MODEL:
IOVU-430S

4.3" Touch Panel PC, Samsung S3C2416 400 MHz CPU, Fast Ethernet, USB, microSD, CAN Bus, RS-232/422/485, RoHS Compliant, IP 64 Compliant Front Panel

User Manual

Rev. 1.10 – November 27, 2014

Revision

Date	Version	Changes
November 27, 2014	1.10	Updated for R11 version: - Changed miniSD slot to microSD slot - Updated Section 3.5.1: Wireless Connection Setup
September 4, 2012	1.01	Minor change
August 20, 2012	1.00	Initial release

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Chapter

1

Introduction

1.1 Overview

Figure 1-1: IOVU-430S

The IOVU-430S Panel PC comes with a 4.3" touch panel screen. It is powered by a Samsung ARM9 S3C2416 400 MHz processor and has 128 MB of DDR SDRAM and 128 MB of NAND flash.

The IOVU-430S is preinstalled with Windows Embedded CE 6.0 to provide rich application development support. The package also includes a software development kit and documentation to help easily customize the operating system according to needs.

The IOVU-430S is an extremely low power Panel PC. The system is fanless, which allows quiet and reliable operation.

Connection to a variety of peripheral devices and networks is provided through a USB port, a RS-232/422/485 serial port, and an Ethernet port.   A CAN (Controller-Area Network) bus connection allows the IOVU-430S to be used in a wide range of automotive and industrial settings. The IOVU-430S also includes a microSD card slot for storage.

1.2 Model Variations

The IOVU-430S is available in the following model variations.

Model No.	Touch Panel Type	Wi-Fi
IOVU-430S-CE6/ST/-R11	4-wire resistive type	No
IOVU-430S-CE6/ST/WL/-R11	4-wire resistive type	802.11b/g

Table 1-1: IOVU-430S Specifications

1.3 Benefits

Some of the IOVU-430S benefits include:

- Customizable operating system to suit application needs.
- Less downtime from overheating because there are not fans to fail
- Cost savings with low power consumption
- Easy installation with a wide range of input voltages supported
- Can handle tough environments because of solid-state storage and IP 64 protection of the front cover

1.4 Features

The IOVU-430S features are listed below:

- Samsung ARM9 S3C2416 400 MHz processor
- 128 MB of DDR SDRAM and 128 MB of NAND flash memory
- One Fast Ethernet port
- One USB 1.1 port
- One RS-232/422/485 serial communication connection
- One GPIO and CAN bus connection
- 4-wire resistive type touch panel
- 12 V – 36 V DC input
- Windows Embedded CE 6.0 preinstalled
- RoHS compliant

1.5 Front Panel

The IOVU-430S front panel (**Figure 1-2**) comprises a 4.3" TFT WQVGA color touch screen LCD in an ABS+PC plastic frame.

Figure 1-2: Front Panel

1.6 Connector Panel

The external peripheral interface connectors are located on the bottom and side panels of the IOVU-430S . The peripheral interface connectors are shown in **Figure 1-3**.
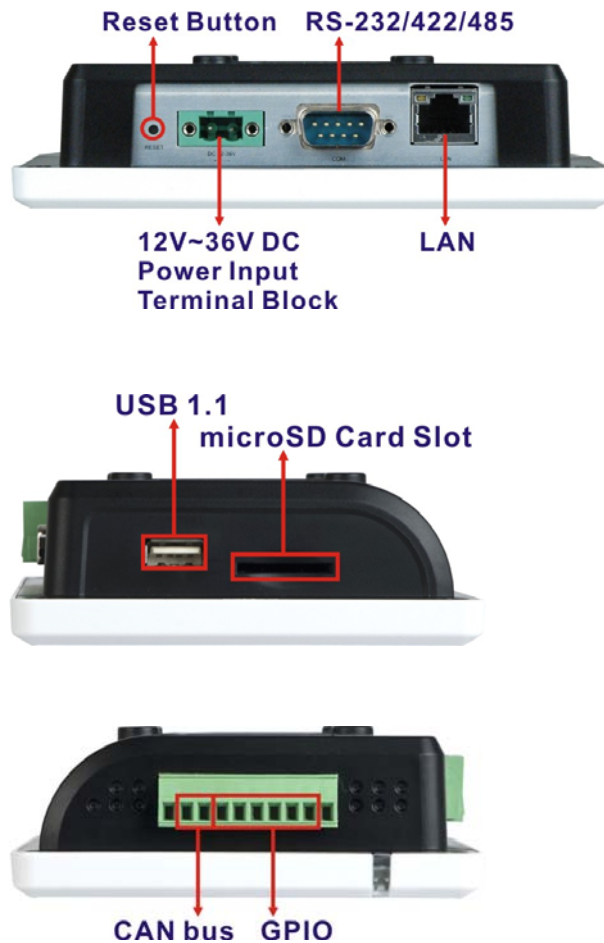
Figure 1-3: IOVU-430S Peripheral Connectors

External peripheral interface connectors on the IOVU-430S include:

