

OVIS **BY** **FORWARDX**

User Manual

Note: This manual only contains information about the product and its functions as well as how to use it.

Thank you for choosing FORWARDX OVIS smart suitcase.

Please read through this user guide before using it. To get warranty service, please follow the instructions, notices and warnings in this manual. Damage caused by misuse may not be covered by warranty.

Please keep this manual and your warranty card well.

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I. About the Product

i. Introduction

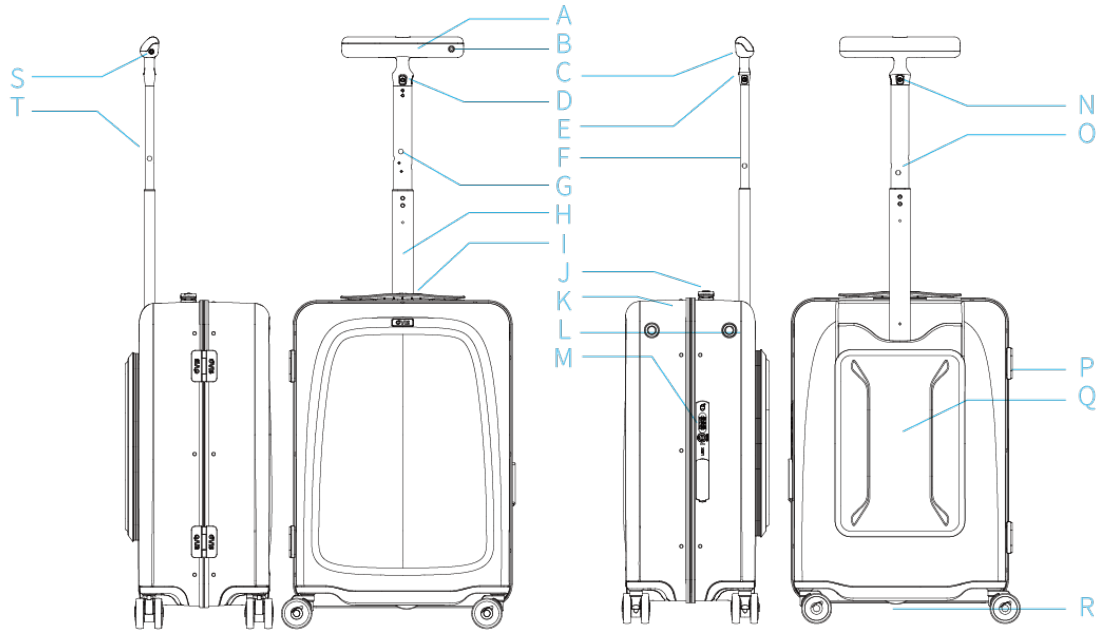
OVIS smart suitcase is the world's first side-follow carry-on suitcase, designed by ForwardX. Designated as a personal smart robot that knows you the best in travelling, OVIS is expected to give you the greatest experience with our efforts on ergonomics.

There are five highlight functions of OVIS. First, side follow & obstacle avoidance: As OVIS follows you on your right side, it is always in your view. And its autonomous obstacle avoidance technology keep you and the suitcase safe. Second, easily switch between follow and manual mode: You can easily switch between follow and manual mode by touching the lever handle. Third, anti-lost smart alarm: Both OVIS and the wrist band will alarm you when your OVIS is away from you. Fourth, camera & remote control: Record the wonderful moments in your travel. Fifth, removable battery & mobile charger: The battery of your OVIS can easily be removed and can also function as a mobile charger with two USB charging sockets.

