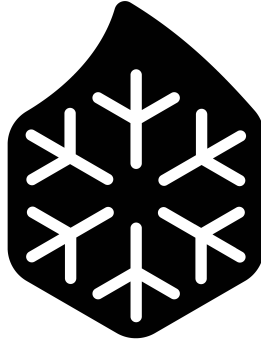


Emvólio® Plus

A WHO PQS Prequalified

User Guide & Warranty Document



Emvólio®

Precision Refrigeration for Healthcare

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reposting and reproduction is strictly prohibited.**

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The purpose of this document is to help the user understand Emvólio and its functions and operations, and set up Emvólio for safe transportation of vaccines and biologicals. This document also outlines the warranty terms and conditions applicable for Emvólio.

It is important that you read and adhere to all the safety instructions, warnings and cautions contained in this manual prior to using Emvólio.

Qualification of personnel:

Training on usage of the device and Service/repair of the device must be done by authorized personnel who are trained by Blackfrog Technologies Pvt. Ltd.

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This section outlines the general conventions and instructions to be followed when using this document.

1.1 Conventions:

The following are the common typographic conventions used in this document:

- *Italics: indicates captions/remarks on graphical and pictorial content.*
- **Bold: Indicates important information/concepts to be remembered.**
- Note: This indicates important information that should be remembered when using Emvólio. It is indicated by the 'i' symbol.
- Caution: This denotes caution to be exercised when performing a certain operation, which if ignored, can result in device/equipment damage when operating Emvólio. It is indicated by the 'warning' symbol.



1.2 Problem Reporting Instructions:

For resolving any issue(s) that may be encountered during normal operation of the device, please refer to Page. 33 of this document for common troubleshooting steps.

For additional support, repairs and documentation, perform the following actions:

- Document the issue: Record any details of the issue(s) occurring on the device.
- Contact Blackfrog Technical Support team through any of the following means:

Email: support@blackfrog.in

Mob: +91 7338177246

Phone: (+91)(820) 2572478

1.3 Safety Alert Descriptions



Caution: Battery Disposal

Recycle or dispose of the Lithium battery in accordance with all federal, state, and local laws. To avoid fire and explosion, do not burn or incinerate the battery.



Danger! Fire and Explosion Hazard

To avoid possible fire or explosion hazards, do not operate the Emvolio

- In the presence of flammable gases
- High-temperature zone



Caution: Electromagnetic, Radio frequency and Reciprocal interference

Possibility of potential Electromagnetic Interference, Radio-frequency (RF) interference and Reciprocal interference may lead to improper operation of Emvolio. To avoid such conditions, please check for interference. Output of these phenomena will be Display Flickering or Device Resetting.



Class I ME Equipment

Warning: To avoid risk of electric shock, this equipment must only be connected to a supply mains with protective earth (use proprietary charger supplied by Blackfrog only)
























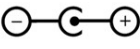


Recommendation for use of Voltage Stabilizers:

It is recommended Emvolio charging on AC current is installed with a voltage stabilizer in order to safeguard the equipment.

- It is recommended to use WHO/PQS/E007 prequalified voltage stabilizers which cuts off its output voltage to the equipment in case the mains voltage goes below or above as per the required input range.
- Bypassing of stabilizer is not recommended as this may lead to the damage of equipment and in turn safety of vaccines.

1.4 Symbol Descriptions

Symbol	Description
	Rotating fan blades can cause serious injury or cut. Keep hands clear. Turn off the device before servicing.
	Hazardous voltage, keep out. Contact will cause electric shock or burn.
	Recycle cardboard according to local law.
	Waste Electronic and Electrical Equipment (WEEE). Separate collection for waste electrical and electronic equipment.
	Recycle properly in accordance with all state, province, and country regulations.
	Lithium ion Battery. This indicates the presence of pack of li-ion batteries.
	Temperature limitations for storage or transportation.
	No stepping on the surface of the box.
	Fragile
	Keep Dry
	Stacking Limitation: The number shown (3) indicates the maximum number of additional packages that may be stacked on top of a package containing this device, when this device is correctly packaged.
	This side Up (Placement orientation for the device box)
	Manufacturer
	Please refer to the User Manual
	Do not puncture the cold chamber with sharp objects

Symbol	Description
IP55	Indicates the protection standard from foreign ingress materials. First digit '5' indicates protection against quantity of dust that could interfere with the normal operation of the product but not fully dust tight and complete protection against solid objects. Second digit '5' indicates protection against water jets projected by a nozzle (6.3mm) from any angle.
	Battery conforms with IEC 62133 standard.
	Warning for presence of Li-ion Battery
CE	CE— Conformité Européenne Signifies compliance with European MDR 2017/745 for medical devices as per Article 19 for class 1
	Grade A, user-independent freeze protection (UIFP): when the appliance is used within its nominated temperature range (upper hot zone temperature +43°C and minimum rated ambient temperature) there is no intervention required by the user to ensure that the vaccines will not be exposed to freezing temperatures outside of the acceptable temperature range, whatever the position of the vaccines in the vaccine storage compartment.
	This indicates the PQS specified Ambient temperature zones for the appliance operation.
	IEC 60950 R-41231819
	Direct current, DC
	Polarity of d.c. power connector
	For indoor use only (<i>Only applicable for charger</i>)
	Envolio cannot be used as a Standalone Refrigerator

Emvólio Plus is a portable medical-grade refrigerator that provides a platform for delivery of vaccines and other biologicals which require strict temperature controlled transport environments. Emvólio can maintain a temperature of between 2°C to 8°C for 12+ hours on the field*.

Technical Specifications:

Parameter	Value
Model	Emvólio Plus
Dimensions (L x B x H)	30cm x 20cm x 41cm
Weight	6.7 Kg
Cold Chamber Capacity	1.55 L
Operating Ambient Temperature	+10°C to +45°C
Operating Humidity	Upto 100%
Operating Pressure	1 atm
Battery	Li-Ion, Upto 390Wh
Charging Time	5 hours

Salient Features:

- 0.5°C Accuracy of sensor and control.
- Corrosion Resistant material used in construction of cold chamber.
- On-board display for monitoring temperature, battery and product status.
- Audio & Visual warnings during temperature excursions and low battery situation.
- IOT based remote location tracking, temperature and statistics measurement.



*The battery life of the device may vary with changes in ambient temperature.

This section provides safety and warning information which you must be aware of before using Emvólio.

3.1 Emvólio Usage: Do's

- **Please clean the device and the cold-chamber with clean cloth before each use.**
- **Please ensure device is fully charged before use.**
- **Please ensure device lock and multipurpose backpack locks are secured before transportation.**
- **Please pay attention to device indications during usage.**
- **Please keep the device upright at all times.**
- **The device must be placed in the backpack at all times during usage.**

3.2 Emvólio Usage: Dont's

- **DO NOT cover the Lid of the device or insert object(s) through the top and side vent holes.**
- **DO NOT disassemble device and/or its accessories.**
- **DO NOT apply excessive force on the hinge and lock mechanism.**
- **DO NOT charge product near areas with Flammable substances/Fire Hazards.**
- **DO NOT charge the device in ambient temperatures above 50°C and below 0°C.**
- **DO NOT block the air vent on the top cap.**
- **DO NOT place the ON/ running device in the packaging box.**



Failure to observe the above instructions during operation of the device may lead to device/equipment damage.



Emvólio is not a permanent replacement for a refrigerator, solar powered or otherwise



Avoid exposing the device to direct sunlight during usage and storage

This section helps you understand how to setup your Emvólio for operation.

4.1 Unpacking Emvólio

The following items are shipped along with your Emvólio:

Particulars	Specification	Quantity
Product	Emvólio Plus	One
Charger + Power Cord	100-240V, 50-60 Hz	One Each
Standard Accessories	Backpack, Reset tool	One
Documentation	User Guidebook & Warranty Information	One

Please remove Silica Gel pack from cold chamber while unpacking.

The accessories for Emvólio can be purchased through Blackfrog Technologies Pvt. Ltd.

