Generation 3 Controller
Advanced Programming Guide

March 24, 2021

v1.0.5

Technical Brief

Soft Touch Tuning

INMOTION

A Caldwell Company

If you READ nothing else, read this…

- Prior to installing an INMOTION G3 system verify the mechanical installation is 100% operational.
  - All panels move smoothly, without excessive force required at all points across the span
  - The frame is square & plumb, and the lead panel meets the jam evenly top to bottom.
  - All required weather stripping is installed properly and not binding during panel movement.
  - Panels are NOT warped, and panel pickups release and operate smoothly without issues.
  - Interlocks engage and disengage properly without dragging extra panels etc.
  - In a nutshell the door should be at its mechanical "best" before automation is installed
- NEVER leave a door running on a Cycle Test unattended…even for a minute, unless it is in a controlled environment completely void of people and pets.
- DO NOT experiment with commands you find in this guide unless you know what you are doing or have been directed to do so by a trained factory representative.
- Remember the G3 has been certified by UL to be safe, but that only applies if it has been installed safely by the installer.
- If you have any question or concerns, please consult the factory.
- Remember INMOTION offers free training, year-round, all you have to do is ask.

About this Guide…

This guide documents the more advanced options and features of the G3 Controller by INMOTION. It covers the G3 Controller with v0.7.0 or later firmware. This release added 4 "special feature" modes besides the "normal" mode present in the previous release. In addition, there is a cycle test option available to integrators and installers that can exercise the G3 while running any of the 5 supported modes for testing, option enabling or tuning.

When the G3 first boots, it is operating at the "user" level, and no password is required. In this mode, all commands to operate the door must come from wired or wireless accessories such as wall switches and remotes or from a home automation system wired into the wall switch circuit.

To access any of the advanced mode options, called modifiers, a password is required. The password entered will set the user level. The current user / password level can be checked at any time by entering the command "**pwd**" or "**p**" on the CLI. The current level will be displayed on the CLI.

In this guide each page will indicate what user level is required for the given command or function by the graphic shown. A checkmark next to the various levels indicate which user levels can call or modify the command or function documented.

Installers have access to the User, Installer and Developer levels by entering the appropriate password. The difference between the Installer and Developer levels is that some commands change such that the Installer level will not accidentally erase critical door programming information causing more work than necessary. If an installer needs to access one these protected commands, they only need to change to the Developer level to perform the task. For general and advanced programming, the Installer password will work for 99% of the tasks required.

CLI Password Access

Supported User Levels
- ☑ User
- ☑ Installer
- ☑ Developer
- ☑ Factory

Starting with the "Special Features" v0.7.0 firmware release, the G3 controller requires unique passwords for each controller. This is due a California law, as of Jan 1, 2020, requiring minimum security for IoT devices. To address this change, the G3 utilizes its unique serial number as part of the password. Once programmed at the factory, this new password scheme is activated. The previous release supported 2 password levels for access to the CLI. Those being "Installer" and "Developer" and they were the same for all G3's running v0.6.7 firmware. If you memorized those passwords, then the new password mechanism will not take too much effort.

The previous passwords for firmware v0.6.7 were:

User:	"**0**"	// Rarely used as it's the default at boot
Installer:	"**pwd1**"	
Developer:	"**IM1635**"	

The new passwords use the same characters as before but with different numbers at the end.

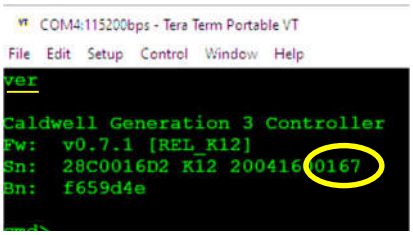
User:	"**0**"	// Did not change from v0.6.7
Installer:	"**pwd**XXXX"	// Replace the "XXXX" with the **last 4 digits** of the serial number
Developer:	"**IM**XXXX"	// Replace the "XXXX" with the **last 4 digits** of the serial number

Note: Entering an incorrect password, immediately puts the controller into "user" mode or minimum access.

As shown above adding the last 4 digits of the G3's serial number will allow the installer to determine the password and access the G3's CLI at the required user level. The serial number can be found on a sticker affixed to the back of the controller itself.

