

# 4.3"/7"/ 10.1"

## EL-Series HMI

ARM A53 Quad Core 2.0GHz



**Model No.** W04IM3S-ELT1  
W07IM3S-ELT1  
W10IM3S-ELH2

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# Quick Start Guide

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# Preface

## Copyright Notice

No part of this document may be reproduced, copied, translated, or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the prior written permission of the original manufacturer.

## Trademark Acknowledgement

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## Disclaimer

We reserve the right to make changes, without notice, to any product, including circuits and/or software described or contained in this manual in order to improve design and/or performance. We assume no responsibility or liability for the use of the described product(s) conveys no license or title under any patent, copyright, or masks work rights to these products, and make no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified. Applications that are described in this manual are for illustration purposes only. We make no representation or guarantee that such application will be suitable for the specified use without further testing or modification.

## Warranty

Our warranty guarantees that each of its products will be free from material and workmanship defects for a period of one year from the invoice date. If the customer discovers a defect, we will, at his/her option, repair or replace the defective product at no charge to the customer, provide it is returned during the warranty period of one year, with transportation charges prepaid. The returned product must be properly packaged in its original packaging to obtain warranty service. If the serial number and the product shipping data differ by over 30 days, the in-warranty service will be made according to the shipping date. In the serial numbers the third and fourth two digits give the year of manufacture, and the fifth digit means the month (e. g., with A for October, B for November and C for December).

For example, the serial number 1W20Axxxxxxx means October of year 2020.

## Customer Service

We provide a service guide for any problem by the following steps: First, visit the website of our distributor to find the update information about the product. Second, contact with your distributor, sales representative, or our customer service center for technical support if you need additional assistance.

You may need the following information ready before you call:

- Product serial number
- Software (OS, version, application software, etc.)
- Description of complete problem
- The exact wording of any error messages

In addition, free technical support is available from our engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products.

## Advisory Conventions

Four types of advisories are used throughout the user manual to provide helpful information or to alert you to the potential for hardware damage or personal injury. These are Notes, Important, Cautions, and Warnings. The following is an example of each type of advisory.

**NOTE:**

A note is used to emphasize helpful information

**IMPORTANT:**

An important note indicates information that is important for you to know.

**CAUTION/ ATTENTION**

A Caution alert indicates potential damage to hardware and explains how to avoid the potential problem.

Une alerte d'attention indique un dommage possible à l'équipement et explique comment éviter le problème potentiel.

**WARNING!/ AVERTISSEMENT!**

An Electrical Shock Warning indicates the potential harm from electrical hazards and how to avoid the potential problem.

Un Avertissement de Choc Électrique indique le potentiel de chocs sur des emplacements électriques et comment éviter ces problèmes.

**ALTERNATING CURRENT / MISE À LE TERRE!**

The Protective Conductor Terminal (Earth Ground) symbol indicates the potential risk of serious electrical shock due to improper grounding.

Le symbole de Mise à Terre indique le risqué potentiel de choc électrique grave à la terre incorrecte.

## Safety Information

### **WARNING! / AVERTISSEMENT!**



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Toujours débrancher le cordon d'alimentation du chassis lorsque vous travaillez sur celui-ci. Ne pas brancher de connexions lorsque l'alimentation est présente. Des composantes électroniques sensibles peuvent être endommagées par des sauts d'alimentation. Seulement du personnel expérimenté devrait ouvrir ces chassis.

### **CAUTION/ATTENTION**



Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Toujours vérifier votre mise à la terre afin d'éliminer toute charge statique avant de toucher la carte CPU. Les équipements électroniques modernes sont très sensibles aux décharges d'électricité statique. Toujours utiliser un bracelet de mise à la terre comme précaution. Placer toutes les composantes électroniques sur une surface conçue pour dissiper les charge, ou dans un sac anti-statique lorsqu'elles ne sont pas dans le chassis.

## Safety Precautions

For your safety carefully read all the safety instructions before using the device. Keep this user manual for future reference.

- Always disconnect this equipment from any AC outlet before cleaning. Do not use liquid or spray detergents for cleaning. Use a damp cloth.
- For pluggable equipment, the power outlet must be installed near the equipment and must be easily accessible.
- Keep this equipment away from humidity.
- Put this equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
- The openings on the enclosure are for air convection and to protect the equipment from overheating.



### **CAUTION/ATTENTION**

Do not cover the openings!  
Ne pas couvrir les ouvertures!

- Before connecting the equipment to the power outlet make sure the voltage of the power source is correct.
- Position the power cord so that people cannot step on it. Do not place anything over the power cord.
- If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient over-voltage.
- Never pour any liquid into an opening. This could cause fire or electrical shock.

- Never open the equipment. For safety reasons, only qualified service personnel should open the equipment.
- All cautions and warnings on the equipment should be noted.

**\*Let service personnel to check the equipment in case any of the following problems appear:**

- The power cord or plug is damaged.
- Liquid has penetrated into the equipment.
- The equipment has been exposed to moisture.
- The equipment does not work well or you cannot get it to work according to the user manual.
- The equipment has been dropped and damaged.
- The equipment has obvious signs of breakage.
- Do not leave this equipment in an uncontrolled environment where the storage temperature is below -20°C (-4°F) or above 60°C (140°F). It may damage the equipment.



### **CAUTION/ATTENTION**

Use the recommended mounting apparatus to avoid risk of injury.  
Utiliser l'appareil de fixation recommandé pour éliminer le risque de blessure.



### **WARNING! / AVERTISSEMENT!**

Only use the connection cords that come with the product. When in doubt, please contact the manufacturer.

Utiliser seulement les cordons d'alimentation fournis avec le produit. Si vous doutez de leur provenance, contactez le fabricant.



### **WARNING! / AVERTISSEMENT!**

Always ground yourself against electrostatic damage to the device.

Toujours vérifier votre mise à la terre afin que l'équipement ne se décharge pas sur vous.

- Cover workstations with approved anti-static material. Use a wrist strap connected to a work surface and properly grounded tools and equipment.
- Use anti-static mats, heel straps, or air ionizer for added protection.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting and removing connectors or test equipment.
- Keep the work area free of non-conductive materials, such as ordinary plastic assembly aids and Styrofoam.
- Use filed service tools, such as cutters, screwdrivers, and vacuum cleaners that are conductive.
- Always put drivers and PCB's component side on anti-static foam.

## Important Information

### Federal Communications Commission Radio Frequency Interface Statement

This device complies with part 15 FCC rules.

Operation is subject to the following two conditions:



- This device may not cause harmful interference.
- 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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### EC Declaration of Conformity



This equipment is in conformity with the requirement of the following EU legislations and harmonized standards. Product also complies with the Council directions.

Electromagnetic Compatibility Directive (2014/30/EU)

- EN55024: 2010 EN 55022: 2010 Class B
  - IEC61000-4-2: 2009
  - IEC61000-4-3: 2006+A1: 2007+A2: 2010
  - IEC61000-4-4: 2012
  - IEC61000-4-5: 2014
  - IEC61000-4-6: 2013
  - IEC61000-4-8: 2010
  - IEC61000-4-11: 2004
- EN55022: 2010/AC:2011
- EN61000-3-2:2014
- EN61000-3-3:2013

Low Voltage Directive (2014/35/EU)

- EN 60950-1:2006/A11:2009/A1:2010/A12:2011/ A2:2013

## About This User Manual

This User Manual provides information about using the Winmate® EL-Series HMI. This User Manual applies to the EL-Series HMI –W04IM3S-ELT1, W07IM3S-ELT1, W10IM3S-ELH2. It includes:

- **EL-Series HMI User Manual** – contains detailed description on how to use the HMI device, its components and features.
- **EL-Series HMI Quick Start Guide** - describes how to get the HMI up and running.



