KEYENCE

96M17963

96M17963-2

Control panel for the IV4 series
IV4-CP70
Instruction Manual

Read this manual before using the product in order to achieve maximum performance.
Keep this manual in a safe place after reading it so that it can be used at any time.
You can download details of individual functions from the following website:

www.keyence.com/support_iv4

Symbols

The following symbols alert you to important messages. Be sure to read these messages carefully.

DANGER	**Indicates a hazardous situation which, if not avoided, will result in death or serious injury.**
WARNING	**Indicates a hazardous situation which, if not avoided, could result in death or serious injury.**
CAUTION	**Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.**
NOTICE	**Indicates a situation which, if not avoided, could result in product damage as well as property damage.**
Important	**Indicates cautions and limitations that must be followed during operation.**
Point	**Indicates additional information on proper operation.**
Reference	Indicates tips for better understanding or useful information.

Safety Information

General Precautions

DANGER	**• Do not use this product for the purpose to protect a human body or a part of a human body. • Do not use this product in a hazardous location and/or potentially explosive atmosphere. • Do not use this product in an application that may cause death, serious injury or serious property damage should a failure with this product occur, such as nuclear power plants, on aircraft, trains, ships, or vehicles, used within medical equipment, playground equipment, roller coasters and other rides, etc.**
WARNING	**• If the product is used in a manner not specified by this manual, the protection provided by the product may be impaired. • You must perform a sufficient risk assessment for the machine where this product is to be installed prior to installing this product. Provide appropriate protective fail-safe measures on the machine independent from this product in case a failure with this product should occur.**
CAUTION	**Before starting or operating the system, check to make sure all system functions are working properly.**
NOTICE	**• KEYENCE never warrants the function or performance of the IV4 Series if it is used in manner that differs from the IV4 Series specifications contained in this instruction manual or if the IV4 Series is modified by yourself. • When the IV4 Series is used in combination with other instruments, functions and performance may be degraded, depending on operating conditions and the surrounding environment. • Do not subject the controller or connected devices to a sudden change in temperature. It may cause condensation and may damage instruments or peripherals. • Remove the power cable from the power supply if you do not use this product for a long time.**

Important Instructions

Observe the following precautions to prevent malfunction and to ensure proper use.

Precautions on use

CAUTION	**The power of this product and instruments connected to this product must be turned off when the cable is to be installed or removed. Failure to do so may cause an electric shock or product damage.**
NOTICE	**• Use this product with the correct voltage. Failure to do so may cause a malfunction. • For instructions • Do not turn OFF the power while setting the items or saving the settings. Otherwise, all or part of the setting data may be lost. • The enclosure rating of the control panel (IV4-CP70) is IP40. This product is not designed to be waterproof, so use with care when operating it around water. • When this product becomes dirty, do not rub it with a wet cloth, benzene, thinner, or alcohol. Doing so may change the color or shape of the unit. • If the unit is heavily contaminated, disconnect all the cables including the power supply cable, wipe off the dirt with a cloth soaked with mild detergent, and then wipe with a soft dry cloth. • For an LCD panel • Do not press the touch panel with the tip of your nail or anything that has a sharp tip such as a pen or a screwdriver. Doing so may cause damage. • Do not apply shock to the touch panel or press it with excessive force. Doing so may cause damage. • The LCD panel may have some dots that are always lit (bright dots) or ones that are always unlit (black dots). This phenomenon is not a problem. • Due to the unique characteristics of the LCD, displaying the same image for a long time may cause an afterimage.**
NOTICE	**• For USB memory • Use a KEYENCE recommended product. • A USB memory device with a security function cannot be used. • Unplug the USB memory when turning on or off the power of IV4-CP70. • Do not remove the USB memory while the USB is being written on. Otherwise, all or part of the setting data may be lost or the memory may be damaged. • About SD cards • Use a KEYENCE recommended product. • Close the SD card slot cover while the device is in use. • Do not remove the SD card while it is being accessed. Also do not turn off the system power while the SD card is being accessed. Otherwise, all or part of the setting data may be lost or the memory may be damaged. • To prevent data loss, periodically backing up to another storage device is recommended.**

Measures to be taken when an abnormality occurs

WARNING	**In the following cases, turn the power OFF immediately. Using the IV4 Series in an abnormal condition could cause fire, electric shock, or malfunction. Contact your local Keyence representative for repair. • If water or debris enters the IV4 Series. • If the IV4 Series is dropped or the case is damaged. • If abnormal smoke or odor emanates from the IV4 Series.**

