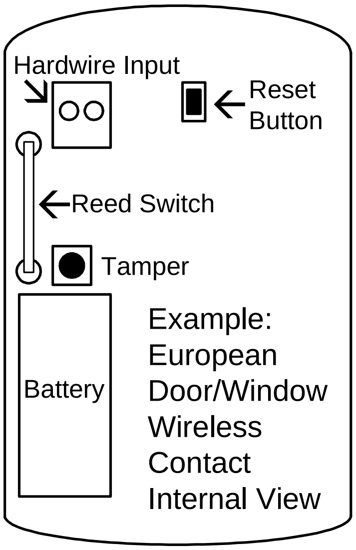
NOTE: If the system's Feature Set is greater than 5, Module, Input number Type and Name are programmed in the Director software program and sent to the panel. All other wireless sensor programming described here is done at the system's LCD keypad 'Configs' screens. Regardless that after entering Configs, "No Local Edits" displays.

European and Australian Module

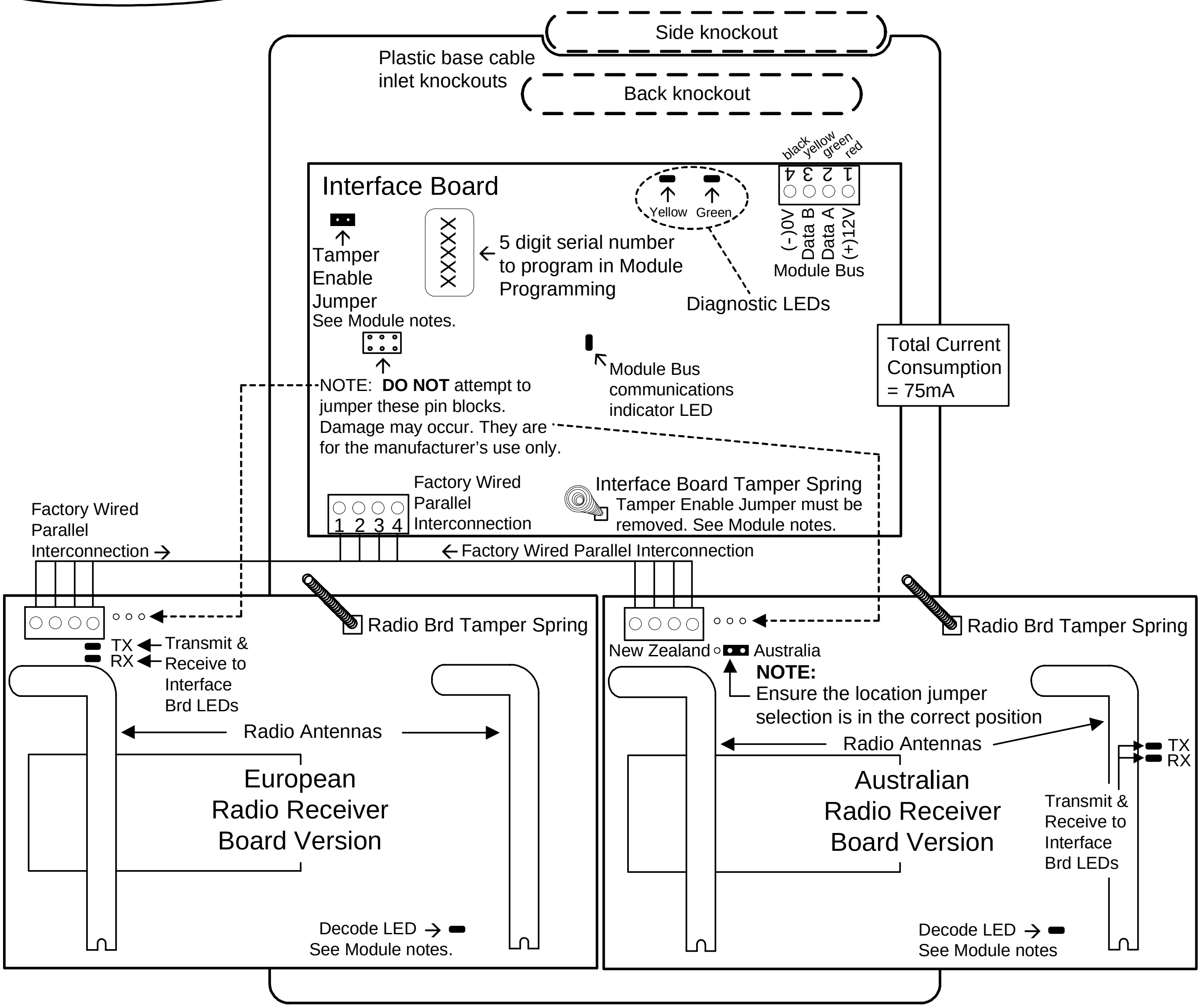
Refer to Euro Installation Instructions P/N 22-9241 and Australian P/N 22-9242 for further information.

- The EURO and Australian V2 Wireless Modules communicate with Inovonics learn mode EURO wireless sensors. For each sensor's instructions, consult the Inovonic's instructions packed with each sensor.
- Each EURO and Australian wireless (RF) module supports a maximum of 32 wireless sensors. The V2 wireless module must be connected to the module bus to enable programming.
- Mount the module centrally to the wireless sensors.
- Install module away from large metal objects.
- Mounting the module on metal surfaces will impair performance.
- This module is intended for indoor use only. Use in outdoor applications may impair performance.
- If a sensor reports a 'low battery' and the sensor's battery is replaced, the sensor's reset button must be pressed to restore the sensor. Re-check the sensor's programming to ensure it is correct.

European and Australian Version 2 Wireless Module cont.



NOTE: Some sensors can have a reed switch and hardwire input and some can only have a hardwire input. Check your sensor's model/part number in your sales order to ensure you have the correct version.
A European version door/window sensor has 1 reed switch on its side and one hardwire input. Both can be used for e.g. 2 doors. However, if only the reed switch is used, the hardwire input must be closed with a wire short. If only the hardwire input is used, the magnet must be installed next to the reed switch to close the circuit.



Euro and Australian Wireless Module Notes

Tamper Enable Jumper

- **Dual Tamper Detection:** While the module is de-powered, remove this jumper. When power is applied to the module, both the Interface and Radio board tampers are active. With the jumper in, only the Radio board's tamper is active.

Diagnostic LEDs

Operation is the same as the previously mentioned North American version.

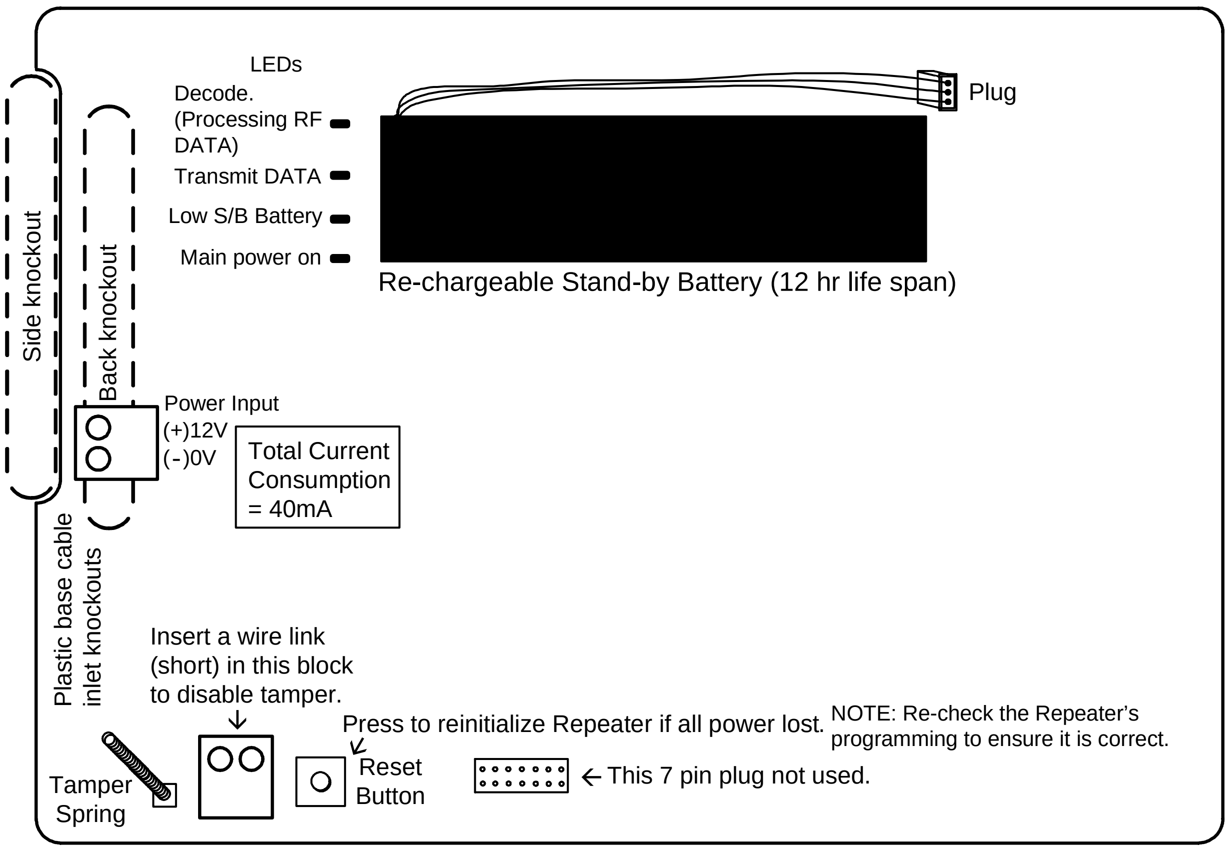
Transmit and Receive data between Interface and Radio Boards, LEDs

- Flash as data is transmitted between the Interface and Radio boards, which supplies information over the module bus to the main panel.

Decode LED

- Flashes as any RF data is being received.

Euro / Australian RF Repeater Module



- The repeater module is used to increase the range of transmitting and receiving signals.
- Mounting for the Repeater is the same as the Receiver as it is in the same plastic enclosure. Follow the same General Information Notes as the Receiver.

Version 2 Wireless Programming

NA and Euro Modules

The version 2 wireless module is very similar to the version 1 in the way it learns wireless sensors.

- The V2 does not support wireless keypads and it is not necessary to reserve input point numbers for keypad 'panic' buttons like V1.

V2 Module Programming

- The V2 has a 5-digit module serial number, which is programmed into the system module programming, like the V1. For systems with a Feature Set of 5 or above, local configuration programming at an LCD keypad cannot be done. Module enrollment, input point assigning, must be done through the Director software and sent to the panel. V2 wireless sensors can be learned into the system the same as V1 through the LCD keypad. V1 wireless sensors can not be used with the V2 module and V2 sensors can not be used with the V1 module.
- If for some reason the serial number sticker is missing, the V2 will display its serial number when it is first powered. Using the yellow and green LEDs beside the module bus terminal block, the number of pulses on the yellow LED while the green LED is ON, gives the digit value. E.g. green on, count 3

pulses on yellow, green off, first digit is "3". Green turns on, yellow pulses 9 times, green off, second digit is "9". Etc. etc. until the entire serial number is displayed, one digit at a time. It takes several seconds to complete the entire process. NOTE: "0" is indicated by the green on and NO pulses of the yellow LED.

Module Programming

- Program the V2 module serial # into the module configurations. Assign the number of input points required (4 to 32). Like the V1, the V2 does not have outputs. The outputs selection may be left as '0'. After making these selections, press the button below 'Next' in the LCD keypad's module enrollment screen, or send the module info to the panel from Director.
- The next screen will look like this. It can only be programmed through the system's LCD keypad. If the module config was sent to the panel by the Director, go to an LCD keypad on the system and log on as a service user. Select 'Config' and the first Module Configurations screen for this module: e.g. M005↓0. Press the 'Next' button from that screen to get to this one.

```
AllSVN:1  Force:2
↓Save  ↓✶
```

  AllSVN: V2 Module Supervision Timeouts. The time allowed before a supervision signal is transmitted from the V2 because it has not received a trigger or supervisory signal from any of the sensors assigned to it.
  Selections: 1 = 2 Hrs, 15 Min (default)
  2 = 6 Hrs, 35 Min
  3 = 12 Hrs
  4 = 25 Hrs, 15 Min
  0 (None) cannot be entered.
  Force: The number of times any sensors should be triggered before the V2 will Force learn it into the system. This can be helpful if in a big system with e.g. wireless PIRs that are being periodically tripped, the force count is increased to avoid false 'force' enrolment of a sensor.
  The default is 2 triggers but can be changed from 1 to 9 triggers.
  When these selections are acceptable, press the `Save` button. Pressing the ✶ button will display the module type and its input and output range.

Input Configuration

- Wireless sensor's circuit types are always "0" – normally closed.
- If the system's Feature Set is greater than 5, the input point type and name screens cannot be programmed through the system's LCD keypad Configs. That information must be programmed in the Director software and sent to the panel.
  If the circuit type, sensor type and name have been programmed into the system with the LCD keypad and Save is pressed, the next screen below will display:
  If they were programmed in using the Director because the Feature set is greater then 5, re-enter input point programming at the keypad and ignore any warnings about no programming using the keypad. Wireless points are learned into the system using keypad input programming regardless of the Feature Set. Return to this following screen and follow the next steps:
- Press the right arrow key on the LCD keypad.

```
No Sensor →Learn
↓Save  ↓✶  Pxxx↓2
```

(xxx represents an input #)

- In this next screen, if the V2 sensor has a tamper button, press it several times until the screen changes. Or, if the sensor does not have a tamper button (e.g. pendent panic button) press the button on the keypad under Force. The down arrow next to Force will clear. Trigger the sensor as many times as Force is set in the previously mentioned **AllSVN:/ Force:** screen (default: 2 times). NOTE: The sensor cannot be triggered in rapid successions. Trigger it once, wait a few moments and then the next trigger and wait a few moments again. As many times as the Force times are set. To disengage Force, press the button under 'Stop'. The keypad display will return to the 'No Sensor – Learn' screen. If a sensor is not enrolled within 1 minute, the `Force` button will need to be pressed again.

```
Enroll....
↓Stop  ↓Force
```

- When the sensor has been detected, this screen will display:

```
SVN:0 TMP:✓ IN:☐
↓Save  ↓Del
```

- **SVN:** Sensor Supervision Timeouts. The time allowed before the V2 will send a supervision signal identifying a specific sensor that has not transmitted after these timeout selections.
  Selections: 0 = None (default)
  1 = 2 Hrs, 15 Min
  2 = 6 Hrs, 35 Min
  3 = 12 Hrs
  4 = 25 Hrs, 15 Min
  TMP: Whether the sensor's 'Tamper' will be monitored (✓ default) or not (☐).
  IN: Whether the sensor alarm output is 'Inverted' (✓) or not (☐ default). This selection should always be left defaulted unless it is necessary for a sensor to act opposite to its regular normal or alarm condition.
  Del: Delete Sensor. After a sensor has been programmed or, an error was made, the keypad button below this selection can be pressed and the sensor will be deleted. The screen will return to 'No Sensor – Learn'.
  If the `SVN:0 TMP:✓ IN:☐` screen selections are acceptable, press `Save`.
- The screen will momentarily display: '`Programming...`'

- This screen will then display:

```
SN#:1B3414  →Edit
↓Save   ↓✶  Pxxx↓2
```

  SN#:1B3414: This is the Serial Number of the sensor that was enrolled into this input number.
  Pressing the keypad right arrow button will display the "SVN:0 TMP:✓ IN:☐" screen for editing. The 'Del' button can also be pressed to remove the sensor and another sensor could be programmed for this input number if desired.

Equipment/Pseudo Point Selections for Wireless V2

Module Trouble (E011), ensure this is set to detect:

- Module Bus connection to V2 module failure.
- V2 module failure.
- V2 module has not received any sensor signal for X amount of time (AllSVN).

Module Battery Low (E012), ensure this is set so 'Senor Low Battery' will be detected.
Module Program Edit (E013) can be optionally set to detect when the sensor settings have been changed. This alert will not re-set until there have not been any further program changes for one hour.

LCD Keypad Status

- Enter 'Status' at the system's LCD keypad.
- Press the keypad's right arrow key until ↓App (Application Module) displays. Press the keypad button under it.
- When Wireless2 or WL2 displays, press the button under ↓Yes.
- Keypad left and right arrow keys can be pressed to scroll through the input numbers and V2 module conditions.

Input Number Status

- The input number range associated with the V2 will display and the input's condition e.g. 009→Ok.
- It can also display the following for an input:
  '**NoSvn**' No Supervision. A sensor supervision signal failure. The input will appear in point status as a tamper.
  '**Lobat**' Low senor battery. This will generate a module or pod low battery alert. If the sensor's battery was replaced, the sensor's reset button on its printed circuit board must be pressed.
  '**Not Enrolled**' A sensor is not programmed to this input. The input will appear in point status as a tamper. Delete the input if it will not be used.
  '**NoRcv**' No Receiver detected. V2 module malfunction.
  '**PtTmp**' Input sensor tamper. The input will appear in point status as a tamper.

V2 Module Status

- After scrolling through all the V2 input conditions, the condition of the V2 module will display: e.g. Pod→Ok.
- It can also display the following for a module:
  '**NoSvn**' The V2 module is not communicating on the module bus.
  '**NoSen**' The V2 module has not received communication from its sensors, based on the supervision delay period set for the V2 module (AllSVN).
- Module Status will display the V2 module in tamper for either of these conditions.

V2 Test Menus

- Log on to the system LCD keypad as a Service User.
- Select 'Test' from the Menu and App → WL2 or Wireless2.
- This screen will display: (X.Xx) indicates the V2 firmware version number.

```
Check        (X.Xx)
↓Signal ↓Scan
```

- '**Signal**' selects a sensor signal strength menu.
- Pressing 'Signal' will display this screen:

```
xxx < > Si  > 3 OK
Signal 014 of 21
```

  xxx represents an input sensor number on the V2 module.
  < > keypad left and right arrow keys can be pressed to scroll through the input numbers.
  Si(gnal) **> 3 OK** is an example of the V2 receiver getting an adequate signal strength from the sensor.
- This screen is an example of the V2 receiver getting an inadequate signal from the sensor.

```
xxx < > Si  > 4 Weak
Signal 001 of 21
```

- The second line in both screens displays the actual signal strength measured on a scale of 000 to 021 (maximum).
- If a sensor has not been enrolled in an input number, '**Not Enrolled**' will display on the top line.
- '**Scan**' selects an RF scanning menu.
- When 'Scan' is pressed the screen will display '**Waiting...**' to receive an RF transmission from any sensor. NOTE: if this screen never changes, it is possible the V2 module is not working properly.
- If this screen displays when a signal is received, it is from a sensor that has not been enrolled in the system, indicated by LEARN. SN#:1B3414 is the sensor's unique serial number.

```
SN#:1B3414 LEARN
AA BB
```

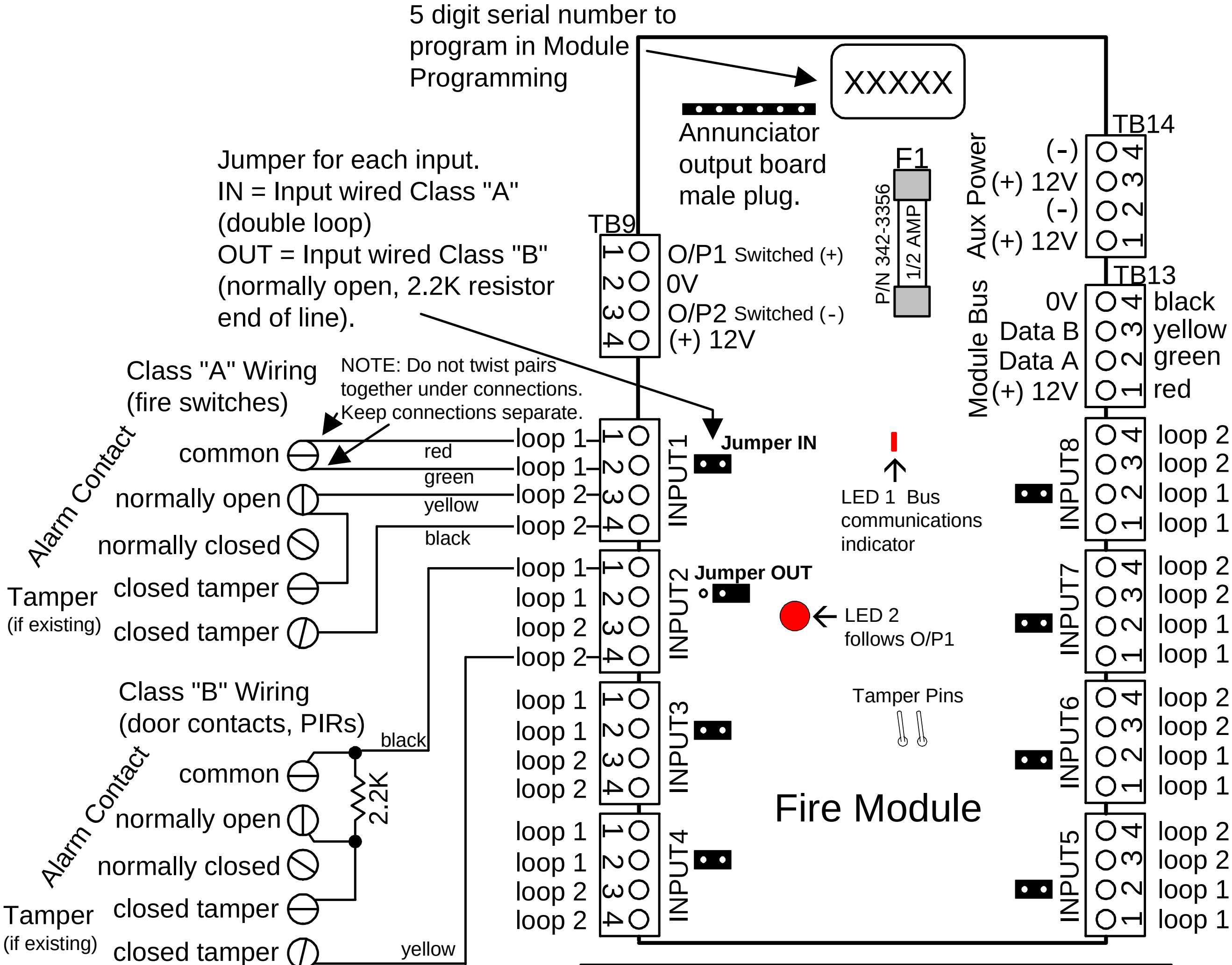
- If this screen displays when a signal is received, it is from a sensor that is enrolled in the system, indicated by P#xxx where xxx is the input number.

```
SN#:1B3414*P#xxx
AA BB
```

- Either an asterisk or a blank will display after a sensor's serial number as it toggles every time a transmission from a different sensor is received.
- In either screen, 'AA BB' is changing data that can be ignored. It is for internal Engineering use only.

