BATTERYMANAGEMENT.NET

USER GUIDE

BATTERYMANAGEMENT.NET

USER GUIDE

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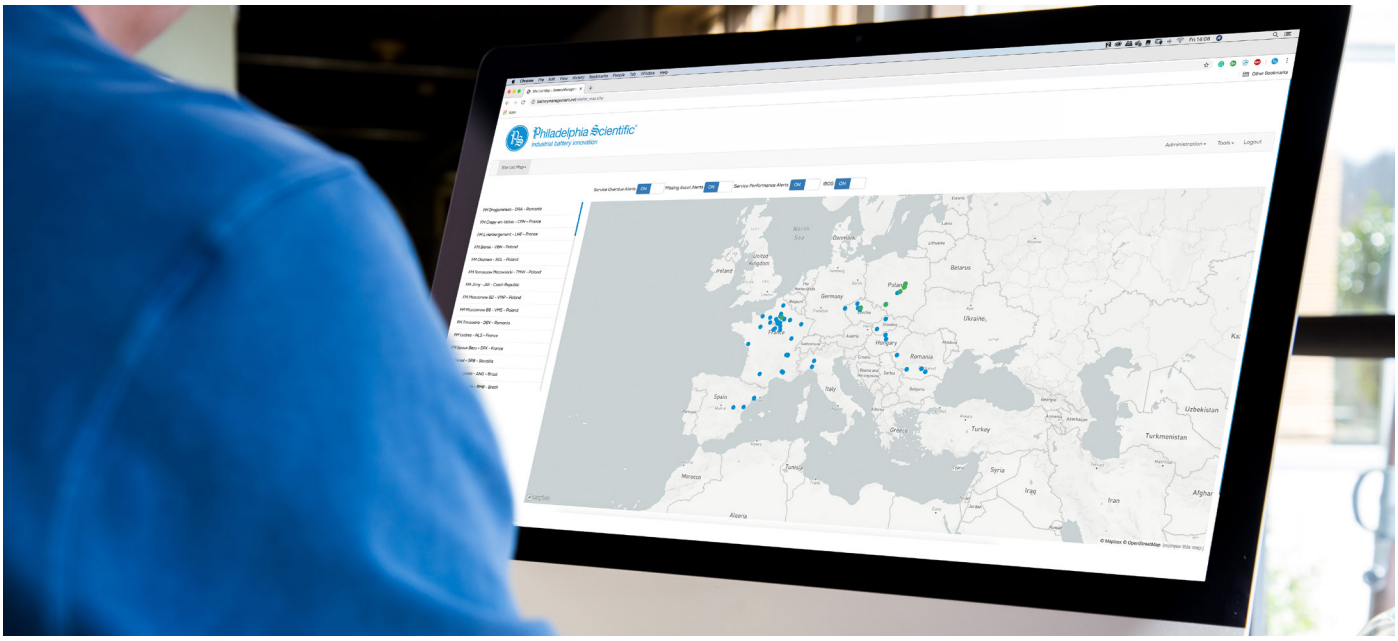
LOGIN DETAILS

USERNAME:

PASSWORD:

INTRODUCTION

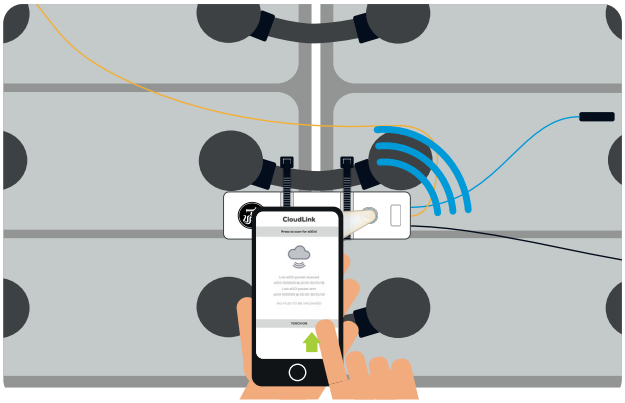


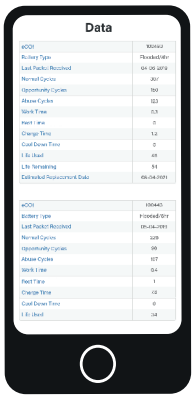
PRO-ACTIVE DATA DRIVEN DECISIONS

- Enables a comparison of the battery use to the design expectations.
- Offers battery replacement date predictions.
- Real-time email alerts can be configured to each site's requirements across multiple parameters (with CloudLink and an Internet connection).
- Multiple user profiles can be provided depending on needs and access permissions. From the administrator who has full access, through management tiers, to a user who can only view reports.
- Multi-language reports are available in English, Korean, Japanese, Spanish, French, German, Dutch, Italian, Portuguese, Serbian, Slovak, Czech, Hungarian.
- Custom website branding for customers.
- The batterymanagement.net API can be integrated into many third party online reports such as forklift management systems.
- When using the iTAG system and reports, batterymanagement.net provides in-depth battery asset records, including condition histories and service records which complement the eGO!c reports.
- The eGO!c has the most comprehensive battery data of any user orientated battery monitoring device.

