

# Solition Data Center / Data Sheet

## Li-Ion Energy Storage System for Data Centers

**Tough demands outside, smart solutions inside.**

Our new Solition Data Center energy storage system boasts intelligent features, which culminate in safety and reliability, longevity, space savings and easy-to-manage maintenance.

Based on Li-ion battery technology, the system supports the mix of new and used batteries and includes a three-level battery management system (BMS). These qualities ensure an intelligent battery system that will reduce the total cost of ownership, in particular maintenance expenses.

What's more, its high cycle stability mirrors emerging market trends, such as the increase in decentralized energy solutions.

Ultimately, Solition Data Center's outstanding performance, in all types of grid conditions, as well as the clever features, makes it the perfect partner not only for data centers, but for UPS, telecom and utility applications as well.



Data Center



Commercial & Industrial UPS

### Features and benefits



Reliable

- **Longevity** - cycle lifetime up to 5,000 times
- **Stability** - Made with safest LiFePO4 (LFP) cell chemistry - highly stable, no thermal runaway
- **All-encompassing** - Three-level BMS system ensures dependability
- **Safety** - Integrated fire extinguishing system on battery module level - precise & quick fire control, non-proliferation



Simple

- **Flexibility** - Active current balance control supports new and used battery cabinet combinations
- **Intelligence** - Active voltage balance control allows for battery strings of different numbers to be connected in parallel with each-other
- **Cost-effective** - Automatic grouping and capacity checks cut manual capacity test costs and avoid power failure risks



Efficient

- **70% less footprint** - high power density means a significant space saving
- **80% less operating and maintenance (O&M) costs** thanks to its smart BMS



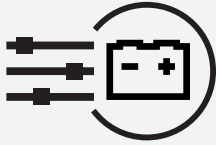
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**SOLITION**  
DATA CENTER

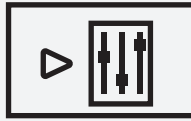
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A NEW  
WORLD**

# Management System

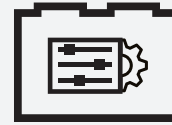
## Reliability based on three levels



A three-level BMS structure delivers both excellent performance and protection of the entire battery system. Each battery module has a built-in BMS, which allows it to communicate with the Battery Control Unit (BCU) for each specific cabinet.



Users can find every parameter and history file – all accessed from a built-in LCD screen or with an internet browser on a TCP IP connection.



A flexible managing system between the UPS and the BCU allows the Solition Data Center battery to work in two modes:

- **An autonomous mode (stand-alone)** – This emulates the behaviour of VRLA batteries with dry contacts communication
- **A connected mode** – This links to the UPS by a MODBUS RS485 or MODBUS over TCP connection

### Third level (UPS):

- Management of BCU, communication with UPS or network management, providing interface ports
- Alarm management and report analysis
- SoC and SoH management

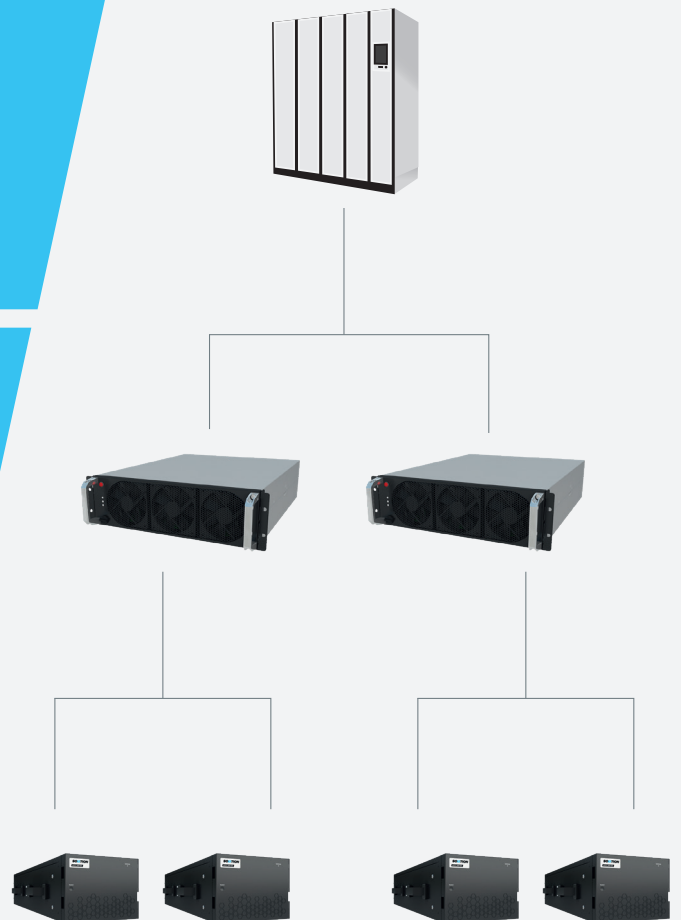
Communication to the UPS via MODBUS interface or dry contacts

