



## Intelligent monitor IV-M30

### 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.

For details of functions, refer to the IV Series User's Manual (Monitor).

- The IV Series User's Manual can be downloaded from the KEYENCE web site:  
<http://www.keyence.com/>

### Symbols

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

	It indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	It indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	It indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	It indicates a situation which, if not avoided, could result in product damage as well as property damage.

It indicates cautions and limitations that must be followed during operation.

It indicates additional information on proper operation.

It indicates tips for better understanding or useful information.

### Cautions

- Unauthorized reproduction of this manual in whole or part is prohibited.
- The contents of this manual may be changed for improvements without prior notice.
- An utmost effort has been made to ensure the contents of this manual are as complete as possible. If there are any mistakes or questions, please contact a KEYENCE office listed in the back of the manual.
- Regardless of item (3), KEYENCE will not be liable for any effect resulting from the use of this unit.
- Any manuals with missing pages or other paging faults will be replaced.

The company names and product names used in this manual are registered trademarks or the trademarks of their respective companies.

### Safety Information for IV-M30

#### General Precautions

	<ul style="list-style-type: none"> <li>Do not use this product for the purpose to protect a human body or a part of human body.</li> <li>This product is not intended for use as an explosion-proof product. Do not use this product in a hazardous location and/or potentially explosive atmosphere.</li> </ul>
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	<ul style="list-style-type: none"> <li>You must verify that the IV Series are operating correctly in terms of functionality and performance before the start and the operation of the IV Series.</li> <li>We recommend that you take substantial safety measures to avoid any damage in the event of a problem occurring.</li> </ul>
	<ul style="list-style-type: none"> <li>KEYENCE never warrants the function or performance of the IV-M30 if it is used in manner that differs from the IV-M30 specifications contained in this instruction manual or if the IV-M30s are modified by yourself.</li> <li>When the IV-M30 is used in combination with other instruments, functions and performance may be degraded, depending on operating conditions and the surrounding environment.</li> <li>Do not place the instruments, including peripherals, under rapid temperature change. It may cause condensation and may damage instruments or peripherals.</li> <li>Remove the power cable from the power supply if you do not use IV-M30 for a long time.</li> </ul>

### Important Instructions

Observe the following precautions to prevent malfunction of the IV Series and to ensure that it is used properly.

#### Precautions on use

	<ul style="list-style-type: none"> <li>The power of the IV-M30 and instruments connected to IV-M30 must be turned off when the cable is to be installed or removed. Failure to do so may cause an electric shock or a product damage.</li> <li>Use the IV-M30 in the correct supply voltage. Failure to do so may cause product damage.</li> </ul>
	<ul style="list-style-type: none"> <li>For instructions                             <ul style="list-style-type: none"> <li>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.</li> <li>The enclosure rating of the monitor (IV-M30) is IP40. As it is not waterproof, be careful when handling it.</li> <li>When the IV-M30 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.</li> <li>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.</li> </ul> </li> <li>LCD panel                             <ul style="list-style-type: none"> <li>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.</li> <li>Do not apply shock to the touch panel or press it with excessive force. Doing so may cause damage.</li> <li>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.</li> <li>Due to the unique characteristics of an LCD, displaying the same image for a long time may cause an afterimage.</li> </ul> </li> <li>USB memory                             <ul style="list-style-type: none"> <li>Use products recommended by KEYENCE.</li> <li>A USB memory device with a security function cannot be used.</li> <li>Unplug the USB memory when turning on or off the power of IV-M30.</li> <li>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 it may cause damage.</li> </ul> </li> </ul>

#### Measures to be taken when an abnormality occurs

	<p>In the following cases, turn the power OFF immediately. Using the IV Series in an abnormal condition could cause fire, electric shock, or malfunction. Contact our office for repair.</p> <ul style="list-style-type: none"> <li>If water or debris enters the IV Series.</li> <li>If the IV Series is dropped or the case is damaged.</li> <li>If abnormal smoke or odor emanates from the IV Series.</li> </ul>
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## Precautions on installation

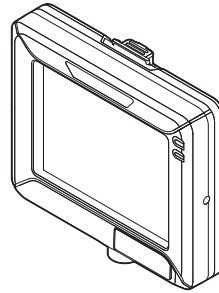
- To use the IV-M30 correctly and safely, avoid installing it in the following locations. Failure to do so may cause fire, electric shock, or malfunction.
  - Outdoors
  - Altitude above 2000 m
  - Locations that are humid, dusty or poorly ventilated
  - Locations where the temperature is high such as 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
- 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.

