Vehicle Mounted Computer

Intel Elkhart Lake x6425E Processor, 2.0 GHz

FM12E

User Guide

Version 1.3
Document Part No. 9152111I103F

Please read these instructions carefully before using this product, and save this manual for future use.

Contents

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NOTE:
Display images shown may vary slightly from actual display. Information in this manual is subject to change without prior notification.

NOTE:
FM12E Computer has to be used together with the docking station.
Use the device when located at least 20 cm (7.9 inches) away from the human body.

Disclaimer

Winmate Inc. reserves the right to make any product changes without notice, including circuits and/or software described or contained in this manual in order to improve design and/or performance. Winmate Inc. assumes 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 makes 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 guide are for illustration purposes only. Winmate Inc. makes no representation or warranty that such application will be suitable for the specified use without further testing or modification.

Warranty

Winmate Inc. warrants that each of its products is free from material and workmanship defect for a period of one year starting from the invoice date. If the customer discovers a defect, Winmate Inc. will, at its option, repair or replace the defective product at no charge to the customer, provided it is returned during the warranty period, with transportation charges prepaid. The returned product must be properly packaged in its original packaging to obtain warranty service.

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.

FCC Regulations

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

This device 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 residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one 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 technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Operation on the 5.15-5.25GHz frequency band is restricted to indoor use only. The FCC requires indoor use for the 5.15-5.25GHz band to reduce the potential for harmful interference to co-channel Mobile Satellite Systems. Therefore, it will only transmit on the 5.25-5.35 GHz, 5.47-5.725 GHz and 5.725 –5.850 GHz band when associated with an access point (AP).

CE Notice (European Union)

This device has been tested and found to conform to the limits set for a Class B product.

- EN 55022 — "Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment"
- EN 55024 — "Information technology equipment - Immunity characteristics - Limits and methods of measurement"
- EN 61000-3-2 — "Electromagnetic compatibility (EMC) - Part 3: Limits - Section 2"
- EN 61000-3-3 — "Electromagnetic compatibility (EMC) - Part 3: Limits - Section 3"
- EN 60950 — "Safety of Information Technology Equipment".
- EN 55022 Emissions requirements

RF Exposure Information (SAR)

This device is compliance with SAR for general population /uncontrolled exposure limits in ANSI/IEEE C95.1-1999 and had been tested in accordance with the measurement methods and procedures specified in OET Bulletin 65 Supplement C.

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device was tested for operations with the device contacted directly to the human body to the back side of the EUT. To maintain compliance with FCC RF exposure compliance requirements, avoid direct contact to the transmitted antenna during transmitting.

IC Regulations

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement."

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

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.

The device could automatically discontinue transmission in case of absence of information to transmit, or operational failure. Note that this is not intended to prohibit transmission of control or signaling information or the use of repetitive codes where required by the technology.

The device for the band 5150-5250 MHz is only for indoor usage to reduce potential for harmful interference to co- channel mobile satellite systems; the maximum antenna gain permitted (for devices in the bands 5250-5350 MHz and 5470-5725 MHz) to comply with the e.i.r.p. limit; and The maximum antenna gain permitted (for devices in the band 5725-5850 MHz) to comply with the e.i.r.p. limits specified for point-to-point and non-point-to-point operation as appropriate, as stated in section A9.2(3). In addition, High-power radars are allocated as primary users (meaning they have priority) of the band 5250-5350 MHz and this radar could cause interference and/or damage to LE-LAN devices.

The County Code Selection feature is disabled for products marketed in the US/Canada. For product available in the USA/ Canada markets, only channel 1~11 can be operated. Selection of other channels is not possible.

IC Radiation Exposure Statement

This EUT is compliance with SAR for general population/uncontrolled exposure limits in IC RSS-102 and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528

Chapter 1: Read Me First

Follow and adhere to all warnings and instructions in this manual. For your safety, please read all safety and operating instructions before using the product. Keep this manual for future reference.

CAUTION/ ATTENTION

Pour réduire le risque d'incendie ou de choc électrique ne pas exposer l'appareil à la pluie ou à l'humidité. VERIFIER que le cordon électrique est la prise murale pour un delai d'inactivite prolongé. Pour arrêter complètement l'alimentation de l'appareil, débranchez le cordon d'alimentation de la prise AC. N'enlever ni le capot arrière ni les pièces internes de l'appareil. Contactez un personnel qualifié si nécessaire.

WARNING! / AVERTISSEMENT!

Utilisé pour les instructions destinés à alerter l'utilisateur d'un CHOC ÉLECTRIQUE mortel ou de blessure grave en cas d'utilisation incorrecte de l'unité.

SA1965

WARNING! / AVERTISSEMENT!

Utilisé pour les instructions destinés à alerter l'utilisateur d'un risque mortel ou de blessure grave en cas d'utilisation incorrecte de l'unité.

SA1966

CAUTION/ ATTENTION

Pour réduire le risque d'incendie ou de choc electrique ne pas exposer l'appareil à la pluie ou à l'humidité FAIRE le cordon électrique est DÉBRANCHÉ DE LA PRISE MURALE DANS UN DELAI DE PROLONGER INACTIVITÉ. De se désengager totalement LE POUVOIR DE L'UNITE, S'IL VOUS PLAÎT DEBRANCHER LE CORDON D'ALIMENTATION DE LA PRISE AC. NE PAS Romove le capot arrière, pas de PIÈCES À L'INTÉRIEUR. Contactez un personnel qualifié S'il faut le réparer.

WARNING! / AVERTISSEMENT!

Sert aux instructions destin es alerter l'utilisateur d'un CHOC ÉLECTRIQUE mortel ou de blessure grave en cas d'utilisation incorrecte de l'unit.

SA1965

WARNING! / AVERTISSEMENT!

Sert aux instructions destin es alerter l'utilisateur d'un risque mortel ou de blessure grave en cas d'utilisation incorrecte de l'unit .

SA1966

1.1 Informations de sécurité (FR)

Suivez et respectez tous les avertissements et instructions figurant sur l'écran. Pour votre sécurité, s'il vous plaît lire toutes les consignes de sécurité et de fonctionnement avant d'utiliser le device. Gardez ce manuel pour référence future.

1. Lire avec attention toutes les recommandations et precautions d'emploi avant d'utiliser ce produit.
2. Veuillez conserver ces recommandations et précautions pour référence future.
3. Lire et comprendre tous les avertissements énumérés dans les précautions d'emploi.
4. Suivre toutes les précautions d'emploi pour utiliser ce produit.
5. Utiliser exclusivement un chiffon sec pour nettoyer ce produit.
6. Ne pas placer le produit près de toute source de chaeur telle que radiateurs, arrivées d'air chaud, fourneaux ou autres appareils générant de la chaleur (incluant les amplificateurs producteurs de chaleur) .
7. Ne pas négliger la sécurité que procure un branchement polarisé ou avec raccordement à la terre, Un branchement polarisé comprend deux fiches dont l'une est plus large que l'autre. Un branchement à la terre comprend deux fiches plus une troisième reliée à la terre. Si la fiche secteur fournie ne s'insert pas dans votre prise de courant. consulter un 'électricien afin de remplacer votre prise obsolète.
8. Protéger le cordon d'alimentation de tout écrasement ou pincement, particulièrement au niveau des fiches, des réceptacles utilisés et à l'endroit de sortie de l'appareil. Ne pas casser la fiche de terre du cordon d'alimentation.
9. Utiliser uniquement les accessoires spécifiés par le constructeur.
10. Utilisez seulement des accessoires spécifiés par le manufacturier ou vendus avec le produit.
11. Débrancher cet appareil lors d'orages ou s'il n'est pas utilize pendant une longue période.
12. Faire exécuter le service par du personnel qualifié. Une intervention technique est requise lorsque l'appareil a été endommagé ou n'opère pas normalement.

1.2 Safety Information (EN)

Follow and adhere to all warnings and instructions on the screen. For your safety, please read all safety and operating instructions before using the device. Keep this manual for future reference.

1. Carefully read all recommendations and precautions for use before using this product.
2. Retain all recommendations and precautions for future reference as necessary.
3. Read and be sure to understand all warnings listed in the precautions.
4. Follow all operating precautions when using this product.
5. Use only a dry cloth to clean this product.
6. Do not place the product near any heat sources such as radiators, warm air intakes, stoves or other heat- generating devices (including amplifiers or other heat producing equipment).
7. Do not disregard the safety that a polarized or grounded connection can provide. A polarized connection consists of two plugs, one of which is larger than the other. A grounded connection has two blades and a third one that is grounded. If the main plug provided cannot be inserted into your outlet, consult an electrician to replace your obsolete outlet.
8. Protect the power cord from being crushed or pinched, particularly in the area of the plugs, any receptacles used, and the point of exit from the apparatus. Do not break off the ground pin of the power cord.
9. Use only accessories specified by the manufacturer.
10. Use only with accessories specified by the manufacturer or sold with the product.
11. Unplug this apparatus during lightning storms or when it is not being used for long periods.
12. Refer all servicing to qualified service personnel. A technical intervention is required when the apparatus has been damaged in any way or does not operate normally.

1.3 About the Adapter

- Use only the supplied AC adapter (Rating: Input DC 10-60V DC). Use of another type of AC adapter will result in malfunction and/or danger.
- Do not use the adapter in a high moisture environment. Never touch the adapter when your hands or feet are wet.
- Allow adequate ventilation around the adapter when using it to operate the device or charge the battery. Do not cover the AC adapter with paper or other objects that will reduce cooling. Do not use the AC adapter while it is inside a carrying case.
- Connect the adapter to a proper power source. The voltage requirements are found on the product case and/or packaging.
- Do not use the adapter if the cord becomes damaged.
- Do not attempt to service the unit. There are no serviceable parts inside. Replace the unit if it is damaged or exposed to excess moisture.

1.4 Li-Ion Battery

Your device has UPS battery. When disposing UPS battery, follow local rules and regulations.

WARNING!
Do not dispose the battery with general waste materials.

The following precautions on battery recycling should be observed:

- The battery should be disposed properly according to local regulations;
- The battery should not be damaged or crushed;
- The battery should not be heated or exposed to direct sunlight.

If you are not aware of local regulations on disposing the battery pack, contact our Service Center or sales representatives for more information.

IMPORTANT:
This hot-swap battery is soft-packed. It may have up to 8% inflation in dimensions under the usage in normal conditions. The mechanical design of the device reserves the space for this normal inflation.

WARNING:
If you observe the internal hot-swap battery has been inflated more than normal condition (or the blotch of panel and touch caused by inflated battery), contact our Service Center or sales representative for replacing the battery immediately.

IMPORTANT:
The battery is consumable part. Therefore, it is recommended to replace the battery pack every two years with a new one recommended by Winmate. Contact our Service Center or sales representatives for more information on replacing the battery pack.

1.5 General Guideline

It is recommended to reboot the device when some functions are defect or inactive. If it still can't solve the problems, please contact your dealer or agent.

Chapter 2: Introduction

In the warehouse environment, the ability to mount mobile devices and computers to forklifts, trucks, taggers, and inventory pickers, is essential. From inventory management to order fulfillment, asset tracking, and shipping and receiving, the warehouse floor is complex ecosystem that requires high-efficiency technology to keep it running smoothly.

The FM12E Vehicle Computer runs on a 2.0GHz Intel® Atom™ x6425E of the full Windows version. The FM12E features GFG resistive touch screen with 1024 x 768-pixel resolution. The FM12E delivers flexibility and mobility in a vehicle mounted computer form factor. FM12E is designed to easily be removed from the dock with a latch on the top of the FM12E vehicle docking. Since the dock remains attached to the vehicle, this device can easily be moved or switched from one vehicle to another vehicle.

The integrated keyboard and physical function keys will appeal to those who prefer the usability of a full keyboard, but in a vehicle mounted computer form factor. For wireless connectivity the tablet comes equipped with BT 4.0, WLAN, and WWAN.

This vehicle-mount computer is built to endure the rigors of the warehouse, and designed to fit seamlessly into forklifts and other warehouse vehicles.
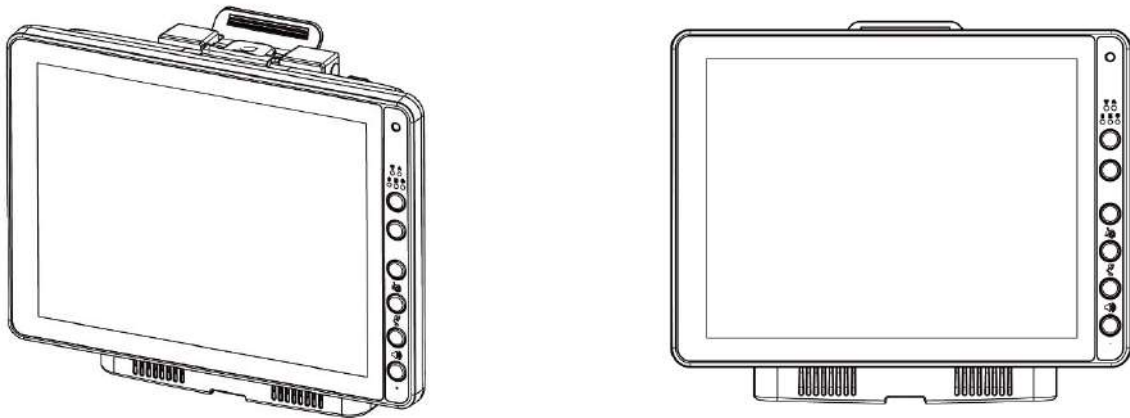
NOTE:
Contact our technical support for information on the latest firmware upgrade for your device.

2.1 Package Contents

Before using this device, make sure that all the items listed below are present in your package:
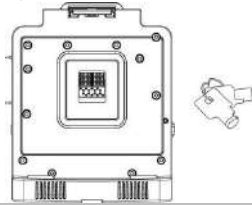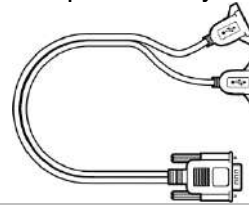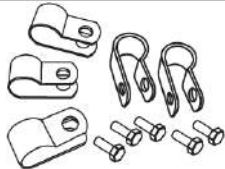
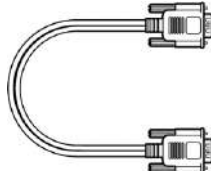|				
Computer FM10	**Dock + Latch Locking Key**	**Power Cable with Fuse Kit**	**USB Cable**	**Power Converter Cable**
Cable Clamp Kit	**WLAN Antenna x 2**	**Quick Start Guide**	**Driver CD**	**84W Adapter with power cable**
External Antenna Fixing Bracket	**Power Cord**	**Stylus Kit**		
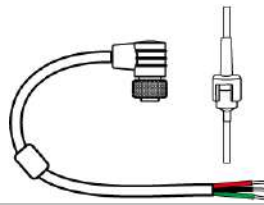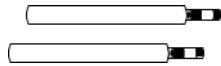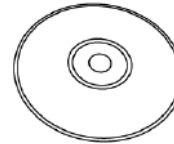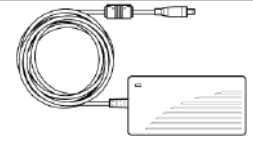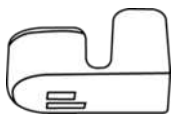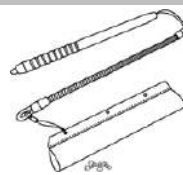
2.2 Optional Accessories

Your package may include the following items based on your order:
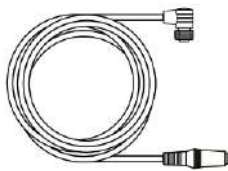
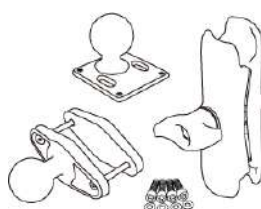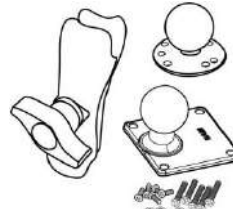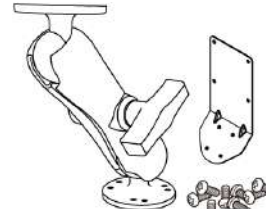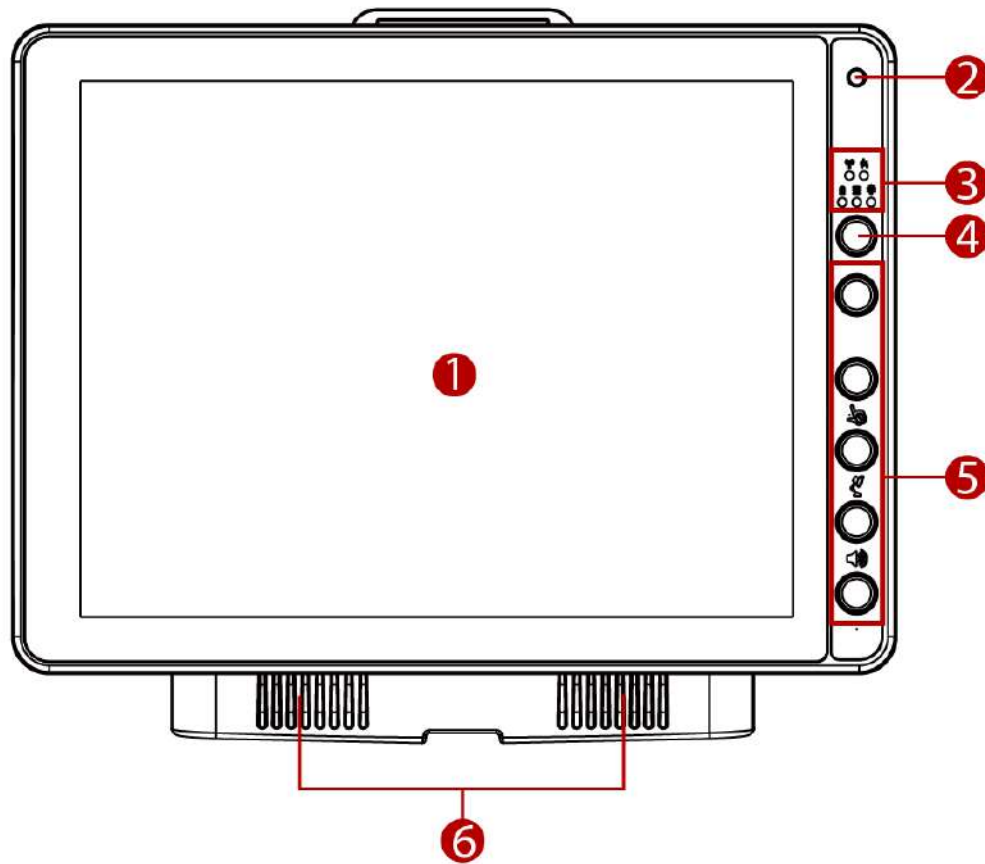|				
DC Jack Power Cable	**RS232 Cable**	**Audio Cable**	**CAN BUS Y Cable**	**IP65 LAN Cable**
WWAN Antenna x 2	**15A, 250V, VDA Type Fuses**	**Spare Key for Vehicle Dock**	**GPS & LTE 2M Combo Antenna (VM240)**	**GPS & LTE 5M Combo Antenna (VM9C)**
GPS, LTE, WLAN Magnetic Combo Antenna (VM10S)	**Mounting Kit 1 No Drill**	**Mounting Kit 2 Drill**	**Mounting Kit 3 Keyboard Mounting**	**CANBus cable**
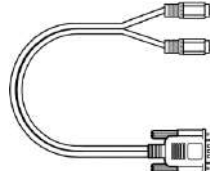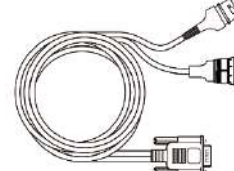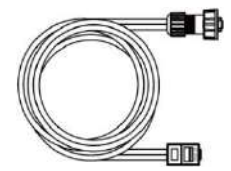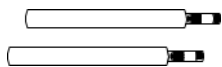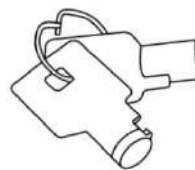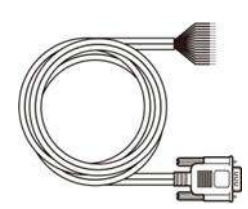
2.3 Components

