UP LoRA Edge IP68

IP68 Gateway System

User's Manual 3rd Ed.aeu

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Packing List

Before setting up your product, please make sure the following items have been shipped:

Item	Quantity
● UP LoRA Edge IP68	1
● Wi-Fi Antenna &Bluetooth Antenna	2
● LTE antenna	1
● LoRa antenna	1

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

About this Document

This User's Manual contains all the essential information, such as detailed descriptions and explanations on the product's hardware and software features (if any), its specifications, dimensions, jumper/connector settings/definitions, and driver installation instructions (if any), to facilitate users in setting up their product.

Users may refer to the AAEON.com for the latest version of this document.

Safety Precautions

Please read the following safety instructions carefully. It is advised that you keep this manual for future references

1.   All cautions and warnings on the device should be noted.
2.   Make sure the power source matches the power rating of the device.
3.   Position the power cord so that people cannot step on it. Do not place anything over the power cord.
4.   Always completely disconnect the power before working on the system's hardware.
5.   No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
6.   If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
7.   Always disconnect this device from any AC supply before cleaning.
8.   While cleaning, use a damp cloth instead of liquid or spray detergents.
9.   Make sure the device is installed near a power outlet and is easily accessible.
10.   Keep this device away from humidity.
11.   Place the device on a solid surface during installation to prevent falls
12.   Do not cover the openings on the device to ensure optimal heat dissipation.
13.   Watch out for high temperatures when the system is running.
14.   Do not touch the heat sink or heat spreader when the system is running
15.   Never pour any liquid into the openings. This could cause fire or electric shock.
16.   As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.

17. If any of the following situations arises, please the contact our service personnel:

    i. Damaged power cord or plug

    ii. Liquid intrusion to the device

    iii. Exposure to moisture

    iv. Device is not working as expected or in a manner as described in this manual

    v. The device is dropped or damaged

    vi. Any obvious signs of damage displayed on the device

18. DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE CHAPTER 1) TO PREVENT DAMAGE.

FCC Statement

Warning!

This device complies with Part 15 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.

Caution:

There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.

Attention:

Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte.
Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur.
Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.

China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量 AAEON System　　　　QO4-381 Rev.A0

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)
印刷电路板 及其电子组件	×	○	○	○	○	○
外部信号 连接器及线材	×	○	○	○	○	○
外壳	○	○	○	○	○	○
中央处理器 与内存	×	○	○	○	○	○
硬盘	×	○	○	○	○	○
液晶模块	×	×	○	○	○	○
光驱	×	○	○	○	○	○
触控模块	×	○	○	○	○	○
电源	×	○	○	○	○	○
电池	×	○	○	○	○	○

本表格依据 SJ/T 11364 的规定编制。

○：表示该有毒有害物质在该部件所有均质材料中的含量均在
　　GB/T 26572标准规定的限量要求以下。

×：表示该有害物质的某一均质材料超出了GB/T 26572的限量要求，然而该部件
　　仍符合欧盟指令2011/65/EU 的规范。

备注：

一、此产品所标示之环保使用期限，系指在一般正常使用状况下。

二、上述部件物质中央处理器、内存、硬盘、光驱、电源为选购品。

三、上述部件物质液晶模块、触控模块仅一体机产品适用。

China RoHS Requirement (EN)

Hazardous and Toxic Materials List

AAEON System   QO4-381 Rev.A0

Component Name	Hazardous or Toxic Materials or Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CrVI)	Polybrominated biphenyls (PBBs)	Polybrominated diphenyl ethers (PBDEs)
PCB and Components	X	O	O	O	O	O
Wires & Connectors for Ext. Connections	X	O	O	O	O	O
Chassis	O	O	O	O	O	O
CPU & RAM	X	O	O	O	O	O
HDD Drive	X	O	O	O	O	O
LCD Module	X	X	O	O	O	O
Optical Drive	X	O	O	O	O	O
Touch Control Module	X	O	O	O	O	O
PSU	X	O	O	O	O	O
Battery	X	O	O	O	O	O

This form is prepared in compliance with the provisions of SJ/T 11364.

O: The level of toxic or hazardous materials present in this component and its parts is below the limit specified by GB/T 26572.

X: The level of toxic of hazardous materials present in the component exceed the limits specified by GB/T 26572, but is still in compliance with EU Directive 2011/65/EU (RoHS 2).

Notes:

1.   The Environment Friendly Use Period indicated by labelling on this product is applicable only to use under normal conditions.