- 1 x CAN bus connector
- 1 x DC power input terminal block
- 1 x GPIO connector
- 1 x RJ-45 LAN connector
- 1 x RS-232/422/485 connector
- 1 x microSD card slot
- 1 x USB 1.1 connector

1.7 Dimensions

The physical dimensions of the IOVU-430S are shown in **Figure 1-4** and listed below:

- Width: 145 mm
- Height: 104 mm
- Depth: 34 mm
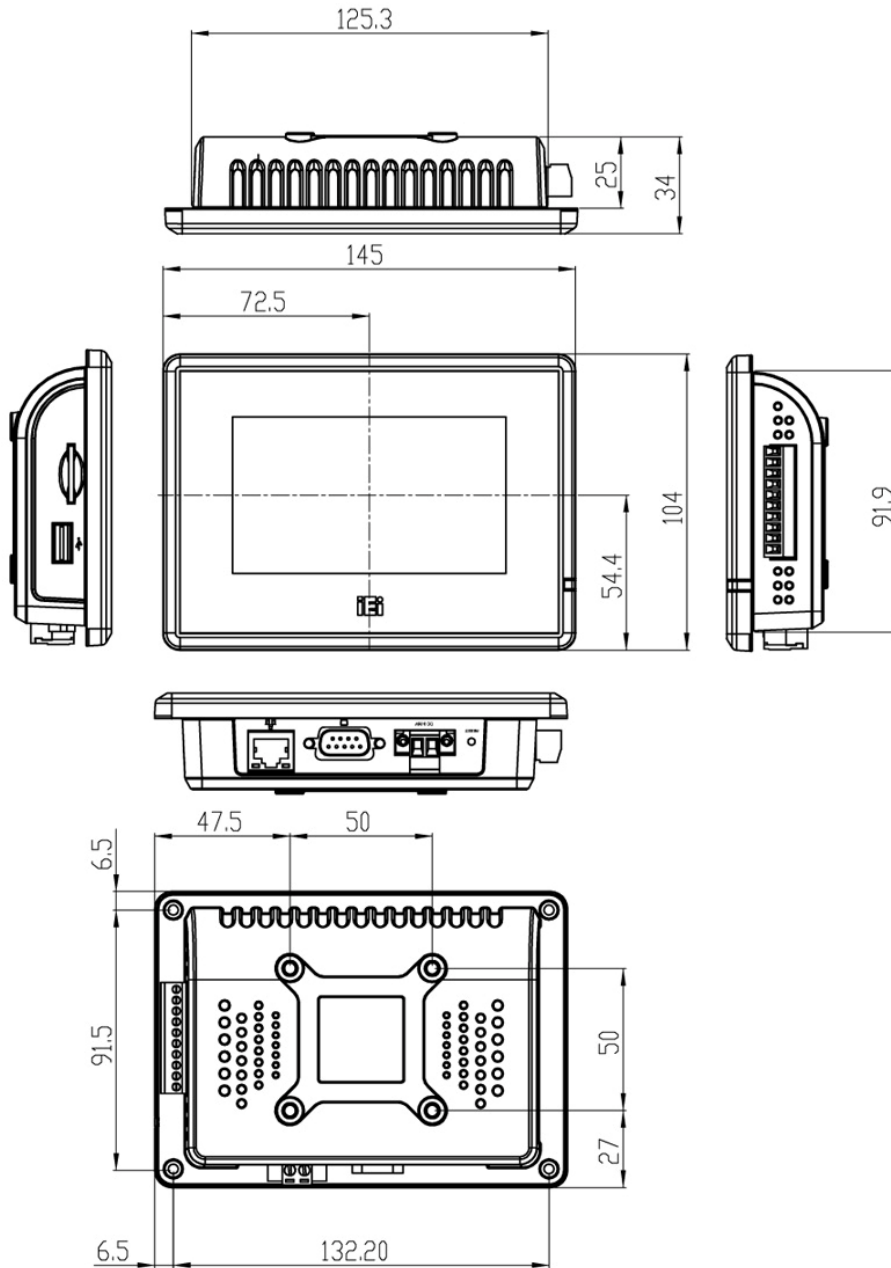
Figure 1-4: IOVU-430S Physical Dimensions (millimeters)

1.8 Power Supply and Battery

 WARNING:

Whenever you need to remove a part for maintenance or upgrading, switch off the power supply and unplug the power cord first. And Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

The IOVU-430S has a terminal block connector on the bottom panel for DC power input. Please see **Section 3.3.1** for the connector pinouts.

Figure 1-5: Power Input Connector

1.9 Technical Specifications

The IOVU-430S technical specifications are listed in **Table 1-2**.

