



SIPOAL - L



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1. System Overview

SIPOAL-L is an IoT based Electro-mechanical type Single Point Automatic Lubricators

SIPOAL-L consists of self-powered electromechatronical drive unit to drive the lubricant cartridges which delivers the precise volume of lubricant to the lubrication point of machinery automatically at frequent intervals of time programmed by the user.

SIPOAL-L is designed to dispense correct volume of grease at short intervals of time automatically while the machine is in operation. This leads to longest bearing service life. Thus, machine reliability can be enhanced substantially with proper lubrication.

SIPOAL-L can be monitored and controlled lively to ensure that the correct volume of lubricant at the right time is delivered to the lubrication point during its operation. This provides a more accurate amount of lubricant supplied properly when compared to traditional manual lubrication techniques.

This regime of grease delivery by SIPOAL-L maintains a steady-state of lubrication protection where excess lubrication or lubricant starvation does not occur, prevention of contaminants entry and eliminates all the problems integrated with manual lubrication process.



SIPOAL - Parts

DRIVE UNIT

to pump the lubricant in grease Cartridge

EMPTY GREASE CARTIDGE

Where grease can be filled / re-filled

FLANGE

To connect system and lube point and to support the system

COUPLER

To connect and hold the grease cartridge with drive unit



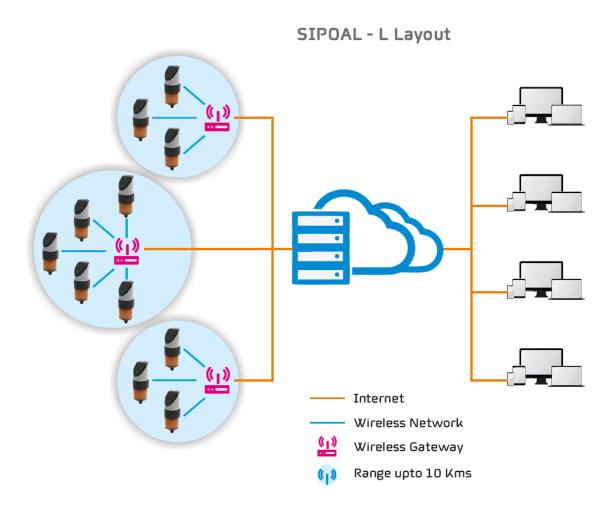
2. Working

SIPOAL-L are enabled with Sensors which connects to Wireless Gateway exclusively installed in the factory premises from where it connects the user thru Smartphone / Computer to program, monitor, control and manage the data of installed SIPOAL-L remotely.

Wireless Gateways are designed to connect battery operated 'things' to the internet in regional, national or global networks and targets key Internet of Things (IoT) requirements such as bi-directional communication, end-to-end security, mobility and localization services. Network range – upto 10 Km.

All SIPOAL-L devices installed in the industry premises connects with Wireless Gateway at frequent intervals of time in a day and exchange the bi-directional data between SIPOAL - L and the user.

During the connectivity, each SIPOAL-L sends the performance data of its functionality, lubricant level, battery level and respond to reset its program or pause / resume according to the updates received from the user, if any.





3. Specifications

Type : Electromechatronical Single Point Lubricator

Description : IoT based Fully Automatic Lubricator enabled with Wireless technology

(network range: 10 Km depends on environment)

Activation : Power Button and Remote – Thru Smartphone or Computer on the spot

Monitoring : Remote – Thru Smartphone or Computer from anywhere globally

Control : Remote – Thru Smartphone or Computer from anywhere globally

Database Management : Realtime management thru Cloud based Application & Exclusive Mobile

Application

Drive : DC Motor

Power Supply : Inbuilt 2600 mAh Lithium Battery (Rechargeable Type)

Recharge Pin : Type C

Permissible Lubricants : Greases upto NLGI 2 Grade

Dispensing Period : 1 Day to 12 Months

Pressure Generation : 5 Bar. (Max. 10 Bar)

Operating Temperature : -10 °C to +60 °C

Housing : Plastic

Cartridge Type : Reusable

Type of Refilling : Manually by cartridge refilling kit

Cartridge Volume : 120 ml / 240 ml

Approx. Weight : 510 Grams (120 ml) / 590 Grams (240 ml)

Multipoint Lubrication : Supply of Lubricant to 2 points (max). Applicable only for NLGI-0.

