- No need for AC power or another battery to run the PD-12V. It powers itself from the battery pack being discharged.
- Solid-state output, no relay contacts to arc or stick together.
- Can use, via an on-board connector, a CamLight Load Module to add 3.8A (4-cells) to 9.6A (10-cells) to the Stage-1 current level.
- Supplied with 14AWG silicone-insulated wire leads.
- All switch settings and connections are clearly marked.
- Current draw from the pack when the PD-12V is off is approx. 2mA at 4.8V, 10mA at 12V.
- Absolute maximum battery voltage = 16V
- Size = 3.7"W x 3.7"D x 3.5"H, not including wire leads.
- Weight = 11 oz.

If you have any questions, check our web site at www.camlight.com or contact us at (212) 579-1901 (9am-9pm EST) or via e-mail at info@camlight.com.

CamLight Systems

Model PD-12V

4-10 cell (4.8V-12V) NiCd/NiMH Battery Pack 2-Stage Discharger

The CamLight Systems PD-12V 2-Stage Discharger safely and accurately monitors your 4-10 cell (4.8V-12V) NiCd/NiMH battery pack's voltage level as it discharges and automatically disconnects the load when the battery pack has reached the selected cutoff voltage.

The PD-12V uses two discharge stages:

- Stage-1 – An adjustable higher-current discharge to quickly bring the pack down to 0.8V-1.1V/cell (adjustable).
- Stage-2 – A low-current discharge to again bring the pack down to 0.8V-1.1V/cell (adjustable) to ensure a complete discharge.

This 2-Stage discharge occurs automatically and helps to properly condition your packs better than high-current single-stage dischargers. And it's much faster than any low-current single-stage discharger!

To best match the discharge requirements of different battery packs, the Stage-1 current level of the PD-12V can be set to 4 different levels.

The PD-12V's small size and low weight allows you to take it wherever you need to discharge your battery packs. No need for AC power or another battery to worry about, the PD-12V runs itself from the battery pack being discharged. And it's ready to start discharging as soon as you connect the battery pack.

- Safely monitors a 4-10 cell NiCd/NiMH battery pack as it discharges.
- Selectable pack voltages (4, 6, 7, 8, 10-cells) and per-cell cutoffs (0.8V, 0.9V, 1.0V, 1.1V/cell). With limitations, 5-cell and 9-cell packs can also be discharged.
- Automatic 2-Stage circuitry quickly discharges your packs. No more having to settle for only one discharge current level or hours of waiting for a low-current discharge to finish.
- Four Stage-1 discharge current levels with a low-current Stage-2 to ensure a complete discharge.
- Stage 1 = approx. 1.2A-4A (4-cells) to 3A-9.8A (10-cells).
- Stage-2 = approx. 0.6A (4-cells) to 1.4A (10-cells).
- Perfect for medium and high capacity NiCd/NiMH battery packs.
- Solid-state output, no relay contacts to arc or stick together.
- Can use a CamLight LM-12V Load Module to double the Stage-1 discharge current level.

To discharge your 4-10 cell (4.8V-12V) NiCd or NiMH battery pack:

1. Select a per-cell cutoff voltage by moving one of the four CUTOFF switches to the down (ON) position, making sure it's all the way down:

For this cutoff...	Push **down** this CUTOFF switch
0.8V/cell	1
0.9V/cell	2
1.0V/cell	3
1.1V/cell	4

2. Select a pack voltage by moving one of the five PACK VOLT. switches to the down (ON) position, making sure it's all the way down:

With this # of cells...	With this pack voltage...	Push **down** this PACK VOLT. switch
4	4.8V	1
6	7.2V	2
7	8.4V	3
8	9.6V	4
10	12V	5

Note: Be sure that only one switch is in the down (ON) position and that it is all the way down! Your packs can be drained to <2V if no cutoff is selected (no switch is down), or if multiple switches are in the down (ON) position.

