turtle by ENEPOWER

TSB003-SLA Series
Digital Universal Battery Charger

SLA | 2.0V-40VDC | 5A max. | 100W

Turtle Charger (100W) - SLA
Pre-programmed Battery Charger for Sealed Lead Acid

GENERAL SPECIFICATIONS

Input Voltage	10-75VDC
Output Voltage	2.0V-40V for battery packs up to: – 20 cells in series (SLA)
Output Current	5A (Buck) 60W (Boost)
Voltage Accuracy	<1%
Voltage Limit	2.25V ±1% p/cell
Current Accuracy	<5%
Tolerance on Timing	±5%
Temp. Accuracy	Internal: <1°C
	External: <1%, resolution 0.01°C
Dimensions	L80mm x W61mm x H14.5mm (PCB only)
Weight	60 grams (PCB only)
LED PATTERNS - ROUTINE	
Traffic light (red-orange-green):	System reset. Occurs at power on and battery connection.
Slow orange blink:	System waiting. Battery disconnected.
Solid orange:	Constant current phase. (inc. pre-condition if programmed)
Orange with green blink:	Constant voltage phase
Solid green	Charge Complete. Float Charge continues (if programmed)
LED PATTERNS - EXCEPTIONS	
Three red flashes:	Charge suspended. Battery volts too low.
Two red flashes:	Charge suspended. Battery volts too high.
Slow red blinking: (1 flash every 5 sec)	Charge suspended. Battery or PCB too hot (PCB self protected to 75°C)
Fast red blinking:	Thermistor Error. (Needs Power Reset)
Orange blinking: (1 flash every ½ sec)	Timeout. Time limit is customisable on request
Solid red:	Fault. (Needs Power Reset)

DESCRIPTION

The TSB003-SLA Series offer a wide range of single output DC ***SEALED LEAD ACID*** battery chargers up to 100 Watts.

It is custom programmed by our engineers to fit specific design requirements.

Pre-programming includes functions setting, charging current and charging voltage, constant current, constant voltage, pre-conditioning, float charging, charge termination methods and setting. Input and output cabling and connector options for all international markets are available upon request.

Features:

- Choice of 50 different models.
- Wide input voltage range.
- Single voltage output up to 100W.
- Constant current limiting overload.
- Proven field reliability and performance.
- Status LED indicator (NOT available in DIN-V version).
- Chassis and DIN rail mounting options.
- High operating temperature +71°C.

MOUNTING OPTIONS:

Modules available as PCB stand-alone or DIN mounting case. See options below.

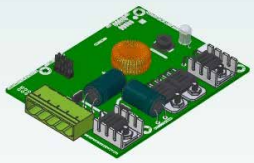
PCB: PCB stand-alone charger with 5 (five) electric isolated screw terminals for panel mounting.

ENCLOSURE: Housed enclosure for environmental protection.

DIN-V: DIN Rail mounting case in vertical format. Suitable for Top hat IEC/EN 60715 and G section rail types.

DIN-H: DIN Rail mounting case in horizontal format. Suitable for Top hat IEC/EN 60715 and G section rail types.

PCB



ENCLOSURE

DIN-V

DIN-H

PART NUMBER SELECTION KEY

TSB	003	–	SLA	NN	S	I	–	X

Number of Cells:
- 01: 2.0V (1 cell)
- up to 20: 40V (20 cells)

Output Current:
- 1: 1 Amp
- up to 5: 5 Amps

Mounting Option:
- P: PCB only
- E: Housed enclosure
- V: DIN Rail Vertical
- H: DIN Rail Horizontal

*Termination of choice available.

