VIKING

Mobile Data Terminal User¡s Manual

Model: MT7030

v1.1

Contents

Safety Precautions

Regulatory and Certification

FCC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment 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 the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interconnect cables and shielded AC power cable must be employed with this equipment to insure compliance with the pertinent RF emission limits governing this device. Changes or modifications not expressly approved by the system¡s manufacturer could void the user¡s authority to operate the equipment.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user¡s authority to operate the equipment.
This device is operable in 5.15 ¡ 5.25GHz frequency range, then restricted in indoor use only, Outdoor operations in the 5.15 ¡ 5.25GHz is prohibitive.

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RF exposure warning

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provide with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

CE Marking

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. Please contact your local representative for ordering information.
This product has passed the CE test for environmental specifications. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products.

Lithium Battery Safety Statement

Lithium battery inside. Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type of battery recommended by battery manufacturer.

THIS PRODUCT CONTAINS LITHIUM-ION BATTERY PACKS. IT MUST BE DISPOSED OF PROPERLY. CONTACT LOCAL ENVIRONMENTAL AGENCIES FOR INFORMATION ON RECYCLING AND DISPOSAL PLANS IN YOUR AREA.

Chapter 1. Product Introduction

VIKING is an in-vehicle terminal with 7¡ high resolution display and 500nits brightness, and is flexible to support a wide range of wireless connection capability. The device is well-suited for fleet management, asset management, EOBR and ELDs application.
It is compliant to ISO 7637-2, SAE J1455 and SAE J1113 and its optimized power system is designed for cold cranking, load dump, transient voltage and ESD.
The device is engineered with IP65 protection rating, a wide temperature design, wide input range, and rich expanding interfaces that support in-vehicle connectivity.

Hardware Specifications

Item	Description
Processor	QualcommR Snapdragon? 660 Octa -Core, 1.9GHz
Memory	3GB LPDDR4 SDRAM
Storage	32GB eMMC, Micro SD slot x 1
Display	● 7¡ TFT LCD WSVGA (1024 x 600), , 500 nits brightness ● Viewing angel: 145(H)/ 160(V) (CR>10) ● Support auto-dimming
Touch Panel	● Capacitive multi touch (PCT)
Wireless Connectivity	● GNSS (GPS / GLONASS / BeiDou/ Galileo) ● 4G LTE / WCDMA / GSM ● IEEE 802.11ac 2x2 MU-MIMO ● Bluetooth V5.0 ● RFID/ NFC
Item	**Description**
Power Input	9-36VDC,5A
Battery	1950mAh, 3.6V
Housing (Mechanical)	PC+ABS, fanless design
Certification	CE, FCC, CB

Environment

- Operating temperature:
  - -20¢C (-4¢F) to 60¢C (140¢F)
  - In accordance with MIL-STD-810H Method 501.7 High Temperature Procedure II - Operation
  - In accordance with MIL-STD-810H Method 502.7 Low Temperature Procedure II - Operation
- Storage temperature:
  - -30¢C (-22¢F) to 70 ¢C(158¢F)
  - In accordance with MIL-STD-810H Method 501.7 High Temperature Procedure I - Storage
  - In accordance with MIL-STD-810H Method 502.7 Low Temperature Procedure I - Storage
- Relative humidity: 5% to 95% @ 30¢C (86¢F) to 60¢C (140¢F) non-condensing in accordance with MIL-STD-810H Method 507.6 Humidity Procedure II Aggravated Cycles
- Vibration Test:
  - Operating: MIL-STD-810H Method 514.8 Category 4,
    Fig 514.8C-2 Common carrier (US highway truck vibration exposure);
    Fig 514.8C-4 Composite two-wheeled trailer;
    Fig 514.8C-6 Composite wheeled vehicle.
  - Operating: IEC 60721-3-5 Class 5M3
  - Non-Operating: MIL-STD-810H Method 514.8 Category 24 Figure 514.8E-1 General minimum integrity
- Shock Test:
  - Operation: MIL-STD-810H Method 516.8 Procedure 1 Functional Shock
  - Non-Operation: MIL-STD-810H Method 516.8 Procedure V Crash Hazard Shock