System Specifications	
CPU	Samsung ARM9 S3C2416 400 MHz processor
Memory	128 MB DDR SDRAM 128 MB NAND flash
Storage	One microSD card slot
OS	Windows Embedded CE 6.0 preinstalled in NAND flash
Real-time Clock	Battery backup RTC
Watchdog Timer	Software programmable supports 1 – 255 sec. system reset
Display	
Display Type	TFT LCD screen
Display Size	4.3"
Resolution	480 x 272
LCD Colors	262K
Brightness	500 cd/m^2
Backlight MTBF	20,000 hrs
Pixel Pitch (mm)	0.066(H) x 0.198(V)
Viewing Angle (H-V)	140 / 120
Touch Panel	4-wire resistive type touch panel
I/O and Communications	
Ethernet	1 x 10/100 Mb/s
CAN Bus	1 x 2-pin CAN bus terminal block (CAN specification 2.0b)
GPIO	1 x 6-pin GPIO terminal block
USB Interface	1 x USB 1.1
Audio	2 x Speakers (1 Watt)

System Specifications	
Serial Port	1 x RS-232/422/485 (Selected by system software. See **Section 3.3.3.2**)
Power	
Power Connector	2-pin terminal block DC input
Power Supply	12 V – 36 V DC
Power Consumption	7 W
Environmental and Mechanical	
Operating Temperature	0ºC – 50°C (32°F – 122°F)
Storage Temperature	-10ºC – 60°C (14°F – 140°F)
Humidity	5% – 90%RH (non-condensing)
Vibration	Operating Random Vibration Mode 1.Axes: 3 axes (Vertical / Transverse / Longitudinal). 2.10-500 Hz, 60min/axis. 3.Equivalent to Z:2.18 Grms X:1.6 Grms Y:1.96 Grms
Front Panel Color	Pantone Black C
Construction Material	ABS + PC Plastic
Mounting	Wall, stand, V-Stand and arm (VESA 50 mm x 50 mm)
Physical Dimensions	145 mm (W) x 104 mm (H) x 34 mm (D)
Net Weight	0.7 kg
Ingress Protection	IP 64 compliant front panel

Table 1-2: Technical Specifications

1.10 Certifications

All IOVU-430S series models comply with the following international standards:

- RoHS
- IP 64 compliant front panel

For a more detailed description of these standards, please refer to **Appendix A**.

Chapter

2

Unpacking

2.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during installation may result in permanent damage to the IOVU-430S and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the IOVU-430S. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the IOVU-430S or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- *Wear an anti-static wristband*: Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- *Self-grounding*: Before handling the board, touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- *Use an anti-static pad*: When configuring the IOVU-430S, place it on an anti-static pad. This reduces the possibility of ESD damaging the IOVU-430S.

2.2 Unpacking Precautions

When the IOVU-430S is unpacked, please do the following:

- Follow the anti-static precautions outlined in **Section 2.1**.
- Make sure the packing box is facing upwards so the IOVU-430S does not fall out of the box.
- Make sure all the components shown in **Section 2.3** are present.

2.3 Unpacking Checklist

![NOTE icon] **NOTE:**

If some of the components listed in the checklist below are missing, please do not proceed with the installation. Contact the IEI reseller or vendor you purchased the IOVU-430S from or contact an IEI sales representative directly. To contact an IEI sales representative, please send an email to sales@ieiworld.com.

The IOVU-430S is shipped with the following components:

Quantity	Item and Part Number	Image
1	IOVU-430S	
1	Null modem cable	
1	Touch pen	
1	Screws	
1	Utility CD including SDK, utilities, and technical documents	

Table 2-1: Package List Contents

2.4 Optional Items

Item and Part Number	Image
12V DC 60W power adapter with terminal block connector, 90-264V AC input (P/N: 63000-FSP060DBAB1555-RS)	

Table 2-2: Optional Items

Chapter

3

Installation

3.1 Installation Precautions

During installation, be aware of the precautions below:

- **Read the user manual**: The user manual provides a complete description of the IOVU-430S, installation instructions and configuration options.

- **DANGER! Disconnect Power**: Power to the IOVU-430S must be disconnected during the installation process, or before any attempt is made to access the rear panel. Electric shock and personal injury might occur if the rear panel of the IOVU-430S is opened while the power cord is still connected to an electrical outlet.

- **Qualified Personnel**: The IOVU-430S must be installed and operated only by trained and qualified personnel. Maintenance, upgrades, or repairs may only be carried out by qualified personnel who are familiar with the associated dangers.

- **Grounding**: The IOVU-430S should be properly grounded. The voltage feeds must not be overloaded. Adjust the cabling and provide external overcharge protection per the electrical values indicated on the label attached to the back of the IOVU-430S.

3.2 microSD Card Installation

The IOVU-430S supports a microSD card. To install a microSD card, insert the microSD card into the slot as shown in **Figure 3-1**.

Figure 3-1: microSD Card Installation

3.3 External Peripheral Interface Connectors

Table 3-1 lists the external interface connectors on the IOVU-430S. Detailed descriptions of the connectors can be found following the table.

