



# KEG SENSOR AND CONTROLLER USER GUIDE



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## INTRODUCTION

Thank you for your purchase! We hope you enjoy this keg monitoring product. If you aren't completely satisfied, please reach out to us at:

[www.flitesense.com](http://www.flitesense.com)

## FLITE KEG LID SENSOR

The Flite keg lid sensor is the "sensing" component. This lid has the integrated level, temperature, and pressure sensor. This sensor requires a controller to read and handle the data.



## FLITE HEADLESS CONTROLLER

The Flite headless controller has all the same capabilities as the Flite controller with display, minus the touchscreen display. The Flite headless controller is designed to install directly on the Flite keg lid sensor, eliminating the need to mount an external display and route the female-to-female 4-pin GX16 aviation socket cable. This does still require a micro USB cable for power.





## FLITE CONTROLLER WITH DISPLAY

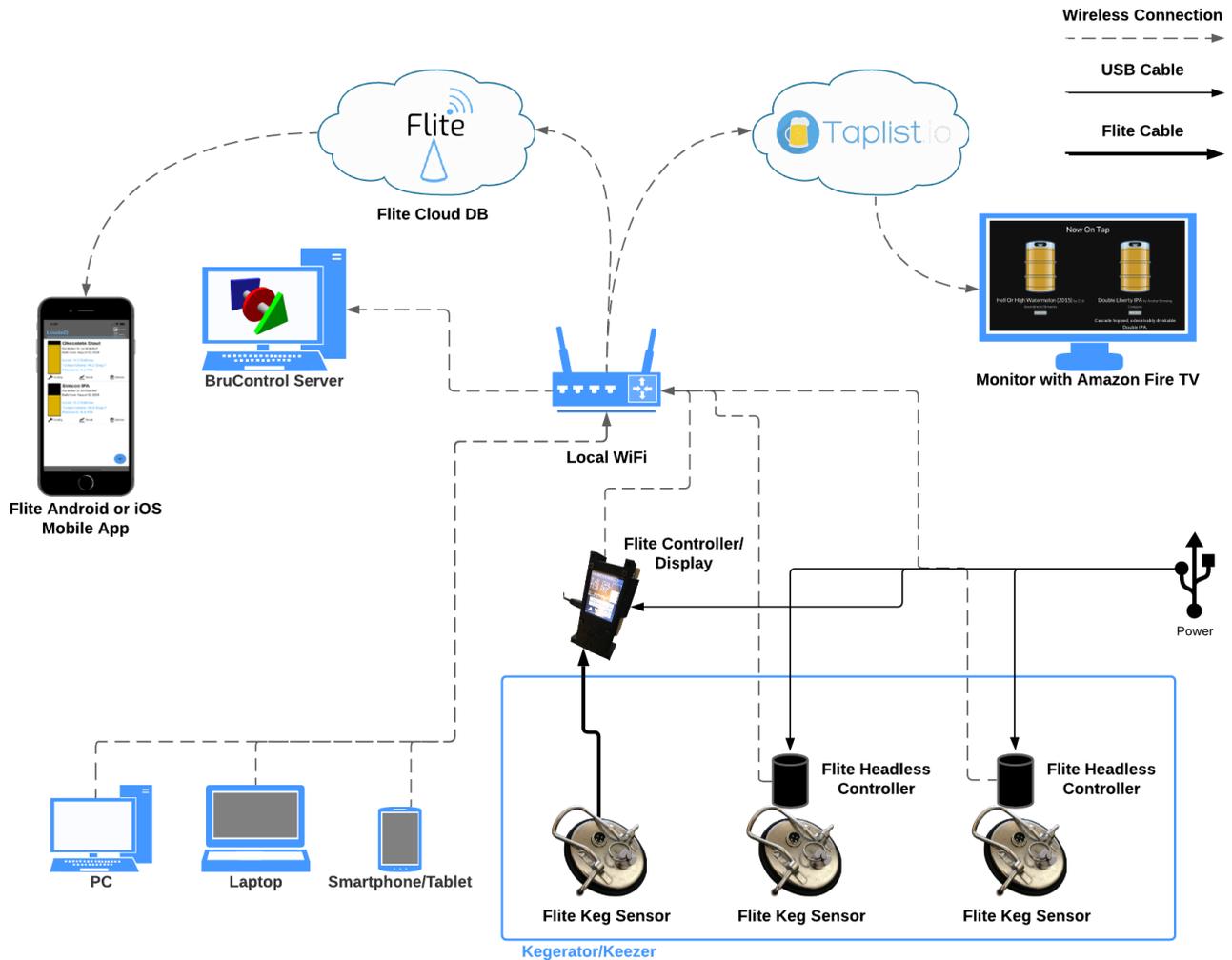
The Flite controller with display is the "controller" component. This has the responsibility of reading the sensor and displaying the data. The display is connected to the sensor with a female-to-female 4-pin GX16 aviation socket cable. The display is powered by a micro USB cable. The touch screen display also allows for calibration of the sensor. The controller also has the WiFi capabilities that enable other functionality such as:

- Update Flite Cloud DB
- Host web server for browser-based configuration and calibration
- Server REST API requests (<https://www.flitesense.com/rest-api>)
- Update to taplist.io API (<https://www.flitesense.com/taplistio-support>)
- Other brewing community platform integration (<https://www.flitesense.com/support>)



## FLITE ARCHITECTURE

Because every brewer's kegerator/keezer setup is different, the Flite architecture supports different design models to accommodate this. Here is an overview of the Flite architecture, demonstrating different configuration options:





## CONTROLLER CONFIGURATION

### GUID AND LOCAL PASSWORD

Every Flite controller should have a unique GUID and Password. **If you purchased this from Flite, this will already be done for you and you can skip to the “Connect to Local WiFi” section below.**

1. Using a smartphone, tablet or PC, search for local WiFi networks
2. You should see a network with the name **Flite\_DEFAULT**
3. Connect your device to this network with the password **FliteRocks**
4. You should be redirected to a browser, if not, open a browser (Chrome, IE, Firefox, etc...) and enter **192.168.4.1** into the browser’s address bar
5. After a few seconds, you should be directed to a screen like this:

**Flite Controller Configuration**  
**Firmware Version: 1.3.3**  
**ID: DEFAULT**

0.0 GAL  
72.3 Deg.F  
14.6 PSI

### CALIBRATION

**Displayed Units**

Imperial (Gallons, DegF, PSI)  
 Metric (Liters, DegC, kPa)

**UPDATE**

**Current Calibration Settings**

**High Level Cal:** 5.0 Gallons  
**Low Level Cal:** 0.0 Gallons  
**High Distance Cal:** 100 mm  
**Low Distance Cal:** 600 mm  
**Pressure Offset:** 0.0 PSI

High Calibration Level (Gallons)  
5.0  
**CALIBRATE HIGH LEVEL**

Low Calibration Level (Gallons)  
0.0  
**CALIBRATE LOW LEVEL**

**CALIBRATE ZERO PRESSURE**

### CONTROLLER CONFIGURATION

Enable  
GUID (Maximum Characters: 8)  
DEFAULT

My Password (Maximum Characters: 32)  
\*\*\*\*\*

**UPDATE AND RESTART**



6. Under “Controller Configuration” check the “Enable” box
7. Enter the GUID provided by Flite (this must be provided by Flite for the Flite Cloud DB to function)
8. Enter your desired password. This is the password that is required to connect to this device’s WiFi.

**IMPORTANT – Keep your Flite WiFi password a secret. Only provide this to individuals that you trust on your local WiFi!**

9. Click “Update and Restart”
10. After restart, your Flite controller’s GUID and local password have been configured.

## CONNECT TO LOCAL WiFi

For your controller to log data to the Flite cloud DB, and leverage other WiFi functionality, it will need to be connected to a local WiFi.

What is the “Flite Cloud DB”?

- The Flite cloud DB is a web-based database that stores data from your Flite sensor. This database is used to provide remote notifications and historical trending on the Flite mobile app.

Do I need to configure the Flite cloud DB?

- No, the unit will function as a stand-alone sensor and display.

Can I add Cloud DB to my controller later?