NOTICE

## Checking the Package Contents

### Intelligent Monitor

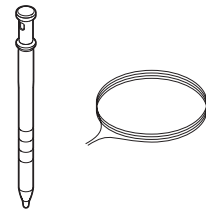
#### • IV-M30



Monitor x 1

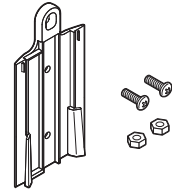
Instruction Manual x 1  
(This manual)

Starting Guide x 1



Stylus x 1

String for hanging the stylus x 1



Wall mounting adapter x 1

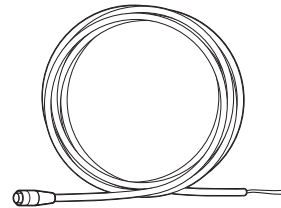
Screw for adapter x 2

Hexagon nut x 2

### Options for Monitor

#### ■ Monitor power cable (M8 4pin - strand wire)

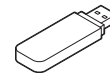
- OP-87443 (2m)
- OP-87444 (5m)
- OP-87445 (10m)



Monitor power cable (M8 4pin - strand wire) x 1

#### ■ USB memory (1GB)

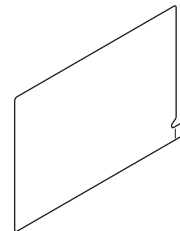
- OP-87502



USB memory x 1

#### ■ Protection sheet

- OP-87463



Protection sheet x 1

#### ■ Stylus

- OP-87462



Stylus x 1



String for hanging the stylus x 1

Same as accessories for monitors.  
Optional parts in case of loss/damage.

## Precautions on Regulations and Standards

### UL Certification

This product is a UL/C-UL Listed product.

- UL File No. E207185
- Category NRAQ, NRAQ7

Be sure to consider the following specifications when using this product as a UL Listed product

- Use a power supply with Class 2 output defined in NFPA70 (NEC: National Electrical Code).
- This product is for use on a flat surface of a Type 1 enclosure.

### CE Marking

Keyence Corporation has confirmed that this product complies with the essential requirements of the applicable EC Directive, based on the following specifications. Be sure to consider the following specifications when using this product in the Member State of European Union.

#### ● EMC Directive (2004/108/EC)

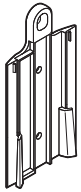
- Applicable Standard EMI : EN61326-1, Class A  
EMS : EN61326-1
- The length of Monitor power cable, Ethernet cable and Monitor cable must be less than or equal to 30m.

Remarks:

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

## ■ Wall mounting adapter

• OP-87464



Wall mounting adapter x 1

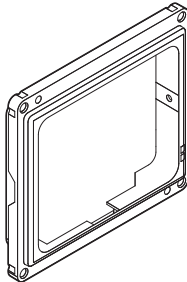
Same as accessories for monitors.  
Optional parts in case of loss/damage.



Screws for adapter x2  
Hexagon nut x 2

## ■ Panel mounting adapter

• OP-87465



Panel mounting adapter x 1

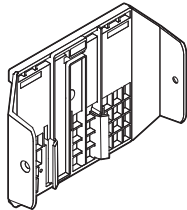
☐ "Mounting to a panel" (Page 5)



Mounting screw (lateral) x 2  
Mounting screw (front) x 4

## ■ DIN mounting adapter

• OP-87466



DIN mounting adapter x 1

☐ "Mounting to the DIN rail" (Page 5)

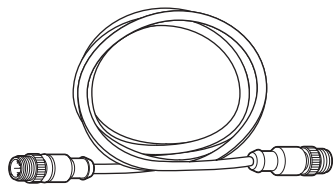


Mounting screw (lateral) x 2

## Communication Cable

### ■ Monitor cable (M12 4pin - M12 4pin)

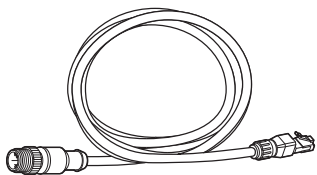
- OP-87450 (2m)
- OP-87451 (5m)
- OP-87452 (10m)
- OP-87453 (20m)



Monitor cable (M12 4pin - M12 4pin) x 1

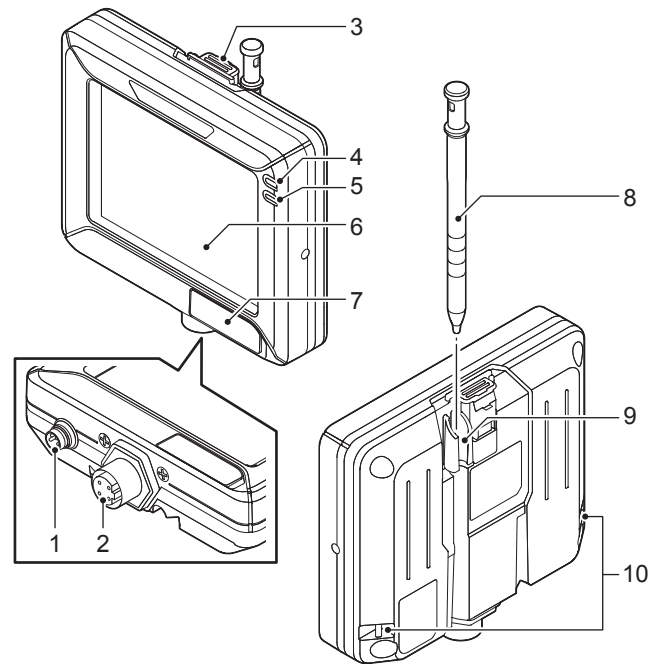
### ■ Ethernet cable (M12 4pin - RJ-45)

- OP-87457 (2m)
- OP-87458 (5m)
- OP-87459 (10m)



Ethernet cable (M12 4pin - RJ-45) x 1

## Name and function of each part



- 1 Power connector**  
Connects the monitor power cable.  
☐ "Cables" (Page 6)
- 2 Connector for the monitor cable/Ethernet cable**  
Connector for connecting the monitor cable or Ethernet cable. Used when connecting with the sensor or Ethernet switch.  
☐ "Cables" (Page 6)
- 3 Unlock button**  
Push this button when dismantling the monitor from the wall mounting adapter or DIN mounting adapter.  
☐ "Unmounting from the wall mounting adapter" (Page 5)  
☐ "Unmounting from the DIN mounting adapter" (Page 6)
- 4 Indicator light (PWR)**  
Indicates the operating status of the monitor.
  - Green (ON) .....The power is turned ON.
  - Red (ON).....Unrecoverable error occurred to the sensor or monitor.
  - Red (Blink) .....Recoverable error occurred to the sensor or monitor.
  - (OFF) .....The power is turned OFF.

