ICP DAS

0/2/6-slot Linux Based PAC with i5-8365UE CPU Metal Case

⊞ Features

- Ubuntu 24.04 with Kernel 6.9
- Intel® Core ™ i5-8365UE Processor (1.6 ~ 4.1 GHz, 4C8T)
- 16 GB DDR4 SDRAM
- 128 GB SSD
- Hard Real-Time Capability (RTC)
- VGA / HDMI Display Output
- 2 10/100/1000M Ethernet Ports
- Redundant Power Input

CE RoHS

📁 Introduction

ALX-9000, equipped with the Linux operating system, integrates computing, I/O, and the user interface into a single unit, providing the perfect solution for controllers by combining HMI, data acquisition, and control applications. It is powered by an i5-8365UE CPU, offers 0/2/6 expansion slots, and supports multiple communication interfaces, including Ethernet, VGA, HDMI, USB, RS-232, and RS-485.

The controller's I/O slots support e-9K, I-9K, and I-97K series I/O modules. For remote I/O expansion, Ethernet I/O modules and RS-485 I/O modules can be used. In addition, user applications can be stored on external storage devices such as CFast cards or USB mass storage devices.

The controller is designed with I-7000/I-9K/I-97K/e-9K series I/O modules. The LinPAC SDK provides fast and easy development tools to enhance the convenience of LinPAC I/O applications. Users can develop LinPAC applications with the GNU C programming language. At the same time, the built-in servers and functions further strengthen LinPAC in embedded industrial control applications, enabling users to smoothly complete their design projects through the operation of LinPAC.
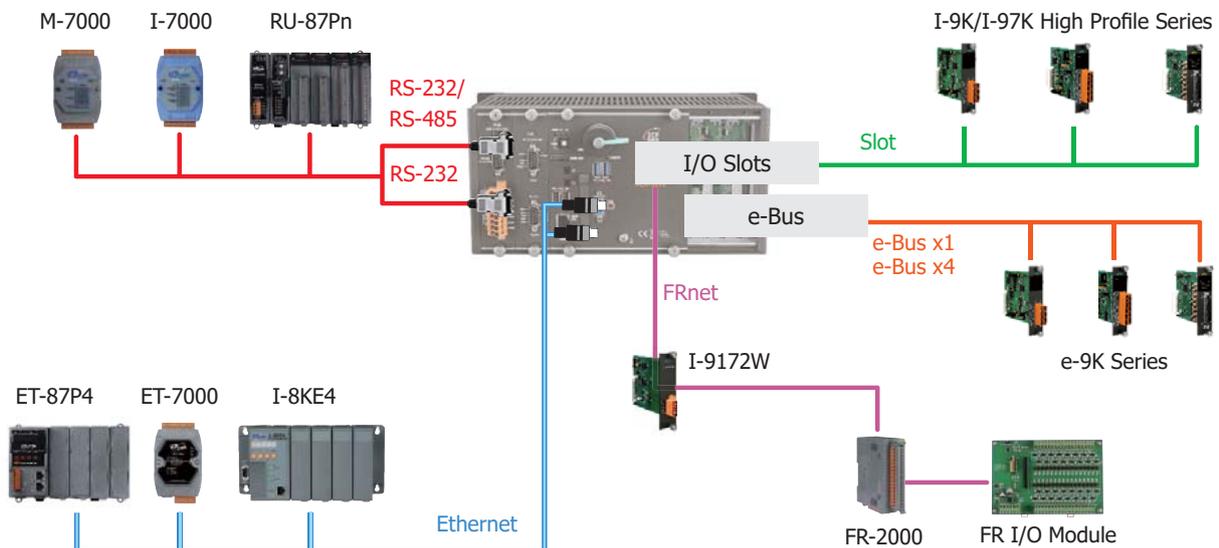
📁 Linux Kernel OS

The main advantage of the ALX-9000 lies in its high-quality control system, which includes stable performance, open-source flexibility, and the Linux standard LinPAC SDK and GUI software using the GNU C language.

The primary purpose of the ALX-9000 is to enable Linux enthusiasts to easily control their embedded systems within a Linux environment.