Fire Module

Refer to Installation Instructions P/N 22-0367 for further information.



Current Rating = 25mA without annunciator card.
60mA with annunciator card and all LEDs on.

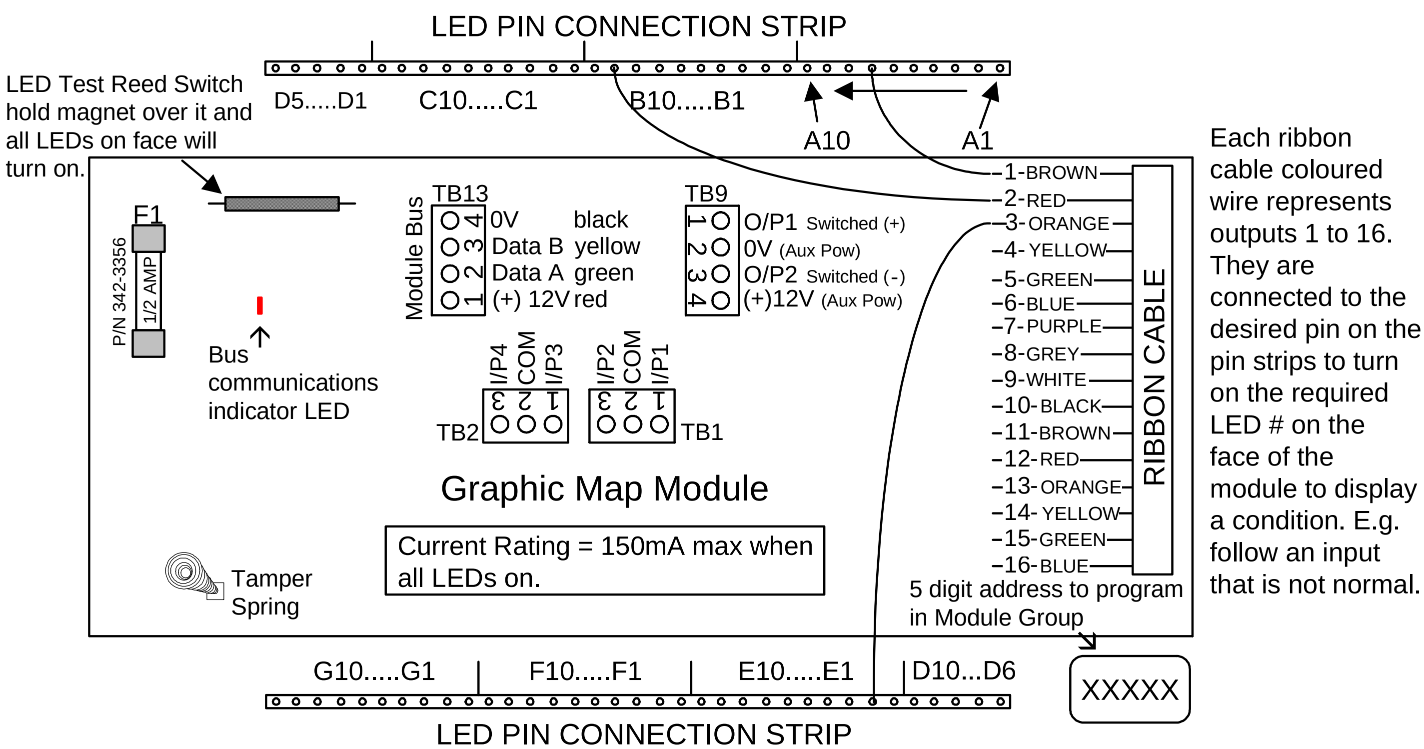
- Capacity of 8 inputs and 10 outputs (with standard plug on output annunciator card).
- With jumper settings illustrated, inputs can be wired class “A”. A short between the 2 loops wired between normally open connections = alarm. Either loop opening = tamper. Most commonly used to monitor water flow sprinkler alarm switches.
  Or the inputs can be wired class “B”. A short across the 2.2K end of line resistor between normally open connections = alarm. Resistor loss = tamper. This connection can be used to monitor sprinkler switches such as water pressure and gate valve but can also be used as burglary inputs.
- Whether the point is class “A” or “B”, fire or burglary, the point circuit type is always “0” normally closed. Any point type may be used. However, for a class “A” fire point, it must be defined as “010” = Fire Class A.
- For an approved fire monitoring system, an 18V, 40VA, AC transformer (P/N 859-0052) must be installed on the control unit box. This txmr. has two 18V secondary white leads connected to motherboard AC input. The txmr. primary is then fastened to an AC supply (e.g. 2X4 electrical box, P/N 573-3735 and cover, P/N 573-3742).
- For ULC applications all cabling connected to the fire module MUST be run inside armored BX flex cable. From fire module to sprinkler switches and Module Bus line from fire module directly back to main control unit.
- When programming outputs, this board is similar to the 8/16 input/output expander module. Outputs 3 to 8 do not exist. Therefore, if the outputs on the annunciator card are required, the module is programmed with 16 outputs. The 1st and 2nd output can be programmed. Outputs 3 to 8 are skipped. Outputs 9 to 16 can be programmed on the annunciator card.

Graphic Map Annunciator Module

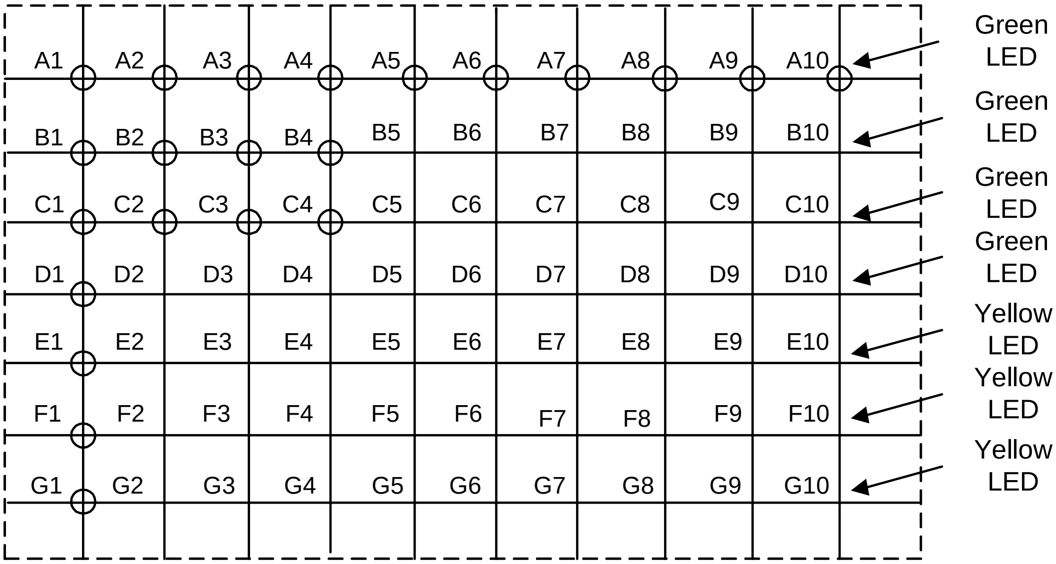
Refer to Installation Instructions P/N 22-0364 for further

Features:

- Recommended mounting height: 1.5 meters (4 feet, 9 inches).
- Can be assigned with maximum 16 outputs to turn on any 16 LEDs over the display of 70 possible LED locations.
- This module can be assigned with 4 hardwire inputs.
- Outputs 1 and 2 can be the first 2 LEDs on the screen or used as hardwire outputs or both as these 2 outputs will turn on both sources (LEDs or hardwire connections) at the same time.
- When outputs 1 and 2 are used as hardwire connections they behave the same as on the input/output modules. Output 1 turns positive 12V and output 2 turns negative.
- The 0V negative for hardwire positive output #1 and 12V positive for hardwire negative output #2 can also be used as auxiliary 12V power connections (fused at .5 AMP).
- Applying a magnet to a reed switch on the PCB will turn on all LEDs in the display for testing.
- The Map Module drawing software is a Windows based draw program. It is installed as a template to use over and over. It allows a user to do a diagram of a system's layout for the LEDs to turn on and highlight certain point programmable output conditions in the diagram. E.g. point not normal, point in alarm. It could also be used to make alpha/numeric labels that can have the LEDs turn on next to them for various area, point indications. E.g. "Area 1 ON", "Area 2 STAY". When the diagram is complete, it can be printed out and cut out to fit inside the Map Module's display.
- The Map Module drawing software is available on the Director Software CD and listed as "MAP MODULE TEMPLATE.dot."



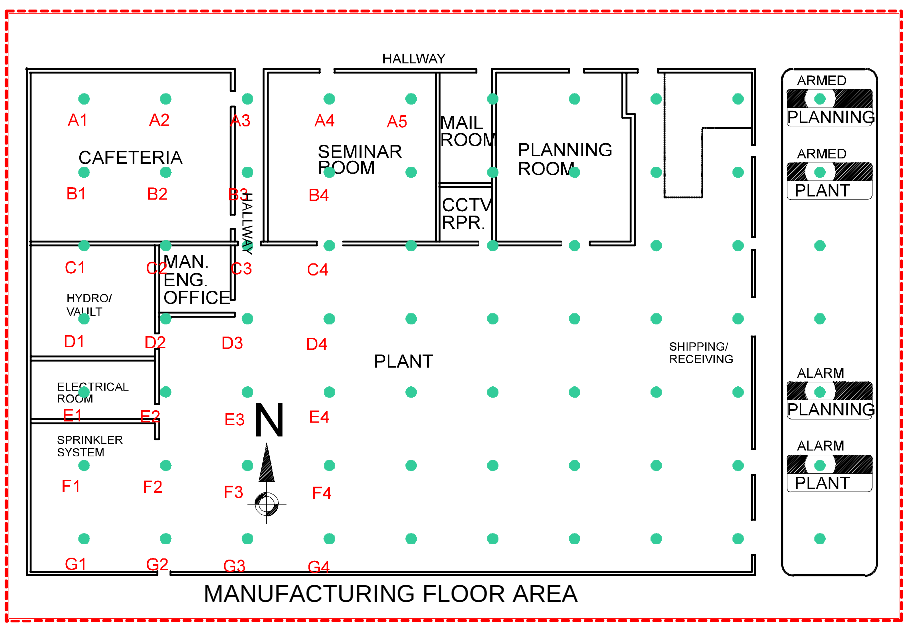
Graphic Map Module cont.



LED position IDs on face correspond with those on PIN strip. All LEDs are RED except as shown.

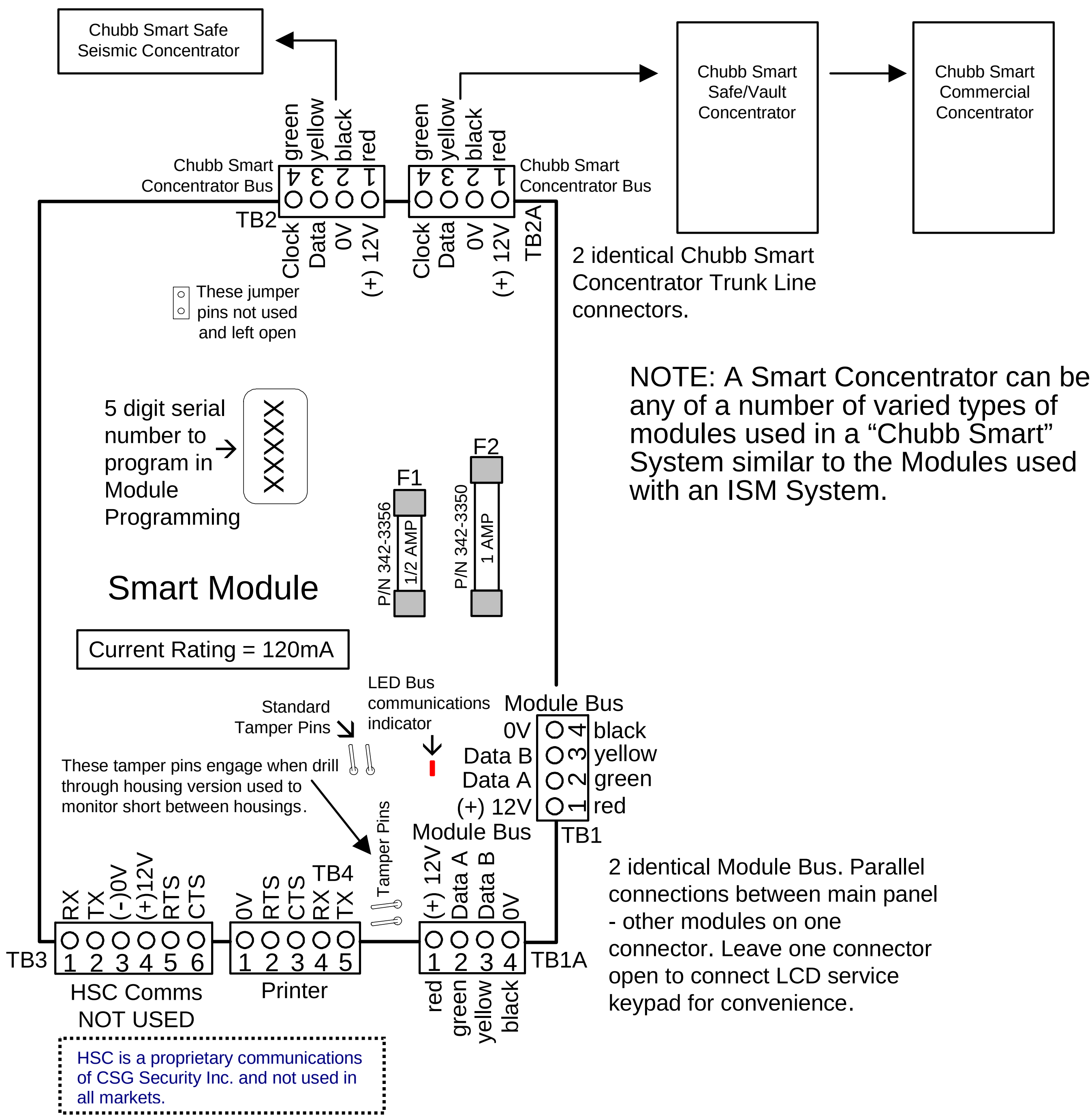
Using the Graphic Map Module drawing software can produce a diagram similar to this. Points of interest can be labeled and illuminated for any programmable output condition by strategically assigning the outputs to the LEDs.

LED ID letters and numbers are displayed in this example only. A printed out drawing will not show them.

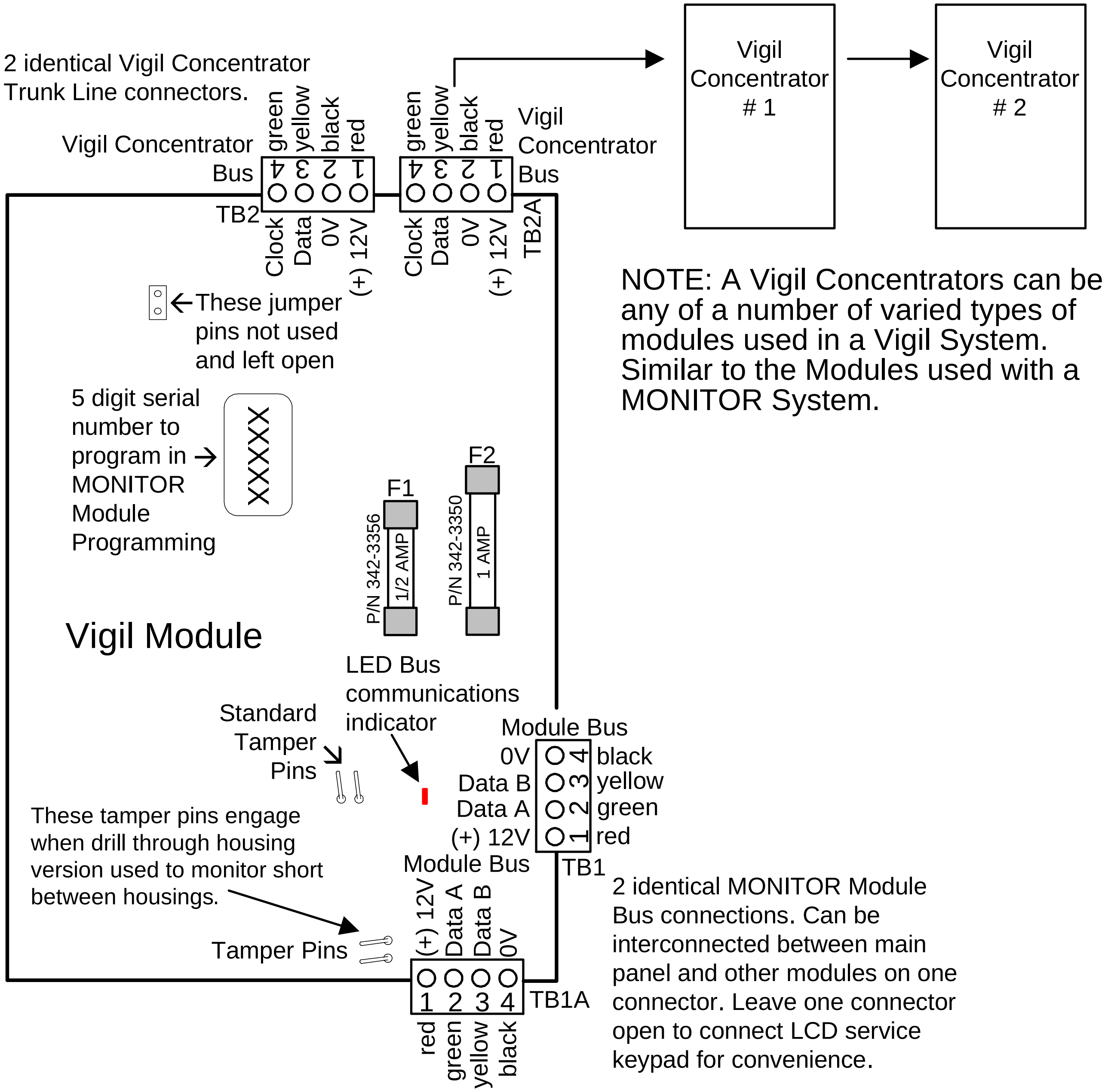


Smart / Vigil Module

- This module is an interface to allow compatibility between the concentrator control devices of the Chubb Smart/Vigil security system and the ISM/AFx security system for upgrade purposes. The Smart module also features a printer connection.
- Any existing Chubb Smart/Vigil keypads must be replaced with the ISM/AFx version and they are connected to the Monitor control unit via the Module Bus.
- For Chubb Smart concentrators quick reference and wiring, please see technical information bulletins #139 for Commercial and #142 for Financial Chubb Smart. For Smart module application notes, please see Intrusion Technical Bulletin #12-001: Smart Fx



Vigil Module for use in the UK



NOTE: A Vigil Concentrators can be any of a number of varied types of modules used in a Vigil System. Similar to the Modules used with a MONITOR System.

Module Programming

- The Smart/Vigil Module is capable of 64 input points and 80 output points to match the number available with a full size Chubb Smart system.
- For easier programming of inputs/outputs the Smart/Vigil module must occupy the <u>first</u> module position in the ISM/AFx Module Group.
- Enter the module's 5-digit address in Module programming.
- It may be left assigned to Area 1 and enable the module's tamper.
- Inputs and outputs are programmed differently from other modules to achieve the full amount on a Chubb Smart/Vigil system.
- The Smart/Vigil module is 3 modules in one. It has 3 module group addresses.
- If a Smart/Vigil module was taking over a full 64 inputs and 80 outputs, this first address would be programmed with "7" = 32 inputs and "7" = 32 outputs.
- Press **Save**. In the following module address, enter the next consecutive number after the last address. E.g. if the Smart/Vigil module's original address number was "**15281**" in this second module address enter "**15282**".
- Program the same as the last address with "7" = 32 inputs and "7" = 32 outputs.

- Press **Save**. The next address is the third Smart/Vigil module address. Enter the next consecutive address number after the last. E.g. "**15283**".
- Program the same as the last 2 addresses but only enter "4" for 16 outputs. "0" for inputs.
- This will now supply 64 inputs and 80 outputs. For smaller Chubb Smart/Vigil systems, it is only necessary to program the number of inputs/outputs required. All 3 addresses may not be needed and other module addresses could occupy their places.
- Exit the module programming and then go back to module programming and the first Smart/Vigil module address. This initializes the module.
- Press **Save**. The following screen supplies three programming options. **↓HSC** (NOT USED), **↓PRN** (printer), **↓SMR** (Chubb Smart/Vigil Concentrators).
- **Printer programming is the same as with a Printer module (discussed later in this manual).** Please refer to programming it with that module, to program it with the Smart module.
- Press the button below ↓SMR.

Smart/Vigil Concentrators Programming

- The next screen displays programming for the first Smart/Vigil concentrator.
- The top line displays: **Conc1** (concentrator 1), ☐ [enable conc1, with the cursor under this box (press LCD keypad left or right arrow keys) press any key number to make the box a ✓ to enable the conc.] **T** ☐ [is it necessary to test a seismic connected to this concentrator (seismic concentrator, safe/vault concentrator), enter ✓ if yes], **S** ☐☐☐☐☐ [how many seismics require a test signal (seismic concentrator has 1 seismic, a safe/vault concentrator can have 1 seismic configured as a safe or a maximum of 5 for a vault) make each box a ✓ for each seismic]. E.g. for a commercial concentrator there are no seismics. Only enable the conc. and do not enable any test selections. Press **Save**.
- Programming for the next conc. is displayed. Programming for all concentrators continue in the same way.

