

LYNX- 6000 Series LYNX-612A/LYNX-612B



User's Manual

Version 1.0

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How to Use This Manual

The manual describes how to configure LYNX- 6000 Series system to meet various operating requirements. It is divided into three chapters, with each chapter addressing a basic concept and operation of LYNX- 6000 Series system.

Chapter 1: System Overview. Present what may have in the box and give an overview of the product specifications and basic system architecture for this fan-less embedded system.

Chapter 2: System Installation. Show the definitions and locations of all the interfaces and describe a proper installation guide so that can easily configure the system.

Chapter 3: Important Instructions. Indicate some instructions which must be carefully followed when the fan-less embedded system is used.

The content of this manual is subject to change without prior notice. These changes will be incorporated in new editions of the document. The vendor may make supplement or change in the products described in this document at any time.

Revision History

Revision	Date	Details of Change(s)
V1.0	2020/10/20	Initial Release

Chapter 1

System Overview

1.1 Introduction

Portwell Inc., a world-leading innovator in the Industrial PC (IPC) market, announced LYNX-6000 Series system, a compact, fan-less and cable-less PC adapting low power Intel® Apollo Lake processor. Developed to meet heavy industrial standards, the rugged design makes sure its reliability as well as stability to work in harsh environment.

The modular design enhances the flexible of I/O demand and offers more opportunities to fulfilled different applications. LYNX- 6000 Series is empowered by Intel® Celeron® N3350 (6W TDP), which integrates the low power the 8th generation Intel® HD Graphics architecture. The palm-sized LYNX-6000 series includes LYNX-6110, LYNX-612E, LYNX-612G, LYNX-612D, LYNX-612A and LYNX-612B systems, and this series provide basic features which is 4GB onboard LPDDR4, 2400 MT/s, non-ECC, up to 8GB; two USB 3.0; one Display Port (DP) with resolution up to 3840 x 2160; two Ethernet RJ-45 LAN port; and 32GB onboard eMMC 5.0 flash, up to 256GB; one M.2 Key E 2230 for wireless module. In addition, through the modular design, LYNX-6000 series provides extended I/O interfaces e.g. LYNX-612E features except not only the basic I/O but also two COM port (1x RS-232; 1 x RS-232/422/485 BIOS Configurable); one M.2 Key B 2242; one full-size Mini-PCIe expansion. In LYNX-612G , it applies with extended I/O interface two RS-232 COM port; four USB 2.0; one M.2 Key B 2242; one full-size Mini-PCIe expansion. LYNX-612D extended with three PoE LANs. LYNX-612A extended with two isolation LANs and one RS-232/422/485 BIOS Configurable. LYNX-612B extended with two LANs, one CANbus and one 8bit GPIO.

The robust, fan-less design makes the LYNX- 6000 Series durable in harsh environment applications, such as industrial automation, smart factory, edge computing, and IIoT gateway applications. The rugged and compact LYNX- 6000 Series supports a temperature range from 0°C to 50°C for harsh environment operation. In addition, it has already passed a vibration test of DIN-rail mounting 1Grms/ 10~500Hz and a shock test of 15G, assuring its solidity and reliability. In addition, the system accepts 12V-30VDC input voltage.

1.2 Check List

The LYNX- 6000 Series package should cover the following basic items:

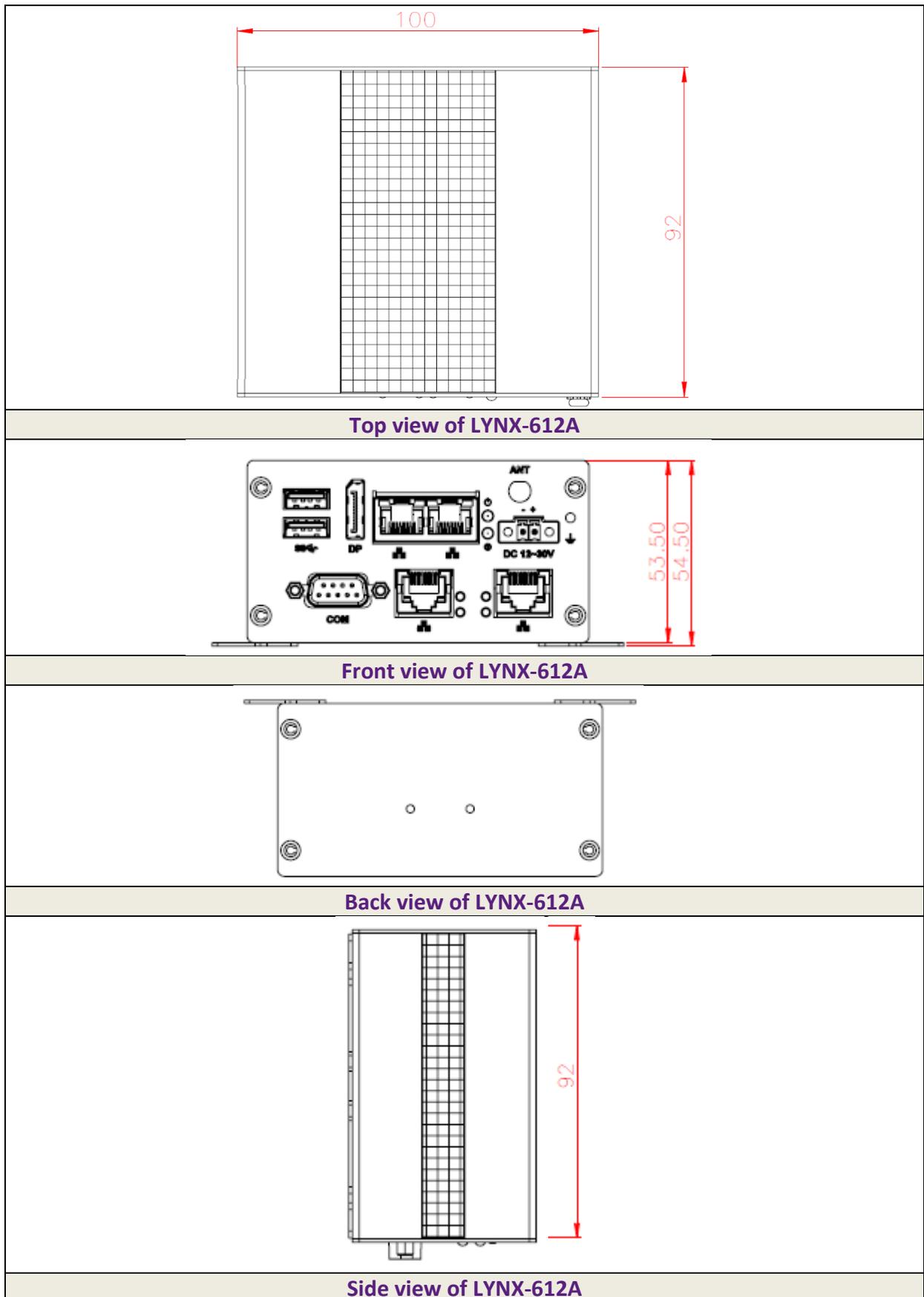
- ✓ One LYNX- 6000 Series System
- ✓ Other Accessories

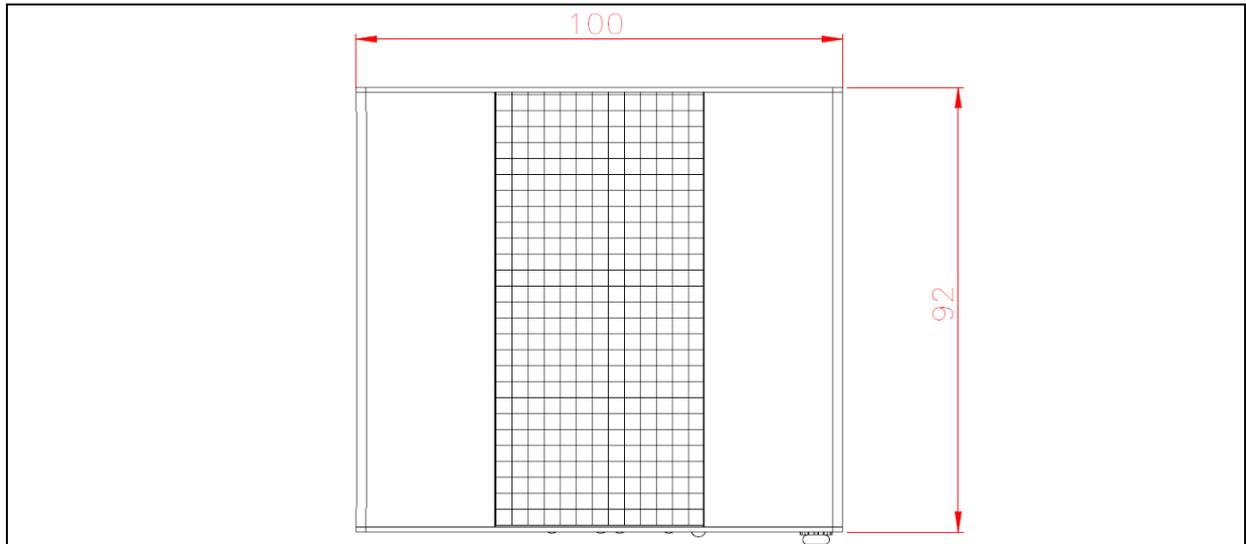
If any of these items is damaged or missing, please contact your vendor and keep all packing materials for future replacement and maintenance.