HOW THE EGO! UPLOADS TO THE WEBSITE

MANUAL UPLOAD





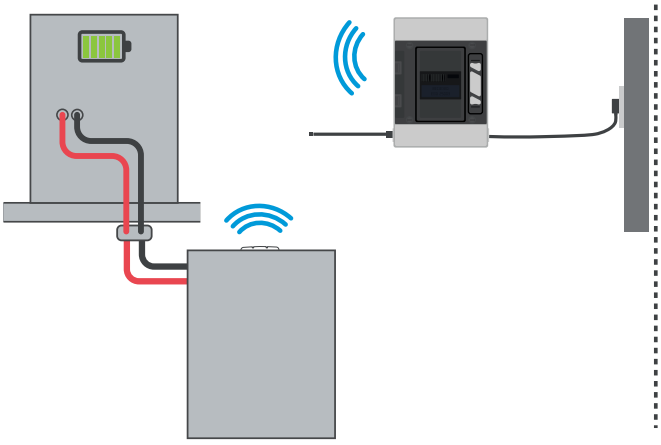
1 +

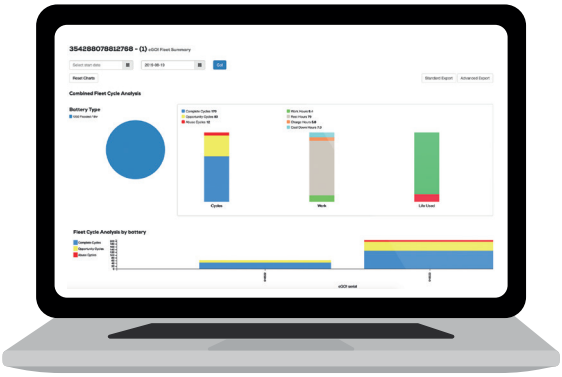
AN UPLOAD CAN BE TRIGGERED USING THE CLOUDLINK FEATURE IN THE EGO!TOOLS APP. USING THE TORCH BUTTON, HOLD THE TORCH ON THE EGO!^{C}, AND A BLUE AND AMBER SOLID LIGHT WILL APPEAR. ONCE THIS APPEARS, TAKE THE TORCH OFF IMMEDIATELY.

2 → /

THE EGO!^{C} WILL START FLASHING BLUE FOR 20 SECONDS WHEN AN UPLOAD IS TRIGGERED. WHEN THE UPLOAD IS COMPLETE IT WILL RETURN TO ITS NORMAL STATE OF FLASHING GREEN (OR RED IF THE BATTERY NEEDS WATER). YOU CAN THEN VIEW THE EGO! DATA IN THE APP.

AUTOMATIC UPLOAD





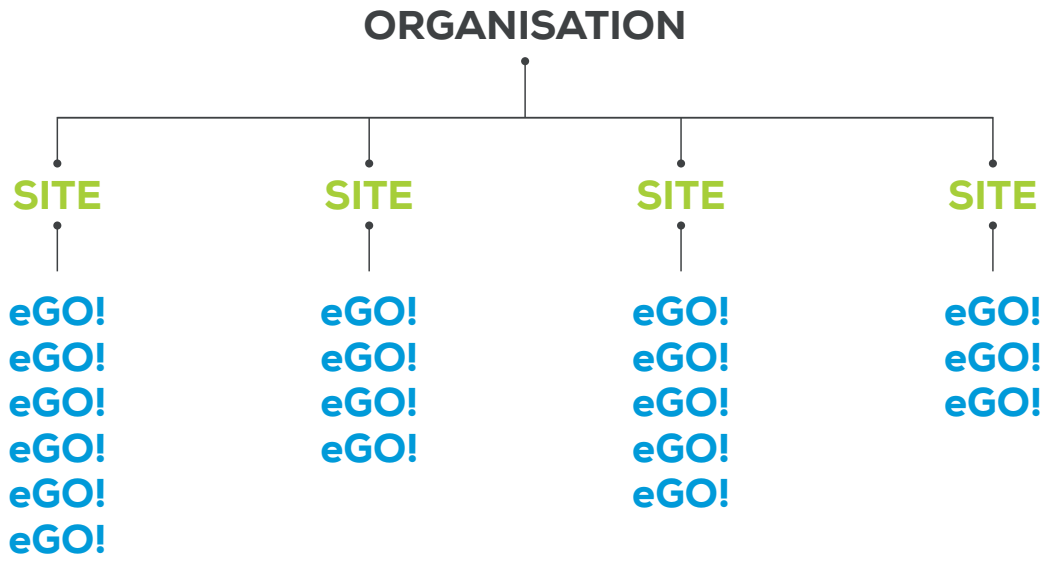
1

WHEN THE BATTERY IS FULLY CHARGED, THE EGO!^{C} WILL TRIGGER AN UPLOAD AND WILL START FLASHING BLUE FOR 20 SECONDS. IF THERE IS AN INTERNET CONNECTED CLOUDLINK INSTALLED IN THE BATTERY ROOM, IT WILL SEND THE DATA TO BATTERYMANAGEMENT.NET.

2 /

WHEN THE UPLOAD IS COMPLETE THE EGO!^{C} WILL RETURN TO ITS NORMAL STATE OF FLASHING GREEN (OR RED IF THE BATTERY NEEDS WATER).

HOW BATTERYMANAGEMENT.NET IS ORGANISED



ORGANISATION: An organisation is typically a battery company, rental company, or truck company that serves many sites, however it may also be a large logistics firm or retail organisation that has to manage many sites across a country or region.

SITE: A site is a place where the eGO!s being managed are located. This is normally a warehouse or production facility.

EGO!: The eGO!s are 'assets' that are assigned to a site in batterymanagement.net

USER PERMISSIONS

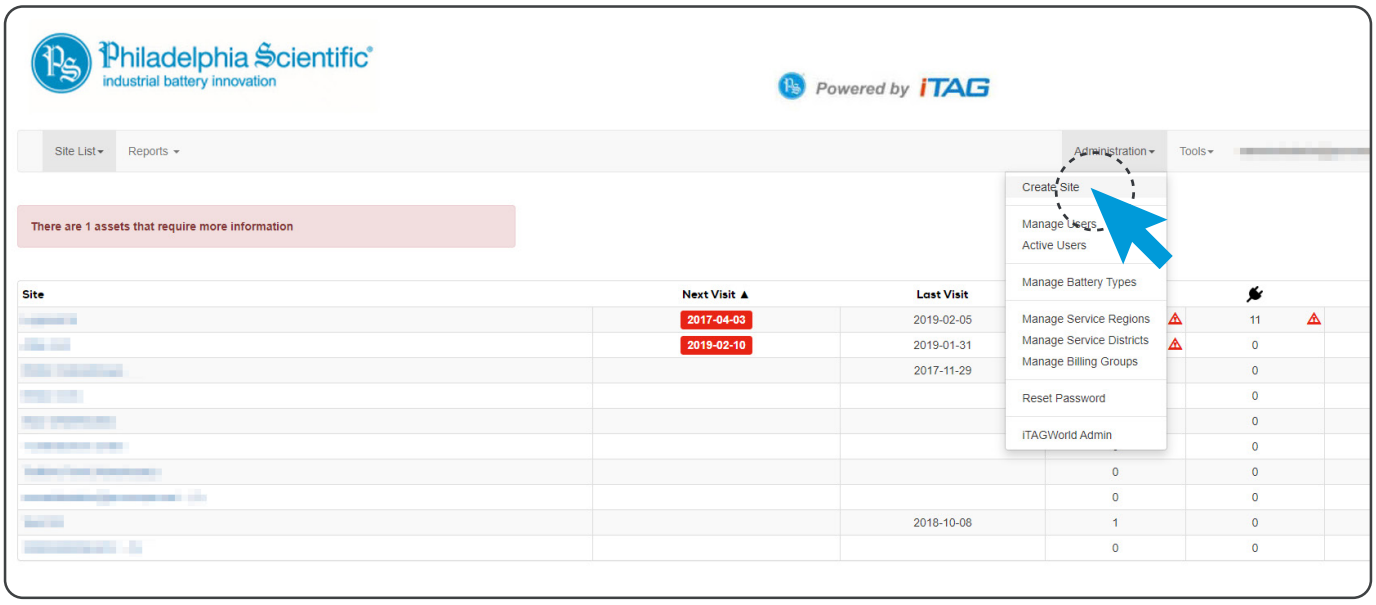
The table below shows those who have access to functions (✔) and those who don't (✖)