Furthermore, OVIS is even friendlier than you expect due to its safety, large storage space and flexibility. Your stuff is well protected in OVIS suitcase because it is made by Bayer PC with the frame made by aluminum alloy that is usually used in the aviation industry. And with TSA code lock, OVIS is free from violent security check. There are 5 layers of storage area in your OVIS, providing you 32L storage space. And your OVIS adapts to various road surfaces due to its wear-resistant and noise-reducing hubs. What's more, you can enjoy multiple experience with its GPS localizer (selective) and customized APP. Explore the new world with your OVIS.

ii. Components and Accessories

1. Components

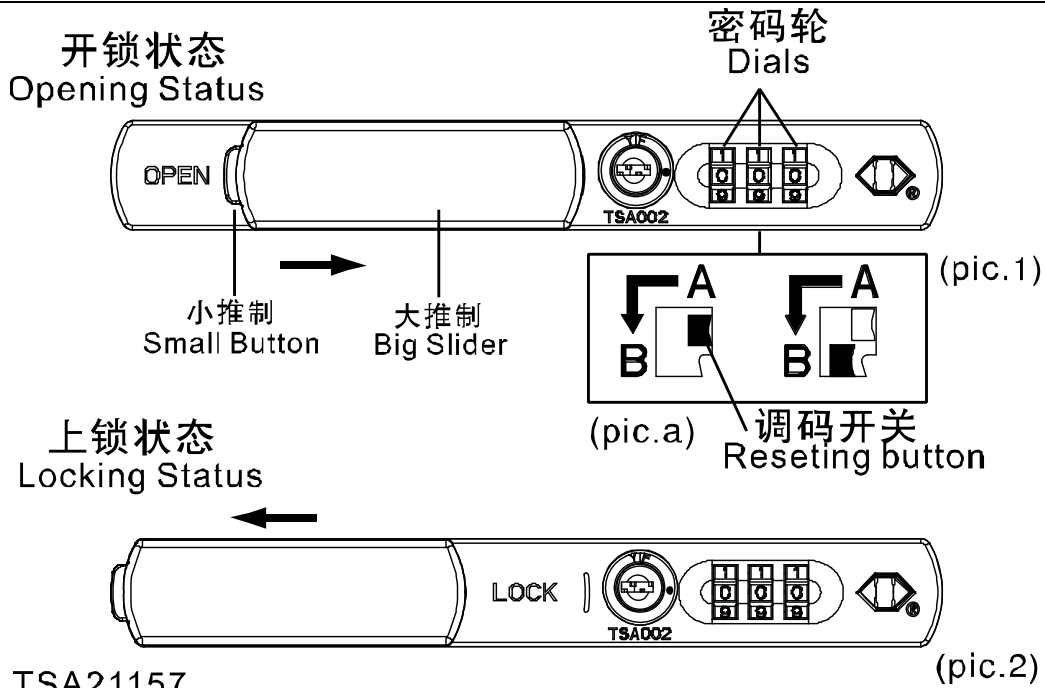


- | | | |
|------------------------|---------------------------|------------------------|
| A. Lever Handle | H. Lever | N. C-side Track Camera |
| B. Power button | I. Handle on the Suitcase | O. C-side Track Sensor |
| C. UVC Camera | J. Aluminum Frame | P. Rear Hinge |
| D. A-side Track Camera | K. Case | Q. Attached Bag |
| E. B-side Track Camera | L. Follow Sensor | R. Smart Drive Wheel |
| F. B-side Track Sensor | M. TTSA Code Lock | S. D-side Track Camera |
| G. A-side Track Sensor | | T. D-side Track Sensor |

(Note: Please do not stare at the LiDAR directly by naked eyes)

2. TSA Lock

Instructions:



The original number is 0-0-0. Please reset your own combination by the following steps:

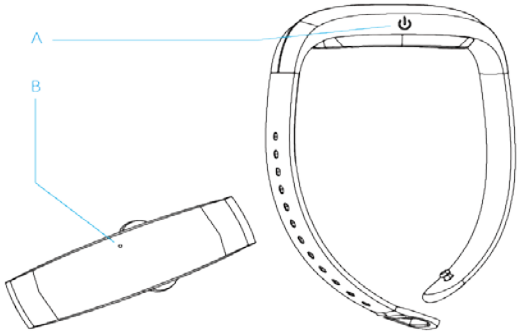
1. Push the resetting button from A to B (pic. a). Then set your own combination by turning the dials, e.g. 666 and record this code in the code book on APP.
2. Push the resetting button back to A and the resetting is completed.