SELECTION TABLE

Part Number	Chemistry	Battery Pack Voltage	Input Voltage	Output Current	Mounting Option
TSB003-SLA01S5	Sealed Lead Acid	2VDC (1 cell)	10-75VDC	5A max.(11.25W)	
TSB003-SLA01S4	Sealed Lead Acid	2VDC (1 cell)	10-75VDC	4A (9W)	
TSB003-SLA01S3	Sealed Lead Acid	2VDC (1 cell)	10-75VDC	3A (6.75W)	
TSB003-SLA01S2	Sealed Lead Acid	2VDC (1 cell)	10-75VDC	2A (4.5W)	
TSB003-SLA01S1	Sealed Lead Acid	2VDC (1 cell)	10-75VDC	1A (2.25W)	
TSB003-SLA02S5	Sealed Lead Acid	4VDC (2 cells)	10-75VDC	5A max.(22.5W)	
TSB003-SLA02S4	Sealed Lead Acid	4VDC (2 cells)	10-75VDC	4A (18W)	
TSB003-SLA02S3	Sealed Lead Acid	4VDC (2 cells)	10-75VDC	3A (13.5W)	
TSB003-SLA02S2	Sealed Lead Acid	4VDC (2 cells)	10-75VDC	2A (9W)	
TSB003-SLA02S1	Sealed Lead Acid	4VDC (2 cells)	10-75VDC	1A (4.5W)	
TSB003-SLA03S5	Sealed Lead Acid	6VDC (3 cells)	10-75VDC	5A max.(33.75W)	
TSB003-SLA03S4	Sealed Lead Acid	6VDC (3 cells)	10-75VDC	4A (27W)	
TSB003-SLA03S3	Sealed Lead Acid	6VDC (3 cells)	10-75VDC	3A (20.25W)	
TSB003-SLA03S2	Sealed Lead Acid	6VDC (3 cells)	10-75VDC	2A (13.5W)	*Select from options above*
TSB003-SLA03S1	Sealed Lead Acid	6VDC (3 cells)	10-75VDC	1A (6.75W)	
TSB003-SLA04S5	Sealed Lead Acid	8VDC (4 cells)	10-75VDC	5A max.(45W)	
TSB003-SLA04S4	Sealed Lead Acid	8VDC (4 cells)	10-75VDC	4A (36W)	
TSB003-SLA04S3	Sealed Lead Acid	8VDC (4 cells)	10-75VDC	3A (27W)	
TSB003-SLA04S2	Sealed Lead Acid	8VDC (4 cells)	10-75VDC	2A (18W)	
TSB003-SLA04S1	Sealed Lead Acid	8VDC (4 cells)	10-75VDC	1A (9W)	
TSB003-SLA05S5	Sealed Lead Acid	10VDC (5 cells)	10-75VDC	5A max.(56.25W)	
TSB003-SLA05S4	Sealed Lead Acid	10VDC (5 cells)	10-75VDC	4A (45W)	
TSB003-SLA05S3	Sealed Lead Acid	10VDC (5 cells)	10-75VDC	3A (33.75W)	
TSB003-SLA05S2	Sealed Lead Acid	10VDC (5 cells)	10-75VDC	2A (22.5W)	
TSB003-SLA05S1	Sealed Lead Acid	10VDC (5 cells)	10-75VDC	1A (11.25W)	
TSB003-SLA06S5	Sealed Lead Acid	12VDC (6 cells)	10-75VDC	5A max.(67.5W)	
TSB003-SLA06S4	Sealed Lead Acid	12VDC (6 cells)	10-75VDC	4A (54W)	
TSB003-SLA06S3	Sealed Lead Acid	12VDC (6 cells)	10-75VDC	3A (40.5W)	

