



Beyond Factory Automation
Towards Digital Manufacturing

CIMON Xpanel

In English

• CM-eXT04-D

USER MANUAL

Xpanel

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- For your safety and the safe operation of this product, please read this manual before using the product. The manual is subject to change without notice.
- Please review the product specifications in this manual to determine the suitability of this product for its intended use.
- For your safety only qualified persons should perform electrical and wiring attachments to this product.
- 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.

Essential Safety Precautions



Precautions for design

- Do not implement a trigger in the software for emergency stop of hazardous operation. If Xpanel is damaged while output signal remains ON or OFF, fatal accident may be caused. Design an emergency stop switch outside of the product so it can be manually stopped.
- Do not use Xpanel for the purpose of generating an alarm for injury to operators, breakdown of devices, or production halt.
- Design the system so that it can be hand-operated in case the product malfunctions.
- Do not use Xpanel as a control unit on applications requiring extreme stability such as airplane control device, aerospace device, centralized data processing device, nuclear control system, medical life support system, etc.
- In case Xpanel is used in transportations such as trains, vehicle, vessels, or warning devices for disasters and crime, various safety devices, and medical devices excluding life support system, you are required to design backup or failure provision system to secure reliability and stability.
- Even if the screen is black, the unit could still be turned on with a dead LCD backlight. When the operator touches a panel in this situation, the action could cause device's malfunction. Do not use this product for controlling safety devices such as emergency stop switches.

Precautions for installation

- Please do not disassemble or modify the Xpanel. It will void the warranty and may cause an electric shock.
- This version of the Xpanel is not rated for flammable environments. Do not use this Xpanel around flammable gases. It may cause an explosion.

Essential Safety Precautions



Precautions for wiring

- Make sure to check if the device's power supply is turned off before wiring. Failure to do so may cause electric shock or damage to the device.
- Do not use power beyond the specified voltage range of the PC. Doing so may cause fire, electric shock or damage to the device.

Maintenance

- The Xpanel uses a lithium battery to back up the internal clock. Do not replace this battery by yourself because it may cause an explosion. If the battery needs to be replaced, please contact your local service center.

Maintenance

- The LCD contains a powerful irritant and if for any reason the panel is damaged and this liquid contacts any part of your body, be sure to wash that area with running water for 15 minutes. If any of this liquid enters your eye, flush your eye for 15 minutes with running water and contact a physician.

Essential Safety Precautions

Cautions

Precautions for installation

- Be sure to securely connect all cable connectors to the Xpanel. A loose connection may cause incorrect input or output.
- Make sure to install the unit vertically.
- For the performance and safe use of the equipment, keep the distance between the back of the main unit and each wall of the container at least 100 mm.

Precautions for wiring

- Field Ground (FG) wires must be run individually from each unit to the master grounding terminal. DO NOT daisy chain the FG wires between devices.
- Correctly wire the Xpanel, be sure that the rated voltage and terminal layout are within the designated range. If the voltage supplied differs from the rated voltage, or incorrect wiring or grounding is performed, it may cause a fire or unit malfunction and it will void the warranty.
- Make sure to tighten the screw with standard torque (0.5~0.6Nm). Loose connections may cause short, fire or malfunction.
- Be careful that metal debris do not enter the Xpanel, they may cause a fire, Xpanel damage or malfunction.

Precautions for unit disposal

- When this unit is disposed of, it should be done so according to your country's regulation for similar types of industrial waste.

