APOLLO SOLAR

T80 TURBOCHARGER™

80 AMP MPPT BATTERY CHARGE MANAGEMENT SYSTEM

1. Optimized Maximum Power Point Tracking (MPPT) Patent Pending
2. 80 Amps continuous output at up to 40° C (104°F) ambient temperature
3. Wire PV modules in series up to 72 VDC nominal (140 Voc max)
4. Charge 12, 24, 36 or 48 V batteries
5. Built-in Battery Energy Monitor using TriMetric™ Technology
   TriMetric is a trademark of Bogart Engineering, Inc.
6. Parallel T80s for higher currents
7. Optional Wireless Remote Displays & Computer Link with PC software

Power and Control in a Single Device

The T80 *TurboCharger*™ integrates Maximum Power Point Tracking, battery charge management, state of charge information and communications into a single device. With 80 Amps continuous output, the T80 has the largest capacity in the industry by over 30%.

Optimum MPPT and Charging Efficiency

The T80 captures up to 35% more power from the photovoltaic (PV) array. Our Patent Pending MPPT algorithm starts early and locks onto the peak power during rapidly changing insolation and temperature.

Energy Monitor Built In

The T80 includes a built-in Energy Monitor using TriMetric™ Technology from Bogart Engineering. It tracks power production and consumption to calculate the energy remaining in the battery. State of Charge (SOC) is displayed in Percent Full, Amp-hours, Watt-hours and bar graph format. In addition, 90 days of energy harvest history is stored in the T80.

Continuous Power Rating to 40° C (104° F) Ambient

The T80 *TurboCharger*™ produces full rated power without de-rating up to 40°C ambient temperature. Above that, the output current is reduced gradually to protect the life of the T80 and then automatically ramped up as the temperature decreases. High efficiency power circuits and robust thermal design minimize heat generation. The internal temperature-controlled variable speed fan runs just fast enough to maintain optimum reliability.

Enhance Battery Performance and Life

Supports Flooded Lead Acid (FLA), GEL and Absorbed Glass Mat (AGM) batteries. Four stage charging with adjustable set points for all parameters.

Unequalled Communications

The on-board RS-232 and slot for optional add-in cards provide data communication to Remote Displays, PCs and the Internet. System performance can be monitored remotely and the T80 accepts software upgrades using a PC.

Reduce System Costs

Our efficient MPPT technology dramatically reduces the cost of a PV system by reducing the number of PV panels required, eliminating the need for heavy gauge wiring, and increasing the life of the storage batteries.

T80 TurboCharger™ SPECIFICATIONS

Maximum output current …….....	80 Amps continuous up to 40°C (104°F) ambient temperature
Battery voltages ……	12, 24, 36 or 48 Vdc nominal
Max PV input current …….	70 Amps
Input voltage range ……	16 to 112 Vdc operating. 140Vdc Maximum Open Circuit Voltage
Max PV array power ……..	5200 Watts (Maximum when equalizing a 48v battery to 64v at 80 Amps)
Charge regulation modes …….	Bulk, Absorption, Float, Standby, Auto and Manual Equalize
MPPT Features ……..	Apollo Solar patent pending MPPT algorithm harvests the optimum power under all conditions of clouds or temperature.
Battery temperature compensation ..	6.0mV per °C per 2 volt cell
DC to DC conversion capability ….	Charge 48v batteries from 4, 5 or 6* PV modules (nominal 17 Vmp) in series. Charge 24v batteries from 2, 3, 4, 5 or 6* modules in series. Charge 12v batteries from 1, 2, 3, 4, 5, or 6* modules in series. *Check max Voc from PV modules at low temperatures.
Display ……..….	Built-in 4 line 20 character LCD with back light
Status reporting ……..….	LCD Status screen displays Input voltage & current, Output voltage & current, Charge Mode and Battery State of Charge.
Data logging ……..……..	Logs energy harvested for 90 days. LCD display Watt-hours, kW-hours, Amp hours and hours each day that Float mode was active.
Energy Monitor ……..	LCD shows SOC (State of Charge) in a fuel gauge style bar graph as well as % Full, Amp-hours, Watt-hrs and present charge or discharge current. A 50mV/500Amp shunt is required to use the Energy Monitor features.
Auxiliary relays ……..	Two independent relays with form A (SPST) contacts are available for control of external devices. Contact rating ½ Amp, 50 VDC.
Operating temperature range ….....	-40°C (-40°F) to +55°C (131°F) ambient
Temperature de-rating ……....	Full power output to +40°C ambient. Output current automatically ramped down above 40°C and softly restored as temperature decreases.
Data Communication Options ……	RS-232 included. Card slot for optional Wireless link to Remote Display.
Connectors ……	Power lugs accept 14 to 1/0. No. 2 wire recommended.
Conduit knockouts ……..….	One 1" or 1-¼" and one ½" or ¾" on left side. Two ½" or ¾" on back. Two 1" or 1-¼" on bottom. Bottom holes line up with power connectors.
Unit dimensions ……..….	38.7cm X 21.6cm X 11.1cm (15.2" X 8.5" X 4.4") Length X Width X Depth
Shipping dimensions ……..….	53cm X 31.8cm X 21.6cm (21" X 12 ½" X 8 ½")
Weight ……..……	Unit: 7.3 kg (16 lbs) Shipping weight: 10 kg (22 lbs)
Certification ……..….	UL1741
Environmental rating ……..….	Indoor Type 1 (Not intended for use in extremely damp locations)

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