Note: Please preserve all the packaging materials to allow Emvólio to be safely sent for repair (if any).

4.2 Inspection

An Inspection is important and should be done when the Emvólio is delivered to avoid any warranty issues.

Do the following checks to identify any damages done if any during shipping:

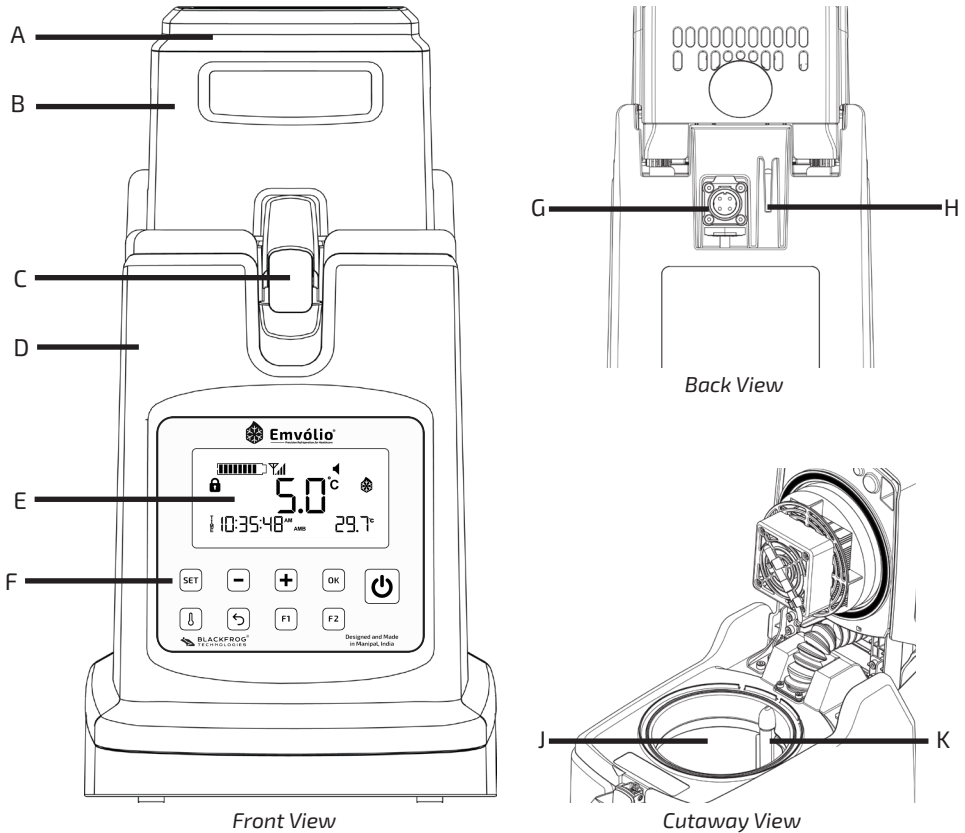
Initial Checks	Status
Check for sealed box, Physical damage(if any)	OK / NOT OK
All contents present in the box	OK / NOT OK
Check for any external damages on the product	OK / NOT OK
Check for any loose parts on the product	OK / NOT OK



In case of any damage observed on the device or its accessories, please contact the Blackfrog Technical Support Team.

5.1 Know your Emvólio

The various components of Emvólio are as follows:



A. LED Indicator

B. Lid

C. Lock

D. Body

E. LCD Display

F. User Interface

G. Charging Port

H. Ambient Temperature Sensor

J. Cold Chamber

K. Temperature Sensor

5.1.1 Body

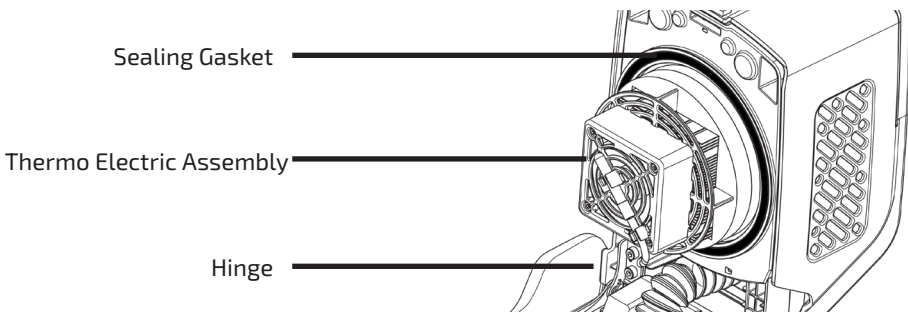
The body of the device is manufactured out of PC ABS blend, with rugged build quality to ensure that the contents are safe from physical, chemical and thermal stresses during transportation of biologicals. The body has the cold chamber, instrumentation, control system and battery pack assembled inside it. The body also has an ambient temperature sensor embedded in the side.

5.1.2 Cold Chamber

The temperature-controlled cold chamber of 1.55 L capacity is manufactured with food grade Stainless Steel, to ensure that the chamber will not undergo corrosion or react with any of the typically transported biologicals. The chamber is sealed by the Top Cap assembly, a gasket and locking mechanism ensure proper sealing of the chamber.

5.1.3 Top Cap Assembly(Lid)

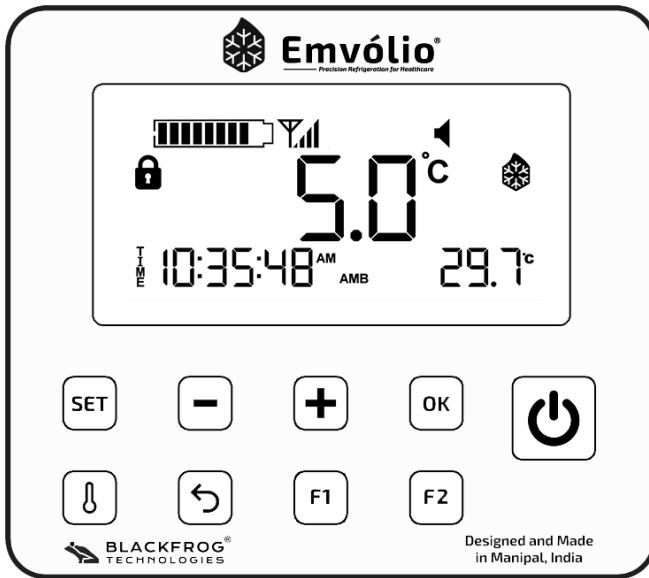
The Top Cap assembly on the device contains the Thermo Electric Assembly(TEA which functions as a heat pump, extracting heat from the cold chamber and dispersing it to the atmosphere. The Top Cap assembly also functions as a lid to provide access to the cold chamber. It is connected to the body through a hinge, to enable easy loading/unloading of contents from the chamber.



The top cap assembly consists of small instruments crucial for proper functioning of the device. Proper care must be taken during handling the product to avoid damage to the wires or hinge.

5.1.4 User Interface

The user interface on the device consists of a LCD display and switches to control various functionality of the device.












The LCD displays the following parameters:

- Current temperature of the chamber
- Battery Level
- Mode of operation. (Heating/Cooling)
- Lid Open warning
- Mute & Flight Mode Indicator
- Charging Indicator
- Set Temperature & Top, Bottom, Average & Ambient Temperature
- Date & Time
- Network Signal, Wi-Fi, Bluetooth & Location Indicators



Lowest temperature will be displayed at the right bottom corner of the LCD display

There are nine switches provided on the device, which are as follows:

	SET	Used for entering Settings Menu
 	+ & -	Used for adjusting values
	OK	Used for confirming actions
	Temperature	Used for toggling temperature
  	F1, F2, Back	Used for additional functionality
	POWER	Used to Switch the device On/Off

5.1.5 Control System

The chamber temperature is maintained through a proprietary algorithm, which allows for fine control of temperature in the range of $\pm 0.5^{\circ}\text{C}$. The control boards also incorporate a GPS tracker and a data logging system which enables remote monitoring of device parameters through a dashboard.

