



A Caldwell Company

AUTOMATION INSTALLATION INSTRUCTIONS (ELECTRICAL INSTALLATION ONLY)

G3 AUTOMATION PANEL

(G3 SINGLE + G3D “DUAL” MOTOR RELEASE)

Updated for Firmware Release v0.7.5 (G3 Dual)

Y:\Automation Service\Docs\Series 500 Motor with G3 Controller\G3 Automation Installation Intructions_(v07x).pptx

CONTENTS

UL Compliance
FCC Declaration Of Conformity
Safety Tips
Pre-Installation Checklist

System Components

- Part Identification
- Single Motor Component Placement
- Dual Motor Component Placement
- Common Components FOR ALL KITS
- Wireless Kit Components
- Wired Kit Components
- Dual Kit Components
- Automation System Installation

G3 Single Motor Wiring

- G3 Single Motor Wiring v0.6.7 – 0.7.5

G3 Dual Motor Wiring

- G3D Theory of Operation v0.7.5+
- G3D Firmware v0.7.5 Installation Banner
- CLI changes in the G3D v0.7.5
- Dual Motor Bi-Part Wiring v0.7.5+
- Dual Motor 90° Wiring v0.7.5+
- Mounting the G3 Controller

RS485 GPIO Adaptor

- RJ45 Connector Application
- RS485 “GPIO” Adapter LED’s
- RS485 “GPIO” Connections

Controller Programming

- Initial Wired system setup
- Initial Wireless system setup
- Wall Switch Installation Functions
- Single Controller Programming
- Dual Controller Programming Overview
- G3D Primary Controller Programming
- G3D Secondary Controller Programming
- G3D Programming 90° & Bi-Part

Post Programming

- Immediately After Programming
- TLE Mitigation
- Cycle Testing
- Cycle Test Example
- The “pencil” Test for Soft Touch
- Controller Reset (Reboot)
- Wall Switch Normal Mode Door Operations

Special Features

- Wall Switch Special Feature Enabling
- Feature Options Matrix
- Entertainment / Party Mode
- Close Behind / Egress Mode
- Simplicity Mode / One Button Operation
- Motion / Move Assist
- Door Operations – Span Adjust

Safety Features, Components & Options

- Safety Component Testing “Soft Touch”
- Motion Detectors & IR Beams
- Android & IOS Mobile AppS
- PC/Android(wired) - CLI Advanced Programming
- Android & IOS BLE Bluetooth App Installation for Android BLE Bluetooth App Config
- IOS BLE Bluetooth App Config

Advanced CLI Programming

- Help Commands
- Config Commands
- Speed & Partial Move Params
- Friction Fault Parameters
- Special Case Parameters
- Accel, Decel & Crawl Speed
- Algorithm Constants
- AutoSetup Parameters

Wired Accessories

- Motion Detector & IR Beam Mounting
- Wired Components (Wall Switches)
- Exterior Wired Security Wall Switch
- Bosch DS160 Wired Motion Detector
- Optex OS-12CT IR Beam
- Optex OS-12CT Programming

Wireless Accessories

- 900MHz Wireless Remote
- 900MHz Wireless Keypad Pairing
- 900MHz Wireless Motion Detector
- Un-Pairing 900MHZ Receiver

Care & Troubleshooting

- Troubleshooting
- G3D Controller Status LED’s
- G3D Primary & Secondary Config

Customer Service

UL COMPLIANCE

UL Compliance (US English)

UL conformity requires the following in respect to the input AC power and the G3 controller system:



1. A 120VAC receptacle shall be positioned within 6ft(1.83m) of the intended G3 installation location.
2. The supplied AC power cord shall be routed in such a manner as to prevent it to becoming entangled in the door, moving parts of the system, or the operator.
3. The AC power cord shall not be routed through doorways, windows openings, walls, ceilings, floors, or the like.
4. The AC power cord shall not be secured to the building structure nor concealed behind walls, and the like.
5. If the input AC power cord is replaced, it must meet or exceed the supplied power cord's ratings shown:

18AWG(0.824mm), 300V, 3/C, 75°C, Length: 6ft(1.83m)

UL Listed for the US and Canada.

UL Compliance (Canada French)

UL Conformité

La conformité UL exige ce qui suit en ce qui concerne la puissance AC d'entrée et le système de commande G3:



1. Un réceptacle de 120VAC doit être placé à moins de 6pi(1,83 m) de l'emplacement prévu pour l'installation G3.
2. Le cordon d'alimentation fourni doivent être disposées de manière à l'empêcher de s'emmêler dans la porte, les pièces mobiles du système, ou de l'exploitant.
3. Le cordon D'alimentation ca ne doit pas être acheminé par des portes, des ouvertures de fenêtres, des murs, des plafonds, des planchers ou autres.
4. Le cordon d'alimentation ne doit pas être fixé à la structure du bâtiment, ni dissimulé derrière des murs, et la comme.
5. Si l'entrée cordon d'alimentation est remplacé, il doit satisfaire ou dépasser le cordon d'alimentation fourni est nominales indiquées:

18AWG(0.824 mm), 300V, 3/C, 75°C, Longueur: 6ft(1.83 m)

UL listée pour les États-Unis et le Canada

To reduce the risk of electric shock, this equipment has a grounding type plug, that has a third (grounding) pin. This plug will only fit into a grounding type outlet. If the plug does not fit into the outlet, contact a qualified electrician to install the proper outlet. Do not change the plug in any way.

FCC DECLARATION OF CONFORMITY

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. Operation of this equipment in a residential area is more likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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



SAFETY TIPS

Safety is number one priority here at Caldwell. Certified Installers only, should be installing this product. Please be cautious of your surroundings during installation and use tools the proper way.

Electrical Safety:

Whenever you work with power tools or on electrical circuits, there is a risk of electrical hazards, especially electrical shock. We recommend that all workers pay special attention to electrical hazards while installing this system. Coming in contact with an electrical voltage can cause current to flow through the body, resulting in electrical shock and burns. Serious injury or even death may occur.

To reduce the risk of electric shock, this equipment has a grounding type plug, that has a third (grounding) pin. This plug will only fit into a grounding type outlet. If the plug does not fit into the outlet, contact a qualified electrician to install the proper outlet. Do not change the plug in any way.

Note: Incorrect installation can lead to injury. Read and follow instructions contained in this manual carefully.

Safety Tips:

- Do not wear rings, watches or any loose clothing when installing or servicing the automation system.
- **Safety glasses** must be worn at all times
- Door system must be installed correctly before any automation is installed
- Watch for nails, sharp edges/corners, splintered wood, and uneven surfaces

Recommended Safety Equipment:

- Safety Glasses
- Heavy Duty Gloves
- Hard Toe Shoes
- Knee Pads
- First Aid Kit

PRE-INSTALLATION CHECKLIST

Prior to installing the automation system verify the following:



Does the door open AND close smoothly and easily?

Make sure the door moves freely over its entire length of travel.



Is the sill track in good condition and allows smooth door travel?

Make sure the track clear of construction debris.



Is the door level?

Make sure the track does not sag or rise excessively over the run.

If the above are not correct, have the installation corrected!

PARTS IDENTIFICATION



G3 "Single" Motor Kit
1xG3 Controller, Power Cable & 6-foot 10 Pin Cable



RS485 GPIO Wired Adaptor & Cable



26-8 Flat Wire



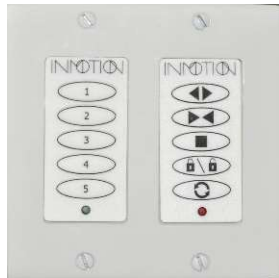
Motor Assembly & Motor Break Out Board (BOB)



G3D "Dual" Motor Kit
2 x G3 Controllers, 2 x HA Adaptors, CAT6 Network Communication Cable, Power & 10 Pin Cables



Wired, Wireless & Capacitive Touch Keypads



Security Wall Switch Kit



900MHz Wireless Remote



900MHz Wireless Motion Detector



Wired Motion Detector

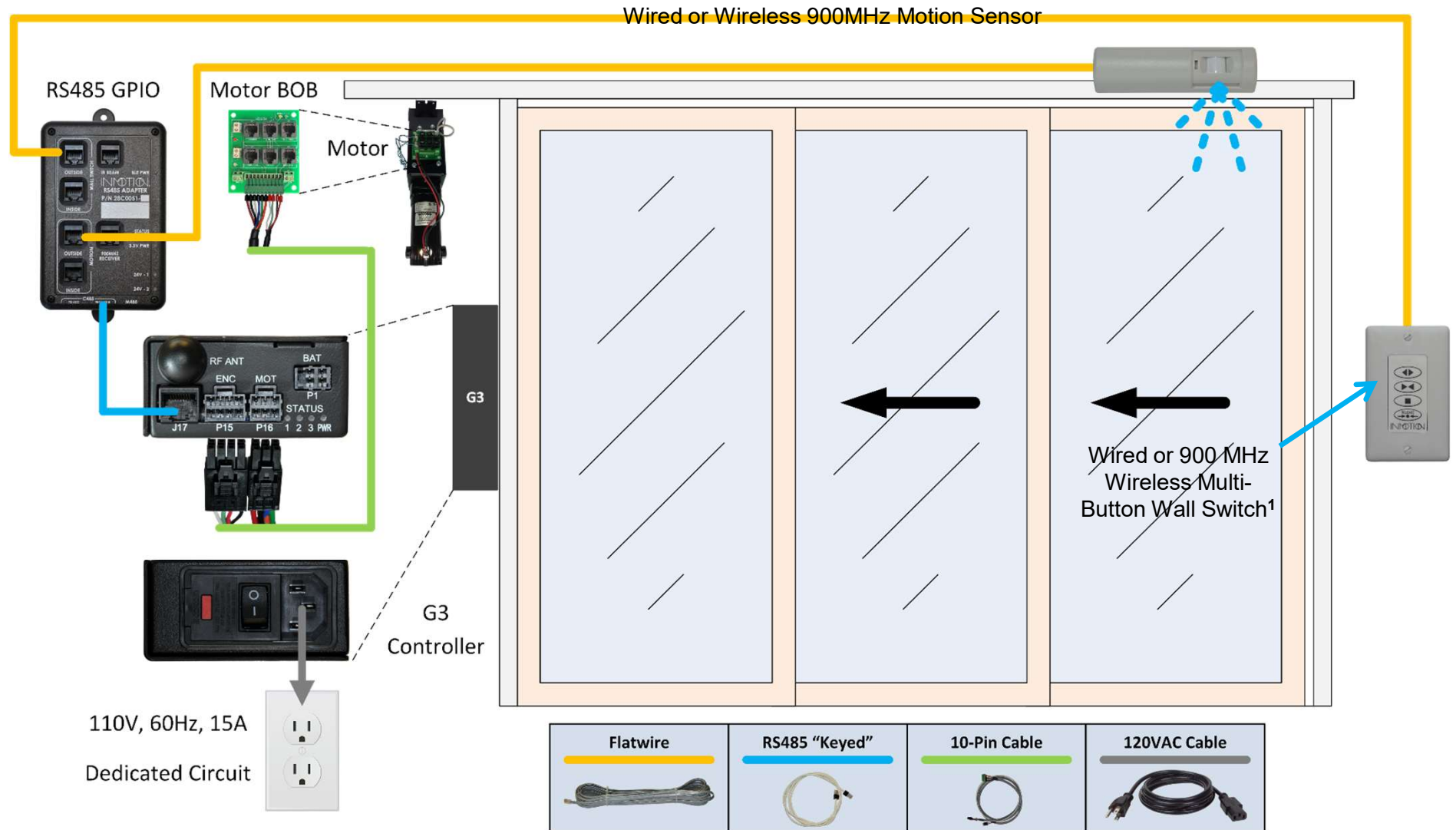


IR Beam Detector



SINGLE MOTOR COMPONENT PLACEMENT

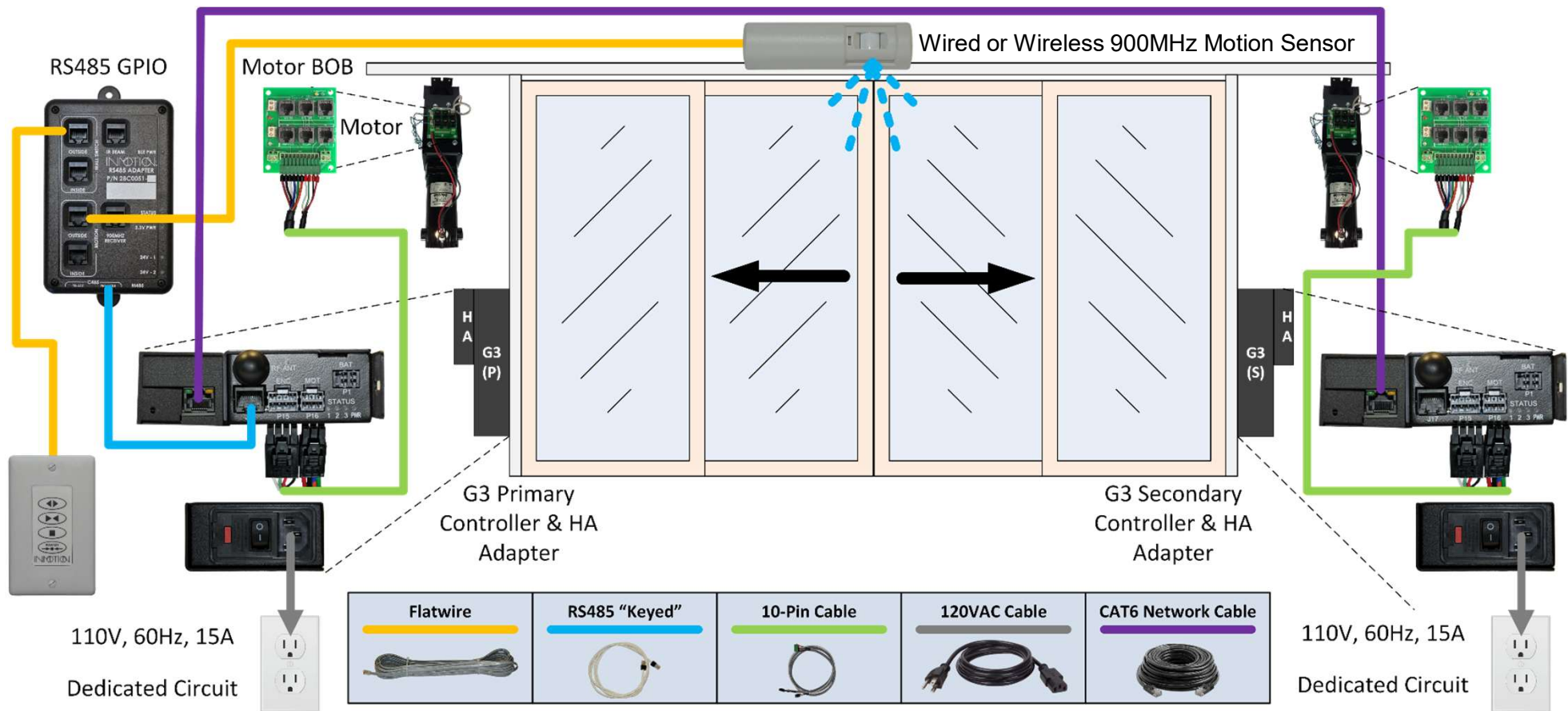
When determining component locations, consider the visual impact on the end customer, ease of installation, and future serviceability. Figure below shows the typical location of components.



Note: ¹ - Wall switches shown are for illustration and are available in multiple colors and button configurations.

DUAL MOTOR COMPONENT PLACEMENT

When determining component locations, consider the visual impact on the end customer, ease of installation, and future serviceability. Figure below shows the typical location of components.



Note: 1 - Wall switches shown are for illustration and are available in multiple colors and button configurations.

COMMON COMPONENTS FOR ALL KITS



- **Automation Panel** – The automation panel is an electrical enclosure box that measures 3" x 1 1/2" x 11 1/2". To ensure proper system operation, the automation panel, needs to be mounted within 6 feet (wire length) of the motor assembly. This panel needs to be accessible. The Automation Panel comes with an electrical cord, so it can be plugged into a normal 110V, 60Hz, 15A, dedicated circuit.

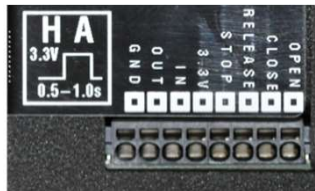


The controller used for all kits is the Generation 3 (G3) controller. It is used in Single and Dual installs with the only difference being an included Home Automation/Interface (HA) factory attached to the side of each controller for dual systems.

When installed in a dual system one controller is designated as the primary which controls the entire system, including the secondary controller, motor and attached accessories.

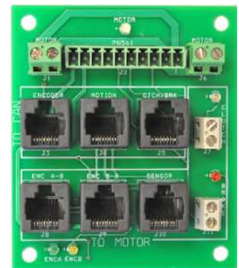
Attached accessories are controlled by the primary controller even if they are attached to the secondary controller.

The Home Automation/Interface adaptors provides a home automation dry contact relay interface for the basic open, close, stop and release functions usually provided by a RS485 GPIO adaptor in previous releases. The HA adapter on either the Primary or Secondary can be used.



To reduce the risk of electric shock, this equipment has a grounding type plug, that has a third (grounding) pin. This plug will only fit into a grounding type outlet. If the plug does not fit into the outlet, contact a qualified electrician to install the proper outlet. Do not change the plug in any way.

Motor Assembly – The motor assembly consists of a 24VDC motor, integrated gear box, magnetic brake & clutch and a break-out-board (BOB) for wire interconnects. It provides quiet, reliable operation for years of uninterrupted service.



WIRELESS KIT COMPONENTS



- **Automation Panels** – A single G3 controller is included with single motor wireless kits for one-way and bi-part installations. *All G3 controllers contain a built 900MHz receiver supporting all wireless accessories out of the box.*
- **Motor Assembly** – The single Series 500 motor is included with this kit supporting smaller one-way or bi-part installations.
- **900 MHz Wireless Keypad** – Wireless keypads can be installed anywhere the customer needs remote door access or can be used as wireless direct replacement for the wired keypad. The wireless keypad mounts in a single gang J-box and operates on 2 x CR123 lithium batteries. Any number of keypads can be paired to the G3's built in receiver.
- **900 MHz Wireless Motion Detector**– Like the wireless keypad, this motion detector is paired to the G3's built in receiver and operates on 2 x CR123 lithium batteries. The unit is mounted above the door entrance and provides the same functionality as the wired version. The sensor module must be ceiling mounted so that sensor faces downward. The G3 controller supports 2 or more wireless motion detectors.
- **900 MHz Remote** – This optional accessory can be added to any kit and provides long range remote control of a single system. The remote includes a built-in rechargeable battery and can be recharged with any standard USB charger and the include micro-USB cable.

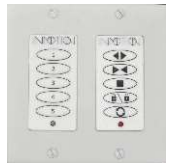


Wireless kits also support wired components when paired with the optional RS485 adapter.



WIRED KIT COMPONENTS

- **Automation Panel** – A single G3 controller is included with single motor wired kits for one-way and bi-part installations. *All G3 controllers contain a built 900MHz receiver supporting all wireless accessories out of the box.*
- **Motor Assembly** – A single 500 Series motor stack is included with this kit.
- **RS485 Adapter** – Wired kits include the RS485 adapter, which enables the connection of wired accessories to the G3 controller. This adapter breaks out separate connectors for all wired accessories including wired indoor & exterior security wall switches, motion detectors (inside & outside) and an IR beam detector. It also includes a Bluetooth module enabling wireless configuration capabilities for the installer.
- **Wired Keypad** – Wired keypads connect to the RS485 adapter which is then connected to the G3 controller. The RS485 adapter is included with the wired kit.
- **Security Wall Switch** – Intended for optional exterior, secure access to the home, this wall switch uses a 4-digit pin number to activate the normal Open, Close, Stop and Release functions of a typical wall switch.
- **Wired Motion Detector**– The wired motion detector connects to the G3 controller via the RS485 adaptor. The G3 RS485 adapter supports 2 dedicated motion connections for indoor and exterior motion detection. The unit is mounted above the door entrance and can be wall or ceiling mounted.
- **IR Beam Detector** – This optional component can replace a motion detector in the kit or be added for an additional safety measure. Included with the IR Beam kit is a single set of sensors that are mounted in the door frame about 12" above the floor. A single IR Beam controller can support 2 sets of sensors if for example beams are desired on both the interior and exterior of the door.



DUAL KIT COMPONENTS

- **Automation Panels(2) with Attached Home Automation/Interface Adaptors**
- **Motor Assembly(2)** – The Dual Kit includes 2 standard motor assemblies for larger Bi-Part and 90° installations.
- **CAT6 Network Cable** - Standard kit length is 75' with a 100' foot option is included with the G3D Kit. This cable is used to connect both controllers together for communication and control when dual motors are needed for large bi-parts and 90° systems.



- **RS485 Adapter** – Wired Dual Kits include the RS485 adapter, which enables the connection of wired accessories to the G3 controller. This adapter breaks out separate connectors for all wired accessories including wired indoor & exterior security wall switches, motion detectors (inside & outside) and an IR beam detector. It also includes a Bluetooth module enabling wireless configuration capabilities for the installer.
- **Wired Accessories** – Wired Dual Kits can utilize any of the wired wall switches, wired motion and IR beam detectors supported by the single controller kits. Wired accessories attach to the RS485 GPIO adaptor and is typically connected to the Primary G3 controller in the kit.



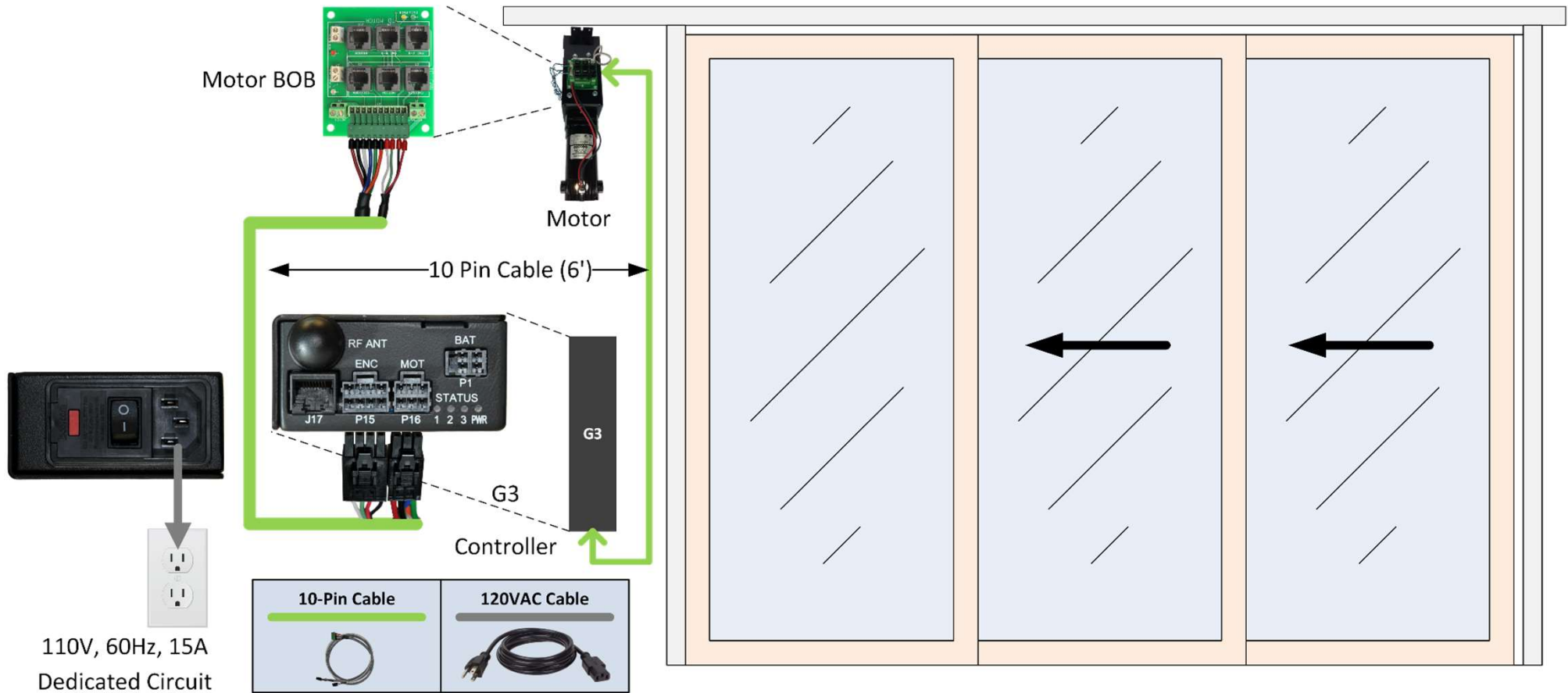
- **Wireless Accessories** – Wireless Dual Kits can include any wireless wall switch, remote or wireless motion sensor the single controller kit supports.