2. Individual components including the CPU, RAM/memory, HDD, optical drive, and PSU are optional.

3. LCD Module and Touch Control Module only applies to certain products which feature these components.

Table of Contents

Chapter 1

Product Specifications

1.1   Specifications

System	
● **CPU**	Intel® Atom™ E3940 Processor
● **CPU Frequency**	Intel® Atom™ E3940 Processor (2M Cache, 1.60 GHz up to 1.80 GHz) CPU with 64 bit architecture; Quad Core
• Connectivity	WiFi 802.ac , Bluetooth 4.1, LoRa 868MHz, EMEA LTE
● **Chipset**	Intel® Gen 9 HD, supporting 4K Codec Decode and Encode for HEVC4, H.264, VP8
● **Memory Type**	Onboard 4G LPDDR4
● **Storage Capacity**	Onboard eMMC 32 GB
● **BIOS**	SPI BIOS ─ 64Mb Flash
● **Power Requirement**	5V DC Only
● **Power Supply Type**	DC-In
● **IP Rate**	IP-68
● **Dimensions (L x W)**	91 x 67 x 55.2mm (L x W x H)
● **Operating Temperature**	-20°C ~ 70°C
● **Operation Humidity**	0 ~ 90% relative humidity, non-condensing
● **Certification**	CE (RED) /FCC Class A

Display	
● **VGA/LCD Controller**	Intel® HD Graphics

I/O	
● **Ethernet**	Intel I210-IT (E3940)
● **Audio**	HDMI
● **USB**	USB 3.0 x 1
● **LAN**	Ethernet RJ45 x 1
● **M12 x 2**	RS232/422/485
● **Antenna**	4 (Wi-Fi/BT/3G/4G LTE/LoRa)

1.2 Product Applications

The AAEON AIOT IP6801 Gateway is a sophisticated and compact outdoor IoT device. To provide faster and more flexible communication for industrial outdoor applications, it supports multiple wireless communications such as Wi-Fi, Bluetooth, LoRa frequencies 868 MHz and 915 MHz, 3G and 4G LTE. The AIOT-IP6801 gateway is ideal for usage in data collection, smart aggregation and cloud service applications. The AAEON AIOT IP6801 Gateway features a waterproof and dustproof design for use in harsh environments for energy, smart city, and agricultural applications.

