Rugged Tablet

7 H: DB8 !%⅝6 #/&6

10Inch/8 Inch Rugged Android Vehicle Display Terminal

User Manual

Version 2.0

Revision History

Version	Release Time	Description
1.0	202305	Initial Release
2.0	202311	Add Metal bracket

About This Manual

This user's manual provides the general information and installation instructions for the product. The manual is meant for the experienced users and integrators with hardware knowledge of personal computers. If you are not sure about any description in this manual, consult your vendor before further handling.

We recommend that you keep one copy of this manual for the quick reference for any necessary maintenance in the future.

Safety Precautions

Please charge and discharge the device as one cycle at room temperature when devices are stored for more than 3 months or above.
Do not attempt to repair, customize, or disassemble the device without the appropriate knowledge and pre-cautions may lead to dangerous situations with chance on damaging the product.

Do not use in extreme conditions such as high and low temperatures, it may damage battery and impact the product life time. pls avoid long-time exposure to sunlight

For CTFPND-11B/12B, please turn off the power before removing the battery, which is important because it helps prevent any damage to the device.
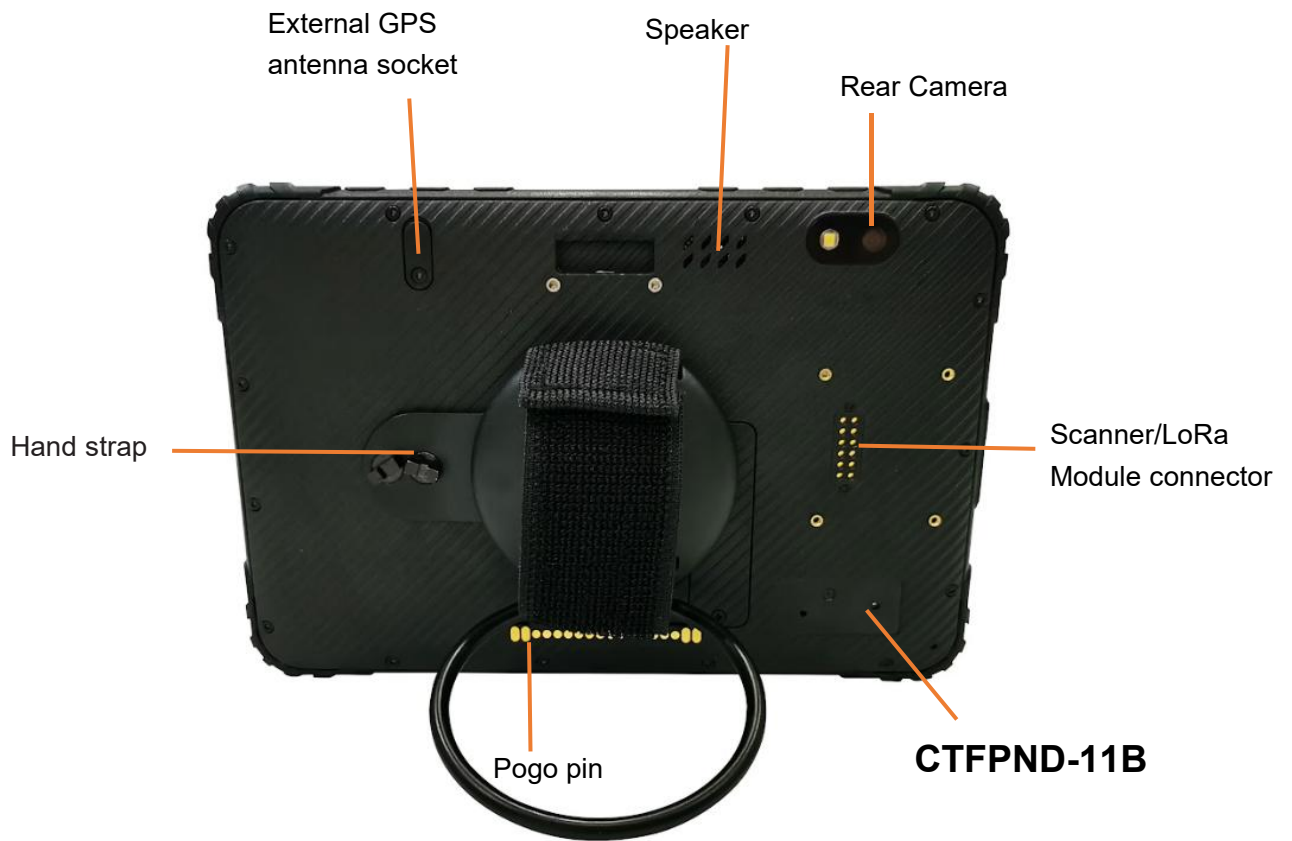
Catalogue

Chapter 1: Introduction

1.1 Product Highlights

● MediaTek Cortex-A55 64-bit Octa-core processor 2.0G

● Android 12 Operation System

● Comply with IP67 rating

● WIFI, Bluetooth, LTE, GNSS and 7600mAh / 8000mAh rechargeable battery supported

● 10 Inch / 8 Inch MIPI Display, physical 1920x1200 / 1280x800 resolution, 400cd/m², multi-point capacitive touch.

● 2 in 1 cradle which can be used for vehicle cradle or desktop station

1.1.1 Parts of the Device

Customizable Buttons   Volume Button   Power Button

Front camera

Headphone Jack

USB Type C

Power Indicator

Auto Backlight

LoRa Module (optional)

Barcode Scanner (optional)   Rear Camera

Rechargeable battery   Hand strap

Speaker

Pogo pin

CTFPND-12B

External GPS
antenna socket

Speaker

Rear Camera

Hand strap

Scanner/LoRa
Module connector
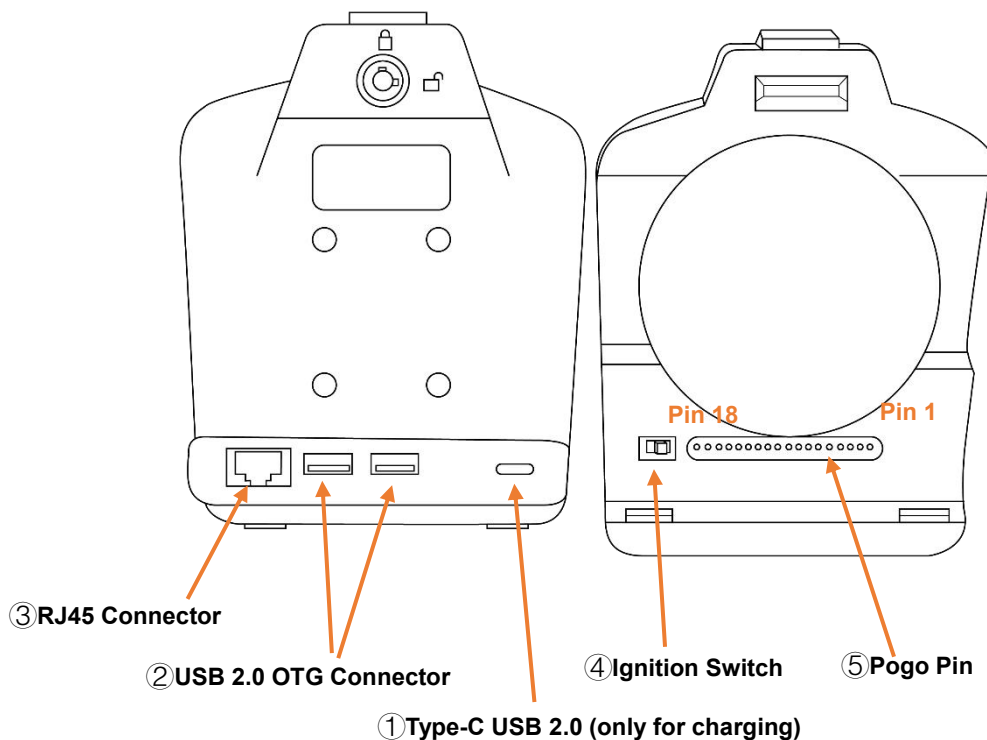
Pogo pin

CTFPND-11B

1.1.2 Parts of the Accessories

1. Vehicle cradle or Desktop dock station

2. Shoulder strap for CTFPND-12B (optional)

3. Hand strap

4. Metal Mount

5. Metal Stand (only lock it when used as desktop station) (optional)

6. Tape is used to hide non-use ports

7. NFC card

8. Keys to locking device and cradle

9. Screws

10. Home adapter (cradle may not work with other adapters) (optional)

11. Car charger (cradle may not work with other adapters) (optional)

12. Type C to C USB cable

13. Screwdriver for CTFPND-11B for SIM/SD cover

14. Full feature cradle cable (CAB-MB-FULL) (plug to cradle bottom side and locked with screws please) (optional)

15. Full feature cradle extension cable (CAB-EX-FULL) (optional)

16. Basic feature cradle cable (CAB-MB-BASIC) (plug to cradle bottom side and locked with screws please)

17. Basic feature Cradle extension cable (CAB-EX-BASIC)

18. Camera hub cable (CAB-EX-HUB), connected to the camera hub HH420 (optional)

19. Metal parts used to fix the cable (optional)

1.2 Cradle Cable Definition

1.2.1 Full Features Docking Station (CRD865-FULL)

③RJ45 Connector

②USB 2.0 OTG Connector

④Ignition Switch ⑤Pogo Pin

①Type-C USB 2.0 (only for charging)

Pin 18   Pin 1

Full features cradle interface

Vehicle Input: DC12V to 32V, ignition control with optional switch in the cradle
① Fasting-charging AC adapter or charge input 5V/3A, 9V/2A, 12V/2A with Type-C USB
  connector.
② USB 2.0 OTG Connector x 2
③ RJ45 connector used for Ethernet
④ Ignition switch: the ignition switch is switched to the right side, charging is independent of ignition ON/OFF. If ignition switch is switched to the left side, charging is dependent of ignition ON.
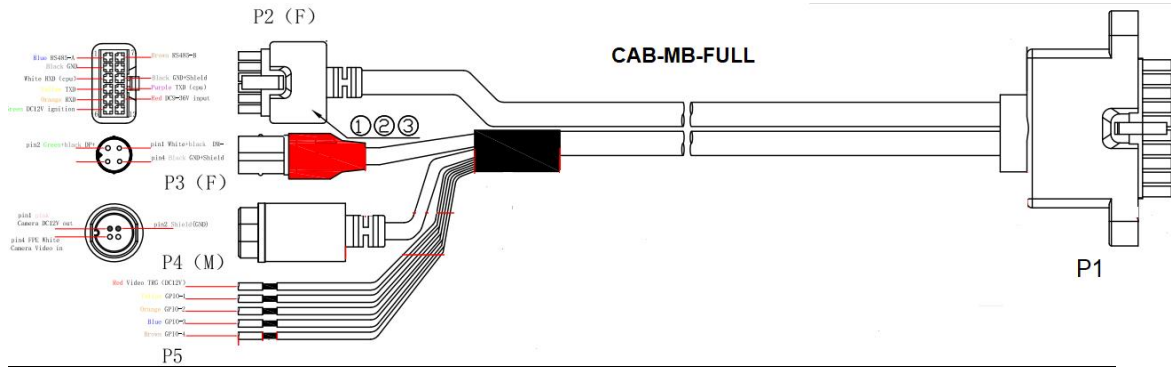
Full features cradle cable pin assignment overview