2.3.1 Front View

No	Item	Description
1	12.1" Touch Screen	Acts as one of the inputs for the device
2	Camera and Microphone	2 Megapixel front camera with a microphone for voice communication and voice recording
3	Light Sensor and LED indicators	(•) Wireless communication indicators
		))) Heater indicators
		🗎 UPS Battery Indicators
		≡ HDD indicators
		☼ Light sensor
4	Power Button and Indicator	Press and hold the button for 3 second to turn on the device
5	Function buttons	Programmable Function keys that can be configured by using the Win-Set® Utility
	Digital Microphone	For voice communication and voice recording
6	Speaker	Emits Sound

2.3.2 Rear View with Vehicle Dock
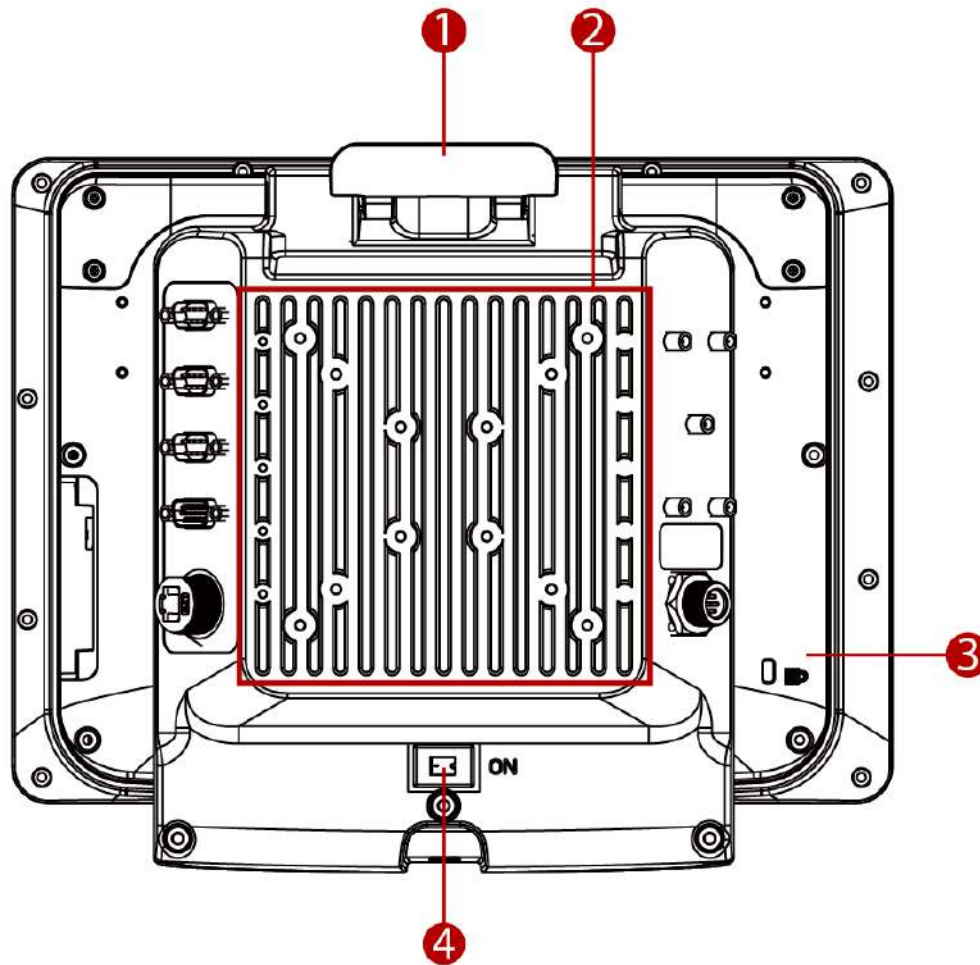
No	Item	Description
1	Release Latch	Press to release the device and the docking
2	VESA Mount Hole	VESA 75, 100, and RAM Mount
3	Kensington Lock	Connect to a security lock, protecting your device from being stolen
4	Power switch	Set the switch to on (I) to provide the supply power to the device and it will automatically connect to the ignition system of the vehicle

2.3.3 Side View with Vehicle Dock
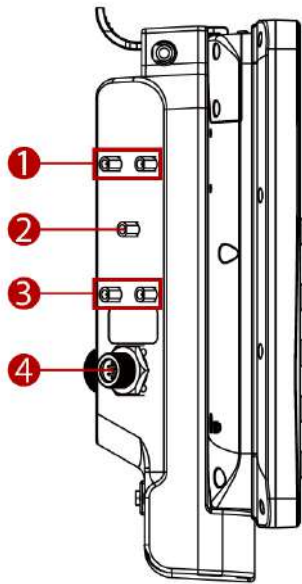
Left Side   Right Side

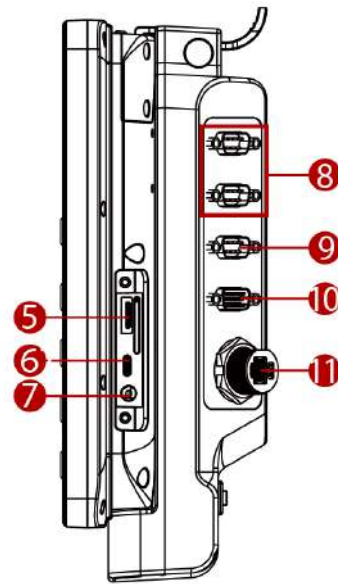| No	Item	Description
1	WLAN Antenna Connector	Connect a WLAN external antenna and allow the device to be remotely mounted on the vehicle
2	GPS Antenna Connector	Connect a GPS external antenna and allow the device to be remotely mounted on the vehicle.
3	WWAN Antenna Connector	Connect a WWAN external antenna and allow the device to be remotely mounted on the vehicle
4	Wide Range Power Input	Connect a 10-60V DC IN wide range power input
5	SD Card / SIM Card Slot	Service window to insert SIM or MicroSD card.
6	USB Type-C	A high-speed USB port connects to USB devices
7	Power Input	Connect a 12V DC IN power input
8	COM1 and COM2	Connect a peripheral device such as a printer or scanner with serial port
9	USB Type-A x 2	Connect USB peripheral devices such as USB Flash drive, mouse, keyboard, printer, etc.
10	CAN Bus / Audio	Connect to a vehicle, allowing access to wide range of vehicle data/ Connects headphone or other audio output devices.
11	LAN Port	Connect to a local area network (LAN) using an Ethernet cable and provide optional POE with 48V.

*With service window cover.

2.3.4 Top and Bottom View
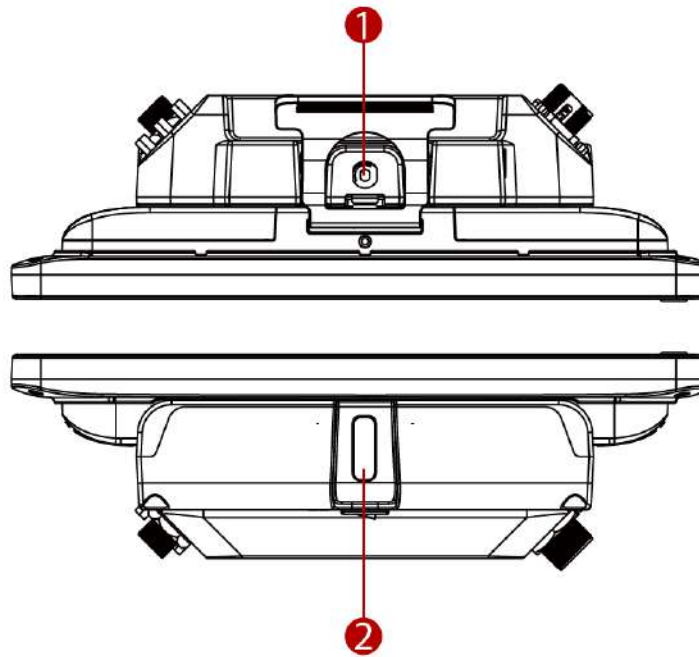
No	Item	Description
1	Lock	Lock the tablet in place
2	Reading Light	Use to provide illumination in dark environment

Chapter 3: Hardware

3.1 System Hardware
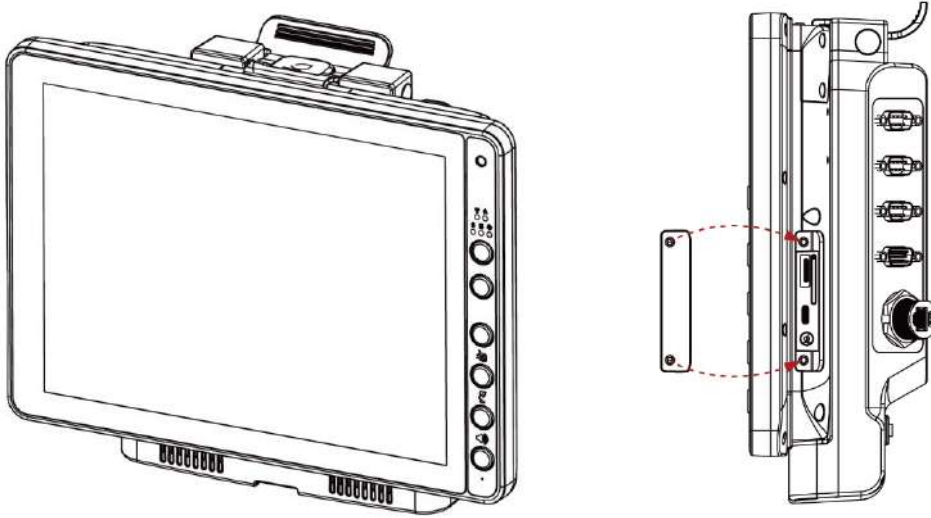
3.2 Central Processing Unit

The FM12E is running an Intel Elkhart Lake x6425E Processor, 2.0 GHz, and the operating system of this device is Windows 10.

3.3 Input and Output Connectors

The FM12E device supports the following I/O connectors:
- Dual nano-SIM Card Slot
- Micro SD Card Slot
- USB Type-C
- DC In Power Input Jack

The Vehicle Dock of the FM12E device supports the following I/O connectors:
- COM Port
- USB Type-A
- CAN BUS/ Audio Connector
- LAN Port
- Wide Range Power Input

3.4 System Memory

The main system memory is 4GB SODIMM DDR4-3200 (up to 8GB).

3.5 Audio Interface

Your device is equipped with two speakers which are located on the bottom of the vehicle dock. A microphone is also available for voice communication and voice recording.

As an alternative, you can use a headset adapter cable that provides a connection for headset operation. When headset is plugged in to the adapter cable, the main speakers or internal microphone will be disabled.

3.6 Memory Card

Your device has a memory card slot which accepts an SD memory card. The memory card is hot swappable.

Your device has an WLAN network card that can be used with internal or external antennas.

3.7 WWAN

Using a SIM card for network connection, your device supports Wireless Wide Area Networking (WWAN).

3.8 Power

3.8.1 Vehicle DC Power Supply

The Power input voltage range for the vehicle dock is between 10 to 60V DC, without the need to perform any manual operation within the vehicle dock.
This dock provides conditioned power output for the device. By using a specified DC to DC adapter, the input voltage of 100-240 V DC nominal can be accepted.

3.8.2 External AC Power Supply (Optional)

If the DC power is not available, you can use an optional external UPS (Universal Input Power Supply) to convert AC power to an appropriate DC level.
Using an external UPS and adapter cable, the AC to DC power input for the device is transferred to the vehicle dock.
To perform the connection, simply plug one end of the adapter cable to the dock and then plug the other end of the adapter cable to the DC output cable from adapter. For Details, refer to the connection diagram shown below:
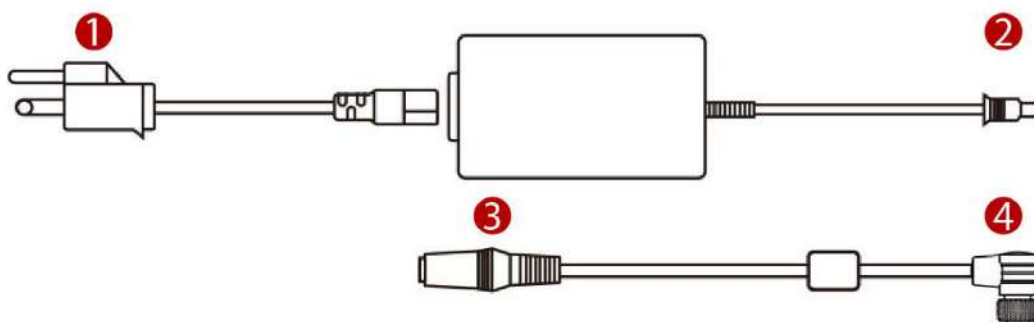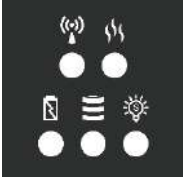
No	Item
1	AC Input Cable
2	DC Output Cable
3	To DC Output Cable
4	To FM12E

3.9 Power Management Mode

The FM12E has four power modes:
- Full ON
- Standby / Sleep
- Hibernate
- OFF

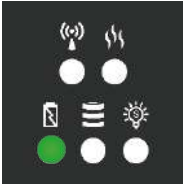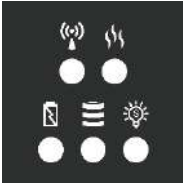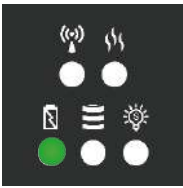| Action	Button		Power Button Backlight	Indicator
Turn On		Press the On button for *"2 seconds"* until the battery indicator On (solid green) and then release the button	Off	
Standby or Sleep Mode *		Press the On button for *"2 seconds"* until the screen On and then release the button. The battery indicator will Off after the screen is Off, the system is already in the standby / sleep mode	On	
Wake up		Press the On button for *"2 second"* until the screen On and then release the button. The battery indicator will On (solid green)	Off	
Turn Off		Press the On button for *"4 second"* until the system is turns Off and then releases the button.	Off	

3.9.1 Full ON Mode

When the FM12E is attached to either vehicle power or an external power supply, or it is operating from the UPS battery and the power button is pressed, the device is in the "ON" mode. In this mode, the keypad, touch screen and any attached peripherals will function normally. The display remains ON until the display, standby or hibernate timer expires.

When the device is in ON mode, the power LED indicators is off.

3.9.2 Standby and Sleep Mode

When the Standby / Sleep timer expires without a primary event occurring, the device transitions to standby / sleep mode. Press the power button to wake up the device back to ON mode.

When the device is in Standby / Sleep mode, the power LED indicator is red.

3.9.3 Hibernate Mode

When the device is in Hibernate Mode, all LEDs are off, except the power LED indicator is red. Press the power button to wake up the device back to ON mode.

3.9.4 OFF Mode

By default, the FM12E turns off if the user turns off the device through the system or presses the power button for 8 seconds with a critical shut down. The FM12E will also be off when there is no connection to a power source or the UPS battery is depleted. However, the internal RTC will keep maintaining the date and time while the device is off. When the device is off, the power LED indicator is red.

3.9.5 Ignition Control

Winmate provides Ignition Software AP to control the timing of delay. Users are able to select 1 to 120 seconds for each period of timing delay. To setup the timing delay please follows these steps:

On Delay: Default 10 seconds. When the system is powered on via ignition key, the system will delay 10 seconds to power on.

Off Delay: Default 10 seconds. When the system is powered off via ignition key, the system will delay 10 seconds to shut down.

Hard Off Delay: Default 30 seconds. When the system is powered off via ignition key, the device will cut off power after 30 seconds.
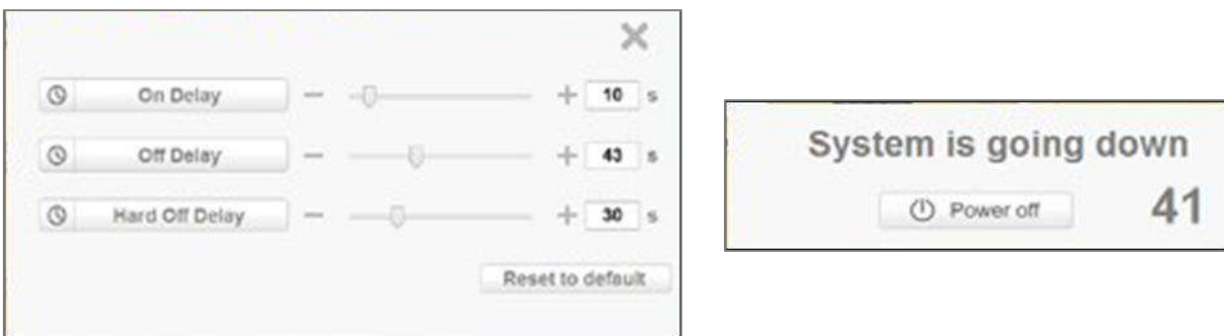
No	Setting	Default Setting	Description
1	On Delay	10 seconds	When the system is powered on via ignition key, the system will delay 10 seconds to power on.
2	Hard Off Delay	30 seconds	When the system is powered off via ignition key, the device will cut off power after 30 seconds.
3	Off Delay	10 seconds	When the system is powered off via ignition key, the system will delay 10 seconds to shut down.
4	Reset to default	-	Resets the ignition settings back to the default.

