

# Product Environmental Profile

## Galaxy Lithium-ion Battery Cabinet





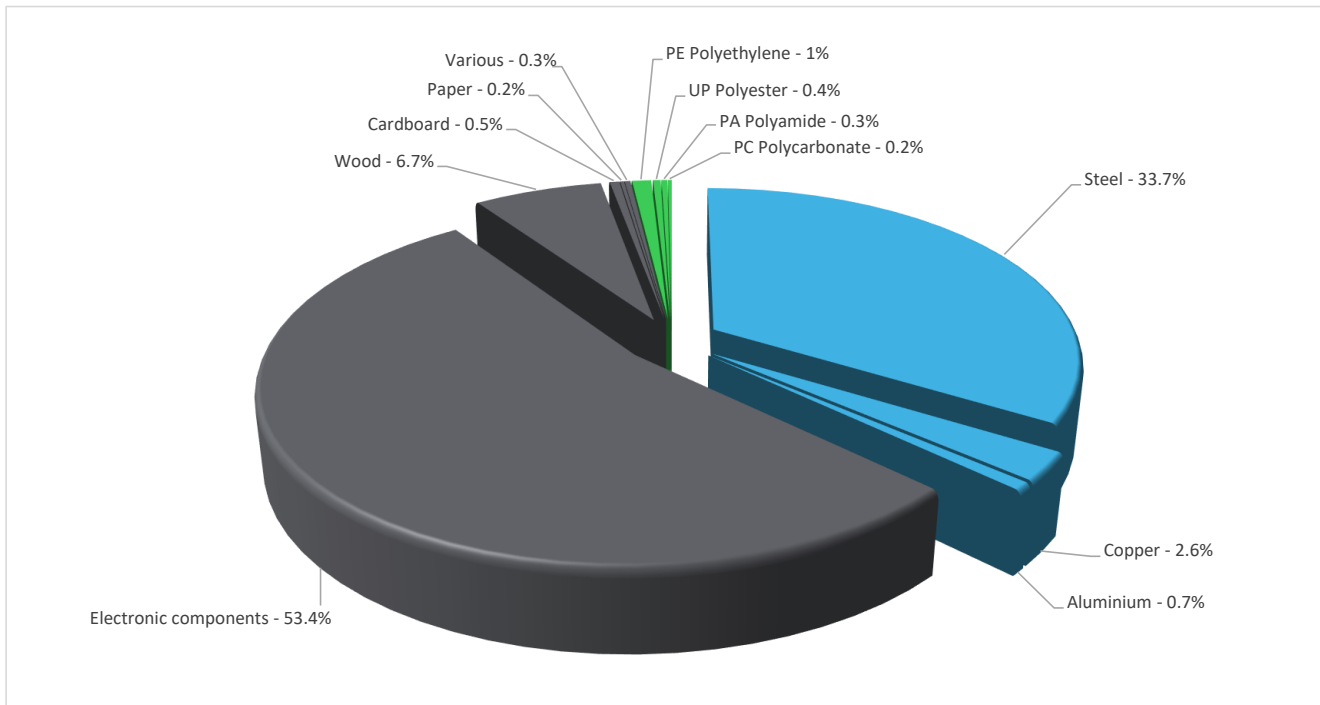
## General information

Reference product	Galaxy Lithium-ion Battery Cabinet UL with 17 x 2.04 kWh battery modules - LIBSESMG17UL					
Description of the product	Galaxy Lithium-ion Battery Cabinet has modular design, low TCO (doubling battery life) and reduces battery footprint and weight by up to 70%. It complies UL9540A test standard and guarantees the highest safety requirement. Aesthetically matching the industrial design of Schneider Electric's Galaxy V range UPSs, the Galaxy Lithium-ion battery solution is the ideal energy storage solution for your critical application.					
Description of the range	The products of the range are: Galaxy Lithium-ion Battery Cabinet UL or IEC with 10, 13, 16 or 17 battery modules.					
	Brand	Linked products	Type	Net weight (kg)	Weight with packaging (kg)	Dimension (mm) HxWxD
Schneider Electric	LIBSESMG10UL	Galaxy Lithium-ion Battery Cabinet UL with 10 x 2.04 kWh battery modules		355	401	1970x650x587
	LIBSESMG13UL	Galaxy Lithium-ion Battery Cabinet UL with 13 x 2.04 kWh battery modules		415	461	
	LIBSESMG16UL	Galaxy Lithium-ion Battery Cabinet UL with 16 x 2.04 kWh battery modules		470	516	
	<b>LIBSESMG17UL</b>	<b>Galaxy Lithium-ion Battery Cabinet UL with 17 x 2.04 kWh battery modules</b>		<b>490</b>	<b>536</b>	
	LIBSESMG10IEC	Galaxy Lithium-ion Battery Cabinet IEC with 10 x 2.04 kWh battery modules		355	401	
	LIBSESMG13IEC	Galaxy Lithium-ion Battery Cabinet IEC with 13 x 2.04 kWh battery modules		415	461	
	LIBSESMG16IEC	Galaxy Lithium-ion Battery Cabinet IEC with 16 x 2.04 kWh battery modules		470	516	
LIBSESMG17IEC	Galaxy Lithium-ion Battery Cabinet IEC with 17 x 2.04 kWh battery modules		490	536		
Functional unit	To provide 34.7 kWh of back-up power to 3-Phase and other compatible UPS models for 10 years. The reference life time is 10 years analysis used for PEP analysis based on PSR rules. The Galaxy Lithium-ion Battery Cabinet has an expected life of 15+ years.					