How to open/ lock?

1. Set to your correct combination. Follow the arrow direction, push the small button together with the big slider to the end to open the lock. The word “OPEN” will be seen.
2. Follow the arrow direction. Push the big slider to the end, set your combination to random to lock it. The word “LOCK” will be seen.

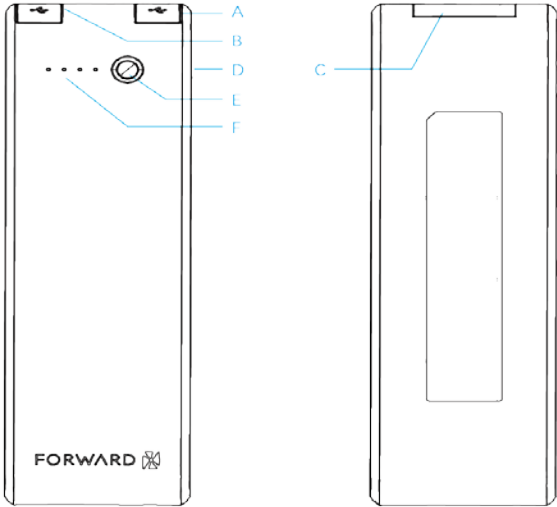
Notice: TSA Lock can be unlocked by U.S. Transportation Security Administration with TSA key to perform security check on transit suitcase and goods. This feature is not open to users, therefore ForwardX doesn’t provide TSA key.

3. Wrist Band



- A Power button of the wrist band
- B Indicator

4. Battery



- A USB-OUT A
- B USB-OUT B
- C Power Socket
- D Charge Socket
- E Battery Button (Press to check its electricity)
- F Battery Indicator

II. Quick Start

Have you checked your OVIS? Start your wonderful experience:

i. Unpacking your OVIS

There is a disposable seal on the box (if the seal is damaged, please refuse to accept the product).

Please open the box following the steps on the seal. You will see the user manual in the box. Please read through the manual to learn how to use your OVIS.

Please scan the QR code on the manual to see the quick guide.

ii. Quick Start

1. Please press the TSA lock button (the original code is 000) to open your OVIS according to the video. And then put your OVIS on the ground.
2. First, please set your own TSA lock code and record it on your APP.
3. Open the accessory box to check all the accessories including battery, charger, wrist band and wash bag etc. Check the battery of wrist band and your OVIS (charge them on time).

How to check the battery of your wrist band: Press the power button of the wrist band for several seconds. If the indicator turns red and breaths, please charge the wrist band. While charging, the indicator will turn orange in breathing. If it is fully charged, the indicator will turn to constant orange.

How to check the battery of your OVIS: Press the battery button for several seconds. If only one indicator blinks in red, please charge the battery. While charging, the indicators will remind you the battery status by breathing or blinking. If the battery is fully charged, all indicators will light constantly.

Close your OVIS and lock it. Open the rear bag, assemble the battery on the right side and connect the line. Put the wash bag on the left side. Put the GPS module in the small bag down the left side. GPS and wash bag are selective.

Wear your wrist band on your right hand and pull the lever to the highest position.

Now you can start your journey with OVIS!

iii. **Autonomous Follow and Obstacle Avoidance**

1. **Start & Connect**

Press the button on the lever handle for 3 seconds till the LED light indicates blue to start your OVIS. Then, press the button on the wrist band for 3 seconds till the LED light becomes blue and blinks to start the band.

After starting the wrist band, the LED light on your OVIS also starts blinking, indicating that your OVIS is being automatically connected with wrist band. When they are connected, both LED lights become breathing in blue.

2. **Autonomous follow**

Press the button on the lever handle or wrist band for several seconds to start follow function and the LED light on the lever handle become breathing in green (It's normal that the hub would make some noise and the height of the case would change slightly when OVIS is started.)

3. **Indicator Light-off Mode, please set it on APP.**

4. **Switch between manual and follow mode**

While following, hold the lever handle and the LED light turns from green to blue, indicating that follow is stopped.

