

# MBOX600 Pro Industrial Controller



Specifications

## Change History

Document Version	Release Date	Description
V1.0.0	2024-06-07	First release

## Introduction

The MBOX600 Pro is an LED display controller created by NovaStar. It integrates an industrial PC and the sending capability. This controller is used outdoors and applies to the scenarios where no PC is used for LED display control, for example, fixed outdoor displays.

A mouse, keyboard and monitor can be connected to the MBOX600 Pro for software installation, screen configuration, content playback, etc. Working with VNNOXCare Configuration and LCT Lite, the MBOX600 Pro can enable remote control, cabinet configuration, local playback, playback preview and more.

## Certifications

EMC, CE RED, CE ROHS, CQC, SRRC, IC, IC ID, FCC SDoC, FCC ID, UL, CB, RCM

**If the product does not have the relevant certifications required by the countries or regions where it is to be sold, please contact NovaStar to confirm or address the problem. Otherwise, the customer shall be responsible for the legal risks caused or NovaStar has the right to claim compensation.**

## Features

- 4x Gigabit Ethernet outputs and pixel capacity: up to 2,600,000
- Output scaling
  - The pixel width ranges from 64 to 4096.
  - The pixel height ranges from 64 to 1920.
  - Total pixel capacity cannot exceed 2,600,000.
- Common resolutions supported: 1366×768, 1440×900, 1600×900, 1920×1080, 2048×1152
- 1x Stereo audio output
- 1x HDMI 1.3 output (for image output or output preview)
 

Connecting to a display and allowing for output scaling on an LED display
- 1x HDMI 1.3 input
- In synchronous mode, this connector is used as the input source.
- 2x USB 2.0 and 2x USB 3.0
 

Connecting to peripherals such as a mouse, keyboard and USB drive
- 2x Sensor connectors
 

Connecting to a light sensor or temperature and humidity sensor
- 1x 6-pin Phoenix connector
 



Connecting to a central control device, or control the power on and off of the connected device
- 2x Gigabit Ethernet ports
 

One for communication and the other for remote management of device networking

## Appearance

### Front Panel





Name	Description
	Power button
RESET	Factory reset button Press and hold this button for 10 seconds to reset the product to its factory settings.
USB 2.0	2x USB 2.0 Connecting to peripherals that support the USB protocol, such as a mouse, keyboard, and USB drive
SIM	SIM card slot Capable of preventing users from inserting a SIM card in the wrong orientation.
SOURCE	Button for switching between synchronous mode and asynchronous mode
FN 1	Custom button (to be implemented in future updates)
FN 2	Custom button (to be implemented in future updates)
	Ethernet port (default IP address: 192.168.0.10) Connecting to a router for remote management of device networking

### Rear Panel



Name	Description
LED OUT	4x Gigabit Ethernet outputs

Name	Description
	Maximum pixel capacity: 2,600,000  When scaling is enabled, the maximum capacity is 2,600,000 pixels. (The pixel width ranges from 64 to 4096 and the pixel height ranges from 64 to 1920.)
SENSOR 1	Connecting to a light sensor or temperature and humidity sensor
SENSOR 2	Connecting to a light sensor or temperature and humidity sensor
WIFI	Connecting to a Wi-Fi antenna
4G/5G	Connecting to a 4G/5G antenna
AUDIO OUT	Audio output
HDMI OUT	1x HDMI 1.3 output
HDMI IN	1x HDMI 1.3 input
USB3.0	2x USB3.0  Connecting to peripherals that support the USB protocol, such as a mouse, keyboard, and USB flash drive.
ETHERNET	Gigabit Ethernet port  Connecting to the control computer, or connecting to a LAN or public network for content publishing and screen control
	1x 6-pin Phoenix connector for communication with and control of all central control devices that support RS232.  RELAY denotes a relay connector for controlling the power on and off of the connected device.  I/O denotes a connector that will be implemented in future updates.
	Power input