FUNCTION		ADMINISTRATOR	OPS. MANAGER	SITE/DEPOT MANAGER	USER
SITE	Create	✔	✔	✖	✖
	Edit	✔	✔	✖	✖
	Delete	✔	✔	✖	✖
	View	✔	✔	✔	✔
USER	Create	✔	✔	✖	✖
	Edit	✔	✔	✔	✖
	Delete	✔	✔	✔	✖
	View	✔	✔	✔	✔
EGO / ASSET	Create	✔	✔	✔	✖
	Edit	✔	✔	✔	✖
	Delete	✔	✔	✔	✖
	View	✔	✔	✔	✔

WEBSITE SETUP & ADMINISTRATION

CREATING A SITE:

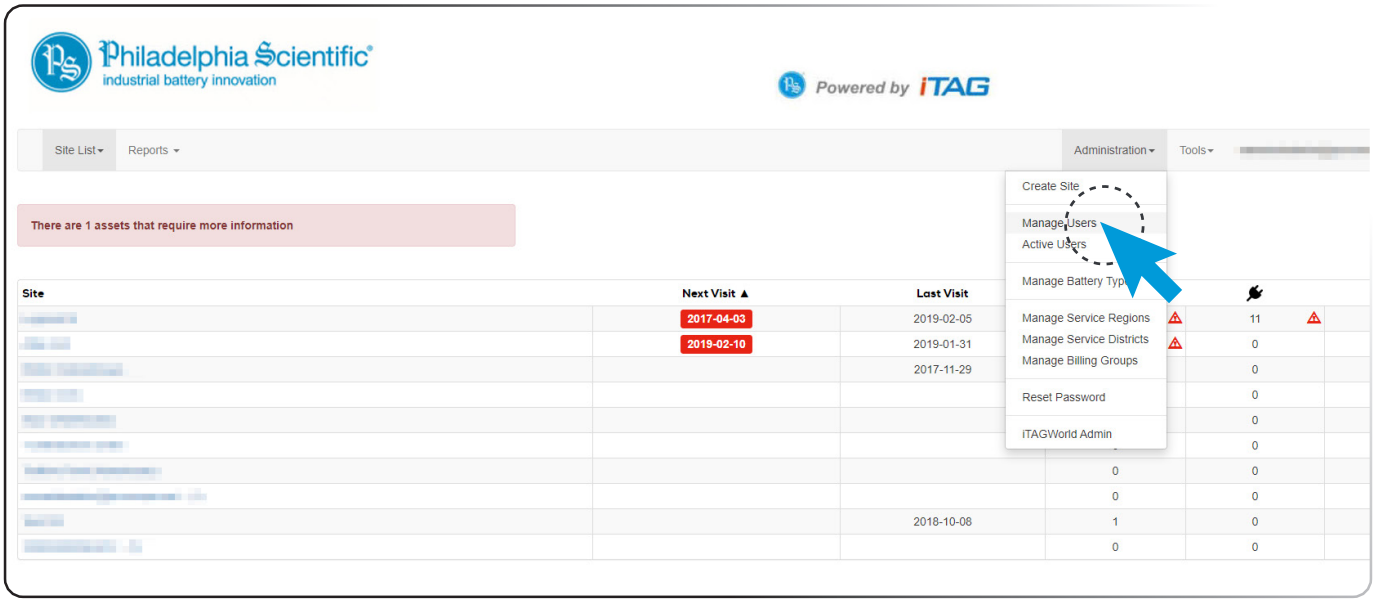
1. Log into https://www.batterymanagement.net
2. Go to the Administration drop-down menu and select 'Create Site:



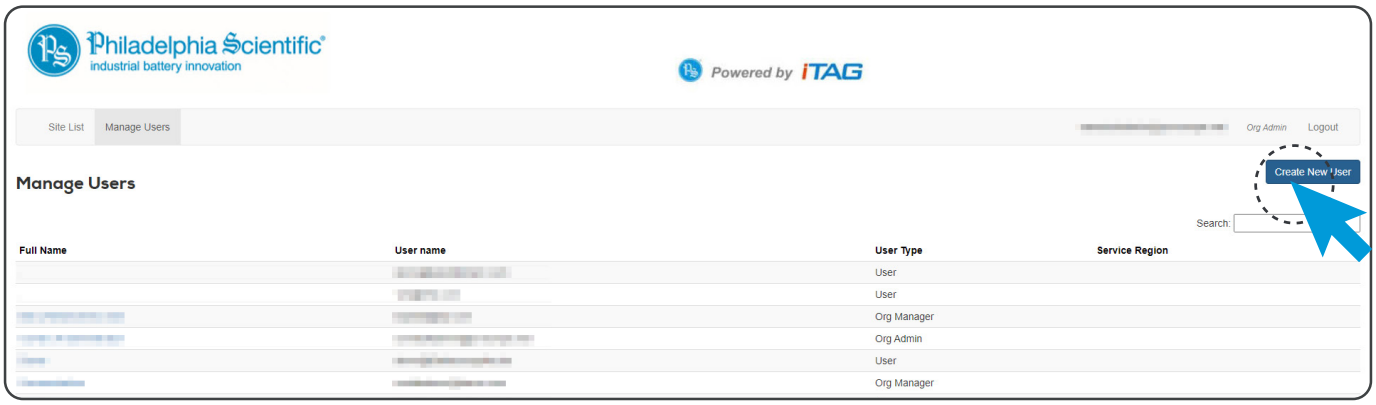
3. Fill in the necessary information and click on 'Create Site'.

