AXIOMTEK

Agent336-FL Series

Robust Fanless Embedded System

Hardware User's Manual

RoHS

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Safety Precautions

Before getting started, please read the following important safety precautions.

1. Be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.

2. Disconnect the power cord from the Agent336-FL before making any installation. Be sure both the system and the external devices are turned OFF. Sudden surge of power could ruin sensitive components. Make sure the Agent336-FL is properly grounded.

3. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.

4. Turn OFF the system power before cleaning. Clean the system using a cloth only. Do not spray any liquid cleaner directly onto the screen.

5. Do not leave this equipment in an uncontrolled environment where the storage temperature is below -45℃ or above 85℃. It may damage the equipment.

6. Do not open the system's back cover. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

   ▪ Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help to discharge any static electricity on your body.

   ▪ When handling boards and components, wear a wrist-grounding strap, available from most electronic component stores.

Classification

1. Degree of production against electric shock: not classified

2. Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitros oxide.

3. Mode of operation: Continuous

4. Type of protection against electric shock: Class I equipment

General Cleaning Tips

You may need the following precautions before you begin to clean the computer. When you clean any single part or component for the computer, please read and understand the details below fully.

When you need to clean the device, please rub it with a piece of dry cloth.

1. Be cautious of the tiny removable components when you use a vacuum cleaner to absorb the dirt on the floor.

2. Turn the system off before you start to clean up the component or computer.

3. Never drop the components inside the computer or get circuit board damp or wet.

4. Be cautious of all kinds of cleaning solvents or chemicals when you use it for the sake of cleaning. Some individuals may be allergic to the ingredients.

5. Try not to put any food, drink or cigarette around the computer.

Cleaning Tools

Although many companies have created products to help improve the process of cleaning your computer and peripherals users can also use household items to clean their computers and peripherals. Below is a listing of items you may need or want to use while cleaning your computer or computer peripherals.

Keep in mind that some components in your computer may only be able to be cleaned using a product designed for cleaning that component, if this is the case it will be mentioned in the cleaning.

- Cloth: A piece of cloth is the best tool to use when rubbing up a component. Although paper towels or tissues can be used on most hardware as well, we still recommend you to rub it with a piece of cloth.

- Water or rubbing alcohol: You may moisten a piece of cloth a bit with some water or rubbing alcohol and rub it on the computer. Unknown solvents may be harmful to the plastics parts.

- Vacuum cleaner: Absorb the dust, dirt, hair, cigarette particles, and other particles out of a computer can be one of the best methods of cleaning a computer. Over time these items can restrict the airflow in a computer and cause circuitry to corrode.

- Cotton swabs: Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas in your keyboard, mouse, and other locations.

- Foam swabs: Whenever possible it is better to use lint free swabs such as foam swabs.

Note
We strongly recommended that you should shut down the system before you start to clean any single components.

Please follow the steps below:

1. Close all application programs
2. Close operating software
3. Turn off power
4. Remove all device
5. Pull out power cable

Scrap Computer Recycling

If the computer equipments need the maintenance or are beyond repair, we strongly recommended that you should inform your Axiomtek distributor as soon as possible for the suitable solution. For the computers that are no longer useful or no longer working well, please contact your Axiomtek distributor for recycling and we will make the proper arrangement.

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Table of Contents

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CHAPTER 1
INTRODUCTION

This chapter contains general information and detailed specifications of the Agent336-FL. The Chapter 1 includes the following sections:

- General Description
- System Specification
- Dimensions
- I/O Outlets
- Packing List

1.1   General Description

Agent336-FL cost-effective din-rail fanless embedded system utilizes the low power RISC-based module (iMX-8m Qual) processor and is designed to withstand temperatures ranging from -40℃ to +70℃ for using in extreme operating environment and industrial automation applications.