## 5 Indicator light (SENSOR)

Indicates the connecting status to the sensor.

- Green (ON) .....Connected normally to the sensor.
- Green ...Linked normally but it is not properly (Slowly blinks) connected to the sensor.
- (OFF) .....It is not properly connected because it did not link normally.

## 6 LCD monitor/Touch panel

Displays the operation screen and setup screen.  
Operates by touching the screen with the stylus.

## 7 USB connecting connector

Connector for connecting the USB memory. Connector is protected by a cover.

## 8 Stylus

Used to operate the touch-screen.

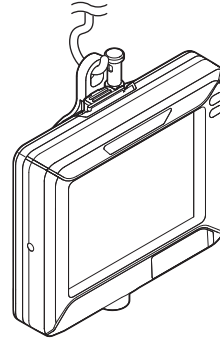
## 9 Stylus holder

Stores the stylus.

## 10 Strap holder

Holds the strap or hangs the stylus.

## 2 Hang the monitor on the hook.



## ■ Mounting with the wall mounting adapter

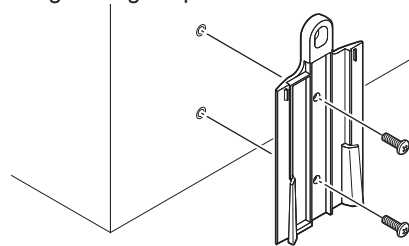
The monitor can be operated by the following methods.

- Unhang to pick up the monitor from the hook and operate it.
- Operate it while mounted on the wall.

### 1 Mount the wall mounting adapter to the wall.

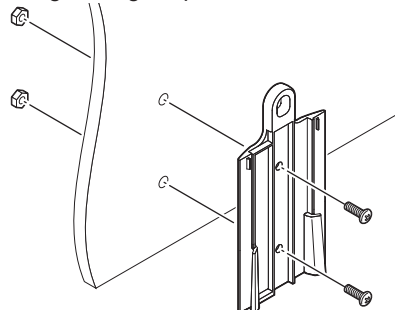
#### ● Mounting by creating a screw hole in the wall

- Screw : M3 x 2  
Use commercially available screws.
- Tightening torque : 0.27 to 0.33 N·m



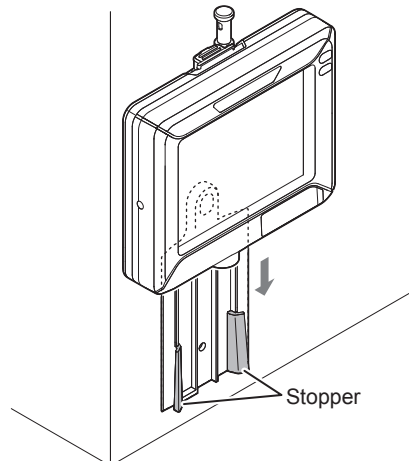
#### ● Mounting by creating a plated through hole on the panel

- Screw : M3 x 2, Nut : M3 x 2  
Use the attached screws and nuts.
- Tightening torque : 0.27 to 0.33 N·m



### 2 Mount the monitor to the wall mounting adapter by aligning the stopper of the wall mounting adapter to the groove on the rear monitor.

Slide the monitor down all the way, and confirm that the monitor is locked.



## Attachment

### Mounting to a wall

Use the wall mounting adapter (accessories or OP-87464). Hang it on the hook with the wall mounting adapter mounted to the monitor, or mount the monitor to the wall mounting adapter mounted on the wall.

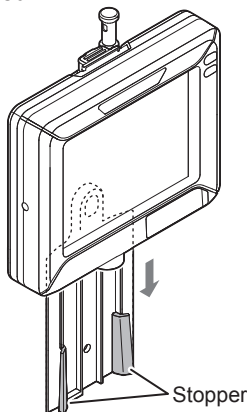
**Reference** The monitor is shipped with the wall mounting adapter mounted.

### ■ Hanging on the hook

For operation take the monitor from the hook and operate it while holding it in your hands.

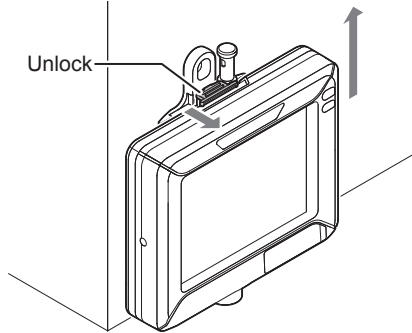
### 1 Mount the monitor to the wall mounting adapter by aligning the stopper of the wall mounting adapter to the groove on the rear monitor.

