Vehicle Chassis Inspection Robot
Operation Manual

COANTEC CDC-100 Series

Please read this Manual before using the robot

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Contents

1. Notices to Users

1.1 Purpose and scope of application

The CDC-100 series vehicle chassis inspection robot is a professional HD video inspection device. It uses an 8.8-inch Android touch screen as the remote console. Its video inspection robot is equipped with visible light/infrared thermal imaging camera/laser radar/TOF range sensor and special control and video transmission modules for wireless remote control and video inspection, making the product suitable for remote inspection of different types of vehicles and performing tasks such as explosive detection, security check, reconnaissance and construction inspection.

1.2 Maintenance and modification

Do not attempt to remove, modify or repair the product as there are no parts or components to be repaired by users themselves. The Company will not assume any liabilities for any damage or losses caused to users by the said acts. The repair services for the product will be solely provided by the Company and its authorized distributors.

1.3 Safety precautions

When using the product, observe the following precautions to avoid accidental injury or equipment damage caused by improper use.

① Keep the product in an open area or far away from sources of information interference as far as possible to achieve the best performance.

② Do not violently twist the robot camera module to avoid damage to internal structural parts.

③ Do not look closely at the harsh glare at the front of the direct-view probe to avoid impairing your eyesight.

④ Be careful when using the equipment in environments with standing water or moisture as it just has simple protection features.

⑤ The image may get blurred if the lens is stained. Wipe it clean with a piece of dust-free cloth dipped in a little alcohol before use.

⑥ Keep the equipment away from high-temperature, hot and corrosive fluid.

⑦ Clean the equipment immediately after it is used.

⑧ Do not leave the lights on for a long time as exceptions such as color patches may occur to the camera due to high temperature.

⑨ Keep the robot camera module from being unobstructed as it is a rotating moving part.

⑩ In case that any exception occur to the equipment, stop observing it and contact the manufacturer or distributor promptly.

2. Operational Guidance

2.1 Package, keys and interface functions

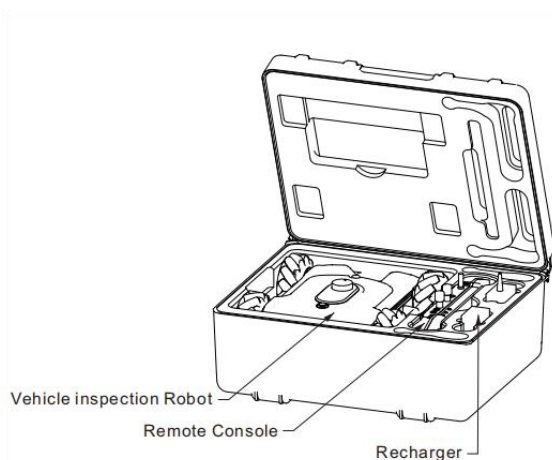The CDC-100 series vehicle chassis inspection robot is packaged as shown in Fig. 1.

Fig. 1

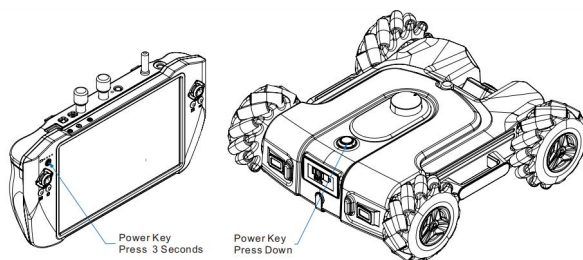The power keys of the remote console and the vehicle inspection robot are as shown in Fig. 2.