1.3 Product Specification

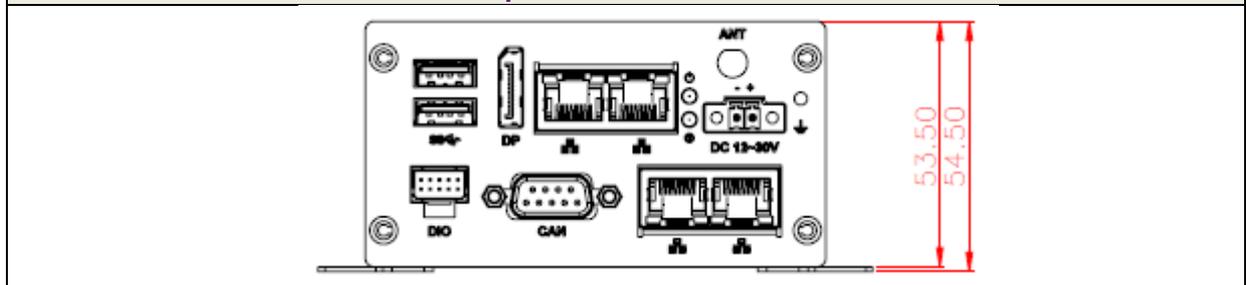
	LYNX-612A	LYNX-612B
Model Name		
Processor	Intel® Celeron® N3350, 2 cores, 1.1GHz/2.4 GHz, 6W TDP	
Memory	4GB onboard LPDDR4, 2400 MT/s, non-ECC; up to 8GB (Optional)	
Storage	32GB onboard eMMC 5.0 flash; up to 256GB (Optional)	
Power Input	12-30VDC (+/- 20%)	
Operating System	Windows® 10 IoT Enterprise (64bit); Yocto v2.7	
Expansion	1x M.2 Key E 2230 for wireless module	
Basic I/O Interface		
Power Connector	1x 2-Pin Terminal Block	
Ethernet	2x 10/100/1000 GbE (Intel® I210)	
USB	2x USB 3.0	
Display	1x DP v1.4 4096 x 2160 @ 60Hz	
Extended I/O Interface		
	LYNX-612A	LYNX-612B
COM/CANbus	1x RS-232/422/485(BIOS Configurable)	1x CANbus
LAN	2x 10/100/1000 GbE with isolation	2x 10/100/1000 GbE
I/O	N/A	8 channel GPIO
Expansion	1x M.2 Key B 2242 for storage 1x full-size Mini-PCIe	1x M.2 Key B 2242 for storage 1x full-size Mini-PCIe
Environmental		
Storage Temp.	-40 °C ~ 85 °C	
Operating Temp.	0°C ~ 50°C	
Permissible Humidity	5-95% RH operating, non-condensing; 5-95% RH storage, non-condensing	
Vibration	1G with DIN-rail mounting (EN 60068-2-6)	
Shock	15G with 11 ms impulse length, 18 shocks in total (EN 60068-2-27)	
Certification	CE (EN 55032; EN 55024/ EN 55035) CE (EN 61000-6-4; EN 61000-6-2) FCC (Part 15 Subpart Class A) LVD (EN 62368)	
Mechanical		
Degree of Protection	IP 30	
Dimension (mm)	100x53.5x92	
Net Weight (Kg)	0.53	
Mounting	DIN-rail / Wall Mount	
Cooling	Fan-less	