- Support for GNU C Language
- Support for GUI: Using GTK + Library
- Support for USB to Serial Converter
- Support for DCON, Modbus and SNMP Protocols
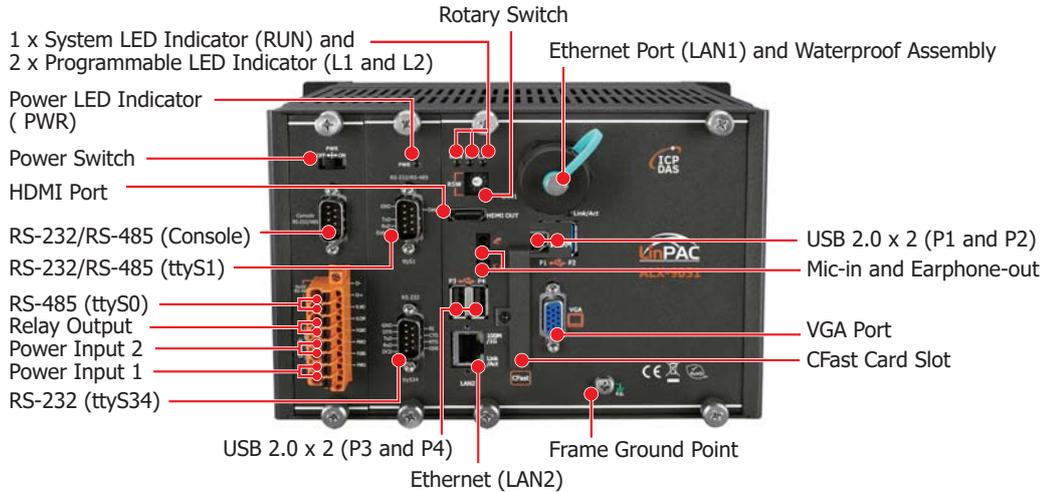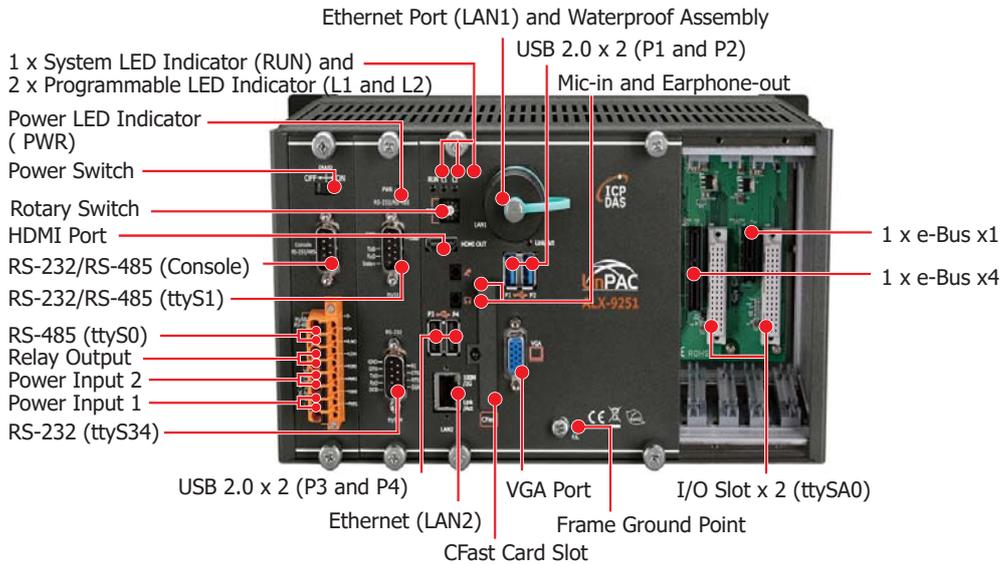
📁 Applications