CREATING A USER:

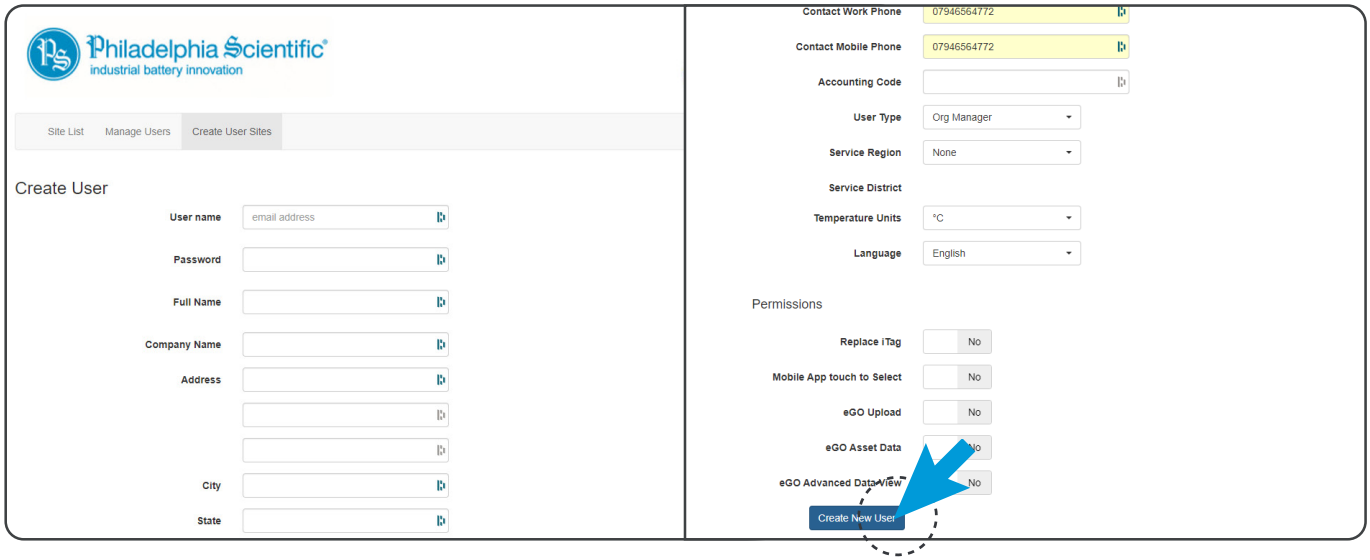
4. Log into https://www.batterymanagement.net
5. Go to the Administration drop-down menu and select 'manage Users'



6. Click on the ‘create user’ button on the right hand side:



7. Enter the required information and click on ‘Create New User’



8. On the following screen select the sites that your user should have access to: click on ‘Save User Sites’.

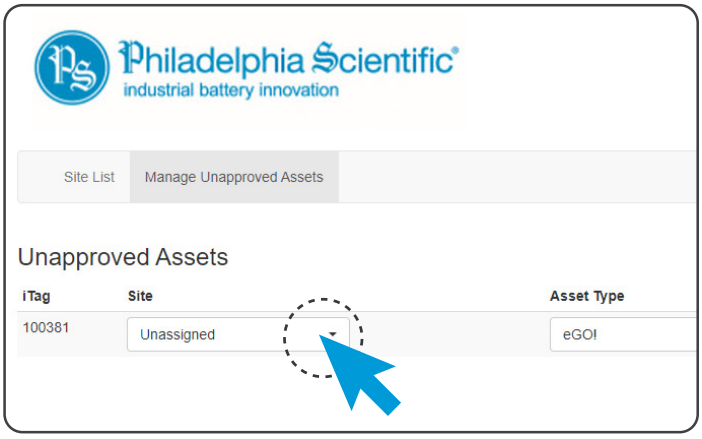
View the site tutorial here: https://youtu.be/f6QaLfmXADQ
View the user tutorial here: https://youtu.be/5ALV35u-sbo

HOW TO VIEW THE EGO! DATA

PLEASE NOTE: You need to trigger an eGO!c data upload to batterymanagement.net

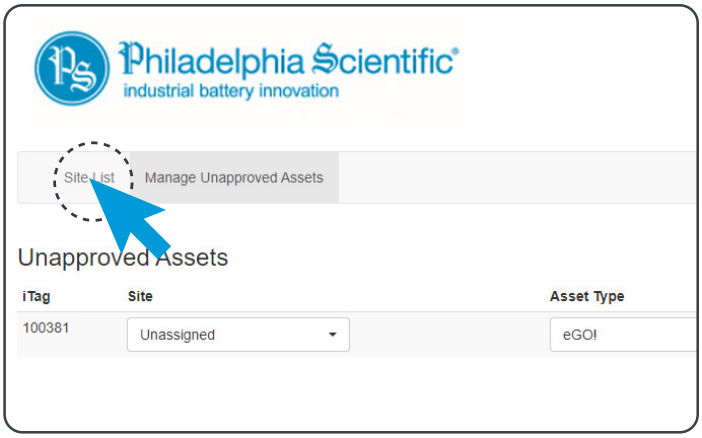
STEP ONE:

Click on the message at the top of the screen regarding assets requiring more information.



STEP TWO:

You will then be presented with a list of unassigned assets. Select the correct site from the drop-down list and save.

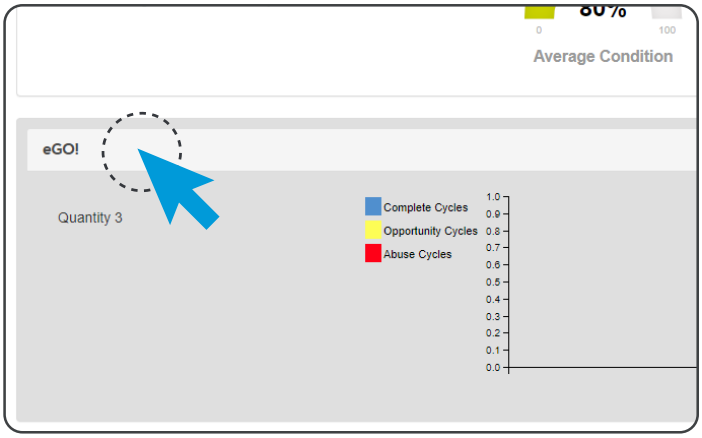


STEP THREE:

Once all assets are assigned click the site list from the menu.