3.10 Power Control

3.10.1 Power Switch
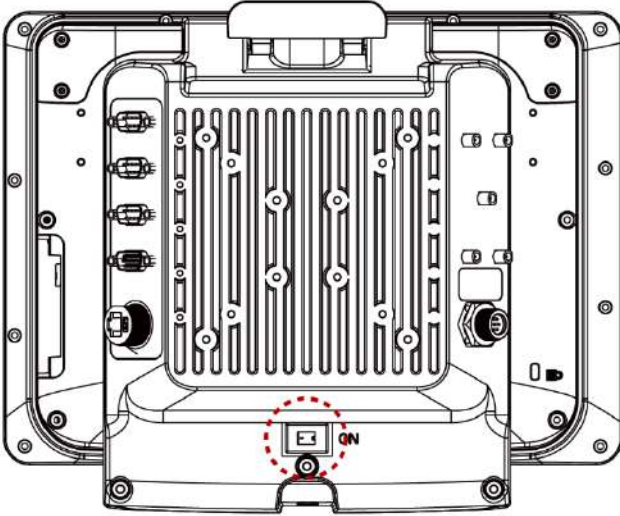
Power switch is located on the rear side of the vehicle dock. When the dock is connected to the external power and the power switch is ON, the dock delivers power to the FM12E and the device can be powered on.

3.10.2 Power Button
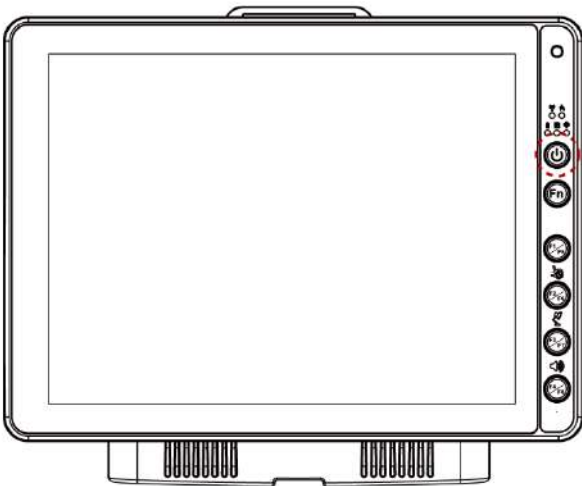
Power button is located at the lower right side of the FM12E. If the device is OFF, pressing the power button will start the power up sequence.

NOTE:
• The FM12E has to be docked in a powered vehicle docking station or UPS battery has to have a sufficient charge to power the device.
• If no external power available and the UPS battery do not have enough charge, pressing the power button will cause no action.

3.11 Battery

Follow all the instructions in this user manual to prolong the battery life-cycle.

WARNING!

Recharge the battery pack according to the instructions in this user manual.

WARNING!

There is a risk of an explosion caused by incorrect installation or misapplication of the battery pack.

To avoid possible injury:

- Use only the type of the battery recommended by Winmate.
- Follow battery pack installation instructions in this user manual.
- Keep the battery away from fire.
- Store in a cool dry place.
- Do not expose to heat, water and rain.

WARNING!

Do not drop, puncture, and crush the battery unit. If you notice any damages on the battery, stop using the battery and replace it.

3.11.1 UPS Battery

Your device has UPS battery. This UPS battery is automatically charged when the device is placed on a powered dock. The charging time takes approximately 3 hours. During full loading operations without external power attached, the device uses UPS battery to operate.

When running on the UPS battery power, the power timeouts maybe different than when vehicle power is applied. Using the UPS battery power, it allows the device to continue operation even when the device is not mounted in a dock. The UPS battery is designed to supply power to your device for a minimum of 30 minutes.

IMPORTANT:

- If the UPS battery power becomes critically low, the device will automatically hibernate to prevent damage to the UPS battery;
- To turn on the device using the UPS battery power, make sure the UPS battery has at least 10% charge. If you cannot turn on the device, charge the UPS battery immediately;
- The internal UPS battery status LED and the UPS battery control panel can be used to monitor the status of the UPS battery.

IMPORTANT:

Charge the hot-swap battery together with main battery whenever your device is not being used/ charged for three months. Connect the device to the source of power for 1.5 hours to charge.

WARNING!

If you leave the device without charging for more than three months, the risk of the battery inflation increases.

3.11.2 Backup Battery

Your device has a backup battery to maintain time, date, and CMOS setup information.

IMPORTANT:

The battery is consumable part. Therefore, it is recommended to replace the battery pack every two years with a new one recommended by Winmate. Contact our Service Center or sales representatives for more information on replacing the battery pack.

WARNING!

The backup battery should be replaced only be authorized service personnel.

3.12 External Connectors

Power OFF the FM12E before connecting cables to any port. Most of the external connectors for the FM12E are located on the vehicle dock.
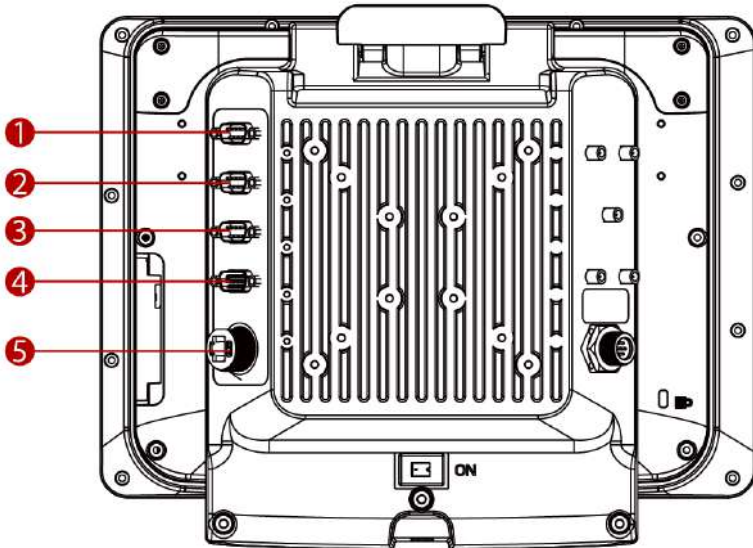
1. COM1 connects to a device such as printer or scanner.
2. COM2 connects to a device such as printer or scanner.
3. USB connects to USB devices such as USB flash drive, mouse, keyboard, printer etc. this USB also accept a dongle cable with a USB host port and a USB Client port.
4. CAN BUS / Audio allows direct linking into vehicle, enable access to wide range of vehicle data and Audio connects to a stereo headset, external speakers or audio recording device.
5. LAN port connects to on access point that provides connection to network.

3.12.1 Serial Connector (COM)
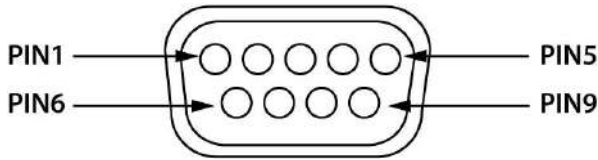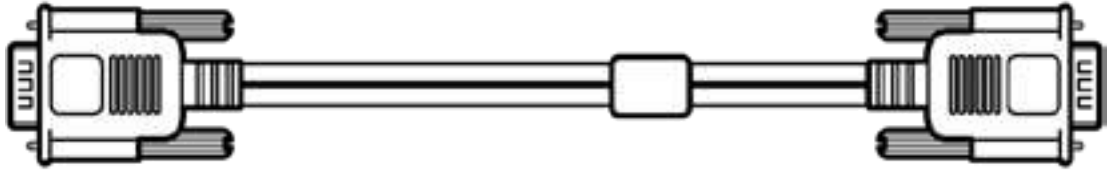
Pin	Signal	Description
1	DCD	Data Carrier Detect – Input
2	RXD	Receive Data – Input
3	TXD	Transmit Data – Output
4	DTR	Data Terminal Ready – Output
5	GND	Signal / Power Ground
6	DSR	Data Set Ready – Input
7	RTS	Request to send – Output
8	CTS	Clear to send – Input
9	+5 VDC	Barcode Scanner Power – 500mA Max

3.12.2 USB 2.0 (D-9 Female) Connector
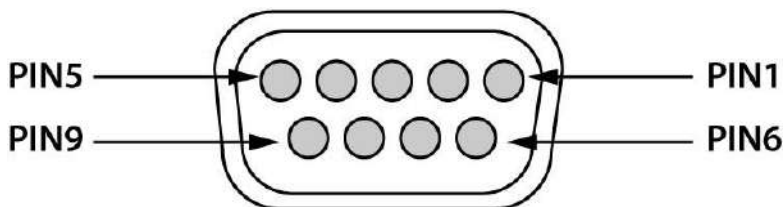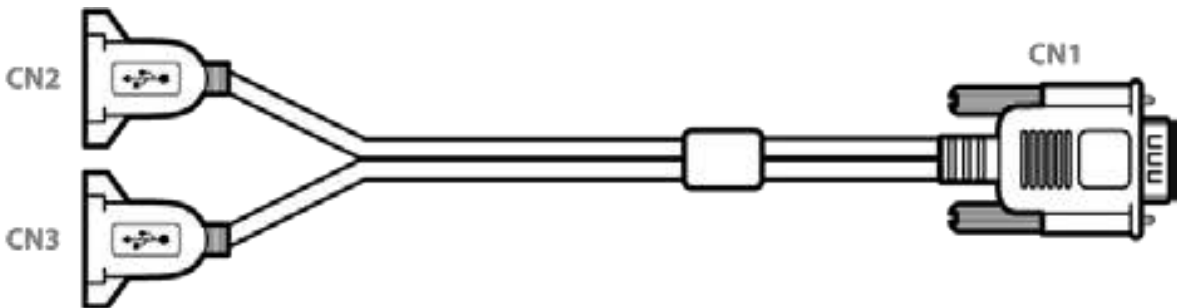
Pin	Signal
CN1-1	GND
CN1-2	USB1_D+
CN1-3	USB1_D-
CN1-4	USB1_VCC
CN1-5	GND
CN1-6	GND
CN1-7	USB2_D+
CN1-8	USB2_D-
CN1-9	USB2_VCC

Pin	Signal	Description
CN2-1	USBVCC1	Red
CN2-2	USB1_DM	White
CN2-3	USB1_DP	Green
CN2-4	GND	Black
CN3-1	USBVCC2	Red
CN3-2	USB2_DM	White
CN3-3	USB2_DP	Green
CN3-4	GND	Black

3.12.3 CAN Bus / Audio Connector

The CAN Bus/ Audio connector is a D-15 male connector located on the rear side of the Vehicle Dock. The connector supports a headset adapter cable or a CAN BUS cable. The FM12E does not support connecting audio and CAN BUS simultaneously.

Pin	Signal	Description
CN4-1	-	CAN reserved
CN4-2	CAN_L	CAN_L bus line dominant low
CN4-3	CAN_GND	CAN Ground
CN4-4	-	CAN reserved
CN4-5	AUGND	Optional ground
CN4-6	-	-
CN4-7	-	-
CN4-8	-	-
CN4-9	-	-
CN4-10	-	-
CN4-11	AUGND	Optional ground
CN4-12	-	CAN reserved
CN4-13	CAN_H	CAN_H bus line dominant high
CN4-14	-	CAN reserved
CN4-15	5V	Option CAN external Power Supply

PIN1   PIN5
PIN6   PIN10
PIN11   PIN15
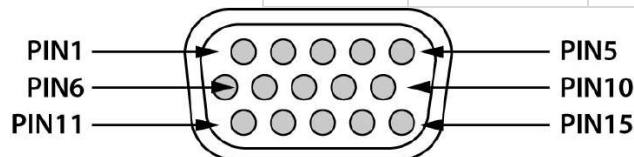
CAN Bus Cable
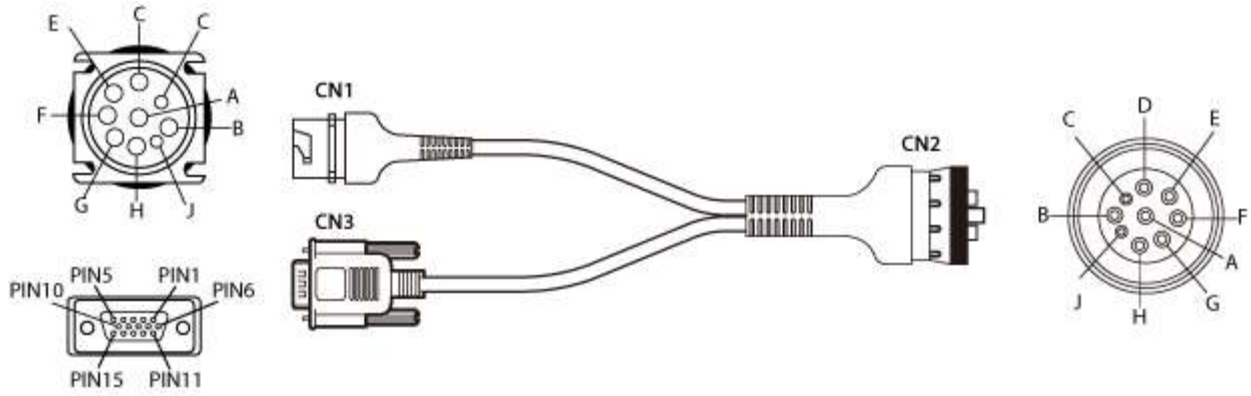
Pin No.	Signal	Pin No.	Signal
CN1-A	CAN_GND	CN3-3	CAN_GND
CN2-A	CAN_GND		
CN1-B	CAN_V+	CAN3-15	5V
CN2-B	CAN_V+		
CN1-C	CAN_H	CN3-13	CAN_H
CN2-C	CAN_H		
CN1-D	CAN_L	CN3-2	CAN_L
CN2-D	CAN_L		
CN1-E	CAN_SHLD	CN3-12	CAN_SHLD
CN2-E	CAN_SHLD		
CN3 SHELL		CN3-5	GND
		CN3-11	GND

Audio Connector
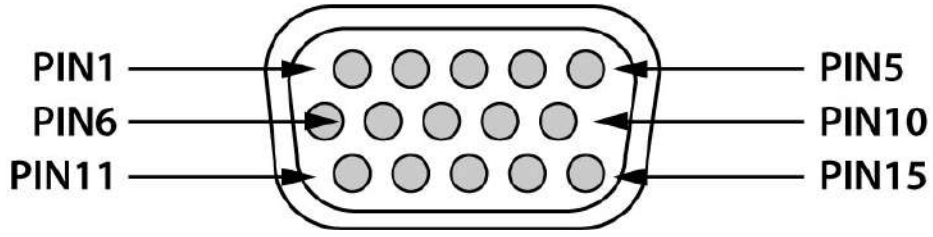
Pin	Signal	Description
CN4-1	-	-
CN4-2	-	-
CN4-3	-	-
CN4-4	-	-
CN4-5	AUGND	Optional ground
CN4-6	HP_R	Headset return
CN4-7	HP_L	Headset output
CN4-8	MIC_L	Microphone input
CN4-9	-	-
CN4-10	HP_JD	
CN4-11	-	-
CN4-12	-	-
CN4-13	-	-
CN4-14	-	-
CN4-15	-	-

Audio Cable
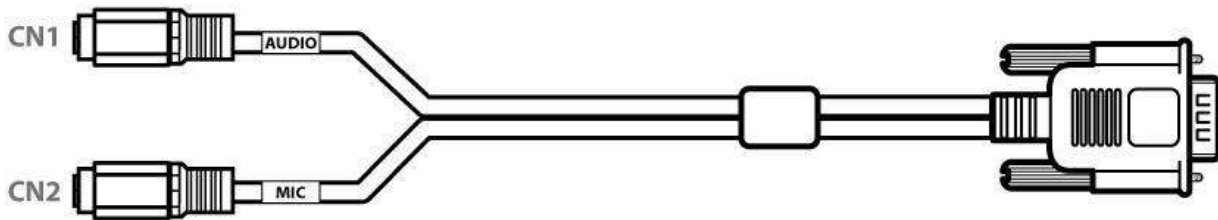
Pin	Signal
CN1	Line Out
CN2	Mic

3.12.4 LAN Connector
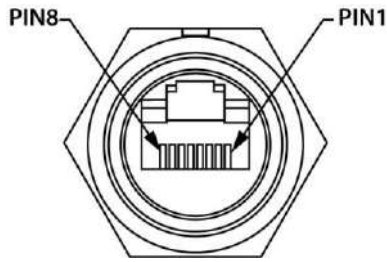
Pin No.	Signal	Pin No.	Signal
1	TX_D1+	2	TX_D1-
3	RX_D2+	4	BI_D3+
5	BI_D3-	6	RX_D2-
7	BI_D4+	8	BI_D4-

3.12.5 Power Connector
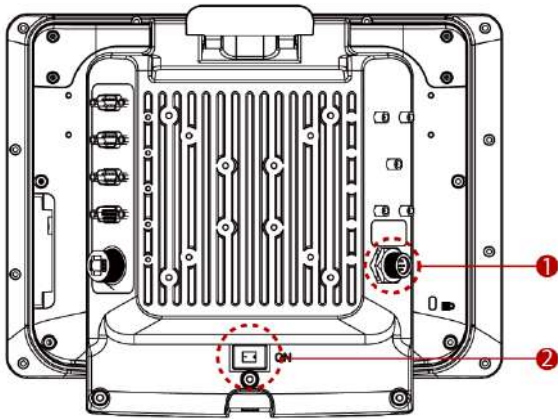
1. Power Connector
2. Power Switch

Power Connector
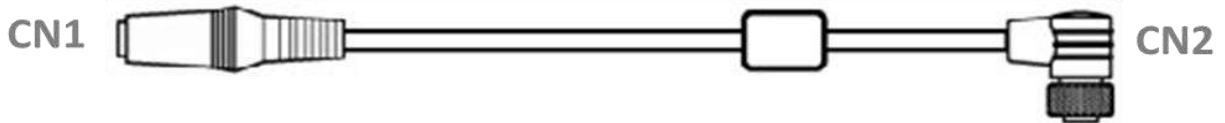
Pin No.	SYMBOL
CN2-1	VIN +
CN2-2	VIN +
CN2-3	VIN -
CN2-4	VIN -
CN2-5	Earth_GND
CN2-6	VIN +
CN2-7	VIN +
CN2-8	Ignition

Pin No.	SYMBOL	Pin No.	SYMBOL
CN1-2	VIN -	CN2-3	VIN -
		CN2-4	VIN -
		CN2-5	VIN -
CN1-1	VIN +	CN2-1	VIN +
		CN2-2	VIN +
		CN2-6	VIN +
		CN2-7	VIN +
		CN2-8	IGN_ISO

