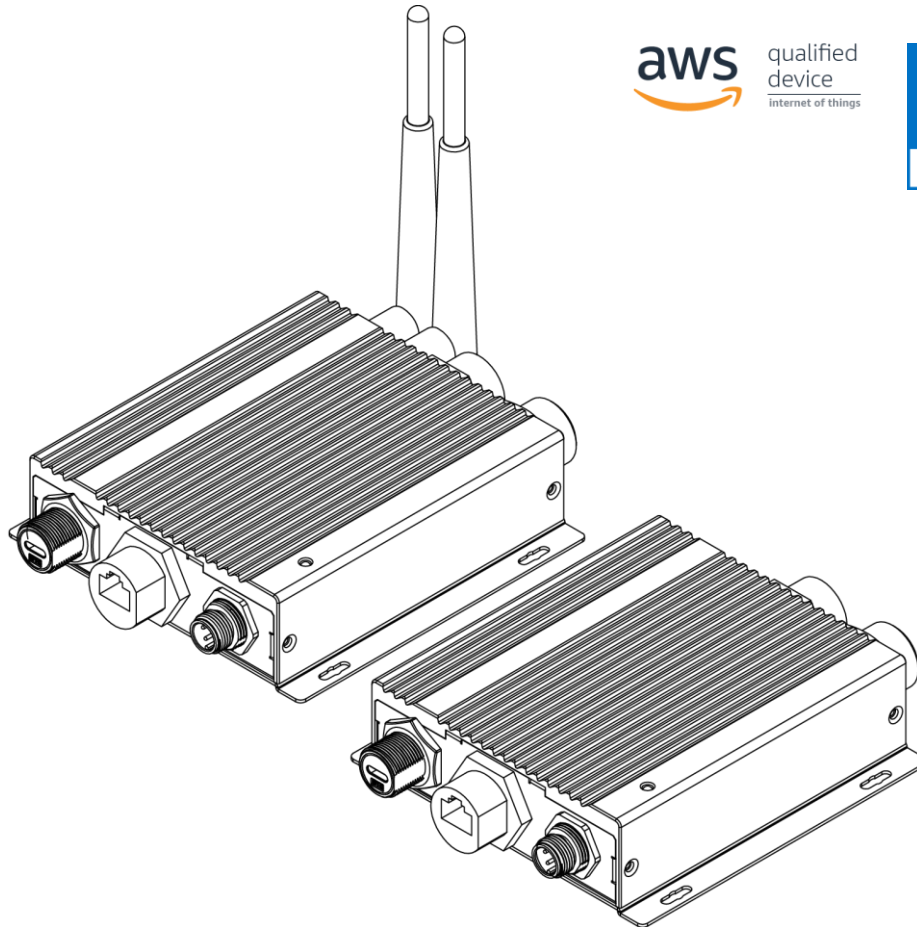


IoT Gateway

Intel® Apollo Lake N3350, 1.1 GHz



EAC Mini EACIL67

Quick Start Guide

Document Version 1.2
Document Part Number: 91521110102T

Please read these instructions carefully before using this product, and save this manual for future use.

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Preface

Copyright Notice

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Disclaimer

We reserve the right to make changes, without notice, to any product, including circuits and/or software described or contained in this manual in order to improve design and/or performance. We assume no responsibility or liability for the use of the described product(s) conveys no license or title under any patent, copyright, or masks work rights to these products, and make no representations or warranties that these products are free from patent, copyright, or mask work right infringement, unless otherwise specified. Applications that are described in this manual are for illustration purposes only. We make no representation or guarantee that such application will be suitable for the specified use without further testing or modification.

Warranty

Our warranty guarantees that each of its products will be free from material and workmanship defects for a period of one year from the invoice date. If the customer discovers a defect, we will, at his/her option, repair or replace the defective product at no charge to the customer, provide it is returned during the warranty period of one year, with transportation charges prepaid. The returned product must be properly packaged in its original packaging to obtain warranty service. If the serial number and the product shipping data differ by over 30 days, the in-warranty service will be made according to the shipping date. In the serial numbers the third and fourth two digits give the year of manufacture, and the fifth digit means the month (e. g., with A for October, B for November and C for December).

For example, the serial number 1W17Axxxxxxx means October of year 2017.

Customer Service

We provide a service guide for any problem by the following steps: First, visit the website of our distributor to find the update information about the product. Second, contact with your distributor, sales representative, or our customer service center for technical support if you need additional assistance.

You may need the following information ready before you call:

- Product serial number
- Software (OS, version, application software, etc.)
- Detailed description of the problem
- The exact wording of error messages

In addition, free technical support is available from our engineers every business day. We are always ready to give advice on application requirements or specific information on the installation and operation of any of our products.

Advisory Conventions

Four types of advisories are used throughout the user manual to provide helpful information or to alert you to the potential for hardware damage or personal injury. These are Notes, Important, Cautions, and Warnings. The following is an example of each type of advisory.



Note:

A note is used to emphasize helpful information



Important:

An important note indicates information that is important for you to know.



Caution

A Caution alert indicates potential damage to hardware and explains how to avoid the potential problem.



Warning!

An Electrical Shock Warning indicates the potential harm from electrical hazards and how to avoid the potential problem.



