

# **Remote Keypad with LCD**

**Hardware Manual**

**Rev. 2.03 E**

**Photron**

## WARNING

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.

## CAUTION:

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

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Product specifications and manual contents are subject to change without notice.

PHOTRON LIMITED bears no responsibility for any results by using our products nor by applying this manual to any operations.

# Introduction

Thank you for your purchase of Photron's high-speed camera system, the "Remote Keypad with LCD" (referred to below as the Keypad).

This manual contains the operating instructions and warnings necessary for using the system. Before using the system, please read the entire manual.

If any part of this manual is unclear, contact Photron using the contact information printed at the back of the manual.

After you finish reading the manual, store it in a safe place along with the warranty card and refer back to it when necessary.

# Using the Manual

This section explains the layout of the manual.

- Introduction

The introduction explains the manual and safety precautions.

- Chapter 1, Setup

This chapter gives an overview of the Keypad.

- Chapter 2, Operation

This chapter explains operations of the Keypad.

- Chapter 3, Product Specifications

This chapter explains the Keypad's specifications.

- Chapter 4, Warranty





This chapter explains about the warranty.

- Chapter 5, Contacting Photron

This chapter lists the contact information to use when contacting Photron if the system malfunctions or if a portion of the manual is unclear.

# Manual Notation

The following icons and symbols are used in the explanations in this manual.

Icon/Symbol	Description
 <b>IMPORTANT</b>	This symbol indicates content that should always be read.
 <b>CAUTION</b>	This symbol indicates instructions that should always be followed when using the software, or things to be careful of when using the software.
 <b>NOTE</b>	This symbol indicates supplementary items to be aware of when using the system.
 <b>REFERENCE</b>	This symbol indicates the location of a reference.
“ ”	This symbol is used to indicate the names of items on a screen, references, dialog names, and connectors.
[ ]	This symbol is used to indicate Keypad’s button names, menu names, and sub-menu names.

# Using the System Safely and Correctly

In order to prevent injury to yourself and others, and to prevent damage to property, carefully observe the following safety precautions.

Photron has given its full attention to the safety of this system. However, the extent of damage and injury potentially caused by ignoring the content of the safety precautions and using the system incorrectly is explained next. Please pay careful attention to the content of the safety precautions when using the system.



**Warning**

This symbol indicates actions that carry the risk that a person could receive a serious injury.



**Caution**

This symbol indicates actions that carry the risk that a person could receive a moderate injury, or that damage to physical property might occur.

The safety precautions to be observed are explained with the following symbols.



This symbol indicates actions that require caution.



This symbol indicates actions that are prohibited and must be avoided.



This symbol indicates actions that must always be performed.



## Warning



- Do not perform actions that will damage the cable.  
Do not damage the cable, modify it, use it near a heater, excessively bend, twist or pull on it, place heavy objects on it, or bundle it.  
Using the cable when damaged can cause fire, electric shock, or a short circuit.



- Do not use the Keypad in a manner which will exceed the rating of the power outlet or wiring equipment used.  
Exceeding the power rating might cause a fire from excessive heat.



- Do not insert metallic objects inside, or pour liquids such as water on, the Keypad.  
Doing so can cause fire, electric shock, or malfunction from short circuit or heat.



- Do not disassemble or modify the Keypad.  
There are high voltages inside the system that can cause electric shock.



- Do not plug in or unplug the connector with wet hands.  
Doing so can cause electric shock.



- Make sure the connector is fully insert into the socket.  
Not fully plugging in the connector can cause fire from electric shock or heat.



- When something is wrong with the Keypad, unplug the connector immediately.
  - When a foreign substance or liquid, such as metal or water, gets inside.
  - When the outer case is broken or damaged, such as from a fall.
  - When the Keypad emits smoke, a strange smell, or strange sound.Using the Keypad in these conditions might cause a fire or electric shock.



- Do not use the accessories by the usage that a manufacturer does not specify.  
It may cause damage of protection.



- Make sure to attach the silicone cover to the Keypad before use.



## Caution



- Always unplug the Keypad from camera when cleaning it or when it is unused for a long period of time. Leaving or storing the Keypad connected to the power source might cause fire from insulation deterioration or electrical discharge.



- Do not set the Keypad in a location where the temperature gets unusually hot. The trunk and inside of a car can get especially hot in summer. Doing so can cause the outer case and internal components to deteriorate or cause a fire.



- Do not place the Keypad in a location prone to oily smoke or steam, or in a location with a lot of humidity or dust. Oil, moisture, and dust conduct electricity, which can cause a fire or electric shock.



- Use the system in an environment with an ambient temperature of -10 to 40 °C, humidity of 85 % RH or lower, maximum altitude of 2,000 m or lower, and no condensation. Use in a condition out of the above limits can cause malfunction.



