



----- TN190 -----

Advanced Universal Battery Charger

PLEASE CAREFULLY READ
THE INSTRUCTIONS
BEFORE USING.

INSTRUCTION MANUAL

Specifications -----

Input	12V DC 1000mA (with supplied AC adapter)
Charge current	AAA - 500mA AA/C/D - 1300mA 9V - 30mA
USB output	5V DC 500mA
Discharge current	AA/AAA/C/D - 400mA
Safety detection	Negative Delta-V cut-off (AA/AAA/C/D)

Best use with -----

Tenergy Centura Low Self-Discharge
Rechargeable Batteries



Tenergy Premium Rechargeable Batteries



Cautions -----

- Carefully follow all instructions.
- Do not disassemble the Advanced Universal Charger.
- Only charge Ni-MH/NiCd batteries. Charging other types of batteries may cause personal injury or damage to the charger.
- Only use the supplied AC Adaptor. (100-240v 50/60hz)
- The Advanced Universal Charger is for indoor use only.
- Keep the Advanced Universal Charger away from heated surroundings, humidity or liquid, otherwise it may cause personal injury or damage to the charger.
- Keep the Advanced Universal Charger out of children's reach.
- If the Advanced Universal Charger is damaged do not operate. Return it to a qualified serviceman for repair.
- Remove all debris from the charger before operating, otherwise it may cause personal injury or damage to the charger.

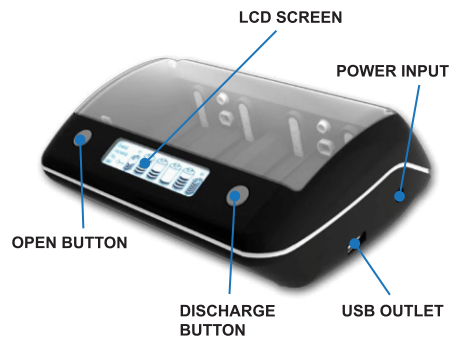


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Thank you for purchasing Tenergy TN190 Advanced Universal Charger. Please carefully read these instructions before using.



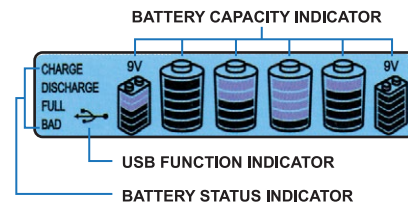
Features -----

- Fast charging capabilities of up to (4) AA/AAA/C/D and (2) 9V NiMH or NiCd rechargeable batteries
- LCD status display with blue backlighting
- Intelligent charging mode with auto cut-off for safety
- Discharge capabilities for cell conditioning to prolong battery life
- 5V USB outlet for mobile device, MP3 player, etc.
- 100-240V/50-60Hz AC Adapter for worldwide usage.

Safety Features -----

- Negative Delta-V cut-off function (excluding 9V)
- Safety timer control for overcharge protection
- Short-circuit protection
- Non-rechargeable battery/Bad cell detection
- Reverse polarity protection

LCD Display -----



- **Charge:** Indicated the batteries are currently charging.
- **Discharge:** Indicates the batteries are currently discharging.
- **Full:** Indicates the batteries are fully charged.
- **Bad:** Indicates the battery is damaged, faulty or expired.
- **USB Symbol:** Indicates the USB charging socket is ready for use.

Operation Instructions -----

Charging

1. Insert 1 - 4 AA/AAA/C/D or 1-2 9v rechargeable Ni-MH/NiCd batteries into the charger.
2. Ensure the batteries are inserted correctly for correct +/- connection.
3. The Advanced Universal Charger will automatically begin charging the batteries.
4. The LCD will display "Charge" and indicate the status for each battery.
5. When the batteries are fully charged the LCD will display "Full".
6. The batteries are now ready for use. Remove batteries and unplug the charger when not in use.

Discharging

1. Insert 1 - 4 AA/AAA/C/D or 1-2 9v rechargeable Ni-Mh batteries into the charger.
2. Ensure the batteries are inserted correctly for correct +/- connection.
3. The Advanced Universal Charger will automatically begin charging the batteries. To begin Discharging the batteries, press the Discharge button on the right hand side of the LCD display. (Please note the discharge button will only begin the discharge function up to one minute after the automatic charging has begun.)
4. The LCD will display "Discharge" and indicate the status for each battery.
5. When the batteries are fully discharged the charging function will automatically begin and the LCD will display "Charge".

Bad Battery Detection -----

During the charging function if a battery is detected as damaged, faulty or expired, the LCD will display "Bad" and the status indicator will flash. If the Advanced Universal Charger detects a battery as bad, that battery is unsuitable for charging.

USB Charging -----

1. The USB charging socket can only be used when charging of batteries is complete, or there are no batteries in the charger.
2. The LCD will display the "USB Symbol" to indicate the USB charging socket is ready for use.
3. When charging a product using the USB charging socket make sure the Maximum loading does not exceed 500mA.

Charging Time Table -----

Battery Type (Ni-MH)	Capacity	Charging Time (approx.)
AAA	500-1200mAh	1.5-2.5 hours
AA	1300-2800mAh	1.5-2.5 hours
C	1800-4500mAh	1.5-4 hours
D	1800-9000mAh	1.5-7.5 hours
9V	150-300mAh	5-10 hours