



USER MANUAL

ARTiGO A820

Ultra Slim Fanless Low-profile
Gateway System



Copyright

Copyright © 2015-2018 VIA Technologies Incorporated. All rights reserved.

No part of this document may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual or otherwise without the prior written permission of VIA Technologies, Incorporated.

Trademarks

All trademarks are the property of their respective holders.

Disclaimer

No license is granted, implied or otherwise, under any patent or patent rights of VIA Technologies. VIA Technologies makes no warranties, implied or otherwise, in regard to this document and to the products described in this document. The information provided in this document is believed to be accurate and reliable as of the publication date of this document. However, VIA Technologies assumes no responsibility for the use or misuse of the information (including use or connection of extra device/equipment/add-on card) in this document and for any patent infringements that may arise from the use of this document. The information and product specifications within this document are subject to change at any time, without notice and without obligation to notify any person of such change.

VIA Technologies, Inc. reserves the right to make changes to the products described in this manual at any time without prior notice.

Regulatory Compliance

FCC-A Radio Frequency Interference Statement

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

Notice 1

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

Notice 2

Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

Notice 3

The product described in this document is designed for general use, VIA Technologies assumes no responsibility for the conflicts or damages arising from incompatibility of the product. Check compatibility issue with your local sales representatives before placing an order.



Tested To Comply
With FCC Standards
FOR HOME OR OFFICE USE



Battery Recycling and Disposal

- ☐ Only use the appropriate battery specified for this product.
- ☐ Do not re-use, recharge, or reheat an old battery.
- ☐ Do not attempt to force open the battery.
- ☐ Do not discard used batteries with regular trash.
- ☐ Discard used batteries according to local regulations.



Safety Precautions

- ☐ Always read the safety instructions carefully.
- ☐ Keep this User's Manual for future reference.
- ☐ All cautions and warnings on the equipment should be noted.
- ☐ Keep this equipment away from humidity.
- ☐ Lay this equipment on a reliable flat surface before setting it up.
- ☐ Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
- ☐ Place the power cord in such a way that people cannot step on it.
- ☐ Always unplug the power cord before inserting any add-on card or module.
- ☐ If any of the following situations arises, get the equipment checked by authorized service personnel:
 - The power cord or plug is damaged.
 - Liquid has penetrated into the equipment.
 - The equipment has been exposed to moisture.
 - The equipment has not worked well or you cannot get it work according to User's Manual.
 - The equipment has dropped and damaged.
 - The equipment has obvious sign of breakage.
- ☐ Do not leave this equipment in an environment unconditioned or in a storage temperature above 60°C (140°F). The equipment may be damaged.
- ☐ Do not leave this equipment in direct sunlight.
- ☐ Never pour any liquid into the opening. Liquid can cause damage or electrical shock.
- ☐ Do not place anything over the power cord.
- ☐ Do not cover the ventilation holes. The openings on the enclosure protect the equipment from overheating

Box Contents

ATG-A820-3D10A2

- ☐ 1 x ARTiGO A820 system
- ☐ 1 x AC-to-DC adapter
- ☐ 1 x Power cord (USA type)
- ☐ 1 x Console cable
- ☐ 1 x Screw pack for miniPCle module
- ☐ 1 x Rubber feet pack

Ordering Information

Part Number	Description
ATG-A820-3D10A2	Fanless Embedded System with 1.0GHz NXP i.MX 6DualLite Cortex-A9 SoC, 1GB DDR3 RAM, 4GB eMMC Flash, HDMI, 3 x USB 2.0, COM, DIO, Gigabit Ethernet, 10/100Mbps Ethernet, Micro SD card slot, miniPCle slot, and 5V DC-in

Optional Accessories

Wireless Modules

Part Number	Description
00GO27100BU2B0OD0	VNT9271BU0DB IEEE 802.11 b/g/n USB Wi-Fi dongle
EMIO-2531-00A1	VAB-820-W-M IEEE 802.11b/g/n miniPCle Wi-Fi & Bluetooth module with assembly kit and antenna
EMIO-2550-00A1	3.75G HSPA/UMTS mobile broadband full size miniPCle module with GPS and SIM card slot

Table of Contents

1. Product Overview	1
1.1. Key Features	1
1.1.1. ARM Based System	1
1.1.2. Ultra Slim and Space Saving	1
1.1.3. Optimize Integration with Multiple I/O Access	1
1.1.4. Storage Expansion	1
1.1.5. Networking Support	1
1.1.6. Wide Range of Operating Temperatures	1
1.1.7. Mounting Solution	2
1.1.8. Embedded OS ready	2
1.2. Product Specifications	3
1.3. Panel Layout	6
1.4. Dimensions	7
2. External I/O Pin Descriptions and Functionality	8
2.1. LED Indicator	8
2.2. Reset Button	8
2.3. USB 2.0 Port	8
2.4. DIO Port	9
2.5. COM Port	9
2.6. RS-232/RS-485 Select Switch	11
2.7. DC-In Jack	11
2.8. HDMI® Port	12
2.9. Gigabit Ethernet Port	13
2.10. 10/100Mbps Ethernet Port	14
3. Onboard I/O	15
3.1. MiniPCle Slot	15
3.2. Micro SD Card Slot	17
3.3. Micro SD/SPI Boot Select Switch	17
3.4. Console Debug Connector	18
4. Hardware Installation	19
4.1. Installing the Micro SD Card	19
4.2. Installing the miniPCle 3G/Wi-Fi module and antenna	21
4.3. Installing the USB Wi-Fi module (optional)	25
4.4. Connecting the Console cable	28
4.5. Reinstalling the top cover	29
4.6. Installing the Rubber feet (optional)	30
4.7. Installing the VESA mounting kit (optional)	31
5. Software and Technical Supports	34



5.1.	Linux Support	34
5.1.1.	Driver Installation	34
5.2.	Technical Supports and Assistance	34

List of Figures

Figure 1: Front panel I/O layout	6
Figure 2: Back panel I/O layout.....	6
Figure 3: Left side panel layout.....	6
Figure 4: Front side view dimension	7
Figure 5: Left side view dimension.....	7
Figure 6: Bottom side view dimension	7
Figure 7: LEDs indicator diagram	8
Figure 8: Reset button diagram	8
Figure 9: USB 2.0 port diagram	8
Figure 10: DIO port diagram.....	9
Figure 11: COM port diagram	9
Figure 12: RS-232/RS-485 select switch diagram.....	11
Figure 13: DC-in jack diagram	11
Figure 14: HDMI port diagram.....	12
Figure 15: Gigabit Ethernet port diagram	13
Figure 16: 10/100Mbps Ethernet port diagram	14
Figure 17: MiniPCle slot diagram	15
Figure 18: Micro SD card slot diagram.....	17
Figure 19: Micro SD/SPI boot select switch diagram.....	17
Figure 20: Console debug connector diagram.....	18
Figure 21: Removing the bottom access cover	19
Figure 22: Inserting the Micro SD card.....	19
Figure 23: Inserting miniPCle 3G/Wi-Fi module	21
Figure 24: Securing miniPCle 3G/Wi-Fi module (full size).....	21
Figure 25: Securing miniPCle 3G/Wi-Fi module (half size)	21
Figure 26: Unscrewing the top cover	22
Figure 27: Removing the top cover	22
Figure 28: Removing the antenna hole cover	23
Figure 29: Installing the 3G/Wi-Fi antenna	23
Figure 30: Connecting the 3G/Wi-Fi antenna cable to the micro-RF connector	24
Figure 31: Reinstalling the bottom access cover	24
Figure 32: Mounting the USB Wi-Fi module	25
Figure 33: Connecting the USB Wi-Fi cable.....	25
Figure 34: Removing the antenna hole cover	26
Figure 35: Installing the Wi-Fi antenna cable	26
Figure 36: Installing the Wi-Fi antenna	27
Figure 37: Connecting Console cable.....	28
Figure 38: Installing the top cover	29
Figure 39: Securing the top cover	29
Figure 40: Installing the rubber feet	30
Figure 41: Installing the VESA bracket.....	31
Figure 42: Installing the VESA plate	32
Figure 43: Installing the ARTiGO A820 system to the VESA plate	33

List of Tables

Table 1: USB 2.0 ports pinouts	9
Table 2: DIO port pinouts.....	9
Table 3: COM port pinouts	10
Table 4: DC-in jack pinouts	11
Table 5: HDMI port pinouts	12
Table 6: Gigabit Ethernet port pinouts	13
Table 7: Gigabit Ethernet port LED color definitions.....	13
Table 8: 10/100Mbps Ethernet port pinouts	14
Table 9: 10/100Mbps Ethernet port LED color definitions	14
Table 10: MiniPCle slot pinouts.....	16
Table 11: Micro SD card slot pinouts	17
Table 12: Console debug connector pinouts	18

1. Product Overview

The VIA ARTiGO A820 is an ultra slim, ultra-sleek and completely fanless gateway system with flexible customization options for a broad spectrum of commercial IoT and M2M applications.

