2021

Mabru Rooftop RVSC 12000 DC 12v Manual

VERSION 1.0

MABRU POWER SYSTEMS | Address : 1105 Old Griffin Rd, Dania Beach, FL 33004 Phone :1-888-918-2914Email: sales@mabrumarine.com

Mabru Rooftop RVSC 12000 DC 12V Manual

Table of Contents

Click Section to view

Mabru Rooftop RVSC 12000 DC 12V Manual

Description

The rooftop 12V/24V Air Conditioning unit by Mabru Power Systems is the ideal unit for RVs, Trucks, Vans, Buses, Campers. Our unit has been designed to be sleek, aerodynamic, aesthically beautiful, and efficient 12V/24V systems in its class. The 12V/24V rooftop unit provides cool, fresh air within 15 seconds creating a space that is cool and comfortable. This unit is desinged to be ran inside a RV, Van,buses, mobile homes,trucks, and campers and in any application similar.

Parameters of roof top 12/24V Roof-top Air Conditioning Unit Self-Contained

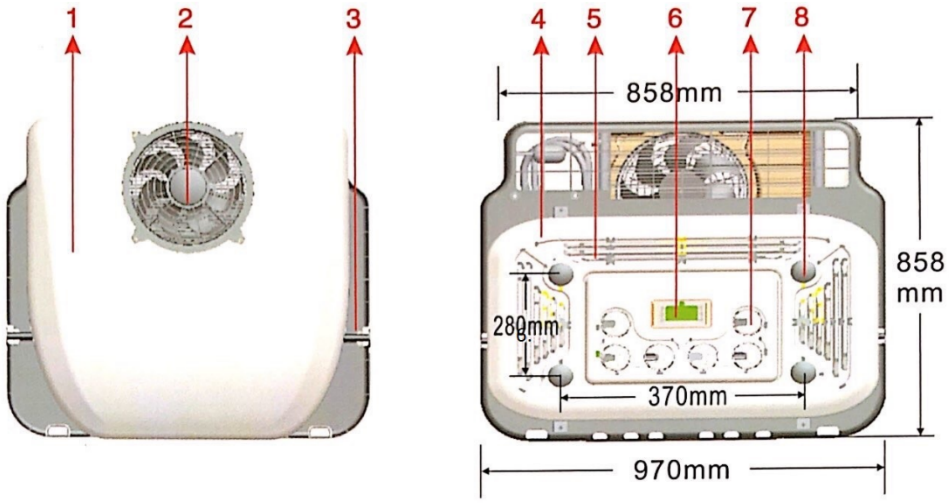
Model	T2000—24V	T2000-12V
Rated Voltage	DC24V	DC12V
Evaporator air volume	600m^3/h	550m^3/h
Condenser air volume	2200m^3/h	2000m^3/h
Rated wattage	850W	700W
Refrigerant	R134a	R134a
Size	38.19 in X 33.78 in X 5.90 in	38.19 in X 33.78 in X 5.90 in

Mabru Rooftop RVSC 12000 DC 12V Manual

Minimum hole size	**12.60 in X 25.20 in**	**12.60 in X 25.20 in**

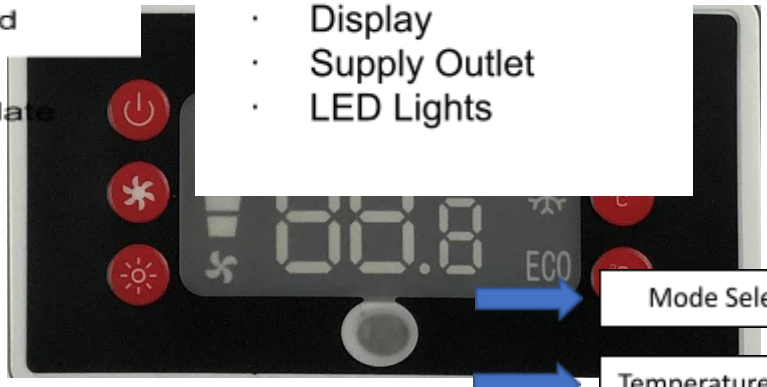
Mabru Rooftop RVSC 12000 DC 12V Manual

Components and Contols Guide



- Outdoor Unit Cover
- Condenser Fan
- Outdoor and Indoor unit separator.
- Mounting plate