- Do not store the Keypad in a location where the temperature goes below -20 °C or higher than 60 °C. Be sure not to allow condensation to form inside the Keypad.



- When shipping, remove the connecting cable and use the original packaging or a dedicated carrying case. Do not ship the Keypad in an environment where the temperature goes below -20 °C or higher than 60 °C. Also, prevent condensation from forming during shipment.





## European Union (and EEA) only



“CE” mark indicates that this product complies with the European requirements for safety, health, environment, and customer protection. “CE” mark equipments are intended for sales in Europe.



These symbols indicate that this product is not to be disposed of with your household waste, according to the WEEE Directive (2002/96/EC), the Battery Directive (2006/66/EC) and/or your national laws implementing those Directives.



This product should be handed over to a designated collection point, e.g., on an authorized one-for-one basis when you buy a new similar product or to an authorized collection site for recycling waste electrical and electronic equipment (EEE) and batteries and accumulators. Improper handling of this type of waste could have a possible impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. Your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources.

For more information about the recycling of this product, please contact your local city office, waste authority, approved scheme or your household waste disposal service or visit [www.photron.com](http://www.photron.com).

(EEA: Norway, Iceland, and Liechtenstein)



This product is in conformity with the protection requirements of EU Council Directive 2014/30/EU (Class A) on the approximation of the laws of the Member States relating to electromagnetic compatibility.

**Warning:** This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

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# 1

## Chapter 1 Setup

This chapter gives an overview of the Keypad.

# 1.1 Keypad's Components and Options

## 1.1.1 Components

Refer to the attached packing list for this product's standard components and accessories.

## 1.1.2 Options

The following options are available for the Keypad.

1. Remote Keypad Cable (3 m)
2. Remote Keypad Cable (10 m)

## 1.2 Part Names

The Keypad is composed of components including the main unit and the cable.



For the usage of the Keypad:

- Do not expose the main unit, and other optional components to shock.
- Do not use in an area where flammable gas or dust is present.
- Do not place in an unstable location such as on an unstable platform or an incline.
- Do not disassemble or modify.
- Do not expose to liquids such as water.
- Do not subject to an excessive force.

### 1.2.1 Main Unit

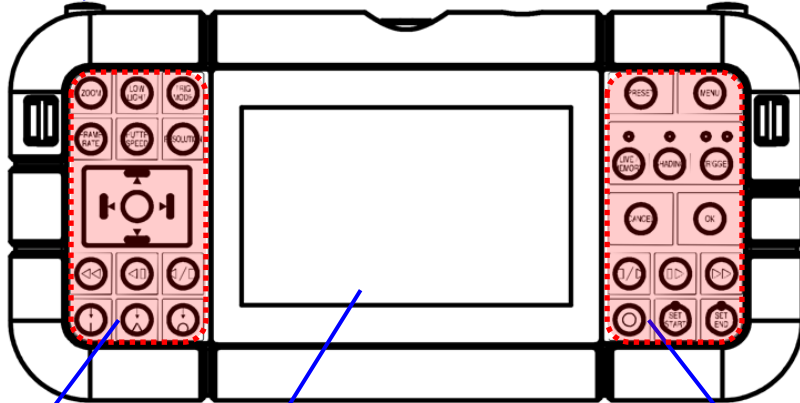
The main unit contains various keys to change the camera setting.



## 1.2.2 Main Unit Part Names

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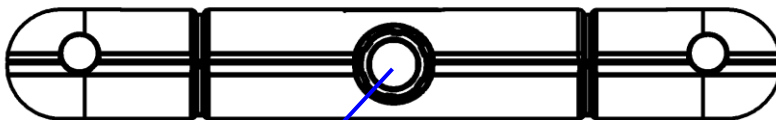
L/R key



Left side keys

Right side keys

LCD



Connector for camera cable

## 1.2.3 Silicone Cover

This is a silicon cover for the Keypad. You can operate the Keypad keys with the cover attached.



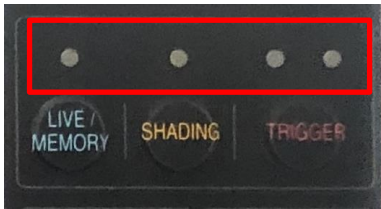
**Warning**

Make sure to attach the silicone cover to the Keypad before use.



## 1.2.4 Status LED on the Main Unit

There are a LEDs on the Main unit. These LEDs indicate the status of the system. The function of each LED is explained here.