The ARTiGO A820 system is based on the Pico-ITX mainboard form factor, powered by a 1.0GHz NXP i.MX 6DualLite ARM Cortex-A9 SoC, and completely compatible with Linux Kernel 3.0.35 operating system.

The ARTiGO A820 is optimized for both power and performance with a wide operating temperature range from 0°C to 50°C, while offering very low power consumption. Measuring just 150mm x 30mm x 125.5mm, the ARTiGO A820 supports multiple I/O connectors such as three USB 2.0 ports, one HDMI® port, one Gigabit Ethernet port, one 10/100Mbps Ethernet port, one DIO port and one configurable COM port for diversified embedded applications. In addition, the ARTiGO A820 offers onboard I/O such as Micro SD card slot for flexible storage, Micro SD/SPI boot select switch, Console debug connector, miniPCle slot for 3G/Wi-Fi module, and USB pin header for optional USB Wi-Fi module (VNT9271).

1.1. Key Features

1.1.1. ARM Based System

Using NXP i.MX 6DualLite ARM Cortex-A9 SoC running up to 1.0GHz speed, the VIA ARM based system ARTiGO A820 provides a full range of feature-rich, extremely power-efficient, superb in multi-tasking performance and cost-effective solutions that are suitable for the fast-emerging, ultra-portable embedded computing applications.

1.1.2. Ultra Slim and Space Saving

The ARTiGO A820 has an ultra slim chassis, designed to save space that makes it suitable to install in space critical environment and to ensure maximum reliability. Its chassis design has a robust aluminum alloy top cover and steel bottom chassis.

1.1.3. Optimize Integration with Multiple I/O Access

Front, rear I/O and bottom access enable the ARTiGO A820 to easily support various applications as well as for easy integration and quick setup.

1.1.4. Storage Expansion

ARTiGO A820 has an onboard 4GB eMMC flash storage and a Micro SD card slot for expandable storage.

1.1.5. Networking Support

The ARTiGO A820 is equipped with two RJ-45 ports that support high speed Gigabit Ethernet and 10/100Mbps Ethernet. It also has wireless networking support that gives the system a freedom of 3G/Wi-Fi connectivity through miniPCle slot, and an optional Wi-Fi connectivity through onboard USB pin header.

1.1.6. Wide Range of Operating Temperatures

The ARTiGO A820 carries a qualified thermal performance design which allows a wide range of operating temperatures from 0°C ~ 50°C, suitable for critical applications.

1.1.7. Mounting Solution

The ARTiGO A820 supports multiple methods for mounting. It can be mounted to VESA mountable surfaces or even to wall with the VESA mounting kit (optional).

1.1.8. Embedded OS ready

The ARTiGO A820 is 100% compatible with Linux Kernel 3.0.35 operating system.

1.2. Product Specifications

Processor

- 1.0GHz NXP i.MX 6DualLite dual-core Cortex-A9 SoC

System Memory

- 1GB DDR3 SDRAM onboard

Storage

- 4GB eMMC Flash memory
- One Micro SD card slot (supports up to 32GB)

Graphics

- Vivante GC880
- Two integrated, independent 3D/2D and video processing units
- Graphics engine supporting Open GL[®] ES 2.0, OpenVG 1.1 hardware acceleration
- Supports MPEG-2 and VC1 video decoding up to 1080p

LAN

- Micrel KSZ9031RNX Gigabit Ethernet Transceiver with RGMII support
- ASIX AX88772 USB 2.0 to 10/100Mbps Fast Ethernet Controller

HDMI

- Integrated HDMI transmitter

USB

- SMSC USB2514 USB 2.0 High Speed 4-port hub controller

Expansion I/O

- Supports one miniPCle slot for 3G/Wi-Fi module
- Support one onboard USB pin header for USB Wi-Fi module (VNT9271) (optional)

Front Panel I/O

- 1 x Power LED (Power status)
- 1 x Wireless LED (Wireless activity status)
- 1 x Reset button
- 1 x USB 2.0 port (optional only, if customer does not need the VNT9271 USB Wi-Fi module)
- 1 x DIO port supports 8 GPIO (4 GPI + 4 GPO)
- 1 x RS-232/RS-485 select switch for COM port
- 1 x COM port for RS232/RS485 supports 8-wire DTE mode with isolation feature

Back Panel I/O

- 1 x HDMI[®] port
- 2 x USB 2.0 ports
- 1 x Gigabit Ethernet port
- 1 x 10/100Mbps Ethernet port (Fast Ethernet)
- 1 x DC-in jack
- 2 x Antenna holes for 3G and Wi-Fi antenna

Left Side Panel

- 1 x Kensington lock hole

Bottom Panel I/O (open window with removable cover)

- 1 x MiniPCle slot
- 1 x Micro SD card slot
- 1 x Micro SD/SPI boot select switch
- 1 x Console debug connector (for debugging only)

Watchdog Timer

- Integrated watchdog timer supporting two comparison points. First comparison point can interrupt ARM core, and the second comparison point is capable of generating external interrupts on WDOG line

Power Supply

- 5V DC-in (typical: 6.7W)

Mechanical

- **Construction**
 - Aluminum top cover
 - Metal chassis housing
 - Removable bottom door for miniPCle slot, Micro SD card slot and Console debug connector access
- **Mounting**
 - Support VESA mount (100mm x 100mm) (optional)
- **Dimension (W x H x D)**
 - 150mm x 30mm x 125.5mm (5.91" x 1.18" x 4.94")
- **Weight**
 - 0.566kg (1.25lbs)

Environmental Specification

- **Operating Temperature**
 - 0°C ~50°C
- **Storage Temperature**
 - -10°C ~60°C @ 90% (non-condensing)
- **Operating Humidity**
 - 0% ~ 90% @ 45°C (non- condensing)
- **Vibration Loading During Operation (with onboard eMMC)**
 - 5Grms, IEC 60068-2-64, random, 5~500Hz, 1hr/axis
- **Shock During Operation (with onboard eMMC)**
 - 50G, IEC 60068-2-27, half size, 11ms duration
- **Compliance**
 - CE, FCC

Software Compatibility (Operating System)

- o Linux Kernel 3.0.35



Notes:

1. As the operating temperature provided in the specifications is a result of the test performed in VIA's chamber, a number of variables can influence this result. Please note that the working temperature may vary depending on the actual situation and environment. It is highly suggested to execute a solid testing program and take all the variables into consideration when building the system. Please ensure that the system runs well under the operating temperature in terms of application.
2. Please note that the lifespan of the onboard eMMC memory chip may vary depending on the amount of access. More frequent and larger data access on eMMC memory makes its lifespan shorter. Therefore, it is highly recommended to use a replaceable external storage (e.g., Micro SD card) for large data access.

