**AMT 12-2B Trickle Charger / Battery Maintainer with Bluetooth**

AMT 12-2B Installation Instructions

The Ablemail AMT 12-2 is a Trickle Charger / Battery Maintainer designed to maintain the vehicle starter battery at full charge when a solar or mains charger is being used to charge a leisure (auxiliary) battery. The AMT 12-2 automatically monitors the voltage of both batteries and transfers charge from the leisure battery to the vehicle battery when the programmed voltage conditions are met. The unit will charge the vehicle battery when:

- The leisure battery voltage is above its selected voltage threshold.
- The vehicle battery voltage is below its selected voltage threshold.

The charging current and operating cycle depend on the selected programme:

| Operating Settings | Maximum Charging Current | Charging Cycle |
|---|---|---|
| Settings 1–4 | 2A | 6 seconds ON / 15 seconds OFF |
| Settings 5–8 | 3A | 10 seconds ON / 15 seconds OFF |

The AMT 12-2 also incorporates a charge-pooling function to optimise charge retention across both batteries.

Charging will take place when:

- The leisure battery voltage is at least 0.3V higher than the vehicle battery voltage (or 1.0V higher when using Lithium batteries).
- The vehicle battery voltage is below 12.1V.

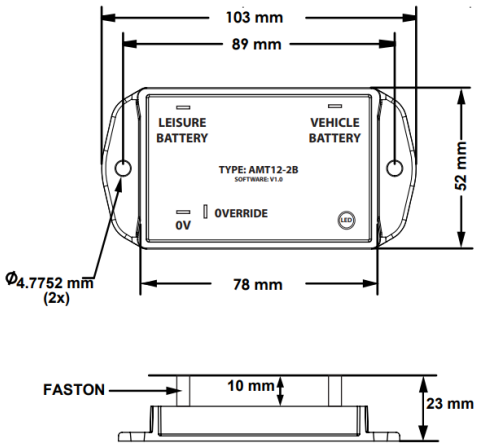
This allows available charge to be shared between the two batteries, helping maintain their state of charge and supporting battery longevity.

**Vehicle Battery Low-Voltage Protection**

To protect the vehicle battery, the AMT 12-2 will not supply charging current if the vehicle battery voltage falls below 11.5V. This prevents the unit from attempting to charge a deeply discharged vehicle battery.

**The unit is shipped configured for a Smart Alternator Vehicle & Regenerative Braking ie SETTING 4** in the table below, but it is easily configured by the user with higher settings for older Vehicles. The customer can configure for use with Lithium Batteries. The unit is also configured to automatically detect Battery Voltage & so will work with 24V Batteries.

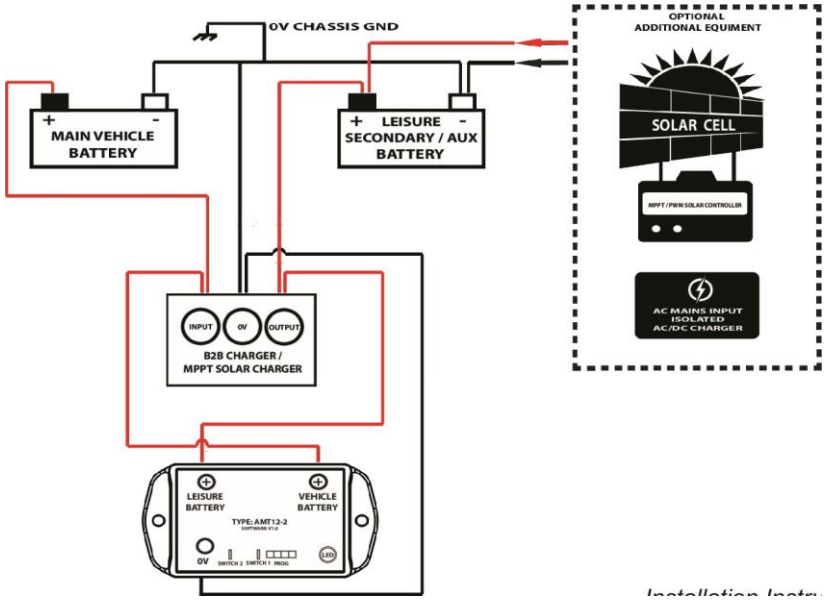
Mechanical: This unit should be mounted subject to the drawing below.




**INSTALLATION WIRING GUIDE:**

ENSURE MAIN VEHICLE INPUT SUPPLY & BATTERY OUTPUT CABLES CONNECT TO THE B2B CHARGER NOT AMTI 2- UNIT.

* MINIMUM CABLE SIZE: 1.5MM SQ * BETWEEN AMTI 2-2 & B2B CHARGER MPPT SOLAR CHARGER




**Power-Up and Connection Procedure**

To ensure the unit operates correctly, follow this connection sequence:

1. Connect the positive (+) and negative (−) inputs from both the leisure battery and the vehicle battery.
2. Ensure all battery connections have the correct polarity.
3. Only after these connections are complete should programming start.

**Terminal Switch Functions**

- **Override:** Used to activate the trickle charger temporarily, allowing manual charging or control through external equipment.

