

# Inorganic Lithium Batteries

Short  
Form  
Catalogue



## The Sonnenschein Lithium Battery

The Sonnenschein Lithium Battery is a component that can be permanently connected to a circuit, in many cases for the lifetime of the equipment. Its major advantages are:

### High cell voltage.

The battery has a nominal voltage of 3.60 V, which is considerably higher than any other commercially available primary battery.

### Wide temperature range.

The batteries are capable of operation in a wide temperature range normally from  $-55^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ . One series has an extended temperature range up to  $130^{\circ}\text{C}$ .

### High energy density.

The electrochemical system exhibits the highest energy density of any available primary battery: up to 650 Wh/kg and 1280 Wh/dm<sup>3</sup>.

## Superior shelf life and reliability.

The Sonnenschein Lithium Battery has an outstandingly long shelf life and reliability. Long term tests of storage at room temperature over ten years and more result in a capacity loss of less than 1% per year. Failure rates in memory back-up applications range below 0.175% per year.

## Hermetically sealed case.

The hermetically sealed case is essential for the long shelf life and inherent safety of the devices in which the batteries are used. The cover is welded to the can. A glass-to-metal seal is used to insulate the positive terminal.

## Safety.

The safety of the Sonnenschein Lithium Battery design has been proven by more than 20 years of experience in the market and more than 50 million batteries in the field with no reported incidents. The complete line of products is recognized and regularly supervised by Underwriters Laboratories.

## Features and attributes of the various series

### SL-300 series

Keywords: Standard use and stand-by.  
This series has very low self discharge on the shelf and during operation. It is best suited for low currents. It may need depassivation before medium currents can be delivered.

### SL-500 series

Keyword: Extended temperature range.  
This series is specified for temperatures up to  $130^{\circ}\text{C}$  at the cost of slightly less capacity. Otherwise like SL-300 series.

### SL-700 series

Keyword: Enhanced start.  
This series has an improved start behavior (TMV). It usually needs no depassivation if used after no more than 3 years of storage.

### Computer batteries

These are supplied with plastic case, cable, and connector. They incorporate a safety vent and are classified by UL as "user replaceable".

### SL2000 series

These batteries have higher capacity and slightly lower rate capability than the SL-700 series.

Call your local distributor:

**RALF HOTTMEYER**  
EDV- und Kommunikationssysteme

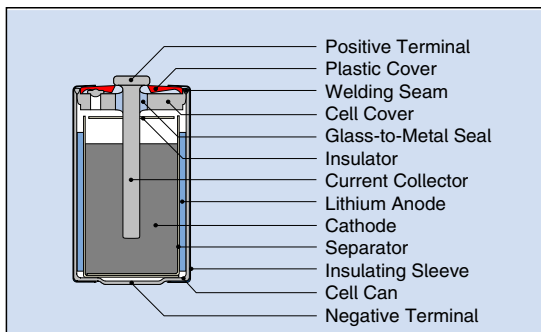
Hauptstrasse 161  
D-52146 Würselen, Germany

Tel.: +49 (0)2405 420 640

Fax: +49 (0)2405 420 649

eMail: info@hottmeyer.de

Internet: www.hottmeyer.de



**Figure 1**  
Cross sectional view of a 1/2AA size cell (bobbin design)



SFC99E

Sonnenschein Lithium  
Industriestr. 22  
D-63654 Büdingen, Germany  
Tel.: +49(0)6042/81-517 Fax: +49(0)6042/81-523

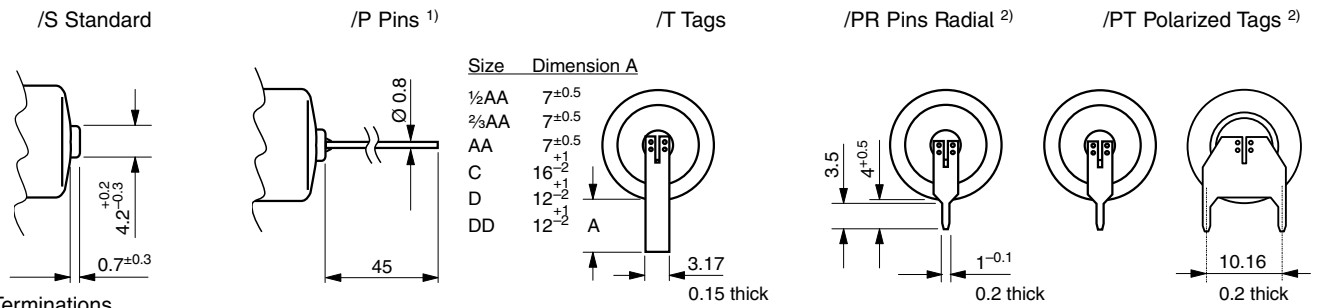


Figure 2 Terminations

**UL-Recognition**

Sonnenschein Lithium Batteries are recognized by UL under file MH 12827. The following text or a modified version thereof appears on each battery:

**WARNING:** Fire, explosion, and severe burn hazard. Do not recharge, disassemble, heat above 100°C, incinerate, or expose contents to water.

Whenever lithium batteries are not the single power source in a circuit the following measures recommended by Underwriters Laboratories are relevant. The cells should not be connected in series with an electrical power source that would increase the forward current through the cells.