AUTOMATION SYSTEM INSTALLATION

- Mechanical Installation Complete:
 - Before beginning the electrical installation, check for rubs and interferences by manually moving the door over the entire length of its travel. Make sure that the door moves freely over its entire length of travel, and that it is square panel to panel and panel to jambs. If any problems are detected, contact the door installer to correct them. Everything must be working properly mechanically before beginning electrical installation.
- Electrical Installation Begins:
 - To avoid confusion and to prevent damaging system components, all wires must be labeled with a black marker.
 - For ease of installation and to avoid damaging connectors, wires should be run first and then the connectors should be applied. (RJ45 Connector Application instructions follow the wiring steps.)
 - The G3 controller only requires 1 external wire connection to the motor break out board. DO NOT connect accessories such as wall switches, or motion detectors to any of the RJ45 connectors on the BOB board.

G3 SINGLE MOTOR WIRING (FIRMWARE 0.6.7 – 0.7.5)



- Automation Panel to Power Supply – DO NOT PLUG IN UNTIL INSTRUCTED. When instructed, the automaton panel will be connected to a 110V, 60Hz, 15A, dedicated circuit and should be within 6 feet of the automaton panel. A power cord is supplied.
- Motor Breakout Board to Automation Panel Main Circuit Board – Use the provided 6-foot 10 pin cable to connect the motor breakout board(BOB), on the side of the motor assembly, to the automation panel main circuit board.

G3D THEORY OF OPERATION (FIRMWARE v0.7.5)

- **G3(2) Controllers** – Two controllers are used, 1 per door set. One controller is designated the primary and controls the operation of the secondary controller. The primary handles all input commands from wired accessories via a RS485 GPIO adapter and wireless via its built in 900MHz receiver.
- **Primary & Secondary Designation** - When controlling a 90° door, the primary must be attached to Door 1. Door 1 is the door that mechanically must move first in order to release the secondary from the astragal. When controlling a Dual Bi-Part, the primary can be on either door.
- **Configuration** – The controllers are designated primary and secondary at the factory prior to shipment. Labels indicating their primary & secondary configurations are affixed below the serial number label. Additionally, the controller's status LEDs indicate primary & secondary and communication status. Once a controller is designated a primary or secondary, it can only be restored to a “single” controller configuration by way of the CLI command “c dual none”.

G3D FIRMWARE V0.7.5 INSTALLATION BANNER

Installation Banner – When a controller is first started and is not programmed, the installation banner is displayed indicating such. The banner display has been updated for the G3D release.

- Wall switch commands:

1

- Auto-Program: Changed from 15s to **10s**
 - Press **STOP** and Hold for **10s**:
- Reboot: Changed from 10s to **8s**
 - Press **STOP + RELEASE** and Hold for **8s**:
- Set Door Type to **90°(one-way) [Factory Default]**
 - Press **STOP** and Hold for **10s** to initiate “auto-program”
 - Press **OPEN** for **1s**. Auto-programming is cancelled.
- Set Door Type to **Bi-Part**
 - Press **STOP** and Hold for **10s** to initiate “auto-program”
 - Press **CLOSE** for **1s**. Auto-programming is cancelled.



2*

2*

The option to change the door type is available from the wall switch anytime “auto-programming” has been initiated. If the door is currently programmed, this option is available by initiating “auto-program” and making the required selection. Auto-programming is cancelled after setting the door type so that the installer does not have to reprogram the door(s) just because the door type was changed from the wall switch.

```
*****
002.326: <<<  INSTALLATION REQUIRED  >>>
002.330:
002.332: Controllers must be programmed
002.336:   prior to use by a qualified
002.340:           installer
002.344:
002.344:       Wall Switch Commands:
002.348: -----
002.352: 1 Auto-Program:  STOP(10s)
002.354: Toggle Brake:  RELEASE(1s)
002.356: Reboot:        STOP+RELEASE(8s)
002.360: 2* Set 90 Degree: OPEN(1s)
002.362: Set Bi-Part:   CLOSE(1s)
002.372:
002.374: <<<      G3 Dual Primary      >>>
002.378: <<<      G3 Secondary Online  >>>
002.382: <<<      90 Degree(one-way)  >>>
002.388:
002.388:       www.caldwellmfgco.com
*****
```

G3D FIRMWARE V0.7.5 INSTALLATION BANNER

Installation Banner Controller Mode Display – At the bottom of the Installation Banner, the current mode of the controller is now displayed. It indicates if the controller is in a Single or Dual mode, this controller's "Primary" or "Secondary" status and finally the door type as either "90° (one-way)" or "Bi-Part"

```
*****
002.326: <<<  INSTALLATION REQUIRED  >>>
002.330:
002.332: Controllers must be programmed
002.336: prior to use by a qualified
002.340: installer
002.344:
002.344: Wall Switch Commands:
002.348: -----
002.352: Auto-Program:  STOP(10s)
002.356: Toggle Brake:  RELEASE(1s)
002.360: Reboot:      STOP+RELEASE(8s)
002.366: Set 90 Degree: OPEN(1s)
002.368: Set Bi-Part:  CLOSE(1s)
002.372:
002.372: <<<   G3 Dual Primary   >>>
002.376: <<<   G3 Secondary Online >>>
002.382: <<<   90 Degree(one-way) >>>
002.388:
002.388: www.caldswellmfgco.com
*****
```



1

On a Dual system the Primary will display:
"G3 Dual Primary"
"G3 Secondary Online"
"90 Degree(one-way) or Bi-Part"

If the Secondary controller is not connected or powered off, an "Error" banner shows the secondary is powered OFF or disconnected.

1

```
002.508: <<<   G3 Dual Primary   >>>
002.512: <<<   G3 Secondary Online >>>
002.516: <<<   90 Degree(one-way) >>>
```

```
002.368: <<<   G3 Dual Primary   >>>
002.372: <<<   G3 Secondary Online >>>
002.376: <<<   Bi-Part           >>>
```

```
001.004:          *** ERROR ***
001.008: Secondary communication lost.
001.012: Check cable or reboot one or
001.018: both controllers.
```

2

On a Dual system the Secondary will display:
"G3 Dual Secondary"
"G3 Secondary OFFLINE" *
"90 Degree(one-way)" *
* *Secondary should ALWAYS display as "G3 Secondary OFFLINE" & "one-way"*

2

```
002.516: <<<   G3 Dual Secondary   >>>
002.520: <<<   G3 Secondary OFFLINE >>>
002.524: <<<   90 Degree(one-way)   >>>
```

3

A Single motor system will display:
"One-Way" or "Bi-Part"

3

```
002.514: <<<   G3 Single Controller >>>
002.518: <<<           One-Way         >>>
```

```
002.514: <<<   G3 Single Controller >>>
002.518: <<<           Bi-Part         >>>
```


CLI CHANGES IN THE G3D FIRMWARE V0.7.5

Command Line Interface (CLI) – Once a controller is programmed, most of the previously documented Installation Banners will not be displayed, thus the controller's role may still be in question. The last CLI indicator of the G3's role is the CLI prompt itself.

The prompt will change from “cmd>” **1** for a single controller, to “cmd1>” **2** if it's a primary, or “cmd2>” **3** for the secondary.

Info Command - The info has been updated with 2 functions now. If the command is lower case, special function settings are omitted from the report. If the command is upper case they are included. In both cases, the controllers role is reported under Settings as: “oneway(PRI 90)”, “bipart(PRI Dual)”, “oneway(SEC 90)”, “oneway(Single)” or “bipart(Single)”.

```
Settings
-----
Panel Mass:      plms*  172lbs
Pulley Diameter: pdia*  1.7988in
Door Type:       drtp*  bipart(PRI Dual)
Jam Entry:       pje*   0.30in
Span:           pop*   0.00in
  Sub-Span:      pops*  0.00in
Motor Direction: mdir*  normal
Encoder Polarity: epol*  normal
O/C Speed Limit: spl*   DISABLED[0]
High Frict Inst: hfi**  0
```

1

```
cmd>v
Caldwell Generation 3 Controller
Fw:  v0.7.5 [REL_K12]
Sn:  28C0016D2 K12 2009090273
Cf:  Single One-way
HFI: 0 (High Friction Install)
Bn:  68dfd3ee
cmd>
```

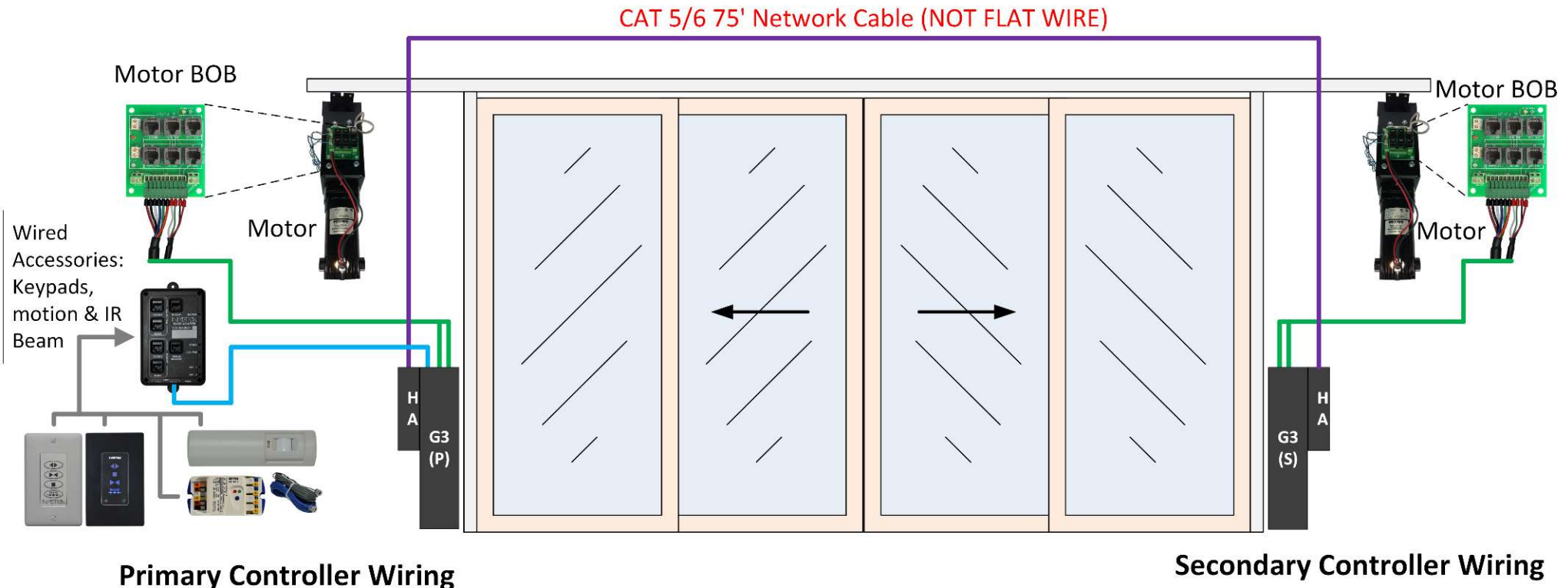
2

```
cmd1>v
Caldwell Generation 3 Controller
Fw:  v0.7.5 [REL_K12]
Sn:  28C0016D2 K12 2009090273
Cf:  Dual 90 (Primary)
HFI: 0 (High Friction Install)
Bn:  68dfd3ee
cmd1>
```

3

```
cmd2>v
Caldwell Generation 3 Controller
Fw:  v0.7.5 [REL_K12]
Sn:  28C0016D2 K12 2012020428
Cf:  Dual (Secondary)
HFI: 0 (High Friction Install)
Bn:  68dfd3ee
cmd2>
```

DUAL MOTOR BI-PART WIRING (V0.7.5+)

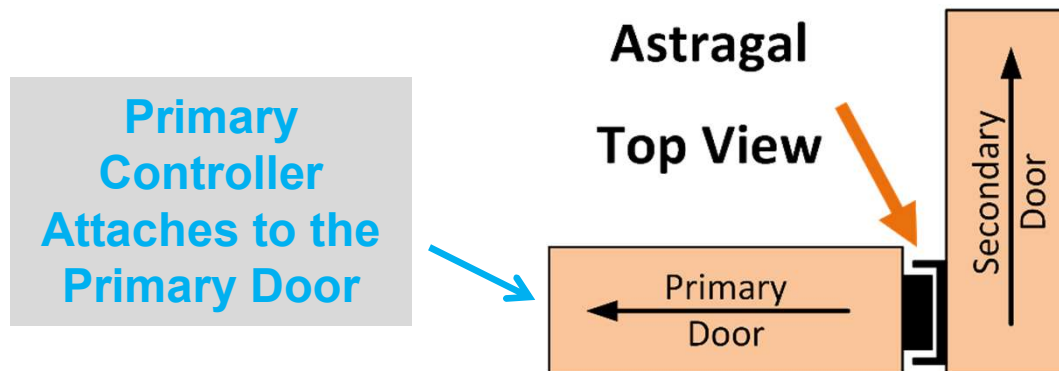


- Automation Panel to Power Supply – DO NOT PLUG IN UNTIL INSTRUCTED. When instructed, the automaton panel will be connected to a 110V, 60Hz, 15A, dedicated circuit and should be within 6 feet of the automaton panel. A power cord is supplied.
- Motor Breakout Board to Automation Panel Main Circuit Board – Use the provided 6-foot 10 pin cable to connect the motor breakout board(BOB), on the side of the motor assembly, to the automation panel main circuit board.

DUAL MOTOR 90° WIRING (V0.7.5+)

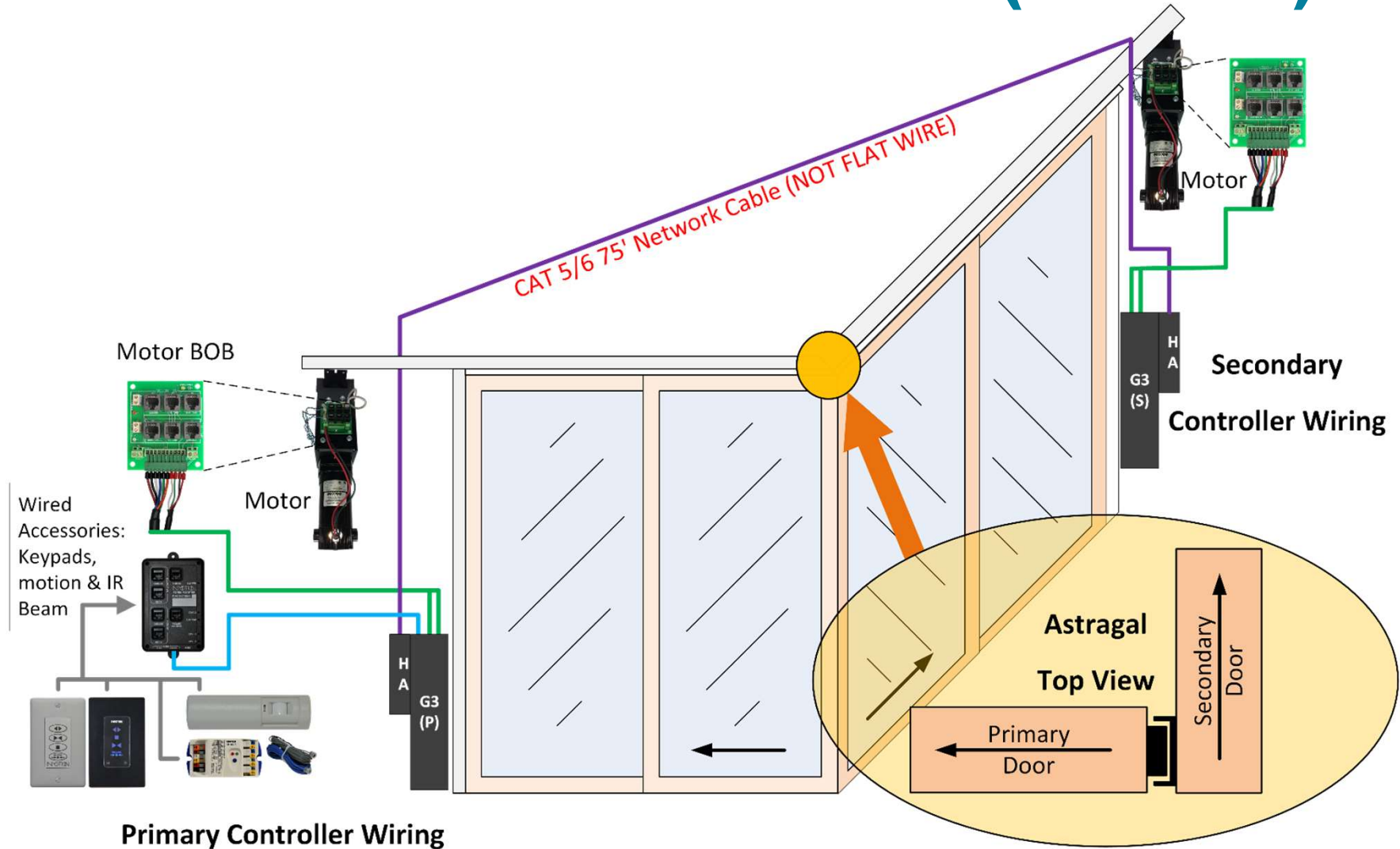
Primary Controller MUST be Attached to the Primary Door

- This applies specifically to 90° installations and not Dual Bi-Part systems.
- The “astragal” configuration dictates which door must be attached to the primary controller.
- The primary door is the door that must be moved out of the jam first to release the other door (Secondary).
- Dual controller kits are factory configured for 90° installations by default.



- Automation Panel to Power Supply – DO NOT PLUG IN UNTIL INSTRUCTED. When instructed, the automaton panel will be connected to a 110V, 60Hz, 15A, dedicated circuit and should be within 6 feet of the automaton panel. A power cord is supplied.
- Motor Breakout Board to Automation Panel Main Circuit Board – Use the provided 6-foot 10 pin cable to connect the motor breakout board(BOB), on the side of the motor assembly, to the automation panel main circuit board.

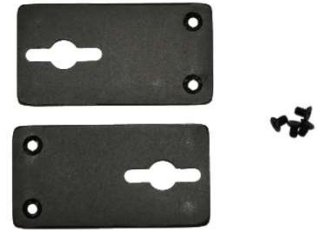
DUAL MOTOR 90° WIRING (V0.7.5+)



- Automation Panel to Power Supply – DO NOT PLUG IN UNTIL INSTRUCTED. When instructed, the automaton panel will be connected to a 110V, 60Hz, 15A, dedicated circuit and should be within 6 feet of the automaton panel. A power cord is supplied.
- Motor Breakout Board to Automation Panel Main Circuit Board – Use the provided 6-foot 10 pin cable to connect the motor breakout board(BOB), on the side of the motor assembly, to the automation panel main circuit board.

MOUNTING THE G3 CONTROLLER

- The G3 controller should be mounted using the enclosed mounting kit against the side or base plate



28E0002 Mounting Kit



Side Plate Mount



Base Plate Mount



RJ45 CONNECTOR APPLICATION

RJ45 Connections for Wired Accessories to the RS485 Module Only

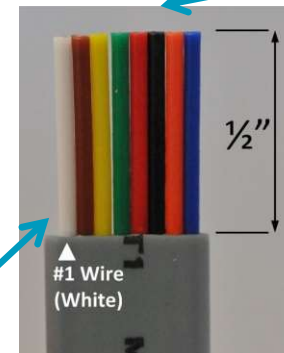
DO NOT USE FLAT WIRE to interconnect 2 G3's in a Dual Motor System

Terminated 26-8 Flat Wire should be verified with a data cable tester!

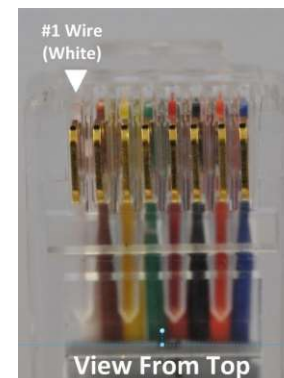
- **Applying RJ45 Connectors** – When applying RJ45 connectors, first make sure that all wires are properly identified. Use a high quality 26-8 data/phone cable stripper (shown Right) to create a clean and even end on the 26-8 flat wire cable.
- Then strip-off about ½" of the outside jacket (only the outside jacket will be stripped). The 8 individual wires should have their relative shields intact.
- While holding the cable, identify the outermost colors of the 8 wires. Choose the left extreme white wire to be the #1 wire.
- Insert the stripped cable into the connector so that the #1 wire lines up with the connector position #1. Make sure to push the cable all of the way into the connector.
- Insert the wire/connector assembly into the correct crimper opening and crimp to form a permanent wire/connector assembly.
- Repeat this process for all wires making sure that the #1 (white) wire/connector position is the same for all wires.



