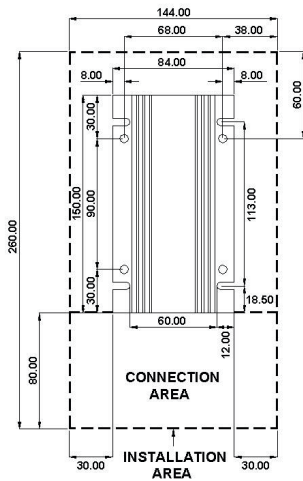


AMT12-24 5A Installation Instructions

The AMT12-24 is a 5A Trickle Charger / Battery Maintainer for maintaining a 24V Vehicle Battery at full charge when a Solar or Mains Charger is used to charge a 12V Leisure / Auxiliary Battery. The Trickle Charger charges the Vehicle Battery if the Leisure Battery is at more than the Leisure Battery threshold and the Vehicle Battery is less than the Vehicle Battery threshold. The unit charges for 3s and then switches off for 15s. The current is limited to a maximum of 3A, The Trickle Charger also feeds charge from the Auxiliary Battery to the Vehicle Battery until they reach 11.7V and 23.0V respectively ensuring that both batteries are kept as healthy as possible even if no Solar Charger or Main Charger is present. This is to pool charge and optimise the retention of charge across both Batteries to maintain Battery life but this function is only enabled once the vehicle battery drops below a 24.2V threshold. There is no charging if the Vehicle Battery is flat (ie less than 23.0V).

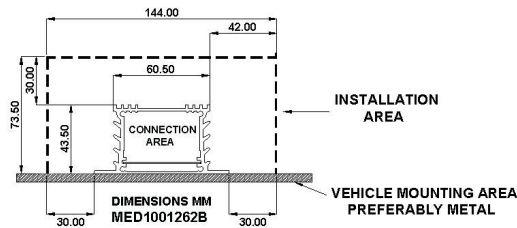
The unit is shipped configured for a Smart Alternator Vehicle and Regenerative Braking ie SETTING 4 in the table below but it is easily configured by the user with higher settings for older Vehicles , AGM or Lithium batteries. If an ABB-007 is added to the system then user specific settings can be implemented .

Mechanical: This unit should be mounted subject to the drawing below.



NOTES:

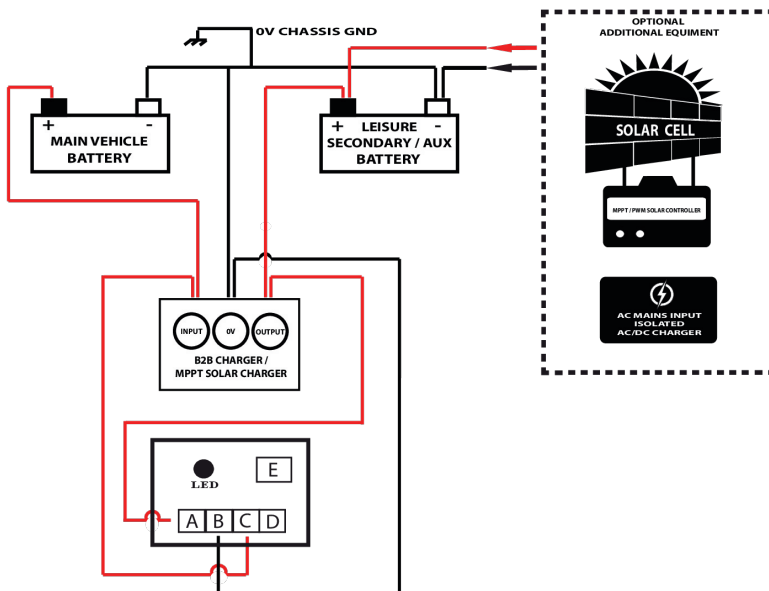
1. 4off fixing holes 6.50mm Ø.
2. 4off slots 6mm x 10mm.
3. Recommended air space around heatsink:- top, sides and non connector end 30mm (as dashed lines).
4. Connector end space 80mm absolute min (as dashed lines).
5. Recommended mounting:- metal base.
6. Orientate Led for visibility.
7. Do not fit near heat sensitive material or components as case may reach temperatures up to 75 deg C.
8. Do not fit near heat sources such as exhaust or heater pipes.



Electrical:

INSTALLATION WIRING GUIDE:

ENSURE MAIN VEHICLE INPUT SUPPLY & BATTERY OUTPUT CABLES CONNECT TO THE B2B CHARGER **NOT AMT12-2 UNIT.**
* MINIMUM CABLE SIZE: 1.5MM SQ * BETWEEN AMT12-2 & B2B CHARGER / MPPT SOLAR CHARGER.



Connection Procedure / Power up Sequence:

To ensure normal operation:

The +ve input and -ve input from the Leisure Battery and the Vehicle Battery must be connected before any input is applied to the terminal switch D input. **If this is not done the unit flashes GREEN for 1 minute.**

Terminal switch D for settings program and disable function.