1.4 Mechanical Dimension

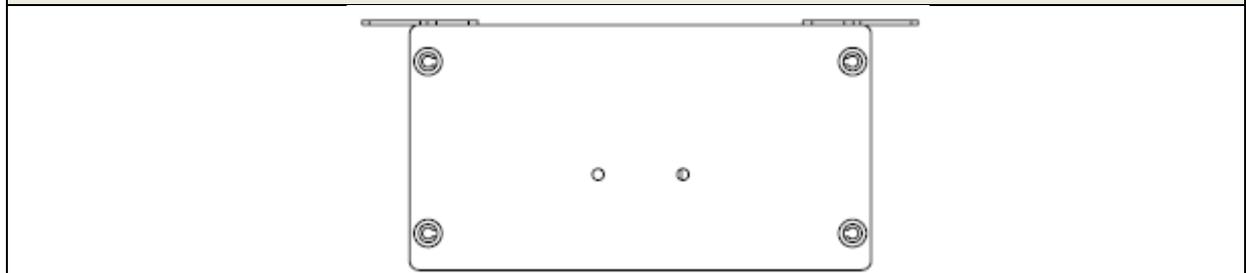




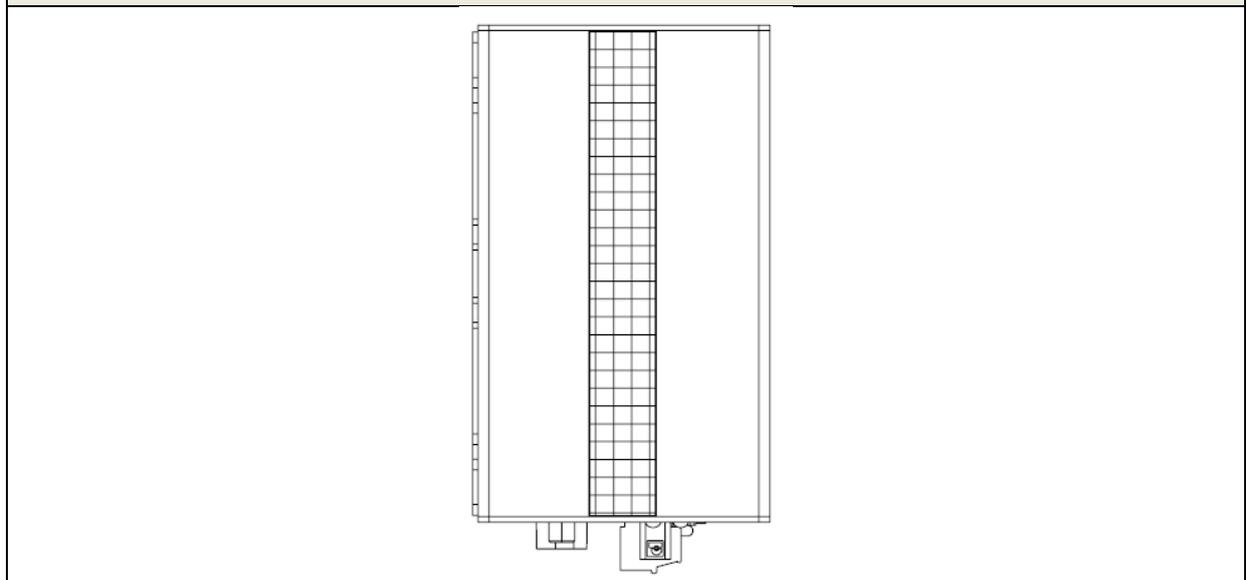
Top view of LYNX-612B



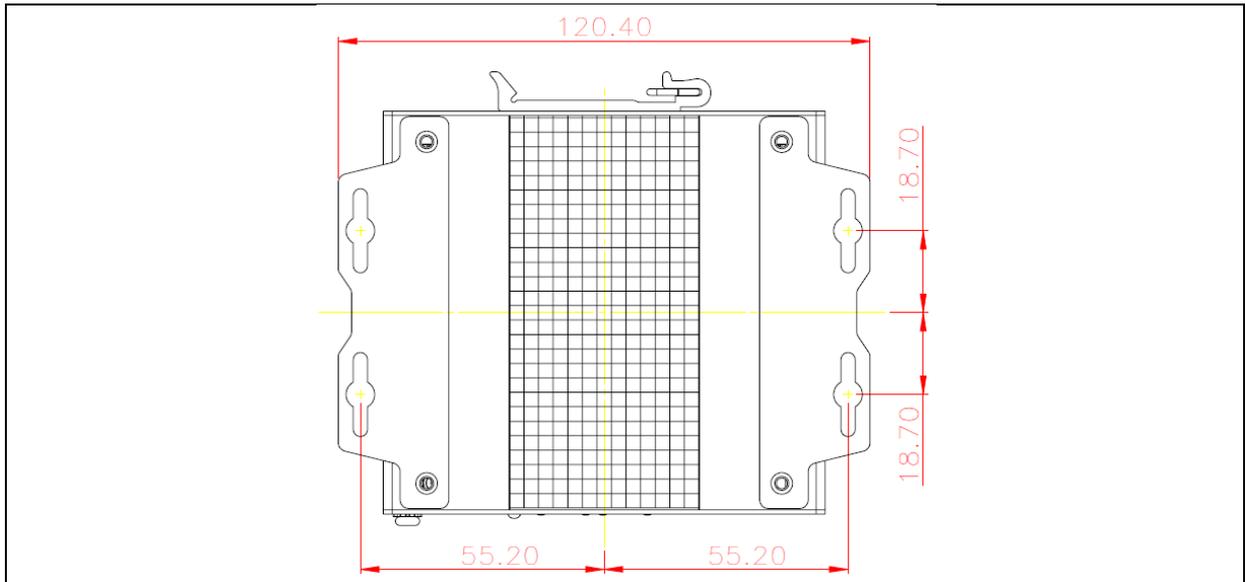
Front view of LYNX-612B



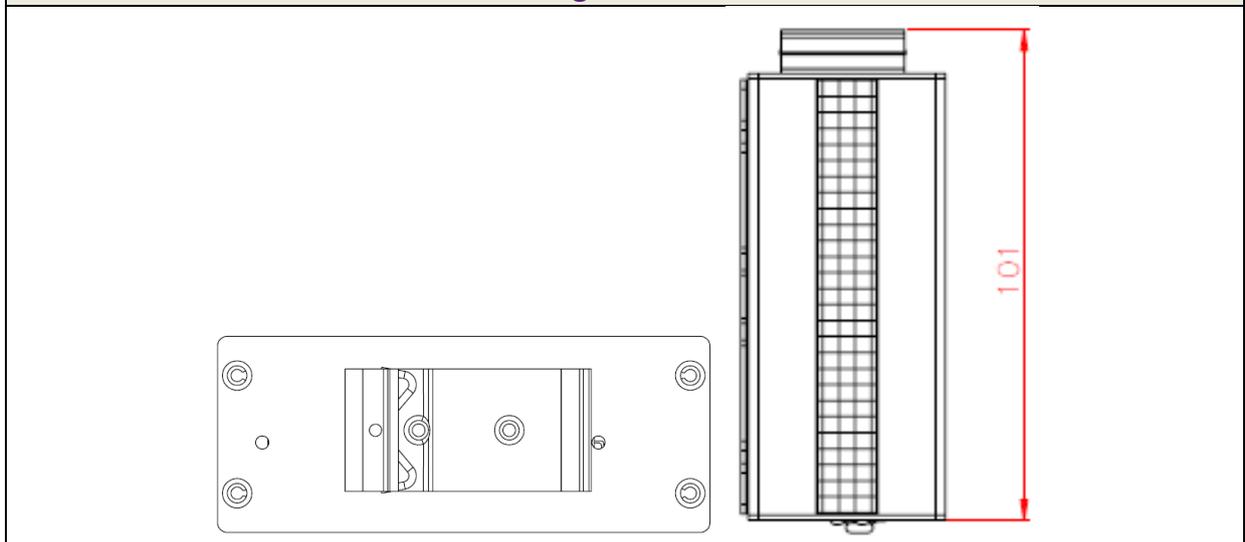
Back view of LYNX-612B



Side view of LYNX-612B



Wall Mounting of LYNX-6000 Series



Din Rail mounting view of LYNX-6000 Series

