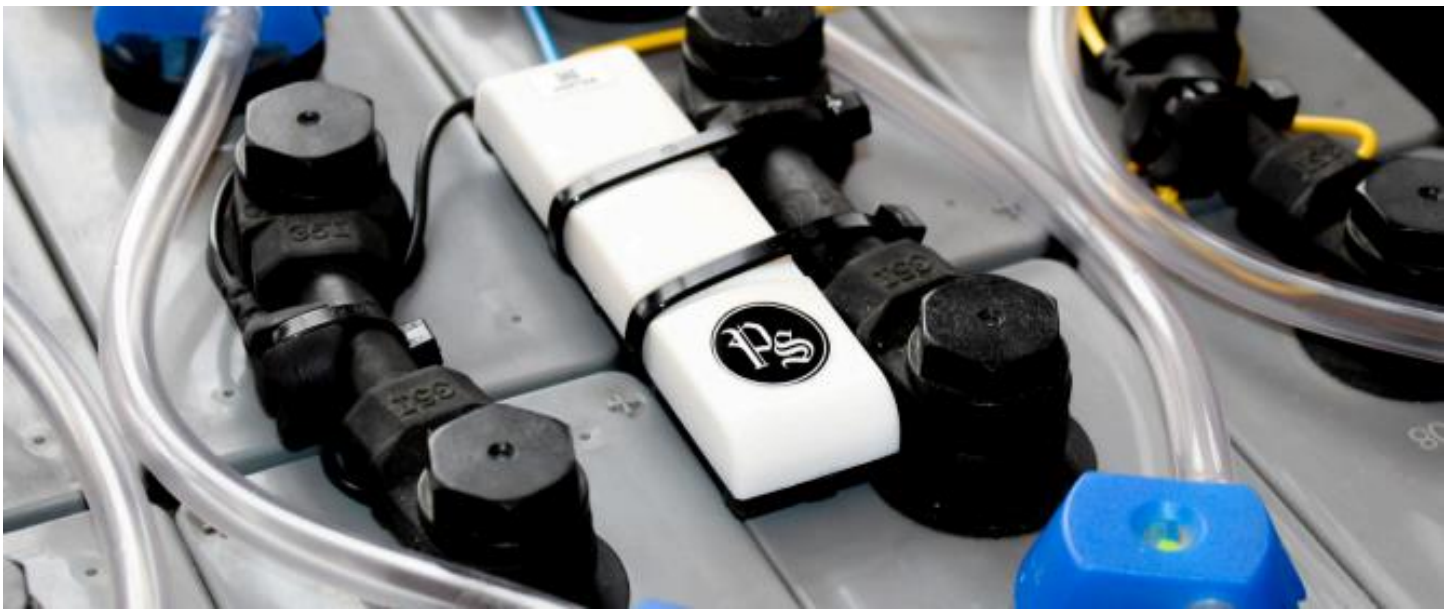
Battery Life Monitor



eGO!c Battery Life Monitor

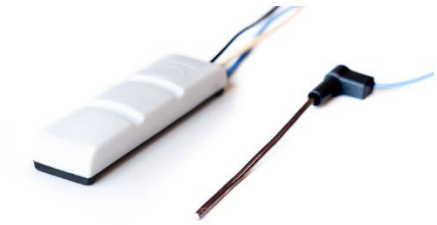
BATTERY MONITORING

Expensive assets are almost always monitored to record how they are being used. While a forklift truck has an hour meter and a service record to help estimate the usage level, the monitoring of the battery is often overlooked. This leads to batteries becoming over-discharged, not watered and ultimately dead long before they're supposed to be. A battery life monitor gives you visual cues to make sure essential maintenance is carried out, and you can even record and transmit a wide range of data points giving you key information on how individual batteries are performing.

The eGO!c battery life monitor is an advanced battery life monitor, turning any lead-acid battery into a smart battery. Recording over 256,000 data samples, across 28 fields, covering 23 separate performance indicators, the eGO!c is an all-encompassing intelligence system that delivers the data that is locked away within your batteries.

