

APOLLO SOLAR CHARGE CONTROLLERS

USE OF SHUNT, SHUNT BOARD, AND ASNET CONNECTIVITY KIT

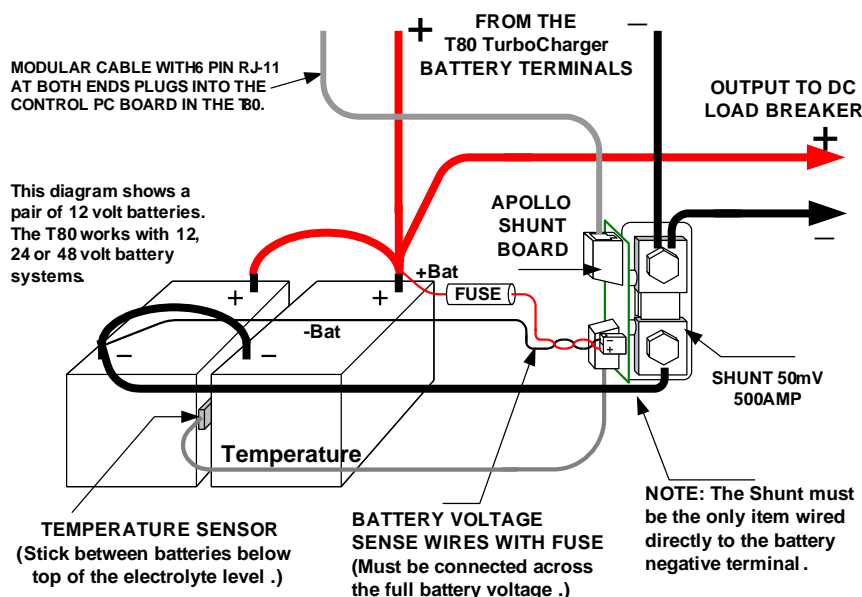
BASIC OVERVIEW

The basics are simple: The T80 and T100 TurboCharger products include the hardware and software to measure and display the State of Charge (SOC) of the Battery. The method used is considerably more practical and accurate than simply measuring battery voltage because the battery voltage in typical systems will read very high when the battery is being charged and read very low when the battery is simply being used by the load. (The only way to depend on the voltage is to disconnect the battery from both loads and charging devices, let it settle for 20 minutes and then take accurate readings and adjust for temperature.) Since this is impractical in real systems, Apollo Solar uses a method which continually measures the current going into the battery from all charging devices and the current going out of the battery to all loads.

USE OF THE SHUNT AND SHUNT BOARD

The Charge Controller determines when the battery is completely charged as it goes into Float mode and resets the SOC accumulator. Then the SHUNT measures the current going out of or into the battery on a continuous basis. The results are displayed on the LCD of the T80 TurboCharger and on the Remote Display when used. The Shunt is wired in series with the negative lead of the battery. See diagram below:

SHUNT WIRING DETAIL

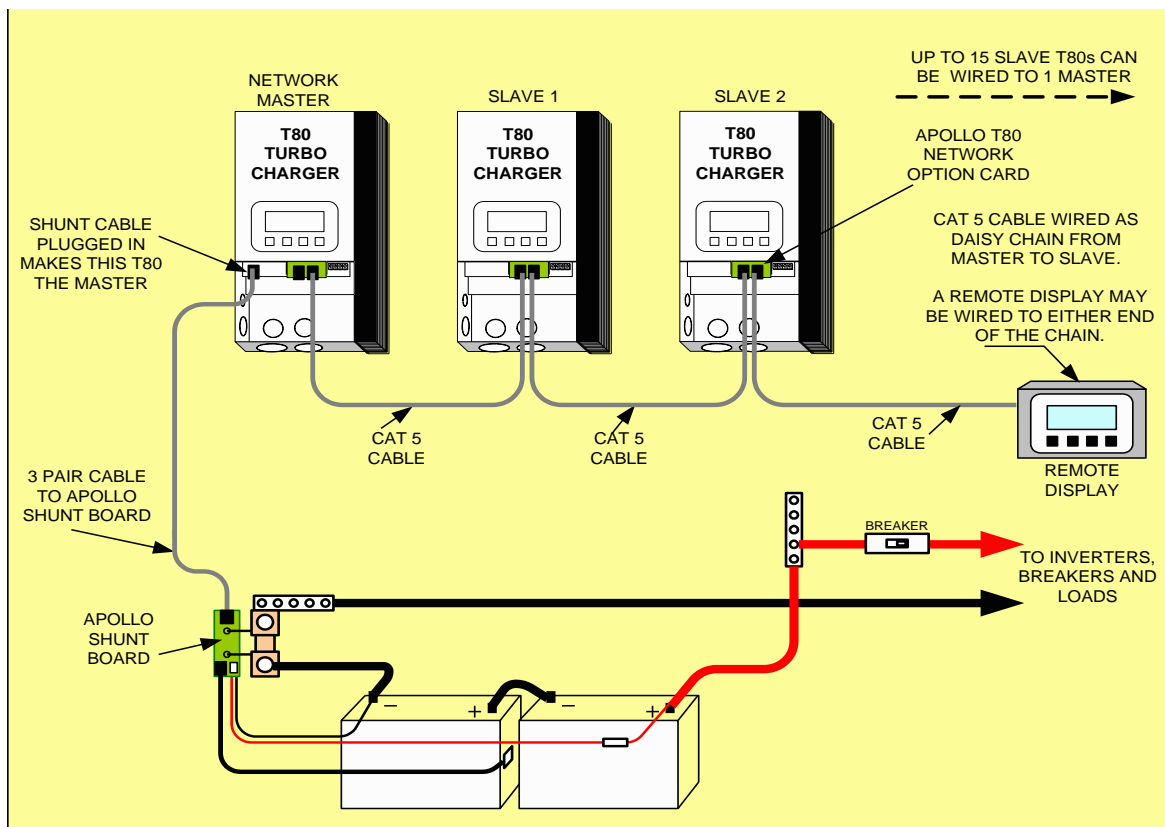


Please see the User Manual of the Apollo Solar T80 TurboCharger for detailed instructions.

PARALLEL CHARGE CONTROLLERS

Since all the battery current must pass through a single SHUNT, there will only be one shunt in any system. When the system uses multiple T80 TurboChargers connected in parallel, the ASNET Option Cards (T80 Network Option Cards) are used to tie them together. Only ONE SHUNT with ONE SHUNT Board is used to measure the total accumulated current.

The figure immediately below is a simplified wiring diagram of the CAT 5 (Ethernet type) cable used to connect the T80 TurboChargers together in parallel using the ASNET Option Cards. The figure also shows the connection of multiple T80s to a single Shunt.



Please see the Apollo Solar T80 TurboCharger Installation Manual that comes with the ASNET Option Card for detailed instructions of set up and programming for parallel operation.

The figure below is the complete wiring diagram showing all the connections to the Apollo Solar T80 TurboChargers in parallel operation.

