mecc alte

SMARTECH

POWER FROM WITHIN

SMARTCLOUD

TECHNICAL MANUAL

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Revision	Date	Notes
00	4/11/2024	First version of the manual for the version 1.2.0 of the application.
01	29/10/2025	Updated with new functions of the version 3.0 - Support for CL100 gateway - Support for DC250 controller - Geotracking unit movement visualisation from saved data - Support for advanced plant commands - Customizable data export with automatic periodic emails or manual send - Reading analog and digital input/output statuses General system optimizations and improvements
02	26/2/2026	Updated with new functions of the version 3.5 - Support for GC250 Plus - Event log export - Improved communication stability - Optimization of commands functionality General system optimizations and improvements Added views: Engine Canbus, AVR, Service, Power/Energy

Table of Contents

1 Application purpose and features

SMARTCLOUD application allows users to connect, continuously monitor and control multiple supported Mecc Alte controller units in the cloud.

These features were added or updated in **version 3.5**

- Support for GC250 Plus
- Event log export
- Improved communication stability
- Optimization of commands functionality
- General system optimizations and improvements

These features were added or updated in **version 3.0**

- Support for CL100 (gateway)
- Support for DC250 controller (Applications: Auto Start, Drive, Lighting tower)
- Customizable exports for one or multiple units Operational or Combined data from database, sent on demand or with selected period through emails. XLSX and CSV formats supported
- Units I/O configuration and values in Unit detail -> Values -> Input output
- Extended controls for units – Emergency Stop engine, Operating mode change, full Breakers control, Speed regulation, Lamps on/off. Commands logged to Event log.
- Map overview of units movement saved to database with selectable period and possible location data export to CSV.
- New user level Operator with limited access to unit commands

Application in **version 1.2.0** features following functionality

- Dashboard with overview of registered units and its events
- Detailed unit view with many operational values and map
- Trends and history graphs for registered units
- Fully customisable data-saver option for limiting data usage
- Selected controls for unit - Acknowledge and reset alarms, Start and Stop engine
- Different connection options - Cloud Link, direct IP and gateway controllers
- Real-time event monitoring and history log
- Notification system with customisable message groups and whitelist
- Live map of registered units with operational values overview and advanced filtering
- User management system with multiple access levels

1.1 Supported controllers

With version 3.5 application additionally supports following controllers

- **GC250 Plus**

With version 3.0 application additionally supports following controllers

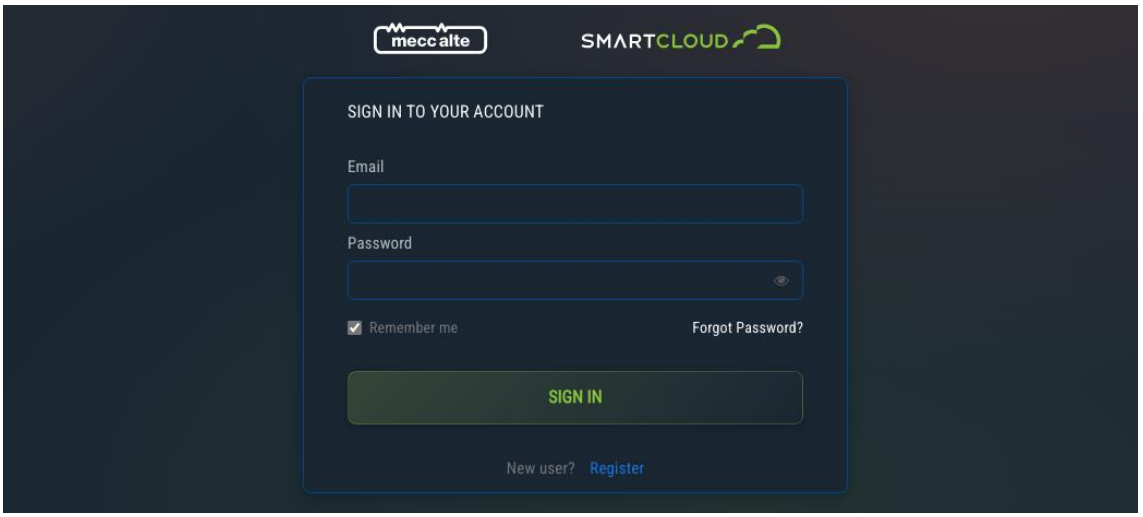
- **CL100** in gateway mode, multiple connected controllers supported
- **DC250**

With version 1.2.0 application supports following controllers

- **GC250**
- **GC315**
- **GC400**
- **GC600**
- **GC800**
- **DST4602**
- **HS315**
- **Rewind3** in gateway mode, multiple connected controllers supported

2 Access to SMARTCLOUD

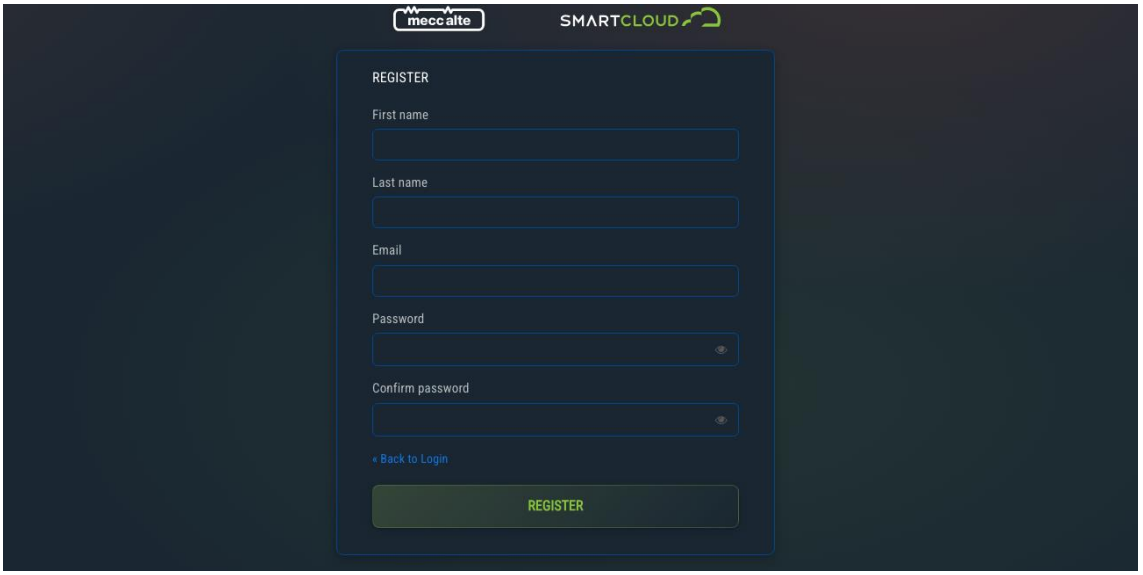
Application is running on the web address https://smartcloud.meccalte.com and users will need a registered account to use it. Registration is free of charge and requires only a unique email address not used yet in the system.



2.1 New user registration

Anyone can register an account for **SMARTCLOUD** free of charge, users need to provide a **valid email address.** After the registration, email is sent to the user's mail with a verification link. It must be opened to **validate the user's account** and complete the registration. Without validation, the account is not activated and usable.

- Email must be unique and unused in the system.
- Password requires minimum of 8 characters, including uppercase, number and special character (like @#$~^&* or similar)

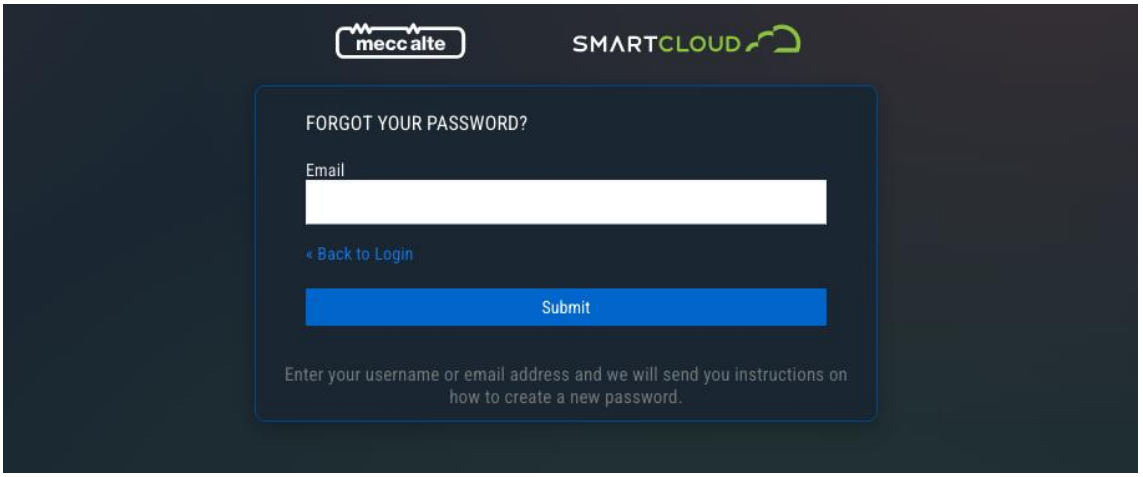


2.2 Password and security recommendations

- User are responsible for the use strong and unique passwords for their SMARTCLOUD account.
- It is strongly recommended to avoid sharing user account credentials with others.
- Users should keep their device software and operating system up-to-date
- Users should be cautious of phishing attempts and other online scams
- Users should report any suspicious activity to Mecc Alte immediately.

2.3 Forgotten password

In case a user loses his password, it could be reset with this functionality. Verification email is sent to the user's email address to validate change.

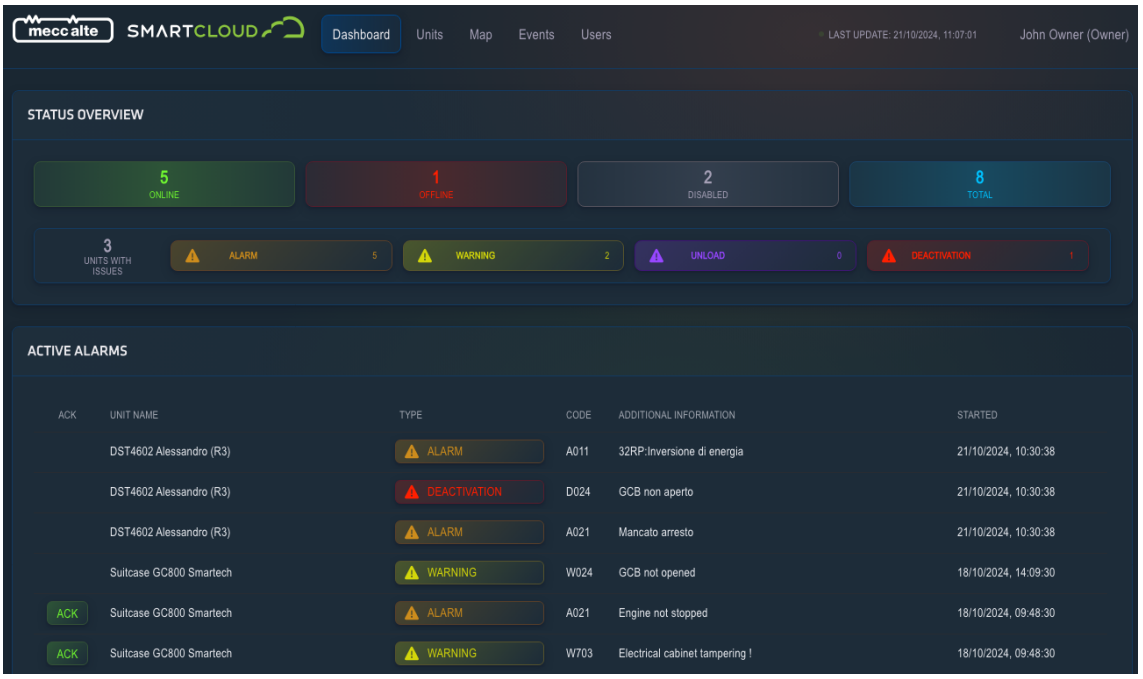


2.4 Logging in and out

With a valid account users can login by providing the correct combination of email address and password. Note that users are automatically logged off from the system after a period of inactivity.

3 Application Dashboard

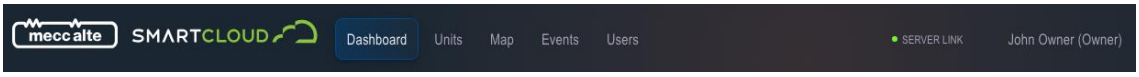
After logging in, the user is automatically forwarded to the application's Dashboard. It provides a live overview of all registered units statuses and list of active alarms.



3.1 Connectivity indicator

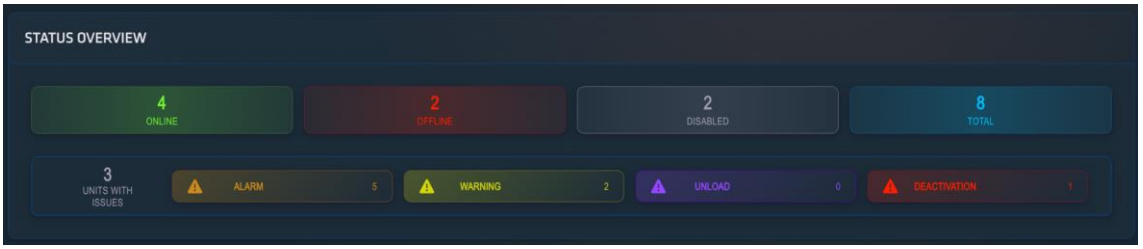
In the top right corner next to the logged in user is a data connection indicator. It shows a green, slowly blinking dot signalling that the application is receiving data from the server together with the time of last update. In case of connectivity loss, where SMARTCLOUD doesn't have access to the internet, the indicator changes to a red dot.

Note: that until the user adds at least one unit, the indicator stays red because there is no data to send.



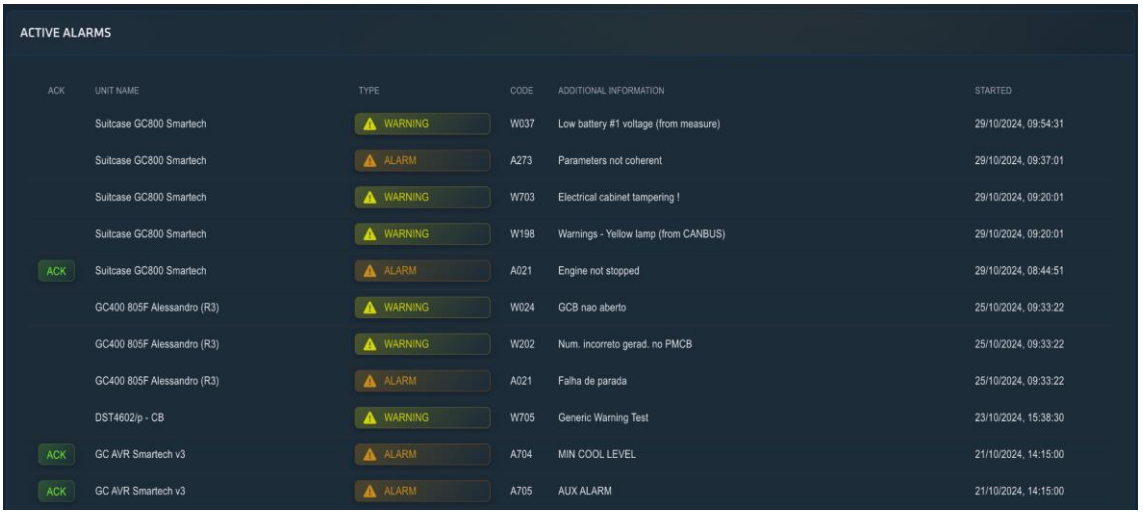
3.2 Status overview

Buttons in Status overview gives user information about registered units in the system. It shows the total number of controllers in different states. It also gives the user overview about units with issues that require attention. Clicking on buttons will forward the user to the appropriate section of the Unit list.



3.3 Active alarms

List of all active alarms on all connected units. This list shows only active and actually present alarms, it is not a log of past events. Clicking on the selected alarm shows affected Unit detail.
Alarms marked with **ACK** are already acknowledged.



4 Unit list

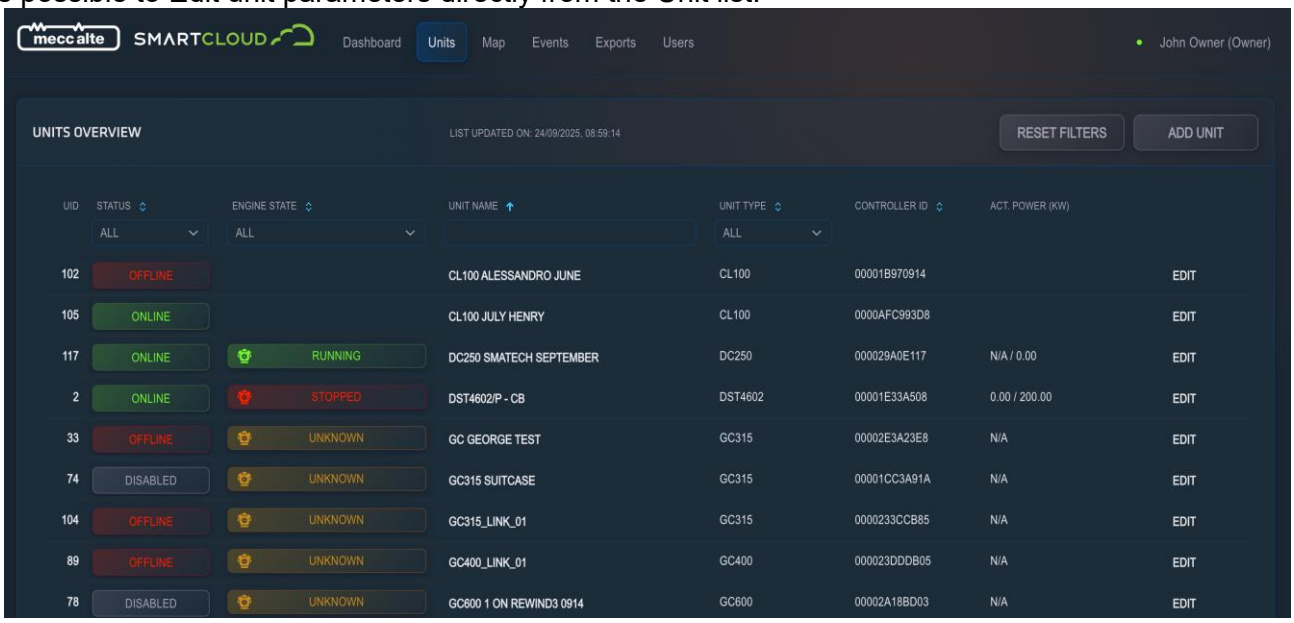
Here users can find a list of all devices registered in the system. Each unit is listed with its basic information and state. This list is not updated automatically, users can refresh it manually with the reload button. Clicking on the **Unit name** goes to the Unit detail screen.