3.13 Antenna Connections

The FM12E equipped with internal antennas on the computer side as well as external antennas on the Vehicle Dock side. When the FM12E Computer is on the Vehicle Dock, it will by default use the external antennas on the Dock that are attached through the SMA Connectors for better signal strength. Only when the FM12E computer is removed from the dock will it use the internal antennas. GPS and WWAN are optional on the device and require external remote mount antennas.
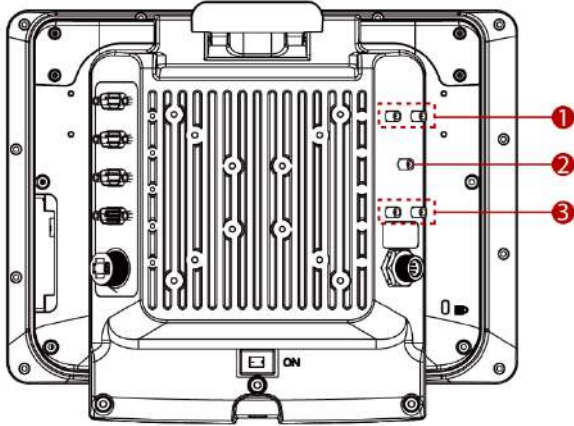
1. WLAN Main External Antenna Connector (Default)
   WLAN Auxiliary External Antenna Connector (Default)
2. GPS External Antenna Connector (Optional)
3. WWAN External Antenna Connector (Optional)

3.13.1 External / Vehicle Remote Antenna

The FM12E vehicle dock is equipped with SMA Connector for additional external antenna (WLAN or optional WWAN), to install the antenna please perform the following:

1. Remove the rubber cap on the SMA connector before installing the antenna.
2. Align the antenna with the SMA connector and fasten it as following picture.
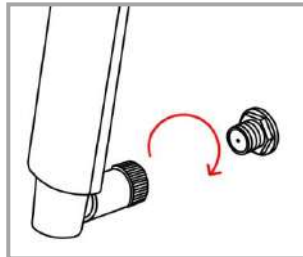
3. Adjust the position of external antennas.
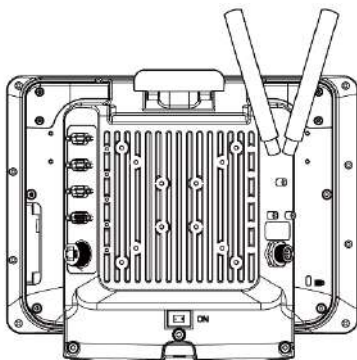
WLAN Antenna Installation   WLAN and WWAN Antenna Installation

4. Attach plastic fixing bracket to fix the position of each antenna.

3.14 Keyboard Options

3.14.1 Integrated Keypad
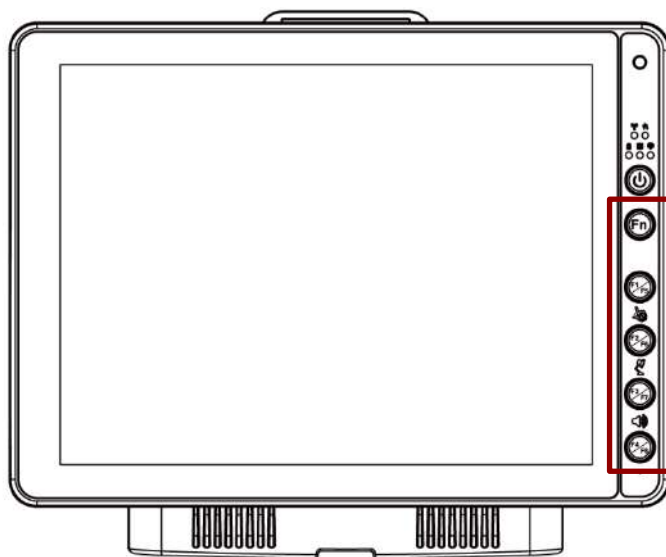
The integrated keypad contains ten programmable keys, F1~ F8 are user programmable keys. Key Mapping is configured via the Win-Set® utility on the control panel. See Programmable key to remap these keys.

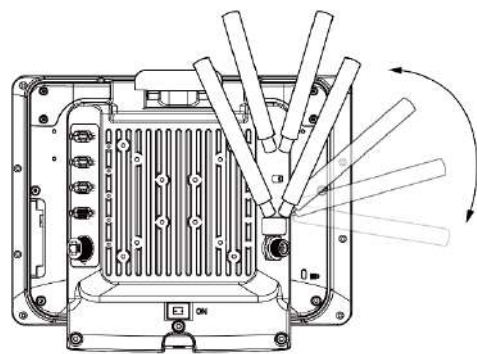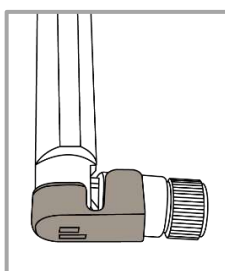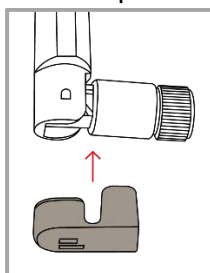The default values for these keys are:

Press these keys in this order	Default Key Value
F1+F2	Touch Keypad Lock/Unlock
F2+F3	Brightness adjustment (Panel+keypad)
F3+F4	Volume adjustment
Long press on F1	Open WinSet
Long press on F2	RF Hot Tab Function
Long press on F3	Lamp On/Off
Long press on F4	Camera
Press on Fn	Function key form F5~F8

*Sign plus "**+**" means that you have to press both function keys at the same time.

To Get this Programmable Key	POST Key
F1 (Programmable Key 1)	Recovery
F2 (Programmable Key 2)	ESC
F3 (Programmable Key 3)	Enter
F4 (Programmable Key 4)	F4 Key
F5 (Programmable Key 5)	Up Key
F6 (Programmable Key 6)	Down Key
F7 (Programmable Key 7)	Left Key
F8 (Programmable Key 8)	Right Key

3.14.2 USB Keyboard / Mouse

A standard USB keyboard or mouse can be attached to the FM12E using the appropriate adapter cable. The cable attached to the device and provides USB connector.

3.15 LED Function

LED indicators are located on the right side of the front panel.
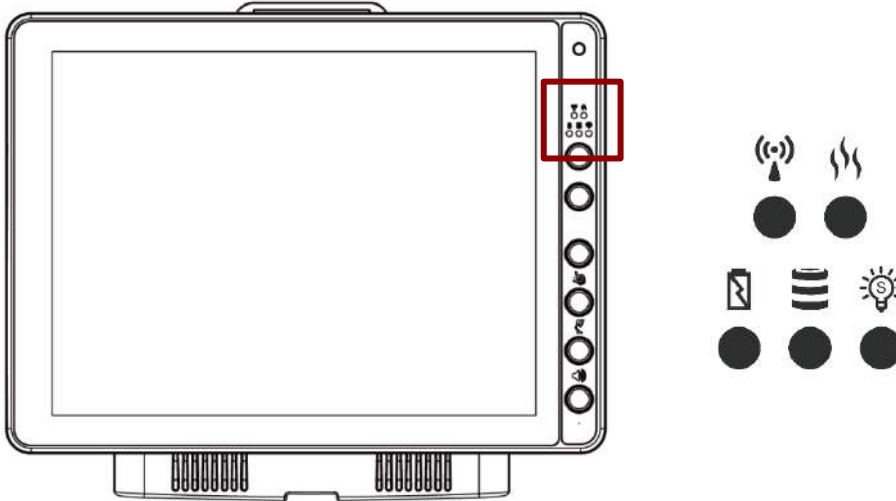
Indicator Type	LED Behavior	System State
(•) WLAN	ON	The Device has detected a network and is connecting
	OFF	No Network connection
♨ Heater Indicators	Solid Red	The Defroster is ON
	OFF	The Defroster is OFF
🔋 UPS Battery	Orange	The external power is plugged in and the UPS battery is being charged
	Green	The UPS battery is in use and its power level is more than 10%
	Blinking Red	The UPS battery is low (<10%)
	OFF	The external power is plugged in and the UPS battery is fully charged
		The device is mounted on the vehicle dock and the UPS battery is fully charged
≡ HDD Indicators	Blinking Green	Indicates the HDD Activity (Data is being read and written)
	OFF	No HDD Activity
☀ Light Sensor	-	Light sensor automatically adjusts the panel brightness based on the light settings.

Power LED is located on the power button. Power LED behavior is shown at the table below.

Indicator Type	LED Behavior	System State
⏻ Power	Solid Red	System off and in suspend mode
	OFF	System On

3.16 Display

The FM12E's display measures 12.1 inches diagonally, display resolution is 1024 x 768-pixel resolution and bonded with resistive touch. A unique feature here is that the FM12E supports screen blanking to eliminate driver distraction when the vehicle is in motion.

3.16.1 Touch Screen

The touch screen is a resistive touch with Glass-Film-Glass (GFG) technology. The whole surface of the top layer of glass is glued to some Film. As result, there is a firm bond in between the glass. In the event when a violent impact is present and the glass surface brake, it will not scatter because all pieces of glass remain in the adhesive film. This resistive touch can detect finger or stylus.

> **NOTE:**
> - Always use the tip of the stylus for tapping or making strokes
> - Do not use any sharp objects for tapping, touching, or making strokes

3.16.2 Display Backlight Control

This device is equipped with automatic brightness adjustment that controls the screen brightness according to the lighting environment. To enable automatic brightness adjustments, go to **Settings > Display > Brightness > Tap Auto**.

Chapter 4: Software

4.1 Setting Up Windows for the First Time

This chapter details how to setup the Windows that may be installed on the tablet for the first time.

> ⚠️ **Caution** Make sure the battery is full charged before starting the Tablet Computer for the first time with internal battery power.
>
> **Attention** Assurez-vous que la batterie est complètement chargée avant de démarrer la tablette PC pour la première fois avec la batterie interne.

- **Public network:** Select this location if you do not recognize all the computers on the network. (For example, you are in a coffee shop or airport, or you have mobile broadband.) This is a public network and is *not* trusted. Select the location where you will most often use the computer.

4.2 Setting up Windows 10 IoT Enterprise

Follow the steps below to complete the Windows 10 IoT Enterprise setup process.
1. Press the power button to turn on the computer.
2. First, select your country/region, your preferred app language, your preferred keyboard layout, and your time zone, then tap **Next**.
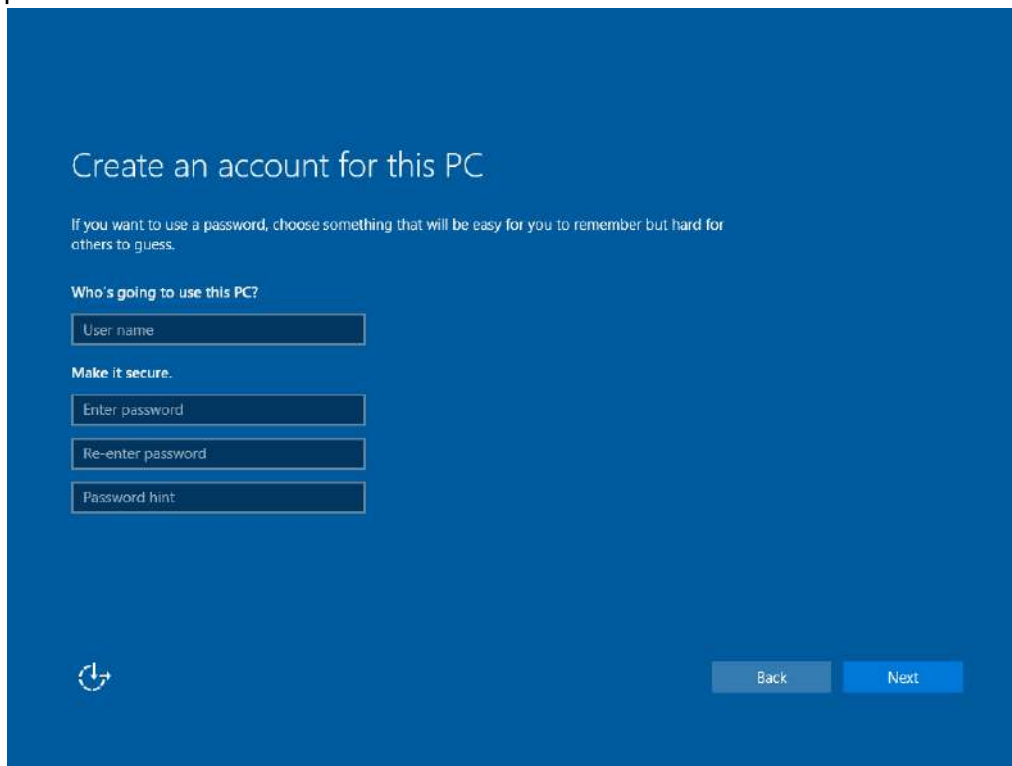
3. On the **Here's the legal stuff** screen, read through the disclosures, then tap **Accept**.
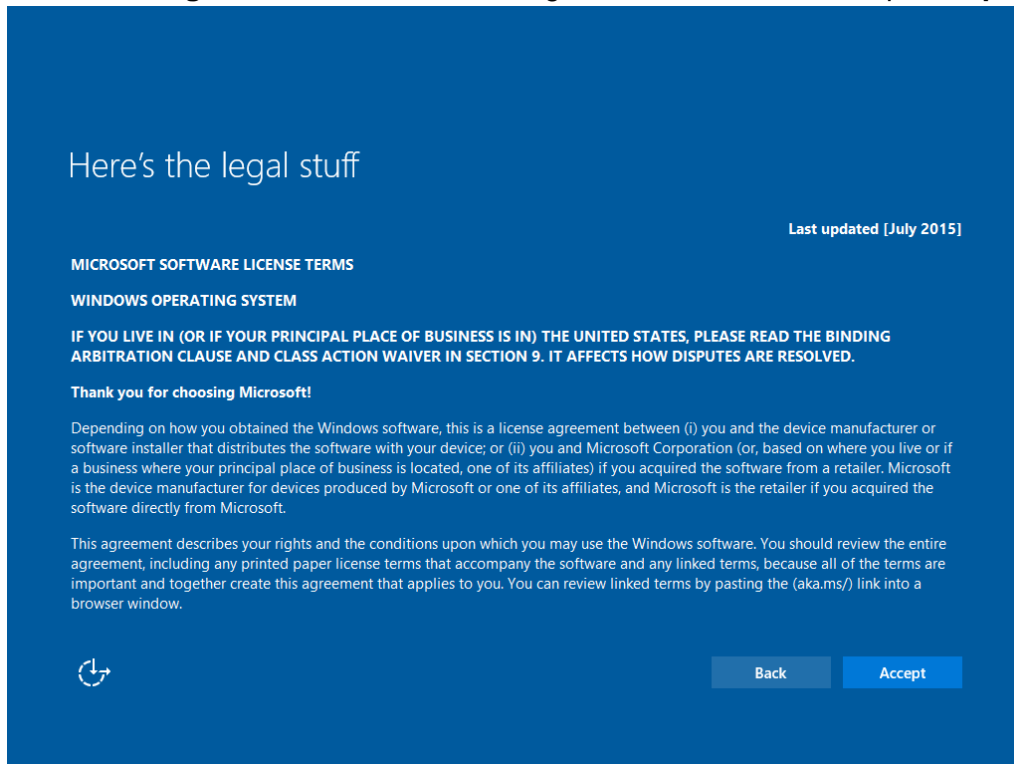
4. Windows will then try to connect to network. Tap **Skip this step** to continue without a wireless connection as you can then set up the network later.
5. On the **Get going fast** screen, click **Use Express settings** for the fastest setup. If you would like more information, tap **Learn more**, or if you would like to select your own options, click **Customize settings**.
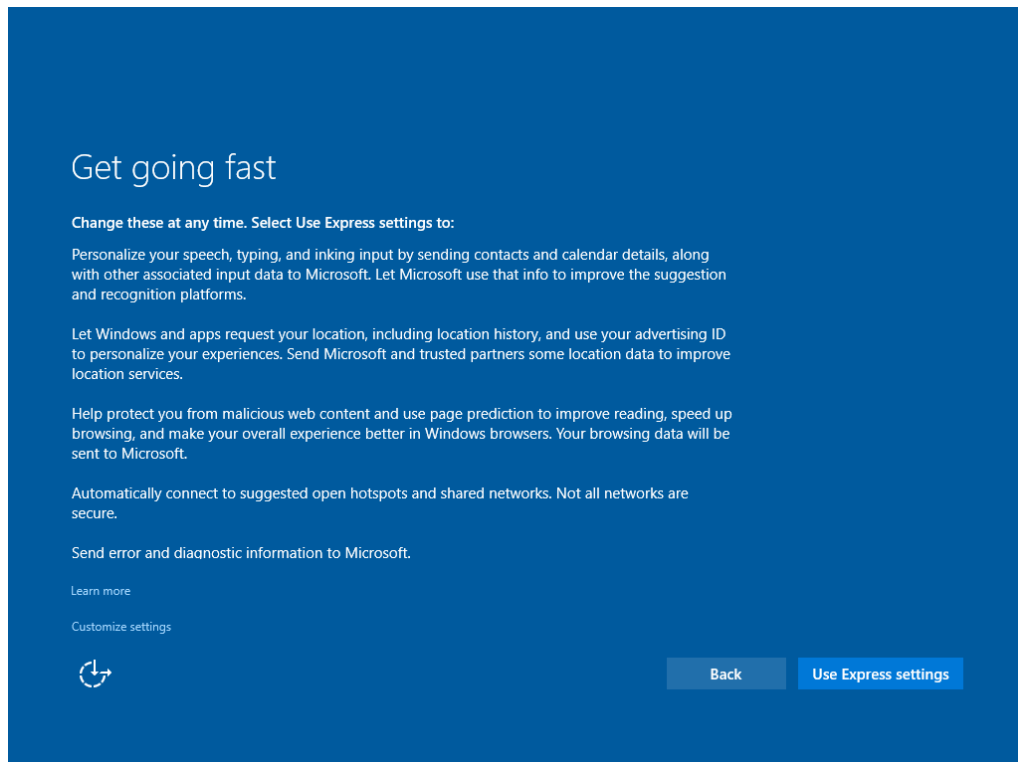
6. To create a local account, type your User name, password, and Password hint in the fields provided, then tap **Next**.

Create an account for this PC

If you want to use a password, choose something that will be easy for you to remember but hard for others to guess.

Who's going to use this PC?

    User name

Make it secure.

    Enter password

    Re-enter password

    Password hint

Back   Next

7. The initial setup screens are complete, and the desktop is displayed.
8. Read any introductory screens describing features of your computer, and tap **Next** upon completing each. You are now done with the initial setup process.

4.2 Control Panel

4.2.1 Using the Touch Screen

The touch screen is a touch-sensitive device that allows you to control and make selections on the device by controlling the location of the pointer on the screen.