Remote Installation : Single Point - Upto 5 meters (16 ft) with 06 tube

Dual Point - Upto 2 meters (6 ft) per point with 06 tube (Up to 4 lube

points)

Protection Class : IP 65



4. Applications

Key Industrial Machine Elements Key Industrial Machines

Roller & Sliding Bearings Electric motors

Linear / Sliding Guides Pumps

Threaded Spindles Conveyors

Open Gears & Chains Drives

Robots

Cranes / Lifting systems

Cam & Followers

Blowers & Fans

Applicable Industries

Automotive Sewage Treatment Plants

Textile Recycling Plants

Steel Printing

Food and Beverage Metal Fabrication

Pulp & Paper Pharmaceutical

Cement Petrochemical

Construction Wind Turbines

Mining & Quarrying Refineries

And suitable for any type of Industries wherever friction management is requirement



5. Product Characteristics

Performance Monitoring thru Web application / Smartphone -

Each SIPOAL-L installed in an industry can be connected thru Mobile phone / Computer by wireless technology and data can be stored in cloud by internet. By this, all the SIPOAL-L can be remotely monitored, can trigger notifications immediately in case of any abnormalities, can exchange the performance data and can be controlled remotely thru Mobile phone / Computer.

Cloud Based Data processing -

Data of each SIPOAL-L installed in an industry like time settings, cartridge size, lubricant level, refilling time, battery level, etc. can be sent to cloud thru wireless technology and it can be retrieved at any time thru Mobile phone / Computer from cloud by internet. Hence, no need to maintain the data manually in a register or computer and to check the data frequently so as to find out the refilling date & battering recharging of each SIPOAL-L installed in an industry.

Remote Control Options -

Each SIPOAL-L can be remotely programmed, initiated, hold or kept on pause state during the plant shut off time or holidays thru wireless technology and internet.

Rechargeable type Drive Unit -

Rechargeable type lithium battery has been provided that can be recharged thru TYPE-C charger which eliminate change of batteries like in other conventional LUBRICATORS.

Refillable type Cartridge -

Lubricant Cartridges has been designed to perform refilling the lubricant which eliminates the replacement of cartridges once the lubricant is exhausted.



6. Charging

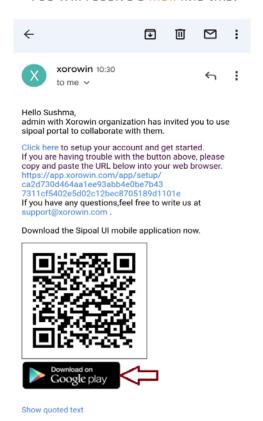
Before operating the system, charge it through the charging port. Green Led will glow while the device is in charging and Red Led will glow when the charge is full.



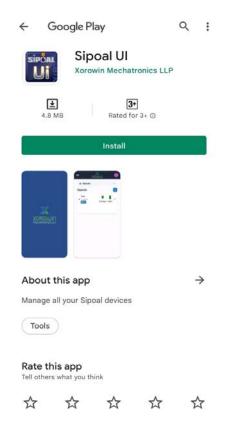


7. App Installation

You will receive a mail like this:



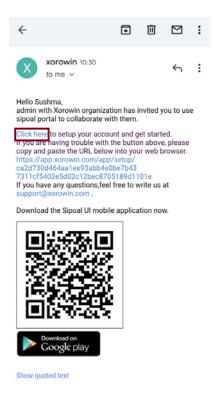
Click the download on Google play button to install the App:



xorowin.com



After installing the App, again go to the mail and click on click here to go to the account setup page:



a. Account Setup

You can set up your account here:



After setting up your account, you will be redirected to the login page:





Note:

Roles available:

- 1. SIPOAL Admin
- 2. SIPOAL User

Rights for SIPOAL Admin:

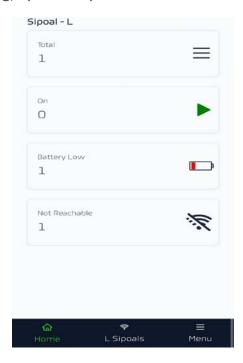
- Can view& edit & control all the SIPOAL devices in their organization.
- Can view & edit all the gateways in their organization.
- Can receive notifications when gateway status changes.
- Can create new departments and assign SIPOAL devices and users to those departments.
- Can create new users and manage them.
- Can manage their organization profile.
- Can edit user profile.

Rights for SIPOAL User:

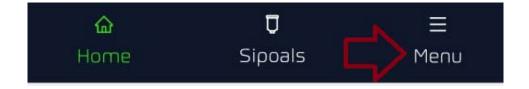
- Can view & control the SIPOAL devices which are assigned to their departments or SIPOAL devices which are not assigned to any department. Users cannot edit the details of the SIPOAL devices.
- Can view all the wireless gateways in their organization. Users cannot edit the details of the wireless gateways.
- User can edit user profile.



