

LFC Cloud

Remote Access



About

The LFC Cloud shows statistics on usage, service schedules, and diagnostics for your LFC biodigester. Lifetime access to the LFC Cloud is included in the purchase of an LFC biodigester and you can access the LFC Cloud from any device anywhere in the world.

The LFC biodigester sends data on its operations securely to the cloud server where it is retained for five years. There is no charge for your usage of the LFC Cloud.



Features

Basics

- Fully secure transmission of data from your LFC biodigester to the internet
- Permits you to access data analytics remotely
- Easy to understand summary data
- See service schedules including when consumable items need replenishing
- Review diagnostics, errors, and critical operational conditions
- Data is transmitted every five minutes from the LFC biodigester to the LFC Cloud
- View history log of LFC biodigester operations

Accessibility

- LFC biodigester connects to the internet with its Ethernet port
- LFC biodigester uses minimal bandwidth to ensure operation even with poor connectivity
- LFC Cloud is accessible from a computer, tablet, or phone
- For LFC biodigesters with NFC card reader, view data for each card or entire machine
- Unlimited access to the LFC Cloud
- Data retained for up to five years
- Available in multiple languages

Reports and Notifications

- Create reports with one click
- Aggregate data from multiple machines in a single report

- Receive e-mails with periodic statistics on usage of the LFC biodigester
- Get alerts when servicing is due

Security

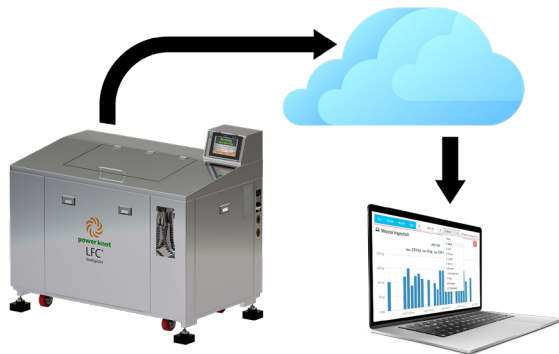
- Hosted and backed up on Google Cloud Services
- Data flow comes out of the machine only
- Secure log in: your password is not shared with Power Knot
- You control who has access to your data
- Monitor IP address and location of biodigesters
- Power Knot does not download your data

Benefits

- Identify the quantity and times when waste is generated
- Create reports to share with stakeholders
- Permits optimization of the LFC biodigester to minimize the use of utilities
- E-mail alerts mean you don't need to periodically log into the LFC Cloud
- NFC cards can help to minimize food waste
- Smart time zones ensure synchronization of results and global support
- By knowing of any issues you can keep the LFC biodigester operating at peak performance
- Power Knot will monitor your LFC biodigester at no charge
- Extend warranty to three years

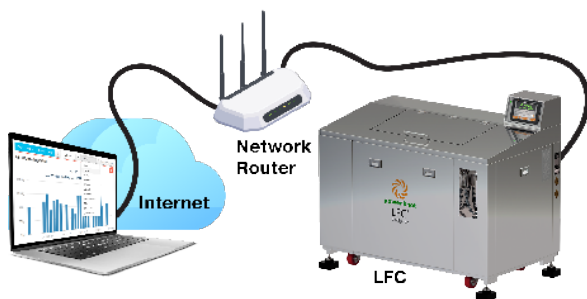
Connection

You need to simply connect your LFC biodigester to an active internet connection. In most cases you do not need to configure anything on the LFC biodigester. The LFC biodigester automatically connects to the LFC Cloud servers and sends its data securely to the server.



You can connect the LFC biodigester to the internet with a wired connection or use an external Wi-Fi client or GSM client to connect it by wireless.

The data is compressed and secured by 128 bit AES encryption. The rate of data flow is minimal (less than 30 kb/s) which permits operation where internet connectivity has low bandwidth or is sporadic such as on cruise ships, yachts, remote mines, and resort islands.



If connectivity to the internet is disrupted, your LFC biodigester saves all its data for up to two years and uploads the data once connection is restored.

You access the LFC Cloud from any browser on any device. The interface automatically adapts for display on computers, tablets, and phones.

The LFC Cloud uses Google Cloud Services, ensuring there is high speed and redundant access wherever you are in the world and wherever your LFC biodigester is located.

Extended Warranty

The usual warranty is one year. For some products, you can extend this to three years by connecting your LFC biodigester to the LFC Cloud.

