



The ultra-low temperature Portable freezer is specially designed for Vaccine transportation. It is small in size, light in weight, and the lowest temperature can reach  $-80^{\circ}\text{C}$ . It solves the industry's pain points in liquid nitrogen transportation and makes up for the shortage of liquid nitrogen transportation. The machine has a built-in large-capacity lithium battery options available, which can be used to transport the vaccines without any external power source.

At the same time, the NFC/RFID electronic lock in connection with the IoT to ensure the safety of transported goods. The IoT supports real-time track and trace of machine and operating data, remote control of the machine and export of data, enable user to achieve full control and 15L internal volume, temperature control accuracy  $\pm 3^{\circ}\text{C}$ , ultra-low temperature controlled mobile safe with adjustable temperature range from  $-80^{\circ}\text{C}$  to  $30^{\circ}\text{C}$ , used to transport biological samples such as vaccines, bacterial viruses, blood, human organs, immune medical products and other goods that have extremely high temperature requirements.

### Internal Dimensions

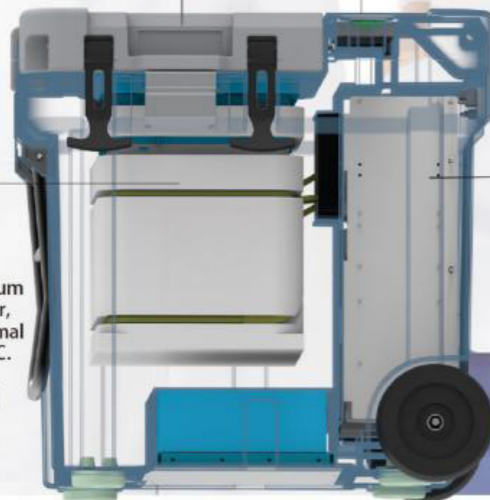


#### Safety guarantee

$\pm 3^{\circ}\text{C}$  temperature control accuracy of the whole box to avoid temperature fluctuation; NFC/RFID digital lock protects your samples in all aspects (this function is optional); Equipped with WiFi digital IOT module or optional 4G LTE + GPS module to achieve the whole process monitoring and alarms (monthly fee is required for 4G service);

#### Cabinet design

Integrated high pressure foam, 20mmVIP (vacuum insulation panel), double layer submersible door, double layer sealing ring, ensure ultra-low thermal leakage, the lowest temperature can reach  $-80^{\circ}\text{C}$ . Inside available volume is 15L, suitable for the transportation of Vaccines. All-metal integrated inside box, proprietary coating technology to ensure liner cleanliness, test tube accessories, so that samples/vaccine temperature no longer fluctuates and transported safely.