#### NOTE:

Some pictures in this guide are samples and can differ from actual product.

# Chapter 1: Introduction

Congratulations on purchasing Winmate® EL-Series HMI. Winmate® continues developing new generation of Human Machine Interfaces for Industry 4.0 and Internet of Things (IoT). Our EL-Series HMI runs on Android 11 operating system that allows installing the latest applications (APPs). Thereby wide customization possibilities are available to satisfy the needs of industrial automation.

There are two USB 2.0 onboard to connect mouse or keyboard, USB OTG for system updates and microSD card for data logging, backup or data storage. System memory of 4 GB ensures stable operation of applications.

With mounting clips for panel mounting there is no need to drill holes in a fixture. This saves you the time for mounting and guarantee aesthetic look of the wall after the unit gets removed.

## 1.1 Product Features

Winmate® EL-Series HMI features:

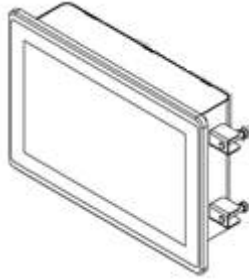
- Projected Capacitive Multi-Touch (PCAP)
- ARM A53 Quad Core 2.0GHz CPU
- Fanless cooling system and ultra-low power consumption
- Front IP65 Water and Dust Proof
- Support Android or Linux operating system



## 1.2 Package Contents

Carefully remove the box and unpack your device. Please check if all the items listed below are inside your package. If any of these items are missing or damaged contact us immediately.

Standard factory shipment list:

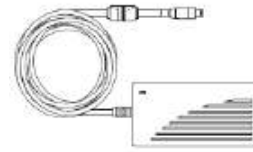


**HMI Device**

Varies by product specifications



**Quick Start Guide (Hardcopy)**



**AC Adapter (12V/ 36W) (Optional)**

922D050W12VA



**Power Cord (Optional)**

Varies by country



**3 pin Terminal Block (Optional)**

94J602G030K0



**Mounting Clips and Screws**  
**7" HMI – 4 pcs**  
**10.1" HMI – 8 pcs**  
**15" HMI – 14 pcs**  
**15.6" HMI – 10 pcs**

82111E240400

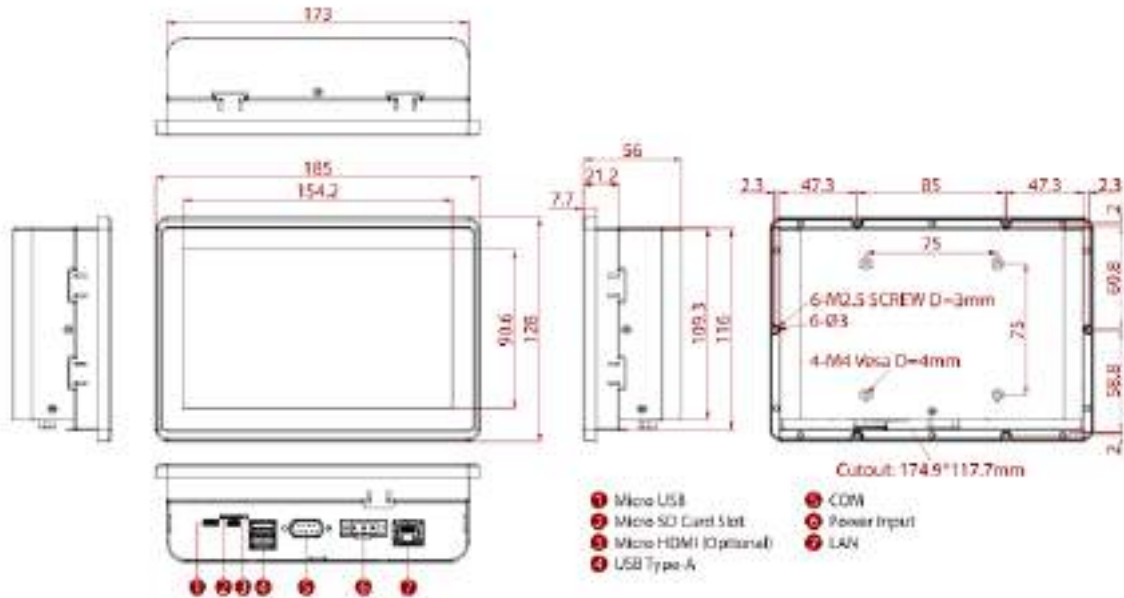
*\*Package content may vary based on your order.*

### 1.3 Description of Parts

This section describes appearance, connectors' layout and mechanical dimensions of EL-Series HMI.

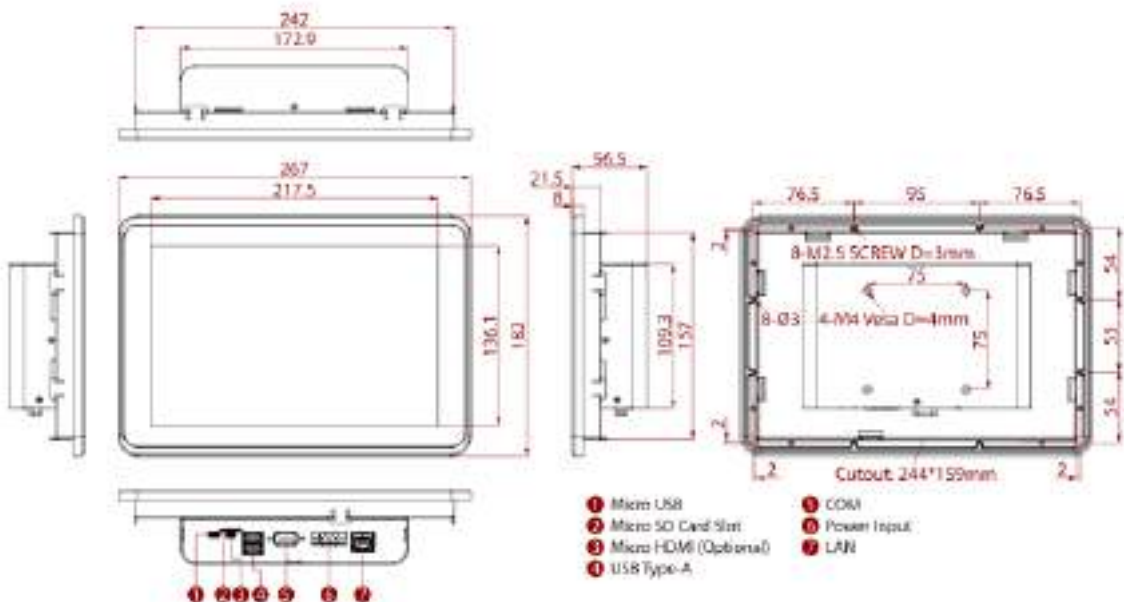
#### 1.3.1 W04IM3S-ELT1 ; EL-Series HMI 4.3"