- Skylight Panel
- Return Inlet
- Display
- Supply Outlet
- LED Lights



On/Off Switch

Blower Speed Switch

Light Switch

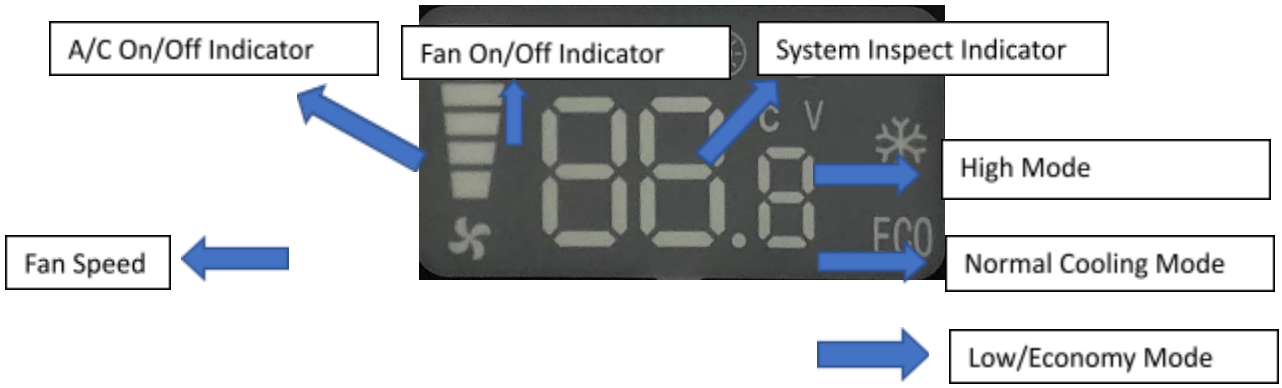
Mode Selector

Temperature Increase

Temperature Decrease

Infrared Receiver

Mabru Rooftop RVSC 12000 DC 12V Manual



12V AC Controls

1. To turn the unit on locate the ⏻ button and press until screen powers on.
2. To adjust the blower speed, locate the button until the desired speed is selected.
3. The 12V Rooftop Air Conditioning unit comes with 3 different power modes. To change the mode of the unit press then **M** on the unit to cycle between the 3 modes.
   Modes
   - **Max** setting is the largest energy consuming mode and will provide the most cooling in the shortest amount of time.
   - setting is the medium cooling setting and recommend for routine use.
   - **ECO** setting is the energy saving mode that uses the minimum number of amps while providing cooling at a less efficient rate.

4. To view the current voltage being used by the unit. Simply press and hold the **M** button for 6 seconds and the voltage value will appear on the screen. To exit the current voltage mode, do not press any buttons for 6 seconds and the unit will return the main menu automatically.
5. The display will always show the set temperature. The possible temperate ranges on the unit vary between 5-40 degrees Celsius (**Note: the units only come with temperature settings in Celsius**). To view the current inlet temperature, press the ↑ symbol for 6 seconds and the screen will display the temperature in Celsius. To view the current outlet temperate press the ↓ for 6 seconds and the screen will display the temperature in Celsius.

Mabru Rooftop RVSC 12000 DC 12V Manual

Error Codes and Trouble Shooting

Digital Display	Fault Description	Fault Troubleshooting
E2	Current Protection	Check to see if pressure is too high and if the fan is running
E3	Stall Protection	Low battery or too much pressure
E4/LU	Undervoltage protection	The battery is too low and needs to be charged
E6	Condensation fan failure	Short circuit of motor, poor contact of plug
E7	Motor phase lost	Compressor terminals burnt out or compressor short circuit
E9/PER	Pressure switch protection	Pressure switch may be damaged and needs replacement
OPE	Open temperature sensor	Check is plug disconnected or the wire is broken or damaged
LU	Low voltage	
SHr	Temperature sensor short circuit	Replacement of temperature sensor
AC	Cooling failure	Check if system refrigerant is low or the compressor electronic fan has stopped
CS	Defrost	Defrost necessary

Mabru Rooftop RVSC 12000 DC 12V Manual

Trouble shooting Notes

If refrigeration failure occurs this is due to the inlet(return) and outlet (supply) air temperature being less than 5 ℃ for more than 3 minutes. Indicating that cooling is not taking place. If this occurs shut the compressor and evaporator fan off. Clear the fault and restart the unit.

Defrosting temperatures: Defrost error will occur if temperature of the air outlet(supply) is lower than 2℃ which will cause the compressor to stop functioning. The unit will resume functioning once the temperature is above 6℃, and the defrost fault will disappear resuming normal working mode afterwards.