### Second-level BCU system:

- Battery management
- Charge and discharge current detection
- Alarm & protection of abnormal work
- Current balance control between cabinets
- **Intelligent Battery Control Unit (BCU)**
- **One BCU for one Cabinet**
- **Up to 10 cabinets can be used**

### First-level BMS:

- Voltage and temperature detection
- Battery current balance management



## Technical characteristics & data

Items	Description
Product Model	LI-Ion Data Center 1.0
Battery Cell Material	LiFePO4
Charging Current	≤ 1C, 0.5C by default
Cycle Life	Up to 5000 cycles
Nominal Capacity	162Ah / 62.20kWh (6+6) ; 162Ah / 72.57kWh (7+7) ; 162Ah / 82.94kWh (8+8)
Capacity for calculating the backup time *	153Ah / 58.75kWh (6+6) - 153Ah / 68.54kWh (7+7) - 153Ah / 78.33kWh (8+8)
Weight	900kg (6+6) - 1000kg (7+7) - 1100kg (8+8)
Dimension (W*D*H)	600mm * 850mm * 2000mm
Self Discharge	≤5% / 3 months @ 0 to 30°C
Fire protection	Module-level : Perfluorooftone™ fire suppression fluid
Communication Interface	RS485, Dry contacts, TCP IP, MODBUS on RS485 & MODBUS over TCP IP
Protection	Over temperature, over current, short circuit, overcharge, discharge, etc.
Design Life	15 years
Charge voltage **	2.27Vpc @ 25°C - 32 to 50 AGM blocks - 435V to 681V depending on the configuration
Discharge capability	300 kW@10 minutes or 200 kW@15 minutes (7+7, 20 to 30°C) @ 1.80Vpc
IP Protection Level	IP21 according to IEC60529 standard
Mounting Type	Against the wall, reserve at least 800 mm from the front.
Storage Temperature	0°C to 40°C
Transportation Temperature	-40°C to 60°C
Operating Temperature	0°C to 40°C (20 to 25°C is recommended)
Relative Humidity	5% to 95% (no condensation)
Max. Operating Altitude	4000m / derating is required if the altitude exceeds 1000m, according to EN IEC 62040-3:2021

\* The backup time is calculated based on the capacity 68.54 kWh and the capacity under different backup time or discharge rates

\*\* UPS with neutral battery connection are limited to 7+0 or 7+7 configuration

## Specifications

Configuration	Cell	Module	"Half Cabinet 1 string"	"Full Cabinet 2 strings"
Nominal Capacity	27Ah	81Ah	81Ah	162Ah
Capacity for calculating the backup time	25.5Ah	76.5Ah	76.5Ah	153Ah
Nominal Voltage	3.2Vdc	64Vdc	384Vdc(6+0)	384Vdc(6+6)
			448Vdc(7+0)	448Vdc(7+7)
			512Vdc(8+0)	512Vdc(8+8)
Charging Voltage	3.4Vdc	68Vdc	408Vdc (6+0)	408Vdc (6+6)
			476Vdc (7+0)	476Vdc (7+7)
			544Vdc (8+0)	544Vdc (8+8)
Dimension(W * D * H: mm)	21*100*140	210*765*160	600*850*2000	600*850*2000
Weight (kg)	0.605 kg	50 kg	600kg (6+0)	900kg (6+6)
			650kg (7+0)	1000kg (7+7)
			700kg (8+0)	1100kg (8+8)

## Discharge Data

The Solition Data Center provides best-in-class discharge performance; for instance, for a 540V nominal/600kW installation, two full cabinets deliver 10 minutes of back-up time.