After logging, by default you will be redirected to Homepage



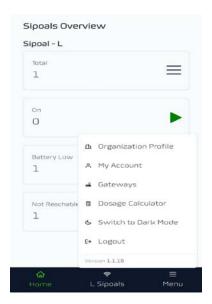
First Click on the Menu bar to update your organization details:



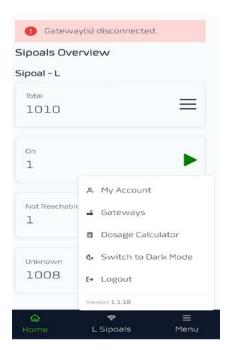


8. Menu Bar

Available options in menu bar for SIPOAL admin role:



Available options in menu bar for SIPOAL User role:



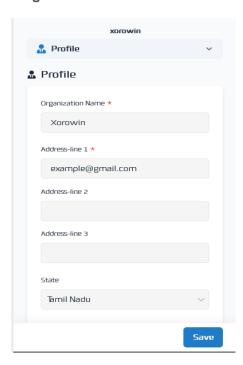


a. Organization Profile (only for SIPOAL Admin Role):

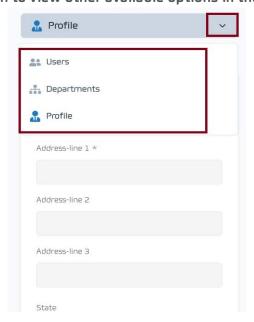
In this section, three options are available.

- i. Profile
- ii. Departments
- iii. Users
 - i. Profile:

In this section, details of the organization can be filled.



Click on the drop-down to view other available options in the organization profile:



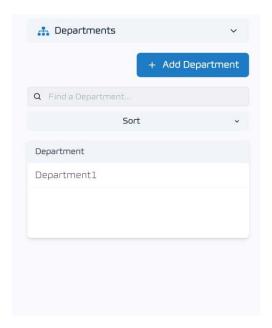


ii. Departments:

Departments can be used to group SIPOAL devices and users. Departments can be assigned to SIPOAL users, which restrict them from viewing SIPOAL devices of other departments. It can be used to filter SIPOAL devices on the SIPOAL list page.

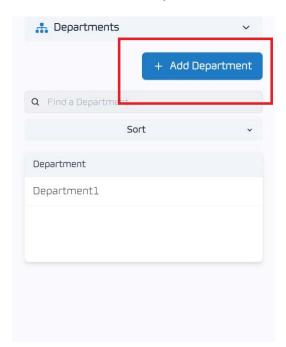
1. Department List:

Here you can see the list of available departments.



2. Adding a new Department:

Click on add department to add a new department.



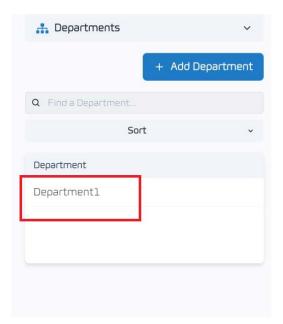


Enter the department name and click on add department button to add the department.



3. Editing/Deleting an existing department

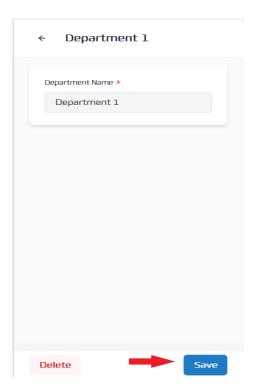
Click on the department which you want to edit/delete.



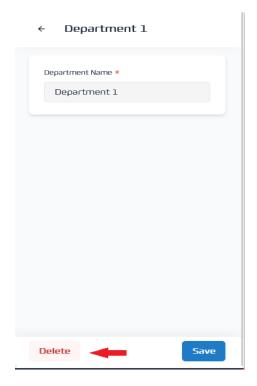
Here you can edit the department name and click on save to save the changes or you can delete the department using delete button.



To edit



To delete



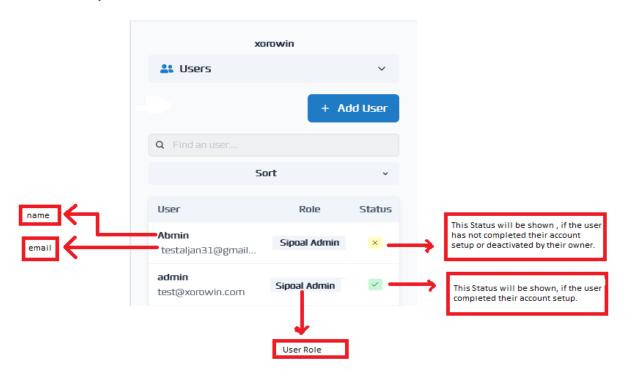


iii. Users

In this section, you can manage all your users.