5.1.6 Battery

The battery on-board Emvólio is a Lithium-Ion battery rated at upto 390Wh, with a cycle life up-to 1500 cycles. It can sustain the device operation continuously for more than 12 hours, beyond which the device must be plugged in for charging. The battery is charged via a standard 100V to 240V AC charger provided in the packaging box.



Recycle or dispose of the Lithium battery in accordance with all federal, state, and local laws. To avoid fire and explosion, do not burn or incinerate the battery.



Periodic charging of the battery is necessary to maximize the useful life of the battery. It is recommended that the battery is to be replaced after 5 years. For battery replacement, please contact Blackfrog Technologies(page 48)

5.1.7 Accessories

The following optional accessories can be configured with the product:

- Foam Absorption Pad: A thin foam-based one-time use pad placed at the bottom of the chamber which soaks up any form of spillage. It reduces chances of contamination and allows for easier cleaning.

5.2 Using Emvólio

5.2.1 Placing Device in the Multipurpose Backpack

The following steps have to be followed to place the device in the provided multipurpose backpack:

- Place the Device and backpack on a flat surface.
- Ensure that the middle and top harnesses of the backpack are open.
- The device User Interface must be aligned to the cutout provided in the backpack.
- Gently lift the device using the handholds provided at the bottom.
- Place the device in the backpack and ensure that the device is seated correctly. Person 1 can place the device while Person 2 can adjust the backpack as required.
- Fasten the middle strap and the top harness.

The device is now ready for usage.



Please ensure that the harnesses of the backpack are securely locked before transporting.

5.2.2 Switching the device On/Off

The following steps have to be followed to switch the device On:

- Ensure that the device user interface is facing towards you.
- Press the power button for 3-5 seconds.
- The device display and LED indicator will turn on, indicating that the device is powered on.



With regard to the network activation on the device, it is suggested to keep the device plugged into a power source and kept ON for at least 2 days. It would be ideal if the device is close to a window as it speeds up the process of network activation. Once the sim is activated, the network symbol would be active on the display (Follow this step when using Emvolio for the first time. If network is still not displayed, please contact support team).

- Repeat the above steps to switch off the device. The device display & LED indicator will turn off, indicating that the device is powered off.

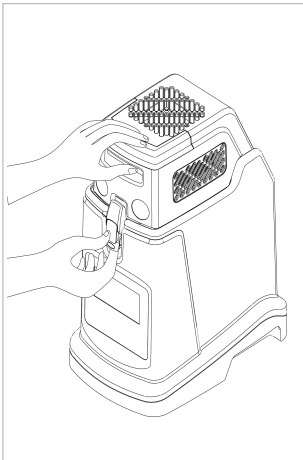
5.2.3 Storing\Retrieving Contents from the Chamber & Transportation of Emvólio

The following steps have to be followed to store or retrieve any contents from the cold -chamber of the device:

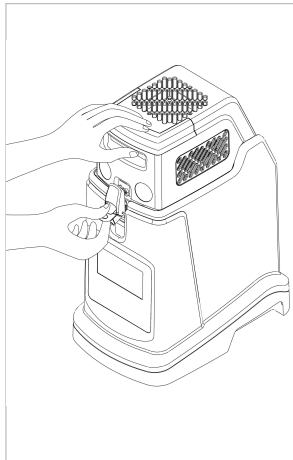
- a. Unfasten the clips and open the harness of the backpack.
- b. Open the Lid of the device to access the cold-chamber.
- c. Place/retrieve contents from the cold chamber.
- d. Close the Lid of the device and lock it in place.
- e. Fasten the top harness of the device.

Step 1. Opening Emvólio

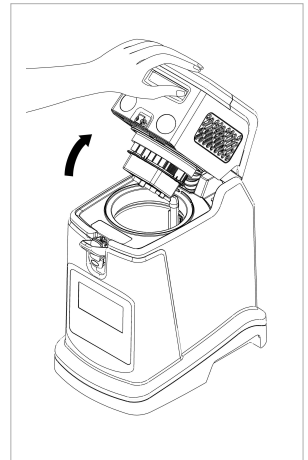
- a. Place one hand on the device body and hold the lock with your other hand.
- b. Lift the lock with an upward motion to unfasten the lock from the lid. The lid is now unlocked and free to move.
- c. Gently lift the lid backwards on the hinge using the thumb hold on the cap, and rest it at the end position. The cold chamber is now accessible to place/remove contents.



Step a: Holding the lock



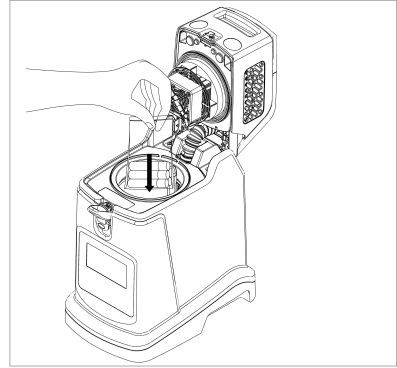
Step b: Lifting the lock



Step c: Lift lid

Step 2. Loading Contents

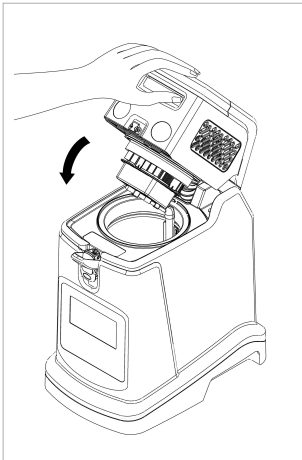
Now deposit the samples/contents that need to be refrigerated into the cold chamber. Ensure the sensor in cold chamber is not damaged when loading the contents.



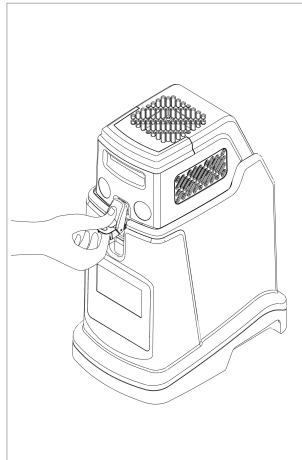
Placing contents in the cold-chamber

Step 3. Closing Emvólio

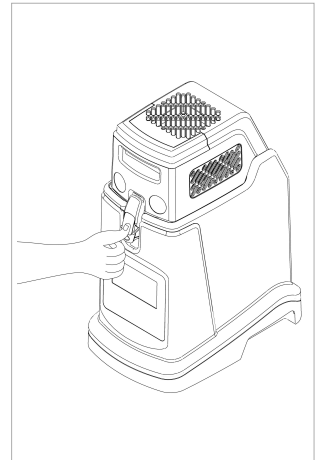
- Gently close the Lid back to the closed position using the thumb hold provided on the cap.
- Once the Lid is in a closed position, hold it in place with your hand. Lift the lock with an upward motion with your other hand.
- When the lock is lifted completely, push the top part of the lock inward and return the lock to the normal position. The Lid is now securely locked.



Step a: Close the Lid



Step b: Toggle the lock

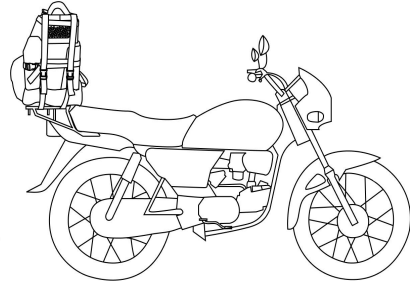


Step c: Device is locked

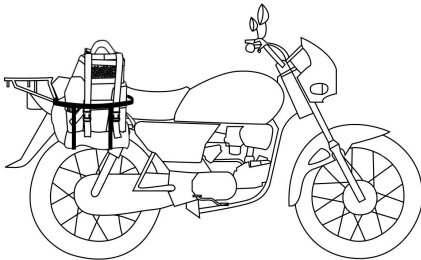
Step 4. Mechanism for safe transportation of Emvolio

1. Two wheelers:

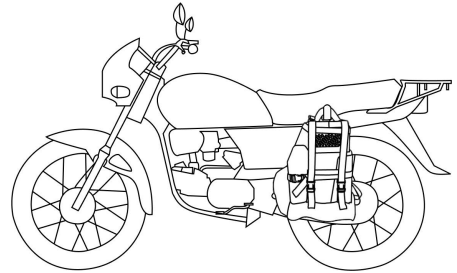
- a. Emvolio is a two wheeler compatible portable device, which can be easily secured and transported as per use.
- b. While transporting Emvolio by a two wheeler, the device can be fitted on to the vehicle on the side hook provided, Luggage rack or two wheeler utility box rack as shown in the figures.