Crimper



26-8 Flat Wire Cable



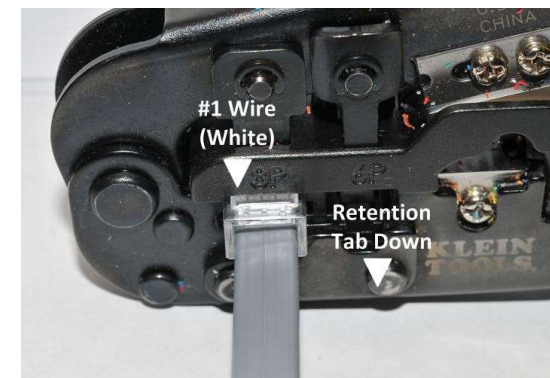
RJ45 with Cable Inserted

RJ-45 Wire Colors:

- #1 White
- #2 Brown
- #3 Yellow
- #4 Green
- #5 Red
- #6 Black
- #7 Orange
- #8 Blue



RJ45 Connector for 26-8 Cable Insertion



Crimping RJ45 Connector to Cable

RS485 “GPIO” ADAPTER LED’S



Bluetooth Status

Flashes every 3 seconds

- Not connected; awaiting connection

Flashes quickly 2 times & repeats

- Bluetooth is **CONNECTED**

LED is Off

- Bluetooth is **DISABLED**

Command Status (Normally OFF)

Will momentarily flash (**Normal**)

- Wired door commands, i.e. Open/Close/Stop/Release
- Momentary motion detected or IR beam blocked

Will be ON continuously (**ERROR**)

- Wired command button held down or a flat wire short
- Motion detector/IR Beam wired for normally closed
- IR Beam is constantly BLOCKED

Power Supplies

All 3 MUST be illuminated AND bright

C485 Port Connection to the G3 Controller

“**FROM CTRL**” Port

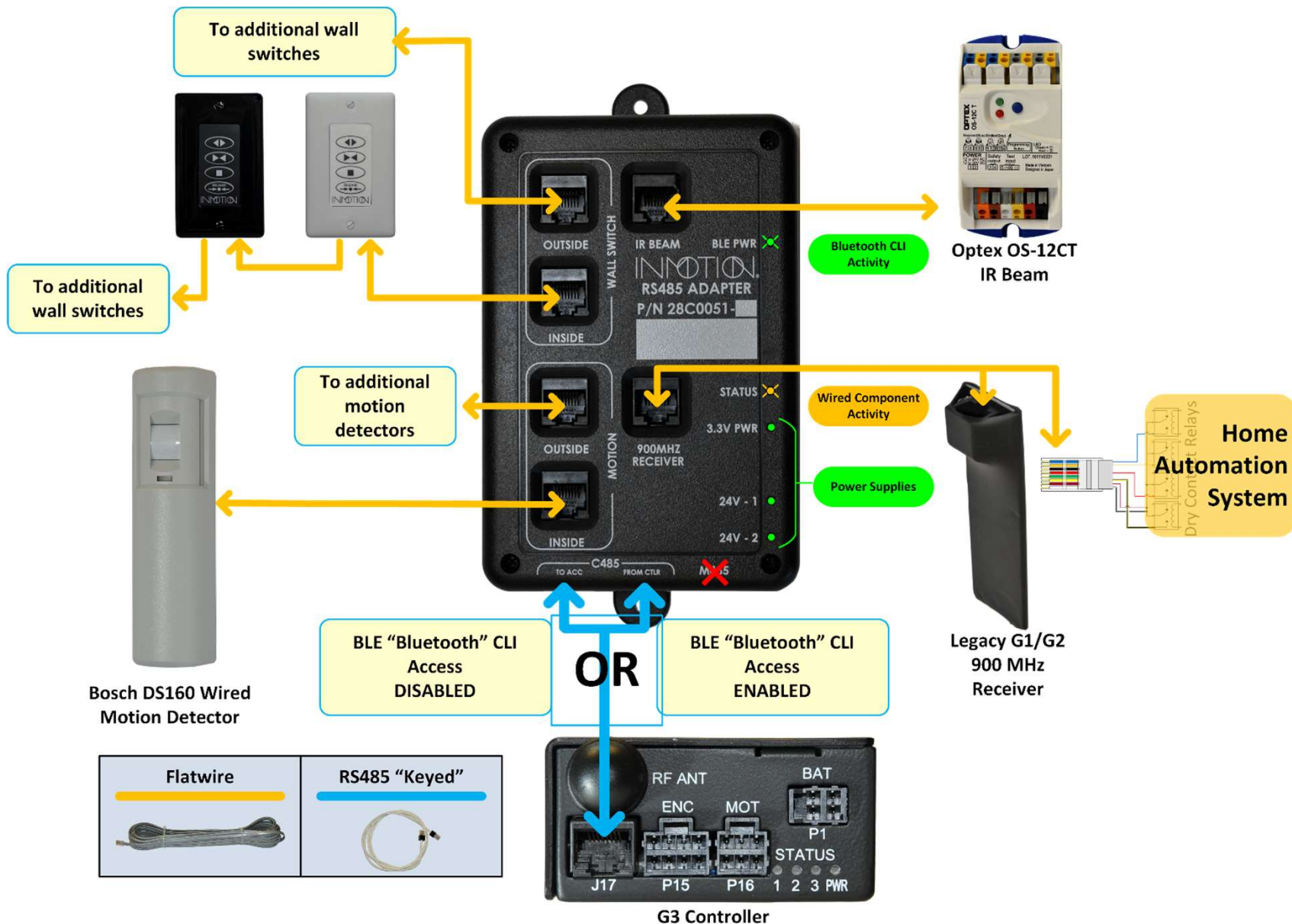
Bluetooth access is **ENABLED**

Use when the installer needs to connect via Bluetooth terminal”

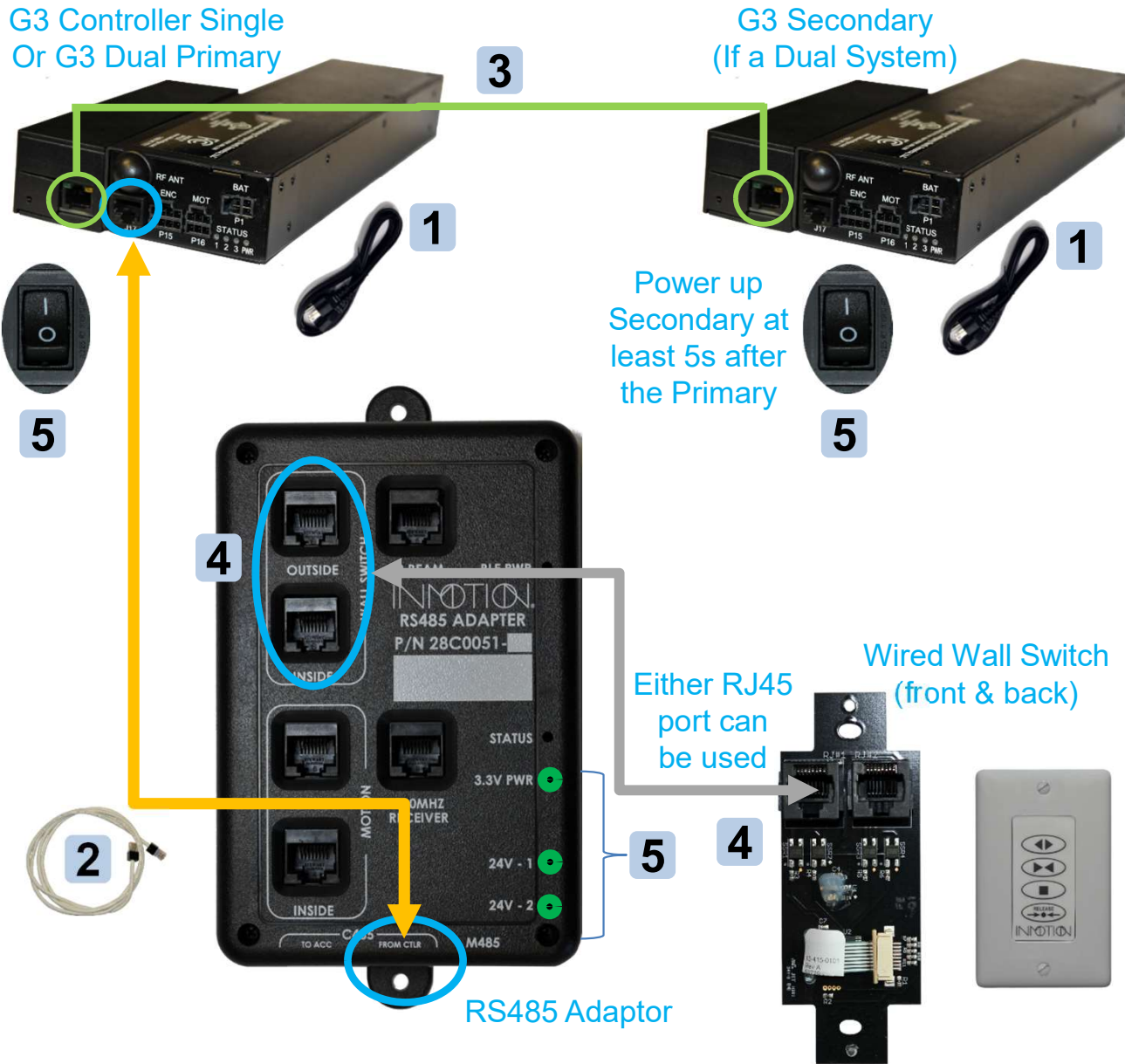
“**To ACC**” Port (**ONLY IF HOMEOWNER REQUIRES NO BLUETOOTH**)

- Bluetooth access is **DISABLED**
- Connect here after the controller is fully configured and ready for the homeowner

RS485 “GPIO” CONNECTIONS



INITIAL WIRED SYSTEM SETUP



1

Connect the AC power cord(s).
Do not power up the controller(s).

2

Connect the RS485 “keyed” cable between the controller’s J17 port and the RS485 adaptor’s **“FROM CTRL”** port.

3

If this is a “Dual” system, connect the provided CAT 5/6 cable between the Primary & Secondary controllers

4

Make a flat 1:1 cable and connect a wired wall switch to the RS485 adaptor's Wall Switch "INSIDE" or "OUTSIDE" port.

5

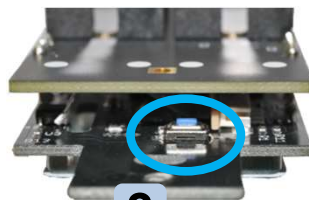
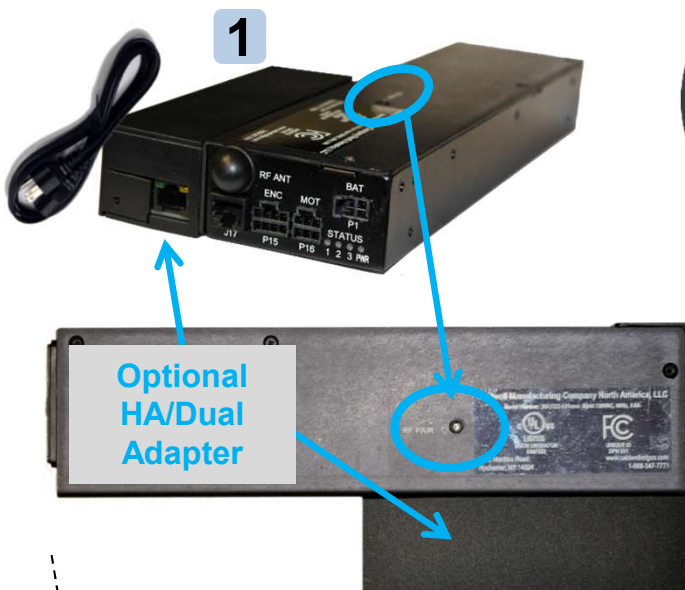
Power up the controller if a Single Motor system OR the Primary if a Dual system and verify all 3 LEDs on the RS485 Adaptor are illuminated.

If this is a dual system, wait at least 5s before powering on the Secondary controller.

INITIAL WIRELESS SYSTEM SETUP

Wireless G3 kits including wireless wall switches are factory paired and **SHOULD NOT** require this procedure!
Wireless G3D (Dual) systems are factory paired to the Primary Controller

Wireless Wall Switch Pairing



3

Wireless G3D components can be paired to either the Primary or the Secondary Controller. Wireless components can also be split between controllers.

A single component should NEVER be paired to both controllers at the same time!

1

Install 2 x CR123A batteries in the wireless wall switch AND power on the controller. Connect the AC power cable and power up the controller

2

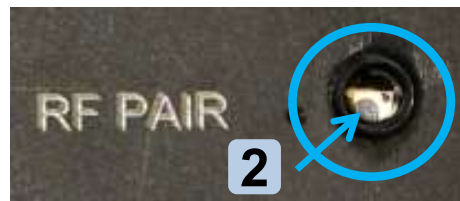
Press the “pairing” button on the controller for 1 second

3

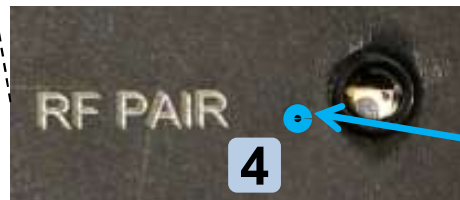
Press the “pairing” button the wireless wall switch for 1 second
[Remote Pairing Instructions \(p33\)](#)

4

The LEDs should begin to flash together. When pairing is complete the controller should receive and “Open” command from the wireless wall switch

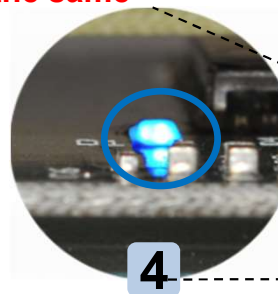


2

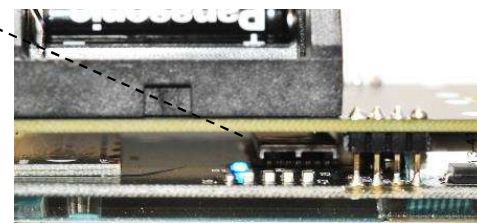


4

Blue LED's



4



- 900 MHz Wireless Receiver (for Wireless Wall Switch/Remote/Motion) – The receiver is built into the G3 controller.

WALL SWITCH INSTALLATION FUNCTIONS



Firmware v0.7.5 (G3D Dual Motor Release)

- **STOP** Hold for **10s**: Initiate Auto Programming
 - **STOP + RELEASE** Hold for **8s**: Reboot Controller
 - **RELEASE** for **1s**: Toggle Brake
 - * **OPEN** for 1s (**NEW**): Sets One-Way/90° Door Type
 - * **CLOSE** for 1s (**NEW**): Sets Bi-Part Door Type
- * Available after initiating "Auto Programming".
 After setting "Door Type", auto programming terminates and must be re-initiated to complete programming.
 Can be used before or after auto programming

```
*****
002.326: <<<  INSTALLATION REQUIRED  >>>
002.330:
002.332: Controllers must be programmed
002.336:   prior to use by a qualified
002.340:             installer
002.344:
002.344:       Wall Switch Commands:
002.348: -----
002.352: Auto-Program:  STOP(10s)
002.356: Toggle Brake:  RELEASE(1s)
002.360: Reboot:        STOP+RELEASE(8s)
002.366: Set 90 Degree: OPEN(1s)
002.368: Set Bi-Part:  CLOSE(1s)
002.372:
002.374: <<<    G3 Dual Primary    >>>
002.378: <<<    G3 Secondary Online  >>>
002.382: <<<    90 Degree(one-way)  >>>
002.388:
002.388:       www.caldwellmfgco.com
*****
```

Firmware v0.7.0 – v0.7.2 (Special Features Release)

- **STOP** Hold for **15s**: Initiate Auto Programming
- **STOP + RELEASE** Hold for **10s**: Reboot Controller
- **RELEASE** for **1s**: Toggle Brake

```
*****
001.782: <<<  INSTALLATION REQUIRED  >>>
001.786:
001.786: Controller must be programmed
001.792:   prior to use by a qualified
001.796:             installer
001.800:
001.800:       Wall Switch Commands:
001.804: -----
001.808: To Program:    STOP(15s)
001.812: Toggle Brake:  RELEASE(1s)
001.816: Reboot:        STOP+RELEASE(10s)
001.822:
001.822:       www.caldwellmfgco.com
*****
```

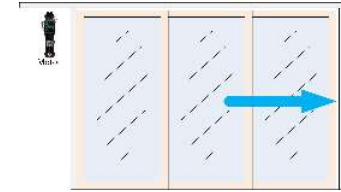
SINGLE CONTROLLER PROGRAMMING

1. Power OFF the controller and close the door to the jam.

1



"Turn OFF"



2. WAIT 5 seconds then Power ON. The magnetic brake will engage.

2

Wait 5s



"Turn ON"

3. Press and hold the wall switch/remote **STOP** button (about 10s) until the motor "clicks".

3



Hold
Until



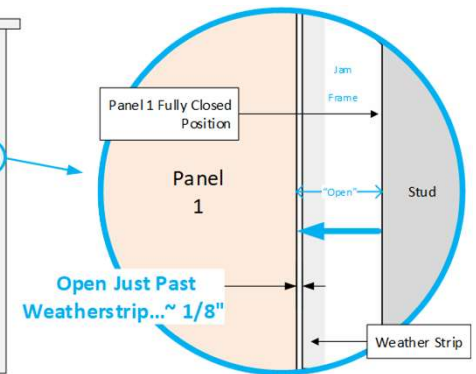
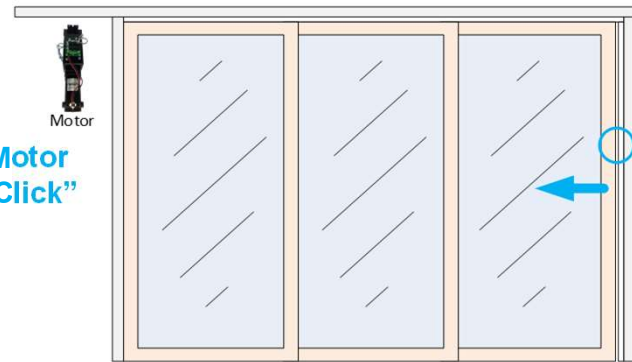
Motor "Clicks"
(about 15s)

4. Manually move the lead panel so that its just past the jam's weather strip...~1/8".

Wait for the motor "click"

4

Motor
"Click"

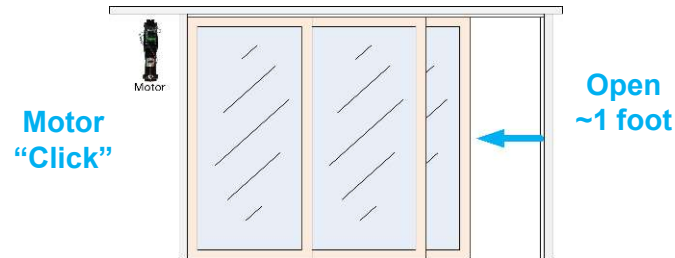


SINGLE CONTROLLER PROGRAMMING

5. Manually open the door about 1 foot. After a few seconds, the lead panel should move about 4".

Wait for the motor "click".

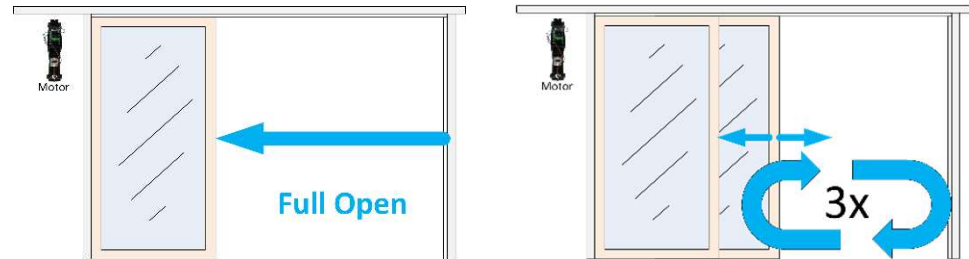
5



6. Move the lead panel to its full open* position. After stopping for 10 seconds, the controller will begin its "learn" cycle.

The door should cycle the entire span 3 times, then close to the jam and stop. The magnetic brake will engage.

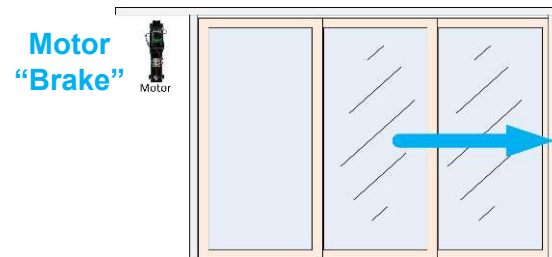
6



7. Programming is COMPLETE.

Note: Programming is actually completed at the last full open position before the final close. The final close is executed for convenience only.

7



Programming COMPLETE

***Note:** Always program the door's **full open** position to the **maximum physical span** of the door as the span adjust feature cannot be used to make minor adjustments to the span if less than 2 inches.

DUAL CONTROLLER PROGRAMMING OVERVIEW

Programming a “dual” motor G3 system requires each door to be programmed individually, which unlike the older G1 systems both doors were programmed simultaneously.

- Programming is initiated in the same way as a “single” motor system, either with a 10s keypad press of the “Stop” button OR the CLI command to the Primary controller “b autoseup”.
- After the primary completes the primary door will stop at its full open position.
- The **secondary** programming is then initiated with a keypad press of the “Stop” button for 1s OR the CLI command to the primary controller “b stop”.
- The secondary door is programmed the same way as the primary. After the Secondary motor “clicks”...
 - Set the Jam depth with a small move to just clear the jam. Wait for the motor click.
 - Set the Motor polarity with a panel move of ~12 inches. After the door moves 4” either way...
 - Set the Full Span with a move of the doors to is mechanical full span.
 - Secondary then auto learns its friction profile, stops at open, then both doors will close.

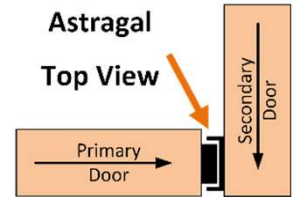
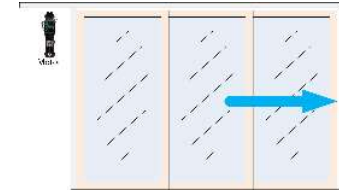
G3D PRIMARY CONTROLLER PROGRAMMING

1. Power OFF both controllers and close the doors to the jam or astragal

1



Turn BOTH
controllers
OFF



2. WAIT 5 seconds then Power ON the Primary. Wait 5 seconds and power on the Secondary.

2

Wait 5s



Turn ON
Primary

Wait 5s

Turn ON
Secondary



3. Press and hold the wall switch/remote **STOP** button (about 10s) until the Primary motor “clicks”.

3



Hold
Until

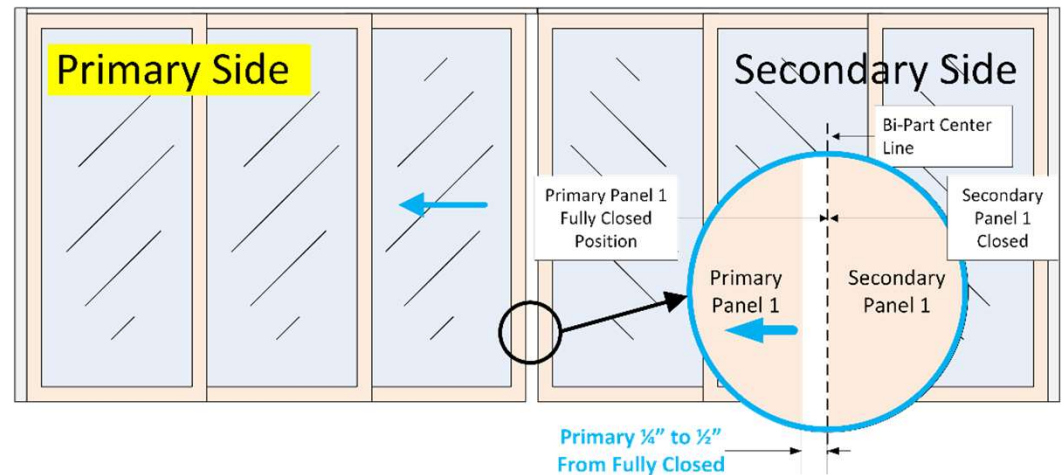


Primary Motor
“Clicks”

4. Manually move the primary lead panel so that its just past the jam’s weather strip...~1/8”.

4

Wait for the primary motor “click”



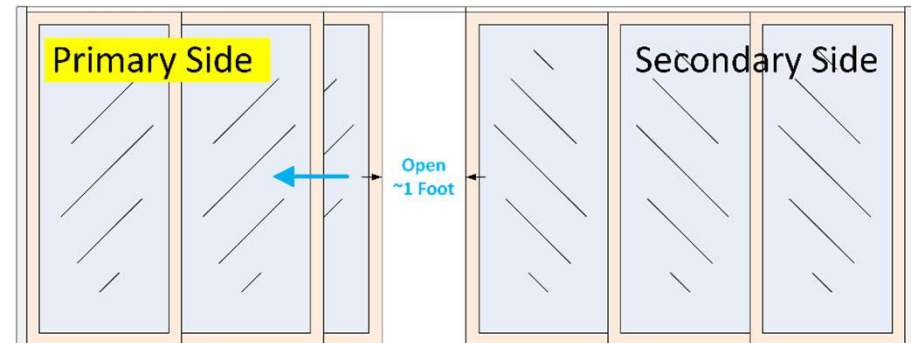
G3D PRIMARY CONTROLLER PROGRAMMING

5. Manually open the primary door about 1 foot. After a few seconds, the lead panel should move about 4".

Wait for the motor "click".

5

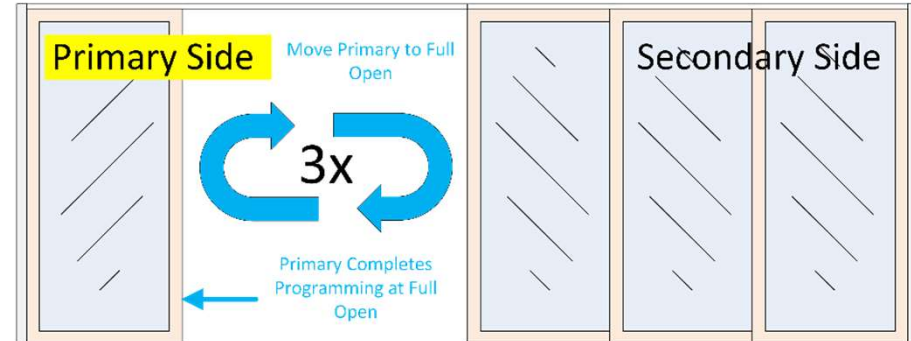
Motor
"Click"



6. Move the lead panel to its full open* position. After stopping for 10 seconds, the controller will begin its "learn" cycle.