Chapter 2

Hardware Information

2.1   Dimensions

2.2 I/O Location

ANT
GND
POWER   I/O_1   USB   HDMI   ANT LAN

ANT   ANT
RESET   I/O_2
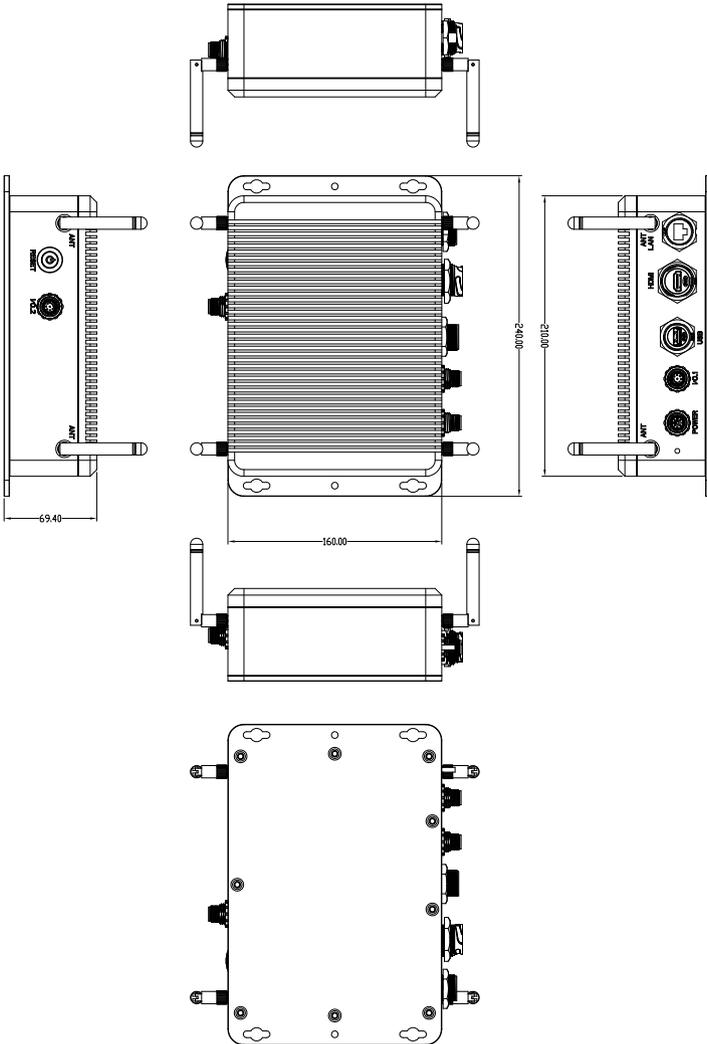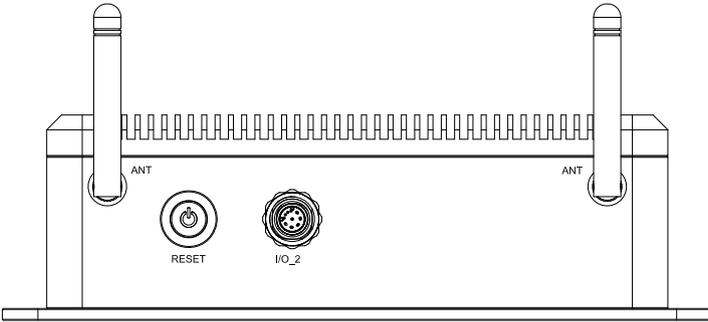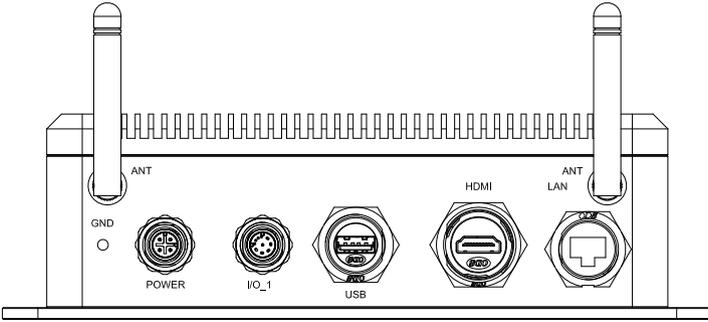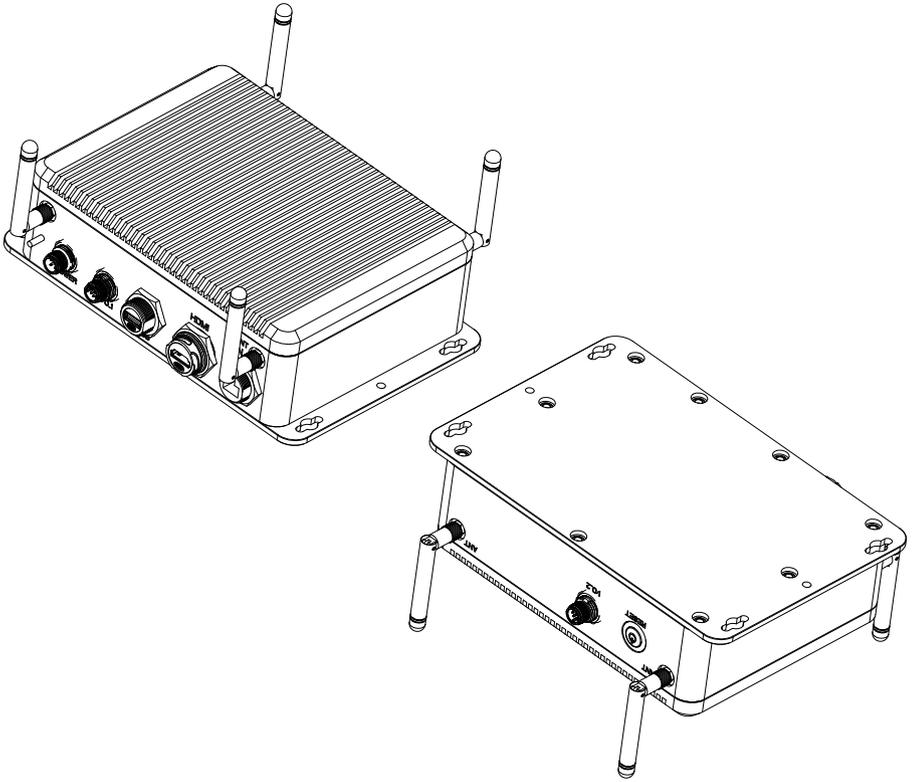
2.3 List of Connectors

Please refer to the table below for all of the system's connectors that you can configure for your application

Reference Designation	Functional Description
POWER	Power Input Connector
I/O_1	COM
USB	USB 3.0
HDMI	HDMI 1.2
LAN	Gigabit Ethernet
I/O_2	COM