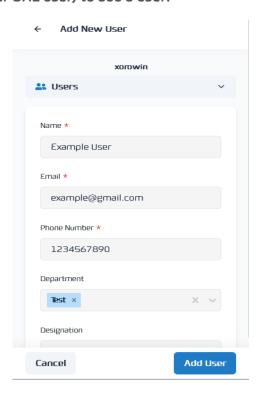
1. User list

Here you can see list of available users.



2. Add User

Here you should fill the user details like name, email, phone number, and assign a role (SIPOAL admin/ SIPOAL user) to add a user.



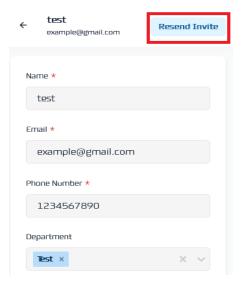


Note:

- If SIPOAL admin user role is given, then that user can see all the SIPOAL devices regardless of the department that user assigned to.
- If SIPOAL user role is given, then that user can only see the SIPOAL devices which are not assigned to any department or SIPOAL devices which are assigned to their department (departments can be assigned using department field).

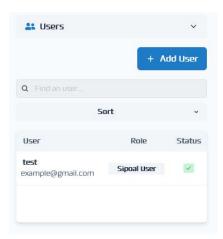
3. Resending user Invitation

A newly created user has to complete their account setup before 48 hours. If it is not done, a new invitation email has to be sent using resend invite button available on the top right corner of the user edit page.



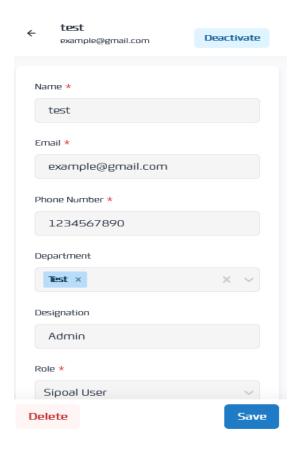
4. Editing an existing user

Click n the user which you want to edit.



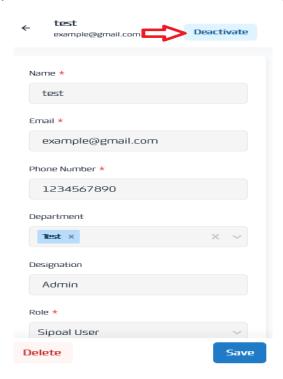


Here you can edit the details of the user and click save to save the changes.



5. Activate/Deactivate an existing user

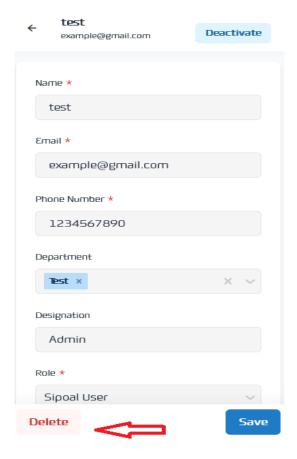
The deactivate option can be used to restrict users from logging in.





6. Deleting an existing user

Click the delete button to delete the user.



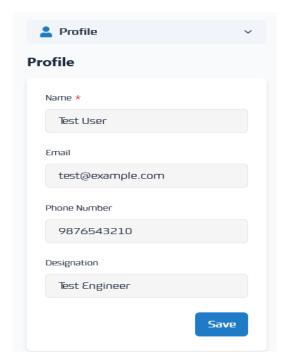
Note:

If the user deleted, then you have to contact XOROWIN MECHATRONICS LLP to enable that user again or that e-mail id again..

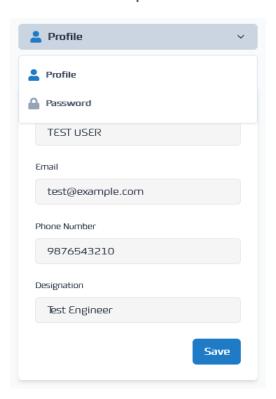
b. My Account

In this section, you can edit your name.





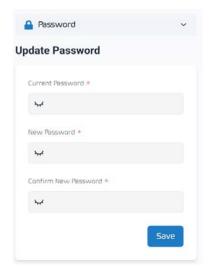
Click on the profile drop-down to see other options:



i. Update Password

In this section, you can update your account's password.