Chapter 2 System Installation

This chapter provides you with instructions to set up your system. Definitions and locations of all the interfaces are described so that you can easily configure your system.

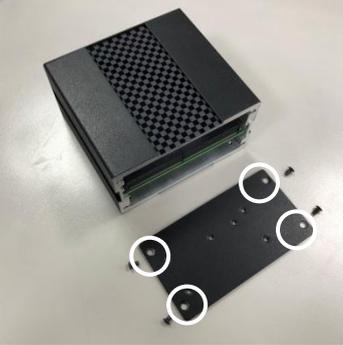
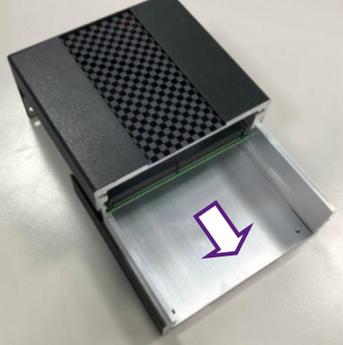
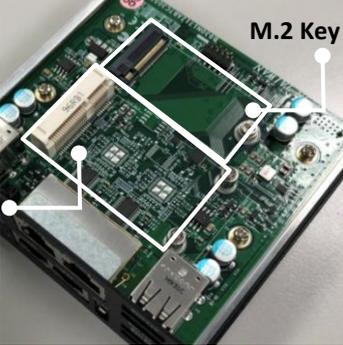
2.1 M.2 Key E 2230 Wifi Module Installation