Low voltage fault and undervoltage value adjustment

The undervoltage value can be adjusted between the range of 9-28 volts. When the battery voltage is lower than the under-voltage protection values the system will stop working and the error code "**LU"** will be displayed on the main display. To clear the undervoltage error power the unit off then power back on.

Steps to adjust undervoltage protection value

1. Power on unit and locate the button on the display.
2. Press and hold the button for 6 seconds at which point the unit will enter the undervoltage adjustment mode with the current setting flashing on the screen.
3. To adjust the undervoltage value. Press the temperature ↑ button to increase the under-voltage value by 0.1V. To decrease the value, press the temperature ↓ button to decrease the undervoltage value by 0.1V each press.
4. To save the settings press the button and the system will exit the undervoltage adjustment mode.

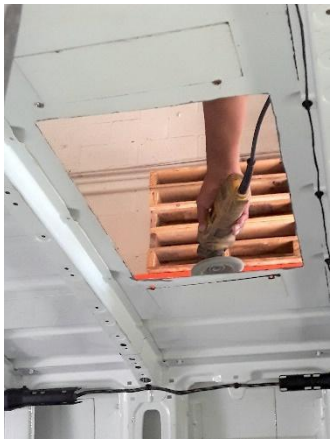
Mabru Rooftop RVSC 12000 DC 12V Manual

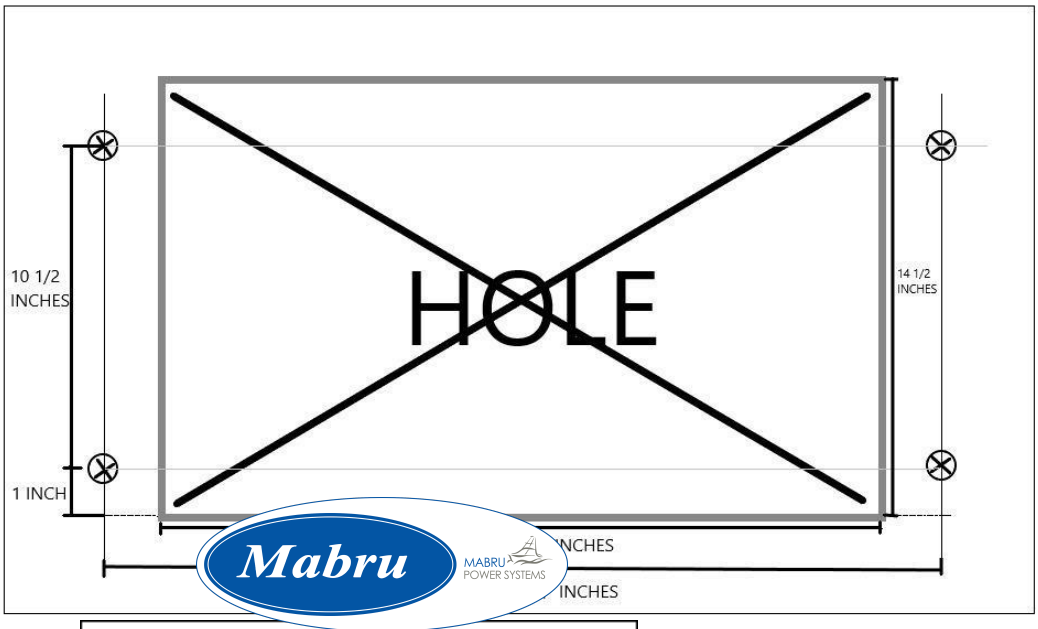
Installation Instructions for 12V/24V Roof-top AC Unit

For a step-by-step YouTube video of the installation process the video is in the link below or search **Mabru RVSC** on YouTube to find the video.

https://www.youtube.com/watch?v=Xst1ugqDAd4

1. Remove the original sunroof. If there is not sunroof, it will be necessary to cut a hole using the template provided with your unit. Note that cutting the hole may require power-driven tools and should only be done by trained professionals.





Template for roof cut-out

Mabru Rooftop RVSC 12000 DC 12V Manual

2. Once a hole has been cut you must clean the surface thoroughly of any debris and dirt. Once the surface is clean the next step is to apply the weather proofing string provided.

3. Remove the weatherproofing from the box and apply the strip around the edge of the **clean debris free** sunroof. Ensure an even application of the waterproofing strip and that there are no gaps in the seal between the metal and the weatherproofing strip.

4. Once the weather proofing is installed, the unit may be installed. Ensure that a gap of 25mm is present between the mounting plate and the outside roof to allow for adequate ventilation for the outside portion of the rooftop AC.