Programming Inputs/Outputs

- Programming inputs is the same as any inputs with e.g. Expander module.
- With the Smart/Vigil module occupying the first module location, inputs for it begin at 009. 001 – 008 being on the ISM/AFx main panel.
- When programming outputs, they begin at 009. 001 – 004 (005 – 008 not existing) being on the ISM/AFx main panel.
- It is very IMPORTANT to remember that the 9th output for any concentrator with seismics to test must be programmed as "AREA ON" [bCAPL programmable output code: 01.10XX (XX = area #01 – 10)] to generate the test.
- Use the following chart to compare Chubb Smart/Vigil inputs/outputs as they are converted to ISM/AFx.

Smart/Vigil Concentrator to Smart/Vigil Module Inputs and Outputs Conversion Chart

	Smt/Vig Conc. Input #	Smt/Vig Module Input #		Smt/Vig Conc. Input #	Smt/Vig Module Input #
C	1	9	**C**	33	41
O	2	10	**O**	34	42
N	3	11	**N**	35	43
C	4	12	**C**	36	44
	5	13		37	45
#	6	14	**#**	38	46
1	7	15	**5**	39	47
	8	16		40	48
C	9	17	**C**	41	49
O	10	18	**O**	42	50
N	11	19	**N**	43	51
C	12	20	**C**	44	52
	13	21		45	53
#	14	22	**#**	46	54
2	15	23	**6**	47	55
	16	24		48	56
C	17	25	**C**	49	57
O	18	26	**O**	50	58
N	19	27	**N**	51	59
C	20	28	**C**	52	60
	21	29		53	61
#	22	30	**#**	54	62
3	23	31	**7**	55	63
	24	32		56	64
C	25	33	**C**	57	65
O	26	34	**O**	58	66
N	27	35	**N**	59	67
C	28	36	**C**	60	68
	29	37		61	69
#	30	38	**#**	62	70
4	31	39	**8**	63	71
	32	40		64	72

	Smt/Vig Conc. Output #	Smt/Vig Module Output #		Smt/Vig Conc. Output #	Smt/Vig Module Output #
C	1	11	**C**	41	51
O	2	12	**O**	42	52
N	3	13	**N**	43	53
C	4	14	**C**	44	54
	5	15		45	55
#	6	16	**#**	46	56
1	7	17	**5**	47	57
	8	18		48	58
	9	9		49	49
	10	10		50	50
C	11	21	**C**	51	61
O	12	22	**O**	52	62
N	13	23	**N**	53	63
C	14	24	**C**	54	64
	15	25		55	65
#	16	26	**#**	56	66
2	17	27	**6**	57	67
	18	28		58	68
	19	19		59	59
	20	20		60	60
C	21	31	**C**	61	71
O	22	32	**O**	62	72
N	23	33	**N**	63	73
C	24	34	**C**	64	74
	25	35		65	75
#	26	36	**#**	66	76
3	27	37	**7**	67	77
	28	38		68	78
	29	29		69	69
	30	30		70	70
C	31	41	**C**	71	81
O	32	42	**O**	72	82
N	33	43	**N**	73	83
C	34	44	**C**	74	84
	35	45		75	85
#	36	46	**#**	76	86
4	37	47	**8**	77	87
	38	48		78	88
	39	39		79	79
	40	40		80	80

NOTE: This Table applies when the Smart / Vigil Module is configured as Module # 1.

The first 8 inputs and outputs of the ISM/AFx are located on the main control board.

Output Locations on Smart/Vigil Concentrators

Commercial Concentrator: output 9 becomes output 1. Output 10 becomes output 2. Outputs 1 – 8 on the plug on, 8-zone annunciator card become outputs 3 – 10.
Safe/Vault Concentrator: outputs 1 – 5 start their programming at output 3 – 7.
Safe Seismic Concentrator: output 1 becomes output 3. Output 2 becomes output 4.

Checking Status

- When in the Status menu, select ↓**App** and then **SMA** for the Smart/Vigil module.
- Select ↓**SMR** to check Smart concentrators. ↓**HSC** is NOT USED. Printer status and some printer user control is in the History menu the same as using a Printer module (discussed later in this manual).

- When selecting SMR, the status of each concentrator will display and pressing the LCD keypad left or right arrow keys will display each concentrator's status. Pressing **↓Next** will return to the main Smart/Vigil module menu.
- The concentrator may state that it's **OK**. **Tmpr** = conc. tamper. **Tmpr Au_ERR** = the concentrator is in tamper and has had an authentication error (concentrator substitution e.g. conc. dis/reconnected). **PTmpr** = the Smart/Vigil module itself is in tamper and the concentrator is OK.

Smart/Vigil Module Test and Diagnostics

- Using Service user ID/PIN, enter the Test menu and select ↓App. Select SMA for Smart/Vigil module.
- **↓HSC** is NOT USED.

Printer Option (Smart Module ONLY)

- Pressing **↓PRN** will allow you to control and do tests on the printer.
- Pressing **↓Ctrl** will give you the options to **↓Strt**: start the printer, **↓Cncl**: cancel pending messages, **↓Plg**: print the entire log.
- Pressing **↓L/B** will do a printer port loop back test the same as the HSC loop back test on the HSC/Printer module (discussed later in this manual) to test printer hardware integrity.

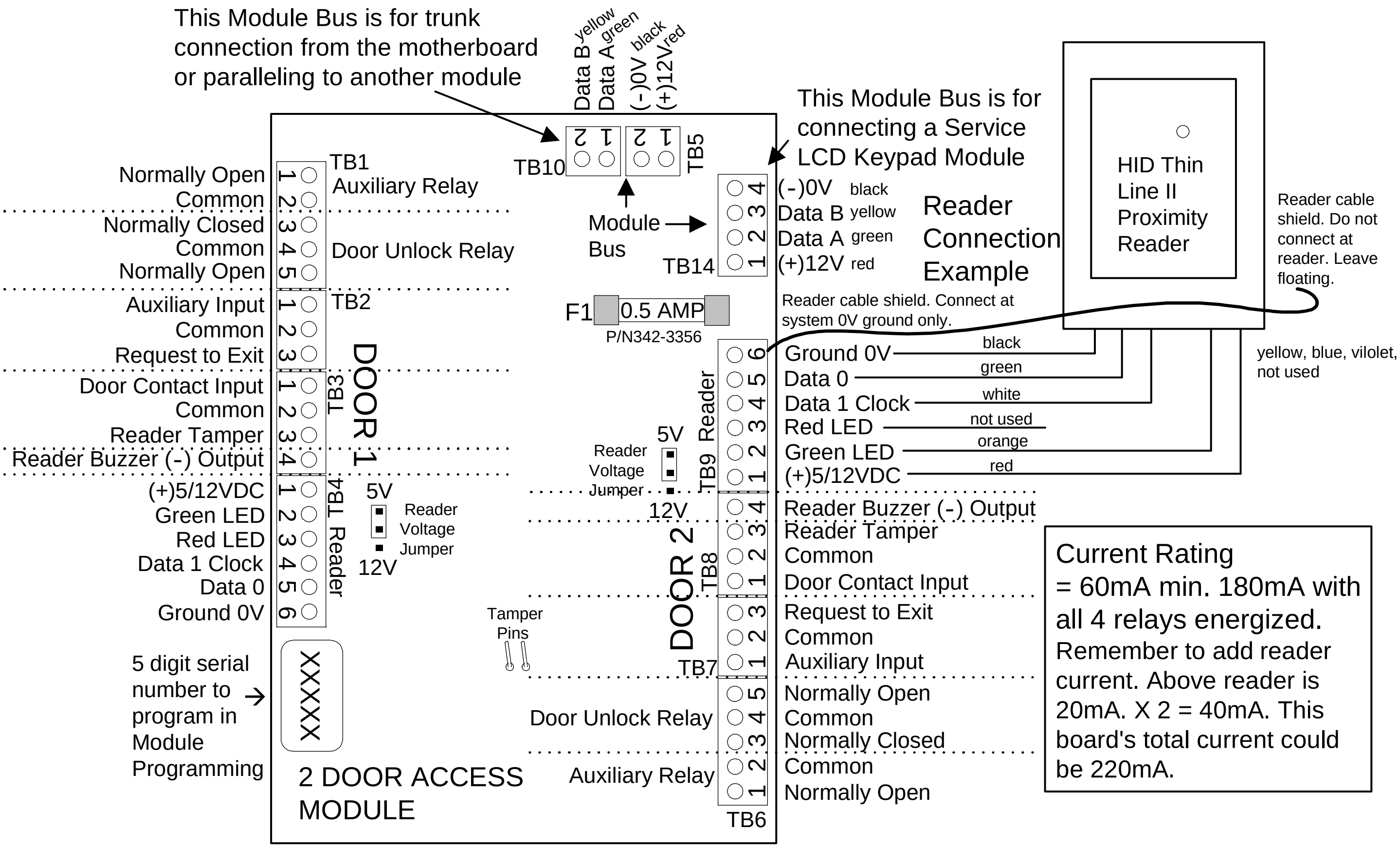
Smart/Vigil Concentrator Tests

- Pressing ↓SMR from the SMA menu will display **↓Alog** for point analog. Pressing it will display the condition of a Smart/Vigil input using different values. The Smart/Vigil input point numbers can be scrolled using the LCD keypad left or right arrow keys. Values indicate: "**018**" = normal, "**001**" = tamper, "**032**" = in alarm. These readings may vary but still be within these ranges.
- Pressing **↓Vault Tst** will test all seismics connected to any concentrators through out the system. The display will change to "**Testing Vault Concentrators**" and stay on for 1 second. The test occurs in 15 to 20 seconds afterwards.
- After this delay is finished, go to the Analog screen again. Scroll the various points until the ones that may have had a test fail display. They will display with an "**F**" (failed).
- Pressing **↓TFAL** (test fail) will display the concentrator number and seismic that failed. E.g. **Conc: 001** (concentrator #1), **F-X-F-X-X** (seismics 2 and 3 failed the test).

Door Controller Modules

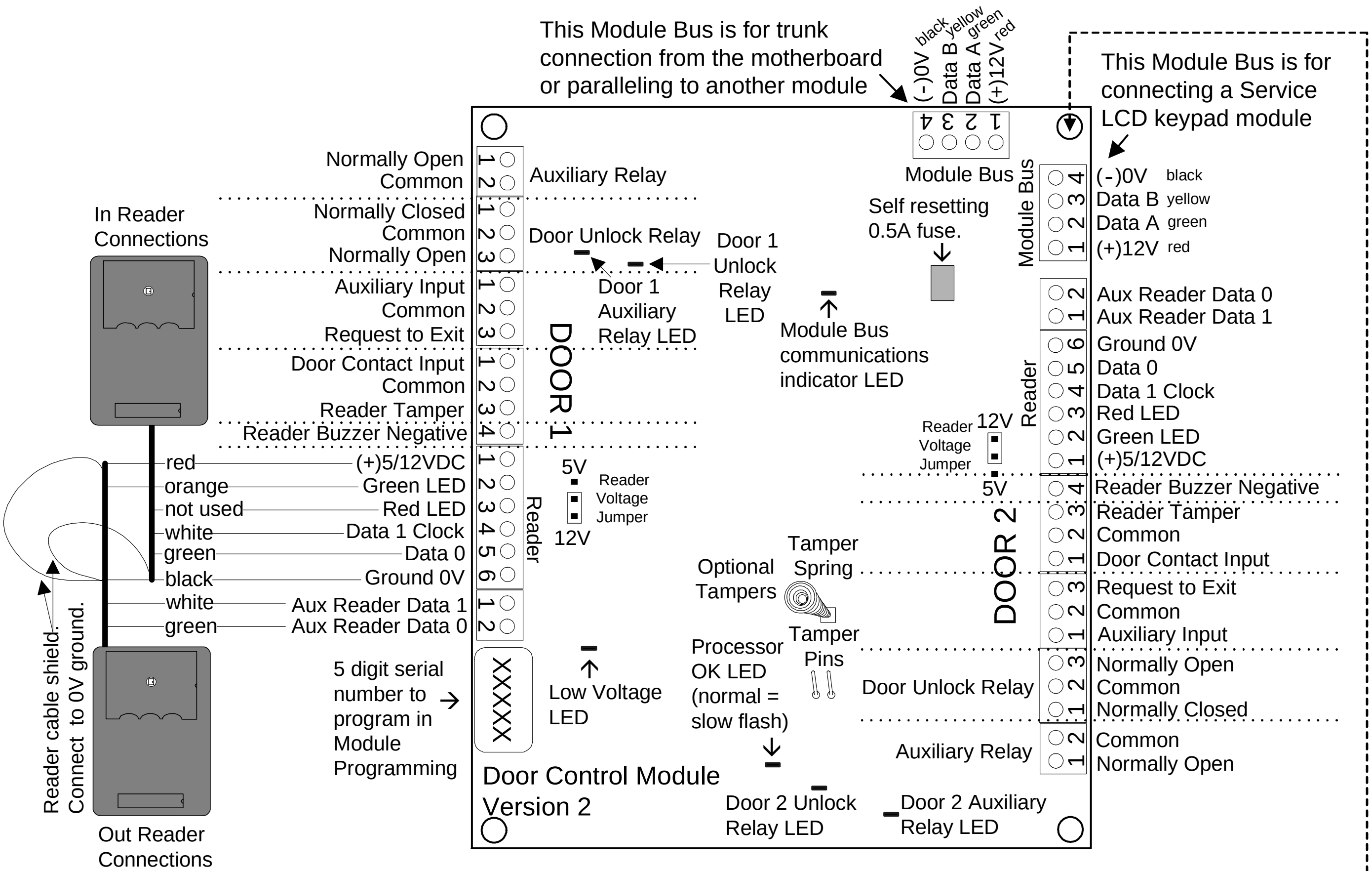
Version 1 Door Module

Refer to Installation Instructions P/N 22-0345 for further information.



Version 2 Door Module

Refer to Installation Instructions P/N 22-0353 for further information.

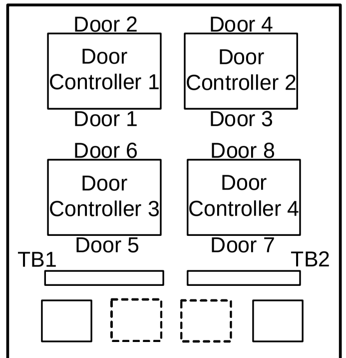


Current Rating
= 160mA min. 200mA with all 4 relays and their indicator LEDs energized.
Remember to add reader current. Example readers are 110mA. X 2 = 220mA. Two readers per each door would be 440mA. This board's total current could be 640mA.

<u>SPECIAL NOTE:</u>
For **Rev A** replacement boards this stand off hole must be isolated by the technician with e.g. a fiber washer on either side of the hole. This is not required for current Rev D boards and greater. Rev B & C boards do not exist. The Rev version can be found “silk screened” on the back of the board.

Multi - Door Controller General Wiring

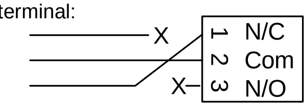
Strike and mag lock connections are pre-wired between the door controller boards and the two large terminal strips near the bottom of the cabinet. Module Bus connections are provided as well.
Other connections (such as reader cables, door contacts, etc.) connect directly to the door controller boards.
For door-strike and mag lock instructions, refer to the "Power Links" sections.



Multi-Door Controller Cabinet

Fail-Safe Door Strikes

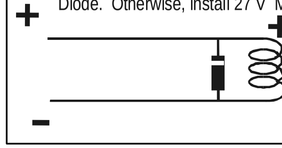
The default door strike wiring is for "Fail-Secure" (powered = unlocked). For "Fail-Safe" door strikes (powered = locked), connect to the large terminal strips as usual, AND at each applicable Door Controller Unlock Relay, move the N/O wire to N/C terminal:



For UL Installations
The system shall not be installed in the fail secure mode unless permitted by the local authority having jurisdiction and shall not interfere with the operation of panic hardware.

Door Lock Detail

Install diode or MOV close to the lock [DC strike, or mag. lock w/o rev. coils: Use Diode. Otherwise, install 27 V M.O.V.]



Grounding

Ensure each cabinet is connected to a locally-approved earth ground using at least 18 AWG wire.
Do not connect anything else to the earth ground.
Connect the Module Bus cable shields together inside each cabinet and only connect the shield to earth ground at the ISM panel.

Power Links for Door Strikes (Momentary Power)

The Multi-Door Controller is pre-wired to power 8 Doors with Door Strikes.

If a door requires mag lock power instead, remove the link for the door number strike and jump the previous door's strike power to the next doors'.

Example: Door 3 has a mag lock. Remove the pre-wired jumper between door 3 and 4 and move the connection from 3 to 4 to continue supplying power to the remaining doors.

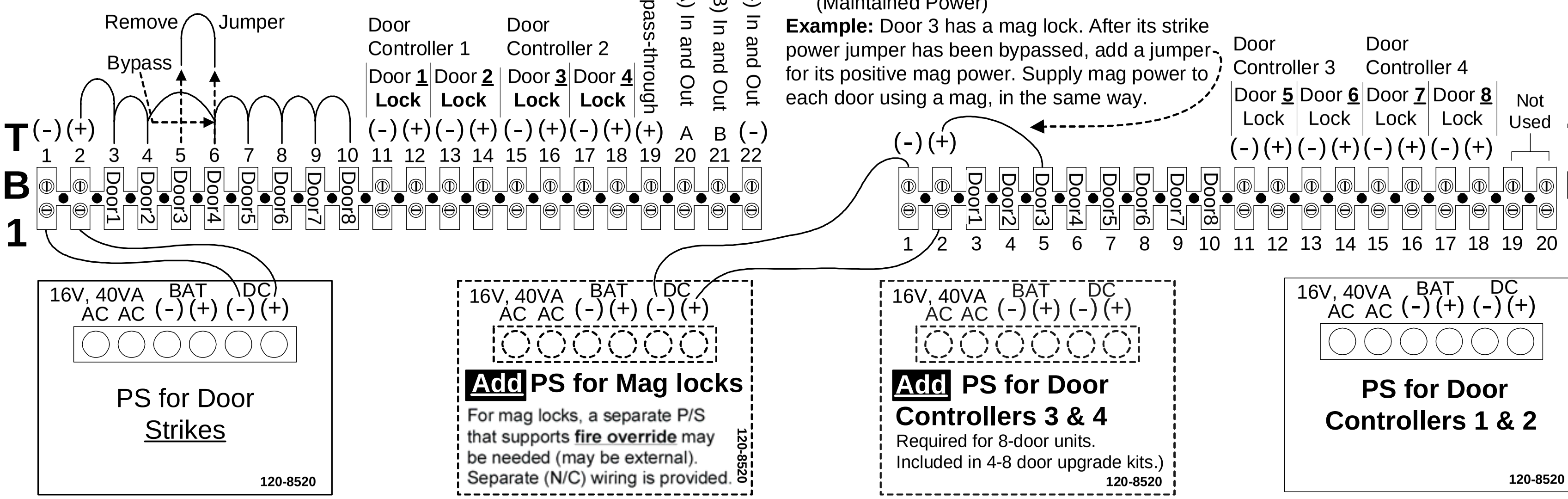
Continued at Power Links for Mag Locks TB2 →

Module Bus Connections

Power Links for Mag Locks

(Maintained Power)

Example: Door 3 has a mag lock. After its strike power jumper has been bypassed, add a jumper for its positive mag power. Supply mag power to each door using a mag, in the same way.



Multi-Door Controller

For use in 2 Door Controller models:
950-9011, 950-9012, 950-9013, 950-9014

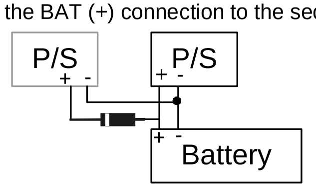
See Two Door Controller Installation Instructions: 22-0353

Upgrading the Door Capacity

The 4-6 door and 4-8 door upgrade kits include door-controller board(s), a power supply, and mounting hardware.
The wiring harness is pre-wired to power the additional door controller board(s) from the second P/S.

Backup Batteries

Each power supply requires a **separate** battery. These may need to be smaller than 7 Ah to fit into the cabinet. **Exception:** If you must share a battery between 2 P/Ss, insert a diode in the BAT (+) connection to the second PS.