Fig. 2

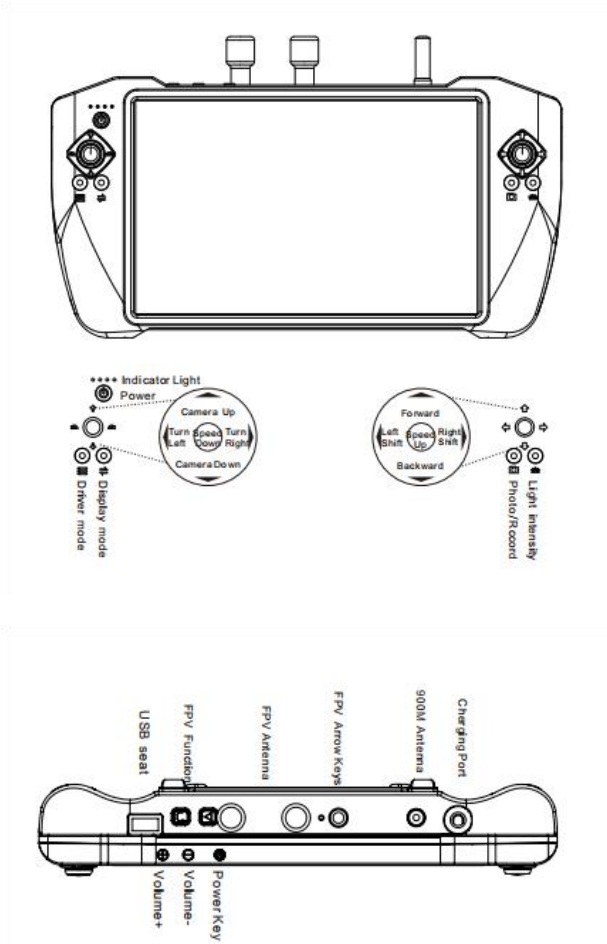The operation keys of the remote console are as shown in Fig. 3.

Fig. 3

2.2 Power-on and use

Take the vehicle inspection robot and remote console from the package and press and hold their power keys. The functions of each part are shown in

Fig. 4. After the robot is powered on, the rear red indicator light flashes slowly and the robot enters the pairing mode. The rear coulomb meter indicates the current voltage and battery level. Charge the equipment if the battery level is low.
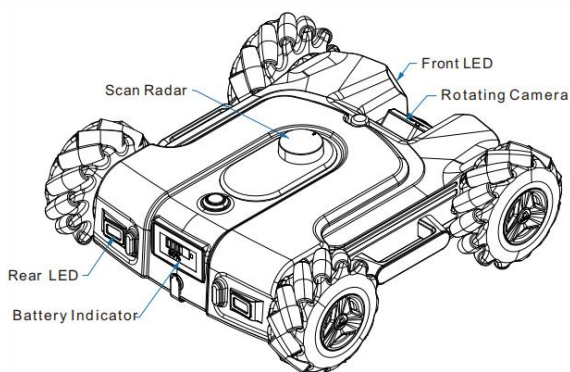

Fig. 4

To power up the console, press and hold the power key for 3 seconds and wait for about 10 seconds to start the Android system. Then the 4-segment battery indicator of the remote console at the upper left corner will be on. When the battery indicator shows one bar, it indicates that the battery level is less than 25% and the equipment needs to be charged. To connect the robot, start the "Vehicle Chassis Inspection" APP as shown in Fig. 5:

Fig. 5

The USB connection information will pop up twice after launching the APP. Just click OK, as shown in Fig. 6 and Fig. 7.
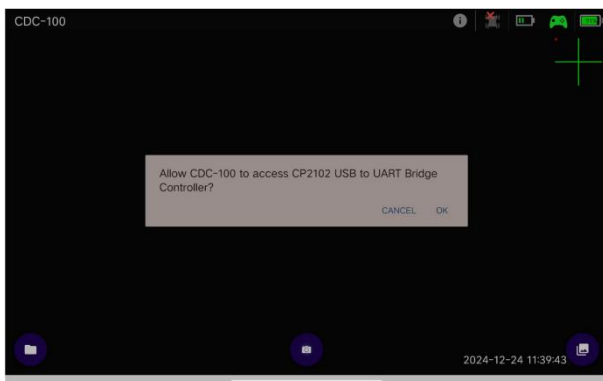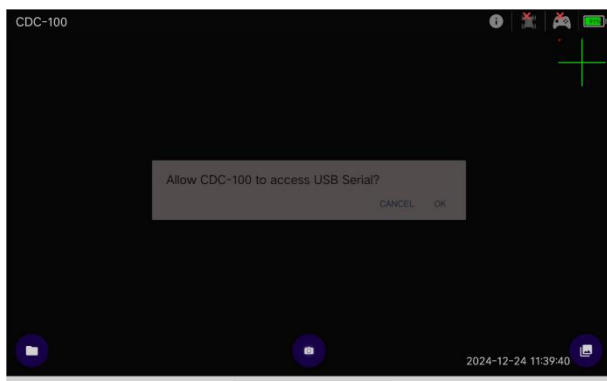

Fig. 6

Fig. 7

Fig. 8

You can enter the software screen after tapping OK and operate after the video transmission module and the remote console are properly connected. Upon successful pairing, the front and rear LED indicator lights are always on and the software screen is as shown in Fig. 9(tap the icon or the corresponding function key to operate):

Tap to view software and driver information and joystick calibration operation

Auto avoidance status Tap to enable/disable

Grid line Tap to enable/disable

Console battery level

Robot travel speed adjustable speed of 10 ~ 90

CDC-100

Current camera angle display

Current light intensity display (5 levels)

Robot power level and status

Car license plate function status

Three display modes (tap to switch)
1-Full-screen visible light
2-Full-screen visible light + thermal imaging window
3-Half-screen thermal imaging + half-screen visible light