Slide the monitor down all the way, and confirm that the monitor is locked.



## ■ Unmounting from the wall mounting adapter

Unlock the monitor from the wall mounting adapter by pulling toward the unlock button. And slide up to unmount the monitor mounted to the adapter.



## Mounting to a panel

Operate the monitor by mounting it to a panel such as a control board.

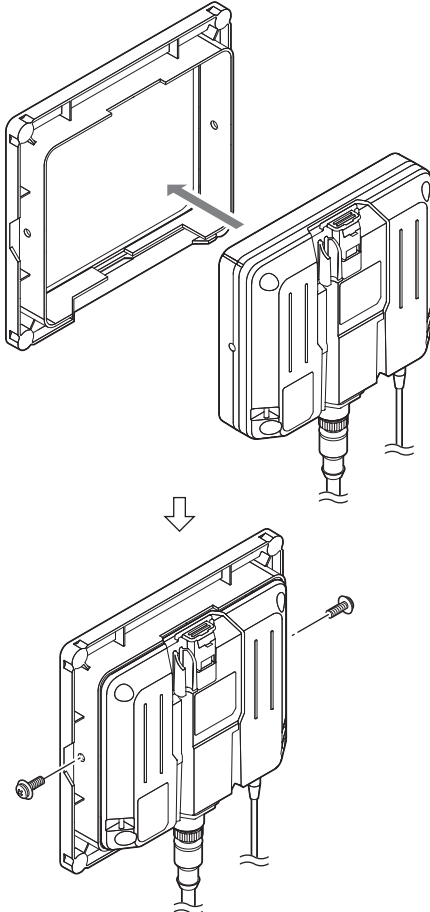
Mount the panel adapter (OP-87465) to the monitor, and mount it to the panel.

### 1 Connect the power cable and monitor cable to the monitor.

☞ "Cables" (Page 6)

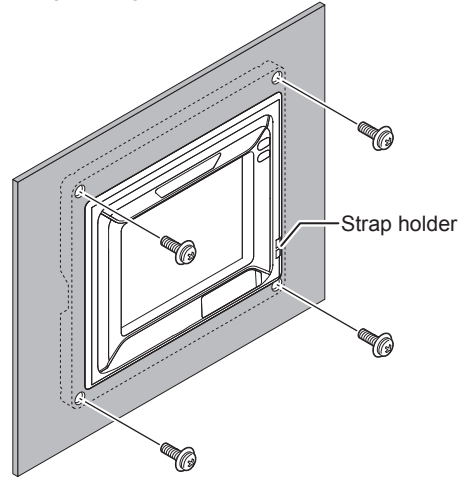
### 2 Mount the panel adapter to the monitor and fix it with the attached screws.

- Screw : M3, 11 mm long, with 2 washers  
Use the attached screws.
- Tightening torque : 0.27 to 0.33 N·m



### 3 Mount the monitor with the panel adapter mounted to the control board from the rear side, and fix it with the screws.

- Make a "92mm x 111mm" size mounting hole on the control board.
- Mountable board thickness : 1 to 4 mm
- Screw : M3, 7 mm long, with 4 washers  
Use the attached screws.
- Tightening torque : 0.5 N·m or lower



Reference → Stylus can be hung from the strap holder using the hanging string (accessory).

## Mounting to the DIN rail

Mount the DIN adapter (OP-87466) to the monitor, and mount it to the DIN rail.

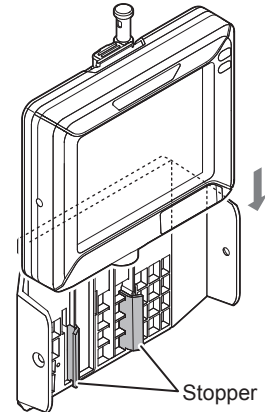
The monitor can be operated by the following methods.

- Pick up the monitor from the DIN mounting adapter and operate it.
- Operate it while mounted on the DIN rail.

## ■ Mounting using DIN mounting adapter

### 1 Mount the monitor to the DIN mounting adapter.

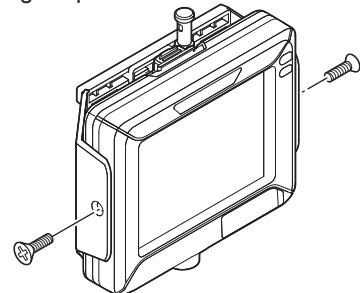
Slide the monitor until the end of the stopper, and confirm that the monitor is locked.



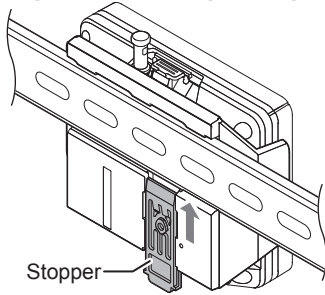
### ● Fixing to the DIN mounting adapter

To fix the monitor to the DIN mounting adapter, use the attached screws.