Unit: mm



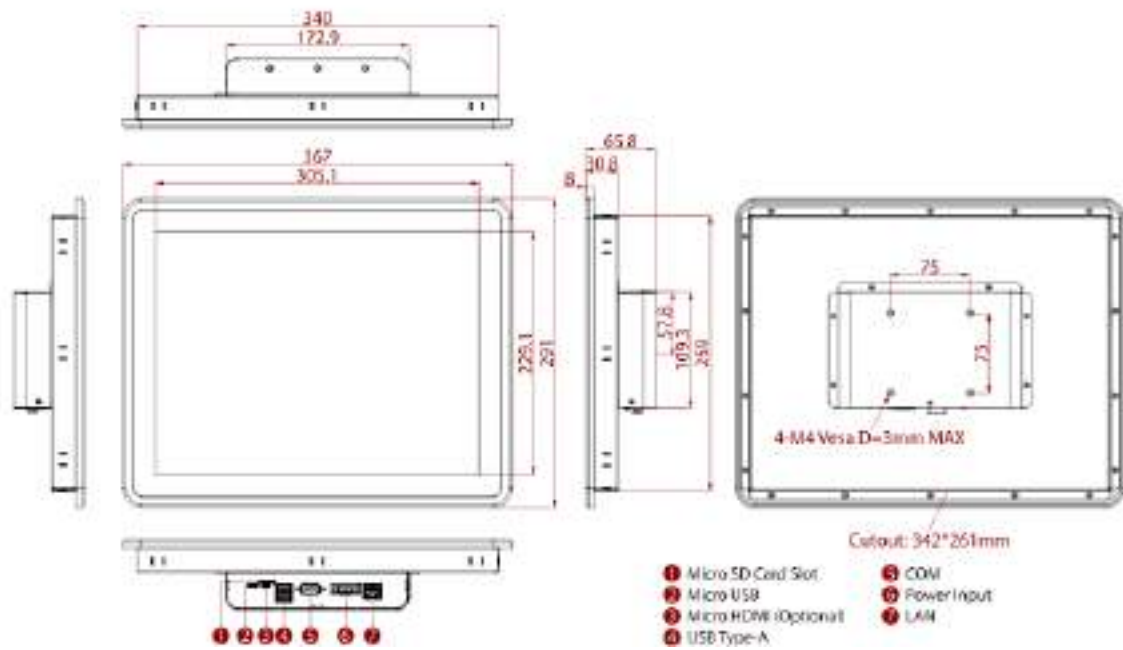
#### 1.3.2 W07IM3S-ELT1 ; EL-Series HMI 7"

Unit: mm



### 1.3.3 W10IM3S-ELH2; EL-Series HMI 10.1”

Unit: mm

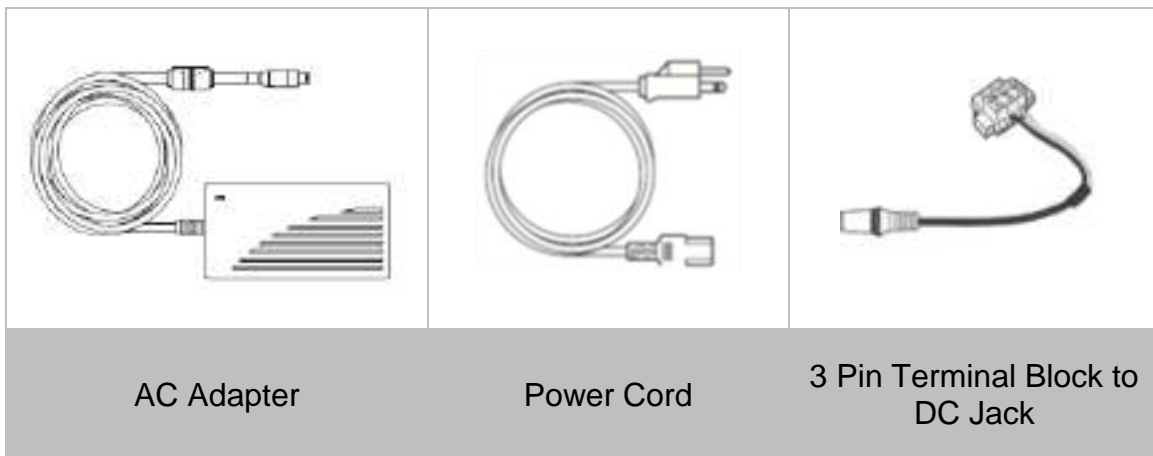


## Chapter 2: Getting Started

This chapter provides information on how to connect the HMI device to the source of power, connector pinouts and the guideline to turn on/off the HMI device.

### 2.1 Powering On

#### 2.1.1 AC Adapter Components



#### Safety Precautions:

- Do not use the adapter in a high moisture environment
- Never touch the adapter with wet hands or foot
- Allow adequate ventilation around adapter while using
- Do not cover the adapter with paper or other objects that will reduce cooling
- Do not use the adapter while it is inside a carrying case
- Do not use the adapter if the cord is damaged
- There are NO serviceable parts inside
- Replace the unit if it is damaged or exposed to excess moisture

#### While using the AC Adapter always:

- Plug-in the power cord to easy accessible AC outlet
- Plug-in the AC adapter to a grounded outlet



#### **ALTERNATING CURRENT / MISE À LE TERRE!**

This product must be grounded. Use only a grounded AC outlet. Install the additional PE ground wire if the local installation regulations require it.

\*If you do not use a grounded outlet while using the device, you may notice an electrical tingling sensation when the palms of your hands touch the device.

Ce produit doit être mis à la terre. Utiliser seulement un cordon d'alimentation avec mise à la terre. Si les règlements locaux le requiert, installer des câbles de mise à la terre supplémentaires.

\*Si vous n'utilisez pas une prise d'alimentation avec mise à la terre, vous pourriez remarquer une sensation de picotement électrique quand la paume de vos mains touche à l'appareil.

## 2.1.2 Power Considerations

The HMI device operates on external DC power. Use the AC adapter included in the package.



### CAUTION/ATTENTION

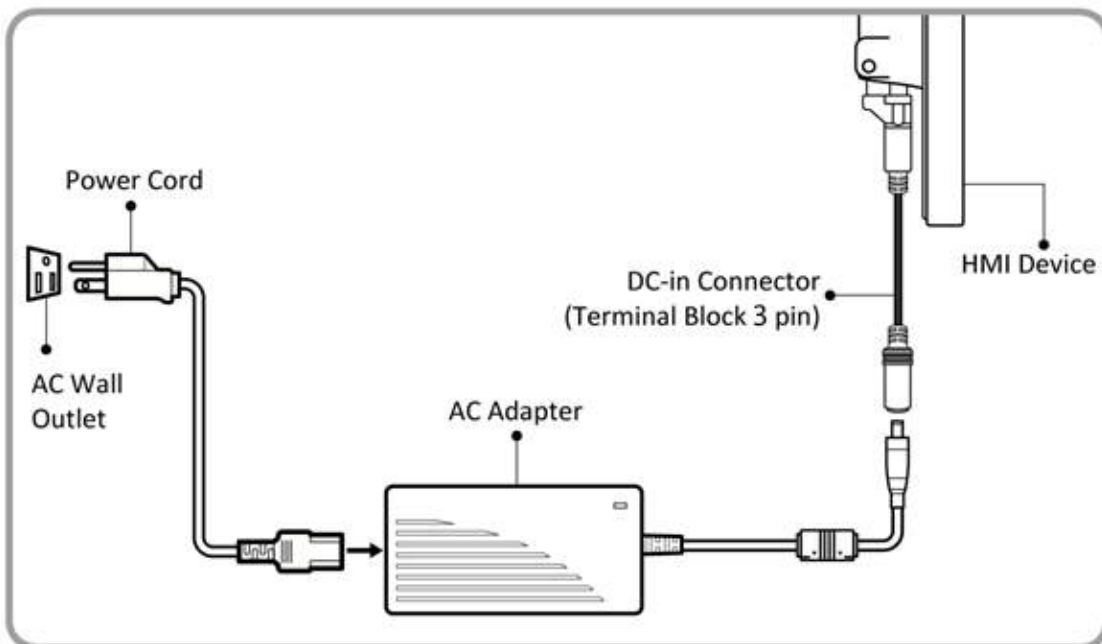
Use only the AC adapter included in your package (Rating: Output 12~24V). Using other AC adapters may damage the device.