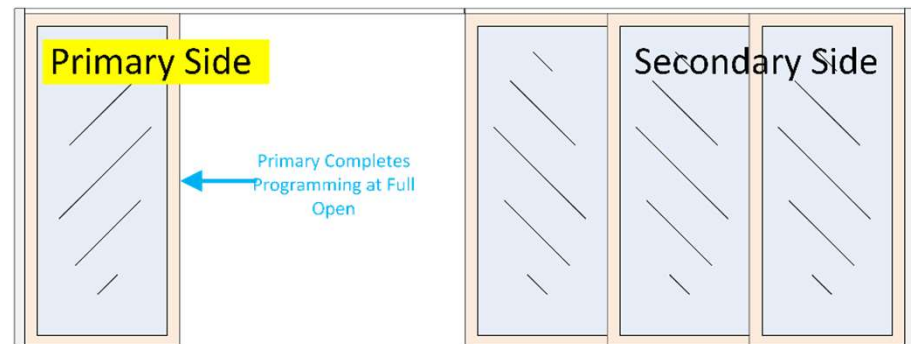
The door should cycle the entire span 3 times. When programming is complete, the primary door will stop at full open.

6



7. Primary programming is **COMPLETE**. Now its time to program the Secondary

7



Primary Programming COMPLETE

***Note:** Always program the door's **full open** position to the **maximum physical span** of the door as the span adjust feature cannot be used to make minor adjustments to the span if less than 2 inches.

G3D SECONDARY CONTROLLER PROGRAMMING

8. Press and hold the wall switch/remote **STOP** button (about 10s) until the Primary motor “clicks”.

8



Stop
1s

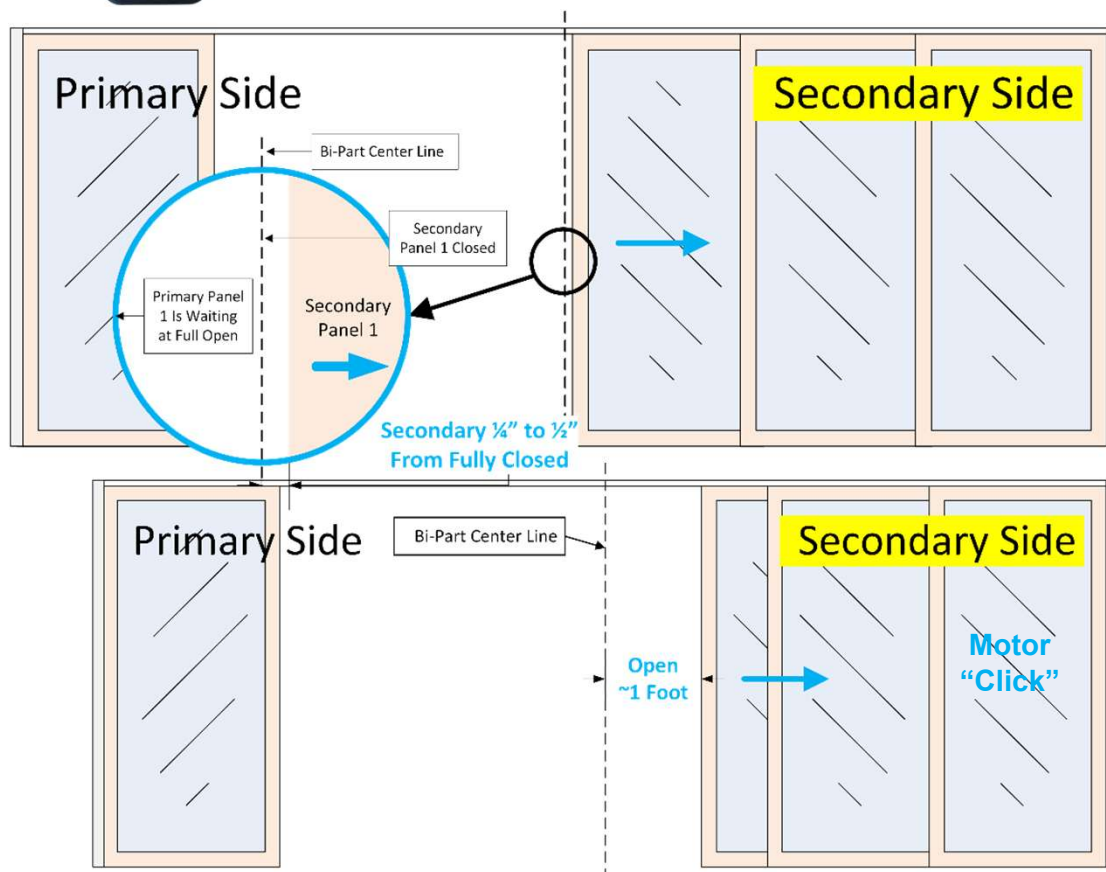


Secondary
Motor “Clicks”

9. Manually move the secondary lead panel so that its just past the jam’s weather strip...~1/8”.

9

Wait for the secondary motor “click”



10. Manually open the secondary door about 1 foot. After a few seconds, the lead panel should move about 4”.

10

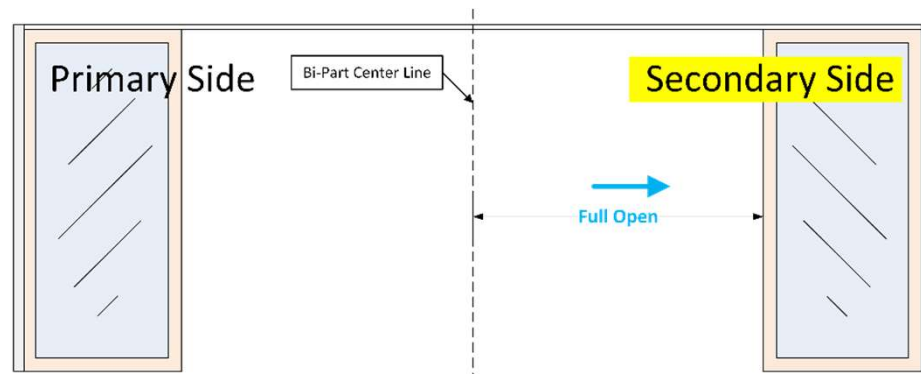
Wait for the motor “click”.

***Note:** Always program the door’s **full open** position to the **maximum physical span** of the door as the span adjust feature cannot be used to make minor adjustments to the span if less than 2 inches.

G3D SECONDARY CONTROLLER PROGRAMMING

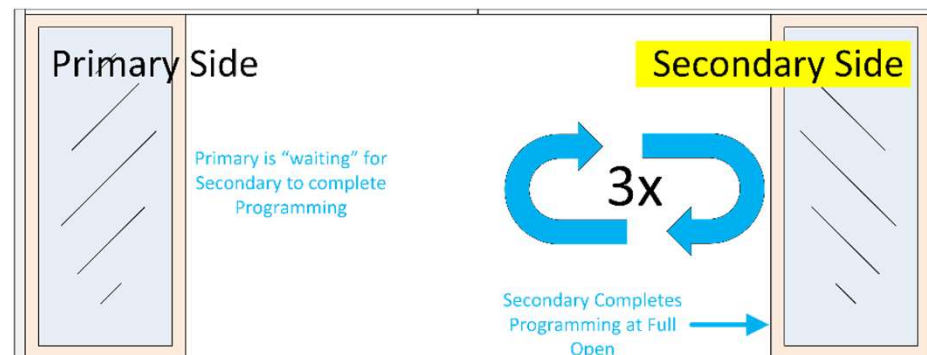
12. Move the secondary lead panel to its full open* position.

12



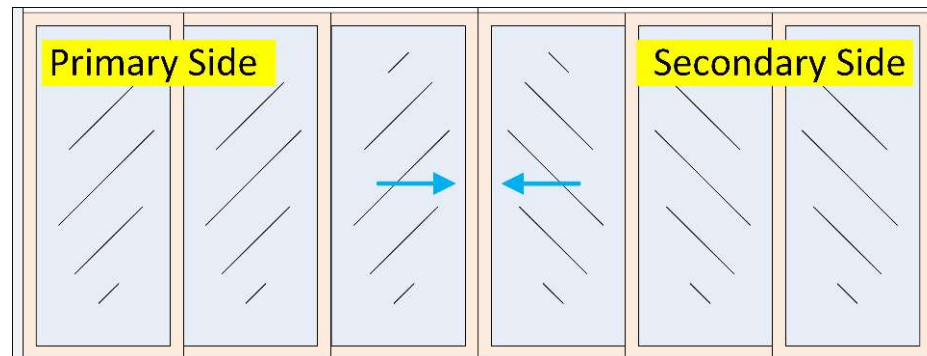
13. After stopping for 10 seconds, the controller will begin its “learn” cycle. The secondary door should cycle the entire span 3 times.

13



14. When programming is complete, the secondary will briefly pause at full open. Then both primary and secondary door will close.

14



Note: Programming is actually completed at the last full open position before the final close. The final close is executed for convenience only.

***Note:** Always program the door’s **full open** position to the **maximum physical span** of the door as the span adjust feature cannot be used to make minor adjustments to the span if less than 2 inches.

G3D PROGRAMMING 90° & BI-PART

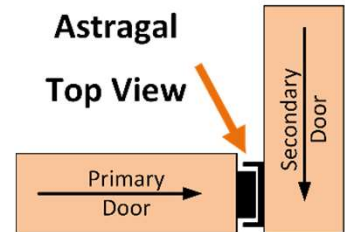
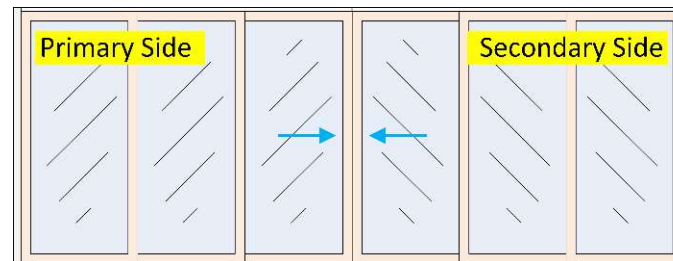
The factory default for “Door Type” is set to 90°(one-way) and normally not required unless the door is a Bi-Part

This adjustment can be done **before** or **after** the system has been programmed. If a Bi-part installation is incorrectly configured as a 90° (one-way)...

- When the doors are closed in the middle on a bi-part system, the primary will open a few seconds before the secondary panel begins to move.
- When bi-part system is properly configured as a bi-part, both doors should move at the same time.

15. To configure the system as a Bi-Part or 90° (one-way) first move both the primary and secondary doors to their fully closed position.

15



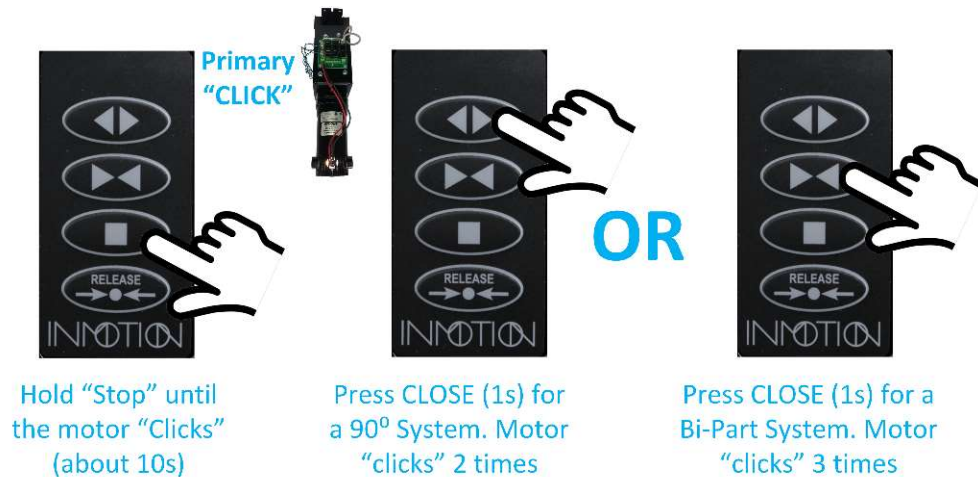
16. Initiate programming mode with a **10s** press of the “**Stop**” button.
DON'T move any panels.

16

Within 30s...

Press “**Open**” for 90° (One-Way)
the motor will click 2 times
OR

Press “**Close**” for Bi-Part.
the motor will click 3 times



***WARNING:** If the installation is a 90° (one-way), **NEVER** configure the system as a bi-part. When configured as bi-part both doors will attempt to move simultaneously at the close point, possibly damaging the astragal.

IMMEDIATELY AFTER PROGRAMMING

VERIFY THE DOOR'S OPERATION

- **This is especially important if the door has a heavy pull requirement > 40lbs**

- When a door has an extremely heavy “pull” it puts a strain on the motor controller electronics.
- In some cases, this causes the controller chip to overheat and shut down. When this occurs, it is EXTREMELY important that the issue is corrected immediately
- The motor controller is only rated for 100 over-temp faults before being permanently damaged.

```
cmd>060.730: Enc: Motion start  
061.436:*TLE Current Limit  
068.440:*TLE Overtemp  
068.726: Enc: Motion stop
```

- **TLE Over-temp indicators**

- While moving the panel suddenly stops, moves again, stops etc...”studders”
- While moving the CLI displays a message “**TLE Current Limit**” or “**TLE Overtemp**”
- If the any of the above occur, immediately STOP running the door and refer to the next page for help with mitigating TLE issues.
 - Or download “**Tech Brief – TLE Mitigation**” from the support site:
<https://inmotionsupport.freshdesk.com/support/solutions/articles/17000115220-g3-technical-briefs>

- **Operate the door for at least 3 full cycles**

- If possible, have a terminal attached to the door via Bluetooth or wired to view any displayed error messages.
- Make sure the door runs the full span from full open to full closed and in the jam.
- At the jam verify the mechanical lock engages the door properly indicating a fully closed panel.
- While opening and closing, well away from either end, give the door a nudge to simulate the lead panel impacting a person. Make sure the door stops and backs up about 4”.

TLE MITIGATION

- The first step in TLE Mitigation is verifying the mechanical installation of the door, which should have been done before the automation was installed.
- Fix any mechanical defect that could be causing added friction. That includes the wheels, base & head tracks, warped panels etc.
- Refer to the “TLE Mitigation” Tech Brief for more information:
 - <https://inmotionsupport.freshdesk.com/support/solutions/articles/17000115220-g3-technical-briefs>
- V0.7.2 firmware provides a few “helper” commands that can submit multiple CLI commands at once, however all firmware versions support the underlying “parameter changes” for TLE mitigation.

If you have v0.7.2 or later G3 firmware

```
cmd>p IMxxxx
cmd>hfi 4      // Extend accel/decel times to 15s
cmd>c apmf 1    // Disable partial move accel factor
cmd>c vpmf 1    // Disable partial move velocity
factor
cmd>p IMxxxx
cmd>b auto (reprogram)
```

If your G3 firmware is v0.7.1 or earlier

```
cmd>p IMxxxx
cmd>r 4        (factory RESET)
cmd>p IMxxxx
cmd>c osp 4.5
cmd>c csp 4.5
cmd>c acco 15
cmd>c accc 15
cmd>c deco 15
cmd>c decc 15
cmd>c apmf 1
cmd>c vpmf 1
cmd>p IMxxxx
cmd>button auto (reprogram)
```

RE-TEST

- Operate the door for several cycles and verify the TLE issue is resolved.
- If not, contact technical support for additional instructions.

CYCLE TESTING

The G3 controller with firmware v0.7.0 and later support a built-in cycle tester. This feature can be programmed to run the door through its entire open & close span from 1 to 1,000,000 cycles.

After an installation, a typical use case would be to cycle the door 5 times. During the test, the installer can verify soft touch by manually impleading the door while cycling to see and feel the force required to fault it. Motion detection, IR beam sensors, wall switches and Special features can be tested as well.

NOTE

G3D v0.7.5 Support

Cycle testing with this version of firmware is only supported when configured as a “Single” motor system.

“Dual” motor cycle testing has limited support.

Contact the factory for more information

CYCLE TEST OVERVIEW

- **The Test Never Stops for Long...**
 - Friction & Motion faults are acknowledged and recorded but the door will resume movement while testing
- **The Test Can Be Paused Indefinitely**
 - While the door is moving mid span, pressing the wall switch “Release” button to pause, repeat to resume.
- **Cancelling the Test**
 - From the wall switch, first pause the test mid span. While paused, press the “Stop” button.
 - From the CLI send the command “t 0” to cancel the test and a report is displayed. Then “t 0” again.
 - The report data can be recalled until it is cleared by the second “t 0” command or the controller is rebooted.
- **Options and Modifiers**
 - When options such as span adjust are enabled, the test supports that by waiting at full open for the programmed span adjust time to expire. If span adjust is disabled, “c fsat 0”, the test does not wait to close.
 - If for example, “delayed brake on close” is set to delay for an hour. For every cycle, on close, the door will enter the jam, wait for 1 hour to engage the brake before opening the door for the next cycle.
- **Changing the Cycles to Run**
 - While running, the number of cycles can be changed by sending the “t n” command where ‘n’ is the desired number of cycles.

NEVER START A TEST AND LEAVE THE DOOR UNATTENDED!!!

CYCLE TEST EXAMPLE

The cycle test function only has 1 configuration parameter. The “cycle test fault limit” or “ctfl” parameter is used to stop the test if an excessive number of “friction faults” occur during a single open+close cycle. If this limit is exceeded the test is terminated, and an error report is displayed.

The default limit is 5 faults / full cycle, but can be changed with the command
“c ctfl n” where ‘n’ can be a value from 1 to 1000.

TEST FOR 1,000,000 CYCLES

1. From the CLI, execute “**t 1000000**”
2. The CLI will then display the report indicating a “Ready” status
3. Start the test with wall switch “**Close**” or CLI “**button close**” command. Testing starts in a few seconds.
4. After the first cycle completes, the approximate runtime is available in the report just send the command “t”

```
Cycle Test
-----
Status          READY
Progress:        0.00%
Oneway Travel:   0.00 ft
Cycle Time:      TBD
Time Remaining:  TBD
Cycle Info       Opening
Current Cycle:   0
Total Cycles:    1000000
On Open
Friction Faults: 0
Motion Signals: 0
On Close
Friction Faults: 0
Motion Signals: 0
Cycle Faults:    0/5
```

Test “Ready”

```
Cycle Test
-----
Status          RUNNING
Progress:        0.00%
Oneway Travel:   6.67 ft
Cycle Period:    34s
Time Remaining:  1Y 2M 0w 1d 12h 26m 6s
Cycle Info       Opening
Current Cycle:   1
Total Cycles:    1000000
On Open
Friction Faults: 0
Motion Signals: 0
On Close
Friction Faults: 0
Motion Signals: 0
Cycle Faults:    0/5
```

After 1st cycle Time Remaining
Displayed

```
Cycle Test
-----
Status          RUNNING
Progress:        0.00%
Oneway Travel:   35.08 ft
Cycle Period:    46s
Time Remaining:  1Y 7M 0w 0d 9h 43m 36s
Cycle Info       Opening
Current Cycle:   4
Total Cycles:    1000000
On Open
Friction Faults: 1
Motion Signals: 4
On Close
Friction Faults: 2
Motion Signals: 3
Cycle Faults:    1/5
```

Running Fault Counts

```
Cycle Test
-----
Status          ERROR
Progress:        0.00%
Oneway Travel:   47.50 ft
Cycle Period:    47s
Time Remaining:  1Y 7M 1w 4d 23h 29m 25s
Cycle Info       Closing
Current Cycle:   5
Total Cycles:    1000000
On Open
Friction Faults: 1
Motion Signals: 4
On Close
Friction Faults: 7
Motion Signals: 3
Cycle Faults:    5/5
```

Error On Fault Report

```
Cycle Test
-----
Status          COMPLETE
Progress:        100.00%
Oneway Travel:   9.75 ft
Cycle Period:    34s
Time Remaining:  0s
Cycle Info
Current Cycle:   1
Total Cycles:    1
On Open
Friction Faults: 0
Motion Signals: 0
On Close
Friction Faults: 0
Motion Signals: 0
Cycle Faults:    0/5
```

Single Cycle Test Complete

NEVER START A TEST AND LEAVE THE DOOR UNATTENDED!!!

THE “PENCIL” TEST FOR SOFT TOUCH

WARNING: While testing **NEVER** use your body to block the door as it approaches a jam or panel pickup point. Always use a small block of wood or a piece of stiff Styrofoam instead. Remember you are testing the safety devices and an incorrect setting can cause serious injury, entrapment or even death.

This test is far from “scientific” but does provide some idea of the crush force exerted by the panel during close. The only equipment needed is a #2 pencil of reasonable quality...no dollar store “rubber” pencils please. We used a “Ticonderoga #2” and an “Amazon Basics #2”.

Only perform this test after the controller is configured, tested and cycled across the entire span several times.

Also make sure crushing a pencil will NOT damage the door or the frame!

Command the door to close from the full open position while holding the pencil across the jam opening.

- The panel should detect over current and backup with minimal damage the pencil.
- If the pencil is utterly destroyed and/or the door does not friction fault and backup, “Soft Touch” is NOT properly configured. **THIS MUST BE FIXED!**

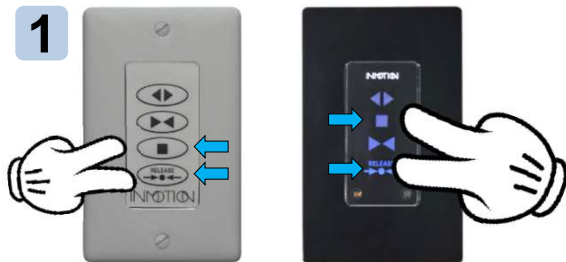
If “soft touch” is configured properly, with a force of 24 – 27lbs, the pencil should not break. *While testing in the factory, the pencil had a dent in the wood and we could hear the lead inside was likely broken, but the pencil itself survived.*

CONTROLLER RESET (REBOOT)

After programming, each time the G3 Controller is power cycled, it re-learns the jam position. If power is cut and restored while the door is open, the controller must be reset while the lead panel is in the jam (fully closed).

There are 3 ways to reset or reboot the controller.

- 1** From a wall switch, **press** and **hold** the Stop and Release button for **10s**. When the reset signal is acknowledged, the motor may click and/or the wall switch will loose power for 3s before powering back up.
Note: On Dual systems this procedure only resets the Primary controller.
- 2** Using a terminal and the command line interface (CLI), issue the command “**rst 0**”. The CLI can be accessed with a Factory CLI Cable OR over Bluetooth if the optional RS485 GPIO adapter is installed. See the next section for more information on accessing the CLI.
Note: On Dual systems this procedure only resets the Primary controller.
- 3** Locate the G3 controller and turn off the main power switch at the bottom of the unit for 10s, then reapply power. If the G3 controller has a dedicated circuit at the fuse box, the power can be cycled from the breaker panel instead.



Press & Hold STOP &
RELEASE for 10s



CLI “rst 0” command

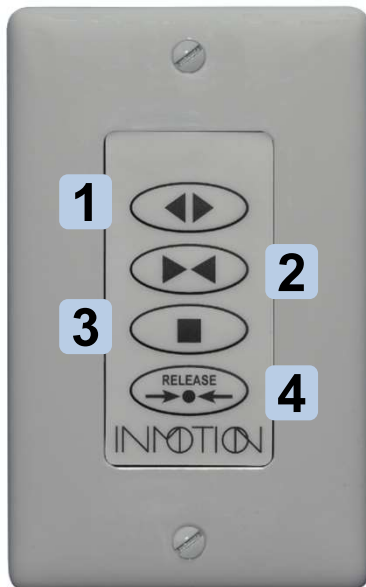


G3 Power Switch or the
Breaker at the Fuse Box

WALL SWITCH NORMAL MODE DOOR OPERATIONS

After the controller is programmed, the customer has several modes of operation available for selection from any wall switch or remote. By default, all features are disabled at the factory and the door's operation is controlled by wall switch commands.

Normal door operation are **Open**, **Close**, **Stop** and **Release**.



Wired or Wireless
“membrane” Wall
Switch or 900 Mhz
Remote

- 1 Open:** The “open” button will release the magnetic brake, if engaged and initiates opening the door.
- 2 Close:** The “close” button will release the magnetic brake, if engaged, and initiates closing the door.
- 3 Stop:** The “stop” button will immediately stop the door if it is moving. If the door is not moving it has no effect.
- 4 Release:** The “release” button will toggle the magnetic brake either on or off. The brake will automatically release when the door is commanded to move.