- Screw : M3 x 2  
Use the attached flat head screw.
- Tightening torque : 0.27 to 0.33N·m

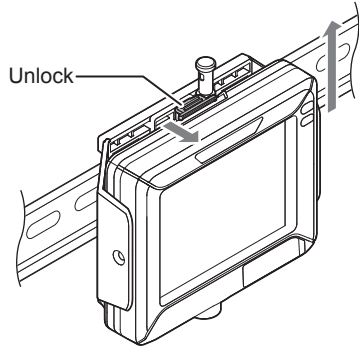


- 2** Adjust the position of the DIN mounting adapter and the DIN rail by pulling down the stopper of the adapter, and then push up the stopper to lock it.



**■ Unmounting from the DIN mounting adapter**

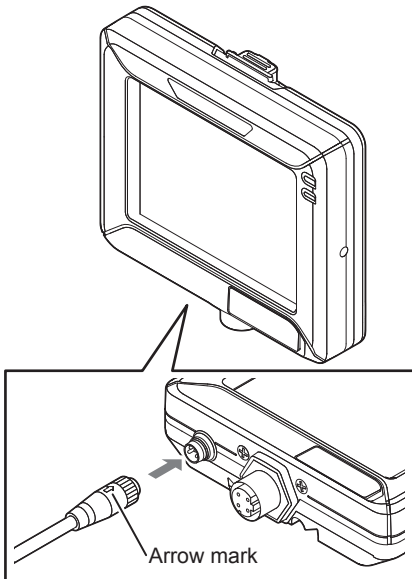
Unlock the monitor from the DIN mounting adapter by pulling toward the unlock button. And slide up to unmount the monitor mounted to the adapter.



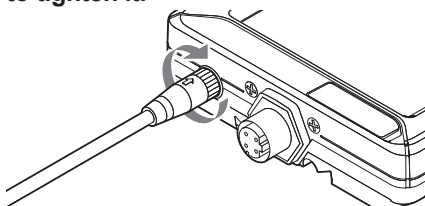
**Cables**

**Connecting the power cable of the monitor**

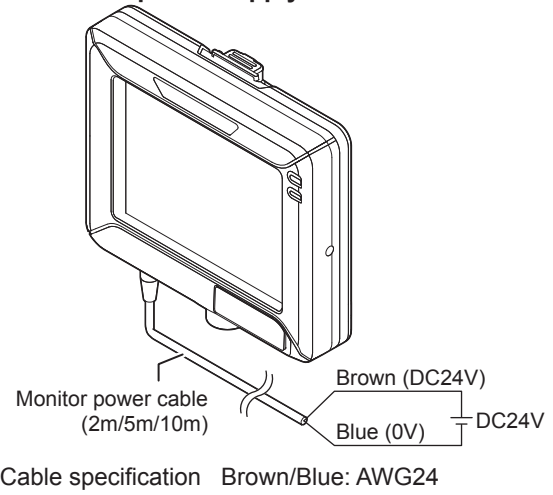
- 1** Align the arrow mark of the power cable and the direction of the front monitor, and connect the cable to the monitor.



- 2** Turn the screw-on connector in clockwise direction to tighten it.



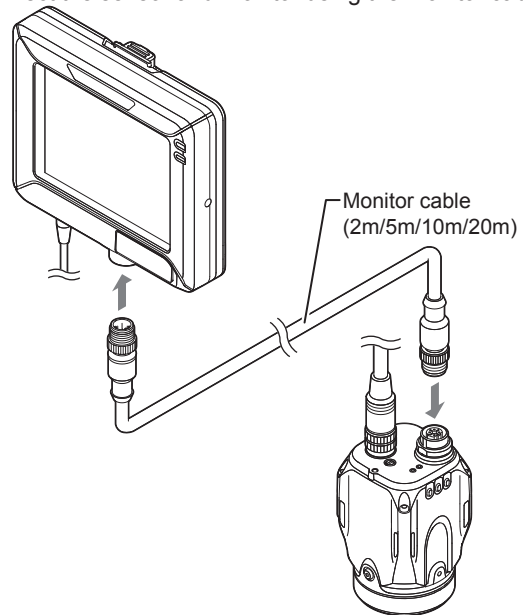
- 3** Wire to the power supply.



**Connecting the sensor and the monitor**

**■ Connecting directly**

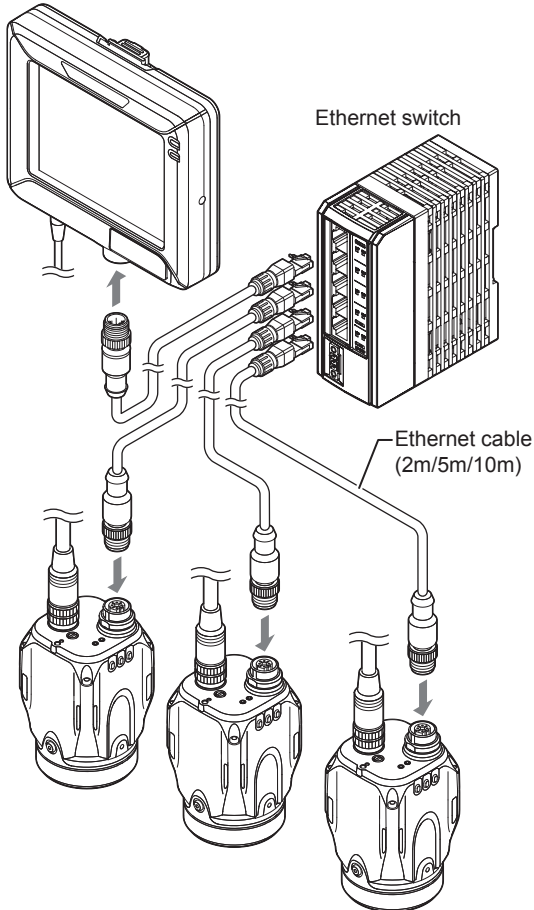
Connect the sensor and monitor using the monitor cable.