Customization

You can select the language you want to use for the LFC Cloud in any of more than 100 languages. You can display temperatures in °C or °F, mass in kg or lb, and pressures in kPa or psi. These selections are independent of the settings on your LFC biodigester and apply only to your display.

The screenshot shows the 'Customization' settings page. At the top right is a gear icon. Below it is the text 'Sélectionnez les unités préférées'. There are three rows of unit selection buttons: '°C' and '°F' for temperature, 'kg' and 'kg' for mass, and 'kPa' and 'PSI' for pressure. At the bottom is a language dropdown menu currently set to 'French'.

Operational Summary

You can quickly see a summary of the status of your machine including whether it is running or stopped and the last time it was started or used.

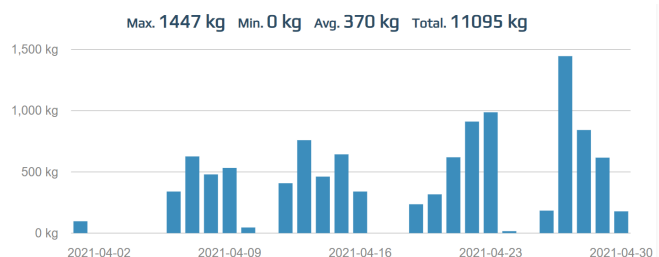


The summary also shows you approximately where the machine is located (derived from its IP address) and the time zone for the LFC biodigester.

Status	Running
Last seen online (your local time)	2021-05-09 11:06:49
Last seen online (LFC system time)	2021-05-09 19:07:01
Last seen IP	147.92.89.34
IP country (from Google)	United States
IP city (from Google)	Fremont

Statistics About Your Food Waste

You can view the amount of organic waste ingested into the LFC biodigester by the hour, day, week, month, and year. This data is available numerically and graphically.



You can also see the impact on the environment made by using the LFC biodigester. This is directly displayed as tonnes of CO₂e and reflects the carbon saved if you had instead sent the waste to a landfill.

	Waste ingested (kg)	Carbon reduction (tonne)
Today	808	3.4
Last 24 hours	808	3.4
This week	5118	21
Last 7 days	5118	21
This month	5693	24
Last 30 days	22071	93
This year	97002	407
Last 12 months	168570	708

The LFC Cloud also shows you the rate of digestion of your waste, again, numerically and graphically.

You can see the number of times the door was opened by the hour, day, week, month, and year, and from that, the length of the working day. This can help you to assess if the machine is being used properly or whether waste is being accumulated and deposited too infrequently.

Date	Ingested (kg)	Door opened	Working day (hh:mm)
2021-05-01	575	38	11:13
2021-05-02	645	78	11:04
2021-05-03	538	124	11:25
2021-05-04	781	112	11:18
2021-05-05	748	41	10:49
2021-05-06	768	53	11:09
2021-05-07	827	48	11:25
Average	697.4	70.6	11:12
Total	4882	494	

When your LFC biodigester is equipped with an NFC card reader to permit the logging of the usage of the machine by card, you can view the statistics for each card or as a total. You can use the cards to differentiate the usage, such as the person using the machine (Fred, Mary, etc), the source of the waste (Ward 1, Ward 2, etc), or the type of the waste (meat, vegetables, etc).

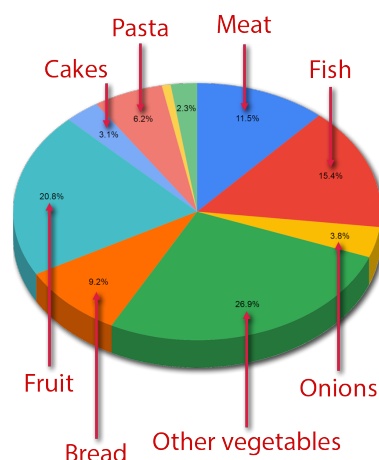
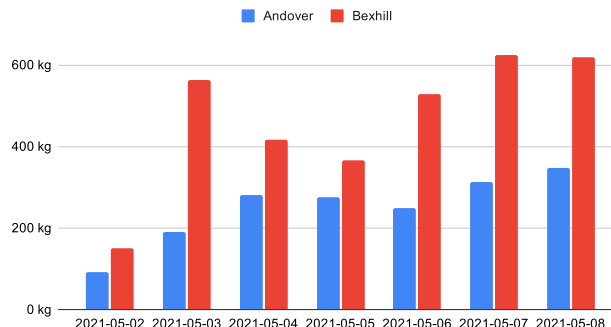
10. HC TORT 625g	
Totals	
1. 375g BEEF	
2. 625g BEEF	
3. 375g VEAL	
4. 625g VEAL	
5. 375g RS	
6. 625g RS	
7. 375g CHK	
8. 625g CHK	926
9. RS TORT 625g	926
10. HC TORT 625g	945
This month	945
Last 30 days	3274

If you own multiple machines, you can display the statistics for all machines collectively or each machine individually.