1.3. Panel Layout

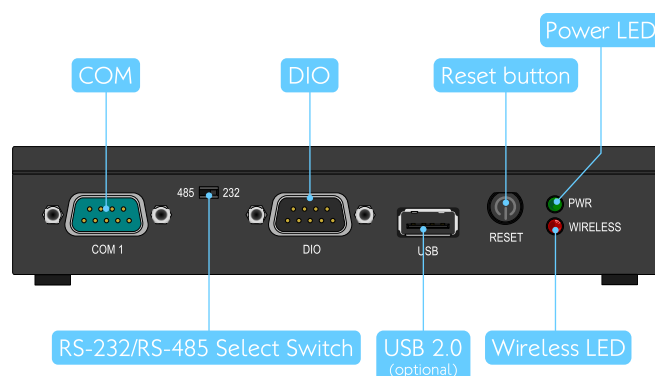


Figure 1: Front panel I/O layout

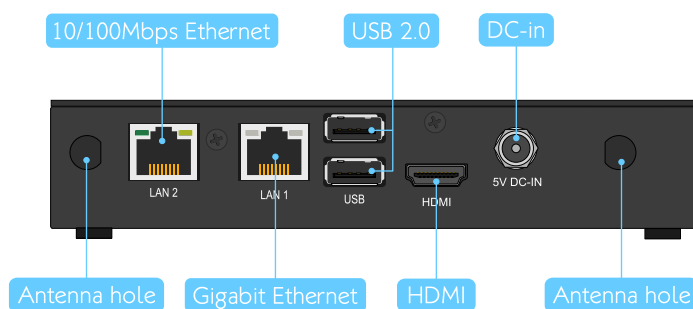


Figure 2: Back panel I/O layout

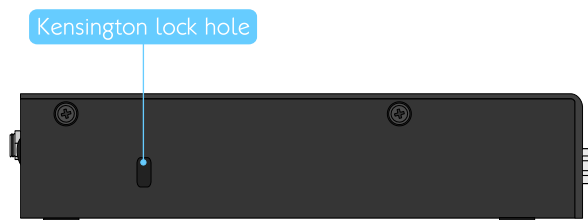


Figure 3: Left side panel layout

1.4. Dimensions

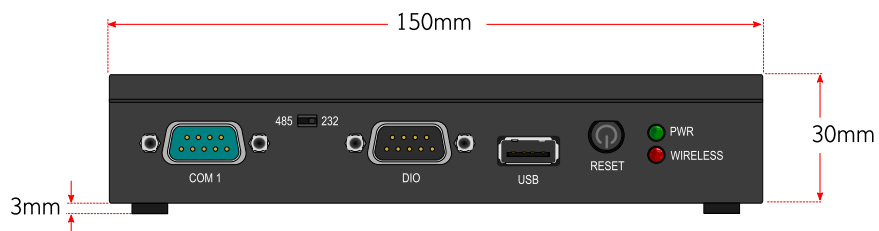


Figure 4: Front side view dimension

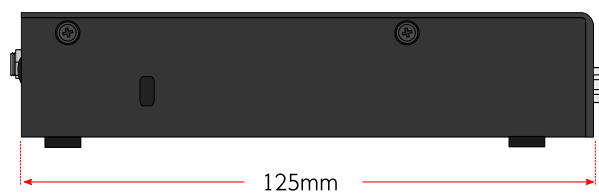


Figure 5: Left side view dimension

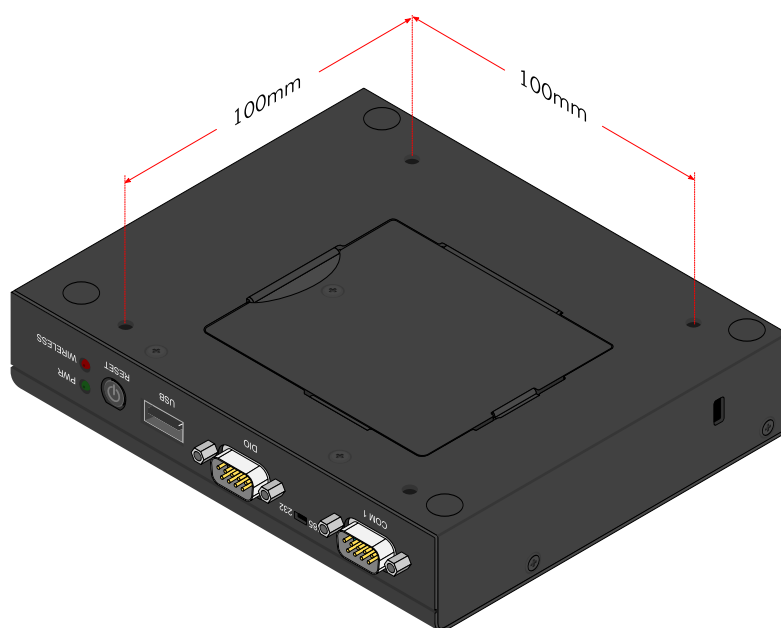


Figure 6: Bottom side view dimension

2. External I/O Pin Descriptions and Functionality

This chapter provides information about the ARTiGO A820's external I/O ports, LED indicators and their functionality.

2.1. LED Indicator

There are two LEDs on the front panel that indicates the status of the system and wireless connectivity:

- Power LED flashed in green and indicates the system's power status.
- Wireless LED flashes in red and indicates the activity status of Wi-Fi.

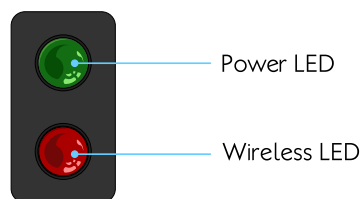


Figure 7: LEDs indicator diagram

2.2. Reset Button

The ARTiGO A820 comes with a reset button on the front panel. The reset button allows the user to reboot or reset the system forcibly.



Figure 8: Reset button diagram

2.3. USB 2.0 Port

The ARTiGO A820 provides three USB 2.0 ports. Each USB port gives complete Plug and Play and hot swap capability for external devices. The USB interface complies with USB UHCI, Rev. 2.0. The pinouts of the USB 2.0 ports are shown below.



Figure 9: USB 2.0 port diagram

USB1		USB2		USB3	
Pin	Signal	Pin	Signal	Pin	Signal
1	VCC	1	VCC	1	VCC
2	USB1 data-	2	USB2 data-	2	USB3 data-
3	USB1 data+	3	USB2 data+	3	USB3 data+

4	GND	4	GND	4	GND
---	-----	---	-----	---	-----

Table 1: USB 2.0 ports pinouts


Note:

Please note that USB 2.0 port on the front panel is optional. It is only available if the customer does not need the Wi-Fi function (using the VNT9271 USB Wi-Fi module).

2.4. DIO Port

The ARTiGO A820 system is equipped with one 8-bit Digital I/O port (male DE-9 connector), which offers Digital I/O communication interface. The Digital I/O default setting supports up to eight GPIO signals (four GPO and four GPI). The pinouts of the Digital I/O port are shown below.

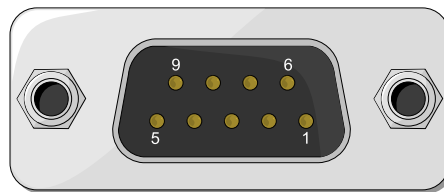


Figure 10: DIO port diagram

Pin	Signal
1	GPIO_7
2	GPIO_1
3	GPIO_8
4	GPIO_2
5	GPIO_9
6	GPIO_4
7	GPIO_16
8	GPIO_5
9	GND

Table 2: DIO port pinouts

2.5. COM Port

The ARTiGO A820 is equipped with one COM port (male DE-9 connector) located on the front panel. The COM port can be configured to operate in RS-232 or RS-485 mode. The pinout of the COM port are shown below.

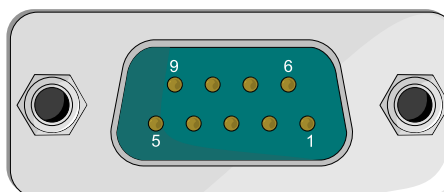


Figure 11: COM port diagram

Pin	Signal
1	DCD1
2	SIN1(Rx)
3	SOUT1(Tx)
4	DTR1
5	GND
6	DSR1
7	RTS1
8	CTS1
9	RI1

Table 3: COM port pinouts

2.6. RS-232/RS-485 Select Switch

The RS-232/RS-485 select switch is to specify the mode function for COM port (COM 1). It allows the user to select between RS-232 and RS-485 mode function.

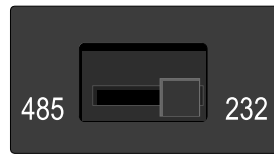


Figure 12: RS-232/RS-485 select switch diagram



Reminder:

The switch is small and only accessible by thin object. Use a pin or end of a paper clip to access the switch.

2.7. DC-In Jack

The ARTiGO A820 comes with a DC power input jack on the back panel that carries 5V DC external power input.

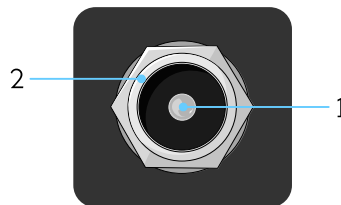


Figure 13: DC-in jack diagram

Pin	Signal
1	+5V
2	GND

Table 4: DC-in jack pinouts

2.8. HDMI® Port

The ARTiGO A820 has one HDMI port located on the back panel. The HDMI port uses an HDMI port (19-pin) Type A receptacle connector defined in HDMI specification. It is used to connect high definition video and digital audio using a single cable. The pinouts of the HDMI port are shown below.

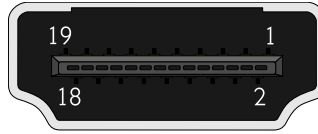


Figure 14: HDMI port diagram

Pin	Signal	Pin	Signal
1	TMDS Data0+	2	GND
3	TMDS Data0–	4	TMDS Data1+
5	GND	6	TMDS Data1–
7	TMDS Data2+	8	GND
9	TMDS Data2–	10	TMDS Data3+
11	GND	12	TMDS Data3–
13	CEC	14	NC
15	HDMI Clock	16	HDMI Data
17	GND	18	HDMI Power
19	Hot Plug Detect		

Table 5: HDMI port pinouts

2.9. Gigabit Ethernet Port

The ARTiGO A820 is equipped with a Gigabit Ethernet port. The Gigabit Ethernet port is using 8 Position 8 Contact (8P8C) receptacle connector or commonly referred to as RJ-45. It is fully compliant with IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX), and 802.3ab (1000BASE-T) standards. The pinouts of the Gigabit Ethernet port are shown below.