Utiliser seulement le convertisseur AC inclu avec votre appareil (Puissance: Sortie 12~24V). Utiliser d'autres convertisseurs pourraient endommager l'appareil.

## 2.1.3 Connecting the Power

Installation Instruction:

1. Connect a 3-pin terminal block to the HMI connector.
2. Connect the other side of the terminal block to the AC adapter.
3. Connect the AC adapter to the power cord.
4. Plug in the power cord to a working AC wall outlet. The device will boot automatically.



### Note:

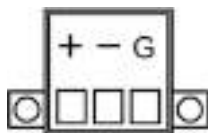
- Power cords vary in appearance by region and country.
- Based on the model, terminal block connector may be located either on the bottom or on the rear side of the HMI device.

## 2.2 Connector Pinouts

### 2.2.1 DC Input Connector

#### Terminal Block

DC power source input is a 3 pin terminal block connector. Power Input is 12V DC in.



Voltage

Minimum Voltage 12V  
Maximum Voltage 24V



#### **IMPORTANT:**

Support PoE (optional), requires IEEE 802.3at 25W power input

### 2.2.2 USB 2.0 Connector

Use USB A Type (USB2.0) connector to connect your HMI device to other USB2.0 compatible devices.



Pin №	Signal Name	Pin №	Signal Name
1	+5V	2	Data-
3	Data+	4	GND

### 2.2.3 Serial Port Connector

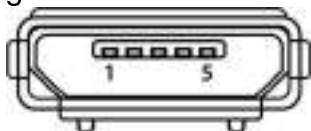
RS485



Pin №	Signal Name	Pin №	Signal Name
1	D+	2	D-
3	GND		

### 2.2.4 Micro USB Connectors

Pin assignment and connector description of USB OTG connector.

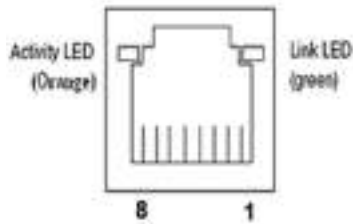


Pin №	Signal Name	Pin №	Signal Name
1	VBUS OTG Power	2	USB 2.0 D-
3	USB 2.0 D+	4	OTG ID
5	GND		

### 2.2.5 LAN (RJ45) Connector

The EL-Series HMI supports one 10/100/1000 Mbps Ethernet interface for connecting to the internet.

Pin №	Signal Name	Pin №	Signal Name
-------	-------------	-------	-------------



1	TX1+	2	TX1-
3	TX2+	4	TX2-
5	TX3+	6	TX3-
7	TX4+	8	TX4-

## 2.3 Turning On and Off the HMI Device

This section describes how to turn on and off the HMI device.

To **turn on** the HMI device:

1. Connect the HMI device to the source of power.
2. The unit is configured to **Power ON** when is connected to the power source.

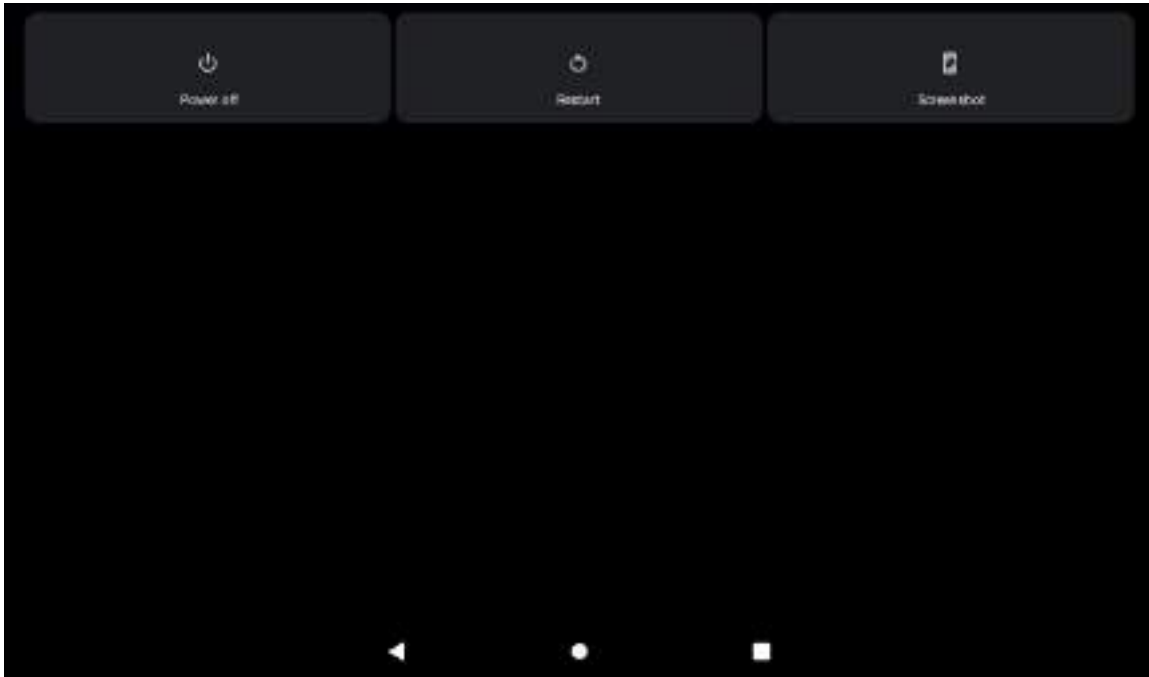
Refer to Chapter.2.1 Powering On of this User Manual for more details on how to power on the HMI device.

To **turn off the** HMI device:

1. Slide down to show the notification panel. Click **Power Menu**.



2. Choose **Power off** to shut down the HMI device.



3. Disconnect the HMI device from the power source (if necessary).



## Chapter 3: Mounting

This chapter provides mounting guide for all available mounting options. Pay attention to cautions and warning to avoid any damages.

### 3.1 Cable Mounting Considerations

For a nice look and safe installation, make sure cables are neatly hidden behind the HMI device. Refer to [Chapter 2.1](#) for the cable installation instruction.



#### **CAUTION/ ATTENTION**

Observe all local installation requirements for connection cable type and protection level.

Suivre tous les règlements locaux d'installations, de câblage et niveaux de protection.



#### **CAUTION/ ATTENTION**

Turn off the device and disconnect other peripherals before installation.

Éteindre l'appareil et débrancher tous les périphériques avant l'installation.