<p>Step 1. Remove 2 screws at the bottom of the front bracket.</p> 	<p>Step 2. Remove 4 screws from the rear bracket. Remove the rear bracket.</p> 
<p>Step 3. Pull out the bottom heat sink.</p> 	<p>Step 4. Turn around the system, you can find M.2 Key E 2230 socket and Wifi module can be installed on it.</p> 
<p>Step 5. Finishing the installation, put the bottom heat sink back to the initial position. Lock the front/rear bracket by screws.</p>	<p>Note: Make sure to fasten the screw back with proper torque (5kgf-cm) by torque wrench on LYNX-6000. Improper torque may cause the damage of screw thread on the aluminum chassis.</p>

2.2 M.2 Key B 2242 and Mini PCIe expansion Installation

NOTE:

Expansion card may various for different model, please check specification of each model.

<p>Step 1. Remove 2 screws at the bottom of the front bracket.</p> <p>NOTE: Need to remove the screw of COM port for some specific model.</p>	<p>Step 2. Remove all 4 screws from the rear bracket. Remove the rear bracket.</p>
	
<p>Step 3. Pull out the bottom heat sink.</p>	<p>Step 4. Turn around the system, you can find Mini PCI-e and M.2 Key B 2242 card socket and the expansion cards can be installed on it.</p>
	
<p>Step 5. Finishing the installation, put the bottom heat sink back to the initial position. Lock the front/rear bracket by screws.</p>	<p>Note: Make sure to fasten the screw back with proper torque (5kgf-cm) by torque wrench on LYNX-6000. Improper torque may cause the damage of screw thread on the aluminum chassis.</p>

2.3 Wall Mounting Device Installation

Step 1. Fasten the Wall Mounting bracket by screws (M3 x 5L) on the LYNX-6000 series.

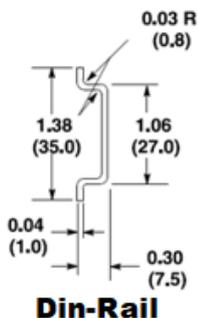


Step 2. Choose the correct type of mounting surface and securely attach the LYNX-6000 series on it (desk/wall). Ensure that the attaching hardware is in the small section of the keyholes.



2.4 DIN-rail Mounting Device Installation

Step 1. Fasten the DIN-rail Mounting bracket by screws (M3 x 5L) on the LYNX-6000 series.
Suitable for 35mm (W), 7.5mm(H) DIN-rail.



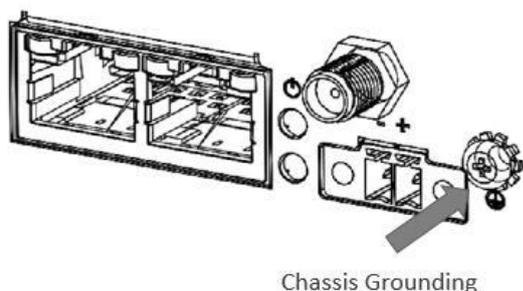
Step 2. Clip the DIN Rail onto the device and make sure it has been locked tightly



2.5 Getting Started

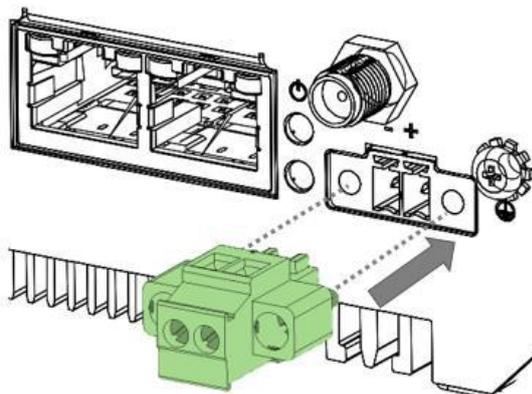
Step 1. Chassis Grounding

There is an easy-to-connect chassis grounding point to use



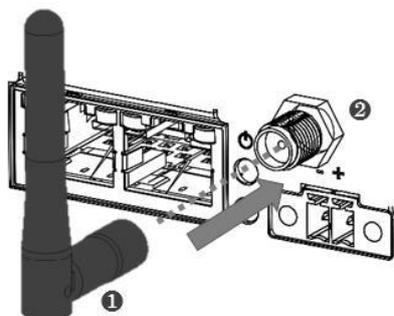
Step 2. Connecting Power

This product is intended to be supplied by a Listed Power Adapter or DC power source, rated 10-30Vdc, 2A and Tma 50 degree C, if need further assistance, please contact us for further information.