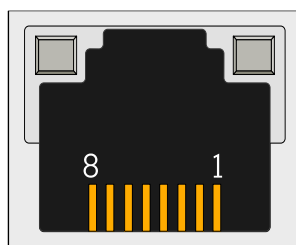


Figure 15: Gigabit Ethernet port diagram

Pin	Signal
1	Signal pair 1+
2	Signal pair 1-
3	Signal pair 2+
4	Signal pair 3+
5	Signal pair 3-
6	Signal pair 2-
7	Signal pair 4+
8	Signal pair 4-

Table 6: Gigabit Ethernet port pinouts

The Gigabit Ethernet port (RJ-45) has two LED indicators located on the front side to show its Active/Link status and Speed status.

	Link LED (Left LED on RJ-45 port)	Active LED (Right LED on RJ-45 port)
Link Off	Off	Off
Speed_10Mbit	The LED is always On in Orange color	Flash in Yellow color
Speed_100Mbit	The LED is always On in Orange color	Flash in Yellow color
Speed_1000Mbit	The LED is always On in Orange color	Flash in Yellow color

Table 7: Gigabit Ethernet port LED color definitions

2.10. 10/100Mbps Ethernet Port

The 10/100Mbps Ethernet port (Fast Ethernet) is fully compliant with IEEE 802.3 (10Base-T), (100Base-TX), and (100Base-FX) standards. The 10/100Mbps Ethernet port is controlled by Fast Ethernet module through onboard USB pin header interface. The pinout of the 10/100Mbps Ethernet port are shown below.

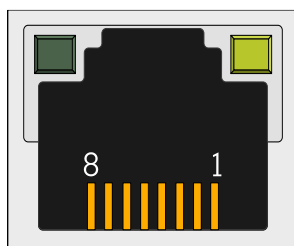


Figure 16: 10/100Mbps Ethernet port diagram

Pin	Signal
1	TD+
2	TD-
3	RD+
4	REGOUT
5	REGOUT
6	RD-
7	GND
8	GND

Table 8: 10/100Mbps Ethernet port pinouts

The 10/100Mbps Ethernet port is equipped with two LED indicators on the front side to show its Active/Link status and Speed status.

	Link LED (Left LED on RJ-45 port)	Active LED (Right LED on RJ-45 port)
Link Off	Off	Off
Speed_10Mbit	The LED is always On in Green color	Off
Speed_100Mbit	The LED is always On in Green color	Flash in Yellow color

Table 9: 10/100Mbps Ethernet port LED color definitions

3. Onboard I/O

This chapter provides information about the onboard slots, connector, and switch.

3.1. MiniPCle Slot

The ARTiGO A820 is equipped with one MiniPCle slot for wireless networking option such as 3G/Wi-Fi module. The MiniPCle slot is compatible with miniPCle 2.0 modules that has full-length or half length in size. The pinouts of the miniPCle slot are shown below.

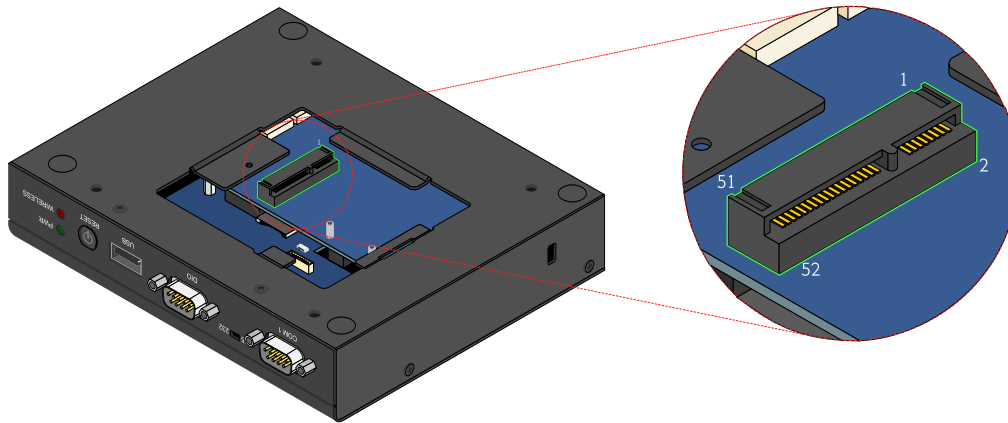


Figure 17: MiniPCle slot diagram

Pin	Signal	Pin	Signal
1	PCIE_WAKE_B	2	MPCIE_3V3
3	GND	4	GND
5	JTAG_TCK	6	VCC15
7	JTAG_TMS	8	-
9	GND	10	NC
11	PCle_CREFCLKM	12	NC
13	PCle_CREFCLKP	14	NC
15	GND	16	-
17	JTAG_TD1	18	GND
19	JTAG_TD0	20	PCIE_DIS_B
21	GND	22	PCIE_RST_B
23	PCle_CRXM	24	MPCIE_3V3
25	PCle_CRXP	26	GND
27	GND	28	VCC15
29	GND	30	PCle_SMB_CLK
31	PCle_CTXM	32	PCle_SMB_DATA
33	PCle_CTXP	34	GND
35	GND	36	PCIE_USB_DM
37	GND	38	PCIE_USB_DP
39	MPCIE_3V3	40	GND
41	MPCIE_3V3	42	LED_WWAN_B
43	GND	44	LED_WLAN_B

45	JTAG_nTRST	46	LED_WPAN_B
47	JTAG_nSRST	48	VCC15
49	GND	50	GND
51	NC	52	MPCIE_3V3

Table 10: MiniPCle slot pinouts

3.2. Micro SD Card Slot

The ARTiGO A820 comes with a Micro SD card slot located on the bottom side of the chassis. The Micro SD card slot offers expandable storage of Micro SD card memory up to 32GB capacity.

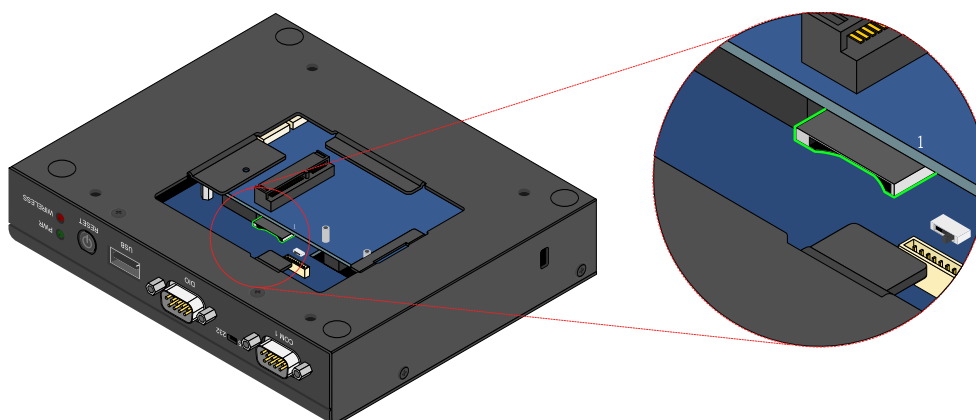


Figure 18: Micro SD card slot diagram

Pin	Signal
1	SD0DATA2
2	SD0DATA3
3	SD0CMD
4	VDD (3.3V)
5	SD0CLK
6	GND
7	SD0DATA0
8	SD0DATA1
9	SD0_CD

Table 11: Micro SD card slot pinouts

3.3. Micro SD/SPI Boot Select Switch

The ARTiGO A820 is equipped with an onboard boot select switch which allows users to select boot device from Micro SD and SPI. The switch is labeled as “SW2”. The default switch position is Micro SD.

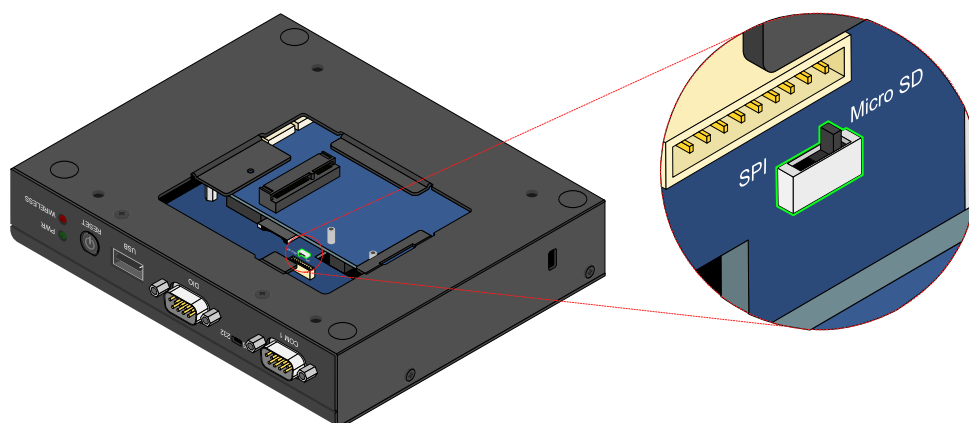


Figure 19: Micro SD/SPI boot select switch diagram

3.4. Console Debug Connector

The ARTiGO A820 is equipped with an onboard Console debug connector on the bottom side of the chassis. The Console debug connector is used to attach the Console cable for debugging purposes.