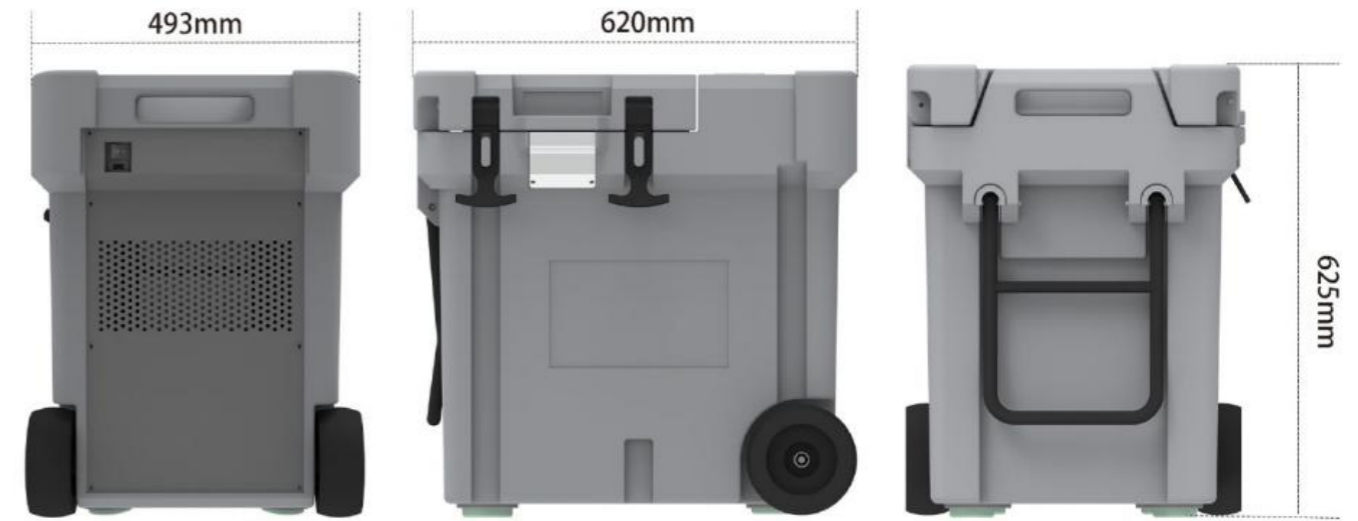
#### Intelligent temperature control

Sampling with laboratory grade PT100 thermo-sensor, ensuring temperature accuracy; Temperature learning algorithm for intelligent temperature sampling at 200 times per second; Intelligent programming mode, program-controlled cooling (Stage mOS version 6 will open this function, which needs to cooperate with the LOTA cloud platform and subsequent OTA upgrades)

#### Cooling System

Advanced Stirling technology, using Cryo S series, Cryo S 100 Stirling refrigerator as the core cooling source. Ultra-low temperature, fast cooling and no fear of bumps and shakes, maintenance free life up to 50,000 hours

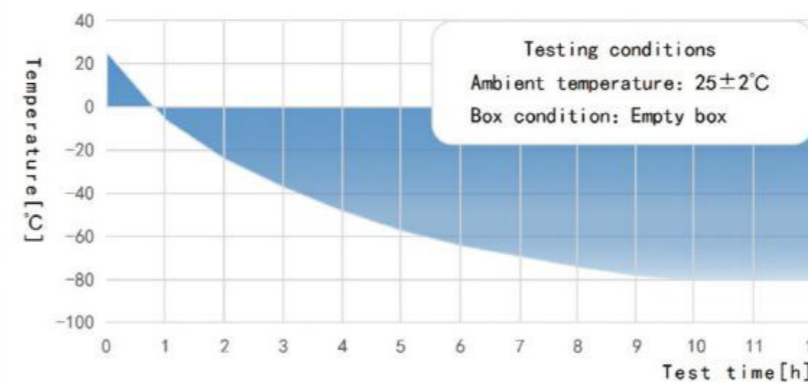
### External Dimensions



### Technical Specification

External dimensions	L620xW493xH625mm
Internal dimensions	L237xW297xH239mm
Capacity	15L
Vaccine Storage	500pcs Vaccine (230*230*40mm)
Weight	32 Kg (Without Battery)
Maximum Power	100W
Operating Voltage	12-30V
Rated Power	80W
Temperature Range	$-80^{\circ}\text{C}$ / $-40^{\circ}\text{C}$ to $30^{\circ}\text{C}$
Built-in Battery	1/4/6 Hours (optional)

#### Refrigeration curve



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## Quick View at Simple operation, friendly interface and equipment running

Values for the INNOVA Portable Cryogenic Freezer parameters are viewed and modified through the UI (User Interface) touch screen. Important changes to the Freezer settings require sustained button pushes, UI have screen lock that helps prevent accidental changes to the settings. Temperature can be set as needed on main screen with a touch. The UI is programmed with default values for most parameters. Unless parameters limits are set manually, machine will work on default values.

### The applicable model and operation

Current program of the freezer is applicable to G-pro driver board and 4.5 inch IPS resistive touch screen. Program version number

### Operation interface description

This program has a total of four operation interfaces: the boot interface, the main interface, the mode setting interface and the user setting interface. Switching between the interfaces is achieved by touching designated keys.

