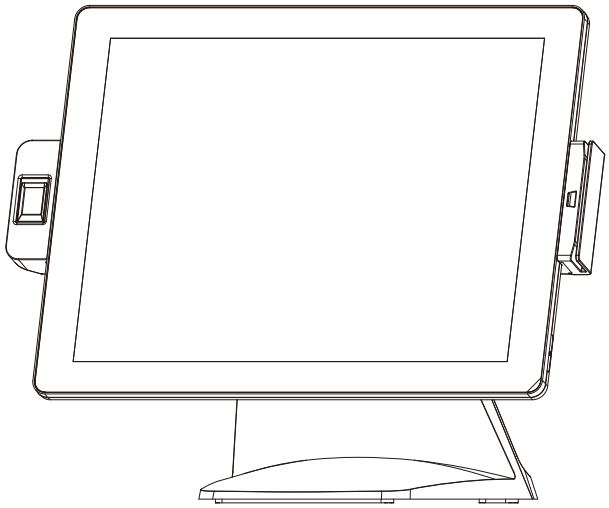
USER MANUAL

VERSION 2.0 March 2023

Pulse Ultra



Manual Version 2.0

TRADEMARK

Safety

IMPORTANT SAFETY INSTRUCTIONS

1. To disconnect the machine from the electrical power supply, turn off the power switch and remove the power cord plug from the wall socket. The wall socket must be easily accessible and in close proximity to the machine.
2. Read these instructions carefully. Save these instructions for future reference.
3. Follow all warnings and instructions marked on the product.
4. Do not use this product near water.
5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
6. Slots and openings in the cabinet and the back or bottom are provided for ventilation to ensure reliable operation of the product and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should never be placed near or over a radiator or heat register or in a built-in installation unless proper ventilation is provided.
7. This product should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
8. Do not allow anything to rest on the power cord. Do not locate this product where persons will walk on the cord.
9. Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

CE MARK

This device complies with the requirements of the EEC directive 2014/30/EU with regard to “Electromagnetic compatibility” and 2014/35/EU “Low Voltage Directive”.

FCC

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.

CAUTION ON LITHIUM BATTERIES

There is a danger of explosion if the battery is replaced incorrectly. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer’s instructions.

Battery Caution

Risk of explosion if battery is replaced by an incorrectly type. Dispose of used battery according to the local disposal instructions.

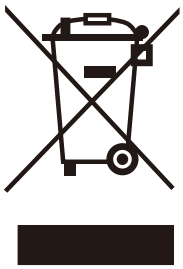
Safety Caution

Note: To comply with IEC60950-1 Clause 2.5 (limited power sources, L.P.S) related legislation, peripherals shall be 4.7.3.2 “Materials for fire enclosure” compliant.

4.7.3.2 Materials for fire enclosures
For MOVABLE EQUIPMENT having a total mass not exceeding 18kg.the material of a FIRE ENCLOSURE, in the thinnest significant wall thickness used, shall be of V-1 CLASS MATERIAL or shall pass the test of Clause A.2.
For MOVABLE EQUIPMENT having a total mass exceeding 18kg and for all STATIONARY EQUIPMENT, the material of a FIRE ENCLOSURE, in the thinnest significant wall thickness used, shall be of 5VB CLASS MATERIAL or shall pass the test of Clause A.1

LEGISLATION AND WEEE SYMBOL

2012/19/EU Waste Electrical and Electronic Equipment Directive on the treatment, collection, recycling and disposal of electric and electronic devices and their components.



The crossed dust bin symbol on the device means that it should not be disposed of with other household wastes at the end of its working life. Instead, the device should be taken to the waste collection centers for activation of the treatment, collection, recycling and disposal procedure.
To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take this item for environmentally safe recycling.

Business users should contact their supplier and check the terms and conditions of the purchase contract.

This product should not be mixed with other commercial wastes for disposal.

Revision History

Changes to the original user manual are listed below:

Revision	Description	Date
2.0	• Individual version for F34 & F84U motherboard	March 2023

Table of Contents

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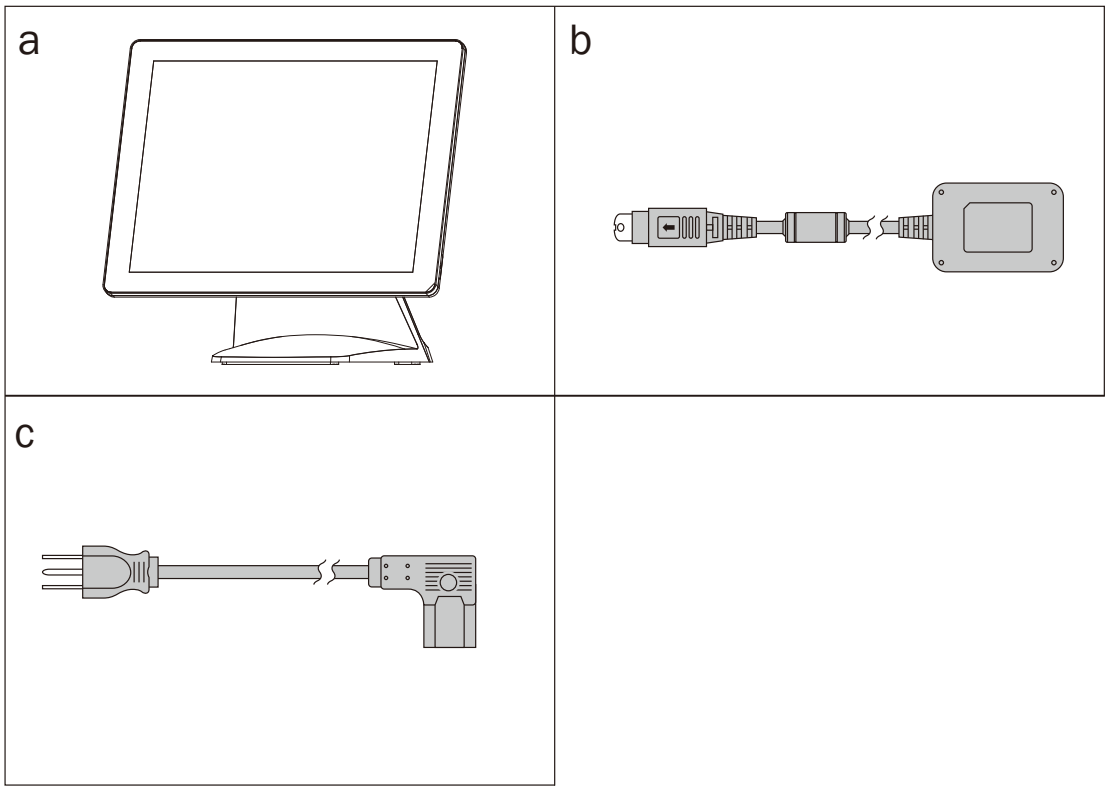
1. Packing List