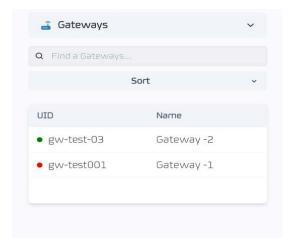




c. Gateways

i. Gateway List Page

Here you can see all your gateways.



ii. Viewing an existing gateway

Click on the gateway which you want to edit



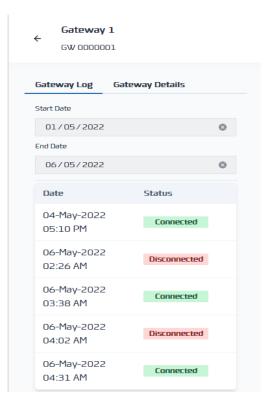


Here you can edit the name of the gateway:



iii. Viewing an existing gateway log

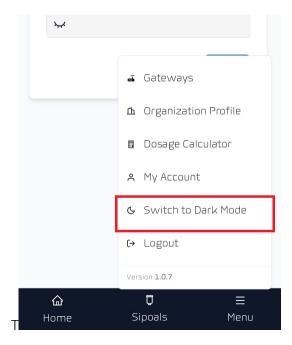
Here you can see the gateway connection and disconnection status details.





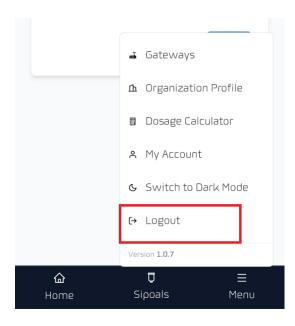
d. Switch to the dark mode

If user clicks the Switch to dark mode option, it will switch the app to dark mode.



e. Logout

It will log out your account and redirect you to the login page

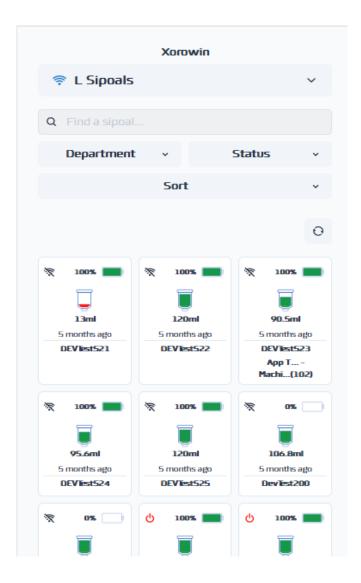




9. SIPOALS – List Page

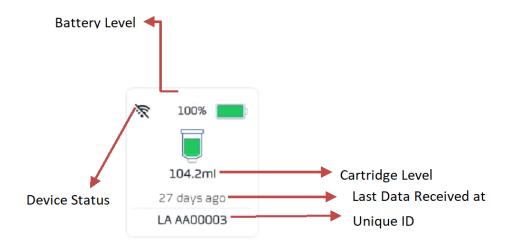
Click on the Sipoals icon to go to SIPOAL list page:





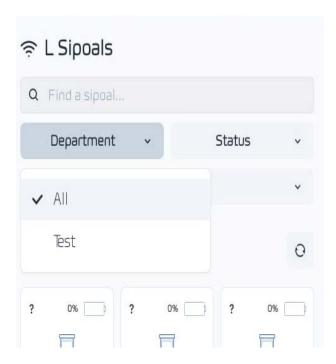


a. Available Details



b. Department filter

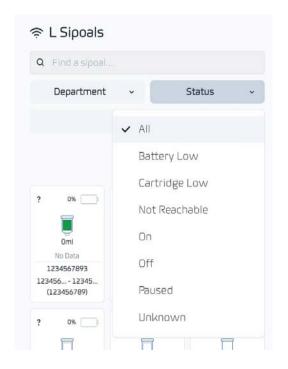
Individual departments can be selected to view the respective devices that are assigned to the department. If All Option is selected, all SIPOAL devices will be displayed.



c. Status Filter

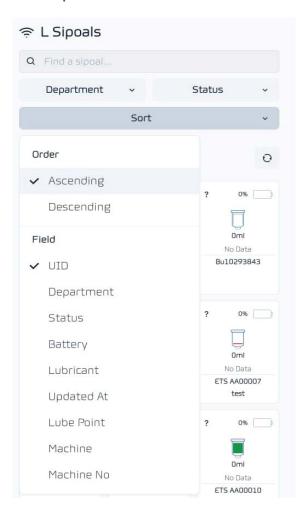
By using this filter, we can filter the devices by their status. If all option is selected, all devices will be listed or you can select a specific status to see the devices with that particular status.





d. Sort

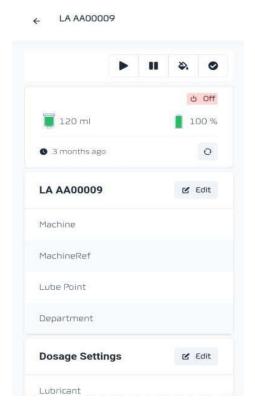
We can arrange the devices in specific order with these fields.





e. Device Details

If you click on a device, the below details will be shown.



i. Turning ON the Device

If the device is in off mode, the user has to press the button one time and LED will glow 1 time and then user have to press the button 4 times within 10 seconds. In the 10^{th} second, the Sipoal device enters ON mode. Here, the LED will glow three times.