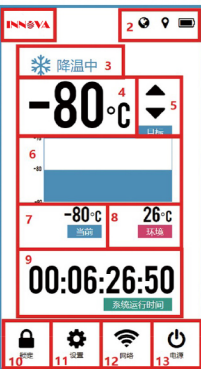
### Operating procedures

#### 1. Boot interface display instructions:

After booting, the touch screen displays INNOVA logo for one second

#### 2. The main interface displays the operation instructions:

This interface consists of 13 parts:



1. Display Logo;
2. Battery level and GPS display;
3. Display current mode (off /cooling/heating)
4. Display the set target temperature;
5. Change target temperature;
6. Temperature curve;
7. Display the current temperature of cabinet;
8. Display ambient temperature;
9. Machine running time;
10. Press to lock or unlock the cabinet door;
11. Press to enter the user setting interface;
12. Press to enter Wifi configuration interface;
13. Press the Power Button to ON/OFF;

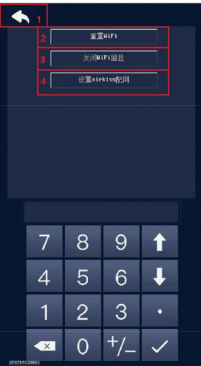
This interface consists of 4 parts:



1. Back button, click to return to the previous interface;
2. Official LOTA page QR code:
  - 1) Scan QR code;
  - 2) Pay attention to the public number;
  - 3) Follow the page prompts after scan;
3. Wi-Fi configuration;
4. OTA upgrade.

#### 3. Wi-Fi configuration operation instructions:

This interface consists of 4 parts:



1. Back button, click to return to the previous interface;
2. Reset the Wi-Fi. Use it when airkiss is stuck or Wi-Fi is abnormal. Click to restore the Wi-Fi configuration to factory settings. Connect USR-215 or USR-126 to the hand held terminal and enter "10.10.100.254" in the browser to configure;
3. Turn off Wi-Fi echo (must click after resetting the configuration);
4. Set up airkiss distribution network (must click after resetting the configuration).

This interface consists of 11 parts:



1. Back button, click to return;
2. Automatic switch button;
3. Turn on the password button;
4. RFID management;
5. Screen display off time, click to set;
6. Brightness setting display;
7. Unpacking times display, showing the current number of times the box has been opened during work;
8. DC voltage, DC current, AC current, power, machine boost command, current temperature and set temperature, T3 hot end temperature, T2 ambient temperature, T4 cold end temperature;
9. Input display;
10. Key pad for input of parameters;
11. Click 5 times on program version to enter factory setting interface.

## IoT (Internet of things) background, escorting high-quality transportation

The ultra-low temperature mobile safe uses built-in battery power. The Stage mOS intelligent control system equipped with anti-fall lock + electronic lock, unpacking alarm, IOT background, GPS positioning and motion sensor to ensure the safety of items used in the freezer. At the same time, Stage mOS has program-controlled cooling and open source programming capabilities. This system can be used as a research and development and experimental equipment to provide ultra-low temperature refrigeration solutions for other industries. Internet of Things platform access our web

### 1. Multiple login methods: mailbox / account / mobile number / WeChat QR code login



### 2. Support Chinese and English languages, Baidu map, Google map switch display



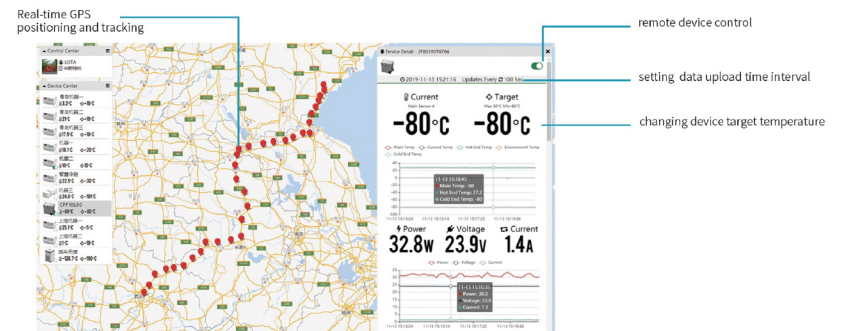
### 3. Users can freely add devices and use device sharing functions



### 4. Remote real-time view of device operation status, current operation / operation records



### 5. Remotely control the power on / off of the device, change the target temperature of the device, set the time interval for device data upload, real-time GPS positioning and tracking, etc.



### 6.The IoT platform supports computer/mobile phone access, both of which can be used for information viewing and remote control.

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