General Safety Cautions

- Do not strike the touch panel with a hard or pointed object, or press on the touch panel with too much force, since it may damage the touch panel or the display.
- Do not install the Xpanel where the operating temperature exceeds the allowed range. Doing so may cause the Xpanel to malfunction or shorten product lifespan.
- Do not restrict or limit naturally occurring rear-face ventilation of the Xpanel, or storing or using the Xpanel in an environment that is too hot.
- Do not use the Xpanel in areas where large, sudden temperature changes can occur. These changes can cause condensation to form inside the unit, possibly causing the unit to malfunction.
- Do not allow water, liquids, metal or charged particles to enter inside the Xpanel, since they can cause either a Xpanel malfunction or an electrical shock.
- Do not store or use the Xpanel in direct sunlight, or in excessively dusty or dirty environments.
- Do not store or use the Xpanel where strong jolting or excessive vibration can occur.
- Do not store or use the Xpanel where chemicals (such as organic solvents, etc.) and acids can evaporate, or where chemicals and acids are present in the air.
- Do not use paint thinner or organic solvents to clean the Xpanel.
- Do not store or operate the LCD display in areas receiving direct sunlight, since the sun's UV rays may cause the LCD display's quality to deteriorate.
- After turning the Xpanel OFF, be sure to wait a few seconds before turning it ON again. If the Xpanel started too soon, it may not start up correctly.
- Due to the possibility of unexpected accidents, you must back up the project data of the Xpanel regularly.

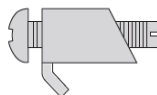
Package Contents

• The following items are contained in the package of the Xpanel. Before using the Xpanel, please confirm that all items listed here are present.

- Xpanel Unit



- Fastener



- Power plug



- Installation Guide

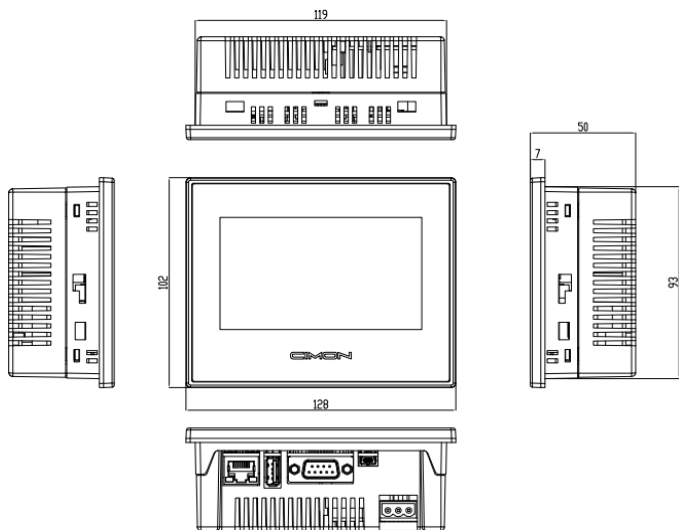


※ This unit has been carefully packed, with special attention to quality. However, should you find anything damaged or missing, please contact your local Xpanel distributor immediately.

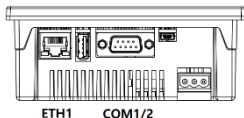
Dimensions

Unit: mm

• eXT04



Interfaces



- COM1: RS-422/485 / COM2: RS-232C

This interface is used to connect the Xpanel to the host (PLC), via n RS-232C or RS-422/485 cable.

COM1 and COM2 share pins of 9-Pin DSUB connector.

Connector	Pin No.	Name	Description	Port
	1	SDA	Send Data A	COM1
	2	RD	Receive Data	COM2
	3	TD	Transmit Data	COM2
	4	RDA	Receive Data A	COM1
	5	SG	Signal Ground	COM1 COM2
	6	SDB	Send Data B	COM1
	7	RTS	Request To Send	COM2
	8	CTS	Clear To Send	COM2
	9	RDB	Receive Data B	COM1

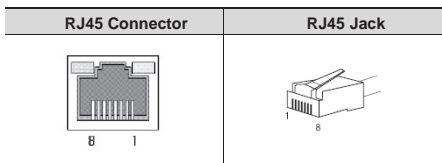


- Normal communication is not guaranteed when using USB connector as a communication port in ordinary times.
- In case of RS-485 cable (2wire) connection, connect only both SDA and SDB lines.
- The RS-485 of the Xpanel runs under auto toggle mode.
- To reduce the risk of damaging the RS-422 circuit, be sure to connect the Pin 5(SG) terminal.