Emvolio placed on the luggage rack



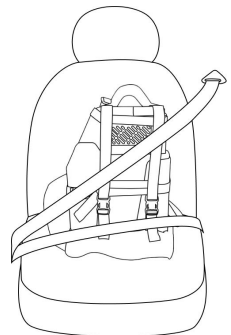
Emvolio placed inside the utility box rack



Emvolio hung onto the two wheeler hook

2. Four wheelers:

- a. Emvolio can be safely transported by a four wheeler, using the seat belt as locking mechanism.



Emvolio securely strapped using car seatbelt



Safety precautions during transportation and in case of fire:

- Please note that, a user should accompany the device at all times of transportation
- Device must be kept inside the backpack during usage and transportation. Device must be placed in upright position to avoid spillage of contents.
- Since the device contains li-ion battery pack, this may pose fire hazard in adverse condition during operation. **DO NOT** touch or be in the vicinity of the device in case of any fire/explosion. **USE** fire extinguisher to put out the fire.
- To watch the informational video for attaching Emvolio on to a two wheeler, please scan this QR code



Step 5. Retrieving Contents

- a. Open the device using instructions from Step 1
- b. Carefully remove the samples/contents from the cold chamber, while ensuring that the sensor in the cold chamber is not damaged by the contents during removal.
- c. Close the device using instructions from Step 3



Ensure the contents are placed in a manner such that they are not at risk of moving around during transport and leading to breakage.

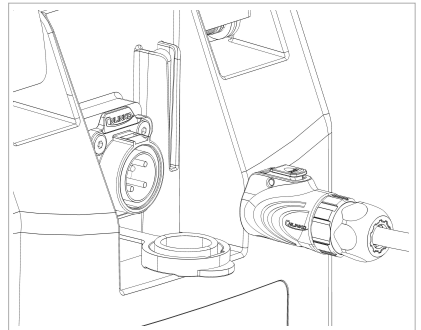


Before the contents are transferred from a stationary refrigerator onto Emvólio, it is recommended that the system be pre-cooled to the set temperature. This may take about 10- 15 minutes depending on the ambient temperature of the surroundings.

5.2.4 Charging the Device

The following steps have to be performed to charge the device:

- a. Remove the flap on the charging port and access the charger port.
- b. Insert the connector from the charger into the charging port while ensuring the correct orientation of the cable plug to the port.
- c. Switch on power to the charger.
- d. The display/LED indicator on the device will indicate the status of charging.



Connecting the charger to the device.

The charger is designed to fit in only one orientation. **DO NOT** force the charger plug into the charging port on the device. **DO NOT PULL** the charger wire when it is connected. Doing so may result in damage to the product.



Only use the charger supplied by Blackfrog for charging. Use of any third-party or charging the device after any physical damage, at very high temperature (outside operating ambient temperature) may lead to fire/explosion/chemical hazard. **Charger is only for indoor use.**



Charger/adaptor serves the means of Isolation from the Supply Mains. Charger has to be disconnected from the device and the mains after the device is completely charged.



It is not recommended to use the device while it's charging (Not for continuous use). In case of battery drainage, the device will automatically turns off. While charging, the device may automatically turn on.



5.3 Common Device Indications

This section covers the common indications provided by the device during regular usage, and the information indicated by these indications.

5.3.1 LED Indicator

The LED indicator is used as a quick indicator of the cold-chamber status during operation. It also indicates the charging of the device in powered-off state. The following are the indications provided through the LED indicator:

LED Indicator glowing RED	This indicates that the cold-chamber temperature is outside the safe range (2°C - 8°C).
LED Indicator glowing GREEN	This indicates that the cold-chamber temperature is within the safe range (2°C - 8°C).
LED indicator glowing WHITE with animation	This indication is displayed when the device is powered off and placed for charging. This indication will turn off after the device is fully charged.

5.3.2 Buzzer

A buzzer is installed onboard Emvólio to provide indications on functioning of the device. The following are the indications provided by the buzzer:

Buzzer beeping every 10 seconds	This indicates that the cold-chamber temperature is outside the safe range (2°C - 8°C).
Buzzer stops beeping	This indicates that the cold-chamber temperature is within the safe range (2°C - 8°C).



The LED indication is accompanied by the buzzer during normal operation. Device Mute function can be selected to enable silent operation of the device, if required. Please refer to section 5.4.5 on selecting Device Mute function.

















The buzzer beeps at 10 seconds interval at a volume of 65dBA (measured at 1feet distance from the center of the device)





Indication of safe temperature range beyond 2°C - 8°C is $\pm 3^{\circ}\text{C}$ of the set temperature.

5.3.3 Display Indications

Indication of	Indicated by	Description
Temperature Display	 AVG TOP AMB BOT	Displays the Set temperature and Ambient, Top, Bottom & Average sensor temperatures.
Battery Level		The current battery level of the device.
Device Charging		The device is currently charging.
Lid Open		The Lid of the device is open.
Cooling/Heating Mode		The device is currently in cooling/heating mode.
Device Locked		The device settings are password-protected.
Date/Time		The current date/time is displayed.
Lowest temperature display		The current (lowest) temperature of the cold-chamber.
Flight Mode		The device is in flight mode.

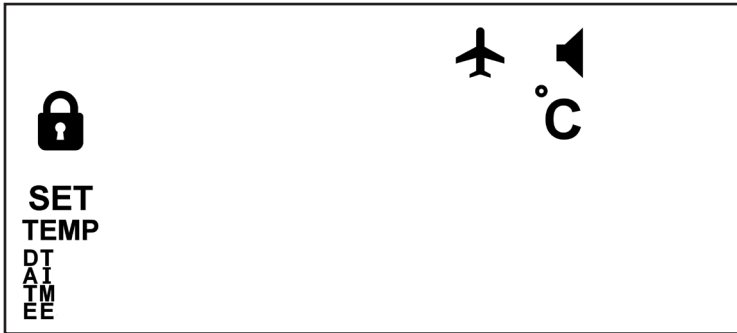
Device Buzzer Sound		The device buzzer sound is switched on/off.
SIM Network		This indicates the network signal strength available for the device SIM card.
Wi-Fi		This indicates that the device Wi-Fi network is being used.
Bluetooth		This indicates that the device Bluetooth network is being used.
Warning Indicator		This indicates any possible issues observed in the device systems during usage.

 Press Temperature button to toggle between SET TEMP, AVG, AMB, TOP & BOT sensor temperatures.

 Based on device configuration, the indications displayed on the LCD screen may vary.

5.4 Device Settings

Setting	Indicated by	Description
Set Temperature	TEMP	Temperature to be maintained in the cold chamber
Date & Time	DATE / TIME	The date & time displayed on the device
Password	Lock Icon	The password to enter the device settings menu
Flight Mode	Airplane Icon	Enable or disable flight mode for the device
Device Sound	Speaker Icon	Enable or disable the device buzzer sound
Temperature Units	°C or °F	Toggle the temperature units between °C and °F



Device Settings Menu Overview

5.4.1 Entering Settings Menu

The following steps have to be performed to enter the device settings menu:

- a. Ensure that the device is switched on, and the user interface is facing you.
- b. Press SET button. The lock symbol will blink, indicating the device is now in password mode.
- c. Press OK to enter password input menu.
- d. Use + or - button to adjust the 1st digit as required. After selecting the first digit, press OK to confirm the selected value. The first digit is now confirmed and the next digit of the password is automatically highlighted.
- e. Repeat the process to select and confirm the second digit of the password. On pressing OK, the second digit is confirmed and the next digit is highlighted.
- f. Repeat the process of selecting the value of the third digit. The password is now entered. Press OK to confirm the password and enter the settings menu.
- g. If the correct password is entered, the device will display the settings menu.