I/O Ports

Item	Description
Serial	RS-232 x 1 with 0/5/12V support 0.6/0.3A (COM1) RS-232 TX, RX/422/485 x 1 (COM2)
USB	USB 2.0 x 2 USB 3.1 type C x 1
Ethernet	Gigabit Ethernet (RJ45) x 1
Digital I/O	DI x 2, DO x 2
CAN	Raw CAN bus, optional SAE J1939 support
Audio	Audio headset jack x 1 Internal MIC-in x 2
Speaker	Waterproof speakers 2W

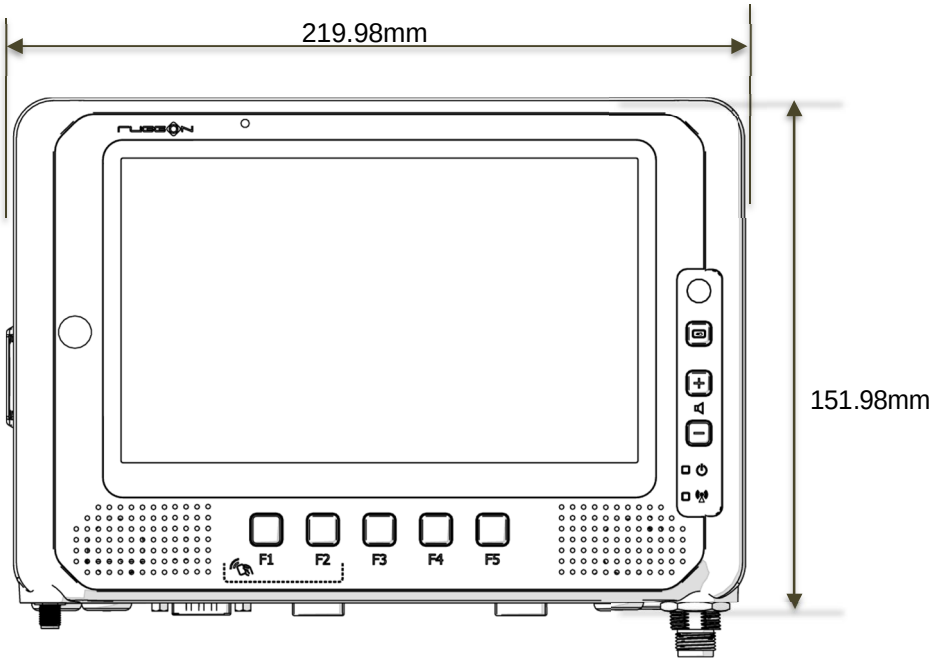
Dimension and Weight

VIKING Standard

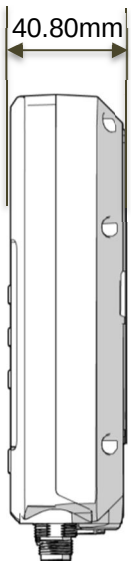
Dimension: 219.98 x 151.98 x 40.80 (mm) / 8.66 x 5.98 x 1.61 (in.) (W x H x D)

Weight: 1.25 kg/ 2.76 lbs.

