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**FOR SELECTED 24V, 48V AND 80V
WAREHOUSE AND ELECTRIC COUNTERBALANCE
TRUCKS WITH PNEUMATIC TYRES**

PRODUCT BROCHURE

SUNLIGHT GROUP LITHIUM-ION BATTERIES: INNOVATION MEETS THE FUTURE



APPLICATIONS

SUNLIGHT Li-ion batteries are particularly suited for intensive or multi-shift operations. A single battery can replace multiple lead-acid batteries and release space used for charging, while also reducing handling time and costs. A single Li-ion battery opportunity charged in available breaks can, if managed, fully meet the application requirements.

Trucks with Li-ion batteries are of particular interest to industries where clean operations are necessary, such as food and beverage production and pharmaceutical industries, as Li-ion batteries are free of gaseous emissions and there is no risk of acid spillage.

BENEFITS

Excellent charging capabilities:

- A single battery can support use of the truck over two or three shifts, depending on the application profile
- Convenient opportunity charging with no adverse effect, short intervals of charging for Li-ion are not detrimental to battery life
- No battery exchange process required, resulting in more uptime, depending on the application profile and the operational support facilities
- Rapid charger options offer three charge rates: low (2.5-4 hours), standard (1.75-2.5 hours) and fast (1.25-1.75 hours)
- Quick connect charge sockets included on some SUNLIGHT Li-ion batteries
- 5 year or 10,000 hours warranty
- Fully supported recycling options at End of Life

Telemetry BI-Directional Communication.

- Remote intervention into the battery
- Downtime reduction to absolute minimum
- 24/7 Absolute Control Access from anywhere
- Capability of adjusting and changing all battery parameters
- Record and history of battery data and events
- Alarms, notifications and warnings via email
- Effective Fleet management
- Remote firmware upgrades



SUNLIGHT LI-ION KEY SELLING POINTS



Free of gaseous emissions that occur with lead-acid batteries. No ventilation required during charging



Maintenance free



Fully sealed battery (IP54)



Charging time 1.25-4h



Long cycle life up to 4.500 cycles



Thermal stability leading to operational safety and supreme cycle performance



High energy density

Integrated solution with CANbus communication.

- Truck battery discharge indicator displays the State of Charge of the Li-ion battery
- Lift lock-out functionality prevents over discharge during operation
- Integration includes error reporting on the truck and controlled truck shutdown if a critical battery fault should occur
- Matched battery and charger communicate via the CANbus before and during the charge cycle to optimise battery performance and life
- When the charger is connected to the truck, the traction system will be disabled to prevent the truck driving while it is connected to the charger



Li-ion

Fully Certified Cells according to UL 1642, IEC 62660, IEC 62619, UN 38.3
Batteries: UN 38.3, CE, designed according to UL 2580 and IEC 62619

COMPARISON OF LEAD-ACID AND LI-ION BATTERY FEATURES

	LEAD-ACID	SUNLIGHT LI-ION
Cycles (80% DOD)	1500	4000+ *
Recharging time	6-12 h	1-4 h
Opportunity charging	No	Yes
Equalising charge	Required	Not required
Maintenance	Required	Not required
Initial cost (incl. charging equipment)	Low	Medium/high
Total cost of ownership in suitable applications	High/medium	Medium/low
Emissions	Gassing during charging	No emissions

*Number of cycles depends on charger options and operating temperatures.