In case of a wrong password, the device will display ERR on screen. Repeat the above steps while entering the correct password to enter the settings menu.



To modify a previously entered digit, press the Back button to move back one digit. Use + or - button to enter the correct value and follow the subsequent steps indicated.

5.4.2 Adjusting Set Temperature

The following steps have to be performed to set the cold-chamber temperature of the device:

- a. Enter device settings menu (refer section 5.4.1)
- b. Use + or - buttons to toggle options until TEMP icon is selected. This is indicated by the SET and TEMP icon blinking on the display. Press OK to enter Set Temperature menu.
- c. Use + or - buttons to modify the set temperature value as required. Press OK to confirm changes and return to main settings menu. The device cold-chamber set temperature is now modified.



To exit without saving any changes, press the Back button until the device enters main settings menu.

5.4.3 Changing the Password

The following steps have to be performed to change the password of the device:

- a. Enter device settings menu (refer section 5.4.1)
- b. Use + or - buttons to toggle between options until password option is selected. This is indicated by a blinking SET and Lock icon on the display.
- c. Press OK button to enter the password change menu. The first digit is automatically highlighted.
- d. Use + or - buttons to change the value of the 1st digit as required. Press OK to confirm the selected value. The next digit of the password is automatically highlighted.
- e. Repeat the process to select and confirm the second digit of the password. On pressing OK, the next digit of the password is automatically highlighted.
- f. Repeat the process to select the value for the third digit of the password.
- g. Press OK to confirm the new password and return to main settings menu. The device password is now successfully changed.



To modify a previously entered digit, press the Back button to move back one digit. Use + or - button to enter the correct value, and follow the subsequent steps indicated above.

5.4.4 Changing the temperature units

The following steps have to be performed to change the temperature units displayed on the device:

- a. Enter device settings menu (refer section 5.4.1)
- b. Use + or - buttons to toggle options until the temperature unit icon is selected. This is indicated by a blinking SET and °C or °F icon.
- c. Press OK to enter temperature unit selection menu.
- d. Use + and - buttons to toggle between °C and °F units. This is indicated by the selected icon blinking on the display.
- e. After selecting the required unit, press OK to confirm changes and exit to main settings menu. The device temperature unit setting is now successfully changed.



To exit without saving any changes, press the Back button until the device enters main settings menu.

5.4.5 Adjusting the device sound setting

The following steps have to be performed to adjust the device sound setting:

- a. Enter device settings menu (refer section 5.4.1)
- b. Use + or - buttons to toggle between options until the device sound option is selected. This is indicated by the SET and Speaker icon blinking on the display. Press OK to enter device sound setting adjustment menu.
- c. The sound settings are as follows:
Press + button to enable device buzzer. The display will show ON to indicate that device buzzer function is enabled.
Press - button to disable device buzzer. The display will show OFF to indicate that the device buzzer function is disabled.
- d. After selecting the required setting, press OK to confirm changes and return to device main settings menu. The device sound setting has now been successfully modified.



To exit without saving any changes, press the Back button until the device enters main settings menu.

5.4.6 Adjusting the Date

The following steps have to be performed to adjust the date displayed on the device

- a. Enter device settings menu (refer section 5.4.1)
- b. Use + or - buttons to toggle between options until the Date option is selected. This is indicated by the SET and DATE icon blinking on the display.
- c. Press OK to enter date adjustment menu. The current date is displayed on screen in DD:MM:YY format.
- d. Use + or - buttons to adjust the day value as required. Press OK to confirm changes. The system will automatically highlight the month value, indicated by the blinking characters.
- e. Repeat the process to select and confirm the required month value. On pressing OK, the year value is automatically selected.
- f. Repeat the process to select and confirm the required year value.
- g. After selecting all values, press OK to confirm changes and return to main settings menu. The device date is now successfully modified.



To modify a previously entered digit, press the Back button to move back one digit. Use + or - button to enter the correct value, and follow the subsequent steps indicated above.



To exit without saving any changes, press the Back button until the device enters main settings menu.



If the device network is available, Date and Time will be automatically registered.

5.4.7 Adjusting the Time

The following steps have to be performed to adjust the time displayed on the device:

- a. Enter device settings menu (refer section 5.4.1)
- b. Use + or - buttons to toggle between options until the time option is selected. This is indicated by the SET and TIME icon blinking on the display.
- c. Press OK to enter time adjustment menu. The current time is displayed on screen in HH:MM:SS AM/PM format.
- d. Use + or - buttons to adjust the hour value as required. Press OK to confirm changes and automatically highlight the minutes value, indicated by the blinking characters.

- e. Repeat the process to select and confirm the required minute value. On pressing OK, the seconds value is automatically selected.
- f. Repeat the process to select and confirm the required seconds value. On pressing OK, the AM/PM value is automatically selected.
- g. Press OK to select the appropriate AM/PM indicator. On pressing OK, the changes will be confirmed and the system will return to main settings menu. The device time is now successfully modified.



To modify a previously entered digit, press the Back button to move back one digit. Use + or - button to enter the correct value, and follow the subsequent steps indicated above.



To exit without saving any changes, press the Back button until the device enters main settings menu.

5.4.8 Adjusting the device flight mode setting

The following steps have to be performed to adjust the device flight mode setting:

- a. Enter device settings menu (refer section 5.4.1)
- b. Use + or - buttons to toggle between options until the flight mode option is selected. This is indicated by the SET and Airplane icon blinking on the display. Press OK to enter flight mode setting adjustment menu.
- c. The flight mode settings are as follows:
Press + button to enable device flight mode function. The display will show ON to indicate that device flight mode function is enabled.
Press - button to disable device flight mode function. The display will show OFF to indicate that the device flight mode function is disabled.
- d. After selecting the required setting, press OK to confirm changes and exit to device main settings menu. The device flight mode function has now been successfully modified.



To exit without saving any changes, press the Back button until the device enters main settings menu.

Emvólio is designed to ensure minimum maintenance by the user. However, the following maintenance procedures must be done by the user on a regular basis.

Task	Instructions	Schedule
Disinfecting the cold chamber	Cleaning with 75-90% isopropyl alcohol	In case of spills
Cleaning the cold chamber	Wipe clean the cold chamber with a dry cloth.	Daily/Before every use.
Cleaning the Top Cap Assembly (Cold chamber side, see section 5.1.3)	Clean accumulated moisture and dust in the Top Cap assembly using a brush / blower.	Occasionally (Once in a month)
Cleaning the device	Wipe clean with a clean dry cloth	Occasionally (Once in a month)
Charging the device for short term / long term storage	Charge the device only with the charger provided by Blackfrog.	at least 50%, once in 30days (short term) 100%, once in 90 days (long term)

It is recommended to not allow the battery percentage to go below 20%. Repeated cycles of discharging the battery below 20% may result in accelerated deterioration of the battery.

6.1 Cleaning the Device

During regular usage of the product, the device has to be cleaned at regular intervals to ensure reduced chances of contaminants in the chamber.

The steps to be followed to clean the device are:

- a. Take a clean dry cloth.
- b. Open the device and clean the cold chamber and the surrounding areas gently.
- c. Wipe the body of the device gently to remove any dust present on the surface.
- d. Clean the gap between the backpack and device body to remove any external debris accumulated there.

The device is now ready for use.



Ensure that the temperature sensor and its parts are not damaged during cleaning.



If cleaning device after an extended period of time, please remove device from backpack and clean the device as per above guidelines and backpack using water and detergent.

6.1.2 Cleaning the Cold Chamber

During regular usage of the product, cleaning the cold chamber has to be performed before every use to ensure best performance and to reduce chances of contaminants in the chamber.