#### **ALTERNATING CURRENT / MISE À LE TERRE!**

To prevent electrical shock, the Safety Ground location on the rear must be bonded to the local earth ground through a minimum 12 AWG wire as short as possible

Pour éviter les chocs électriques, l'emplacement de la prise terre à l'arrière doit être lié à terre locale, à travers un 12 AWG minimum et aussi court que possible.

### 3.2 Safety Precautions

Observe the following common safety precautions before installing any electronic device:

- Use separate, non-intersecting paths to route power and networking wires. If power wiring and device wiring paths must be crossed make sure the wires are perpendicular at the intersection point.
- Keep the wires separated according to the interface. Wires that share similar electrical characteristics must be bundled together.
- Do not bundle input wiring with output wiring. Keep them separate.

When necessary, it is strongly advised that you label wiring to all devices in the system.

### 3.3 Mounting Guide

EL-series HMI devices come with different mounting options suitable for most of the industrial and commercial applications. The main mounting approach is rear mount - very user-friendly in terms of installation. Refer to sub-sections below for more details.



#### CAUTION/ ATTENTION

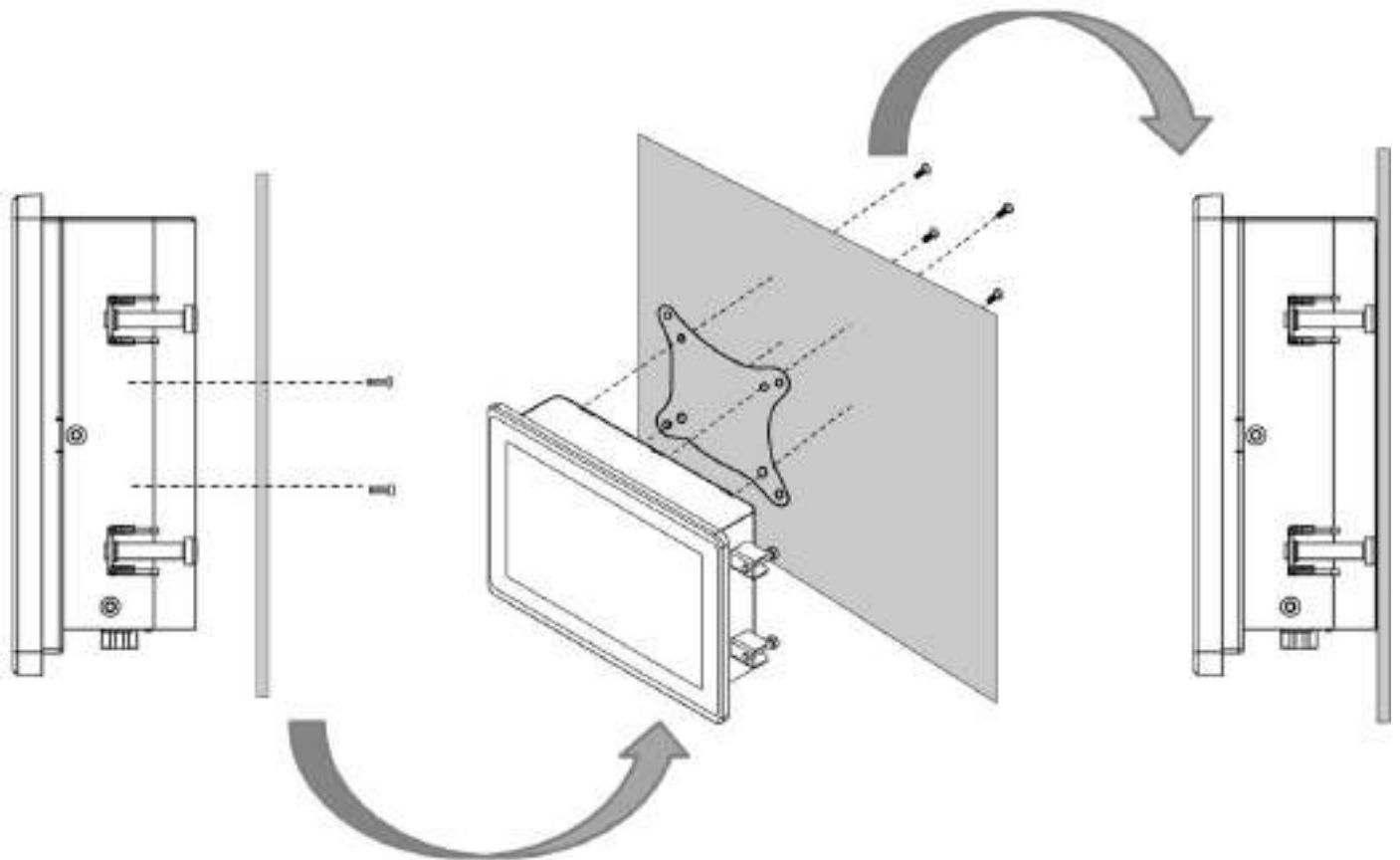
Follow mounting instructions and use recommended mounting hardware to avoid the risk of injury.

Suivez les instructions de montage et d'utilisation recommandé le matériel de montage pour éviter le risque de blessure.

#### 3.3.1 VESA Mount

VESA Mount is a widely used mounting solution suitable for all kinds of industrial applications.

Model Name	Dimensions	Screw Hole Diameter
W04IM3S-ELT1	30 x 38 mm	VESA M4 x 6 mm
W07IM3S-ELT1	75 x 75 mm	VESA M4 x 6 mm
W10IM3S-ELH2	75 x 75 mm	VESA M4 x 6 mm



*\*with customer's bracket*

#### Mounting Steps:

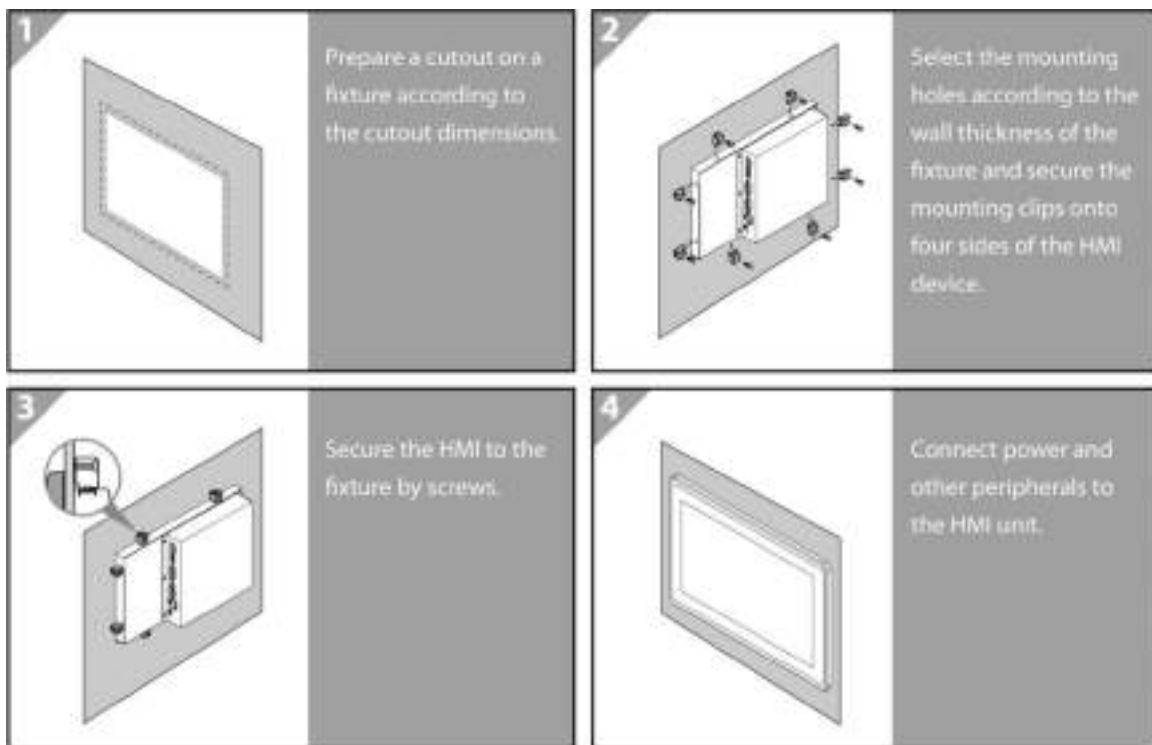
1. Screw VESA bracket to the fixture (ex. wall) with four M4 x 15 mm VESA screws.
2. Place the device on VESA bracket.