Alternating Current

The Protective Conductor Terminal (Earth Ground) symbol indicates the potential risk of serious electrical shock due to improper grounding.

Safety Information



Warning!

Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.



Warning!

During heavy loading in 50°C environment, the top side of the EAC Mini may be over 70°C. Please do not touch these parts with your bare hands.



Caution

Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

Safety Precautions

For your safety carefully read all the safety instructions before using the device. All cautions and warnings on the equipment should be noted. Keep this user manual for future reference.



Caution

Do not cover the openings!

***Let service personnel to check the equipment in case any of the following problems appear:**

- The power cord or plug is damaged.
- Liquid has penetrated into the equipment.
- The equipment has been exposed to moisture.
- The equipment does not work well or you cannot get it to work according to the user manual.
- The equipment has been dropped and damaged.
- The equipment has obvious signs of breakage.
- Do not leave this equipment in an uncontrolled environment where the storage temperature is below -20°C (-4°F) or above 60°C (140°F). It may damage the equipment.



Caution

Use the recommended mounting apparatus to avoid risk of injury.



Warning!

Only use the connection cords that come with the product. When in doubt, please contact the manufacturer.



Warning!

Always ground yourself against electrostatic damage to the device.

Important Information

Federal Communications Commission Radio Frequency Interface Statement

This device complies with part 15 FCC rules.



Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received including interference that may cause undesired operation.

equipment has been tested and found to comply with the limits for a class "B" digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference 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 own expense.

European Union

This equipment is in conformity with the requirement of the following EU legislations and harmonized standards. Product also complies with the Council directions.



Electromagnetic Compatibility Directive (2014/30/EU)

- EN55024: 2010+A1: 2015
 - IEC61000-4-2: 2009
 - IEC61000-4-3: 2006+A1: 2007+A2: 2010
 - IEC61000-4-4: 2012
 - IEC61000-4-5: 2014
 - IEC61000-4-6: 2014
 - IEC61000-4-8: 2010
 - IEC61000-4-11: 2004
- EN 55032: 2015+AC: 2016
- EN61000-3-2:2014
- EN61000-3-3:2013

Low Voltage Directive (2014/35/EU)

EN 60950-1:2006/A11:2009/A1:2010/A12:2011/ A2:2013

Chapter 1: Introduction

Congratulations on purchasing Winmate® EAC Mini EACIL67 IoT Gateway

1.1 Product Features

The EAC Mini EACIL67 is a compact industrial IoT gateway with low power consuming Intel® Apollo Lake N3350 processor and full IP67 design. Wireless connectivity and all necessary connectors allow the EAC mini (EACIL22 - IP67) to send data from manufacturing facilities directly to cloud server. Compact size and full IP67 protection from dust and against the effects of immersion in water make EAC mini suitable for IoT, smart factory and machine automation applications both indoor and outdoor.

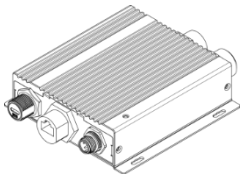
EAC Min EACIL67 IoT Gateway offers the following features:

- Intel® Apollo Lake N3350, 1.1 GHz
- Full size mPCIe expansion slot
- Fanless cooling system
- Compact size 100 x 115 x 30 mm (w/o mounting bracket)
- Full IP67
- USB Type-C Port
- Various mounting options: desk, wall, VESA
- Microsoft Azure Certified for IoT, AWS IoT Greengrass Certified

1.2 Unpacking

Carefully remove the box and unpack EAC Mini EACIL67 IoT Gateway. Please check if all the items listed below are inside your package. If any of these items are missing or damaged contact us immediately.

Standard factory shipment list:



- **EAC Mini EACIL67 IoT Gateway**

Varies by product specifications



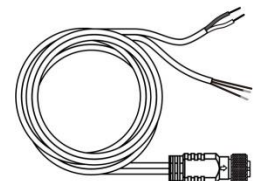
- **Quick Start Guide (Hardcopy)**

Part No. 91521110102T



- **Driver CD & User Manual (Digital)**

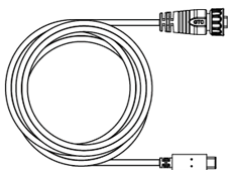
Part No. 91711110100V



- **M12 Power Cable**

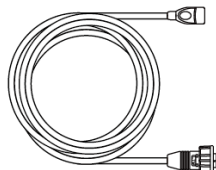
Part No. 94JL020120K0

Optional accessories based on your order:



- **IP67 USB Type-C Cable, 2 m**

Part No. 9480240240K2



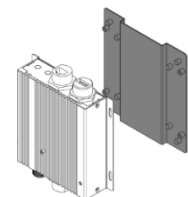
- **IP67 USB Type-A Cable, 2 m**

Part No. 9487048040P1



- **IP67 LAN Cable, 2 m**

Part No. 94I0080080KF



- **VESA Mount Kit**

Part No. 98K000A000BJ

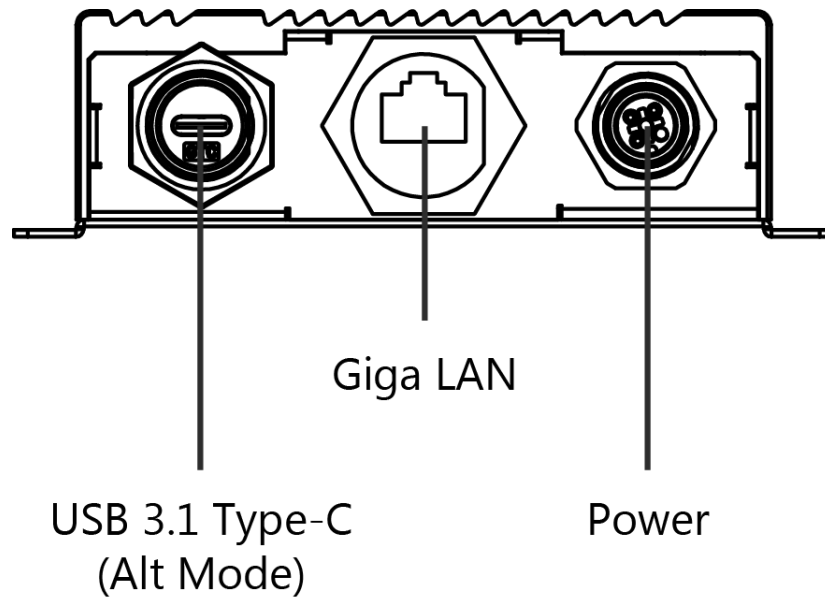
1.3 Hardware Specifications

		Model Name
		EACIL67
System Specification	CPU	Intel® Apollo Lake N3350 1.1 GHz
	Graphics Engine	Intel® HD Graphics
	BIOS	Insyde UEFI
	Watchdog Timer	Programmable 256 levels, timer interval 1 to 255 sec.
	Technology	4GB LPDDR3 1866MHz
Storage	eMMC	Onboard 64 GB
	mSATA	Up to 1T Gb (Optional)
Expansion	mPCIe	1 x Full-size mPCIe slot
External I/O	USB	1 x USB2.0 1 x USB Type-C [Alt Mode] : - Display Port A/V output - USB data - Provides up to 10W (5V/2A) Power
	Ethernet	2 x Giga LAN
Power Management	Power Supply	9V to 36V DC, M12 type connector
Mechanical Specification	Dimensions	100 (W) x 115 (H) x 30 (D) mm
	Weight	1 kg
	Mounting	Desk Mount (Default), Wall Mount (Default), VESA Mount (Optional)
	Cooling System	Fanless
	Enclosure	Metal Housing
Environment	Operating Temp.	-20~60° C
	Storage Temp.	-30~70° C
	Operating Humidity	10~90% RH
	IP Rating	IP67
Certificate	EMC & Safety	CE, FCC
	IoT	Microsoft Azure Certified for IoT AWS IoT Greengrass Certified
Operating System (Optional)	OS	Windows® 10 IoT Enterprise Ubuntu 18.04

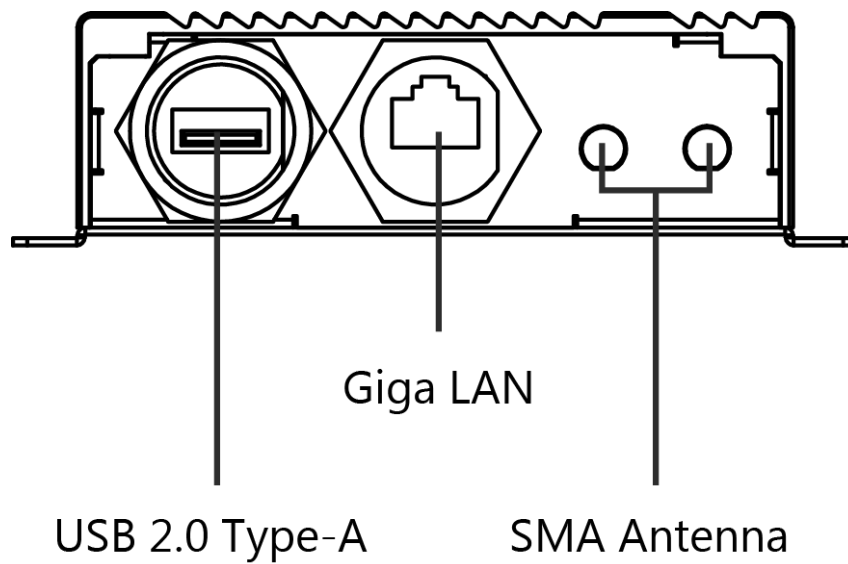
1.4 Appearance

This section includes front and rear side I/O ports location of the EACIL67 IoT Gateway.