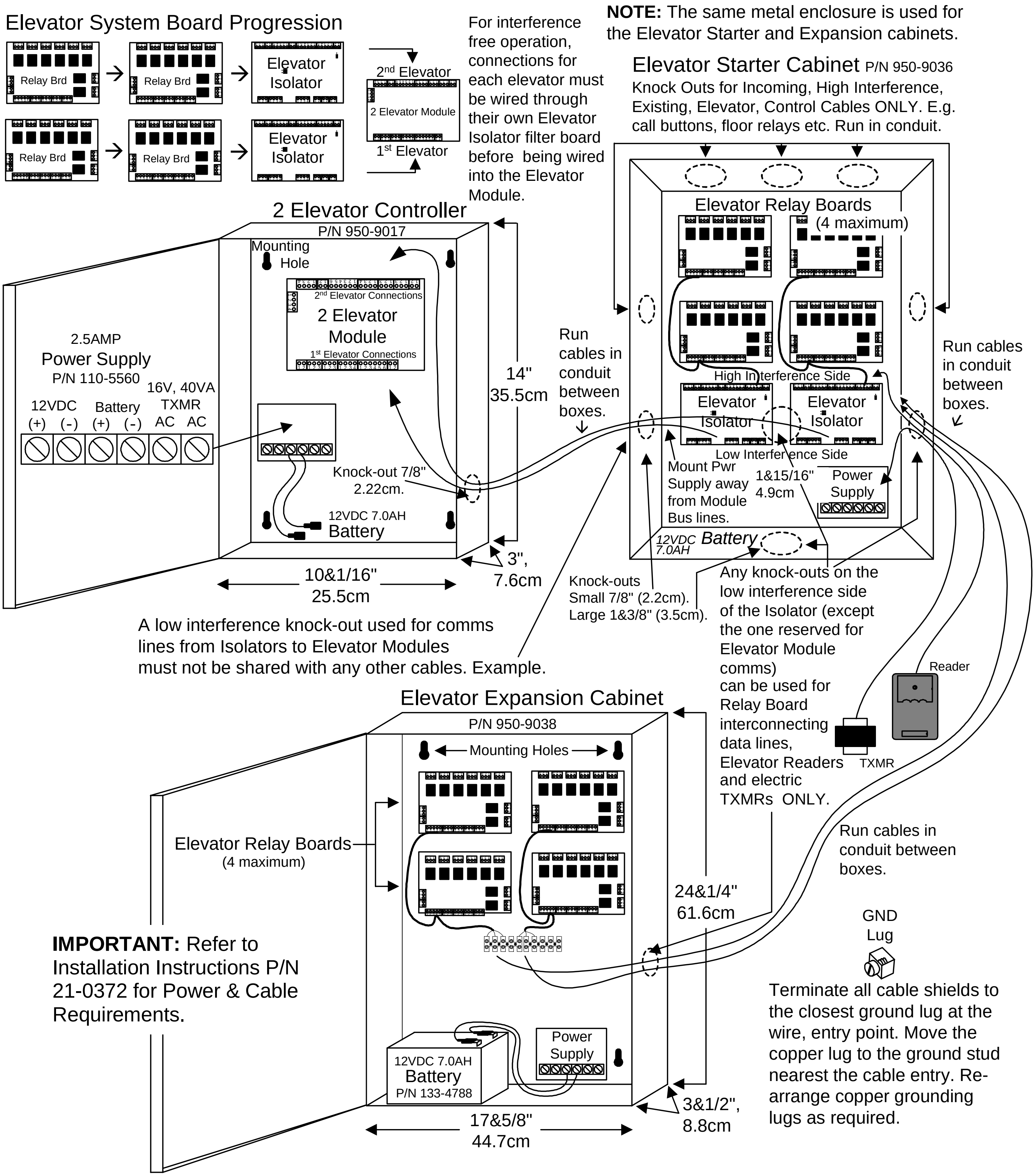
2 Door Controller Ratings
Input: 12VDC, 840mA
Output: 12VDC, 40mA (Auxiliary power)
12VDC, 500mA or 5VDC, 240mA (Reader power)

452-9151 v1.2 (Oct 2003)

Elevator / Lift Modules

IMPORTANT: Must refer to Installation Instructions P/N 21-0372 for detailed information.

Mounting and Cabling

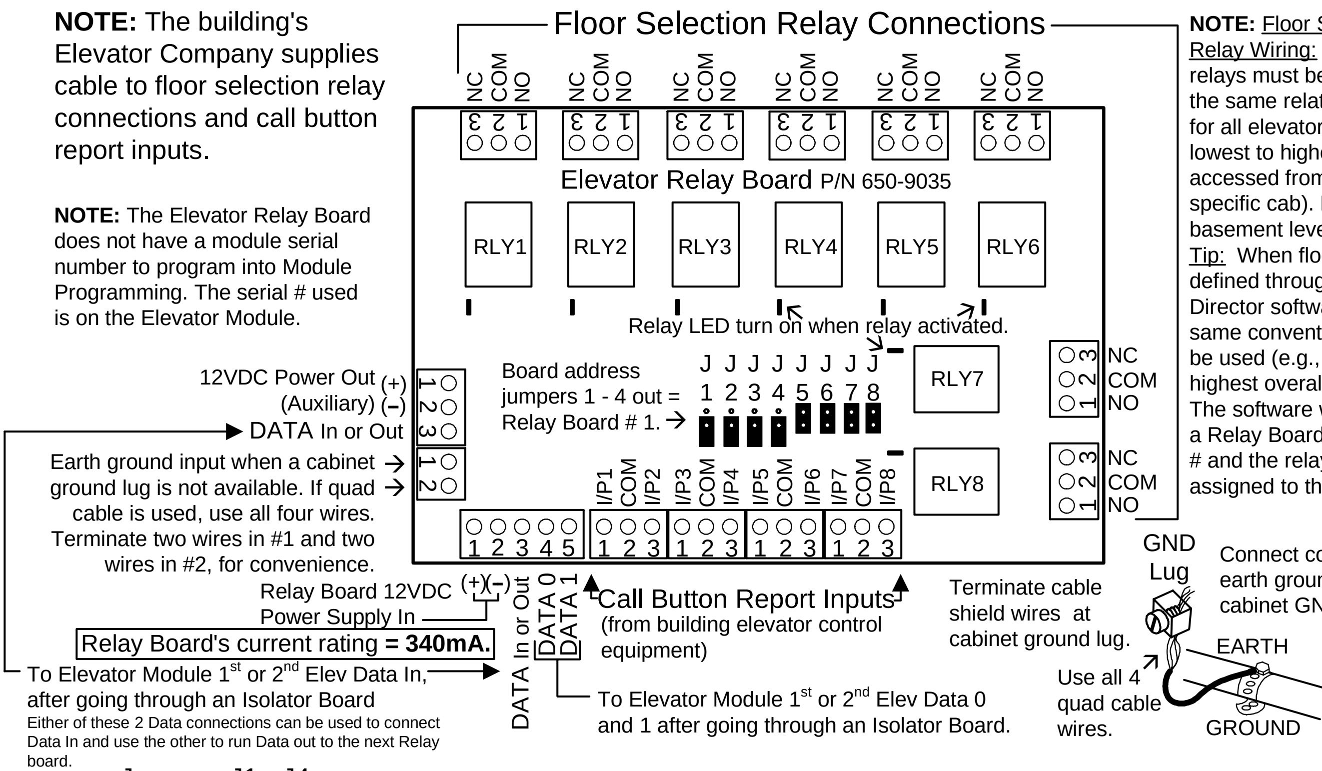


ELEVATOR RELAY BOARD

NOTE: The building's Elevator Company supplies cable to floor selection relay connections and call button report inputs.

NOTE: The Elevator Relay Board does not have a module serial number to program into Module Programming. The serial # used is on the Elevator Module.

NOTE: Floor Selection Relay Wiring: Floor relays must be wired in the same relative order for all elevators (such as lowest to highest as accessed from each specific cab). Remember basement levels as well. Tip: When floors are defined through the Director software, the same convention must be used (e.g., lowest to highest overall). The software will display a Relay Board's address # and the relay # assigned to the floor #.



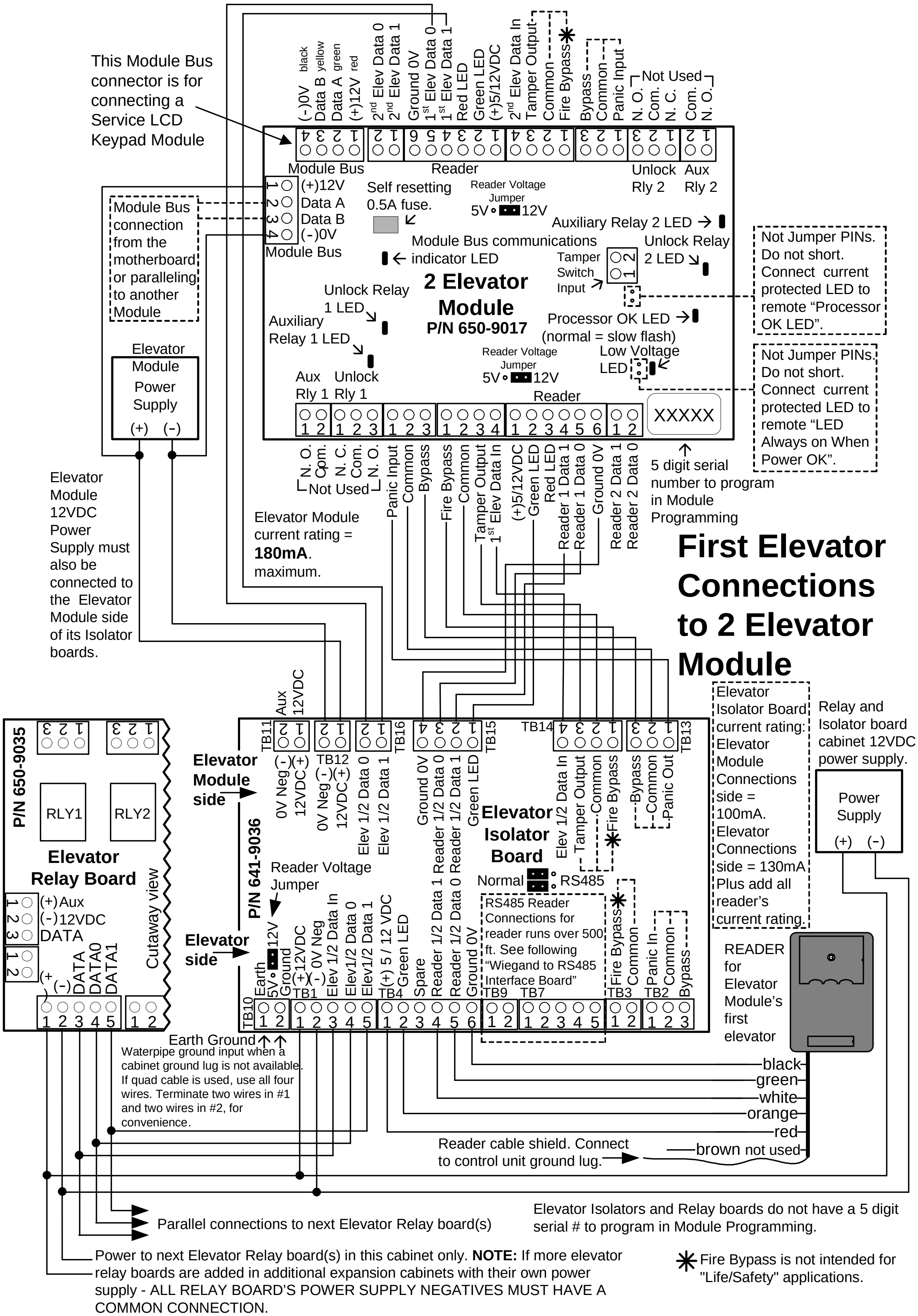
Jumpers J1 - J4 address Elevator Relay Boards

Address	J1	J2	J3	J4
✓ = Jumper IN. (–) = Jumper OUT.				
0	–	–	–	–
1	✓	–	–	–
2	–	✓	–	–
3	✓	✓	–	–
4	–	–	✓	–
5	✓	–	✓	–
6	–	✓	✓	–
7	✓	✓	✓	–
8	–	–	–	✓
9	✓	–	–	✓
10	–	✓	–	✓
11	✓	✓	–	✓
12	–	–	✓	✓
13	✓	–	✓	✓
14	–	✓	✓	✓
15	✓	✓	✓	✓

Jumpers J5 - J8 select Special Functions

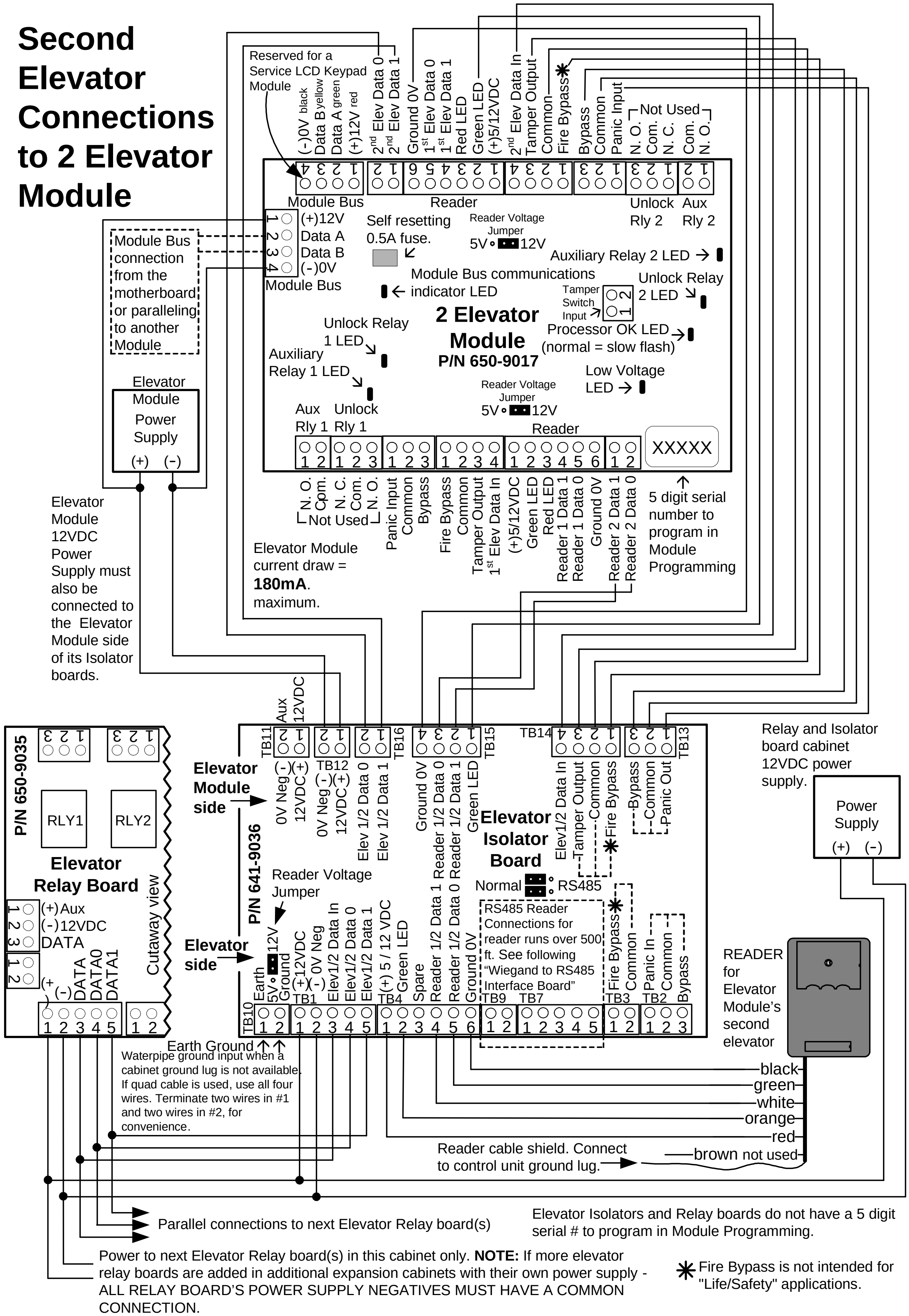
Jumper	IN	OUT
J5	For Wiegand reader operation.	For Magstripe reader operation.
J6	Call button report inputs normally open.	Call button report inputs normally closed.
J7	Normal operation.	Service Mode - Call button report inputs will open or short (depending on J6) individually, to trigger associated relay and test it. - An “Off Line” condition for the associated Elevator Module will indicate, with this jumper out.
J8 (Fail Safe Mode)	All relays energize if communications lost between Relay Board and Elevator Modules.	All relays de-energize if communications lost between Relay Board and Elevator Modules.

ELEVATOR MODULE and ISOLATOR BOARD (1st elevator connected to 2 Elevator Module)



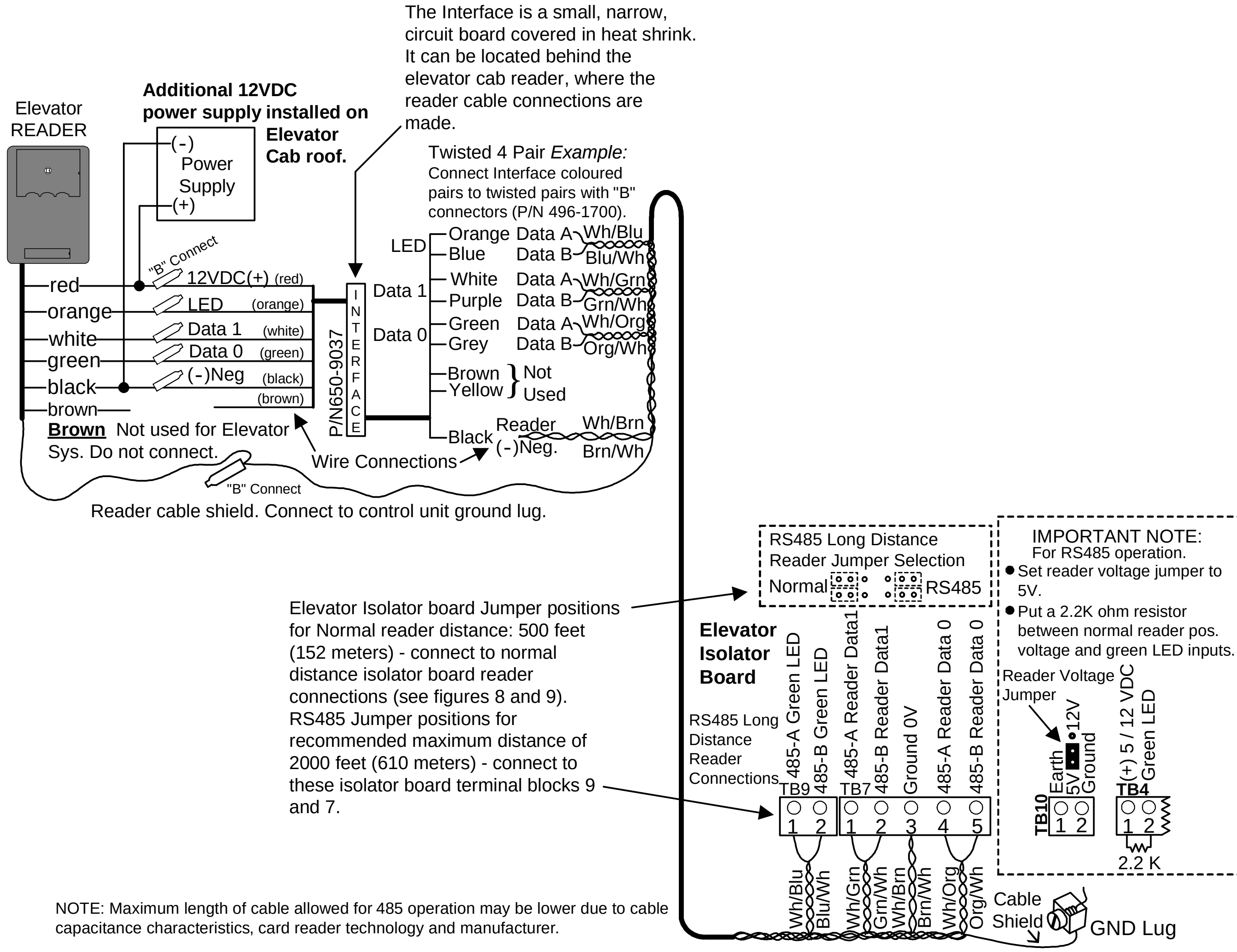
ELEVATOR MODULE and ISOLATOR BOARD (2nd elevator connected to 2 Elevator Module)

Second Elevator Connections to 2 Elevator Module

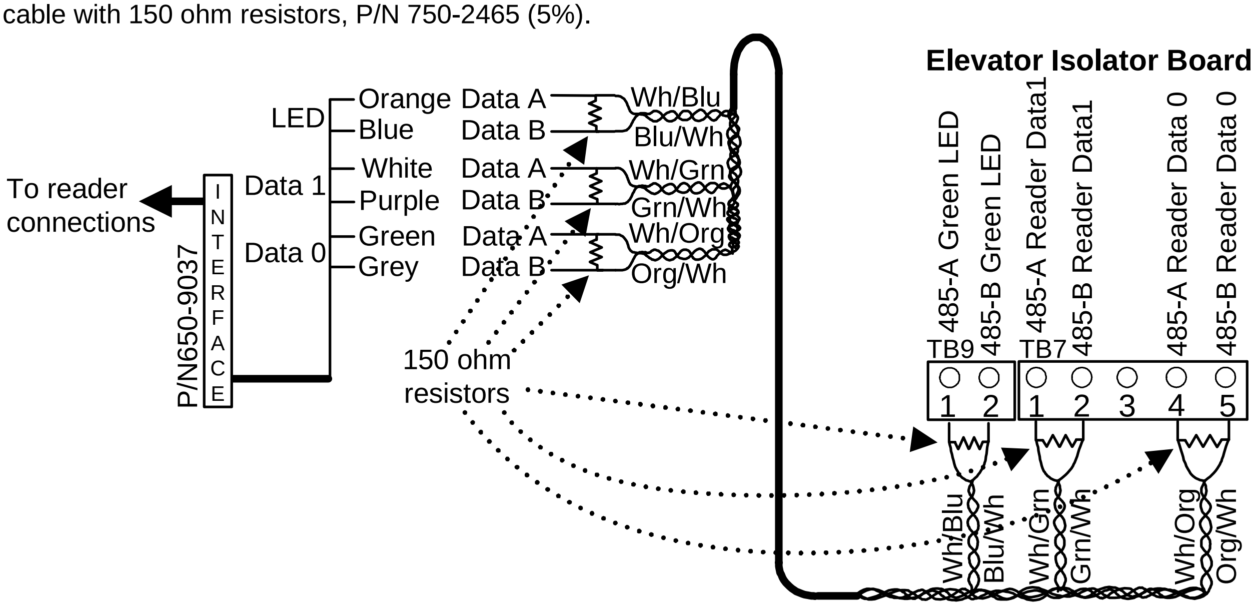


Wiegand to RS485 Interface Board for longer cable distances (P/N 650-9037)