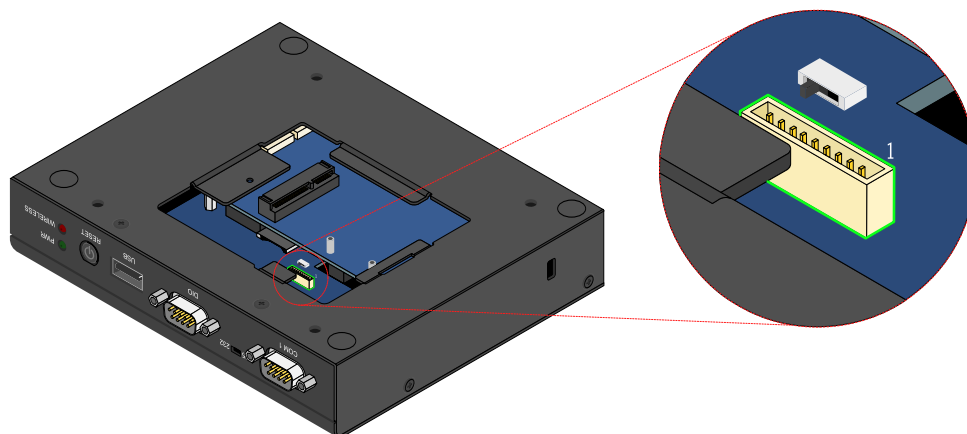


Figure 20: Console debug connector diagram

Pin	Signal
1	NC
2	COM_RXD2
3	COM_TXD2
4	NC
5	NC
6	GND
7	NC
8	NC
9	NC
10	NC

Table 12: Console debug connector pinouts

4. Hardware Installation

This chapter provides information about hardware installation procedures.

4.1. Installing the Micro SD Card

Step 1

Locate the bottom access cover of the chassis. Loosen the screw to remove the bottom access cover.

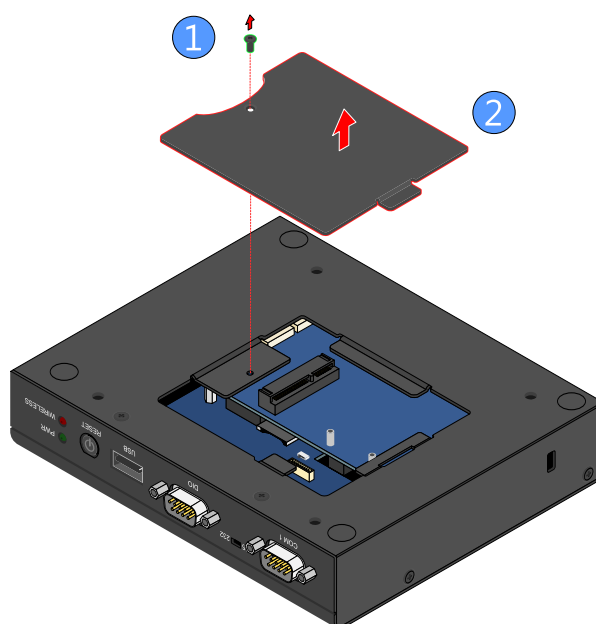


Figure 21: Removing the bottom access cover

Step 2

Insert the Micro SD card into the card slot with the label side facing down then press the card until it locks into place.

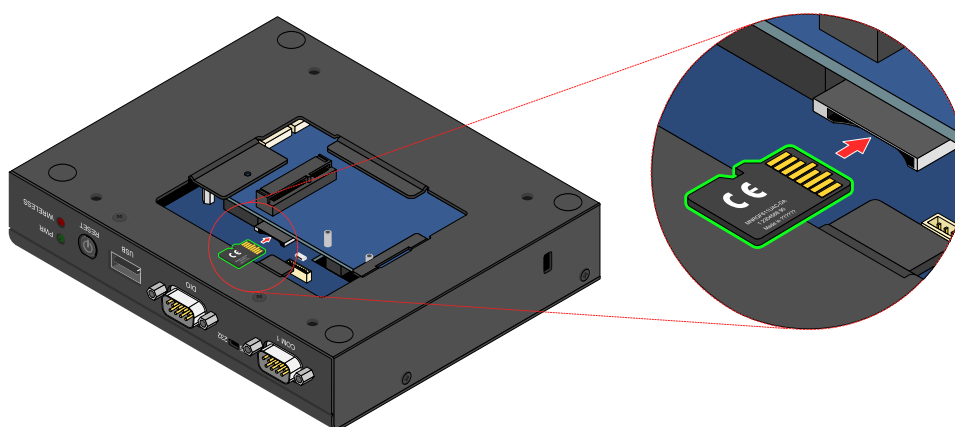


Figure 22: Inserting the Micro SD card


Note:

To remove the Micro SD card, press the card to disengage from the slot reader then gently pull out the card.

4.2. Installing the miniPCle 3G/Wi-Fi module and antenna

Step 1

Align the notch on the miniPCle 3G/Wi-Fi module with the protruding wedge on the miniPCle slot then insert the module at a 30° angle.

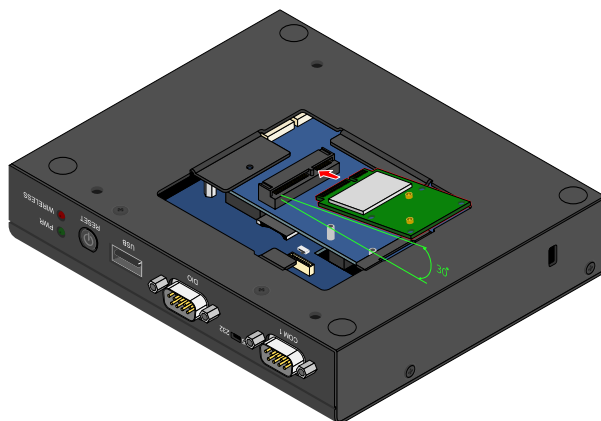


Figure 23: Inserting miniPCle 3G/Wi-Fi module

Step 2

Once the module is fully inserted, push down the module until the screw holes align with the standoff hole. Then secure the module with screw.

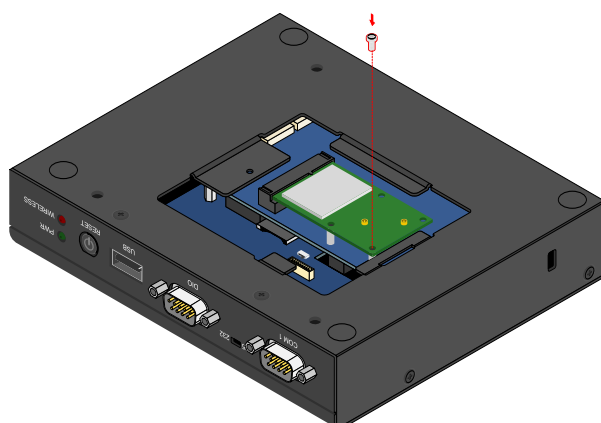


Figure 24: Securing miniPCle 3G/Wi-Fi module (full size)

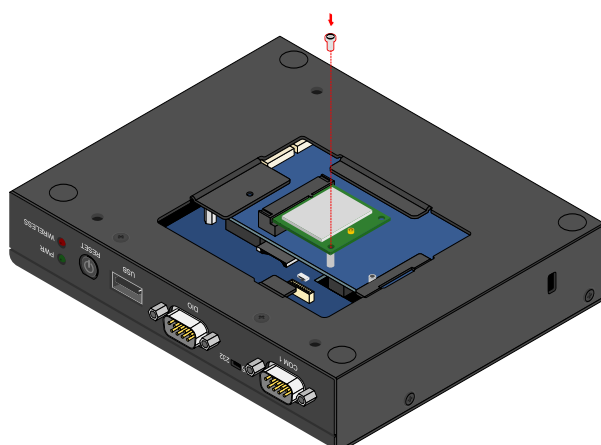


Figure 25: Securing miniPCle 3G/Wi-Fi module (half size)

Step 3

Remove six screws of the top cover from left, right and bottom side of the chassis, and then remove four hex stand screws of COM and DIO ports.