- Yes. API keys and subscription credentials can be acquired at any time. Reach out to support at: <https://www.flitesense.com/contact>

1. Using a smartphone, tablet or PC, search for local WiFi networks
2. You should see a network with the name “Flite\_” with the ID of your controller
3. Connect your device to this network with the password provided

**IMPORTANT – Keep your Flite WiFi password a secret. Only provide this to individuals that you trust on your local WiFi!**

4. Open a browser (Chrome, IE, Firefox, etc...) on the device connected to the Flite controller’s web server, and enter **192.168.4.1** into the browser’s address bar
5. After a few seconds, you should be directed to a screen like this:



Flite Controller Configuration  
Firmware Version: 1.2.0  
ID: [REDACTED]

### WIFI CONFIGURATION

TEST CLOUD UPDATE

SSID

[REDACTED]

Password

[REDACTED]

UPDATE

### FLITE API CONFIGURATION

Enable

Application ID

[REDACTED]

API Key

[REDACTED]

UPDATE

### TAPLIST.IO API CONFIGURATION

Enable

API Key

token secret: [REDACTED]

Venue ID

taplist: [REDACTED]

Tap ID

1

UPDATE

6. Enter the local WiFi SSID and password that you want Flite to use to update to the cloud DB, then click "Update"
7. After updating, go back to **192.168.4.1** again and confirm the SSID and Password is correct under your current WiFi configuration
8. Click "Test Cloud Update", and you should see your Flite display return to the main screen, along with a "WiFi" icon in the upper right-hand corner
9. After about 30-45 seconds, the "WiFi" icon should disappear and the current network name and IP should be updated on the Flite display
10. From this point forward, you should be able to browse the same user interface from an IP address local to your WiFi network. The network name and IP address should be displayed on your Flite display once it has connected to your local WiFi



## SETUP AND INSTALLATION

### INITIAL CALIBRATION

**This procedure assumes calibration is being performed with a Flite Controller with Display.** If you are calibrating with a Flite Headless Controller, the calibration is performed via the web server used in the “Controller Configuration” section of this guide.

**It is recommended that the Flite sensor be calibrated before use.** After initial calibration, regular calibration should not be required unless the sensor data appears to be inaccurate.

Why is calibration required?

- The level sensor measures the distance from the lid and calculates the volume between a known “high” and “low” calibration point. These points must be taught to the controller through a level calibration.
- The pressure sensor is an “absolute” pressure sensor, which means that it measures pressure relative to a perfect vacuum. Therefore, any changes in elevation relative to sea level can affect the accuracy of the pressure in the keg. The sensor must be “zeroed” to the ambient pressure of the keg.

### Calibration Procedure – Pressure

1. Connect the Flite sensor and display with the provided 4-pin cable
2. Make sure the sensor is not exposed to any pressure
3. Plug USB power into the Flite display
4. Wait for the display to start showing data for pressure, it should update every 10 seconds
5. After a few updates of the pressure value, it should be relatively stable (not bouncing around)
6. Using the provided stylus, press and hold the “CAL ZERO PSI” button
7. At the bottom of the display (in small yellow text), you should see “Storing zero PSI calibration...”
8. Release the “CAL ZERO PSI” button
9. After the display updates again (every 10 seconds), you should see approximately 0.0 PSI
10. Pressure calibration has been completed



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## Calibration Procedure – Level

1. Connect the Flite sensor and display with the provided 4-pin cable
2. Plug USB power into the Flite display

### LOW LEVEL CALIBRATION

3. Install the sensor on an EMPTY cornelius (corney) keg
4. The display will update sensor values every 10 seconds, you should see a small yellow message at the bottom of the display that shows "Sensors updated, distance: XXX", this is the current level distance away from the lid
5. After a few updates of this value, the distance should be pretty stable
6. Using the provided stylus, press the DOWN arrow on the display, tap until the displayed level is 0.0 (it will turn red, this is ok!)
7. Press and hold the "CAL LO" button
8. At the bottom of the display (in small yellow text), you should see "Storing low level calibration..."
9. Release the "CAL LO" button
10. Tap on the "wrench" icon in the upper right-hand corner of the display. This will release "configuration mode"
11. After about 10 seconds, you should see the display update again and the red text should return to blue.
12. Low level calibration has been completed

