

# POWERSAFE Series

**POWER  
SOLVE**

[www.powersolve.co.uk](http://www.powersolve.co.uk)

## Lead Acid Batteries - 10 Year

**POWERSAFE** SERIES

**16-1769 Ah**



*10 Year Design Life*

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*Maintenance Free*

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*Robust Construction*

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*Flame Retardant Case*

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*ISO 9001 Manufactured*

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*Made in U.K.*

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*19" Rack Mount 'F' Versions*

### **Technical Features (Not SBS Series - Consult office for details)**

#### **Power**

Powersafe gives you more power and occupies less space when compared with conventional standby power batteries. Low internal resistance makes it possible to obtain a particularly high rate of discharge. Powersafe occupies up to 70% less space than a comparable Planté cell and can be up to 50% lighter.

#### **Construction**

Powersafe's rugged construction includes thick lead-calcium tin positive grids and single separation. High conductivity pillars are used for maximum electrical efficiency. The cell box is made from tough, flame retardant ABS plastic which is shock and vibration resistant.

#### **Shelf Life**

Powersafe is delivered filled and charged and it is recommended that it should not be stored more than 6 months without a freshening charge. A freshening charge consists of floating at 2.27 to 2.29 Vpc at 20 °C for a minimum continuous period of 48 hours.

#### **Electro-Magnetic Compatibility (EMC)**

Powersafe products are covered by the EMC statement in EN 50226:1995 which states that rechargeable cells or batteries are not sensitive to normal electromagnetic disturbances, and therefore no immunity tests shall be required.

#### **Series Connections**

The number of cells in series (N) will not affect the selected float voltage per cell.

Therefore the charging float voltage = N x Cell float voltage.  
No special circuit arrangements are required.

#### **Parallel Connections**

Using constant voltage chargers, and ensuring that the connections between the charger and the batteries have the same electrical resistance, no special arrangements have to be made for batteries in parallel.

#### **Short Circuit Faults**

Although Powersafe is capable of withstanding its own short circuit current, it is in the interests of the system that any fault should be cleared within 10 seconds.

#### **Mechanical Stress**

The Powersafe product has been stress tested in accordance with the requirements of BS2011 Part 2.1.

The purpose of the test is to simulate the worst likely service conditions.

The electrical performance of the product was not impaired when subjected to the following tests:

**Bump test** – 1000 continuously repeated bumps in the vertical plane of 6 milliseconds duration per bump at 25 g for units up to 50 kg, 12 g for units between 50 kg and 100 kg, and 6 g for units between 100 kg and 250 kg.

**Drop test** – 2 drops onto a solid floor applied to the base of the product. The drop height is 100 mm for units up to 50 kg, 50mm for units between 50 and 100 kg, and 25 mm for units between 100 kg and 250 kg.

**Vibration test** – vibrated at a force of 2 g in 3 frequency sweeps through a frequency range of 5 Hz to 150 Hz in a period of 30 minutes. The vibration test is conducted consecutively in 3 planes.

#### **Cycling Endurance**

The Powersafe product has been cycled to the requirements of BS 6290.

#### **Flame Retardancy**

The plastic components satisfy the most stringent flame retardancy tests. When tested to BS 6334 Method FV, the category rating is FVO.

Similarly, when tested to UL94, the category rating is VO and when tested to BS 2782 Part 1 Method 141, the oxygen index is greater than 28%.