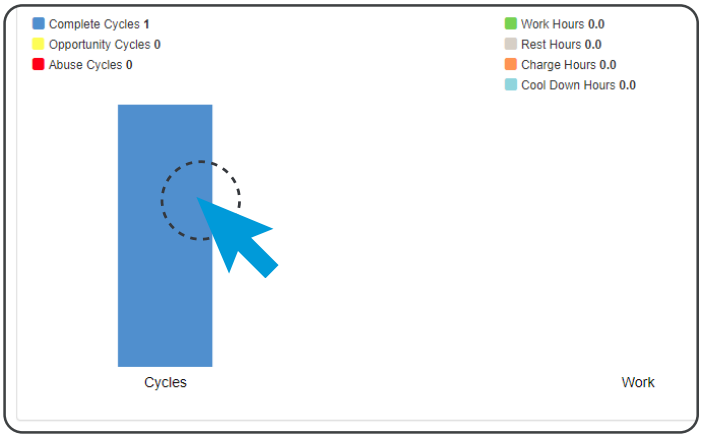
STEP FOUR:

Select the site which you would like to see the information for.



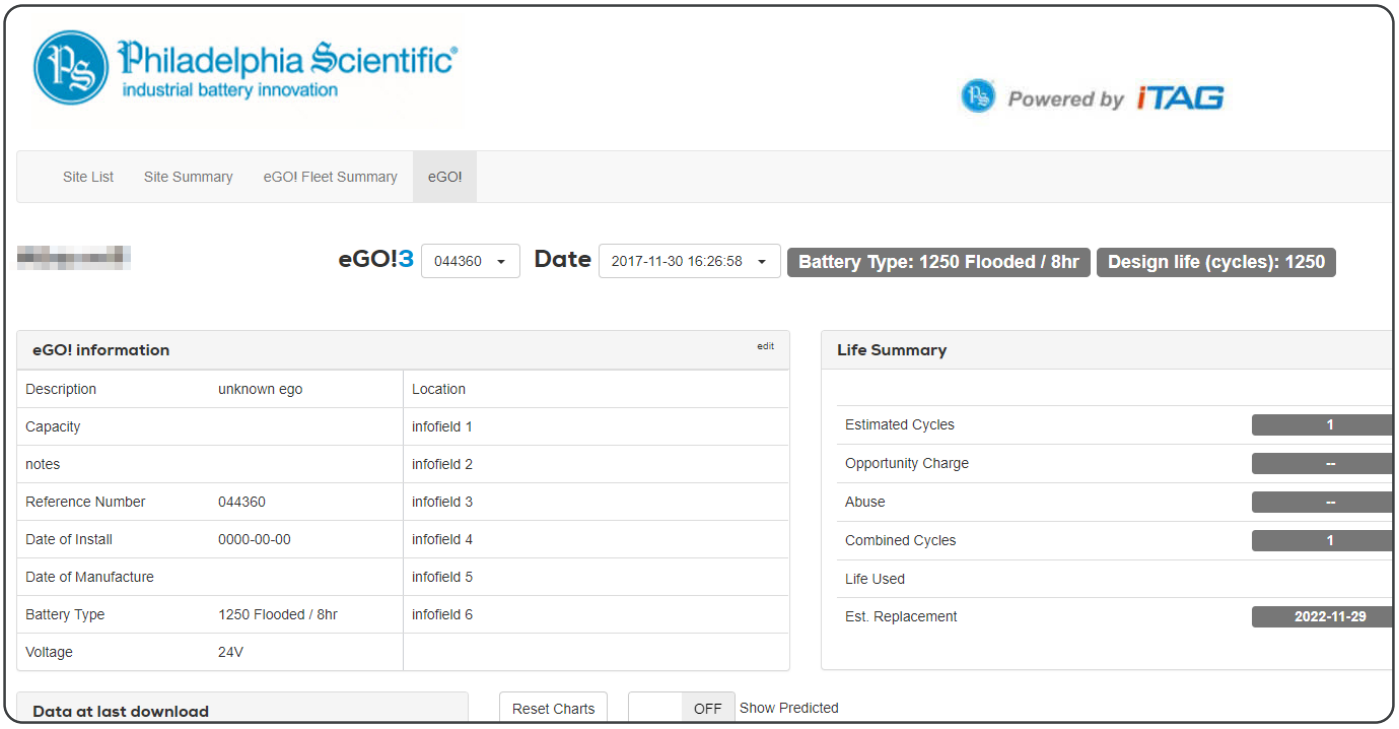
STEP FIVE:

Click on the eGO! section on the user interface.



STEP SIX:

Click on the section of information you'd like to look into further.

