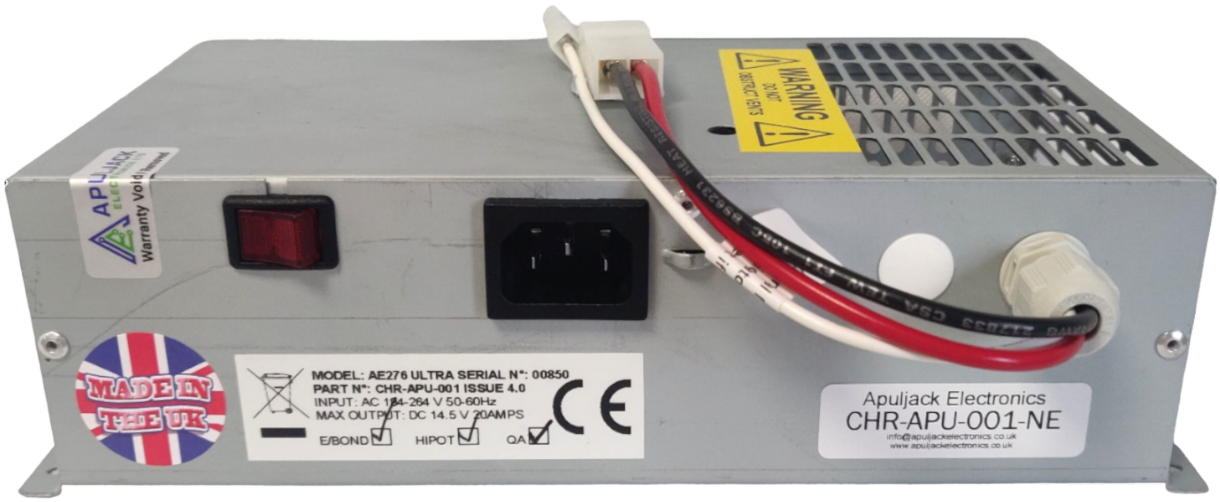
APULJACK
ELECTRONICS LTD
DESIGN AND REPAIR SPECIALISTS

AE276 Ultra

Intelligent 6-Stage Charger with Adaptive Charger Profile



Replacement for BCA PS276 and PS277

Product Code: CHR-APU-001-NE - Version 4.0

1. Scope

These instructions relate only to the Apuljack Electronics item - Model: AE276 ULTRA, Part number: CHR-APU-001 Version 4.0.

2. General Description

The AE276 ULTRA is a 6-stage intelligent charger with fast charge characteristics suitable for 12V vehicle systems. It maintains long battery life due to intelligent charging features utilising microprocessor control to ensure high efficiency charging conditions are supplied via optimised current and voltage cycles.

NOTE: The AE276 ULTRA has an extra white wire – See Section 6 for details

3. Safety & Warnings

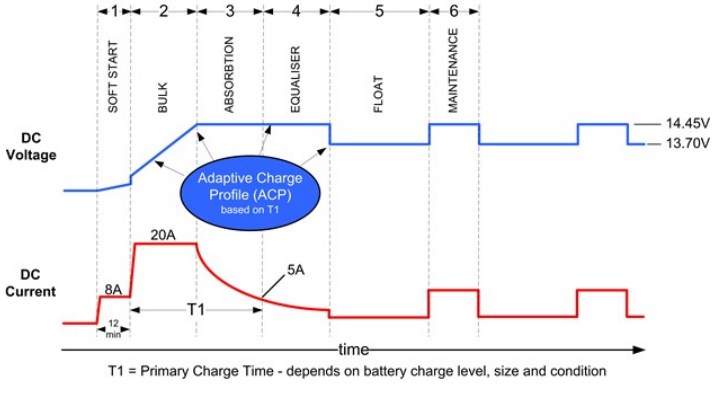
Please observe the warnings on the charger label along with the items below.

- Under heavy loads the charger case may become hot.
- The internals of the charger contain lethal voltages – DO NOT TOUCH.
- Users should keep flames and sparks away from a charging battery due to possible presence of explosive gases.
- Users should provide adequate ventilation during charging.
- Users should disconnect the supply before making or breaking the connections to the battery or charger

4. New Charger Profile

The AE276 Ultra features the new 6-stage Adaptive Charge Profile (ACP) technology from Apuljack Engineering. This technology adjusts the Equaliser stage to suit the capacity and charge characteristics of the battery connected. The Bulk and Absorption phase times are measured by the charger and the ACP algorithm calculates the optimum equalisation time for that particular charge cycle. This helps to maximise the life of the battery.

- Stage 1: Soft Start – the charger gently begins charging at a maximum of 8A, this helps to protect very flat or damaged batteries. (RED/GREEN LED FLASH).
- Stage 2: Bulk – Output current limited to 20A - the charger adds most of the energy into the battery in this phase. (RED LED).



T1 = Primary Charge Time - depends on battery charge level, size and condition

- Stage 3: Absorption – Output held at 14.45V – The final 10-20% of the charge is added to the battery. (RED LED)
- Stage 4: Equaliser – the ACP algorithm – the remaining few percent is added and the individual cells are allowed to equalise. (ORANGE LED)
- Stage 5: Float – Output held at 13.7V – Battery full – held at this industry standard level to avoid excessive leakage. (GREEN LED)
- Stage 6: Maintenance – Output boosted to 14.45V – designed to reduce sulphation and top up charge if required. (GREEN LED)
- Whilst the ACP determines the overall length of the boost voltage, unlike other chargers which would remain at this voltage if a damaged battery were connected, the internal charger has an intelligently controlled safety timer. This timer terminates the boost voltage after a 4 hour period to protect your battery

The BLUE LED indicates POWER ON if solid, or OVER TEMPERATURE if flashing, unit should be left to cool before attempt to use.

A flashing RED LED indicates the battery is in too poor a condition to charge, and should be replaced.

5. Mains Plug Retention

The AE276 ULTRA features a unique Cable Retention Loop for the mains cable. Once the right angled mains connector is fitted, insert the supplied cable tie through the loop in the case and tighten round the mains connector at right angles to the case.

6. Inputs/Outputs

Mains input connector type: IEC C14

The charger is on when the switch is in the 'I' position – the switch will illuminate when the mains is present and the switch is on. Ensure the unit is switched on before fitting into a Power Distribution Unit.

- Charging output: connector type: Fastin-Faston 2 way Male – Red & Black wires.
- 'Mains On' output: connector type: 4.8mm female blade – White wire

The 'Mains on' output is used on some control panels to display a plug or electrical symbol to indicate when the vehicle is connected to the mains. If you do not have this feature/connection in your vehicle then the white wire/connector can be left unconnected. The operation of the charger is not affected if the 'Mains on' connector is not used.

7. Approvals

Approved to:-

- **Safety EN60335-2-29:1996**
- **Emissions EN61000-3-2/3 & EN55014-1**
- **Immunity EN55014-2**

8. Technical Specification

Input Voltage:	**230V AC +/-15%, 196-264V AC**
Input Frequency:	**47Hz to 63Hz**
Efficiency:	**87%**
Charge Output Current:	**20A max**
'Mains On' Output (White Wire)	**12V with mains applied, 0V otherwise**
Protection circuits:	**Over-current Short-circuit protection Over-voltage protection Thermal Protection Battery Reverse Polarity**
Operating Temperature:	**-30°C to 55°C at full load**
Cooling fan:	**SMART: Temperature Controlled**
Protection:	**4A internal fuse (Type T)**
Dimensions:	**125 x 230 x 67 mm**
Weight:	**1.37Kg**

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