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<b>Output Ratings &amp; Mechanical Details - Standard Blocks</b>									
Nominal Voltage	Nominal Capacity (Ah) @ 20 °C		Dimensions			Weight kg	Terminals		Model Number
	C <sub>100</sub> to 1.80 V pc	C <sub>20</sub> to 1.80 V pc	Length	Width	Height		Type	Number	
12 V	22	18	166 mm	125 mm	176 mm	9.8	Female	2	12V20
12 V	35	30	166 mm	156 mm	203 mm	14.3	Female	2	12V35
12 V	46	39	218 mm	164 mm	220 mm	18.9	Female	2	12V45
12 V	56	48	271 mm	164 mm	220 mm	22.9	Female	2	12V55
12 V	68	60	314 mm	164 mm	220 mm	26.7	Female	2	12V70
12 V	79	69	360 mm	164 mm	228 mm	31.5	Female	2	12V80
4 V	103	80	202 mm	191 mm	235 mm	16.5	Male	2	4V105
6 V	103	80	202 mm	191 mm	235 mm	22.0	Male	2	6V105
6 V	132	108	243 mm	206 mm	234 mm	27.9	Female	2	6V130
4 V	154	120	202 mm	202 mm	228 mm	23.0	Male	4	4V155
6 V	154	120	292 mm	202 mm	228 mm	33.0	Male	6	6V155
6 V	165	134	296 mm	204 mm	234 mm	34.1	Female	2	6V165/2
6 V	165	134	296 mm	204 mm	240 mm	35.0	Female	6	6V165/6
2 V	200	148	110 mm	208 mm	260 mm	13.9	Female	2	2V200
4 V	231	180	298 mm	202 mm	228 mm	32.5	Male	6	4V230
2 V	275	204	142 mm	208 mm	260 mm	18.5	Female	2	2V275
2 V	308	240	202 mm	202 mm	228 mm	23.0	Male	4	2V310
2 V	320	269	195 mm	208 mm	240 mm	22.0	Female	2	2V320
2 V	350	264	195 mm	208 mm	260 mm	24.0	Female	4	2V350
2 V	400	297	195 mm	208 mm	260 mm	26.2	Female	4	2V400/2
2 V	400	297	195 mm	208 mm	260 mm	27.0	Female	2	2V/400/4
2 V	462	360	298 mm	202 mm	228 mm	32.5	Male	2	2V460/4
2 V	462	360	292 mm	202 mm	228 mm	33.0	Male	4	2V460/6
2 V	500	372	238 mm	208 mm	260 mm	32.5	Female	4	2V500/2
2 V	500	403	296 mm	204 mm	240 mm	34.7	Female	6	2V500/6
4 V	524	410	527 mm	266 mm	215 mm	75.0	Male	2	4V525*
6 V	524	410	527 mm	431 mm	215 mm	117.0	Male	6	6V525*
6 V	590	461	527 mm	431 mm	215 mm	126.0	Male	6	6V590*
2 V	786	615	527 mm	266 mm	215 mm	58.0	Male	4	2V785*
2 V	917	718	527 mm	266 mm	215 mm	66.5	Male	4	2V915*
2 V	1048	820	527 mm	266 mm	215 mm	75.0	Male	4	2V1050*
2 V	1573	1230	527 mm	431 mm	215 mm	117.0	Male	2	2V1575*
2 V	1769	1284	527 mm	431 mm	215 mm	126.0	Male	2	2V1770*

\* Horizontal installation only.

<b>Output Ratings &amp; Mechanical Details - Racking Batteries</b>							
Nominal Voltage	Nominal Capacity (Ah) @ 20 °C		Dimensions			Weight kg	Model Number
	C <sub>100</sub> to 1.80 V pc	C <sub>20</sub> to 1.80 V pc	Length	Width	Height		
12 V	50	41	280 mm	105 mm	280 mm	25	12V50F
12 V	52	42	390 mm	105 mm	228 mm	26	12V52F
12 V	65	53	390 mm	125 mm	228 mm	31	12V65F
12 V	80	64	558 mm	105 mm	228 mm	40	12V80F
12 V	80	66	390 mm	125 mm	256 mm	37	12V82F
8 V	100	80	384 mm	125 mm	228 mm	32	8V100F
12 V	100	80	558 mm	125 mm	228 mm	48	12V100F
12 V	105	87	561 mm	125 mm	235 mm	46	12V105F
12 V	125	103	561 mm	105 mm	316 mm	56	12V125F
12 V	155	129	561 mm	125 mm	316 mm	67	12V155F

<b>Output Ratings &amp; Mechanical Details - Pure Lead Technology SBS Range</b>						
Nominal Voltage	Nominal Capacity (Ah) @ 20 °C C <sub>100</sub> to 1.80 V pc	Dimensions			Weight kg	Model Number
		Length	Width	Height		
12 V	35	280 mm	97 mm	150 mm	9.6	SBSB8
12 V	45	280 mm	97 mm	175 mm	11.5	SBSB10
12 V	65	280 mm	97 mm	255 mm	19.0	SBSB14
12 V	100	395 mm	105 mm	255 mm	30.0	SBSB11

<b>Temperature &amp; Discharge/Charge Performance</b>									
Discharge/ Charge rate (duration)	Temperature Correction Factor to be applied to 20 °C data at:								
	0 °C	5 °C	10 °C	15 °C	20 °C	25 °C	30 °C	35 °C	40 °C
5 to 59 mins	0.80	0.86	0.91	0.96	1	1.037	1.063	1.085	1.10
1 to 24 hrs	0.86	0.90	0.93	0.97	1	1.028	1.050	1.063	1.07

**Temperature**  
In all cases, quoted voltages and currents are at 20 °C. At low temperatures, both charge and discharge performance are reduced; conversely at high temperatures, performance is increased – as illustrated below. For temperatures below 0 °C, please consult office.

**Charge Performance**  
A minimum applied float charge voltage of 2.28 ± 0.01 V per cell at 20 °C (or temperature compensated equivalent value) is necessary to maintain the battery in a fully charge state.