### 3.3.2 Panel Mount

Panel Mount solution is suitable for many applications where HMI should be embedded in the machine. With this mounting solution flat surface leave no bezel in the front. In addition to elegant design, rear mount solution is making the HMI unit easy to clean and maintain. The HMI device is secured to the fixture from the rear by using the mounting brackets included in the package.

Model Name	W04IM3S-ELT1	W07IM3S-ELT1	W10IM3S-ELH2
Cutout dimension (W x D in mm)	110.5x74.5mm	174.9x117.7mm	244x159mm
Mounting Clips and Screws	4 pcs	7 pcs	7 pcs

#### Mounting Steps:



## Appendix A: Product Specifications

	Model Name		
	W04IM3S-ELT1	W07IM3S-ELT1	W10IM3S-ELH2
<b>Display</b>			
Size/ Type	4.3"	7"	10.1"
Resolution	480x272	1024x600	1280x800
Brightness	400 nits	320 nits	350 nits
Contrast Ratio	900:1	1000:1	800:1
Viewing Angle	80, 60, 80, 80	75, 75, 75, 70	85, 85, 85, 85
Touch	Projected Capacitive Multi-Touch	Projected Capacitive Multi-Touch	Projected Capacitive Multi-Touch
<b>Mechanical Specifications</b>			
Dimensions, mm	121 x 82 x 49	185 x 128 x 46	267 x 182 x 47
Mounting	Panel mount	Panel mount VESA Mount	Panel mount VESA Mount
Cooling	Fanless design	Fanless design	Fanless design
Enclosure	Plastic housing	Plastic housing	Front Aluminum Bezel & Rear Plastic Cover
<b>System Specifications</b>			
Processor	ARM A53 Quad Core 2.0GHz	ARM A53 Quad Core 2.0GHz	ARM A53 Quad Core 2.0GHz
System Memory	4GB LPDDR4	4GB LPDDR4	4GB LPDDR4
Operating System	Android 11	Android 11	Android 11
Storage	32GB eMMC	32GB eMMC	32GB eMMC
WLAN	Optional	Optional	Optional
Bluetooth	Optional	Optional	Optional
<b>Input / Output</b>			
USB Ports	1 x USB2.0 Type-A 1 x Micro USB 2.0 OTG	1 x USB2.0 Type-A 1 x Micro USB 2.0 OTG	1 x USB2.0 Type-A 1 x Micro USB 2.0 OTG
COM Port	1 x RS-485	1 x RS-485	1 x RS-485
LAN	1 x LAN 10/100/1000 Mbps	1 x LAN 10/100/1000 Mbps	1 x LAN 10/100/1000 Mbps
<b>Power Specifications</b>			
Power Input	12V~24V with 3Pin Terminal Block	12V~24V with 3Pin Terminal Block	12V~24V with 3Pin Terminal Block
Adapter	12V 36W (Optional)	12V 36W (Optional)	12V 36W (Optional)
<b>Environment Considerations</b>			
Operating Temp.	-20°C to 50°C	-20°C to 50°C	-20°C to 50°C
Operating Humidity	10% to 90% RH, Non- Condensing	10% to 90% RH, Non- Condensing	10% to 90% RH, Non- Condensing
Storage Temperature	-25°C to 70°C	-25°C to 70°C	-25°C to 70°C
<b>Certification</b>			
Certification	CE, FCC	CE, FCC	CE, FCC

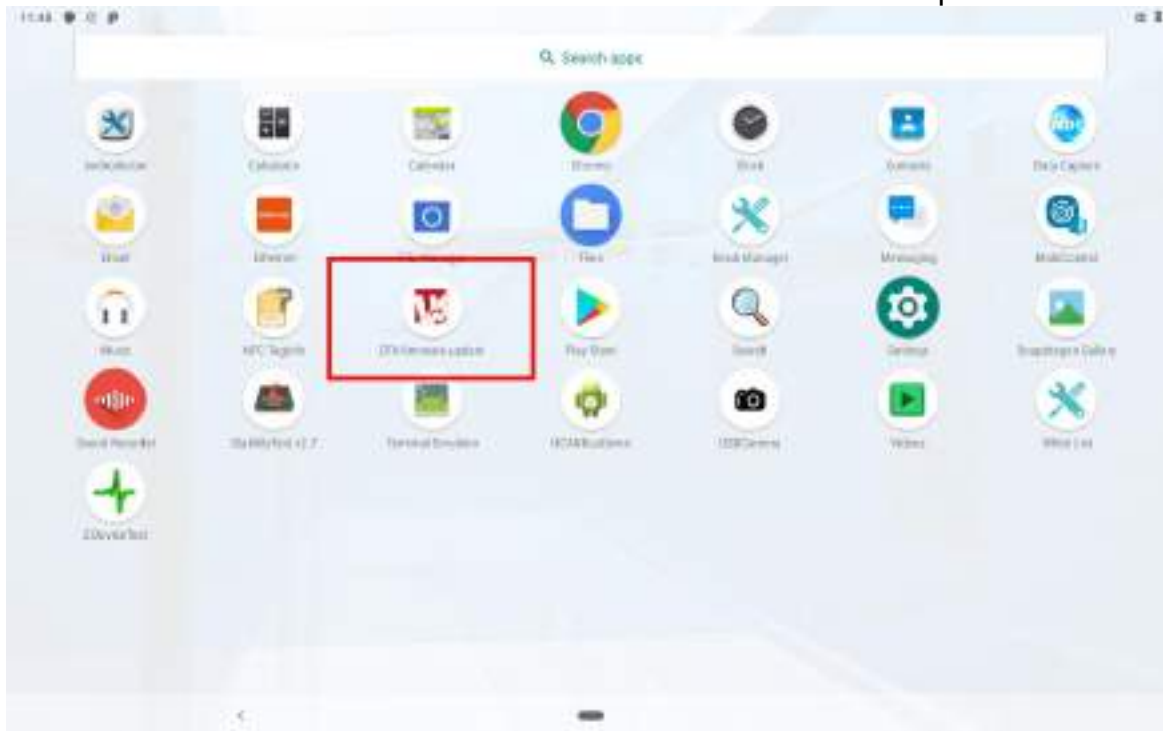
**Note:**

1. The product shown in this datasheet is a standard model. For diagrams that contain customized or optional I/O, please contact the Winmate Sales Team for more information.
2. All specifications are subject to change without prior notice.