2.3.1 Power Input Connector (Power)
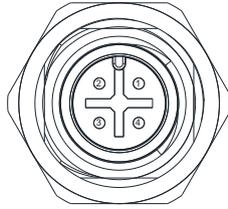
Pin	Signal Description
1	VIN
2	VIN
3	GND
4	GND

2.3.2 COM (I/O-1)
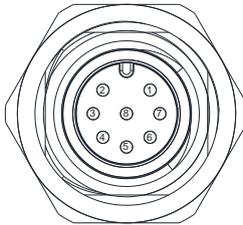
Pin	Signal Description
1	DCD
2	RX
3	TX
4	DTR
5	GND
6	DSR
7	RTS

Pin	Signal Description
8	CTS

2.3.3 USB 3.0 (USB)
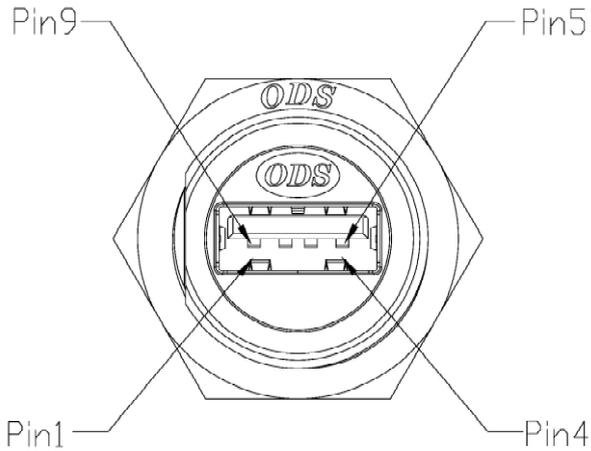
Pin	Signal Description	Pin	Signal Description
1	5V	**6**	USB3_RX+
2	USB2_D-	**7**	GND
3	USB2_D+	**8**	USB3_TX-
4	GND	**9**	USB3_TX+
5	USB3_RX-		

2.3.4 HDMI 1.2 (HDMI)
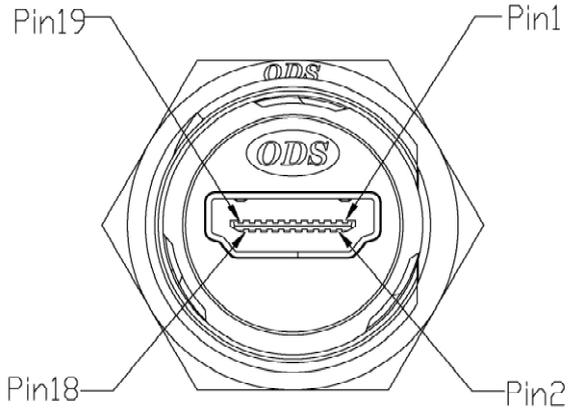
Pin	Signal Description	Pin	Signal Description
1	DDI2_TX0_HDMI_DP+	11	GND
2	GND	12	DDI2_CLK_HDMI_DN-
3	DDI2_TX0_HDMI_DN-	13	HDMI_CEC_D
4	DDI2_TX1_HDMI_DP+	14	NC
5	GND	15	DDI2_DDC_CLK
6	DDI2_TX1_HDMI_DN-	16	DDI2_DDC_DAT
7	DDI2_TX2_HDMI_DP+	17	GND
8	GND	18	+5V_HDMI
9	DDI2_TX2_HDMI_DN-	19	DDI2_TYPE_C_HPD
10	DDI2_CLK_HDMI_DP+		

2.3.5 Gigabit Ethernet (LAN)
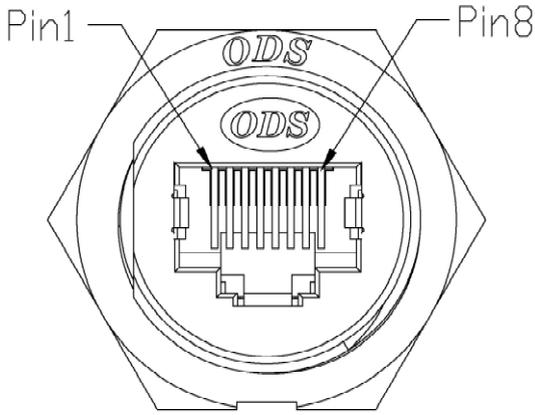
Pin	Signal Description
R1	LAN1_MDI0+
R2	LAN1_MDI0-
R3	LAN1_MDI1+
R4	LAN1_MDI1-
R5	LAN1_MDI2+
R6	LAN1_MDI2-
R7	LAN1_MDI3+
R8	LAN1_MDI3-