NOTE:

Do not use sharp or pointed objects on the touch screen. These objects may scratch the screen. Use only the stylus pen or the tip of your finger.
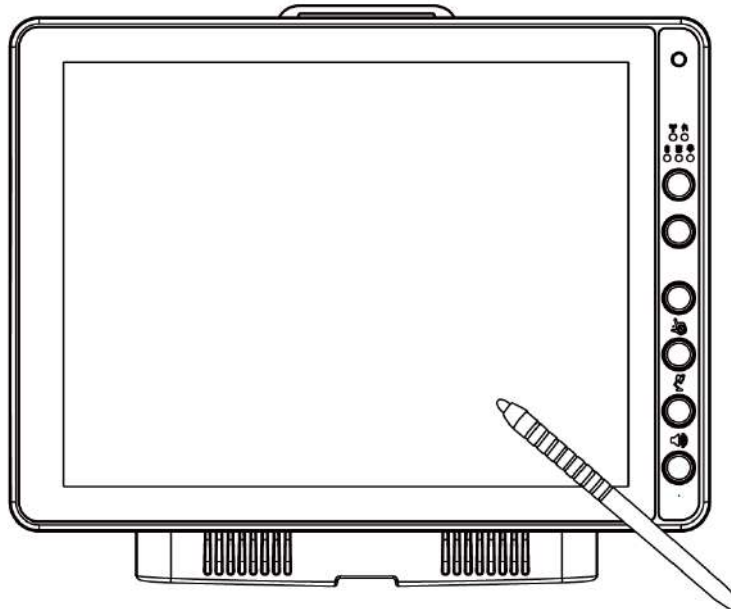
Here are some common terms when using the touch screen.

Gesture	Action	Description
Single Tap		Tap gently on the touch screen to select or open an item. Tapping is the same as clicking the left mouse button of a pc
Double-tap		Rapidly tap twice on the touch screen. This action is similar to double-clicking the left mouse button of a pc
Press and hold		Press and hold the finger/ stylus lightly on the display. A big circle appears to indicate that a pop-up menu will soon appear. Lift up the stylus and a pop-up menu appears. Select the desired function. This action is similar to a right mouse click on a pc
Drag		Hold the finger/ stylus on the screen and drag across the screen to select text and images or move icons to a new location

4.2.2 Touch Lock

Press F1 and F2 simultaneously to perform touch lock. While the touch is locked, all function keys and touch will not be able to work, until you slide the bar to unlock the touch lock.

Press F1 and F2 simultaneously one more time to perform unlock touch function, or you can slide the bar to unlock the touch lock.

4.2.3 Brightness

There are several configuration options for the FM12E display backlight:

4.2.3.1 Power Management

The display backlight is controlled by power management. When the user activity timer expires, the display backlight is turned off.

4.2.3.2 Display and Keypad Backlight Brightness

The intensity of the display backlight can be manually configured:

1. Press the F2 and F3 button simultaneously; the transparent slide bar will appear on the screen.

2. Tap on the Auto Brightness. you can adjust the brightness for Panel.
3. If the Auto Brightness is not selected, you can adjust panel brightness and keypad brightness individually.
4. Tap on left side of the bar to decrease the brightness; and tap on right side of the bar to increase the brightness.

4.2.4 Volume Adjustment

Press F3 and F4 simultaneously to perform volume adjustment. The adjustment slide bar will appear on screen transparently. Slide to the right side to increase the volume and slide to the left side to decrease the volume.

4.3 Win-Set Utility

Win-Set ® is a program made by Winmate to control the main functions of the FM12E. In Win-Set ® user can check system information, control function button settings, configure blanking function, scanner wedge and defroster settings.

Long-press F1 button to open Win-Set ®. User also can open Win-Set ® by double-clicking on Win-Set icon on the desktop.

4.3.1 System Information

System information menu displays main information about this computer.

4.3.2 Win-Set Shortcut Setting

Long pressing on F1 button opens a Win-Set ®. In Function Buttons submenu user can set up functions of the function keys F1~F24.

Press the ![NEW] button next to F1, user will see the window show up just like the below picture. Then choose a program to be opened by button F1 next time.

In this example **Dbgview** program will be opened by pressing F1.

If user wants to delete this function, please press the ![DEL] button next to F1 in the Win-Set ® Function Buttons menu.

Then there will be a window show up at the center of the desktop and ask you to confirm whether you want to delete this function or not. Then press Yes to finish this step.

4.3.3 Blanking Function

Winmate® FM12E equipped with screen blanking function. Once activated, it will lock the screen display to prevent or restrict the use of the in-vehicle computer.

Open Blanking Function menu to control blanking behavior, sensitivity and debounce time.
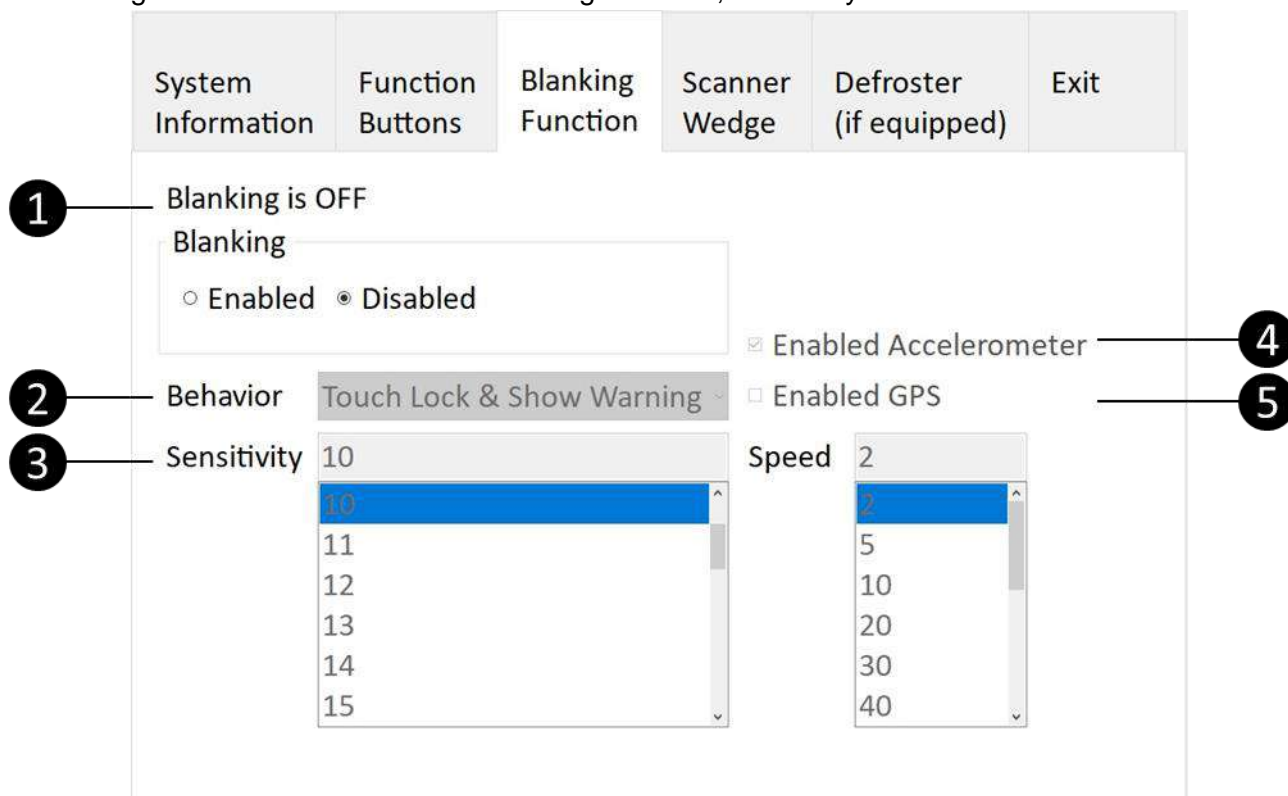
Item	Setting	Setting Options	Description
1	Blanking	• Enabled • Disabled	Blanking function reduces visual, cognitive, and physical distractions by limiting device functionality while the vehicle is in motion.
2	Behavior	Touch Lock & Show Warning	Screen is going blank and touch lock icon appears at the bottom side of the screen.
		Touch Lock	Locks screen and touch lock icon appears at the bottom side.
		Screen Off	Screen goes blank and will be unlocked according to sensitivity and denounce time preset.
3	Sensitivity	7~200	Set up gyro sensitivity parameters.
4	Enabled Accelerometer		Increase G-sensor sensitivity.
5	Enabled GPS	2~120	Increase vehicle acceleration sensitivity.

4.3.4 Scanner Wedge

Scanner wedge allows user to choose how to interface the Barcode Scanner to the FM12E.

Item	Setting	Setting Options	Description
1	Ports	• None • COM1 • COM2	Choose None, COM1 or COM2 and press Set button.
2	Output to	Keyboard Wedge	Data sent through a wedge appears as if it was typed into the computer, while the keyboard itself remains fully functional.
		SDK	The data will be sent to the folder inside SDK.
		Remote Desktop	Data appears on the remote desktop.
3	Settings	Settings menu	Opens scanner wedge configuration settings.
4	Clear	-	Clears settings.

4.3.5 Defroster

In cold storage, outdoor or in intermodal facilities condensation may appear on the screen. A defroster clears condensation and thaw frost from the screen. Notice that Defroster is an optional feature for the FM12E and may not be present in your device.

To show the defroster status open Win-Set and go to the Defroster sub-menu to see the information about the defroster.

IMPORTANT:

The defroster is always **disabled** when the device is operating from UPS battery power.
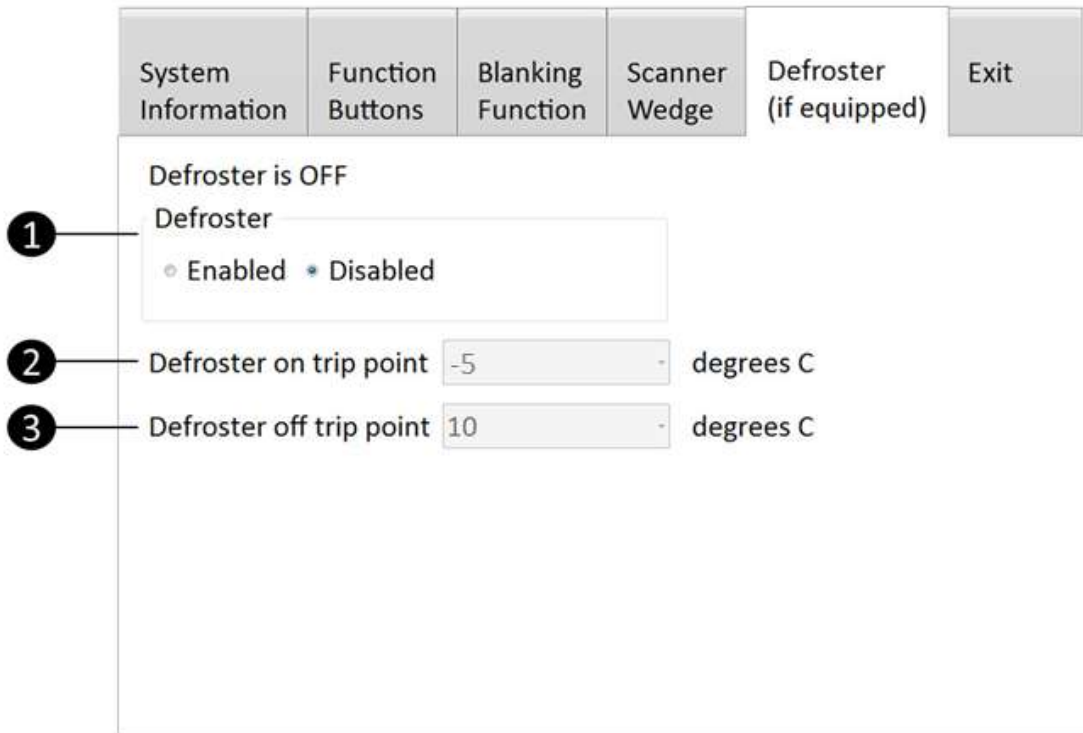
Item	Setting	Setting Options	Default Setting	Description
1	Defroster	Enabled	Disabled	Enables the defroster.
		Disabled		Disables the defroster.
2	Defroster on trip point	-30 ~ 0°C	Default: -5°C	When enabled, defroster automatically starts working when the outside temperature drops down to defroster on trip point (°C)
3	Defroster off trip point	+5°C, +10°C	Default: +10°C	When enabled, defroster automatically stop working when the outside temp. reaches defroster off trip point (°C)

Press Exit ᴱˣⁱᵗ button to close the Win-Set menu and go back to the desktop.

4.4 BT

Your device has integrated BT capabilities for short-range wireless communication between BT- enabled devices. You can transfer files, playback audio, configure virtual serial ports, and share network connection via BT.

By default, the BT feature is enabled as indicated by the BT icon on the taskbar. To Enable the Wireless BT feature, perform the following procedure:

1. Long press the F2 to launch the RF Power Control utility application.
2. Check the status of the BT Icon.
3. To turn the BT adapter on or off, tap BT. A check mark indicates the BT adapter is turned on.

4. Click the BT icon in the windows notification area, a contextual menu for BT is displayed.
5. To add a device, tap on Add a BT Device, Windows will search any BT device automatically.
6. Choose the BT device that user wants to connect and follow onscreen prompt to continue the pair procedure and use the BT device.

4.4.1 Opening My BT

Use **My BT** to pair and connect with BT devices. Perform one of the following to open **My BT**:
- Double-tap **My BT** desktop shortcut icon.
- Tap Start > All Programs > BT > My BT.

4.5 BT Barcode Reader Setup

For more information, please refer to the BT scanner manufacturer's documentation; it may be available on the manufacturer's web site.

This device supports several different types of barcode readers. This section describes the interaction and required configurations for a mobile BT barcode scanner.

Prerequisites

- This device is equipped with the BT hardware and software. An operating system upgrade may be required.
- The mobile BT barcode scanner battery is fully charged.
- This device is connected to AC or DC (vehicle) power.

Locate the barcode label, similar to the one shown above, attached on the side of this device. The label represents the BT address identifier for this device.

The mobile BT scanner requires this information before discovering, pairing, connecting or disconnecting process.

4.5.1 The FM12E with Label

If this device has a BT address barcode label attached, follow these steps:

1. Scan the paired BT address barcode label using the BT mobile scanner.
2. If this is the first time the BT scanner has scanned the BT label on your device, the devices are automatically paired. The BT LED will blink to indicate the pairing process is successful.

NOTE:

If there is no beep or no LED flash from the BT barcode reader, this indicates this device and the scanner are currently paired.

4.5.2 The FM12E without Label

If there is no BT address barcode label attached on this device, perform the following to create a unique BT address barcode for this device:

1. Locate this device BT address by entering my BT.
2. Create a BT address barcode label for this device. The format for the barcode label is as follows:
   - Barcode type must be Code 128.
   - FNC3 character followed by string Uppercase L, lowercase n, lowercase k, uppercase B and then the BT address (12 hex digits, no colons). For example, LnkB0400fd002031.
3. Create and print the label.
4. Scan the BT address barcode label with the BT barcode reader. The devices are paired. The BT barcode reader responds with a series of beeps and LED flashes.

4.5.3 Adding and Pairing a BT Device

Perform the following to pair your Tablet Computer with BT devices:

1. Make sure the BT adapter is on as indicated by the BT icon ( ) in the taskbar.

2. Open My BT
3. Tap **Search for Devices**. The Tablet Computer will scan for BT devices within range.
4. Double tap the device you want to pair with

4.6 WLAN

By default, the wireless antenna is turned on. In case you need to turn the wireless antenna on or off, perform the following:

1. Long press F2 to launch the RF Power Control utility.
2. Check the status of the WLAN Icon.
3. If the WLAN feature is disabled (unchecked), tap on the WLAN icon to enable it.

4. Click the wireless network connection status icon in the Windows notification area. A list of available wireless networks is displayed.
5. Double-click a network to connect to it. Provide required authentication information if needed.
6. To check the connection status, observe wireless network connection status icon in the Windows notification area. The more bars the icon shows, the better the wireless LAN connection strength is.
7. Now wireless LAN connection is setup, try connection to the network with an internet browser such as Internet Explorer.

NOTE:

Note that user can also turn the wireless antenna on or off in Windows Mobility Center (Tap Start > Control Panel > Hardware and Sound > Windows Mobility Center).

4.6.1 External WLAN Antenna

The default setting of the WLAN antenna is auto-switch, means when the device is on the dock, the device will detect the WLAN antenna on the dock; and when the device is removed from the dock, the device will use the internal WLAN antenna on the device. If user disables external WLAN antenna function (by tapping the icon below), the device will only detect internal WLAN antenna on the device.

4.6.2 Connecting to a Wireless network

Perform the following to connect to a wireless network:

1. Make sure that the wireless antenna is "on" (The WLAN LED indicator ( ) is green and the Wireless network icon on the taskbar shows).

2. Tap the Wireless Network icon ( ).

3. In the list of available networks, tap a network.

4. Tap Connect.
5. If the network requires authentication, enter the security key or passphrase.

Personal information and files on your wireless network can sometimes be seen by people who pick up your network signal. This can lead to identity theft and other malicious acts. A network security key or passphrase can help protect your wireless network from this type of unauthorized access.

The Set Up a Network wizard will guide you through setting up a security key. Please refer to this following link for more detail on how to set up a security key for a wireless network

http://windows.microsoft.com/en-us/windows/set-security-key-wireless-network#1TC=windows-7

4.7 WWAN

For vehicle computers equipped with wireless WAN (4G/LTE) card, to use the wireless WAN feature to connect to the network, perform the following procedure:

1. Long press F4 to launch the RF Power Control utility.

2. Tap on the Device button.

3. Check the status of the WWAN.

4. If the WWAN feature is disabled (unchecked), tap on the WWAN icon to enable it.
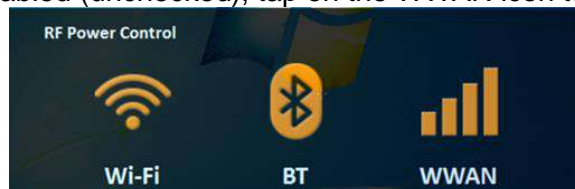
5. You can check the wireless WAN connection status through the wireless network connection status icon in the Windows notification area. The more bars encompassed, the better the signal is.

> **NOTE:**
> For the Windows 7 operating system, you also can check the Access Connections gauge, the Access Connections status icon, or the Access Connections wireless status icon in the Windows notification area.

Perform the following to connect to your 4G network:

1. Verify that WWAN Mode is enabled (this icon will turn into orange color), this verifies that your WWAN radio module is enabled.