## Constituent materials

Reference product mass 536kg including the product, its packaging and additional elements and accessories



Plastics	1.90%
Metals	37.00%
Others	61.10%



## Substance assessment

RoHS compliance	Products of this range are designed in conformity with the requirements of the RoHS directive (European Directive 2011/65/EU of 8 June 2011) on restriction of lead, mercury, cadmium, hexavalent chromium or flame retardants -PBB&PBDE or phthalates-DEHP, BBP, DBP, DIBP.
REACH compliance	Products of this range are designed in conformity with the requirements of the REACH 1907/2006 regulation and its latest updates.
Battery Directive compliance	The battery within this product range are designed in conformity with the requirements of the Battery and Accumulator Directive (European Directive 2006/66/EC of 26 September 2006).

Details of ROHS and REACH substances information are available on the Schneider-Electric Green Premium website  
<https://www.se.com/ww/en/work/support/green-premium/>

## Additional environmental information

End Of Life	Recyclability potential:	74%	The recyclability rate was calculated from the recycling rates of each material making up the product with the exception of data using the ESR database. For materials or components using the ESR database or the absence of data the conservative hypothesis "0% recyclability" was used.
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## Environmental impacts

Reference service life time	10 years		
Product category	Other equipments - Active product		
Installation elements	The product does not require any installation operations.		
Use scenario	With the standard use case, the losses for the Battery management system is the largest use part of the Galaxy Lithium Ion Battery Cabinet, with 25W per cabinet regardless of the number of battery modules. So annual electricity use of 219 kWh.		
	Linked products	Type	Electricity consumption (kWh over 10 years)
	LIBSESMG10UL	Galaxy Lithium-ion Battery Cabinet UL with 10 x 2.04 kWh battery modules	2,190
	LIBSESMG13UL	Galaxy Lithium-ion Battery Cabinet UL with 13 x 2.04 kWh battery modules	2,190
	LIBSESMG16UL	Galaxy Lithium-ion Battery Cabinet UL with 16 x 2.04 kWh battery modules	2,190
	<b>LIBSESMG17UL</b>	<b>Galaxy Lithium-ion Battery Cabinet UL with 17 x 2.04 kWh battery modules</b>	<b>2,190</b>
	LIBSESMG10IEC	Galaxy Lithium-ion Battery Cabinet IEC with 10 x 2.04 kWh battery modules	2,190
	LIBSESMG13IEC	Galaxy Lithium-ion Battery Cabinet IEC with 13 x 2.04 kWh battery modules	2,190
LIBSESMG16IEC	Galaxy Lithium-ion Battery Cabinet IEC with 16 x 2.04 kWh battery modules	2,190	
LIBSESMG17IEC	Galaxy Lithium-ion Battery Cabinet IEC with 17 x 2.04 kWh battery modules	2,190	
Time representativeness	The collected data are representative of the year 2024		
Technological representativeness	The Modules of Technologies such as material production, manufacturing process and transport technology used in this PEP analysis (LCA-EIME in this case) are Similar and representative of the actual type of technologies used to make the product in production.		
Geographical representativeness	United States, US		
Energy model used	[A1 - A3]	[A5]	[B6]
	Electricity Mix; Low voltage; 2018; Asia Pacific, APAC	Electricity Mix; Low voltage; 2018; United States, US	Electricity Mix; Low voltage; 2018; United States, US
	[C1 - C4]		
	Electricity Mix; Low voltage; 2018; United States, US		Electricity Mix; Low voltage; 2018; United States, US

Detailed results of the optional indicators mentioned in PCRed4 are available in the LCA report and on demand in a digital format - Country Customer Care Center - <http://www.schneider-electric.com/contact>