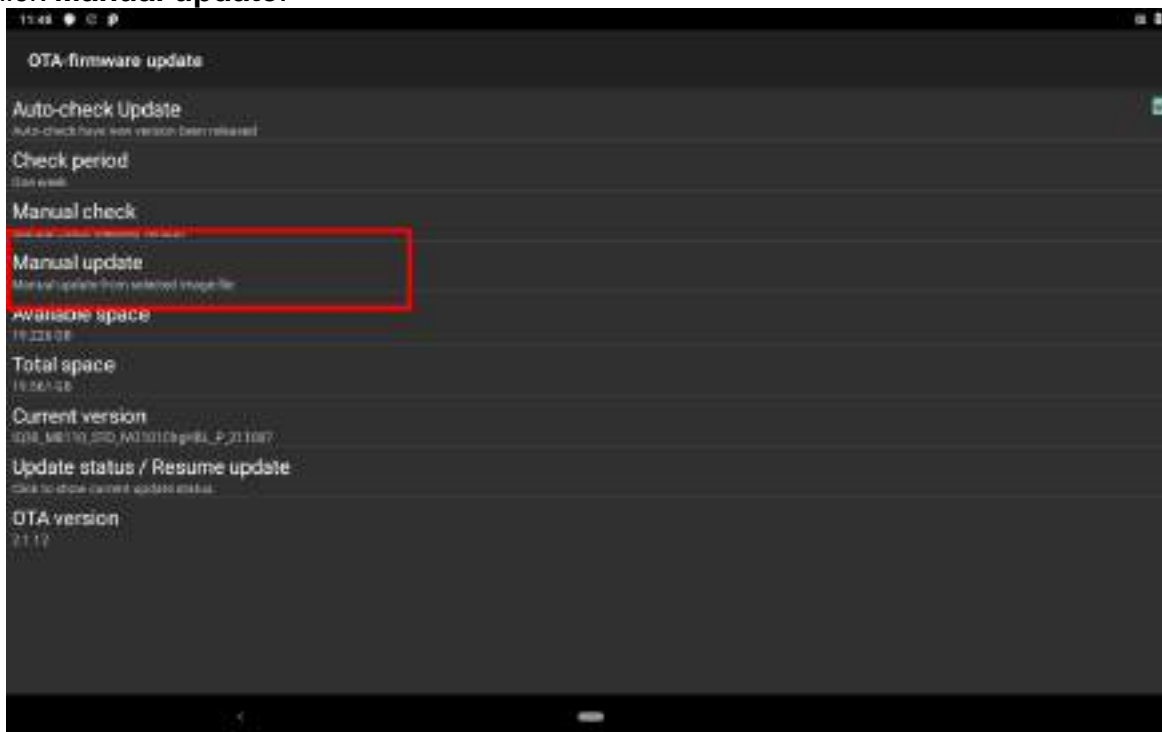
## Appendix B: OTA Update Guide

OTA is a tool which can help you to update OS image. To receive Android OS image file, contact our sales representatives. Once you get the image file follow the guideline below.

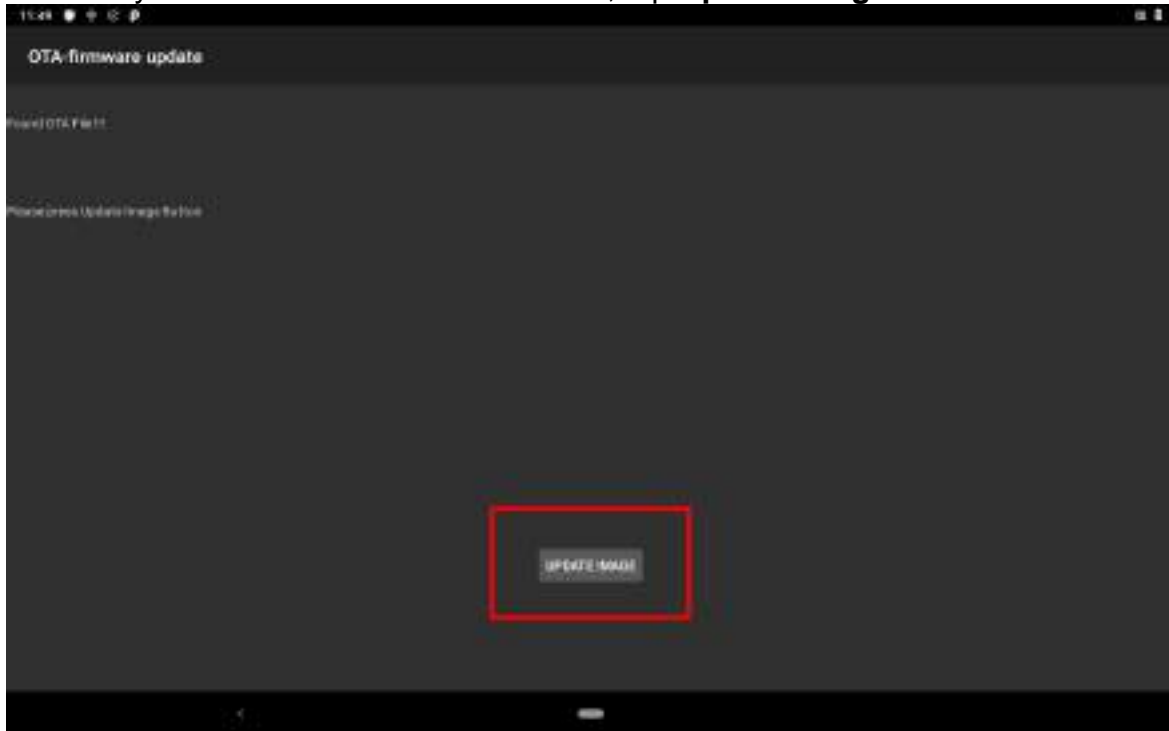
1. Copy image files **ota\_IM30\_X\_X\_X\_X.zip** and **IM30\_X\_X\_X\_X.md5** to microSD card.
2. Insert micro SD card to the slot in the device. In the **APPS** menu tap **OTA-firmware update**.