### ◆ Name of each LED

	LED type										Flashing cycle	
	LIVE/ MEMORY	SHADING	TRIGGER Left (READY)	TRIGGER Right (REC)	SET -START	SET -END	ON	OFF				
Startup	Cyan	Orange	Green	Red	Unlit	Unlit	500 ms	500 ms				
Idle/LIVE (startup successfully completed)	Cyan	Unlit	Unlit	Unlit	Unlit	Unlit	—	—				
READY (Recording ready)	Cyan	Unlit	Green	Unlit	Unlit	Unlit	500 ms	500 ms				
READY/REC (Endless REC)	Cyan	Unlit	Green	Red	Unlit	Unlit	500 ms	500 ms				
REC	Cyan	Unlit	Unlit	Red	Unlit	Unlit	500 ms	500 ms				
MEMORY mode	Unlit	Unlit	Unlit	Unlit	Unlit	Unlit	—	—				
Shading correction already performed	Cyan	Orange	Unlit	Unlit	Unlit	Unlit	—	—				
Shading calibration required	Cyan	Orange	Unlit	Unlit	Unlit	Unlit	300 ms	300 ms				
During function execution	Cyan	Orange	Green	Red	Blue	Magenta	Depending on the function					
Error detection at startup	Red	Red	Red	Red	Unlit	Unlit	80 ms	80 ms				
Error detection during operation	Red	Red	Orange	Orange	Orange	Orange	80 ms	80 ms				

From left to right, LIVE/MEMORY LED, SHADING LED, READY LED, and REC LED.

### ◆ Lighting/blinking in operational states

#### ■ During operation

When the four LEDs light up and turn off, the Keypad becomes idle (LIVE mode) in the startup state.

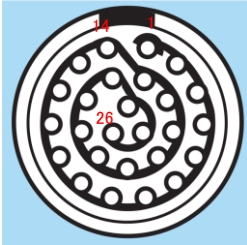
#### ■ When any error occurs

LIVE/MEMORY LED and SHADING LED light up in red, and the others blink depending on the type of error.

## 1.2.5 External Connector / Remote Keypad Cable

### External connector

This connector is used to connect the camera to the Keypad.



Pin diagram viewed from the insertion side of the connector

### Remote Keypad Cable

Camera side / Connector side: FGG.2B.326.CLAD

Length: 10m / 3m

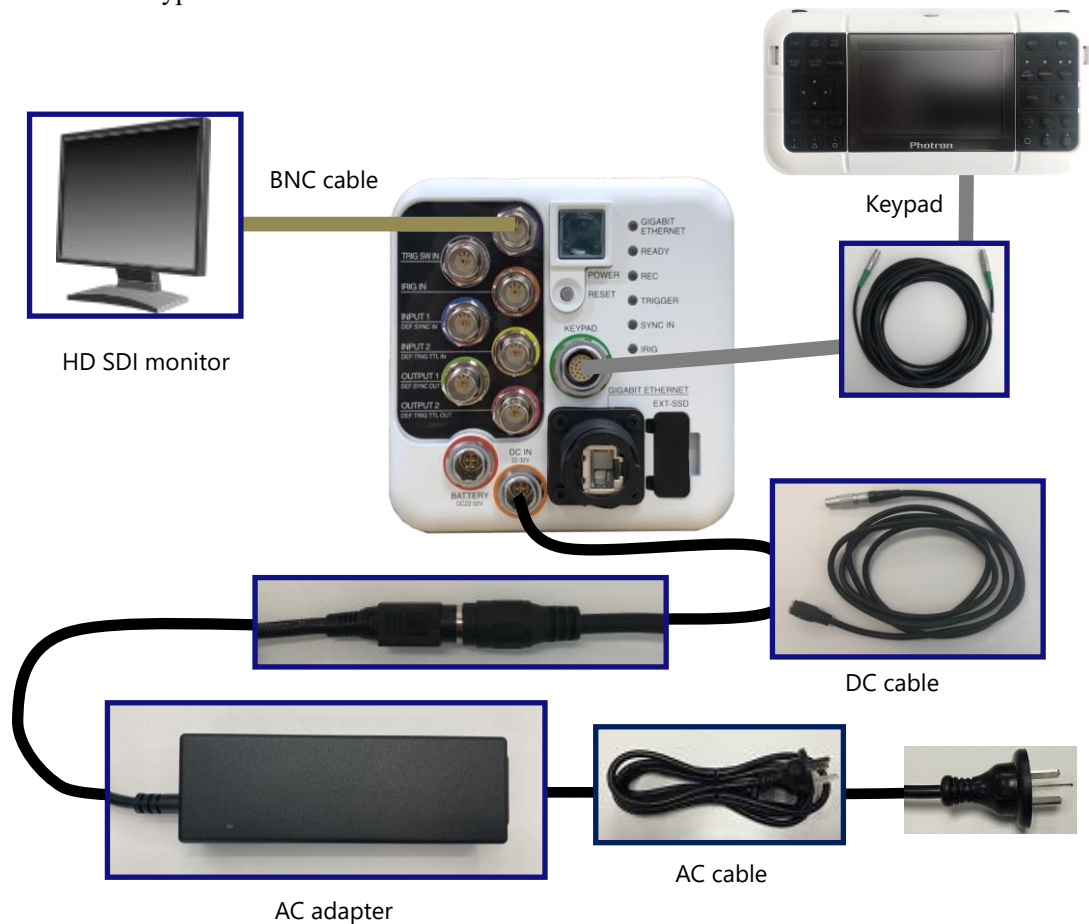
	Connector Model Name	Manufacturer
Camera side	ECG.2B.326.CLN	LEMO
Remote Keypad side	EEG.2B.326.CLN	LEMO
Used with remote keypad cable	FGG.2B.326.CLAD 72Z	LEMO