G3 LABEL

If for some reason the label is unreadable or missing, then the serial number must be obtained from the CLI using the "**ver**" or "**info**" commands. Both the password (**pwd**) and version (**ver**) commands are supported at boot (user level).



G3 VERSION COMMAND

After obtaining the serial number, the password can be entered in the CLI using the password command "**pwd**" or "**p**" for short.

Installer:	pwd **pwd0167**	// Installers should use this one
Developer:	pwd **IM0167**	// Only use if needed or when directed to do so by the factory

```
cmd>pwd pwd0167

Level = 1 (Installer)
cmd>
```

```
cmd>pwd IM0167

Level = 2 (Developer)
cmd>
```

* Passwords will auto-expire after 30 minutes regardless of CLI activity. This timeout can be extended by issuing the "**pwd**" or its abbreviation "**p**" (just the command, no password needs to follow)

Tech Brief - "Soft Touch" Tuning

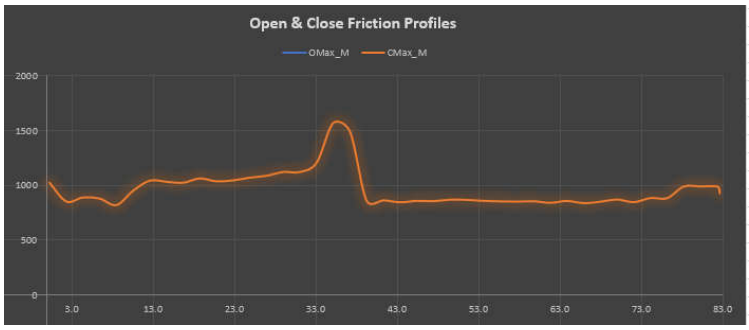
Supported User Levels	
☐	User
☑	Installer
☑	Developer
☑	Factory

Overview

The "Soft Touch" feature uses 2 parameters and the learned friction profile created during programming to control when to "over current" and stop the panels. After the initial programming, the friction profile will be set and should be able to move all the panels from open to close and close to open. If this is not the case, the overall pull force of the door is not correct and there may be a mechanical issue with the door that needs to be corrected before proceeding.

How "Soft Touch" Works

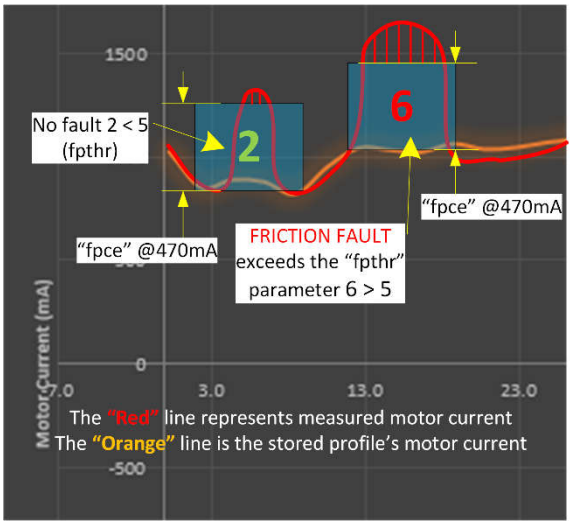
The G3 controller uses the saved friction profile, created during programming, as "signature" of motor power required at all points across the span. The graph below shows a typical profile with 1 panel pickup. The "hump" is the power increase required at the panel pickup point. Only the close profile is shown. The profile is used as a baseline to tell the G3 how much power should be required at every point along the span.



While the door is moving the G3 is measuring motor power and comparing that power against the profile to determine when a friction fault has occurred.

Determining if a friction fault is severe enough to friction fault and stop, is the job of the "**fpce**" and "**fpthr**" parameters.

The Friction Profile Envelope Limit or "**fpce**" is the amount of current in mA's, that can exceed the profile level before we start to count a friction fault. When the measured motor current exceeds the profile *plus* "**fpce**" the G3 begins counting. The count is the second parameter called the "Friction Profile Fault Count" or "**fpthr**". When the G3's count exceeds the "**fpthr**" limit parameter, a friction fault has occurred and the G3 friction faults and stops the door.