Listed units' connection status signalisation, which are

- **Online** - application is reading data in each defined cycle and everything is working as intended.
- **Offline** - application is not receiving data from the unit within a defined time frame. This period is related to data update speed defined in the Data-saver setting. Detection starts with a 2-minute period for units with faster update rate and goes to twice the update interval where it is longer than 2 minutes.
- **Disabled** - units have disabled communication in the SMARTCLOUD application's Unit edit dialog. Technically the unit is still running, just the application is not reading any data and communication is stopped. Previously saved data is stored in the database, but nothing new will be added until the unit is enabled again.

Engine state is based on the **Engine management flag** register.

It is possible to Edit unit parameters directly from the Unit list.



5 Adding new or editing existing unit

This dialog allows users to fill in all required connection parameters for the new unit. During the process connection could be tested and verified. But units could also be added offline and communication started later.

5.1 Supported controllers

As of version 3.0 SMARTCLOUD supports following controllers

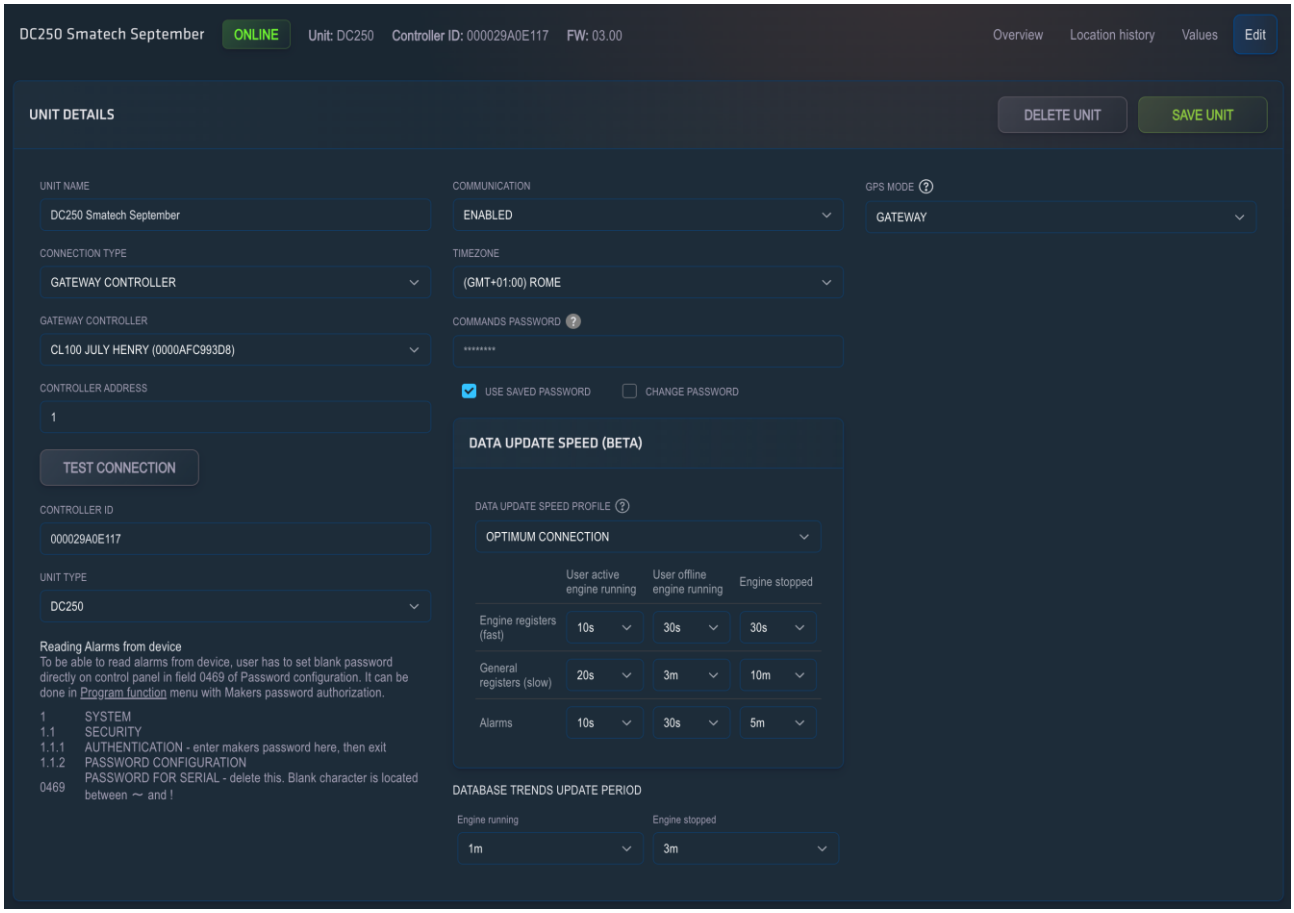
- **DC250**
- **GC250 Plus**
- **GC315**
- **GC400**
- **GC600**
- **GC800**
- **DST4602**
- **HS315**
- **Rewind3** in gateway mode, multiple connected controllers supported
- **CL100** in gateway mode, multiple connected controllers supported

5.2 Required controller settings

For the application to be able to read alarms from the device, one specific setting on the control panel called **PASSWORD FOR SERIAL PORTS** must be disabled. To achieve that, the user must set a blank password directly on the control panel in field **0469** of **Password configuration**. It can be done in the **Program function** menu with **Maker's password** authorization.
Here is the general guide on how to do it, it could differ a little bit depending on the device used.

Go to PROGRAM FUNCTION menu and follow the instructions
1 SYSTEM
1.1 SECURITY
1.1.1 AUTHENTICATION - enter makers password here, then exit
1.1.2 PASSWORD CONFIGURATION
0469 PASSWORD FOR SERIAL PORTS - this must be empty.
There is no delete button of functionality, all characters must be overwritten by blank characters.

Blank character is usually located between ~ and ! in the character list.



5.3 Supported connection types

- **IP Address** - direct connection to public IP address. Used in combination with a specific Port. No username or password is required. Unit must be reachable on this combination of IP and Port from the internet. Internal network addresses are not supported for this type of connection unless there is advanced port mapping on the network router. Refer to your IT support.
- **Cloud Link** - preferred connection type supporting any type of network. Unit could be connected behind the router on the internal network or on the public internet. Required parameters are Channel ID, Cloud Link user and Password.
- **Gateway controller** - special connection type used in combination with Rewind3, CL100 and similar types of gateway controllers. New unit will use a connection defined by the gateway controller. Gateway has to be registered first, then it is listed as an option

All connection types also require the user to fill in the **Controller address**. By default, it is set to 1, but there are special cases.

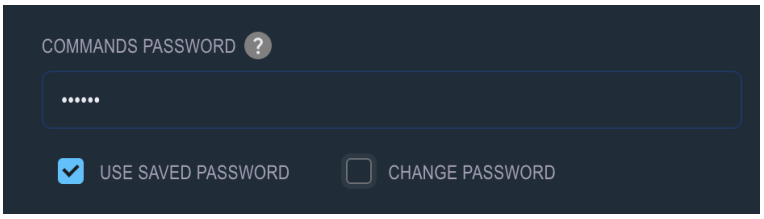
- Units connected to the gateway controller (Rewind3, CL100) could have different controller addresses as it must be always unique.
- Rewind3/CL100 is always connected on controller address 255

5.4 Unit details

- **Test connection** - when connection type is set-up, this feature allows users to verify connection and read automatically Unit type. Also gets Controller ID for unique identification of the unit. It is not required to have active connection to the unit, and it could be added without Test connection. Unit type could be selected manually and saved while the unit is offline.
- **Controller ID** - this value is read during Test connection from the active unit and allows precise identification of connected devices. Controller ID is unique for each unit.
- **Unit type** - list of supported controller types. After saving a unit, Unit type selection is permanent and cannot be changed!

5.5 Commands password

It is possible to save password required for running any command like Alarm acknowledge or reset, Operating mode change or any other. This password could be saved or changed in Unit settings and is available only for Account Owner or Administrator.
Technicians and Operators can use previously saved password by selecting USE SAVED PASSWORD, but cannot save new or change existing one.
Removing already saved password is done by selecting CHANGE PASSWORD option, leaving password empty and saving unit.



Commands could be executed even without saved password, but it must be typed in with each attempt.

5.6 Data update speed

This feature also identified as Data-saver is introduced to allow customisable data update rate for units with limited data connection. Its main purpose is to reduce communication with units according to defined conditions resulting in less data consumption suitable for limited data plans for IoT devices.

5.6.1 Conditions

System will automatically detect these conditions and change update speed for registers accordingly

- **Engine is stopped** - specific situation, where engine is switched off and genset is in standby mode. Assumption here is that there is no need for quick operational values updates, just regular checks from time to time if the engine is still stopped. Data update period is slow here.
- **User is offline, engine running** - here the genset is operational and engine is running. System is saving selected data to the database in regular intervals, but the rest of operational values that are only shown in application (but not saved), could be read at slower rate.
- **User is online, engine running** - user is actively using SMARTCLOUD and is expecting to get fresh and updated data for registered units.

5.6.2 Register groups

Application is reading about 200 registers from each registered unit, but only a few of these are stored. Also, some operational values have higher priority and need to be updated more frequently than others. So as part of Data-saver all registers are sorted into different groups.

- **Engine registers (fast)** - selected registers which have highest priority, usually engine operational values. List of these registers for each supported unit is in the manual appendix.
- **Alarms** - special register group for reading alarms from units
- **General registers (slow)** - any other registers which didn't fit into previous categories

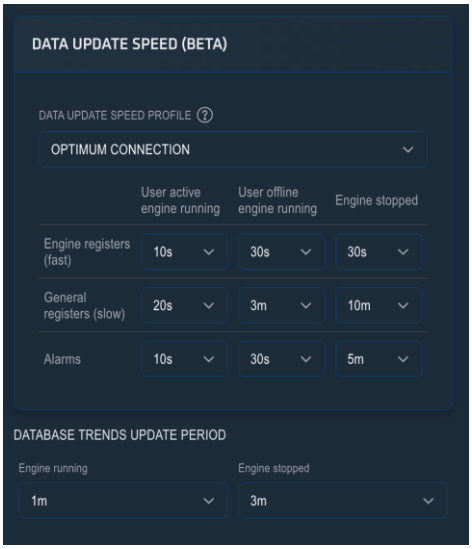
5.6.3 Database update period

These settings define how often values are stored into the database for selected registers accessible in Unit detail → Values → Trend and also available for exporting in Exports.
Users can select different update intervals for situations where the engine is running or stopped.

NOTE: While setting Data update speed for each group of registers take into consideration requested Database update period. Data update speed should be set to the same or faster rate, so the system has new data to store into database in requested period.

5.6.4 Data-saver profiles

Predefined profiles based on different models of usage. Contains settings for Conditions, Update groups and also Database update period.
Custom option allows users to modify all parameters according to specific requirements.



NOTE: When there are multiple controllers connected to the Gateway through serial link, data read speed is lowered. Units are read one by one, not in parallel.

5.7 GPS settings

There are multiple GPS location modes supported in SMARTCLOUD.

- **Manual** - coordinates are manually selected in application and are fixed. Helps users to visually locate units on the map. There is no link between Manual coordinates and actual unit's position!
- **Static** - application will try to read Permanent Coordinates set in the controller's settings. Same as with the Manual coordinates, these may or may not represent actual unit location.
- **Dynamic** - coordinates read from units GPS module, if present. This will represent the actual position of the unit.
- **Gateway** - use coordinates from the Gateway controller instead of units own GPS. Available only for units connected through Gateway

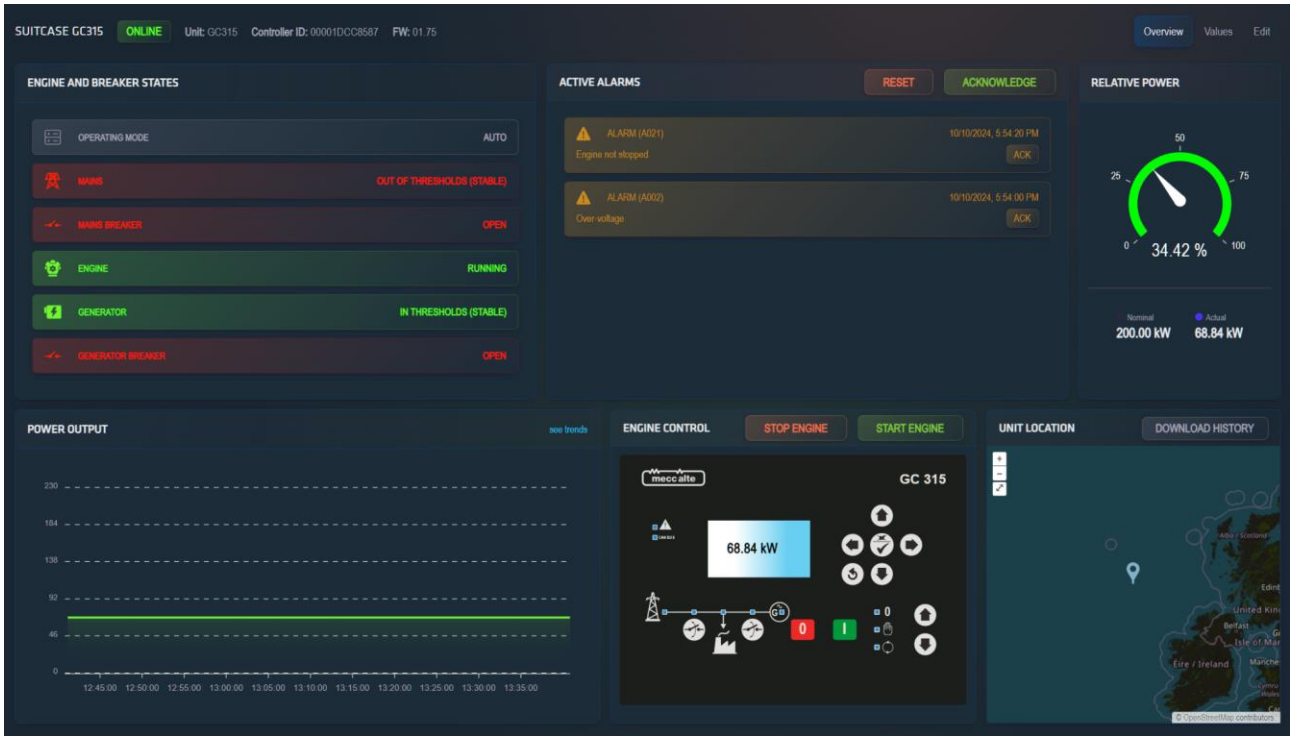
6 Unit detail

Every registered unit has its detailed view with operational information and statuses. It will show all relevant information for the unit and allows users to remotely perform selected operations. Also, an option for Edit unit's parameters is available here.

There are different layouts for different unit types.

6.1.1 All GC controllers and DST4602/p

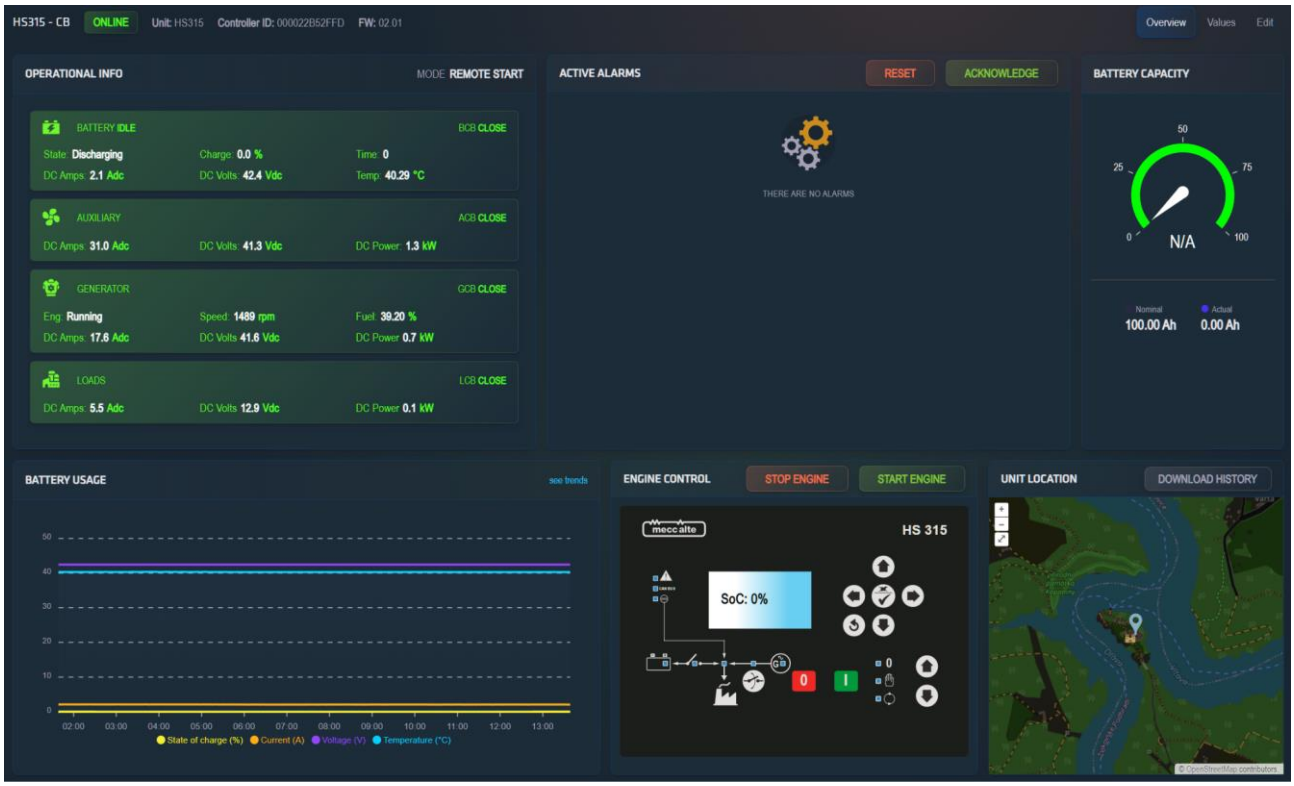
- Engine and breaker states show a general overview of the system and also about its operating mode.
- Active alarms list all events which are present on a unit with additional information about acknowledged status. Time presented next to the alarms list is detected by the server and converted to local browser time. More details about time for events in the Events chapter.
- Relative power gauge represents actual to nominal power percentage.
- Power output shows the live trend of Actual power over the last few hours.
- Engine control is the visual representation of the unit panel. There is no actual button functionality.
- Map shows unit location based on GPS settings.