Programming: To enter programming mode :

- a) Disconnect all power supplies.
- b) Connect terminal switch SW1 to +ve of Leisure Battery and Connect 0V of battery to AMT12-2 0V.
- c) Connect Leisure Battery +12 Volts to apply power - The led will flash a number of times to indicate the current setting number.
- d) Remove the wire connected to switch SW1 and reapply wire within 40s. The led will sequence through the various settings and when the led indicates the settings number you require remove the +12 Volts connection from switch SW1.
- e) Reapply +12V to Switch SW1. The led will flash rapidly as it learns the programme.
- f) Remove the wire from SW1 and reconnect after 1s .The led will flash the setting chosen , If NOT CORRECT SETTING disconnect the 12 Volts power terminal switch and start again from step (a).
- g) If the led is flashing the correct setting, reconnect +12 Volts power to terminal switch SW1. Led will flash quickly to indicate it is programmed. Remove wire from SW1.

Operations: The Trickle Charger / Battery Maintainer programmed modes are :

	Charger Type	Leisure Battery Threshold	Vehicle Battery Threshold	Battery Type
Setting 1 / 5	Standard Alternator / Ignition	Leisure Battery >13.0V	Vehicle Battery >25.6V	All types of Lead Battery
Setting 2 / 6	Standard Alternator / Ignition	Leisure Battery >13.5V	Vehicle Battery >25.6V	Lithium Battery
Setting 3 / 7	Smart Alternator	Leisure Battery >13.5V	Vehicle Battery >24.8V	Lithium Battery
Setting 4 / 8	Smart Alternator	Leisure Battery >13.0V	Vehicle Battery >24.8V	All types of Lead Battery

Setting 5-8 are high power versions of settings and are used to cater for high parasitic drain applications while settings 1- 4 are suitable for most applications. Setting 4 is the factory default setting.

All setting switch off when Vehicle Battery is below 11.5V. The charge cycle is 6 or 10s on 15s off, When the voltage on the Auxiliary / Leisure Battery exceeds the switch on voltage and the Vehicle Battery is between 23.0V and the Vehicle Battery threshold the Trickle Charger will feed upto 5A into the Vehicle Battery in 3s bursts, The led will illuminate GREEN when this current is flowing.

When the voltage on the Auxiliary / Leisure Battery exceeds the Leisure Battery threshold and the Vehicle Battery Voltage is above the Vehicle Battery, Threshold the led will flash AMBER once every 10s to indicate the charging circuit is enabled and the Vehicle Battery is charged. If the Leisure Battery is above the Leisure Battery threshold and the Vehicle Battery is below 23.0V, AMT12-24 will flash RED.

If an Ignition signal is applied to terminal switch D the Trickle Charger will be disabled and this allows the Trickle Charger to maintain a Stop / Start Vehicle Battery at a higher voltage of 25.6V.

Setting 9 is an override which make sure the Trickle Charger is turned on for 9s and off 1s. This could discharge the Leisure Battery or Vehicle Battery. The led will be AMBER, This is useful as a means of manually charging the Vehicle Battery.

Trouble Shooting:

- Check Voltage at Vehicle and Leisure Battery input pin +ve's are sufficient to trigger according to the mode selected and polarity is correct.
 - 1) Is Leisure Battery greater than Leisure Battery Threshold ? This should cause AMBER led to flash for 1s every 10s.
 - 2) Is Vehicle Battery less than 23.0V and Leisure Battery greater than Leisure Battery Threshold ? Led will flash RED 1s every 10s.
 - 3) Is Vehicle Battery between 23.05V and the Vehicle Battery Threshold and Leisure Battery greater than the Leisure Battery Threshold the led will flash GREEN for 3s every 15s.
- Check fuses OK.
- Check Led flashes correct program mode as power is applied between Leisure Battery Input and Ground with terminal switch D1 connected to +ve supply. (Wait at least 1 mnute before reapplying power to ensure capcitors are discharged)
- Check no voltage on SW input.

Optional Extras available with all units :

The ABB-007 is a battery status indicator to work with AMT Products. In conjunction with the Ablemail Device Manager App from the apple store of Google Play the user can configure the precise thresholds which thye AMT will use to charge the Vehicle Battery from the Leisure Battery. The user can also monitor the voltage of the Vehicle and Leisure Batteries on their phone.

The **AMT24-12B** Trickle Charger contains an in built bluetooth dongle allowing the user to easily set the charging thresholds of the AMT to suit their specific application with a app on their android or apple phone. The app also allows the user to monitor the states of the vehicle & the auxiliary battery in real time.

The AMT24-12B has been optimised to reduce the standby current and uses 3mA in standby while a ABB-007 and AMT24-12 use 20mA so for ultimate long term power saving if continuous battery voltage monitoring is required the AMT24-12B is recommended.

If you require any assistance or advice on this product & or its safe integration with other electrical equipment, Please contact Ablemail Technical on +44(0)161 745 7697.