Front Side

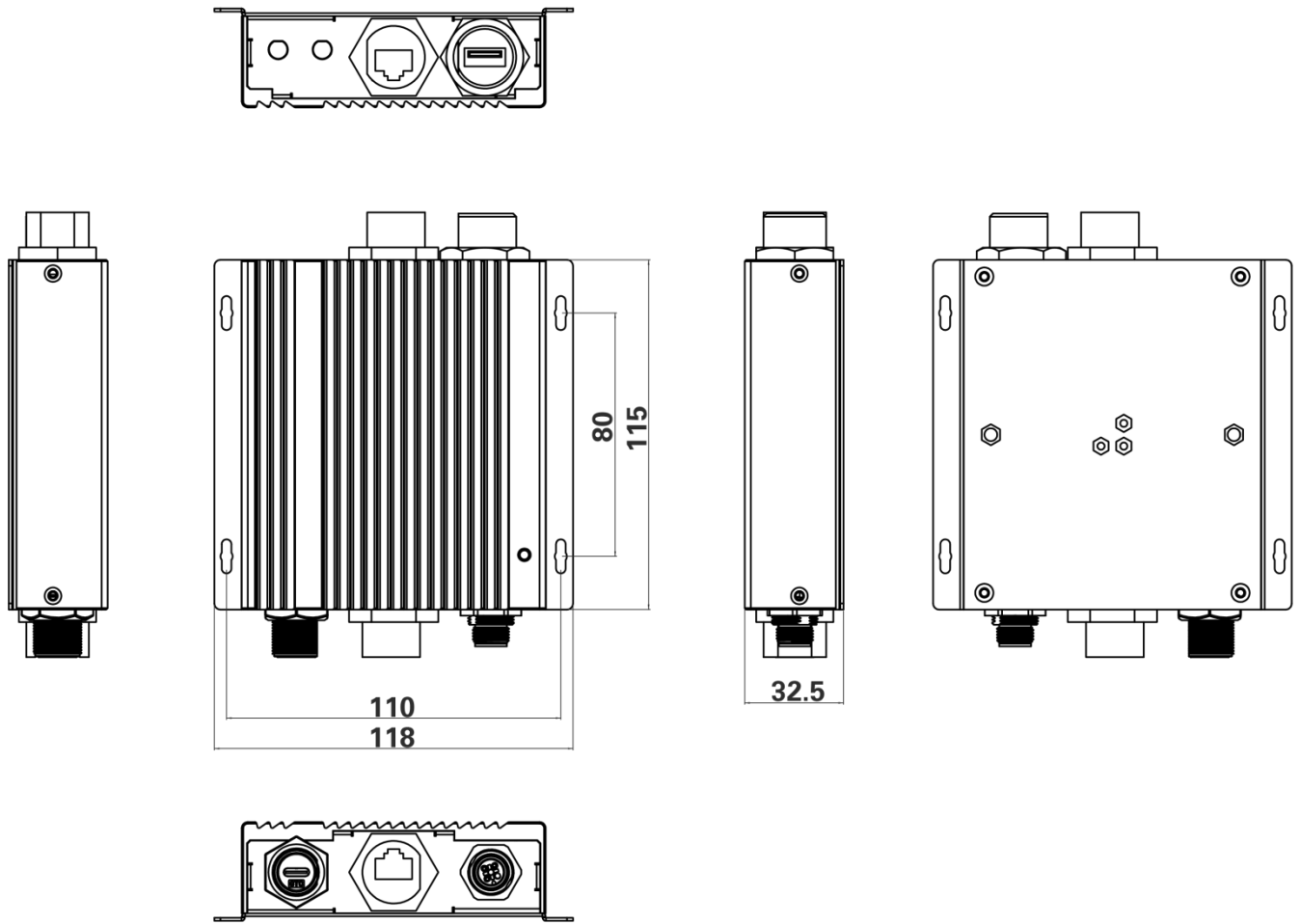


Rear Side



1.5 Dimensions

All dimensions shown in mm (millimeters).



Chapter 2: Mounting

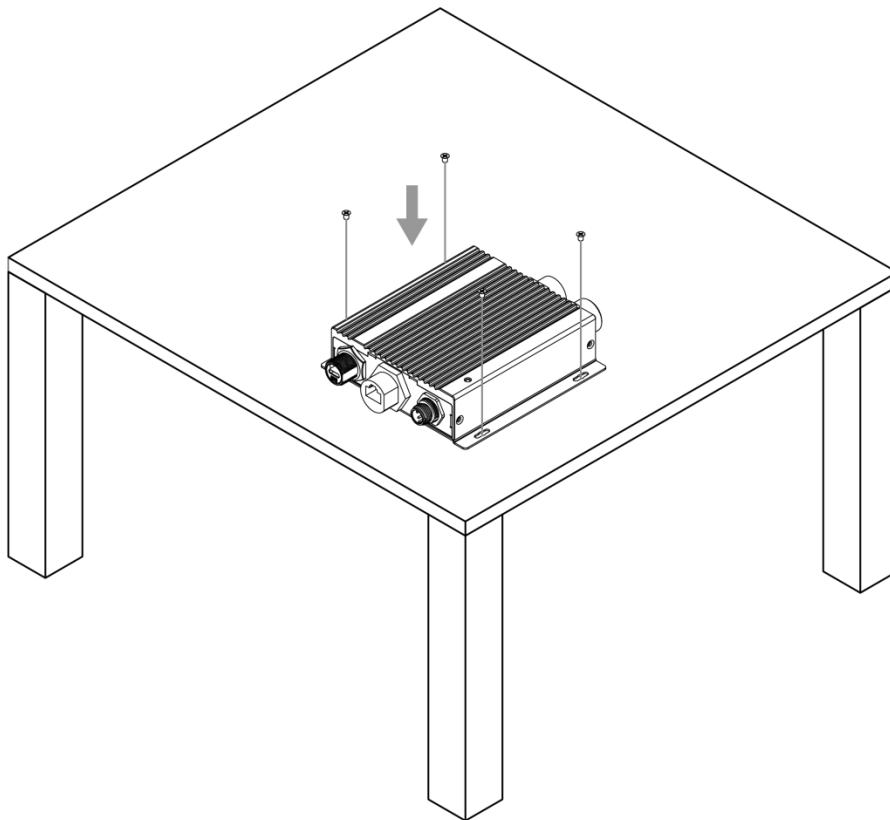
The EAC Mini supports five types of mounting: wall and desk mounting by default, and optional VESA mount solutions. You can purchase mounting kit from Winmate as an optional accessory. This chapter provides step-by-step mounting guide for all available mounting options.