Precautions on installation

WARNING	**To use this product correctly and safely, avoid installing it in the following locations. Failure to do so may cause fire, electric shock, or malfunction. • Outdoors • Altitude above 2500 m • Locations that are humid, dusty or poorly ventilated • Locations where the temperature is high such as those exposed to direct sunlight • Locations where there are flammable or corrosive gases • Locations where the unit may be directly subjected to vibration or impact • Locations where water, oil, or chemicals may splash onto the unit**
NOTICE	**• To improve the anti-noise feature, install the unit following the precautions below. Otherwise, a malfunction may occur. • Do not mount the unit in a cabinet where high-voltage equipment is already installed. • Mount the unit as far from power lines as possible. • Separate the unit as far as possible from the devices that emit strong electric or magnetic field (such as solenoid or chopper). • Separate the I/O signal line from the power line or high-voltage line. • For power supply • Noise superimposed on the power supply could cause malfunction. Use a stabilized DC power supply configured with an isolation transformer. • When using a commercially available switching regulator, be sure to ground the frame ground terminal. • Devices including this unit are precision components. Do not apply shock or vibration. • When connecting to a network, let engineers who are knowledgeable about networks handle it.**

Precautions on Regulations and Standards

CE and UKCA Markings

KEYENCE Corporation has confirmed that this product complies with the essential requirements of the applicable EU Directive(s) and UK regulations, based on the following specifications. Be sure to consider the following specifications when using this product in the Member States of European Union and in the United Kingdom.

● EMC Directive (CE) and Electromagnetic Compatibility Regulations (UKCA)

- Applicable standard: (BS) EN61326-1, Class A
- Make sure the length of the power cable and Ethernet cable is less than 30 meters long.

Remarks:
These specifications do not give any guarantee that the end-product with this product incorporated complies with the essential requirements of EMC Directive and Electromagnetic Compatibility Regulations. The manufacturer of the end-product is solely responsible for the compliance on the end-product itself according to EMC Directive and Electromagnetic Compatibility Regulations.

CSA Certificate

This product complies with the following CSA and UL standards and has been certified by CSA.
- Applicable standard: CAN/CSA C22.2 No. 61010-1
  UL61010-1

Be sure to consider the following specifications when using this product as a product certified by CSA.
- Use the following power supply.
  CSA/UL certified power supply that provides Class 2 output as defined in the CEC (Canadian Electrical Code) and NEC (National Electrical Code)
- Overvoltage category I
- Use this product under pollution degree 3.
- Use this product at the altitude of 2500m or less.
- Indoor use only.

North American Regulations

This product complies with the following North American regulations.
- Applicable regulation : FCC Part15 Subpart B, Class A Digital Device
  ICES-003, Class A Digital Apparatus
- 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.
- FCC CAUTION
  Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

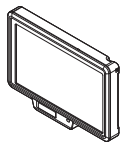
KC mark (Republic of Korea)

사 용 자 안 내 문
이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하 는 경우 전파간섭의 우려가 있습니다 .

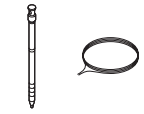
Checking the Package Contents

● Control panel for the IV4 series

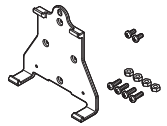
- IV4-CP70



Control panel x 1

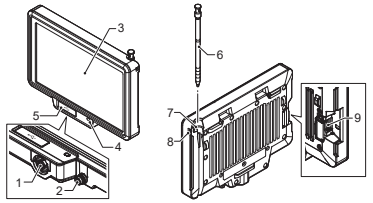


Stylus x 1
String for hanging the stylus x 1



Wall mounting adapter x 1
Screw (M3 x L5) x 2
Screw for the adapter (M3 x L10) x 4
Hexagon nut (M3) x 4

Name and Function of Each Part



1 Connector for the Ethernet cable
Connector for connecting the Ethernet cable. Used when connecting to the sensor or Ethernet switch.
“Cables” (page 2)

2 Power connector
Connector for connecting the control panel/monitor power cable.
“Cables” (page 2)

3 LCD screen/Touch panel
Displays the operation screen and setup screen. Operates by touching the screen with the stylus.

4 Indicator light (POWER)
Indicates the operating status of the control panel.

5 USB Type-A (2.0) port
Port for connecting the USB memory/mouse. Connector is protected by a cover.

6 Stylus
Used to operate the touch-screen.

7 Stylus holder
Stores the stylus.

8 Strap holder
Mounts the strap. Or, hangs the stylus.

9 SD card slot
The slot the microSD card is inserted into. The connector is protected by the cover.

Mounting

Mounting to a wall

Use the wall mounting adapter (accessories or OP-88914).
Hang the control panel on a hook with the wall mounting bracket mounted to the control panel, or mount the control panel to the wall mounting bracket that is mounted on the wall.