In the example on the right, 2 friction faults are depicted. The overlaid "blue" boxes represent the current limit "**fpce**" vertically at **470mA**, while the horizontal is the measurement span distance. Within each box is the over-current count.

The 1st box shows that the counter received 2 counts, so the controller did not recognize this as a friction fault. However, during the 2nd period, the count exceeded "**fpthr** @ 5" with a count of 6. This time the controller does friction fault and stops the door.

This of course is a simplified explanation of the friction fault mechanism used by the G3 controller. There are other parameters at work too, but from a tuning standpoint this is all you need to know.

"Soft Touch" Tuning

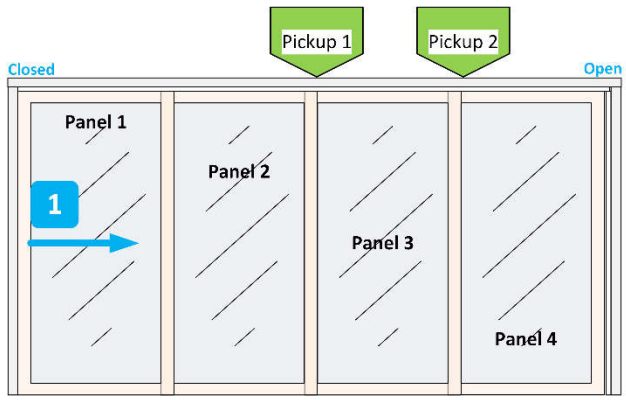
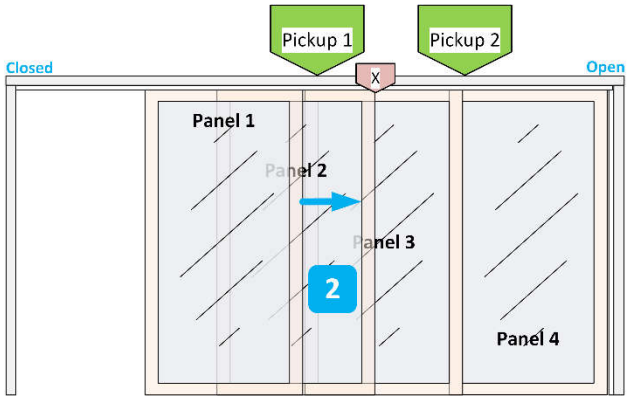
As mentioned before, after programming the controller you should be able to move all the panels from full closed to full open and back again without over currenting. This is because the profile and the measured current should be about the same because the door is the same, with the same pickup points from a few moments ago when it was programmed.

Over-current conditions will happen when something *changes.* Those changes could be a person hit by a moving panel, a small pebble on the track or a panel was moved from its normal pickup point causing a current spike not recorded in the saved friction profile.

It is the latter condition we need to address for "Soft Touch" tuning. Out of position pickups occur most often when the span of the door has been adjusted from the fully open position to a new position. This should be tested for during final programming and tuning. This can also occur when the panel is commanded to stop mid span, then commanded to move again towards one of the jams.

Out-of-Position Panel Pickup Test

To test out of position panel pickups, start the door opening from any wall switch. After panel 1 has moved about half of its width, manually slide panel 2 towards open so that its new pickup point is near the middle of panel 3. If the "Soft Touch" is set properly panel 2 should pickup without an over-current.

Press Open on the wall switch…	As panel 1 is moving, manually move panel 2
	

Repeat this test for the other panels then check the same for close.

Span Adjust Test

When the system is configured properly the operator should be able to select any sub-span width while having the controller pickup all required panels without an over-current. The default for normal mode is a span adjustment period of 5s after the door has reached its programmed open position. This span adjust timer parameter is called "**fsat**" and it can be checked on the CLI with "c **fsat**". If it equals 0, change the value to at least 5s with "c **fsat** 5".