The calculation result is scientific counting method. For example,  $1.37E+06=1.37 \cdot 10^6=1,370,000$ ,  $1.64E-04=1.64 \cdot 10^{-4}=0.000164$

Mandatory Indicators		Galaxy Lithium-ion Battery Cabinet - LIBSESMG17UL						
Impact indicators	Unit	Total (without Module D)	[A1 - A3] - Manufacturing	[A4] - Distribution	[A5] - Installation	[B1 - B7] - Use	[C1 - C4] - End of life	[D] - Benefits and loads**
Contribution to climate change	kg CO2 eq	1.33E+04	1.09E+04	1.01E+02	7.73E+01	1.20E+03	1.01E+03	-7.45E+02
Contribution to climate change-fossil	kg CO2 eq	1.31E+04	1.08E+04	1.01E+02	1.87E+01	1.20E+03	1.00E+03	-7.40E+02
Contribution to climate change-biogenic	kg CO2 eq	1.13E+02	5.01E+01	0*	5.86E+01	1.26E+00	2.82E+00	-4.58E+00
Contribution to climate change-land use and land use change	kg CO2 eq	7.93E-03	7.88E-03	0*	0*	0*	4.76E-05	0.00E+00
Contribution to ozone depletion	kg CFC-11 eq	8.89E-03	8.88E-03	0*	0*	5.09E-06	2.04E-06	-1.13E-04
Contribution to acidification	mol H+ eq	8.11E+01	7.13E+01	6.41E-01	1.91E-02	6.34E+00	2.75E+00	-6.12E+00
Contribution to eutrophication, freshwater	kg (PO4) <sup>3-</sup> eq	5.19E+00	5.09E+00	0*	0*	1.84E-03	9.29E-02	-1.19E-03
Contribution to eutrophication marine	kg N eq	2.18E+01	2.00E+01	3.01E-01	5.87E-03	7.54E-01	6.94E-01	-4.40E-01
Contribution to eutrophication, terrestrial	mol N eq	1.55E+02	1.35E+02	3.30E+00	8.09E-02	8.84E+00	7.52E+00	-5.12E+00
Contribution to photochemical ozone formation - human health	kg COVNM eq	4.84E+01	4.28E+01	8.32E-01	1.60E-02	2.50E+00	2.26E+00	-1.88E+00
Contribution to resource use, minerals and metals	kg Sb eq	5.96E-01	5.93E-01	0*	0*	0*	2.87E-03	-2.30E-01
Contribution to resource use, fossils	MJ	1.89E+05	1.23E+05	1.41E+03	3.26E+01	2.54E+04	3.93E+04	-1.66E+04
Contribution to water use	m3 eq	1.44E+05	1.44E+05	0*	0*	4.30E+01	2.75E+02	-3.78E+02

Inventory flows Indicators		Galaxy Lithium-ion Battery Cabinet - LIBSESMG17UL						
Inventory flows	Unit	Total (without Module D)	[A1 - A3] - Manufacturing	[A4] - Distribution	[A5] - Installation	[B1 - B7] - Use	[C1 - C4] - End of life	[D] - Benefits and loads**
Contribution to use of renewable primary energy excluding renewable primary energy used as raw material	MJ	7.11E+03	3.85E+03	1.89E+00	0*	3.19E+03	7.05E+01	-1.91E+02
Contribution to use of renewable primary energy resources used as raw material	MJ	8.66E+02	8.66E+02	0*	0*	0*	0*	0.00E+00
Contribution to total use of renewable primary energy resources	MJ	7.98E+03	4.72E+03	1.89E+00	0*	3.19E+03	7.05E+01	-1.91E+02
Contribution to use of non renewable primary energy excluding non renewable primary energy used as raw material	MJ	1.87E+05	1.21E+05	1.41E+03	3.26E+01	2.54E+04	3.93E+04	-1.66E+04
Contribution to use of non renewable primary energy resources used as raw material	MJ	2.24E+03	2.24E+03	0*	0*	0*	0*	0.00E+00
Contribution to total use of non-renewable primary energy resources	MJ	1.89E+05	1.23E+05	1.41E+03	3.26E+01	2.54E+04	3.93E+04	-1.66E+04
Contribution to use of secondary material	kg	4.12E-05	4.12E-05	0*	0*	0*	0*	0.00E+00
Contribution to use of renewable secondary fuels	MJ	0.00E+00	0*	0*	0*	0*	0*	0.00E+00
Contribution to use of non renewable secondary fuels	MJ	0.00E+00	0*	0*	0*	0*	0*	0.00E+00
Contribution to net use of freshwater	m³	3.36E+03	3.35E+03	0*	0*	1.00E+00	6.41E+00	-8.80E+00
Contribution to hazardous waste disposed	kg	1.33E+05	1.33E+05	0*	0*	2.34E+01	1.20E+02	-1.84E+04
Contribution to non hazardous waste disposed	kg	8.47E+03	8.23E+03	3.55E+00	4.61E+01	1.77E+02	1.53E+01	-6.09E+02
Contribution to radioactive waste disposed	kg	5.81E+00	5.77E+00	2.53E-03	1.45E-03	3.33E-02	3.24E-03	-2.93E-01
Contribution to components for reuse	kg	0.00E+00	0*	0*	0*	0*	0*	0.00E+00
Contribution to materials for recycling	kg	2.27E+02	3.04E+01	0*	0*	0*	1.96E+02	0.00E+00
Contribution to materials for energy recovery	kg	1.26E-07	1.26E-07	0*	0*	0*	0*	0.00E+00
Contribution to exported energy	MJ	5.59E+00	3.65E+00	0*	0*	0*	1.94E+00	0.00E+00