Full feature cable mounts on the full feature cradle
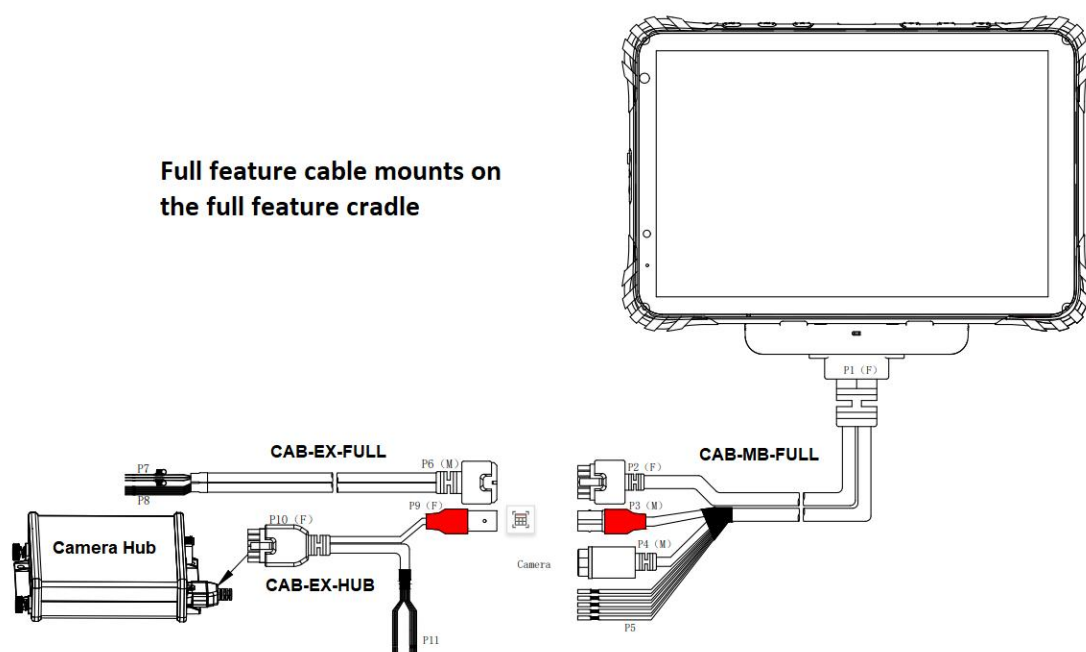
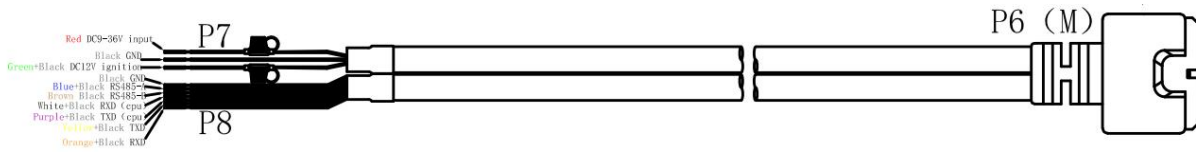**Bottom cradle cable can offer below functions in full features cradle**

- Vehicle Input: DC 12V to 32V, ignition control with optional switch in the cradle
- Serial port: RS485 x 1, RS232 x 2
- Support one channel video input (Support AHD 720P, 1080P and Analog camera)
- Support four channels video input, connect to Camera Hub by extension cable (Refer to the Camera Hub manual), with 4 trigger input
- GPIO: Analog input ADC x 1, Digital input x 2, Digital output x 1
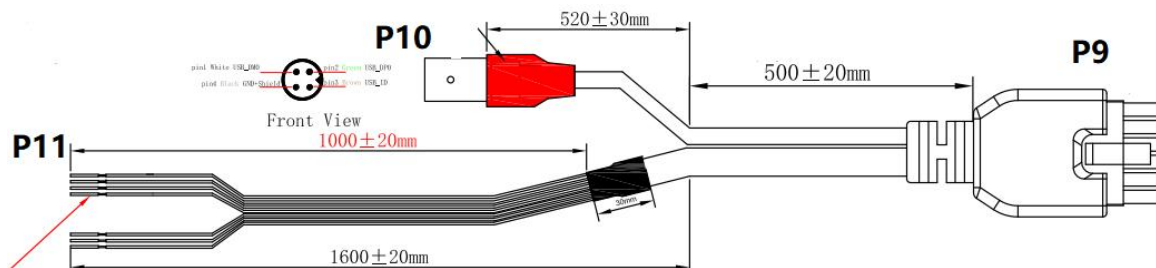
1. Full features Cradle cable (CAB-MB-FULL)

No	Item	Definition				
P1	20pin Micro-Fit connector	Connect to the full feature cradle				
P2	12pin Micro-Fit connector	Connect to the extension cable (CAB-EX-FULL)				
		Pin1	Pin2	Pin3	Pin4	Pin5
		RS485-A	GND	RXD (CPU)	TXD (USB)	RXD (USB)
		Pin6	Pin7	Pin9	Pin10	Pin11
		ACC ignition	RS485-B	GND	TXD (CPU)	VCC 12-32V input
P3	4pin BMW Connector F	Connect to the 4pin BMW connector on the camera hub cable (CAB-EX-HUB)				
		Pin1		Pin2	Pin4	
		DM-		DP+	GND	
P4	4 pin Circular Connector M	Connect to the camera (Support Analog, AHD720P, AHD1080P camera)				
		Pin1		Pin2	Pin4	
		DC12V output		GND	Camera video input	
P5	GPIO Wires	GPIO-1 (Yellow)	GPIO-2 (Orange)	GPIO-3 (Blue)	GPIO-4 (Brown)	Red wire
		Input 1	Input 2	output	ADC	Video Trigger
		Input 3-32V=High Input 0-2V=Low		Output the voltage from the Tablet. 200mA current.	Analog Digital Converter. Read the Input voltage.	

2. Cradle extension cable (CAB-EX-FULL)

No	Item	Definition						
P6	12pin Micro-Fit connector	Connect to the P2 connector on the cradle cable (CAB-MB-FULL)						
P7	Power Supply wires	Connect to the vehicle' battery.						
		Red		Green			Black	
		VCC12-32V input		ACC ignition			GND	
P8	Serial port wires	1 x RS485, 2 x RS232 (White/Purple RS232 same as old model CTFPND-9x serial port)						
		Blue	Brown	Yellow	Orange	White	Purple	Black
		RS485-A	RS485-B	TXD(USB)	RXD(USB)	RXD(CPU)	TXD(CPU)	GND

3. Camera hub cable (CAB-EX-HUB)

No	Item	Definition						
P9	12pin Micro-Fit connector	Connect to the Camera Hub HH421.						
P10	4pin BMW Connector M	Connect to the 4pin BMW connector on the full feature cradle cable (CAB-MB-FULL).						
		Pin1		Pin2		Pin3		Pin4
		DM-		DP+		ID		GND
P11	Trigger wires	4 channels trigger for camera.						
		Pink	Blue	Purple	Orange	Black	Yellow	Red
		CVBS_DET1	CVBS_DET2	CVBS_DET3	CVBS_DET4	GND	ACC ignition	VCC 12-32V input

1.2.2 Basic Features Docking Station (CRD865-BAS)
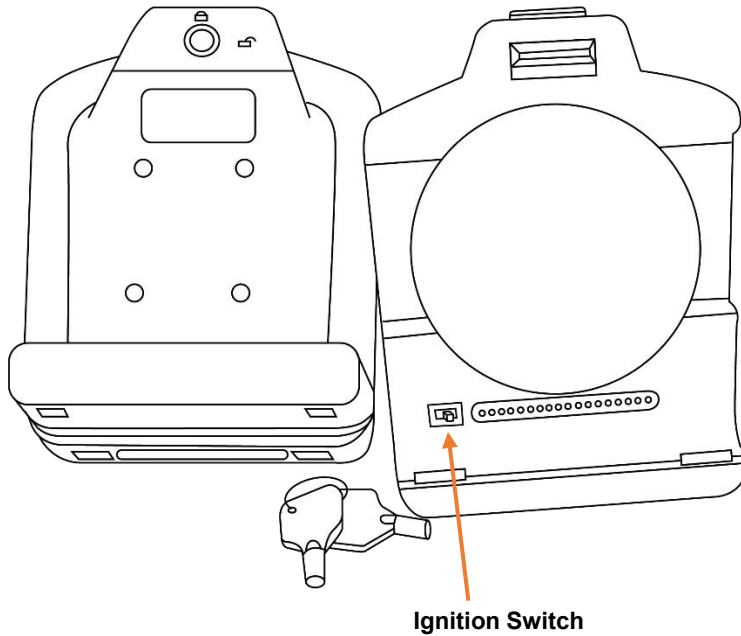
Ignition Switch

Basic features cradle can offer below function.

Vehicle Input: DC 12V to 32V, ignition control with optional switch in the cradle

Basic features cradle cable pin assignment overview

Basic feature cable mounts on
the full or basic feature cradle

Function: VCC input 12V-32V
          USB A 2.0 OTG
          Serial port RS232 x 1

(CAB-EX-BASIC)   P1(M)   P2（F）   CAB-MB-BASIC

P3（F）

P1（F）
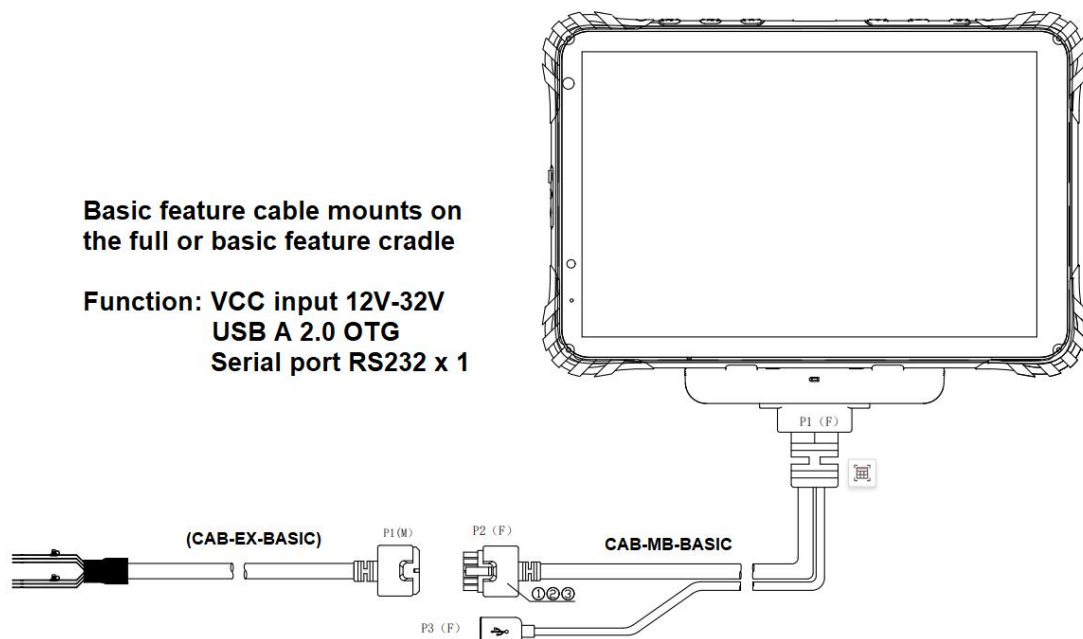
1. Basic features Cradle cable (CAB-MB-BASIC)
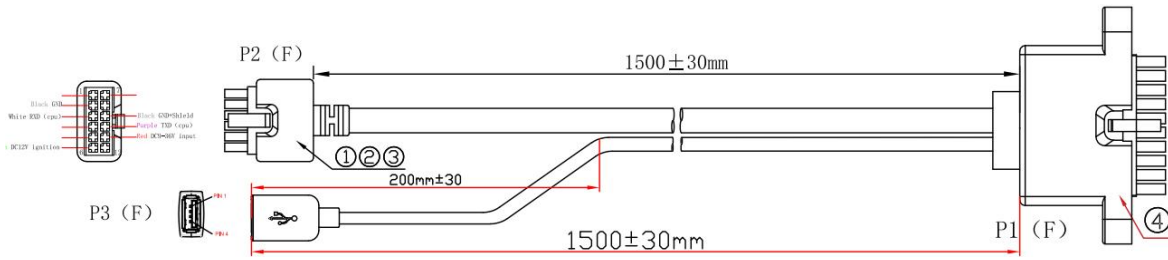
No	Item	Definition							
P1	Cradle Connector	Pin3	Pin8	Pin9	Pin10	Pin13	Pin18	Pin19	Pin8
		ACC ignition	RXD	GND	D+	VCC 12-32V input	TXD	VBUS 5V	D-
P2	Power Connector	Pin2	Pin3	Pin6	Pin9	Pin10	Pin11		
		GND	RXD	ACC ignition	GND	TXD	VCC 12-32V input		
P3	USB	USB Type-A (cannot be used simultaneously with USB Type-C on the device)							

