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IEI Technology Corp.

Panel PC with Touch Screen and Intel® Atom™ CPU, GbE, Wireless, GPS, RFID, USB, Audio, RS-232/422/485, RoHS Compliant, IP 65 Protection

User Manual

Rev. 1.02 – 23 August, 2012

RoHS Lead Free

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Revision

Date	Version	Changes
23 August, 2012	1.02	Replaced IEI MiniDOM support with mSATA support
8 December, 2011	1.01	Updated Table 1-4: System Specifications Updated Section 2.2: Packing List Updated Section 3.5: Mounting the System
23 September, 2011	1.00	Initial release

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WARNING

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

NOTE: 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 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.

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

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Chapter

1

Introduction

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1.1 Overview

Figure 1-1: UPC-V312-D525 Panel PC

The fanless UPC-V312-D525 is Intel® Atom™ D525 powered panel PC with a rich variety of functions and peripherals. The UPC-V312-D525 panel PC is designed for easy and simplified integration into various vehicle applications.

An Intel® ICH8M chipset ensures optimal memory, graphics, and peripheral I/O support. The system comes with 1GB of preinstalled DDR3 SDRAM ensuring smooth data throughputs with reduced bottlenecks and fast system access.

The redundant dual DC power input of the UPC-V312-D525 increases the reliability of the system and prevents data loss and system corruption from sudden power failure.

The CAN-bus interface allows the UPC-V312-D525 to communication with vehicles. Two serial ports and five external USB 2.0 ports ensure simplified connectivity to a variety of external peripheral devices. A VGA connector enables connectivity to other monitors for dual display. Wi-Fi capabilities and the RJ-45 GbE connector ensure smooth connection of the system to an external LAN.

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1.2 System Variations

The part numbers and system variations are listed below.

Part Numbers	CPU	RFID Reader
UPC-V312-D525/R/1G-R10	Intel® Atom™ D525	N/A
UPC-V312-D525/R-EM/1G-R10	Intel® Atom™ D525	EM card reader
UPC-V312-D525/R-MF/1G-R10	Intel® Atom™ D525	Mifare card reader

Table 1-1: System Variations

1.3 Features

The UPC-V312-D525 series features the following:

- 12.1" 600nits 1024 x 768 LCD with LED backlight
- Fanless system with 1.8GHz Intel® Atom™ D525 dual-core processor
- Redundant dual DC input power
- Dual-band 2.4/5GHz Wi-Fi 802.11 a/b/g/n
- Reserved space for 3.75G / HSUPA USB module
- Built-in 1.3 megapixel webcam with AF, AE and AWB capabilities
- CAN-bus interface
- Optional RFID reader for EM or Mifare cards
- Optional GPS receiver
- Provide two PCIe Mini card slots
- F1 ~ F10 function keys and friendly indicators
- IP 65 compliant system
- AT or ATX power mode
- Touch screen
- RoHS comlpliance

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1.4 External Overview

The panel PC is a rectangular cubic structure that comprises of a screen, rear panel, top panel, bottom panel and two side panels (left and right). An aluminum frame surrounds the front screen. The rear panel provides screw holes for a wall-mounting bracket, and an arm mounting interface. The bottom panel provides access to external interface connectors.

1.4.1 Front Panel

The front side of the UPC-V312-D525 is a flat panel TFT LCD screen surrounded by an aluminum frame. At the top of the front panel features one 1.3 megapixel webcam that supports auto-focus (AF), auto-exposure (AE) and auto white balance (AWB). The front panel also has following buttons, LED indicators and sensors:

- Buttons: F1~F10 (same as the function key on the keyboard)
- LEDs
  - Power 1 LED
  - Power 2 LED
  - AT/ATX power mode LED
  - CPU temperature alert LED
  - Wi-Fi connection LED
  - RFID LED
  - GPS LED
  - Auto dimming LED
  - Microphone on/off LED
  - Audio mute LED
- Sensors
  - Ambient light sensor
  - Infrared remote control sensor