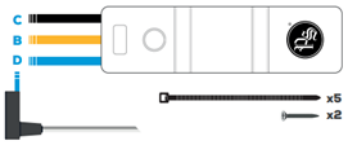
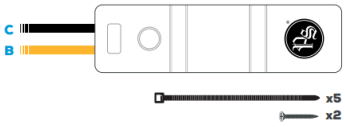
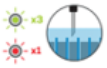
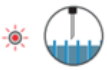
The wide range of metrics recorded by the eGO!c can be used to improve the overall performance of a battery fleet:

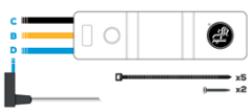
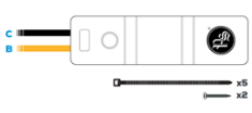
- Improve maintenance procedures.
- Increase run-time and reduce costs.
- Assign accountability for battery abuse.
- Quickly review the data for your entire fleet.
- Identify improvements to maintenance procedures across multiple sites.
- Pro-actively monitor to track improvements

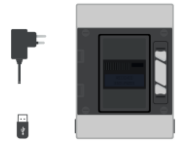
eGOIC			
			
Operating voltage	12 V		
Nominal current	30-100mA		
Over-discharge threshold	80%		
LED	Super bright LED		
Housing	Translucent Overmold		
Protection	IP68		
Connections/Fuses	(S) M4 Steel Ring and Screw (Q) FlexiTap		1x board, 2 x In-line 1 x board, 2 x FlexiTap
Flame retardant	✓		
Reverse polarity protection ?	✓		
SmartSense ?	✓		
SmartDelay ?	24 Hours (Standard) 5 Day (Optional)		
Cable color(s)	Black (-), Yellow (+), Blue (Probe)		
Account	An account needs to be created for the website setup and administration. After setup you can see the Data Dashboard of each individual eGOc. Website: https://www.batterymanagement.net		
Manual upload	An upload can be triggered using the eGO!Tools App		
Automatic upload	When the battery is fully charged, the eGOc will trigger an upload and sent data to the iHUB (optional)		

? See table “Extra Info” on last page

eGOIC™

Housing dimensions		L = 100 mm W = 30 mm H = 18 mm	
Versions		Flooded	Gel
Weight		100 grams (including EL Probe)	80 grams
			
LED Indications	OK		
	Fill soon		
	Fill now		
	Over Temperature		
	Comms Operating		

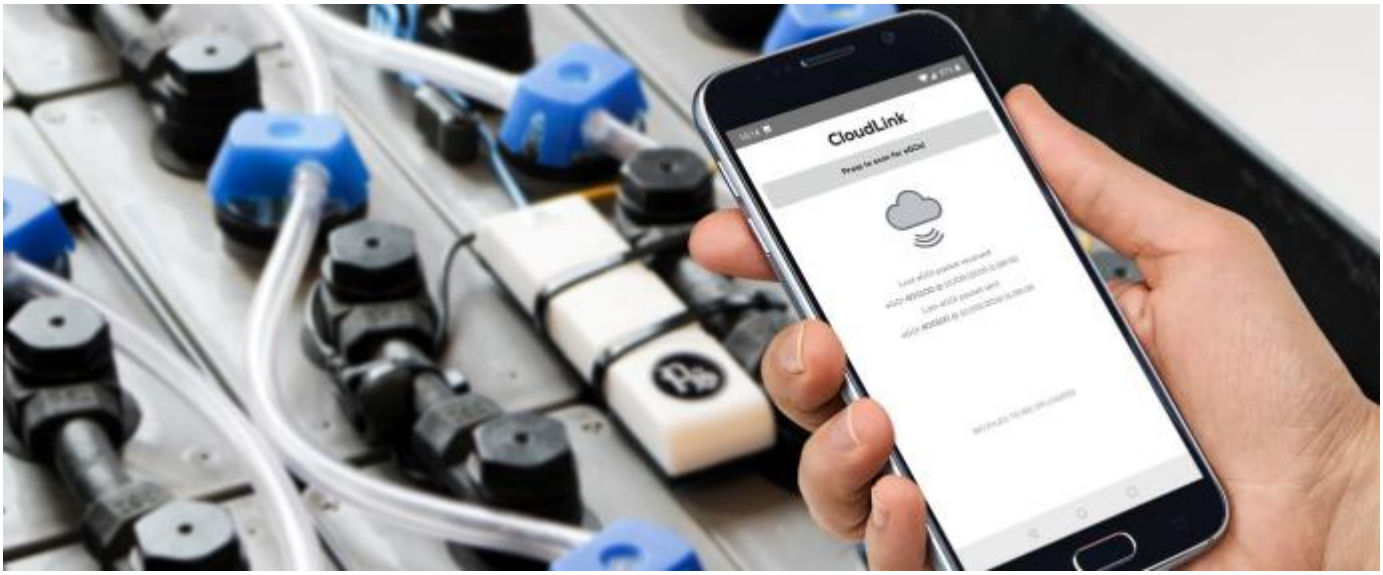
Version	Ordering code	Description	Connection
	EGOC-12SE	eGO Compact Battery Life Monitor M4 Flooded	
	EGOC-12QE	eGO Compact Battery Life Monitor FlexiTap Flooded	
	EGOC-12SG	eGO Compact Battery Life Monitor M4 Gel	
	EGOC-12QG	eGO Compact Battery Life Monitor FlexiTap Gel	