BATTERY CAPACITIES AND CHARGERS

CHEMISTRY	IP PROTECTION CLASS	VOLTAGE	HYSTER TRUCK	AH	KWH	MIN / MAX WEIGHT	DIMS MM (L X W X H)	TRUCK PLUG	CHARGER PLUG
LFP	IP54	25.6	P1.6-2.2	50	1.28	38 / 310	650x150x560	DIN80	NONE
LFP	IP54	25.6	P1.6-2.2	100	2.56	38 / 310	624x212x627	DIN80	DIN320
LFP	IP54	25.6	S1.0-2.0	100	2.56	174 / 196	650x150x680	DIN160	NONE
LFP	IP54	25.6	P1.6-2.2	200	5.12	38 / 310	624x284x627	DIN80	DIN320
LFP	IP54	25.6	S1.0-2.0 S1.2-1.6S P2.0S	100	2.56	201 / 223	624x212x627	DIN160	DIN320
LFP	IP54	25.6	S1.0-2.0 S1.2-1.6S P2.0S	200	5.12	274 / 302	624x284x627	DIN160	DIN320
LFP	IP54	25.6	RS1.6-2.0 RP2.0-2.5N LO1.0-5.0	288	7.37	347 / 384	792x212x812	DIN160	DIN320
LFP	IP54	25.6	LO1.0-5.0	360	9.22	456 / 504	792x357x812	DIN160	DIN320
LFP	IP54	51.2	R1.0-2.5 R1.0-1.4E	288	14.75	709 / 783	1035x353x784	DIN320	DIN320
LFP	IP54	51.2	R1.0-2.5 R1.0-1.4E	288	14.75	713 / 787	1223x283x784	DIN320	DIN320
LFP	IP54	51.2	R1.0-2.5 R1.0-1.4E	432	22.12	890 / 984	1035x443x784	DIN320	DIN320
LFP	IP54	51.2	R1.0-2.5 R1.0-1.4E	432	22.12	892 / 986	1223x355x784	DIN320	DIN320
LFP	IP54	51.2	R1.0-2.5	576	29.49	1063 / 1175	1223x427x784	DIN320	DIN320
LFP	IP54	51.2	C1.0-1.5	432	22.12	890 / 984	1035x443x784	DIN320	DIN320
LFP	IP54	51.2	C1.0-1.5	432	22.12	892 / 986	1223x355x784	DIN320	DIN320
LFP	IP54	51.2	C1.0-1.5	576	29.49	1063 / 1175	1223x427x784	DIN320	DIN320
LFP	IP54	51.2	J1.5-2.0XNT	288	14.75	673 / 743	830x522x627	DIN320	DIN320
LFP	IP54	51.2	J1.5-2.0XNT	360	18.43	673 / 743	830x522x627	DIN320	DIN320
LFP	IP54	51.2	J1.5-2.0XNT J1.6-2.0XN	432	22.12	813 / 899	830x630x627	DIN320	DIN320
LFP	IP54	51.2	J1.5-2.0XNT J1.6-2.0XN	576	29.49	813 / 899	830x630x627	DIN320	DIN320
LFP	IP54	83.2	C1.0-1.5	432	35.94	1480 / 1636	1028x711x784	DIN320	DIN320
LFP	IP54	83.2	C1.0-1.5	576	47.92	2069 / 2287	1028x999x784	DIN320	DIN320
LFP	IP54	83.2	J2.2-3.5XN	360	29.95	1480 / 1636	1028x711x784	DIN320	DIN320
LFP	IP54	83.2	J2.2-3.5XN	432	35.94	1480 / 1636	1028x711x784	DIN320	DIN320
LFP	IP54	83.2	J4.0-5.5XN	432	35.94	2069 / 2287	1028x999x769	DIN320	DIN320
LFP	IP54	83.2	J2.2-3.5XN	504	41.93	1770 / 1956	1028x855x784	DIN320	DIN320
LFP	IP54	83.2	J4.0-5.5XN	576	47.92	2069 / 2287	1028x999x769	DIN320	DIN320

RECOMMENDED CHARGERS

DURATION OF CHARGING (HOURS)					
1.25-1.75 HRS		1.75-2.5 HRS		2.5-4 HRS	
24V-50A	1h 12m	-	-	-	-
24V-100A	1h 12m	24V-50A	1h 48m	-	-
24V-100A	1h 12m	24V-50A	1h 48m	-	-
24V-150A	1h 12m	24V-100A	1h 48m	24V-50A	3h 36m
24V-100A	1h 12m	24V-50A	1h 48m	-	-
24V-150A	1h 12m	24V-100A	1h 48m	24V-50A	3h 36m
24V-200A	1h 17m	24V-150A	1h 43m	24V-100A	2h 35m
24V-250A	1h 17m	24V-150A	2h 09m	24V-100A	3h 14m
1.25-1.75 HRS		1.75-2.5 HRS		2.5-4 HRS	
48V-200A	1h 17m	48V-150A	1h 43m	48V-100A	2h 35m
48V-200A	1h 17m	48V-150A	1h 43m	48V-100A	2h 35m
48V-300A	1h 17m	48V-200A	1h 56m	48V-100A	3h 53m
48V-300A	1h 17m	48V-200A	1h 56m	48V-100A	3h 53m
48V-300A	1h 43m	48V-200A	2h 35m	48V-150A	3h 27m
48V-300A	1h 17m	48V-200A	1h 56m	48V-100A	3h 53m
48V-300A	1h 17m	48V-200A	1h 56m	48V-100A	3h 53m
48V-300A	1h 43m	48V-200A	2h 35m	48V-150A	3h 27m
48V-200A	1h 17m	48V-150A	1h 43m	48V-100A	2h 35m
48V-250A	1h 17m	48V-150A	2h 09m	48V-100A	3h 14m
48V-300A	1h 17m	48V-200A	1h 56m	48V-100A	3h 53m
48V-300A	1h 43m	48V-200A	2h 35m	48V-150A	3h 27m
1.25-1.75 HRS		1.75-2.5 HRS		2.5-4 HRS	
80V-300A	1h 17m	80V-200A	1h 56m	80V-100A	3h 53m
80V-300A	1h 43m	80V-200A	2h 35m	80V-150A	3h 27m
80V-250A	1h 17m	80V-150A	2h 09m	80V-100A	3h 14m
80V-300A	1h 17m	80V-200A	1h 56m	80V-100A	3h 53m
80V-300A	1h 17m	80V-200A	1h 56m	80V-100A	3h 53m
80V-300A	1h 30m	80V-200A	2h 16m	80V-150A	3h 01m
80V-300A	1h 43m	80V-200A	2h 35m	80V-150A	3h 27m