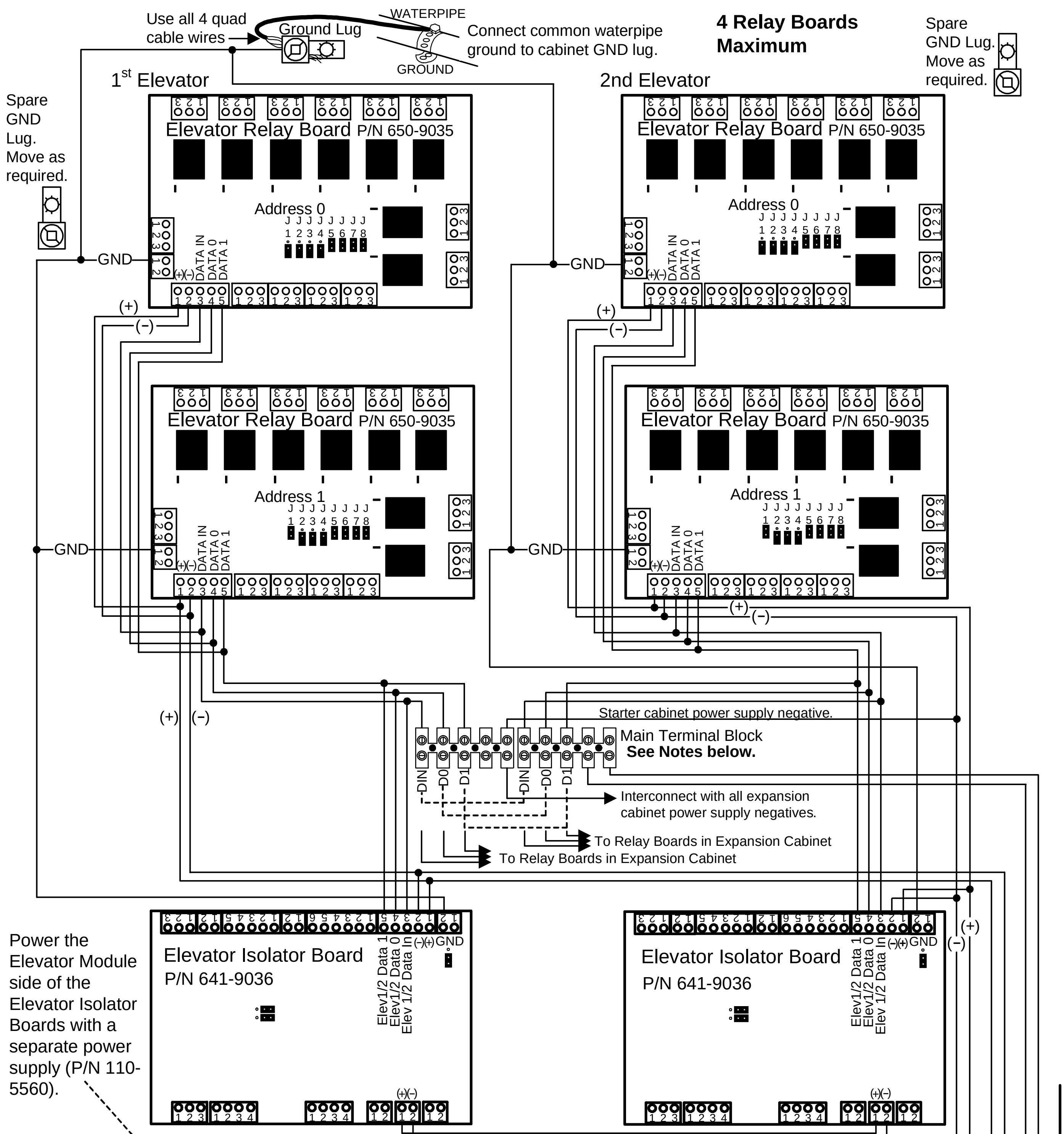
4 Pair Travel Cable Reader Wiring

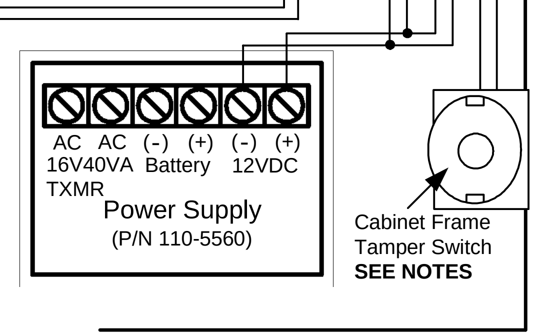


If interference is encountered with 485 communications, terminate all A and B connections at both ends of the reader cable with 150 ohm resistors, P/N 750-2465 (5%).



ELEVATOR ISOLATOR and RELAY BOARDS in STARTER KIT CABINET

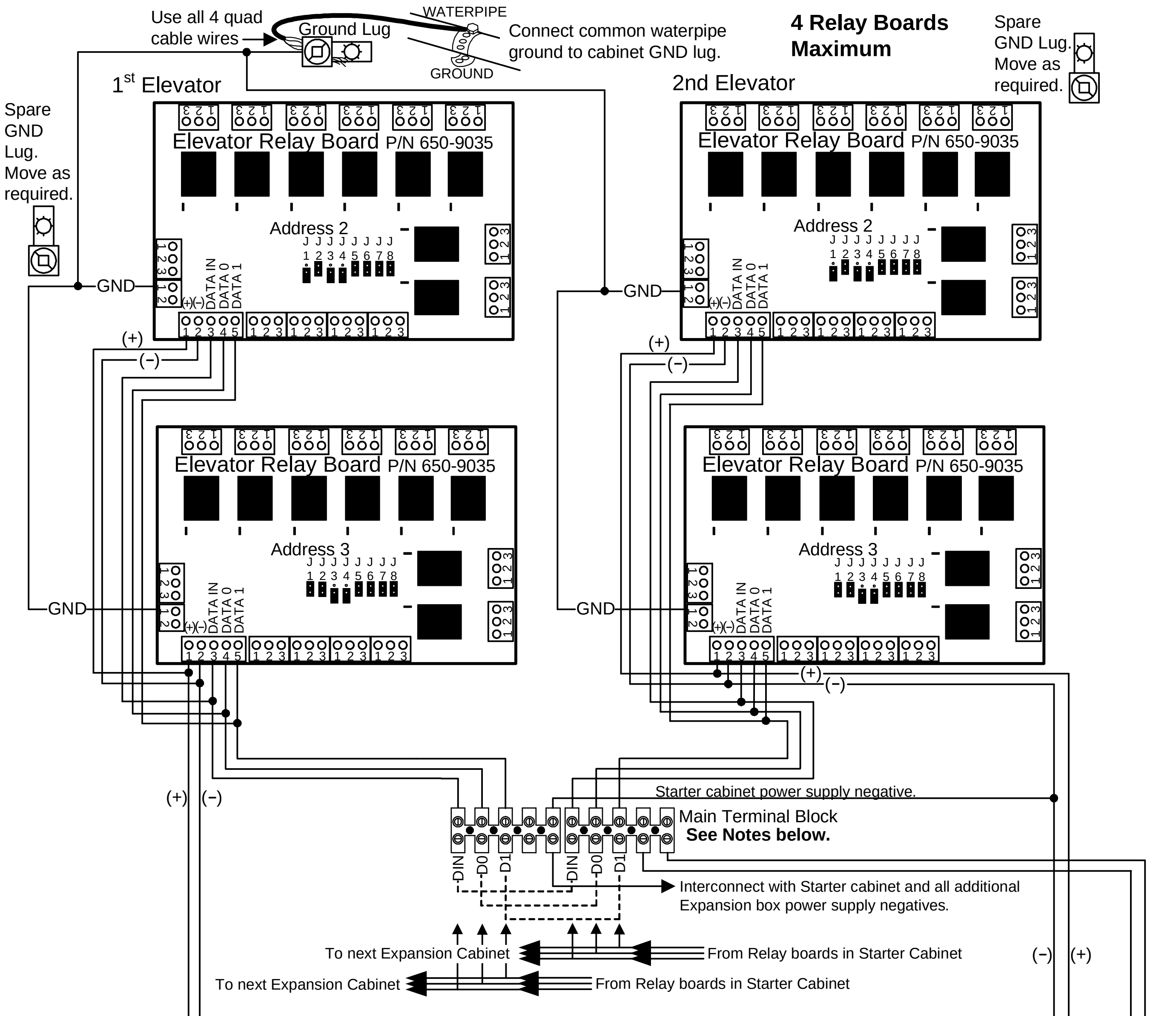




NOTES:

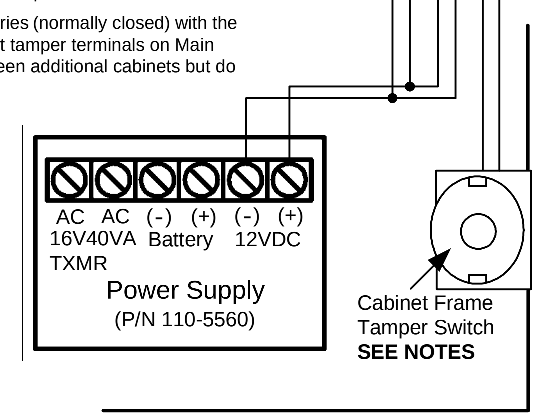
- Use pre-wired Main Terminal Block to connect 2 separate isolator board elevator systems.
- Shipped as pre-wired for 2 elevator cabs, 16 floors each (when 3 more relay boards and 1 additional isolator board are added). To change for a single elevator cab, 32 floors maximum (when 3 more relay boards are added) add jumper wires as shown by dashed lines at Main Terminal Block. **See Packages and Products list, page 10.**
- Proceed from these connections to more relay boards in add-on Expansion Cabinets.
- Always interconnect power supply ground with power supply ground in additional expansion boxes.
- CABINET FRAME TAMPER SWITCH Each Starter, Expansion cabinet tamper switch must be in series (normally closed) with the 2 Elevator Module controller tamper connection. Use shielded 4 conductor P/N 120-3401. Connect at tamper terminals on Main Terminal Block. Terminate shield at ground lug in Elevator Module cabinet. Interconnect shield between additional cabinets but do not terminate any where else.

ELEVATOR RELAY BOARD EXPANSION CABINET



NOTES:

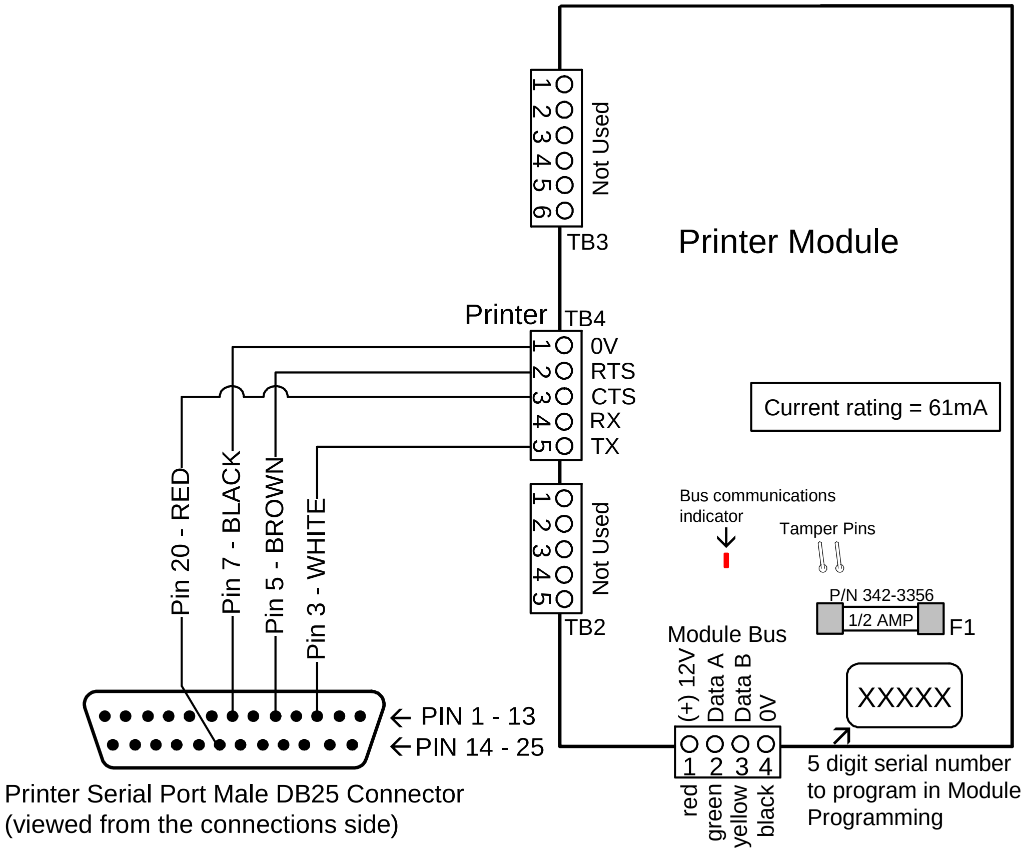
- Use pre-wired Main Terminal Block to connect 2 separate isolator board elevator systems from a Starter Cabinet.
- Shipped as pre-wired for 2 elevator cab systems to add 16 floors when 3 additional relay boards are added to this box. To change to a single elevator cab system and add 32 floors when 3 additional relay boards are added to this box, add jumper wires as shown by dashed lines at Main Terminal Block.
- Proceed from these connections to more relay boards in add-on Expansion Cabinets.
- Always interconnect power supply ground with power supply ground in Starter Cabinet and additional Expansion boxes.
- CABINET FRAME TAMPER SWITCH Each Starter, Expansion cabinet tamper switch must be in series (normally closed) with the 2 Elevator Module controller tamper connection. Use shielded 4 conductor P/N 120-3401. Connect at tamper terminals on Main Terminal Block. Terminate shield at ground lug in Elevator Module cabinet. Interconnect shield between additional cabinets but do not terminate any where else.



Communication Modules

Printer

Refer to Installation Instructions P/N 22-0370 for further information.



Printer Programming
(using LCD Keypad only)

NOTE: The term "HSC" is used to access the printer abilities in this application.
HSC is a proprietary communications of CSG Security Inc. and not used in all markets.

- This module has no inputs or outputs.
- Enter the module's 5-digit address in Module programming.
- Enable the tamper and make input/output values "**0**". Leave defaulted to area 1 and leave all other selections defaulted.
- Press **Save**. Exit module programming and then go back to module programming and the same address. This initializes the module.
- Check **Prn?** (Printer) enabled: ✓. Screen changes to "**HSC/Printer Module Rebooting**". Press **OK**. Return to Printer programming screen.
- Enter baud rate for printer:
  0 = 1200, 1 = 2400, 2 = 4800,
  3 = 9600, 4 = 19200.
- If CTS is enabled (✓), only users with authority to view History can start the printer if it runs out of paper, etc. If it is disabled (☐), simply fixing the printer problem (e.g. load paper) will re-start the printer. Press **Save**.

Printer Specifications

Type: RS232 serial 80 columns (or more)
Data Setup: 1 start bit, 1 stop bit, 8 data bits, no parity, baud rate selectable (recommend 1200), hardware handshake.
Printer Connection: female DB25.

Settings for Epson LX300 (P/N 400-0810)

Character spacing = 10cpi, Shape of zero = 0, Skip-over-perforation = Off, Character table = PC 437, Auto line feed = Off, Page length = 11 inches, Auto tear off = Off, Tractor = Single, Interface = Serial, Bit rate = 1200 bps (baud), Parity = None, Data length = 8 bit, EXT/ACK = On, Software = ESC/P, Auto CR = Off.

To start the Printer

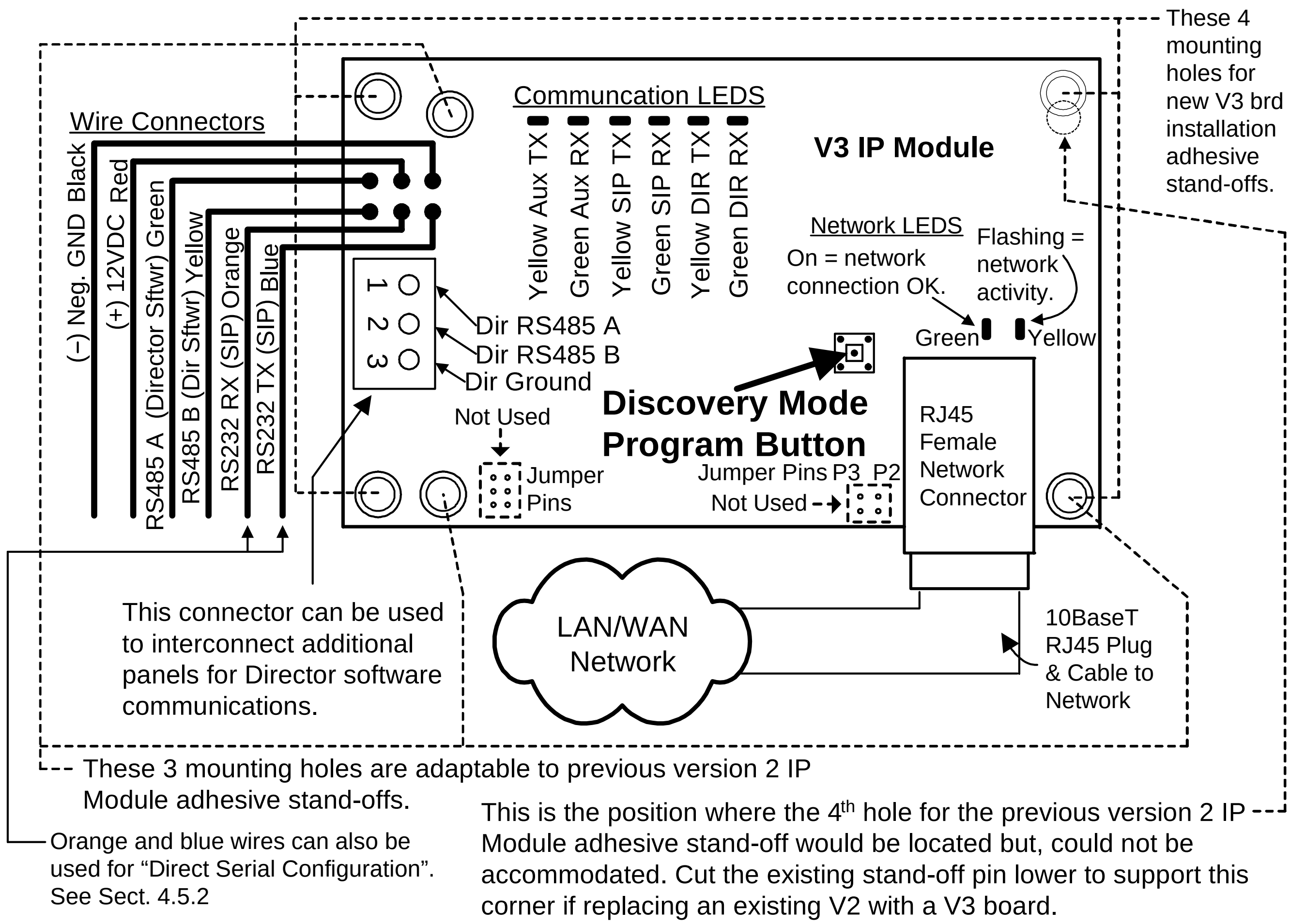
- Enter the History menu in the main menus and select "**Category"** and "**App**" for application module.
- Select "**HSC**".
- Select **Printer** or **Lang** for the language the printer will print in.
- When selecting printer press **Start** to start the printer.
- Press **Pause** to stop printing or **Resume** to commence printing.
- Press **Cncl** to cancel a backlog of pending messages.
- Press **Plog** to reprint the entire log in the History menu.

Wiring Printer Connection to a PC Serial Port (TB 4: Printer Port)
(when the customer wants the history to go directly to a computer instead of a printer)

- In the module settings, turn **off** the CTS option in the Printer Menu.
  In the terminal program ('Terminal.exe' in Windows for Workgroups; 'Hyper Terminal' in Windows '95/98) set the baud rate for the same speed as the module (typically 1200) and turn **off** hardware flow control.
- Only 2 connections are required:
  - Connect Tx on the module to Rx on the PC serial port 9pin 3 on DB25; pin 2 on DB9).
  - Connect OV/Gnd on the module to 0V/Gnd for the serial port (pin 7 on DB25; pin 5 on DB9).

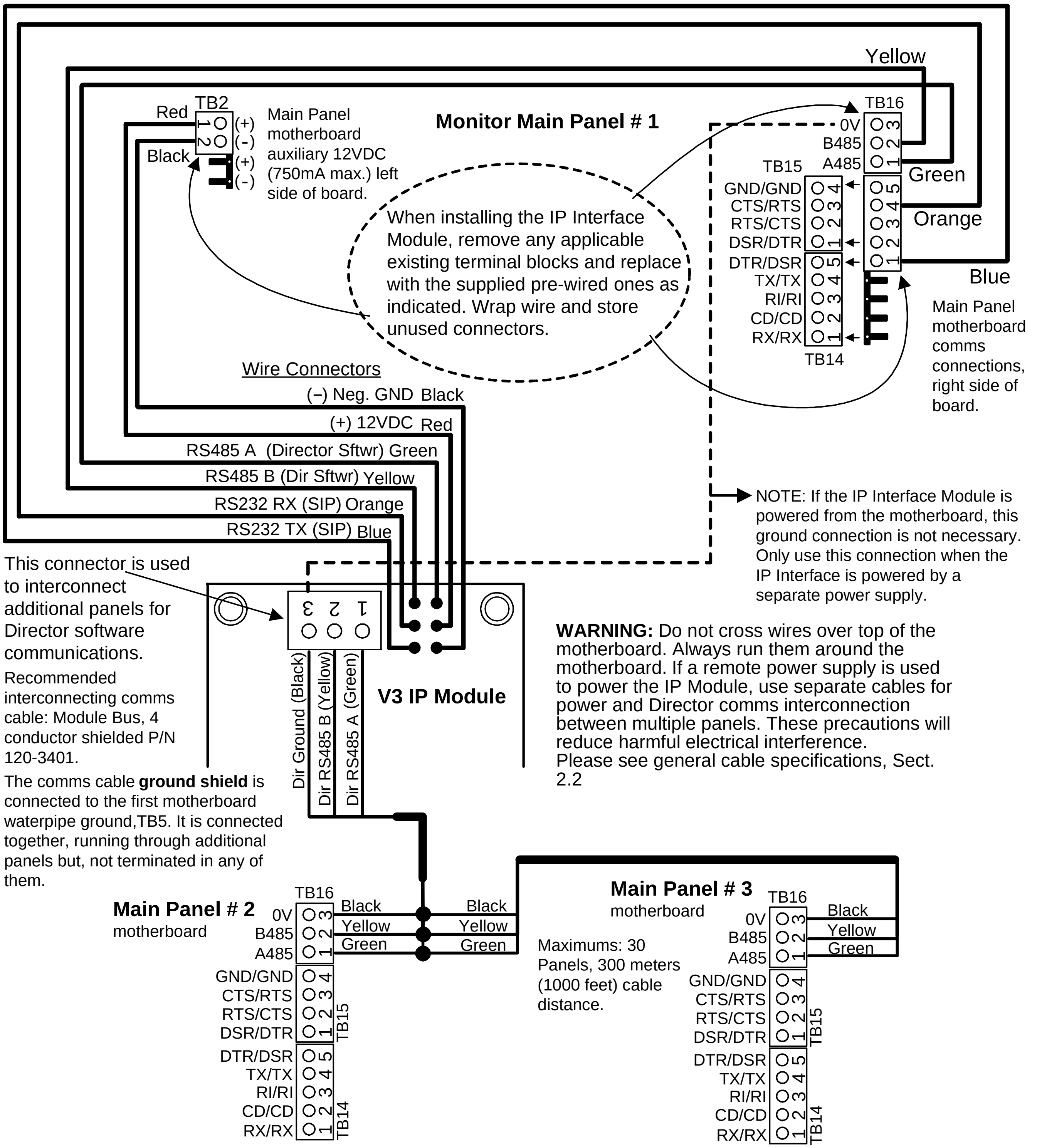
IP Module V3

Refer to the IP Connectivity Guide P/N 22-9059 for programming information.