Connector	Type
12 V－36 V DC terminal block	Terminal Block
CAN bus	CAN bus connector
Ethernet connectors	RJ-45 connector
RS-232/422/485 Serial connector	D-sub 9 Male connector
USB connectors	USB port

Table 3-1: External Interface Connectors
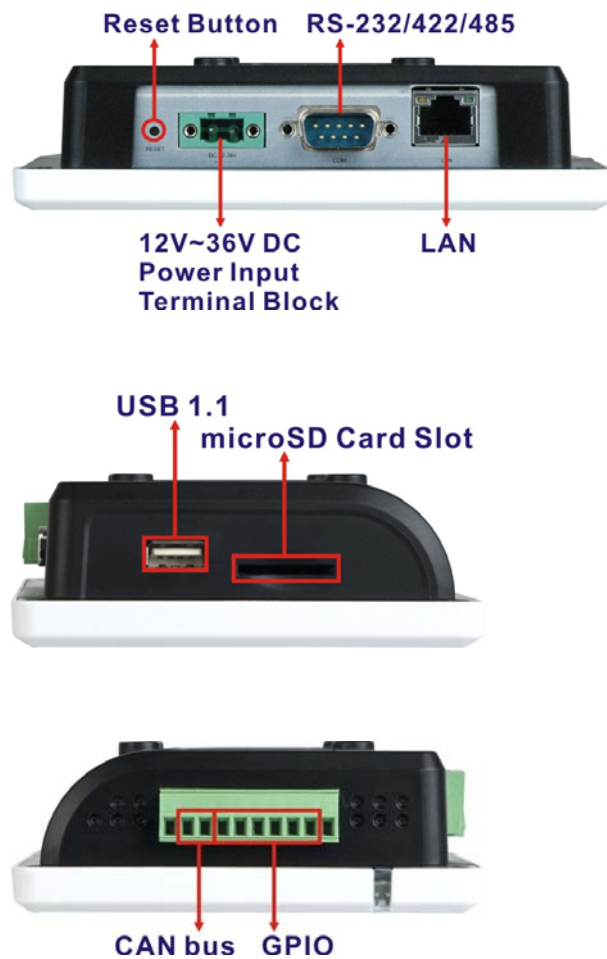
Figure 3-2: IOVU-430S Peripheral Connectors

3.3.1 12 V﹣36 V DC Terminal Block

The power terminal block connects to a 12 V﹣36 V DC power source.

CN Label: **DC 12-36 V**

CN Type: Terminal block

CN Location: See **Figure 3-2**

CN Pinouts: See **Table 3-2** and **Figure 3-3**

Pin	Description
1	12﹣36 V DC Power in
2	GND

Table 3-2: 12 V﹣36 V Power Connector Pinouts
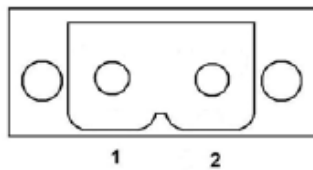
Figure 3-3: Power Terminal Block

3.3.2 GPIO and CAN Bus Connector

The IOVU-430S has a GPIO (pins 1-7) and CAN bus connector (pins 8-10). The GPIO can be used to connect to external devices or peripherals. The CAN bus connector connects to a Controller-Area Network (CAN). A CAN allows microcontrollers and devices to communicate with each other without the need of a host computer. The pinouts are listed below.

Pin	Description
1	GND
2	GPG2
3	GPG3
4	GPG4
5	GPG5
6	GPG6
7	GPG7
8	CAN_L
9	CAN_H
10	GND

Table 3-3: GPIO and CAN Bus Connector Pinouts

Figure 3-4: GPIO and CAN Bus Terminal Block

3.3.3 RS-232/422/485 Serial Port

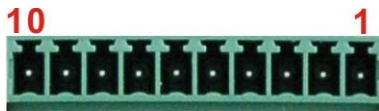This section outlines the usage and setup of the serial port on the bottom I/O panel.

3.3.3.1 Connecting the Serial Port

The IOVU-430S has one female DB-9 connector on the external peripheral interface panel for connections to serial devices. Follow the steps below to connect a serial device to the IOVU-430S.

Step 1:   **Insert the serial connector**. Insert the DB-9 connector of a serial device into the DB-9 connector on the external peripheral interface. See **Figure 3-5**.
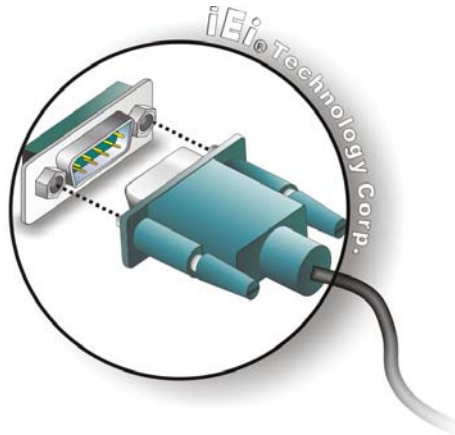
Figure 3-5: Serial Device Connector

Step 2: **Secure the connector**. Secure the serial device connector to the external

interface by tightening the two retention screws on either side of the connector.

3.3.3.2 RS-232/422/485 Selection

To select RS-232/422/485 mode, please follow the directions below.