The steps to be followed to clean the cold chamber are:

- a. Take a clean dry cloth.
- b. Wipe the Cold chamber to remove any dust or debris.
- c. Clean the surrounding areas of the cold chamber on the device body as required.

The device is now ready for use.



Ensure that the temperature sensor and its parts are not damaged during cleaning.

6.1.3 Cleaning spills in the Cold Chamber

In case of any accidental spills of biologicals in the cold chamber, the following steps have to be performed to sanitize the device for usage:

- a. Remove any spillage/debris inside the chamber using an appropriate cloth/tool.
- b. Sanitize the chamber using 75-90% Isopropyl Alcohol.
- c. Wipe with a clean cloth to remove any remnants of cleaning materials.

The device is now ready for use.

Kindly Note: During high humidity days, water droplets will be noticed in the cold chamber after multiple openings and closing of the lid. This is a common phenomenon noticed in humid areas and does not affect the functionality of the device. The cold chamber after every vaccination drive could be wiped using a dry cloth to remove the condensed water.

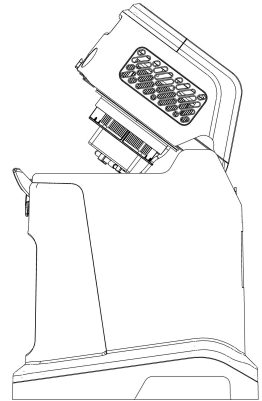


Ensure that the temperature sensor and its parts are not affected during cleaning.

6.2 Periodic Maintenance Checks of Emvolio (once in 3 months):

6.2.1 Check for torque of Lid Hinges:

- a. Unlock the latch and open the lid at about 60° angle (approximately half way through) from its original position as shown in the figure.
- b. The Lid should not move from its position, if the torque of the hinge is adequate.
- c. If the lid fall on its own, this implies that the torque on the hinges are not adequate and may cause minor injury to the user while operating the device.
- d. If a user observes the above failure, please contact Blackfrog Technologies for further assistance.



6.2.2 Firm attachment of charging cable to the port:

- a. Insert the charging cable to the port, which is on the device.
- b. Check for the firm attachment of the cable to the port by gently pulling the cable.
- c. If the port moves along with the cable, then that implies either the port or the charger cable attachment is not proper.

6.2.3 Check for dust accumulation around Hot side fan vents:

- a. When there is visible dust accumulation on the Hot side fan, near the vents, on the heatsink, please clean it with appropriate brush.

6.2.4 Check for Latch tightness:

- a. If a user observes condensation (small drops of water) around the sealing area on the main housing, this implies that the the locking force of the latch is not adequate. For further assistance, please contact Blackfrog Technologies.

6.2.5 Visual inspection of the Backpack:

- In this inspection, the user needs to check for any worn part of the backpack.
- Also check for the strength of the harness and the buckles of the backpack.
- At the time of inspection, if dust and debris found, the backpack can be washed. Please follow the washing instructions provided inside the backpack.

The following steps describe basic troubleshooting of issues that may occur during operation of Emvólio. In case of any issues encountered during operation of the device, you can perform the following steps for basic troubleshooting of the device.

In case of continued performance issues, the Blackfrog Technical Support Team can be contacted to resolve the issue.

7.1 Warning Indications

The warning icon on the LCD will blink to indicate the following potential issues detected in the system during usage:

- **Battery Temperature Warning**
- **System Temperature Warning**
- **Cooling Mechanism Issue**
 - a. In addition the above indication, in case of any temperature violations beyond permissible limit, an error message "Err" will be displayed on the LCD display for 60 seconds.
Example: If the ambient temperature reaches beyond +10°C and +45°C, the error message will be displayed on the LCD display.
 - b. If any user intervention is not noticed, after 60 seconds the device will be switched off automatically.
 - c. After the device is manually switched on, the previous Err message will be displayed.
 - d. The error cause can be checked in the device dashboard(Check section 10)



If any of the error messages is displayed, the vaccines might not be viable for administration(do not use the vaccines which are inside the chamber).



In case the error is not resolved, please follow the problem reporting instructions outlined at the end of this section(7.4)

7.2 Device Reset Process

The following steps have to be performed to reset the device:

- a. Ensure that the device is powered on.
- b. Unfasten the clips holding the harness in place, and open the device top harness.
- c. Gently lift the device out of the backpack.
- d. Carefully bend the device backward to access the reset pinhole at the bottom.
- e. Use the provided reset tool to press the reset button. The device will be reset.
- f. If the reset button is pressed with device in power-off condition, the device will reset and continue to be in power-off condition. If the reset button is pressed with device in power-on condition, the device will reset and return to power-on condition.
- g. Check if the issue has been resolved. If issue is successfully resolved, replace the device in the backpack and continue usage.

7.3 Basic Troubleshooting Processes

7.3.1 Erratic Temperature Display

In case the temperature displayed on the display is incorrect, perform the following steps:

- a. If the temperature display behaves erratically, reset the device (refer section 7.2 for reset process)
- b. In case problem persists, contact Blackfrog Technical Support Team.



Do not press the reset button more than once during the reset process.

7.3.2 Display not responding

In case the device display is not turning on/responding, perform the following steps:

- a. Press the Set or OK or Power or Temperature Adjustment buttons on the user interface and wait for display to respond.
- b. In case the display does not respond, press and hold the Power switch for 3 Seconds to check if the device is On/Off.
- c. In case the display does not respond, perform a reset of the device (refer to section 7.2 for the reset process)
- d. In case problem persists, contact Blackfrog Technical Support Team.

7.3.3 Device cooling function not working

In case the cooling function of the device is not functioning, perform the following troubleshooting steps:

- a. Re-adjust the set temperature of the cold chamber from the user interface and check for cooling.
- b. In case of cooling function now working, perform a reset of the device (refer section 7.2 for the reset process)
- c. In case problem persists, contact Blackfrog Technical Support Team.

7.4 Problem Reporting Instructions:

For additional support, repairs and documentation, perform the following actions:

- Document the issue: Record any details of the issue(s) occurring on the device.
- Contact Blackfrog Technical Support team through any of the following means:

Email: support@blackfrog.in

Mob: +91 7338177246

Phone: +91 0820 - 2572478

The device is supplemented by an online portal which relays the device information and live readings to the user. The portal offers the customer to view current ongoing consignments, past consignments, live device location, status and alerts. The portal also allows user to download reports.

To download the report from the dashboard:

Home page > Click on right side Device card > Select the from date and To date > click on search bar(wait till the loading screen disappears) > Click on download button

For more information on portal features, usage instructions and troubleshooting, download the Online Portal user manual from blackfrog.in/downloads.

Parameter	Value
Model	Envólio Plus
Adjustable chamber temperature range	-20°C to 25°C
Accuracy of maintained temperature	±0.5°C
Operating time	12+ hours*
Operating ambient temperature	+10°C to +45°C**
Operating humidity	Upto 100%
Operating Pressure	1 atm
Initial cool down time	<20 minutes
Dimensions (L x B x H)	30cm x 20cm x 41cm
Weight	6.7 Kg
Cold Chamber Capacity	1.55 L
Battery Capacity	Li-Ion, upto 390Wh
Charging Time	5 hours
Charging Ambient Temperature	+10°C to +45°C
IP Rating	IP55
Device Life	10 Years***
Adapter operating Voltage	100V-240V AC ±10%
Device operating voltage	19V DC

*Under test conditions of 43°C ambient temperature and 5°C chamber temperature.

***with minimum temperature which can be attained at 45°C ambient temperature is 5°C.

***It is recommended that the battery is to be replaced after 5 years.

1. Definitions

Unless the context otherwise requires, the following terms would have the prescribed meanings:

Blackfrog: Blackfrog Technologies Private Limited, a company duly registered under the Companies Act, 2013 having its registered office at D.No.3-72(E Korgi Village, Hosmata Post, Kundapur, Udupi, Karnataka 576231, India (hereinafter referred to as "Blackfrog/ Company").

Product(s): Emvólio Plus, Multipurpose Backpack, Vacuum chamber & Charger distributed by Blackfrog, either directly or through its Authorized Dealers. List of Authorized Dealers can be obtained from the Company's offices or website.