Mabru Rooftop RVSC 12000 DC 12V Manual

5. Once in position the unit is ready to be mounted to the roof using the 4 securing screws.

6. Tighten the screws no more than 15mm deep into the roof. Driving the screws any further may result in damage to the roof or the unit securing plate.

7. Once the unit is properly secured, the interior LED lights may be installed using the wiring harnesses included in the Rooftop AC kit.

8. Once the lights are installed and the unit is connected to a power source. The unit may be turned on.

Mabru Rooftop RVSC 12000 DC 12V Manual

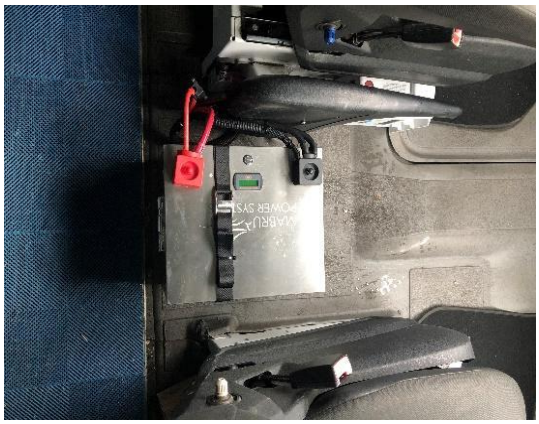
Electrical installation instructions with house battery bank, DC to DC charger, and vehicle alternator if applicable

1. Once your unit is installed you will need to connect the unit and electrical system properly.
2. Components required for a battery bank installation include a DC-to-DC charger, 100 Amp Breaker or in-line fuse (not recommended), batteries, and 4-gauge wire positive and negative for connections ample length to reach the unit and alternator.
3. 1st: mount your DC-to-DC charger and house batteries in the desired location securely. Then connect your positive and negative terminals to the alternator and run them to the positive and negative terminals of the DC-to-DC charger.

Mabru Rooftop RVSC 12000 DC 12V Manual

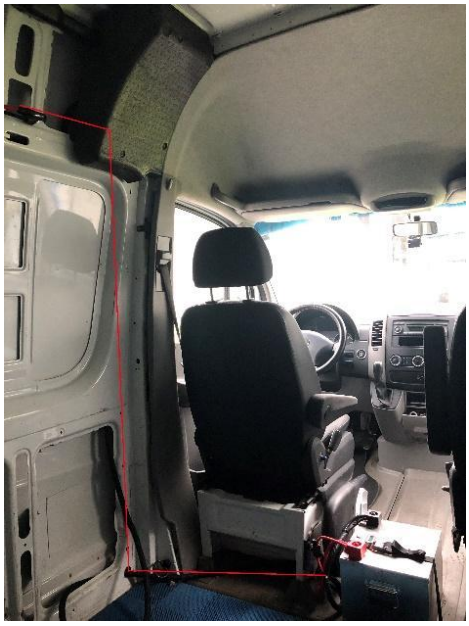
4. 2nd from the DC-to-DC charger you will run the cables to a breaker ideally that breaker will be 100 Amps to protect that circuit from potential over voltage.

5. 3rd you will run your wires from your breaker to the house batteries.



Mabru Rooftop RVSC 12000 DC 12V Manual

6. 4th Once the batteries are securely connected you may connect the Rooftop Unit using the wiring harnesses that are installed on the unit.



Mabru Rooftop RVSC 12000 DC 12V Manual

7. Lastly, once all connections are made, verify that all the connections are tight and secure. Failure to do so may result in equipment damage, injury, or fire.
8. Once verified, you may power on the system and begin operating your rooftop air conditioner.

Installation Reminders and Notes

- For proper installation of the rooftop unit the waterproofing strip and shock dampening strip must be applied to protect the interior of the vehicle from weather elements and serves as a shock absorber to protect the unit from damaged caused by the vehicle's movements.
- Additionally, the rubber pad shock absorber reduces noise from the rooftop A/C during normal operation enabling the system to operate at lower decibels.
- Ensure that the waterproofing seal is installed, failure to do so may result in leaks and debris entering the cooling space.