The BCU optimizes the currents (closed loop control) and voltages of each module and cabinet to maximize performance and increase service life.

		Back-up time (min) 15-30°C (6+6 250KW)																			
Modules		6	12	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120
Power	Cabinet	0,5	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7	7,5	8	8,5	9	9,5	10
125 kW		11	23	37	49	61	74	86	98	111	123										
250 kW			10	17	22	30	36	42	48	54	60	66	72	78	84	90	97	103	109	115	121
375 kW				10	15	19	22	26	32	36	40	44	48	52	56	60	64	68	72	76	80
500 kW					10	13	17	20	22	25	30	33	36	39	42	45	48	51	54	57	60
625 kW						10	13	16	18	20	22	25	27	31	34	36	38	41	43	46	48
750 kW							10	12	15	17	19	21	22	24	26	30	32	34	36	38	40
875 kW								10	12	14	16	18	19	21	22	24	26	29	31	32	34
1000 kW									10	12	13	15	17	18	20	21	22	24	25	27	30
1125 kW										10	12	13	15	16	17	19	20	21	22	24	25
1250 kW											10	11	13	14	16	17	18	19	20	21	22
1375 kW												10	11	12	13	15	16	17	18	19	20
1500 kW													10	11	12	13	15	16	17	18	19
1625 kW														10	11	12	13	15	15	16	17
1750 kW															10	11	12	13	14	15	16
1875 kW																10	11	12	13	13	15
2000 kW																	10	11	12	12	13

The initial backup time is accurate to ±5%. For other configurations please contact your local Exide contact