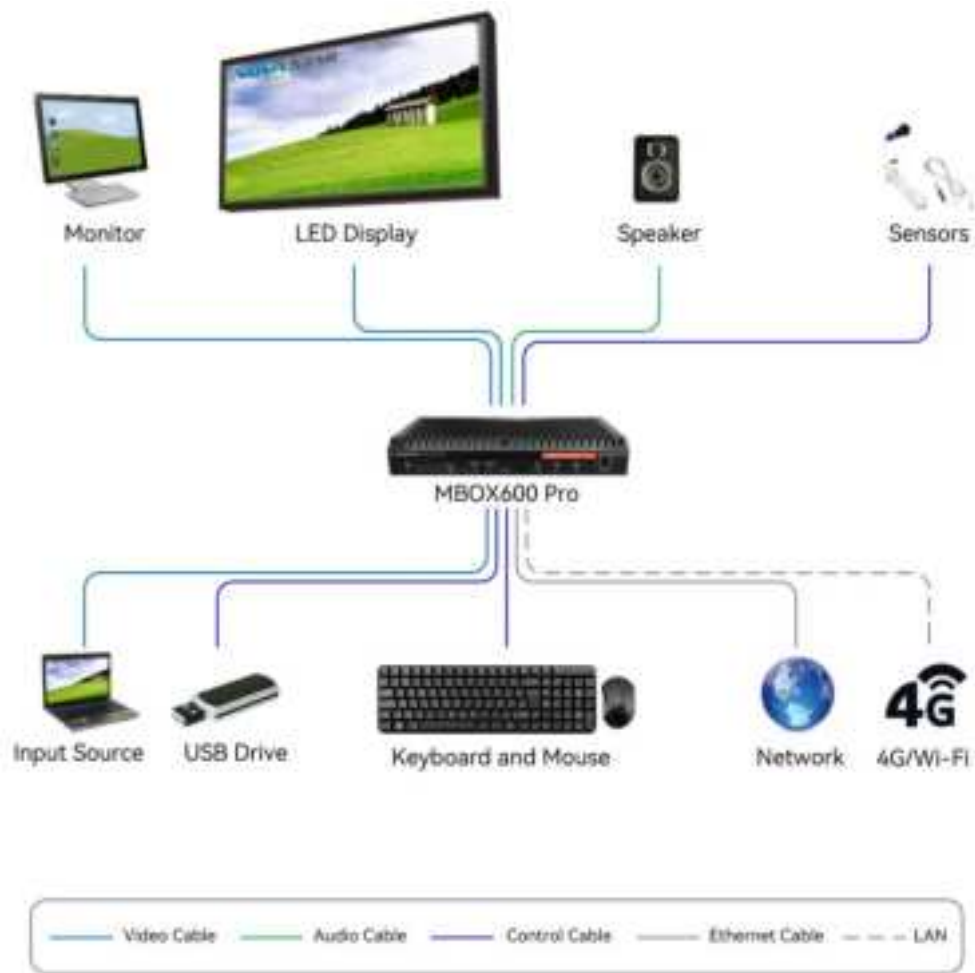
## Indicators

Indicator	Color	Status	Description
PWR (Power indicator)	Red	Staying on	The system is powered on and in standby mode.
		Off	No power supply or powered off