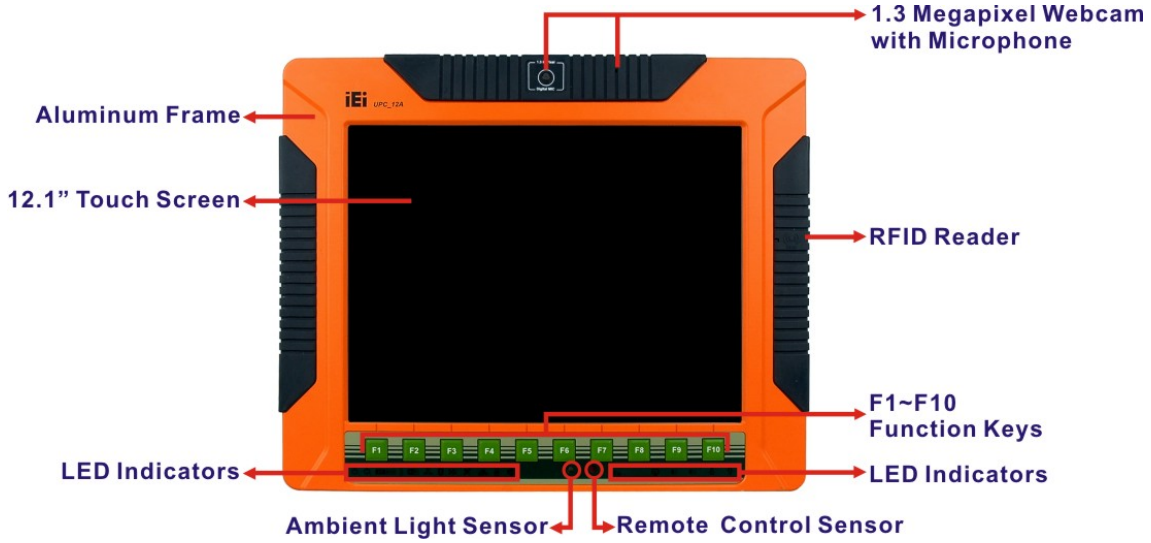

Figure 1-2: Front View

1.4.1.1 LED Indicators

The LED indicators on the front panel of the UPC-V312-D525 are shown below.

Figure 1-3: LED Indicators

The descriptions of each LED indicator are listed below.

LED Indicator	Description
Power 1	Pulsing Orange: Power 1 is the main power and is in standby mode Solid Orange: Power 1 is the second power and is in standby mode

	Solid Blue: Power 1 is providing power to the system
Power 2	Pulsing Orange: Power 2 is the main power and is in standby mode Solid Orange: Power 2 is the second power and is in standby mode Solid Blue: Power 2 is providing power to the system
AT/ATX Power Mode	Shows the power mode status. Controlled by the AT/ATX power mode switch.
CPU Temperature Alert	Blue: the CPU temperature is normal. Red: the CPU temperature is too high.
Wi-Fi	The Wi-Fi module is enabled or disabled. Controlled by the BIOS (see Section 4.4.2).
RFID Reader	The optional RFID reader is enabled or disabled. Controlled by the hot keys (see Section 1.4.6).
GPS	The GPS receiver is enabled or disabled. Controlled by the BIOS (see Section 4.4.2).
Auto Dimming	The auto dimming function is enabled or disabled. Controlled by the remote control (see Section 3.8).
Microphone	The microphone is enabled or disabled. Controlled by the BIOS (Section 4.4.2).
Audio Mute	Light on when the audio is turned off. Controlled by the hot keys (see Section 1.4.6).
Function	Shows the status of the function key below the LED indicator. Blinks when the corresponding button is pushed.
LCD on/off	
Volume Down	
Volume Up	
Brightness Down	
Brightness Up	

Table 1-2: LED Indicators

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CAUTION:

If the CPU temperature alert LED shows in red, the user must lower the environment temperature or close some running applications to cool down the CPU.

1.4.2 Bottom Panel

The following is a list of the bottom panel peripheral device connectors on the UPC-V312-D525.

- 1 x 9 V ~ 36 V DC power input terminal block (Power 1)
- 1 x 10.5 V ~ 36 V DC power input connector (Power 2)
- 2 x Audio jacks
- 1 x CAN but connector
- 1 x RJ-45 GbE connector
- 1 x RS-232 COM port by RJ-45 connector
- 1 x RS-422/485 serial port (COM2) connector
- 4 x USB 2.0 connectors
- 1 x VGA connector

The bottom panel also includes the following switches and buttons:

- 1 x ACC on/off switch
- 1 x AT/ATX power mode switch
- 1 x Reset button

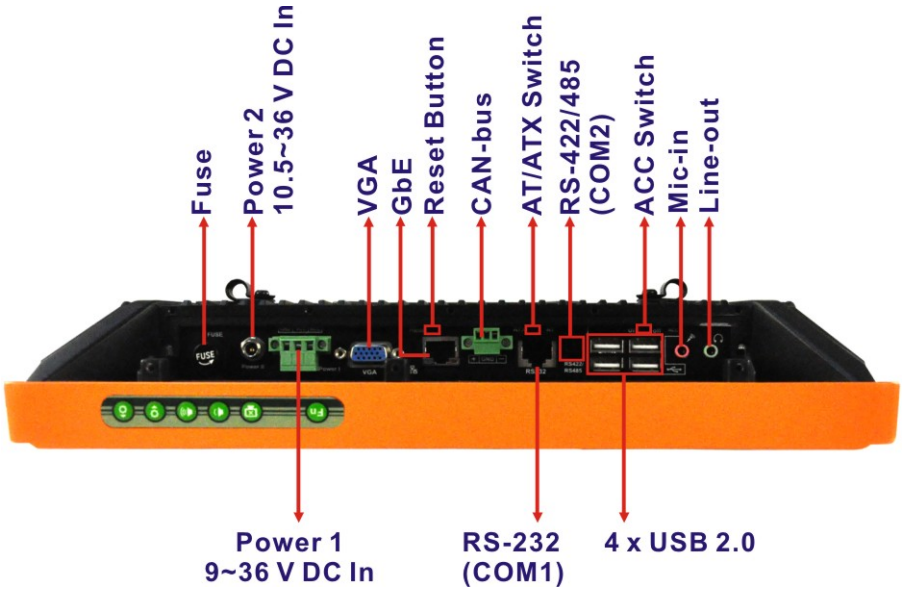

Figure 1-4: Bottom View

1.4.3 Left Side Panel

The left side panel of the panel PC provides access to the CF card slot. (**Figure 1-5**).

Figure 1-5: Left Side View