



T80HV TURBOCHARGER™



Wire more PV modules in series to
180 Voc 160 Vmp (200V abs max)

80 Amps continuous output at up to
45°C (113°F) ambient temperature

98% to 99% Efficiency all day

Free Battery Energy Monitor Built In

Remote Monitoring with Optional
Internet Gateway or Remote Display

One-minute set-up with fail-safe
calculated defaults

Best MPPT Energy Harvest

Easy stacking of up to 16 T80HV's
in parallel for higher currents

Precision charging of 12/24/36/48V
batteries using voltage sense wires

HIGH VOLTAGE INPUT, 80 AMP MPPT BATTERY CHARGE MANAGEMENT SYSTEM

180 Volt maximum PV open circuit voltage

The T80HV works with the new higher voltage PV modules. The popular 80 and new 96 cell 300+ watt modules have Voc from 44 to 65 volts. The string Voc can be too high for older 150 volt MPPT charge controllers, and the Vmp at actual field temperatures can be too low to fully charge 48volt batteries. The T80HV is the solution. It is the most cost effective Charge Controller for Battery Based systems.

Improved Battery Life and Full Capacity

The battery voltage is measured at battery terminals and the charging voltage is set accurately for a complete charge, without over charging. Four-stage charging with adjustable, temperature compensated set points for all parameters. The T80HV supports GEL, AGM and Flooded Lead Acid batteries as well as Lithium-Ion, Nickel Iron and NiCAD.

Continuous Power Rating Up to 45°C/113°F Ambient

The T80HV *TurboCharger™* produces full-rated power without de-rating at up to 45°C ambient temperature. Above that temperature, the output current is reduced gradually to protect the life of the T80HV and then automatically ramped back up as the temperature decreases. High-efficiency circuits and robust thermal design minimize heat generation.

98% to 99% Efficiency – The best available

The efficiency varies from over 99% in the morning to about 98% with full current at noon and then back to 99%.

Integrated Battery Energy Monitor – No Extra Cost

The T80HV includes a built-in Energy Monitor which continuously tracks the power production and the load consumption to calculate the energy remaining in the battery. Inherently more accurate than reading Battery Voltage, the State-of-Charge (SOC) is displayed in Percent Full, Amp-hours, Watt-Hours, and Bar-Graph format.

Power and Control in a Single Device

The T80HV *TurboCharger™* integrates Maximum Power Point Tracking, battery charge management, state-of-charge information, and communications into a single device.

Integral Performance-and-Update Communications

The slot for optional add-in cards provides data communication over the Internet using our Communication Gateways. Monitor your system using the internet.

Optimum MPPT/Charging Efficiency Cuts Costs

The T80HV captures up to 35% more power from the PV array using Maximum Power Point Tracking (MPPT). The Apollo MPPT algorithm locks onto the peak power during rapidly changing insolation and temperature. The T80HV dramatically cuts 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 batteries.

T80HV TurboCharger™ SPECIFICATIONS

Maximum output current	80 Amps continuous at up to 45°C (113°F) ambient temperature
Battery voltages	12, 24, 36, or 48 VDC nominal
Max PV input current	70 Amps
Maximum PV input voltage (Voc) ...	180VDC Maximum Open Circuit Voltage (Voc), 160VDC Max Operating (Vmp)
Minimum PV input voltage (Vmp) ...	PV Vmp must be at least 16% greater than the highest battery charge voltage set point. For 12 volt batteries this is typically 18.5VDC, for 24v batteries typically 37.1VDC, and for 48v batteries it is typically 74.2VDC. The input voltage is measured at the input of the T80 after the wiring and the PV array temperature must be considered with Vmp.
Maximum PV array power	5120 Watts (maximum when equalizing a 48v battery to 64v at 80 Amps) 2560 Watts for equalizing a 24 volt battery and 1280 watts for eq a 12 volt battery
Charge regulation modes	Bulk, Absorption, Float, Standby, Auto Equalization, and Manual Equalization
MPPT Features	Apollo Solar MPPT algorithm harvests the maximum power from any PV array under all conditions of clouds or temperature. The power point is recalculated every 500mS.
Efficiency	99% at 20Amps out, to 98% at 75 Amps out with 43 volt Input-Output differential
Battery temperature compensation...	6.0mV per °C per 2 volt cell
Display	Built-in 4-line 20-character LCD with back light
Status reporting	LCD status screen displays: Input voltage and current, Output voltage and current, Charge-mode, and Battery State-Of-Charge (SOC).
Data logging	Logs energy harvested for 90 days. LCD displays Watt-hours, kW-hours, Amp hours, and hours each day that the battery is in Float mode.
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 for control of external devices. Configurable as NO or NC. Contact rating ½ Amp, 50 VDC.
Operating Temperature	-40 °C to +60°C, Full power output to +45°C ambient, Output current automatically ramped down above 45°C: 1Amp per 1°C increase in temperature and then softly restored as temperature decreases.
Standby Power	Less than 2 Watts
Data Communication Options	Card slot for optional Apollo Network and link to Remote Display and Internet Gateway.
Connectors	Power lugs accept 14 to 1/0.
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	386mm X 216mm X 112mm (15.2" X 8.5" X 4.4") Length X Width X Depth
Shipping dimensions	533mm X 318mm X 216mm (21" X 12 ½" X 8 ½")
Weight	Unit: 7.3 kg (16 lbs) Shipping weight: 10 kg (22 lbs)
Certifications	UL1741, CSA C22.2 No. 107.1
Warranty	5-year Limited Warranty
Environmental rating	Ambient Temperature: -40°C to +60°C; Storage Temperature: -55°C to +100°C; Humidity: 100% non-condensing; Enclosure: Indoor Type 1
Included Accessory Kit	Apollo Shunt Board and cable, battery monitor cable, and Battery Temp Sensor
Optional Accessories	PV for Telecom panels with all items required for a 48v remote cell tower energy system; True Sine Wave, Split-Phase or 3 Phase Inverter/Chargers TSW3224, TSW4048; DC Circuit Breakers rated for use with the T80HV; Inverter Switchgear Module enclosure, Pre-Wired Panels; Communications Gateway with optional GSM modem for Remote Monitoring via local Ethernet or via Internet



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Specifications are subject to change without notice. 20-March-2015