OVIS is switched to manual mode when the driving wheels arise (It's normal that the hub would make some noise and the height of the case would change slightly when the mode is switched).

In manual mode, press the button on the lever handle for several seconds or press the button on your wrist band, and your OVIS will switch to follow mode again.

5. **Fail to start autonomous following**

If you fail to start follow function according to the instructions in 2.2, please walk

to your OVIS and press the button on lever handle or wrist band again to restart the follow function.

If you still fail to start the follow function, please try again with your wrist band close enough to OVIS.

If you fail to start this function for several times and the LED indicator is in constant red, please turn to your APP for help.

6. Safety Alarm

Safety Alarm

OVIS and the wrist band will automatically alarm if your OVIS is about 2.5m away from you in following mode or about 5m away in manual mode (indicator blinks in red + wrist band vibrates + OVIS makes alarm sound).

Cancel Alarm

Please walk to your OVIS. If you are within 2.5m around it, it will automatically cancel alarm and return to follow mode.

If the alarm is not canceled when you are within 2.5m around it, please double-press the button on wrist band to cancel alarm manually.

APP Settings

You can set the alarm time in your APP and then OVIS will alarm you as the war you set.

Set alarm time:

- a. Alarm 1 minute later when OVIS is out of safety distance
- b. Alarm 3 minutes later when OVIS is out of safety distance
- c. No alarm this time.

7. Power Off

Press the button on lever handle for 5 seconds till the LED indicator lighting off and you have switched your OVIS off. Press the button on wrist band for 5 seconds till the LED indicator lighting off and you have switched your band off.

8. Low Battery

When the battery of OVIS is low:

First Remind: When the indicator on lever handle breaths in red, your OVIS is in low batter and may follow you for 15 minutes.

Second Remind: When the indicator on lever handle lights off, your OVIS battery is running down. OVIS will gradually stop and the drive wheels will move back. OVIS will make sound alarm for 5 seconds and your wrist band will keep vibrating.

When the battery of wrist band is low:

First Remind: When your wrist band is in low battery, the band will keep vibrating and the indicator will breathe in red.

Second Remind: When the battery of your wrist band runs down, the band will keep vibrating.

III. OVIS APP

i. APP Introduction

Please scan the QR code to install OVIS APP and start your new experience:



You can check the status of your OVIS through the APP and use remote control, shooting and other cool functions. OVIS APP can also diagnose your problems in using and solve them.

You may be subject to the risk that others may connect with your OVIS by APP if you don't connect your OVIS with the APP. And you can only use the following functions with the APP: video guide, troubleshooting, remote control, photography, album, GPS and footprint, TSA code record.

ii. Major Functions

The APP needs to be upgraded continuously, please understand. For function descriptions, please refer to the latest information released by ForwardX.

IV. OVIS LED Status, FAQ and Specifications

i. OVIS LED Status

1. Normal Situations

Operation	Instruction	Lever handle light status	Wrist band light status
Start OVIS	Press the button on the lever handle for 3s.	Blue, constant	/

Start wrist band	Press the button on the wrist band for 3s.	/	Blue, blink
OVIS and wrist band automatically connecting	/	Blue, blink	Blue, blink
OVIS and wrist band connected	/	Blue, breathing	Blue, breathing
Switch to Follow Mode	Press the button on the lever handle or wrist band for several seconds.	Green, breathing	Green, breathing
Switch to Manual Mode	Touch the lever handle or press the button on handle for several seconds.	Blue, breathing	Blue, breathing
Switch Remote Control Mode			