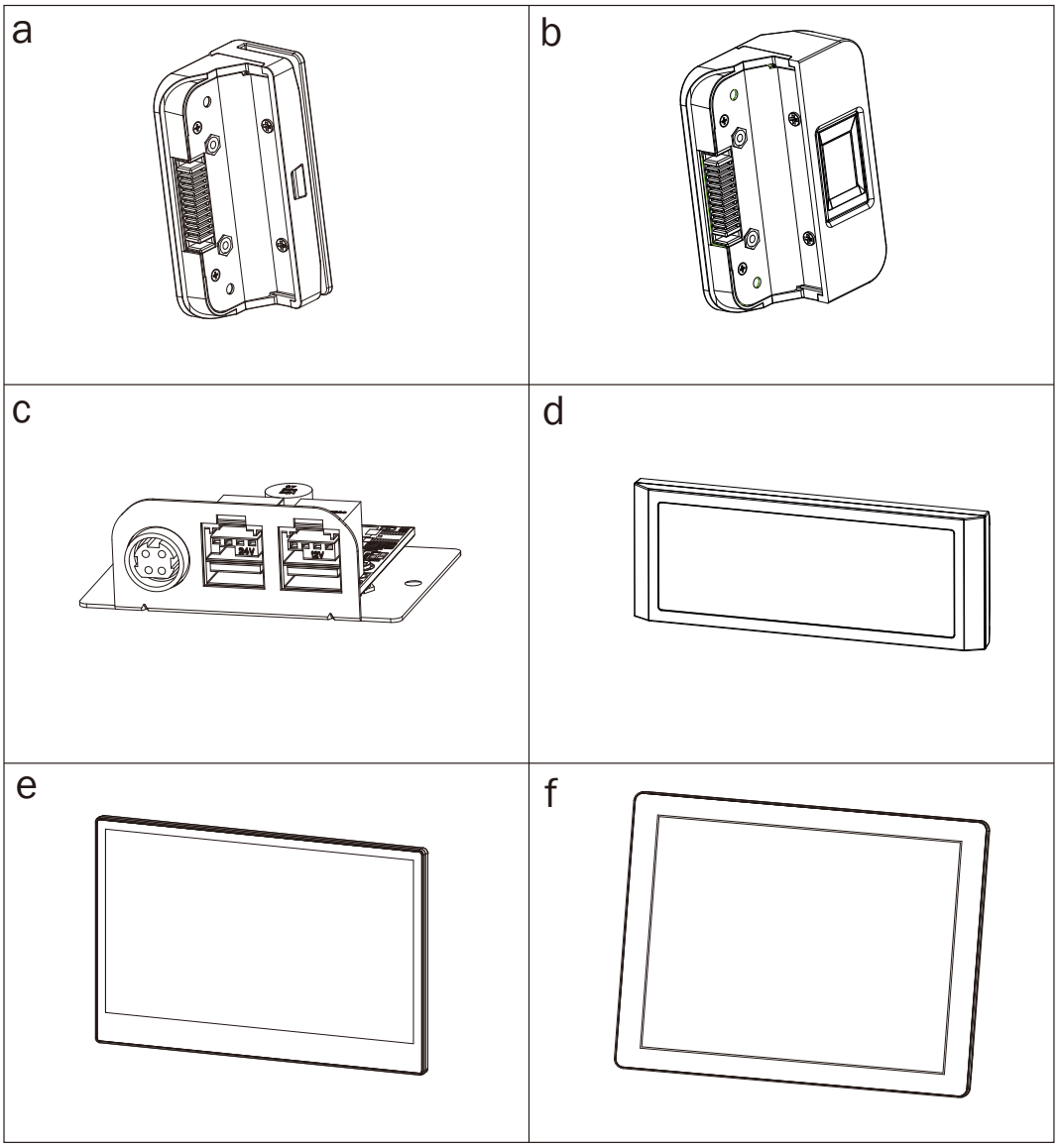
1-1. Standard Accessories



a. System
b. Power adapter
c. Power cord

Note: Power cord will be supplied differently according to various region or country.

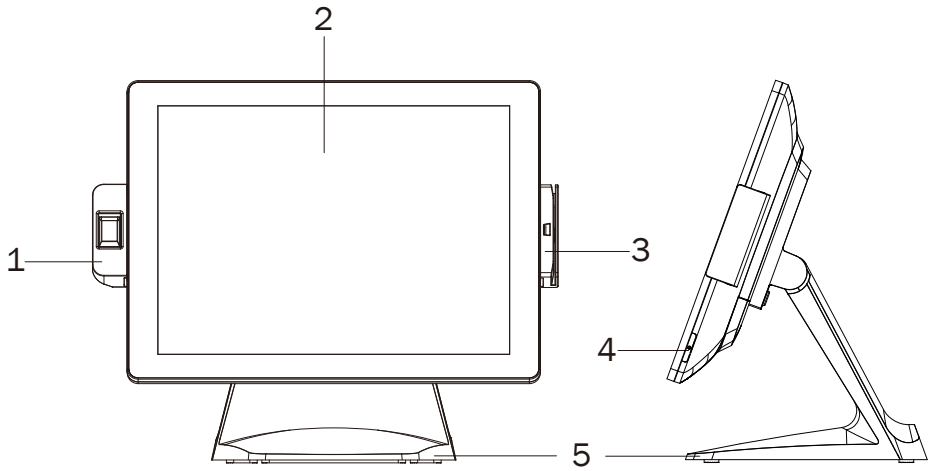
1-2. Optional Accessories



a. MSR module
b. Fingerprint module
c. Powered IO board (DC jack / powered USB 24V / powered USB 12V)
d. Customer display
e. 11.6" 2nd display
f. 15.1" 2nd display

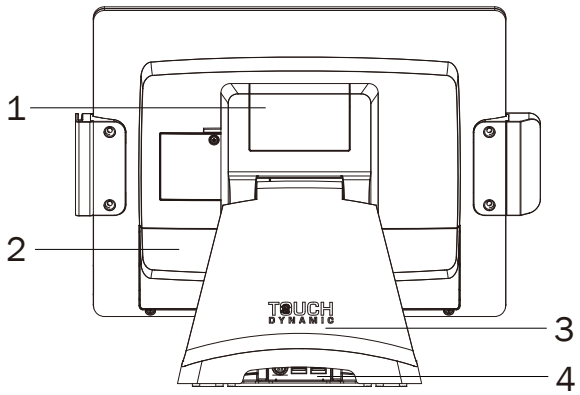
2. System View

2-1. Front & Side View



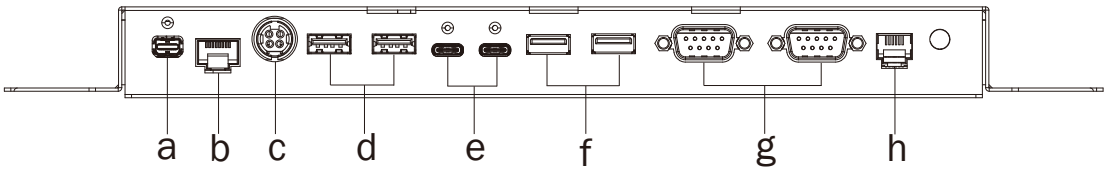
No.	Description
1	Fingerprint (option)
2	Touch screen
3	MSR (option)
4	Power button
5	Stand

2-2. Rear View



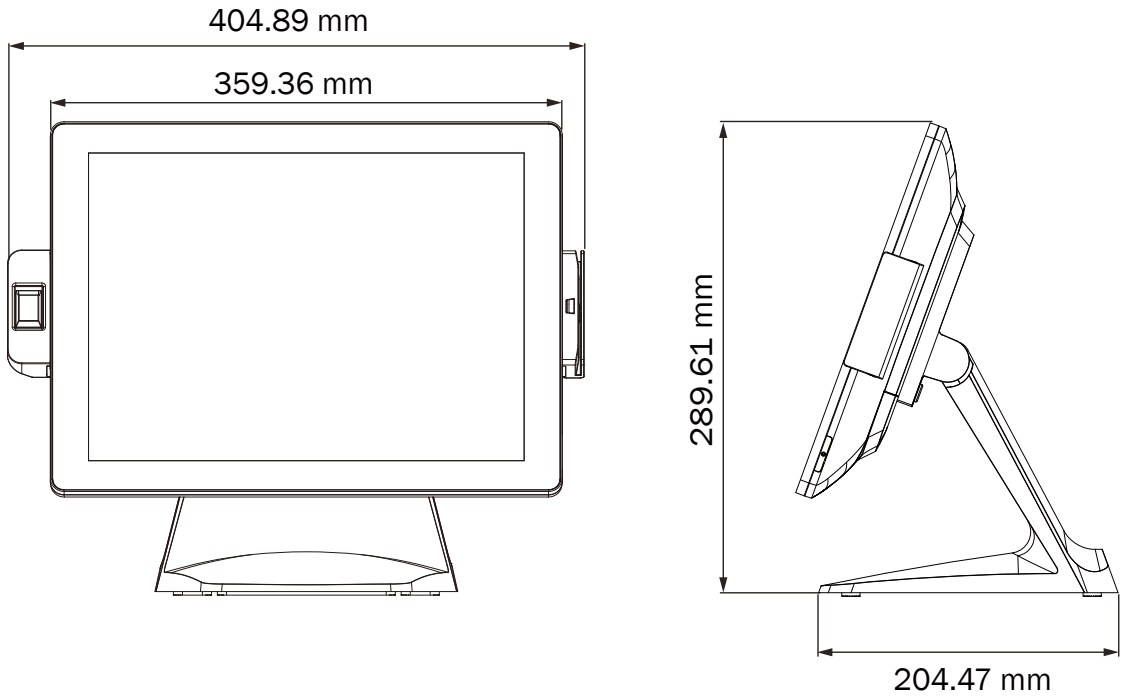
No.	Description
1	VESA top cove
2	Cable cover
3	Stand cover
4	Powered IO board (option)

2-3. IO Ports View



No.	Description
a	FeDP (2nd display)
b	LAN
c	DC 19V in
d	USB 2.0 x 2
e	USB Type-C x 2
f	USB 3.0 x 2
g	COM x 2
h	Cash drawer