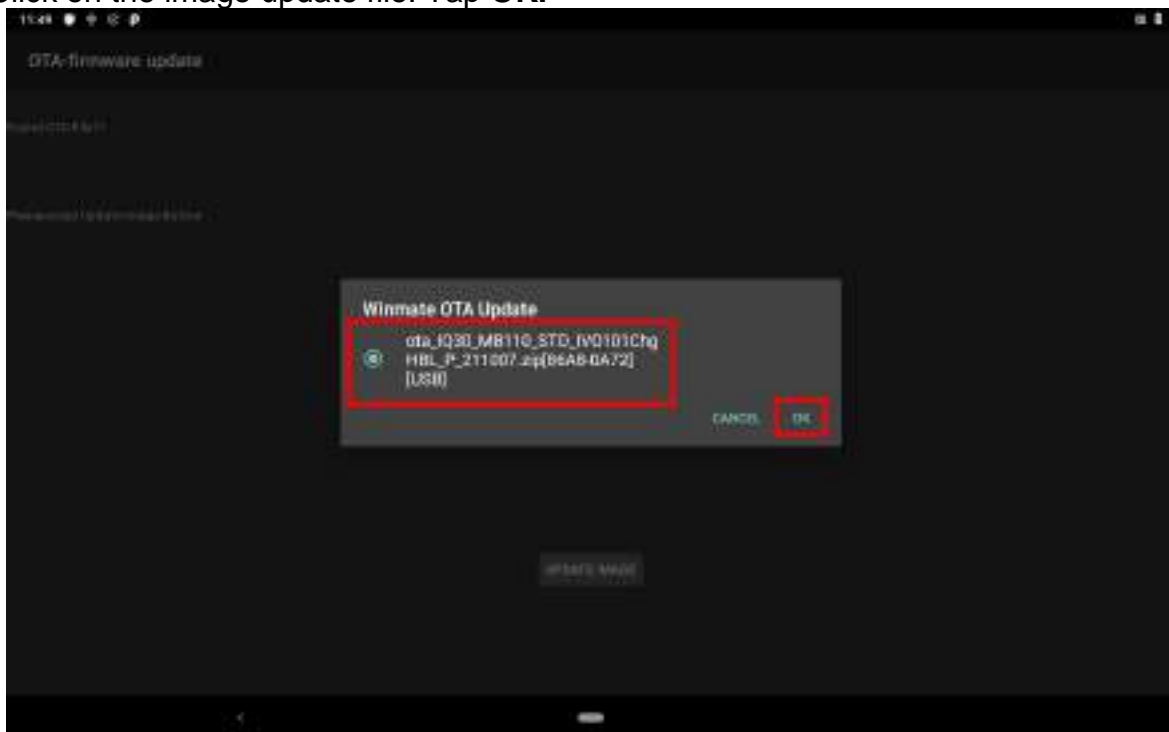
3. Click **Manual update**.



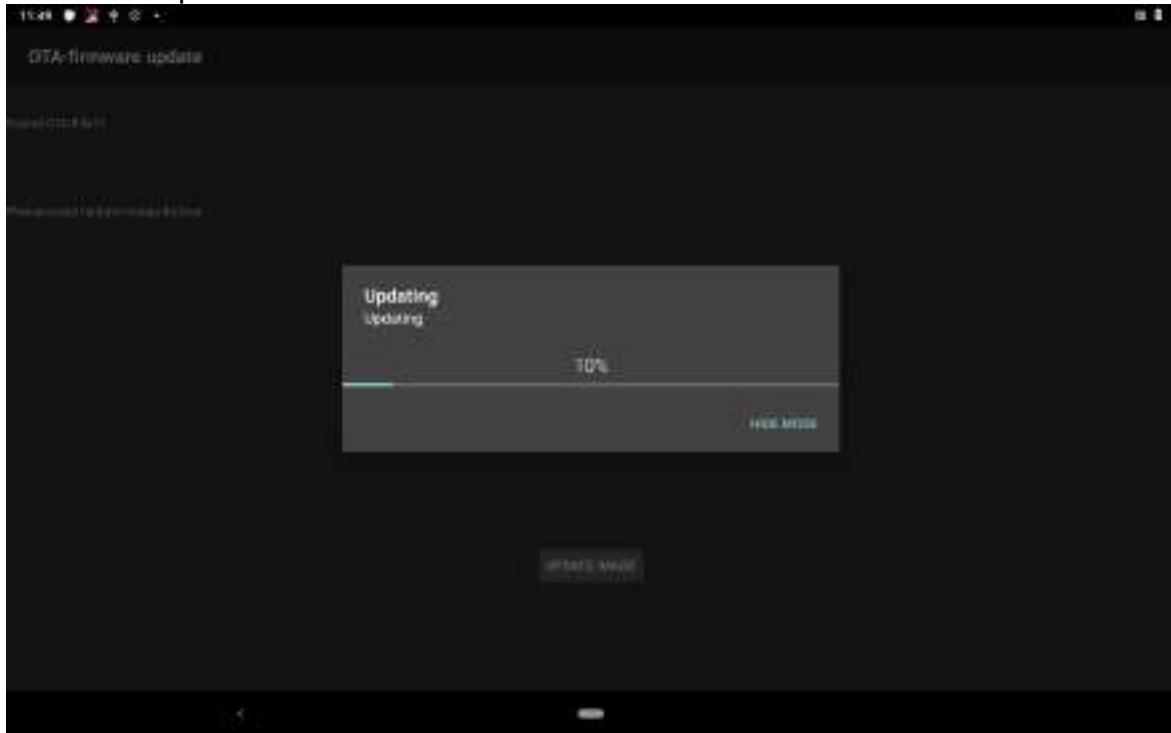
4. After the system shows **Found OTA File !!!**, tap **Update Image**.



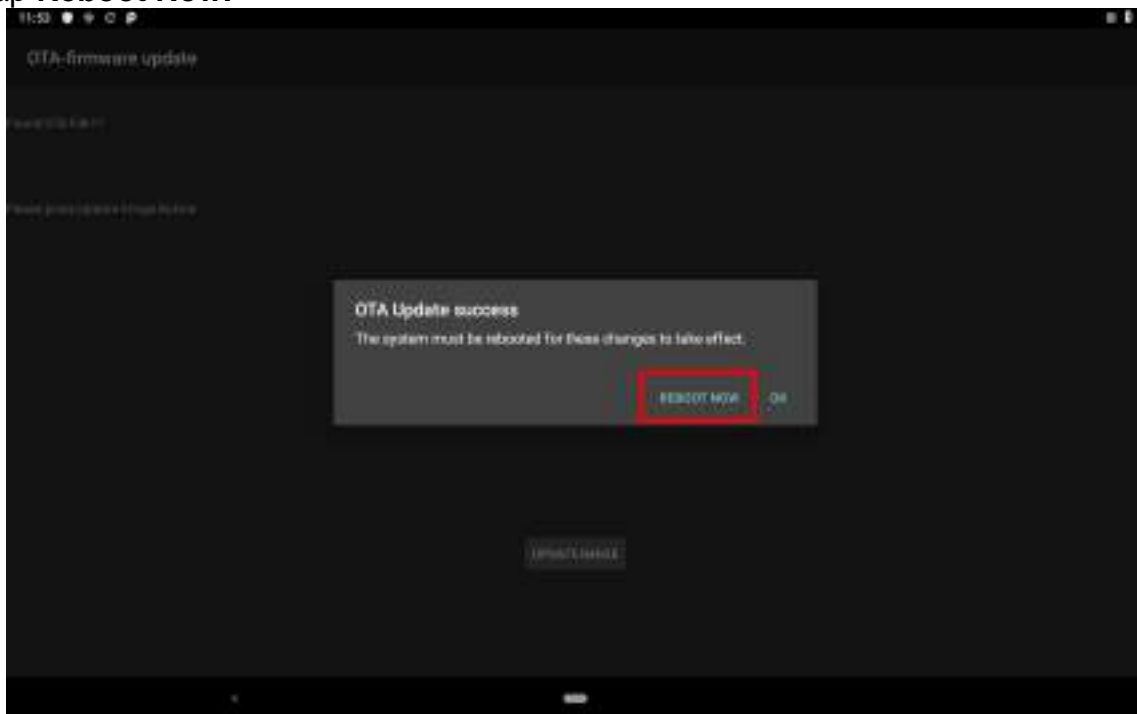
5. Click on the image update file. Tap **OK**.



6. Wait for the update.



7. Tap **Reboot Now**.



**Important:**  
Do not disconnect the power source!

## Appendix C: OS Image Update Guide

To receive OS image update guide please contact Winmate at <https://www.winmate.com/>









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