2. Abnormal Situations

Problem	Lever handle status	Wrist band status	Solution on the APP
Follow Failure	Constant red light	Constant red light & Vibrating	1. Remind Severe Problem by pop - up window 2. Show the solution in User Guide
Connection Failure	Constant red light	Constant red light	3. Enter the interface of FAQ 4. Enter the interface of customer service
Loss Alarm	Red light blinks & audible alarm	Red light blinks & Vibrating	1. Remind alarming by pop - up window 2. Cancel alarming manually

ii. FAQ

Question	Possible Problem	Solution
OVIS cannot be started?	Check whether the battery is connected and the electricity of battery.	Press the button of battery to check the electricity. Charge the battery if it runs down.
The wrist band cannot be started?	Check its battery.	
Cannot enter follow model?	The lever is not correctly placed.	Pull the lever to the highest position.
	You may not wear or start the wrist band.	Wear your wrist band and start it. The LED on both wrist band and lever should indicate blue and be breathing.
OVIS fails to follow you while following?	OVIS can avoid obstacles but it may be blocked if there are too many obstacles.	Pull OVIS away from obstacles.
	You may have pressed the button on wrist band accidentally.	Double-press the button on the wrist band and following will be stopped.
	You may have hold or touched the lever handle.	OVIS will switch to manual mode right after you hold the lever handle. Therefore please do not touch the lever handle when you want it to keep in follow mode.

OVIS is following you in your back sometimes?	Normal obstacle avoidance.	No need to worry.
Wrist band is vibrating and the LED is in constant red?	OVIS or wrist band is of low battery and may stop following right away.	Open the APP to check the battery of OVIS and wrist band. If the battery runs down, please charge it. OVIS will stop following automatically if the wrist band is switched off.
Wrist band is vibrating and the LED blinks in red?	OVIS is out of safety distance.	Please find your OVIS and keep it in safety distance. You can press the button on your wrist band, and OVIS will come to you if there are not many obstacles and stop alarming. If there are too many obstacles, please walk to your OVIS and keep in safety distance. If the wrist band is still alarming, please press the button on your wrist band for three times quickly and continuously to cancel alarming.
	OVIS falls.	Raise your OVIS and starts following again.
LED on both smart hand and OVIS blink in red?	The function of firmware is abnormal.	Please open the APP and check the problems following the instructions. If you cannot solve the problem, please contact the customer service via APP.
Cannot switch off your OVIS?	You may haven't pressed the button for enough time.	Please press the button on lever handle for at least 5s.
LED on both wrist band and	Your wrist band is not connected with	Please restart your OVIS and wrist band and put them as close as possible.

your OVIS show white?	your OVIS.	
Your OVIS is lost?		If the GPS module works, you can find the location of your OVIS in the APP.
The wrist band is lost?	You cannot use the follow function.	Please buy a new wrist band through the APP. Connect your new wrist band with your OVIS according to the instructions on APP when you receive it.
GPS doesn't work on APP?	Check whether the GPS module is started or whether it's of electricity.	Charge the GPS module and start it.
How to update the firmware?		Update it according to the instructions on APP.
Fail to update the firmware?		Restart your OVIS according to the instructions on APP.

iii. Specifications & Parameters

The specifications and parameters are subject to change as we updates the product. Please understand. Please download the latest version from the website of ForwardX: www.forwardx.com

Use Environment	Working Temperature (°C)	0~40°C
	Waterproof	Splash proof
Specification	Size (CM)	55*38*23
	Volume (L)	32
	Weight (KG)	5.9 (Battery and accessories excluded)

	Capacity (KG)	20 (including the case)
	External Material	PC aluminum magnesium alloy
	Internal Material	Polyester Fiber
Battery of OVIS	Rated Capacity (mAh)	5200
	Rated Energy (Wh)	93.6
	Nominal Voltage (V)	18
	Battery Type	Li-ion Battery 5S2P
	Charge Temperature (°C)	0 ~ 45
	Recharge Temperature (°C)	-20~60
	Limited Charge Voltage (V)	21
	Endurance Mileage (km)	20
OVIS Battery Charger	Replaceable Plug	Adapt to the usage in U.S., Australia, Europe, UK and China
	Input	100-240V 50/60HZ 1.5A
	Output	21V 2A
Wrist band Specifications	Rated Capacity (mAh)	120
	Rated Energy (Wh)	0.44
	Nominal Voltage (V)	3.7