Note: "**fsat**" only enables or disables the timer to enable manual span adjust (where the operator manually moves the panels). It does not disable the span adjust feature so the CLI can still be used to adjust the span with the command "**pops**" discussed later.

```
cmd>c fsat 5                // Set Normal, Party Mode, Egress & One Button Operation span adjust to 5s
OK: 5
cmd>b c                     // If fsat is set on the CLI, perform a button close to "set" the parameter
```

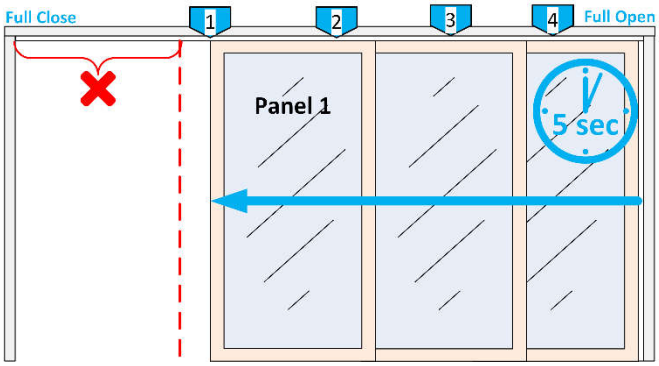
When testing span adjust:

- Choose several locations when adjusting the span manually. At least 1 position for every panel beyond panel 1.
- Span adjusts at panel position 0 (see red 'X") are typically not checked because panel 1 is the only panel moving.

Span Adjust Test Procedure

MANUAL SPAN ADJUSTMENT

1. Command the door to "Open" using a wall switch or the CLI.
2. Within 5s, start a manual move panel 1 only allowing its interlocker to grab additional panels to the desired position.
   NOTE: Panel movement must start within 5s of the programmed open position, but as long as the panel remains moving and does not stop for more than 5s the timer resets.
3. After stopping at the desired position, wait 5s for the timer to run out.
4. Command the door to perform at least 1 close then open cycle verifying there no over currents on panel pickups.
5. Repeat for at addition span locations until satisfied with the performance.



CLI SPAN ADJUSTMENT

1. Make sure the door is in *Normal* mode by checking the "**Info**" report, as the "**fsat**" command affects 3 other modes but when it works in one it will work in the rest.
2. On the cli execute the command "c **pops** XXX" where "XXX" is an inch value between **6** and the full door span. Full span can be checked with the command "c **pop**"
3. Using a wall switch command, the door to close or use the CLI command "**b c**". Upon reaching the closed position the new span will be set.
4. Perform at least 1 full open and close cycle to verify the door does not overcurrent with the selected span setting.
5. Repeat for at addition span locations until satisfied with the performance.
6. When complete, disable the sub-span with the command "c **pops** 0", then "**b c**".

CLI SPAN ADJUSTMENT TERMINAL OUTPUT

```
cmd>info                                                    // Request the "info" report
                                                            // Report shortened here for clarity.
Gen3 Controller                                             // Start of the Info report
---------------
Part Number:              28C0016
Serial Number:            28C0016D2 K12 20041600167

. . .

Features - 'Normal Operation' ACTIVE                        // NORMAL mode is active and running
------------------------------------
Span Adj Time:     fsat*  5s                                // "fsat" is set to 5s.  DEFAULT
  Actual Adj Time:        5s

. . .

cmd>c fsat 5                                                // If you need to set "fsat" to 5s
Ok: 5
cmd>b c                                                     // CLI command door to close to set "fsat"
cmd>c pop                                                   // Report the full span width
158.5667                                                    // Full span width is 158.5667" wide

cmd>c pops 125                                              // Set the sub-span to 125"
Ok: 125.0000                                                //   New sub-span active next close

cmd>b c                                                     // Command the door to close to set the value
Ok

cmd>b o                                                     // Verify no friction faults on open

Ok
cmd>b c                                                     // Command the door to open to set the value
                                                            //  Verify no friction faults on close
// Select a new sub-span, test & repeat

OPTIONAL:  The "cycle test" makes this procedure easier.
cmd>t 1000                                                  // Cycle test set to "Ready"
cmd>c fsat 5                                                // OPTIONAL if you want to manually adjust span
cmd>c pops 125                                              // Set your first sub-span @ 125 inches
cmd>b c                                                     // Start the cycle test
                                                            // Verify during open & close visually
While the door is closing quickly enter a new "pops" value
Before panel 1 reaches close where the new "pops" value will
be set OR manually change the span when panel 1 reaches the open
position within 5 seconds.  Check multiple positions.

When complete, cancel the cycle test:
cmd>t 0
cmd>t 0                                                     // DONE
```

Adjusting "fpce" and "fpthr"

If during the previously described tests friction faults were discovered, adjusting either "fpce" or "fpthr" can help in correcting the issue.