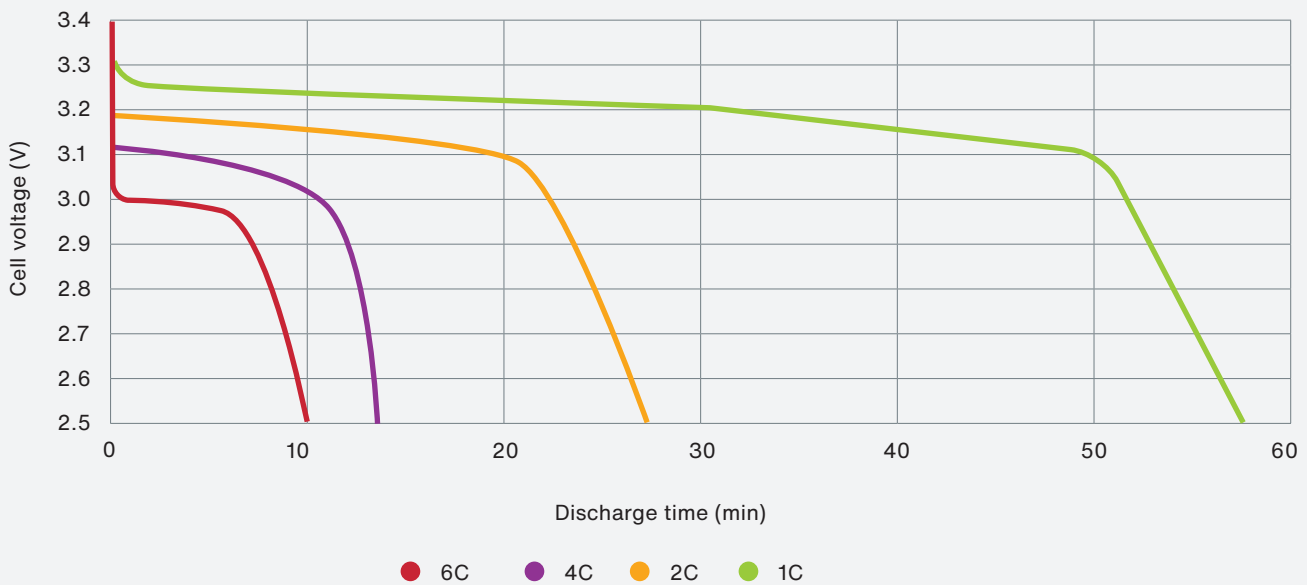
		Back-up time (min) 15-30°C (7+7 300KW)																			
Modules		7	14	21	28	35	42	49	56	63	70	77	84	91	98	105	112	119	126	133	140
Power	Cabinet	0,5	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7	7,5	8	8,5	9	9,5	10
150 kW		10	22	36	48	60	72	84	96	108	120										
300 kW			10	16	22	29	35	41	47	53	59	64	70	76	82	88	94	100	106	112	117
450 kW				10	14	18	22	26	31	35	39	43	47	51	55	59	62	66	70	74	78
600 kW					10	13	16	19	22	25	29	32	35	38	41	44	47	50	53	56	59
750 kW						10	12	15	17	20	22	24	26	30	33	35	37	40	42	44	47
900 kW							10	12	14	16	18	20	22	24	26	29	31	33	35	37	39
1050 kW								10	12	13	15	17	19	20	22	23	25	27	30	32	33
1200 kW									10	11	13	15	16	18	19	20	22	23	25	26	29
1350 kW										10	11	12	14	16	17	18	19	21	22	23	24
1500 kW											10	11	12	13	15	16	17	19	20	21	22
1650 kW												10	11	12	13	15	16	17	18	19	20
1800 kW													10	11	12	13	14	15	16	17	18
1950 kW														10	11	12	12	13	15	16	17
2100 kW															10	11	12	12	13	15	15
2250 kW																10	11	11	12	13	14
2400 kW																	10	11	11	12	13

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		Back-up time (min) 15-30°C (8+8 300kW)																			
Modules	Cabinet	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128	136	144	152	160
Power		0,5	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7	7,5	8	8,5	9	9,5	10
150 kW		12	26	41	55	68	82	96	110	123											
300 kW			12	19	25	33	40	47	53	60	67	74	80	87	94	101	107	114	121	128	
450 kW				12	17	21	25	31	36	40	44	49	53	58	62	67	71	76	80	85	89
600 kW					12	15	19	22	25	30	33	37	40	43	47	50	53	57	60	64	67
750 kW						12	15	17	20	22	25	29	32	35	37	40	43	45	48	51	53
900 kW						10	12	14	17	19	21	23	25	27	31	33	36	38	40	42	44
1050 kW							10	12	13	16	18	20	21	23	25	27	30	32	34	36	38
1200 kW								10	12	13	15	17	19	20	22	23	25	27	30	32	33
1350 kW									10	12	13	15	17	18	19	21	22	24	25	26	30
1500 kW										10	12	13	15	16	17	19	20	21	22	24	25
1650 kW											10	12	13	15	16	17	18	19	20	22	23
1800 kW												10	11	12	13	14	15	17	18	19	21
1950 kW													10	11	12	12	14	15	16	17	19
2100 kW														10	11	12	12	13	15	16	18
2250 kW															10	11	12	12	13	15	17
2400 kW																10	11	12	12	13	15