Step 1: **Find and start the IEI CE_UTILITY**. Select the Windows CE Start menu, next

select Programs, then select IEI, and finally select IEI_CEUTILITY (Start ->

Programs -> IEI -> IEI CEUTILITY) to launch the utility.
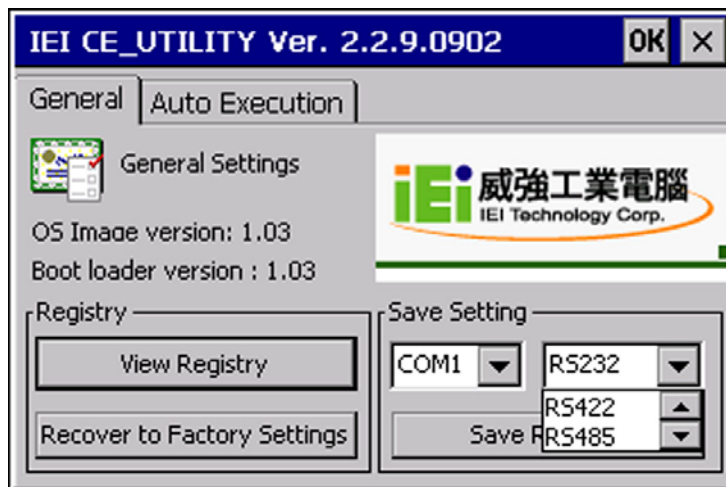
Figure 3-6: COM1 mode setting

Step 2: **Select COM1 mode setting**. Select the desired mode setting for Serial Port

COM1 in the drop down menu (**Figure 3-6**).

- RS-232
- RS-422
- RS-485

Step 3: **Click the Set button**. Click the Set button to apply the mode setting change.

Step 4: **Click the Save Registry button**. Click the Save Registry button to save the

settings.

3.3.3.3 Pinouts

Pinouts for the RS-232/422/485 serial port is shown below.

Pin	RS-232	RS-422	RS-485
1	DCD	RX-	DATA-
2	RX	RX+	DATA+
3	TX	TX-	-
4	DTR	-	-
5	GND	GND	GND
6	DSR	-	-
7	RTS	TX+	-
8	CTS	-	-
9	RI	-	-

Table 3-4: RS-232/422/485 Pinouts
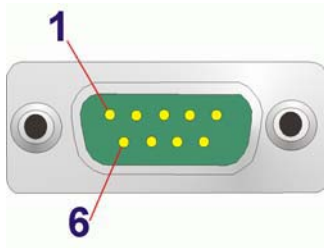
Figure 3–7: Serial Port Pinouts

3.3.4 USB Host Connector

The external USB Series "A" receptacle connector provides easier and quicker access to external USB devices. To connect USB devices to the IOVU-430S, insert the USB Series "A" plug of a device into the USB Series "A" receptacle on the external peripheral interface. See **Figure 3-8**.
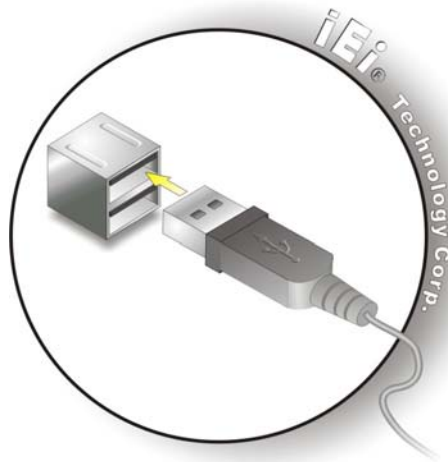
Figure 3-8: USB Connector

The USB connector pinouts are shown below.

PIN	DESCRIPTION
1	VBUS
2	D-
3	D
4	GND

Table 3-5: USB Connector Pinouts

3.3.5 Ethernet Connector

There is one external RJ-45 LAN connector. The RJ-45 connectors enable connection to an external network. To connect a LAN cable with an RJ-45 connector, please follow the instructions below.

Step 1: **Align the connectors.** Align the RJ-45 connector on the LAN cable with one of the RJ-45 connectors on the IOVU-430S. See **Figure 3-9**.
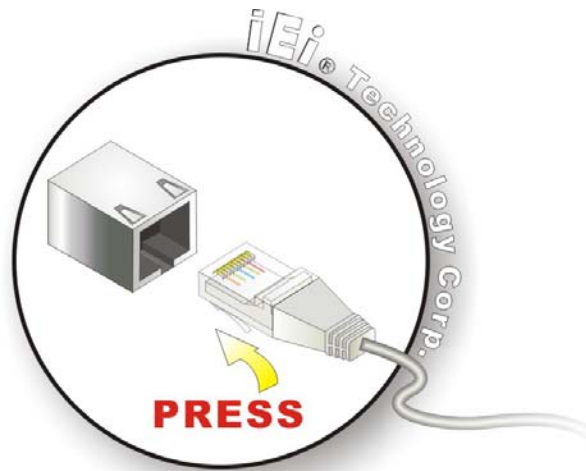
Figure 3-9: LAN Connection

Step 2: **Insert the LAN cable RJ-45 connector.** Once aligned, gently insert the LAN cable RJ-45 connector into the on-board RJ-45 connector.

The Ethernet connector pinouts are shown below.