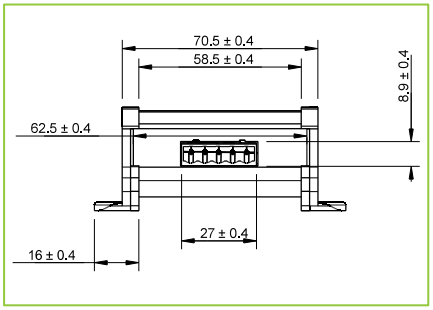
Part Number	Chemistry	Battery Pack Voltage	Input Voltage	Output Current	Mounting Option
TSB003-SLA06S2	Sealed Lead Acid	12VDC (6 cells)	10-75VDC	2A (27W)	
TSB003-SLA06S1	Sealed Lead Acid	12VDC (6 cells)	10-75VDC	1A (13.5W)	
TSB003-SLA07S5	Sealed Lead Acid	14VDC (7 cells)	10-75VDC	5A max.(78.75W)	
TSB003-SLA07S4	Sealed Lead Acid	14VDC (7 cells)	10-75VDC	4A (63W)	
TSB003-SLA07S3	Sealed Lead Acid	14VDC (7 cells)	10-75VDC	3A (47.25W)	
TSB003-SLA07S2	Sealed Lead Acid	14VDC (7 cells)	10-75VDC	2A (31.5W)	
TSB003-SLA07S1	Sealed Lead Acid	14VDC (7 cells)	10-75VDC	1A (15.75W)	
TSB003-SLA08S5	Sealed Lead Acid	16VDC (8 cells)	10-75VDC	5A max.(90W)	
TSB003-SLA08S4	Sealed Lead Acid	16VDC (8 cells)	10-75VDC	4A (72W)	
TSB003-SLA08S3	Sealed Lead Acid	16VDC (8 cells)	10-75VDC	3A (54W)	
TSB003-SLA08S2	Sealed Lead Acid	16VDC (8 cells)	10-75VDC	2A (36W)	
TSB003-SLA08S1	Sealed Lead Acid	16VDC (8 cells)	10-75VDC	1A (18W)	
TSB003-SLA09S5	Sealed Lead Acid	18VDC (9 cells)	10-75VDC	4.94A (100W max.)	
TSB003-SLA09S4	Sealed Lead Acid	18VDC (9 cells)	10-75VDC	4A (81W)	
TSB003-SLA09S3	Sealed Lead Acid	18VDC (9 cells)	10-75VDC	3A (60.75W)	
TSB003-SLA09S2	Sealed Lead Acid	18VDC (9 cells)	10-75VDC	2A (40.5W)	
TSB003-SLA09S1	Sealed Lead Acid	18VDC (9 cells)	10-75VDC	1A (20.25W)	
TSB003-SLA10S5	Sealed Lead Acid	20VDC (10 cells)	10-75VDC	4.44A (100W max.)	
TSB003-SLA10S4	Sealed Lead Acid	20VDC (10 cells)	10-75VDC	4A (90W)	
TSB003-SLA10S3	Sealed Lead Acid	20VDC (10 cells)	10-75VDC	3A (67.5W)	
TSB003-SLA10S2	Sealed Lead Acid	20VDC (10 cells)	10-75VDC	2A (45W)	
TSB003-SLA10S1	Sealed Lead Acid	20VDC (10 cells)	10-75VDC	1A (22.5W)	
TSB003-SLA11S4	Sealed Lead Acid	22VDC (11 cells)	10-75VDC	4A (100W max.)	*Select from options above*
TSB003-SLA11S3	Sealed Lead Acid	22VDC (11 cells)	10-75VDC	3A (74.25W)	
TSB003-SLA11S2	Sealed Lead Acid	22VDC (11 cells)	10-75VDC	2A (49.5W)	
TSB003-SLA11S1	Sealed Lead Acid	22VDC (11 cells)	10-75VDC	1A (24.75W)	
TSB003-SLA12S4	Sealed Lead Acid	24VDC (12 cells)	10-75VDC	3.7A (100W max.)	
TSB003-SLA12S3	Sealed Lead Acid	24VDC (12 cells)	10-75VDC	3A (81W)	
TSB003-SLA12S2	Sealed Lead Acid	24VDC (12 cells)	10-75VDC	2A (54W)	
TSB003-SLA12S1	Sealed Lead Acid	24VDC (12 cells)	10-75VDC	1A (27W)	
TSB003-SLA13S4	Sealed Lead Acid	26VDC (13 cells)	10-75VDC	3.42A (100W max.)	
TSB003-SLA13S3	Sealed Lead Acid	26VDC (13 cells)	10-75VDC	3A (87.75W)	
TSB003-SLA13S2	Sealed Lead Acid	26VDC (13 cells)	10-75VDC	2A (58.5W)	
TSB003-SLA13S1	Sealed Lead Acid	26VDC (13 cells)	10-75VDC	1A (29.25W)	
TSB003-SLA14S4	Sealed Lead Acid	28VDC (14 cells)	10-75VDC	3.17A (100W max.)	
TSB003-SLA14S3	Sealed Lead Acid	28VDC (14 cells)	10-75VDC	3A (94.5W)	
TSB003-SLA14S2	Sealed Lead Acid	28VDC (14 cells)	10-75VDC	2A (63W)	
TSB003-SLA14S1	Sealed Lead Acid	28VDC (14 cells)	10-75VDC	1A (31.5W)	
TSB003-SLA15S3	Sealed Lead Acid	30VDC (15 cells)	10-75VDC	2.96A (100W max.)	
TSB003-SLA15S2	Sealed Lead Acid	30VDC (15 cells)	10-75VDC	2A (67.5W)	
TSB003-SLA15S1	Sealed Lead Acid	30VDC (15 cells)	10-75VDC	1A (33.75W)	
TSB003-SLA16S3	Sealed Lead Acid	32VDC (16 cells)	10-75VDC	2.78A (100W max.)	
TSB003-SLA16S2	Sealed Lead Acid	32VDC (16 cells)	10-75VDC	2A (72W)	
TSB003-SLA16S1	Sealed Lead Acid	32VDC (16 cells)	10-75VDC	1A (36W)	
TSB003-SLA17S3	Sealed Lead Acid	34VDC (17 cells)	10-75VDC	2.61A (100W max.)	
TSB003-SLA17S2	Sealed Lead Acid	34VDC (17 cells)	10-75VDC	2A (76.5W)	

