



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

Free Battery Energy Monitor Built In

Remote Monitoring with Optional
Internet Gateway or Remote Display

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

Our proven MPPT provides the
best Energy Harvest available

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 higher voltage PV modules. For example, some of the Sanyo HIT modules have Vmp of 51.75v at 50°C which will not charge a 48 volt battery, but they generate up to 79.88 volts open circuit at -40°C. Two of these modules in a series string will generate 103 volts at Vmp, but the Voc is almost 160 volts which can damage the 140/150 volt charge controllers. The T80HV is designed to withstand 200 Voc, run MPPT to 180V and to operate up to 160 Vmp. They work well with the Sanyo HIT modules.

FREE Energy Monitor Built In

The T80HV includes a built-in Energy Monitor using TriMetric™ Technology from Bogart Engineering. The monitor 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 T80HV.

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 to PCs and the Internet using our Communication Gateway. System performance can be monitored remotely. T80HV also accepts software upgrades using a PC and the Remote Display SD Card.

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 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.

Optimum MPPT/Charging Efficiency Cuts Costs

The T80HV captures up to 35% more power from the photovoltaic (PV) array with patent-pending MPPT technology. The Apollo MPPT algorithm starts early and 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 storage batteries.

Enhanced Battery Performance and Life

The T80 supports Flooded Lead Acid (FLA), GEL and Absorbed Glass Mat (AGM) batteries. Four-stage charging with adjustable set points for all parameters.

T80HV TurboCharger™ SPECIFICATIONS

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|-------------------------------------|---|
| 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 18.56VDC, for 24v batteries typically 37.12VDC, and for 48v batteries it is typically 74.24VDC. The input voltage is measured at the input of the T80 after the wiring and the PV array temperature must be considered with Vmp. |
| Max 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 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 |
| 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 Float mode is 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 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. 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, 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 | True Sine Wave, Split-Phase Inverter/Chargers TSW3224, TSW4048; Inverter Switchgear Module (ISM) enclosure with DC and AC breakers, Pre-Wired Panels (PWP) which included a T80 or T80HV, TSW and ISM factory wired and tested, Communications Gateway with optional GSM modem for Remote Monitoring via local ethernet or via Internet |



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