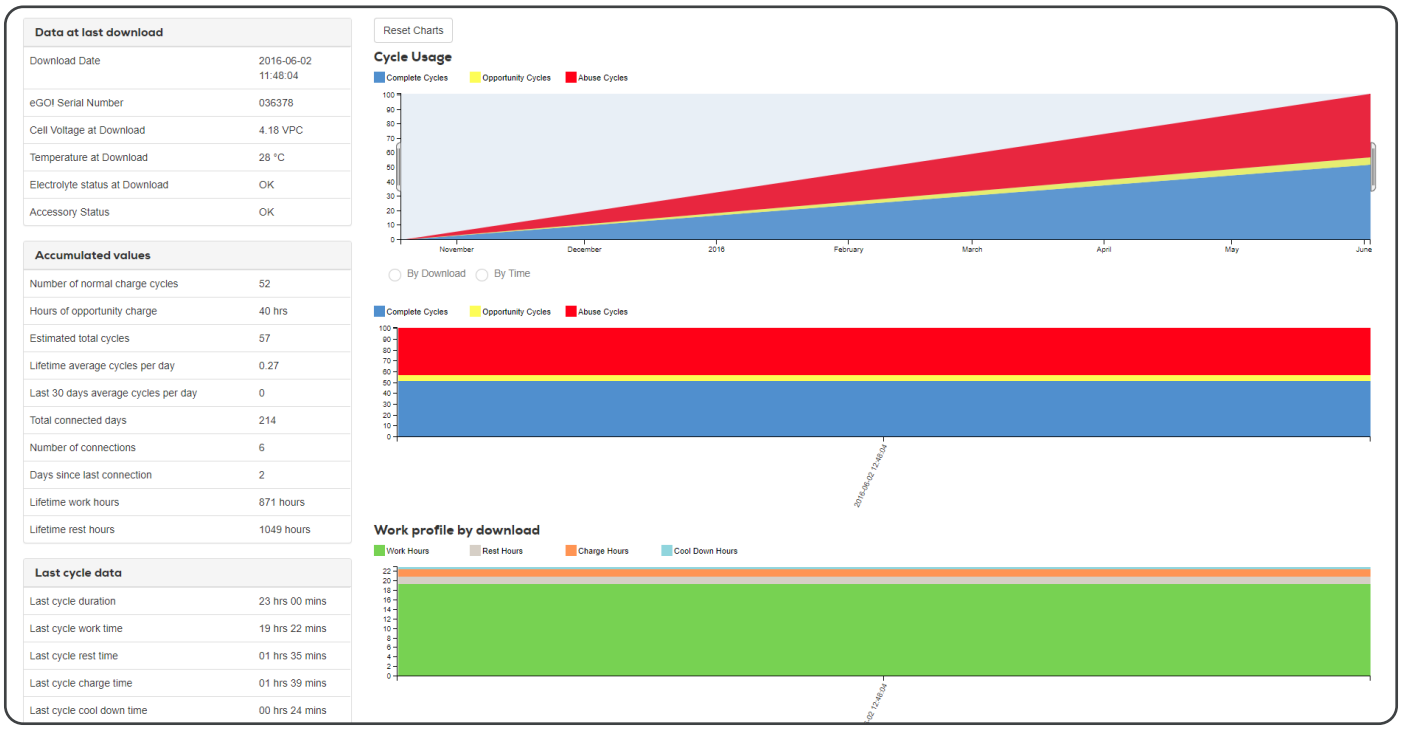


THE EGO!C DATA DASHBOARD

You will now be on the eGO!C dashboard page for an individual eGO!c. This will give you a breakdown of all the information recorded and uploaded to the data hub batterymanagement.net

FOR FURTHER INFORMATION ON THE DATA RECORDED BY THE EGO!C, PLEASE REFERS APPENDIX A; FOR THE EGO!PRO, PLEASE REFERS TO APPENDIX B.

APPENDIX A - EGO!C



DATA POINTS AND RECORDED METRICS

The eGO!c records over 256,000 data samples, across 28 fields, covering 12 separate performance indicators and features an integrated electrolyte indicator, making the eGO!c an all-encompassing intelligence system that delivers the data that is locked away within your battery. The data is automatically captured and uploaded via our CloudLink gateway, giving you a fully integrated and seamless feedback loop. It tracks and records the following metrics which are uploaded to batterymanagement.net.

Download date: Date of download.

eGO!c Serial number: Serial number issued by PS identifying the eGO!c This is located on top of the eGO!c.

Cell voltage at download: This is the average 'volts per cell' of the battery.

Temperature download: Specific temperature at download.

Electrolyte status at download: OK = electrolyte level is correct.
Fill soon = electrolyte level is getting low.
Fill now = electrolyte level is low, battery needs filling.
Accessory status: There are no accessories available for the eGO!c so you will see 'OK'.

Number of normal charge cycles: The number of times the battery is discharged and then charged with a normal termination.

Hours of opportunity charge: Quantity of hours of charge when the charge is ended before having reached the end of normal charging.

Estimated total cycles: An estimation of the total quantity of cycles including any opportunity charging that may have occurred.

Lifetime average cycles per day: This is the average number of cycles per day since the eGO!c was installed.

Last 30 days average cycles per day: The average number of cycles per day for the last 30 days.

Total connected days: How many days the eGO!c has been connected to the battery.
Number of connections: The number of times the eGO!c has been disconnected and reconnected.

Days since last connection: Number of days since the last time the eGO!c was connected.

Lifetime work hours: The number of hours of discharge, recorded from the first time the eGO!c was installed.

Lifetime rest hours: The number of hours the battery is not on charge or being discharged, recorded from the first time the eGO!c was installed.

Last cycle complete hours between charges: The number of hours between the end of the last charge and the beginning of the next charge.

Last cycle work time: The number of hours the battery is being discharged during the last cycle.

Last cycle rest time: The number of hours the battery is not being discharged during the last cycle.

Last cycle charge time: The number of hours during which the battery is on charge during the last cycle.

Maximum temperature during last cycle: Highest recorded temperature during last cycle.

Maximum voltage during last cycle: Highest recorded voltage during last cycle.

Minimum voltage during last cycle: Lowest recorded voltage during last cycle.

Lifetime average temperature: The average temperature recorded since the first installation of the eGO!c.

Lifetime max temperature: Highest recorded temperature since the eGO!c was installed.

Days since connection when maximum temp occurred: The number of days between the initial installation up until the highest temperature was recorded.

Last 30 days average temperature: The average temperature recorded for the preceding 30 days.

Last 24 hours average temperature: The average temperature recorded for the preceding 24 hours.

Cumulative hours of high temperature: The number of hours where the temperature exceeds 40 degrees Celsius (flooded) and 37 degrees Celsius (VRLA).

Lifetime max voltage: The highest voltage recorded since the eGO!c was first installed.

Days since connection when maximum voltage occurred: The number of days between the initial installation up until the day the maximum voltage occurred.

Lifetime minimum voltage: The lowest voltage recorded since the eGO!c was first installed.

Days since connection when minimum voltage occurred: The number of days between the initial installation up until the day the minimum voltage occurred.
Hours of over discharge: The number of hours that the average cell voltage is below the pre-defined voltage.

Total number of days without water: The number of days the electrolyte level is below the level of the SmartBlinky probe.

Longest period without water: The longest period in days that the electrolyte level has been below the level of the SmartBlinky probe.

Days without water at download: The number of days the electrolyte level is below the level of the SmartBlinky probe at the time of download.

EGO!C DATA YOU CAN USE

The data points we record are translated by the website into metrics that are easy to understand and can be used to make the changes in process needed to maximise battery performance.

Electrolyte Levels
Our eGO! products feature our industry standard SmartBlinky Technology alerting you when the battery needs water.

Temperature Levels
Hot running or charging temperatures are a telltale sign that something is wrong. Our eGO! will alert you to it.