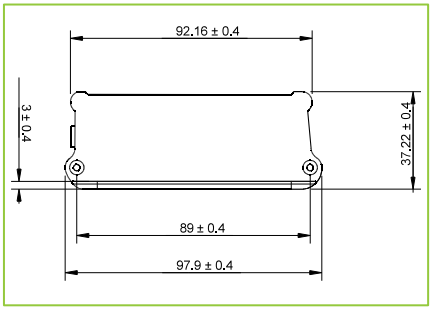
Part Number	Chemistry	Battery Pack Voltage	Input Voltage	Output Current	Mounting Option
TSB003-SLA17S1	Sealed Lead Acid	34VDC (17 cells)	10-75VDC	1A (38.25W)	*Select from options above*
TSB003-SLA18S3	Sealed Lead Acid	36VDC (18 cells)	10-75VDC	2.47A (100W max.)	
TSB003-SLA18S2	Sealed Lead Acid	36VDC (18 cells)	10-75VDC	2A (81W)	
TSB003-SLA18S1	Sealed Lead Acid	36VDC (18 cells)	10-75VDC	1A (40.5W)	
TSB003-SLA19S3	Sealed Lead Acid	38VDC (19 cells)	10-75VDC	2.34A (100W max.)	
TSB003-SLA19S2	Sealed Lead Acid	38VDC (19 cells)	10-75VDC	2A (85.5W)	
TSB003-SLA19S1	Sealed Lead Acid	38VDC (19 cells)	10-75VDC	1A (42.75W)	
TSB003-SLA20S3	Sealed Lead Acid	40VDC (20 cells)	10-75VDC	2.22A (100W max.)	
TSB003-SLA20S2	Sealed Lead Acid	40VDC (20 cells)	10-75VDC	2A (90W)	
TSB003-SLA20S1	Sealed Lead Acid	40VDC (20 cells)	10-75VDC	1A (45W)	

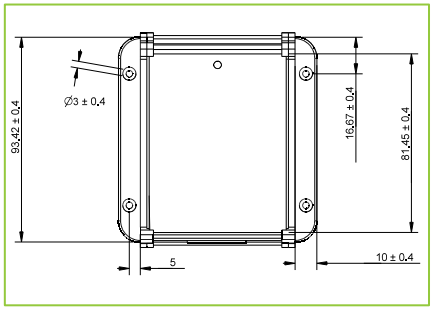
***IMPORTANT:** The Part Number must have the mounting option code (-P, -E, -V, or -H) your project requires.