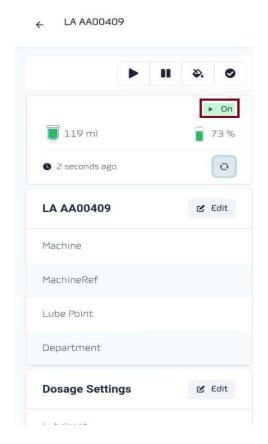


Note:

If the button is not pressed for 4 times within 10 seconds, the device will go back to OFF mode again. If user wants to turn on the device, the user has to follow the above procedure.



If the device is properly turned on, the device status will be updated as ON like below.



ii. SIPOAL Commands

You can perform operations like play, pause, validate on your SIPOAL device and you can update the SIPOAL device as refilled.

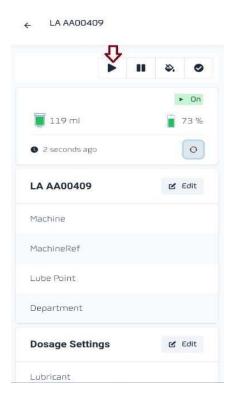
Note:

- If you want to perform the operation immediately, you have to press the button in the SIPOAL device 3 times or you can wait until the next data transmission interval from the SIPOAL device.
- The device can accept only one command at one particular time. So, the last performed action will be updated on the SIPOAL device.



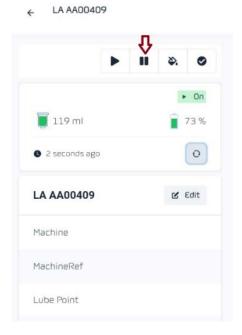
1. Play (Start the lubrication process)

Users can able to start the lubrication process by clicking the **start** tab as shown below. The lubrication process will start when the device processes the command and will start to apply lubricant as per the given dosage settings. Whenever the lubrication process happens, the LED will glow simultaneously.



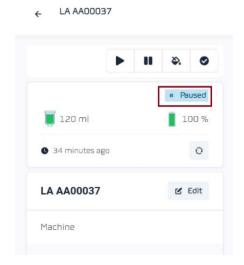
2. Pause (Stop the lubrication process)

User can able to stop the lubrication process by clicking the pause tab as shown below.





When the device accepts the command, the device status will be updated as Paused.



3. Refill (Cartridge)

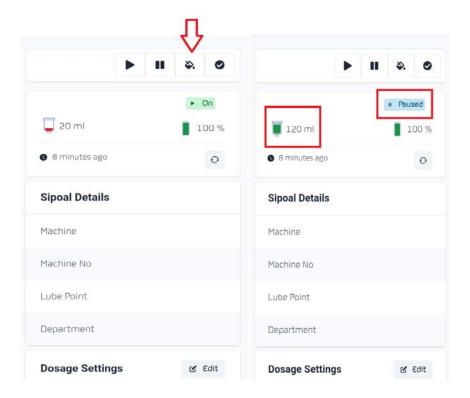
Cartridges Filling:

Cartridges can be filled and reused. Available sizes - 120 ml.



To Reset the Dosage value, the user has to click the **refill** tab as shown below. After resetting the lubricant level, SIPOAL device will go to PAUSE mode and the lubricant level will be updated as 120 ml.

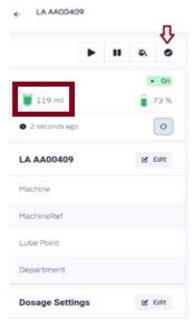




4. System Validation

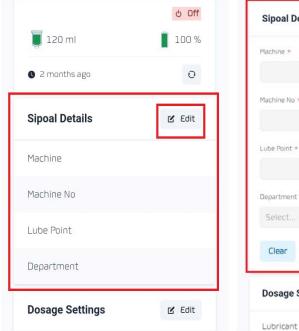
Users can able to validate the device by clicking the Validation tab as shown below. Users can validate the below points,

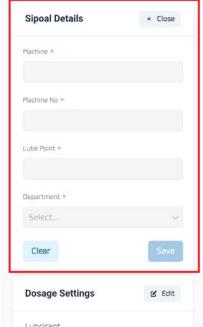
- Lubrication process will happen for 1 ml and the LED will glow simultaneously.
- After the Lubrication process, the Lubricant value will be decreased by 1 ml.