Reference The control panel is shipped installed on the wall mounting bracket.

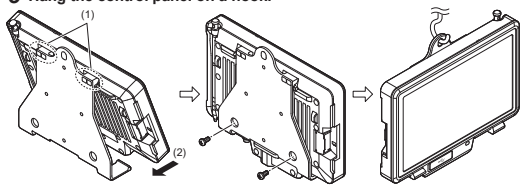
■ Hanging on a hook

While operating, take the control panel from the hook and hold it in your hands.

1 Mount the control panel to the wall mounting adapter by hooking the stopper of the wall mounting adapter to the groove on the rear control panel (1) and then pushing the control panel in the direction of the arrow (2).

2 Secure the wall board mounting adapter to the control panel with screws.
- Screws: M3 x 2 (use the included screws)
- Tightening torque: 0.3 to 0.5 N·m

3 Hang the control panel on a hook.

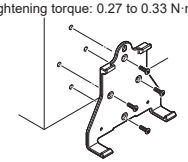


■ Mounting with the wall mounting bracket

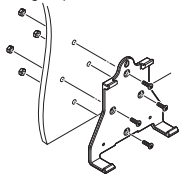
The monitor can be operated using the following methods:
- Remove the control panel from the wall mounting adapter and operate while holding in your hand.
- Operate the control panel while mounted on the wall.

1 Mount the wall mounting adapter to the wall.

● Mounting by creating a through hole in the wall
- Screws: M3 x 4
  Use the included screws
- Tightening torque: 0.27 to 0.33 N·m



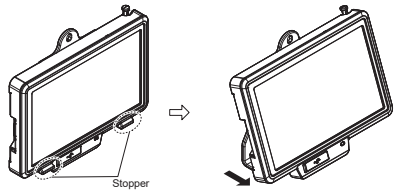
● Mounting by creating a plated through hole on a panel
- Screws: M3 x 4, Nuts: M3 x 4
  Use the attached screws and nuts.
- Mountable board thickness: 5 mm or less
- Tightening torque: 0.27 to 0.33 N·m



2 Mount the control panel onto the wall mounting adapter.
Mount it using the same procedure as “Hanging on a hook” (page 1).

■ Detaching from the wall mounting adapter

Release the stopper on the wall mounting adapter and pull the lower part of the control panel toward the arrow to remove it.



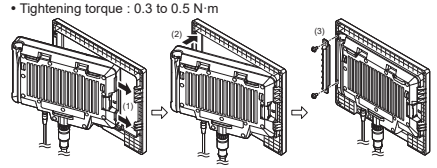
Mounting on a control board

Fix the control panel on a control board or similar machine to operate it.
Mount the control board bracket (OP-88915) on the control panel and mount it on a board.

Important **Before mounting the control panel onto the control board mounting bracket, remove the stylus.**

1 Connect the power cable and Ethernet cable to the control panel.
“Cables” (page 2)

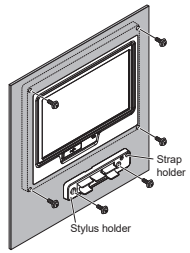
2 Hook the control panel onto the stopper on the control panel mounting bracket (1), push the control panel toward the arrow (2) to mount it, and then attach and secure the fixture with included two screws (M3, length: 8 mm, washer) (3).
- Tightening torque : 0.3 to 0.5 N·m



3 Mount the control panel where the control board mounting bracket is installed from the rear and fix it with the screws. Also secure the stylus holder in any desired position.

Control board mounting bracket
- Open the hole for embedding with 140 mm x 189 mm on the board surface.
- Mountable board thickness: 1 to 4 mm
- Screw: M3, Length: 8 mm, Washers x 4
  Use the included screws.
- Tightening torque : 0.5 N·m or lower

Stylus holder
- Screw: M3, Length: 8 mm, Washers x 2
  Use the included screws.
- Tightening torque : 0.5 N·m or lower

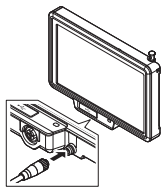


Reference The stylus can be hung from the strap holder on the stylus holder using the hanging string (accessory).