6.1.2 HS315 Hybrid System Controller

- Engine and breaker states table is replaced here with Operational information. There are multiple important values for all possible connections of the HS315 controller with detailed operational values measurements.
- Instead of Actual power as on GC/DST line there is Battery capacity listed here.

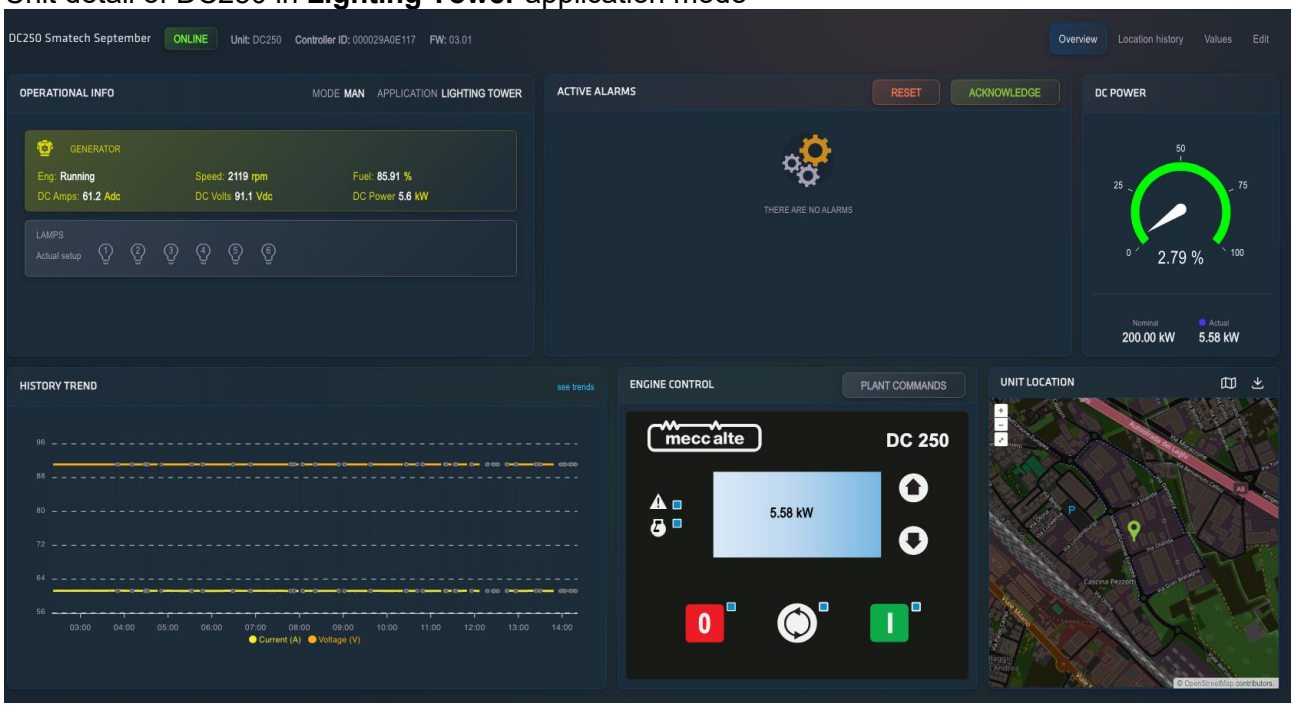
- Also, the graph is showing live battery usage for the last 12 hours with multiple operational values trends.
- Control panel image is again just visual representation with simple State of Charge information



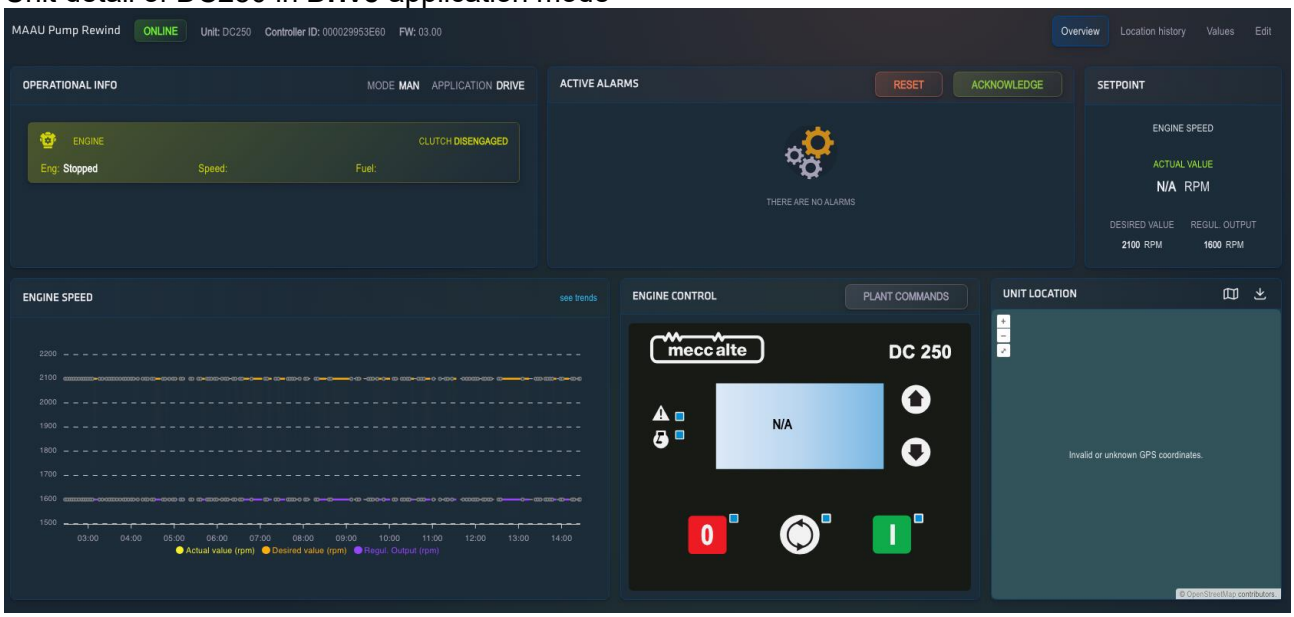
6.1.3 DC250

- Operational information changes according to actual Application type of DC250
- Trend shows last 12h of Setpoint values like its Actual and Desired value and Regul. output
- In Application type DRIVE usual power gauge is replaced with Setpoint information

Unit detail of DC250 in **Lighting Tower** application mode

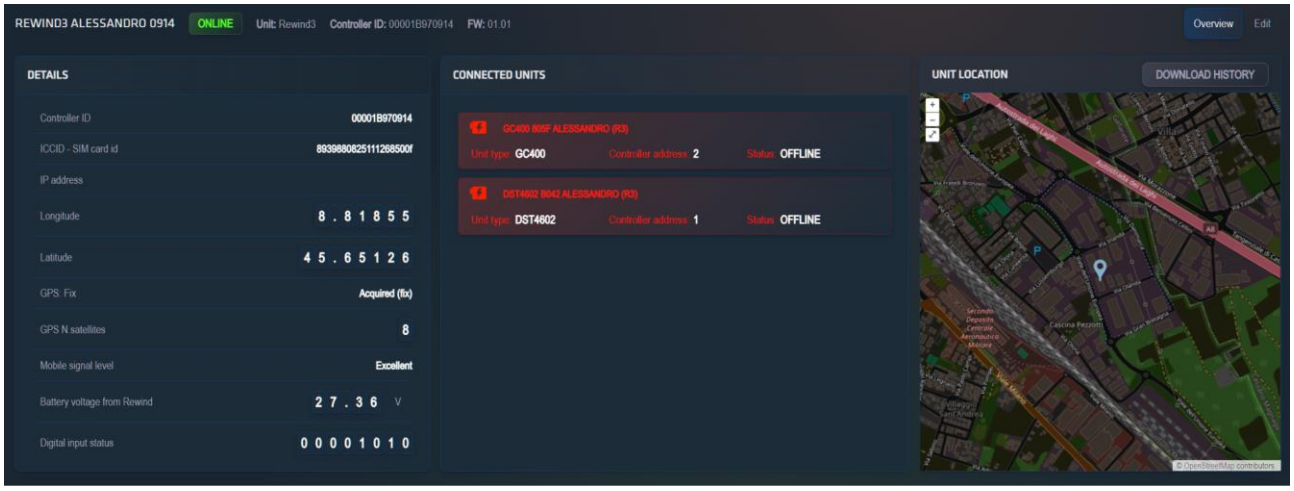


Unit detail of DC250 in **Drive** application mode



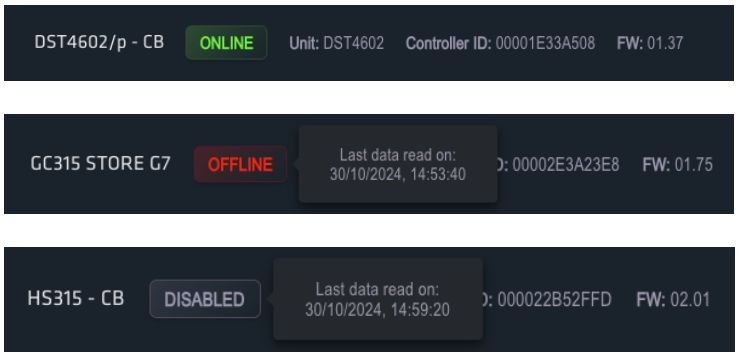
6.1.4 Rewind3 and CL100 gateway controllers

- Only basic information from the unit itself including GPS and GSM status is shown in DETAILS tab. Including simple visualization of Digital inputs statuses.
- Coordinates are shown and saved only when GPS detected accurate position and GPS fix is acquired
- Digital input status is simple visualisation of actual values
- CONNECTED UNITS box lists all connected units and its statuses. Clicking on any of these leads to appropriate Unit detail.
- There is no alarm feature supported directly on Rewind3 now, only on connected units.



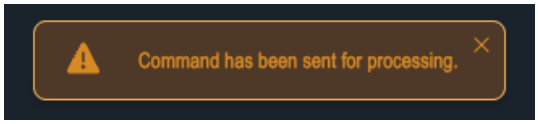
6.2 Unit connection information

There is online state information in the top left corner of the Unit detail screen next to the unit's name. It shows the actual unit online state and by hovering the mouse over it shows a tooltip with information about the last data update. It is present even on offline and disabled units, showing the last online state.

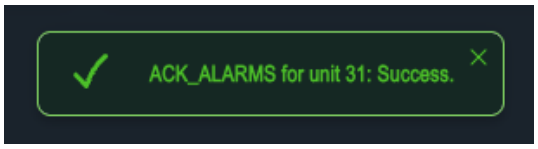


6.3 Alarm control

It is possible to acknowledge or even reset alarms present on the unit. This command requires the user to enter Password for commands (P.0004). For default password check the unit manual.
Password could be entered with each attempt or saved generally in Unit configuration.
After executing the command, SMARTCLOUD will try to send it to the unit and wait for the answer. Depending on actual connection, it could be immediate or take some time to get response.



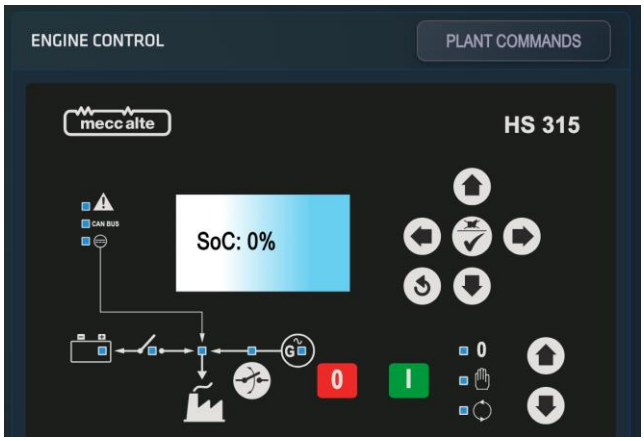
Example of successful command execution



After successful command SMARTCLOUD will attempt to automatically read fresh data from unit, so it takes some time to update information on the screen depending on connection speed and type. For units connected through Gateway with GSM it could take some time.

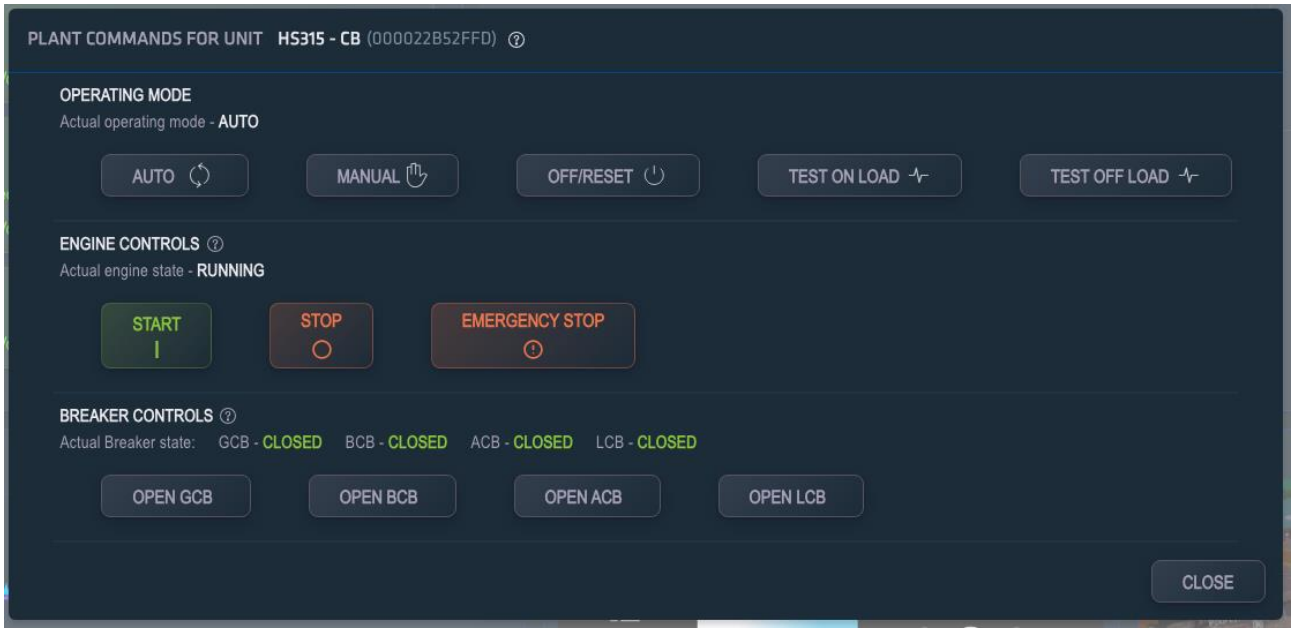
6.4 Engine control

This section visually represents control panel of the selected Controller. With version 3.0 of SMARTCLOUD, users have access to advanced controls over unit available through PLANT COMMANDS section. This is available on all supported units. Detailed description is in Plant commands section.



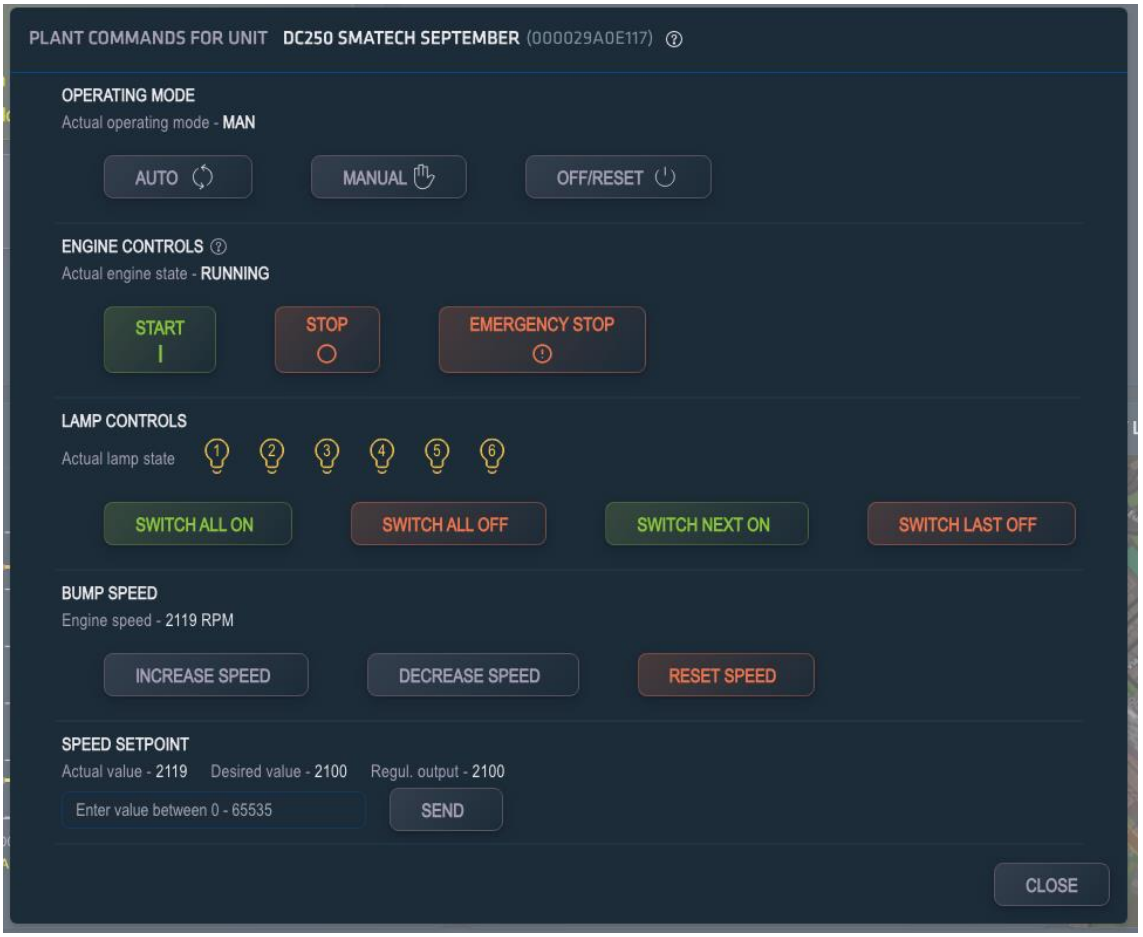
○ Plant commands

For each controller, there is available specific set of commands. This is customised depending on controller type, operating mode and specific settings in registers.