2. Basic features Cradle extension cable (CAB-EX-BASIC)
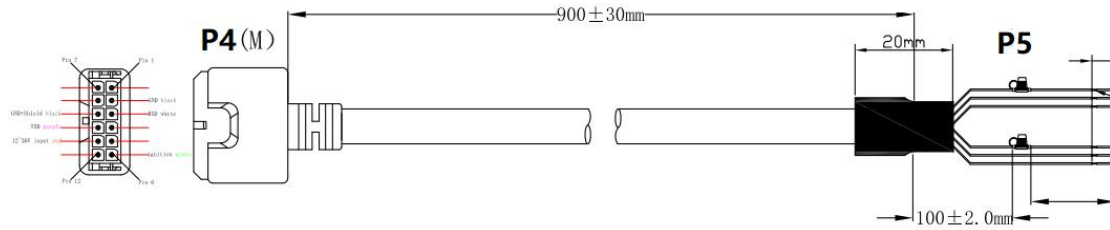
No	Item	Definition				
P4	12pin Micro-Fit connector	Connect to the basic features cradle cable P2 connector.				
P5	Power Supply and Serial port wires	It can be connected to the vehicle' battery.				
		Red	Green	Black	White	Purple
		VCC 12-32V input	ACC ignition	GND	RXD	TXD

P. S. These two basic feature cables can also be used for a full features cradle.

L-Sharp cradle cable connect to the basic cable pin assignment overview
L-Sharp cradle cable can be used for both full or basic feature CRD865 cradle.
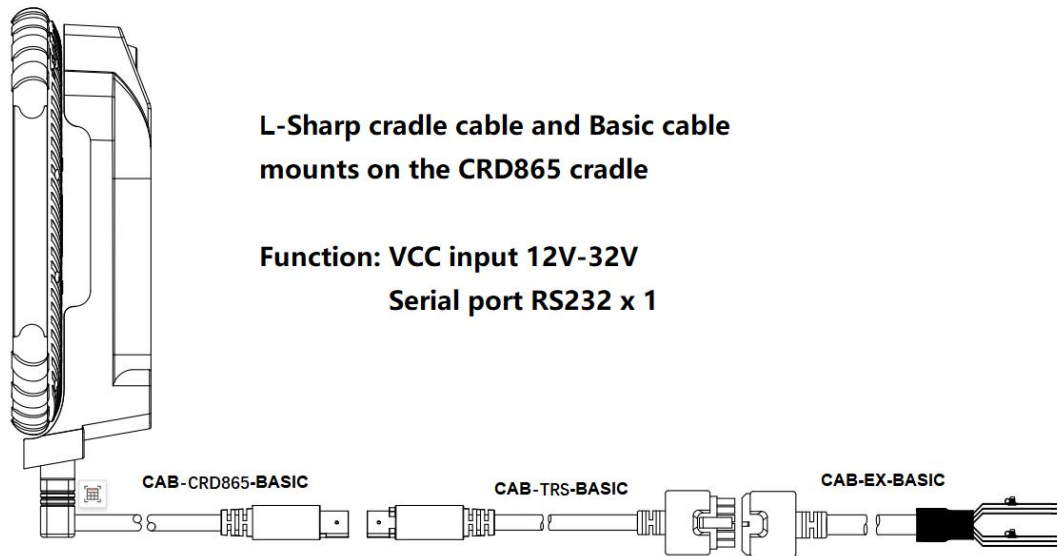
L-Sharp cradle cable and Basic cable
mounts on the CRD865 cradle

Function: VCC input 12V-32V
　　　　　Serial port RS232 x 1

CAB-CRD865-BASIC　　CAB-TRS-BASIC　　CAB-EX-BASIC

The Basic feature extension cable (CAB-EX-BASIC) is optional.

1. **L-Sharp cradle cable for CTFPND-11B (CAB-CRD865-BASIC)**
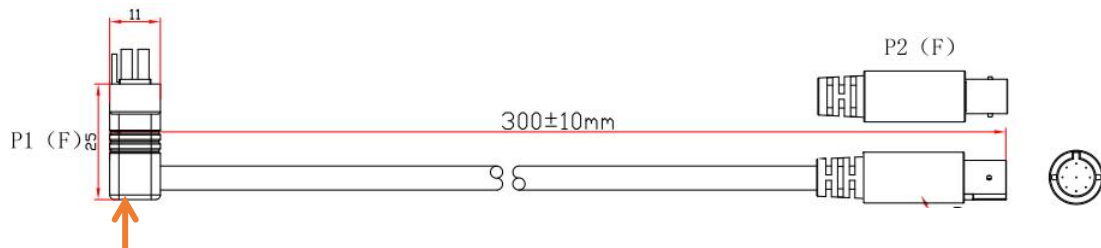
This is L-sharp (thickness around 25mm) and compatible with old product
(CTFPND-9x cradle cable)

No	Item	Definition					
P1	Cradle Connector	Pin1	Pin2	Pin3	Pin8	Pin9	Pin11
		Shield	Video Trigger	ACC ignition	RXD	GND	Video input
		Pin12		Pin13		Pin18	
		Camera DC12V output		VCC 12-32V input		TXD	
P2	9 pin BMW Connector F	Pin1		Pin2		Pin3	Pin4
		VCC 12-32V input		ACC ignition		Video Trigger	Video input
		Pin5	Pin6	Pin 7	Pin8	Pin9	
		RXD	TXD	Shield	GND	Camera DC12V output	

2. Basic features Cradle cable for CTFPND-11B (CAB-TRS-BASIC)
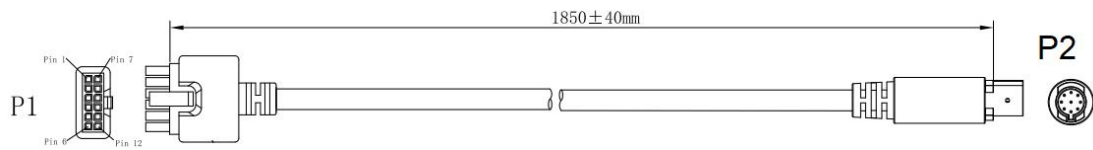
No	Item	Definition					
P1	Power Connector	Pin2	Pin3	Pin6	Pin9	Pin10	Pin11
		GND	RXD	ACC ignition	Shield	TXD	VCC 12-32V input
P2	9 pin BMW Connector M	Pin1	Pin2	Pin5	Pin6	Pin7	Pin8
		VCC 12-32V input	ACC ignition	RXD	TXD	Shield	GND

L-Sharp cradle cable connect to the AVIN cable pin assignment overview

L-Sharp cradle cable and AVIN cable mounts on the CRD865 cradle

Function: VCC input 12V-32V
          Video input and Trigger
          Serial port RS232 x 1
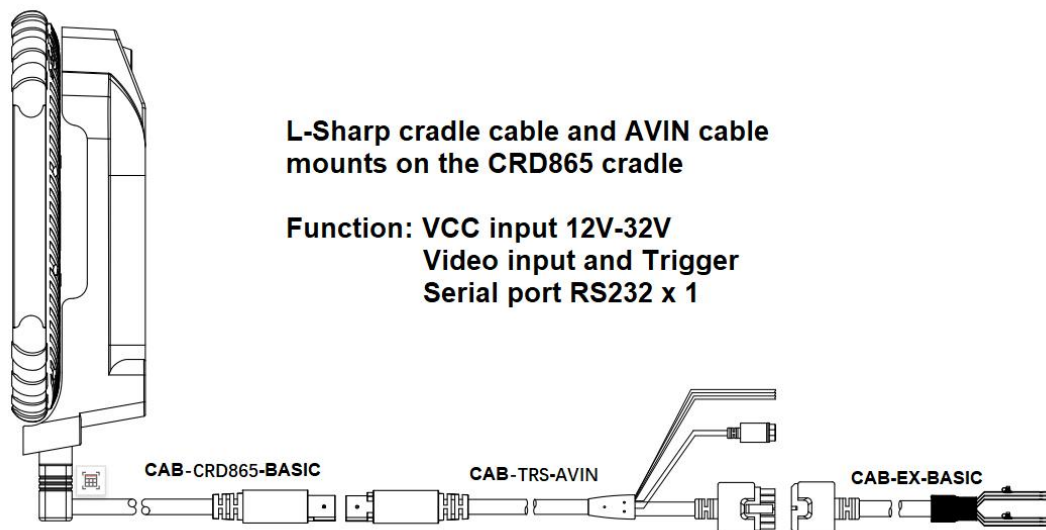
The Basic feature extension cable (CAB-EX-BASIC) is optional.

3. Video input features Cradle cable for CTFPND-11B (CAB-TRS-AVIN)
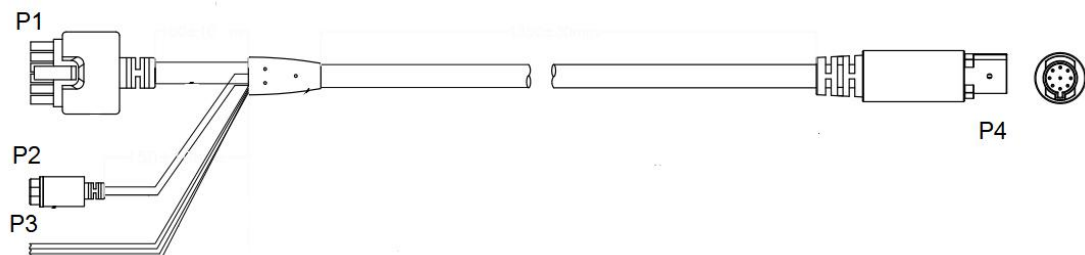
No	Item	Definition					
P1	Power Connector	Pin2	Pin3	Pin6	Pin9	PIn10	Pin11
		GND	RXD	ACC ignition	Shield	TXD	VCC 12-32V input
P2	4 pin Circular Connector M	Pin1		Pin2	Pin4		
		Camera DC12V output		GND	Video input		
P3	Wires	Black	Yellow				
		GND	Video Trigger				
P4	9 pin BMW Connector M	Pin1		Pin2		Pin3	Pin4
		VCC 12-32V input		ACC ignition		Video Trigger	Video input
		Pin5	Pin6	Pin7		Pin8	Pin9
		RXD	TXD	Shield		GND	Camera DC12V output

1.2.3 Basic Features Metal bracket (BKT865-BAS)

Basic features Metal bracket can offer below function.

- Vehicle Input: DC 12V to 32V, without ignition control in the bracket.
- With Waterproof cable, it can offer charging and one RS232 functions.
- With AVIN BMW cable, it can offer charging, one RS232 and video input functions.