Disclaimers

Mabru Rooftop RVSC 12000 DC 12V Manual

1. Mabru Power Systems provides an installation video with instructions on our YouTube page at https://www.youtube.com/user/aamabru . Users must strictly follow the video and its instructions. If the user fails to install the Rooftop 12V/24V Air Conditioning unit according to steps provided in the user manual and installation video the results could lead to equipment failure, damage, injury, or death. The user will bear full responsibility for such incidents, and Mabru Power Systems will not be held liable for damages that occur with the unit. Lastly, Mabru Power Systems is not responsible for maintenance or material cost of the Rooftop 12V Air conditioning unit.
2. The user is responsible for all safety concerns during the installation process, if an accident does occur Mabru Power Systems shall bear no responsibility, and all liability will fall to the user.
3. If the Rooftop 12V/24V AC unit and any of the associated parts are manipulated by the user with after-market items or operated in any fashion no prescribed in the manual. Issues such as equipment damage, or injury may occur, and Mabru Power Systems will bear no responsibility and warranty will be voided.
4. **The user agrees to this disclaimer after purchasing the product.**

Mabru Rooftop RVSC 12000 DC 12V Manual

⚠ Safety Precautions ⚠

VERY IMPORTANT SAFETY CONSIDERATIONS

1. You should never work with energized electrical wires. Ensure power is disconnected and test the wires to confirm that in fact the wires are not energized.
2. The A/C unit should never be placed in an area where it can circulate carbon monoxide, fuel vapors or other toxic fumes into the vehicle's passenger compartment. Ensure proper ventilation to fresh air is available while operating the roof-top air conditioner. Failure to ensure the circulation of fresh air can result in serious injury or death.

IGNITION PROTECTION WARNING

1. Self-Contained units DO NOT meet federal requirements for ignition protection. DO NOT install the unit in spaces near the engine or any other type of internal combustion engine, tanks, LPG/CPG cylinders, regulators, valves, or fuel line fittings. Failure to follow this precaution could result in serious injury or death.
2. Installing and servicing of this unit can be hazardous due to the systems pressures and electrical components.
3. When working on this unit, always observe the precautions prescribed in this manual, tags, and labels attached to the unit.

Mabru Rooftop RVSC 12000 DC 12V Manual

4. Follow all safety codes while working with the unit. Wearing the proper safety equipment such as gloves, safety glasses, and having a fire extinguisher in the work area is necessary.

PRIOR TO INSTALLATION

Please read these instructions completely and follow all guideline prescribed. All connections should be planned before installation, with care taken to install the components in places that allow for easy access for future servicing.

Mabru Rooftop RVSC 12000 DC 12V Manual

Warranty

This Warranty is made to a purchaser (“owner” or “you”), who acquires the Mabru Power Systems, Inc. (“Mabru”) -manufactured product or component (the “Mabru product”) for his or her own use. WHAT’S COVERED What does the Limited Warranty cover? The Mabru products under this limited warranty are to be free from defects in material and workmanship at the time of sale and under normal use. If Mabru determines to its satisfaction that a Mabru product contains such a defect during the applicable Warranty Periods set out within Section 4 COVERAGE PERIOD AND TABLE OF WARRANTY PERIODS, then Mabru shall, at Mabru’s sole discretion, repair or replace the Mabru product, or refund the original purchase price. Note: Where labor is included for a particular Mabru product covered under this Limited Warranty (See Section 4 COVERAGE PERIOD AND TABLE OF WARRANTY PERIODS), Mabru is not responsible for additional labor charges associated with the removal, reinstallation, or replacement of any equipment or furnishings beyond the covered Mabru product. This Mabru Limited Warranty allows up to 1.0 (One) hour for the Servicing Dealer’s travel time. Any additional travel time is the owner’s sole responsibility. This Limited Warranty is made in lieu of all other express warranties, obligations, or liabilities on the part of Mabru. In those instances, in which Mabru chooses to make a cash refund of the original purchase price, such refund shall affect the cancellation of the contract of sale without reservation of rights on the part of the owner. Such refund shall constitute full and final satisfaction of all claims which the owner has or may have against Mabru resulting from any actual or alleged breach of warranty, either express or implied. IN NO EVENT SHALL MABRU BE LIABLE FOR EITHER INCIDENTAL OR CONSEQUENTIAL DAMAGES. THIS INCLUDES ANY DAMAGE TO ANOTHER PRODUCT OR PRODUCTS RESULTING FROM SUCH A DEFECT.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU. ANY IMPLIED WARRANTY, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR ANY PURPOSE, IS LIMITED TO THE DURATION OF THIS LIMITED WARRANTY. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU. THIS WARRANTY GIVES SPECIFIC LEGAL RIGHTS, YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE. Mabru reserves the right to improve or change the design of any Mabru product without notice and with no obligation to make corresponding changes in Mabru products previously manufactured.

Mabru Rooftop RVSC 12000 DC 12V Manual