Picture	Ordering code	Description
	EGO3-IHUB-CL1	Cloud Link eGO Data Hub WLAN
	EGO3-IHUB-CL2	Cloud Link eGO Data Hub Wi-Fi

DATA YOU CAN USE		
	Electrolyte Levels	The eGOc alerts you when the battery needs water (Flooded version).
	Temperature Levels	Hot running or charging temperatures are a telltale sign that something is wrong.
	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. The eGOc tracks it so you can amend working practices and maintenance.
	Work Time	You can see exactly how long each battery has worked for.
	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, the eGOc tracks it so you can change practices.
	Life Used	Calculating the average lifespan of a battery using the data captured through the eGOc 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.
	Data Received	There can be tracked when exactly the last upload was received online.

DATA POINTS AND RECORDED METRICS	
Download date	Date of download
eGOc Serial number	Serial number issued by PS identifying the eGOc. This is located on top of the eGOc.
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
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 eGOc 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 eGOc has been connected to the battery.
Number of connections	The number of times the eGOc has been disconnected and reconnected.
Days since last connection	Number of days since the last time the eGOc was connected.
Lifetime work hours	The number of hours of discharge, recorded from the first time the eGOc was installed.
Lifetime rest hours	The number of hours the battery is not on charge or being discharged, recorded from the first time the eGOc 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 eGOc.
Lifetime max temperature	Highest recorded temperature since the eGOc 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 eGOc 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 eGOc 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 probe.
Longest period without water	The longest period in days that the electrolyte level has been below the level of the probe.
Days without water at download	The number of days the electrolyte level is below the level of the probe at the time of download.



Advantages	
+	Quick and easy to install: Only three leads: two to connect power and one for the electrolyte probe. Complete the fields in the eGOcTools app with the battery information and press send.
+	Easy to use: Simply log onto www.batterymanagement.net to view your battery information.
+	Real-time email alerts can be configured to each site's requirements across multiple parameters (with CloudLink and an Internet connection).
+	Offers battery replacement date predictions.
+	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.
+	The batterymanagment.net API can be integrated into many third party online reports such as forklift management systems.
+	Multi-language reports are available in English, Korean, Japanese, Spanish, French, German, Dutch, Italian, Portuguese, Serbian, Slovak, Czech, Hungarian.
+	When using the iTAG system and reports, batterymanagement.net provides in-depth battery asset records, including condition histories and service records which complement the eGOc reports.

? Extra info ?	
Reverse Polarity Protection	Connecting 'the wrong way round' will not damage it.
SmartDelay	The SmartDELAY optimises battery filling whilst preventing boil-over. The electrolyte level in a battery can rise and fall several times a day, with SmartDELAY the LED only turns red once the electrolyte level has been low for over 24 hours (5 day optional), reducing the risk of incorrect topping and reducing the topping frequency.
SmartSense	Programme that confirms electrolyte level is below the probe.