	Battery Type	Li-ion Polymer
	Charge Temperature (°C)	0 ~ 45
	Recharge Temperature (°C)	-20 ~60
	Limited Charge Voltage (V)	4.2
	Endurance Mileage (min)	
Wrist band charging line(need to use with a suitable charger)	Charger Interface Type	Magnetic Interface 2pin
	Input	5V
	Output	5V
Connection	Bluetooth	BLE4.0 & above version
	Wi-Fi	IEEE 802.11 b/g/n (support 2.4G frequency band)
Camera	Lens	FOV72°
	Aperture	f/2.8
	Image Resolution	2592*1944
	Mode	Shooting Continuous Shooting (2-15 photos) Delayed Shooting HD Video Shooting
	Video Resolution	Maximum: 2K@30fps After image stabilization: 1080p@30fps
	Storage Form	Image: JPG

		Video: MP4 (MPEG- 4 AVC/H.264)
App	App Name	OVIS APP
	Real-time Picture Transmission	1280×720@30fps
	Time-lapse	0.11S (Depend on the real shooting environment and mobile device)
	Mobile device operation system	Android 4.3 & above iOS 8.0 & above

V. Safety Guideline and Legal Statement

i. Notices

1. Please do not use the lever handle to lift your OVIS. Different from traditional suitcase, the lever of OVIS is equipped with a lot of electronic components and may be damaged by strong external force. Damage caused by strong force is not covered by our warranty policy and you may need to pay for the repair.
2. Please lift your OVIS using the case handle when climbing stairs or steps, otherwise your OVIS may be turned over or damaged.
3. Please put your OVIS down on the ground when it's on moving cars, in uneven or incline places, otherwise your OVIS may be turned over or damaged.
4. Please use manual mode in crowded environment to avoid damage or collision.
5. Do not put your OVIS in humid, airless or strongly acidic environment. Please dry your OVIS in time if it gets wet. Do not put your OVIS in high temperature or close to smoke and fire.
6. Do not use lacquer thinner, benzene or other corrosive solvents to wipe your OVIS.
7. Please be careful when closing your OVIS not to get your body or clothes bitten by the aluminum frame or lock.
8. Please keep the battery in dry environment. Keep the electricity of battery

higher than 50% if it's unused for a long time (longer than three months).

9. Do not put liquid in your OVIS in case the liquid leaks out to cause short circuit in your OVIS.
10. Do not drag your OVIS violently in case the drive wheels may be damaged.
11. Please do not sit or stand on your OVIS to play.
12. Please do not put valuable stuff in your OVIS, especially in the attached bag.
13. Please pay careful attention to your OVIS in follow mode. Due to complex environment, your OVIS is subject to the risk of following stopped or following wrong target. ForwardX assumes no responsibility for product loss or damage.
14. Please use your OVIS in the environment with temperature between 0°C and 40°C, otherwise your OVIS may not work normally.
15. Please use your OVIS in the environment with humidity between 0% Rh and 75% Rh, otherwise your OVIS may not work normally.
16. Please use only the enclosed accessories and components (including but not limited to battery, wrist band, and wrist band charging cable, power adapter and plug adapter). If the enclosed accessories or components are damaged or lost, please contact with our after-sale service. Please do not use accessories and components provided by any third party, otherwise the product's performance or even the product may be damaged and cause danger.
17. The Short Range Wireless Communication function of OVIS is compliant with the standards related with data transfer security. Any damage or modification of the system parameters may cause product defect or even danger.

ii. Warnings

OVIS is not a toy. Please use it in accordance with this manual. Do not let children use OVIS alone. And please pay attention when you use OVIS around children.

1. The product contains many sophisticated electronic components. Please do not throw it violently. You are highly recommended to take it with you on plane

instead of commissioning.