Dir: Refers to MONITOR ISM / AFx Director software communications.
SIP: Refers to monitoring station communications (Security IP Receiver reporting).

<u>V3 IP Interface Module Connections at Monitor Motherboard</u>



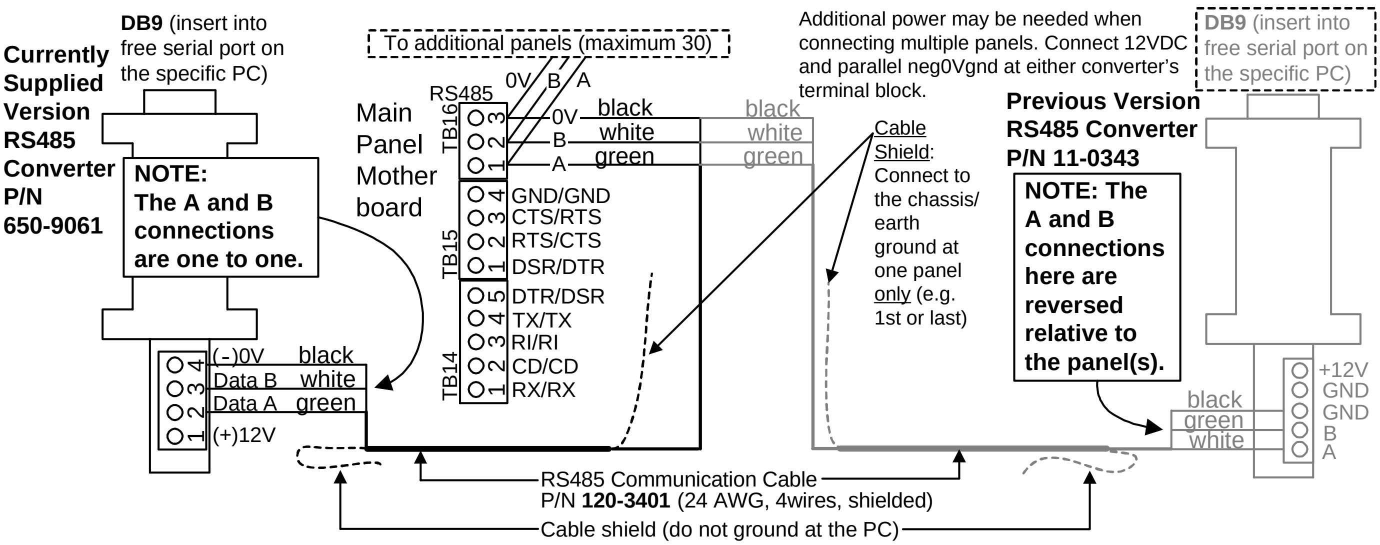
MONITOR System Reference Topics

Adding Any Power Supply to the Module Bus

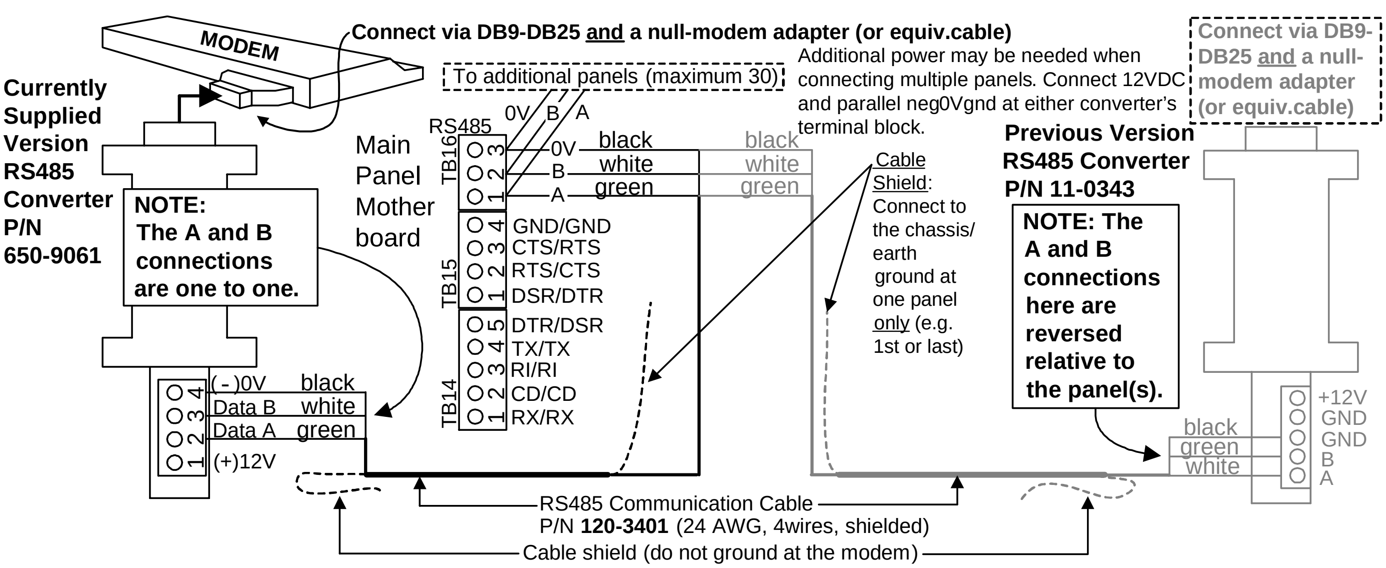
- An additional power supply's positive is not connected to the main control module bus positive with an isolating diode, as was previously done.
- The modules using power from the additional power supply have their module bus Data A and B interconnected as normal.
- The additional power supply's negative is connected common to the module bus negative.
- The additional power supply's positive is never connected to the module bus positive.

Communication Connections between the Main Controller and the Director PC Software

Direct Connect to PC



Modem Connection for PC Communications



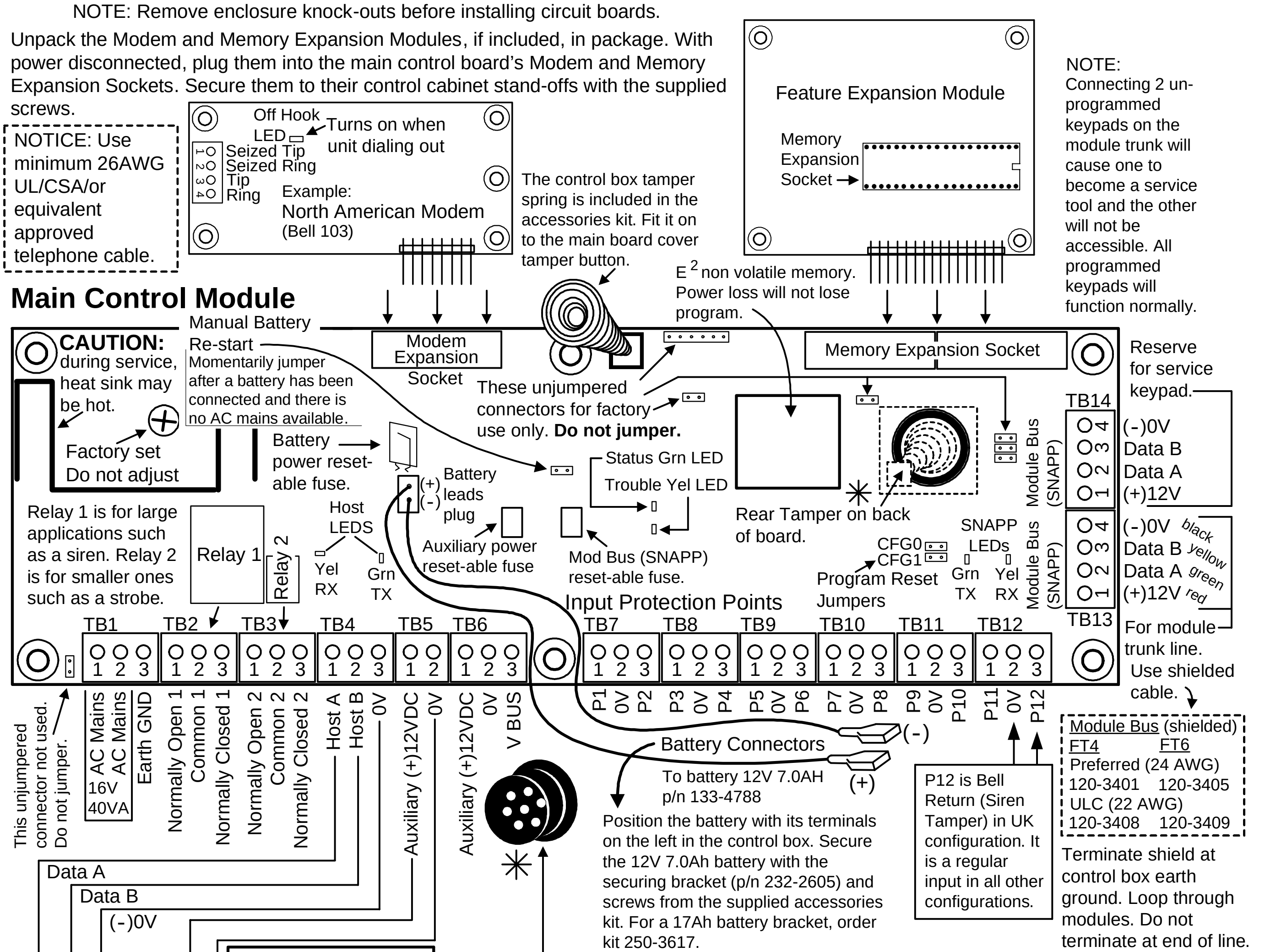
Part 2
Monitor xL
System
Hardware

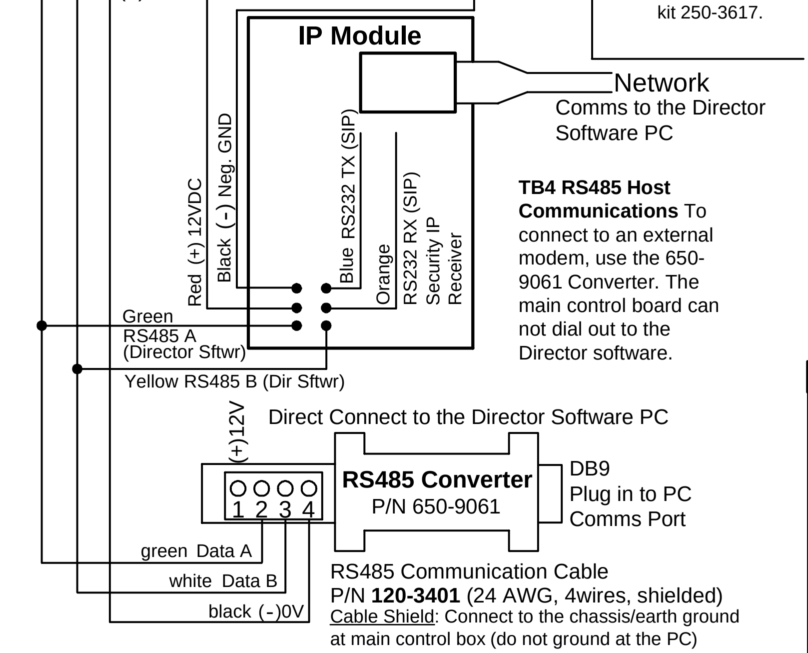
Please Note: Modules in the previous Monitor ISM System section are also compatible with the Monitor xL System

Main Controller

NOTE: Remove enclosure knock-outs before installing circuit boards.

Unpack the Modem and Memory Expansion Modules, if included, in package. With power disconnected, plug them into the main control board's Modem and Memory Expansion Sockets. Secure them to their control cabinet stand-offs with the supplied screws.





Anti-Attack Bushing Cap (p/n 364-5102) covers the rear tamper spring. It fits inside an **" O " Ring Bushing** (p/n 364-5103) that fits inside the metal cabinet's rear wall, anti-tamper spring, knock-out. Leave the O ring bushing and cap IN if the rear tamper is not used. If the rear tamper is used, remove the cap and the O ring with the edge of a flat screw driver. Discard the O ring. Align the cap to insert in the tamper spring, knock-out hole on the control cabinet back. Screw the cap by its center hole to the mounting surface. Place the control cabinet over it, allowing the rear tamper spring to fit inside the cap. The cap will insert in the metal cabinet's tamper spring, knock-out hole. Complete securing the metal cabinet to the mounting surface.

Module Description (voltage 12VDC)	Current Rating (mA)
LCD Keypad	– 95 (includes 10mA /1 o/p)
LCD Keypad with Reader	– 110 (includes 10mA /1 o/p)
North American Modem	– 45
8 Output STU	– 115 (includes 10mA / 8 o/p)
Worldwide Modem with 8 o/p STU	– 145 (includes 10mA / 8 o/p)
Feature Expansion Board	– 100
8 Transistor Output Board	– 135 (includes 10mA / 8 o/p)
8 Relay Output Board	– 155
16 Point Expander Board	– 100 (includes 10mA / 2 o/p)
8 Point Expander Board	– 85
8 Input VBUS Expander Board	– 35
Power Supply Board	– 50

MAIN CONTROL MODULE RELAY OUTPUTS
TB2 Relay 1: 5AMPS Resistive, 1 AMP Inductive.
TB3 Relay 2: 1 AMP Resistive, 0.1 AMPS Inductive.

Procedure for Cold Booting the Main Control Board and Clearing Memory

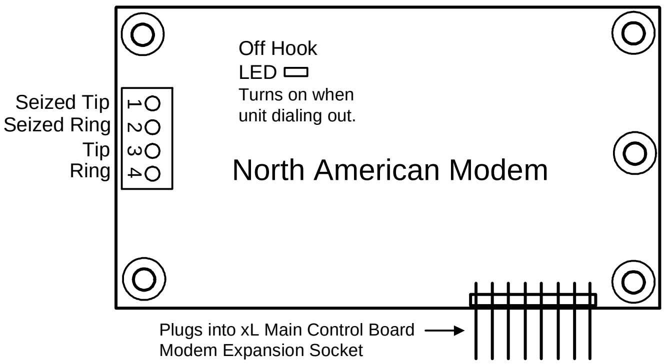
1. Remove all power from main control board.
2. Insert the Program Reset Jumpers (CFG0 and CFG1) horizontally. See Program Reset Jumpers on the right side of the main control module in the "Main Controller" diagram.
3. Apply AC Mains power.
4. The Status and Trouble LEDs will flash on and off together slowly.
5. Remove the 2 jumpers.
6. The same LEDs will momentarily flash rapidly together. (Controller processing)
7. The trouble light will turn off and only the Status LED will flash rapidly.
8. Proceed through the keypad log on procedure explained on page 4 and reset the config. as mentioned on page 4, lower 2nd column.
9. The keypad will display regular screens and only the Status LED will flash slowly to indicate a normal condition.
10. The memory has been returned to factory defaults. Reconnect all power.

Modems

Refer to Installation Instructions P/N 21-3611 for further information.

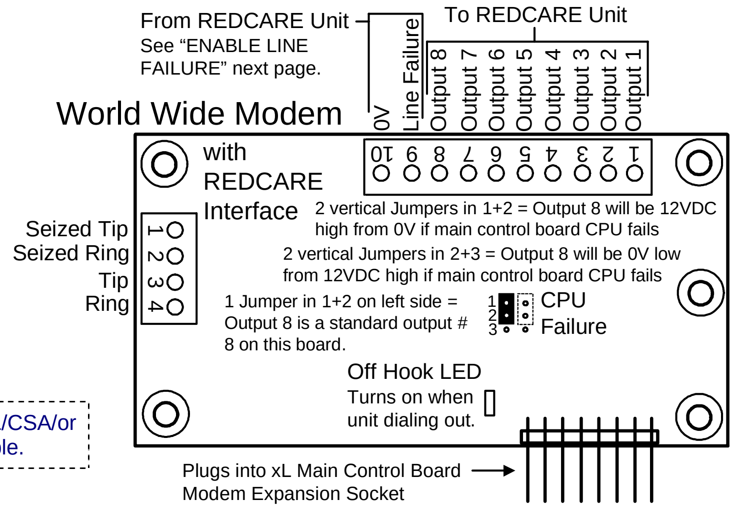
North American Modem (Bell 103)

(P/N 650-3630)
Works to Feature set 3



World Wide Modem

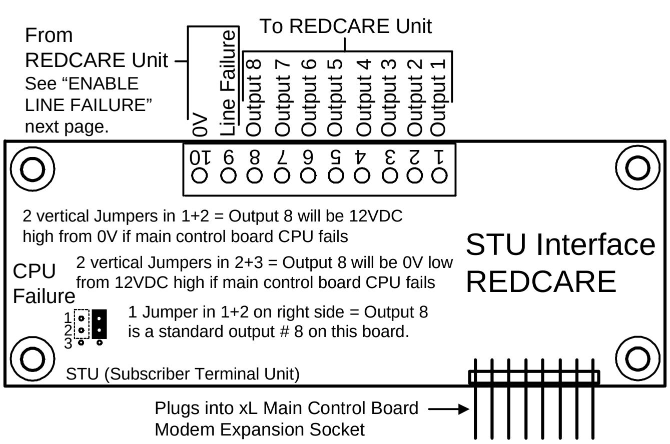
(P/N 650-3633)
Works to Feature set 7



Notice: Use minimum 26AWG UL/CSA/or equivalent approved telephone cable.

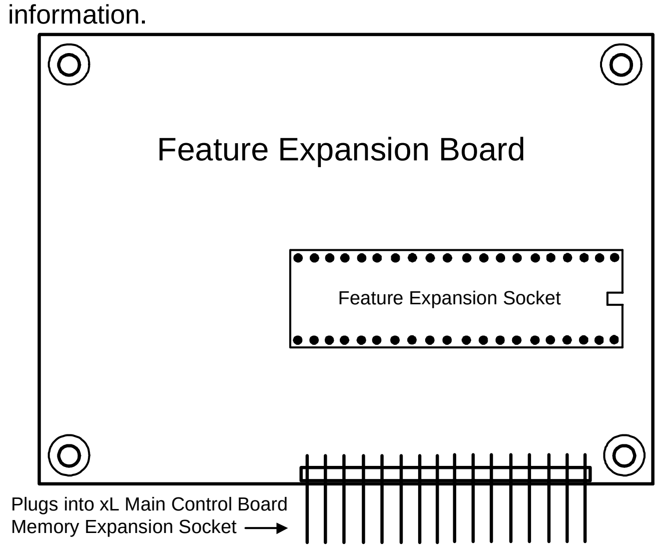
STU (Subscriber Terminal Unit) Interface REDCARE

(P/N 650-3631)



Feature Expansion Board

(P/N 650-3660)
Refer to Installation Instructions P/N 21-3612 for further information.



WW Modem and STU Interface "CPU Failure" available with main control module firmware 4.3 or greater.

CPU Failure (WW Modem and STU)
Output 8 must be programmed as "System Fault" in System Outputs. Use Director Software outputs or Simplified or Advanced (B000:00, System Outputs #56) keypad programming. For a negative to positive output, it can be left defaulted. For a positive to negative output, it must also be programmed to be inverted.

ENABLE LINE FAILURE on WW Modem and STU Interface

This feature is used to monitor for line faults from switched communicators such as Redcare
NOTE: Either of these modules must be plugged into main control module.