Example of available Plant Commands on HS315

Operating mode – is generally available on all controllers without any additional conditions. It can change operating modes where available, with exception of unit variants with physical operating mode change through keylock. These has to be changed manually by the key.
Engine controls – Start and Stop is available only in manual mode, Emergency stop always
Breaker/Clutch controls – available in manual mode on units where applicable
Speed regulation and **Lamp control** – specific sections for DC250 controller



Example of available Plant Commands on DC250 in Ligting Tower Mode

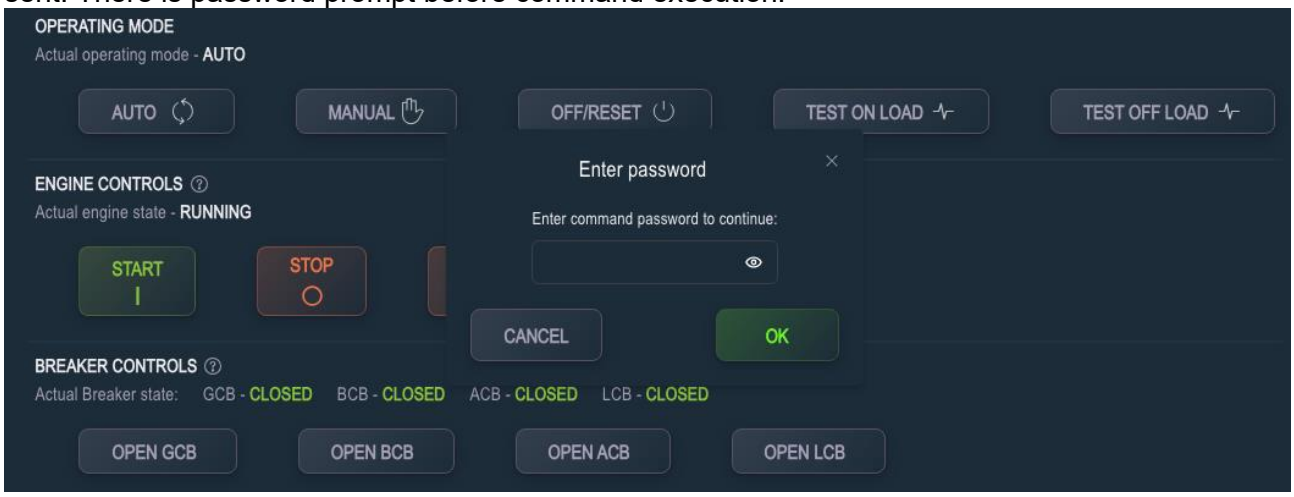
6.4.1 Password for commands

Each command must be validated by correct password. This is set on controller in the following menu

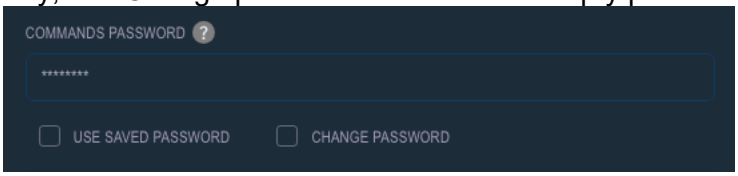
1 SYSTEM
1.1 SECURITY
1.1.1 AUTHENTICATION - enter makers password here, then exit
1.1.2 PASSWORD CONFIGURATION
0004 PASSWORD FOR COMMAND

For default value refer to the specific controller manual.

In the SMARTCLOUD application, password could be entered either manually each time command is sent. There is password prompt before command execution.

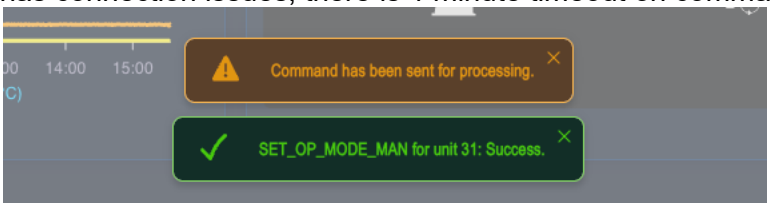


Or user can store password in the Unit configuration (Edit) page and then it will be used automatically. Only account **Owner** or **Administrator** user level can save or change the password for future use. But **Technician** can use already saved password by selecting **Use saved password feature**. To remove stored password completely, use Change password function with empty password field.



6.4.2 Commands execution process

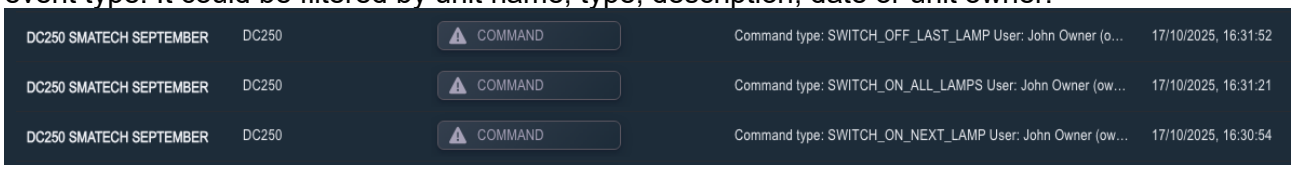
Running commands on any unit is asynchronous job and takes some time before feedback is received. After sending command, SMARTCLOUD requests command execution and Plant command dialog is locked to prevent user from sending multiple commands. During lockout SMARTCLOUD is repeatedly checking feedback from the unit. As soon as the command execution feedback is received, it is confirmed by the status message in the bottom of the screen and dialog is unlocked. At the same time SMARTCLOUD tries to read fresh data from the controller, but it takes some time depending on the connection conditions. It is recommended to wait for unit status update before issuing another command. In the case where unit has connection issues, there is 1 minute timeout on command lockdown.



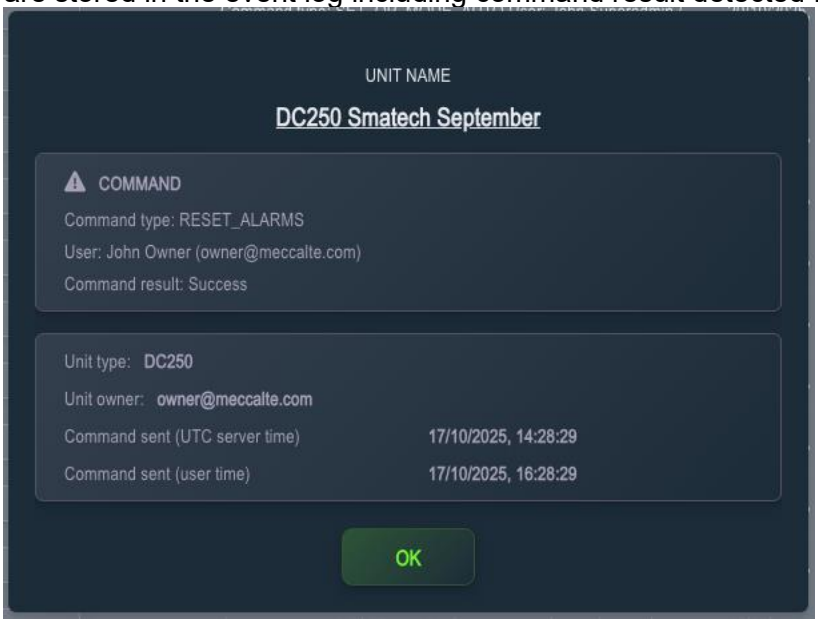
6.4.3 Commands log

Each command execution attempt is logged in the Events section of SMARTCLOUD as COMMAND

event type. It could be filtered by unit name, type, description, date or unit owner.



All necessary details are stored in the event log including command result detected from unit feedback.

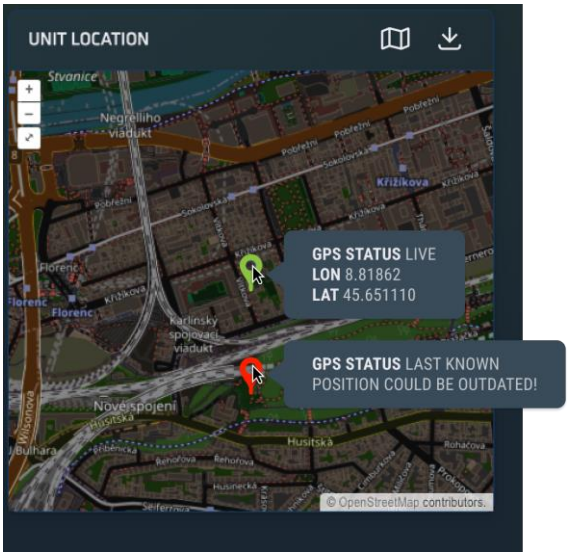


6.5 Unit location

Unit location is shown using defined GPS type in Unit settings. It is possible to set different types of location settings

- Manual – coordinates are manually defined in the SMARTCLOUD
- Static – read from fixed static registers from controller
- Dynamic – read live from controller which supports GPS functionality
- Gateway – controller connected to the Gateway is using its provided GPS information

Pin colour on the mini-map changes according to the validity of GPS data.
Green pin – data is read live from the controller and position is accurate and up to date
Red pin – location information is outdated and shows only last known position of the unit



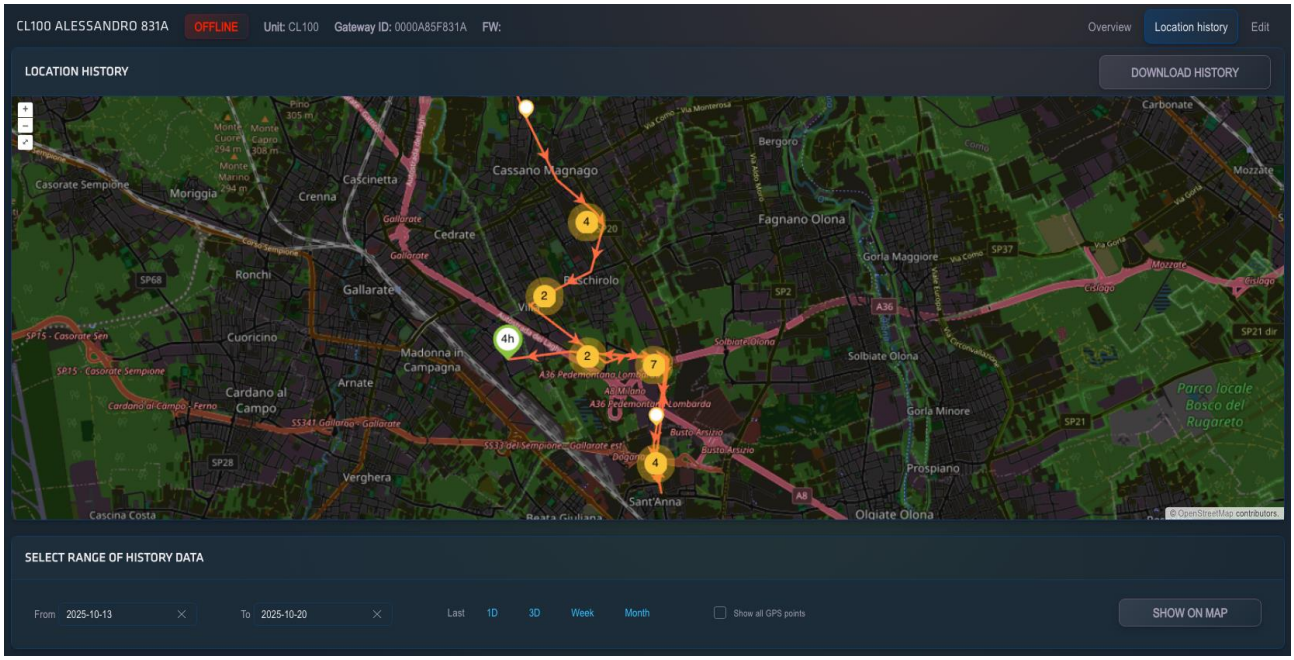
6.5.1 Location history map

Map allowing to show unit movement is accessible through Unit detail → Location history or mini-map  icon

Each unit with active GPS information provided either through internal GPS or GPS information provided through Gateway will store its position into database with period defined by Data saver feature. Position is stored only when accurate GPS location fix is achieved, inaccurate coordinates are skipped.

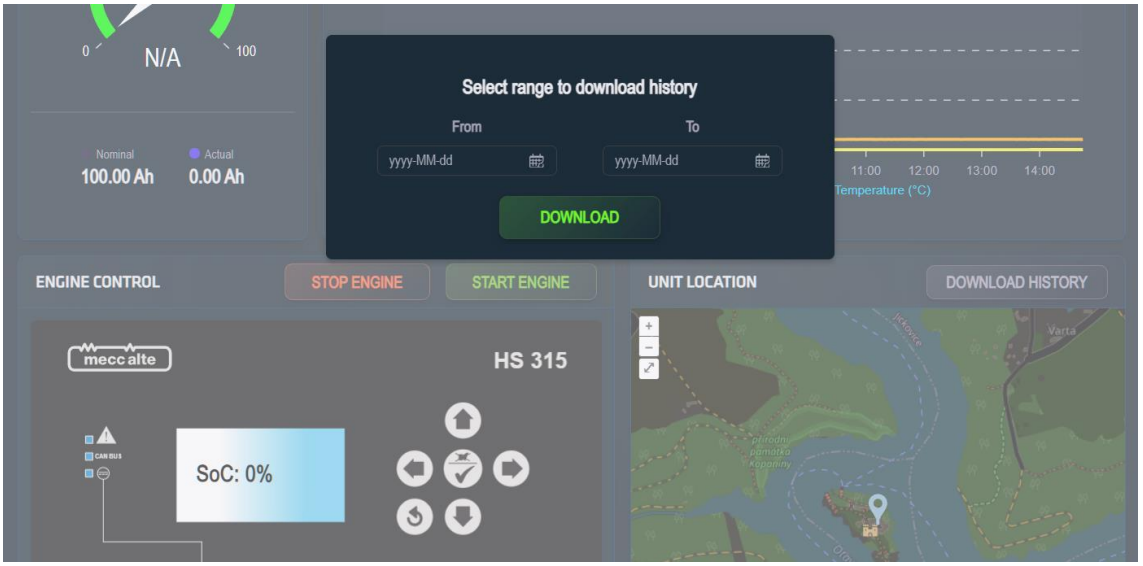
System will try to optimize the amount of shown points on map to avoid cluttering on the screen. By default, point from same location are dynamically reduced, but by selecting Show all GPS points map is forced to show everything.

First (oldest) location is shown in blue colour, last (newest) in green colour. When there are multiple points close to each other, these are grouped together. Arrow will show the direction of movement between two points.



6.5.2 Location history download

On the Unit location box there are two buttons and right one with arrow  is for **Download history**, which allows export of stored GPS data from selected date range. Export works only for units with Dynamic GPS, where actual coordinates are stored in the database. Manual and Static coordinates are not saved, so the result will be an empty table.



Export is done in simple CSV format with timestamp and coordinates. To import this file into Excel, the following procedure has to be followed.

→ Start **Excel**

→ Create new document

→ Go to DATA tab

→ First button in toolbar (barrel with table an icon) Get data

→ From file

→ From TEXT/CSV

Following picture shows data imported to Excel

	A	B	C	D	E
1	Unit name	Latitude	Longitude	Timestamp	fromGateway
2	GC315Link GPS	45.65115	8.81841	26.09.2024 11:05	FALSE
3	GC315Link GPS	45.65115	8.81841	26.09.2024 11:14	FALSE
4	GC315Link GPS	45.65115	8.81841	26.09.2024 11:24	FALSE
5	GC315Link GPS	45.65115	8.81841	26.09.2024 11:34	FALSE
6	GC315Link GPS	45.65115	8.81841	26.09.2024 11:43	FALSE
7	GC315Link GPS	45.65115	8.81841	26.09.2024 11:53	FALSE
8	GC315Link GPS	45.65115	8.81841	26.09.2024 12:02	FALSE
9	GC315Link GPS	45.65115	8.81841	26.09.2024 12:12	FALSE
10	GC315Link GPS	45.65115	8.81841	26.09.2024 12:21	FALSE
11	GC315Link GPS	45.65115	8.81841	26.09.2024 12:31	FALSE
12	GC315Link GPS	45.65115	8.81841	26.09.2024 12:40	FALSE

6.6 Trends and values

Part of **Unit detail** is also tab **Values** in the top right corner next to the Overview. There are multiple tabs with many values read from the unit, represented in different gauges and tables.
Based on the actual configuration of the monitored system, some values are not present and will be N/A or shown with missing indicators.

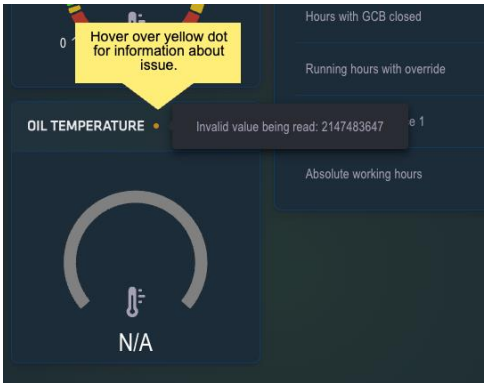
6.6.1 Gauge ranges

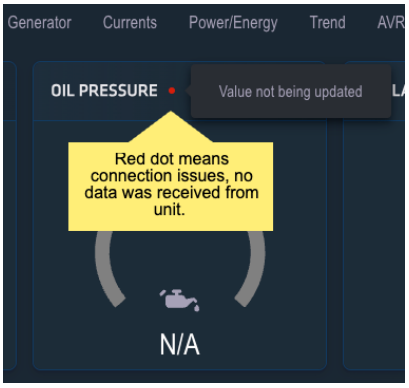
For SMARTCLOUD to be able to correctly represent the gauge of measured value, ranges must be properly defined directly in the unit. These are then read by monitoring applications and Gauge is created. There is a special section in the manual appendix with required registers for ranges.