2.6 External Antenna installation

Included with the installed card is an antenna (1) that attaches to a connector on the front of the unit (2). Since the LYNX-6000 Series is often installed within an enclosure, it may be advisable to install the antenna on the exterior of the enclosure with appropriate length antenna cable rather than directly to the IPC.



2.7 I/O Interfaces

2.7.1 Front View

LYNX-612A

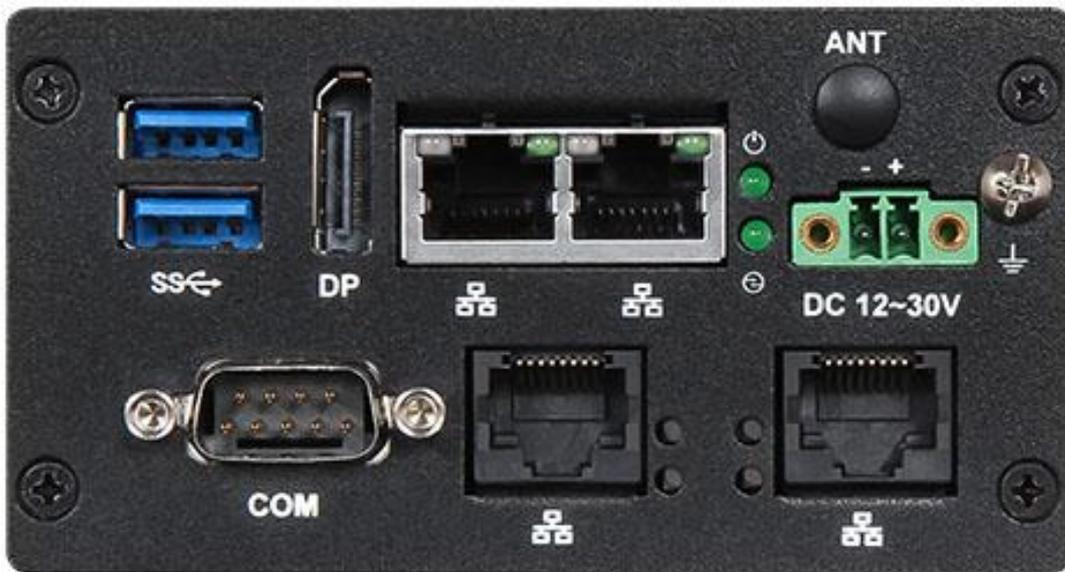


LYNX-612B



2.7.2 Rear View

LYNX-612A



LYNX-612B



USB3.0

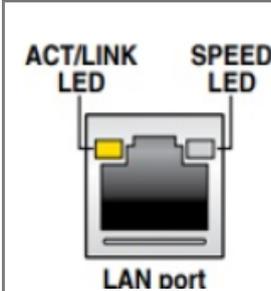
Two USB 3.0 (Universal Serial Bus) ports. USB 3.0 ports utilize a blue connector.

DP:

DP (Display Port) display output

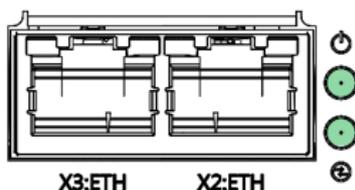
LAN:

Two Gigabit Ethernet (10/100/1000 Mbits/sec) LAN ports by using Intel I210 Gigabit LAN Controller.

	Activity Link LED		Speed LED	
	Status	Description	Status	Description
	Off	No link	Off	10Mbps Connection
	Orange	Linked	Orange	100Mbps Connection
	Orange(Blink)	Data activity	Orange(Blink)	1 Gbps Connection

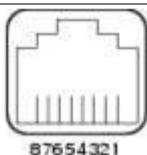
LED Indicator

Two LED indicator show the operating information.