2-4. Dimensions

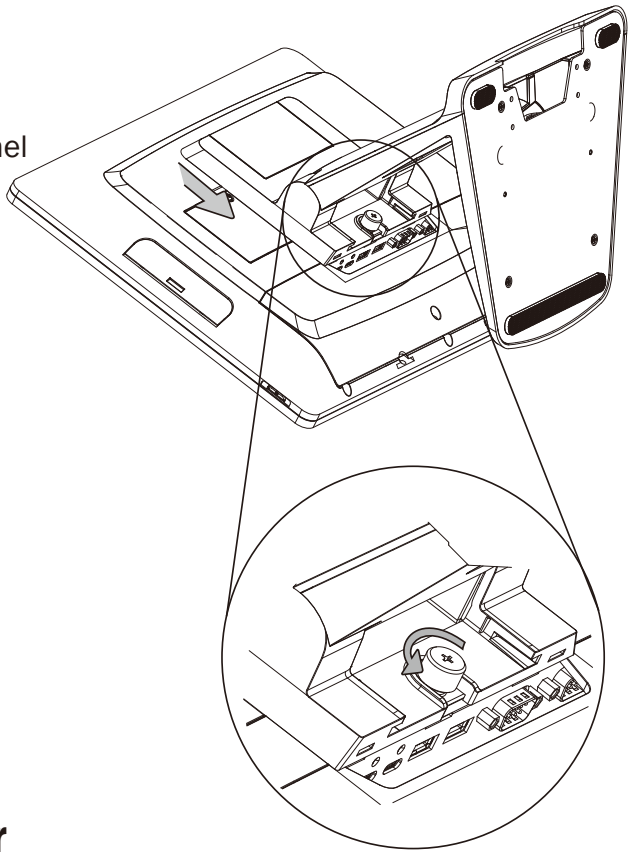


3. System Assembly & Disassembly

3-1. Disassemble the Stand

1. Loosen the thumb screw (x1) and slide the stand towards the IO panel to release it from the system.

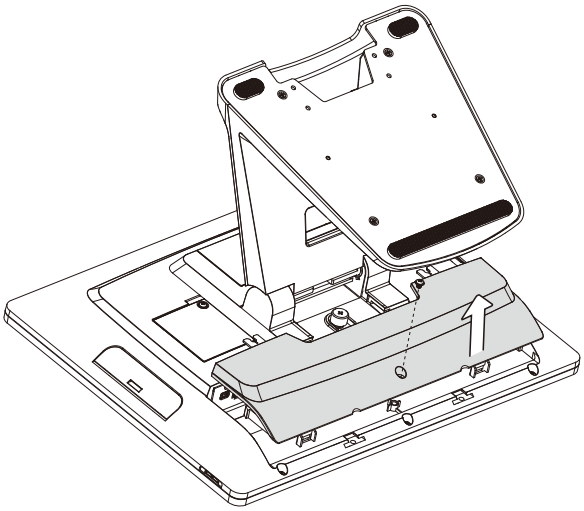
2. Reverse the steps above to attach stand to the system.



3-2. Remove the Cable Cover

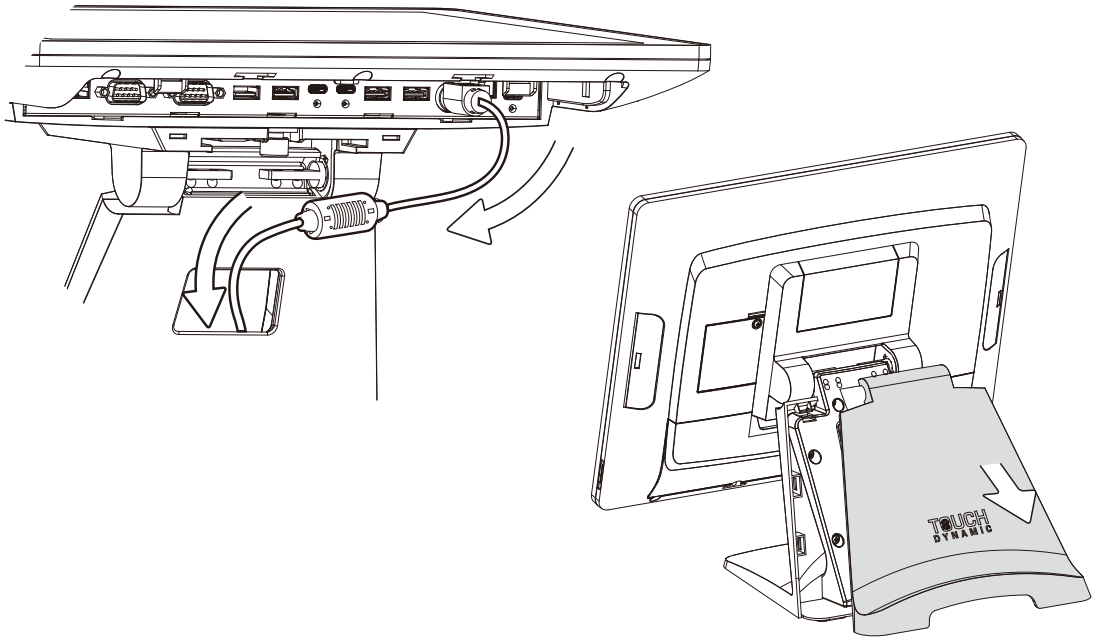
1. Remove the screw (x1) of the cable cover.

2. Pull the cable cover upwards to release it from the system.



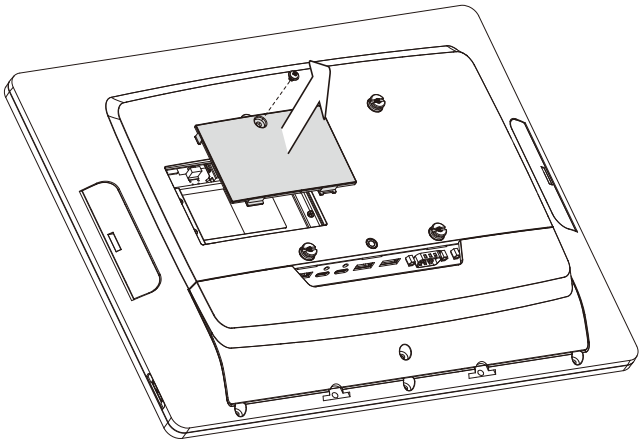
3-3. Install the Power Adapter

The system is equipped with a 65W or 120W power adapter. Please follow the steps to install the power adapter.



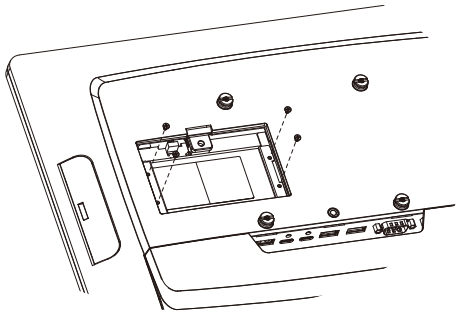
1. Follow the steps described in Chapter 3-2 to release the cable cover first.
2. Connect the power adapter to the 19V DC in port and then route the cable through the hole of the stand as shown in the picture.
3. Open the stand cover and arrange the cable.

3-4. Replace the M.2 SSD Card

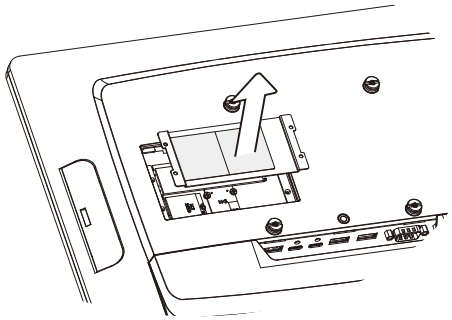


1. To replace the M.2 SSD card, please disassemble the stand firstly as steps dscribed in chapter 3-1.
2. Remove the screw (x1) to release the SSD dummy cover.

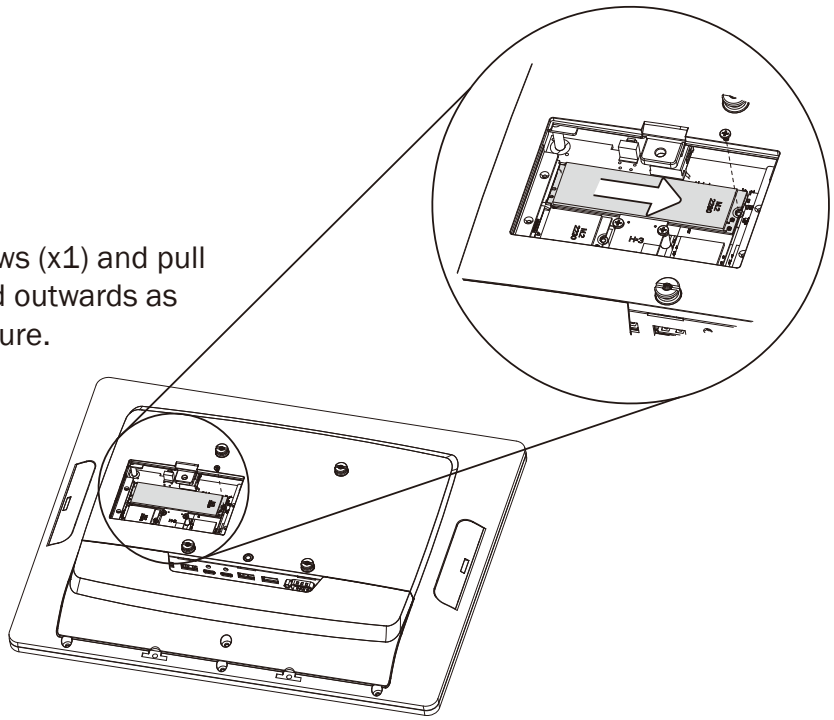
3. Remove the screws (x4) to release the metal bracket.