pin	Signal Name	Color	Note
1	REMO_P		Power supply for Remote Keypad
2	REMO_P		Power supply for Remote Keypad
3	REMO_P		Power supply for Remote Keypad
4	pGND		Ground
5	RXD+		RS422 signal + (Remote Keypad to Camera)
6	RXD-		RS422 signal - (Remote Keypad to Camera)
7	TXD+		RS422 signal + (Camera to Remote Keypad)
8	TXD-		RS422 signal - (Camera to Remote Keypad)
9	nR_Enable		Remote Keypad enable pin (When Keypad is connected: LOW)
10	VSYNC_req		Reserved
11	KEY_STAT		Reserved
12	RST_PLS		Reserved
13	YOBI		Reserved
14	REMO_P		Power supply for Remote Keypad
15	CML_0ch_p		CML (Signal 4 pairs)
16	CML_0ch_n		CML (Signal 4 pairs)
17	GND		
18	CML_1ch_p		CML (Signal 4 pairs)
19	CML_1ch_n		CML (Signal 4 pairs)
20	GND		
21	CML_2ch_p		CML (Signal 4 pairs)
22	CML_2ch_n		CML (Signal 4 pairs)
23	GND		
24	CML_3ch_p		CML (Signal 4 pairs)
25	CML_3ch_n		CML (Signal 4 pairs)
26	GND		

## 1.3 Device Connections

### 1.3.1 Example of Connection

Connect the Keypad to camera as shown below.



#### CAUTION

- The Keypad cannot be used with PFV at the same time. Using the Keypad with PFV, several problems (i.e. recording fails or PFV crashes, etc.) might occur. We recommend that you do not start PFV when using the Keypad, and that you do not connect the Keypad when PFV is running.
- Make sure that the cable between the remote keypad and the main unit is securely connected. If the connection is inadequate, some functions may work, but there is a possibility of abnormal operation.

#### NOTE

- The Keypad is hot-pluggable: it can be plugged into from the high-speed camera while its power is on.
- The illustration above shows a connection example with FASTCAM Nova.

## 1.3.2 Connecting a Video Monitor (Nova)

Connecting video monitors to the system for checking the live image (camera pass-through image). Connect a video input connector on a HD-SDI monitor to the “HD-SDI” connector with a BNC cable.



Video Monitor, etc., Video Device

**HD SDI connector (BNC)**  
The HD SDI (High Definition Serial Digital Interface) output.

Resolution	Frequency
1080 p	30 Hz
	25 Hz

### NOTE

Use 5C-FB specification cables for HD-SDI output.