Wired Capacitive
Touch Wall Switch
(note the button order)

SPECIAL FEATURES

Entertainment, Egress, Simplicity and Motion Assist

Besides “normal” mode the controller support 4 additional, “special features”. Those are “**Entertainment / Party Mode**”, “**Close Behind / Egress**”, “**Simplicity Mode / One Button Operation**” and “**Motion / Move Assist**”. When set, the controller will stay in selected mode until changed and will persist after a power failure. Each feature also supports independent settings via the CLI for span width, brake on close, delayed brake on close and delayed auto close.

Special Feature Information & Defaults

- Magnetic Brake on Close is disabled by default for all features. Only Party Mode, Egress and One Button Operation modes optionally support “brake on close”. Move Assist does not support automatic “brake on close” however the brake can be manually activated from the wall switch.
- For the features that support “brake on close”, brake engagement can be delayed from 1s to a full day. (1s to 1 day). This allows a customer to open a door with auto close yet remain unlocked for example to water some plants. With the brake delayed the homeowner can re-enter the home without the worry of being auto locked out by the mag brake.
- All features open to 40” by default but can be adjusted up to the full span manually or via the CLI.
- Party and Egress modes automatically close after 10s by default, while One Button Operation & Move Assist do not, but support for that option is available from the CLI.
- The amount of time allowed to adjust the span for Normal, Party/Egress and One Button Operation is controlled by a single CLI command (fsat). The time can range from 0(disabled) to 98s. A setting of 99 allows span adjustment forever.
- Span adjust for Move Assist is limited from 0(disabled) to 98s using the CLI command “c fmat”. There is no option to allow span adjust forever with Move Assist
- While a special feature is enabled, wall switch/remote functions still operate normally.

NOTE

G3D v0.7.5 Support

Special features, if configured as a “Dual”, is only supported on the **Primary** controller.

Single controller systems are fully supported.

Contact the factory for more information.

WALL SWITCH SPECIAL FEATURE ENABLING

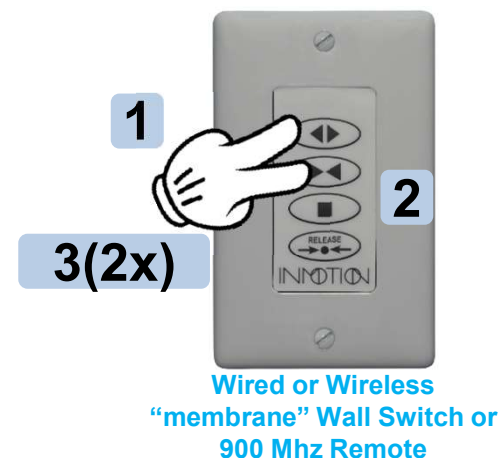
After the controller is programmed, customer has several modes of operation available for selection from any wall switch or remote. By default, all features are disabled at the factory and the door's operation is controlled by wall switch commands.

NOTE

G3D v0.7.5 Support

Special features, if configured as a "Dual", is only supported on the **Primary** controller.
Single controller systems are fully supported.
Contact the factory for more information.

- 1 O+C:** With the door closed AND, in the jam, press & hold both **Open & Close** for ~2s or until the motor clicks.
then press...
- 2 Open:** **Entertainment / Party Mode.** Panel opens on motion, waits 10s then closes. Requires a motion detector or IR beam sensor to operate.
- Close:** **Close Behind / Egress Mode.** When the Open button is pressed, the door will open, waits 10s then and closes.
- Stop:** **Simplicity Mode / One Button Operation.** Door operates like a garage door using the Stop button to open, stop, and close.
- Release:** **Motion / Move Assist.** A slight manual movement of the first panel will cause the door to open or close without using the wall switch.
- 3 O+C(2x):** **Return to Normal Mode.** With the door closed, AND in the jam, pressing both **Open & Close** for 2s, wait 1s, then **Open & Close** again. After the final motor click, the door will return to normal mode.



FEATURE OPTIONS MATRIX

Feature ⁴ (Trigger)	Brake On Close Default	Brake On Close Disable	Brake On Close Delay (1s-24h)	<u>Global</u> Brake On Open	<u>Global</u> Brake Disable	Auto Close ⁵ (1s – 24h)	Span Adjust ⁵ (0 – 98s)	Span Adjust Forever (99)	Hard Close
Normal Mode (WS , CLI)	Enabled [c mboc]	Yes [c mboc]	Yes [c mboc]	Yes [c mbpop]	Yes [c mbd]	n/a ³	Yes [c fsat]	Yes [c fsat]	Yes [c mhdc]
Entertainment / PM (Motion , WS CLI)	Disabled [c fpmb]	Yes [c fpmb]	Yes [c fpmb]	Yes [c mbpop]	Yes [c mbd]	Yes [c fpmw]	Yes [c fsat]	Yes [c fsat]	Yes [c mhdc]
Close Behind / Egress (WS Open , CLI)	Disabled [c fegb]	Yes [c fegb]	Yes [c fegb]	Yes [c mbpop]	Yes [c mbd]	Yes [c fegw]	Yes [c fsat]	Yes [c fsat]	Yes [c mhdc]
Motion / Move Assist ¹ (Panel Move , WS, CLI)	n/a	n/a	n/a	n/a	Yes [c mbd]	Yes [c fmaw]	Yes [c fmat]	No	Yes [c mhdc]
Simplicity Mode / OBO (ADA) (WS Stop , CLI)	Disabled [c fmab]	Yes [c fmab]	Yes [c fmab]	Yes [c mbpop]	Yes [c mbd]	Yes [c fobw]	Yes [c fsat]	Yes [c fsat]	Yes [c mhdc]
Cycle Test ² (Feature Dependent)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes

* CLI Commands for the required parameter shown in [...] if supported

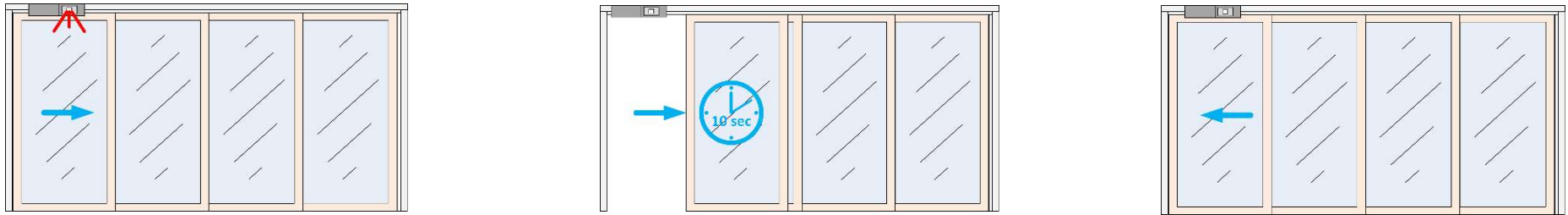
Notes:

1. Move Assist with magnetic brake at Open or Close would nullify the Move Assist feature. Manual mag brake is supported anytime.
2. Cycle Test(Ct) utilizes any currently active feature settings during the test.
Ct uses the same trigger as the feature itself; i.e., Party Mode uses an internally generated “*motion*” signal to initiate movement.
Friction Faults & Motion Detection cause the panel to slow and stop/reverse, but movement will resume after about 1s.
Ct will stop completely if the number of faults / cycle is exceeded. Default is 5.
3. Normal mode with Auto Close is the same as Egress, therefore auto close is not supported in Normal runtime mode.
4. Wall Switch, Remote & CLI commands are fully supported in ALL features except the Cycle Test. (WS Release = Pause/Resume)
5. Span Adjust time will be automatically reduced if Auto Close is enabled and is less than Span Adjust Time.
i.e., If Auto Close is set to **10s** & Span Adjust is **30s**, then Auto Close will occur in **10s**, but Span Adjust is limited to **10s**.

ENTERTAINMENT / PARTY MODE

This feature will automatically open a door when an attached motion detector or IR beam sensor is tripped. After 10 seconds the door will automatically close, but not engage the brake.

For operations for either side of the door, the system will need a motion detector on the inside & outside of the door.



Wall Switch/Remote:

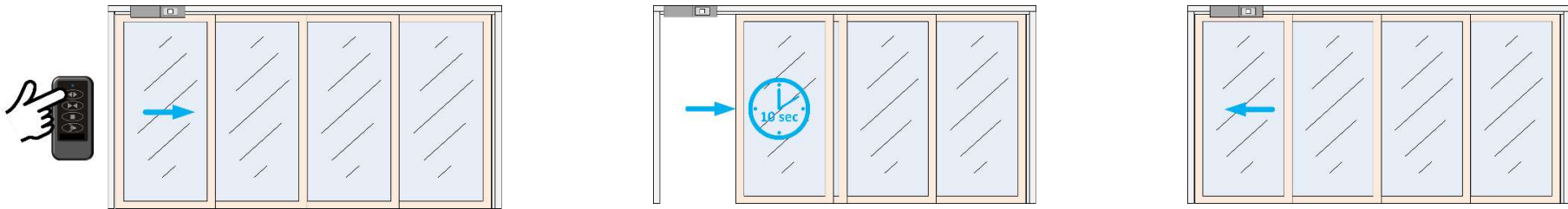
Enable: Open + Close for 2s, then press **OPEN** (while door is closed in the jam)
Disable: Open + Close for 2s, then **Open + Close** for 2s again. (while door is closed in the jam)

CLI Options:

```
c fpme X    0: Disables, 1: Enables Party Mode
c fpmd X    Sets sub-span in inches.  Range (6-1200), Default (40)
c fpmw X    Wait before close time in seconds. Range (0-86400), Default (10)
              0: Disables auto close
              1: Closes almost immediately.
              n: Close delay after n seconds 86,400s = 1 Day
c fpmb X    Set brake delay on close in seconds.  Range (0-86400), Default (0)
              0: Disabled [default]
              1: Brake engages immediately on close.
              n: Brake delay after n seconds.  86,400s = 1 Day.
c fsat X    Sets span adjust timeout in seconds.  Range (0-99), Default (5)
              0: Disables span adjust.
              1-98: Sets span adjust to this many seconds.
              99: Span adjust is always available at full span (forever).
```

CLOSE BEHIND / EGRESS MODE

This feature is the same as Normal Mode except the door will automatically close after a programmable timer expires. After the Open button is pressed, the door will open, wait 10 seconds and then close. As with all features the magnet brake will not engage on close by default.



Wall Switch/Remote:

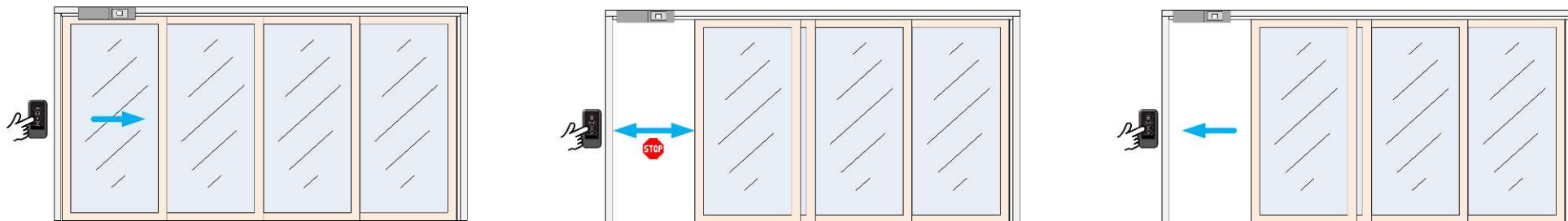
Enable: Open + Close for 2s, then press **CLOSE** (while door is closed in the jam)
Disable: Open + Close for 2s, then Open + Close for 2s again. (while door is closed in the jam)

CLI Options:

```
c fege X    0: Disables, 1: Enables Party Mode
c fegd X    Sets sub-span in inches.  Range (6-1200), Default (40)
c fegw X    Wait before close time in seconds. Range (0-86400), Default (10)
              0: Disables auto close
              1: Closes almost immediately.
              n: Close delay after n seconds 86,400s = 1 Day
c fegb X    Set brake delay on close in seconds.  Range (0-86400), Default (0)
              0: Disabled [default]
              1: Brake engages immediately on close.
              n: Brake delay after n seconds.  86,400s = 1 Day.
c fsat X    Sets span adjust timeout in seconds.  Range (0-99), Default (5)
              0: Disables span adjust.
              1-98: Sets span adjust to this many seconds.
              99: Span adjust is always available at full span (forever).
```


SIMPLICITY MODE / ONE BUTTON OPERATION

“Simplicity Mode” uses the Stop button to open, close or stop the door just like a automatic garage door opener. If the door is moving the door will stop when Stop is pressed. The Open, Close & Release buttons remain operational.



Wall Switch/Remote:

Enable: Open + Close for 2s, then press **STOP** (while door is closed in the jam)
Disable: Open + Close for 2s, then **Open + Close** for 2s again. (while door is closed in the jam)

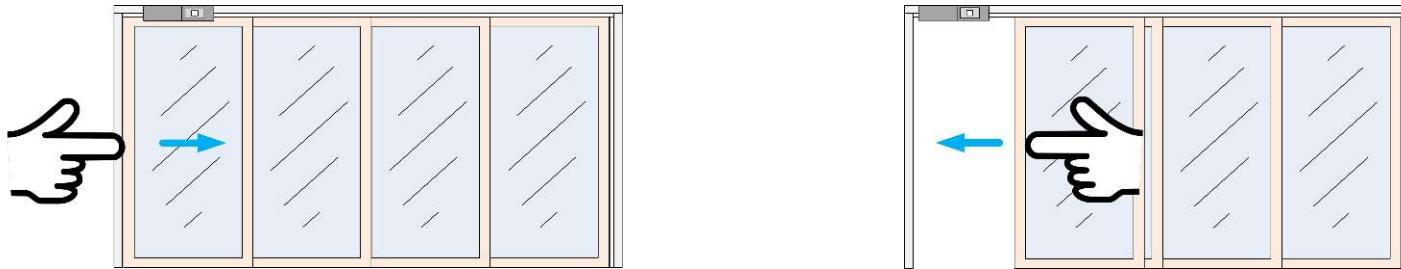
CLI Options:

```
c fobe X    0: Disables, 1: Enables Party Mode
c fobd X    Sets sub-span in inches.  Range (6-1200), Default (40)
c fobw X    Wait before close time in seconds. Range (0-86400), Default (10)
              0: Disables auto close
              1: Closes almost immediately.
              n: Close delay after n seconds 86,400s = 1 Day
c fobb X    Set brake delay on close in seconds.  Range (0-86400), Default (0)
              0: Disabled [default]
              1: Brake engages immediately on close.
              n: Brake delay after n seconds.  86,400s = 1 Day.
c fsat X    Sets span adjust timeout in seconds.  Range (0-99), Default (5)
              0: Disables span adjust.
              1-98: Sets span adjust to this many seconds.
              99: Span adjust is always available at full span (forever).
```

MOTION / MOVE ASSIST

“Motion Assist” will open or close a door after a slight manual lead panel movement. When the door is in the jam, and manually moved towards open, the motor will engage and take over to complete task. The movement required to active the assist is a fraction of an inch. Move assist also functions after a friction fault or motion detection halts the door.

Move assist is the only mode which does NOT allow the magnetic brake options. This is by design because if the brake is enabled the door cannot be moved manually which kills the feature. The brake can still be used from a wall switch to magnetically secure the door.



Wall Switch/Remote:

Enable: Open + Close for 2s, then press **RELEASE** (while door is closed in the jam)
Disable: Open + Close for 2s, then **Open + Close** for 2s again. (while door is closed in the jam)

CLI Options:

```
c fmae X    0: Disables, 1: Enables Party Mode
c fmad X    Sets sub-span in inches.  Range (6-1200), Default (40)
c fmaw X    Wait before close time in seconds. Range (0-86400), Default (10)
              0: Disables auto close
              1: Closes almost immediately.
              n: Brake delay after n seconds.  86,400s = 1 Day.
c fmat X    Sets span adjust timeout in seconds.  Range (0-98), Default (5)
              0: Disables span adjust.
              1-98: Sets span adjust to this many seconds.
```

DOOR OPERATIONS – SPAN ADJUST

The full open position is called the “span” and is the mechanical limit set during programming. This span can be adjusted by manually moving the door to the desired sub-span *after* door has come to a stop at its programmed open position.

- Spans & Features:** The controller supports independent spans or sub-spans for normal mode as well as for each special feature.
- Party Mode, Egress, One-Button-Op and Move Assist each are defaulted to 40” and can be independently set.
 - Sub-spans are saved and restored on power failures and system resets.

Time Limits: Adjustment must begin within 5s of the full open or programmed sub-span position.

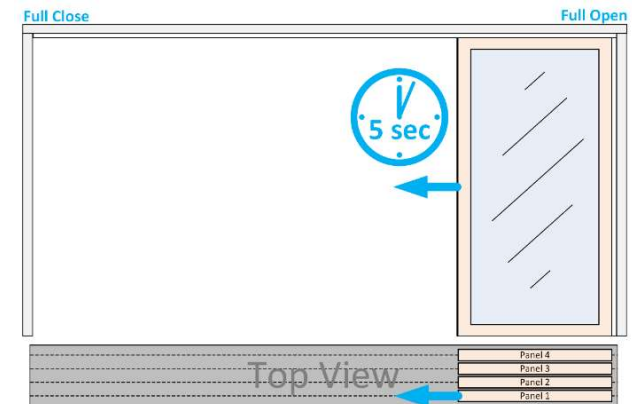
- After span adjust has been initiated, a new span is set each time the door stops.
- Timer will reset if moved before 5s elapses.
- The 5s time limit is adjustable via the CLI command “c fsat n” where n is the number of seconds from 1 to 98 (0 disables, 99 sets no time limit)

Range: Minimum span is 6” up to the physical full span of the door. If adjusted to...

- **2” or Less:** Span is NOT set or changed
- **> Full Span:** Span is set to full span
- **>2” but <6”:** Span set to 6”
- **Within 2” of Full Span:** Span is not set or changed

Minimum Registration: During span adjustment, the panel must be moved at least ½” from its last stop and save position to register as a new sub-span

- Span adjust CANNOT be used to adjust the full span of the door



The factory default friction settings allow most doors to pickup panels in any position and there are no limits to location of a sub-span.

However, some doors may fault if a panel is picked up while NOT in its normal open/close pickup points.

If this occurs span-adjustment points must be limited to those pickup points at the panel's interlocks OR the friction profile defaults need to be adjusted via the CLI.

DOOR OPERATIONS – SPAN ADJUST

The span adjust feature can be tricky to setup and understand. If the act of moving the panels to a new span leaves any of the panels in a non-interlock position the door will may over current on either open or close. This will happen every time, requiring a second command after the over current to send the door to its desired position open or close position.

The most reliable steps to setting a new span is to only set a short span involving panel 1 only. This means allowing the door to fully open, then within 5 seconds, start to manually close all the panels until only panel 1 is not interlocked.

1

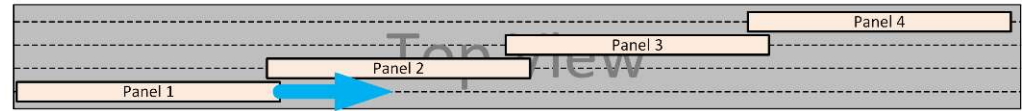
Press the “Open” and allow the door to reach its open position & stop.



2

Within 5s, manually move panel 1 to fully closed. Its ok to pause for less than 5s...

2



3

Open panel 1 to any position within the **green zone** being careful to not move panel 2 from its interlock with panel 3.

Min 6" → ←



4

After the door has been motionless in its new position for more than 5s, the new span is saved.



3

4

Tip: If the new span is not correct after the 5s has elapsed and saved, simply press “Open” again.

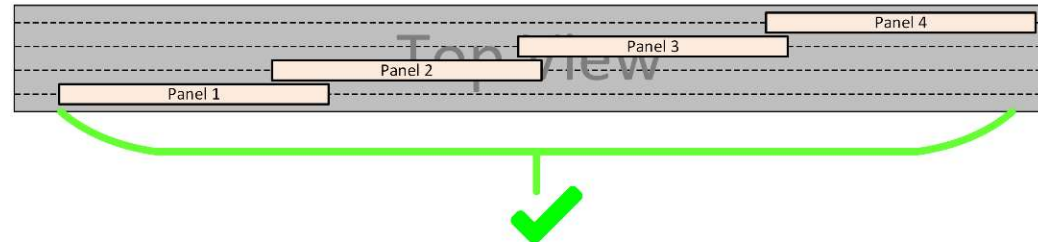
The door will not move and span adjust will reactivate for another 5s.

The entire procedure does NOT have to be completed in 5s. Each time the door stops, a new span is recorded, but if moved before 5s elapses, the timer resets and will record a new span on the next stoppage. This can be repeated indefinitely.

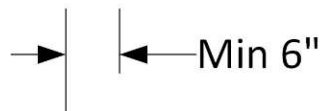
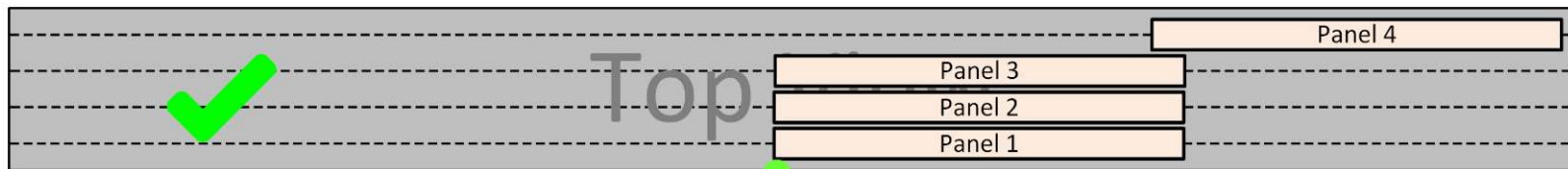
DOOR OPERATIONS – SPAN ADJUST

If the system has been properly tuned by the installer, it is possible that any span can be chosen without regard to panel interlocks. However, if this is not the case, here are some examples of where a span can be set.

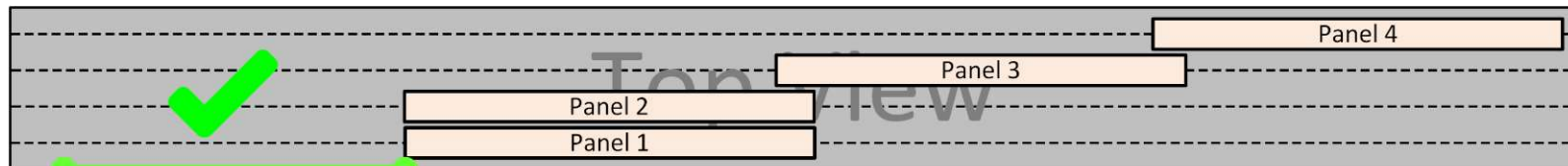
When properly tuned, any sub-span can be set regardless of interlock positions.



Full open span adjust is useful for special features that are defaulted to 40" and you really want the door to open fully.



Panel 3 & 4 have their interlocks engaged and panels 1-3 are lined up



Panel 3 & 4 have their interlocks engaged and panels 1-2 are lined up

DOOR OPERATIONS – SPAN ADJUST

The factory defaults for the friction profile should allow “out of position” panel pickup during normal span and sub-span operations. However, if the controller “over-currents” and stops during panel pickup, there are some CLI commands that can address this issue. Panel pickups should be tested when pickup panels are out of the standard engagement locations before settling on a new OSP, CSP or friction profile parameter.

Panel Speed (OSP & CSP)

Decrease the panel’s Open and/or Close speed. The default speeds are 4.5 inches/second and decreasing one or both down to as much as 4.0 inches/second will usually allow panel pickup anywhere across the span.

CLI Examples:

```
c osp 4.0      Open speed set to 4.0"/sec.
c csp 4.3      Close speed set to 4.3"/sec.

c osp          Shows the present open speed. Range (0-10), Default(4.5)
c csp          Shows the preset close speed. Range (0-10), Default(4.5)
```

Friction Profile Envelope Limit & Fault Count (FPCE / FPTHR)

Alternately, if the friction profile current limit is increased slightly, panel speed can be preserved. Extreme changes to this control should be avoided as it also increases the overall closing force of the panel limiting the effectiveness of the “soft touch” feature.