Adjustments to "**fpce**" and "**fpthr**" allow the door to be fully operational and be safely stopped by an opposing force as low as 20lbs to a dangerously high force at 70lbs. ***The goal here is safety, so lower is better.***

The defaults chosen for both "**fpce**" and "**fpthr**" were determined on a select number of factory doors and determined to be a good starting point for an "average" door in the field. Using the default values for "**fpce**" and "**fpthr**" on our factory door, the stopping force is about 26lbs.

Note: Using the same values on a door that has significant mechanical issues can result in a much higher stopping force. When a door requires significant effort to manually operate, the required stopping force also increases. A manual operating force of less than 25lbs is the goal, with forces of 15lbs or less being ideal.

Example: A Real Door with Real Data

The table on the right shows real data from one of the doors we used to develop the G3 controller. It shows the required force in pounds to stop a 3 panel OXX configured door with various "fpce" and "fpthr" settings. This is for reference only. Setting the table values shown will NOT guarantee your particular door will behave the same as our test door! It just shows a starting point for adjustments.

Goal: Stopping force in the **Green** regions of the table. **Blue** is secondary. **Red** should be avoided due to the excessive stopping force required.

G3 v0.7.1	Low	UL325	UL325 High	High	0.6.7	Unsafe	Legend
Western T1 Config OXX	<23	23.00 27.99	28.00 30.00	30.01 34.99	35.00 45.00	>45	

*Default	fpthr: Friction Profile Fault Count						
fpce (mA) Friction Profile Envelope Limit	10*	100	250	1000	2000	3500	5000
1000	45.90	46.90	47.45	52.85	54.05	57.90	61.30
900	41.30	43.95	44.55	48.20	50.65	54.85	56.95
800	37.75	39.75	40.45	43.80	49.30	51.00	54.50
700	34.80	36.45	37.95	41.35	44.60	47.70	49.75
600	31.05	33.05	35.25	37.15	40.85	43.75	45.80
550	29.30	30.25	32.00	36.15	38.50	41.30	44.90
470*	26.30	28.55	30.45	33.00	36.05	40.45	43.50
400	23.90	25.35	26.15	30.30	33.80	37.25	39.85

Start with Friction Profile Envelope Limit Adjustments "fpce"

The default "**fpce**" value is 470mA. If needed, begin by increasing "**fpce**" in 100mA steps, retesting as you go. If you reach 700 – 900mA without a solution, try setting "**fpce**" back to the default at 470mA and try "fpthr" instead.

Friction Profile Fault Count Adjustment

The default "**fpthr**" value is 10 counts. This adjustment is not linear, so adjustments start out small, such as 20 counts, but then change to 100, 150 or higher count increases. Start at 20, retest, then 100, then 250, 1000 retesting after each change.

Testing the Stopping Force

When and if the friction fault issue is resolved, the goal here is safety. That means installations meet the UL 325 stopping force of 30lbs or less mid span. Unfortunately measuring this accurately requires a very expensive meter that has limited uses outside of UL force testing.

During factory training installers will be provided with an inexpensive luggage scale that can help in measuring the stopping force. It's not perfect, but with training and experience any installer can get the force setting relatively close to the limit. They will also experience what 26.3lbs feels like by stopping a door that has been properly tuned.