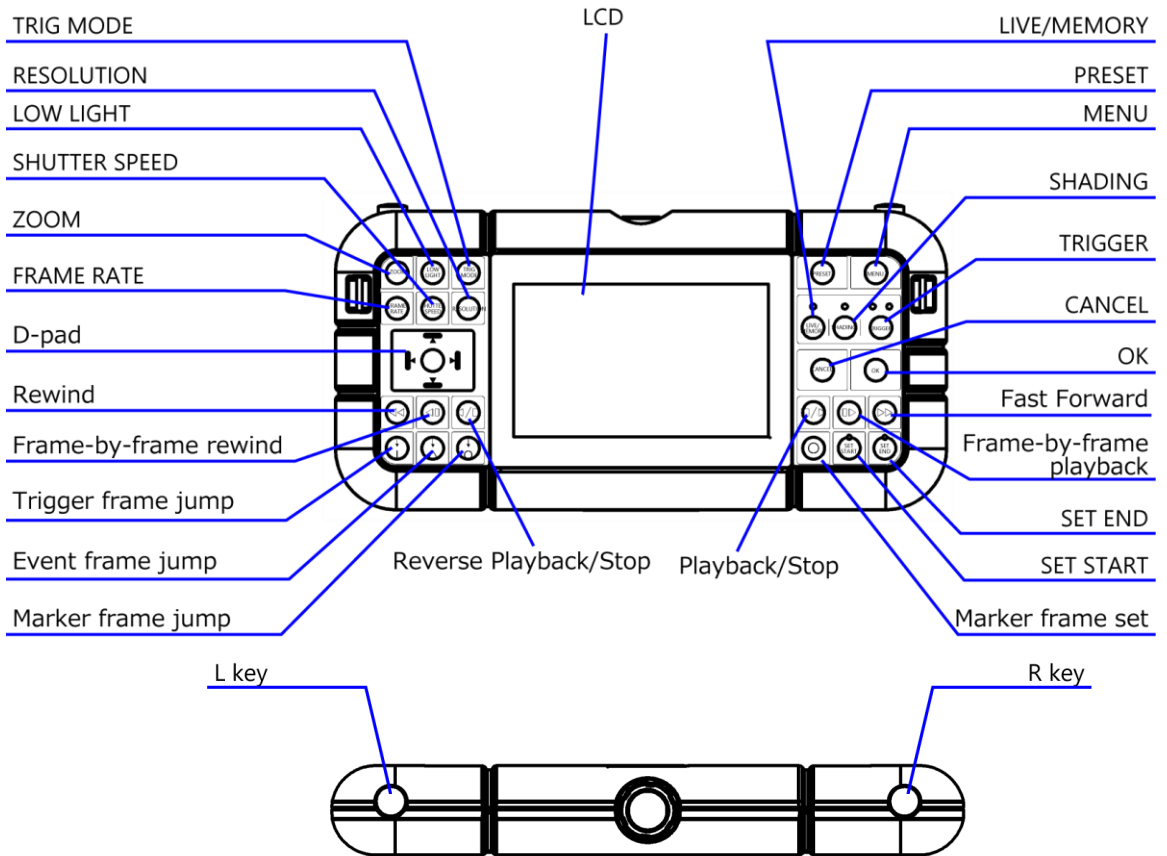
# 2

## Chapter 2 Operation

This chapter explains operations of the Keypad.

## 2.1 Using the Keypad

This section describes the function of each key on the Keypad.



Name	Description
ZOOM	Zooms in and out of the video display. FIT displays the image so that it fits on the screen, and FILL displays the image so that it fits the width.
RESOLUTION	Changes the resolution of the camera.
LOW LIGHT	Changes the low light ON/OFF of the camera.
SHUTTER SPEED	Changes the shutter speed of the camera.
TRIGMODE	Changes the trigger mode of the camera.
FRAME RATE	Changes the frame rate of the camera.
D-pad	Use the [Up], [Down], [Left], and [Right] keys to move through the menu displayed on the LCD. When the menu is hidden, the camera image scrolls up, down, left, and right.
Rewind	Plays the image backwards.
Frame-by-frame rewind	Rewinds the image frame by frame.
Trigger frame jump	Jumps to the trigger frame.
Event frame jump	Jumps to the event frame.
Marker frame jump	Jumps to the marker frame set with the [Marker frame set] key.
Reverse Playback/Stop	Plays and stops image in reverse.
LCD	Displays the image and OSD (basic screen and setting screen).
LIVE/MEMORY	Switches the mode (LIVE/MEMORY).
PRESET	LOAD or SAVE will be displayed. <ul style="list-style-type: none"> <li>• LOAD: Loads the stored recording settings.</li> <li>• SAVE: Saves the current recording settings.</li> </ul>
MENU	Displays the menu on the LCD.
SHADING	Performs the shading calibration of the camera.
TRIGGER	Inputs a trigger to the camera to change to the READY state or to start recording.
CANCEL	Cancels the settings and closes the setting menu. It is also used to cancel setup, recording, and saving to FAST Drive.
OK	Applies the settings and closes the setting menu.
Playback/Stop	Play/Stop in sequential frame advance.
Fast-Forward	Fast-forwards the image.
Frame-by-frame playback	Fast-forwards the image frame by frame.
Marker frame set	Sets the current frame as the marker frame. You can move to the marker frame with the [Marker frame jump] key.
SET START	Sets / cancels the start frame setting.
SET END	Sets / cancels the end frame setting.
L/R	When the menu is not displayed: Partition switching (R forward / L reverse) When menu is displayed: Menu item switching (R forward / L reverse) In MEMORY mode: Partition switching (R forward / L reverse)

### ◆ Long press operation

Key	Description
Frame-by-frame playback	Only in memory mode. Advances one frame in succession. Press and hold to gradually increase the speed.
Frame-by-frame rewind	Only in memory mode. Continuously moves back one frame. Press and hold to gradually increase the return speed.
Fast-Forward	Only in memory mode. Jumps to the start frame.
Rewind	Only in memory mode. Jumps to the end frame.