Data Received
If we don't get the data you don't get the information. We can track exactly when we last received an upload online.

Normal Cycles
When a battery is charged, used and discharged, this is classed as a normal usage cycle.

Opportunity Cycles
If a battery is charged multiple times during a work cycle this reduces overall life expectancy.

Abuse Cycles
Abuse cycles are another big killer of batteries. We track it so you can amend working practices and maintenance.

Work Time
You can see exactly how long each battery has worked for, hoping you to streamline assets.

Rest Time
Reporting in conjunction with Work Time, this shows how long a battery has stood unused with charge.

Charge Time
The amount of time a battery has been on charge can indicate a whole range of issues with capacity.

Cool Down Time
Using a battery that hasn't cooled down enough drastically impacts performance, we track it so you can change practices.

Life Used
Calculating the average lifespan of a battery using the data captured through the eGO! we can show current life used.

Life Remaining
Working in with Life Used, the life remaining report allows you to effectively plan in replacing batteries and assets.

APPENDIX B - EGO!PRO

DATA POINTS AND RECORDED METRICS

The eGO!pro records over 256,000 data samples, across 28 fields, covering 23 separate performance indicators and features an integrated electrolyte indicator, making the eGO!pro an all-encompassing intelligence system that delivers the data that is locked away within your battery. The data is automatically captured and uploaded via our CloudLink gateway, giving you a fully integrated and seamless feedback loop. It tracks and records the following metrics which are uploaded to batterymanagement.net.

Download date: Date of download.

eGO!pro Serial number: Serial number issued by PS identifying the eGO!pro. This is located on top of the eGO!pro.

Cell voltage at download: This is the average 'volts per cell' of the battery.

Temperature download: Specific temperature at download.

Electrolyte status at download: OK = electrolyte level is correct.
Fill soon = electrolyte level is getting low.
Fill now = electrolyte level is low, battery needs filling.

Accessory status: There are no accessories available for the eGO!pro so you will see 'OK'.

Number of normal charge cycles: The number of times the battery is discharged and then charged with a normal termination.

Hours of opportunity charge: Quantity of hours of charge when the charge is ended before having reached the end of normal charging.

Estimated total cycles: An estimation of the total quantity of cycles including any opportunity charging that may have occurred.

Lifetime average cycles per day: This is the average number of cycles per day since the eGO!pro was installed.

Total connected days: How many days the eGO!pro has been connected to the battery.

Number of connections: The number of times the eGO!pro has been disconnected and reconnected.

Days since last connection: Number of days since the last time the eGO!pro was connected.

Lifetime work hours: The number of hours of discharge, recorded from the first time the eGO!pro was installed.

Lifetime rest hours: The number of hours the battery is not on charge or being discharged, recorded from the first time the eGO!pro was installed.

Last cycle complete hours between charges: The number of hours between the end of the last charge and the beginning of the next charge.

Last cycle work time: The number of hours the battery is being discharged during the last cycle.

Last cycle rest time: The number of hours the battery is not being discharged during the last cycle.

Last cycle charge time: The number of hours during which the battery is on charge during the last cycle.

Last cycle cool down time: The number of hours which the battery take to cool down during the last cycle.

Maximum temperature during last cycle: Highest recorded temperature during last cycle.

Maximum voltage during last cycle: Highest recorded voltage during last cycle.

Minimum voltage during last cycle: Lowest recorded voltage during last cycle.

Lifetime average temperature: The average temperature recorded since the first installation of the eGO!pro.

Lifetime max temperature: Highest recorded temperature since the eGO!pro was installed.

Days since connection when maximum temp occurred: The number of days between the initial installation up until the highest temperature was recorded.

Last 30 days average temperature: The average temperature recorded for the preceding 30 days.

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Hours of over discharge: The number of hours that the average cell voltage is below the pre-defined voltage.

Total number of days without water: The number of days the electrolyte level is below the level of the SmartBlinky probe.

Longest period without water: The longest period in days that the electrolyte level has been below the level of the SmartBlinky probe.

Days without water at download: The number of days the electrolyte level is below the level of the SmartBlinky probe at the time of download.

Life Time discharge Ah: The cumulative ampere-hours of charge delivered by the battery since the eGO!pro was installed.

This cycle discharge Ah: The total ampere-hours of charge delivered within a single charge and discharge cycle.

This cycle max 3s average discharge current: The maximum average discharge current over a 3-second duration within a single charge and discharge cycle.

This cycle max 30s average discharge current: The maximum average discharge current over a 30-second duration within a single charge and discharge cycle.

Life time charge Ah: The cumulative ampere-hours of charge accepted or stored by the battery since the eGO!pro was installed, representing its cumulative charging capacity.

This cycle charge Ah: The total ampere-hours of charge accepted or stored within a single charge and discharge cycle.

This cycle max 3s average charge current: The maximum average charge current over a 3-second duration within a single charge and discharge cycle.

This cycle max 30s average charge current: The maximum average charge current over a 30-second duration within a single charge and discharge cycle.