PIN	DESCRIPTION
1	TPT+
2	TPT-
3	TPR+
4	LAN_GND
5	LAN_GND
6	TPR-
7	LAN_GND
8	LAN_GND

Table 3-6: Ethernet Connector Pinouts
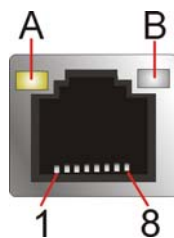
Figure 3-10: Ethernet Connector

The RJ-45 Ethernet connector has two status LEDs, one green and one yellow. The green LED indicates activity on the port and the yellow LED indicates the port is linked (**Table 3-7**).

LINK LED (A)		SPEED LED (B)	
Status	Description	Status	Description
YELLOW	ON: Linked Flashing: Activity	GREEN	ON: 100 MB OFF: 10 MB

Table 3-7: Ethernet Connector LEDs

3.4 In-Wall Mounting

The mounting holes in the rear panel of the IOVU-430S are not Video Electronics Standards Association (VESA) compliant. IEI provides an in-wall cage to mount the IOVU-430S into a wall. To mount the IOVU-430S in a wall, please follow the steps below.

Step 1: Insert the four monitor mounting screws into the four screw holes on the real panel of the IOVU-430S and tighten until the screw shank is secured against the rear panel (**Figure 3-11**).
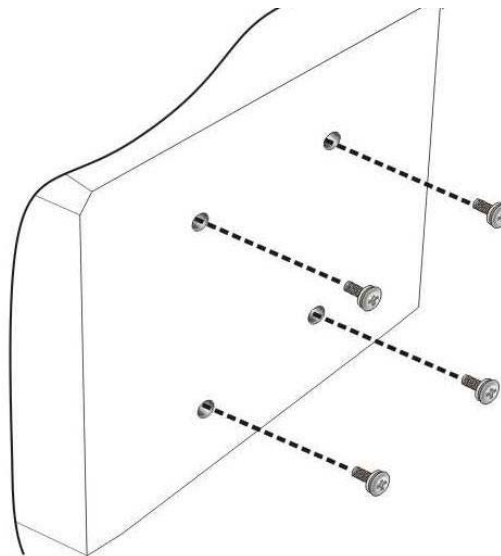
Figure 3-11: Chassis Support Screws

Step 2: Align the mounting screws installed in the previous step with the screw holes

(**Figure 3-12**) on the in-wall cage.
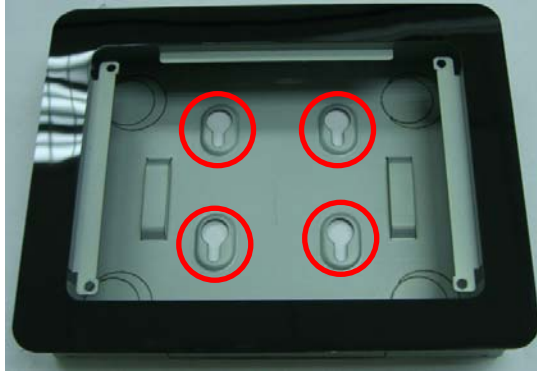
Figure 3-12: In-wall Cage Screw Holes

Step 3: Carefully insert the screws through the holes and gently pull the monitor

downwards until the monitor rests securely in the slotted holes. Ensure that all

four of the mounting screws fit snuggly into their respective slotted holes.

(**Figure 3-13**).

Figure 3-13: In-wall Mounting

3.5 Software

The IOVU-430S comes with a pre-installed Windows Embedded CE 6.0 operating system
and a rich software application development kit. For information about configuring the
operating system, adding remote management tools or additional software and drivers,
refer to the user manuals on IEI IOVU Utility CD that came with the IOVU-430S. The IOVU
includes the following software:

- Windows Embedded CE 6.0 professional version license.
- Optional Board Support Package (BSP) for customers to customize their own OS image.
- Attached Software Development Kit (SDK) for embedded Visual C++ to program Windows CE application.
- Built-in .NET Compact Framework support with related SDK
- Thin Client Technology, Microsoft RDP (Remote Desktop Protocol), to enable IOVU-430S to access Microsoft Windows® based applications installed on Microsoft Terminal Service server.
- Free pre-installed utilities for configuring and diagnosing your IOVU-430S.
- Free remote management tools installed in laptop for remotely configuring, monitoring, and managing your IOVU-430S.

3.5.1 Wireless Connection Setup

To setup wireless connection, please follow the instructions below.

Step 1: Double click the icon to launch the Laird Connection Manager.