### ◆ Multiple keys operation

Key	Description
Playback/Stop or Reverse Playback/Stop and L key	Only in memory mode. Decreases the playback rate.
Playback/Stop or Reverse Playback/Stop and R key	Only in memory mode. Increases the playback rate.
Playback/Stop or Reverse Playback/Stop and Left key	Only in memory mode. 10 frames back.
Playback/Stop or Reverse Playback/Stop and Right key	Only in memory mode. 10 frames forward.



### NOTE

- An operation sound is emitted according to the key operation.
- The operation sound can be disabled by setting [KEYPAD BEEP] to OFF in “2.5.9 DEVICE SETTING” on page 45.
- Pressing of three or more keys is not supported, so the operation will be ignored.

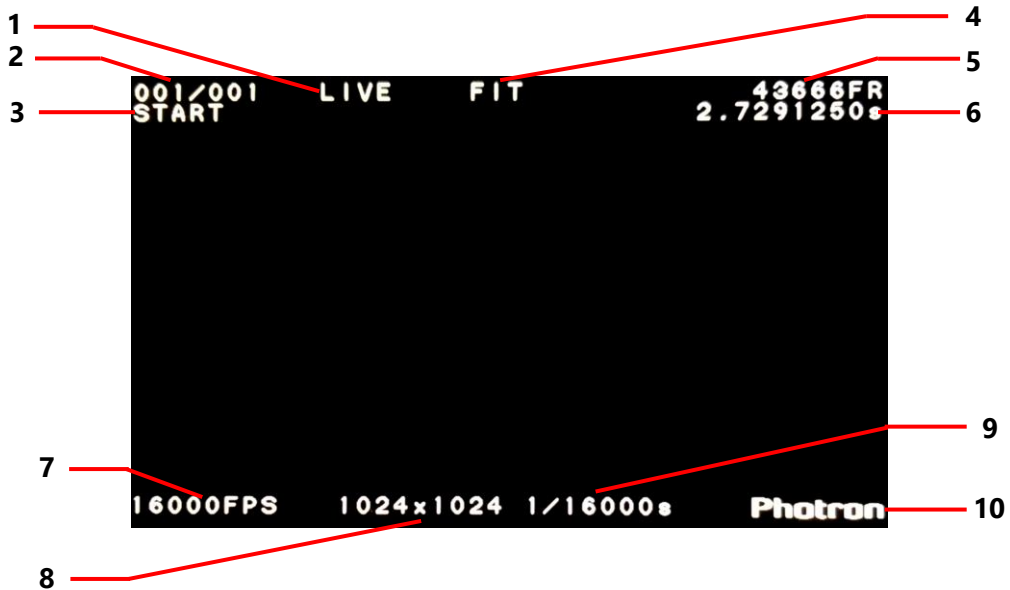


## 2.2 Basic LCD Operation

This section describes the basic LCD operations of the Keypad.

### 2.2.1 LCD Basic Screen

The basic screen of the LCD is shown below.

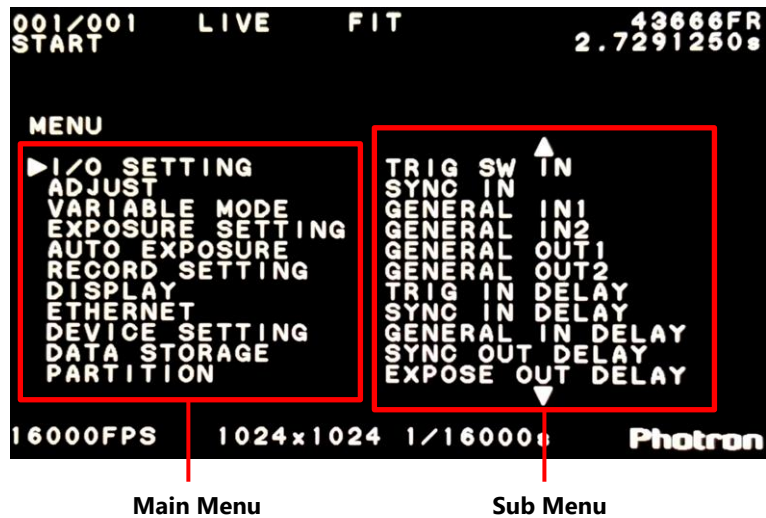


No.	Description
1	Current display mode (LIVE mode / MEMORY mode)
2	The number of partition block currently use / number of partitions configured.
3	Current trigger mode
4	Current zoom mode. FIT means fit to LCD screen size, ZOOM means zoom mode is in use, and SCROLL means scroll mode is in use.
5	Recordable frame counts with the current setting. ("FR" means "frames")
6	Recordable time with the current setting. (Unit: second)
7	Current frame rate ("FPS" means "frame per second")
8	Current resolution (horizontal x vertical)
9	Current shutter speed (Unit: second)
10	Photron logo

## 2.2.2 LCD Menu Screen

The basic screen of the LCD is shown below.