2. Open the Skylight application (tap Start > All programs > Sierra Wireless > Skylight) or (tap Start > Desktop > Skylight).

The skylight application window opens and the icon appears in the Windows notification area as following picture.

3. The application detects the SIM card and display network information on the Skylight main screen.

4. Tap connect to connect the 4G network, once connected the Skylight main screen displays the network connection information, such as signal strength, connection speed and bitrate transfer.

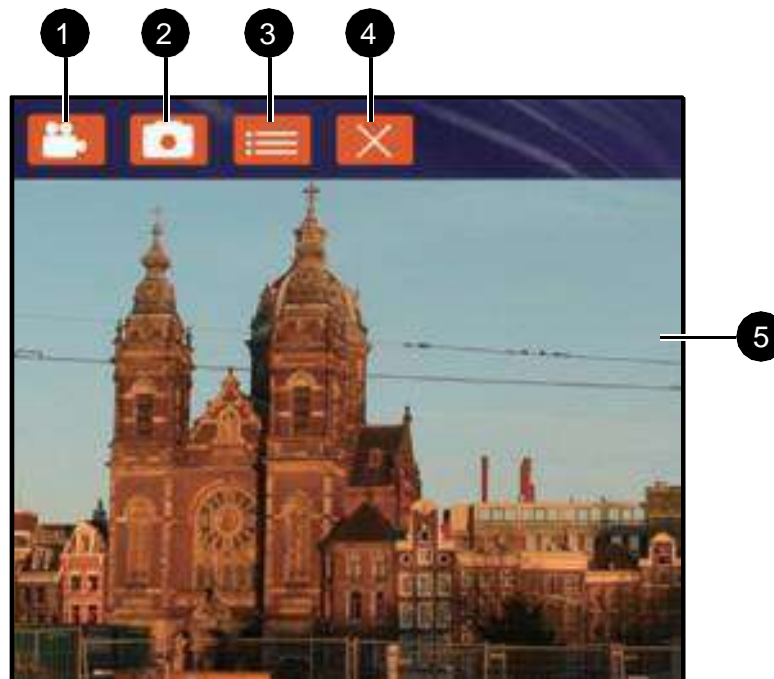| Item	Icon	Description
1	On/Off	• Green: network is on. • Red: network is off.
	Signal Strength	• Green: Indicate the network signal strength. More lit bars indicate stronger signal • Red: No signal.
	Network Type	Indicates the network connection type.
2	Toolbar	Tap an icon to access the function.
	History	Tap to view the usage history and clear the bitrate counters.
	Skylight® GPS	Tap to open Skylight® GPS Monitor.
	Settings	Tap to access the Skylight® settings.
3	Network Name	Displays the name of the SIM card network provider.
4	Data Transfer Rate	Displays the upstream and downstream transfer information.
5	Home	Tap to open the Sierra Wireless website.
6	Speed Graph	Tap to display a graphical table of the data transfer speed.
7	Menu	Tap to access the application menu.
	Minimize	Tap to minimize the application to the system tray.
	Restore	Tap to toggle the display between full view and compact view.
	Close	Tap to close the Skylight® application.
8	Connect or Disconnect Button	Tap to connect or disconnect from the network.
9	Network Info	A graphical display of the network connection type.
10	Speed	Indicates the network connection speed.
11	Customer Support	Tap to open Sierra Wireless support website.

4.8 Using Camera Features

Your device has a built-in camera. This section explains how to use camera for taking pictures and making videos.

4.8.1 Opening the Camera

Perform one of the following to open the camera:

- Long press F4 to launch the camera

4.8.2 The Camera Screen

No	Item	Description
1	Video	Tap to record videos
2	Photo	Tap to capture photos
3	Settings	Tap to select the destination folder to save captured photos and videos, enable preview, and select picture resolution and quality
4	Close	Tap to close the camera
5	Capture Screen	Shows the object to capture

4.8.3 Shooting Photos

1. Open the Camera
2. Focus on the object
3. Tap [icon] to capture the object
4. By default, the photo preview is displayed briefly on the screen

The preview screen automatically closes after 3 seconds. Alternatively, do one of the following:

- Tap to delete the photo and return to the camera screen

- Tap to close the preview and return to the camera screen

4.8.4 Recording Videos

1. Open the Camera.
2. Focus on the object
3. Tap to record the video. The video recording screen appears

4. Tap to stop recording and return to the camera screen
5. To playback the video, browse for the video file and play using a media player application on your device.

4.8.5 Camera Settings

1. Tap [icon] to open the setting page.

2. Modify necessary settings.

3. When settings are complete, tap OK to apply and save change.

No	Item	Description
1	Preview Setting	Check one of the check boxes to show the preview screen right after capturing a photo. **Show Preview**: Check this box and enter the preview duration on **Close preview after**. When the duration ends, the preview screen will automatically close. **Always Show Preview**: When this box is checked, the preview screen will only close when you tap the return ([icon]).
2	Picture Save	Tap this button to browse for the folder directory where you want to save captured photos.
3	Video Save Folder	Tap this button to browse for the folder directory where you want to save recorded videos.
4	Picture Resolution	Select the picture resolution: • 640 x 480 • 1600 x 1200
5	Picture Quality	Select the picture quality: **Low**, **Medium**, **High**, **Best**.

4.9 Using Recovery Wizard to Restore Computer

The FM12E computer has a dedicate recovery partition stored on the hard drive of the vehicle computer to enable quick one-key recovery process. This partition occupies about 11GB of the storage space, and comes built-in to each FM12E vehicle computer.

> **IMPORTANT:**
> Before starting the recovery process, be sure to backup all user data, as all data will be lost after the recovery process.

Follow the procedure below to enable quick one-key recovery procedure:
1. Plug-in the AC adapter to FM12E vehicle computer. Make sure the FM12E vehicle computer stays plugged in to power source during the recovery process.
2. Turn on the vehicle computer, and when the boot screen shows up, press the **F1** button (Recovery Key) on the front bezel OR press **F6** when using an external USB keyboard to initiate the Recovery Wizard.
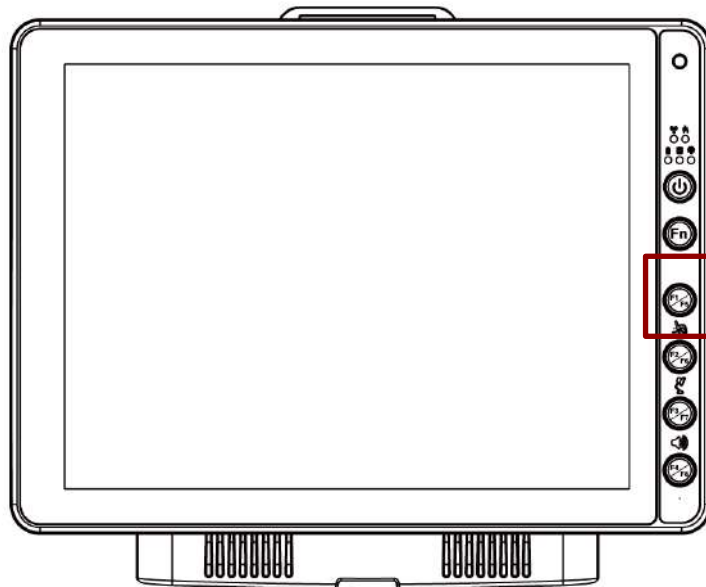
3. The following screen shows the Recovery Wizard. Click on "Recovery" button to continue.

4. A warning message about data loss will show up. Make sure data is backed up before recovery, and click on "Yes" to continue.
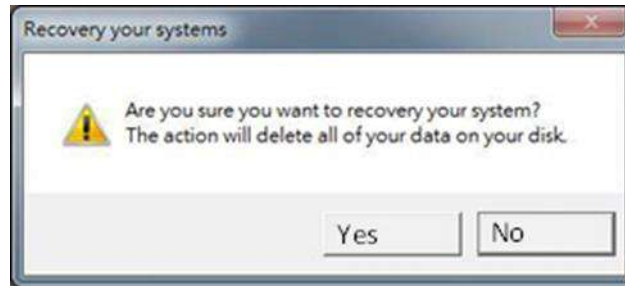
5. Wait till the recovery process to complete. During the recovery process, a command prompt will show up to indicate the percent of recovery process. After recovery is completed, and the vehicle computer will restart automatically.

Chapter 5: Accessories Installation

5.1 Installing a SIM Card

The Vehicle mounted computer supports data connection using 3G or 4G/LTE SIM cards and fits nano-SIM card. (Note: 4G/LTE feature is optional). Perform the following to install the SIM card to your vehicle mounted computer:

1. Remove the service window in the right side of the device by unscrewing two screws
2. Remove the screw that is securing the service window, carefully lift the cover up
3. Locate the SIM card slot and then insert it (the IC contact patch side of the SIM Card faces toward the front side of the device)
4. Make sure the SIM Card IC contact patch is facing the right direction (as shown in the picture below)
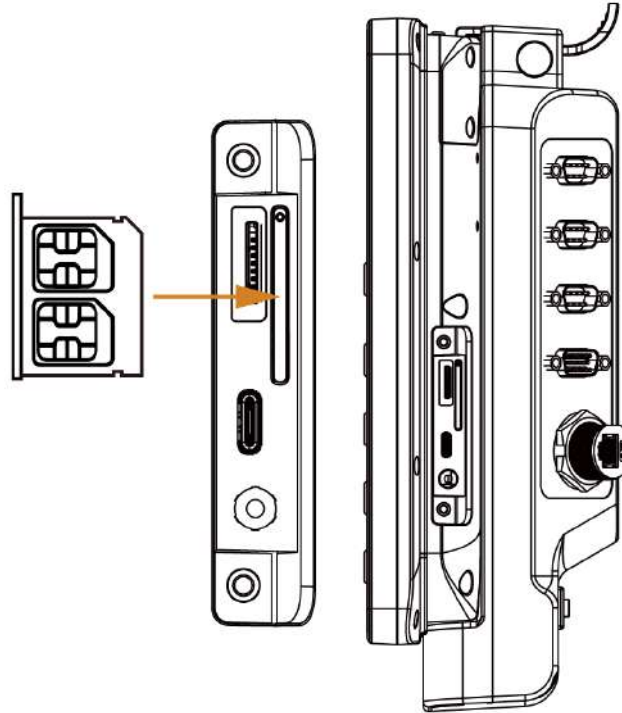
5.2 Installing a Micro SD Card

Micro SD card can be used to store files in the vehicle mounted computer, user can copy/ download/ upload files to and from the VMC. Perform the following to install the SIM card to your device.

1. Remove the service windows in right side of the device by unscrewing two screws.
2. Remove the screw that is securing the service window, carefully lift the cover up.
3. Locate the MicroSD Card slot and then insert it, the label side of the Micro SD card faces toward the back of the device.
4. Make sure the MicroSD card is faced the right direction (as shown in the picture below).
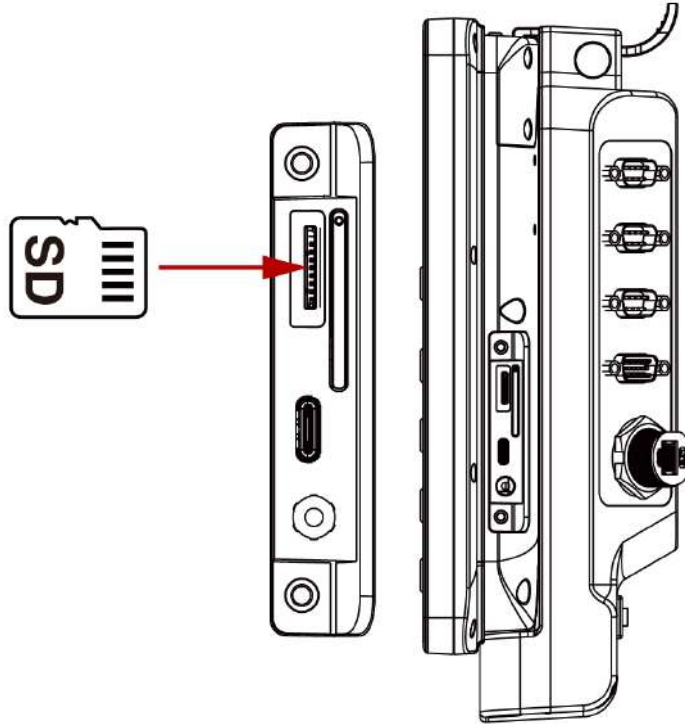
5. Reposition the removed service window and then screw to secure the service window.
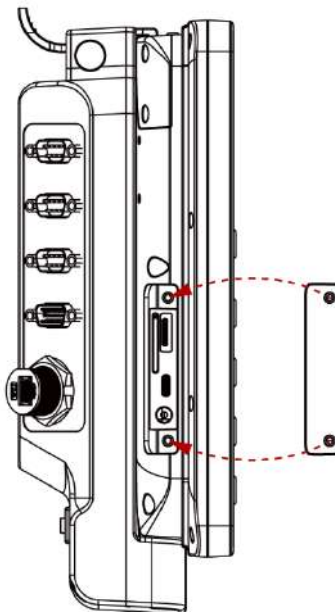
5.3 Installing a Stylus with the holder

Notice that stylus is an optional feature for FM12E vehicle mounted computer.

Perform the following to dock the device
1. Align the screw hole between the stylus holder and the rear side of device; fasten it with the given screw.
2. Make sure the direction is correct as following picture.
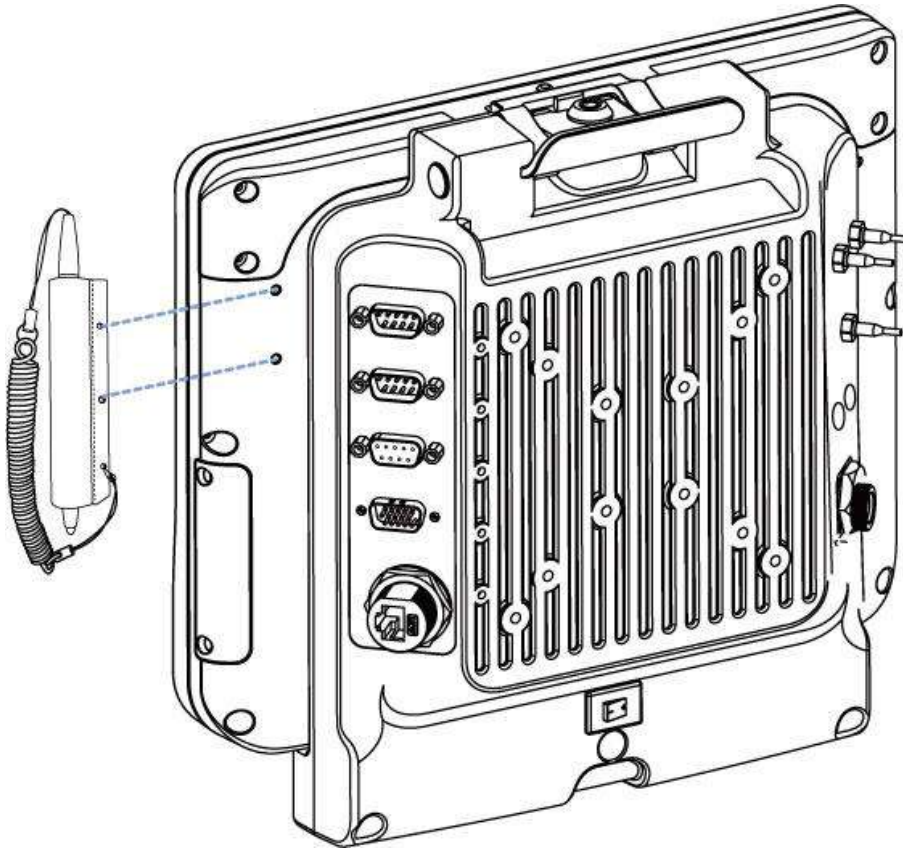
Chapter 6: Vehicle Mounting

6.1 Introduction

The FM12E is designed to be mounted to a docking station on the vehicle with RAM mount. The vehicle mount holds the dock and FM12E attaches to the dock. The FM12E can operate on another vehicle equipped with the docking station without the need to mount the device again. The vehicle dock has a latch located on the top side that allows removing FM12E from the dock. The FM12E has UPS battery that is designed to supply power to FM12E for a minimum of 30 minutes when the unit is not attached to the dock.

Rear Side of the FM12E   Front Side of the Vehicle Dock
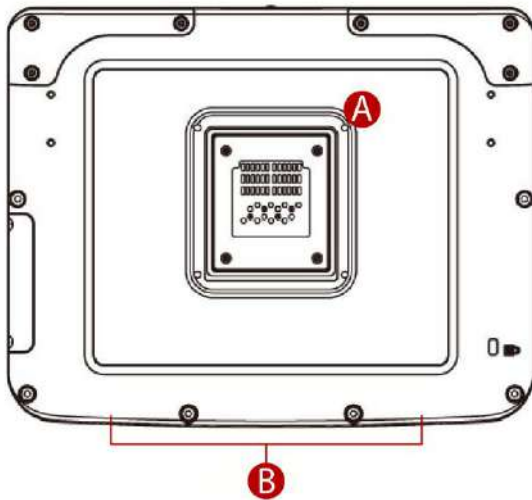
A. Golden Connector
B. Guide Pin Holes
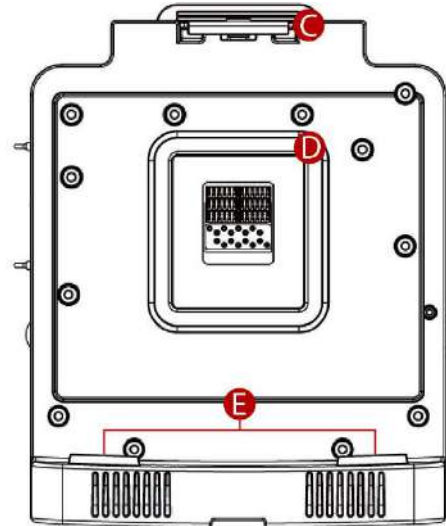
C. Release Latch
D. Golden Connector
F. Guide Pin

6.2 Vehicle Mount Instruction

Make sure that the FM12E does not obstruct the driver's vision and ensures safe driving.

The general steps to mount the device on the vehicle are as follows:
1. Install RAM mount to the vehicle.
2. Place FM12E to the docking station.
3. Secure the keyboard (optional).
4. Adjust the viewing angle of the FM12E.
5. Install antennas if necessary.
6. Connect peripheral devices and cables.
7. Connect vehicle power.
8. Secure all cables.

*Refer to "*RAM Mount Installation*" section of this User Manual for RAM mount and keyboard installation instructions.