2. Do not disassemble, attack, squeeze the battery or put it in fire or water. Do not use it if the battery is soaked.
3. Do not expose the battery to corrosive substances. Keep the battery away from fire and heat source. Do not use the battery if it severely bulges.
4. Please use only the power adapter for this product. Other power adapters may damage the product or even cause fire. Damage caused by other power adapter is not covered by the warranty policy.
5. Please clean the dust on the plug timely. Dust may cause fire in humid environment.
6. Do not damage, bend or bind the power cable. Do not put heavy things on the power cable or expose it to over-heating environment. Otherwise you may cause fire, electric shock or product damage.
7. Do not connect or disconnect the power adapter by wet hands. Otherwise you may cause electric shock or product damage.
8. Do not plug foreign object in the USB socket, high-voltage charge-discharge socket or any other socket of OVIS. Metal or other foreign object plugged in the socket may cause product damage, fire or electric shock.
9. Do not disassemble the battery or any of its components.
10. OVIS is compliant with Class 1 Laser Safety Standards. However still do not look directly at the LiDAR by naked eyes.
11. Your OVIS is equipped with camera. Please shut it off when it may damage privacy or you don't get permission. Do not use the camera illegally.
12. Please obey the aviation laws and rules in different countries especially the rule that the battery should be taken out before checking in your OVIS.
13. Please obey laws and rules in different countries or regions when using the product.

iii. Disclaimer

Please read through this manual and disclaimer carefully before your first use. The information in this document affects your legal rights and responsibilities. Failure to follow the safety instructions in this manual may result in property loss, safety accidents or personal injury. By using this product, you hereby signify that you have read this disclaimer carefully and that you understand and agree to abide by the terms and conditions herein. You agree that you are solely responsible for your own conduct while using this product and for consequences thereof. You agree to use this product for purposes that are proper and in accordance with all terms, policies and guidelines that ForwardX has made or may make available.

ForwardX accepts no liability for damage, injury or property loss incurred directly or indirectly from the use of this product. The user shall understand and observe including but not limited to the operation instructions in this manual.

The company is not liable for any indirect, special, punitive, incidental or consequential damages and losses (including not limited to profit loss, indirect loss, incidental loss, data loss, taxes or other economic benefits loss).

This manual contains as many features of the product as possible when printed. However it is still subject to changes since we are continuously improving the product features and design. You may find the features in this manual inconsistent with the product you purchased, please understand. ForwardX reserves the right to update this manual and disclaimer.

This manual applies to the laws of the People's Republic of China. Disputes arising from this manual or the products of the company shall be settled through negotiation. If negotiation fails, the dispute shall be subject to litigation in the People's Court in the locality of the company.

iv. Intellectual Property Rights

All rights are reserved by ForwardX. All of the texts, graphics, photographs and

graphic design, trademark, brand, product name and other intellectual property rights in this manual are owned by ForwardX and subject to legal protect. No part of this manual shall be duplicated for commercial purposes, publish or usage in other websites with modification. Some graphic contents in this manual are owned by third parties, whose rights are recognized by ForwardX.

No one shall use the name, brand, trade mark or patent of ForwardX in any way without prior authorization in writing from THE COMPANY.

All product information and technologies are owned by ForwardX, except for those cited by other parties. No part of this content may be reproduced, distributed, reprinted, etc. or used in any way without prior authorization in writing from THE COMPANY.

v. Federal Communication Commission Interference Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that

to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution:

- Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
- This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

vi. Industry Canada statement

- ❶ This device complies with Industry Canada license-exempt RSS standard(s).
Operation is subject to the following two conditions:
 - 1) this device may not cause interference, and
 - 2) this device must accept any interference, including interference that may cause undesired operation of the device.

- ❶ Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:
 - 1) l'appareil ne doit pas produire de brouillage, et
 - 2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

- ❷ This Class B digital apparatus complies with Canadian ICES-003.

- ❷ Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

- ❸ This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter, except tested built-in radios.

- ❸ Cet appareil et son antenne ne doivent pas être situés ou fonctionner en conjonction avec une autre antenne ou un autre émetteur, exception faites des

radios intégrées qui ont été testées.

- ④ The County Code Selection feature is disabled for products marketed in the US/ Canada.
- ④ La fonction de sélection de l'indicatif du pays est désactivée pour les produits commercialisés aux États-Unis et au Canada.

Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.