6.6.2 Data availability signalization

Most of the time data read from units will be correctly represented in the application. But in case of any issue, there is visual signalization about data quality.

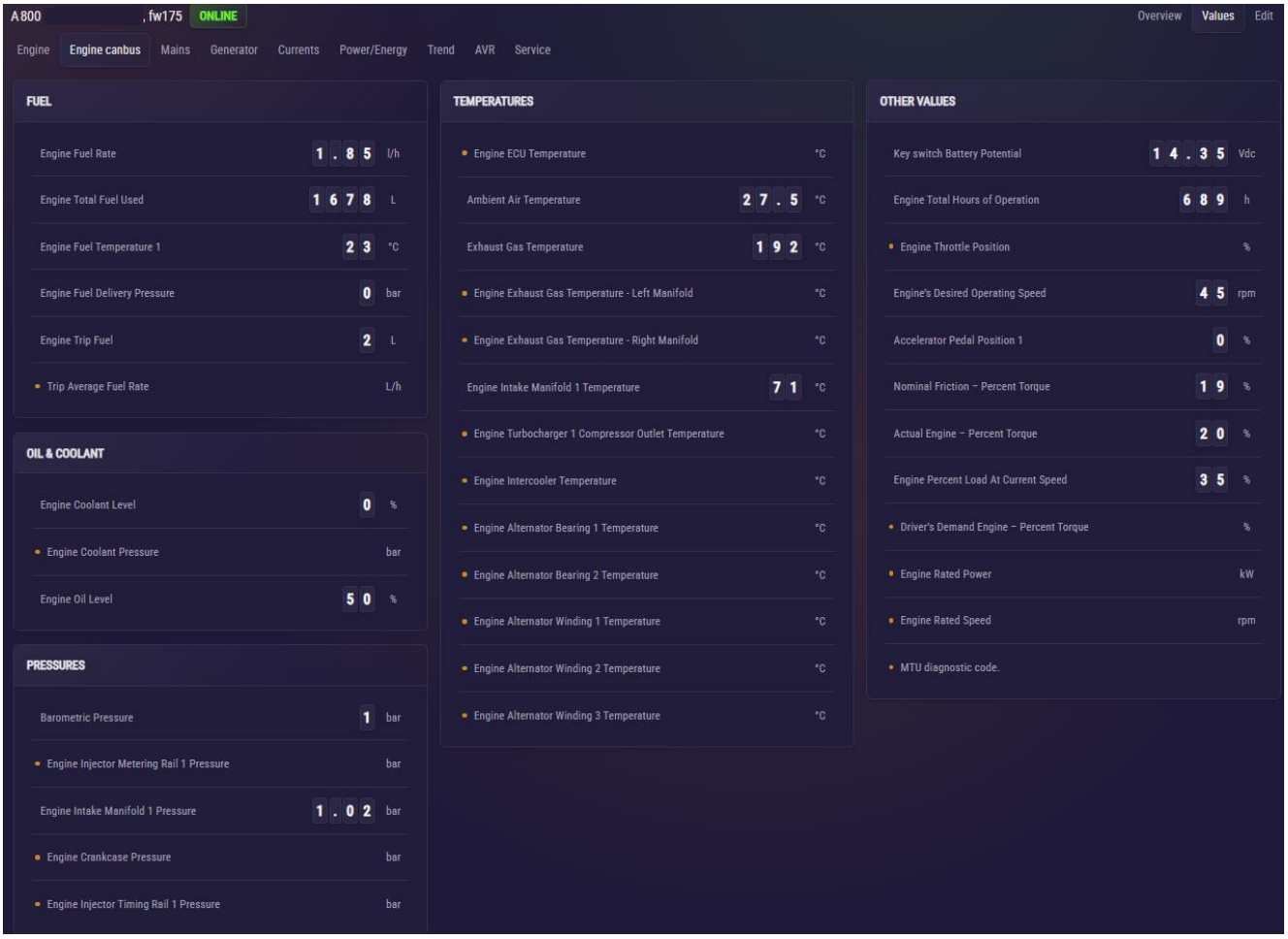
- **Orange dot** - signals that the application is receiving data, but these are invalid. Either out of range of expected values or some other issue. Following image shows an example of invalid value for Oil temperature so gauge could not be correctly created and shows grey.
- **Red dot** - if the application is not receiving data at all, it is signalized by a red dot. It could be caused by connection issues if the connected unit is turned off.





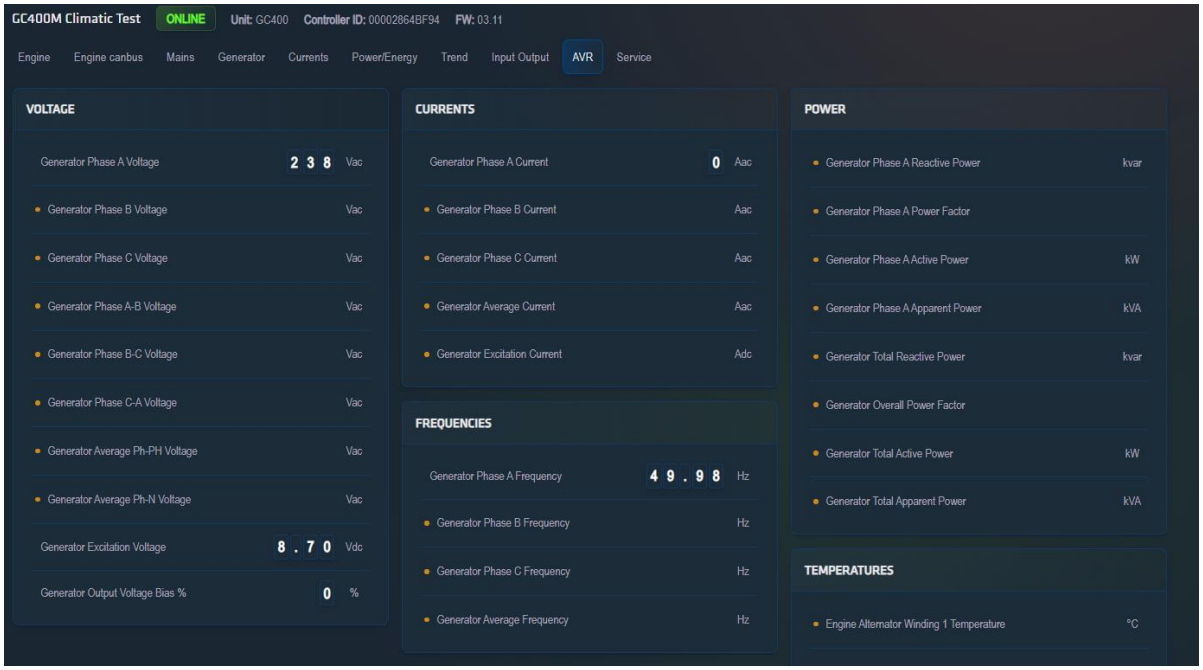
6.6.3 Engine canbus

This page displays all data read via CAN bus by the controller.

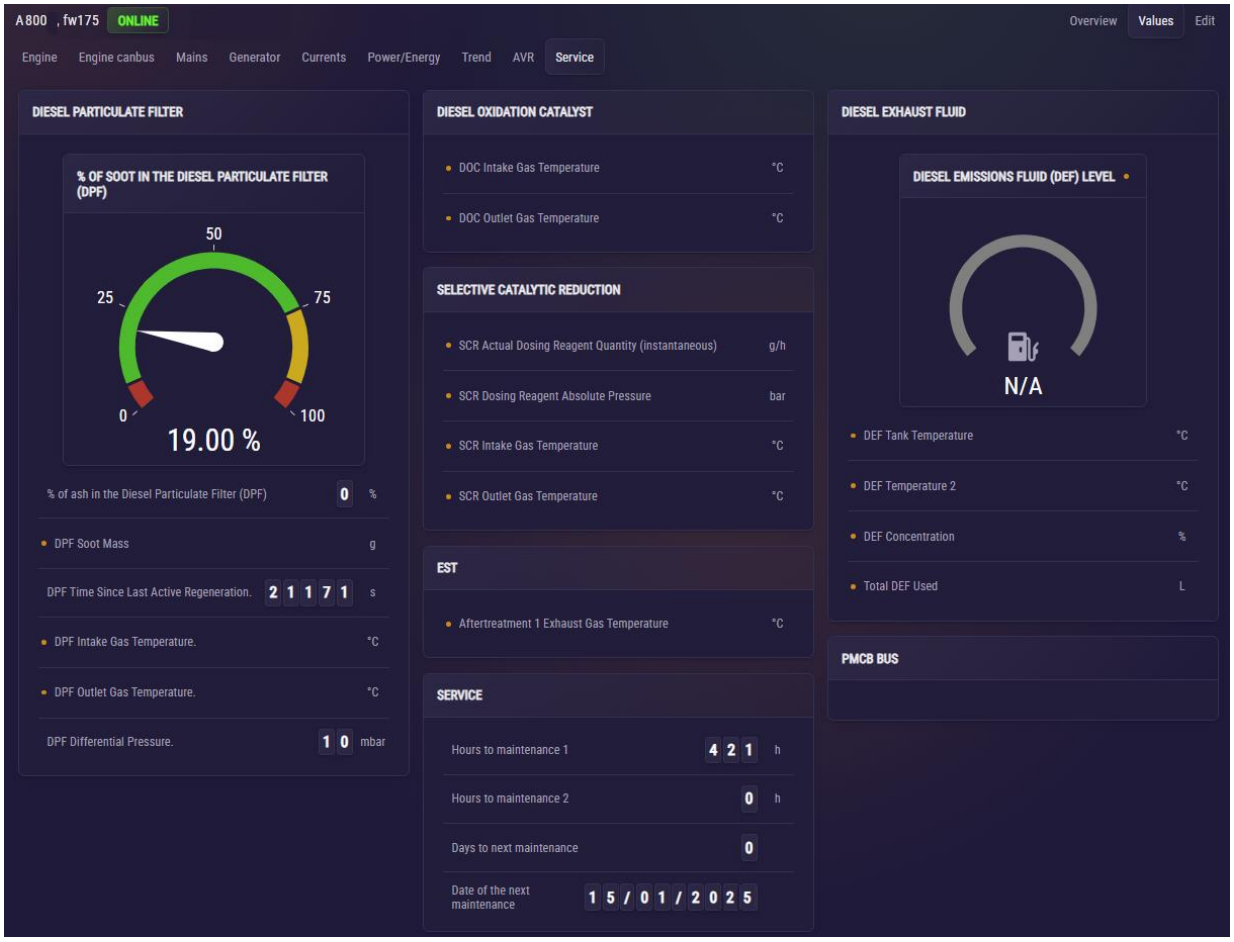


6.6.4 AVR

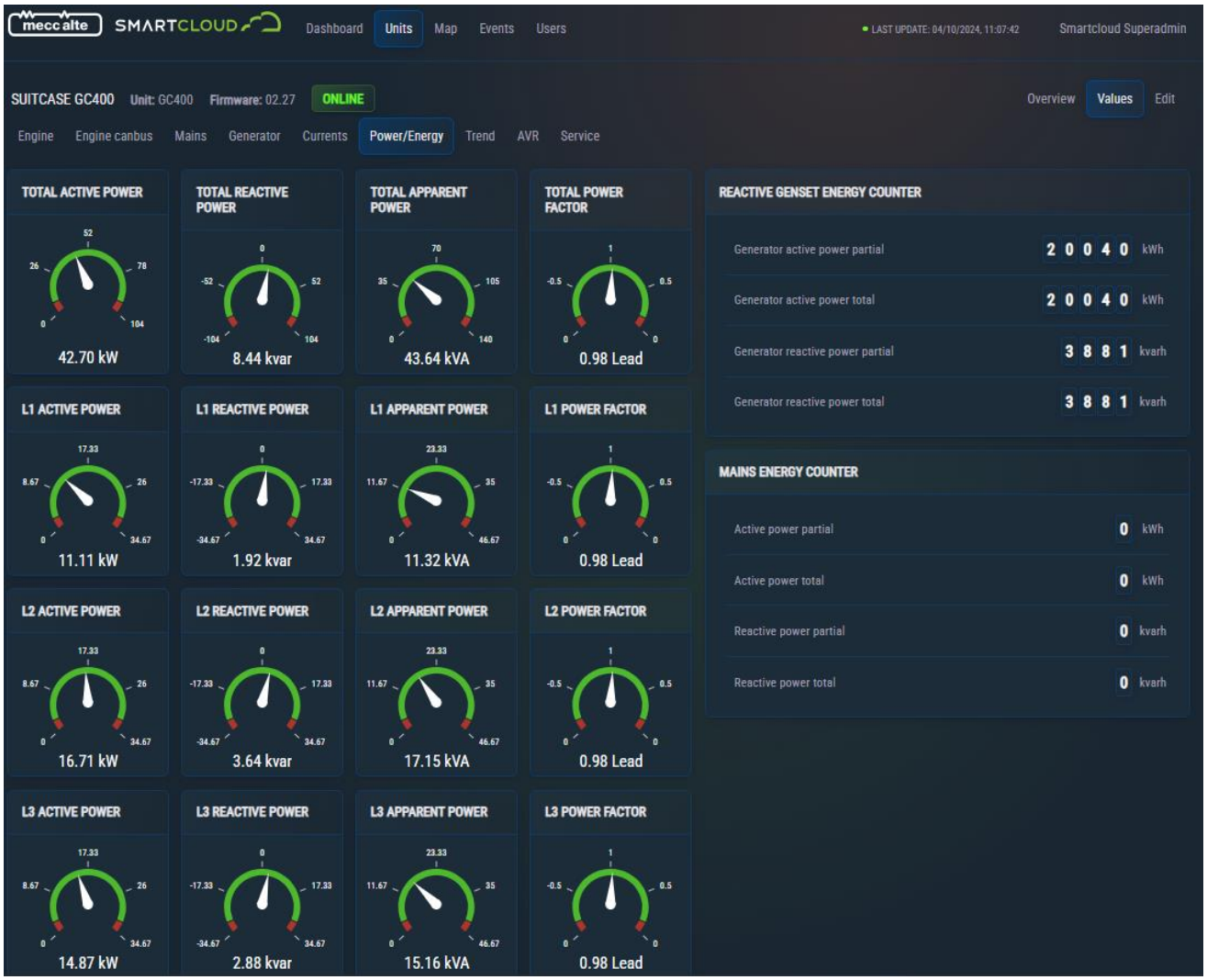
This is where you can see the data acquired by the AVR via CANBUS.



6.6.5 Service



6.6.6 Power/Energy



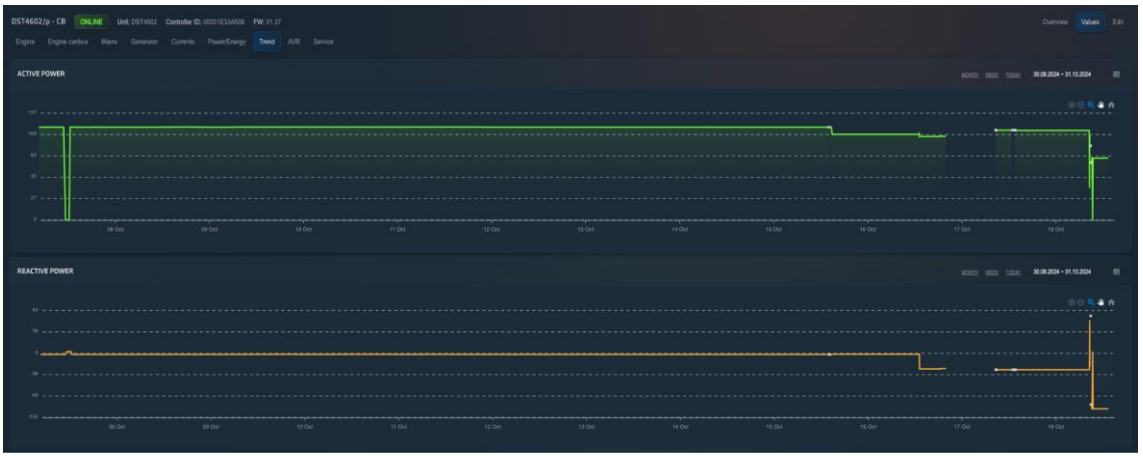
6.6.7 Trend history

For each registered and online unit SMARTCLOUD application saves data history for selected values. These are represented by graphs. There is date range selection and a zoom option to check detailed values.

Register values are saved to the database according to Data-saver settings. Generally, it is set to 3 minutes for units with a running engine and 10 minutes for stopped.

For **GC** and **DST** units, the application monitors four selected values. In the future there will be more.