2.1 Wall/ Desk Mount

L-shape mounting brackets for wall/ desk mounting are supplied with the EAC Mini.

Mounting Instruction:

1. Fasten screws to secure L-shape mounting brackets to the EAC Mini
2. Place the EAC Mini on the fixture (ex. table) and fasten screws to secure the unit to the fixture.



2.2 VESA Mount

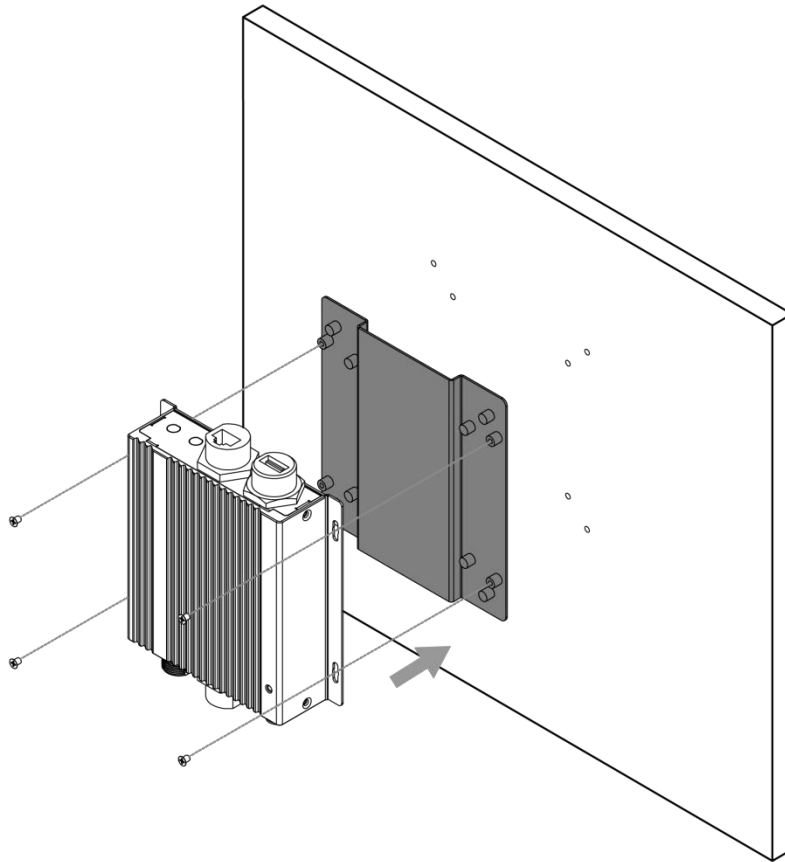
You can purchase VESA mounting kit from Winmate as an optional accessory.

VESA Mounting Kit

Part Number: 98K000A000BJ

Mounting Instruction:

1. Mark the location of the screw holes on the fixture (ex. wall).
2. Align the VESA mounting bracket with the screw location.
3. Place the EAC Mini on the VESA mounting bracket and fasten screws to secure and the EAC Mini to the fixture.



Chapter 3: Hardware Installation

This section describes how to install optional expansion module in the system.



Caution

Always remove the power cord before installing the hardware.

3.1 mSATA Installation

To insert mSATA:

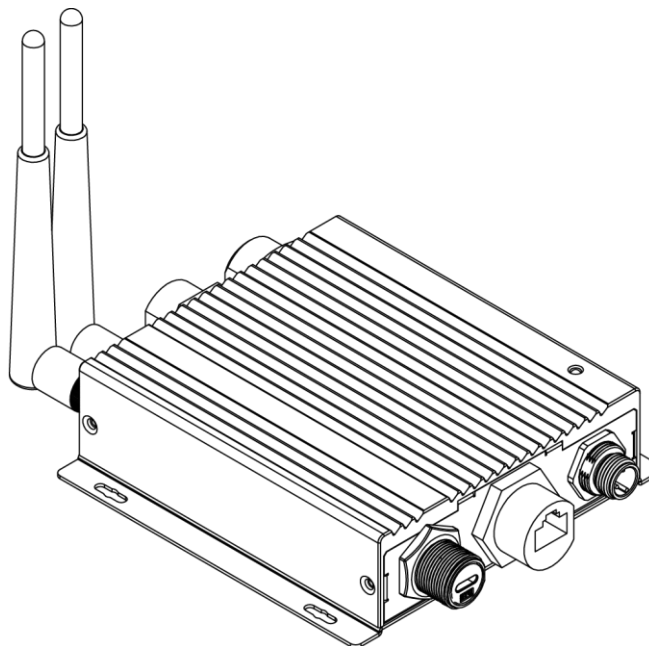
1. Unscrew the four screws and open the bottom cover.
2. Plug in mSATA card with into the mPCIe slot.
3. Screw the two screws on board to fix mSATA.
4. Screw back the bottom cover.