6.3 RAM Mount Installation

Winmate recommends using RAM Mounting Parts as part of our device mounting solution. The rear cover of this device is designed to be mounted to RAM Mount solutions, which provides different mounting options to fit any industrial use or vehicle. Please notice that mounting kits are not included in the standard package.

RAM Base Dimensions: 38.1 x 30 mm
Screw: 4 x M5-0.8x10 mm Phillips screws

Important:
The information below is just a guideline on how you should mount the Winmate device using RAM Mount. To purchase the RAM parts, please follow the RAM Mounts Part and purchase from your preferred retailer.

Mounting 1 – No Drill Solution
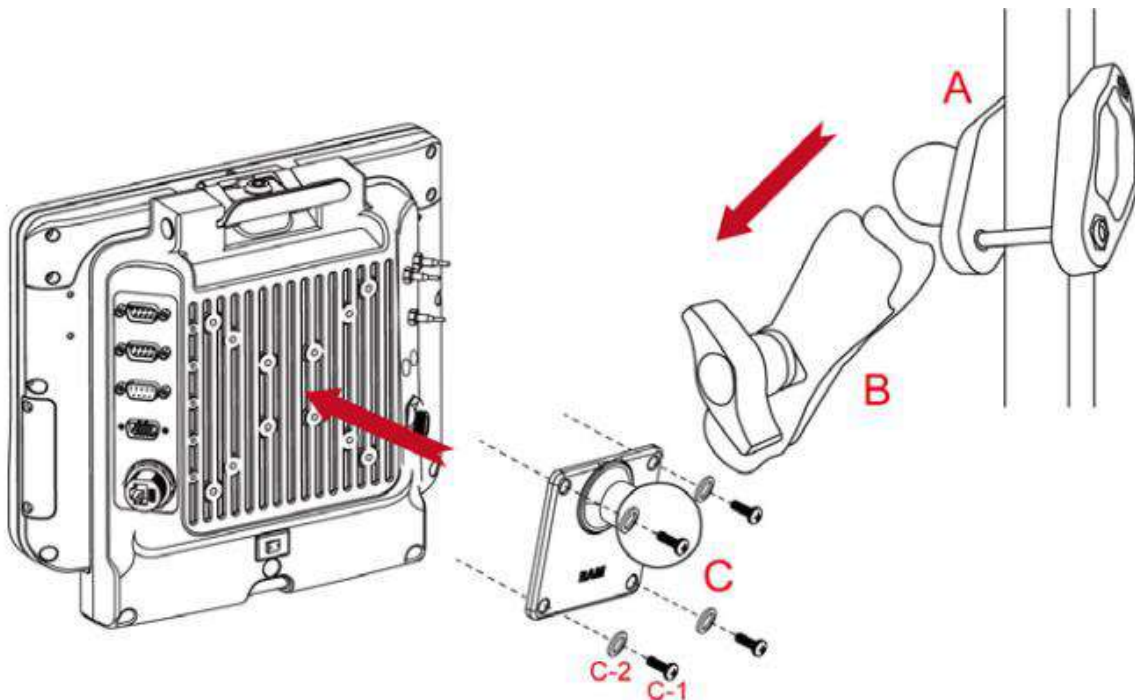
No	Component	RAM Mount Part Number	Description	QTY
A	RAM Clamp Mounts - on the forklift	RAM-D-247U-4	Clamp base with 2.25" Ball	1
B	RAM Arm	RAM-D-201U	Arm for 2.25" Ball(L:8.375")	1
C	RAM Ball on the device side	RAM-D-2461U	75x75mm VESA with 2.25" Ball	1
C-1	Screw	-	SUS304 M5 x 12mm Screw	5
C-2	Washer	-	M5 Washer	5

Mounting 2 – Drill Solution
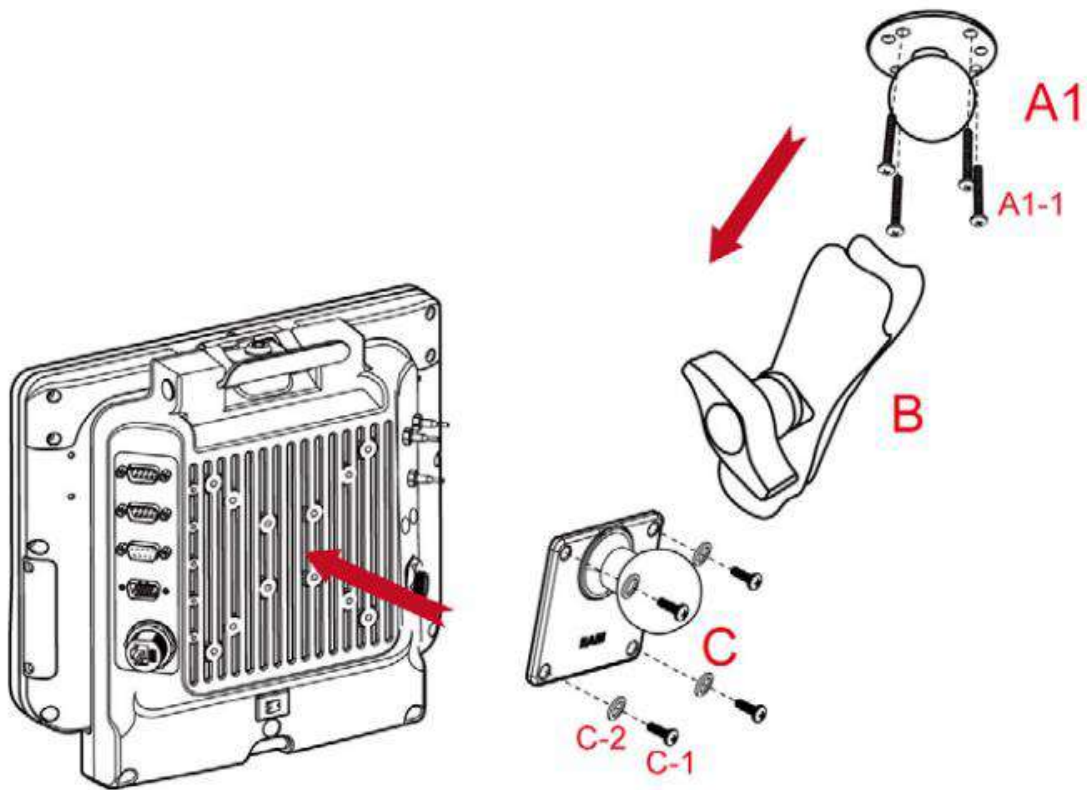
No	Component	RAM Mount Part Number	Description	QTY
A1	RAM round base mounts - on the forklift	RAM-D-202U	3.68" Round Base with 2.25" Ball	1
A1-1	Screw	-	SUS304 M8 x 40mm Screw	5
B	RAM Arm	RAM-D-201U	Arm for 2.25" Ball (Length:8.375")	1
C	RAM Ball on the device side	RAM-D-2461U	75x75mm VESA with 2.25" Ball	1
C-1	Screw	-	SUS304 M5 x 12mm Screw	5
C-2	Washer	-	M5 Washer	5

RAM Mount Assembly

Step 1 Install RAM Clamp to vehicle or forklift

1. Determine the position for mounting the RAM clamp mount according to RAM Mounts installation guide and specification.
2. Place the upper clamp with ball on the beam, insert the bolt.
3. Place the lower clamp below the beam. Align the bolts with the holes in the lower clamp.
4. Place the nuts and then tighten it.

Step 2 Install RAM Ball base to vehicle dashboard / other surface.

1. Please make sure that the surface is flat and rigid.
2. Attach the RAM ball base to the vehicle and fix it using bolt or fasteners.

Step 3 Attach RAM Mount Ball to the device docking.

1. Turn the device off before installing the RAM mount ball.
2. Locate the VESA mount holes on the back of the device and align it with the holes from RAM Ball base. Fix with four M5 screws.

Step 4 Attach the device to RAM arm.
1. Insert the RAM arm over the ball on the vehicle RAM mount (shown here).
2. Insert the ball on the dock into the RAM arm and tighten the knob.

Mounting 3 – Keyboard Mounting Installation
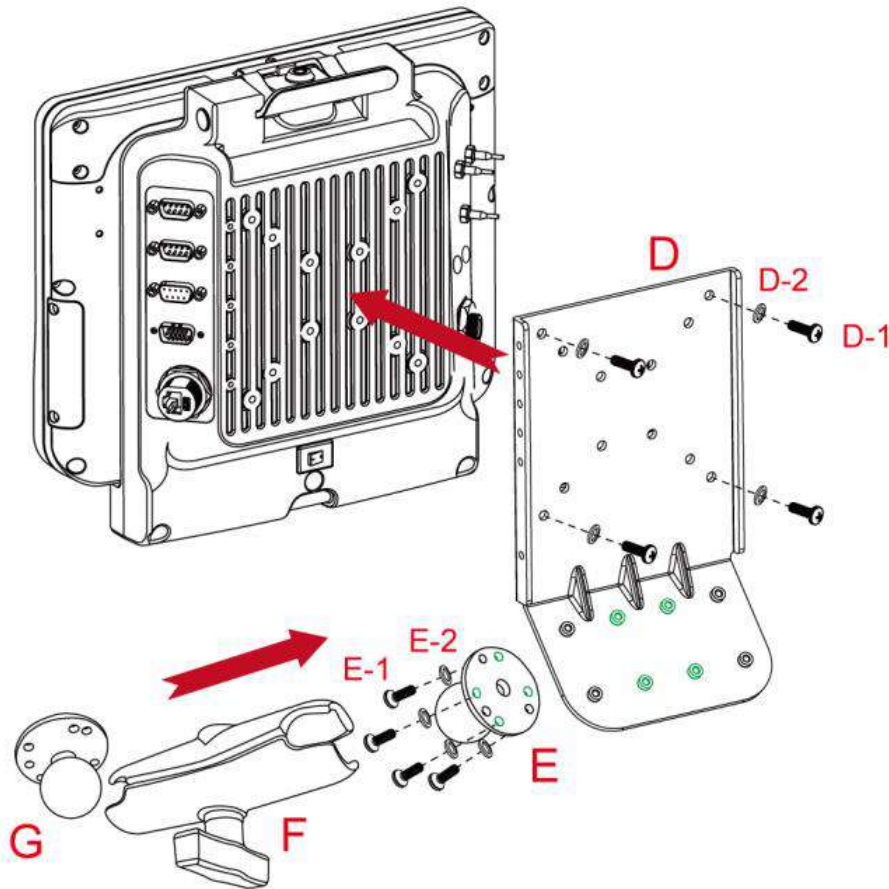
No	Component	RAM Mount Part Number	Description	QTY
D	Winmate Keyboard Adapter Plate (designed by Winmate)	-	4 VESA Holes on the plate to device and 4 AMPS holes to RAM Ball	1
D-1	Screw	-	SUS304 M5 x 20mm Screw	5
D-2	Washer	-	M5 WASHER	5
E	RAM Ball on the sloped part of the keyboard adapter plate	RAM-202U	2.5" Round Base with 1.5" Ball	1
E-1	Screw	-	SUS304 M4 x 14mm Screw	5
E-2	Washer	-	M4 WASHER	5
F	RAM Arm	RAM-201U	Arm for 1.5" Ball (Length:5.6")	1
G	RAM Ball on the sloped part of the keyboard adapter plate	RAM-202U	2.5" Round Base with 1.5" Ball	1

Keyboard Assembly

This part shows the steps to install the keyboard.

1. Fasten all four screws on the RAM mount ball on the back of the keyboard.
2. Fasten the keyboard adapter on the other end of the RAM mount ball.
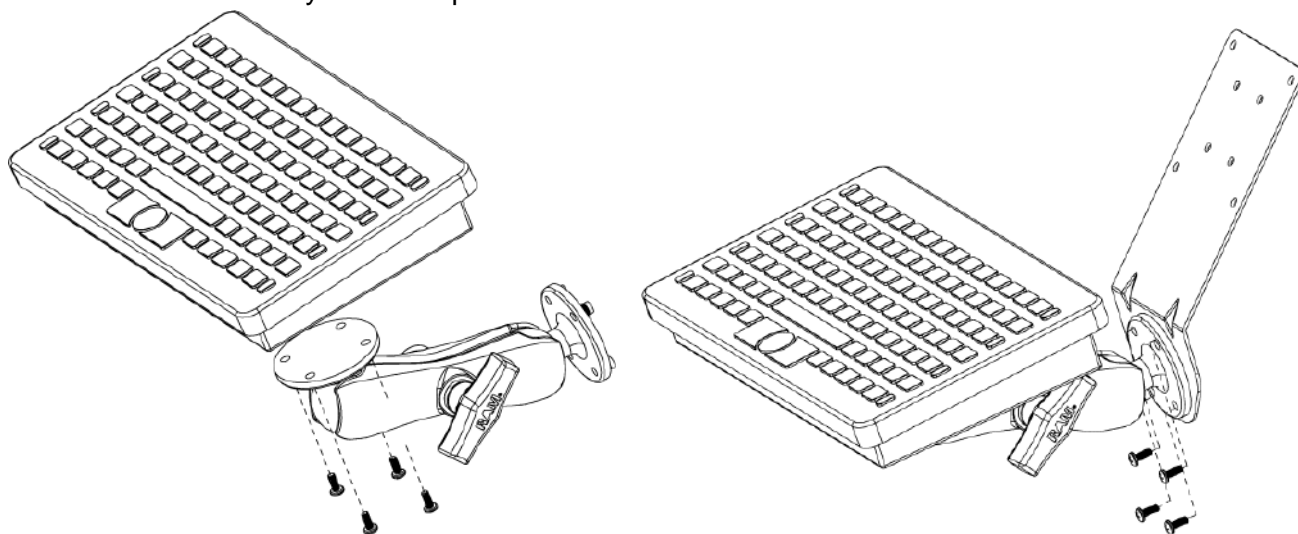
3. Fasten the RAM mount ball screws on the back of the device, so all mounting parts are fastening together.

6.4 Docking and Undocking the Device

Perform the following to dock the device:

1. Align the golden connector and guide pin holes on the device with the golden connector and guide pins on the docking station
2. Insert the device into the guide pin holes on the docking station
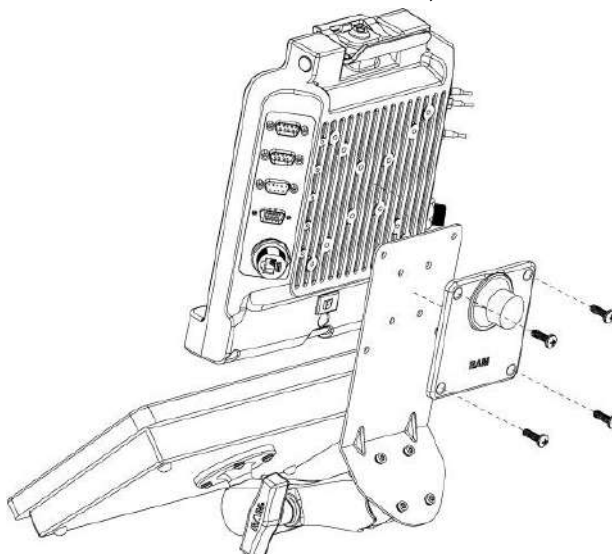3. Slightly push the upper part of the device towards the docking station until you hear the "click" sound, including the device is fixed on the docking station.
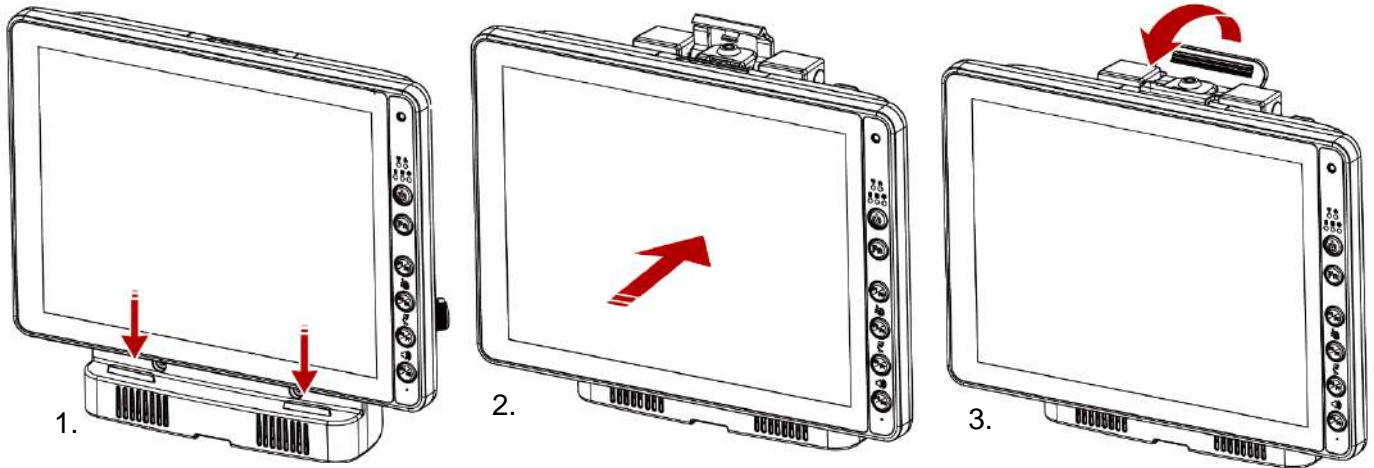
NOTE

Condition	Result
If the battery is full and power is connected to the dock.	The battery indicator is off.
If the battery is low and power is connected to the dock.	The battery indicator is orange.

CAUTION/ ATTENTION

Always place the FM12E on the dock from top side. Placing from left or right sides may damage the docking connector.

Perform the following to undock the device:

1. While holding the device, push the release latch on the docking station and then lift the device to undock it.
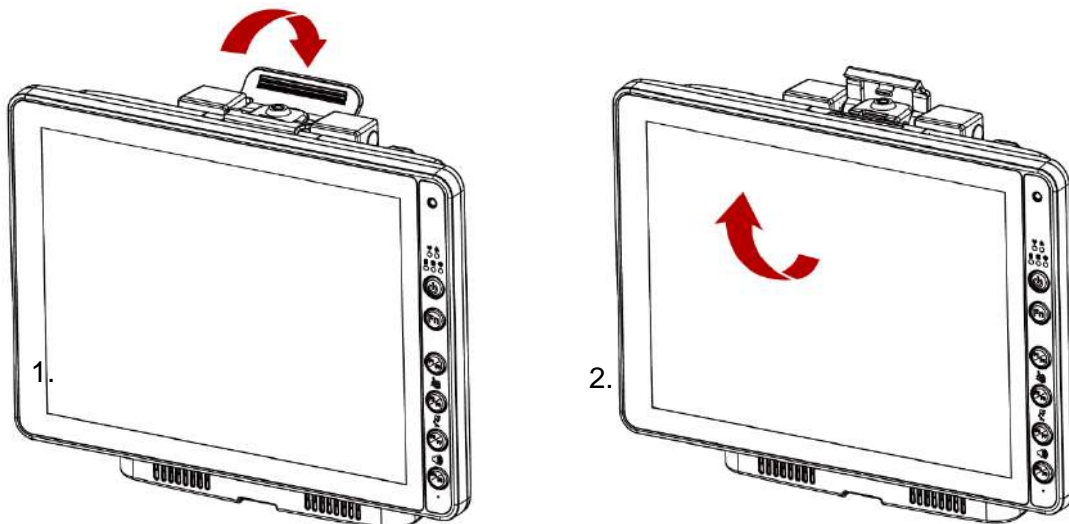
6.5 Power Cable Installation

6.5.1 Wiring the Power Cable

⚠️ **WARNING! / AVERTISSEMENT!**
This procedure requires a trained service personnel only, improper installation can cause serious damage to the vehicle or the device.
Cette procédure nécessite un personnel de maintenance qualifié uniquement, une mauvaise installation peut causer des dommages importants au véhicule ou le dispositif.