4. The mylar is attached to the metal bracket. For easier removal pull one side of the mylar which is not glued and lift up the metal bracket.



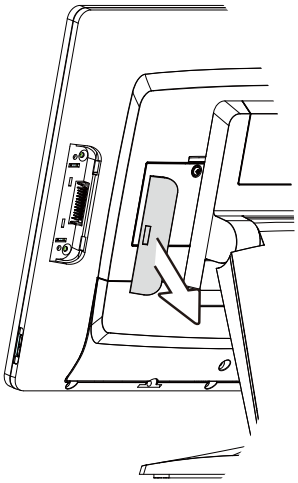
5. Remove the screws (x1) and pull the M.2 SSD card outwards as shown in the picture.



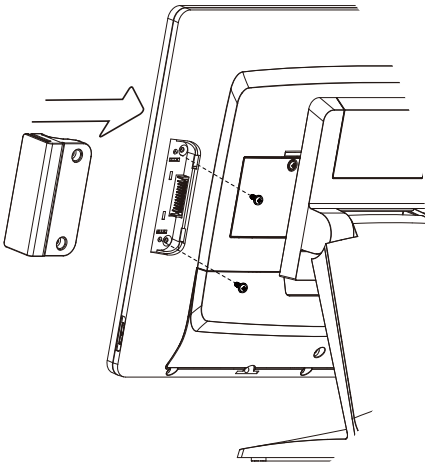
4. Peripheral Installation

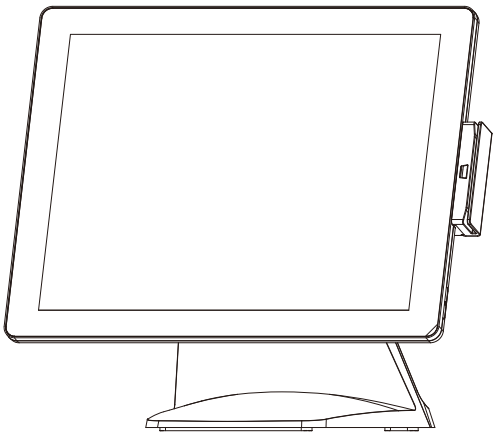
4-1. Install the MSR Module

1. Remove the dummy cover first.



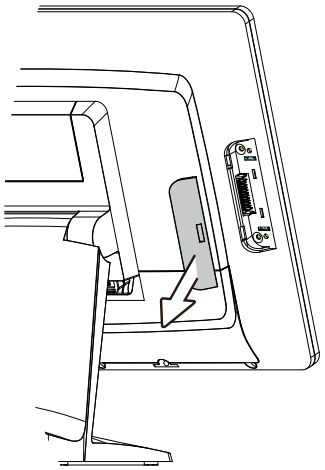
2. Insert the MSR module in place and fasten the screws (x2) on the back to secure the module.



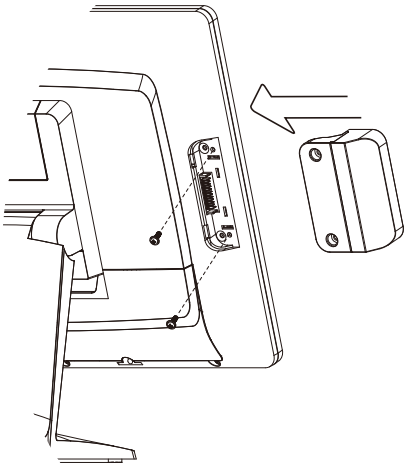


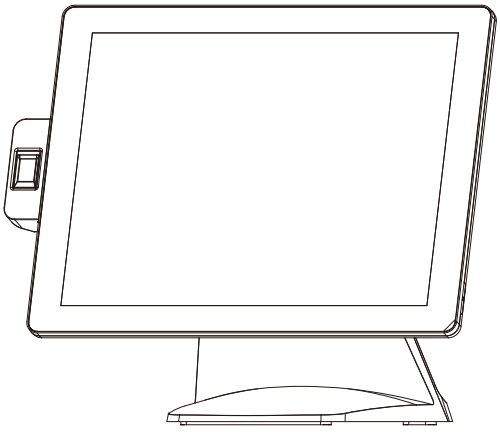
4-2. Install the Fingerprint Module

1. Remove the dummy cover first.

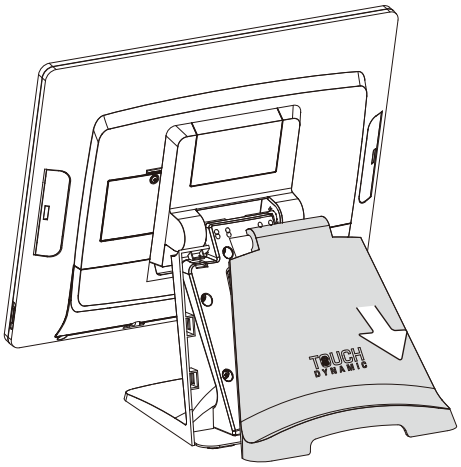


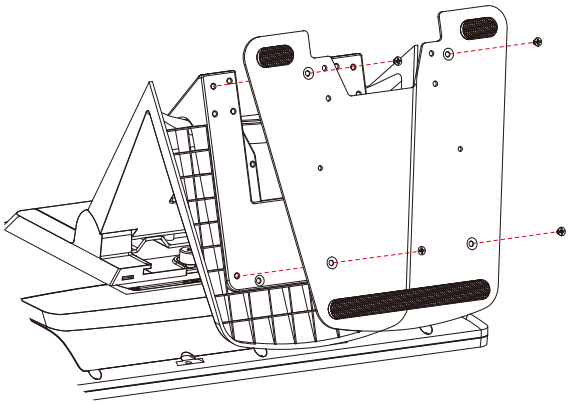
2. Insert the Fingerprint module in place and fasten the screws (x2) on the back to secure the module.





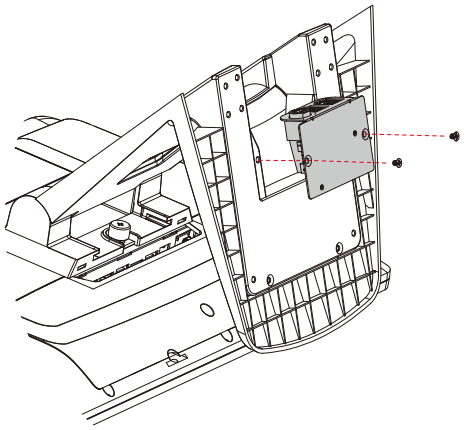
4-3. Instal the Powered IO Board

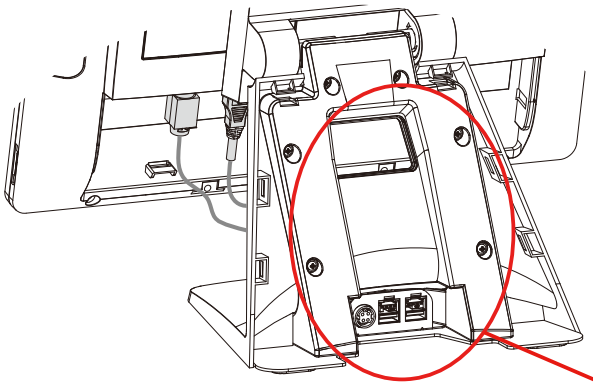


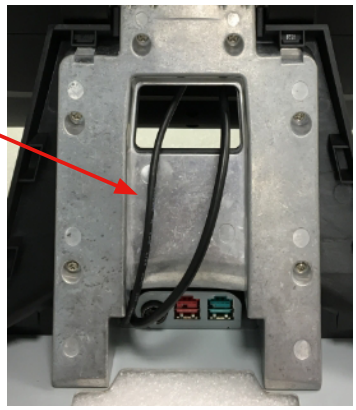


1. Use both hands to pull the stand cover outwards.
2. Lay down system to access the bottom of the stand. Loosen the screws (x4) to release the stand plate.