3.2 External Antenna Installation

Notice that external antenna is an optional feature of the EAC Mini EACIL67.

To install external SMA antenna:

1. Remove the rubber cap on the SMA connector before installing the antenna.
2. Align the antenna with the SMA connector located on the rear side of the EAC Mini and fasten it as shown on the picture.
3. Adjust the position of external antenna for better signal.



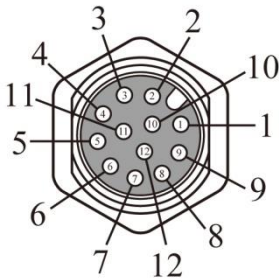
3.3 Connecting to Other Devices

The following sections give you information about EAC Mini EACIL67 IoT Gateway standard connectors and pin assignments.

3.3.1 Power Connector

EAC Mini EACIL67 has 3 pin M12 type power input connector that accepts 9 V DC to 36 V DC voltages. Use power cable supplied with EACIP67 to connect the EACIP67 to the source of power.

Power Connector Pin Assignments



Pin	Signal Name	Pin	Signal Name
1	VCC	7	GND
2	VCC	8	NC
3	VCC	9	NC
4	GND	10	NC
5	GND	11	Reset
6	GND	12	Clear CMOS

The DC power supply connector of the EAC Mini IoT Gateway is on the front panel. The DC power input for the EAC Mini allows a voltage input range from 9 V DC to 36 V DC. The power source can either be from a power adapter or an in-house power source.



Warning!

Ensure voltage and polarity is compliant with the DC input. Improper input voltage or polarity can cause system damage.



Caution

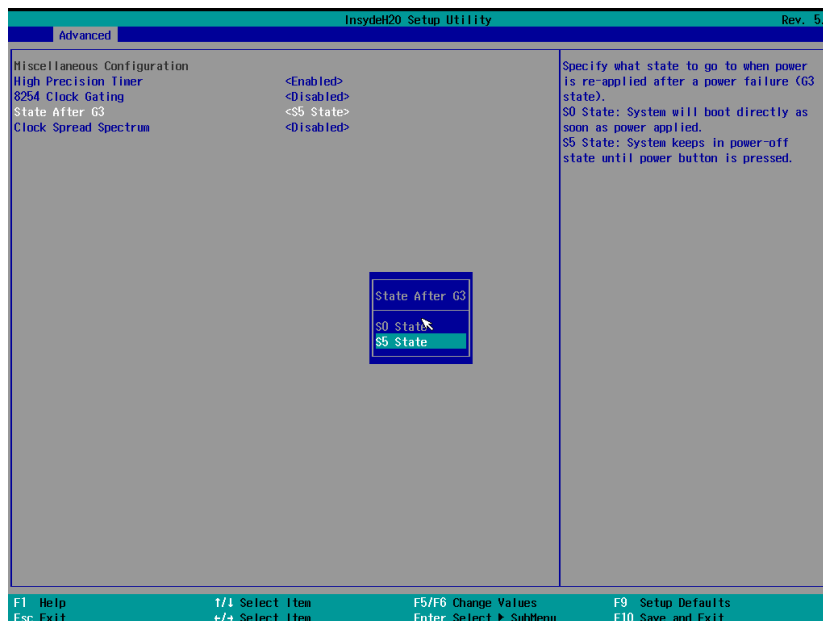
When booting up at -20 deg. C environment, the computer will spend around 10 min to warm up the internal components.



Note:

If EAC Mini will start to open and go into Windows when you plug the power, you can follow the BIOS setting.