Front View Dimension



Side View Dimension



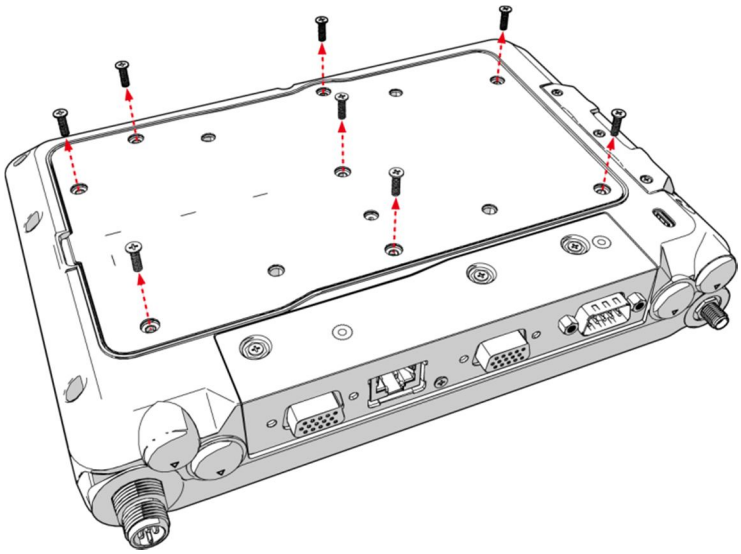
Package List

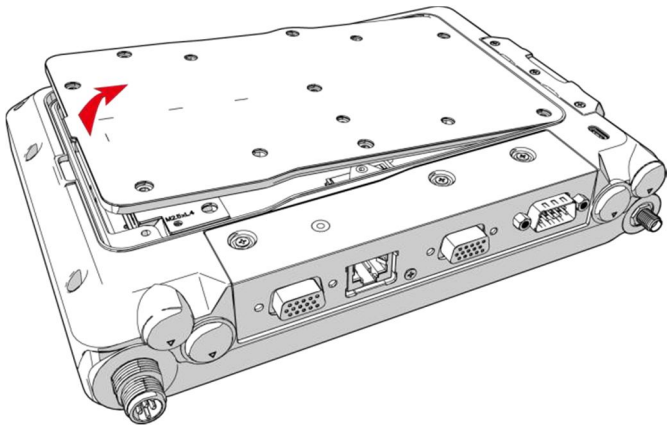
Before you begin the installation or configuration process, make sure to inspect all the components and accessories. Contact your representative if there are any missing or damaged items.
Please verify the delivery of the contents upon receipt

- VIKING in-vehicle terminal
- 2M Power cable with fork terminals

NOTE: The packaging material has been selected to optimally protect your device. After unpacking, store the original packaging material in the event that you need to return for shipment.

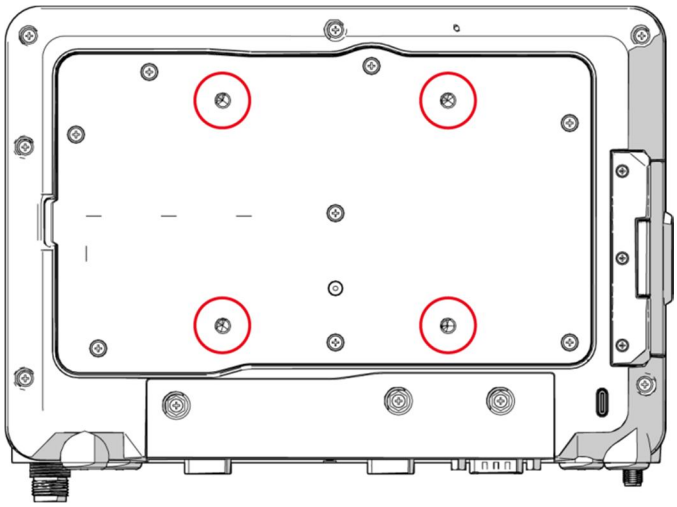
Chapter 2. Hardware Installation





Chapter 3. Hardware Mounting

The VIKING supports a standard VESA version MIS-D, 75, C (75mm distance quadrate order, M5 thread, deepness 6mm) through the four drill holes on the back side of the device.



Notes: *To prevent any damage or injury, make sure the mounting bracket is securely attached.*

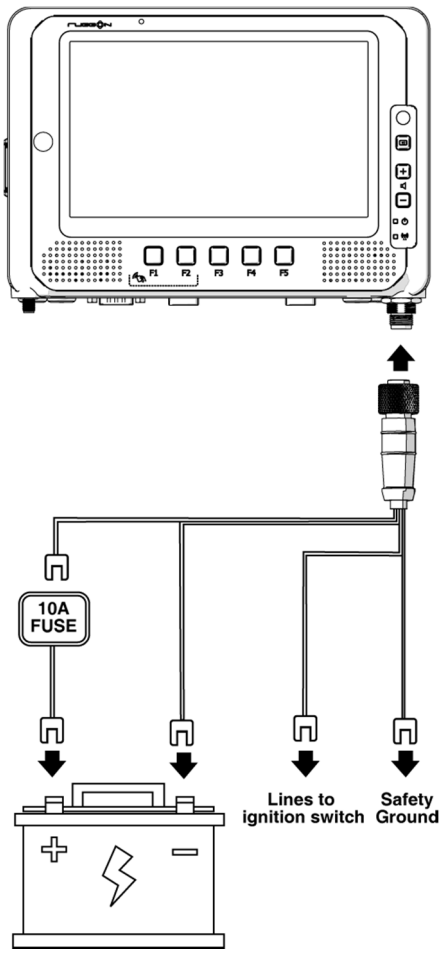
Chapter 4. Start up

Powering the System

Installation Instructions

Fuses 10A are required in connecting the power cable and battery in series to avoid the risks of wire damage and vehicle burning.