2. Select the Stage-1 current level by moving any number of the three LOAD switches to the down (ON) position.

# of LOAD switches on (**down**)	4-cell Pack	6-cell Pack	7-cell Pack	8-cell Pack	10-cell Pack
0	1.2A	1.8A	2.1A	2.4A	3A
1	2.1A	3.2A	3.7A	4.3A	5.3A
2	3A	4.6A	5.3A	6.1A	7.6A
3	4A	6A	6.9A	7.8A	9.8A

Note: Don't change the LOAD switch setting while the discharger is operating.

Note: If measuring the PD-12V's discharge current levels, be aware that not all current meters and watt-hour meters are equally accurate. Your readings may differ from the chart above.

3. Connect the battery pack to be discharged. The white wire lead is positive, the black wire is negative (ground). The connections are also marked on the circuit board near the wire leads.
Note: If the LEDs light up red (reversed polarity), disconnect the pack immediately and reverse the leads.
4. Press the PD-12V's white *Start* button (to the right of the red PACK VOLT. switches) to begin discharging. The two green *Discharging* LEDs light up to indicate that the pack is now being discharged.
5. The left Stage-1 *Discharging* LED will turn off when the pack reaches the cutoff voltage. The right Stage-2 *Discharging* LED and the fan will turn off when the pack again reaches the cutoff voltage and is fully discharged.
6. Disconnect the battery pack.

Notes on using the PD-12V:

- 5-cell packs can be discharged using the settings for 4-cell and 6-cell packs:

For this cutoff...	Push **down** this CUTOFF switch, and...	Push **down** this PACK VOLT. switch
0.8V/cell	#3 of 4	#1 of 5
0.88V/cell	#4 of 4	#1 of 5
0.96V/cell	#1 of 4	#2 of 5
1.1V/cell	#2 of 4	#2 of 5

- 9-cell packs can be discharged using the settings for 8-cell and 10-cell packs:

For this cutoff...	Push **down** this CUTOFF switch, and...	Push **down** this PACK VOLT. switch
0.8V/cell	#2 of 4	#4 of 5
0.88V/cell	#3 of 4	#4 of 5
1.0V/cell	#2 of 4	#5 of 5
1.1V/cell	#3 of 4	#5 of 5

- The power resistors used for the Stage-1 load get very hot during use, over 200-degrees F. If you decide to skip the Stage-2 discharge, wait a couple of minutes before storing your PD-12V to allow it to cool. But, we recommend letting Stage-2 run for a couple of minutes so the Stage-1 discharge resistors can be quickly cooled by the fan.
Caution: Do not touch the power resistors during a discharge!
- The PD-12V is protected from reversed polarity battery connections but the full discharge current will flow if the pack is connected "backwards". Since the cutoff-voltage detecting circuitry isn't working when the polarity is reversed, the pack will discharge down to less than 2 volts. If the *Discharging* LEDs light up red when you connect the pack, immediately disconnect the pack and reverse the connections.
- **Never exceed 16V at the battery connections!**
- The fan's speed changes with the pack voltage. This is normal as less cooling is needed when discharging lower voltage packs.
- Don't leave the pack connected to the PD-12V for a long time after discharging is complete. The unit only draws 2mA-10mA when off, but over a long period of time that could possibly over-discharge a pack.
- Don't bend the wire leads sharply when using or storing the discharger. Over time, this will weaken and break the copper strands of the wire.

Specifications for the PD-12V:

- Five pack voltage settings are available for 4, 6, 7, 8 and 10-cell packs.
- Four per-cell cutoff settings are available for 0.8V, 0.9V, 1.0V, and 1.1V/cell.
- Stage-1 discharge current = 1.2A-4A (4-cells) to 3A-9.8A (10-cells).
- Stage-2 discharge current = approx. 0.6A (4-cells) to 1.4A (10-cells).
- Stage-2 typically discharges an additional 0.1AH-0.3AH from the pack.
- Green LEDs indicate that the pack is discharging. If the LEDs light up red when you connect the battery pack, the leads need to be reversed.

(continued)