Handlebar power level and status

Call system library

Photo and video recording and operation information prompt

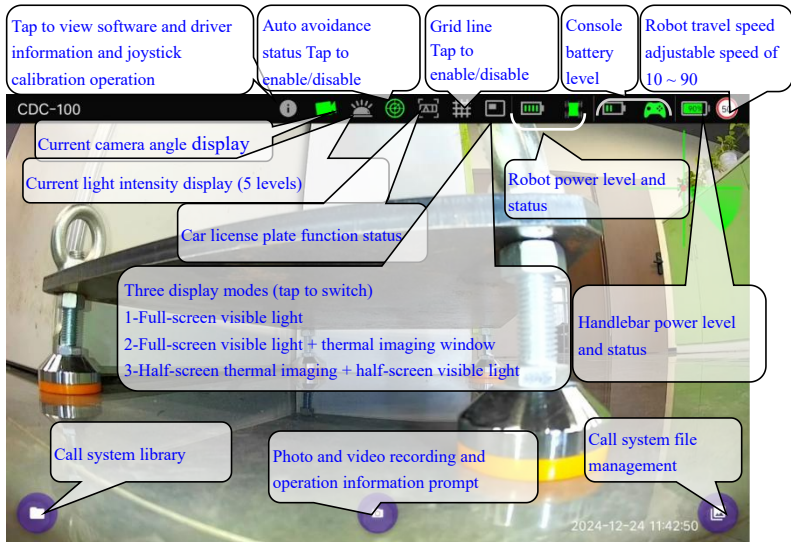Call system file management

2024-12-24 11:42:50

Fig. 9

In the case of no image display in the thermal imaging camera, the main reason may be that the automatic connection of the 2.4G thermal imaging camera WIFI fails, and manual connection is required. The specific operation is as follows: exit the software, go to WIFI settings of the system for connection, as shown in Fig. 10 (note the WIFI scanning time, connection password: CDC12345678), and finally, restart the software and reload it (the image display failure may also be caused by connecting WIFI without fully exiting from the APP for reloading). After successful connection, the thermal imaging camera displays properly, as shown in Fig. 11 and Fig. 12.
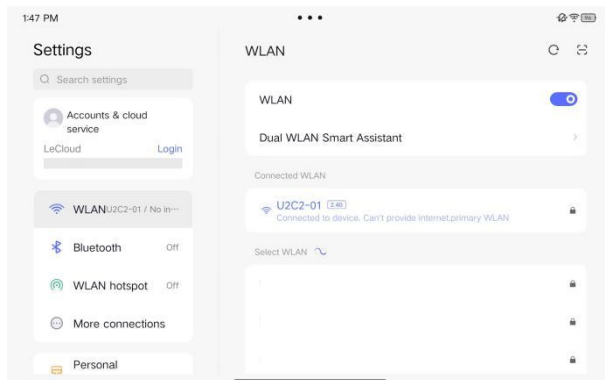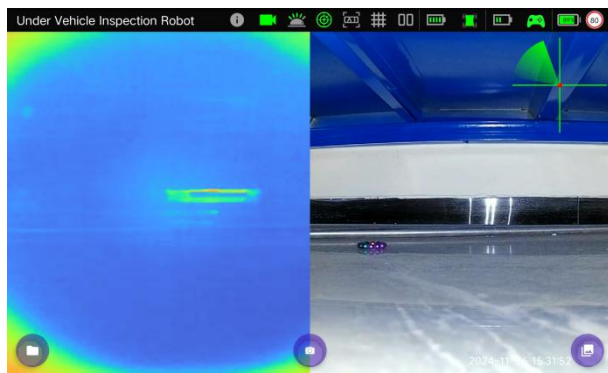
Fig. 10

Fig. 11

Fig. 12

2.3 Operating instructions

2.3.1 Speed control

You can select the appropriate speed gear by pressing the left and right control keys (as shown in Fig. 13). The speed is 50 defaulted by system, 50～60 for normal use, 80～90 for quick operation, and 20～30 for close observation.
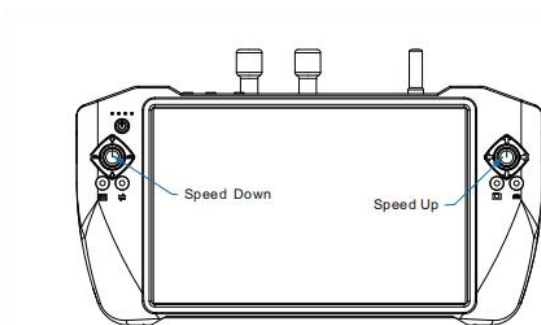

Fig. 13

2.3.2 Camera angle adjustment and function module activation

The camera angle can be adjusted by operating the Camera Up and Camera Down keys on the left of the console and the robot angle can be adjusted by operating the Turn Left an Turn Right keys on the left of the console (the rocker supports throttle mode, that is, controlling fast and slow motion by changing the amplitude of rocker movement).

An appropriate display screen can be switched by touching the status bar icon or clicking the display switch key. By touching the status bar icon, you can adjust the light intensity,determine whether the radar obstacle avoidance function (needs some time to make response and recommended to be used at a speed of less than 60), car license plate recognition function, and auxiliary line function are enabled(as shown in Fig. 14).

Fig. 14

2.3.3 Motion control

The robot can be controlled to move forward, downward, left shift and right shift by operating the right rocker to move up, down, left and right (the rocker supports throttle mode, that is, controlling fast and slow motion by

changing the amplitude of rocker movement).

When controlling the robot to move forward or backward, immersive image-guided operation is enabled through controlling the steering of the robot while it is traveling by moving the left rocker to left and right and together with the camera.