6.5.2 Connecting the Power Cable for Testing

IMPORTANT:
It is highly recommended to purchase the power cable for testing purpose.

Wiring Instruction
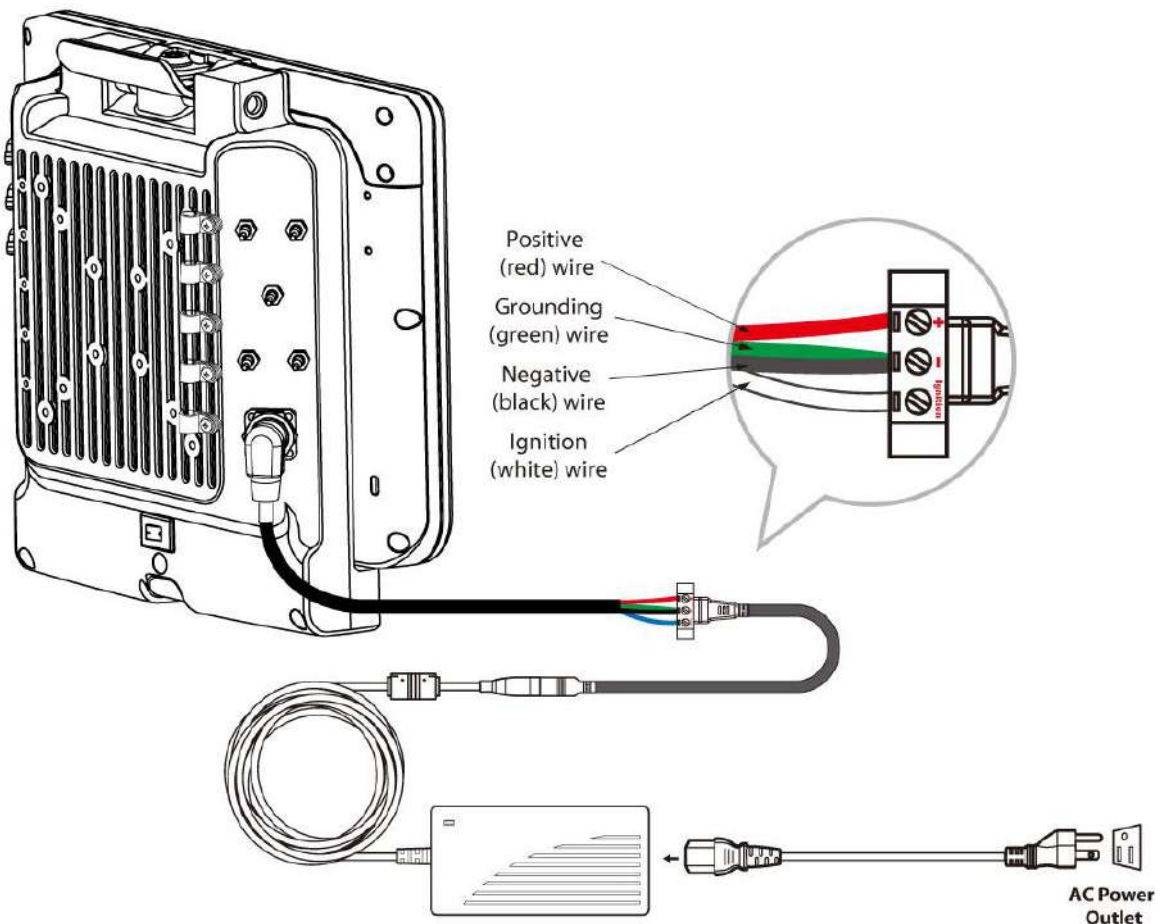
1. Place the device on the vehicle dock and make sure the device is Off.
2. Connect the CN2 to the FM12E vehicle dock by aligning the connector pins and then push it, twist to fasten the connection.
3. Connect the AC plug to the electrical outlet.
4. Switch the power switch On, located on the back of the vehicle dock.
5. Press the On button, the device is ready for testing.

6.2.3 Connecting the power cable for installation on the vehicle

WARNING! / AVERTISSEMENT!

This power cable should only be used on the 24, 36, or 48 Volt forklifts. Note that, this power cable cannot work for 12 Volt forklifts.

Ce câble d'alimentation ne doit être utilisé sur les 24, 36, ou 48 chariots élévateurs Volt. Notez que, ce câble d'alimentation ne peut pas travailler pour 12 chariots élévateurs Volt.

WARNING! / AVERTISSEMENT!

Select a mounting location and make sure it is not located on the outside the vehicle.

Sélectionnez un emplacement de montage et assurez-vous qu'il ne se trouve pas à l'extérieur du véhicule.

WARNING! / AVERTISSEMENT!

Do not perform the installation on a moving or live electric forklift.

Ne pas effectuer l'installation sur un mobile ou un chariot élévateur électrique sous tension.

Wiring Instruction
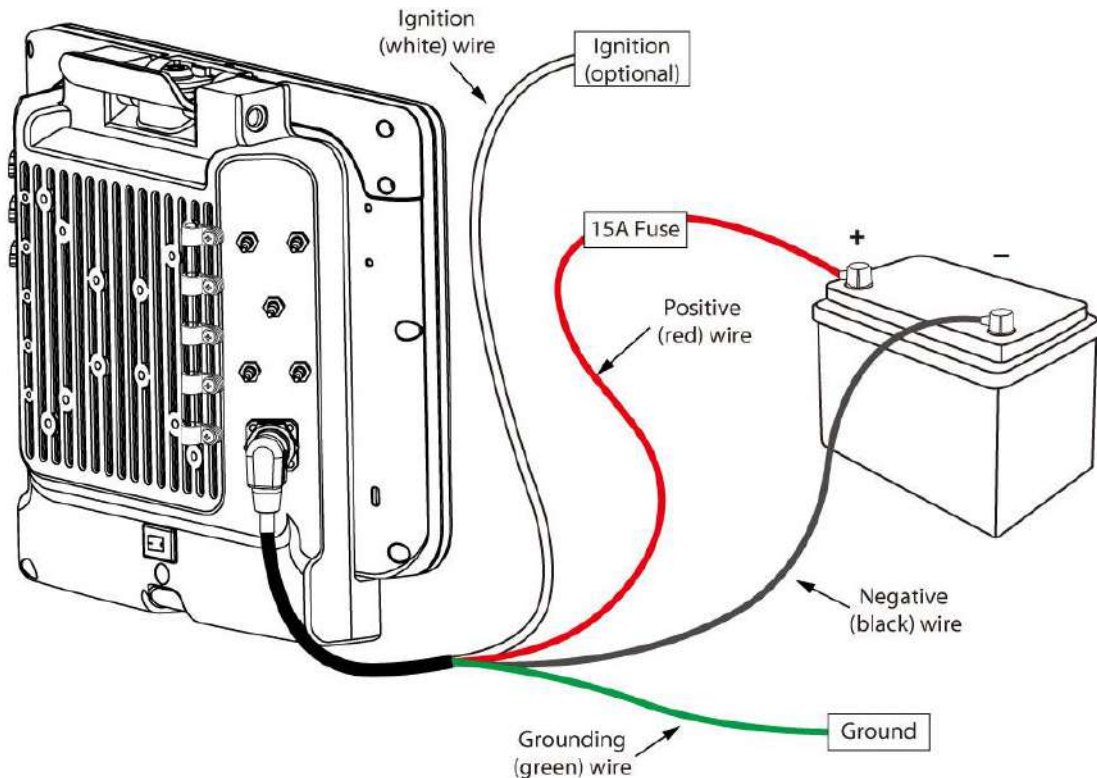
1. Remove the vehicle battery before connecting the power cable
2. Connect the Green Wire (Ground) to the vehicle's chassis (grounding), which can also be negative pole of the battery
3. Place the fuse and fuse holder in-line of the Red (VCC +) and White (ignition) wires as shown below.
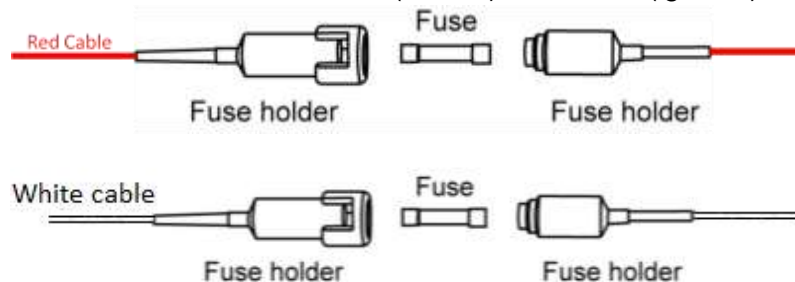
Fuse Specification:
Two Fuses, 15A, 250Volt, UDA Type Fuses

WARNING! AVERTISSEMENT!

All power wiring must use the supplied power cable.

Tout le câblage électrique doit utiliser le câble d'alimentation fourni.

4. Slide tubing over wires, remove the wires and insert it to the fuse holder, crimp it.
5. Connect the red wire to the vehicle's positive power source. Connect the black wire to the vehicle's negative power source.
6. Connect the white wire to the vehicle's ignition switch for the ignition function, if the requirement is connected to vehicle without ignition, please connect ignition pin to battery V+.

Warning! When power is on, ignition pin connects to battery V+ will cause the power consumption even ignition is off

Power cable description:
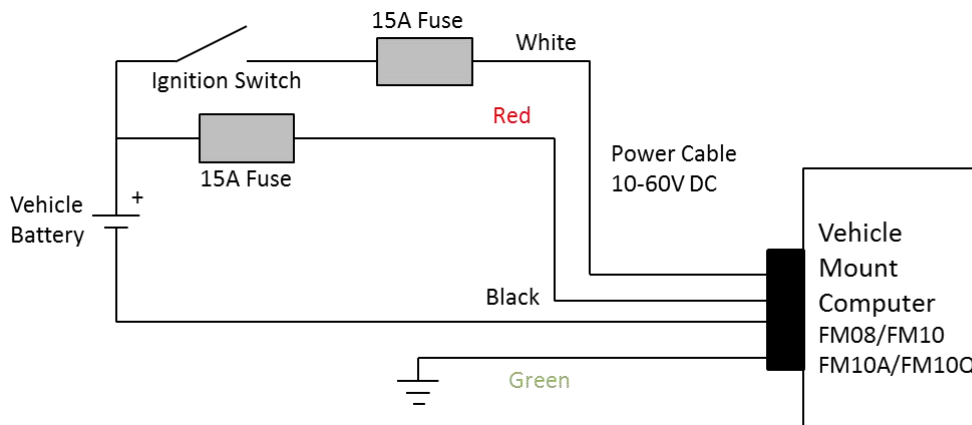
Color	Symbol
Red	VCC+
Black	VCC-
Green	Ground
White	Ignition input (optional)

With Ignition Function

7. The ignition cable (White cable) must be connected to the battery positive if the customer does not want to have ignition function, as following.

Without Ignition Function
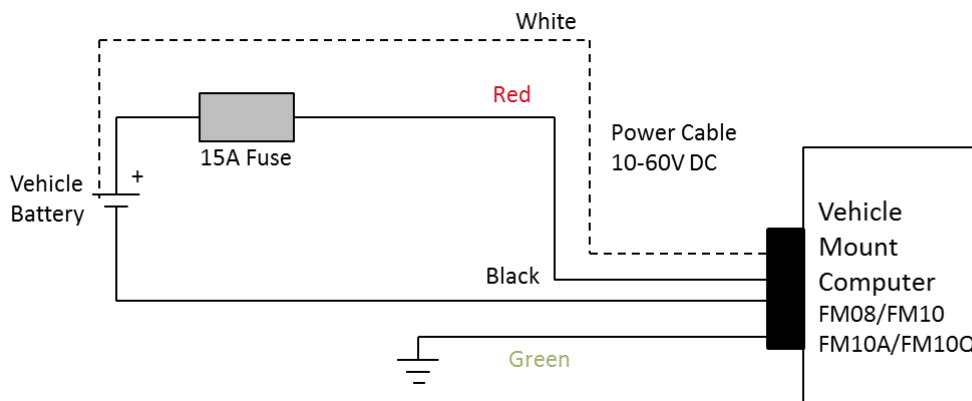
8. Secure the power cable to the device using cable clamps and place the device in the dock. See *Power cable routing.*

WARNING! / AVERTISSEMENT!

Use the proper cable clamps and do not over tighten it to prevent it from break.

Utilisez les pinces appropriées du câble et ne serrez pas pour l'empêcher de pause.

9. Press the power switch on the back of the dock See *Power switch.*

10. Press the power button on the front of the device See *Power Button.*

|		Vehicle Installation		Office Test / Evaluation	
		With Ignition	Without Ignition		
Power Mode		Ignition-On mode	AC/DC Mode	AC/DC Mode	AP to switch
Auto-On		Auto-On is ON	Auto-On is ON	Auto-On is OFF	BIOS switch
Trigger On	Ignition On Signal	√	√	X	
	Power Button	X	X	√ (press for 2 sec)	
On Delay		0 Second (Default) adjustable by AP		X	
Turn Off					
Trigger Off	Ignition Off Signal	√	X	X	
	Power Button	√	√	√	
				First time use: Install all the power cables require for testing. Switch the power switch On, located on the dock and then the device will Auto On / boot up in 10 second.	

6.5.4 Power cable routing

There are many cables available for the FM12E including power cable, CAN Bus cable, or USB cable. To secure these cables, there are five cable clamps secured the FM12E vehicle dock to prevent the cable strain. To secure audio, power, and I/O cables perform the following action:

1. Determine the proper strain relief cable clamps; there are different sizes of the clamps depending on the thickness of the cable. For example, the largest clamp is designed to secure the power cable.
2. Remove the cable clamps from the vehicle dock by releasing the screw. Put the screw and save in it the secure location.
3. Slide the clamp over the cable.
4. Refasten the cable clamp to the dock, adjust the tension in the cable to allow it to be connected and disconnected when needed.
5. Repeat this step until all cables are secured to the dock.
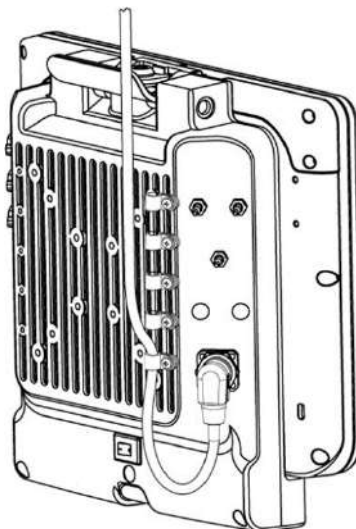
Appendix A: Technical Specifications

FM12E	
System Specifications	
Processor	Intel Elkhart Lake x6425E Processor, 2.0 GHz
System Memory	4GB SODIMM DDR4-3200 (up to 8GB)
Storage	128GB M.2 SSD (up to 256 GB)
Operating System	Windows 10 IoT Enterprise
Security	TPM 2.0
Display Specifications	
Size / Technology	12.1"
Resolution	1024 x 768
Viewing Angle	88,88,88,88
Brightness	500 nits
Touch	Projected Capacitive Multi Touch
Wireless Communications	
WLAN	Support
BT	Support
GPS	GPS/AGPS
WWAN	Optional 4G/LTE
Data Capture	
Camera	2MP Camera at front side
Mechanical Specifications	
Dimensions (W x L x H)	Computer: 307 x 225 x 41 mm (12.08" x 8.85" x 1.61")
	Docking: 202 x 245 x 52 mm (7.9" x 9.6" x 2.04")
Housing	Magnesium Alloy housing with fanless design
Weight	Computer 1.7kg (3.75 lbs)
	Docking 1.6kg (3.53 lbs)
Environment Considerations	
Operating Temperature	-20°C to 60°C AC Mode: -20°C to 50°C (-4°F to 122°F) Battery Mode: -10°C to 50°C (14°F to 122°F) with Optional Heater: -30°C to 50°C (-22°F to 122°F)
Storage Temperature	-30°C to 60°C (-22° to 140°F)
Humidity	5% to 90% RH, non-condensing
IP Proof	IP65

FM12E	
Impact	Support EN62262 IK07 rating
Shock	MIL-STD-810G Method 516.6 Procedure I, 30 g for 18 ms
Vibration	MIL-STD-810G Method 514.6 Procedure I
ESD	Compliant with EN 6100042, enhanced ESD to ±12kV direct & ±15kV air.
Standards and Certifications	
Certification	CE, FCC, UL609501, EN609501, PTCRB, FCC (Electromagnetic Emissions), IC (ICES003)
I/O Connectors	
Computer	1 x USB Type-C 1 x Micro SD Card Slot 4 x LED Indicator (WLAN, BT, UPS battery, HDD, Screen Blanking, Heater) 1 x Dual nano-SIM Card Slot
Docking Station	1 x DB9 Connector for 2 x USB 2.0 Port 2 x Speaker 1 x CANBus or 1 x Audio 2 x COM Port 1 x Gigabit LAN port
Power Management	
Power Input	Docking: 10-60V with ignition control Tablet: 12V DC In
UPS Battery	7.6V UPS Battery (2S1P)
UPS Battery Operating Time	Minimum 30 minutes

NOTE:

1. Total usable memory will be less dependent upon actual system configuration.
2. SOTI is available upon request.
3. Length measurements do not include protrusions. Weight varies with options.
4. Measured at dimming LCD brightness. Varies depending on the usage conditions, or when an external device is attached.
5. Accessories may vary depending on your configuration.
6. This is a simplified drawing and some components are not marked in detail.
7. 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.

Appendix B: Order Information

FM12E Series available in the following configurations:

	4G	Built-in Heater
FM12E	Optional	N/A
FM12EHT	Optional	Default

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