**Using the Ablemail Device Manager App**

- Download the **Ablemail Device Manager App** from either the Google Play Store (Android) or the Apple App Store (iOS).

**Connect to Your Device**

- Open the app and navigate to **Settings → Device Connections**.
- Tap **Re-scan** to search for nearby devices.
- Your unit should appear similar to **ABB07-000XXX**.
- Tap the green **+** icon. The app will retrieve and display the settings stored on the unit.

**Adjust/View Device Settings**

- Navigate to **Settings**.
- Here you can view and adjust the settings for:
    1. Device Connections
    2. Device Readings
    3. Device Settings
        1. Battery Type
        2. Alternator Type
        3. Voltage thresholds
    4. Manage Saved Profiles

Once you have made any changes, ensure that you select the **Update** icon to save and transfer the new settings to the unit.

**Home Screen**

Tap **Home** to return to the main overview screen.

This screen displays the current battery voltages and provides the option to enable **Override**, where required.

**Additional Information**

For further information about individual settings or icons, simply tap the relevant **"?"** symbol within the app.

**Operating Settings**

The AMT 12-2 has eight settings. Settings 5–8 are high-power versions of settings 1–4 and are intended for applications with higher parasitic battery drain.

Settings 1–4 are suitable for most applications.

Settings 5-8 are for higher parasitic drain.

| Setting | Alternator type | Leisure battery must exceed | Vehicle battery threshold | Battery type |
|---|---|---|---|---|
| 1 & 5 | Standard alternator / ignition | 13.0 V | 12.8 V | All lead-acid battery types |
| 2 & 6 | Standard alternator / ignition | 13.5 V | 12.8 V | Lithium |
| 3 & 7 | Smart alternator | 13.5 V | 12.4 V | Lithium |
| 4 & 8 | Smart alternator | 13.0 V | 12.4 V | All lead-acid battery types |

**Factory default:** Setting 4.

Choose a setting that matches your alternator type and leisure battery chemistry. If your vehicle has a smart alternator, use a smart-alternator setting.

**Vehicle battery voltage below 11.5 V**

All settings stop charging when the vehicle battery voltage falls below 11.5 V.

If the leisure battery is above its selected voltage threshold while the vehicle battery is below 11.5 V, the LED flashes RED to indicate the low vehicle battery voltage.

**Vehicle battery voltage between 11.5 V and its selected threshold**

When the leisure battery voltage is above its selected threshold and the vehicle battery voltage is between 11.5 V and its selected threshold, the unit supplies charging current to the vehicle battery.

- The unit supplies up to 3 A in short bursts.
- The LED illuminates GREEN while this charging current is flowing.
- The stated charging cycle is approximately bursts or 6 seconds (settings 1-4) or 10 seconds (settings 5-8) ON and 15 seconds OFF.

**Vehicle battery voltage above its selected threshold**

When the leisure battery voltage is above its selected threshold and the vehicle battery voltage is also above its selected threshold, the LED flashes AMBER approximately once every 10 seconds.

This indicates that the charging circuit is enabled and the vehicle battery voltage is high enough to meet the selected threshold.

If the Leisure Battery is above the Leisure Battery threshold and the Vehicle Battery is below 1 1.5V, AMT12-2 will flash RED.

**Override input**

Applying a signal to “Override” terminal activates the trickle charger in a repeating cycle:

- ON for approximately 9 seconds.
- OFF for approximately 1 second.

This function allows the charger to be controlled manually or by external equipment.

It can also be used to provide manual charging to the vehicle battery.

**Warning:** Using the override function may discharge either the leisure battery or the vehicle battery. Monitor battery voltages when using this function.

The LED will illuminate AMBER during override operation.

**Troubleshooting**

If the unit does not operate as expected, check the following.

**Battery connections**

- Check the positive (+) and negative (−) connections at both battery inputs.
- Confirm that the polarity is correct.
- Measure the voltage at both battery inputs.
- Confirm that the voltages meet the thresholds for the selected setting.

**Leisure battery voltage is above its threshold**

If the leisure battery voltage is above its selected threshold and the vehicle battery voltage is above its selected threshold, the LED should flash AMBER approximately once every 10 seconds.

**Vehicle battery voltage is below 11.5 V**

If the leisure battery voltage is above its selected threshold and the vehicle battery voltage is below 11.5 V, the LED should flash RED.

**Vehicle battery voltage is between 11.5 V and its selected threshold**

If the leisure battery voltage is above its selected threshold and the vehicle battery voltage is between 11.5 V and its selected threshold, the LED should illuminate GREEN while charging current flows, approximately 3-second bursts every 15 seconds.

If the LED behaviour does not match these conditions, recheck the wiring, battery voltages, selected setting and SW1/SW2 input signals.

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**Important Notes**

- Always verify the selected programme after programming.
- Settings 5–8 provide higher-power operation for applications with greater parasitic drain.
- The charger will stop operating if the vehicle battery voltage falls below 11.5 V.

If you require any assistance or advice on this product. Please contact Sunshine Solar Ltd Technical on +44(0)1508 488188.