Agent336-FL features 2 x RS-232/422/485 serial ports, 1 x LAN,1 x isolated DIO Port (2-in/2-out),1 x HDMI, 1 x isolated CAN bus and 8GB eMMC onboard & 1 x MicroSD socket for storage expansion (easy to access) in a compact, industrial-strength robust case. Its vertical din-rail form factor makes it easy to install the system in a small cabinet. Due to the RISC-based architecture, Agent336-FL will not generate a lot of heat while being operated. The ready-to-run Agent336-FL is specially designed for industrial machine, automatic parking lot, traffic cabinet and more.

- **Features**
    - Fanless
    - Wide temperature operation of -40℃ - +70℃
    - Low power RISC-based module (iMX-8), 1.3GHz Processor
    - 1 10/100/1000Mbps Ethernets with magnetic isolation protection
    - 2 COM Ports
    - 1 isolated CAN bus 2.0 B Ports
    - 1 DIO Port (2-In/2-Out) with Dry/Wet contacts and optical isolation protection 2KV
    - 1 Console Port for user setting with debug
    - 1 Watchdog Timer
    - 2 USB 3.0
    - LED Indicators (Power, Wireless x2)
    - Support PCIE Mini card (PCIE, USB)
    - Storage:
      Support one eMMC 8GB onboard (for boot disk)
      Support one MicroSD Card (easy-to-access, for store only)
    - 9–36VDC power input with terminal block and ACC, ignition
    - Din-rail mounting

■ Wall mounting (optional)

1.2 System Specifications

1.2.1 CPU

● Low power RISC-based module (iMX-8m Qual), ARM Cortex-A53 RISC-based 1.3GHz Processor

1.2.2 System Memory

● 1 x LPDDR4 3GB SDRAM onboard

1.2.3 Console Port

● For user setting with debug

1.2.4 LAN

● LAN 1
    ■ 10/100/1000Mbps LAN w/ magnetic isolation protection 1.5KV

Pin	Description	10/100Base-T	1000Base-T
1	Transmit Data+ or Bidirectional	TX+	BI_DA+
2	Transmit Data- or Bidirectional	TX-	BI_DA-
3	Receive Dtata+ or Bidirectional	RX+	BI_DB+
4	Not Connected or Bidirectional	N.C.	BI_DC+
5	Not Connected or Bidirectional	N.C.	BI_DC-
6	Receive Dtata- or Bidirectional	RX-	BI_DB-
7	Not Connected or Bidirectional	N.C.	BI_DD+
8	Not Connected or Bidirectional	N.C.	BI_DD-
B	Speed LED	OFF/ Orange	Green
A	Activity Link LED(Orange)	OFF: No Link Blinking: Data activity detected	
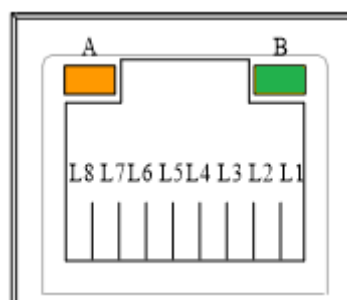
1.2.5   Storage

- 1 x eMMC 8GB onboard (for boot disk)
- 1 x MicroSD slot (easy-to- access, for store only)
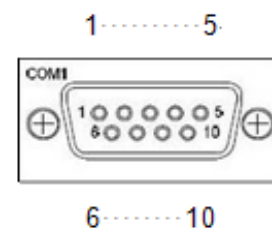
1.2.6   WatchDog Timer (WDT)

- 1 WatchDog Timer
- One step is 250~280ms,255 levels

1.2.7 COM

- DB9 Pin define
- RS232/RS422/RS485 (COM1 ~ 2)
- COM 1~2 with TX/RX/RTS/CTS signals
- RS-232/422/485 Interface select by software

COM1/COM2

Pin	RS-232	RS-422	RS-485
1	DCD	TX-(12PIN)	Data-(12PIN)
2	RX	TX+(11PIN)	Data+(11PIN)
3	TX	RX+(13PIN)	--
4	DTR	RX-(14PIN)	--
5	Ground	Ground	Ground
6	DSR	--	--
7	RTS	--	--
8	CTS	--	--
9	RI	--	--