Interfaces

- Ethernet

This interface complies with the IEEE802.3 for Ethernet.



Direct Cable: Host ↔ HUB

Cable	No	Color	Color	No	Cable
	1	Orange/W	Orange/W	1	
	2	Orange	Orange	2	
	3	Green/W	Green/W	3	
	4	Blue	Blue	4	
	5	Blue/W	Blue/W	5	
	6	Green	Green	6	
	7	Brown/W	Brown/W	7	
	8	Brown	Brown	8	

Crossover Cable: Host ↔ Host

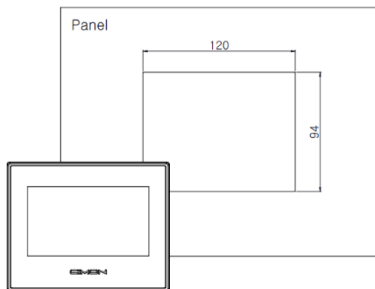
Cable	No	Color	Color	No	Cable
	1	Orange/W	Green/W	1	
	2	Orange	Green	2	
	3	Green/W	Orange/W	3	
	4	Blue	Blue	4	
	5	Blue/W	Blue/W	5	
	6	Green	Orange	6	
	7	Brown/W	Brown/W	7	
	8	Brown	Brown	8	

Installation

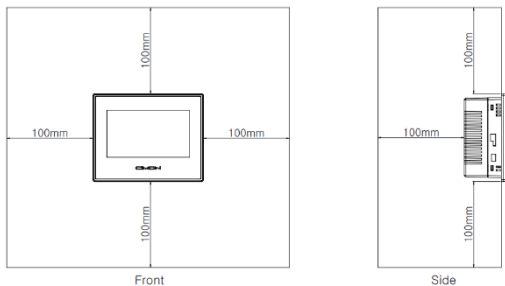
- Create a panel cut and insert the Xpanel into the panel from the front.

Unit: mm

• eXT04

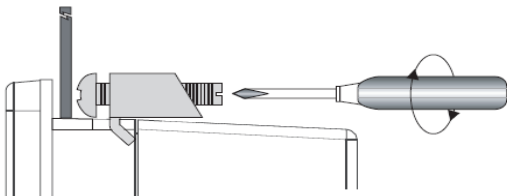


- For the performance and safe use of the equipment, please keep the distance between the back of the main unit and each all of the container at least 100 mm.



Installation

- Attach the Installation Fasteners from inside of the panel. Insert each hook of fasteners into the slot and tighten it with a screwdriver.



- Tightening the screws with too much force can damage the case of the Xpanel.
- The necessary torque is 0.5 kgf.cm.
- The torque of front USB cover must be less than 1 kgf.cm.
- Depending on the thickness of installation panel, the number of installation fasteners used may need to be increased to provide the desired level of moisture resistance.

Wiring

Warning

- Make sure to check if the device's power and external power supply is turned off before wiring, via a breaker, or similar unit. Failure to do so may cause electric shock or damage to the device.
- Since there is no power switch on the Xpanel unit, be sure to attach a breaker- type switch to its power cord.



- To avoid a short caused by loose ring terminals, be sure to use ring terminals with an insulating sleeve.
- When the FG terminal is connected, be sure the wire is grounded. Not grounding the Xpanel unit will result in excess noise and vibration.

When connecting the power cord, be sure to follow the procedures below.

- Confirm that the Power Cord is unplugged from the power supply.
- Unscrew the screws from the middle three (3) terminals, align the Ring Terminals and re-attach the screws.