Function*	Status	Description
Power	Power On	Solid Green
	Power Off	Off
Run Status (GPIO)	Run	Flash Green
	Off	Off

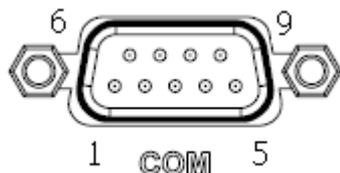
*: Need to auto detection functionality while power applied.



in	Signal Name	Pin	Signal Name
1	LAN1_TX1+	2	LAN1_TX1+
3	LAN1_TX2+	4	LAN1_TX3+
5	LAN1_TX3-	6	LAN1_TX2-
7	LAN1_TX4+	8	LAN1_TX4-

COM

Serial (COM): D-SUB 9 serial ports are available for use, which is configurable as either RS-232, RS-422, or RS-485 by BIOS setting. The function of the pins in the D-SUB 9 connector varies with the different configuration settings on different model, please check it on the datasheet.

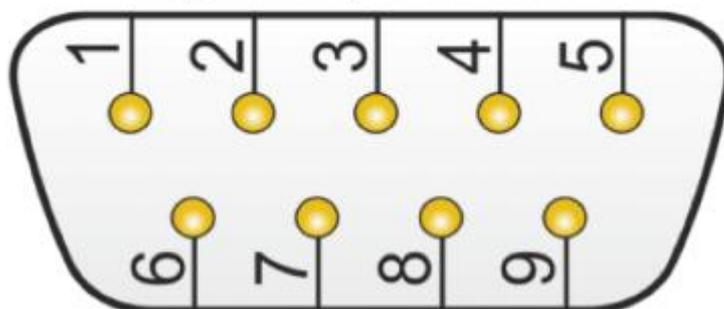


PIN No.	Signal Description	PIN No.	Signal Description
1	NC	2	RXD#
3	TXD#	4	NC
5	GND	6	NC
7	RTS#	8	CTS#
9	NC	CG1/CG2	GND

CANbus(LYNX-612B)

The Controller Area Network(CAN) specification defines the data Link Layer. ISO defines the Physical Layer

Pin assignment 9-pole connector male:

**Pin Configuration**

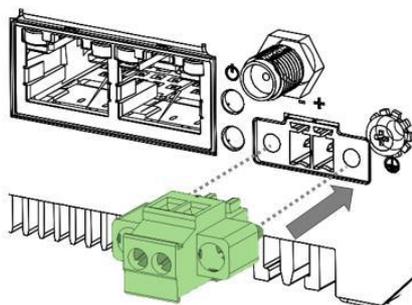
1	+12V/+5V/Not Connected
2	CAN-L
3	CAN-GND/Not Connected
4	Not Connected
5	Not Connected

Pin Configuration

6	CAN-GND/Not Connected
7	CAN-H
8	Not Connected
9	+12V/+5V/Not Connected

Power Terminal:

2-pin screw-type terminal block is provided for connecting power to LYNX-6000 series.



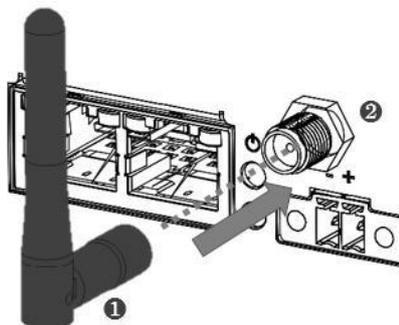
Pin No.	Description
-	0 V DC
+	12-30VDC (+/-20%)

M.2 and Mini PCIe Card Socket

Disassemble the chassis of LYNX-6000 series, you will see M.2 and Mini PCIe card socket on the main board or carrier board. The socket type are varies with different models.

Antenna

A M.2 Key E 2230 or Mini PCIe expansion support wireless module.



Chapter 3 Important Instructions

This chapter includes instructions which must be carefully followed when the LYNX-6000 Series is used.

3.1 Note on the Warranty

Due to their limited service life, parts which, by their nature, are especially subject to wear are not included in the guarantee beyond the legal stipulations.

3.2 Exclusion of Accident Liability Obligation

Portwell, Inc. shall be exempt from the statutory accident liability obligation if users fail to abide by the safety instructions.

3.3 Liability Limitations / Exemption from the Warranty Obligation

In the event of damage to the system unit caused by failure to abide by the hints in this manual and on the unit (especially the safety instructions), Portwell, Inc. shall not be required to respect the warranty even during the warranty period and shall be free from the statutory accident liability obligation.

3.4 Declaration of Conformity

EMC

CE/FCC Class A/B

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This equipment may not cause harmful interference.
2. This equipment must accept any interference that may cause undesired operation.

Applicable Standards:

EN 55032

EN 55024/ EN 55035

EN 61000-3-2: 2006

EN 61000-6-2

EN 61000-6-4

FCC 47 CFR Part 15 Subpart Class A

FCC 47 CFR Part 15 Subpart Class B

Safety

EN 62368-1