Metal bracket With waterproof cable

1. Basic feature cable with waterproof connector for CTFPND-11B (BKT865-BAS-01)
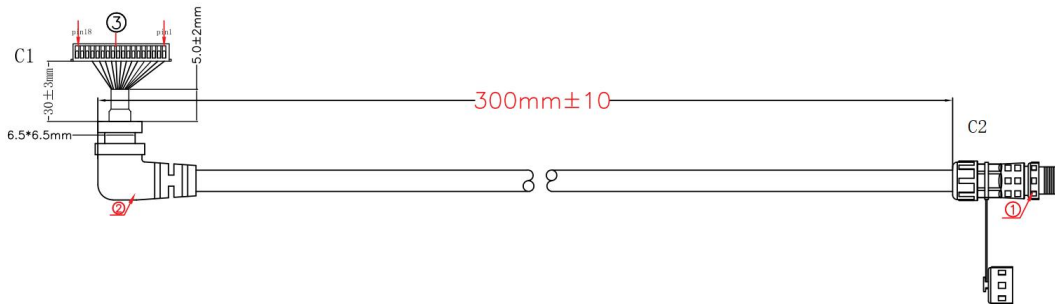
No	Item	Definition					
C1	Housing 18pin	Pin6	Pin7	Pin10	Pin12	Pin17	Pin18
		TXD	RXD	ACC ignition	VCC input 12-32V	GND	GND
C2	6pin Waterproof Connector M	Pin1	Pin2	Pin3	Pin4	Pin5	Pin6
		GND	TXD	GND	RXD	ACC ignition	VCC

2. Basic feature cable with waterproof connector for CTFPND-11B (BKT865-BAS-02)
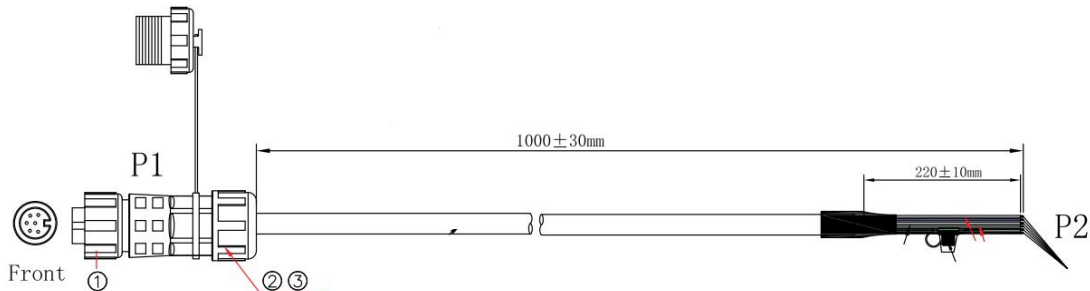
No	Item	Definition					
P1	6pin Waterproof Connector F	Pin1	Pin2	Pin3	Pin4	Pin5	Pin6
		GND	TXD	GND	RXD	ACC ignition	VCC
P2	Wires	Black	Purple	Black	White	Green	Red
		GND	TXD	GND	RXD	ACC ignition	VCC

Metal bracket with video input cable

1. BMW cable for CTFPND-11B (BKT865-BAS-BMW)
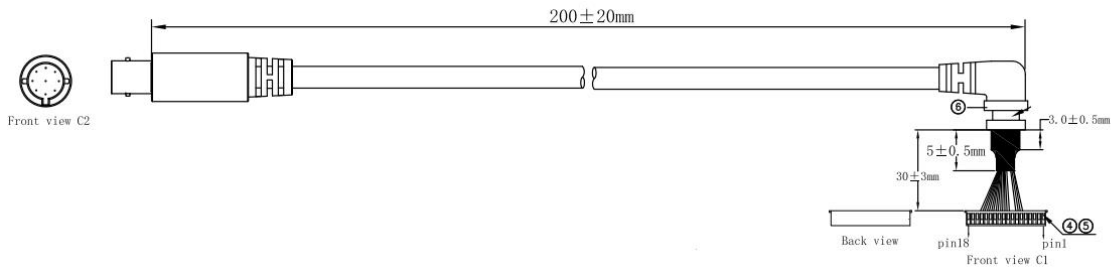
No	Item	Definition			
C1	Housing 18pin	Pin7	Pin9	Pin10	Pin11
		VCC input 12-32V	ACC ignition	Camera TRG	Camera input
		Pin12	Pin13	Pin14	Pin15
		RXD	TXD	Shield	GND
C2	BMW Connector M	Pin1	Pin2	Pin3	Pin4
		VCC input 12-32V	ACC Ignition	Camera TRG	Camera input
		Pin5	Pin6	Pin7	Pin8
		RXD	TXD	Shield	GND

2. Video input BMW cable for CTFPND-11B (CAB-TRS-AVIN)

No	Item	Definition					
P1	Power Connector	Pin2	Pin3	Pin6	Pin9	PIn10	Pin11
		GND	RXD	ACC ignition	Shield	TXD	VCC 12-32V input

No	Item	Definition		
P2	4 pin Circular Connector M	Pin1	Pin2	Pin4
		Camera DC12V output	GND	Video input

No	Item	Definition	
P3	Wires	Black	Yellow
		GND	Video Trigger

No	Item	Definition			
P4	9 pin BMW Connector M	Pin1	Pin2	Pin3	Pin4
		VCC 12-32V input	ACC ignition	Video Trigger	Video input
		Pin5	Pin6	Pin7	Pin8	Pin9
		RXD	TXD	Shield	GND	Camera DC12V output

In addition, because the Metal bracket does not output DC12V to the camera, so we will provide an RCA cable for camera power supply.

Chapter 2: Getting Started

2.1 Power On/Off and Sleep/Wake

This Chapter is describing how to power on/off the device, put the device into sleep mode (screen saver) and force restart. Proper operation of power on/off the device will be beneficial to ensure the stability of the system. The device status indicated by the color of the indicator is as described in the following table for the standard.

Table 2.1.1 Indicator color and device status table

LEDs Behavior	Device Status
Red light on	Charging
Green light on	Fully charged
Light off	High temperature causes stop charging.
Red light on	High temperature causes shutdown.
Red or Green light blinking	Notification (Sleep when charging)

1. Power on the Device

a. Power on by pressing the power button: Long press the power button for more than 2 seconds until the boot screen displayed. It needs around 20 seconds to start the system.
b. Power consumption during operation：15W (typical).

2. Power off the Device

a. Power off by pressing the button: In the status of working on the device desktop, long press the power button for more than 2 seconds until the shutdown prompt pop-up then click the "Power off" option.
b. The consumption during power off (with docking station): around 250mW.

3. Sleep and Wake the Device

a. Auto sleep, the sleep time can be set up in the settings.
b. Short press button to sleep.
c. Short press to wake.
d. Wake up by ignition ON.

4. Restart the device

Restart by pressing the button: In the status of working on the device desktop, long press the power button for more than 2 seconds until the prompt pop-up then click the "Restart" option.

2.2 Installing Micro SD and SIM Card

To install the Micro SD card and/or Nano SIM card.

a. Find the Nano SIM card slot and the Micro SD card slot. The following graphics illustrates the correct cards orientation.

b. For easier removing the Nano SIM card and Micro SD card from the inside card slot, please assist with the Nana SIM card and Micro SD card tape as shown in the figure.

c. SIM card and Micro SD card cover can be locked by screws in preventing from loss or steal.

CTFPND-12B
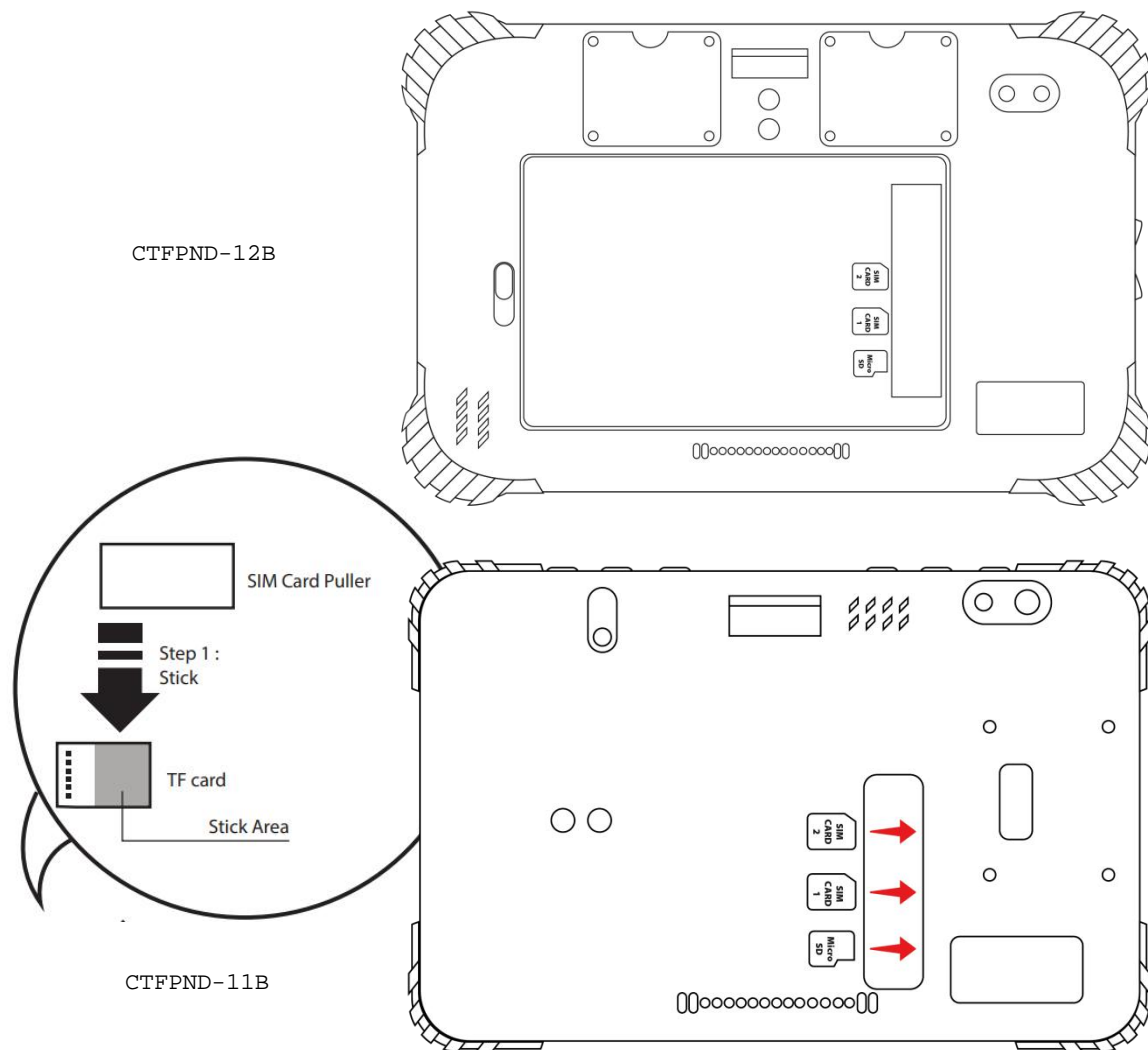
CTFPND-11B

2.3 Charging the Battery

The tablet CTFPND-12B battery is installed in a removable way, which greatly facilitates the user's use of disassembly and installation.
（Note: Please shut down before removing the battery.）

Icon introduction:
②🔒：The switch is on the top to lock the battery.
②🔓：The switch is on the down to unlock the battery, and the battery can be removed.

The tablet CTFPND-11B battery is built-in and cannot be removed by the user.
The battery is partially drained during the transportation. Be sure to charge the battery to full when you are charging it for the first time.

Tips:
In order to ensure the life and performance of the battery, if your tablet has been stored in the warehouse for more than three months, it is recommended to charge the battery every three months.

2.4 Charging with the vehicle power supply

To charge the battery with the vehicle power supply:
a. If the device with an optional docking station, then mount the tablet with docking station, connect the Docking Station to the vehicle power supply.