5. SIPOAL Details

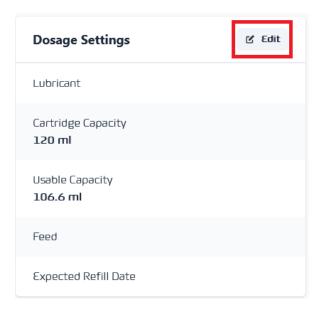




These details can be used for your reference. The details will be shown on the SIPOAL list page, it will help you to identify your SIPOAL devices easily.

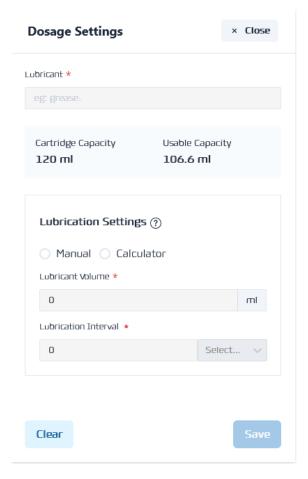
6. Dosage Settings

To calculate dosage, select **Edit** tab in Dosage settings as shown below.





You have to fill the below fields to change/set the dosage settings in the SIPOAL device.



- 1. Lubricant is the type of the lubricant which will be used.
- 2. Cartridge capacity is the capacity of the cartridge.
- 3. Usable Capacity is the capacity which can be used for the lubrication process.
- 4. Lubrication Settings:

These are the settings recommended by the machine manufacturer.

Types of lubrication settings:

- Manual
- Calculator

Manual:

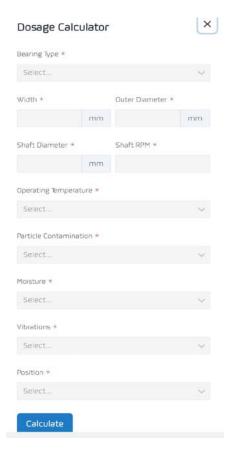
This calculation may be used when your machine manufacturer recommends you to use a specific amount of grease for a certain period or when you have your own calculated values. For example, if you want to use 30 ml for 10 days. You have to fill the form like shown below.





Calculator:

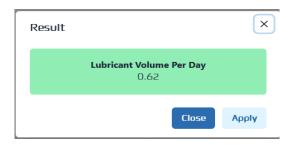
The calculator can be used to calculate the lubricant volume per day by entering the lubrication point details



Fill the parameters to calculate Dosage in ml

- 1. Bearing Type Select one of the following type
- 2. Width in mm
- 3. Outer Diameter in mm
- 4. Shaft Diameter in mm
- 5. Shaft RPM
- 6. Operating Temperature
- 7. Particle Contamination
- 8. Moisture
- 9. Vibrations
- 10. Position

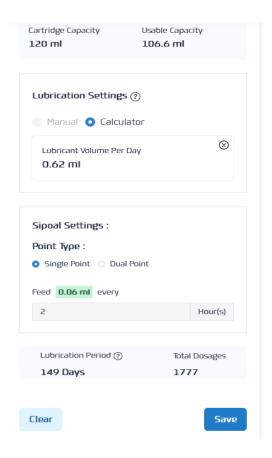
When you enter appropriate values, the result will show like below



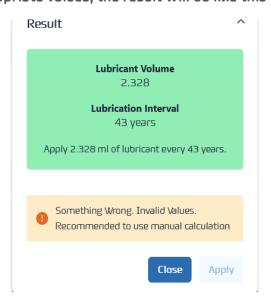


Click on apply to use this value.

The dosage form after applying the value will be like below. You can edit feed intervals according to your requirment



When you enter inappropriate values, the result will be like this





So, you have to use manual calculation and enter the volume of lubricant and lubrication interval recommended by machine manufacturer and then you can edit the feed interval as show below



Point Type:

Point type is used to mention the number of lube points the Sipoal device has to apply the lubricant.

Available point type options:

- Single Point
- Dual Point

Feed Volume:

Feed Volume is the amount of lubricant will be applied.

Feed Interval:

Feed Interval is the interval between each lubrication process.

Lubrication Period:

Lubrication period indicates the days that usable capacity (ml) will be used. After that, the cartridge has to be refilled.