3. Attach the powered IO board and then fasten two screws to secure it to the system.



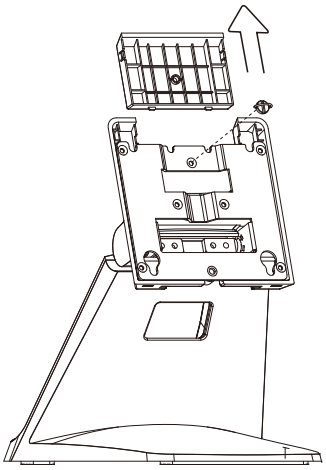


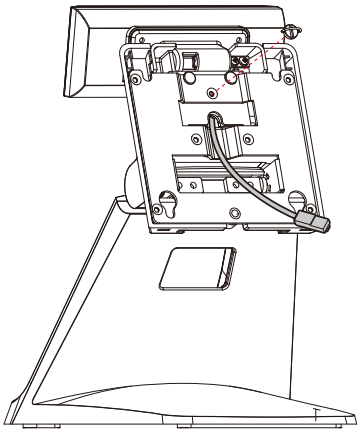


4. Connect the power and USB connectors onto the IO board and arrange the cables as shown in the picture.

5. Connect the other end of the cables to the IO panel.

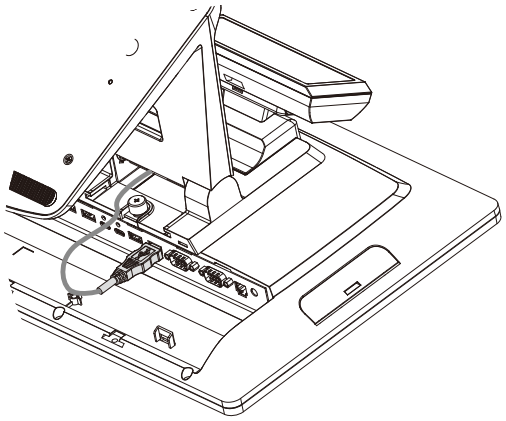
4-4. Install the Customer Display





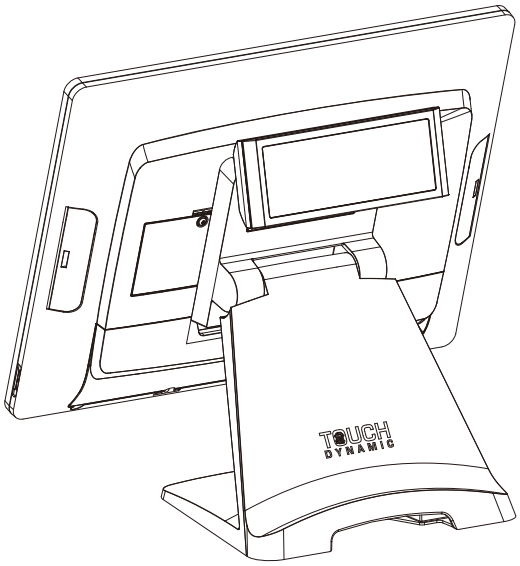
1. Follow the steps in Chapter 3-1 to diassemble the stand from the LCD panel.
2. Remove the thumb screw (x1) from the VESA top cover and then pull the cover up.
3. Attach the LCM module to system by fastening the thumb screw (x1).
4. Route the USB cable through the hole of the stand as picture shown.

5. Attach the stand to the LCD panel and fasten the thumb screw (x1).

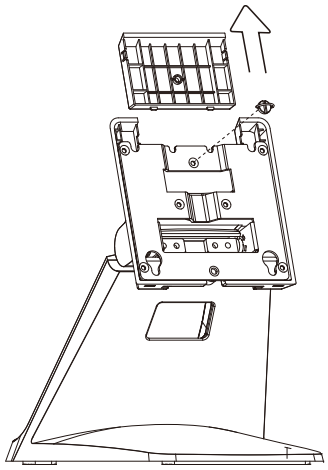


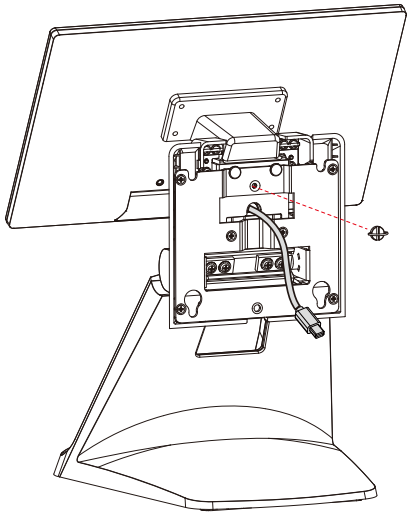
6. Connect the USB cable to USB port on the systems IO panel. Make sure the system is powered off.

* Please note the cable cover (refer to Chapter 3-2) have to be removed before routing the cable.



4-5. Instal the Second Display



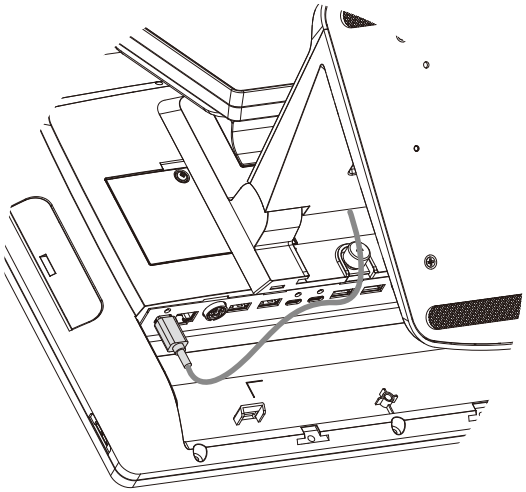


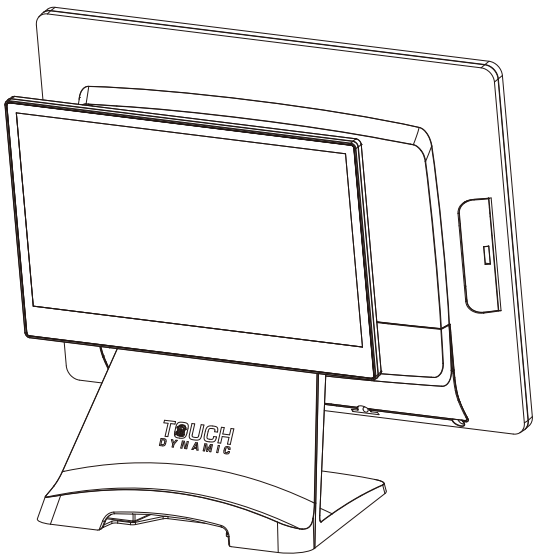
1. Follow the steps in Chapter 3-1 to diassemble the stand from the LCD panel.
2. Remove the thumb screw (x1) from the VESA top cover and then pull the cover up.
3. Attach the 2nd display module to system by fastening the thumb screw (x1).
4. Route the 2nd display cable through the hole of the stand as picture shown.

5. Attach the stand to the LCD panel and fasten the thumb screw (x1).

6. Connect the 2nd display cable to FeDP port on the systems IO panel. Make sure the system is powered off.

* Please note the cable cover (refer to Chapter 3-2) have to be removed before routing the cable.

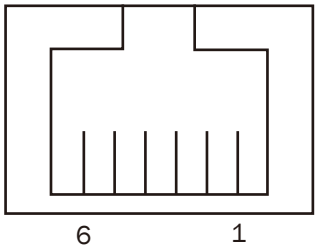




4-6. Optional Accessories

You can install a cash drawer through the cash drawer port. Please verify the pin assignment before installation.

Cash Drawer Pin Assignment



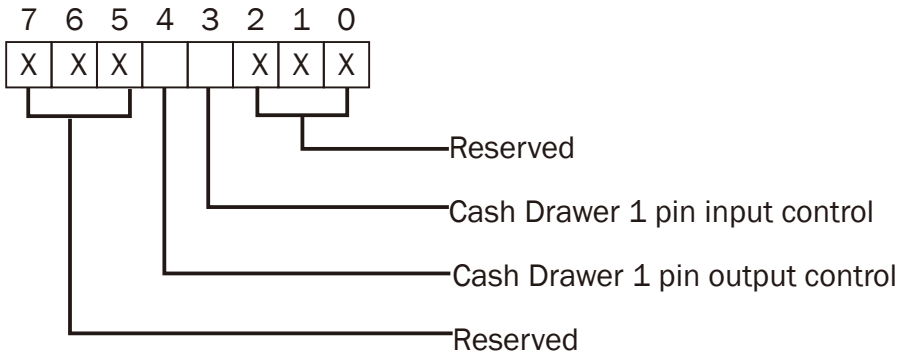
Pin	Signal
1	Cash drawer 2 In
2	Cash drawer 1 Out
3	Cash drawer 1 In
4	12V / 19V (or 24V)
5	Cash drawer 2 Out
6	GND

Cash Drawer Controller Register

The Cash Drawer Controller use one I/O addresses to control the Cash Drawer.