Plug into vehicle power supply
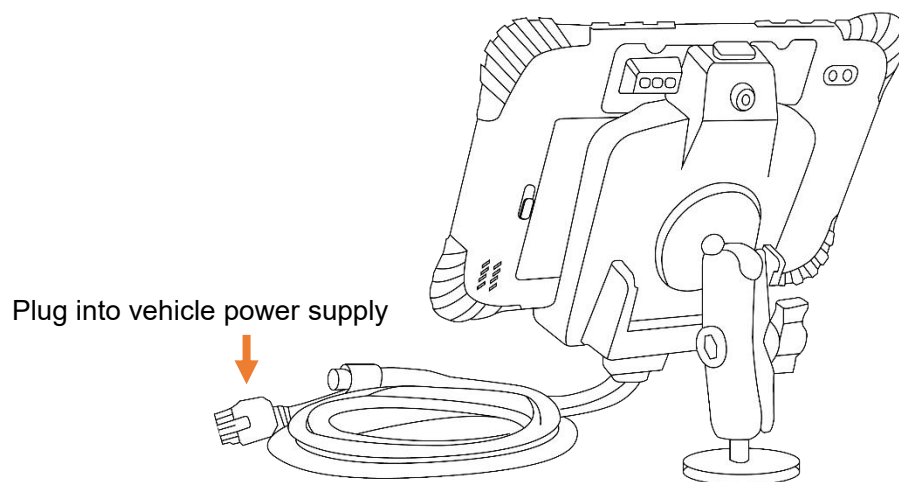
b. The CTFPND-11B/12B could be charged by a PD fast-charging Adapter or car charger (5V/3A.9V/2A,12/2A) by Type C to C USB cable.
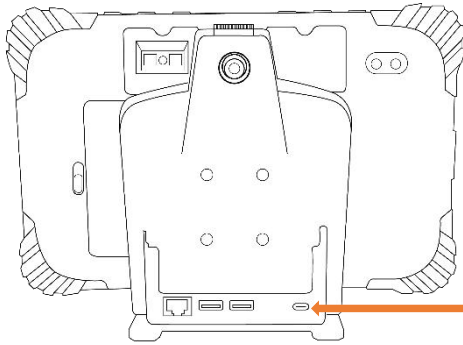
Connect to AC adapter or Car charger (the cradle may not able to charge if only use standard 5V/2A adapter)

Warning:

Please ensure that the input voltage of the docking station is within the range of 12V~32V. If the input voltage of the docking station is outside this range, the CTFPND-11B/12B may be unable to charge or damaged. It may cause the warranty invalid.

Chapter 3: Hand strap and shoulder strap mode

3.1 Hand strap

1. How to install

2. Rotate to adjust

1. tilt the metal ring
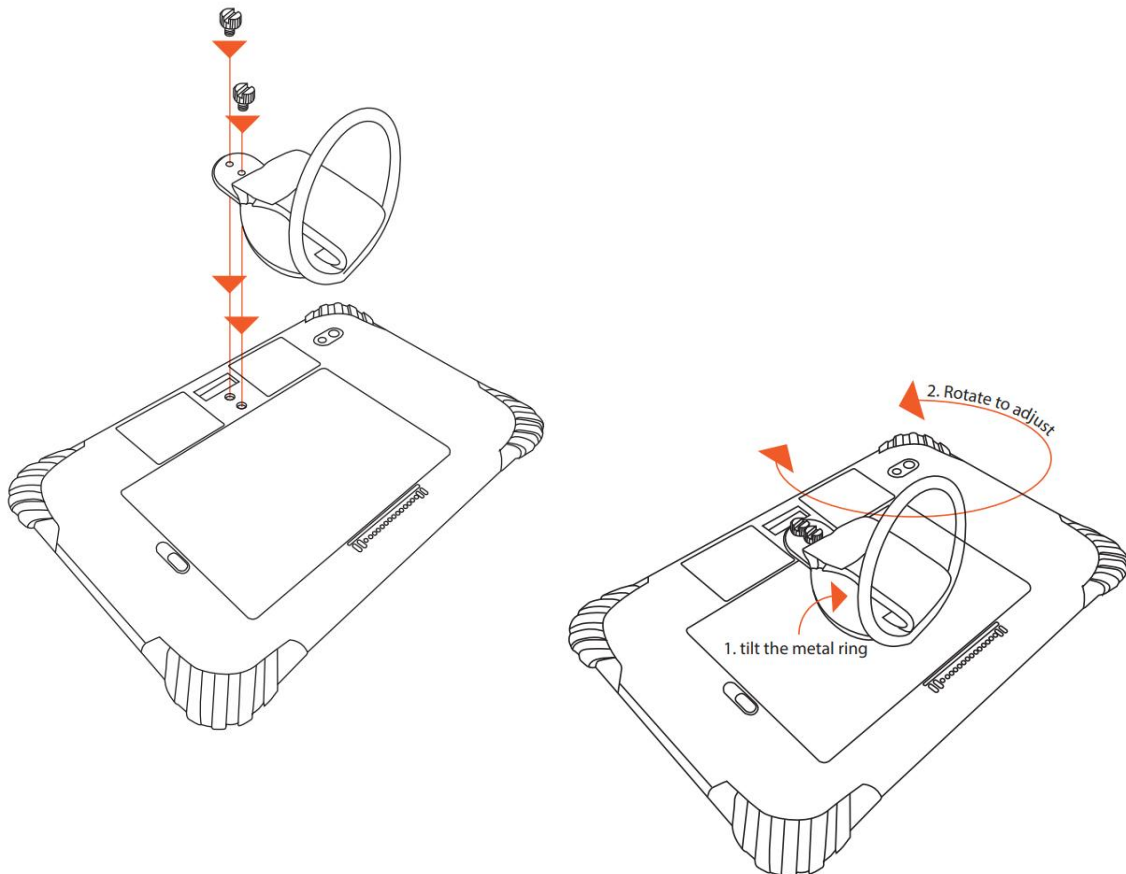
2. How to use

1 Horizontal viewing stand
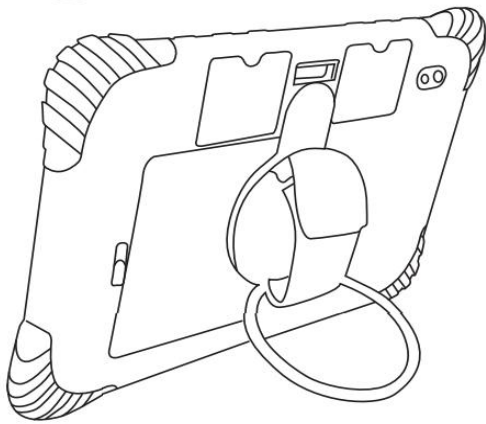
2 Vertical viewing stand
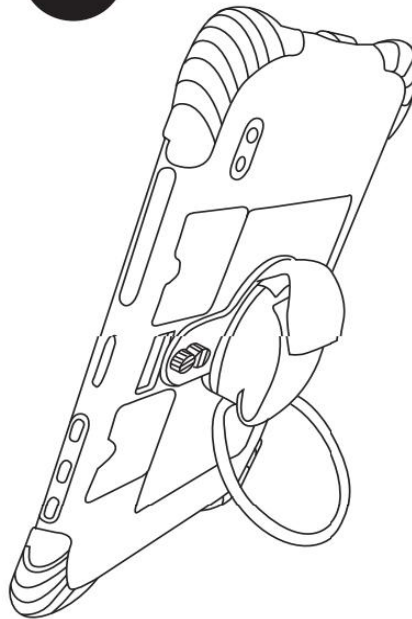
Easy to carry
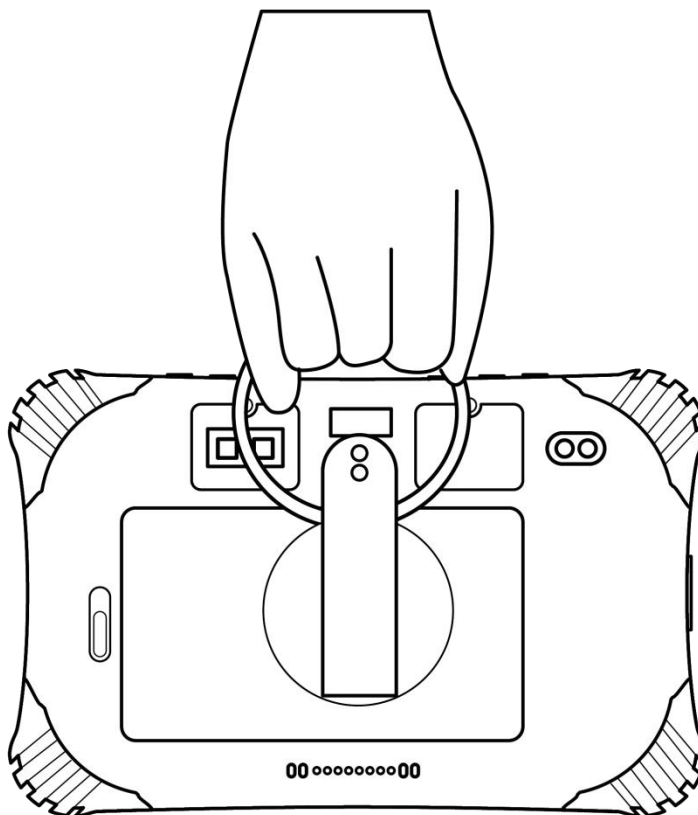
3 Adjustable viewing hand strap
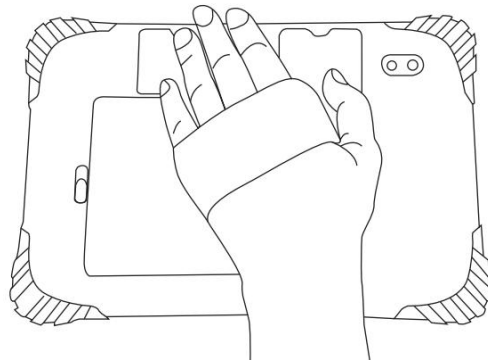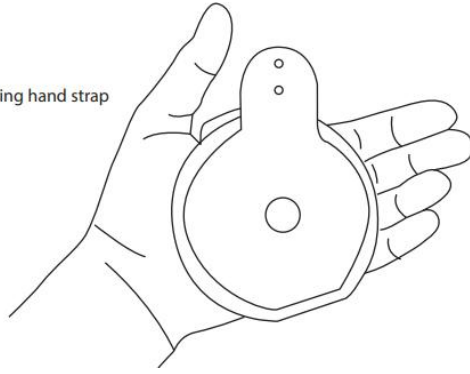
3.2 shoulder strap mode
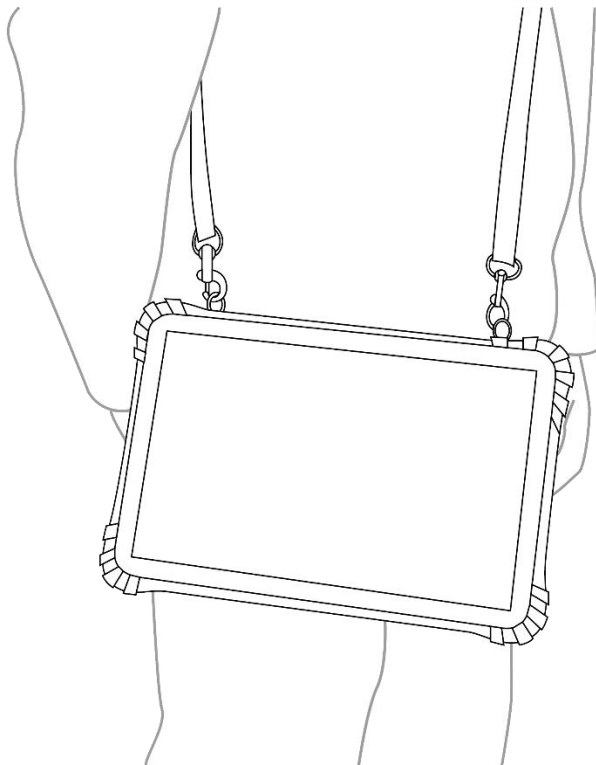
Chapter 4: Docking Station Using Instruction

4.1 To be vehicle cradle

1. Mounting the RAM and Cradle
Assemble with cradle (Be a vehicle cradle)

Tablet

Screws
X 4nos.