2.3.4 Photo and video recording and gallery and file operation management

You can complete operations such as photo and video recording, opening the gallery to view photos or video files, and operating and managing files by tapping the function icons at the bottom of the touch screen, as shown in Fig. 15 and Fig. 16.
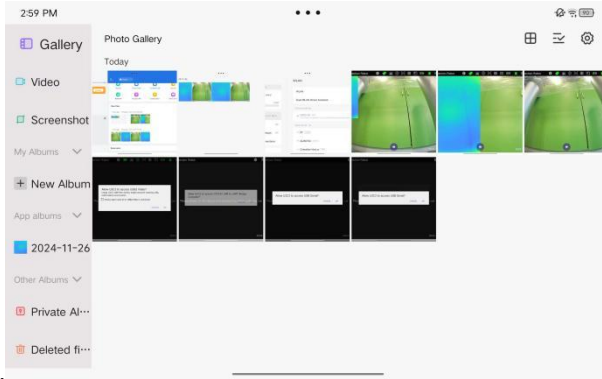

Fig. 15

Fig. 16

2.3.5 Joystick Calibration Operation

If the joystick operation is incorrect or the Vehicle Inspection Robot continues to move after centering during use, it may be due to inaccurate or lost joystick position calibration information. In this case, re-calibration of the joystick is required. Enter the information page from the app's status bar and click on "Calibrate Joystick". On the operation page, push both joysticks to their maximum in all four directions to let the system detect the maximum values of the joystick in all directions for automatic calibration, as shown in Fig.17 and Fig.18.

(Note: When operating the joystick in calibration mode, the Vehicle Inspection Robot will not move.)
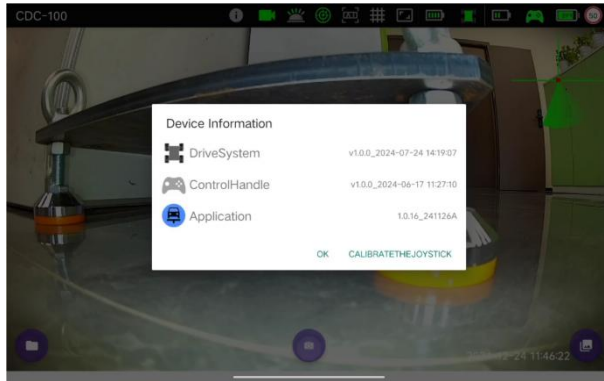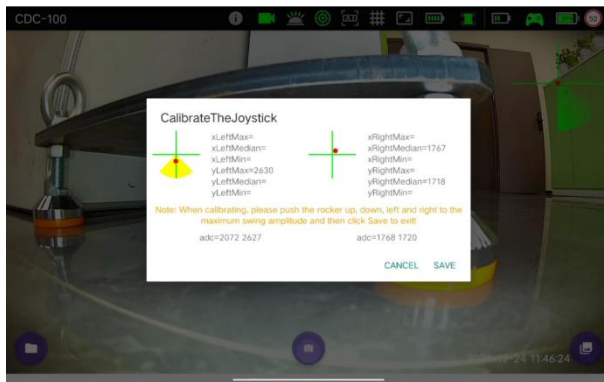
Fig. 17

Fig. 18

2.4 Power off

Press and hold the power key on the console for 3 seconds and to display the power-off/restart option. Select power-off and you can power off the console.As shown in Fig.19.

The robot is powered off by pressing the power key of the robot. After power-off, all lights and indicators will be off.
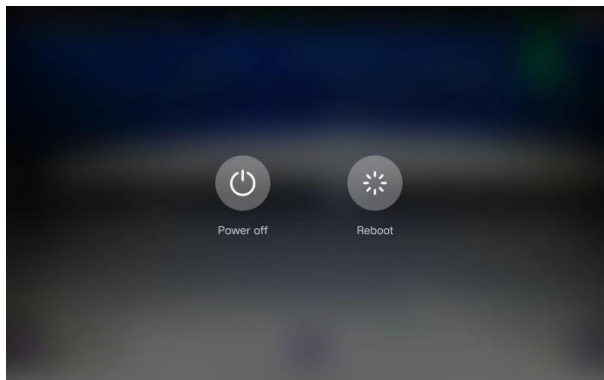
Fig. 19

Make sure that both the robot and the remote console have been completely powered off (failure to do so may cause battery loss, affecting normal use of the equipment) before putting them back into the packing case according to the liner slots.