For details on connecting the monitor cable, refer to "Connecting the monitor cable/Ethernet cable" (Page 7).

## ■ Connecting via network

Connect each Ethernet cable to the monitor and sensor.  
Connect the other side of the Ethernet cable to the Ethernet switch.



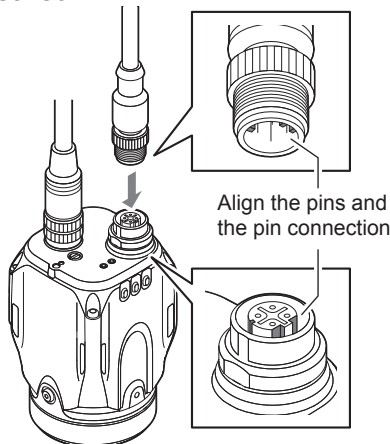
For details on connecting the Ethernet cable, refer to "Connecting the monitor cable/Ethernet cable" (Page 7).

NOTICE	<b>The sensor and monitor do not support PoE (Power over Ethernet). Supply power using the power cable.</b>
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## ■ Connecting the monitor cable/Ethernet cable

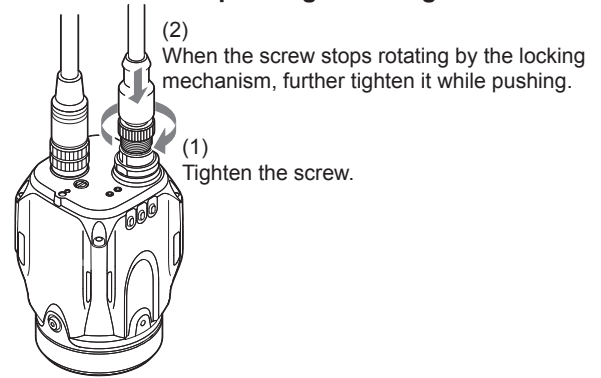
This section describes the details on connecting the monitor cable/Ethernet cable using the example of connecting the monitor cable to the sensor.

- 1 Align the pin connection parts of the monitor cable/Ethernet cable connector with three pins of the cable connector, and connect the cable to the sensor.**



\* Same procedures for monitors.

- 2 Tighten the connector by turning the screw-on connector in the clockwise direction. When connecting the connector, insert it without inclination while pushing in and tighten it well.**



\* Same procedures for monitors.

Repeat the steps (1) and (2) and when you cannot tighten the screw by hand any more, use a tool such as pliers for further tightening. Tightening torque, retorque degree, and acceptable spaces between connectors are shown below.

• **Monitor cable/Ethernet cable (OP-87450/OP-87451/OP-87452/OP-87453/OP-87457/OP-87458/OP-87459)**

Tightening torque : 0.8 to 1.0 N·m

Retightening degree : 5 to 10°

Spaces between connectors (reference value)

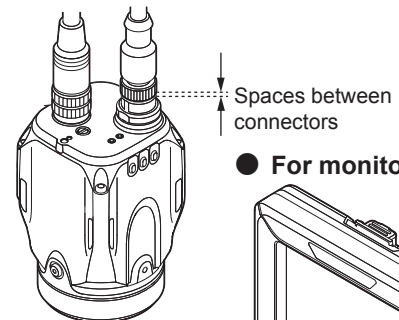
For sensors : 0 mm

For monitors : 2.2 mm

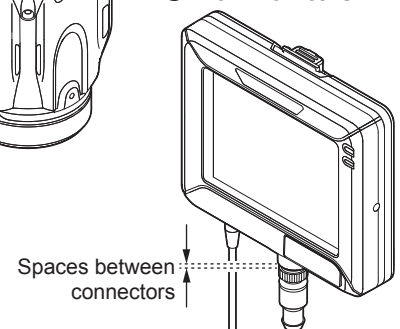
NOTICE	<b>If the connector cable tightening is weak, vibration may loosen the connector and cause bad connections or cable disconnections. Also, the enclosure rating may not be maintained with loose connection. Properly follow the procedures above and tighten the connector completely.</b>
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**Point** Check the spaces between the monitor cable/Ethernet cable and the cable connector.