- Check that the ring terminal wire are connected correctly.
- The torque required to tighten these screws is 0.678_0.813 lbf*ft (0.5–0.6 N•m)
- Wire Range : 12 - 24 SOL/STR, Wire Type : Cu

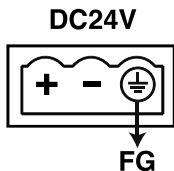
Power Supply Caution

Please pay special attention to the following instructions when connecting the power cord terminals to the Xpanel unit.

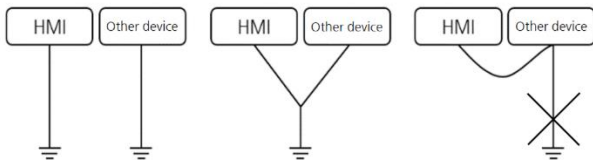
- If the power supply voltage exceeds the GP's specified range, connect a voltage transformer.
- Between the line and the ground, be sure to use a low noise power supply. If there is still an excessive amount of noise, connect a noise reducing transformer.
- The power supply cord should not be bundled with or kept close to main circuit lines (high voltage, high current), or input/output signal lines.
- Connect a surge absorber to handle power surges.
- To reduce noise, make the power cord as short as possible.

Grounding Caution

- When grounding to the rear face FG terminal of the Xpanel, (on the Power Input Terminal Block), be sure to create an exclusive ground.
- When connecting an external device to the Xpanel with the SG terminal, ensure that no short-circuit loop is created when you setup the system.
- FG terminal is in the input power side. Connect the grounding cable to the .



- When grounding F.G terminal, be sure to create an exclusive ground.



① Exclusive grounding : Good

② Common grounding : Adequate

③ Common grounding : Prohibited



- If the grounding causes operational errors, please detach the FG terminal.

Specifications

• eXT04

Model	CM-eXT04-D	
LCD Size	4.3 inch Wide TFT	
Colors	16.7M colors	
Resolution	WVGA 800x480	
Backlight	LED	
Luminance	650 cd/m ²	
Backlight Life	50,000 hours	
Touch Panel	4 Wire Resistive	
Memory	512 MB DDR3	
Storage	8 GB eMMC	
COM1	RS-422/485	
COM2	RS-232	
Ethernet	10/100/1000 1 port	
USB Host	1 port	
Tool Port	1 USB device	
Front Bezel	Plastic	
Rated Voltage	D: DC 24 V (Class 2)	
Power Consumption	9 W (MAX : 10 W)	
OS	Embedded Linux	
Weight	0.3 kg	
Dimension (mm)	128 x 102 x 50	
Panel Cut (mm)	120 x 94	
Approvals	UL	UL61010-1 / UL61010-2-201 (E231117)
	CE	Electromagnetic Compatibility Directive 2014/30/EU (EMC)
	FCC	The 47 CFR, Part2, Part15 and Part 18 Of FCC Requirement
	KC	Registration of Broadcasting and Communication Equipments
	Protection Class	IP65(front) NEMA Type : 4X, 12, 13

Specifications

- eXT04

Item	Specification
Operating Temperature	0°C–65°C
Storage Temperature	-20°C–65°C
Operating Humidity	10–90% RH (below 29°C, not condensed)
Storage Humidity	10–90% RH (below 39°C, not condensed)
Environment Condition	800 hPa–1114 hPa (2000 m/6,500 ft or less)
Dust	≤ 0.1mg/m ³ (No conductive dust allowed)
Pollution Degree	≤ Pollution Degree 2
Operating Ambience	No corrosive gas or dust
Vibration Resistance	JIS B 3502, IEC/EN 61131-2 compliant 5–9 Hz Single amplitude: 3.5 mm 9–150 Hz Fixed acceleration: 9.8 m/s ² X, Y, Z directions for 10 cycles (approx. 100 min)
Shock Resistance	JIS B 3502, IEC/EN 61131-2 compliant 147 m/s ² , X, Y, Z directions for ±3 times (Total 18 times)
Noise Resistance	Impulse, EFT/Burst, Surge, ±2 kV, 1 us
Static Discharge Resistance	4 kV (Contact Discharge), 8 kV (Air Discharge) (IEC 61000-4-2)

Project Download

- Check IP address of PC

* This step is not required for project download via USB cable.