2.5 Charging

The vehicle inspection robot is charged by 25.2V 3A charger for 6 series lithium batteries, with the charging port being DC5521 (incompatible with the charging port of the console).

The remote console is charged by 15V 6A DC power adapter, with the port being DC5525 (incompatible with the charging port of the vehicle inspection robot).

3. Basic Configuration

Standard configuration: instrument case*1, vehicle inspection robot*1,

remote console*1, charger*2 (for robot and remote console), user manual*1.

4. Storage and Maintenance

① The equipment must be kept horizontally in a clean, dry and stable place and maintained at regular room temperature;

② Do not keep the equipment in high-temperature, high-humidity, strong-light, strong-vibration, high-dust, polluted or corrosive environments.

③ Keep the equipment from colliding with other objects when it is stored;

④ To avoid over-discharge of the battery, fully charge the battery immediately after it indicates low battery before continuing to use it.

⑤ To avoid over-discharge and failure of the battery, take out the battery if the equipment is not in use for a long time.

5. FAQ Guide

Fault	Possible cause	Measures
No response to power-on	Battery is dead or not installed	Charge or replace with new battery
Automatic power-off	Low battery	Charge or replace with new battery
No image after	1、The video transmission	1、Wait to pair up with the

power-on and launching the APP	module is in pairing 2、The software has not finished imaging loading 3、There is severe interference on site	robot 2、Restart the APP for reloading 3、Power on the remote console again to try pairing and keep it as close to the robot as possible
Failure to control the robot after power-on and launching the APP	1. The software reloading fails 2. The video transmission module fails to pair up	1、Try to restart the APP for reloading 2、Power on the remote console again to try pairing and keep it as close to the robot as possible
Thermal imaging failure after power-on and launching the APP	1、The thermal imaging camera WIFI is not connected 2、The software has not finished imaging loading 3、There is severe	1、Exit the software, go to WIFI settings of the console, locate the thermal imaging camera WIFI and connect it, and finally, restart the software 2、Restart the APP for

	interference on site	reloading 3. Power on the robot again and keep the remote console as close to the robot as possible for pairing
The software display screen gets stuck or crashes	1、The robot is too far from the remote console 2、There is severe interference on site 3、The system fails	1、Keep the remote console close to the robot 2、Keep the remote console as close to the robot as possible and keep the antenna against the robot unobstructed 3、Restart the robot and console and repair them if they are faulty
The robot doesn't move straight	1、The wheels/rollers get stuck 2、The wheels are out of alignment	1、Test and clean the Mecanum wheels and add a little lubricating oil/grease if necessary 2、Repair and adjust the robot

		and make sure the screws are securely tightened
The remote console cannot be charged	1、The charger and port used are not appropriate 2、The console has lost power for too long	1、The remote console requires a 9-24V DC5525 DC power adapter (the original standard configuration is 15V 6A, compatible with other voltages, but the port must be 5525) 2、Charge for a while to wait for battery activation
The vehicle inspection robot cannot be charged	1、The charger and port used are not appropriate 2、The lithium battery of the robot has lost power for too long	1、Charge the robot with a DC5521 lithium battery charger with a maximum voltage of 25.2V; otherwise the battery cannot be charged or protected 2、Charge for a while to wait for battery activation

The camera module of the vehicle inspection robot cannot move	1、The camera motion module gets stuck 2、The mechanical part or the motor is damaged	1、Remove obstructions, clean the module and try to restore it 2、Repair them
The robot fails to avoid obstacles	1、The obstacle avoidance function is disabled 2、The robot is unable to identify low obstacles as the height of its single-line LiDAR is about 95mm 3、The robot travels too fast	1、Enable the active obstacle avoidance function and view the prompt or icon for proper activation 2、Operators need to notice obstacles that are too high or too low (can be confirmed by image) 3、It is recommended to decrease the travel speed to 60 or below as a too high speed may prevent the robot from avoiding obstacles

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