

NiCd

1.2V-
36VDC

3A max.

50W

Turtle Charger (50W) - NiCd

Pre-programmed Battery Charger for Nickel Cadmium



GENERAL SPECIFICATIONS

Input Voltage	10-75VDC
Input Connector	2.1mm DC jack (enclosure)
Output Voltage	1.2V-36V for battery packs up to: – 30 cells in series (NiCd)
Output Current	3A max.
Voltage Accuracy	<1%
Voltage Limit	1.55V \pm 1% p/cell
Current Accuracy	<5%
Tolerance on Timing	\pm 5%
Temp. Accuracy	Internal: <1°C
	External: <1%, resolution 0.01°C
Dimensions	L112mm x W66mm x H40mm (enclosure)
Weight	140 grams (enclosure)

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 TSB002-NCD series offer a wide range of single output DC chargers up to 50 Watts.

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

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 50W.
- Constant current limiting overload.
- Proven field reliability and performance.
- Status LED indicator.
- High operating temperature +71°C.

MOUNTING OPTIONS:

Modules available as options below:

PCB: PCB stand-alone charger.

ENCLOSURE: Housed enclosure for environmental protection.

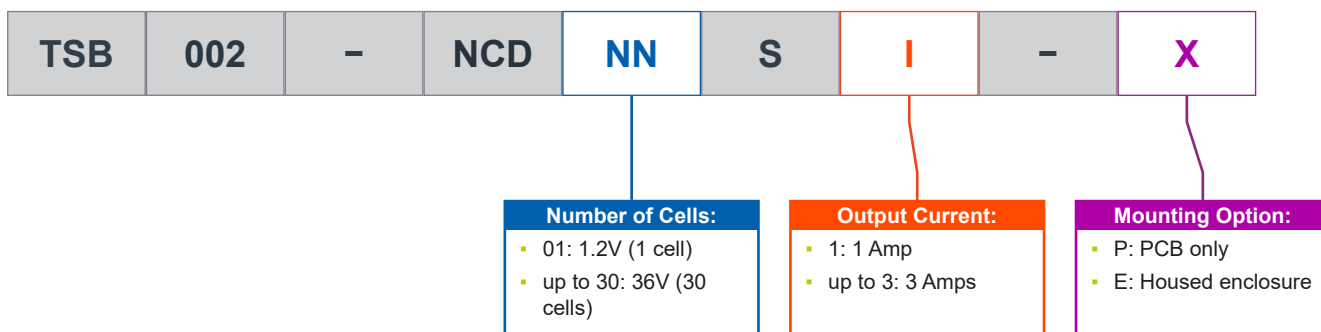
PCB



ENCLOSURE



PART NUMBER SELECTION KEY



*Termination of choice available.

SELECTION TABLE

Part Number	Chemistry	Battery Pack Voltage	Input Voltage	Output Current	Mounting Option
TSB002-NCD01S1	NiCd	1.2VDC (1 cell)	10-75VDC	1A (1.55W)	<i>Select from options above</i>
TSB002-NCD01S2	NiCd	1.2VDC (1 cell)	10-75VDC	2A (3.1W)	
TSB002-NCD01S3	NiCd	1.2VDC (1 cell)	10-75VDC	3A (4.65W)	
TSB002-NCD02S1	NiCd	2.4VDC (2 cells)	10-75VDC	1A (3.1W)	
TSB002-NCD02S2	NiCd	2.4VDC (2 cells)	10-75VDC	2A (6.2W)	
TSB002-NCD02S3	NiCd	2.4VDC (2 cells)	10-75VDC	3A (9.3W)	
TSB002-NCD03S1	NiCd	3.6VDC (3 cells)	10-75VDC	1A (4.65W)	
TSB002-NCD03S2	NiCd	3.6VDC (3 cells)	10-75VDC	2A (9.3W)	
TSB002-NCD03S3	NiCd	3.6VDC (3 cells)	10-75VDC	3A (13.95W)	
TSB002-NCD04S1	NiCd	4.8VDC (4 cells)	10-75VDC	1A (6.2W)	
TSB002-NCD04S2	NiCd	4.8VDC (4 cells)	10-75VDC	2A (12.4W)	
TSB002-NCD04S3	NiCd	4.8VDC (4 cells)	10-75VDC	3A (18.6W)	
TSB002-NCD05S1	NiCd	6VDC (5 cells)	10-75VDC	1A (7.75W)	
TSB002-NCD05S2	NiCd	6VDC (5 cells)	10-75VDC	2A (15.5W)	
TSB002-NCD05S3	NiCd	6VDC (5 cells)	10-75VDC	3A (23.25W)	
TSB002-NCD06S1	NiCd	7.2VDC (6 cells)	10-75VDC	1A (9.3W)	
TSB002-NCD06S2	NiCd	7.2VDC (6 cells)	10-75VDC	2A (18.6W)	
TSB002-NCD06S3	NiCd	7.2VDC (6 cells)	10-75VDC	3A (27.9W)	
TSB002-NCD07S1	NiCd	8.4VDC (7 cells)	10-75VDC	1A (10.85W)	
TSB002-NCD07S2	NiCd	8.4VDC (7 cells)	10-75VDC	2A (21.7W)	
TSB002-NCD07S3	NiCd	8.4VDC (7 cells)	10-75VDC	3A (32.55W)	
TSB002-NCD08S1	NiCd	9.6VDC (8 cells)	10-75VDC	1A (12.4W)	
TSB002-NCD08S2	NiCd	9.6VDC (8 cells)	10-75VDC	2A (24.8W)	
TSB002-NCD08S3	NiCd	9.6VDC (8 cells)	10-75VDC	3A (37.2W)	
TSB002-NCD09S1	NiCd	10.8VDC (9 cells)	10-75VDC	1A (13.95W)	
TSB002-NCD09S2	NiCd	10.8VDC (9 cells)	10-75VDC	2A (27.9W)	