CLI Examples:

```
c fpce 440     Sets the limit slightly higher to 440mA. Adjust in 10mA
                increments until the issue is resolved.

c fpce         Shows the present current limit. Range (0-2000mA), Default (430mA)
C fpthr 5      Sets the number of fpce limit excursions that can occur before a
                friction fault halts the door. Increasing this by 5 can help with
                false friction faults.
```

SAFETY FEATURES AND OPTIONS

The G3 Controller supports 2 safety mechanisms. First and foremost is “**Soft Touch**” and is built into all G3 controllers. It controls how much force is applied to the door to move it from one position to another. If an excessive amount of resistance is detected during that movement, the controller will stop the door and reverse about 4 inches. This is called a “friction fault” and is active while **opening AND closing**. The amount of force required to stop a moving door should not exceed **30lbs**.

A motion detector or IR beam sensor provides a secondary safety mechanism, if installed. When motion is detected during close only, the door will stop. Motion faults will not cause the door to reverse, unless Party Mode is enabled, where the door will stop, pause then reverse back to its programmed open position.

- **Soft Touch** should be tested at multiple positions across the span while opening AND closing with special attention given to closures near the jam.
- After programming, all attached safety devices **MUST** be tested and verified operational. Remember motion detectors and/or IR beam only stop a closing door.
- Both safety mechanisms should be checked monthly by the homeowner for proper operation.



SAFETY COMPONENT TESTING“SOFT TOUCH”

WARNING: While testing, **NEVER** use your body to block the door as it approaches a jam or panel pickup point. Always use a small block of wood or a piece of stiff Styrofoam instead. Remember you are testing the safety devices and an incorrect setting can cause serious injury, entrapment or death.

Full Panel Speed Test – Panel movement must start at full open or close!

Perform these test in at least 6 locations, 3 for opening and 3 for closing. You want to make sure that friction faults can be detected at close, open and mid span during both open and close. **Only test 1 fault per open/close cycle.** Each time the door faults it must stop, reverse 4 inches and stop again.

1. From the closed position, command the door to open.
 - After the door has moved about 12”, manually fault the door using the handle or door frame.
 - Close the door then reopen. Repeat the test at mid span.
 - Finally check about 12” from full open.
2. From the opened position, command the door to close.
 - After the door has moved about 12”, manually fault the door using the handle or door frame.
 - Re-open the door and then close. Repeat the test at mid span.
 - Finally check about 12” from full closed.

Partial Move Speed Test – Panel movement must start at least 12” from full open or close!

1. From a position at least 12” from closed, command the door to open. The door will move at 70% of full speed.
 - During the open, fault the door. The required pressure should “feel” significantly less than the full speed test.
2. Repeat the test but start at 12” from open and fault the door mid span during the close.
 - Again, the required fault pressure should be significantly less than the full speed test.

MOTION DETECTORS & IR BEAMS



Regardless of which device is installed on the door, the install must be tested prior to customer delivery. Both technologies are tested in the same way and provides a measure of safety when the door is closing.

Testing

1. With the G3 controller powered up and the door closed, press the “Open” button on a keypad or remote.
2. While the door is opening, press “Stop”, then “Close”
3. During the close operation, cause some detectable “motion” or block the IR beam momentarily.
4. The door should stop immediately, open a short distance and stop again.
5. If this does not occur, recheck all devices and programming steps and repeat the test.
6. After a few moments the door can then be re-commanded to close if motion is NOT detected.

Note: Motion can be *simulated* by using a computer or smart phone to send the CLI command “button motion” or the abbreviated command “b m” Sending this command while the door is closing should cause the door to stop as if it detected a *real* motion signal.

If using an IR Beam OS-12CT, motion is detected when the beam is initially blocked, but not if the beam is continuously blocked. If an object is continuously blocking the beam, the door will NOT stop. The same “b m” command can be used with the IR beam as the controller recognizes motion and IR beam signals as motion signals internally.

The Optex OS-12CT IR beam control box offers a simple functional indicator by the way of the green LED on its face.

- When the beam path is clear the **green** LED should be solid **ON**.
- When the beam path is blocked the **green** LED should be **OFF**
- If the **red** and **green** lights flash, it usually indicates the sensor wires are wired incorrectly. Common issues are reversed wires, or the sensor wires are inserted too far and the wire has been clamped on the insulation instead of the conductor. Check it.

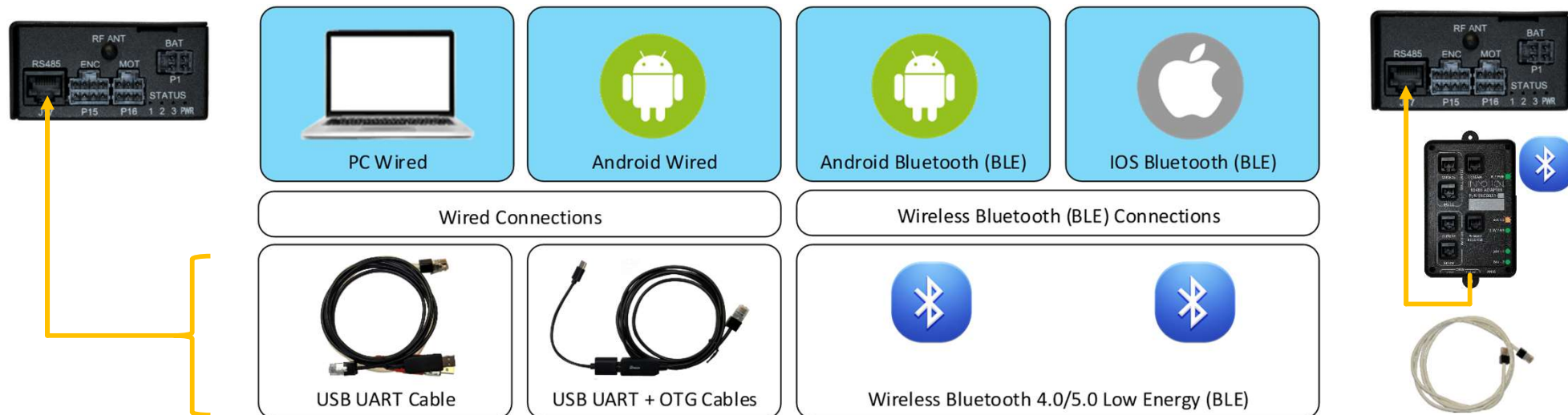
ANDROID & IOS MOBILE APPS

ADVANCED PROGRAMMING

The G3 controller uses a “serial” Command Line Interface (CLI) to access special features, runtime parameters, encoder counts, door position, etc.

The CLI is accessible via a factory supplied debug cable to a PC or Android device. If the system has an RS485 attached, then a wireless BLE (Bluetooth) connection can access the G3’s CLI also.

Serial Device	Factory Cable	OTG Cable	Bluetooth BLE	Terminal Software
Laptop	X			TeraTerm or Putty
Android (Wired)	X	X		Serial USB Terminal by Kai Morich
Android (BLE)			X	Serial Bluetooth Terminal by Kai Morich
IOS (BLE)			X	BLE Terminal HM-10 by Gopi Gadhiha



The use of CLI commands not documented in this manual is **NOT** recommended. Damage may occur with the misuse of internal “special use” commands unless directed to do so by a trained factory representative.

PC/ANDROID(WIRED) - CLI ADVANCED PROGRAMMING

This optional step is only required if you need to perform advanced setup commands and should be performed *after* the initial programming steps have been completed.

1. Connect one side a debug cable to the back of the controller's RS485 port and other side to an available USB port on your laptop.

On the PC or Android (wired) you will need a Terminal program with the following settings:

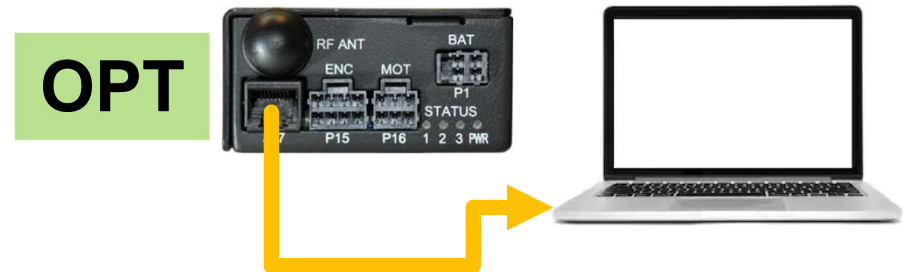
Speed: **115200 baud**
Data bits: **8**
Stop bits: **1**
Parity: **None**
Flow Control: **None**

2. At boot and during operation the controller will display status information about the controller. Advanced operations and features are enabled via commands entered here.

NOTE

G3D v0.7.5 Support

Primary & Secondary controllers can both be configured using this wired interface. The cable must be physically attached to either the primary or secondary controllers.



```
COM4:115200bps - Tera Term Portable VT
File Edit Setup Control Window Help
Commands:
help [cmdname]      Command help
info                Show system information
ver                Show version & serial number
pwd [password]      Enter password
config (I|a|c) [V|r] Show/Set config values
brake [1|0]         Brake On/Off
clutch [1|0]        Clutch On/Off
button [o|c|s|u|m|a] Button press simulation
pos                Show position [In]
ap [position]       Show/Set actual pos [En]
er                Show position error [En]
temp              Read temperatures inputs
ecfg              Reset configuration
dprof            Read friction profiles
rst [0|1|2|3|4]    Reboot/Reset system options(m)
cyct [0-1000000]   Cycle test

Shortcuts:
'?' = 'help'
'v' = 'ver'
'p' = 'pwd'
'b' = 'button'
'c' = 'config'
'd' = 'dprof'
'i' = 'info'
't' = 'cyct'

cmd>
```

The use of CLI commands not documented in this manual is NOT recommended. Damage may occur with the misuse of internal “special use” commands unless directed to do so by a trained factory representative.

ANDROID & IOS BLE BLUETOOTH APP INSTALLATION

OPT

This optional step provides wireless access to the G3 controller if a wired **RS485** module is attached.

- For security reasons the BT module is only activated for **3 minutes** after the G3 is first powered or after a RESET. *Tip: Press STOP + RELEASE for 15s to reboot the G3 and temporarily activate the RS485.*
- Once a device has connected, the BT module remains on for **15 minutes** and will turn off if no commands are sent during this period. Sending any command will reset the 15-minute timer.

Installing the App (Android)

- From the Google Play Store install the “[Serial Bluetooth Terminal](#)” app by [Kai Morich](#). [LINK](#)



Installing the App (IOS)

- From the IOS App Store install the “[BLE Terminal HM-10](#)” app by [Gopi Gadhiha](#). [LINK](#)



G3 Controller

RS485



ANDROID BLE BLUETOOTH APP CONFIG

OPT

- To begin, power up the G3 and RS485 with the doors closed.
- After power up, the RS485 module will activate Bluetooth in about **8 seconds** and will remain active for **3 minutes**. After a command is sent, the BLE remains active for **15 minutes**.

Configuring the Android App

1. Start the App.
2. Open the setup menu.
3. Select “**Devices**” from the menu.
4. Select the “**BLUETOOTH LE**” tab.
5. If needed press the “**SCAN**” button.
6. Select your device named “**IM-xxxx**”
7. When the terminal opens, a message will indicate a “connection”.
8. Press the “**send**” button 1 time to open the “cmd>” prompt.

CLI Commands

- A. Enter a command such as “**ver**” and press the “**send**” button. The G3’s version & serial number info should be displayed.

Other supported commands can be displayed by sending:

- “help”
- “config all”



G3 Controller



Serial Bluetooth Terminal

1. Main menu with 'Terminal' selected.

2. 'Devices' menu open.

3. 'BLUETOOTH LE' tab selected.

4. 'SCAN' button pressed.

5. Device 'IM_528D' selected.

6. Terminal window showing connection status.

7. 'send' button pressed.

8. Terminal window showing the output of the 'ver' command:

```
cmd>ver
Caldwell Generation 3 Controller
Fw: v0.7.0 [REL_K12]
Sn: 28C0016D2 K12 1906170062
Bn: ac5279a
```

Callouts identify the 'Connection Button', 'Send Button', 'G3 Firmware Version', and 'G3 Serial Number'.

IOS BLE BLUETOOTH APP CONFIG

OPT

- To begin, power up the G3 and RS485 with the doors closed.
- After power up, the RS485 module will activate Bluetooth in about **3 seconds** and will remain active for **3 minutes**. After a command is sent the BLE remains active for **15 minutes**.



Configuring the IOS App

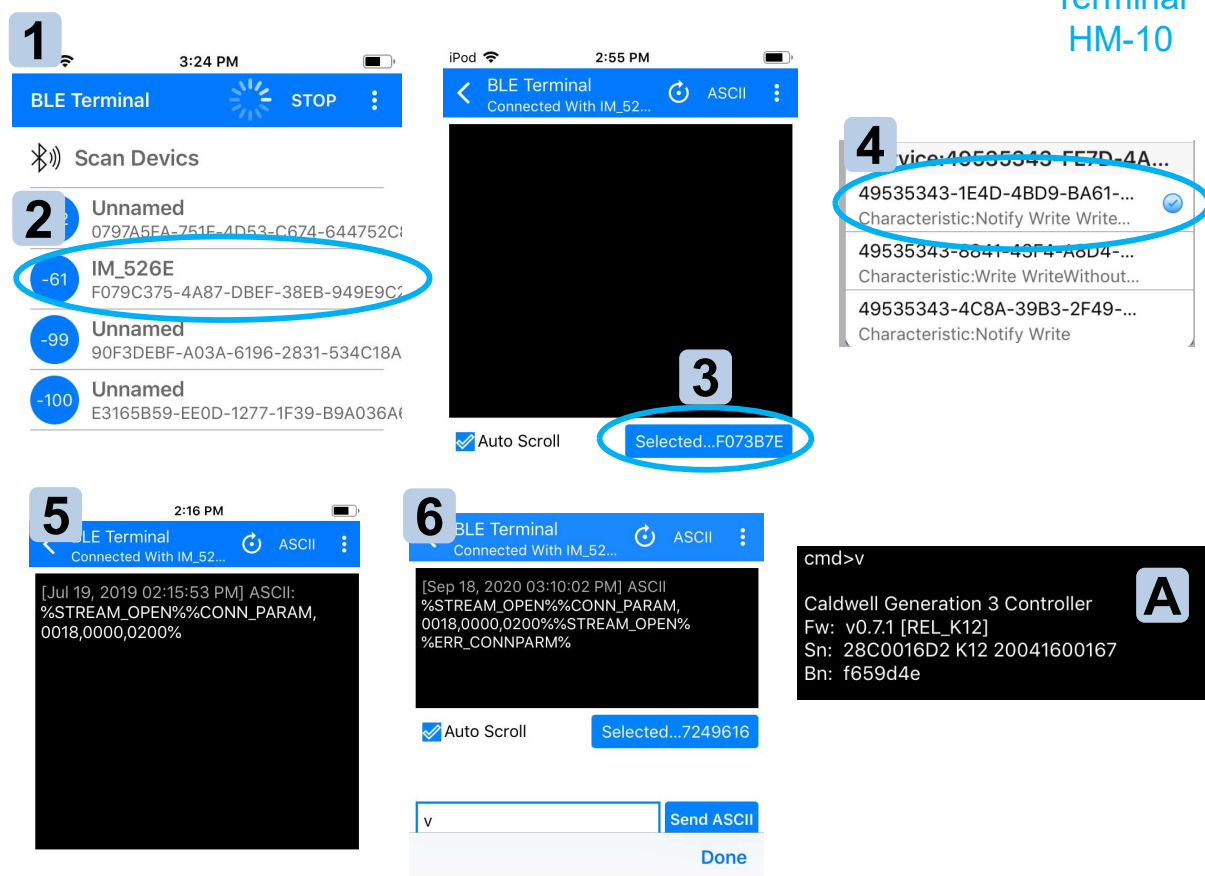
- Start the App and it should begin scanning for BLE devices.
- Select your device named “**IM-xxxx**”
- Press the “**Selected...XXXX**” button.
The button may take a second to activate.
- Scroll down and select the line shown with “**...BA61...**” shown.
- Communication should be established.
- Send the command “**ver**” or “**v**” once to get the command prompt “**cmd>**”.

CLI Commands

- A. Enter the command “**ver**” again and press the “**Send ASCII**” button. The G3’s version info should be displayed.

Other supported commands can be displayed by sending:

- “help”
- “config all”



OPT

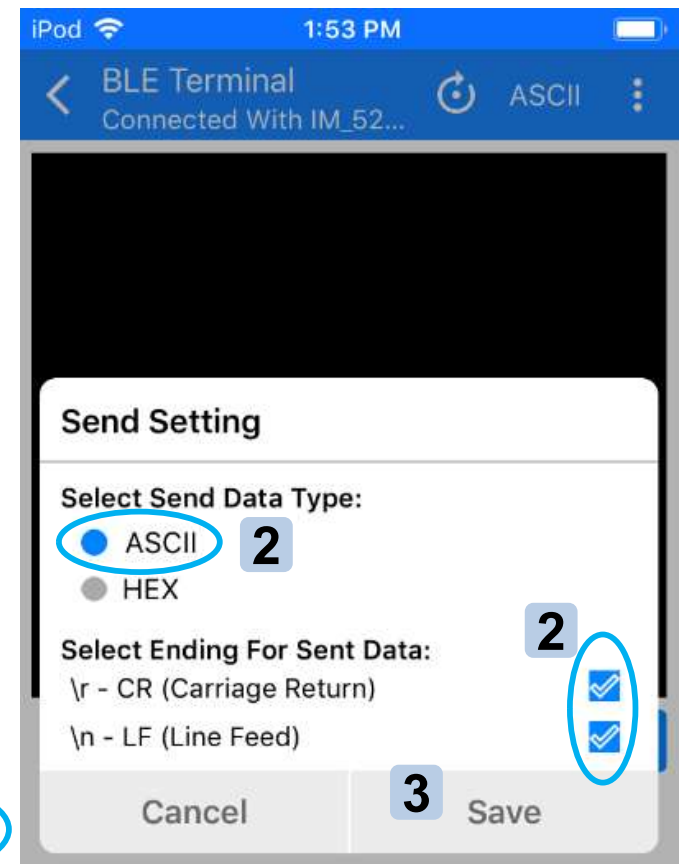
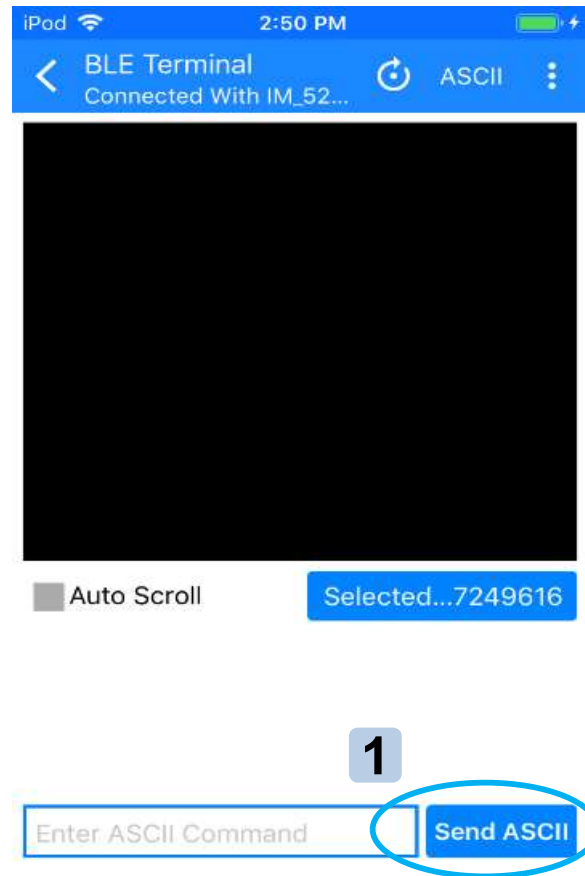
IOS BLE BLUETOOTH APP CONFIG



- If the controller is not responding properly to the BLE command you may have to configure a couple of *hidden* options first.

Hidden Options in the IOS App

- Press and hold the “Send ASCII” button for 1-2 seconds. A “Send Setting” windows should appear.
- In the “Send Setting” windows make sure:
ASCII is selected
/r – CR (Carriage Return) is checked
/n – LF (Line Feed) is also checked.
- Press the **Save** button.



ADVANCED CLI PROGRAMMING

(HELP COMMANDS)

Help command are “informational” commands. They are used to provide information about the controller during programming and debugging. Some commands such as “rst” (reset), or “ecfg” (erase config) may require reprogramming the controller so use with care. Commonly used *help* commands are **highlighted**.

Help Cnds	Syntax	Abrev	Description
pwd	pwd [.]	p	View user level or enter password for CLI access. Typically, 1st command used.
ver	v	v	Displays firmware version & controller serial number. Typically, the 2 nd command used.
button	button [.] open, close, stop, release, unlock, motion, autosetup	b b o b c b s b u b r b m b a	Simulates a button press, motion signal or to initiate “controller programming” - Open as if from a wall switch - Close command as if from a wall switch - Stop command as if from a wall switch - Unlock command as if from a wall switch - Release same as unlock - Motion signal as if from a motion detector or IR beam sensor - Initiates auto programming from the command line.
brake	brake [.]	br	Used to check 10 pin cable. Engages brake (1) or releases the brake (0). WARNING: Do not enable the brake on a moving door. This command will function even if the brake disable “ c mbd ” is set to disabled.
clutch	clutch [.]	c	Used to check 10 pin cable. Engages clutch (1), or releases the clutch (0)
ecfg	ecfg	ec	Erases the configuration, except for pulley diameter. Controller must be reprogrammed.
epro	epro [.]	ep	Displays Erase/Restore Profile menu. 0: Erase Current Profile, 1: Restore From Backup, 2: Restore Last Programmed Profile, 3: Restore First Programmed Profile.

The use of CLI commands not documented in this manual is NOT recommended. Damage may occur with the misuse of internal “special use” commands unless directed to do so by a trained factory representative.

ADVANCED CLI PROGRAMMING

(HELP COMMANDS)

Help Cmds	Syntax	Abrev	Description
config	<u>Examples</u> c all c changed c osp c csp reset c csp 4	c c a	Show or set configuration settings [item (value reset) all changed] <ul style="list-style-type: none"> - Displays all parameters minimum, maximum, default and current values - Displays all parameters that have been changed from their factory defaults - Displays the current setting for the “osp” (open speed) parameter - Resets a parameter such as “csp” (close speed) to its factory default value - Set close speed to 4 in/sec from its factory default value <p><i>* Config commands change controller parameters for programming and tuning.</i></p>
Info	Info	i	Displays a very useful table of all programmed settings, special features options, and modifiers and the “config” command needed to change them.
help	help	h	Displays all help commands base on the current user level. Help commands do not change controller parameters they only display information.
pos	pos		Shows the actual position of the leading edge of panel 1 in inches.
rst	rst [.]	r r 0 r 1 r 2 r 3 r 4	Displays the reset menu with options for 0 – 4. All options will reboot the controller. <ul style="list-style-type: none"> - Simply reboot the controller - Reset all special features to disabled & options to factory defaults - Wipe configuration including special features. Requires reprogramming. - Clear the friction profile. Requires door to be exercised 3 full cycles. - Factory wipe clearing all configuration data. Pulley diameter included.
cyct	cyct [.]	t t # t 0 t 0 + t 0	Cycle Testing. Displays the status of the currently running Cycle Test <ul style="list-style-type: none"> - Start or update number of cycles to run for the cycle test [1 – 1000000] - When running, cancels the current test & displays status - When sent twice (again), disables test and clears test data.

The use of CLI commands not documented in this manual is **NOT** recommended. Damage may occur with the misuse of internal “special use” commands unless directed to do so by a trained factory representative.

ADVANCED CLI PROGRAMMING (CONFIG COMMANDS)

Configuration commands are used to change controller parameters such as special feature enabling, options and soft touch parameters. Config parameter changes persist after a reboot and cannot be recovered once changed; however they can be reset to their factory defaults. Commonly used *config* commands are **highlighted**.