■ Specifications

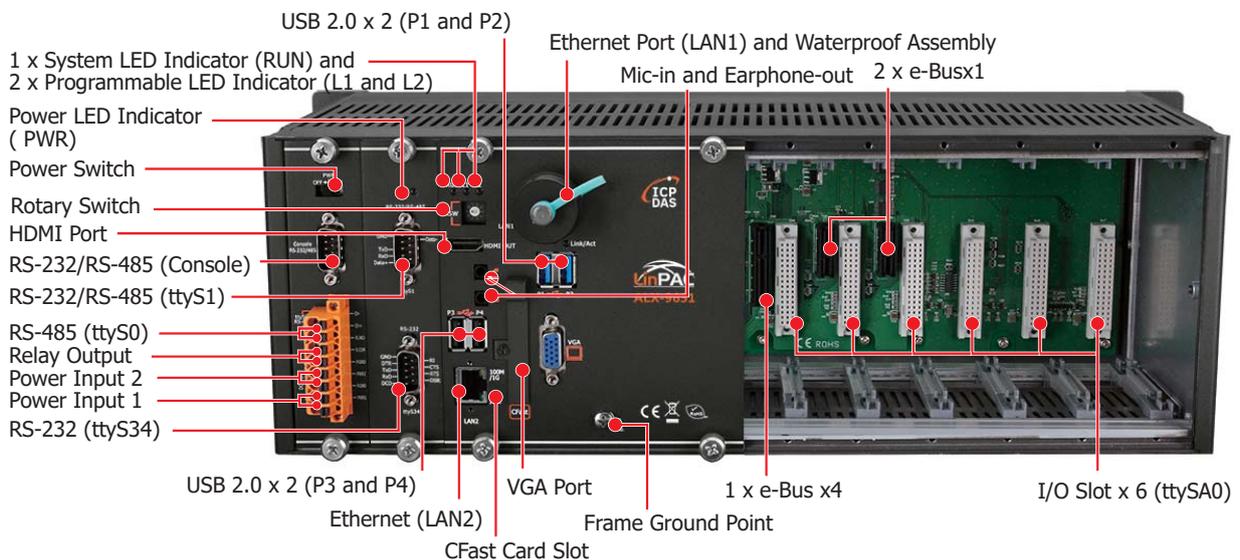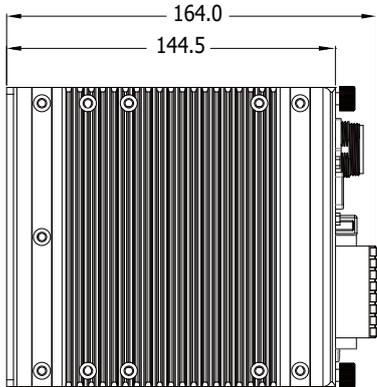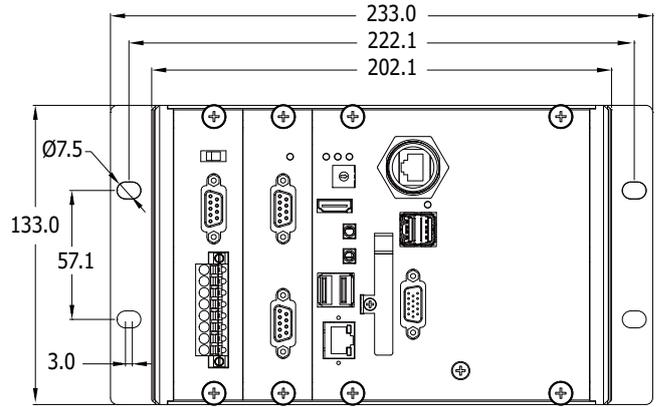| Model	ALX-9051	ALX-9251	ALX-9651
System Software			
OS	Ubuntu 24.04		
Embedded Service	SFTP server, Web server, SSH		
SDK Provided	Standard LinPAC SDK for Linux, developed with GNU C language		
CPU Module			
CPU	Intel® Core ™ Whiskey Lake U i5-8365UE Processor (1.6 ~ 4.1 GHz, 4C8T)		
SDRAM	16 GB DDR4 (SODIMM slots with a 16 GB DDR4 x 1)		
MRAM	128 KB		
EEPROM	16 KB		
Storage	1 x 128 GB SSD (SATAIII), 1 x CFast Card Slot		
RTC (Real Time Clock)	Provide second, minute, hour, date, day of week, month, year		
64-bit Hardware Serial Number	Yes, for Software Copy Protection		
Watchdog Timer	Dual Watchdog Timer		
HMI			
Power Switch	Yes		
Rotary Switch	Yes (0 ~ 9)		
Buzzer	Yes		
Programmable LED Indicator	3 (RUN, L1, L2)		
Display			
VGA	1, Resolution: 1920 x 1200 @ 60Hz		
HDMI	1, Resolution: 4096 x 2160 @ 30P		
Graphic Processor	Intel® UHD Graphics 620		
Audio			
Jack	Microphone-in and Earphone-out		
I/O Expansion			
I/O Type	-	e9K, I-9K, I-97K series	
Parallel/Series Bus	-	2	6
e-Bus	-	1 x eBusx1, 1 x eBusx4	2 x eBusx1, 1 x eBusx4
Communication Ports			
Ethernet Port	1 x RJ-45, 10/100/1000 Base-TX (Intel® I219-LM) 1 x RJ-45, 10/100/1000 Base-TX (Intel® I210)		
USB Port	2 x USB 2.0, 2 x USB 3.0		
ttySA0	Internal communication with the I-97K series modules in slots		
Console	RS-232/485 (RxD, TxD and GND for RS-232; Data+, Data- for RS-485); 3000 VDC isolated		
ttyS0	RS-485 (Data+, Data-); 3000 VDC isolated		
ttyS1	RS-232/485 (RxD, TxD, CTS, RTS and GND for RS-232; Data+, Data- for RS-485); 3000 VDC isolated		
ttyS34	RS-232 (RxD, TxD, CTS, RTS, DSR, DTR, CD, RI and GND); 3000 VDC isolated		
Mechanical			
Dimensions (W x L x H)	233 mm x 164 mm x 133 mm	300 mm x 164 mm x 133 mm	422 mm x 164 mm x 133 mm
Installation	DIN-Rail Mounting/Wall Mounting		
Cooling Type	CPU Heat Sink and 180,000 hour long-life fan with Smart Fan function		
Environmental			
Operating Temperature	-25 ~ +60 °C		
Storage Temperature	-30 ~ +80 °C		
Ambient Relative Humidity	10 ~ 90% RH (non-condensing)		
Power			
Input Range	+19 ~ 30 VDC (2 kV Isolated)		
Redundant Power Input	Yes, with one power relay (1A @ 24 VDC) for alarm		
Capacity	80 W supply to CPU and backplane, 40 W supply to I/O expansion slots and USB ports, 120 W in total		
Consumption	30.5 W (Typical) 71 W (CPU Full Load)	31.5 W (Typical) 72 W (CPU Full Load)	32.6 W (Typical) 73 W (CPU Full Load)