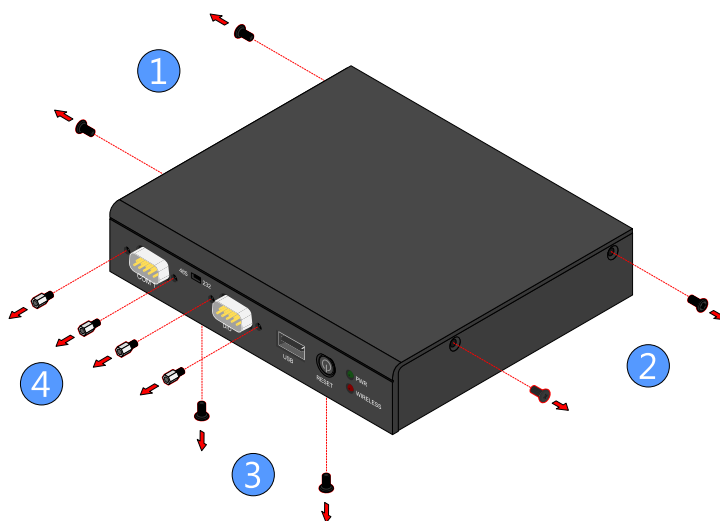


Figure 26: Unscrewing the top cover

Step 4

Slide the top cover horizontally to disengage it from the chassis then pull up to remove the top cover.

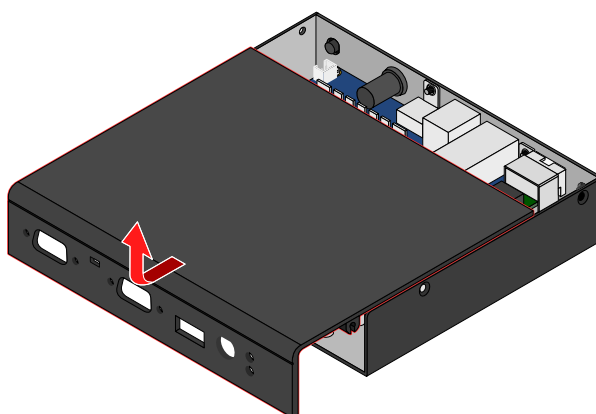


Figure 27: Removing the top cover

Step 5

Remove the 3G/Wi-Fi antenna hole cover.

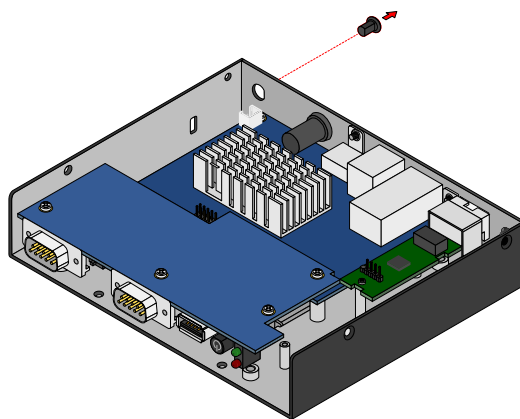


Figure 28: Removing the antenna hole cover

Step 6

Insert the 3G/Wi-Fi antenna cable into the antenna hole from the inside of the chassis. Insert the washer, fasten it with the nut and install the external antenna. Insert the other end of the antenna cable into the available space going down to the bottom side of the system. Stretch the cable to reach the installed miniPCle 3G/Wi-Fi module.

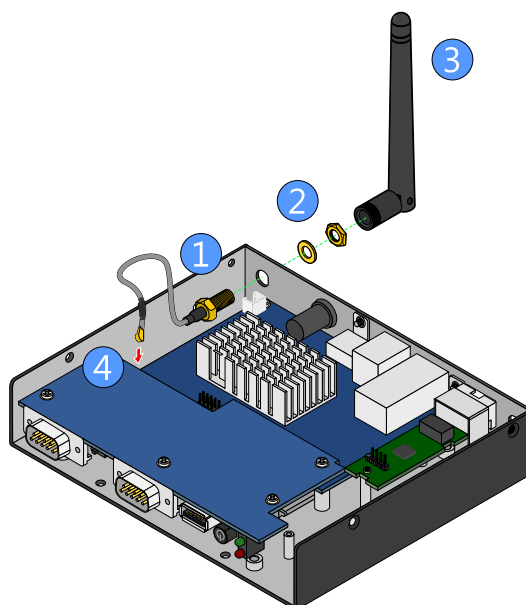


Figure 29: Installing the 3G/Wi-Fi antenna

Step 7

Connect the other end of the 3G/Wi-Fi antenna cable to the micro-RF connector on the miniPCle 3G/Wi-Fi module.

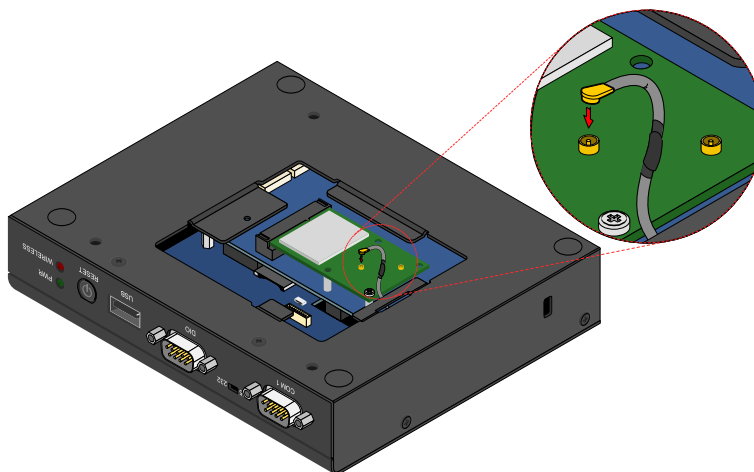


Figure 30: Connecting the 3G/Wi-Fi antenna cable to the micro-RF connector

Step 8

Reinstall the bottom access cover.

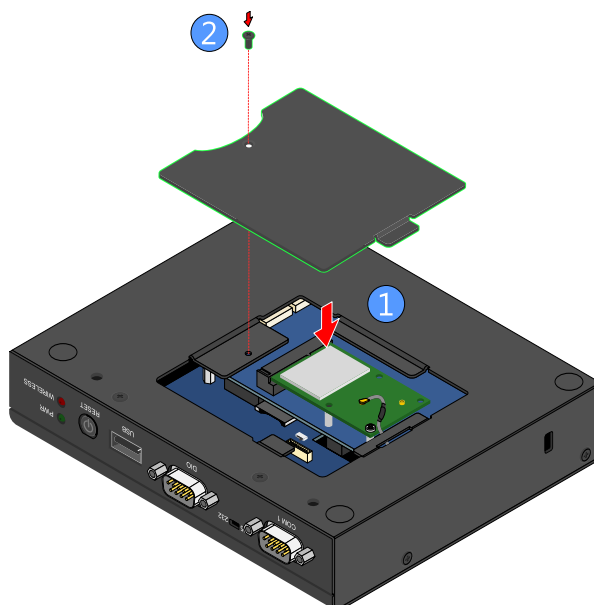


Figure 31: Reinstalling the bottom access cover

4.3. Installing the USB Wi-Fi module (optional)

Step 1

Locate the mounting holes for the USB WiFi module (VNT9271). The mounting holes have two standoffs premounted inside the chassis.

Step 2

Align the two mounting holes on the USB Wi-Fi module with the mounting holes on the standoffs. Secure the USB Wi-Fi module in place with two screws.

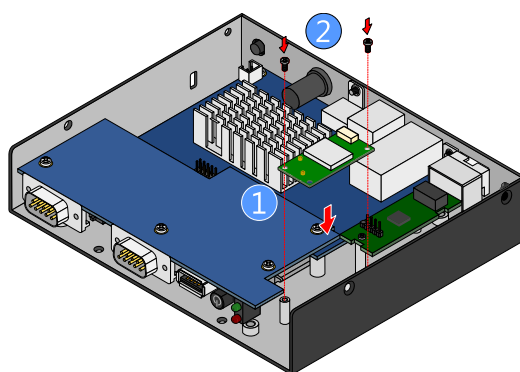


Figure 32: Mounting the USB Wi-Fi module

Step 3

Insert one end of the USB Wi-Fi cable into the connector on the USB Wi-Fi module. Be sure to have the metal contacts facing down before inserting. Then connect the other end of the USB Wi-Fi cable to the onboard USB pin header labeled "J8" on the system's mainboard.