Configuration commands have a *current value*, *unit*, *range*, and a *default value*. These values will not be documented here but will instead refer to the CLI output using the command “config all” or “c all”. The format definition is as follows:

e.g., Parameters:	CurrentValue unit:[Range]:[Default]
drtp Door Type	oneway:[oneway bipart]:[oneway]
dual Dual Door	primary:[none primary secondary]:[none]
p1ms Panel 1 Mass	172.0000lbs:[50.0-1100.0]:[172.0]
fpce FP Env Lim	430mA:[0-2000]:[430]
fmae Move Assist En	0:[0 1]:[0]

- A config command sent without a parameter displays the current value, i.e. “**c drtp**” while a command with a parameter, sets a new value i.e., “**c drtp bipart**”
- Configuration parameters may have “units” such as seconds or milliAmps(mA). Units are for reference and never entered, i.e., “**c fpce 450**”
 - Parameters such as “**p1ms**” are defined internally to 4 decimal places
- The “**c all**” report will always show the full 4 decimal place values while some reports will round values
 - Simple on/off commands such as “**fmae**” take a 1 as Enabled with 0 as Disabled.
 - Some parameters take words as options and must be typed out such as “**c drtp bipart**”

The use of CLI commands not documented in this manual is NOT recommended. Damage may occur with the misuse of internal “special use” commands unless directed to do so by a trained factory representative.

ADVANCED CLI PROGRAMMING

(CONFIG COMMANDS)

Config Cmds	Syntax	Def	Description
drtp	c drtp [.] oneway, bipart	oneway	The door type affects various reporting commands such as “pos”, or the “travel” distance reported by the cycle test. The default “oneway” also indicates a “90°” installation. On a dual motor system the Primary door will always move first when set to “oneway” where as the “bipart” setting allows both doors to move at the same time. On a single motor system the “bipart” setting double the mass “p1ms” setting to enable UL325 safety functions.
dual	c dual [.] primary, secondary, none	none	Set the controller to function as a Primary, Secondary or Single(none) controller. <u>Single motor systems</u> should not enable Primary or Secondary using this command.
p1ms	c p1ms [.]	172lbs	Sets weight in pounds of a single panel. The mass of the door is taken into account by the controller. Heavier doors may move slower to maintain UL325 certification.
fsat	c fsat [.]	5s	Span adjust timeout in seconds. Affects normal, party mode, egress, one button operation. After the door comes to a stop after opening, the operator has this many seconds to change the span if enabled. 0: Disables
mboc	mboc [.] 0, 1 - 86400	1	Brake on close. Sets brake on close enable, disable or delay for Normal mode. 0: Disables brake on close. 1: Enable brake immediately on close, n: Delay brake on close by this many seconds up to 86400 (1 day)

The use of CLI commands not documented in this manual is NOT recommended. Damage may occur with the misuse of internal “special use” commands unless directed to do so by a trained factory representative.

ADVANCED CLI PROGRAMMING (SPEED & PARTIAL MOVE PARAMS)

Open and close speed adjustments presented here have been determined by hundreds of hours of testing. Although a faster door may be desirable, making it happen can cause damage to interlocks, friction faults with out of place panels and issues with span adjust.

Commonly used *help* commands are **highlighted**.

Config Cmds	Syntax	Def	Description
csp	osp [.]	4.0s	Close speed in inches / sec. Speeds of 4 - 4.5 allow for mid span panel pickup without causing a friction fault when a panel is not aligned on the interlocks.
osp	osp [.]	4.0s	Open speed in inches / sec. Speeds of 4 - 4.5 allow for mid span panel pickup without causing a friction fault when a panel is not aligned on the interlocks.
apmf	apmf [.]	5.0	Acceleration factor in seconds. On partial moves increase accel time by this factor. Used to reduce acceleration to partial move speed after a friction/motion fault.
vpmf	vpmf [.]	0.7	Velocity factor in seconds. Partial move fraction of full speed. 0.7 = 70% of full speed.
pops	pops [.]		Sub-span width in inches. Sub span changes take affect on <i>next</i> close to jam. Can be any value from 6" to full span.
ctfl	ctfl [.]		Cycle test fault limit. Get or set the maximum friction faults allowed / open+close cycle during a cycle test. Typically set to 5 / o+c cycle.

The use of CLI commands not documented in this manual is **NOT** recommended. Damage may occur with the misuse of internal “special use” commands unless directed to do so by a trained factory representative.

ADVANCED CLI PROGRAMMING (FRICTION FAULT PARAMETERS)

The controller supports 2 independent friction fault methods, but only one is active by default. The active method uses an algorithm and the parameters “**fpce**” and “**fpthr**” to intelligently monitor motor current before faulting. This method allows “Soft Touch” to function as it does and helps to minimize issues during panel pickups.

The deactivated method uses the “**fpcl**” parameter to set a static current limit. If that limit is exceeded, even for a moment, the door will halt with a friction fault.

Both methods can be active at the same time to provide a redundant safety mechanism or “fpcl” can be used by itself.

WARNING: At least 1 method MUST be enabled at all times to provide a friction fault protection!

- **Use both methods:** Start with fpce & fpthr at factory defaults. Then set fpcl to 1 – 3x the maximum profile current.
 - **Use “fpcl” only:** Set fpce = 0 and set “fpcl” to 1.5 – 2.5x the maximum profile current.
- * Maximum Profile Current is displayed after the current profile dump report, i.e., CLI command “dprof” or “d”

Config Cmds	Syntax	Def	Description
fpce	fpce [.]	430 mA	Friction profile envelope in mA. Current threshold added to the friction profile which determines when the to start counting down to a friction fault using fpthr . To deactivate the fpce/fpthr method, set fpce = 0.
fpthr	fpthr [.]	5	Friction profile fault count. Maximum number of times the current threshold (fpce) can be exceed before the controller stops the door for a friction fault.
fpcl	fpcl [.]	0	Friction profile current limit. This is an immediate current threshold limit. No algorithm or buffering, just stop if exceeded. To prevent excessive faults, value should be 2-3x the maximum profile current limit. Can be enabled in addition to or instead of fpcl & fpthr . <i>Consult the factory for more information.</i>

The use of CLI commands not documented in this manual is **NOT** recommended. Damage may occur with the misuse of internal “special use” commands unless directed to do so by a trained factory representative.

ADVANCED CLI PROGRAMMING (SPECIAL CASE PARAMETERS)

Some installs call for some exotic parameters to customize an install. The parameters fall into that category. If for example an install requires more torque, the pulley can be changed. Since door position is directly related to the pulley diameter a parameter is available to enable that customization. For a few customers it may be desirable to disable the magnetic brake for example when a separate door security mechanism is installed. The “mbd” option allows for this.

Config Cmds	Syntax	Def	Description
pdia	c pdia [.]		Motor pulley diameter is rarely changed unless running a custom motor stack OR when using an older motor with a short “black” pulley. In that case the diameter should set to “1.7934”. <i>Contact the factory if you have a non-OEM pulley for more info.</i> If the pulley is changed the controller must be reprogrammed. The pulley diameter is protected against accidental change. It can only be changed by a factory reset “rst 4”, or by directly changing with “c pdia ###” or “c pdia reset”. “rst” commands less than 4 preserve the diameter setting.
mhdc	c mhdc [.]	1	Global modifier, Hard Close. 1: Enables hard close at the jam. 0: Disables hard close.
mhdo	c mhdo [.]	0	Global modifier, Hard Open. 1: Enables hard open at open. 0: Disables hard open.
mbd	c mbd [.]	0	Global modifier. Disables the magnetic brake for wall switches, remotes, button release & unlock wall switch commands. Brake can only be enabled with the “brake 1” command.
mbpop	mbpop [1]	0	Brake on open. 0: Disables brake on open, 1: Enables brake on open.

The use of CLI commands not documented in this manual is NOT recommended. Damage may occur with the misuse of internal “special use” commands unless directed to do so by a trained factory representative.

ADVANCED CLI PROGRAMMING

ACCEL, DECEL & CRAWL SPEED

Acceleration, deceleration and crawl speeds should operate for most installs at their default values. If, however open or close speeds are significantly changed, then some of the parameters maybe required to address door “jerking” while ramping between full and crawls speeds.

Config Cmds	Syntax	Def	Description
acco	acco [1]	2.5s	Open Acceleration. Seconds to accelerate door to full open speed. <i>Rapid acceleration times can cause panel to jerk while ramping up to speed.</i>
acc	c accc [.]	2.5s	Close Acceleration. Seconds to accelerate door to full close speed. <i>Rapid acceleration times can cause panel to jerk while ramping up to speed.</i>
deco	c deco [.]	3.0s	Open Deceleration. Seconds to decelerate door from open speed to crawl speed. <i>Short deceleration times can cause friction fault issues during programming.</i>
decc	c decc [.]	3.0s	Close Deceleration. Seconds to decelerate door from close speed to crawl speed. <i>Short deceleration times can cause friction fault issues during programming.</i>
crsp	crsp [.]	2.0 in/s	Crawl speed in inches / sec.
crdc	crdc [.]	1.0 in/s	Crawl deceleration in seconds.

The use of CLI commands not documented in this manual is NOT recommended. Damage may occur with the misuse of internal “special use” commands unless directed to do so by a trained factory representative.

ADVANCED CLI PROGRAMMING (ALGORITHM CONSTANTS)

These parameter are used for proprietary algorithms controlling force and motion.

**DO NOT CHANGE THESE PARAMETERS UNLESS DIRECTED
TO DO SO BY THE FACTORY**

Config Cmds	Syntax	Def	Description
epmf	epmf [.]	1.0	Envelope partial move factor. DO NOT ADJUST WITHOUT FACTORY CONSULT.
fpwar	rpwar [.]	10	Algorithm constant. DO NOT ADJUST WITHOUT FACTORY CONSULT.
hdctf	hdctf [.]	1	Hard open/close torque factor. DO NOT ADJUST WITHOUT FACTORY CONSULT.
hdclf	hdclf [.]	2.0	Hard open/close limit factor. DO NOT ADJUST WITHOUT FACTORY CONSULT.
kp	kp [.]	3000	Algorithm constant. DO NOT ADJUST WITHOUT FACTORY CONSULT.
ki	ki [.]	2.0	Algorithm constant. DO NOT ADJUST WITHOUT FACTORY CONSULT.

The use of CLI commands not documented in this manual is NOT recommended. Damage may occur with the misuse of internal “special use” commands unless directed to do so by a trained factory representative.

ADVANCED CLI PROGRAMMING (AUTOSETUP PARAMETERS)

The parameters listed here are determined during “auto setup”. They are listed here for completeness and should not be modified. Changes to the span, motor or encoder polarity may cause the door to malfunction unpredictably.

The safest method of changing these parameters is to reprogram the door with “button autoseup” or “b a”

Config Cmds	Syntax	Def	Description
pcl	pcl [.]	0	Position closed. Should be 0. DO NOT CHANGE. Set during programming only.
pje	pje [.]		Jam depth. DO NOT CHANGE. Set during programming only.
pop	pop [.]		Full span width in inches. DO NOT CHANGE. Set during programming only.
epol	epol [.]		Encoder polarity. DO NOT CHANGE. Set during programming only.
mdir	mdir [.]		Motor polarity. DO NOT CHANGE. Set during programming only.

The use of CLI commands not documented in this manual is NOT recommended. Damage may occur with the misuse of internal “special use” commands unless directed to do so by a trained factory representative.

MOTION DETECTOR & IR BEAM MOUNTING

DS160 Wired Mounting (Wall OR Ceiling Mount)

The DS160 can be mounted up to 15' above the first panel, either on the wall or ceiling protecting the area where the first panel enters the jam. The sensor should be rotated so that it points down towards the opening. Use the enclosed plastic vanes to shield the sensor for areas that should not be in the detection zone.

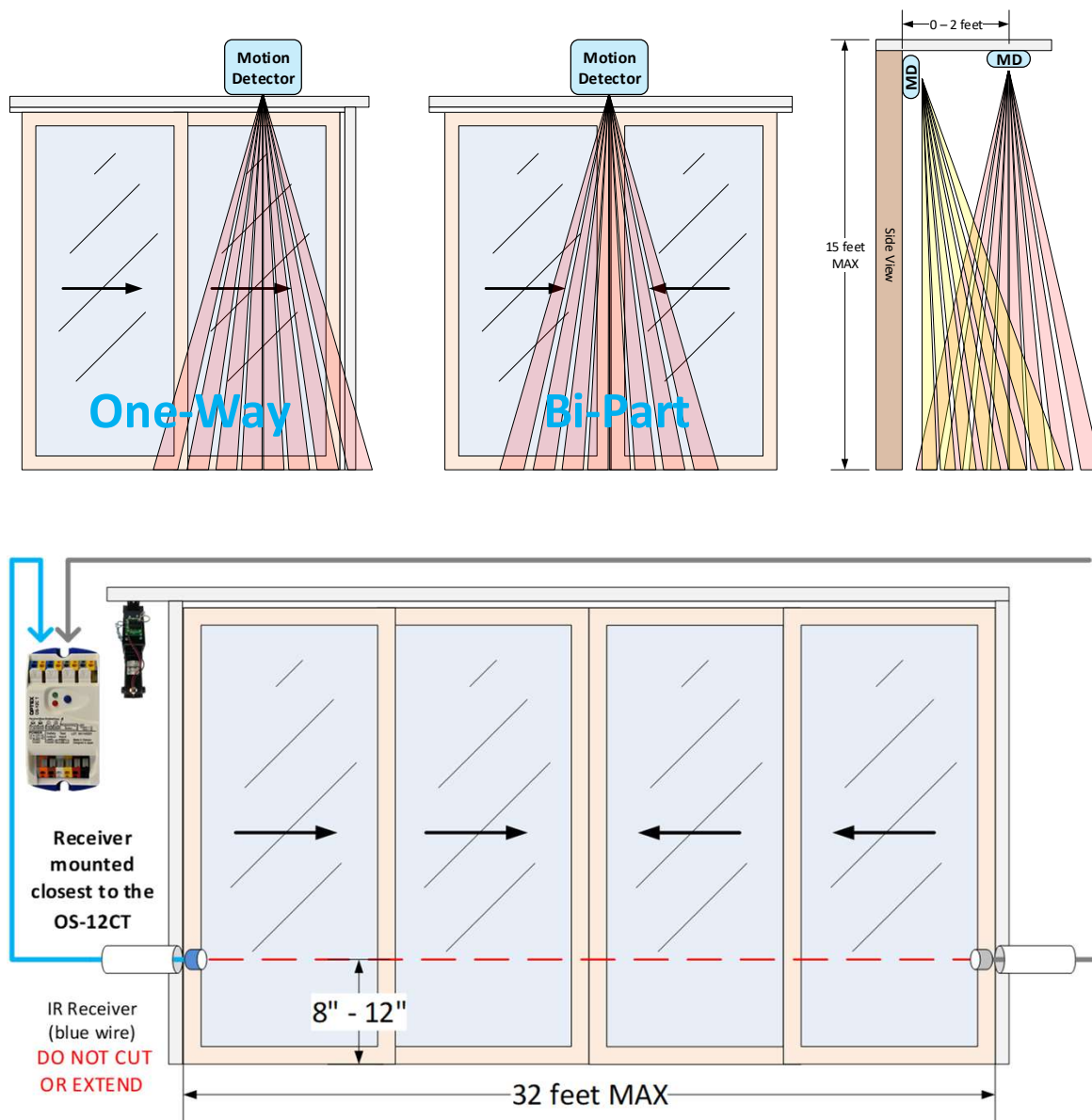
900MHz Wireless Mounting (Ceiling Mount Only)

The wireless motion sensor can be mounted up to 15' above the first panel protecting the area where the first panel enters the jam of a one way or at the center of a bi-part. The sensor should face the ground and therefore is usually ceiling mount only.

OS-12CT IR Beam

The IR Beam detector kit consists of the OS-12CT controller and 1 or 2 sets of emitter/detector pairs. The controller itself should be mounted in the pocket where the G3 and motor are mounted while the sensors are mounted on either side of the jam. The maximum span of protection is 32 feet. An optional, second set of sensors can be attached to a single OS-12CT and will protect an additional 32' span.

IR beams cannot be used to protect a 90° installation without special consideration of the sensor placement in the corner.



WIRED COMPONENTS (WALL SWITCHES)

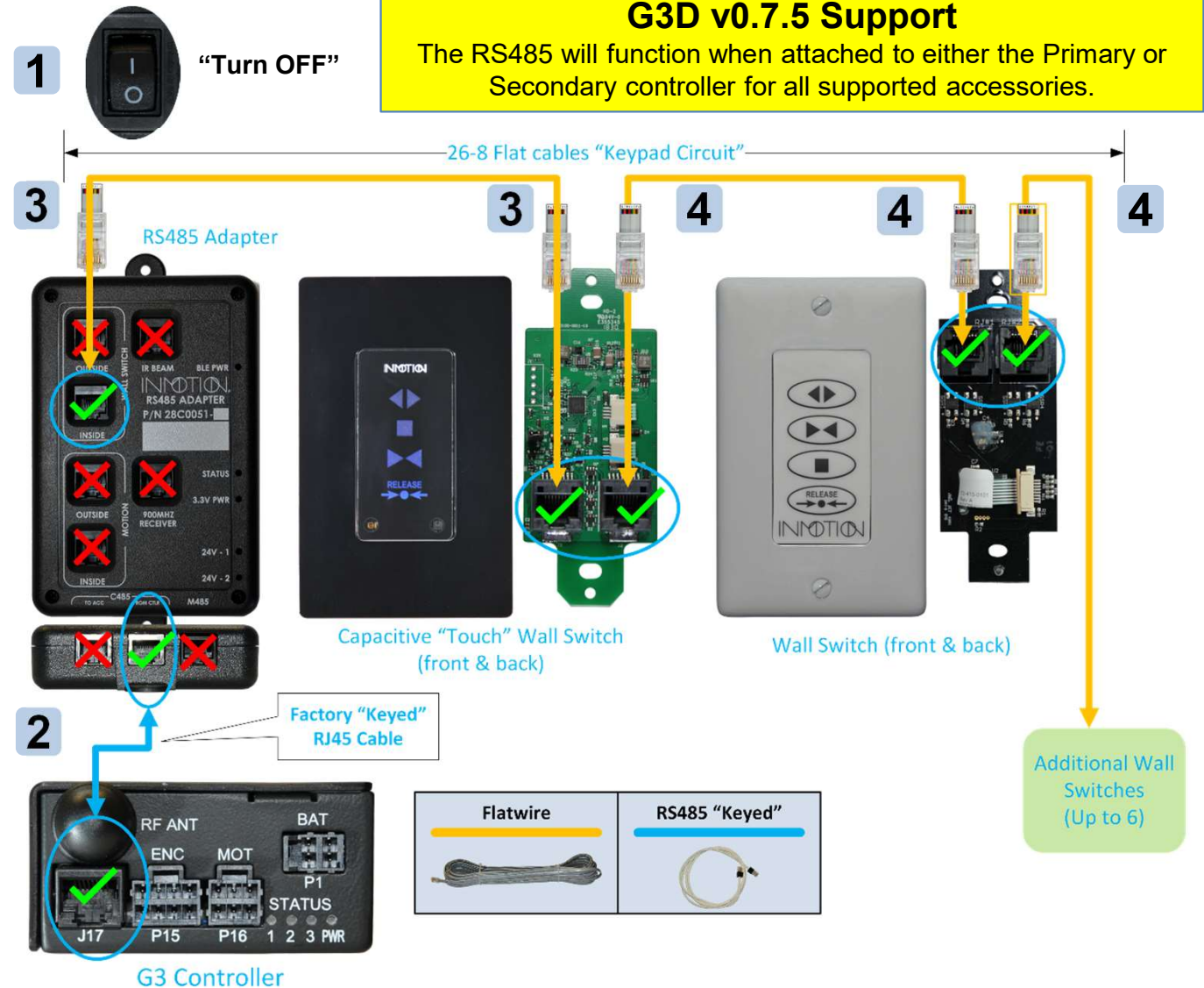


Wired Wall Switches

All wired components are connected to the G3 controller through a RS485 adapter.

Connections

- 1 Power OFF the G3 controller.
- 2 Attach the supplied "Keyed" RJ45 cable as shown between the G3 and RS485 adapter.
- 3 Wire the first interior wall switch to the RS485 adapter's "interior" port as shown.
- 4 Daisy chain additional wall switches to the remaining empty RJ45 port of the first wall switch.
- 5 Power on the controller and verify each function on each wall switch.



EXTERIOR WIRED SECURITY WALL SWITCH



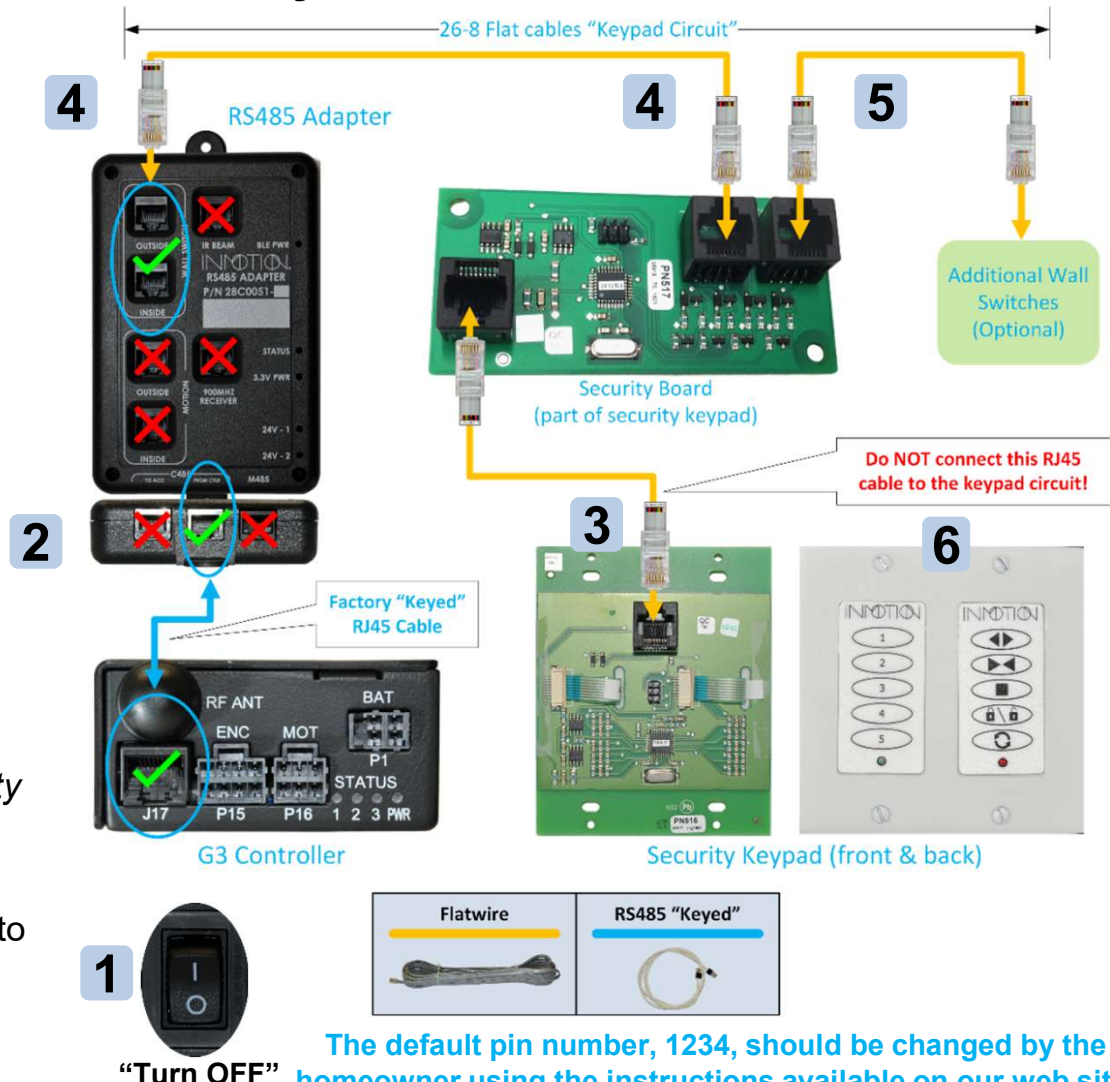
Exterior Wired Security Wall Switch

Exterior Wired Security Wall Switch

All wired components are connected to the G3 controller through a RS485 adapter.