Total Dosages:

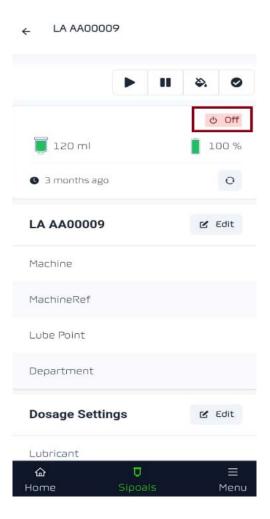
Total Dosages indicate the count of the lubrication process.

Fill all the above fields and click save to set these settings to your SIPOAL device.



iii. Turning OFF the Device

Users can able to put the device in off mode by pressing the button 8 times within 10 seconds. At the end of the 10th second, led will glow 2 times and the status of the device will be updated as OFF as shown below. After two minutes the LED will glow 2 times.



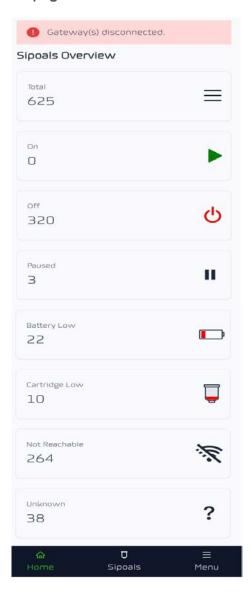


10. HOME Page

Click on the **Home** icon to go to home page:



You will be in the home page.



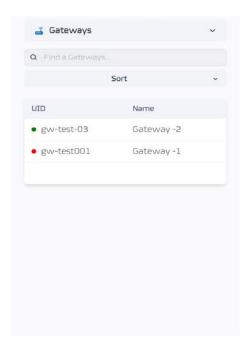


a. Gateway Notification



This message will be shown, if any of your gateway is disconnected. If you click on this message, it will take you to the gateway list page.

i. Gateway List



b. SIPOALS Overview

i. Total Count



- 1. Total number of SIPOAL devices will be displayed here.
- 2. Click this to view all the SIPOAL devices.



ii. ON Devices

When the device is ON, the lubrication process is happening.



- 1. Total number of ON SIPOAL devices will be displayed here.
- 2. Click this to view all the ON SIPOAL devices.

iii. OFF Devices

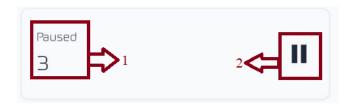
When the device is OFF, the device will not send data to cloud.



- 1. Total number of OFF SIPOAL devices will be displayed here.
- 2. Click this to view all the OFF SIPOAL devices.

iv. Paused Devices

When the device is paused, the lubrication process is paused.



- 1. Total number of paused SIPOAL devices will be displayed here.
- 2. Click this to view all the paused SIPOAL devices.



v. Battery Low Devices

It indicates the devices which have battery less than 20 percentage.



- 1. Total number of Battery Low devices will be displayed here.
- 2. Click this to view all the Battery Low devices.

vi. Cartridge Low Devices

It indicates the devices which have Cartridge level less than 20 ml.



- 1. Total number of Cartridge Low devices will be displayed here.
- 2. Click this to view all the Cartridge Low devices.

vii. Not Reachable Devices

The devices are considered as Not Reachable, when the device didn't send data for the last 3 data transmission interval.



- 1. Total number of Not Reachable devices will be displayed here.
- 2. Click this to view all the Not Reachable devices.



viii. Unknown Devices

The devices are considered as Unknown, when no data received from the device yet.



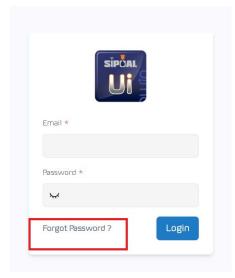
- 1. Total number of unknown devices will be displayed here.
- 2. Click this to view all the unknown devices



11. Forgot Password

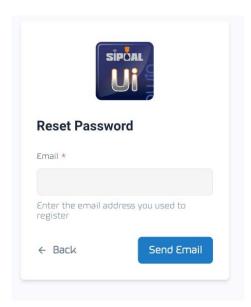
User can request to reset their password when they forgot their password.

If you click on forgot password, it will take you to reset password page.



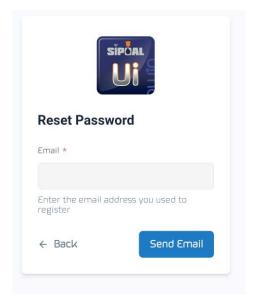
11.a Reset Password

Enter your email ID which linked with this account and click on send email to receive reset password email.





Enter your email ID which linked with this account and click on send email to receive reset password email.



Note:

You have to reset the password within 48 hours from receiving the email. If not, you have to request again for resetting the password.











Manufactured by

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