Go to [Window] – [Run] and enter 'cmd' on the input screen.

Enter 'ipconfig' on the command screen to check the PC's Ethernet setup.

```
C:\Users#\>ipconfig
Windows IP Configuration

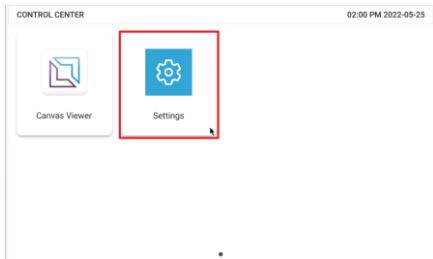
Ethernet adapter 이더넷:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::522:f44d:7045:df08%2
    IPv4 Address. . . . . : 172.30.10.121
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . : 172.30.10.1
```

IP setting in Control Center

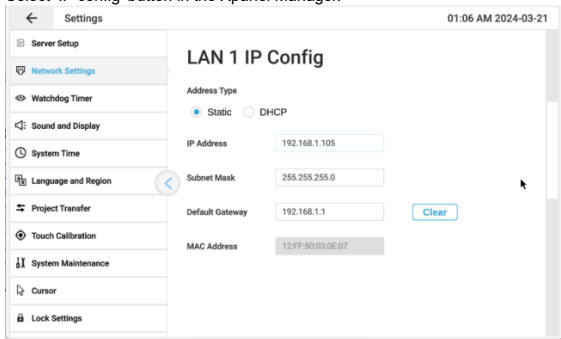
* This step is not required for project download via USB cable.

In the Control Center, you can change the IP setting of Xpanel.



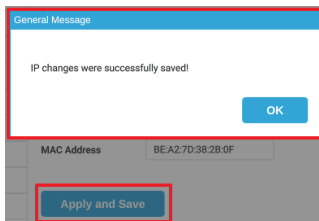
Project Download

Select 'IP config' button in the Xpanel Manager.



Enter the IP address, Subnet mask, and gateway in each field.

Tap 'Apply and Save' button to apply the network settings.



✘ Please note that all the ports must not be configured on the same subnet mask.

✘ NOTICE

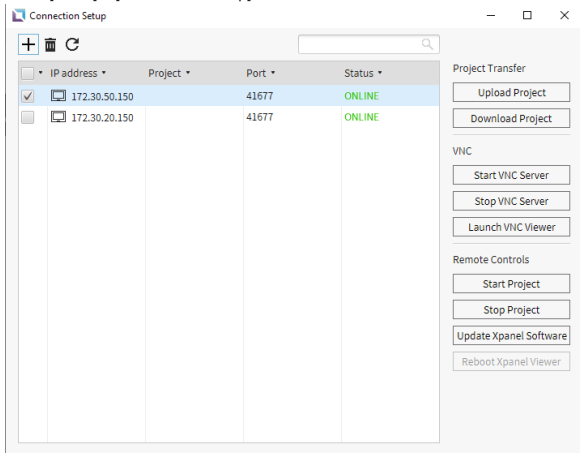
- 1) Subnet Mask, Gateway should match those of PC.
- 2) If the subnet mask is 255.255.0.0, for example in this image, the IP address should look like 192.168.xxx.xxx and should not be duplicated to any other devices.
- 3) xxx must be in range of 0-255.

Project Download

• Project Download

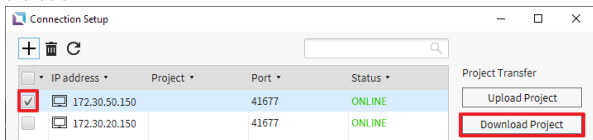
Run CIMON Canvas and open the project.