Customer: An end-user (a person, firm, company or legal entity which purchases the Product(s) from Blackfrog or its Authorized Dealers.

Blackfrog's warranty for the Product(s) is only against any defects in the manufacturer's material or workmanship i.e., defects caused due to irregularities in their manufacture, which provide for the repair of the defective Products(s).

2. Warranty Period

Product(s) (except vacuum chamber) is covered under a two-year standard warranty from the date of Product(s) purchase by the customer. Vacuum chamber is covered under a 10 year standard warranty. Manufacturer will assure that the battery is robust enough to power the appliance and cool it within the acceptable temperature range for at least 5 years with expected cycling and recharging, if maintained properly (Refer to section 5 & 6, which is Emvólio Usage and Maintenance).

3. Warranty Terms

Warranty is provided only on Product(s) which are directly purchased from Blackfrog or Authorized Dealer.

Warranty claim may only be made to Blackfrog or its Authorized Service Centers or authorized dealers. List of Authorized Service Centers and authorized dealers can be obtained from the Company's offices or website.

The following would be checked at the time of claim:

- Customer Invoice Date
- Presence of legible Asset number on the Product(s) at the time of claim.
- Product is in original packaging. If the original packaging is unavailable, the Customer is advised to contact Blackfrog or the nearest Authorised Service Center for assistance in safe packaging of the Product for shipping.

If a Customer transfers the ownership of product(s) to another end user, the remainder of the warranty period may also transfer to the new owner. Customer(s) shall be required to provide proof of purchase as a pre-condition for availing the warranty of the Product(s).

Within the warranty period, Blackfrog or its authorized service centers will repair or replace any defective part(s) of the Product(s), if required, to rectify the problem in the Product(s). Blackfrog reserves the right to use re-engineered part(s) with performance parameters equivalent to the similar new part(s), for performing the warranty services. The defective replaced part(s) shall become the property of Blackfrog.

In the event of repairs or replacement of any part(s), during the warranty period, the warranty of the Product shall thereafter continue only for the unexpired period of original warranty.

The Warranty of the product(s) shall be rendered null and void (not valid) if:

- The Product is physically damaged.
- The Product is modified, repaired, maintained and/or opened, disassembled by any party other than Blackfrog or its Authorized Service center
- The Product is operated and/or maintained in ways other than recommended by Blackfrog in the user manual (including the Product Usage Training Video).
- Any malfunction in the Product resulting from inadequate safekeeping or storage.

- Any malfunction in the Product resulting from exposure of the Product to dirt, sand, water including rust / fungus inside the Product, fire and/ or shock beyond the levels of IP55 rating.
- The Asset number or Warranty sticker of Product is removed, mutilated or tampered with.
- Any damage to the Product arising out of use of any accessories other than those supplied by Blackfrog.
- Defect is the result of physical breakage, electric connection or electrical faults external to the Product(s).

4. Limitation of Liability

Blackfrog makes no other express warranty either in writing or otherwise and expressly disclaims all warranties and conditions not stated in this limited warranty. Blackfrog does not warrant that the operation of the Product(s) will be uninterrupted or error-free. To the extent allowed by the Indian laws, Blackfrog disclaims all implied warranties or conditions, including any implied warranties or conditions of merchantability, merchantable quality, and fitness for a particular purpose.

Blackfrog's maximum liability under this limited warranty is limited to the price of the Product(s) or the cost of repair or replacement charges, whichever is lower.

Except as indicated above, in no event will Blackfrog be liable for:

- a. Indirect damage caused due to improper functioning of the Product, including but not limited to lost profits or savings, loss of data, lost revenue, or any other commercial or economic loss of any kind, or special, incidental, or consequential damages.
- b. Any consequential loss or damage to the Customer's stored materials in the Product however caused.
- c. Any other incidental damages due to malfunction of the Product.
- d. Any claim made by a third party or made by a Customer on behalf of a third party.
- e. Any damage that occurs as a result of Customer's failure to follow the directions in the User manual.

- f. Any damage that occurs as a result of usage of the Product(s), beyond the general and device alerts prompted by the Product(s).
- g. Damage, fault or failure due to alteration or repairs made by anyone other than Blackfrog, or the use of accessories other than those authorized by Blackfrog.
- h. Damage, fault or failure due to causes beyond our control including, but not limited to, repairs necessary due to operator negligence, improper installation, damage caused by spillage of stored materials, wrong usage of electrical supply and voltage, corrosive surroundings, chemical reaction, failure to maintain the Product, accident, mishandling, misuse, tampering, vandalism, theft, power failure, static, normal wear and tear, pests, vermin, foreign matter entering the Product, inadequate or excess power supply, unusual atmospheric conditions, or acts of war or acts of God.
- i. Damage, fault or failure due to improper transportation, inappropriate storage conditions, reconfiguration of the Product or any damage caused because of conditions at your location
- j. Products where the Asset number or Warranty Sticker is removed, defaced or made illegible, secondhand sets.
- k. Cosmetic defects, including but not limited to fading of color, corrosion, scratches, dents, rust, stains.
- l. Any utilization of Product that is inconsistent with either the design of the Product or the way Blackfrog intended the Product to be used including but not limited to cross contamination of material due to any reason whatsoever.
- m. Any installation and/or modifications that prevents normal functioning of the Product.
- n. Damage resulting from unauthorized or improper use or installation of third-party Product(s).

Blackfrog reserves the rights to charge the Customer for any reasonable and applicable costs and expenses (at prevailing rates) relating to or arising out of the repair or replacement under these excluded circumstances.

For services or warranty related activities, the Customer shall visit or ship the Product to our nearest Authorised Service Center. The Product should be shipped using the packing material sent with the Product (refer Section 4.1 of this User Manual) at their own cost and risk. If the original packaging is unavailable, the Customer is advised to contact Blackfrog or the nearest Authorised Service Center for assistance in safe packaging of the Product for shipping.

5. Conditions and Exclusions:

This limitation of liability and conditions & exclusions applies in all circumstances i.e., when damages are sought, a claim made under this limited warranty or as a tort claim, a contract claim, or any other claim. This limitation of liability cannot be waived or modified by any person. This limitation of liability will be effective even if Customer has advised Blackfrog/its representative of the possibility of any such damages or even if such possibility were reasonably foreseeable.

6. Service Support for SIM Card

The Product is inclusive of an annual maintenance of the SIM card for a period of one year from the date of purchase of the Product.

Repair or replacement for the SIM card, if necessary (to be evaluated by the Company or its authorized personnel), installed with the Product will be carried out through the Company or Company's Authorized Service Partners. The list for the same can be obtained from the Company's offices or its website.

The Company or its Authorized Service Center or its dealer will provide general service and technical support to all its Customers in accordance with the prevalent service and technical support policies for the SIM Card manufacturer. Levels of service and support provided may vary from product(s) to product(s).

7. Governing Laws

Any disputes arising in connection with this Limited Warranty shall be governed by the laws of India. The courts of Karnataka shall have the exclusive jurisdiction over disputes arising hereunder.



Envólio is suitable for usage in Hospital environments.



Usage of any third-part cables or accessories may affect performance of Envólio.



Do not place the ON/ running device in the packaging box.



This appliance may deplete or drain vehicle batteries/ solar (battery) systems if connected for extended periods of time.



Replacement/Repair of the battery must be done by Authorized/Trained service personnel by Blackfrog Technologies Private Limited.



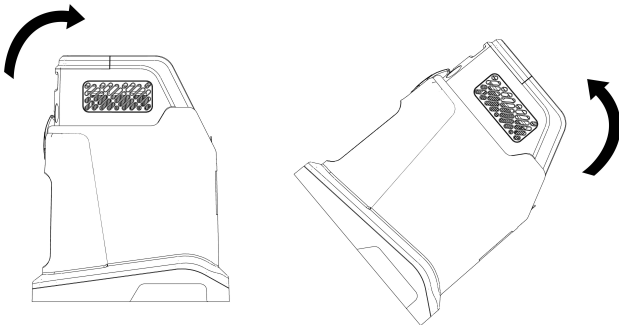
Incorrect repair/replacement of any component or unauthorized modification of the device may result in hazardous risk.