2.3.6 COM (I/O-2)
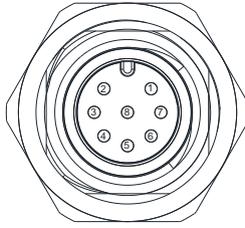
Pin	Signal Description
1	DCD
2	RX
3	TX
4	DTR
5	GND
6	DSR
7	RTS
8	CTS

Chapter 3

Software and System Startup

3.1   Drivers Download and Installation

Drivers for the AIOT-IP6801 can be downloaded from the product page on the AAEON

website by following this link:

https://www.aaeon.com/en/p/iot-gateway-systems-aiot-ip6801

Download the driver(s) you need and follow the steps below to install them.

Step 1 – Install Chipset Drivers

1.   Open the **Step 1 - Chipset** folder

2.   Open the **Setup.exe** file in the folder

3.   Follow the instructions

4.   Drivers will be installed automatically

Step 2 – Install Graphics Drivers

1.   Open the **Step 2 - Graphic** folder and select your OS

2.   Open the **Setup.exe** file in the folder

3.   Follow the instructions

4.   Drivers will be installed automatically

Step 3 – Install TXE Drivers

1.   Open the **Step 3 - TXE** folder

2.   Open the **Setup.exe** file in the folder

3.   Follow the instructions

4.   Drivers will be installed automatically

Step 4 – Install LAN Drivers

1. Open the **Step 4 - LAN** folder and select your OS

2. For the N3350 CPU, open the **Realtek** folder

   For the E3940 CPU, open the **Intel** folder

3. Open the **setup.exe** file in the folder

4. Follow the instructions

5. Drivers will be installed automatically

Step 5 – Install Serial IO Drivers

1. Open the **Step 5 - Serial IO** folder and select your OS

2. Open the **SetupSerialIO.exe** file in the folder

3. Follow the instructions

4. Drivers will be installed automatically

Step 6 – Install HSUART Drivers

1. Open the **Step 6 - HSUART** folder and select your OS

2. Open the **Intel_Processor_Win10_HSUART_Sub_Drivers_64Bit.exe** file in the folder

3. Follow the instructions

4. Drivers will be installed automatically

Step 7 – Install 3GHAT Drivers

1. Open the **Step 7 – 3GHAT** folder and select your OS

2. Open the **Setup.exe** file in the folder

3. Follow the instructions

4. Drivers will be installed automatically

3.2   Quick Startup Guide

This section provides instructions to quickly setup and initialize the AIOT-IP6801. Follow the steps below to startup your gateway for the first time.

Step 1:   Connect the Hardware

i.   Connect the power adapter to the system (6A@5V 5.5/2.1mm DC) and plug the system in.

ii.   Connect to a display by plugging a male HDMI type A connector into the port on the AIOT-IP6801. Enusre the other end of the HDMI cable is plugged into the display properly.

iii.   Connect your keyboard and mouse to the AIOT-IP6801.

Note: Ensure everything is connected properly and securely.
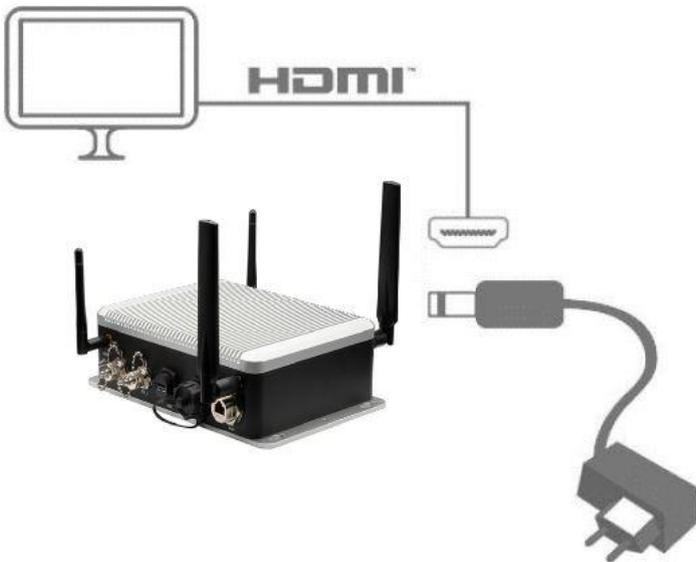
Step 2: **Prepare Drive**

    i.   Prepare the bootable drive with the OS (Windows 10 or Ubuntu).

Step 3: **Turn On**

    i.   Turn on the system power and install the OS and drivers.