\* represents less than 0.01% of the total life cycle of the reference flow

Contribution to biogenic carbon content of the product kg of C 0.00E+00

Contribution to biogenic carbon content of the associated packaging kg of C 1.50E+01

\* represents less than 0.01% of the total life cycle of the reference flow


\*\* Net benefits and loads beyond the system boundaries stage (module D): potential for reuse, recovery and/or recycling, expressed as net benefits and impacts. **Not accounted in the Total.**

Life cycle assessment performed with EIME version v6.1, database version 2023-02 in compliance with ISO14044, EF 3.0 method is applied, for biogenic carbon storage, assessment methodology 0/0 is used

Please note that the values given above are only valid within the context specified and cannot be used directly to draw up the environmental assessment of an installation.

 **Extrapolated data**

		Galaxy Lithium-ion Battery Cabinet UL with 2.04 kWh battery modules				Referent product
		Quantity of battery modules	10	13	16	17
Product information	Weight with Packaging (kg)	401	461	516	536	
	<b>Compulsory environmental indicators</b>					
Total of Life Cycle Phases						
Galaxy Lithium-ion Battery Cabinet						
Contribution to climate change (kg CO2 eq)		1.02E+04	1.16E+04	1.28E+04	1.33E+04	<b>1.33E+04</b>
Contribution to Ozone depletion (kg CFC11 eq)		6.65E-03	7.64E-03	8.56E-03	8.89E-03	<b>8.89E-03</b>
Contribution to Acidification (mol H+ eq)		6.23E+01	7.06E+01	7.83E+01	8.11E+01	<b>8.11E+01</b>
Contribution to eutrophication, freshwater (kg PO43- eq)		3.88E+00	4.46E+00	4.99E+00	5.19E+00	<b>5.19E+00</b>
Contribution to eutrophication marine (kg N eq)		1.65E+01	1.88E+01	2.10E+01	2.18E+01	<b>2.18E+01</b>
Contribution to eutrophication, terrestrial (mol N eq)		1.18E+02	1.34E+02	1.49E+02	1.55E+02	<b>1.55E+02</b>
Contribution to photochemical ozone formation - human health (kg COVNM eq)		3.69E+01	4.20E+01	4.67E+01	4.84E+01	
Contribution to resource use, minerals and metals (kgSbeq)		4.46E-01	5.13E-01	5.74E-01	5.96E-01	<b>5.96E-01</b>
Total use of primary energy (MJ)		1.55E+05	1.73E+05	1.91E+05	1.97E+05	<b>1.97E+05</b>
Contribution to water use (m3 eq)		1.08E+05	1.24E+05	1.39E+05	1.44E+05	<b>1.44E+05</b>

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		Supplemented by	PSR-0005-ed3-EN-2023 06 06
Verifier accreditation N°	VH08	Information and reference documents	<a href="http://www.pep-ecopassport.org">www.pep-ecopassport.org</a>
Date of issue	06-2024	Validity period	5 years
Independent verification of the declaration and data, in compliance with ISO 14025 : 2006			
Internal                      External    X			
The PCR review was conducted by a panel of experts chaired by Julie Orgelet (DDemain)			
PEPs are compliant with XP C08-100-1:2016 and EN 50693:2019 or NF E38-500 :2022			
The components of the present PEP may not be compared with components from any other program.			
Document complies with ISO 14025:2006 "Environmental labels and declarations. Type III environmental declarations"			
			

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