Universal battery charger

- Suitable for charging nickel-cadmium, nickel-metal-hydride, lead acid, lead gel, lead-fleece and lithium-ion rechargeable batteries
- Discharge function for NiCd/NiMH batteries
- Selectable charging voltage and current
- LED indication for "Discharging battery" "Charging battery", "Battery check" and "Battery fully charged"

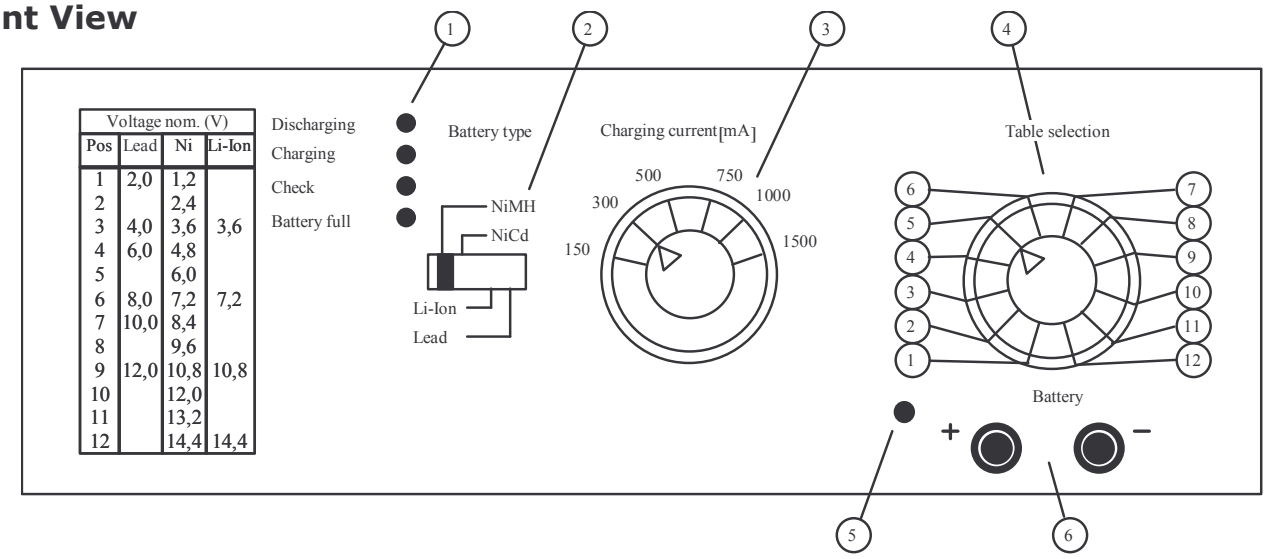
The Universal battery charger unit is a good choice for those who require a device opted for charging different battery types in the most optimal and smoothest way. Among its extensive adjustment possibilities you will certainly find the solution for your charging needs.

Operation

The Universal battery charger has the following features:

1. LED indicators provide information about the status: **Discharging**, **Charging**, **Check** (in the case of deep discharged or damaged batteries this LED lights) and **Battery full**.
2. Pre-selection switch for the battery type. The types nickel-cadmium, nickel-metal-hydride, lead acid, lead gel, lead-fleece and lithium-ion can be pre-selected.
3. Rotary selection switch for the charging current. The pre-selection is made depending on the battery size (mAh) or the manufacturer's specifications regarding the max. charging current.
4. Rotary selection switch for the number of cells. The pre-selection is made in accordance with the printed table, depending on the respective preselected battery type.
5. Button for the discharging function. If NiCd or NiMH has been preselected, a defined discharging of the battery up to 1 V per cell takes place after the button is pushed. Afterwards, the charging program starts automatically.
6. 4 mm lab sockets on the front side of the unit for the connection of the batteries

Front View



Voltage nom. (V)			
Pos	Lead	Ni	Li-Ion
1	2,0	1,2	
2		2,4	
3	4,0	3,6	3,6
4	6,0	4,8	
5		6,0	
6	8,0	7,2	7,2
7	10,0	8,4	
8		9,6	
9	12,0	10,8	10,8
10		12,0	
11		13,2	
12		14,4	14,4

Function – Pre-selection switch battery type
The pre-selection of the battery type basically determines the characteristics of the battery charging behaviour. Thus, it is important to be mindful of the correct pre-selection.