Connections

- 1 Power OFF the G3 controller.
- 2 Attach the supplied “Keyed” RJ45 cable as shown between the G3 and RS485 adapter.
- 3 Use a RJ45 terminated flat wire to connect the security board to the security wall switch keypad.
- 4 Use another RJ45 terminated flat wire to connect the security board to the RS485 adapter’s “Outside” port as shown. *The security board will also work on the “Inside” port.*
- 5 Optionally daisy chain additional wall switches to the remaining empty RJ45 port on the security board.
- 6 Power on the controller and enter the factory default pin “1234” on the keypad. Then use the left keypad to operate and verify all 4 door functions.



The default pin number, 1234, should be changed by the homeowner using the instructions available on our web site.

G3D v0.7.5 Support

The RS485 will function when attached to either the Primary or Secondary controller for all supported accessories.

BOSCH DS160 WIRED MOTION DETECTOR



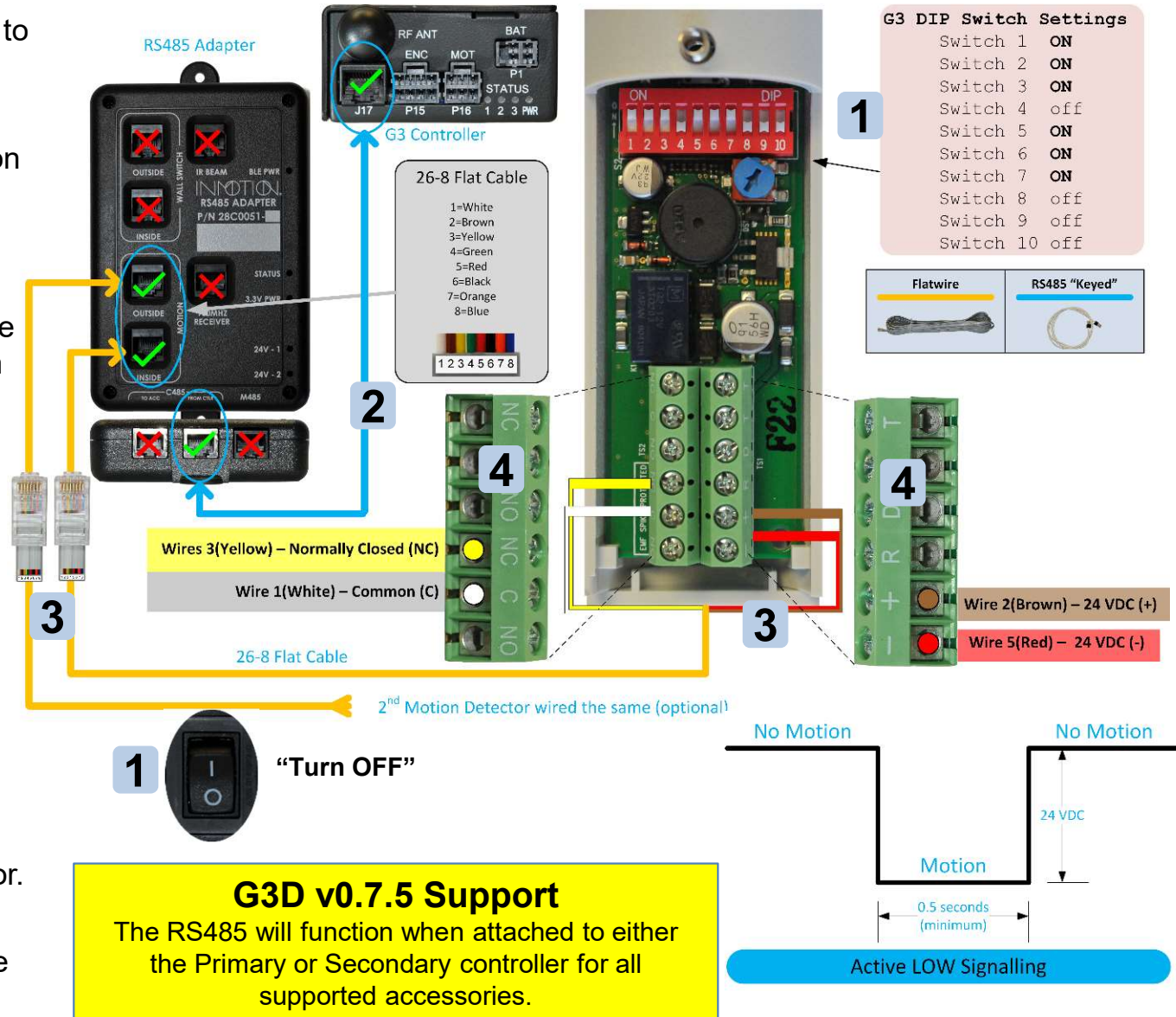
Bosch DS160 Motion Detector

All wired components are connected to the G3 controller through a RS485 adapter.

The RS485 adapter supports 2 motion detectors with dedicated indoor and outdoor ports.

Connections

- 1 Power OFF the G3 controller. Set the motion detector DIP switch as shown
- 2 Attach the supplied "Keyed" RJ45 cable as shown between the G3 and RS485 adapter.
- 3 Make a flat cable, terminated with an RJ45 on one side and bare wires on the other.
- 4 Wire the DS160 using the wire color codes shown. Connect the RJ45 end to either the "Indoor" or "Outdoor" ports on the RS485 adaptor.
- 5 Power on the controller and verify the door stops when motion is detected.





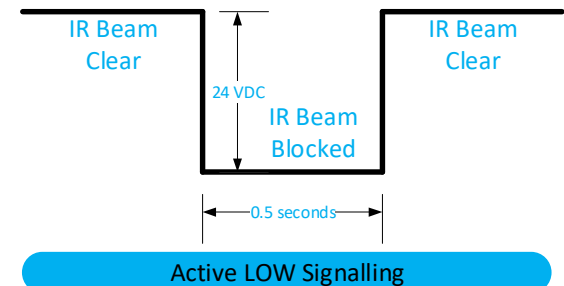
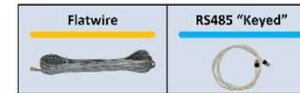
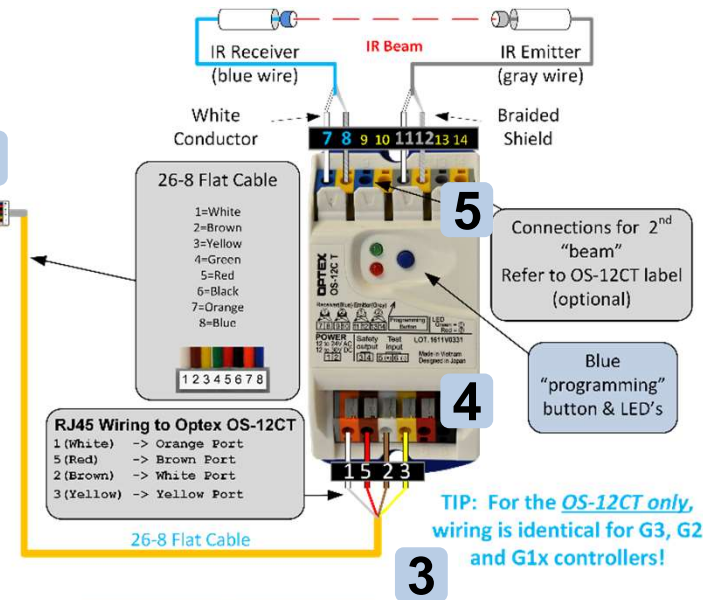
OPTEX OS-12CT IR BEAM

Optex OS-12CT IR Beam

All wired components are connected to the G3 controller through a RS485 adapter.

Connections

- 1 Power OFF the G3 controller.
- 2 Attach the supplied “Keyed” RJ45 cable as shown between the G3 and RS485 adapter.
- 3 Make a flat cable, terminated with an RJ45 on one side and bare wires on the other.
- 4 Wire the OS-12CT using the wire color code shown. Connect the RJ45 end to the “IR Beam” port on the RS485 adapter.
- 5 Wire the IR Receiver & Emitter as shown.
- 6 Power on the controller and proceed to the next page to configure the OS-12CT using the programming table.



G3D v0.7.5 Support
The RS485 will function when attached to either the Primary or Secondary controller for all supported accessories.



OPTEX OS-12CT PROGRAMMING

Programming

1. Press the **BLUE** “programming” button until the **Red** LED starts blinking. This initializes the programming function.
2. Now press the **BLUE** “programming” button to select **Amplifier Mode “D”** where the **Red** LED blink **4 times**.
3. To save the setting, press and hold the **BLUE** “programming” button until the **Red** & **Green** LED’s stop blinking.
4. The OS-12CT is now in normal operation mode.
5. **Verify the door, when closing, stops when the beam is broken.**

Amplifier Mode			
✗ A	Green <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Red <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Active-Low/N.O.
✗ B	Green <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Red <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Active-High/N.O. (G2 setting)
✗ C	Green <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Red <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Active-Low/N.C.
✓ D	Green <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Red <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Active-High/N.C. (G3/G1 setting)








Teach-in button
One push
One push
One push
One push

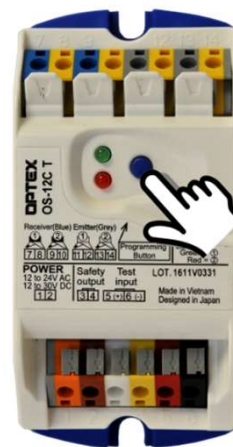
- The Optex OS-12CT can be re-calibrated anytime by pressing the **BLUE** button for 1 second.
- During normal operations the **Green** LED indicates a sensor can “see” the emitter and is NOT blocked.
- When the **Green** LED is **OFF**, the beam is blocked.

OS-12CT Automatic Sensitivity Adjustment (Sensor Calibration)

With the G3 controller powered on...

1. Make sure the beam path is clear of obstructions & is aligned.
2. Press the **BLUE** “programming” button for more than 1 second and observe the LED’s.
3. When the Green & Red LED’s stop blinking and are solid ON, the auto adjust has completed.

-  **Green ON** – Successful for 1 beam.
-   **Green & Red ON** – Successful for 2 beam installations.
-   **Alternately Blinking Red & Green** – Error, check for obstructions, dirty lens, wire connections & alignment. Correct and repeat **Step 2**.
-   **Red & Green Both Blink 2 Times Simultaneously** – OS-12CT service is required.



900MHZ WIRELESS REMOTE



Pairing the 900MHz Wireless Remote

(only required if “added” to a previously installed system)

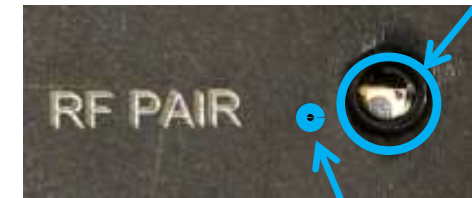
With at least the AC power connection attached and the G3 Automation Panel turned ON:

1. Charge the remote using the included USB cable if needed.
2. Press the pairing button on the Controller and the recessed pairing button on the remote.
3. The blue LEDs will flash slowly, then fast, and will finally go out. (IF the LEDs never flash fast, the receiver did not find the device, return to Step 1.)
4. The device is now linked to the G3 controller.

NOTE: When “pairing” is complete the door will OPEN.

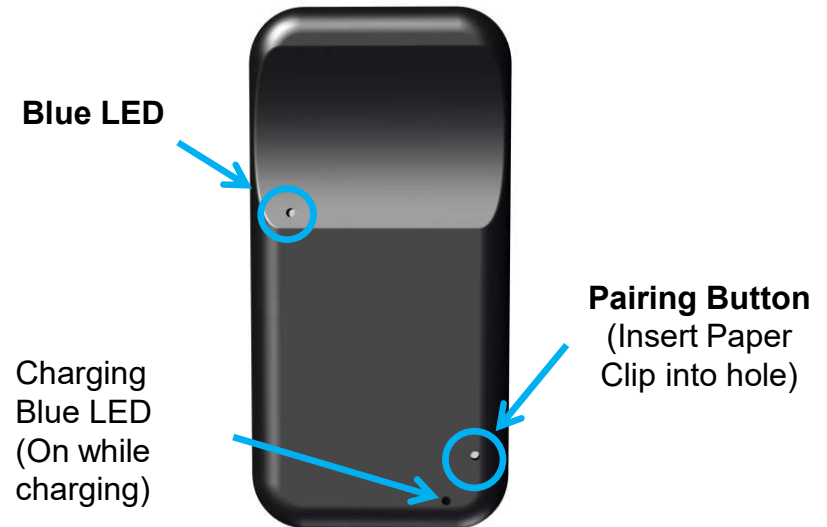
NOTE: All Wireless devices ordered with a G3 controller will be “paired” to that controller at the factory. Dual systems will have wireless components paired to the “Primary” controller.

Pairing Button On Controller



Blue LED

900MHz Wireless Remote Control



G3D v0.7.5 Support

Wireless 900MHz components can be paired to either the Primary OR Secondary G3 controller.

900MHZ WIRELESS KEYPAD PAIRING



Pairing the 900MHz Wireless Keypad

(only required if “added” to a previously installed system)

With at least the AC power connection attached and the G3 Automation Panel turned ON:

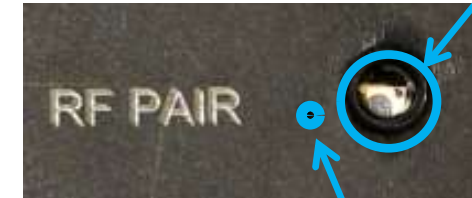
1. Install 2 x CR123A batteries while observing the proper polarity marked on the battery holder.
2. Press the pairing button on the Controller and the pairing button on the lower board of the wireless wall switch.
3. The blue LEDs will flash slowly, then fast, and will finally go out. (IF the LEDs never flash fast the receiver did not find the device, return to Step 1.)
4. The device is now linked to the G3 controller.

NOTE: All Wireless devices ordered with a G3 controller will be “paired” to that controller at the factory

G3D v0.7.5 Support

Wireless 900MHz components can be paired to either the Primary OR Secondary G3 controller.

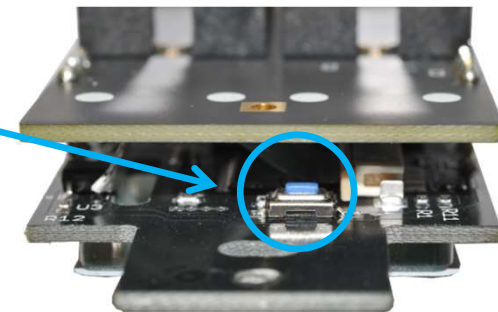
Pairing Button On Controller



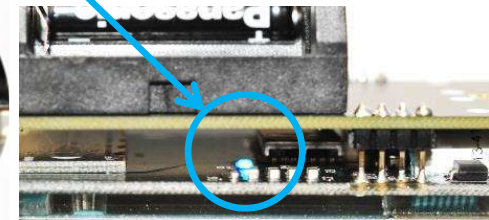
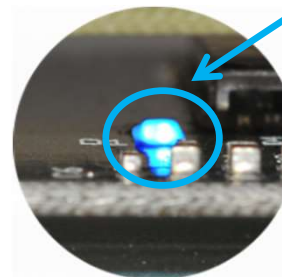
Blue LED

900MHz Wireless Keypad

Blue Button



Blue LED



900MHZ WIRELESS MOTION DETECTOR

Pairing the 900MHz Wireless Motion Detector

(only required if “added” to a previously installed system)

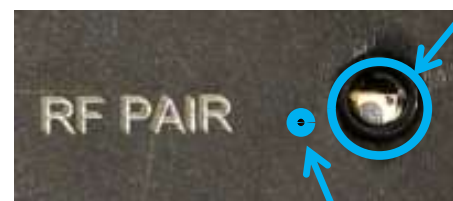


With at least the AC power connection attached and the G3 Automation Panel turned ON...

1. Install 2 x CR123A batteries while observing the proper polarity marked on the battery holder.
2. Press the pairing button on the Controller.
3. Press and hold the pairing button (SW1) near the Linx chip until a single “chirp” is heard from the speaker, then release.
4. The blue LEDs will flash slowly, then fast, and will finally go out. (IF the LEDs never flash fast, the receiver did not find the device, return to Step 1.)
5. The device is now linked to the G3 controller.

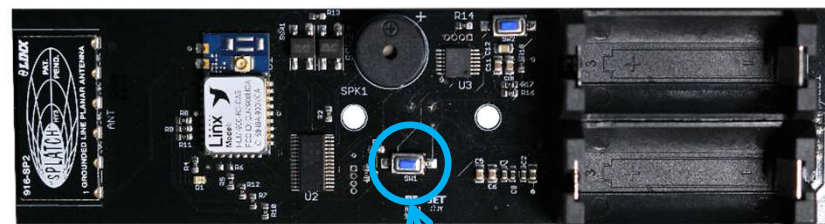
NOTE: All Wireless devices ordered with a G3 controller will be “paired” to that controller at the factory. Dual systems will have wireless components paired to the “Primary” controller.

Pairing Button On Controller



Blue LED

900MHz Motion Detector



Pairing Button (SW1)

G3D v0.7.5 Support

Wireless 900MHz components can be paired to either the Primary OR Secondary G3 controller.

UN-PAIRING 900MHZ RECEIVER

Un-Pairing the 900MHz Controller Receiver

(not usually required)

Perform the following steps if a wireless component needs to be “un-paired” from a G3 controller.

Note: The receiver will *forget ALL* previously paired components.

*After performing these steps you will need to **RE-PAIR** any desired wireless devices back to the G3 controller*

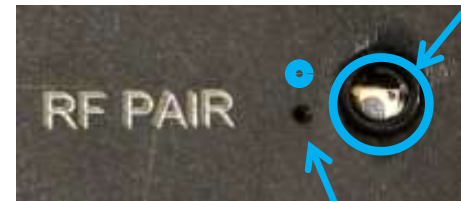
1. Make sure the G3 controller is powered ON
2. Locate the pairing button on the controller and press it 4 times. The button presses should approximate a ½ second ON, and ½ second OFF.
3. On the 5th press, press and hold the button for more than 3 seconds.
4. Un-pairing is complete when you see the blue pairing LED flashes twice, pause and then solid ON. The sequence will repeat. You can release after you see the first sequence.

If after 8 seconds you do not see the 2 flash, then ON sequence repeat these steps.

TIP: The legacy (G1/G2) 900MHz receiver can also un-pair using the same procedure.



Pairing Button On Controller



Blue LED

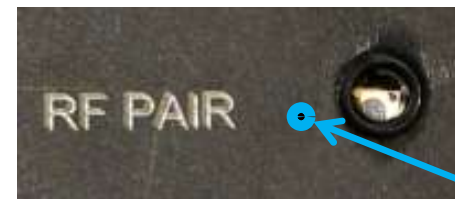
G3 Controller



4x



1x & Hold
(> 3s)



(2x + Solid ON)

NOTE

G3D v0.7.5 Wireless Components

Wireless components, when ordered with a **DUAL** system, will be paired to the **primary** controller by the factory.

CARE & TROUBLESHOOTING

Care During Construction:

- **Motors and Electrical Components MUST be protected after installation, before the home is finished being built.** It is recommended to cover the components after installation before the construction is complete.
- **Avoid Duct Tape-** Chemicals in the adhesives can remove finishes. 3M Blue Painter's tape is recommended.
- **Avoid rolling heavy objects over the track.** This can cause damage.
- To prevent clogging or damage to guide bearings, **tracks should be protected from construction debris** at all times.
- Do not leave door system open and exposed in wet weather conditions.

Maintenance:

INMOTION automation systems requires little to no maintenance. However, the best protection for the automation system is to keep the door in good working order by following the door manufacturer's recommended maintenance.

TROUBLESHOOTING

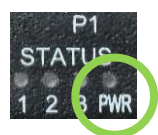
- **The RS485 Adapter's status light is always on:**
 - If the wire is attached to a wall switch, the flat wire or wall switch may be defective
 - Verify the flat wire using a network checker and check the wall switch for a stuck button
 - Disconnect each wired component, one by one, until the LED turns off to locate the bad wire
- **Wired wall switch does not operate the door:**
 - While pressing each wall switch button, verify the orange "STATUS" LED flashes on the RS485 module
 - Verify the flat wire using a network
- **Door does not stop on Motion / IR beams:**
 - If the component is a Bosch DS160, invert DIP switch 3 to change from active low to active high signaling. The green LED will flash when motion is detected.
 - If the component is an Optex OS-12CT, make sure the IR beam is not blocked, then verify it is programmed to active low. Check the wiring. The blue LED indicates a clear path, while OFF indicates a blocked IR beam (or no power to the device)
- **Belt is sagging while the door is closing:**
 - Detach belt from the lead door and tighten the belt using the turn buckle.
- **LED flashing on 900MHz wireless keypad or beeping from wireless motion detector:**
 - Replace the CR123A batteries in the device.
- **900MHz remote does not work.**
 - Charge the remote with the included micro-USB cable.
The cable is the same as an "Android" USB charging cable.
- **Secondary G3 does not initiate programming after "Stop" is pressed for 1s**
 - Refer to the next page "G3 Status LED Troubleshooting"



G3D CONTROLLER STATUS LED'S

G3D Status LED Troubleshooting (Firmware 0.7.5)

- **LED's ONLY update 1 time at power up.**
- To update the LED's, fully close the door(s) & power cycle the controller(s)
- The "PWR" LED should always be on if the controller is power up. If not check the AC power cord, circuit breaker or fuse.



Pry here with a small screwdriver to lift the fuse cover. There are two "2 Amp 3AG fuses" behind this hinged cover. Both MUST be good.

CAT 5/6 Network Interconnect cable attaches here

Home Automation Adapter

G3 Controller



- After a "fix", the controller(s) must be power cycled to update the status LED's!

G3 Status LED's	Home Automation(HA) Adapter LED's	Home Automation Adaptor LED's	G3 Status LED's
<u>Primary LED configuration is OK</u> <ul style="list-style-type: none"> • Make sure the controller is attached to the Primary door. • Check the Secondary controller's LED's too! 	The HA LED's must match this on Primary or the CLI may be affected.		
<u>Primary LED configuration is OK; No Secondary communication</u> <ul style="list-style-type: none"> • Is the network interconnect cable connected on both sides? • Secondary powered on. • Secondary status LED's OK? 	The HA LED's must match this on Primary or the CLI may be affected.		
<u>Secondary LED configuration is OK.</u> <ul style="list-style-type: none"> • Make sure the controller is attached to the Secondary door. • The secondary controller does not indicate errors via LED's 	The HA LED's must match this on Secondary or the CLI may be affected.		
<u>Single Controller LED configuration – If on a single system...OK</u> <ul style="list-style-type: none"> • If on a dual system, this is incorrect. The controller MUST be configured as either a Primary or Secondary. 	If HA is attached to a Single controller the LED's <u>do not matter</u> .		

G3D PRIMARY & SECONDARY CONFIG

G3D Status LED Troubleshooting (Firmware 0.7.5) (cont)

- Dual systems were configured at the factory as **Primary & Secondary** prior to shipment.
- If a replacement system is used the installer may have to configure Primary & Secondary in the field.

Primary & Secondary configuration is automatic if:

- Both controllers are first configured as G3 Single's AND then powered OFF.
- The CLI command “**c dual none**” can be use to set the configuration as “Single”
- A CAT 5/6 network interconnect cable IS connected between the controllers.
- Power on the intended Primary controller first, wait 5s, then power on the Secondary.
- The controllers should auto-configure as Primary & Secondary. Use the Status LED's to confirm.

Manual Primary & Secondary configuration can be done with the CLI.

- Disconnect the CAT5/6 network cable on at least 1 controller.
- Log into the intended **Primary** controller's CLI.
 - Execute the CLI command “**r 4**” to factory wipe the controller settings.
 - After the reboot, execute the CLI command “**c dual primary**”
- Log into the intended **Secondary** controller's CLI.
 - Execute the CLI command “**r 4**” to factory wipe the controller settings.
 - After the reboot, execute the CLI command “**c dual secondary**”
- Re-attach the CAT5/6 network cable to each controller.
- Power cycle both controllers and the configuration should be set. Use the Status LED's to confirm.



Primary



Secondary

CUSTOMER SERVICE

- Customer Service For Home Owners: Please contact the original installation company or another trained installer in your area.
 - For an installer in your area call customer service at 1-800-426-7113
- Customer Service For Installers: Please call the toll-free number **1-800-426-7113**.
- www.inmotion.company — then select “Support” from the header for access to additional support material.
- www.caldwellmfgco.com — Select “Technical Support” then “Automation Technical Support” from the header for access to additional support material.