1.2.8 Power

- DC input range 9~36V
- DC Input has UVP/Reverse protection.
  UVP (Under voltage protection)
  Reserve protection
- DC Terminal Block

Pin	DC Signal Name
1	Power+
2	Power-
3	ACC, ignition

1.2.9   Digital I/O Connector and Pin Definition

● 2 DI/ 2DO with optical isolation protection 2KV

● DI: Wet/Dry

● DO: Wet

● DIO Design Specification

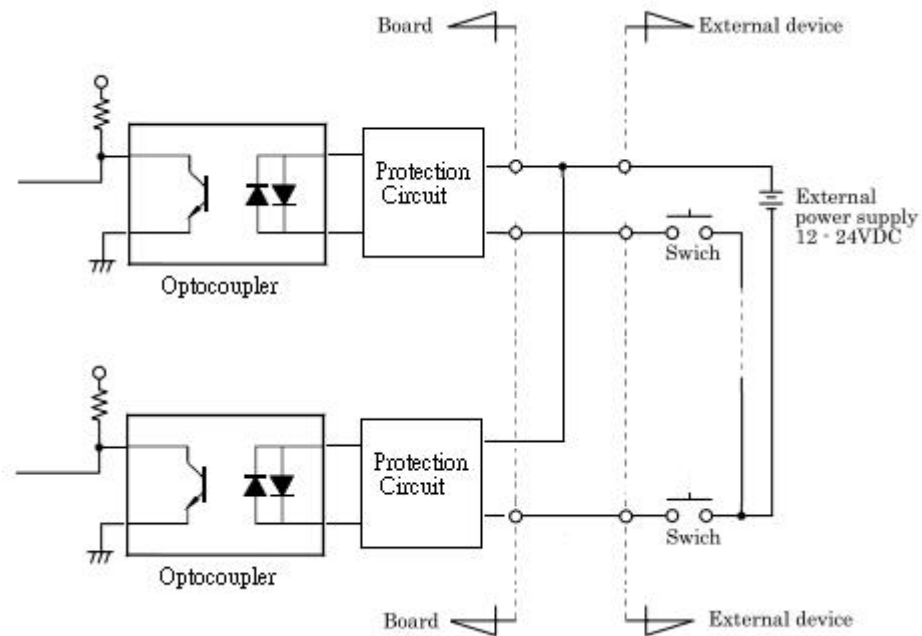| Digital Input	
Input Channels	2,source type
Input Voltage	0 to 24VDC
Digital Input Levels for Dry Contacts	Logic level 0:Close to GND Logic level 1:Open
Digital Input Levels for Wet Contacts	Logic level 0:+10V to +24V (DI To COM-) Logic level 1:+3V max.
Digital Output	
Output Channels	2,sink type
Output Current	Max. 200 mA per channel
On-state Voltage	24VDC nominal, open collector to 30V

● **DIO 2-IN/2-OUT of TB18 Female**

The Agent 336-FL is supported an isolated 2-in/2-out Digital I/O (DIO)