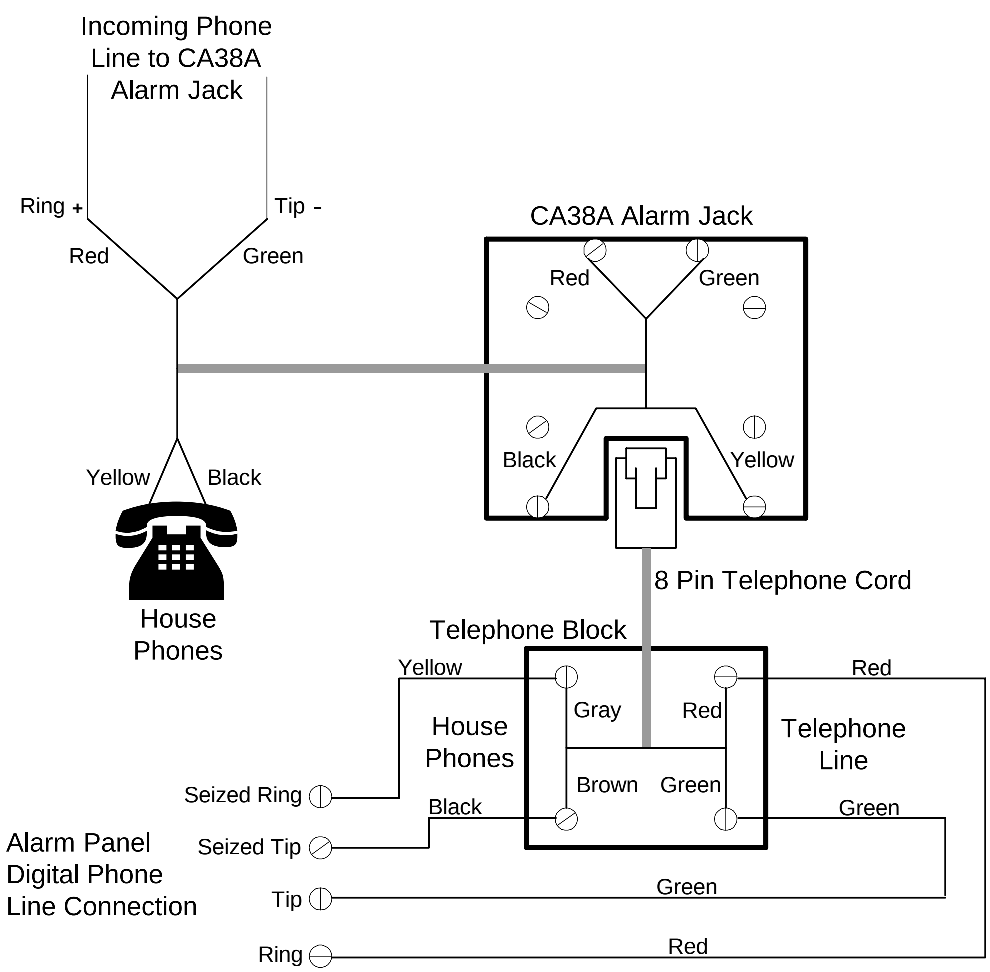
Simplified Configurations: Comms (Communications) Configure Group
– Enable Line Failure: Default: No (UK ACPO = ✓yes)
– Line Fail Polarity: Positive 12VDC going to Negative 0V or Negative 0V going to Positive 12VDC. Default: Positive

Advanced Configurations: S005↓03
– Field 2: Parallel STU 8OP Supports Line Fail: ✓(yes) □ (no) Default: no (UK ACPO = ✓yes)
– Field 3: Parallel STU 8OP Line Fail Negative Polarity: ✓(yes) □ (no) Default: no = Positive Polarity

Enable Equipment failure point E16 (HSC, Security IP, Trouble). Set delay as 01 immediate in Simplified or Advanced programming. If the WW Modem or STU Interface have a Line Failure condition, it will be indicated by an HSC fault.

HSC (High Security Communications) is a proprietary communications of CSG Security Inc. and not used in all markets.

Wiring CA38A Alarm Jack for connection to xL Modems

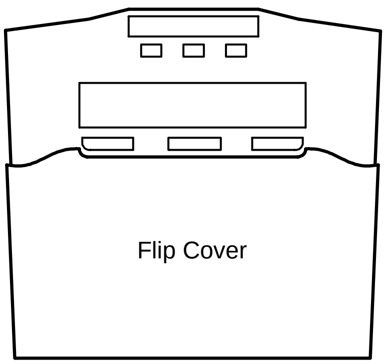


8 pin phone line cord VEREX part number: 166-4500

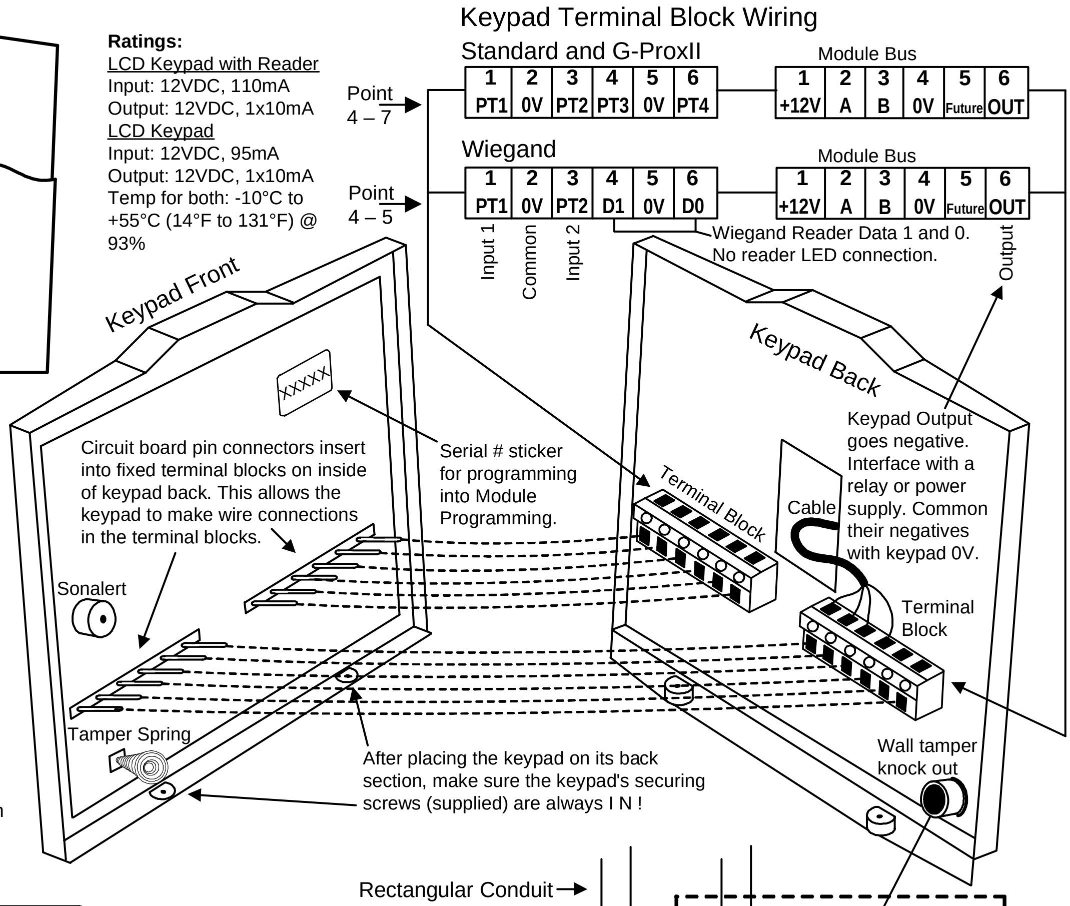
The CA38A Alarm Jack is commonly installed by the telephone company and is a requirement for Canadian installations.

If a supplementary cord and jack are used, they must comply with FCC Part 68.

Keypad
Refer to Installation Instructions P/N 21-3610 for further information.

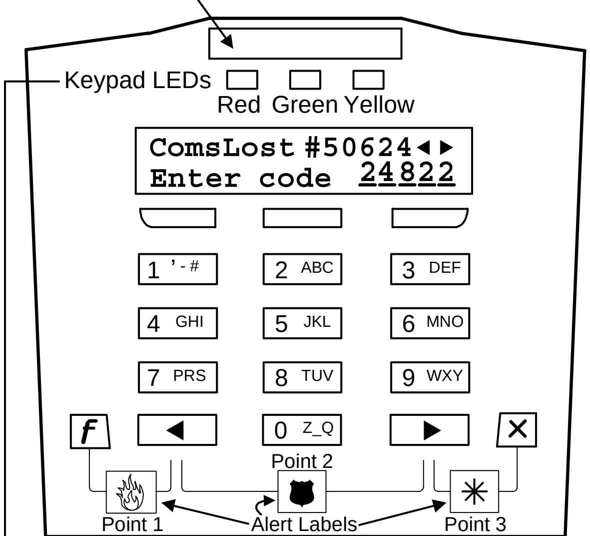


Ratings:
LCD Keypad with Reader
Input: 12VDC, 110mA
Output: 12VDC, 1x10mA
LCD Keypad
Input: 12VDC, 95mA
Output: 12VDC, 1x10mA
Temp for both: -10°C to +55°C (14°F to 131°F) @ 93%



Module Point Assignment: 8 points.
First point: Fire Alert buttons
Second point: Panic (Hold-Up) buttons
Third point: Auxiliary Alert buttons
Points 4 – 7 are hard wire inputs 1 – 4 on the Standard and G-ProxII version.
Points 4 – 5 are hard wire inputs 1 – 2 on the Wiegand version. All unused points are skipped.

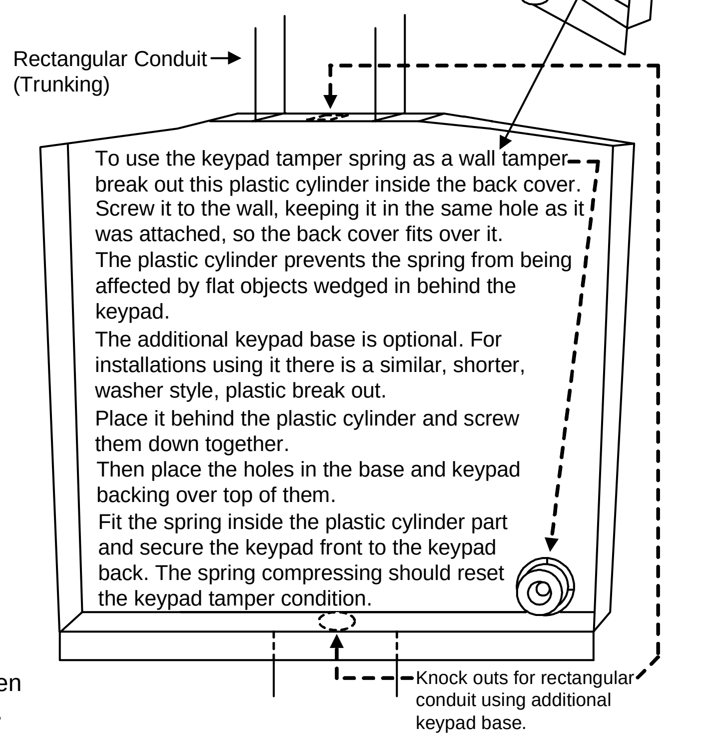
Apply dealer's logo label (supplied) in the indented space at the top of the keypad. Apply the Alert Button labels as required.



Red Flashing: Protection ON
Solid: Partial protection (STAY)

Green On Always with power present.

Yellow On when trouble condition present. Flashing when there is no AC mains.



3 Keypad Versions

- LCD Keypad P/N 111-3610 (white), 111-3620 (gray): standard keypad includes 3 programmable alert button inputs, 4 hardwire alarm input points and 1 output point.
- LCD Keypad with RF reader P/N 111-3611 (white), 111-3621 (gray): keypad includes 3 programmable alert button inputs, 4 hardwire alarm input points and 1 output point. Includes a built-in RF G-Prox reader.
- LCD Wiegand Keypad P/N 111-3612 (white), 111-3622 (gray): keypad includes the capability to connect an external Wiegand reader to it. Keypad includes 3 programmable alert button inputs, 2 hardwire alarm input points and 1 output point.

Input Point Expanders

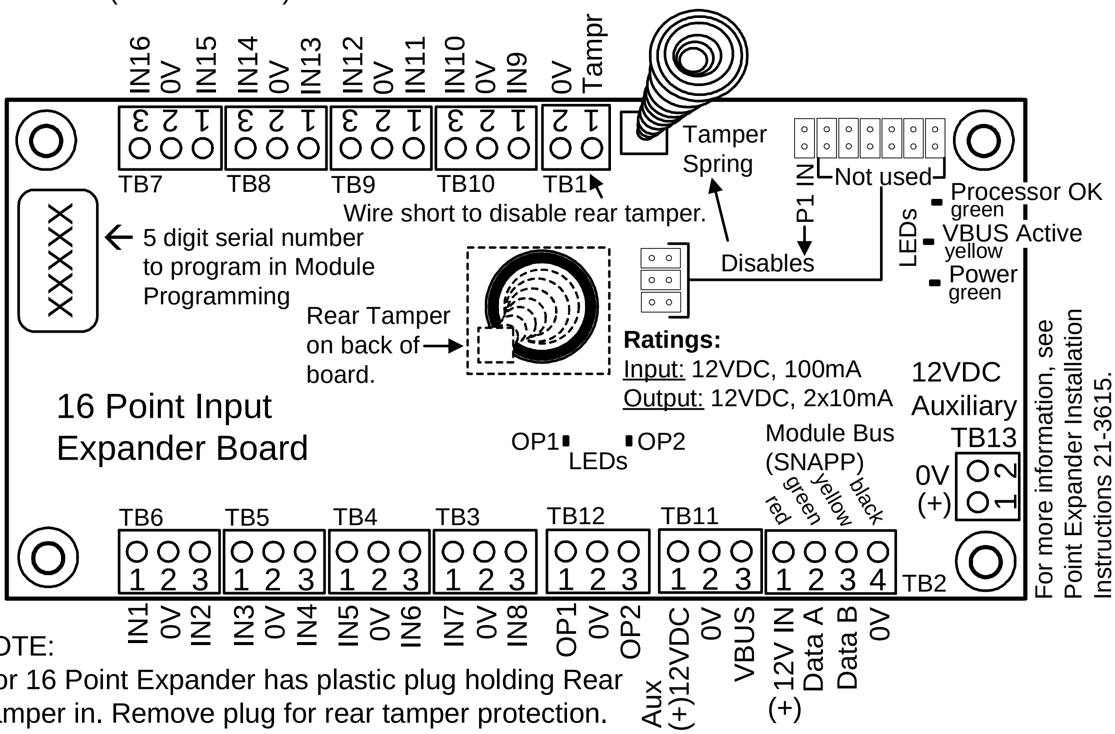
Refer to Installation Instructions P/N 21-3615 for further information.

VBUS

- VBUS is an internal communication bus that related VBUS modules are used with. The VBUS is not intended for external use. It has been designed to be used in a protected enclosure with adjoining interconnection between modules in the same enclosure. It communicates with the main control over the Module Bus (SNAPP) which is for external communications.
- VBUS and VBUS modules allow the system to be expanded without adding additional modules on the main Module Bus (SNAPP).

16 Point Expander

Master Unit (P/N 650-3646)

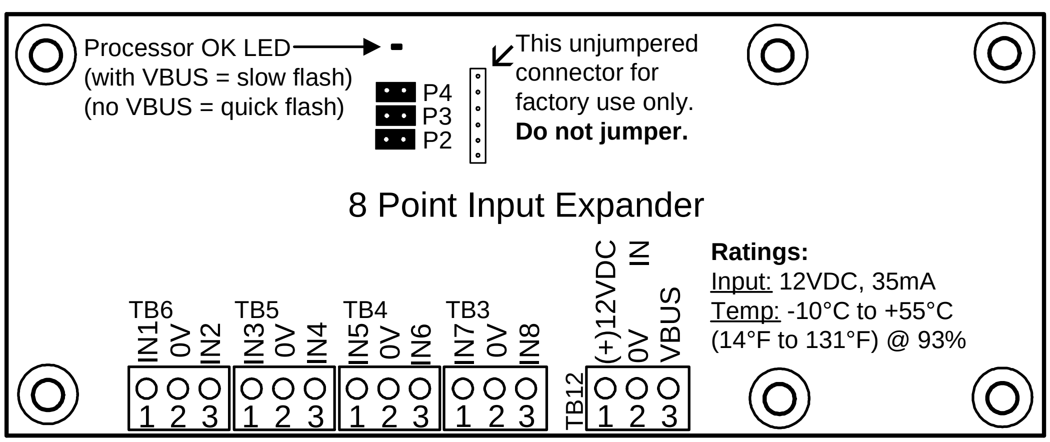


NOTE:
8 or 16 Point Expander has plastic plug holding Rear Tamper in. Remove plug for rear tamper protection.

See the following Module Power Supply for a further description of the same Rear Tamper assembly.

8 Point Expander VBUS Unit (P/N 650-3642)

Refer to Installation Instructions P/N 21-3615 for further information.



Jumper Selections P2 to P5 for 8 Point Expander Board

Slave Unit Address	Address Jumper P2
1	OUT
2	IN

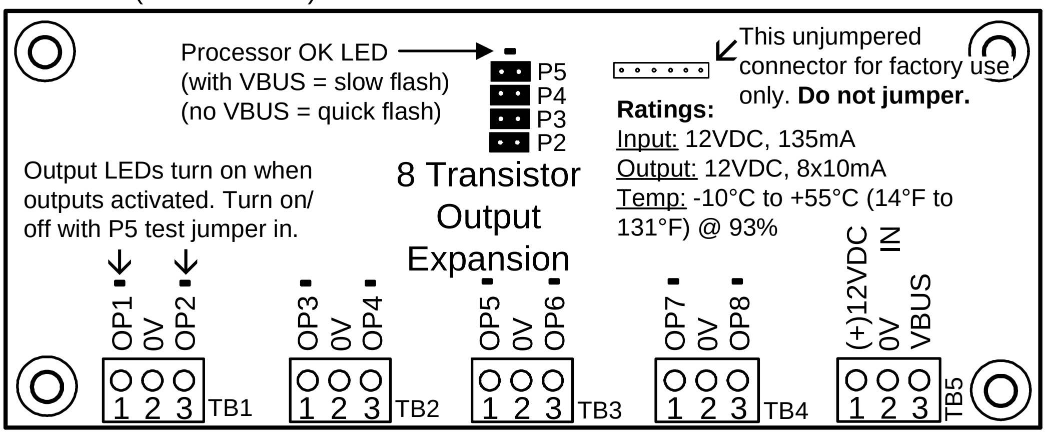
	TEST	Not used
Jumper	P4	P3
IN	ON	Leave in
OUT	OFF	

8 Point Expander Test Feature

Apply power to an 8 point expander board. It can have an address and the VBUS connected or not.
All inputs are left open with nothing connected to them.
Insert the P4 test jumper.
The "Processor OK" LED will flash at a slow rate.
Short (bridge) each input with a piece of wire. E.g. between IN1 and 0V or IN2 and 0V etc.
The "Processor OK" LED will flash at a faster rate when each input is shorted (bridged).
This will indicate that the inputs should function normally.
Remove P4 after the test to return the 8 point expander board to normal operation.

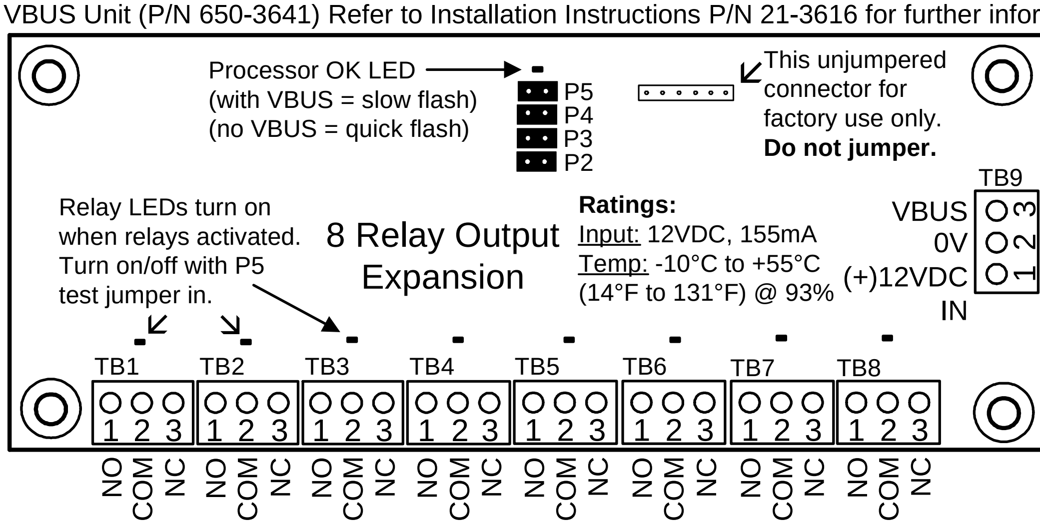
Transistor Output Expander

VBUS Unit (P/N 650-3640) Refer to Installation Instructions P/N 21-3616 for further information.



Relay Output Expander

VBUS Unit (P/N 650-3641) Refer to Installation Instructions P/N 21-3616 for further information.



Transistor and Relay Expander Jumper Selections P2 to P5

Slave Unit Address	Address Jumpers P2 – P3	
	P2	P3
1	OUT	OUT
2	IN	OUT
3	OUT	IN
4	IN	IN

	TEST (all outputs switch on and off)	Not used
Jumper	P5	P4
IN	ON	Leave defaulted
OUT	OFF	

Module Power Supply

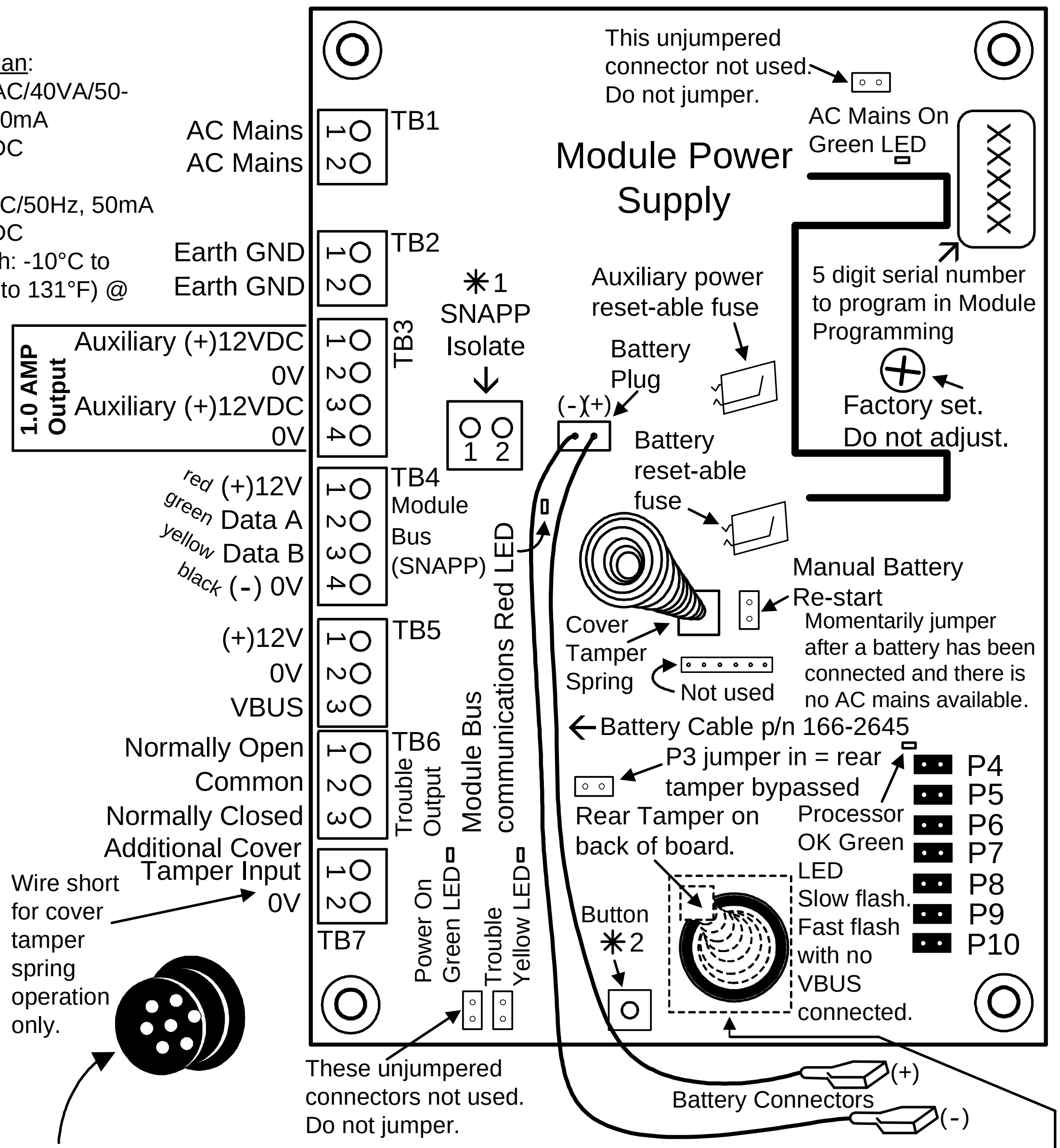
Refer to Installation Instructions P/N 21-3614 for further information.