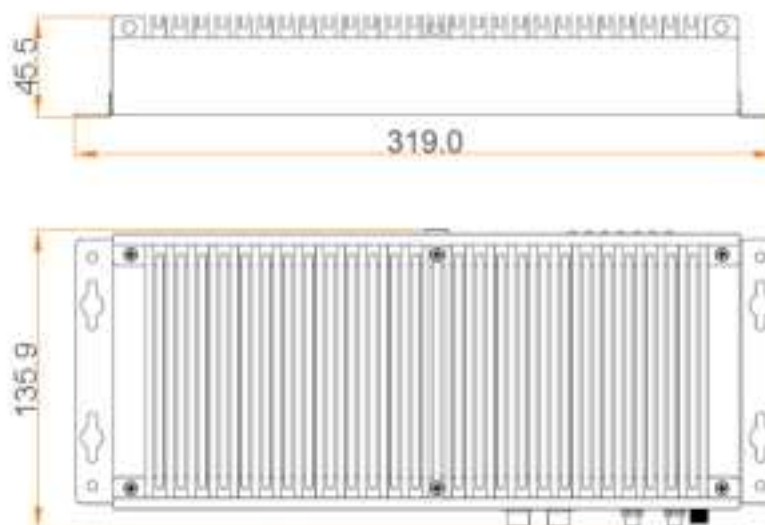
HDD (Hard disk drive indicator)	Green	Flashing	HDD is functioning normally.
		Off	Powered off
RUN (FPGA indicator)	Green	Staying on/off	FPGA not loaded/no clock
		Flashing 2 times every second	Video source accessed
		Flashing once times every 2s	No video source
		Flashing 4 times every second	The primary Ethernet port fails and the backup port is currently in use.
WIFI (Wi-Fi network indicator)	Green	Staying on	Wi-Fi network connection normal
		Off	No Wi-Fi network connection
4G/5G (4G/5G network indicator)	Green	Staying on	Network normal
		Flashing 4 times every second	4G/5G module detected but network abnormal
		Off	No 4G/5G module detected
HDMI (Synchronous source/ external source indicator)	Green	Staying on	Selected but video source abnormal
		Flashing 2 times every second	Selected and video source accessed
		Off	Not selected
IPC (Asynchronous source/ internal source indicator)	Green	Staying on	Selected but video source abnormal
		Flashing 2 times every second	Selected and video source accessed
		Off	Not selected

## Applications

The HDMI connector can be connected to a monitor to inspect the playback on an LED display, as well as to install software and configure the product.



## Dimensions



Tolerance:  $\pm 0.3$  Unit: mm

## Specifications

Performance	CPU	N97: 4 cores, 3.6 GHz
	RAM	4 GB (9U4A3)
		8 GB (9U8A4)
Connectors	HDD	128 GB (9U4A3)
		256 GB (9U8A4)
	Front panel connectors	2x USB2.0
Connectors	Rear panel connectors	1x Gigabit Ethernet port
		4x LED Output Ethernet ports
		2x Sensor connectors
		1x Wi-Fi antenna connector
		1x 4G/5G antenna connector
		1x Audio output
		1x HDMI output
		1x HDMI input
		2x USB 3.0
		2x Sensor connectors
		1x Gigabit Ethernet port
		1x 6-pin phoenix connector
		1x Power input connector (DC 12 V)
Maximum Capacity	2,600,000 pixels	
Maximum Power Consumption	34 W	
Operating Environment	Temperature	-20°C to +60°C
	Humidity	0% RH to 80% RH, non-condensing
Storage Environment	Temperature	-40°C to +80°C
Physical Specifications	Dimensions	319.0 mm × 135.9 mm × 45.5 mm

	Net weight	1778.0 g
Packing Information	Dimensions	361.0 mm × 334.0 mm × 141.0 mm
	Accessories	<ul style="list-style-type: none"> <li>• 1x Power adapter</li> <li>• 1x Power cable</li> <li>• 2x Racks</li> <li>• 6x Screws</li> <li>• 1x Certificate of Approval</li> </ul>

The amount of power consumption may vary depending on various factors such as product settings, usage, and environment.

## Models

CPU: 9U denotes N97.

RAM: 4A denotes 4 GB and 8A denotes 8 GB.

HDD: 3 denotes 128 GB and 4 denotes 256 GB.

Operating System	Model	CPU	RAM	HDD
Linux/Windows 10/Windows11	MBOX600 Pro (9U4A3)	N97	4GB	128GB
	MBOX600 Pro (9U8A4)	N97	8GB	256GB

## FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the 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.

Note: This equipment has been tested and found to comply with the limits for a Class A 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.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.



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#### **FCC Warning**

This device complies with part 15 of the 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This 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 in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

#### **Radiation Exposure Statement**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

#### **ISED Statement**

- English: This device complies with Industry Canada license - exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) This device must accept any interference, including interference that may cause undesired operation of the device. The digital apparatus complies with Canadian CAN ICES - 3 (B)/NMB - 3(B).

- French: Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

#### **Official website**

[www.novastar.tech](http://www.novastar.tech)

#### **Technical support**

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