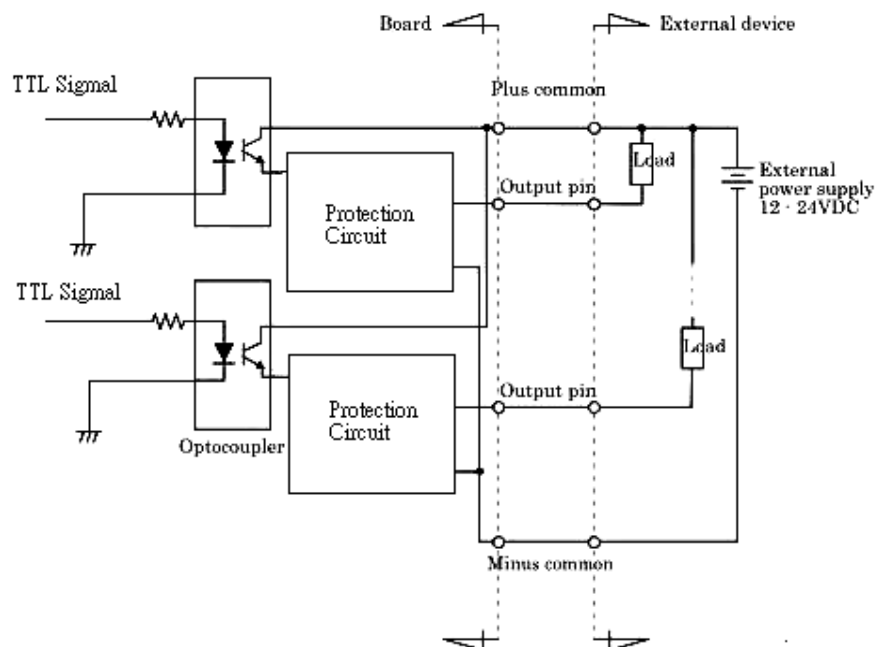| Pin	Signal	Pin	Signal
1	COM+	5	Ext Power
2	OUT0	6	IN 0
3	OUT1	7	IN 1
4	COM-	8	GND
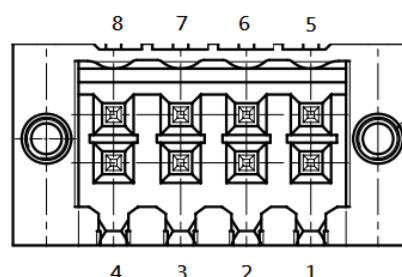
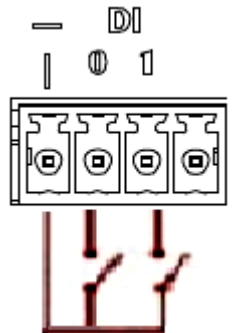● DIO operation schematic diagram

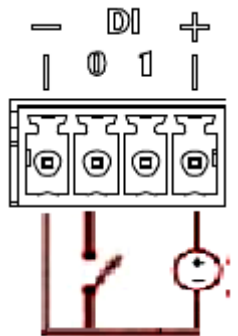**Input Circut**

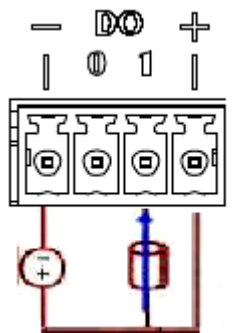**Output Circut**

● **Digital Input Wiring**

Dry Contact

Wet Contact

  If you are using wet contacts, you must connect COM to power.

Note

● **Digital Output Wiring**

1.2.10 System LED

LED Name	Description	Color	Note
PWR1	Indicate the DC1 input status. When the DC input is acceptable, the LED will ON.	Green	
LINK1 LINK2	1 LED (for transmission signal strength, more than 50% is green, less than 50% is Red)	Green/ Red	

1.2.11 USB

Pin	Signal USB Port 0	Pin	Signal USB Port 1
1	USB_VCC (+5V level standby power)	10	USB_VCC (+5V level standby power)
2	USB_Data0-	11	USB_Data1-
3	USB_Data0+	12	USB_Data1+
4	GND	13	GND
5	SSRX0-	14	SSRX1-
6	SSRX0+	15	SSRX1+
7	GND	16	GND
8	SSTX0-	17	SSTX1-
9	SSTX0+	18	SSTX1+
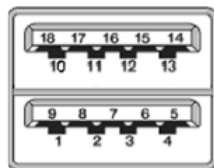
1.2.12   Wireless (3G/GPRS or Wifi)

● 1 x Mini card socket 1 (supports USB&PCIE interface) with 1 x SIM Card Socket 1 by inside

● 1 x Mini card socket 2 (supports USB&PCIE interface)