All specifications are correct at time of creation. All specifications and operation conditions contained in this datasheet are subject to change or improvement without prior notice to the user. This data is for evaluation purposes only. No guarantee is intended or implied by this data. For clarification and updated information, please contact us.

Part Number	Chemistry	Battery Pack Voltage	Input Voltage	Output Current	Mounting Option
TSB002-NCD09S3	NiCd	10.8VDC (9 cells)	10-75VDC	3A (41.85W)	
TSB002-NCD10S1	NiCd	12VDC (10 cells)	10-75VDC	1A (15.5W)	
TSB002-NCD10S2	NiCd	12VDC (10 cells)	10-75VDC	2A (31W)	
TSB002-NCD10S3	NiCd	12VDC (10 cells)	10-75VDC	3A (46.5W)	
TSB002-NCD11S1	NiCd	13.2VDC (11 cells)	10-75VDC	1A (17.05W)	
TSB002-NCD11S2	NiCd	13.2VDC (11 cells)	10-75VDC	2A (34.1W)	
TSB002-NCD11S3	NiCd	13.2VDC (11 cells)	10-75VDC	2.93A (50W max.)	
TSB002-NCD12S1	NiCd	14.4VDC (12 cells)	10-75VDC	1A (18.6W)	
TSB002-NCD12S2	NiCd	14.4VDC (12 cells)	10-75VDC	2A (37.2W)	
TSB002-NCD12S3	NiCd	14.4VDC (12 cells)	10-75VDC	2.69A (50W max.)	
TSB002-NCD13S1	NiCd	15.6VDC (13 cells)	10-75VDC	1A (20.15W)	
TSB002-NCD13S2	NiCd	15.6VDC (13 cells)	10-75VDC	2A (40.3W)	
TSB002-NCD13S3	NiCd	15.6VDC (13 cells)	10-75VDC	2.48A (50W max.)	
TSB002-NCD14S1	NiCd	16.8VDC (14 cells)	10-75VDC	1A (21.7W)	
TSB002-NCD14S2	NiCd	16.8VDC (14 cells)	10-75VDC	2A (43.4W)	
TSB002-NCD14S3	NiCd	16.8VDC (14 cells)	10-75VDC	2.3A (50W max.)	
TSB002-NCD15S1	NiCd	18VDC (15 cells)	10-75VDC	1A (23.25W)	
TSB002-NCD15S2	NiCd	18VDC (15 cells)	10-75VDC	2A (46.5W)	
TSB002-NCD15S3	NiCd	18VDC (15 cells)	10-75VDC	2.15A (50W max.)	
TSB002-NCD16S1	NiCd	19.2VDC (16 cells)	10-75VDC	1A (24.8W)	
TSB002-NCD16S2	NiCd	19.2VDC (16 cells)	10-75VDC	2A (49.6W)	
TSB002-NCD16S3	NiCd	19.2VDC (16 cells)	10-75VDC	2.02A (50W max.)	Select from options above
TSB002-NCD17S1	NiCd	20.4VDC (17 cells)	10-75VDC	1A (26.35W)	
TSB002-NCD17S2	NiCd	20.4VDC (17 cells)	10-75VDC	1.9A (50W max.)	
TSB002-NCD18S1	NiCd	21.6VDC (18 cells)	10-75VDC	1A (27.9W)	
TSB002-NCD18S2	NiCd	21.6VDC (18 cells)	10-75VDC	1.79A (50W max.)	
TSB002-NCD19S1	NiCd	22.8VDC (19 cells)	10-75VDC	1A (29.45W)	
TSB002-NCD19S2	NiCd	22.8VDC (19 cells)	10-75VDC	1.7A (50W max.)	
TSB002-NCD20S1	NiCd	24VDC (20 cells)	10-75VDC	1A (31W)	
TSB002-NCD20S2	NiCd	24VDC (20 cells)	10-75VDC	1.61A (50W max.)	
TSB002-NCD21S1	NiCd	25.2VDC (21 cells)	10-75VDC	1A (32.55W)	
TSB002-NCD21S2	NiCd	25.2VDC (21 cells)	10-75VDC	1.54A (50W max.)	
TSB002-NCD22S1	NiCd	26.4VDC (22 cells)	10-75VDC	1A (34.1W)	
TSB002-NCD22S2	NiCd	26.4VDC (22 cells)	10-75VDC	1.47A (50W max.)	
TSB002-NCD23S1	NiCd	27.6VDC (23 cells)	10-75VDC	1A (35.65W)	
TSB002-NCD23S2	NiCd	27.6VDC (23 cells)	10-75VDC	1.4A (50W max.)	
TSB002-NCD24S1	NiCd	28.8VDC (24 cells)	10-75VDC	1A (37.2W)	
TSB002-NCD24S2	NiCd	28.8VDC (24 cells)	10-75VDC	1.34A (50W max.)	
TSB002-NCD25S1	NiCd	30VDC (25 cells)	10-75VDC	1A (38.75W)	
TSB002-NCD25S2	NiCd	30VDC (25 cells)	10-75VDC	1.29A (50W max.)	
TSB002-NCD26S1	NiCd	31.2VDC (26 cells)	10-75VDC	1A (40.3W)	
TSB002-NCD26S2	NiCd	31.2VDC (26 cells)	10-75VDC	1.24A (50W max.)	
TSB002-NCD27S1	NiCd	32.4VDC (27 cells)	10-75VDC	1A (41.85W)	
TSB002-NCD27S2	NiCd	32.4VDC (27 cells)	10-75VDC	1.19A (50W max.)	