### HIGH LEVEL CALIBRATION

13. Install the sensor on a cornelius (corney) keg with a KNOWN VOLUME of water. This should preferably be a volume between 4-5 gallons
14. The display will update sensor values every 10 seconds, you should see a small yellow message at the bottom of the display that shows "Sensors updated, distance: XXX", this is the current level distance away from the lid
15. After a few updates of this value, the distance should be pretty stable
16. Using the provided stylus, press the UP arrow on the display, tap until the displayed level is the KNOWN VOLUME of water from step 13 (it will turn red, this is ok!)
17. Press and hold the "CAL HI" button
18. At the bottom of the display (in small yellow text), you should see "Storing high level calibration..."
19. Release the "CAL HI" button
20. Tap on the "wrench" icon in the upper right-hand corner of the display. This will release "configuration mode"
21. After about 10 seconds, you should see the display update again and the red text should return to blue.
22. High level calibration has been completed



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## LEVEL CALIBRATION CHECK (OPTIONAL)

23. Removed the Flite sensor and empty about half of the water out of the keg into a bucket.
24. Measure the volume in the bucket and subtract it from the known volume used in the high-level calibration
25. At this point you know what the volume of water is in the keg
26. Re-install the Flite sensor and monitor the display, it may take a minute or so to stabilize
27. The displayed volume should read approximately what your determined volume in step 25 is
28. The calibration has been checked and the sensor is ready to be installed!

### IMPORTANT

- Depending on the dip tube of the keg that you install your sensor on, your keg may actually “run out” of beer before the Flite display reads 0.0. This is due to the height above the bottom where the dip tube is placed.
- For better “near empty” accuracy, once you “run out” from your current keg, re-calibrate the LOW level to 0.0. This will teach the controller that this is the point at which the keg is “empty”.



## SENSOR UPDATE INTERVAL

To provide more accurate and stable level readings, the Flite controller samples the keg level every second, and averages the readings over a period of time known as the sensor update interval. This interval is user configurable from 10-600 seconds. A shorter interval will update the reading more often, but with less stability (when filling a keg for example). A longer interval will update the reading less often, but with higher accuracy and stability (normal use). Recommended default is 300 seconds.

## Flite Controller Configuration

Firmware Version: 1.5.0

ID: M26S4TFC



0.0 GAL

48.6 Deg.F

5.1 PSI

## CALIBRATION

### Displayed Units

Imperial (Gallons, DegF, PSI)

Metric (Liters, DegC, kPa)

UPDATE

### Current Calibration Settings

High Level Cal: 4.3 Gallons

Low Level Cal: 0.0 Gallons

High Distance Cal: 136 mm

Low Distance Cal: 530 mm

Pressure Offset: 14.9 PSI

Sensor Update Interval (Seconds)

300

UPDATE

High Calibration Level (Gallons)

4.3

CALIBRATE HIGH LEVEL

Low Calibration Level (Gallons)

0.0

CALIBRATE LOW LEVEL

CALIBRATE ZERO PRESSURE



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## INSTALLATION

### Display Installation

The Flite display is designed to be installed one of two ways:

- Wall Mounted – Using the 4 mounting holes on the display enclosure
- Keg Tap Tower Mounted – Drill a 16mm hole in your current tap tower lid and mount using 4-pin connection, or 3D print a replacement lid with mounting hole here:

<https://www.thingiverse.com/thing:4594163>

After mounting the display, plug the (provided) USB power cable micro-USB into the display, and plug the standard USB end into a USB power supply.

You should see the Flite “Loading...” screen

### Sensor Installation

The Flite sensor simply installs on your keg in place of the existing lid. Plug one end of the 4-pin cable into the Flite sensor lid and plug the other into the bottom of the display.



## CONFIGURATION – FLITE CLOUD DB API KEYS

After your Flite display has been connected to your local WiFi, before it can reach the Flite cloud DB, you will need to configure it with the Application ID and the API Key.