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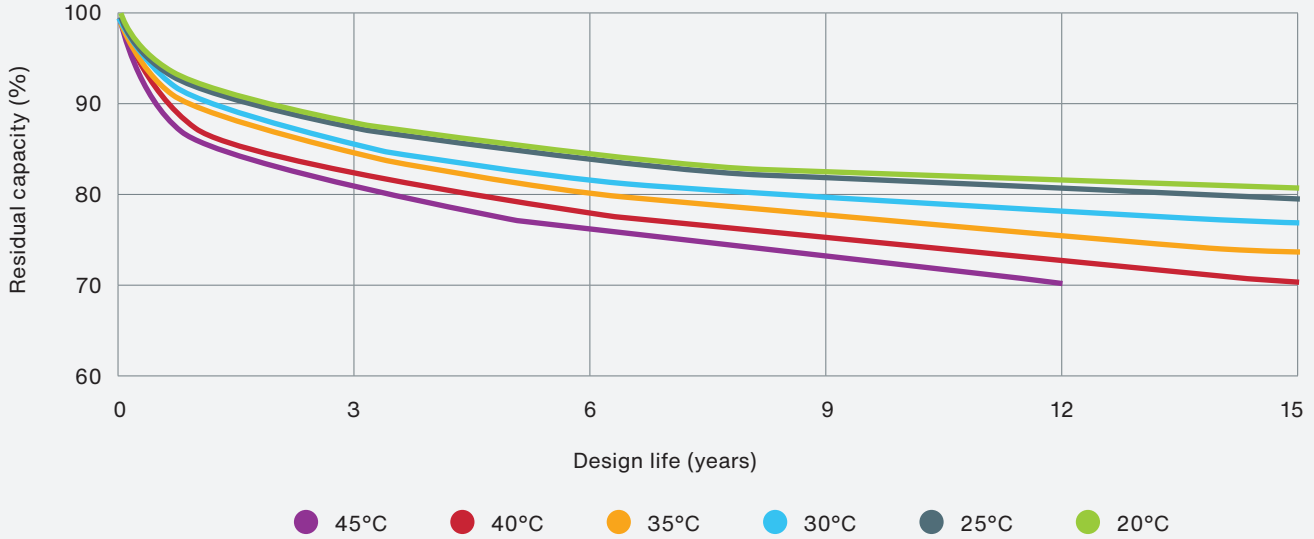
## Discharge curve



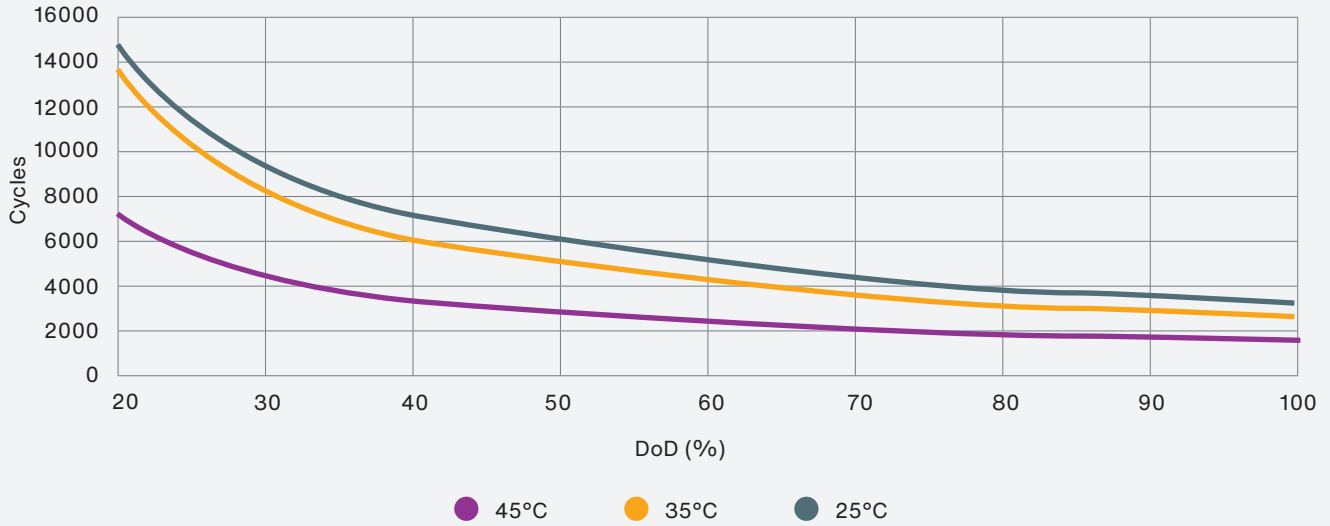
## Life Characteristics

The Solition Data Center has a design life of up to 15 years, from 0 to 40°C, and is the perfect product or product range for UPS requirements. In addition to outstanding stability, the LiFePO4 technology allows the energy storage system to reach an outstanding lifespan of around 5,000 cycles at 50% DoD.