Step 2: The Laird Connection Manager appears (**Figure 3-14**). Click **Scan**.
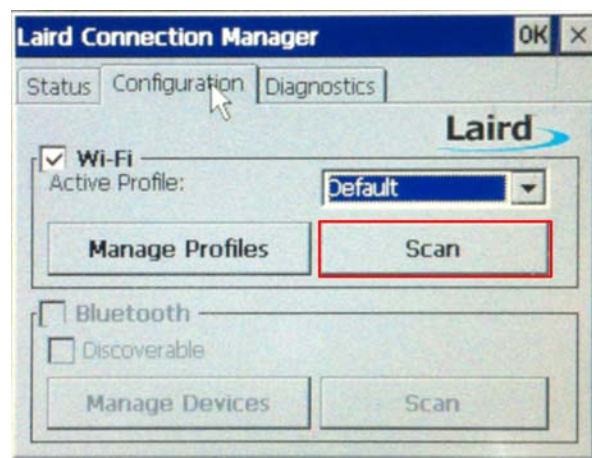
Figure 3-14: Laird Connection Manager

Step 3: The Scan window appears with a list of available Wi-Fi networks (**Figure 3-15**). Select one of the Wi-Fi networks and click **Configure**.
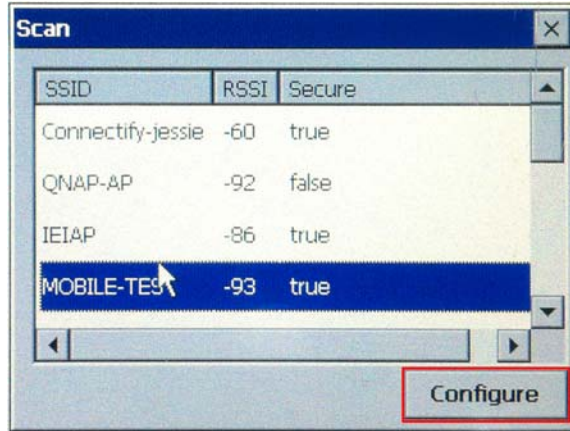
Figure 3-15: Laird Connection Manager – Scan

Step 4: The Admin Login window appears (**Figure 3-16**). **Leave the password field**

blank and click **OK**. (Note: the network password will be entered later.)
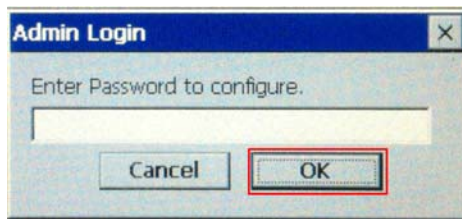
Figure 3-16: Laird Connection Manager – Admin Login

Step 5: Click **Yes** in **Figure 3-17** to create a new network profile.

Figure 3-17: Laird Connection Manager – lcm

Step 6: The Manage Profiles window appears with a list of detailed information of the

Wi-Fi network (**Figure 3-18**).
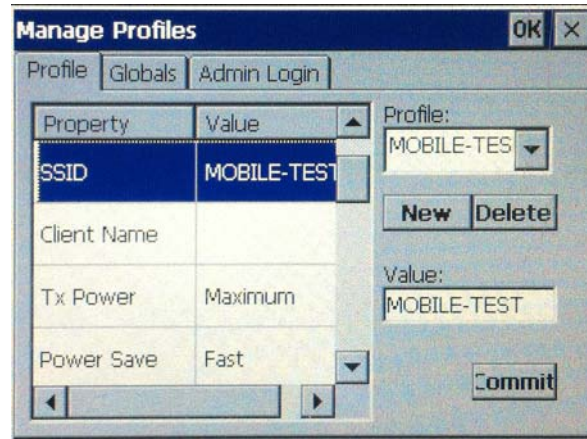
Figure 3-18: Laird Connection Manager – Manage Profiles

Step 7: Scroll down to the bottom and click **Passphrase**. Enter the password for the
network in the Value field. Click the **Commit** button to connect the network. Click
OK to close the window. See **Figure 3-19**.
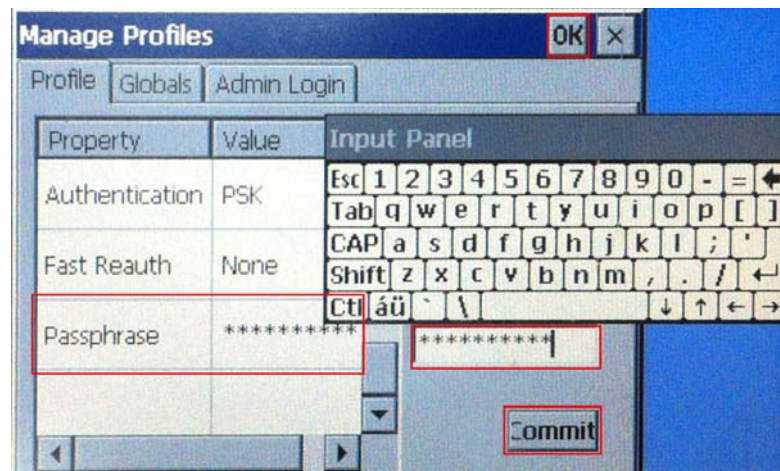
Figure 3-19: Laird Connection Manager – Enter Password

Step 8: On the main page, select the network you just created from the drop down menu.
Click **OK** to exit the Laird Connection Manager. See **Figure 3-20**.

Figure 3-20: Laird Connection Manager – Select Network

Step 9: When the network is successfully connected, the icon in the notification area (as shown in **Figure 3-21**) appears.
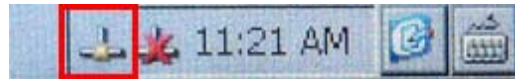
Figure 3-21: Network Connected

Appendix

A

Certifications

A.1 RoHS Compliant

All models in the IOVU series comply with the Restriction of Hazardous Materials (RoHS) Directive. This means that all components used to build the industrial workstations and the workstation itself are RoHS compliant.