● Support WiFi or 3G/GPRS2

Sim card compatible with mini card table

Mini card socket corresponds to the SIM card socket and LED table:

| Mini Card Socket	SIM Card Socket	LED
Mini Card Socket 1	SIM Card Socket 1	Link 1
Mini Card Socket 2	SIM Card Socket 2	Link 2

PCI-Express Mini Card Connector

The PCI Express Mini Card connectors are supported 1x PCI Express lane and 1x USB 2.0 lanes. A PCI Express Mini Card can be applied either PCI Express or USB 2.0. It's very helpful that we designed USB 2.0 and PCI Express lane in the same slot once it was been an inteface migration. We provide a convient and low cost solution for you by this friendly design.

Pin	Signal	Pin	Signal
1	WAKE#	2	+3.3VSB
3	No use	4	GND
5	No use	6	+1.5V
7	CLKREQ#	8	No use
9	GND	10	No use
11	REFCLK-	12	No use
13	REFCLK+	14	No use
15	GND	16	No use
17	No use	18	GND
19	No use	20	+3.3VSB
21	GND	22	PERST#
23	PE_RXN4	24	+3.3VSB
25	PE_RXP4	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PE_TXN4	32	SMB_DATA
33	PE_TXP4	34	GND
35	GND	36	USB_D3-
37	GND	38	USB_D3+
39	+3.3VSB	40	GND
41	+3.3VSB	42	LED_WWAN#
43	GND	44	LED_WLAN#
45	No use	46	LED_WPAN#
47	No use	48	+1.5V
49	No use	50	GND
51	No use	52	+3.3VSB
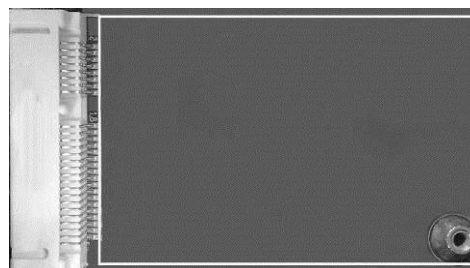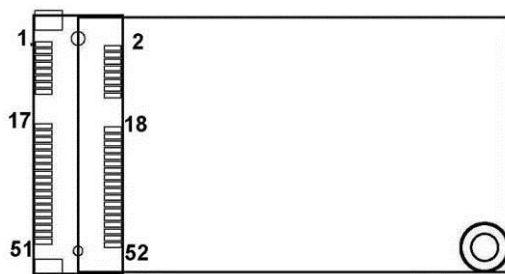
The SIM Card slot is an ISO 7816 standard 6-pin connector for PCI Express Mini Card.

Pin	Signal
C1	SIM_PWR
C2	SIM_RESET
C3	SIM_CLK
C5	GND
C6	SIM_VPP
C7	SIM_DATA
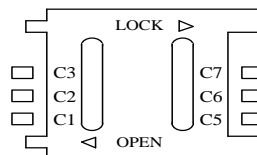
1.2.13   Operation Temperature

● -40℃ ~ +70℃ (-40 ºF ~ +158ºF)

1.2.14   Storage Temperature

● -45℃ ~ +85℃ (-49 ºF ~ +185ºF)

1.2.15   Humidity

● 10% ~ 95% (non-condensation)

1.2.16   Weight

● 1kg

1.2.17   Dimensions

● 163.8mm(W)x118mm(D)x44mm(H)

1.2.18   System I/O Outlet

● 2 9-pin D-Sub male connectors, COM1~COM2

● 1 Console Port

● 1 10/100/1000Mbps Ethernets with magnetic isolation protection

● 1 HDMI (Support screw lock and 1080p)