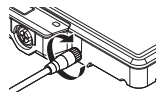
Cables

Connecting the power cable of the control panel

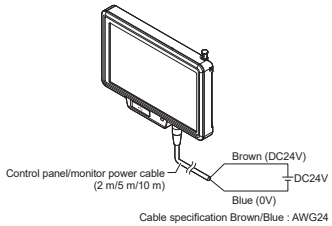
1 **Align the arrow mark of the power cable in the direction of the front of the control panel, and connect the cable to the control panel.**



2 **Tighten the connector by turning the screw on the connector in the clockwise direction.**



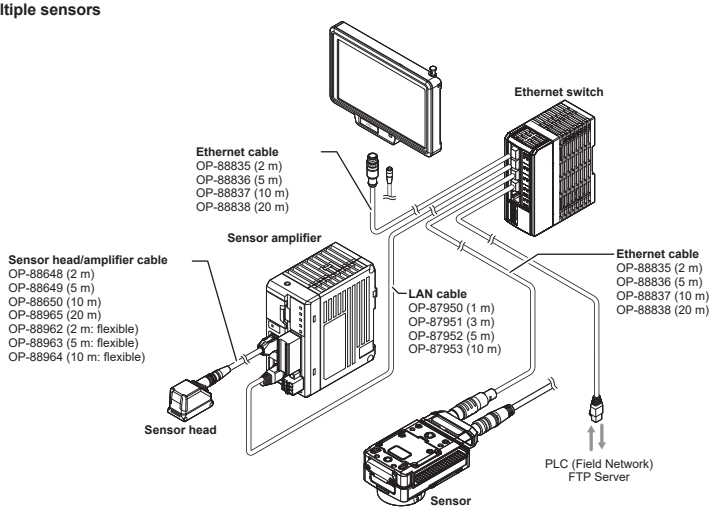
3 **Wire to the power supply.**



Cable specification Brown/Blue : AWG24

Connecting the sensor to the control panel

■ **Connecting to multiple sensors**



NOTICE **Supply power to the sensor and control panel using the power cable.**
The built-in amplifier type sensor supports PoE (Power over Ethernet). To supply power via PoE (Power over Ethernet), see the "IV4 Series User's Manual."

Reference The sensors to which the IV4-CP70 can connect are the IV4 series, IV4 Series, IV2 series, and IV series.
- If connecting to an IV4 Series sensor, IV4-CP70 enters IV4-CP70 mode.
  For details, refer to the "IV4 Series User's Manual (Control Panel)." Please replace the description of IV4-CP70 with IV4-CP70.
- If connecting to an IV2 series sensor, IV4-CP70 enters IV2-CP50 mode.
  For details, refer to the "IV2 Series User's Manual (Control Panel)." Please replace the description of IV2-CP50 with IV4-CP70.
- If connecting to an IV series sensor, the IV4-CP70 enters IV-M30 mode.
  - For details on connecting to an IV-HG/IV-H series sensor, see "IV-HG/IV-H Series User's Manual (Monitor)." Please replace the description of IV-M30 with IV4-CP70.
  - For details on connecting to an IV-G/IV series sensor, see "IV-G/IV Series User's Manual (Monitor)." Please replace the description of IV-M30 with IV4-CP70.

Specifications

Model		IV4-CP70
Compatible sensor		IV4 series, IV4 Series, IV2 series, IV series
Power supply	Power voltage	DC 24V +25% / -20% (including ripple)
	Current consumption	0.9A or less (at 19.2 V)
	Average power consumption	6.0 W
Environmental resistance	Operating ambient temperature	0 to +50 °C (No freezing) *1
	Operating ambient humidity	85% RH or less (no condensation)

*1 It is a value when it is attached in the vertical direction. If you install in other directions, use it at 0 to 40 °C (No freezing).

Cautions

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KEYENCE CORPORATION

1-3-14, Higashi-Nakajima, Higashi-Yodogawa-ku,
Osaka, 533-8555, Japan
PHONE: +81-6-6379-2211

www.keyence.com/glb

AUSTRIA +43 (0)2236 378266 0
BELGIUM +32 (0)15 281 222
BRAZIL +55-11-3045-4011
CANADA +1-905-366-7655
CHINA +86-21-3357-1001
CZECH REPUBLIC +420 220 184 700
FRANCE +33 1 56 37 78 00
GERMANY +49-6102-3656-0
HONG KONG +852-3104-1010
HUNGARY +36 1 802 7360
INDIA +91-44-4963-0900
INDONESIA +62-21-2966-0120
ITALY +39-02-6688220
KOREA +82-31-789-4300
MALAYSIA +60-3-7883-2211
MEXICO +52-55-8850-0100
NETHERLANDS +31 (0)40 206 6100
PHILIPPINES +63-(0)2-8981-5000
POLAND +48 71 368 61 60
ROMANIA +40 (0)269 232 808
SINGAPORE +65-6392-1011
SLOVAKIA +421 (0)2 5939 6461
SLOVENIA +386 (0)1 4701 666
SWITZERLAND +41 (0)43 455 77 30
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UK & IRELAND +44 (0)1908-696-900
USA +1-201-930-0100
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