TECHNICAL DIAGRAMS (2D)

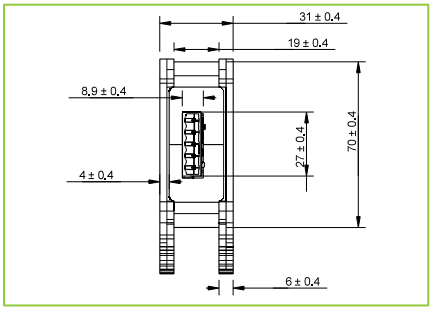
ENCLOSURE

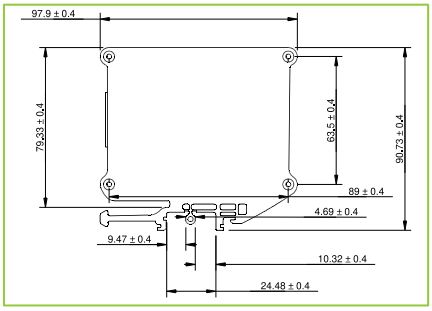


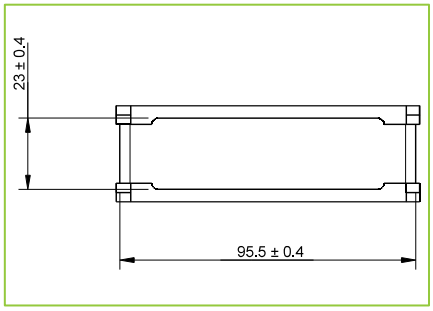




DIN-V







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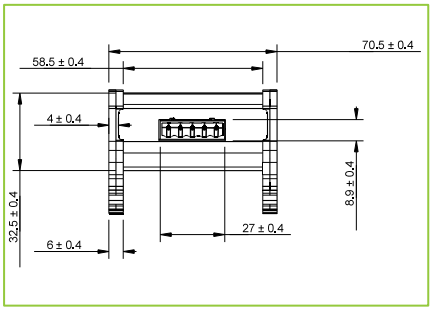
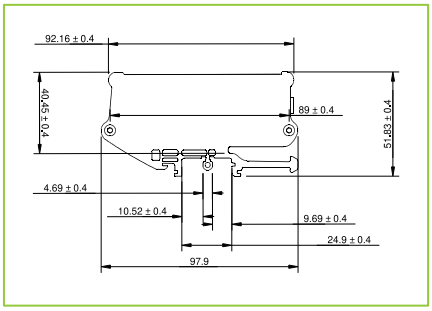
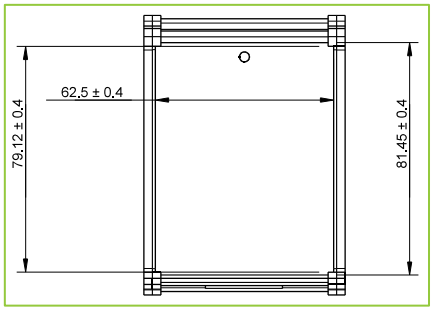
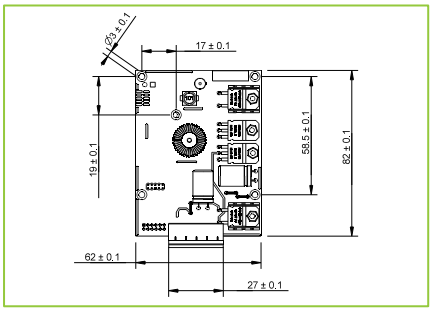


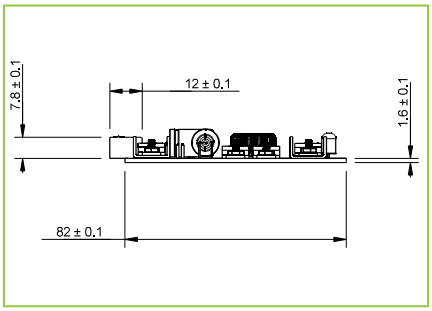




TECHNICAL DIAGRAMS (2D)

PCB





TERMINAL BLOCK PINOUT