Register Location: 0x482h
Attribute: Read / Write
Size: 8bit

BIT	BIT7	BIT6	BIT5	BIT4	BIT3	BIT2	BIT1	BIT0
Attribute	Reserved			CD1 Out	CD1 In	Reserved		



Bit 7: Reserved
Bit 6: Reserved
Bit 5: Reserved
Bit 4: Cash Drawer 1 pin output control.
= 1: Opening the Cash Drawer
= 0: Allow close the Cash Drawer
Bit 3: Cash Drawer 1 pin input control.
= 1: the Cash Drawer closed or no Cash Drawer
= 0: the Cash Drawer opened
Bit 2: Reserved
Bit 1: Reserved
Bit 0: Reserved

Note: Please follow the Cash Drawer control signal design to control the Cash Drawer.

Cash Drawer Control Command Example

Use Debug.EXE program under DOS or Windows98

Command	Cash Drawer
O 482 10	Opening
O 482 00	Allow to close
► Set the I/O address 482h bit4 =1 for opening Cash Drawer by “DOUT bit0” pin control. ► Set the I/O address 482h bit4 = 0 for allow close Cash Drawer.	

Command	Cash Drawer
I 482	Check status
► The I/O address 482h bit3 =1 mean the Cash Drawer is opened or not exist. ► The I/O address 482h bit3 =0 mean the Cash Drawer is closed.	

5. Specification

Model Name	Pulse Ultra	
Mainboard	**F34**	**F84U**
CPU support	Intel® Celeron® J6412	Intel® Core™ i3-1115G4 Intel® Core™ i5-1135G7
System memory	1 x SO-DIMM, DDR4 3200Mhz (32GB Max)	
Graphic memory	Intel® UHD Graphics for 10th Gen Intel® Processors	Intel® UHD Graphics for 11th Gen Intel® Processors
LCD Touch Panel		
LCD size	15 LED (eDP)	
Brightness (cd/m²)	350 nits	
Maximal resolution	1024 x 768	
Touch screen type	True-Flat PCAP Touch	
Tilt angle	90^0	
Storage		
FlashMemory	M.2 SATA SSD or NVMe SSD	
Expansion		
M.2	E-key 2230 for WLAN; M-key 2280 for storage	
I/O Ports		
Defined connector	1 x FeDP (proprietary) for the 2nd display (2-lane eDP/USB2.0/audio(R-CH)/power button/power)	
USB Type A	4 (2 x USB3.0, 2 x USB 2.0)	
USB Type-C	1 x USB2.0 Type-C (data only), PDO 5V@3A / PDO 19V@3A 1 x USB3.0 Type-C (data only), PDO 5V@3A	1 x USB2.0 Type-C (data only), PDO 5V@3A / PDO 19V@3A 1 x USB3.0 Type-C (full function), PDO 5V@3A / PDO 12V@3A
Serial / COM	2 x DB9 (COM1 / COM2 w/5V/12V powered enabled by BIOS)	
LAN (10/100/1000)	1 x RJ45	
Cash drawer	1 x RJ-11 (2 in 2 out)	
DC jack	1x 4 pin w/ lock	
Power		
Power supply	default 19V/65W, 180W with powered USB box	default 19V/120W, 180W with powered USB box
Control/Indicator		
Power button	1	
Power LED	1 color (Blue) on the touch screen, 1 x 2-pin (1.25mm) connector	
Peripherals (option)		
MSR	2 (USB) (blade type)	
Fingerprint	1 (USB) (blade type)	
Customer display	LCM (USB)	
2nd display	11.6”/15.1”	
Speaker	2 x 2 W	
Power box	on stand	

Model Name	**POS335N2**	
Mainboard	**F34**	**F84U**
Certificate		
EMC & Safety	CE/ FCC Class A ,LVD	
ESD	4 kV Contact discharge, 8 kV Air discharge	
Color	Black	
Environment		
Sealing	IP54 (front side)	
Operating temperature	0°C ~ 35°C (32°F ~ 95°F)	
Storage temperature	-20°C ~ 60°C (-4°F ~ 140°F)	
Humidity	20% ~ 85% RH non-condensing	
Dimension (W x D x H)	327 x 210 x 350 (mm)	
Weight	4.3 kg	
OS supported	Windows 10 IoT Enterprise, Linux	

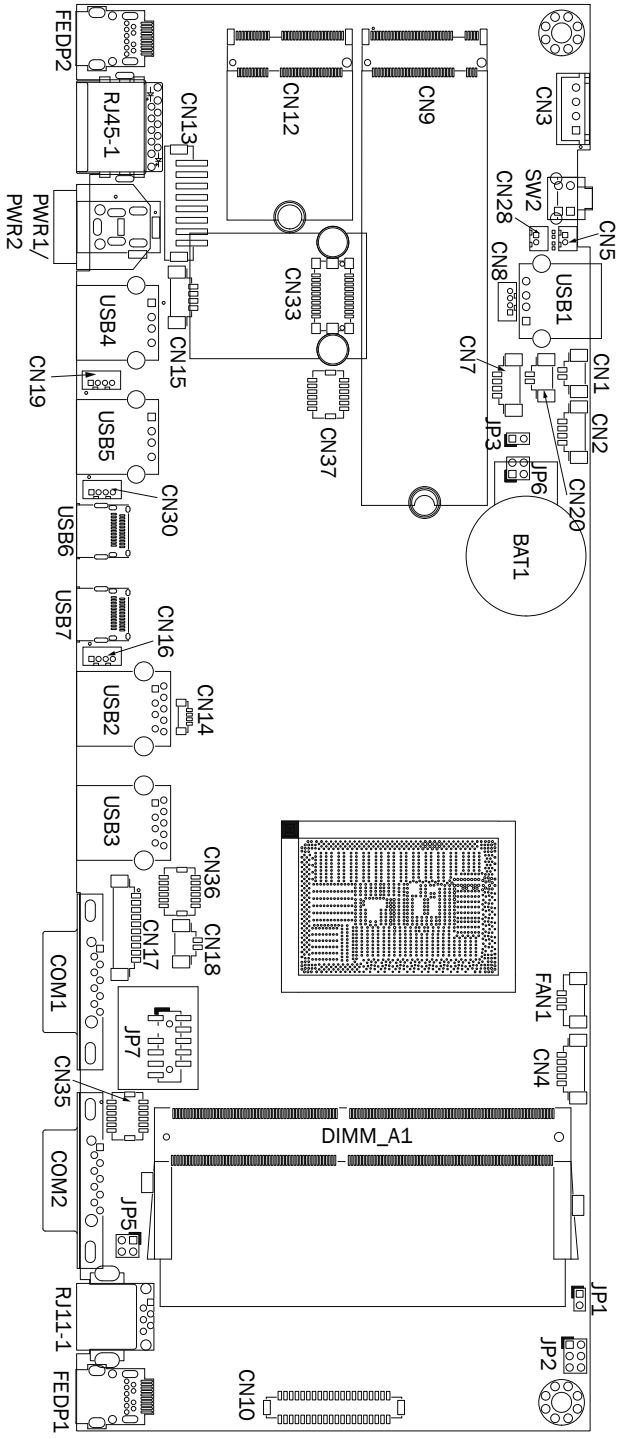
*** This specification is subject to change without prior notice.**

**** A powered USB board and a standard E-Mark cable are required in order to meet the most efficient power supply of the 19V/3A USB Type-C connector.**