EGO!PRO DATA YOU CAN USE

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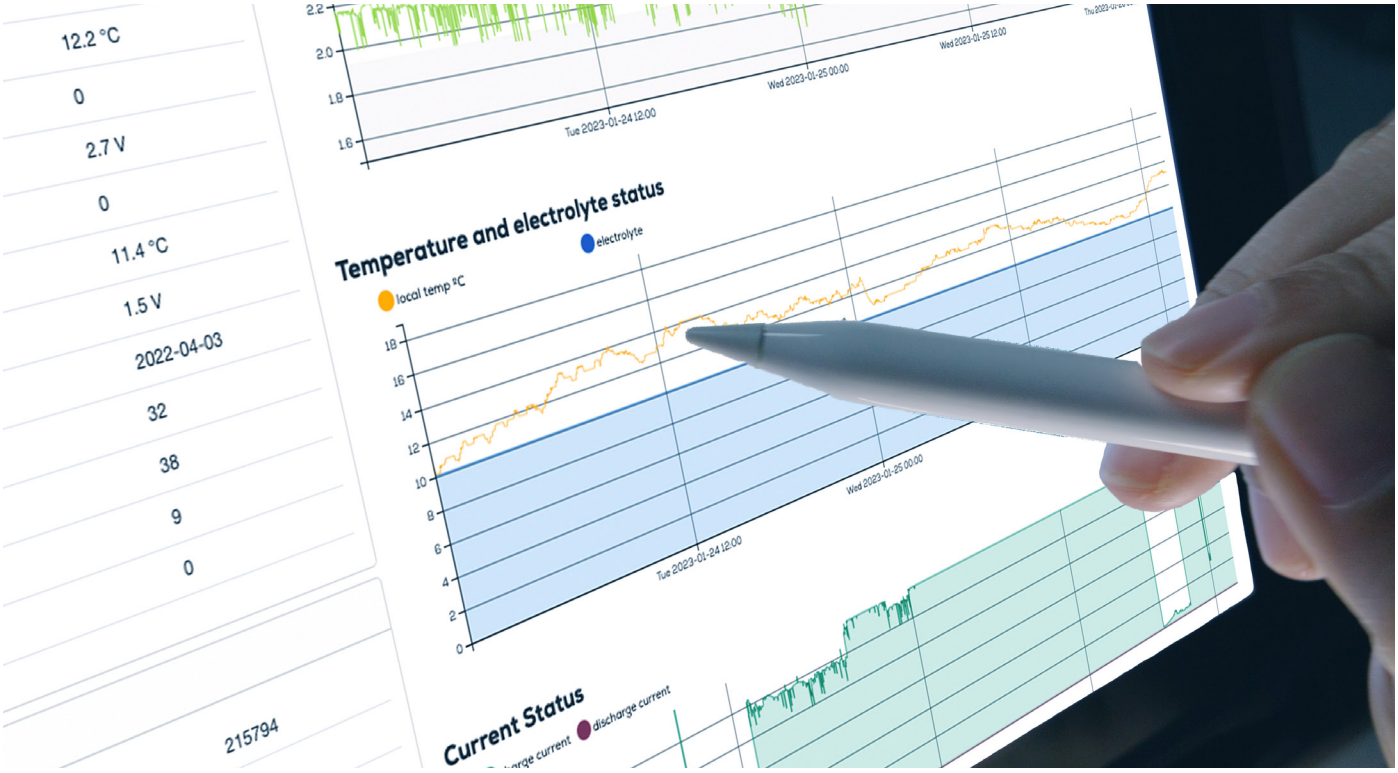


Electrolyte Levels

Our eGO! products feature our industry standard SmartBlinky Technology alerting you when the battery needs water.

Temperature Levels

Hot running or charging temperatures are a telltale sign that something is wrong. Our eGO! will alert you to it.

Current Status

Our eGO!pro features a precision bi-directional hall-effect sensor which provides in-depth current data.

Normal Cycles

When a battery is charged, used and discharged, this is classed as a normal usage cycle.

Opportunity Cycles

If a battery is charged multiple times during a work cycle this reduces overall life expectancy.

Abuse Cycles

Abuse cycles are another big killer of batteries. We track it so you can amend working practices and maintenance.

Work Time

You can see exactly how long each battery has worked for, hoping you to streamline assets.

Rest Time

Reporting in conjunction with Work Time, this shows how long a battery has stood unused with charge.

Charge Time

The amount of time a battery has been on charge can indicate a whole range of issues with capacity.

Cool Down Time

Using a battery that hasn't cooled down enough drastically impacts performance, we track it so you can change practices.

Life Used

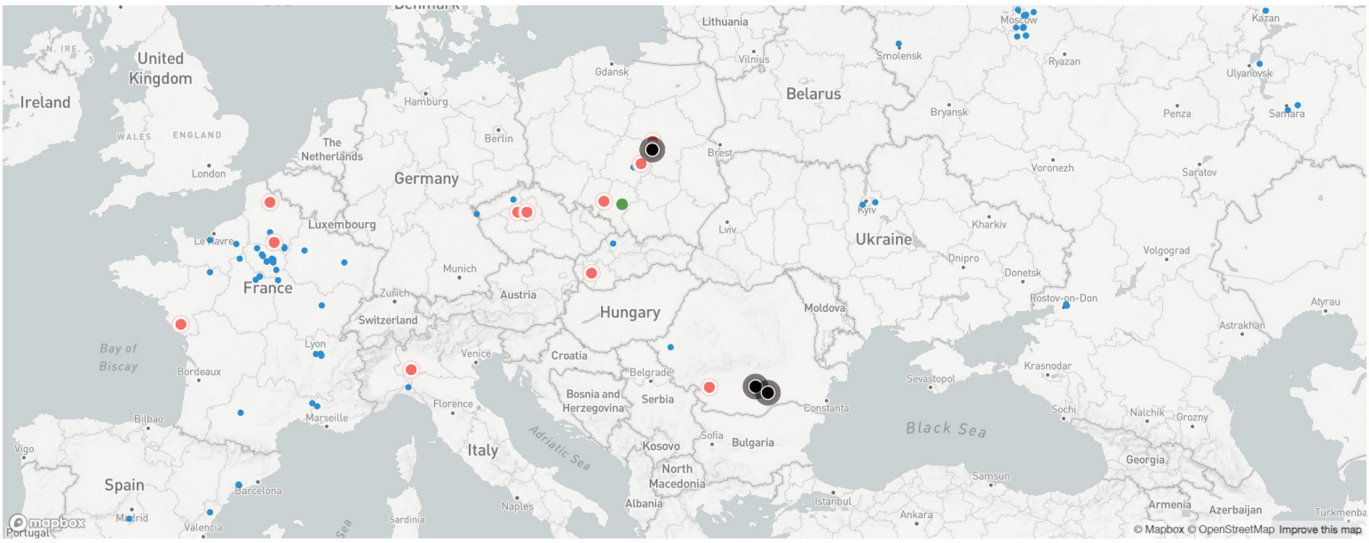
Calculating the average lifespan of a battery using the data captured through the eGO! we can show current life used.

Life Remaining

Working in with Life Used, the life remaining report allows you to effectively plan in replacing batteries and assets.

APPENDIX C - CRITICAL ALERTS MAP

The Critical Alerts Map shows all current mapped sites within an organisation and displays the current status along with any alerts for iBOS, iTAG and eGO!



Small Blue Indicator

The sites' location has been mapped however no monitoring technology is on the site.

Large Blue Indicator

There are eGOIs and/or iTAGs present on the site.

Large Green Indicator

There are no issues on the site.

Pulsing Red Indicator

There are critical issues on the site.

Pulsing Black Indicator

The active data connection to site has been lost.

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