As a vehicle cradle

Port-cover tape for hiding non-use ports

RAM Mount
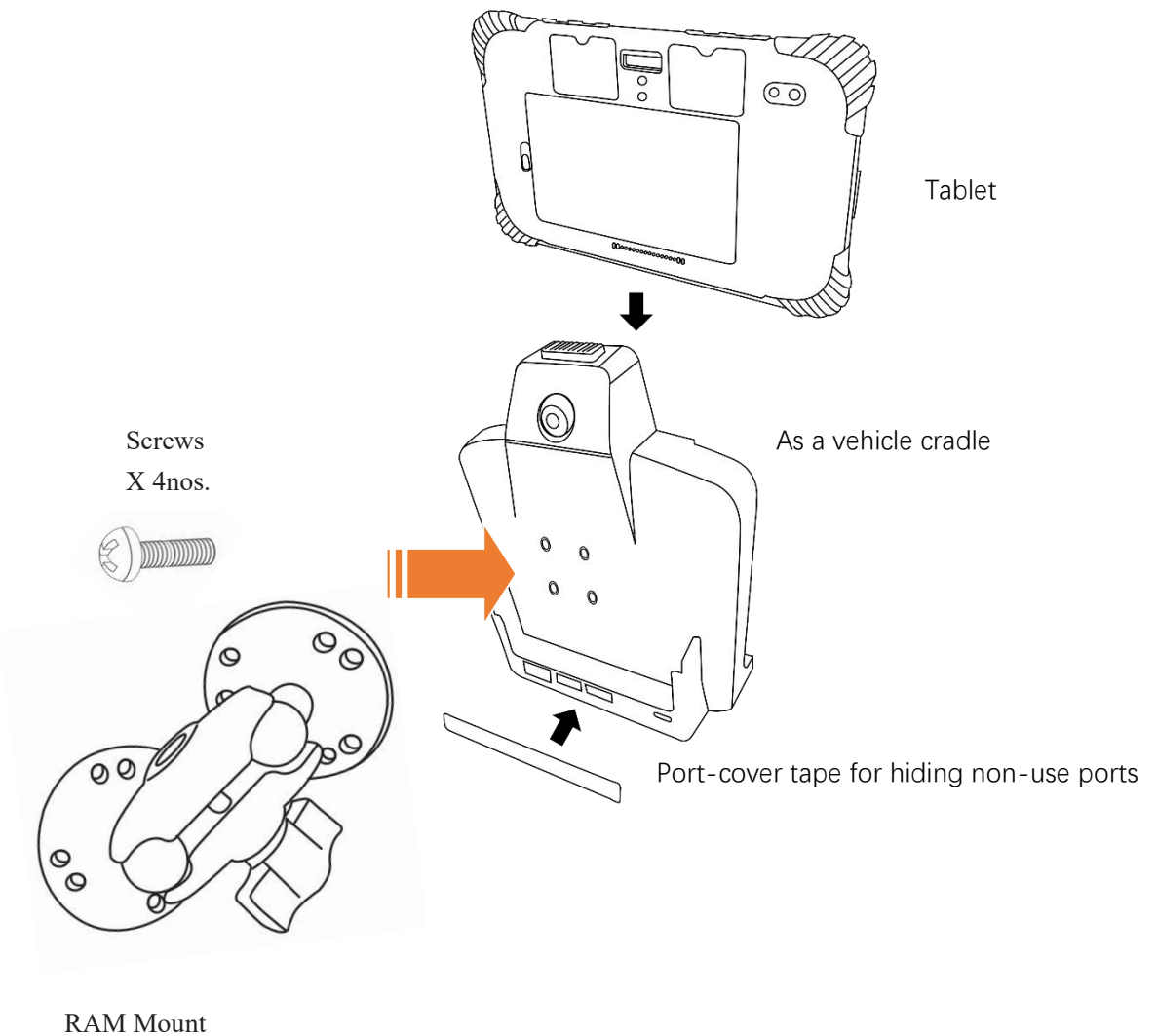
For full-feature vehicle cradle or desktop dock, port cover tape is used to hide non-use ports.

As a vehicle cradle

Port-cover tape
for hidding non-use ports
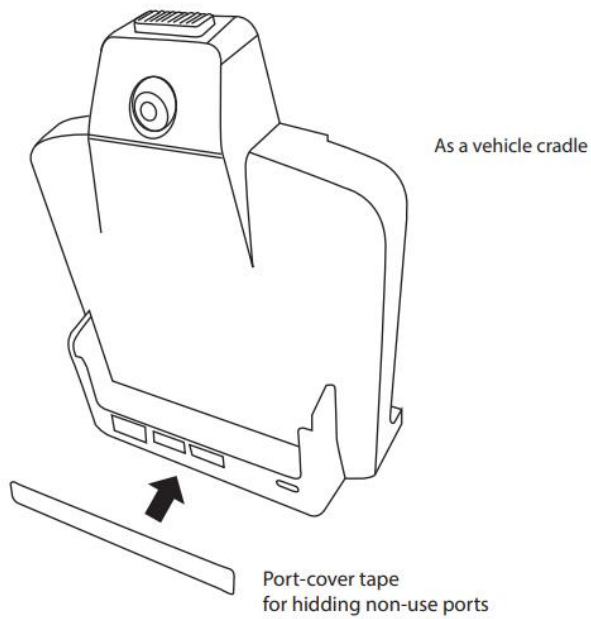
2. Locking Device & Unlocking device

Insert the key to locking or unlocking the device
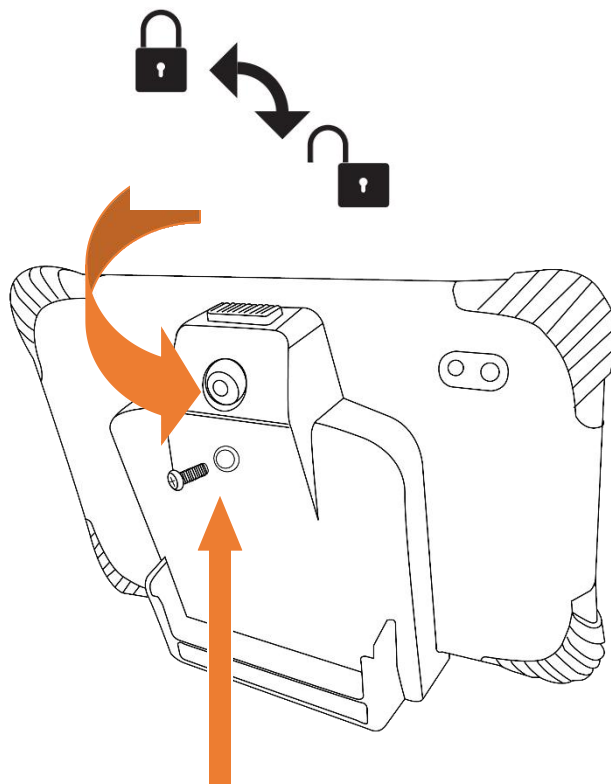
Screw-in the screws to make the lock more secure

4.2 To be a desktop dock station

1. **Install the Metal Stand**
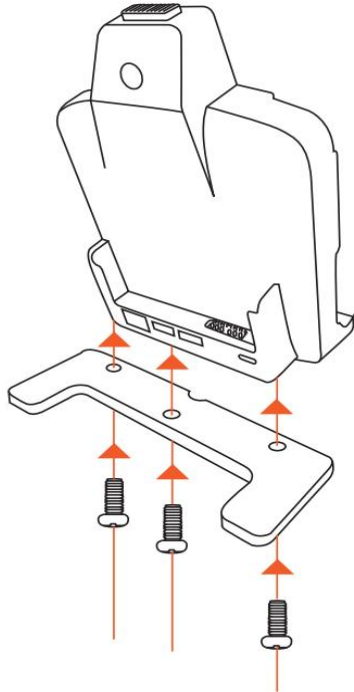
2. **Assemble with cradle (Be a desktop dock station)**
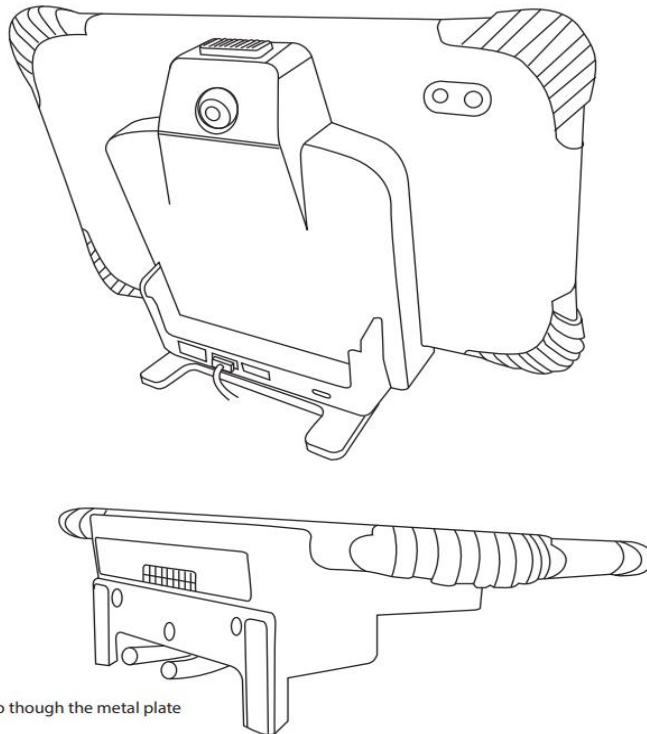
Cables go though the metal plate

3. Fixed the cable

When installing in the vehicle, pls use below metal parts, it has 2 purposes.

1. Let the cable to the toward the back side.
2. It can use for supporting as the device is quite heavy. It will not shake even the car has vibration.
There are few options. If there are supporting at the bottom or at the back (with angle), you can make different installation (see below 2 video).
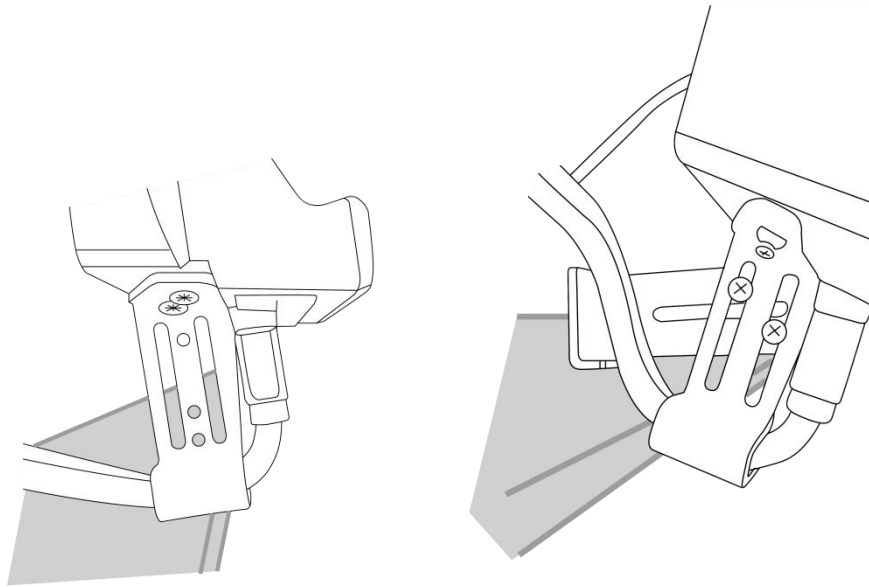
It can be changed the length from 50mm to 80mm

https://drive.google.com/file/d/1ybp_Ji3AL1t94PQ_KVtJO9mk_J8UiY8Q/view?usp=sharing
https://drive.google.com/file/d/1etWxYVJcbXDs8J-GP0dq8IVuBiYc0t3S/view?usp=sharing

Chapter 5: Using Hardware Interface

5.1 Using Serial Port

1.RS232 purple/white wires are from CPU, it's same as CTFPND-9x,it can work even no external power supply.

2.RS232 orange/yellow wires and RS485 blue/brown wires are converted from USB Hub and will only work if there is an external power supply.