Using Max Current Limit Instead of Soft Touch

Contact the factory BEFORE disabling Soft Touch using this procedure. A secondary over current mechanism is available on the G3. In this mode the door will stop immediately if the current draw from the motor exceeds the "fpcl" limit set.

```
cmd>dpro                    // Current profile dump.  Find the max at the bottom
                            //  i.e "Max Current: 500mA (Bins 1 - 40)"
cmd>c fpce 0                // Turns off "Soft Touch".  Re-enable with "c fpce reset"
cmd>c fpcl 1500             // Enables hard current limit mode.  Set to 2-3x the Max Current from above.
                            //  i.e. 1500 = 3 x 500mA.  Disable with "c fpcl 0".
                            // Test the door for safety, full span movement etc.
```

CLI Example of Force Parameter Testing & the Cycle Test

Assumptions:

- The door is faulting during panel pickup or span adjust and its fault location is known
- Manual span adjust is enabled, "**fsat = 5**"
- After programming the panel moved through a full Open & Close cycle without faulting at all
  - If faults occur after programming with a simple open & close, the door likely has a mechanical issue that needs to be resolved first!
- If faults were observed in multiple span locations, address the location where panel 1 was pulling the greatest number of panels or the position farthest from full closed. Fixing this position will likely clear positions where panel 1 had a lighter load.
- Defaults for "**fpce**" and "**fpthr**" are set, **470mA** and **10 counts** respectively.
- Defaults for **Open** and **Close** speeds are both set to **4.0** inches per second (default).

```
cmd>p pwdXXXX                // Enter the installer password.  Developer password works too.
cmd>t 1000                   // Set the cycle test to a 1000 cycle run
cmd>b c                      // Start the cycle test; The door starts moving

On the first close cycle, manually impede panel 1 to get a "feel" of the current stopping force required

After panel 1 has reached its open position, manually change the span to the location showing the fault
OR set the position on the CLI using the command "c pops XXXX" (then allow the door to close to the jam)

Allow the door to fault to verify the issue.  Then increase the "fpce" in 50-100mA steps
cmd>c fpce 550               // Increase "fpce" from 470 to 550

Allow the door to cycle at least 1 full open & close cycle.  If the it still faults continue increasing
"fpce" until its cleared or you've reached 900-1000mA.  If its still not fixed, set "fpce" to 550mA and
start adjusting "fpthr"

cmd>c fpce 550               // Reset "fpce" to 550mA to try "fpthr"

Change "fpthr" from 10 to 100 and allow the panel to cycle full open and close at least 1 time.  If the
Issue is still not fixed, increase "fpthr" to 250, 500, 1000 and 2000 testing for 1 full cycle each time.

cmd>c fpthr 250              // Allow to cycle open and close and observe result.  Not fixed
cmd>c fpthr 500              // Same, but this time it did not fault.  Try other spans and verify a complete
                             // fix.

If "fpthr" is at 2000 and the door still faults, try "fpce" AND "fpthr" at a mid-high values instead

cmd>c fpce 600               // Try these and adjust each upward in value until no faults are observed
cmd>c fpthr 250

While the door is cycle testing and completely fixed, manually impede panel 1 again and compare the force
you originally applied to the new force you just set.  The force increased, but does it "feel" excessive?
If so, try changing "fpthr" and "fpce" to lower values until the issue comes back, then dial them up a bit
to fix the fault issue while keeping a minimum stopping force.

If none of the above fixes the door's force issue, contact the factory for further instructions.
```

References

pwd	Requires a minimum user level of "Installer"
c fpce	Friction profile current envelope limit
c fpthr	Friction profile fault count
c fpcl	Friction profile hard limit
c fsat	Span adjust time for Normal, Party Mode, Egress and One Button Operation
c fmat	Span adjust time for Move Assist
c osp	Sets the open speed in inches per second
c csp	Set the close speed in inches per second

Supported User Levels

- ☐ User
- ☑ Installer
- ☑ Developer
- ☑ Factory

fpce (Friction Profile Current Envelope Limit)

Syntax:	config fpce [VALUE]
Abbreviation:	c fpce
Range/Units:	0 – 2000mA (0 Disables Soft Touch)
Default:	470mA

Command Description

The "fpce" is an adjustable current limit the controller uses to determine when something maybe impeding the doors motion and thus representing a safety hazard.

Lowering "fpce" will increase current faults count, friction faults will be triggered more often, and the force required to stop the door is **reduced**. A lower current limit may cause false faults to **increase**.