● 1 CAN bus 2.0 B Ports

● 1 DIO Port (2-In/2-Out) with Dry/Wet contacts and optical isolation protection 2KV
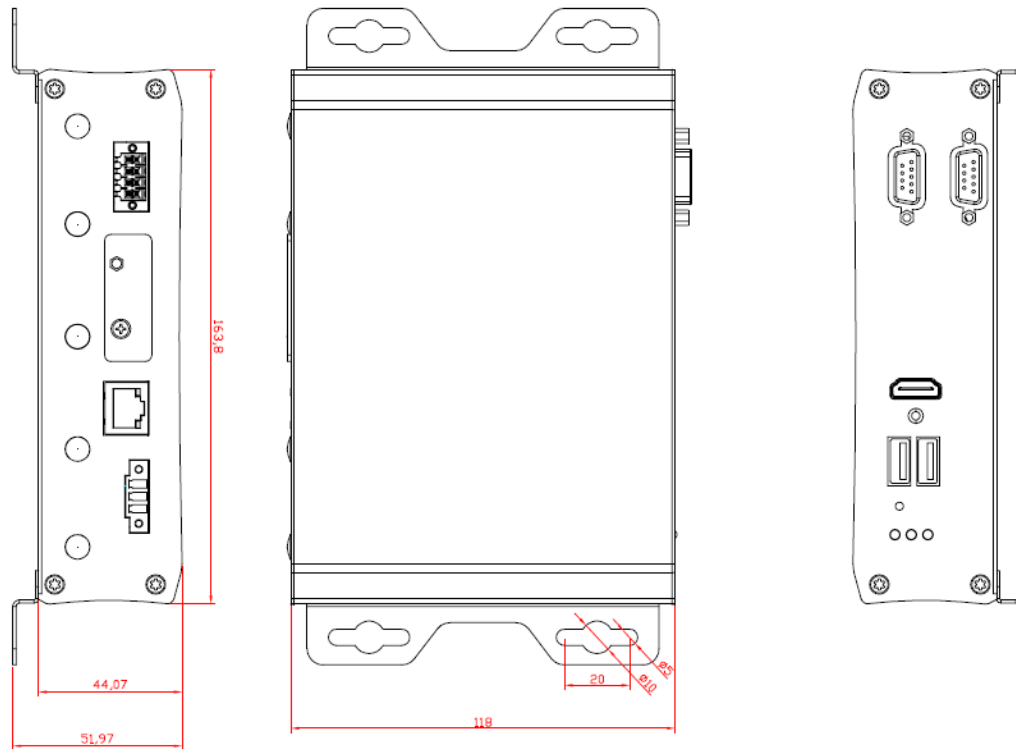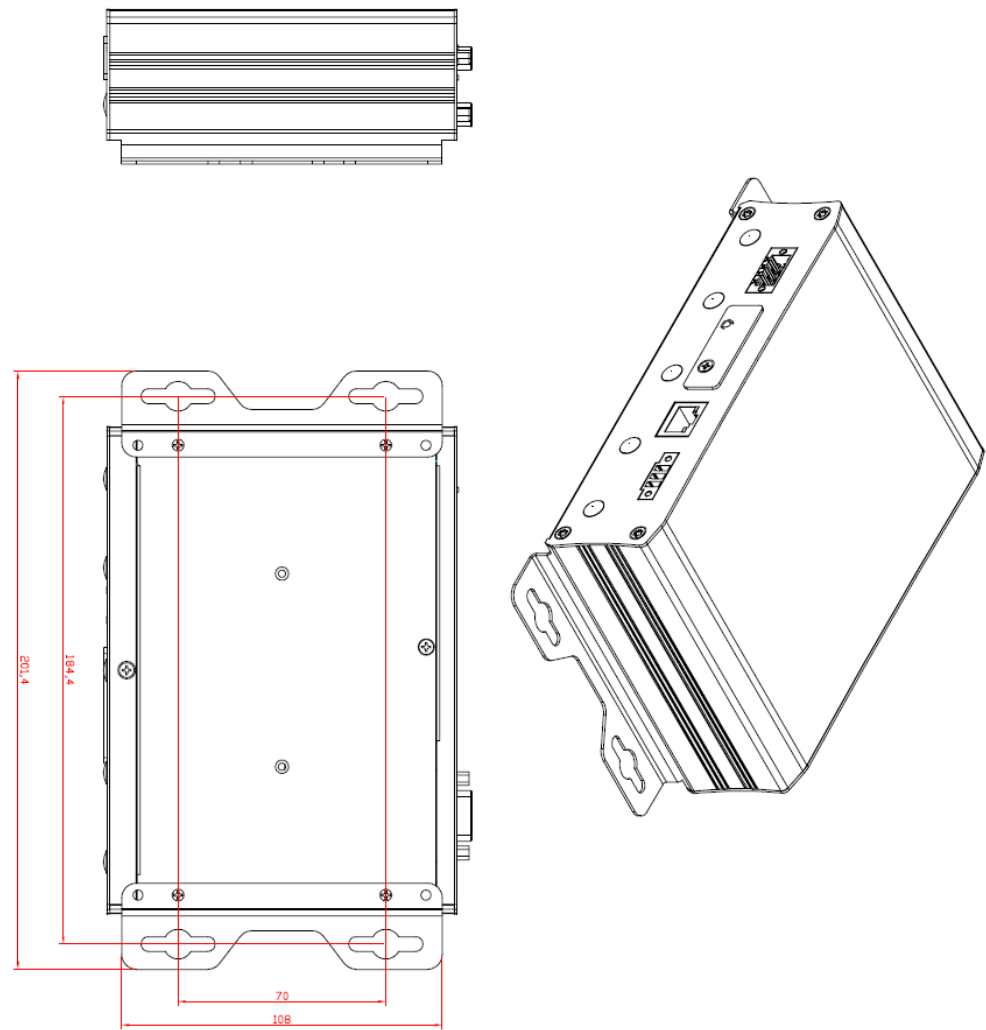
● 1 DC Powers Input with terminal block