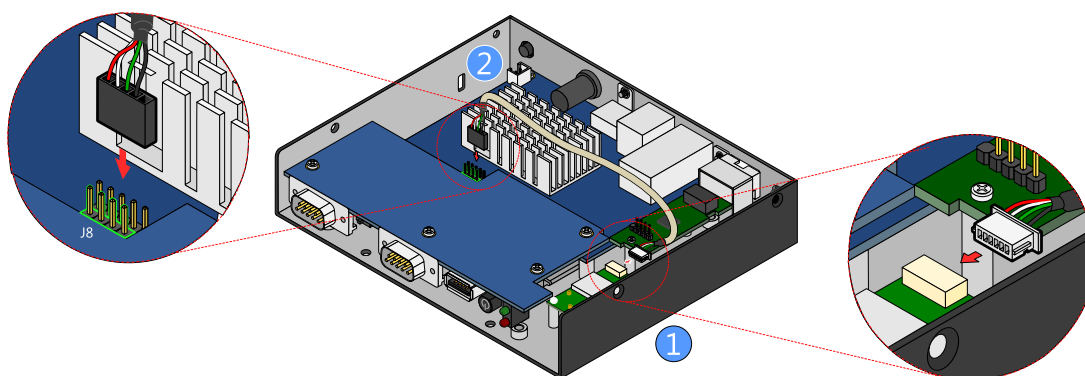


Figure 33: Connecting the USB Wi-Fi cable

Step 4

Remove the Wi-Fi antenna hole cover from the back panel. To facilitate removing the cover, use a pair of needle-nose pliers to depress both locking clips simultaneously.

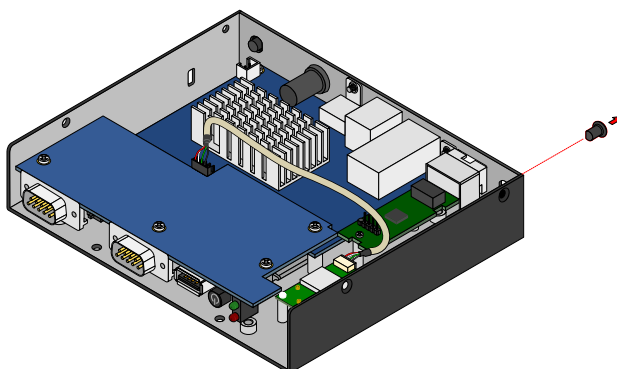


Figure 34: Removing the antenna hole cover

Step 5

Insert the Wi-Fi antenna cable into the antenna hole from the inside. Make sure the flat side of the antenna jack matches the flat side of the antenna hole. Secure the antenna jack to the chassis with the toothed washer and nut.

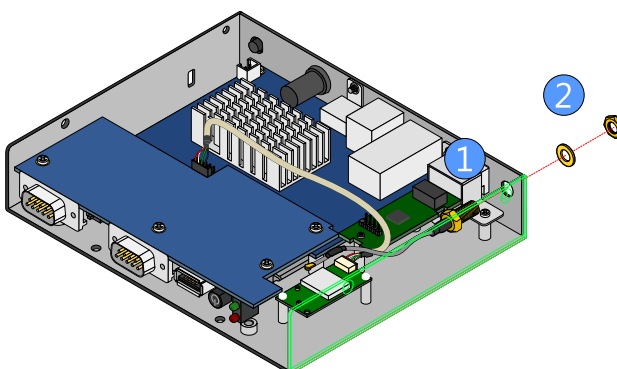


Figure 35: Installing the Wi-Fi antenna cable

Step 6

Connect the other end of the Wi-Fi antenna cable to the micro-RF connector labeled "MAIN" on the USB Wi-Fi module, and then attach the Wi-Fi antenna to the antenna jack.

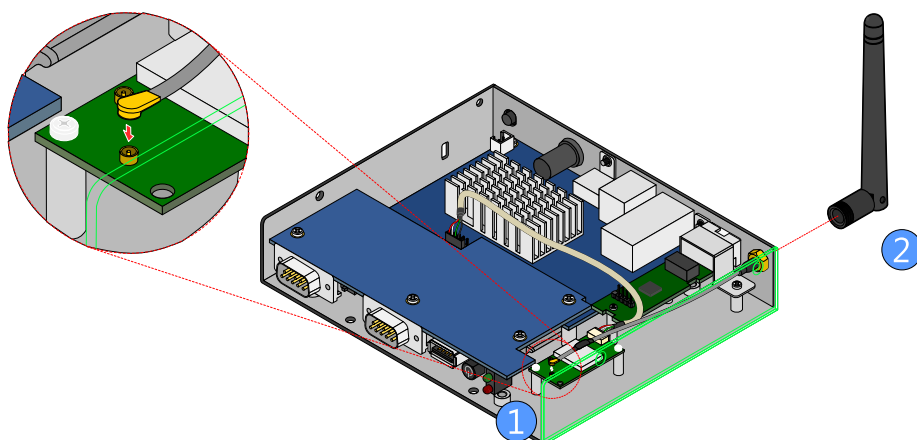


Figure 36: Installing the Wi-Fi antenna

4.4. Connecting the Console cable

Step 1

Remove the bottom access cover.

Step 2

Gently attach the Console cable onto the onboard Console debug connector.

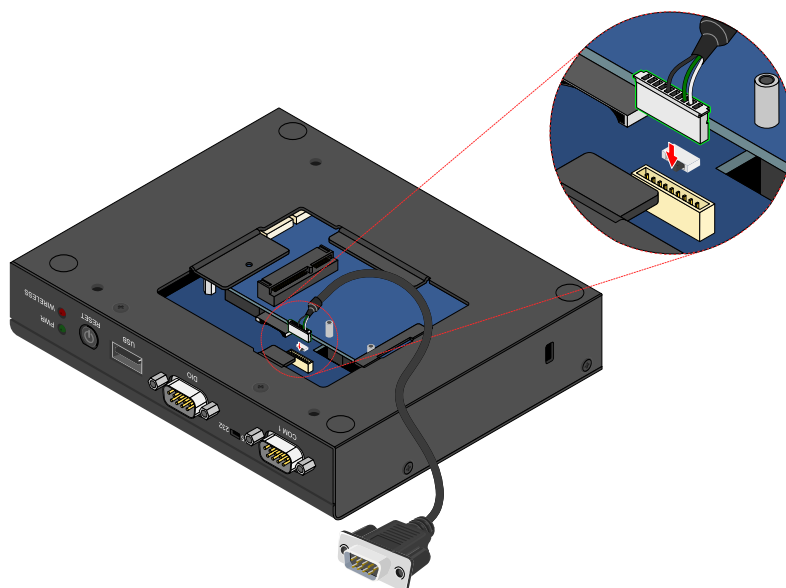


Figure 37: Connecting Console cable

Step 3

After debugging, remove the Console cable then reinstall the bottom access cover.

4.5. Reinstalling the top cover

Step 1

Mount the top cover and then gently push backward the top cover until it completely covers the top side of the chassis.

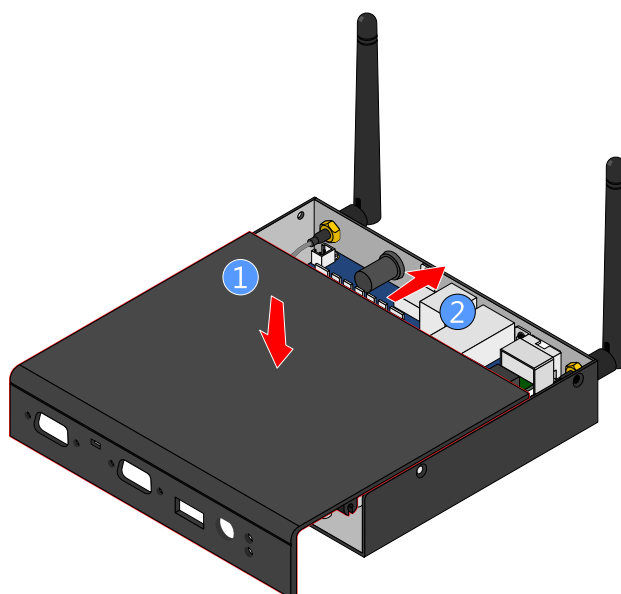


Figure 38: Installing the top cover

Step 2

Once the top cover is installed in place, secure the top cover with six screws. Then reinstall four hex stand screws of the COM and DIO ports.



Figure 39: Securing the top cover

4.6. Installing the Rubber feet (optional)

Step 1

Locate the designated areas for rubber feet on the bottom side of the chassis.

Step 2

Attach each rubber foot and firmly press it down to ensure the rubber foot is properly in place.