**IMPORTANT – Keep your Application ID and API Key secret. Only provide it to individuals you trust to access your data.**

1. With a smartphone, tablet, or PC connected to the same WiFi network as your Flite display, open a browser (Chrome, IE, Firefox, etc...) and enter the IP address (this can be located on the Flite display) into the browser's address bar
2. After a few seconds, you should be directed to a screen like this:

Flite Controller Configuration  
Firmware Version: 1.2.0  
ID: [REDACTED]

WIFI CONFIGURATION

TEST CLOUD UPDATE

SSID  
[REDACTED]

Password  
[REDACTED]

UPDATE

FLITE API CONFIGURATION

Enable  
Application ID  
[REDACTED]

API Key  
[REDACTED]

UPDATE

TAPLIST.IO API CONFIGURATION

Enable  
API Key  
token secret: [REDACTED]

Venue ID  
taplist- [REDACTED]

Tap ID  
1

UPDATE

3. Check the “Enable” box under the FLITE API CONFIGURATION bar
4. Enter your Application ID and API Key, then click “Update”



5. Go back to the screen you browsed on step 1
6. Click "Test Cloud Update", and you should see your Flite display return to the main screen, along with a "WiFi" icon in the upper right-hand corner
7. After about 30-45 seconds, the "WiFi" icon should disappear and the current values should be updated on the Flite cloud DB
8. You will also notice the header indicates how many minutes until the next update



## CONFIGURATION – MOBILE APP SETUP

After your Flite display has been connected to your local WiFi, and the Flite API has been configured, it should be logging data periodically (approximately every 1 hour) to the Flite Cloud DB. Retrieval of this data is accomplished through the Flite mobile app for iOS or Android.

1. Go to [www.flitesense.com](http://www.flitesense.com) and scroll down to the links to the Apple App Store or Google Play Store or you can navigate directly here:

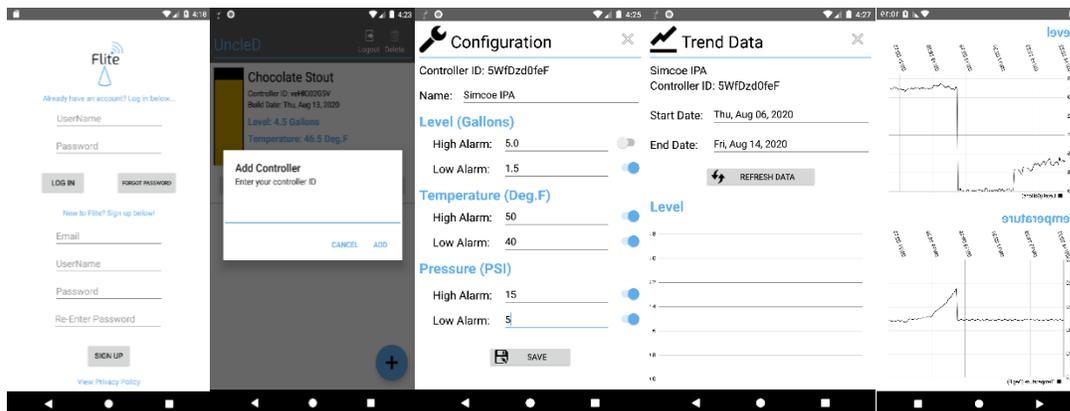
Apple App Store - <https://apps.apple.com/us/app/id1526591407>

Google Play Store - <https://play.google.com/store/apps/details?id=com.jed.flite>

2. Once you have installed the Flite mobile app, open the application, and tap on the  icon just to the left of the Flite logo
3. Follow the menu options to enter the Application ID and API Key. Please don't try and enter these by hand, recommend copy and paste to avoid any entry errors

**IMPORTANT – Keep your Application ID and API Key secret. Only provide it to individuals you trust to access your data.**

4. After restarting the application, you will be prompted to create an account or log in
5. Once logged in, to add your current Flite display controller, select the “+” button in the lower right corner, and enter the ID of your controller
6. If you don't see the controller on the list, you may need to close and re-open the app to re-query the controllers
7. This controller will be saved to your account, you can now modify the name and alarm configuration and view trend data from anywhere using the mobile app!





**END SECTION**