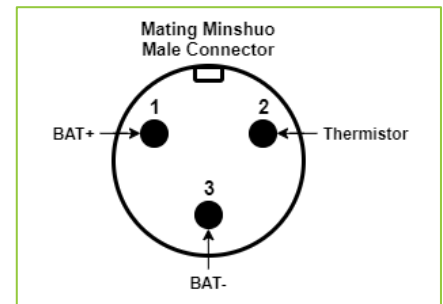
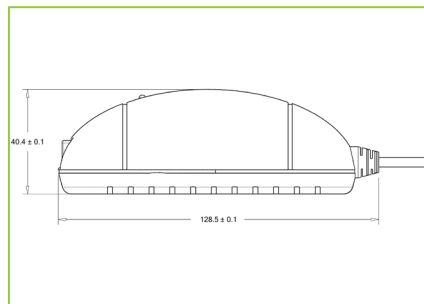
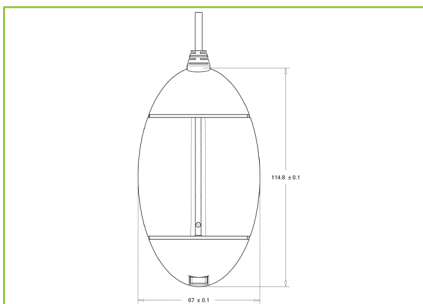
All specifications are correct at time of creation. All specifications and operation conditions contained in this datasheet are subject to change or improvement without prior notice to the user. This data is for evaluation purposes only. No guarantee is intended or implied by this data. For clarification and updated information, please contact us.

Part Number	Chemistry	Battery Pack Voltage	Input Voltage	Output Current	Mounting Option
TSB002-NCD28S1	NiCd	33.6VDC (28 cells)	10-75VDC	1A (43.4W)	Select from options above
TSB002-NCD28S2	NiCd	33.6VDC (28 cells)	10-75VDC	1.15A (50W max.)	
TSB002-NCD29S1	NiCd	34.8VDC (29 cells)	10-75VDC	1A (44.95W)	
TSB002-NCD29S2	NiCd	34.8VDC (29 cells)	10-75VDC	1.11A (50W max.)	
TSB002-NCD30S1	NiCd	36VDC (30 cells)	10-75VDC	1A (46.5W)	
TSB002-NCD30S2	NiCd	36VDC (30 cells)	10-75VDC	1.08A (50W max.)	

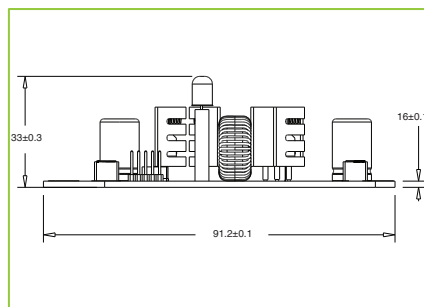
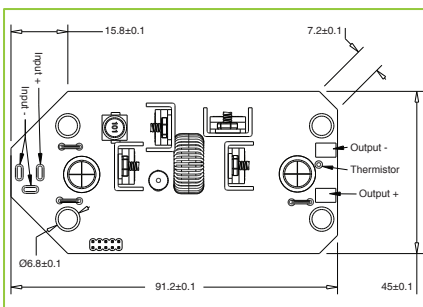
*****IMPORTANT:** The Part Number must have the mounting option code (-P, or -E) your project requires.

TECHNICAL DIAGRAMS (2D)

ENCLOSURE



PCB



All dimensions in millimeters (mm).