Increasing "fpce" will reduce the current faults count,friction faults will be triggered less often, and the force required to stop the door is **increased**. A higher current limit may cause false faults to **decrease**.

Increasing "**fpce**" in 50mA steps is recommended for doors that friction fault during normal unimpeded operation. If the "**fpce**" setting is above 600 – 700mA and the door still faults check the door for mechanical issues and repair if necessary.

For more information about "Soft Touch" review the "**fpce**" command and "**Tech Brief – Soft Touch Tuning**" section. Below are parameters used and tested on our factory standard door.

Terminal Output

```
cmd>c fpce                  // Report the parameter value
470

cmd>c fpce 125              // Set "fpce" to 125mA
OK: 125

cmd>c fpce reset            // Reset "fpce" to the factory default
470

cmd>c fpce 0                // Disables Soft Touch
OK: 0                       // IF SOFT TOUCH IS DISABLED, the alternate current limit MUST be activated
                            //   using the command 'c fpcl' to immediately stop the door on the first
                            //   overcurrent.  Refer to the Tech Brief:  "Soft Touch" Tuning for more info.
```

References

pwd	Requires a minimum user level of "Installer"
c fpthr	Friction profile fault count
c fpcl	Friction profile hard limit
Tech Brief	"Soft Touch" Tuning

Supported User Levels

- ☐ User
- ☑ Installer
- ☑ Developer
- ☑ Factory

fpthr (Friction Profile Fault Count Limit)

Syntax:	config fpthr [VALUE]
Abbreviation:	c fpthr
Range/Units:	1 – 2147483647 counts
Default:	10 counts

Command Description

The "**fpthr**" parameter sets the friction profile fault count. When this count is exceeded, the G3 recognizes this as a friction fault and stops the door for safety.

When adjusting "**fpthr**" make larger incremental changes of 100 to 150. If you find yourself with a count of 300, this maybe an indication that the door has mechanical issues that needs to be corrected.

For more information about "Soft Touch" review the "**fpce**" command and "**Tech Brief – Soft Touch Tuning**" section.

Terminal Output

```
cmd>c fpthr                 // Report the parameter value
10

cmd>c fpthr 25              // Set "fpthr" to 25 counts
OK: 25

cmd>c fpthr reset           // Reset "fpthr" to the factory default
10
```

References

pwd	Requires a minimum user level of "Installer"
c fpce	Friction profile current envelope limit
c fpcl	Friction profile hard limit
Tech Brief	"Soft Touch" Tuning

Supported User Levels

- ☐ User
- ☑ Installer
- ☑ Developer
- ☑ Factory

fpcl (Friction Profile Current Hard Limit)

Syntax:	config fpcl [VALUE]
Abbreviation:	c fpcl
Range/Units:	0 – 8000mA
Default:	0 (Disabled)

IMPORTANT:

- **This is an advanced command. Consult the factory prior to use.**

Command Description

The Friction Profile Hard Limit provides a secondary "peak" current limit. By default this feature is disabled. It does not provide a "soft touch" but instead works on the peak current draw of the motor alone and stops the motor immediately when the limit is exceeded.

Terminal Output

```
cmd>c fpcl                  // Report the parameter value
0

cmd>c fpcl 1500             // Sets "fpcl" to fault when exceeding 1500mA or 1.5A
OK: 1500

cmd>c fpcl reset            // Reset the parameter to factory default which is disabled
0
```

References

pwd	Requires a minimum user level of "Installer"
c fpce	Friction profile current envelope limit
c fpthr	Friction profile fault count
Tech Brief	"Soft Touch" Tuning

Supported User Levels

- ☐ User
- ☑ Installer
- ☑ Developer
- ☑ Factory

cyct (Cycle Test)

Syntax:	cyct [VALUE]
Abbreviation:	t
Range/Units:	1 - 1000000
Default:	n/a

Command Description

The "**cyct**" or "**t**" command, initiates, updates or reports the status of a cycle test already running. It can be used by installers during their final test, while tuning "Soft Touch", or dealer/customer demonstrations. The test can be commanded to exercise an G3 automation system to open and close a door between 1 and 1,000,000 times.