Press the [MENU] key on the Keypad to show the following menu on the LCD.



To exit (cancel) from the menu screen, press the [MENU] key or the [CANCEL] key on the Keypad. You can also select a sub menu to switch to a detailed setting screen or a status display screen.

### NOTE

Menu items may vary depending on the camera.

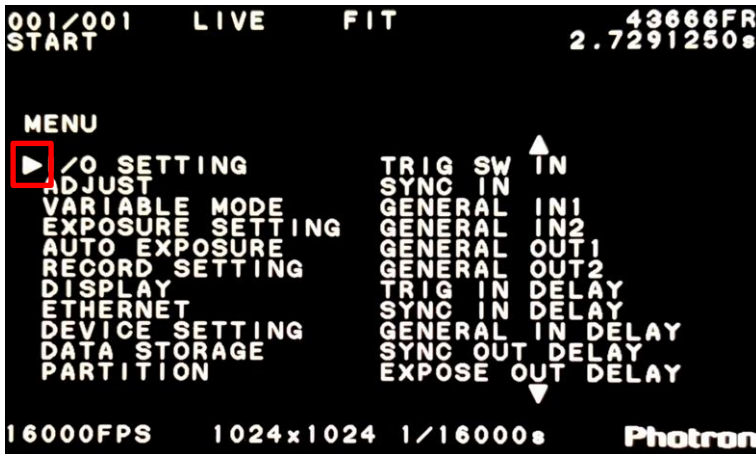
### CAUTION

This LCD menu display is only available on the LCD remote control.  
It will not be displayed on the HD-SDI monitor connected to Nova.

## 2.2.3 Menu Selection / Confirmation / Cancellation

The LCD menu has a hierarchical structure, and by moving the cursor to select each item, the screen transitions in the order of “Main Menu” - “Sub Menu” - “Setting Items”.

1. The “▶” displayed on the main menu is the cursor.  
The cursor can be moved by pressing the [Up] / [Down] keys on the D-pad.



2. When you move the cursor, the sub menu will also change.



3. Press the [Right] key to move the cursor to the sub menu.



4. Press the [OK] key when a submenu is selected to switch to the detailed setting screen.



5. Press the [OK] key to confirm the changes made in the setting screen.  
To return to the previous screen, press the [CANCEL] key.

## 2.3 Basic Recording Settings

Basic recording settings can be changed by pressing some keys on the Keypad in LIVE mode.

### 2.3.1 TRIG MODE

Press the [TRIG MODE] key to set the camera's trigger mode.

This item displays trigger modes supported by the camera itself. In addition, depending on the trigger mode, further sub menu will appear.



- START, CENTER, and END mode

The sub menu will not appear.

- MANUAL mode



Setting	Description
- FRAME	Specifies the number of frames in the endless recording period before the trigger frame.
+ FRAME	The number of frames for the recording period after the trigger frame will be displayed. It depends on -FRAME setting.
TOTAL FRAME	The total number of frames that can be recorded, which depends on the resolution and partition settings. Cannot be set here.

■ RANDOM and RANDOM R mode



Setting	Description
RANDOM FRAME	Specifies the number of frames to be recorded by one trigger input.
RANDOM TIMES	Specifies the number of trigger inputs until the end of recording. When specifies LIMIT OFF, recording will end when the RANDOM FRAME x number of trigger inputs reaches the TOTAL FRAME.
TOTAL FRAME	The total number of frames that can be recorded, which depends on the resolution and partition settings. Cannot be set here.

■ RANDOM M mode



Setting	Description
RANDOM FRAME	Specifies the number of frames to be recorded by one trigger input.
RANDOM TIMES	Specifies the number of trigger inputs until the end of recording. In the case of RANDOM MANUAL mode, there is no LIMIT OFF setting, and it can be specified from 1 to 10 times.
TOTAL FRAME	The total number of frames that can be recorded, which depends on the resolution and partition settings. Cannot be set here.
- FRAME	Specifies the number of frames in the endless recording period before the trigger frame.
+ FRAME	The number of frames for the recording period after the trigger frame will be displayed. It depends on -FRAME setting.

## 2.3.2 LOW LIGHT

Press the [LOW LIGHT] key to change the shutter speed of the camera temporarily to a lower speed. Use this function to adjust the angle of view and focus before recording. During low light, the shutter speed can be changed using the [SHUTTER SPEED] key. Press the [LOW LIGHT] key again to cancel the low light.



### NOTE

Since low light is a temporary setting, it is not possible to record in the low light state.

## 2.3.3 FRAME RATE

Press the [FRAME RATE] key to change the frame rate of the camera. Refer to the hardware manual of the connected camera for the frame rate that can be specified.