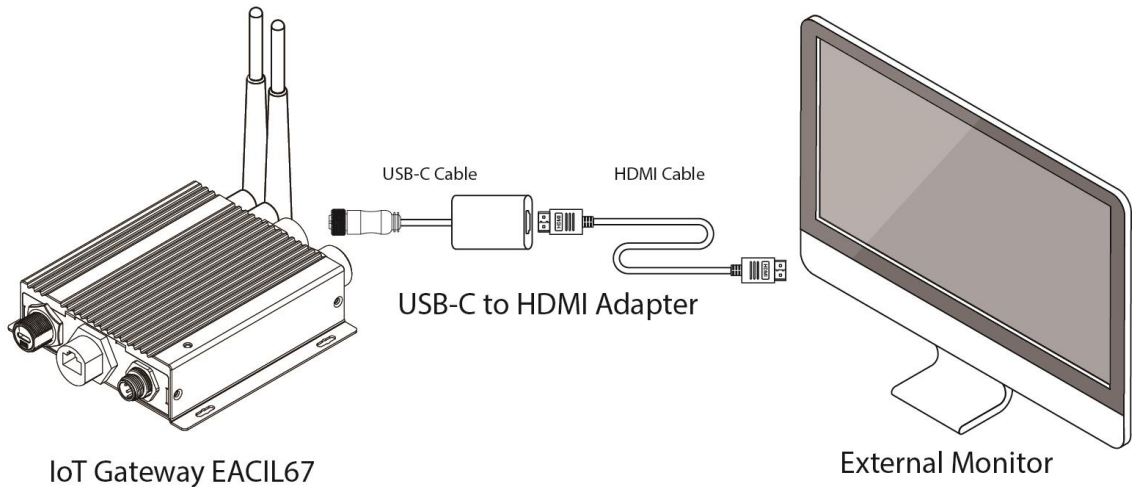
- State After G3: S0 state





Important:

If you are using a USB type-C Monitor as the display interface, when running BIOS, your monitor's screen shuts down until the operating system turns on due to USB type-C hardware limitations. Please use a USB type-C to video interface adapter, ex. USB type-C to HDMI adapter, to connect your device to an external monitor to see BIOS progress and change settings.

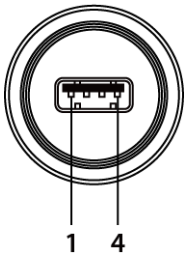


For more BIOS settings, please refer to Ch. 4 of the EACIL67 User Manual.

3.3.2 USB 2.0 Type-A Connector

EAC Mini EACIL67 has one M12 type USB 2.0 connector. Use waterproof cable to connect EACIL67 to external devices such as mouse or keyboard.

USB 2.0 Type-A Connector Pin Assignments

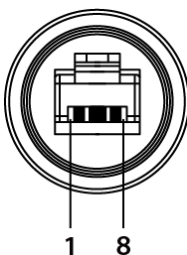


Pin	Signal Name
1	VCC
2	DM
3	DP
4	GND

3.3.3 Giga LAN Connector

EAC Mini EACIL67 has two M12 type Giga LAN connectors located in front and rear side. Use waterproof cable to connect EACIP67 to Ethernet.

Giga LAN Connector Pin Assignments



Pin	Signal Name
1	TMDI0+
2	TMDI0-
3	TMDI1+
4	TMDI2+
5	TMDI2-
6	TMDI1-
7	TMDI03+
8	TMDI3-

3.3.4 USB 3.1 Type-C Connector

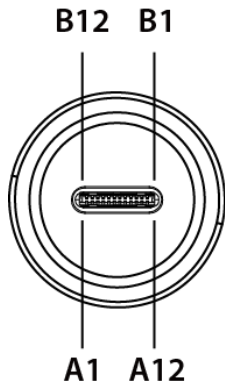
EAC Mini EACIL67 has one USB 3.1 Type-C connector that works in Alt Mode and provides Display Port A/V output, USB data transfer and provides up to 10W (5V/ 2A) power. Use waterproof cable to connect EACIL67 to external devices such as external PC, mouse or keyboard.



Important:

The ALT mode display signal will have a picture after entering the OS.

USB 3.1 Type C Connector Pin Assignments



Pin	Signal Name	Pin	Signal Name
A1	GND	B1	GND
A2	TX1+	B2	TX2+
A3	TX1-	B3	TX2-
A4	VBUS	B4	VBUS
A5	CC1	B5	CC2
A6	D+	B6	D+
A7	D-	B7	D-
A8	SUB1	B8	SUB2
A9	VBUS	B9	VBUS
A10	RX2-	B10	RX1-
A11	RX2+	B11	RX1+
A12	GND	B12	GND

Chapter 4: Operating the Device

4.1 Using Recovery Wizard to Restore Computer



Note:

Before starting the recovery process, make sure to backup all user data. The data will be lost after the recovery process.

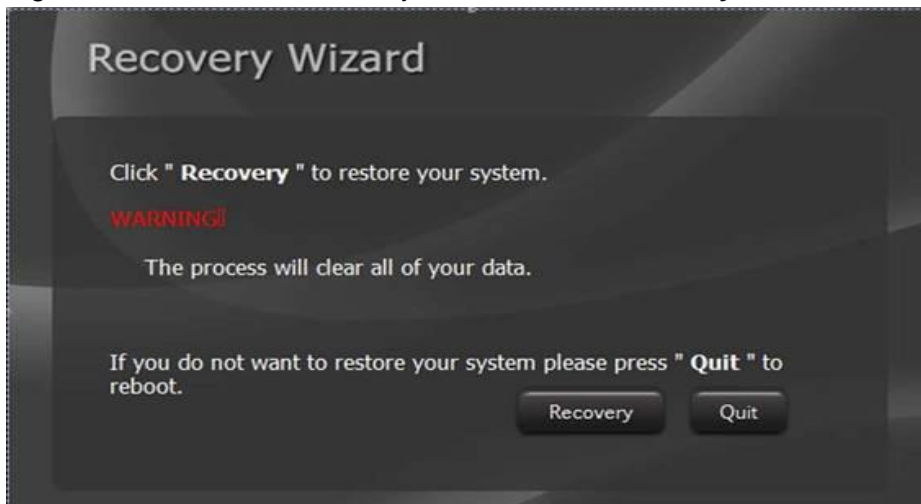


Important:

Before starting the recovery process, remove the PCI/ PCIe card and CFast card.