All specifications and images are subject to change without notice.

Note

1.3   Dimensions

The following diagrams show you dimensions and outlines of the Agent336-FL
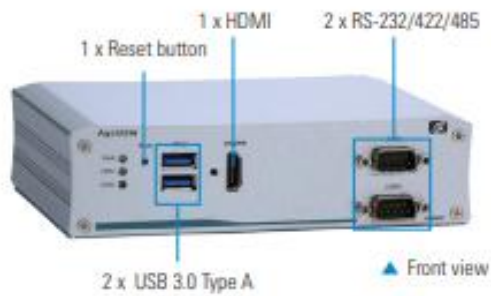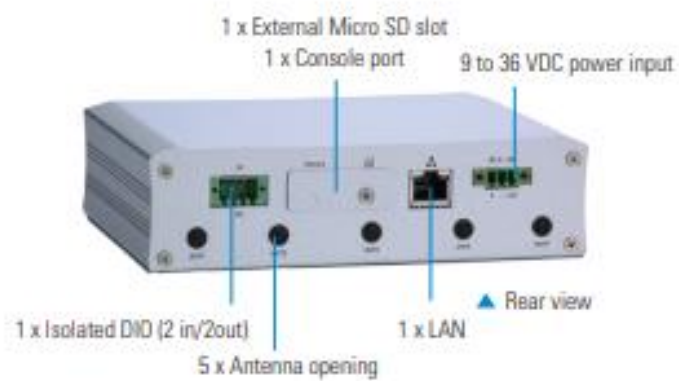
1.4   I/O Outlets

The following figures show you I/O outlets on front view and bottom view of the Agent336-FL.

● **Front View**

● **Back View**

1.5   Packing List

The package bundled with your Agent336-FL should contain the following items:

- Agent336-FL System Unit x 1
- Screws x 8
- Power terminal block x 1
- DIO terminal block x 1
- Console cable x 1

Optional

- Wall Mount Kit x1

Note	***Please download the latest BSP or the latest Web_AP for Agent336 from Axiomtek's website as below list if you have the demand.*** **http://www.axiomtek.com/products/ViewProduct.asp?view=**8947 ***Please contact your local vendors if any damaged or missing items.***

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