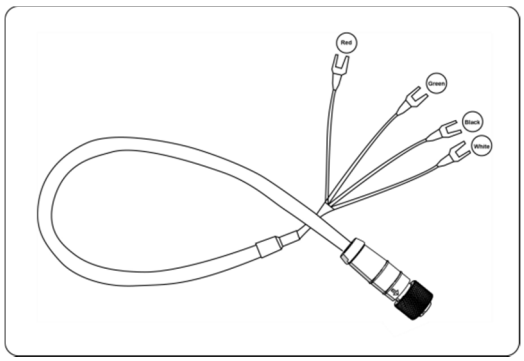
Please refer to the diagram below for VIKING installation.



Connector Power

VIKING allows a wide range of DC power input from 9~36V via a 5-pin M12 A-code power cord. There are two options to start up the VIKING, either via car power cable or external power adapter.

Here is the 5-pin M12 A-code power cord.



The wire definition

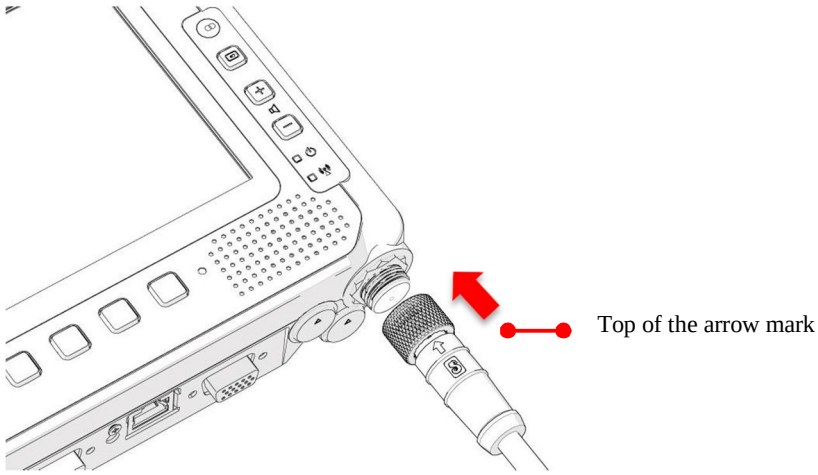
Wire Color	Description
RED	V+
BLACK	V-
GREEN	PE (Safety Ground)
WHITE	ACC/ Ignition

Power source from car power cable

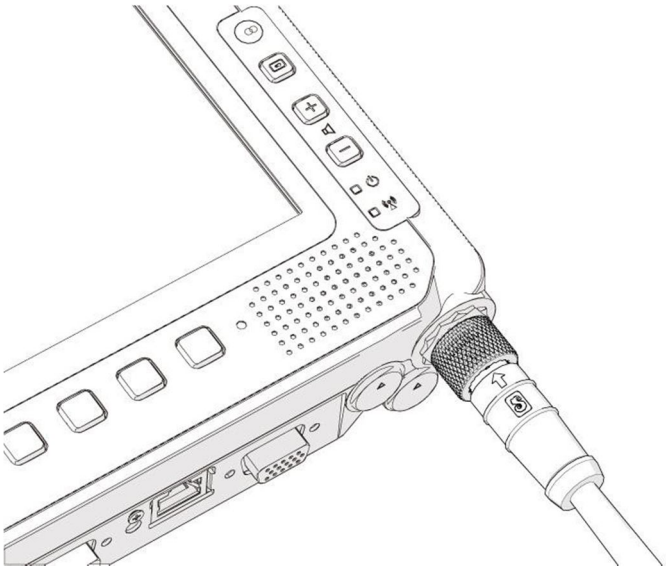
1. The bare wire lead cable allows you to directly wire 12 V or 24 V car power supply. Please follow the wire definition to connect to your power source.

   Please refer to the installation diagram on page 17 to install the 10A fuse between the power cable and power source.