Wires color	Definition	Device tty ports
White	RS232 RXD (CPU)	/dev/user_external_tty
Purple	RS232 TXD (CPU)	
Orange	RS232 RXD (USB)	/dev/ttyUSB0
Yellow	RS232 TXD (USB)	
Blue	RS485-A	/dev/ttyUSB1
Brown	RS485-B	
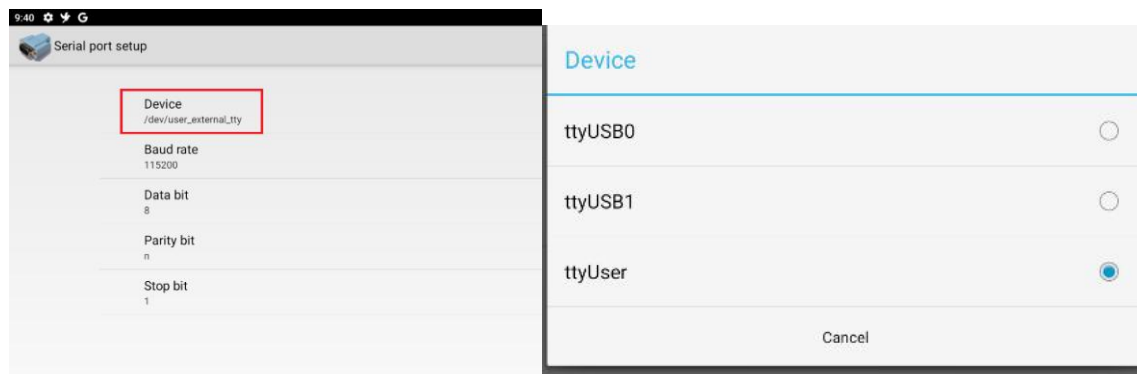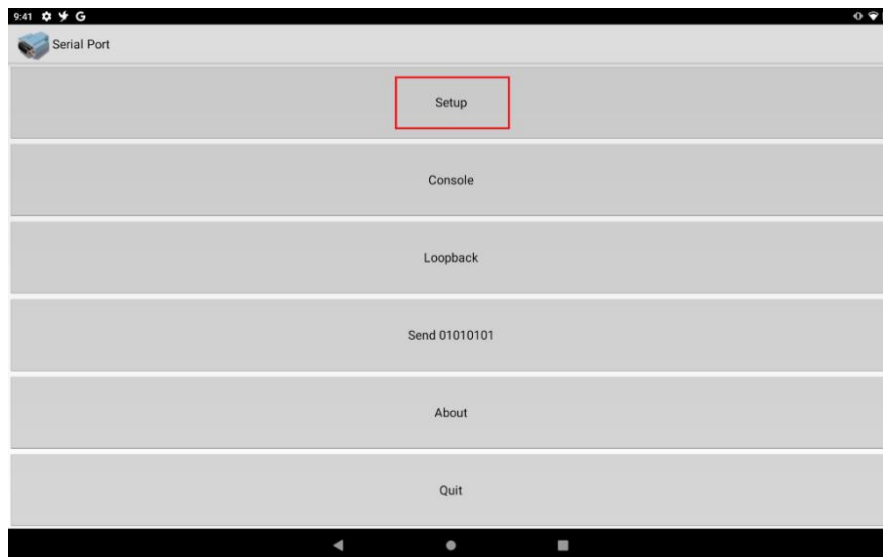
5.2 Using GPIO

1. GPIO Tail Lines Instruction

Regarding the definition diagram of GPIO interface, please see the details in Chapter 1 "1.2 Cradle Cable definition".

2. GPIO_DEMO Instruction

This software is only used for testing GPIO functions of device, and it isn't suitable for user's standard software.
a. If the input1 or input2 is connected to a high power, key1 or key2 will display "true"
b. Press set output button to open output, and press reset output button to close output.
c. Press get adc button to read the input voltage.
d. Press upgrade button to update the MCU firmware.
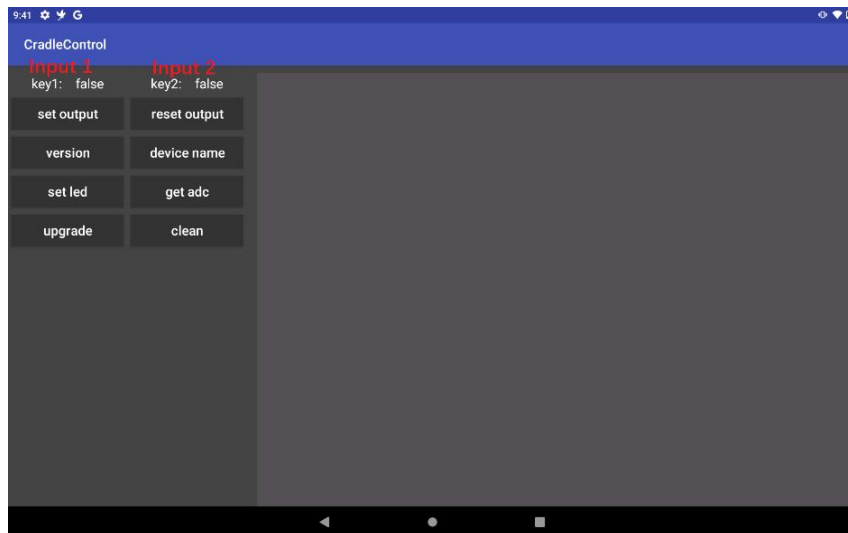
5.3 Using NFC Function

1. NFC Activation Method
Activate the NFC function according to Figure.
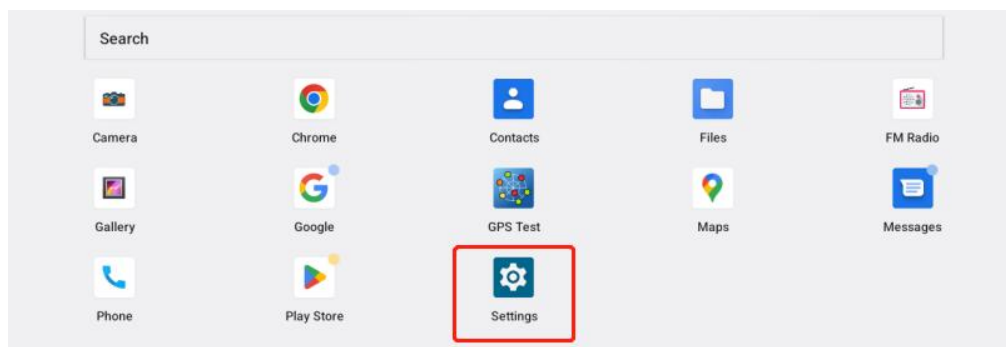
Settings

🔍 Search settings

📶 **Network & internet**
Mobile, Wi-Fi, hotspot

🖳 **Connected devices**
Bluetooth, pairing

⋮⋮⋮ **Apps**
Recent apps, default apps

Connected devices

╋ Pair new device

Previously connected devices

＞ See all

Connection preferences
Bluetooth, Android Auto, NFC

ⓘ

Visible as "mdt865" to other devices

Connection preferences

∗ Bluetooth

🔲 NFC
On

🖵 Cast
Not connected

🤖 Android Beam
Off

NFC

Use NFC ⬤

Contactless payments
To use, first install a payment app

2. NFC Usage Demo

After activating NFC function, place the NFC card close to the induction area. A prompt tone would be heard if the card is successfully identified. If the card contains some information (such as manufacturer's information), there will be an interface popped up as shown in figure.

ÁÔVØÚÞÖËFGÓ NFC

ÔVØÚÞÖËFFÓ NFC

New tag collected

test123
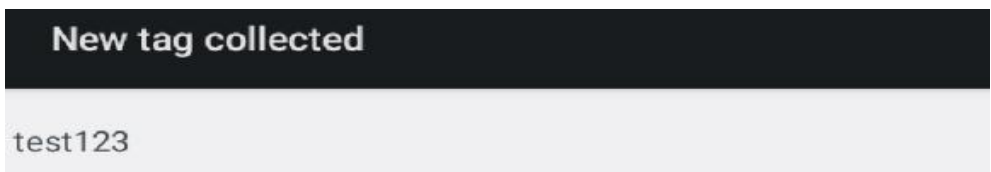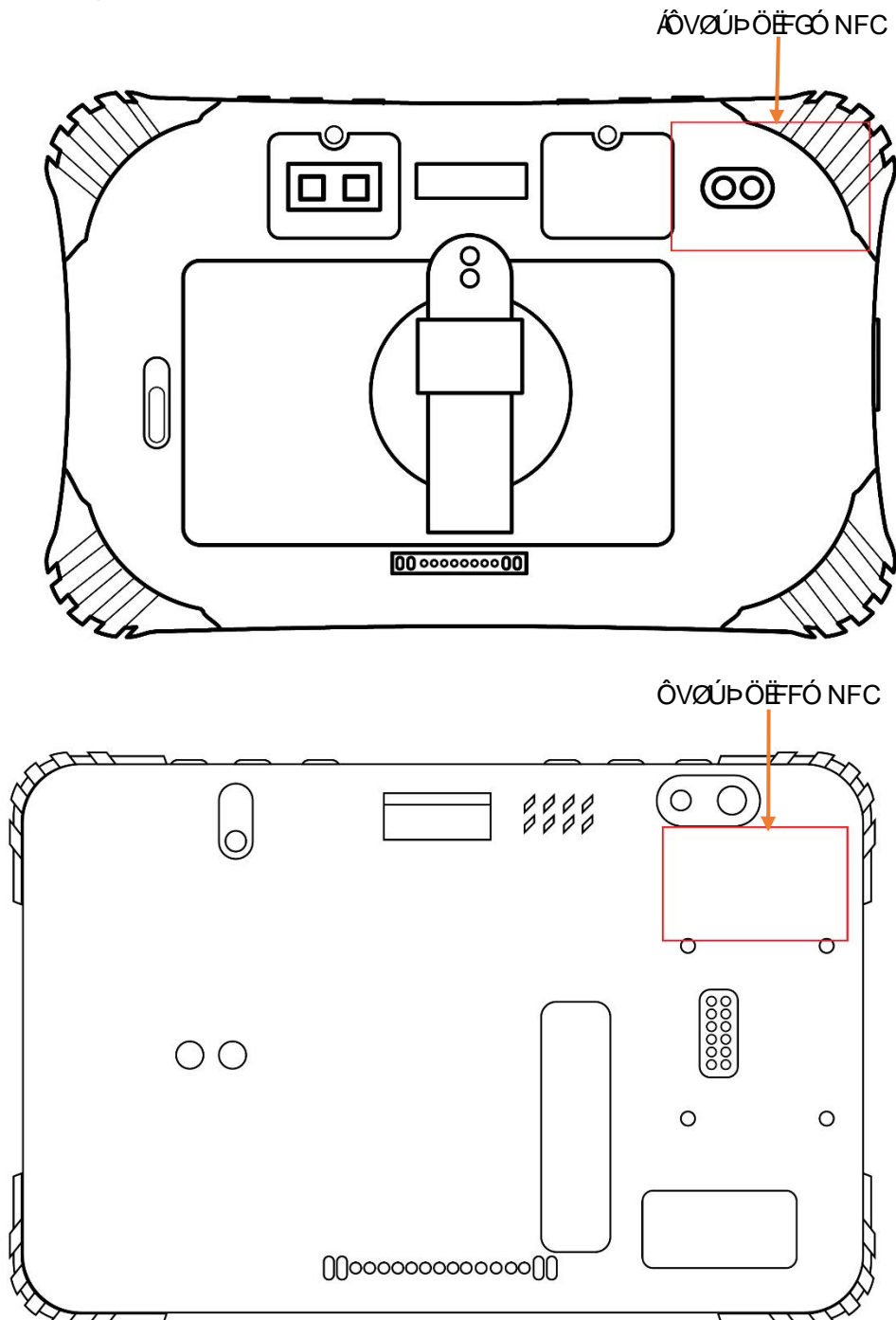
Chapter6: Specifications