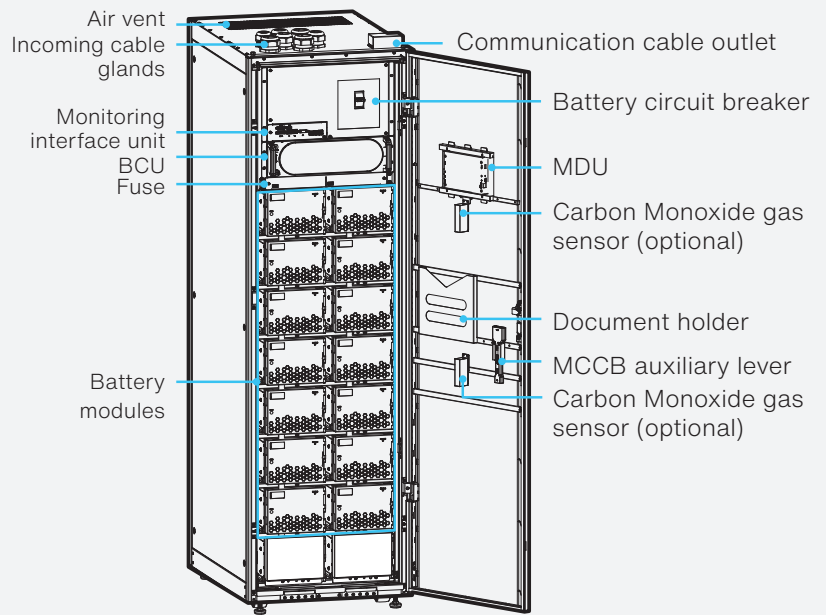
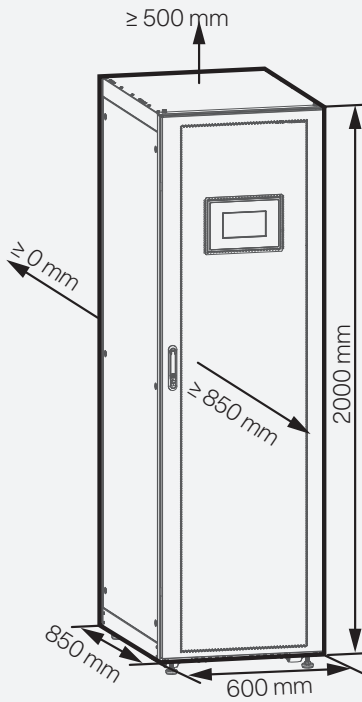
### Design life



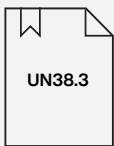
### Cycle Life



## Drawings



## Norms and certificates



UN38.3

Transport of dangerous goods : Lithium metal and lithium ion batteries



UL1642

UL Standard for Safety Lithium Batteries



UL1973

UL Standard for Safety Batteries for Use in Stationary and Motive Auxiliary Power Applications



UL9540A

UL Standard for Safety Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems



IEC62619

Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for secondary lithium cells and batteries, for use in industrial applications



IEC62133

Secondary cells and batteries containing alkaline or other non-acid electrolytes - Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications



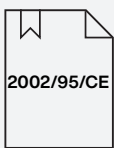
IEC62477

Safety requirements for power electronic converter systems and equipment



2014/35/EU

Low Voltage Directive (LVD) - CE marking



2002/95/CE

Restriction of hazardous substances in electrical and electronic equipment directive (RoHS)



2014/30/EU

Electromagnetic Compatibility (EMC) Directive