2. Plug the power code into the power connector on the top of the arrow mark.



3. Twist the nut to lock the power connector to the device.



4. VIKING will turn on automatically when ACC is switched ON.

Power source from external power adapter

If your power source is from external power adapter, it means the power source isn¡t controlled by AAC/Ignition signal. Please short red (V+) and white (ACC/ Ignition) wires.

Make sure that all the power supplies are disconnected when you plug the power cord into the power connector.

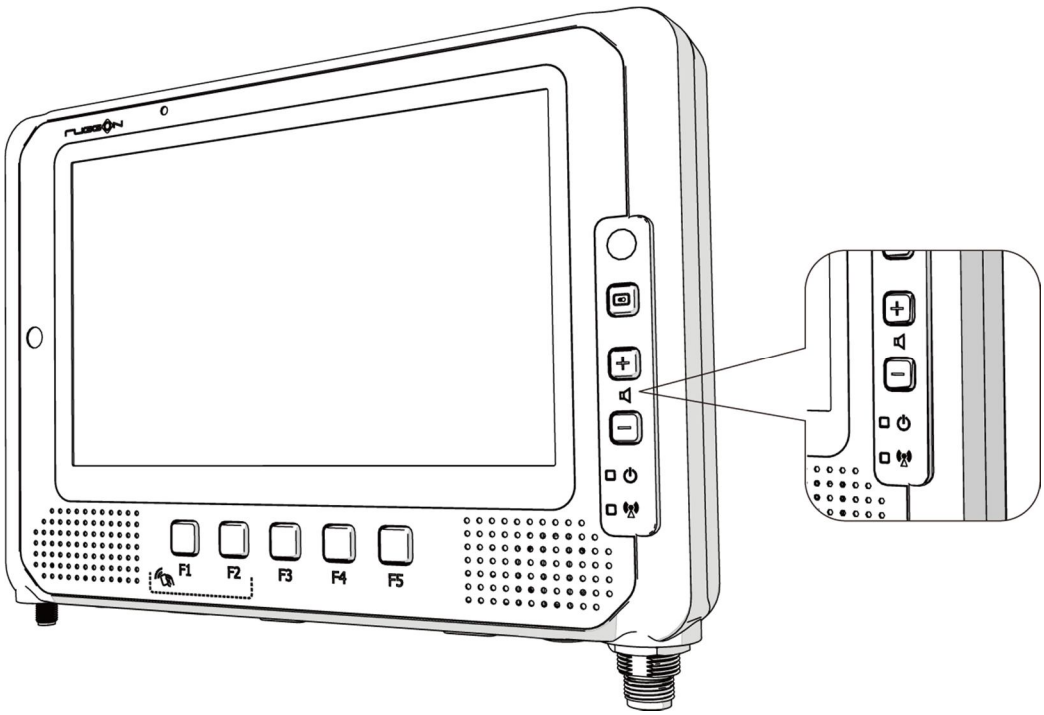
Powering Down the System

VIKING will be auto power off in one minute when the power supply is removed. If you use software to power off the system, please remember to remove the power supply too; otherwise, the device will auto reboot again.

LED Status

The LEDs on VIKING are status indicators that show the operating status of your system. The status indicators can help pinpoint possible failed hardware components causing specific symptoms. There are two status indicators in the front panel. Refer to the description below.