The RoHS Directive bans the placing on the EU market of new electrical and electronic equipment containing more than agreed levels of lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyl (PBB) and polybrominated diphenyl ether (PBDE) flame retardants.

A.2 IP 64 Compliant Front Panel

The front panel on the IOVU-430S models in the IOVU series have an ingress protection rating (IP) of 64 IP 64. The front panel is protected from dust particles and splashing water.

Appendix

B

Safety Precautions

B.1 Safety Precautions

 WARNING:

The precautions outlined in this appendix should be strictly followed. Failure to follow these precautions may result in permanent damage to the IOVU-430S.

Please follow the safety precautions outlined in the sections that follow:

B.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- *Make sure the power is turned off and the power cord is disconnected* whenever the IOVU-430S is being installed, moved or modified.
- *Do not apply voltage levels that exceed the specified voltage range*. Doing so may cause fire and/or an electrical shock.
- *Electric shocks can occur* if the IOVU-430S chassis is opened when the IOVU-430S is running.
- *Do not drop or insert any objects* into the ventilation openings of the IOVU-430S.
- *If considerable amounts of dust, water, or fluids enter the IOVU-430S*, turn off the power supply immediately, unplug the power cord, and contact the IOVU-430S vendor.
- **DO NOT**:
  Drop the IOVU-430S against a hard surface.
  Strike or exert excessive force onto the LCD panel.
  Touch any of the LCD panels with a sharp object
  In a site where the ambient temperature exceeds the rated temperature

B.1.2 Anti-static Precautions

> ⚠️ **WARNING:**
>
> Failure to take ESD precautions during the installation of the IOVU-430S may result in permanent damage to the IOVU-430S and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the IOVU-430S. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the IOVU-430S is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- *Wear an anti-static wristband*: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- *Self-grounding*: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- *Use an anti-static pad*: When configuring or working with an electrical component, place it on an anti-static pad. This reduces the possibility of ESD damage.
- *Only handle the edges of the electrical component*: When handling the electrical component, hold the electrical component by its edges.

B.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the IOVU-430S, please follow the guidelines below.

B.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the IOVU-430S please read the details below.

- Except for the LCD panel, never spray or squirt liquids directly onto any other components. To clean the LCD panel, gently wipe it with a piece of soft dry cloth or a slightly moistened cloth.

- The interior of the IOVU-430S does not require cleaning. Keep fluids away from the IOVU-430S interior.
- Be cautious of all small removable components when vacuuming the IOVU-430S.
- Turn the IOVU-430S off before cleaning the IOVU-430S.
- Never drop any objects or liquids through the openings of the IOVU-430S.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the IOVU-430S.
- Avoid eating, drinking and smoking within vicinity of the IOVU-430S.

B.2.2 Cleaning Tools

Some components in the IOVU-430S may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the IOVU-430S.

- *Cloth* – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the IOVU-430S.
- *Water or rubbing alcohol* – A cloth moistened with water or rubbing alcohol can be used to clean the IOVU-430S.
- *Using solvents* – The use of solvents is not recommended when cleaning the IOVU-430S as they may damage the plastic parts.
- *Vacuum cleaner* – Using a vacuum specifically designed for computers is one of the best methods of cleaning the IOVU-430S. Dust and dirt can restrict the airflow in the IOVU-430S and cause its circuitry to corrode.
- *Cotton swabs* - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- *Foam swabs* - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

B.3 Surge Protection Testing

The 12V DC 60W power adapter (63000-FSP060DBAB1555-RS, optional item) is connected to the system to perform the surge test.

B.4 FCC Precautions

⚠ **WARNING:**

This equipment has been tested and found to comply with the limits for a Class A 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

IMPORTANT NOTE:

For product available in the USA/Canada market, only channel 1 – 11 can be operated. Selection of other channels is not possible.

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.

Appendix

C

Hazardous Materials Disclosure

C.1 Hazardous Materials Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated "Environmentally Friendly Use Period" (EFUP). This is an estimate of the number of years that these substances would "not leak out or undergo abrupt change." This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	O	O	O	O	O	O
Display	O	O	O	O	O	O
Printed Circuit Board	O	O	O	O	O	O
Metal Fasteners	O	O	O	O	O	O
Cable Assembly	O	O	O	O	O	O
Fan Assembly	O	O	O	O	O	O
Power Supply Assemblies	O	O	O	O	O	O
Battery	O	O	O	O	O	O

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签，此期限是估算这些物质"不会有泄漏或突变"的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	O	O	O	O	O	O
显示	O	O	O	O	O	O
印刷电路板	O	O	O	O	O	O
金属螺帽	O	O	O	O	O	O
电缆组装	O	O	O	O	O	O
风扇组装	O	O	O	O	O	O
电力供应组装	O	O	O	O	O	O
电池	O	O	O	O	O	O
O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。 X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。						