CHARGER DETAILS

PHASE	INPUT VOLTAGE	DC VOLTAGE	DC CURRENT	CHARGER OPTIONS		DIMENSIONS (W X L X H)	MASS (KG)	AC INPUT A	P1.6-2.2	P2.0S	RP2.0-2.5N	S1.0-2.0	S1.0-2.0	S1.2-1.6S	RS1.6-2.0	LO1.0-5.0	R1.0-1.4E	R1.0-2.5	C1.0-1.5	C1.0-1.5	J1.5-2.0XNT	J1.6-2.0XN	J2.2-3.5XN	J4.0-5.5XN
				DC PLUG	AC PLUG																			
1	230V ±10%	24	50	DIN 80	SCHUKO 16A	475x300x180	11	7.5	X															
1	230V ±10%	24	50	DIN 80	UK 13A	475x300x180	11	7.5	X															
1	230V ±10%	24	50	DIN 160	SCHUKO 16A	475x300x180	11	7.5				X	X											
1	230V ±10%	24	50	DIN 160	UK 13A	475x300x180	11	7.5				X	X											
1	230V ±10%	24	50	DIN 320	SCHUKO 16A	475x300x180	11	7.5	X	X			X	X										
1	230V ±10%	24	50	DIN 320	UK 13A	475x300x180	11	7.5	X	X			X	X										
1	230V ±10%	24	100	DIN 160	SCHUKO 16A	520x334x180	13	15				X	X											
1	230V ±10%	24	100	DIN 160	UK 13A	520x334x180	13	15				X	X											
1	230V ±10%	24	100	DIN 320	SCHUKO 16A	520x334x180	13	15	X	X	X		X	X	X	X								
1	230V ±10%	24	100	DIN 320	CEE 16A 2P+E	520x334x180	13	15	X	X	X		X	X	X	X								
3	400V ±10%	24	150	DIN 320	CEE 16A 3P+N+E	666x348x218	35	10	X	X	X		X	X	X	X								
3	400V ±10%	24	150	DIN 320	CEE 16A 3P+E	666x348x218	35	10	X	X	X		X	X	X	X								
3	400V ±10%	24	200	DIN 320	CEE 16A 3P+N+E	667x448x218	43	13			X				X	X								
3	400V ±10%	24	200	DIN 320	CEE 16A 3P+E	667x448x218	43	13			X				X	X								
3	400V ±10%	24	250	DIN 320	CEE 32A 3P+N+E	667x348x399	60	16								X								
3	400V ±10%	24	250	DIN 320	CEE 32A 3P+E	667x348x399	60	16								X								
3	400V ±10%	48	100	DIN 320	CEE 16A 3P+N+E	666x348x218	31	13									X	X	X		X	X		
3	400V ±10%	48	100	DIN 320	CEE 16A 3P+E	666x348x218	31	13									X	X	X		X	X		
3	400V ±10%	48	150	DIN 320	CEE 32A 3P+N+E	666x348x218	35	19									X	X	X		X	X		
3	400V ±10%	48	150	DIN 320	CEE 32A 3P+E	666x348x218	35	19									X	X	X		X	X		
3	400V ±10%	48	200	DIN 320	CEE 32A 3P+N+E	666x448x218	43	26									X	X	X		X	X		
3	400V ±10%	48	200	DIN 320	CEE 32A 3P+E	666x448x218	43	26									X	X	X		X	X		
3	400V ±10%	48	250	DIN 320	CEE 63A 3P+N+E	666x348x399	60	32													X			
3	400V ±10%	48	300	DIN 320	CEE 63A 3P+N+E	666x348x399	65	38									X	X	X		X	X		
3	400V ±10%	80	100	DIN 320	CEE 32A 3P+N+E	666x348x218	35	21												X			X	X
3	400V ±10%	80	100	DIN 320	CEE 32A 3P+E	666x348x218	35	21												X			X	X
3	400V ±10%	80	150	DIN 320	CEE 63A 3P+N+E	666x348x399	60	32												X			X	X
3	400V ±10%	80	200	DIN 320	CEE 63A 3P+N+E	666x348x399	65	43												X			X	X
3	400V ±10%	80	250	DIN 320	CEE 63A 3P+N+E	1400x650x550	320	43.5															X	
3	400V ±10%	80	300	DIN 320	CEE 63A 3P+N+E	1400x650x550	320	52												X			X	X

Applies to all of the above:

- 1. 50Hz / HF: HF
- 2. Handles: yes
- 3. DC cable length: 2.5M ±10%
- 4. AC plug length: 3M ±10%







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HYSTER EUROPE

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