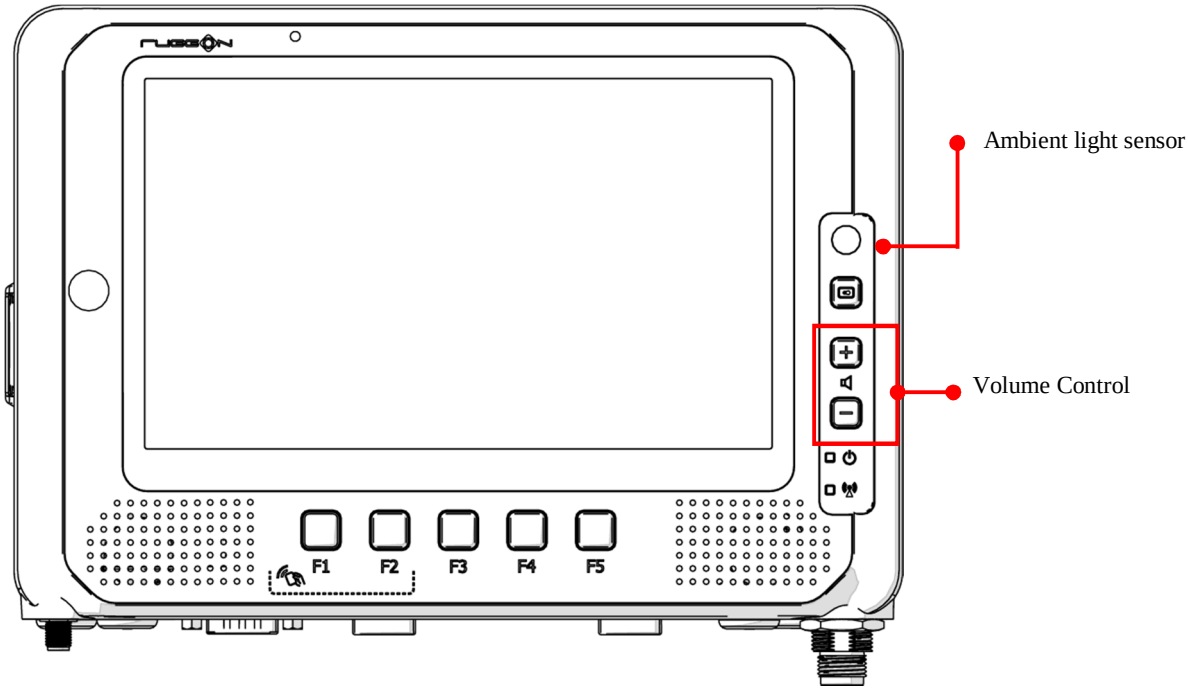
LED	Status	Description
Power	Blink Green	Power up
Power	Blink Yellow	Load boot loader
Power	Solid Green	System ready for use
Power	Blink Red	Vehicle battery abnormal
Communication	Solid Green	WWAN enabled



Adjust the Speaker Volume

VIKING provides the volume control buttons to adjust the speakers¡ volume; you can also control the overall level of sound using Android Setting. When you press the top part of the volume button, it makes the volume louder; pressing the bottom part makes the volume lower

- Press the button to increase the volume.
- Press the button to decrease the volume.



Auto-Brightness Adjustment

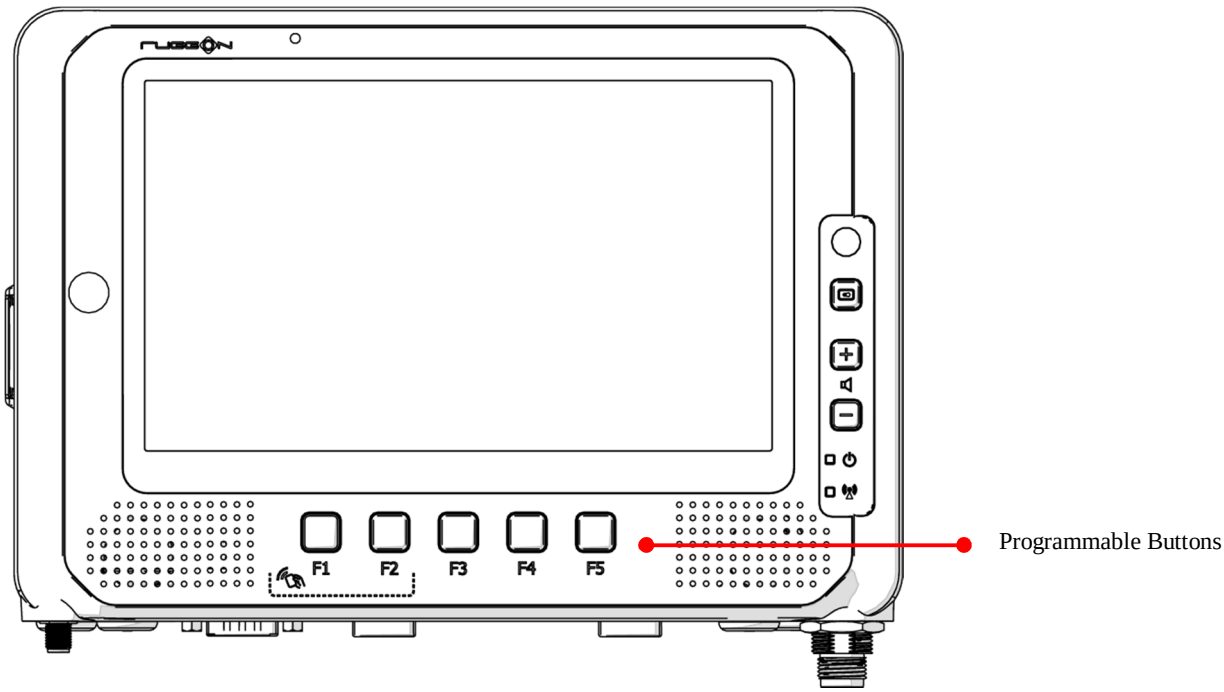
When you use VIKING, you may well encounter different lighting conditions that make it difficult to see the information on screen. VIKING¡s built-in ambient light sensor on the front panel supports auto-dimming, which you can also disable to manually adjust the screen¡s brightness; this setting can be done via Android Setting.