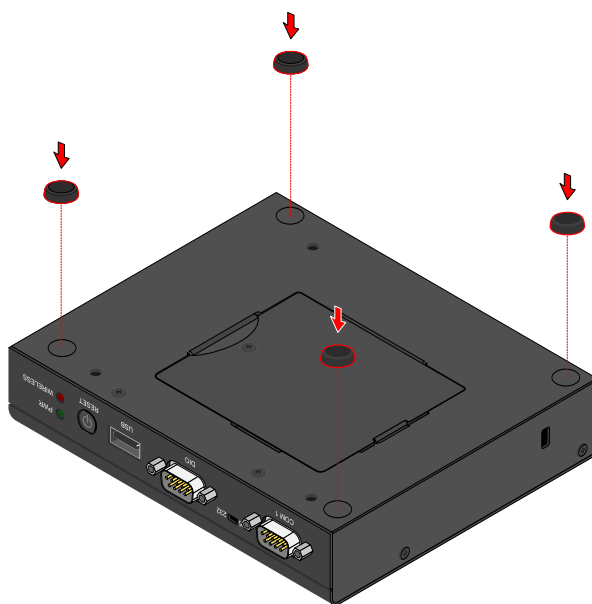


Figure 40: Installing the rubber feet

4.7. Installing the VESA mounting kit (optional)

An optional VESA mounting kit is available for mounting the ARTiGO A820 behind the monitor or wall.

Step 1

Attach the VESA bracket on the back of the ARTiGO A820 using four M4 x 6mm screws.

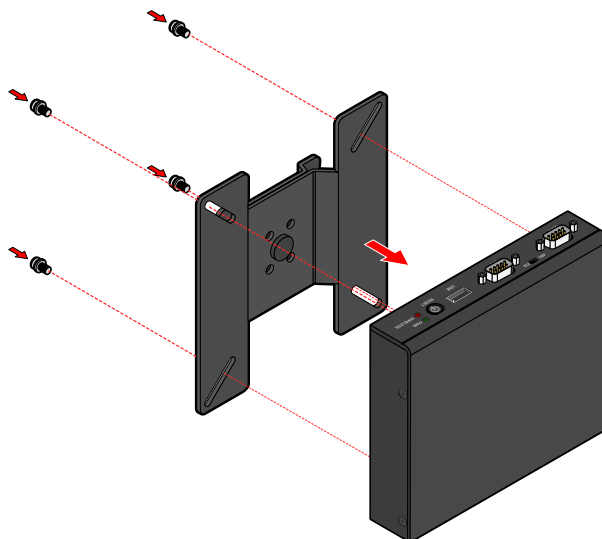


Figure 41: Installing the VESA bracket



Cautions:

1. Remove first the rubber feet before installing the VESA bracket.
2. Do not use other types of screws for VESA bracket; these might damage the internal board.

Step 2

Align the VESA mounting hole of the VESA plate to the VESA hole on the back of the monitor. Then secure the VESA mounting plate with four screws.

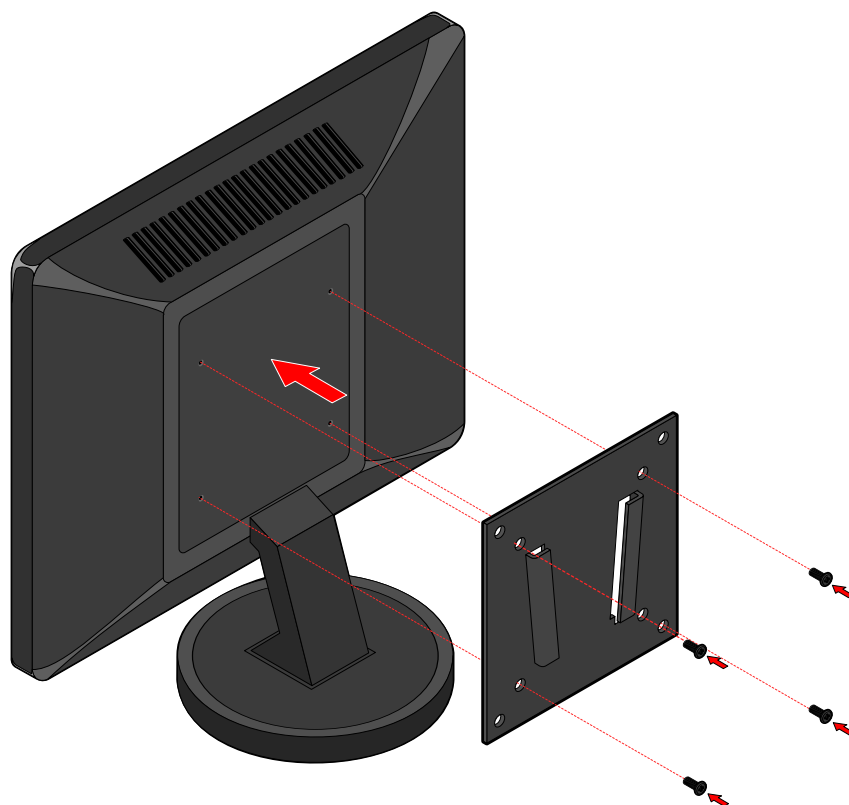


Figure 42: Installing the VESA plate

Step 3

Slide the ARTiGO A820 system into the VESA plate. Then connect all the necessary cables on the back panel of the system.

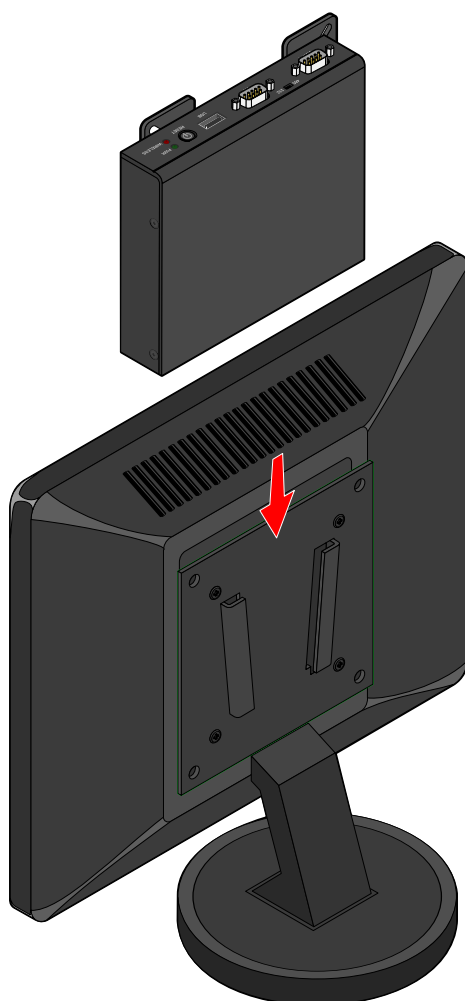


Figure 43: Installing the ARTiGO A820 system to the VESA plate

5. Software and Technical Supports

5.1. Linux Support

The VIA ARTiGO A820 features a complete software evaluation image featuring Linux Kernel 3.0.35 operating system.

5.1.1. Driver Installation

Support and drivers are provided through various methods including:

- Drivers provided by VIA
- Using a driver built into a distribution package
- Visiting www.viatech.com for the latest updated drivers
- Installing a third party driver (such as the ALSA driver from the Advanced Linux Sound Architecture project for integrated audio)

5.2. Technical Supports and Assistance

- For utilities downloads, latest documentation and new information about the ARTiGO A820, please visit our website at <http://www.viatech.com/en/systems/small-form-factor-pcs/artigo-a820>
- For technical support and additional assistance, always contact your local sales representative or board distributor, or go to <https://www.viatech.com/en/support/driver-support-fag/technical-support/> for technical support.
- For OEM clients and system integrators developing a product for long term production, other code and resources may also be made available. Please visit our website at <https://www.viatech.com/en/about/contact/> to submit a request.



Taiwan Headquarters

1F, 531 Zhong-zheng Road,
Xindian Dist., New Taipei City 231
Taiwan

Tel: 886-2-2218-5452
Fax: 886-2-2218-9860
Email: embedded@via.com.tw



USA

940 Mission Court
Fremont, CA 94539,
USA

Tel: 1-510-687-4688
Fax: 1-510-687-4654
Email: embedded@viatech.com



Japan

3-15-7 Ebisu MT Bldg. 6F,
Higashi, Shibuya-ku
Tokyo 150-0011
Japan

Tel: 81-3-5466-1637
Fax: 81-3-5466-1638
Email: embedded@viatech.co.jp



China

Tsinghua Science Park Bldg. 7
No. 1 Zongguancun East Road,
Haidian Dist., Beijing, 100084
China

Tel: 86-10-59852288
Fax: 86-10-59852299
Email: embedded@viatech.com.cn



Europe

Email: embedded@via-tech.eu