Charging the device after any physical damage, at very high temperature (outside operating ambient temperature) may lead to fire/explosion/chemical hazard.



In case of water deposition around the sealing area when subjected to water, Please tilt the device back and forth 3 times as shown in the figure.



Manufacturer's Declaration - Electro Magnetic Emission

Emission Test	Test Mode	Test Level
Harmonics on AC Mains IEC 61000-3-2:2018+A1:2020 / EN IEC 61000-3-2:2019	A	NA
Voltage Fluctuations on AC Mains IEC 61000-3-3:2013+A1:2017 / EN 61000-3-3:2013	A	0-2KHz
Conducted Emission CISPR 11:2015+A1:2016+A2:2019 EN 55011:2016+A11:2020	C & D	0.15-30MHz
Radiated Emission CISPR 11:2015+A1:2016+A2:2019 EN 55011:2016+A11:2020	A	30MHz-6GHz

Manufacturer's Declaration - Electro Magnetic Immunity

Immunity Test	Compliance Level	Test Level
Proximity Fields from RF Wireless Communications Equipment IEC 61000-4-3:2020 / EN 61000-4-3:2006+A2:2010	27V/m (385MHz)	10KHz to 6GHz
	28V/m (450MHz)	
	9V/m (710, 745, 780MHz)	
	28V/m (810, 870, 930MHz)	
	28V/m (1720, 1845, 1970MHz)	
	28V/m (2450MHz)	
	9V/m (5240, 5500, 5785MHz)	
Conducted Susceptibility IEC 61000-4-6:2013 / EN 61000-4-6:2014	150kHz – 80MHz	150 KHz to 80 MHz outside ISM band,
	2 (3V) / x (6V) (unmodulated, rms) Outside and inside ISM band for Power port	150 KHz to 80 MHz in ISM band (10V RMS)
Surges IEC 61000-4-5:2014+A1:2017 / EN 61000-4-5:2014+A1:2017	±500V, ±1kV (Differential mode)	±1kV (Differential mode)
	±500V, ±1kV, ±2kV (Common mode)	±2kV (Common mode)
Voltage Dips IEC 61000-4-11:2020 / EN 61000-4-11:2004+A1:2017	0% UT, 0.5 cycle, 10ms @ 50Hz	<5% UT (>95% dip in UT) for 0.5 cycle
	(0°, 45°, 90°, 135°, 180°, 225°, 270°, 315°)	
	0% UT, 1 cycle, 20ms @ 50Hz (0°)	
	70% UT, 25 cycles, 500ms @ 50Hz (0°)	
Voltage Interruptions	0% UT, 250 cycles, 5s @ 50Hz	<5% UT for 5 sec

13.1 List of accessories and spare parts:

Sl no.	Item code	Name/ Description
1	MC00057	Multi-purpose backpack (provided as default in delivery package)
2	M000186	Reset-pin
3	E000222	150 W charger for all variants
4	MC00304	Silicon vial- holder multi-stage (slot size to be determined by user)
5	M000001	Latch
6	M000002	Latch Hook
7	M000003	Hinge Right side
8	M000004	Hinge Left side
9	M000266	M3*6 (CSK Philip)(used for latch)
10	M000268	M3*12 (CSK Philip)(used for latch hook)
11	M000015	M4*8(used for hinges)
12	M000267	M3*8 (CSK Philip)(used for charging port)
13	E000076	Charging Port
13	EC00179	Rechargeable Battery

Safe disposal and Recycling of Emvolio



For safe disposal, in order to reduce the effect of the environment the Emvolio and its electronic accessories should not be disposed along with other household waste, please separate these items. Please dispose separately as per Local, Province and country regulations.

For recycling of Emvolio at its end of life, Please contact Blackfrog Technologies Private Limited.

Mobile:+91 7338177246, +91 7338177247

e-mail:support@blackfrog.in

15. Safety information for handling and use of Battery:

Hazards associated with the battery:

- For the battery cell, chemical materials are stored in a hermetically sealed metal or metal laminated plastic case, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use, there are no physical hazards such as ignition, explosion and chemical hazards due to leakage of battery contents.
- However, if exposed to a fire, added mechanical shocks, decomposed, added electric stress by misuse, the gas release vent will be operated. The battery cell case will be breached in extreme conditions and hazardous materials may be released.
- Also, if it is heated, there is a possibility that irritating or harmful gas may be generated.

Human health effects:

- **Skin contact:** The gas released by electrolyte stimulates skin and causes soreness.
- **Eye contact:** The gas released by electrolyte stimulates eyes and causes soreness and inflammation.
- **Environmental effects:** The battery is composed of hazardous material. If disposed off incorrectly, it will damage the environment.

First aid measures:

- **Spilled internal cell materials**

Inhalation:

Make the victim blow his/her nose, gargle. Seek medical attention, if necessary.

- **Skin contact:**

Remove contaminated clothes and shoes immediately. Wash extraneous matter or contact region with soap and plenty of water immediately.

- **Eye contact:**

- Do not rub one's eyes. Immediately flush eyes with water continuously for at least 15 minutes. Seek medical attention immediately.

- **A battery cell and spilled internal cell materials**

Ingestion:

Wash out mouth thoroughly. Do not make the victim vomit, unless instructed by medical personnel. Seek medical attention immediately.

15. Safety information for handling and use of Battery:

Fire fighting measures:

- Suitable extinguishing media: Plenty of water, carbon dioxide gas, nitrogen gas, chemical powder fire extinguishing medium and fire foam.
- Specific hazards: Corrosive gas may be emitted during fire.
- Specific methods of fire-fighting: When the battery burns with other combustibles simultaneously, take fire extinguishing method which correspond to the combustibles. Extinguish a fire from the windward direction as much as possible.

Accidental release measures:

Spilled internal cell materials, such as electrolyte leaked from a battery cell, are carefully dealt with according to the following:

- **Precautions for human body:** Remove spilled materials with protective equipment. Do not inhale the gas as much as possible. Moreover, avoid touching it as much as possible.
- **Environmental precautions:** Do not throw out into the environment. Please dispose according to local regulations
- **Method of cleaning up:** The spilled solids are put into a container. The leaked place is wiped off with dry cloth.
- **Prevention of secondary hazards:** Avoid re-scattering. Do not bring the collected materials close to fire.

Handling and storage:

- Do not let the battery come in contact with water, seawater, drink or acid; or expose to strong oxidizer.
- Do not damage or remove the external tube.
- Do not disassemble or reconstruct the battery; or solder the battery directly.
- Do not give mechanical shock or deform.
- Do not use unauthorized charger or other charging method. Terminate charging when the charging process doesn't end within specified time.
- Store in a cool, dry, well-ventilated area.
- Never use a battery that shows signs of damage.
- Keep the battery pack out of reach of children.
- DO NOT charge the battery below +10°C and above +45°C. This may lead to early degradation of the battery.
- Use WHO/PQS/E007 prequalified voltage stabilizers while charging Emvolio.

15. Safety information for handling and use of Battery:

EXPOSURE CONTROLS / PERSONAL PROTECTION (IF THE ELECTROLYTE LEAKS)

Personal protective equipment

- Respiratory protection: Respirator with air cylinder, dust mask
- Hand protection: Protective gloves
- Eye protection: Goggles or protective glasses designed to protect against liquid splashes
- Skin and body protection: Working clothes with long sleeve and long trousers
- Conditions to avoid: Crushing or deformation, use and storage above specified usage and storage conditions. Usage at a voltage or a current outside the rating and external short circuit.
- Incompatible materials: Conductive material such as water or metal pieces. Oxidizing agent such as bleach.
- Hazardous decomposition products: Irritating or harmful gases are released, if a leakage or fire occurs.

Customer Helpline and Service

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Regional Blackfrog Service Centers

Manipal

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