The circuit for these cells shall include one of the following:

A. Two suitable diodes or the equivalent in series with the cells to prevent any reverse (charging) current. The second diode is used to provide protection in the event that one should fail. Quality control, or equivalent procedures, shall be established by the

device manufacturer to ensure the diode polarity is correct for each unit, or

B. A blocking diode or the equivalent to prevent any reverse (charging) current and a resistor to limit current in case of a diode failure. The resistor should be sized to limit the reverse (charging) current to the maximums given in the product data catalogue.

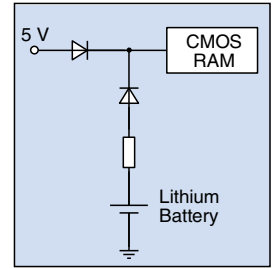


Figure 3 Safety wiring for back-up

*Standard Use and Stand-by*

SL-300 series	SL-340	SL-389	SL-386	SL-350	SL-361	SL-360
Size	BEL <sup>3)</sup>	¼D <sup>3)</sup>	⅓D <sup>3)</sup>	½AA	⅔AA	AA
Diameter	18.5 mm	33 mm	33 mm	14.5 mm	14.5 mm	14.5 mm
Height	6.5 mm	6 mm	10 mm	25 mm	33 mm	50 mm
Nominal voltage	3.6 V	3.6 V	3.6 V	3.6 V	3.6 V	3.6 V
Nominal capacity	0.4 Ah	1 Ah	1.7 Ah	1 Ah	1.45 Ah	2.3 Ah
Nominal current	0.3 mA	1 mA	1 mA	0.6 mA	1 mA	2 mA
Max. continuous discharge current	3 mA	10 mA	10 mA	6 mA	10 mA	20 mA
Temperature range -55°C..	..+75°C	..+75°C	..+75°C	..+85°C	..+85°C	..+85°C
Weight	5 g	17 g	22 g	9 g	12 g	18 g

*Extended Temperature Range*

SL-500 series	SL-550	SL-561	SL-560
Size	½AA	⅔AA	AA
Diameter	14.5 mm	14.5 mm	14.5 mm
Height	25 mm	33 mm	50 mm
Nominal voltage	3.6 V	3.6 V	3.6 V
Nominal capacity	0.8 Ah	1.0 Ah	1.7 Ah
Nominal current	0.6 mA	1 mA	2 mA
Max. continuous discharge current	6 mA	10 mA	20 mA
Temperature range -55°C..	..+130°C	..+130°C	..+130°C
Weight	9 g	12 g	18 g

*Enhanced Start*

SL-700 series	SL-740	SL-789	SL-786	SL-750	SL-761	SL-760	SL-770	SL-780	SL-790
Size	BEL <sup>3)</sup>	¼D <sup>3)</sup>	⅓D <sup>3)</sup>	½AA	⅔AA	AA	C	D	DD
Diameter	18.5 mm	33 mm	33 mm	14.5 mm	14.5 mm	14.5 mm	26 mm	33 mm	33 mm
Height	6.5 mm	6 mm	10 mm	25 mm	33 mm	50 mm	50 mm	60 mm	123 mm
Nominal voltage	3.6 V	3.6 V	3.6 V	3.6 V	3.6 V	3.6 V	3.6 V	3.6 V	3.6 V
Nominal capacity	0.37 Ah	0.95 Ah	1.6 Ah	0.95 Ah	1.35 Ah	2.1 Ah	7.2 Ah	16.5 Ah	35 Ah
Nominal current	0.3 mA	1 mA	1 mA	0.6 mA	1 mA	2 mA	3 mA	6 mA	10 mA
Max. continuous discharge current	3 mA	10 mA	10 mA	20 mA	30 mA	60 mA	100 mA	200 mA	300 mA
Pulse current capability	10 mA	20 mA	20 mA	60 mA	90 mA	140 mA	300 mA	450 mA	900 mA
Temperature range -55°C..	..+75°C	..+75°C	..+75°C	..+85°C	..+85°C	..+85°C	..+85°C	..+85°C	..+85°C
Weight	5 g	17 g	22 g	9 g	12 g	18 g	50 g	92 g	195 g

	Computer Batteries SL-360/461	SL-360/486	High Capacity SL2000 series	SL2770	SL2780
Length	61 mm	58.4 mm	Size	C	D
Width	15.6 mm	38.2 mm	Diameter	26 mm	33 mm
Height	21.1 mm	23 mm		50 mm	60 mm
Nominal voltage	3.6 V	6.0 V		3.6 V	3.6 V
Nominal capacity	2.1 Ah	1.9 Ah		8.5 Ah	19 Ah
Nominal current	2 mA	0.2 mA		3 mA	6 mA
Max. continuous discharge current	20 mA	0.2 mA <sup>5)</sup>		100 mA	200 mA
Temperature range -55°C..	..+85°C	..+85°C		..+85°C	..+85°C
Weight	26 g	60 g		50 g	92 g

<sup>1)</sup> not available for size DD <sup>2)</sup> available for sizes ½AA, ⅔AA, AA only <sup>3)</sup> flat cells available with pins only