Discharge Button (only possible with NiCd/NiMH pre-selection
In both settings, a defined discharging of the batteries prior to charging is possible in order to suppress possible memory effects, i.e. in the event of repeated partial discharges, the battery can only be discharged to the partial discharge limit again. For this purpose, the "Discharge" button must be pressed. The LED indicator „Discharging" indicates the discharging. The battery is now undergoing a defined discharging up to a cell voltage of 1 V/cell. Afterwards, the charging process starts automatically.

Panelectron Ltd., Osztály u. 16-18/E
H-1087 Budapest, Hungary

Tel/Fax: +36 1 215 9116
E-mail: info@panelectron.hu

Charging current pre-selection switch
There are six different currents available:

150 mA 300 mA 500 mA 750 mA 1000 mA 1500 mA

The charging current must be adjusted in accordance with the indicated Ah rating of the battery. It is important hereby to observe the specifications/instructions of the battery manufacturer. If the manufacturer regarding the maximum charging current provides no information, the lowest charging current should be selected when in doubt. Batteries below 150 mA C5 rating (C5 = capacity at 5 hours discharging) may only be charged when the battery manufacturer expressly permits this.

Rated voltage pre-selection Switch
The pre-selection switch for the rated battery voltage must be set according to the cell number or rated voltage of the battery before you connect the battery to the battery charger. The table printed on the front of the unit is to be used for selecting the correct switch position. The rated voltage per cell is 2,0 V for lead, 1,2V for NiCd/NiMH and 3,6 V for Li-Ion.

LED Indicators
Four LED indicators provide information on the status.

- **Discharging** indicates that the battery is being discharged through an internal load.
- **Charging** indicates that the battery is currently being charged.
- **Check** indicates that the battery is not yet in the appropriate voltage range to switch to the quick-charging procedure. The battery is being charged with approx. 15% of the selected charging current. If the battery is only deep-discharged, the device will return to the quick-charging mode after reaching the charging range. If the battery voltage does not increase, the charging current will be terminated after a maximum of I hour, since there is obviously a battery defect present.
- **Battery full** indicates that the battery is 100% charged. In the pre-selection position Battery Type Lead or Li-Ion, this indicator will also light up when no battery is connected.

Specifications

Input voltage:	230V AC ~ 50Hz
Input power:	Max. 30VA
Rated output voltage:	1,2 – 14,4 V
Rated output current:	Min. 150 mA / Max. 1500 mA
Charging output connections:	4 mm lab sockets
Battery type pre-selection:	NiCd / NiMH / Lead / Li-Ion batteries
Charging process:	
Lead / Li-Ion	Constant current charging with concluding full charging at the voltage limit
NiCd / NiMH	Constant current charging with concluding full charging at reduced current and U_{peak} capture
Selectable cell number:	
NiCd / NiMH batteries	1 - 12
Lead batteries	1 - 6
Li-Ion batteries	1 - 4
Selectable charging currents:	150 mA / 300 mA / 500 mA / 750 mA / 1000 mA / 1500 mA
LED status indicators:	Discharging / Charging / Check / Battery full
Protection class:	II
Protection type:	IP20
Operating temperature range:	0 °C to +40 °C
Dimensions (L × W × H):	210 × 225 × 72 mm
Weight:	0,8 kg
EMC Directive (89/336/EEC)	EN50082-1 :01.92; EN61000-3-3 :01.95; EN55011 :03.91; EN60555-2 :04.87; EN61010-1 :04.93+A2 :07.95; EN61204 :01.95
Low Voltage Directive (73/23/EEC)	

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