Go to [Tools] – [Connection Setup].



Select the target Xpanel from the list and press [Download Project].

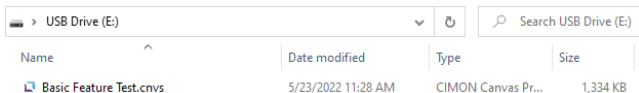
While using USB cable for project download, only one device per connection is available.



Project Download

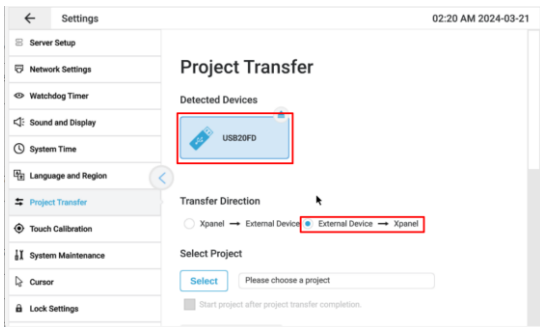
- **Download project to the Removable Disk (Xpanel → USB)**

Connect a removable disk to the PC and move the CIMON Canvas project file (.cnvs) to the removable disk.



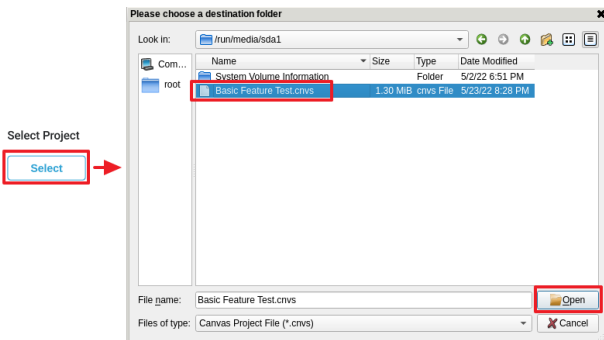
- **Upload the project from removable disk to Xpanel**

Connect the removable disk to the Xpanel. Select [Settings] – [Project Transfer] in the Control Center. Select the device where the project is saved then select [External Device -> Xpanel].

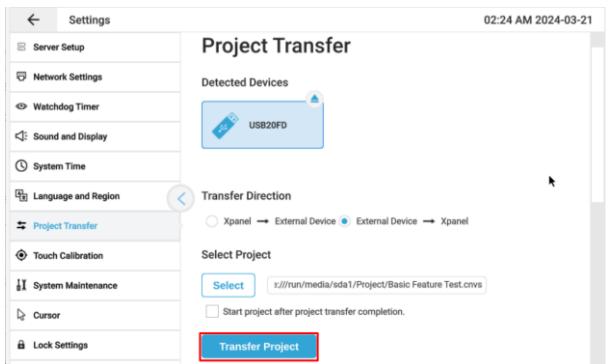


Project Download

Click [Select Project] and select the project file in the removable device.



Press the [Open] button to finish the selection and then press [Transfer Project] button to copy the project.



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고객서비스 정보

- 회 사 명: (주)싸이몬 CIMON CO.,Ltd
- 홈페이지: www.cimon.co.kr
- 본 사: 경기도 용인시 수지구 포은대로 59 번길 37 시그니처광교 1 차 사무동 지하 2 층 B213 호
- 건 화: 1899-1891
- 팩 스: 031-216-4789
- 담 당: 품질보증팀 팀장
- 이 메 일: cs@cimon.com

CIMON CO., LTD

Korea Address

#1008 Office Bld., Signature Gwang-gyo
37, Po Eun-daero 59beon-gil, Suji-gu, Yongin-si, Gyeonggi-do,
Republic of Korea, 16864
Tel. +82-31-780-1039

USA Address

CIMON Inc. 2435 W. Horizon Ridge Pkwy, #100, Henderson,
NV 89052
Tel. +1-702-820-1060
Homepage : www.cimon.com

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