To enable quick one-key recovery procedure:

1. Connect the computer to the power source. Make sure the computer stays plugged in to power source during the recovery process.
2. Turn on the computer, and when the boot screen shows up, press **Tab+ F6** to initiate the Recovery Wizard.
3. The following screen shows the Recovery Wizard. Click **Recovery** button to continue.



4. A warning message about data loss will show up. Make sure the data is backed up before recovery, and click **Yes** to continue.





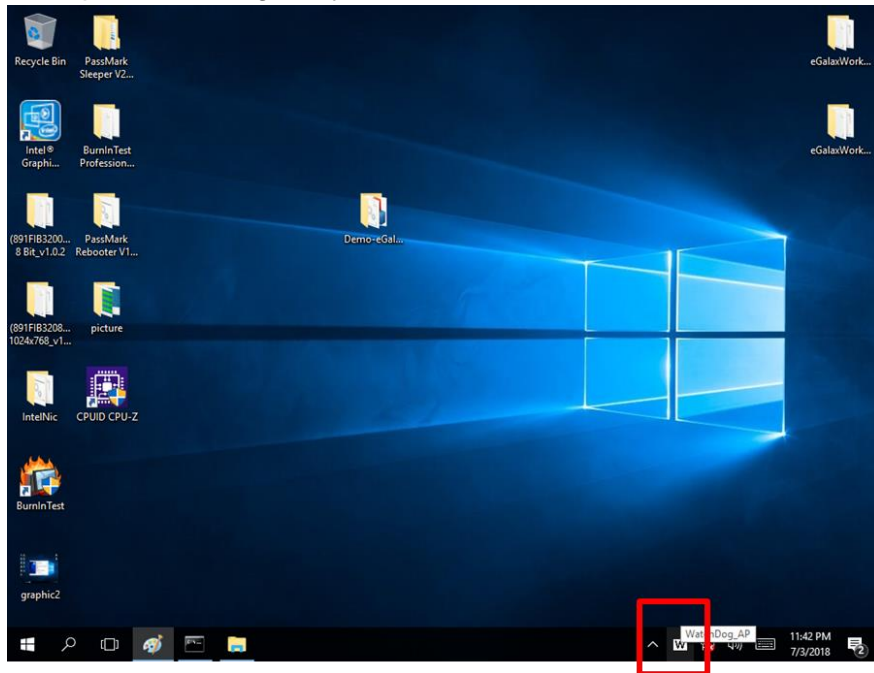
5. Wait the recovery process to complete. During the recovery process, a command prompt will show up to indicate the percent of recovery process complete. The system will restart automatically after recovery completed.

4.2 How to Enable Watchdog

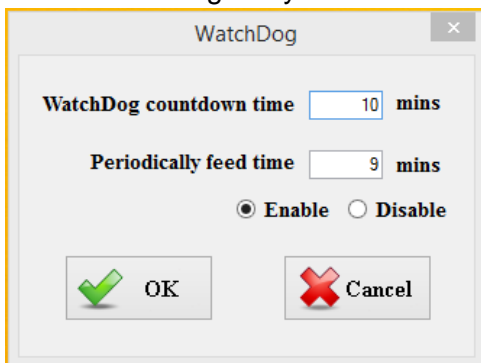
To enable Watchdog, you need to download Winmate Watchdog utility. Find more information on Watchdog in “Watchdog Guide” that you can download from Winmate Download Center.

To enable watchdog in Watchdog AP follow the instructions below:

1. On the right bottom side of the desktop screen, click  **triangle button** to show hidden icons.
2. Click  **W** icon to open Watchdog utility.



3. In Watchdog utility window set countdown time and periodically feed time, or disable watchdog.



Example:

Every 10 min watchdog will monitor the system, in case any error occurs the system will restart automatically when the countdown time reaches 0.

Every 9 min watchdog timer will be reset to 10 min.

Setting	Description
Watchdog Time	The system automaticity restarts when this countdown time reaches zero. <i>Default: 10 min</i>
Periodically Feed Time	To set a cycle time to automatically reset watchdog timer. <i>Default: 9 min</i>
Enable / Disable	Enable or disable watchdog. <i>Default: Enable</i>

Appendix A: Order Information

EAC Mini EACIL67IoT Gateway available in the following configurations:

Model Name	Configuration
EACIL67-100-A464	Intel® N3350, 4G RAM, 64GB eMMC, 1 x USB Type-C, 1 x USB Type-A, 2 x GbELAN,
EACIL67-101-A464	Intel® N3350, 4G RAM, 64GB eMMC, 1 x USB Type-C, 1 x USB Type-A, 2 x GbELAN, Wi-Fi
EACIL67-104-A464	Intel® N3350, 4G RAM, 64GB eMMC, 1 x USB Type-C, 1 x USB Type-A, 2 x GbELAN, CANBus

Additional order options:

Item	Specifications
Mounting	VESA Mount Kit (Part No. 98K000A000BJ)
External Antenna	WLAN External Antenna (Part No.397SM0000003)