### ● For sensors



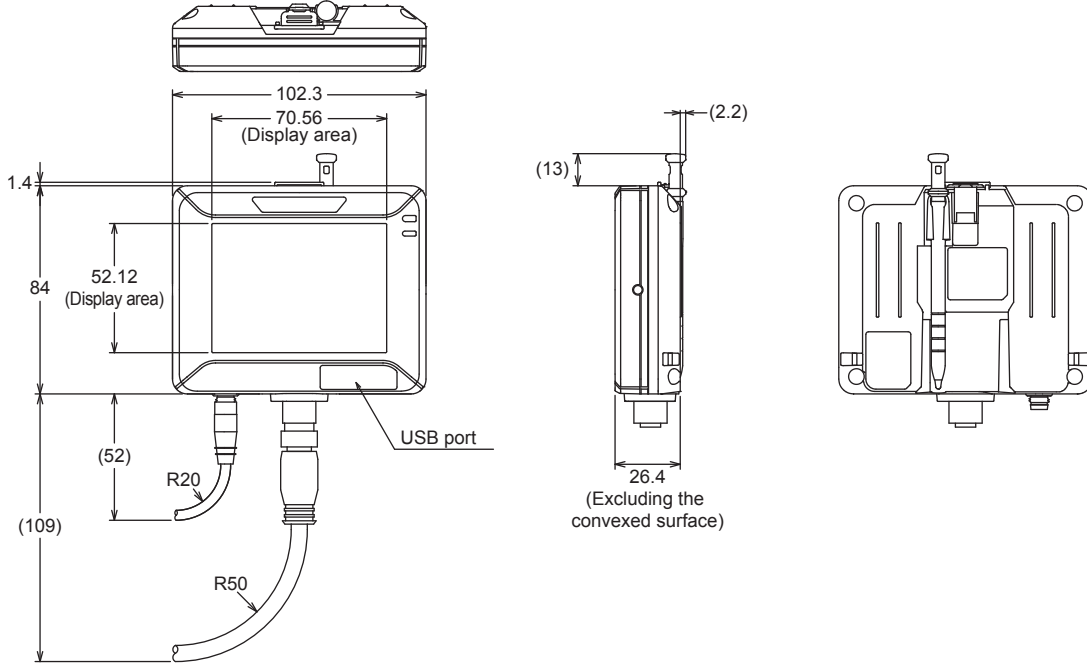
### ● For monitors



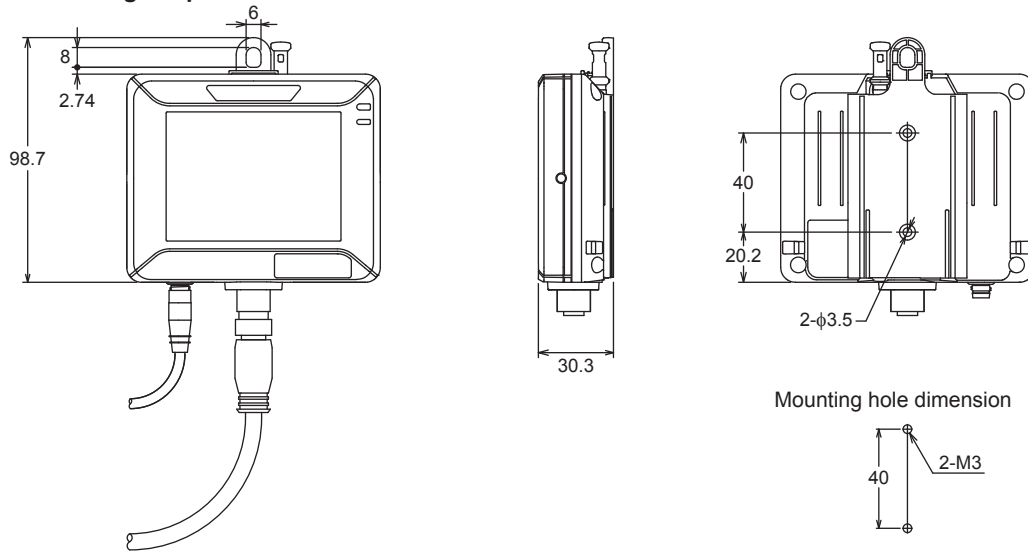
# Dimensions

## Monitor

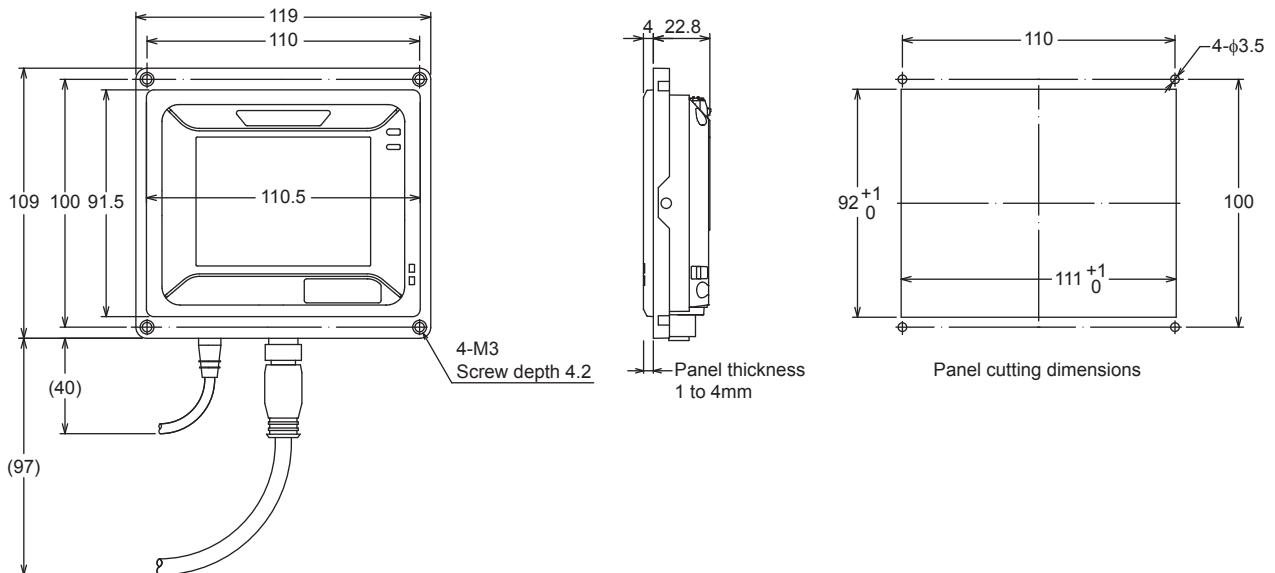
IV-M30



### • Using the wall mounting adapter

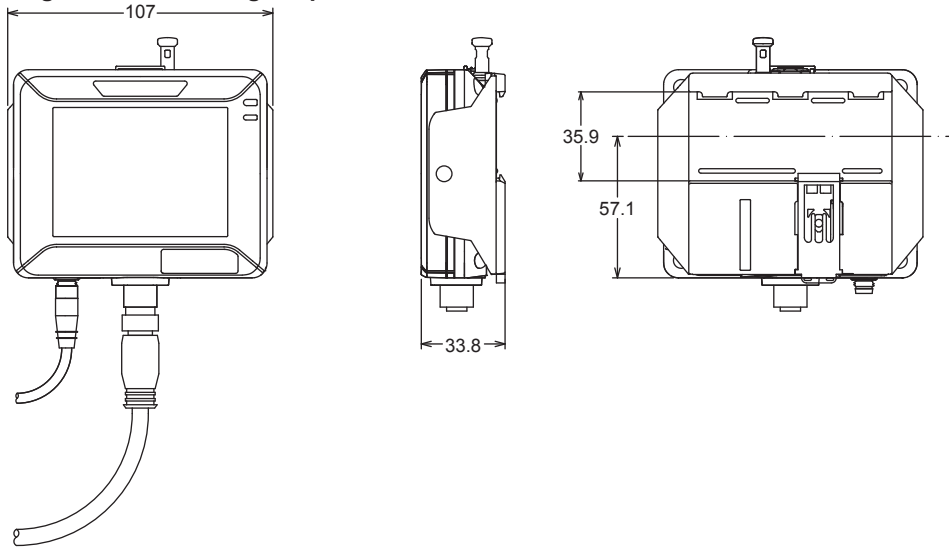


### • Using the panel mounting adapter



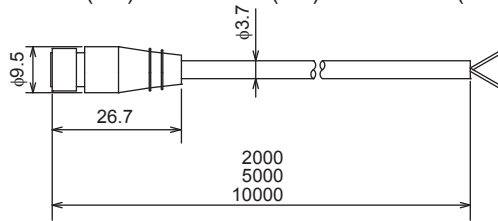


• Using the DIN mounting adapter



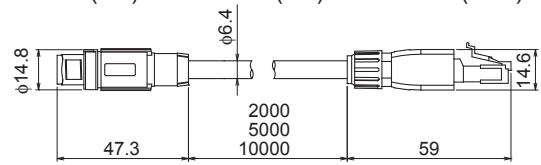
**Monitor power cable**

OP-87443 (2m) / OP-87444 (5m) / OP-87445 (10m)



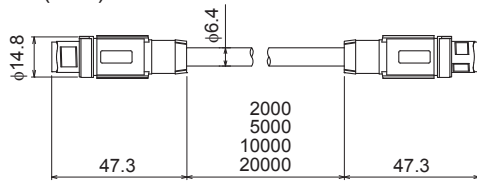
**Ethernet cable**

OP-87457 (2m) / OP-87458 (5m) / OP-87459 (10m)



**Monitor cable**

OP-87450 (2m) / OP-87451 (5m) / OP-87452 (10m) / OP-87453 (20m)



Specifications		
Model		IV-M30
Display		3.5" TFT color LCD 320 x 240 dot (QVGA)
Backlight	Method	White LED
	Duration	Approx. 50,000 hours (25 °C)
Touch panel	Method	Analog resistive
	Actuating force	0.8 N or less
Indicators		PWR, SENSOR
Ethernet *1	Standard	100BASE-TX/10BASE-T
	Connector	M12 4pin connector
Languages		Japanese / English / Deutsch / Chinese (Simplified) / Chinese (Traditional) / Italian / French / Spanish / Portuguese / Korean
Expanded memory		USB memory *2
Rating	Power voltage	DC24V ± 10% (including ripple)
	Consumption current	0.2 A or lower
Environmental resistance	Ambient temperature	0 to + 50 °C (No freezing)
	Relative humidity *3	35 to 80 % RH (No condensation)
	Vibration	10 to 55 Hz, 0.7 mm double amplitude, 2 hours each for X, Y, and Z axes
	Drop impact resistance	1.3m over the concrete (2 times each in the arbitrary direction)
	Enclosure rating	IP40
Material		Polycarbonate
Weight		Approx. 180 g

\*1 This is dedicated for connection with IV-series sensor.

\*2 Use the KEYENCE recommended product.

\*3 If the ambient temperature is over 40°C, use it in the absolute humidity of 40°C 80% RH or lower.

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