Internal Microphone

VIKING is equipped with 2 internal microphones (one at the front and the other at the rear) for better audio reception, so you don¡t need an external one. In addition to the built-in speaker and microphones, you can plug external headsets in the audio jack.

Programmable Buttons

VIKING provides default commands for five programmable buttons. You can configure the programmable buttons via Android Setting to different commands or keyboard shortcuts to better fit your work style.

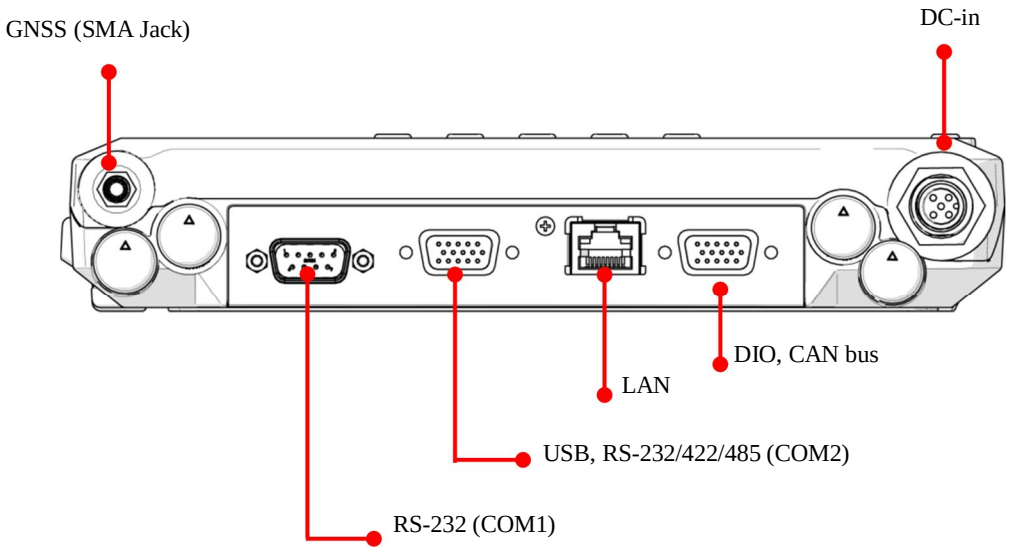


Power Management

VIKING provides Android Setting for configuration which includes power management and system setup.

Chapter 5. Jumpers and Connectors

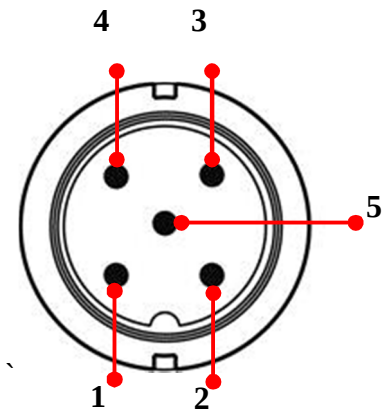
Bottom View



External Connectors Pin Assignments

Use this section as a reference for the pin assignments of the various ports available on the VIKING.

Power Connector



Pin	Description
1	DC+
2	DC+
3	GND
4	GND
5	ACC/ Ignition

Note: Please refer to section 1 in Chapter 4 for connecting the external power cable to power source.