Data Export

With a single click, you can export data to a document on your Google Drive. This allows you to create reports on sustainability easily for stakeholders.

Waste ingested week of 2 May 2021



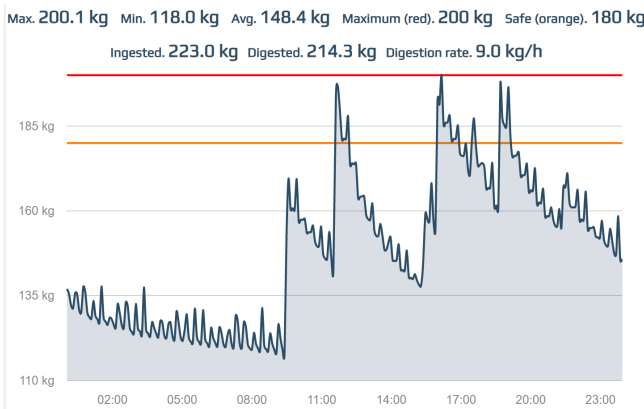
Service Schedules

Periodically, you need to service your LFC biodigester, supplement the Powerzyme microbes, and replace the Powerchips medium. The LFC Cloud keeps track of these service schedules, showing you when the next service is due and the history of past services.

Diagnostics

There are more than 50 parameters that can be configured on the LFC biodigester and more than 50 sensors to monitor its operational status and health. You can view each of these on the touch screen on the machine and they are all uploaded to the LFC Cloud.

Reviewing the parameters can show you which ones might need changing to optimize digestion or minimize the use of utilities. You can view many of the sensors graphically over time. All this data can alert you to any potential issues with your LFC biodigester and indicate how the machine is performing over time.



E-mail Alerts

The LFC Cloud can send you e-mails that indicate the amount of waste ingested, when service is close to being due, and any issues with the LFC biodigester. You can select the type and frequency of these e-mail alerts. For example, you might want to get an e-mail weekly for the waste ingested and be alerted when there is a critical problem with the machine.

Support

Power Knot support personnel will monitor your LFC biodigester as long as your machine is under warranty. We can contact you if we see a potential

issue. In addition, you can grant your local sales representatives access to the data on your machine so that they can provide you with better service and support. One important set of data is the log of every event on your LFC biodigester which helps our service personnel to isolate any issues quickly.

2021-05-06 16:00:08	current weight 174.5 kg
2021-05-06 16:00:08	added 22.1 kg
2021-05-06 15:59:59	door closed after 23 s
2021-05-06 15:59:36	door open
2021-05-06 15:39:19	added 25.3 kg
2021-05-06 15:39:19	current weight 156.9 kg
2021-05-06 15:39:11	door closed after 20 s
2021-05-06 15:38:51	door open

The use of smart time zones ensures synchronization of data for collaboration between Power Knot and users.

Security

Your data is secured on servers by Google. This ensures redundancy so that your data is always available. Data is sent from the LFC biodigester to the internet and no data can be sent to the machine. This prevents disruption to the service of your biodigester and ensures that all configuration of the machine must be done from the LFC color touch screen.



You control who can have access to your data. Only users that you have authorized can access the data for your machine to ensure that your competitors cannot see your statistics. Authentication is provided by Google, so Power Knot has no access to your password.



Power Knot LLC | 47613 Warm Springs Blvd | Fremont, CA 94539 USA | +1-408-889-8433 | info@powerknot.com | www.powerknot.com

Power Knot, the Power Knot logo, the Power Knot mark, LFC, and LFC Cloud are trademarks or registered trademarks of Power Knot LLC. All other trademarks used herein are the property of their respective owners. Copyright © 2009–2024 Power Knot LLC; all rights are reserved. Specifications are subject to change at any time without notice. Document number 96-01104-08, 20 August 2024.