- **Active power**
- **Reactive power**
- **L1 current**
- **L1-L2 Voltage**

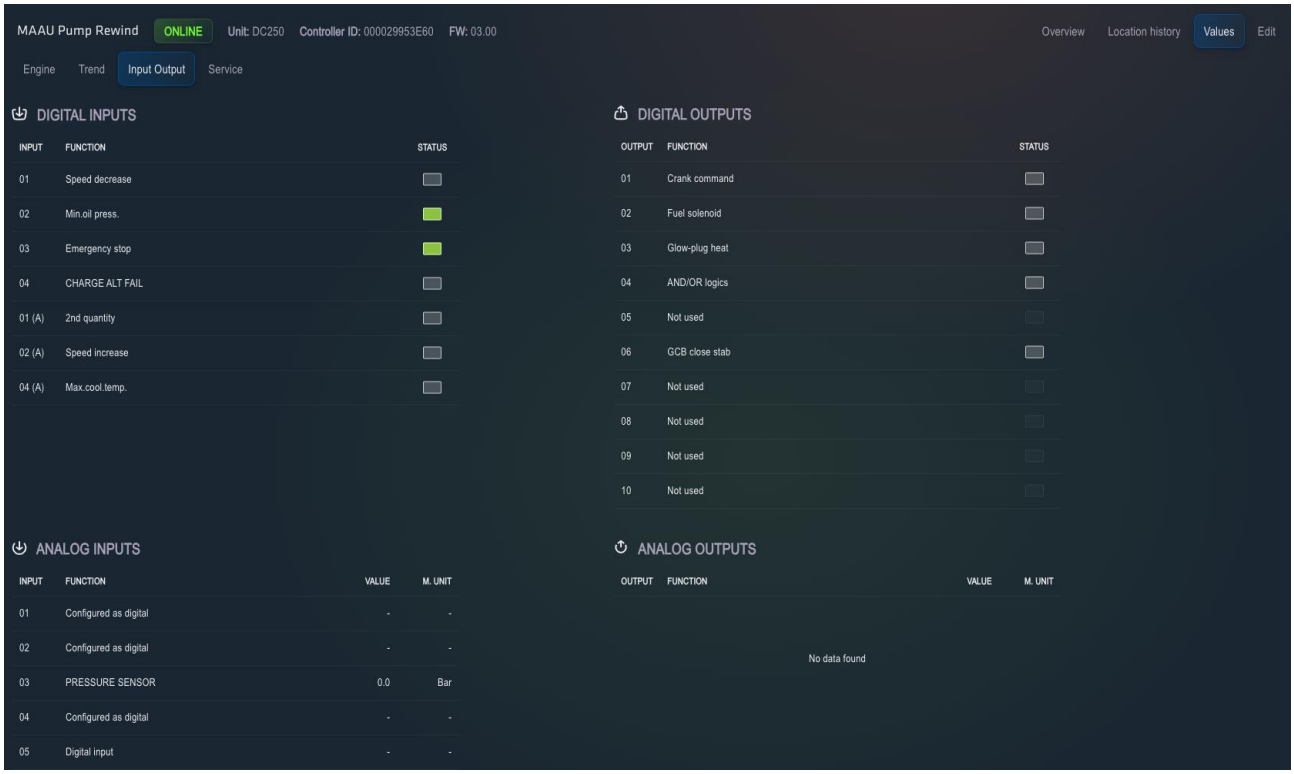


For HS models there are more values saved to the database and presented in graphs. With multiple values in one graph, there is an option to temporarily disable some by clicking on the value name.

- Battery State of Charge, Current, Voltage and Temperature
- AUX Current
- Generator Speed and Current
- Loads Current

6.6.8 Input and Output data

SMARTCLOUD can read digital and analog Inputs and Outputs configuration and values. These are presented in Input Output tab in Values. Digital inputs and outputs are presented with function name read from controller and Status box signalising actual state. Analog inputs and outputs are listed with configuration, values and units of measurement.
There is also support for Analog input configured as digital. These are listed in the table with Digital inputs marked with (A) and appropriate Analog port number.



Support for reading Input and Output information is available with updated controller firmware.

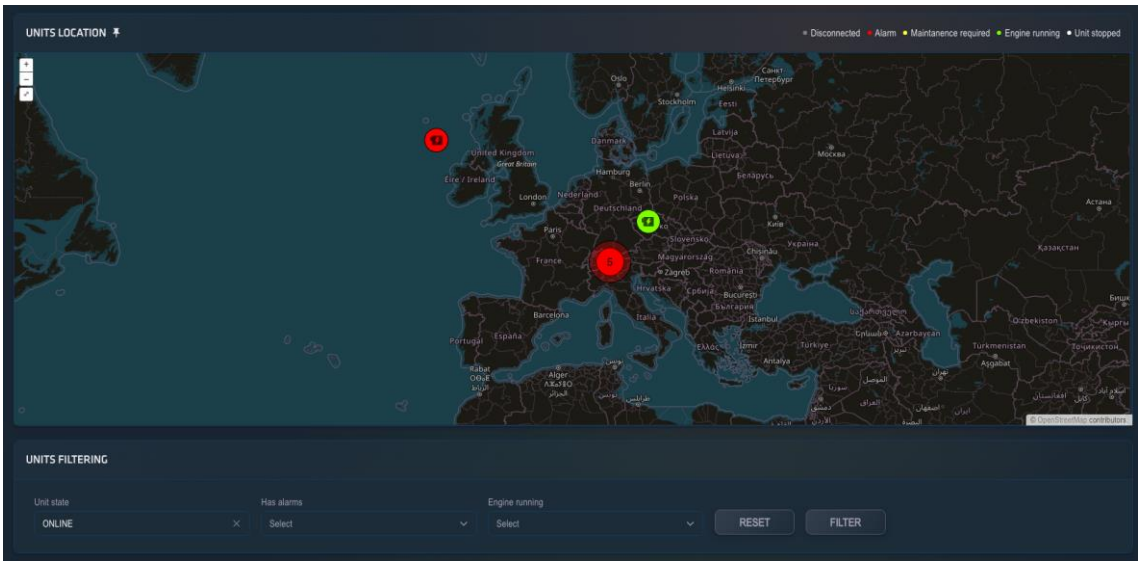
7 General map with live updates

Thanks to the GPS feature of units in the system, the general map shows the actual location of all controllers. It provides color coded information about online state, active alarms, engine state and maintenance status. Allows filtration of presented units. Important part of this feature is also table with operational values, divided into multiple sections based on Unit type. Data in the table are also live updated based on refresh speed of unit's data-saver settings.

7.1.1 Filtering of units on map

Filtering feature allows users to show only selected units. By default, the filter shows only ONLINE units but resetting it will show even OFFLINE and DISABLED units. If they ever provided GPS information, it will be used to show the last known location.

Filtering also allows users to select only units with Alarms or based on engine state.



7.1.2 Grouping of units

If there are multiple units in one location, these are grouped together, and the color of the group is based on the priority of the unit state it contains. So, if any unit in the group have issue, it is shown as color of the whole group.

RED (alarm) → YELLOW (maintenance required) → GREEN (Running) → WHITE (stopped) → GRAY (disconnected)

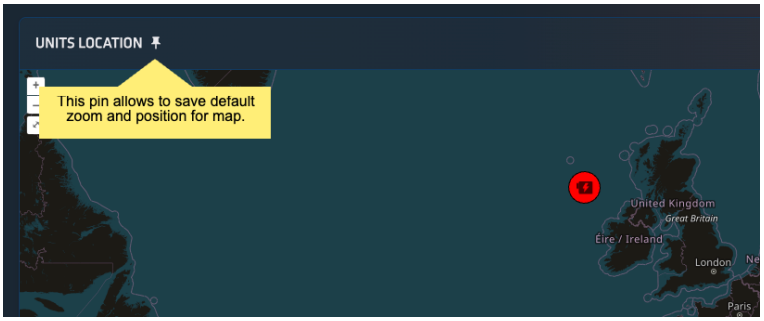
Examples

- group where one unit has an alarm, two are offline and one running. It will be RED.
- one running, five stopped, one disconnected, no alarms - GREEN
- one stopped, five disconnected - WHITE
- single unit disconnected - GRAY

7.1.3 Default zoom

It is possible to set the exact zoom level and position on a map to show for users. It will then be saved to

the user profile and used every time the user is logged in. Just set the map to the desired position and press the pin. Using the pin again will overwrite the stored location.
Also, the system remembers last used zoom/position during session, so saved location is used only when user logs in.



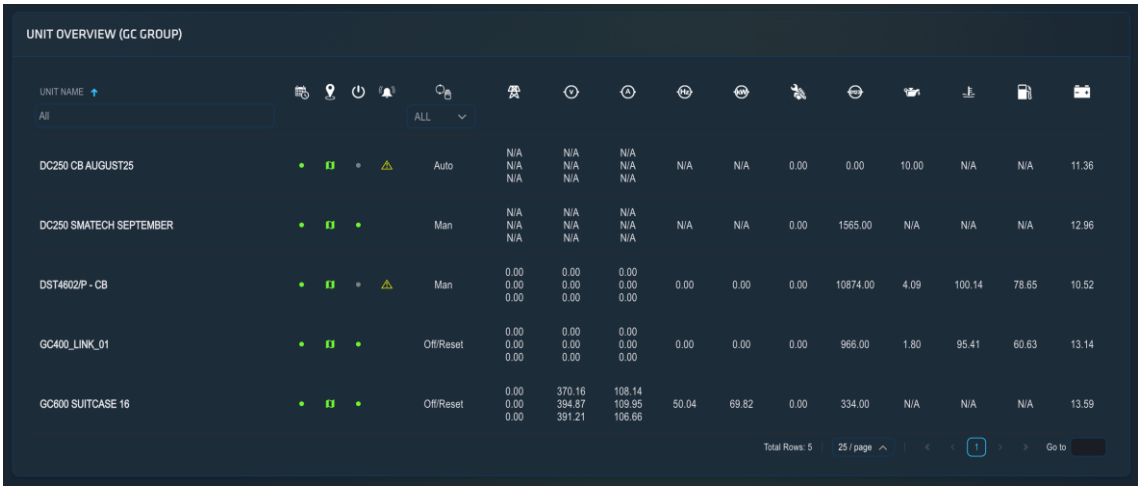
7.1.4 Unit table with operational values

For easy monitoring of multiple devices and its operational values, part of the General map is also table with many operational values. It uses the same filtering system as the map. Table is separated into multiple sections based on unit type and its operational values.

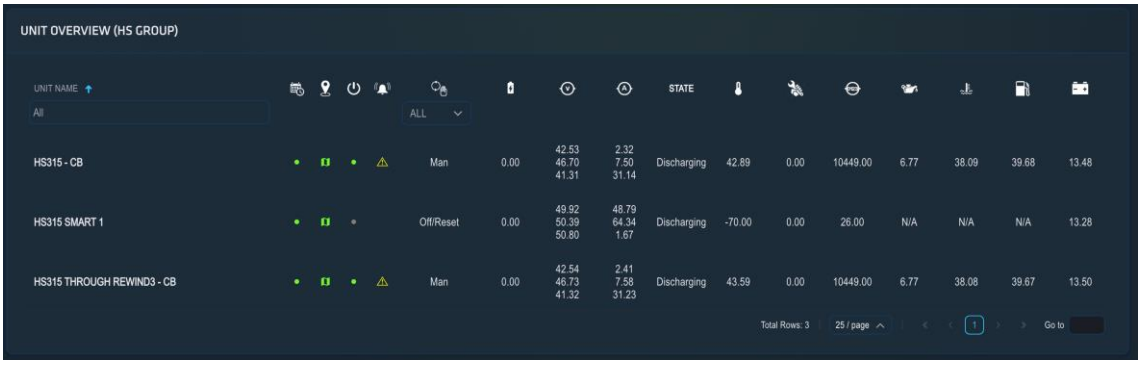
General information provided, rest is based on unit model

- Unit name - column allows filtration, click on unit name goes to Unit detail
- Online state - hovering mouse over the dot shows last update time. Green online, red offline, grey disabled
- GPS availability - clicking on map symbol shows unit on the map with more details
- Engine state - green is running, grey is stopped. Based on engine management flag register
- Alarms - hovering mouse over exclamation triangle shows list of active alarms
- Operating mode - allows filtration in table

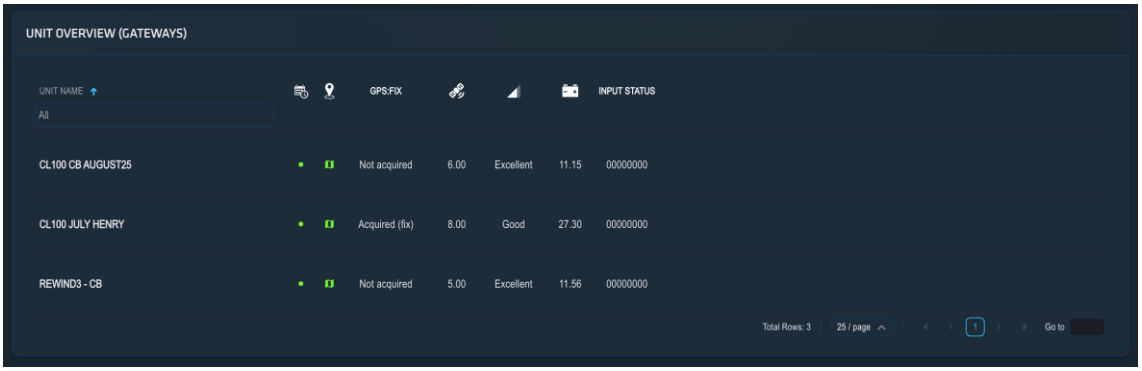
7.1.4.1 GC and DST units



7.1.4.2 HS units

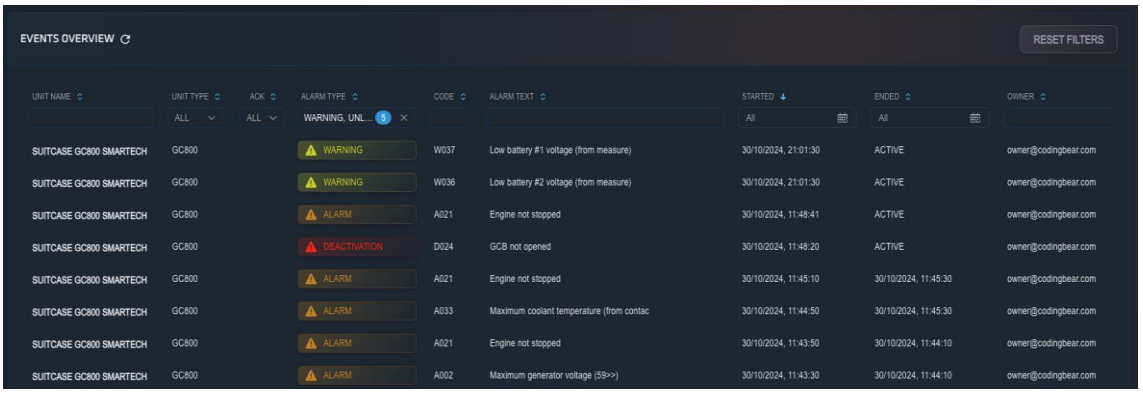


7.1.4.3 Rewind3 and CL100 (gateways)



8 Event log

Events list reachable through the top menu shows a list of all present and past alarms in all registered units. It is searchable and there are customisable filters. Its main purpose is to provide users with overview of all events for all units in one place.



8.1 Event types

There are multiple different types of events and alarms in the SMARTCLOUD system.

- **Alarm events** - basic type of alarm, these are read directly from units and there are different types (Alarm, Warning, Unload, Deactivation). They are presented in log with appropriate colors and with Acknowledged flag. They have defined start time and also end time in case they ended.
- **Online state** - this is information about unit's online state. Whenever a unit changes state (Online, Offline, Disabled), it is saved to log.
- **Monitoring** - application is actively monitoring selected operating parameters of a unit - engine status, generator and mains breakers, mains state and operating mode. Any change to these is logged.
- **Data-saver** - any change of Data-saver profile is also automatically logged. Whenever the engine is stopped, users log into the application or log out.
- **Command -** Every command sent via SMARTCLOUD is recorded. The following information is provided: the user, the type of command and the outcome (whether successful or not).

8.2 Event details

Clicking on the specific event from the list will open a window with more details about time of occurrence. For the Alarm type of events read from the unit there are some specifics which need to be explained. There is multiple alarm activated times

- **Alarm activated (unit time)** - this information is read directly from the unit and is based on the time set in the unit. It is exactly the same time as shown on the unit display.
- **Alarm activated (UTC server time)** - this is the time, when SMARTCLOUD server detected the alarm, stored in UTC format.
- **Alarm activated (user time)** - this is the same time when SMARTCLOUD server detected the alarm but converted to the local time of the user's computer. It uses information about the time zone set in the user's computer and converts UCT to user time.

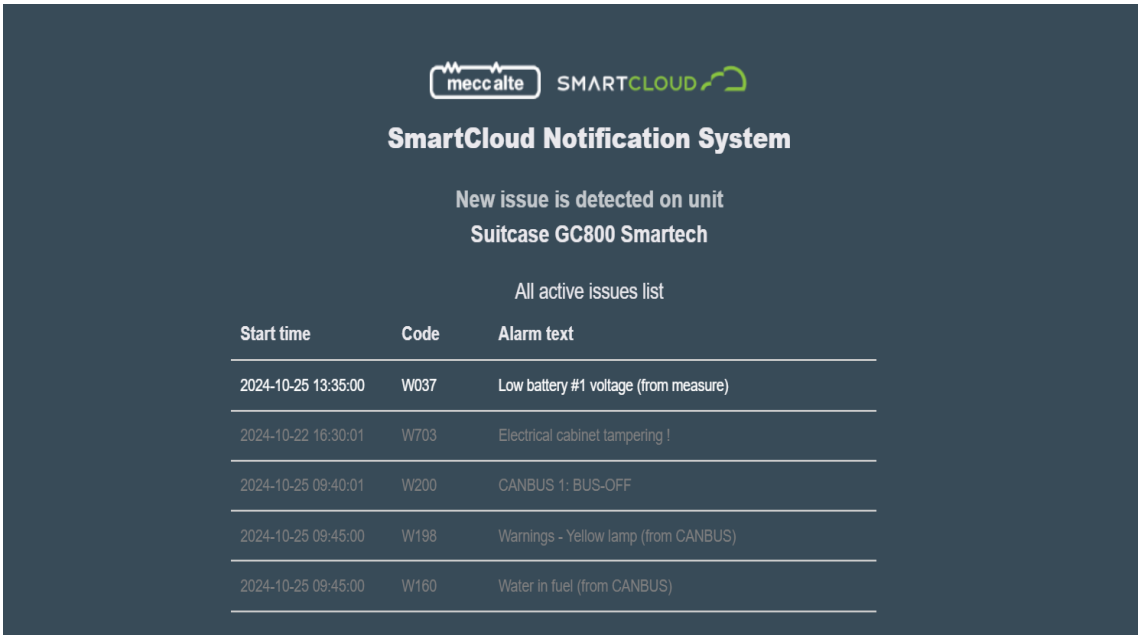
Deactivation time of the alarm is calculated by the server, as this information is not provided from the unit. That is the reason why there is no Alarm deactivated (unit time) information, only server and user time.
Detection assumes that an alarm which already ended disappears from the list of active alarms in the unit. There are additional checks in place to avoid possible issues with communication errors and bad connection, so the same alarm would not be detected twice.