Starting a Cycle Test (cT)

To execute a test, 2 commands are required:

- "t 3" Initializes the cT for 3 open + close cycles. Door does not move
- "b c" Button Close is used to "start" the test. Door begins to move and testing begins.
  - * If the door was already closing when the "t" setting was issued, the 2nd command "b c" is not required. Testing will begin after the door closes.

Terminal Output

```
Cmd>t 15                    // Cycle test, for 15 cycles is requested

Cycle Test
----------
Status                READY     // Status is "Ready" to start.  Door does NOT move yet...
  Progress:           0.00%
  Oneway Travel:      0.00 ft
  Cycle Time:         TBD       // Time for 1 open + close cycle. Updates after 1st cycle.
  Time Remaining:     TBD       // Estimated time to completion in sec, min, hours, days, months and years
Cycle Info            Opening   // Current operation, either Opening or Closing
  Current Cycle:      0
  Total Cycles:       3         // Total cycles requested.  Can be changed with "t VALUE" while running
On Open                         // Friction & Motion Faults during Open
  Friction Faults: 0
  Motion Signals:  0
On Close                        // Friction & Motion fault counts during Close
  Friction Faults: 0
  Motion Signals:  0
Cycle Faults:         0/5       // Cycle fault count down, Current/Maximum, before the test errors out

cmd>b c                         // Starts the test and the cT status changes to "Running".  Movement starts.
```

TLE Warning:

Prior to running a cycle test verify the controller does not indicate "TLE" events in the CLI. Running a cycle test on a controller that is experiencing TLE Over-temperature faults will damage the controller's motor driver chip after approximately 100 events. Refer to the TLE Mitigation Tech Brief for information on preventing TLE faults if you wish to cycle test a system on a high friction installation.

References

pwd	Requires a minimum user level of "Installer"
c ctfl	Cycle Count Fault Limit sets the maximum friction faults per open/close cycle before failure
c fsat	Disabling "Span Adjust" will decrease the cycle time by ~5s / cycle.
Tech Brief	Cycle Testing
Tech Brief	TLE Mitigation

Document Revisions

Revision	Release Date	Description
1.0.0	Sep 22, 2020	Initial release
1.0.1	Oct 2, 2020	Fixed typos in “Soft Touch” Tuning
1.0.2	Nov 19, 2020	Added info on “hard current limit” vs “Soft Touch”
1.0.3	Mar 15, 2021	TLE update with firmware v0.7.2
1.0.4	Mar 22, 2021	Updated TLE Tech Brief
1.0.5	Mar 24, 2021	Fixed some typos & added a recommended command to the TLE docs

G3 Firmware Revisions

Revision	Release Date	Description
0.7.2 (latest)	Mar 11,2021	Maintenance release to address “TLE” over-current/temp issue. • “hfi” help command added for “TLE” issues • Help commands “avi”, “maxc” and “acdc” added • Config command “spl” added • “c all reset” updated to preserve “spl” and “hfi” settings • “TLE” over-current/temps counts tracked in flash • G3 LED color code updated • Panel 1 mass increased to 50,000/100,00lbs (Oneway/Bipart)
0.7.1	Aug 28, 2020	Functionally identical to the v0.7.0 release. Updated 4 parameters to use new defaults. **Command** / **v0.7.1 New Defaults** / **v0.7.0 Defaults** osp / 4.0000 IPS / 4.5000 IPS csp / 4.0000 IPS / 4.5000 IPS fpce / 470mA / 430mA fpthr / 10 counts / 5 counts
0.7.0	Aug 21, 2020	“Special Features” release for G3 K12. G3 K02 is not supported. • Entertainment, Close Behind, Simplicity & Motion Assist modes • UL325 closing force reduced by 35% over v0.6.7 • Improved security, delayed mag brake, manual span adjust, etc • Integrated cycle testing • Profile bin resolution increased by 300%. • Cleaner CLI interface optimized for smart phone access
0.6.7 (K12) 0.5.91(K02)	Dec 3, 2019	Initial production release for G3 supporting basic door functions only using wired & wireless accessories. Processors K02 & K12 supported.