Appearance

ALX-9051

- 1 x System LED Indicator (RUN) and 2 x Programmable LED Indicator (L1 and L2)
- Power LED Indicator (PWR)
- Power Switch
- HDMI Port
- RS-232/RS-485 (Console)
- RS-232/RS-485 (ttyS1)
- RS-485 (ttyS0)
- Relay Output
- Power Input 2
- Power Input 1
- RS-232 (ttyS34)
- USB 2.0 x 2 (P3 and P4)
- Ethernet (LAN2)
- Rotary Switch
- Ethernet Port (LAN1) and Waterproof Assembly
- USB 2.0 x 2 (P1 and P2)
- Mic-in and Earphone-out
- VGA Port
- CFast Card Slot
- Frame Ground Point

ALX-9251

- 1 x System LED Indicator (RUN) and 2 x Programmable LED Indicator (L1 and L2)
- Power LED Indicator (PWR)
- Power Switch
- Rotary Switch
- HDMI Port
- RS-232/RS-485 (Console)
- RS-232/RS-485 (ttyS1)
- RS-485 (ttyS0)
- Relay Output
- Power Input 2
- Power Input 1
- RS-232 (ttyS34)
- USB 2.0 x 2 (P3 and P4)
- Ethernet (LAN2)
- CFast Card Slot
- Ethernet Port (LAN1) and Waterproof Assembly
- USB 2.0 x 2 (P1 and P2)
- Mic-in and Earphone-out
- 1 x e-Bus x1
- 1 x e-Bus x4
- VGA Port
- Frame Ground Point
- I/O Slot x 2 (ttySA0)