9 Notification system

SMARTCLOUD has an integrated email notification system, which sends messages whenever some important event is detected. Notifications are deployed to all registered users listed on the Owners account. Every user can set their personal preferences for each event type to be notified for. Notification system lists all active alarms and events on the unit, new ones are highlighted on top.

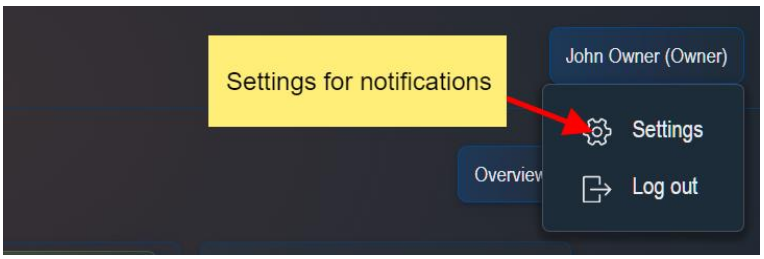
NOTE: After an event is detected, there is a 20 second period allowing collection of multiple incidents together and then everything is sent at once.

There is also an hourly limit of 3 emails to avoid unnecessary spam for repeating events.

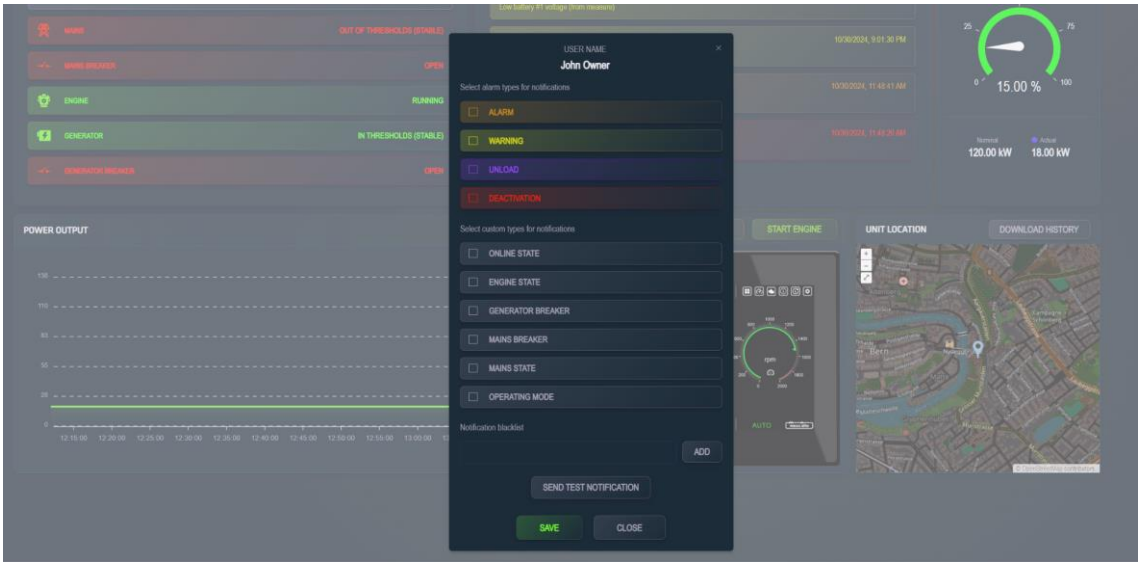

SmartCloud Notification System
New issue is detected on unit
Suitcase GC800 Smartech
All active issues list
Start time
Code
Alarm text
2024-10-25 13:35:00
W037
Low battery #1 voltage (from measure)
2024-10-22 16:30:01
W703
Electrical cabinet tampering !
2024-10-25 09:40:01
W200
CANBUS 1: BUS-OFF
2024-10-25 09:45:00
W198
Warnings - Yellow lamp (from CANBUS)
2024-10-25 09:45:00
W160
Water in fuel (from CANBUS)

9.1 Notifications setting

SMARTCLOUD system allows any registered user to selectively activate and deactivate notifications. Settings menu is accessible by clicking on the Username in the top right corner of the screen. Then selecting Settings.



What notification types will be sent could be selected here.



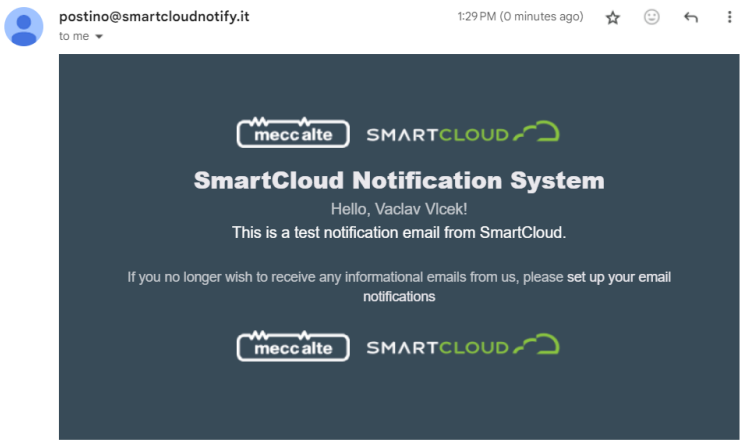
9.2 Notifications blacklist

In the settings there is also an option to selectively ignore specific unit alarm notifications based on blacklisted keywords or alarm codes. System will look up these keywords and if these are found in event text, it will be ignored, and notifications will not be sent. Same applies for alarm codes, just add codes for events which should be ignored.

NOTE: Multiple keywords could be entered at once separated by commas.

9.3 Notification test

To verify that email is properly set, and notifications are sent and delivered, there is also a Notification test feature in settings. It sends test email notifications regardless of hourly limit to the email of registered users.



10 Data exports

SMARTCLOUD collets and store into database large number of different register data from units. It is possible to export these values in **CSV** or **XLSX** file formats, select units for exports, select specific or all registers and schedule automatic exports sent through emails to defined users.

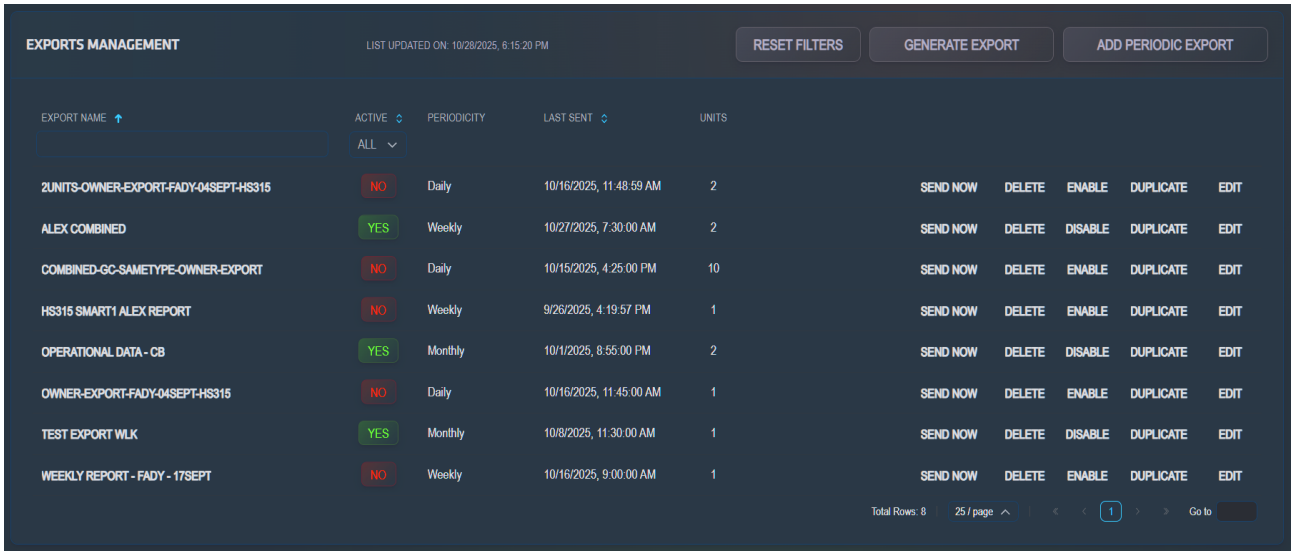
10.1 Exports management

This page contains overview of created automatic exports with basic details and information about actual state.

- **ADD PERIODIC EXPORT** – Allows creation of scheduled automatic export sent to selected users with defined period
- **GENERATE EXPORT** – Sends one time export to chosen recipients
- **RESET FILTERS** – resets filtering and sorting in the table of exports

For each existing Export there are also multiple functions

- **SEND NOW** allows to immediately send export, containing data for actual period up to the time of sending
- **DELETE** existing export
- **DISABLE** sending defined export
- **DUPLICATE** creates exact copy of existing export for easy alterations
- **EDIT** allows modifications of existing export



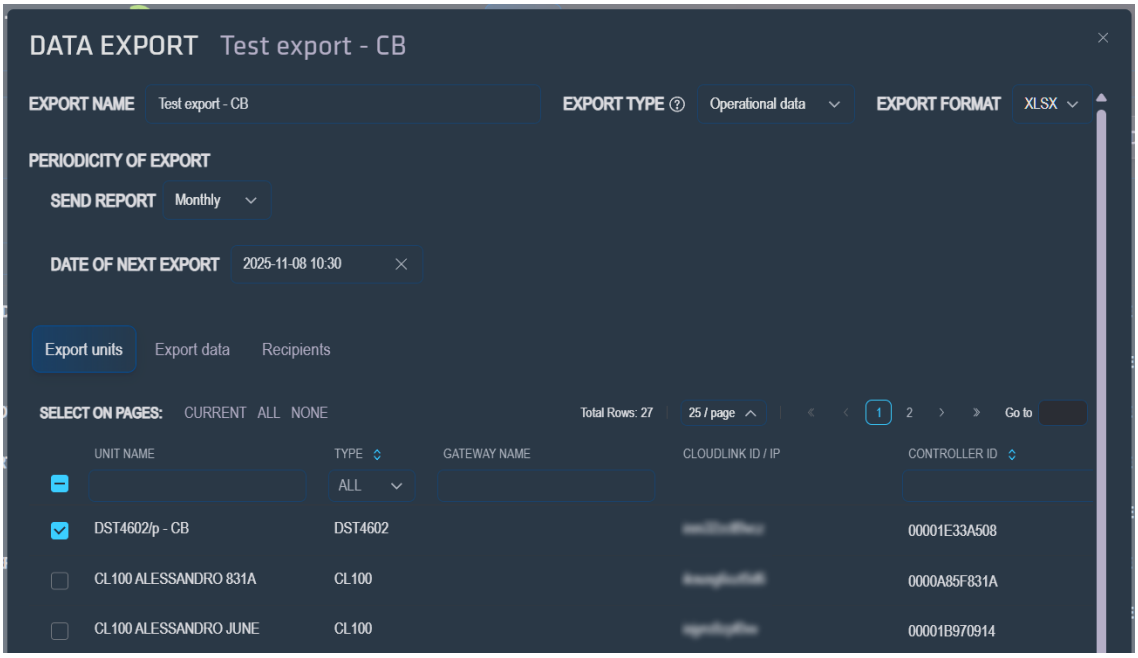
10.1.1 General export data

Common section for all export types include

- **EXPORT NAME** – defines name for the export in the system
- **PERIODICITY** – sets period for the export, possible options are DAILY, WEEKLY, MONTLY
- **DATE OF NEXT EXPORT** – defines start date and time of the period

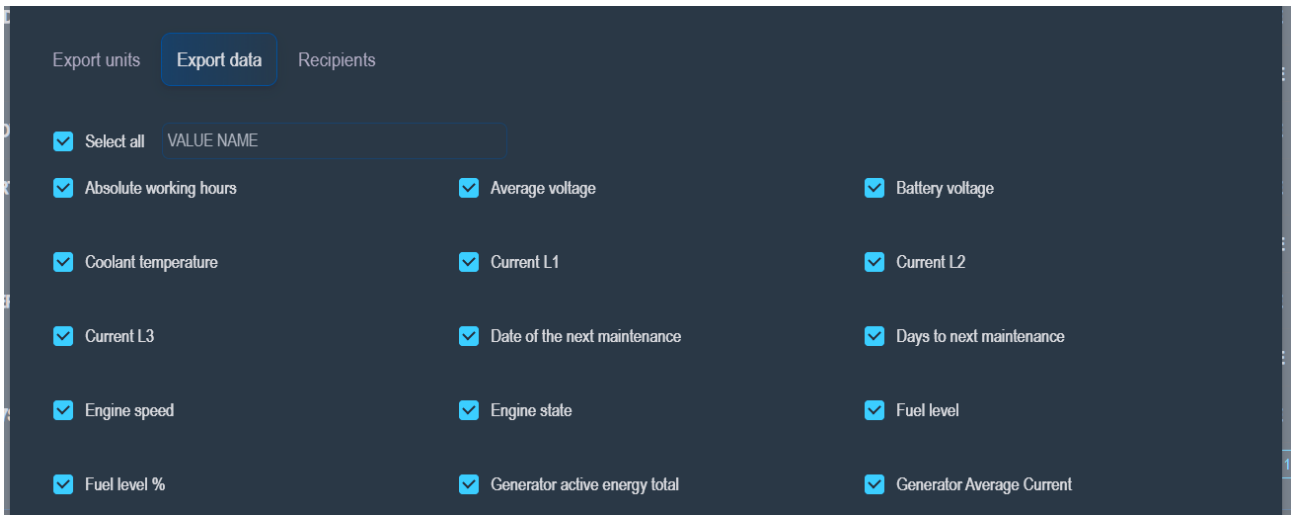
10.1.2 Selecting units for export

First tab of Operational data export allows user to select units, which should be included in the export. It is possible to filter by name, unit type, gateway or controller ID. At least one unit should be selected, otherwise it will not be possible to save the export.



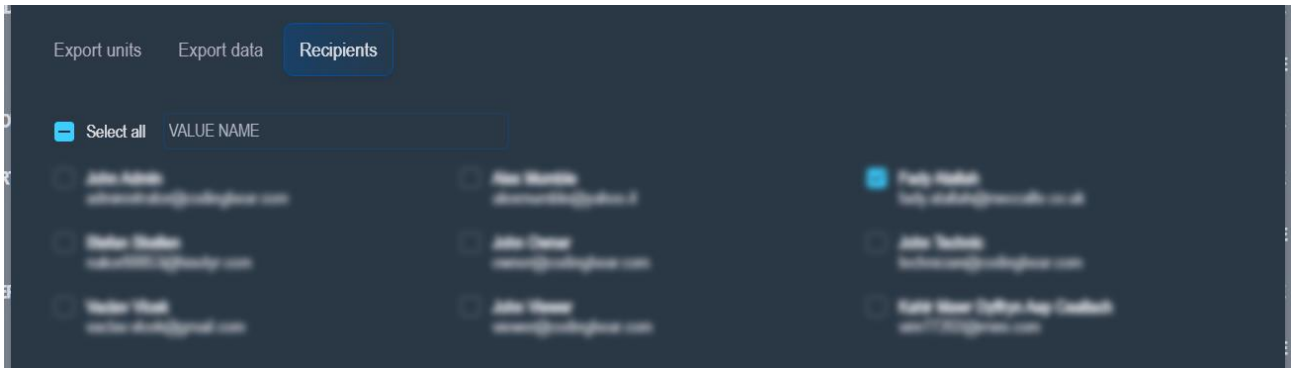
10.1.3 Selecting data for export

Next step is to select the registers, which will be included in the export for units. List is dynamic, showing all the available registers for selected Units stored in the database. List is sorted alphabetically, and it is possible to search/filter according to value name. At least one value has to be selected, otherwise saving is not possible.



10.1.4 Selecting users to send report to

Last required step is to select users for sending export. Under tab Recipients there are all available sub-users of current account. Only Owner and Administrator user level can see all defined exports on the account. Technicians and Operators can see only their own exports. At least one recipient has to be defined for the Export.



10.2 Operational data export

This type of export contains all the values for the selected controller chronologically ordered with timestamps in one table. It is possible to select multiple controllers in one Operational data export; each will be represented by separate file with unique name created from Controller ID and export period dates.

	A	B	C	D	E	F	G	H	I	J	K
1	SMARTCLOUD VALUES DATA EXPORT										
2	UNIT NAME	HS315 Testing unit									
3	UNIT TYPE	HS315									
4	CONTROLLER ID	000022B52FFD									
5	CONTROLLER FW	02.01									
6	EXPORT START TIME	31.01.2026 23:00									
7	EXPORT END TIME	28.02.2026 22:59									
8	GENERATED BY	Admin Admin (superadmin@codingbear.com)									
9	WARNING	The timestamp does not indicate the exact time the values were read; depending on the type of connection, it may differ by several seconds.									
10											
11	TIMESTAMP UTC	TIMESTAMP LOCALTIME	Absolute working hours (h)	Analog input 1	Analog input 2	Analog input 3	Analog input 4	Analog input 5	Analog output 1	Auxiliary DC Current (Adc)	Auxiliary DC Power (kW)
12	31.01.2026 23:00	01.02.2026 00:00	13560	9.99	6.81	38.28	39.98	10.56	50	31.31	1.3
13	31.01.2026 23:01	01.02.2026 00:01	13560	9.99	6.81	38.28	39.94	10.56	50	31.32	1.3
14	31.01.2026 23:02	01.02.2026 00:02	13560	9.99	6.8	38.28	39.96	10.56	50	31.31	1.3
15	31.01.2026 23:03	01.02.2026 00:03	13560	9.99	6.81	38.29	39.97	10.56	50	31.31	1.3
16	31.01.2026 23:04	01.02.2026 00:04	13560	9.99	6.8	38.28	39.94	10.56	50	31.3	1.3
17	31.01.2026 23:05	01.02.2026 00:05	13560	9.99	6.81	38.27	39.93	10.56	50	31.32	1.3
18	31.01.2026 23:06	01.02.2026 00:06	13560	9.99	6.81	38.28	39.95	10.56	50	31.32	1.3
19	31.01.2026 23:07	01.02.2026 00:07	13560	9.99	6.8	38.29	39.96	10.56	50	31.33	1.3
20	31.01.2026 23:08	01.02.2026 00:08	13560	9.99	6.81	38.28	39.93	10.55	50	31.27	1.29

10.3 Combined data export

This type of export combines selected data from multiple units collected over selected period into one table. For each register there is starting value and ending value from defined time range. Register selection for this type of export is limited to suitable ones for example *Absolute working hours* or *Days to next maintenance*.