6. Configuration

6-1. F34 Motherboard

6-1-1. Motherboard Layout



6-1-2. Connectors & Functions

Connector	Function
CN1	Speaker R connector
CN2	4 pin power button w/2 LED connector
CN3	SATA power connector
CN5	Speaker L connector
CN7	Line-out connector
CN8	Internal USB 2.0 connector (shared w/ USB1)
CN15/CN16/CN19/CN30	Internal USB 2.0 connector
CN9	M.2 slot, M-Key for storage
CN10	40 pin eDP connector
CN12	M.2 slot, E-Key for wireless card
CN13	Wide range power connector
CN17	COM3 connector
CN18	HDD LED connector
CN20	Mic-in connector
CN28	RTC battery connector
CN33	OOB connector
CN35	USB to COM1/2 connector (option)
CN36	USB to COM3 connector (option)
CN37	USB to LAN connector (option)
PWR1/PWR2	DC-in connector
RJ11_1	Cash drawer connector
RJ45_1	LAN connector
SW2	Power button w/LED connector
DIMM_A1	SO-DIMM socket
FAN1	FAN connector
FEDP1	Main FeDP connector
FEDP2	2nd FeDP connector
USB1	Front USB 2.0 connector
USB2/USB3	USB 3.0 connector
USB4/USB5	USB 2.0 connector
USB6	USB Type-C connector (USB 3.0)
USB7	USB Type-C connector (USB 2.0)
COM1	COM1 connector
COM2	COM2 connector
JP2	Speaker cable setting jumper
JP3	Audio Line-out setting jumper
JP5	Cash drawer power setting jumper
JP7	TPM connector

Note: *Connectors and jumpers will be different according to product difference, the real object should be considered as final. Contact your POS Systems authorized distributor or reseller for technical information or specific device configuration.*

6-1-3. Jumper Settings

Speaker Cable Setting Jumper

Function	JP2
▲ L=0.46m~2.0m (2W)	1 3 2 4
on M/B (2W)	[1] 3 [2] 4
L=0.46m~2.0m (3W)	1 [3] 2 [4]
on M/B (3W)	[1] [3] [2] [4]

Audio Line-out Setting Jumper

Function	JP3
▲Stereo	[1] [2]
Reserved (line-out)	1 2

Cash Drawer Power Setting Jumper

Function	JP5
▲ +19V	[1] 3 [2] 4
+12V	1 [3] 2 [4]

1
2 Jumper open [1]
[2] Jumper short

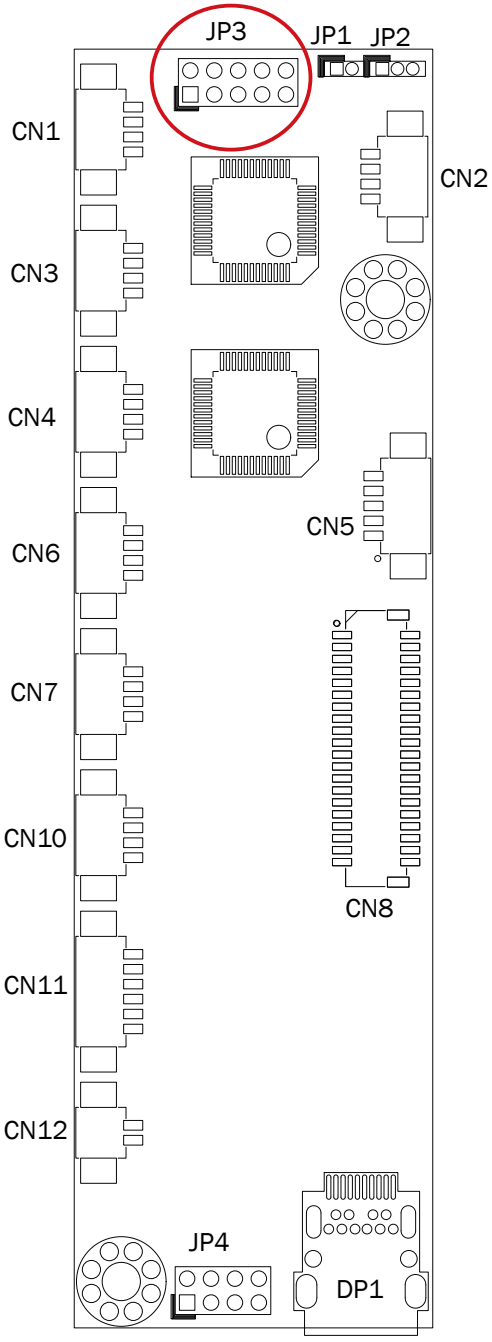
▲ = Manufacturer Default Setting

LCD ID Setting

To set the panel ID, please insert the jumper on the FeDP to LVDS board.

Panel#	Resolution	JP3
0	Reserved	1-2 3-4 5-6 7-8 9-10
1	800 x 600	1 2 3-4 5-6 7-8 9-10
2	800 x 600	1-2 3 4 5-6 7-8 9 10
3	1024 x 768	1 3 2 4 5-6 7-8 9-10
4	1024 x 768	1-2 3-4 5 6 7-8 9-10
5	1366 x 768	1 3-4 2 5 6 7-8 9-10
6	1366 x 768	1-2 3 4 5 6 7-8 9-10
7	1024 x 600	1 3 2 4 5 6 7-8 9-10
8	1280 x 1024	1-2 3-4 5-6 7 8 9-10
9	1440 x 900	1 3-4 2 5-6 7 8 9-10
15	1920 x 1080	1 3 5 7 2 4 6 8 9-10

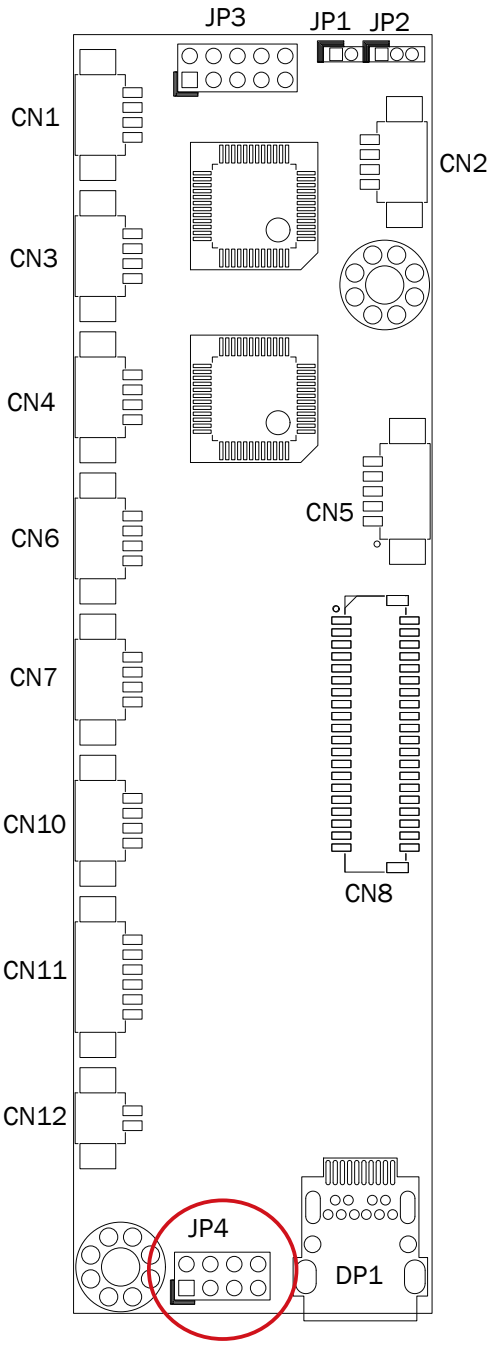
1-2 Jumper open 1-2 Jumper short



Panel Backlight Current Setting

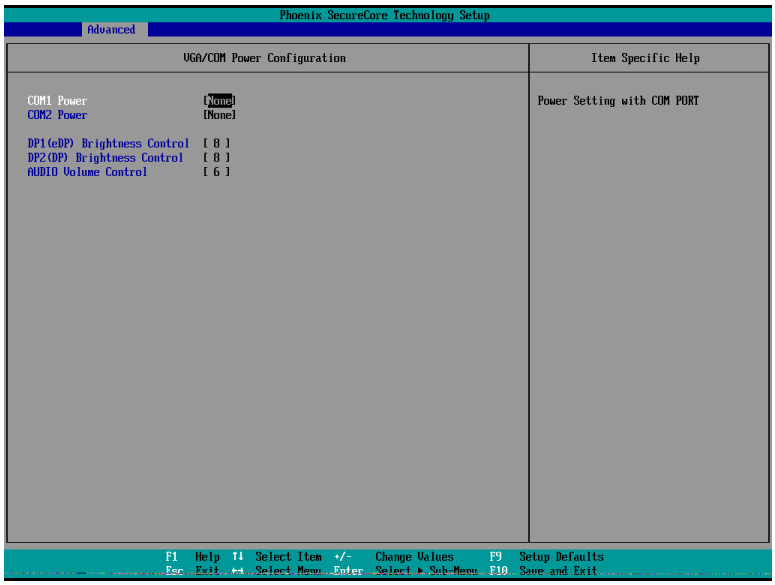
LED current	JP4
200mA	1 [3] 5 7 2 [4] 6 8
240mA	1 3 [5] 7 2 4 [6] 8
280mA	1 3 5 [7] 2 4 6 [8]
320mA	[1] [3] 5 7 [2] [4] 6 8
360mA	[1] 3 [5] 7 [2] 4 [6] 8
400mA	[1] 3 5 [7] [2] 4 6 [8]
420mA	1 [3] [5] 7 2 [4] [6] 8
460mA	1 [3] 5 [7] 2 [4] 6 [8]
500mA	1 3 [5] [7] 2 4 [6] [8]