Durability Features	
IP67 Rating Certified 1.5m (5ft.) drop-resistance Raised bezel for LCD impact protection	
LCD Display	
Size	8 Inch Digital IPS Panel
Resolution	1280 x 800
Brightness	400 cd/m²
Touch screen	
Type	Multi-point Capacitive Touch
System	
CPU	MediaTek 64-bit Octa-core Arm Cortex-A75@2GHz Arm Cortex-A55@1.8GHz
OS	Android 12
Memory	LPDDR4X 4GB
Storage	64GB eMMC
Audio	2x Integrated microphone 2x Integrated speaker 1 x 3.5mm stereo headphone jack
GNSS	GPS GLONASS GALILEO
WWAN	Supports worldwide band 2G-GSM: 850,900,1800,1900 3G-WCDMA: B1, B2, B4, B5, B8 4G-LTE FDD: B1, B2, B3, B4, B5, B7, B8, B12, B17, B20, B28 4G-LTE TDD: B40, B38, B41
WLAN	802.11a/b/g/n/ac 2.4GHz&5GHz
Ethernet	1x RJ45 Connector on the cradle
Bluetooth	2402MHz~2480MHz Integrated Bluetooth V5.0, with HID, A2DP, AVRCP, BIP, BPP, FTP, HFP, HSP, OPP, SPP supported
Sensor	Gyroscope Accelerometer (G-sensor) Compass Light Sensor

NFC	• Active and passive Peer-to-Peer – ISO/IEC 18092 - NFCIP-1 Initiator & Target • Passive mode – Reader/Writer – NFC Forum Type 1/2/3/4/5 tags – ISO/IEC 15693 – MIFARE Classic(a)(b) – Thin film (ex Kovio) Barcode • Active mode – Card Emulation – ISO/IEC 14443 Type A & B – JIS X 6319 – 4 – MIFARE Classic(a)(b) through SWP-CLT
Camera	Rear Camera: 20MP Front Camera: 8MP
Video input (optional)	Support 1 x up to 1080p AHD camera with cradle Support 4 x up to 1080p AHD camera with camera hub
Barcode scanner (optional)	Barcode module (Motorola SE4107) 1D / 2D Barcodes can be scanned.
LoRa (optional)	LoRa module
I/O Interface (standard)	
Serial Port	1 x RS232
USB Port	1 x USB Type-C 2.0 (Host or Device) (can't be used when put on the docking station) 2 x USB Type-A 2.0 OTG on the full features cradle
SD Slot	1 x Micro SD card, up to 128G
SIM Socket	2 x Nano SIM Card slot
Power Supply	
Power System	Power by AC Adapter (Fast-charging 5V/3A 9V/2A 12V/2A) Power by docking station 9-36V input
Battery Type	Lithium-ion rechargeable battery
Battery Capacity	ÔVØÚÞÖËFGÓ: 3.85V 7600mAh ÔVØÚÞÖËFFÓ: 3.8V 8000mAh
Mechanical & Environmental	
Operating Temp.	-20°C ~ 60°C (-4°F ~ 140°F)
Storage Temp.	-20°C ~ 70°C (-4°F ~ 158°F)
Operating Humidity	90% (non-condensing)
Dimensions	ÔVØÚÞÖËFGÓ: 260mm L x 174mm W x 17 mm D ÔVØÚÞÖËFFÓ: 207mm L x 137.5mm W x 15mm D
Weight Tablet	ÔVØÚÞÖËFGÓ: 930g ÔVØÚÞÖËFFÓ: 528g

Chapter7: Software Support

Demo application and source code available

We can provide demo applications such as reading ignition status, AVIN camera, Serial port, GPIO, barcode scanner and NFC etc. Please contact our Sales for details.

Supplementary APIs

Example source code and applications are provided.

Serial port access

Package installation

    To install a package

    To get the installation status through BroadcastReceiver

    To delete a package

Power management

Cradle detection

Notification blocker

Additional IOs

    Ignition signal

Programmatic firmware upgrade and configuration

    Accepted image name patterns

    Through image copy

    From the command line

    From application code

Radio Parameters

Model No: ˙7 H: DB8 !%%6 #/&6	
Technical Characteristics of EUT	
2G	
Support Networks:	GSM, GPRS, EDGE
Support Bands:	GSM900, DCS1800
Frequency Range:	GSM900: Tx: 880-915MHz, Rx: 925-960MHz
	DCS1800: Tx: 1710-1785MHz, Rx: 1805-1880MHz
RF Output Power:	GSM900: 32.80dBm, GSM1800: 31.06dBm
	EDGE900: 26.89dBm, EDGE1800: 26.97dBm
Modulation Type:	GMSK, 8PSK
Type of Antenna:	Integral Antenna
Antenna Gain:	GSM900: 0.7dBi, DCS1800:1.42dBi
GPRS/EDGE Class:	Class 12
3G	
Support Networks:	WCDMA, HSDPA, HSUPA
Support Bands:	WCDMA Band 1, WCDMA Band 8
Frequency Range:	WCDMA Band 1: Tx: 1920-1980MHz, Rx: 2110-2170MHz
	WCDMA Band 8: Tx: 880-915MHz, Rx: 925-960MHz
RF Output Power:	WCDMA Band 1: 24.03dBm, WCDMA Band 8: 22.95dBm
Modulation Type:	BPSK, QPSK, 16QAM
Antenna Type:	Integral Antenna
Antenna Gain:	WCDMA Band 1: 1.72dBi, WCDMA Band 8: 0.7dBi
4G	
Support Bands:	FDD-LTE Band1, 3, 7, 8, 20, 28 TDD-LTE Band 38, 40
Frequency Range:	FDD-LTE Band 1: Tx: 1920-1980MHz, Rx: 2110-2170MHz
	FDD-LTE Band 3: Tx: 1710-1785MHz, Rx: 1805-1880MHz
	FDD-LTE Band 7: Tx: 2500-2570MHz, Rx: 2620-2690MHz
	FDD-LTE Band 8: Tx: 880-915MHz, Rx: 925-960MHz
	FDD-LTE Band 20: Tx: 832-862MHz, Rx: 791-821MHz
	FDD-LTE Band 28: Tx: 703-748MHz, Rx: 758-803MHz
	TDD-LTE Band 38: Tx: 2570-2620MHz, Rx: 2570-2620MHz
	TDD-LTE Band 40: Tx: 2300-2400MHz, Rx: 2300-2400MHz
Max.RF Output Power:	FDD-LTE Band 1: 23.65dBm, FDD-LTE Band 3: 23.31dBm, FDD-LTE Band 7: 24.11dBm, FDD-LTE Band 8: 23.44dBm , FDD-LTE Band 20: 23.31dBm , FDD-LTE Band 28: 23.34dBm , TDD-LTE Band 38: 24.19dBm, TDD-LTE Band 40: 23.68dBm
Modulation Type:	QPSK, 16QAM
Antenna Type:	Integral Antenna
Antenna Gain:	FDD-LTE Band 1: 1.72dBi, FDD-LTE Band 3: 1.42dBi,

	FDD-LTE Band 7: 0.08dBi, FDD-LTE Band 8: 0.7dBi, FDD-LTE Band 20: 0.6dBi, FDD-LTE Band 28: -2.28dBi, TDD-LTE Band 38: -0.34dBi, TDD-LTE Band 40:0.56dBi,
Bluetooth	
Bluetooth Version:	Bluetooth V5.0
Frequency Range:	2402-2480MHz
Max.RF Output Power:	9.46dBm (EIRP)
Type of Modulation:	GFSK, π/4 DQPSK, 8DPSK
Data Rate:	1Mbps, 2Mbps, 3Mbps
Quantity of Channels	79/40
Channel Separation:	1MHz/2MHz
Type of Antenna:	Integral Antenna
Antenna Gain:	2.59dBi
Wi-Fi (2.4GHz)	
Support Standards:	802.11b, 802.11g, 802.11n-HT20/40
Frequency Range:	2412-2472MHz for 802.11b/g/n(HT20) 2422-2462MHz for 802.11n(HT40)
Max.RF Output Power:	15.39dBm (EIRP)
Type of Modulation:	CCK, OFDM, QPSK, BPSK, 16QAM, 64QAM
Quantity of Channels	13 for 802.11b/g/n(HT20), 9 for 802.11n(HT40)
Channel Separation:	5MHz
Type of Antenna:	Integral Antenna
Antenna Gain:	1.46dBi
NFC	
Frequency Range:	13.56MHz
Radiated H-Field:	14.49dBuA/m(@3m)
Type of Antenna:	Integral Antenna
Antenna Gain:	0dBi
Transmitter Product Class	1
LORA	
Frequency Range:	868.00MHz-868.6 MHz 869.4MHz-869.650 MHz
RF Output Power:	868.1MHz: 13.04dBm(ERP) 868.3MHz : 13.03dBm(ERP) 868.5MHz: 13.02dBm(ERP) 869.525MHz: 13.06 dBm(ERP)
Type of Modulation:	FSK
Type of Antenna:	Integral Antenna
Antenna Gain:	2dBi
Receiver Categories:	2
GPS	
Frequency Range:	1575.42MHz

Chapter8: Safety and regulatory compliance

FCC RF Exposure Information and Statement

This device meets the government's requirements for exposure to radio waves.

The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies.

The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health.

The SAR limit of USA (FCC) is 1.6 W/kg averaged.

Device types: portable device has also been tested against this SAR limit.

SAR information on this and other pad can be viewed on-line at

http://www.fcc.gov/oet/ea/fccid/.

Please use the device FCC ID number for search.

This device was tested simulation typical 0mm to body.

To maintain compliance with FCC RF exposure requirements, use accessories should maintain a separation distance between the user's bodies mentioned above.

FCC Warning

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

(2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE 1: 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 oand on, the user is encouraged to try to correct the interference by one or more 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.

NOTE 2: Any changes or medication to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CE

The product shall only be connected to a USB interface of version USB2.0 and that the connection to a power USB is allowed. Use careful with the earphone maybe possible excessive sound pressure from earphones and headphones can cause hearing loss.

CAUTION
RISK OF EXPLOSION IF BATTERY IS REPLACED
BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING
TO THE INSTRUCTIONS

IC Warning

This device contains license-exempt transmitter(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:
(1) This device may not cause interference.
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique 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;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health. The SAR limit of IC is 1.6 W/kg averaged. Device: Tablet (IC: 21087-ÁÔVØÚÞÖÉҒGÓ) has also been tested against this SAR limit. This device was tested simulation typical 0 mm to body. To maintain compliance with RF exposure requirements, the use accessories should not contain metallic components in its assembly, the use of accessories that do not satisfy these requirements may not comply

with RF exposure requirements, and should be avoided. The highest reported SAR value for body condition for separate function is 1.183W/kg respectively.

L'équipement est conforme aux limites d'exposition aux rayonnements ambiants non contrôlés spécifiées dans le document IC RSS - 102. Ces lignes directrices sont fondées sur des critères établis par des organisations scientifiques indépendantes par le biais d'évaluations périodiques et approfondies de la recherche scientifique. Ces normes comportent une marge de sécurité importante et visent à assurer la sécurité de tous, quel que soit leur âge ou leur état de santé. La limite SAR pour IC est en moyenne de 1,6W/ kg. Équipement: Tablet (IC: 21087-ÁÔVØÚÞÖËGÓ) a également été testée conformément à cette limite SAR. L'appareil a fait l'objet d'essais de simulation, généralement à une distance de 0 mm. Afin de maintenir la conformité aux exigences en matière d'exposition aux radiofréquences, les composants qui utilisent des accessoires ne doivent pas contenir de pièces métalliques et les accessoires qui ne satisfont pas à ces exigences peuvent ne pas être conformes aux exigences en matière d'exposition aux radiofréquences et doivent être évités. Les valeurs SAR les plus élevées rapportées pour l'état physique des fonctions individuelles étaient respectivement de 1.183W/kg.