	A	B	C	D	E	F	G	H	I	J
1	SMARTCLOUD COMBINED DATA EXPORT									
2	EXPORT START TIME	31.01.2026 23:00								
3	EXPORT END TIME	28.02.2026 22:59								
4	GENERATED BY	Smartcloud Superadmin (smartcloud@codingbear.com)								
5										
6					START	END	START	END	START	END
7	NAME	TYPE	CONTROLLER ID	FIRMWARE	Absolute working hours (h)	Absolute working hours (h)	Analog input 1	Analog input 1	Analog input 2	Analog input 2
8	DST4602/p - CB	DST4602	00001E33A508	01.37	15258	15848				
9	HS315 - CB	HS315	000022B52FFD	02.01	13560	14150	9.99	9.99	6.81	6.82
10	DC250 CB August25	DC250	000029993199	02.05	0	0				
11	GC315 - Through CB R3	GC315	00001DCC8587	01.75	9278	9868				
12	HS315 through REWIND3 -	HS315	000022B52FFD	02.01	13560	14150	9.99	9.99	6.81	6.82

10.4 Event log export

Events for each controller could also be exported. User can select which types of events and what controllers should be included. All stored information regarding event is exported.

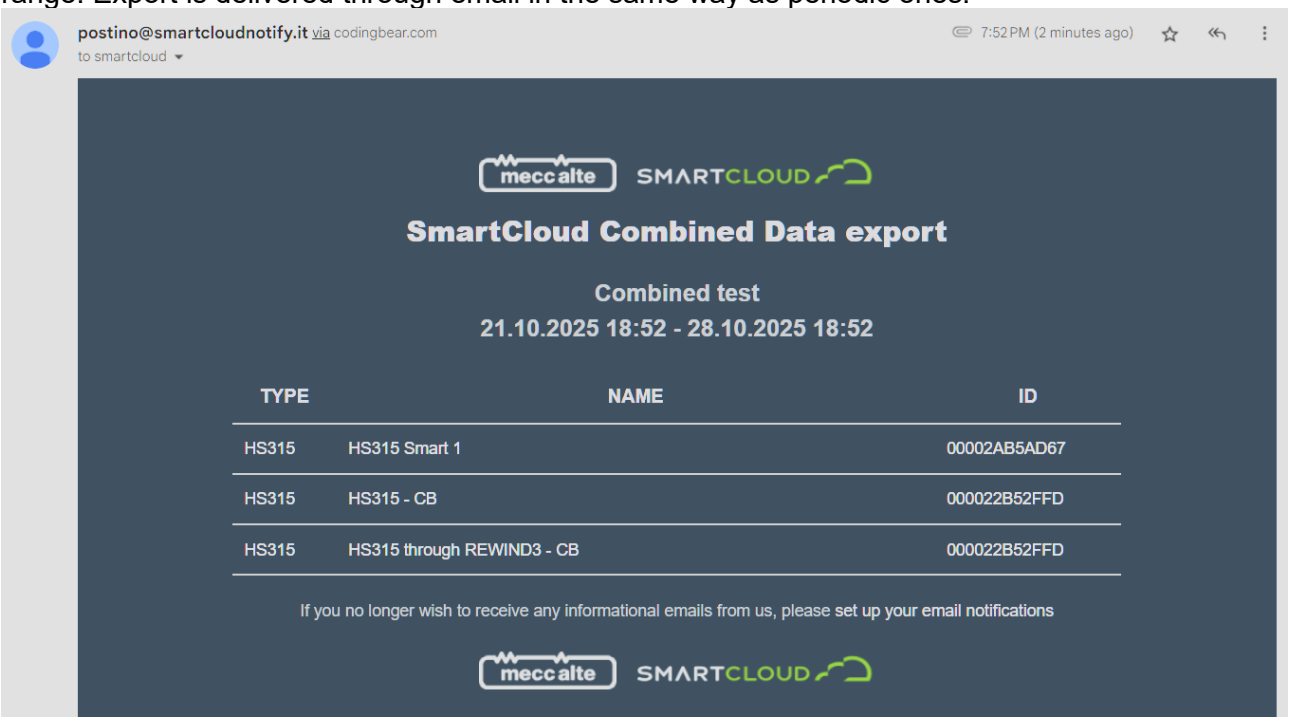
	A	B	C	D	E	F	G	H	I	J
1	SMARTCLOUD EVENT LOG EXPORT									
2	UNIT NAME	TEST GC250 plus								
3	UNIT TYPE	GC250 Plus								
4	CONTROLLER ID	00002DAFD4D4								
5	CONTROLLER FW	01.19								
6	EXPORT START TIME (UTC)	01.01.2026 15:24								
7	EXPORT END TIME (UTC)	23.02.2026 15:24								
8	GENERATED BY	Smartcloud Superadmin (smartcloud@codingbear.com)								
9	CREATED ON (UTC)	23.02.2026 15:25								
10	WARNING	The timestamp does not indicate the exact time the values were read; depending on the type of connection, it may differ by several seconds.								
11										
12	ACTIVATED - UTC	ACTIVATED - UNIT TIMEZON	ACTIVATED - UNIT INTERNA	TYPE	CODE	TEXT	ACKNOWLEDGE	ALARM DEACTIVATED - UTI	ALARM DEACTIVATED - UNIT TIMEZONE IN SMARTCLOUD	
13	12.01.2026 11:28	12.01.2026 12:28		DATA_SAVER		Data update speed set. USE	NO			
14	12.01.2026 11:36	12.01.2026 12:36		COMMAND		Command type: SET_OP_MODE_AUTO User: John Owner (owner@codingbear.com) Command result: Success	NO			
15	12.01.2026 11:36	12.01.2026 12:36		MONITORING		Operating mode changed. O	NO			
16	12.01.2026 11:38	12.01.2026 12:38	11.04.2000 02:15	DEACTIVATION	D701	Self-destruction avoided	YES	12.01.2026 13:14	12.01.2026 14:14	
17	12.01.2026 11:39	12.01.2026 12:39	11.04.2000 02:15	ALARM	A021	Engine not stopped	YES	12.01.2026 13:14	12.01.2026 14:14	
18	12.01.2026 11:39	12.01.2026 12:39	11.04.2000 02:15	ALARM	A048	EMERGENCY STOP	YES	12.01.2026 13:14	12.01.2026 14:14	
19	12.01.2026 13:14	12.01.2026 14:14		COMMAND		Command type: RESET_ALARMS User: John Owner (owner@codingbear.com) Command result: Success	NO			
20	12.01.2026 13:14	12.01.2026 14:14	11.04.2000 03:50	ALARM	A048	EMERGENCY STOP	YES	12.01.2026 13:15	12.01.2026 14:15	
21	12.01.2026 13:15	12.01.2026 14:15		COMMAND		Command type: RESET_ALARMS User: John Owner (owner@codingbear.com) Command result: Success	NO			
22	12.01.2026 13:15	12.01.2026 14:15	11.04.2000 03:51	DEACTIVATION	D701	Self-destruction avoided	YES	12.01.2026 13:15	12.01.2026 14:15	

10.4.1.1 Time information for events

- **ACTIVATED – UTC** – time detected by Smart Cloud server in UTC time
- **ACTIVATED – UNIT TIMEZONE** - time detected by Smart Cloud server converted according to Timezone settings for unit in Smart Cloud
- **ACTIVATED – UNIT INTERNAL TIME** – timestamp read from controller, based on its internal clock
- **ALARM DEACTIVATED – UTC -** time when Smart Cloud server stops reading alarm information from controller, in UTC time.
- **ALARM DEACTIVATED – UNIT TIMEZONE IN SMARTCLOUD** - time when Smart Cloud server stops reading alarm information from controller, converted according to Timezone settings for unit in Smart Cloud.

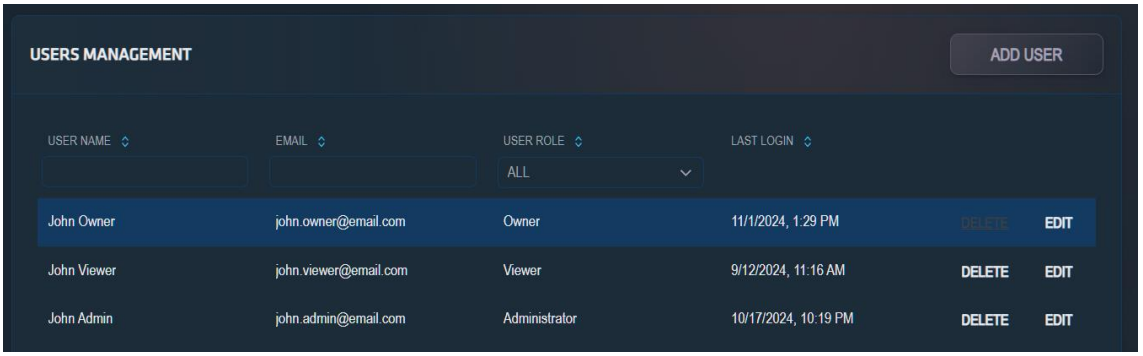
10.5 One time export

Beside regular periodic exports it is possible to send one-time report tailored to specific user requirements. It is available through GENERATE EXPORT functionality. There are same options available as for Operational or Combined data exports, additionally it is possible to define specific time range. Export is delivered through email in the same way as periodic ones.



11 User management

SMARTCLOUD system allows the owner of the registered account to create more user accounts with different access levels. These are referred to as sub-users in the application. Sub-user in the current SMARTCLOUD version have access to all registered units of the main account.



11.1 Adding sub-user

To create a new sub-user just use the ADD USER function. New users must have a unique email address, not used in the system previously. Because of security policies, there are some password requirements

- Minimum of 8 characters
- At least one uppercase character
- At least one number
- At least one special character (like @#$~^&* or similar)

Role for new users have to be selected before saving.

NOTE: There is no way to convert Owner account to sub-user now. In case email for sub-user is already registered as Owner then Mecc Alte support has to be contacted (smartech@meccalte.it) with a request to delete that specific account.

11.2 User roles

There are multiple different user types in system with specific access rights

- **Owner** - unique role, which applies only to account owner - user, who registered account. Owner can be only one and have access to everything in the system and cannot be deleted by any other user role.
- **Administrator** - have access to all features of the system, can create or delete other users, even other administrators. Cannot delete Owner.
- **Technician** - can access any functionality of the system related to units and its monitoring. Can use all Commands features like Alarms acknowledgements or reset, Engine start and stop etc.. Cannot create, edit or delete users.
- **Operator** - can access any functionality of the system related to units and its monitoring. Can use all Commands features like Alarms acknowledgements or reset, Engine start and stop etc.. Cannot create, edit or delete users.
- **Viewer** - only view rights in whole system

11.3 Edit or delete sub-users

Owner and Administrator have rights to edit sub-users' roles, name and can change their password. Same security policies for new password apply here too.

Owner can delete any other user registered in the system under his account. Administrators can delete any user on the same account, even other Administrators. Cannot delete Owner account.

12 Bugs and troubles reporting

Please send all bug reports and tips to smartech@meccalte.it

13 Appendix

13.1 Data-saver fast registers list

13.1.1 GC lineup and DST4602

Register name
Operating mode
Engine management flag
Mains status
Reactive power: total.
Active power: total (avg)
Current L3.
Current L2.
Current L1.
Generator: voltage L3-L1.
Generator: voltage L2-L3.
Generator: voltage L1-L2.

13.1.2 HS315

Register name
Engine management flag
State of Charge (%)
Battery DC Voltage

Register name
Generator DC Voltage
Auxiliary DC Voltage
Battery DC Current
Generator DC Current
Auxiliary DC Current
Battery Temperature
Operating mode
Auxiliary source status
Engine status
Generator: DC voltage (avg)
Plant battery: DC voltage (avg)
Loads: DC voltage (avg)
Auxiliary source: DC voltage (avg)
Generator: DC current (avg)
Plant battery: DC current (avg)
Loads: DC current (avg)
Auxiliary source: DC current (avg)
Generator: DC power (with avere)
Plant battery: DC power (avg)
Loads: DC power (avg)
Auxiliary source: DC power (avg)
Plant battery: temperature (measured by HS315 or read from electronic battery)
Plant battery: current charge level
Plant battery: status of charge procedure

13.2 Required register settings for Gauges in Unit details

In order for gauges to fully work, there are a number of parameters that have to be set on the device.

13.2.1 Mandatory parameters

These parameters must be set in order to display the gauges

Name
P.0102 - Nominal voltage of the generator
P.0105 - Nominal frequency
P.0106 - Nominal power of the generator
P.0116 - Nominal voltage of the mains.
P.0125 - Rated engine power
P.0107 - C.T. primary
P.0303 - Maximum voltage threshold
P.0305 - Minimum frequency threshold
P.0307 - Maximum frequency threshold
P.0309 - Maximum current threshold
P.0331 - Maximum speed threshold (frequency)
P.0339 - Low oil pressure threshold
P.0350 - Maximum power threshold

13.2.2 Optional parameters

Those set the thresholds to be displayed on the gauges but are not needed in order to display the gauge.

Name
P.0203 - Mains low voltage threshold
P.0204 - Mains high voltage threshold
P.0236 - Mains low frequency threshold
P.0237 - Mains high frequency threshold
P.0335 - High coolant temperature threshold
P.0339 - Low oil pressure threshold
P.0343 - High fuel level threshold

P.0345 - Low fuel level threshold
P.0353 - Low coolant temperature threshold
P.0362 - Low battery voltage threshold
P.0364 - High battery voltage threshold
P.0373 - High oil temperature threshold
P.0391 - Low voltage threshold
P.0393 - High voltage threshold
P.0395 - Threshold for low frequency
P.0397 - Threshold for high frequency
P.0483 - Low power threshold
P.0485 - High power threshold

13.2.3 Device specific parameters

Some of the supported devices have specific parameters that has to be set, due to their specific functions and altered app layouts.
These parameters are usually in addition to the generally used parameters mentioned above.

13.2.3.1 HS315

HS315 has specific parameters based around its DC system and Battery storage.
It also have simplified power system, so some of the power parameters are not present:

- P.0483 - Low power threshold
- P.0485 - High power threshold
- P.0106 - Nominal power of the generator

Parameters for currents are also omitted:

- P.0107 - C.T. primary
- P.0309 - Threshold for maximum current

HS315 Mandatory parameters
Mandatory parameters in addition to the general ones:

Name
P.9641 - Nominal voltage (DC).
P.9643 - Nominal discharge current.
P.9702 - Min battery temperature threshold.

P.9708 - Max battery temperature threshold.
P.9718 - Max battery voltage threshold.
P.9724 - Max battery current threshold.
P.9734 - Max auxiliary source current threshold.

HS315 Optional parameters
Optional parameters in addition to the general ones:

Name
P.9692 - Generator high current threshold.
P.9704 - Low battery temperature threshold.
P.9706 - High battery temperature threshold.
P.9714 - Low battery voltage threshold.
P.9716 - High battery voltage threshold.
P.9722 - High battery current threshold.
P.9732 - High auxiliary source current threshold.
P.9744 - Low loads voltage threshold.
P.9746 - High loads voltage threshold.
P.9752 - High loads current threshold.

13.3 List of registers saved to the database

These registers will be stored in database with set interval defined in each Unit settings and available for Exports.

Register shot name	Register full name
Oil Press	Oil pressure
Gen Hz	Generator frequency
Eng Batt Volt	Battery voltage
Cool Temp	Coolant temperature
Fuel Lvl %	Fuel level %

Eng RPM	Engine speed
Gen L1-L2 Volt	Generator Voltage L1 - L2
Gen Avg L-L Volt	Generator Average Ph-PH Voltage
Gen kW	Generator Total Real Power
Gen kVAr	Generator Total Reactive Power
Gen PF	Total power factor
L1 Amp	Current L1
Latitude	Latitude
Longitude	Longitude
Bus Gen kW	Total active power
Bus Gen kVAr	Total reactive power
Gen kW DC	Generator DC Power
Load kW DC	Load DC Power
Aux kW DC	Auxiliary DC Power
Gen Amp DC	Generator DC Curent
Pl Batt Amp DC	Plant Battery DC Current
Load Amp DC	Load DC Current
Aux Amp DC	Auxiliary DC Current
Gen Volt DC	Generator DC Voltage
Pl Batt Volt DC	Plant Battery DC Voltage
Load Volt DC	Load DC Voltage
Aux Volt DC	Auxiliary DC Voltage
Pl Batt SOC %	Plant Battery Charge Level %
Pl Batt Temp	Plant Battery Temperature
Pl Batt kW DC	Plant Battery DC Power
L2 Amp	Current L2

L3 Amp	Current L3
Gen L2-L3 Volt	Generator voltage L2 - L3
Gen L3-L1 Volt	Generator voltage L3- L1
Active Alarm Cod	Active Alarm codes
Engine Status	Engine Status ON/OFF
Mode	Mode OFF/MAN/AUTO/REMOTE START
CB Status	Statuses of all circuit breakers
Gen kWh	Generator: total exported active energy
Gen kVArh	Generator: total exported reactive energy
Bus Gen kWh	The total active energy (kWh, sum of energy counters of all genset control boards).
Bus Gen kVArh	The total reactive energy (kvar, sum of energy counters of all genset control boards).
Bus L1-L2 Volt	Busbars voltage L1 - L2
Bus L2-L3 Volt	Busbars voltage L2 - L3
Bus L3-L1 Volt	Busbars voltage L3 - L1
Bus Status	Bus status present yes/no
Bus Status	Bus status present yes/no
Num of cranks	Number of cranks
Working hh	Working hours
Mains L1-L2 Volt	Mains voltage L1 - L2
Mains L2-L3 Volt	Mains voltage L2 - L3
Mains L3-L1 Volt	Mains voltage L3 - L1
Hour to Maint 1	Maintenance 1 (h)
Hour to Maint 2	Maintenance 2 (h)
Min to Maint 1	Maintenance 1 (min)
Min to Maint 2	Maintenance 2 (min)

Days to Maint	Days to next maintenance
Date of Maint	Date of the next maintenance

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