ALX-9651

- 1 x System LED Indicator (RUN) and 2 x Programmable LED Indicator (L1 and L2)
- Power LED Indicator (PWR)
- Power Switch
- Rotary Switch
- HDMI Port
- RS-232/RS-485 (Console)
- RS-232/RS-485 (ttyS1)
- RS-485 (ttyS0)
- Relay Output
- Power Input 2
- Power Input 1
- RS-232 (ttyS34)
- USB 2.0 x 2 (P3 and P4)
- Ethernet (LAN2)
- CFast Card Slot
- USB 2.0 x 2 (P1 and P2)
- Ethernet Port (LAN1) and Waterproof Assembly
- Mic-in and Earphone-out
- 2 x e-Busx1
- VGA Port
- Frame Ground Point
- 1 x e-Bus x4
- I/O Slot x 6 (ttySA0)

◼ Dimensions (Units: mm)

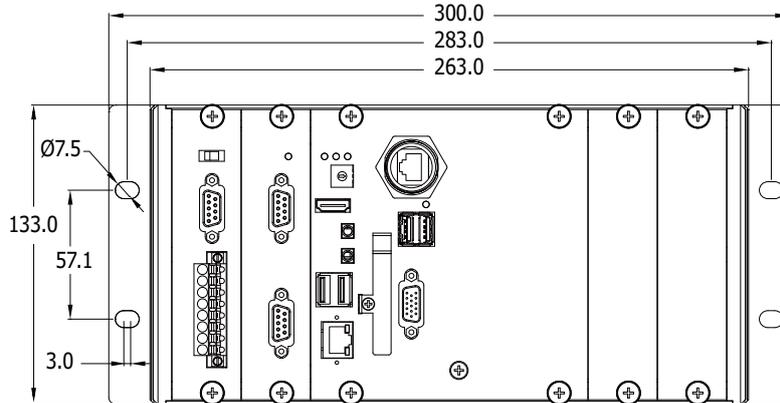| ALX-9051/ALX-9251/ALX-9651		ALX-9051

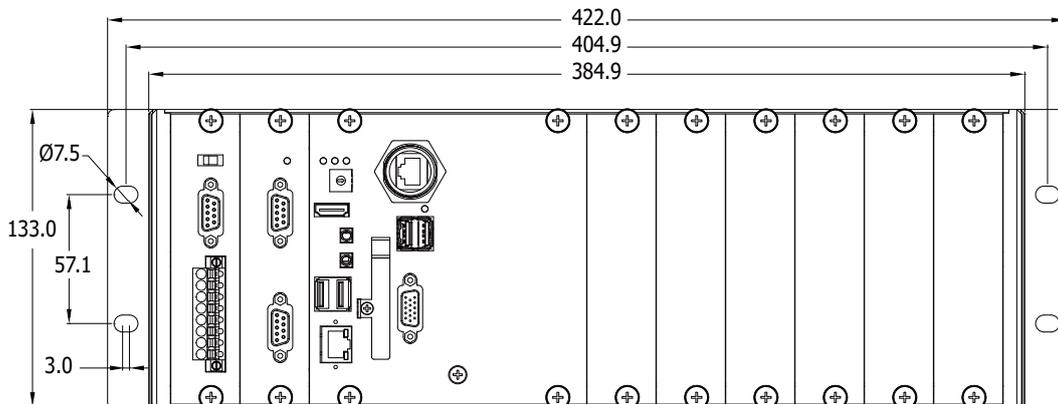Left Side View

Front View

ALX-9251

Front View

ALX-9651

Front View

◼ Ordering Information

ALX-9051 CR	Linux Standard Metal PAC, equipped with an i5-8365UE CPU (RoHS)
ALX-9251 CR	2-Slot Linux Standard Metal PAC, equipped with an i5-8365UE CPU (RoHS)
ALX-9651 CR	6-Slot Linux Standard Metal PAC, equipped with an i5-8365UE CPU (RoHS)