Ratings:

North American:
Input: 16.5VAC/40VA/50-60Hz/60W, 50mA
Output: 12VDC

Europe:
Input: 230VAC/50Hz, 50mA
Output: 12VDC

Temp for both: -10°C to +55°C (14°F to 131°F) @ 93%



Anti-Attack Bushing Cap (p/n 364-5102) covers the rear tamper spring. It fits inside an **" O " Ring Bushing** (p/n 364-5103) that fits inside the metal cabinet's rear wall, anti-tamper spring, knock-out. Leave the O ring bushing and cap IN if the rear tamper is not used. If the rear tamper is used, remove the cap and the O ring with the edge of a flat screw driver. Discard the O ring. Align the cap to insert in the tamper spring, knock-out hole on the control cabinet back. Screw the cap by its center hole to the mounting surface. Place the control cabinet over it, allowing the rear tamper spring to fit inside the cap. The cap will insert in the metal cabinet's tamper spring, knock-out hole. Complete securing the metal cabinet to the mounting surface.

✳ 1 **SNAPP ISOLATE:** Jumper/short with wire to enable Module Bus (SNAPP) connector 12VDC.

✳ 2 **Brownout Button:** After installation and all power connections are complete, press this button to establish a frame of reference to detect a brownout.

Power Supply Selection Jumpers P4 to P10

Power Supply Type and other selections	Jumpers				
	P4	**P5**	**P6**	**P7**	**P8**
Module Bus(SNAPP) and VBUS Master (P9 and P10 are ignored)	IN	IN			
VBUS Slave (set P9 and P10 Slave Address)	IN	OUT			
Module Bus (SNAPP) ONLY	OUT	IN			
Stand Alone, no Module Bus or VBUS	OUT	OUT			
110V Operation			IN		
220V Operation			OUT		
Relay Test – disconnect the module bus (SNAPP). Momentarily insert P7 jumper and remove again. Relay will cycle on, off for 10 secs.				OUT	
Defeat Battery – where a standby battery is not required, insert P8 jumper and the system will ignore battery monitoring. **IMPORTANT:** This jumper must be left **OUT** for battery monitoring.					OUT

LEDs

AC Mains On (green) – on with electrical present.
Power ON (green) – on if Auxiliary DC power is present
Trouble (yellow) Normal = not on. – will flash on and off for:

- AC Mains failure.
- Battery loss.
- Module Bus (SNAPP) not active.

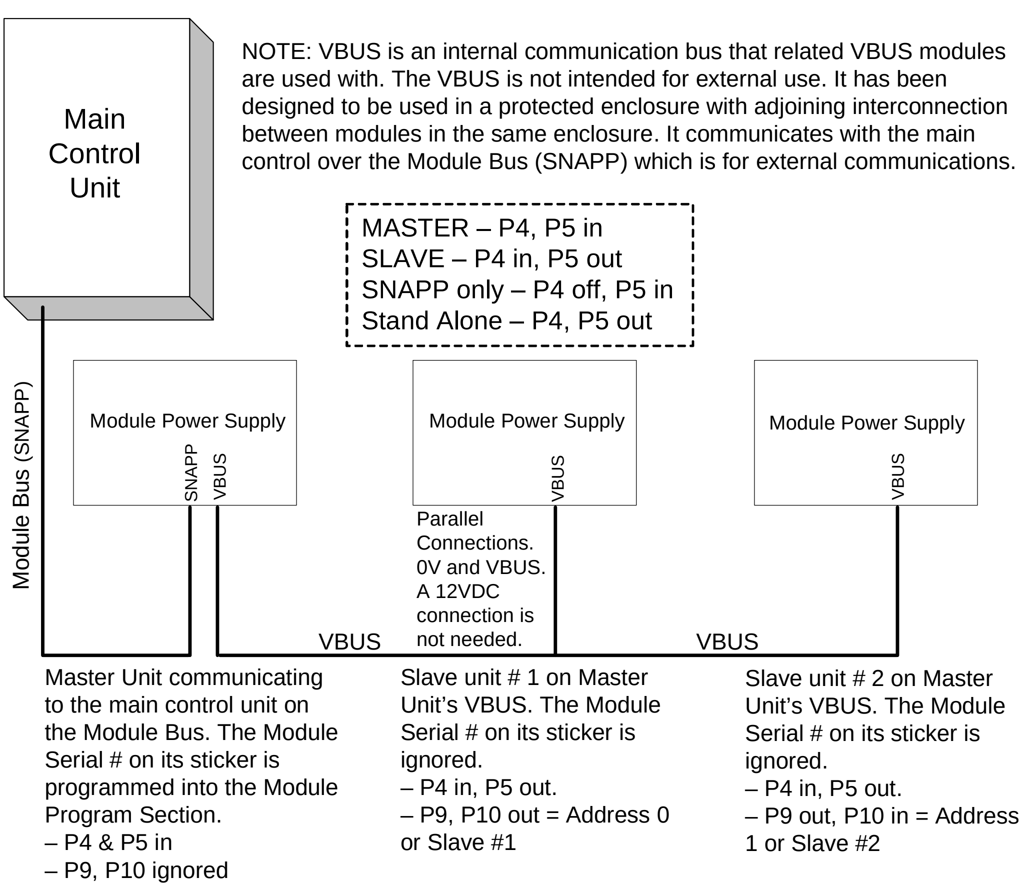
– turns on solid if one or more of the board tampers are active.

Processor OK
– normally will flash on and off slowly.
– will flash on and off rapidly when VBUS is present.

Relay Trouble Output
– will change state with any trouble mentioned above present.

Power Supply Slave Address	Jumpers	
	P9	**P10**
1	OUT	OUT
2	OUT	IN
3	IN	OUT
4	IN	IN

NOTE: VBUS is an internal communication bus that related VBUS modules are used with. The VBUS is not intended for external use. It has been designed to be used in a protected enclosure with adjoining interconnection between modules in the same enclosure. It communicates with the main control over the Module Bus (SNAPP) which is for external communications.



Appendix "A" 12VDC Relay

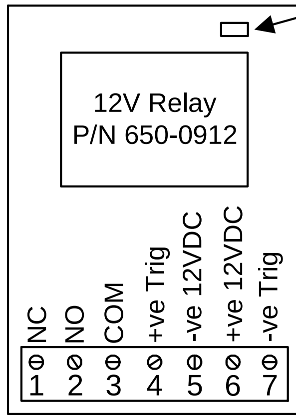
Dimensions: 1&3/8" (3.5cm) wide X 2&3/8" (6.0cm) long X 1&1/16" (2.7cm) high.

Power: 12VDC, 8.5 mA active current rating.

Terminal Connections:

1. Normally Closed
2. Normally Open
3. Common
4. Positive Trigger
5. Negative 12VDC
6. Positive 12VDC
7. Negative Trigger

In non-energized state.



Features:

- Form "C" contact.
- Contact will change state when 12VDC applied to Pos. pin 6 and Neg. pin 5 and there is a wire short between Pos. pin 6 and Pos. Trigger pin 4.
- When continuously powered by 12VDC, will change state when:
- – Low voltage trigger applied to Pos. Trigger pin 4 (greater then 3VDC, approximately 130 micro amps).
- – A negative supply is applied to Neg. Trigger pin 7.
- – On board red LED turns on when relay activated.

Appendix "B" Wiring Specifications

- **Earth Grounds:**
  Recommended: 18 AWG, stranded & insulated;
  Good: Standard 22 AWG quad cable (use all 4 wires).
- **Module Bus (RS485) Cabling** (device comms & power)**:**
  Recommended: 24 AWG, 4 conductors, **Shielded Twisted Pair**, 120 Ω impedance, low capacitance, 41 pF / meter or 12.5 pF / foot (such as Belden 9842).
  ULC: 22 AWG, 4 conductors, **Shielded Twisted Pair**, low capacitance.

For regions that require CE conformity, C-Tick conformity or the equivalent the recommended Module Bus cabling bus wire type must be used.

Cabling P/Ns:	**FT4**	**FT6**
Module Bus (shielded)		
Preferred (24 AWG):	120-3401	120-3405
ULC (22 AWG):	120-3408	120-3409
Note: Max. distance may be reduced with the ULC cable.		
Reader cable (24 AWG shielded):		
6 Conductors:	120-3402	120-3406
10 Conductors:	120-3403	120-3407
Note: ULC requires 22 AWG shielded cable.		
Power (18 AWG):	120-3400	120-3404
I/O (quad):	120-3410	120-3411

- **Max. Length:** Up to **610 m** / **2000 ft.** of cable on a Module bus port.
- NOTE: For longer cable distances, and/or where many expansion modules are connected on one cable (daisy chained, star wiring configurations are not acceptable) a **150** Ω 'terminating' resistor will need to be installed across A and B communication terminals of the last module on the 'bus' cable. If necessary, add a second resistor at the panel end module bus A and B if it is confirmed that the panel connector is the "end of line" at that end.
- **Separate Power (or door strike) Wiring:**
  Recommended: 18 AWG, stranded & insulated (2 conductors; colour-coded is preferable);
  Good: 22 AWG, 2 conductors, insulated.

Notice: Use minimum 26AWG UL/CSA/or equivalent approved telephone cable.

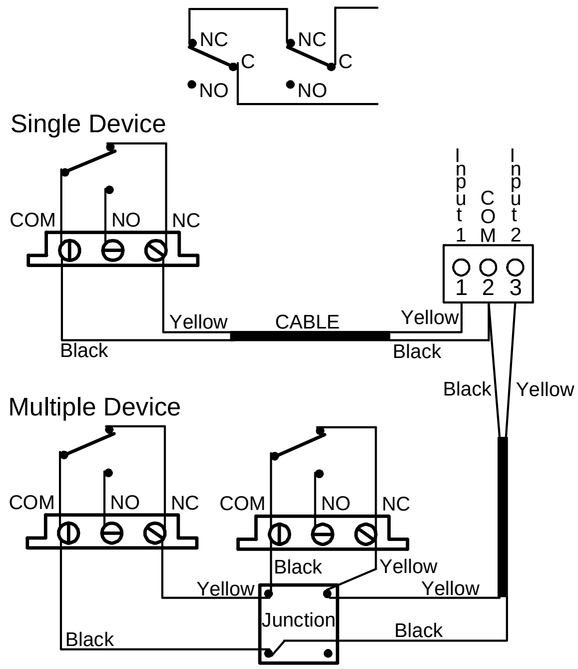
- **Inputs/Sensor Cabling:**
  22 AWG, 2-wires (For electrically noisy environments, use twisted pair, and/or shielded cable.)
- **Outputs/Signalling:** 22 AWG, 2 conductors.
- **Reader Cabling:** 24 AWG (**ULC: 22 AWG**), **shielded** (Max: 150 m / 500 ft.)
  Basic reader (no LEDs, buzzer control, or tamper): **4** Conductors;
  Reader with LED(s): **6** conductors;
  Reader with LEDs, plus buzzer and tamper: **9** conductors.

Notice: Elevator controller and condominium keypad installations include unique power and cabling aspects. Always refer to the **installation instructions** provided with each device.

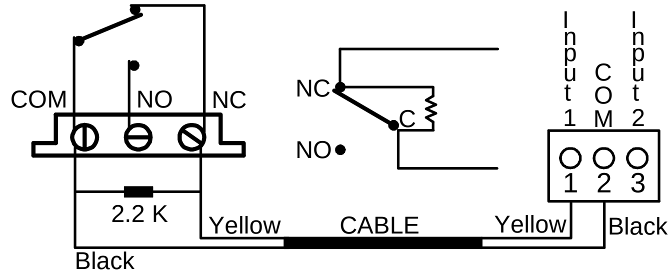
Modem/PC Link: Use kit provided, or 22/24 AWG low-cap cable (**not** reader cable). Shielded cable is recommended.
RS485 (shared cable or modem): 3 wires, see Module bus spec. above.

Appendix "C" Basic Circuit Types

Normally Closed



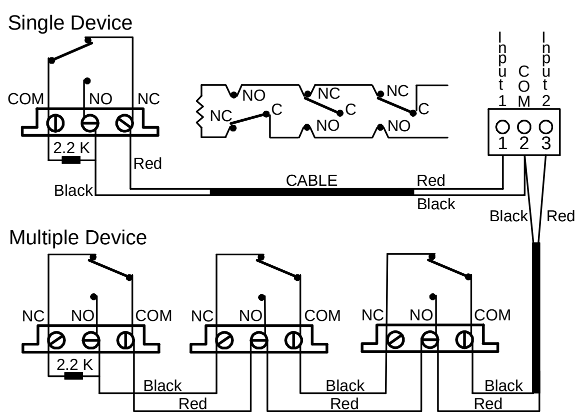
Normally Closed with 2.2 K End of Line Resistor



- **CAUTION:** This circuit type supplies minimal supervision.
- The end of line resistor, must always be placed at the Device, NOT at the Alarm Input.
- When the Contact is Open, the Control will see the 2.2K-ohm resistor, which equals Alarm.
- If the loop wiring is Open (loss of resistor), the System will indicate a Tamper condition.
- This Circuit Type cannot be used in a Multiple Device application.
- Each device using this alarm loop must be connected to 1 Alarm Input only.

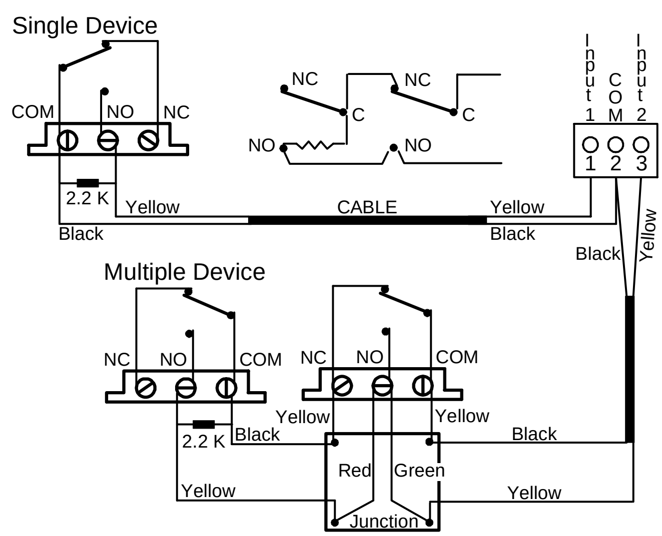
Sample use: Could be applied to a device alarm contact that would ordinarily always be closed (e.g. a vibration detector). The 2.2K resistor is not used. If the device is triggered in an off guard (unarmed) state and the contact goes open, a tamper condition is transmitted because there is no resistor. If the device is triggered in an on guard (armed) state, an alarm condition is transmitted because there is no resistor.

Form "C" Single Resistor EOL



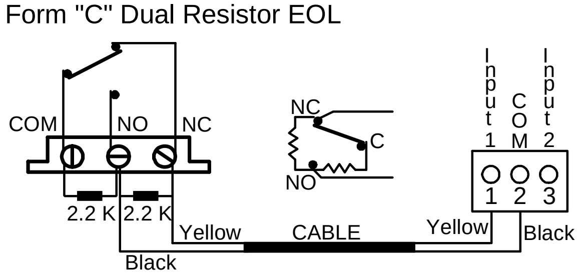
- A short on this Circuit Type equals Alarm.
- A break or a ground in the wiring equals a Tamper.
- Do not reverse the home run's <u>common</u> connection at the contact, as this will also result in a Tamper condition.

Normally Open with EOL



- A short on this Circuit Type equals Alarm.
- A break or a ground in the wiring equals a Tamper.

Form "C" Dual Resistor EOL



- This Circuit Type has 2 end of line resistors, each one 2.2K ohms.
- When the Alarm Input is normal, the Control is looking at both resistors (total resistance: 1.1K ohms).
- When the Alarm Input is Open (not secure), the control will see 2.2 K ohms.
- There can only be 1 device on this alarm loop.

Appendix "D" Modem Notes

Windows Modem Setup

For use with the Director Software

When a new modem is installed on a Windows PC, the Windows software will normally detect the new device, and display some simple installation steps. An installation CD or diskette may also be provided with the modem.

If a new modem is not recognized, proceed into the windows Control Panel and select "**Add New Hardware**", and follow the prompts that appear. **Note:** Older modems may not meet compatibility requirements for "Plug-and-Play" installation. In this case, you may be able to use an installation diskette provided with the modem (or the modem may need to be upgraded or replaced).

Once the modem is installed and recognized under Windows, the following items need to set through the Control Panel as follows:

- Open the Windows **[Start]** menu, and select **Control Panel**.
- Open **Phone and Modem Options** (double-click).
- In the next screen, select the **Modems** tab.
- Select your modem in the list, and click **[Properties]**.
- In the **Modem** tab, ensure the "Maximum Speed" is set to 38400 or higher. ("General TAB" for Windows 2000)
- In the **Advanced** tab, enter the following text as a modem initialization string: **ATS7=140.**

Tip: Uppercase as shown; 0 = zero.

Purpose: This allows for a longer 'phone number' (e.g., with pauses, long distance access codes, etc.)

- When finished, click **[OK]** as needed to close the screens.

Tip: Be sure to repeat these steps for any additional modems (on any applicable PCs).

Main Controller Modem Configuration

(Samples: USR Sportster™ 56K and LASAT Safire 560™ Voice Modem)

Reference Information:
Modem Switches (USR Sportster™ 56K)

Switch 1 (down):	DTR override
Switch 2 (up):	Verbal result codes
Switch 3 (down):	Display result codes
Switch 4 (up):	Display offline commands
Switch 5 (up):	Answer on 1st ring
Switch 6 (up):	Carrier Detect - Normal
Switch 7 (up):	Load NVRAM defaults
Switch 8 (down):.	Smart Mode.

LASAT Safire 560™ Voice Modem
The LASAT Safire 560™ Voice Modem has **no** on-board switches.

Once the switches are set correctly, you'll need to temporarily connect the modem to a PC, and load some specific settings into the modem's memory. This can be done with the "HyperTerminal" program that is included with MS Windows (or any other "terminal-emulation" program that you may be familiar with):

Note: Ensure you have the specific modem with you, and a suitable modem cable for connecting it to the PC. (This must be a standard modem cable, NOT a 'laplink-style' cable, "null-modem" cable, or any other type of file-transfer cable.)

1) Start up the "HyperTerminal" program:
Windows XP: From the Windows **Start** menu, select **Programs**, **Accessories**, **Communications**, and **HyperTerminal**.
(Alternatively, you can open the **Start** menu, select **Run**, type "hypertrm.exe", and click **Ok**).

2) Wait for the HyperTerminal logo screen to close (if applicable).

3) Enter a suitable name such as "Panel Modem Setup", and select a desired symbol (for HyperTerminal's selection window). Then, click **[Ok]**.

4) At the bottom of the next screen, select "Direct to ComX" (i.e., the port that you'll be connecting the modem to). Then, click **[Ok]**.

5) In the next screen, select:

Bits per Second:	**38400**
Data Bits:	**8**
Parity:	**None**
Stop Bits:	**1**
Flow Control:	**None**

...and, click **[Ok]**.

6) From the **File** menu, select **Properties**, and the **Settings** tab.

7) Then, click **[ASCII Setup]**, and select "Echo typed characters locally".

8) Now click **[Ok]** to close each of the two screens.

9) Connect the modem to the previously-selected serial port on the computer, and supply power to the modem using its plug-in transformer.

10) Now, type "**at**" (lower-case as shown, and without the quote marks), and press **Enter**.
You should see the "at" appear as you type it, and a response of "OK" when you press "Enter".

If nothing appears on-screen, this may mean that you didn't select the "Echo typed..." setting as described previously, or that the modem is either not powered up, or is plugged into a serial port that doesn't match your selection. (You can select a different port by selecting **File**, and **Properties**, and changing the setting for "Connect Using" at the bottom of the screen.) The modem not responding may also indicate a problem with your cable or; not being plugged in correctly.

11) (Do not proceed until you have your modem responding with "OK".)

12) Now, enter the settings for your modem:
USR Sportster56k: **AT&F&B1S0=1Y0&W0**
LASAT Safire 560™ Voice Modem :
AT&F0S0=1&D0&Y0&W0&W1
Tip: Uppercase as shown; 0 = zero)

Note: If you wish to allow more time for long phone numbers, include **S7=140** after the S0=1, then the rest of the strings.

Carefully check that you have typed the characters correctly, and then press **Enter**. (Look for the modem to respond with "OK".)

13) Now, power the modem down (i.e., remove power from the modem).

14) The modem is now ready to be used with a system panel. You can unplug the modem and shut down the HyperTerminal program when ready. To shut down HyperTerminal, open the **File** menu, and select **Exit**.
(If prompted to save your changes, select **Yes**.)

Tip: If you need to set up another modem in the future, you can open your saved session instead of setting up a new one.

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