[1] [2] Jumper open [1] [2] Jumper short



COM1/COM2 Power Setting

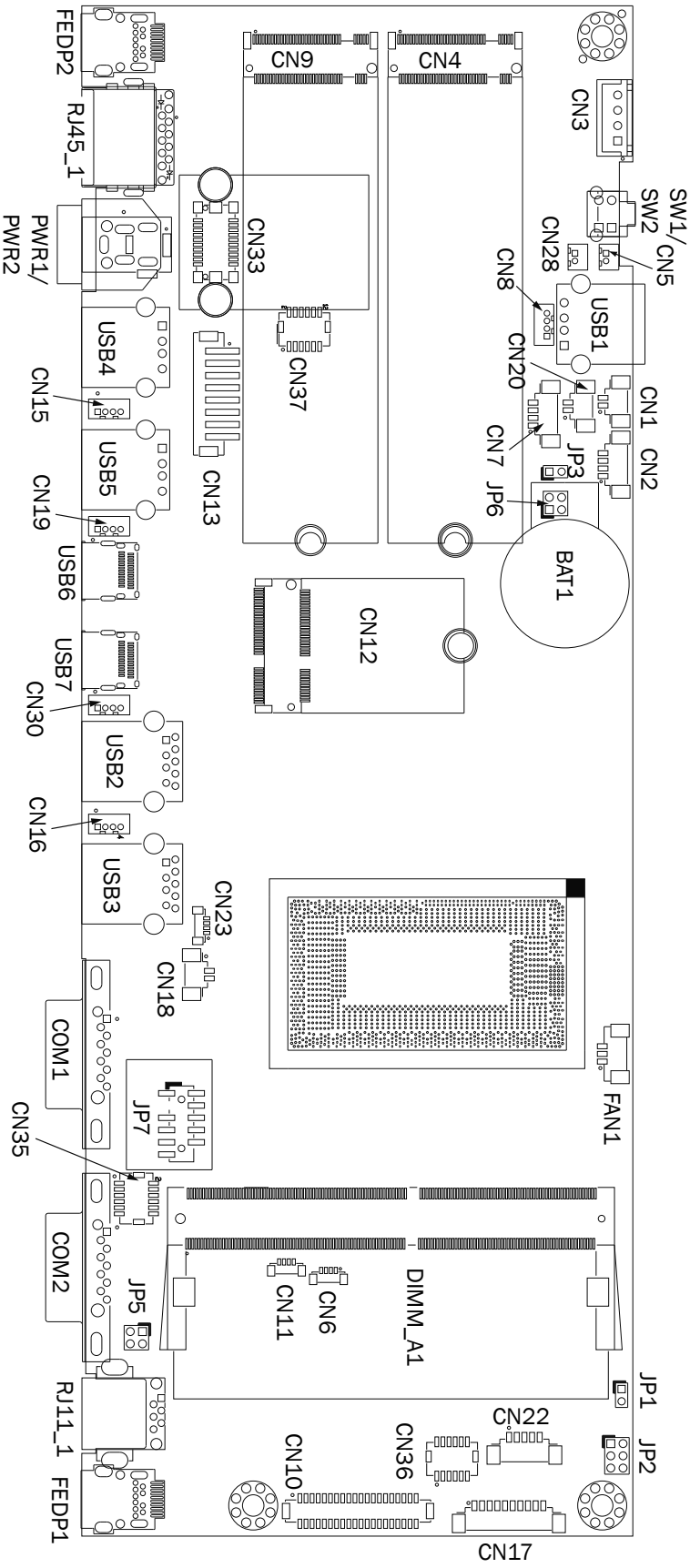
COM1, COM2 can be set to provide power to your serial device. The voltage can be set to +5V or +12V in the BIOS.



1. Power on the system, and press the <DEL> key when the system is booting up to enter the BIOS Setup utility.
2. Select the Advanced tab.
3. Select **VGA/COM Power Configuration** Ports and press <Enter> to go to display the available options.
4. To enable the power, select COM1 ,COM2 Power setting and press <Enter>. Select Power and press <Enter>. Save the change by pressing F10.

6-2. F84U Motherboard

6-2-1. Motherboard Layout



6-2-2. Connectors & Functions

Connector	Function
CN1	Speaker R connector
CN2	4 pin power button w/2 LED connector
CN3	SATA power connector
CN4/CN9	M.2 slot, M-Key for storage
CN5	Speaker L connector
CN7	Line-out connector
CN8	Internal USB 2.0 connector (shared w/ USB1)
CN10	40 pin eDP connector
CN12	M.2 slot, E-Key for wireless card
CN13	Wide range power connector
CN15/CN16/CN19/CN30	Internal USB 2.0 connector
CN17	COM3 connector
CN18	HDD LED connecotr
CN20	Mic-in connector
CN28	RTC battery connector
CN33	OOB connector
CN35	USB to COM1/2 connector (option)
CN36	USB to COM3 connector (option)
CN37	USB to LAN connector (option)
PWR1/PWR2	DC-in connector
RJ11_1	Cash drawer connector
RJ45_1	LAN connector
SW2	Power button w/LED connector
DIMM_A1	SO-DIMM socket
FAN1	FAN connector
FEDP1	Main FeDP onnector
FEDP2	2nd FeDP connector
USB1	Front USB 2.0 connector
USB2/USB3	USB3.0 connector
USB4/USB5	USB2.0 connector
USB6	USB Type-C connector (DP/USB 3.0)
USB7	USB Type-C connector (USB 2.0)
COM1	COM1 connector
COM2	COM2 connector
JP2	Speaker cable setting jumper
JP3	Audio Line-out setting jumper
JP5	Cash drawer power setting jumper
JP6	Speaker selection jumper
JP7	TPM connector

Note: *Connectors and jumpers will be different according to product difference, the real object should be considered as final. Contact your POS Systems authorized distributor or reseller for technical information or specific device configuration.*

6-2-3. Jumper Settings

Audio Line-out Setting Jumper

Function	JP3
▲Stereo	
Reserved (line-out)	

Cash Drawer Power Setting Jumper

Function	JP5
▲ +19V	
+12V	

Speaker Selection Jumper

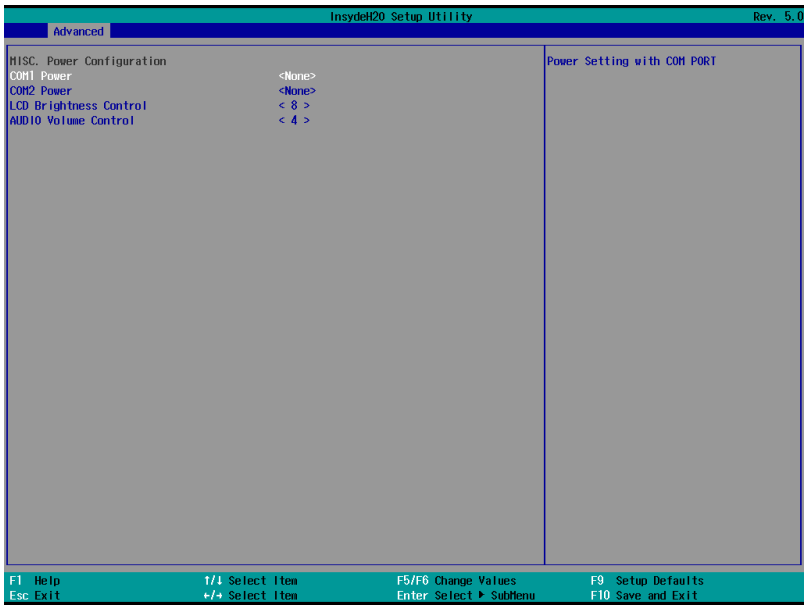
Function	JP6
▲ Internal & FeDP (3W)	
Internal (2W)	

 Jumper open  Jumper short

▲ = Manufacturer Default Setting

COM1/COM2 Power Setting

COM1, COM2 can be set to provide power to your serial device. The voltage can be set to +5V or +12V in the BIOS.



1. Power on the system, and press the <DEL> key when the system is booting up to enter the BIOS Setup utility.
2. Select the Advanced tab.
3. Select **MISC. Power Configuration** Ports and press <Enter> to go to display the available options.
4. To enable the power, select COM1 ,COM2 Power setting and press <Enter>. Select Power and press <Enter>. Save the change by pressing F10.