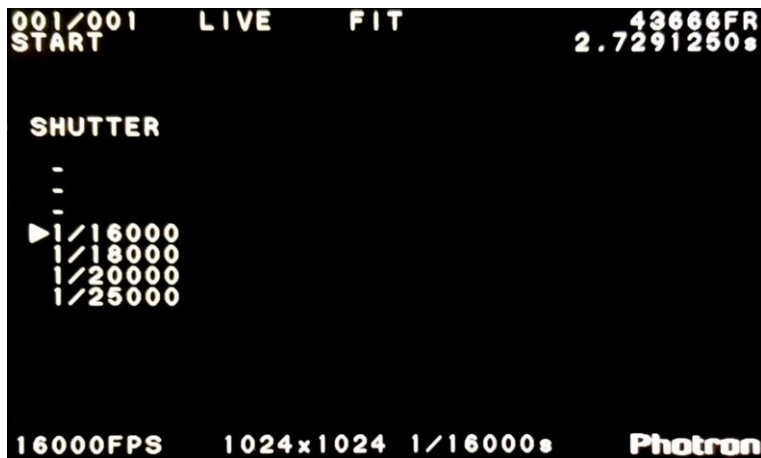


## 2.3.4 SHUTTER SPEED

---

Press the [SHUTTER SPEED] key to change the shutter speed of the camera.

Refer to the hardware manual of the connected camera for the shutter speed that can be specified.



## 2.3.5 RESOLUTION

---

Press the [RESOLUTION] key to change the resolution of the camera.

Refer to the hardware manual of the connected camera for the resolution that can be specified.





## 2.3.6 SHADING

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Shading is a function that corrects the black level of the sensor.

As the temperature of the sensor rises from the time the camera is turned on, its characteristics gradually change. Shading calibrates for this change in characteristics.

When the sensor temperature stabilizes, the characteristics also stabilize, but it is recommended to perform shading before recording just in case.

Press the [SHADING] key to execute shading.



### NOTE

- Shading should be performed when the camera's frame rate, resolution, or shutter speed is changed, or after some time has passed since startup.
- If you change a setting that requires shading, a warning will appear on the screen and the SHADING LED will flash.

## 2.4 Recording / Playback

This section describes recording and playback using the Keypad.

### 2.4.1 Recording

The operation differs depending on the trigger mode.

- START, RANDOM, and RANDOM RESET trigger mode

1. This is the first state after startup. The camera is in LIVE mode.



2. Press the [TRIGGER] key on the Keypad to put the camera in READY (recording standby) mode. In this state, the camera is not yet recording.



3. Press the [TRIGGER] key on the Keypad again to put the camera into REC mode and start recording.

In the case of START trigger, after recording up to the full memory, the camera will stop recording and return to LIVE mode.

In the case of RANDOM or RANDOM RESET trigger, the camera enters the READY mode for the next recording and returns to the step 2.



■ CENTER, MANUAL, and RANDOM MANUAL trigger mode

1. This is the first state after startup. The camera is in LIVE mode.



2. Press the [TRIGGER] key on the Keypad to put the camera in READY (endless recording) mode. In the case of CENTER, MANUAL, and RANDOM MANUAL trigger, recording will start at this point.



3. Press the [TRIGGER] key on the Keypad again to put the camera into REC mode and start recording the last half.  
After recording up to the full memory, the camera will stop recording and return to LIVE mode. In the case of RANDOM MANUAL trigger, the camera enters the READY mode for the next recording and returns to the step 2.



■ END trigger mode

1. This is the first state after startup. The camera is in LIVE mode.



2. Press the [TRIGGER] key on the Keypad to put the camera in READY (endless recording) mode. At this point, the camera will start recording



3. Press the [TRIGGER] key on the Keypad again to finish recording and put the camera into LIVE mode.

## 2.4.2 Playback

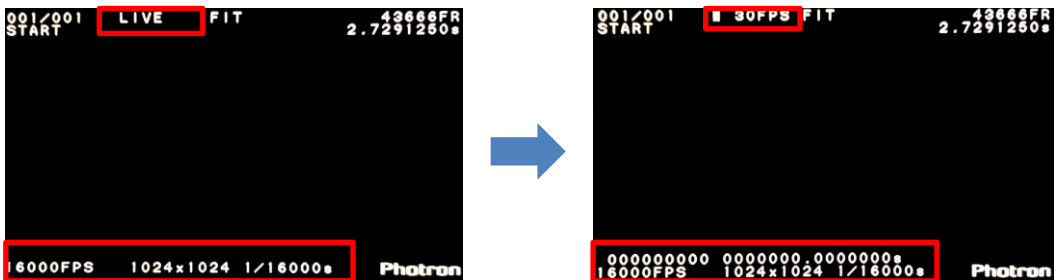
The recorded data can be checked on the Keypad.

The operation differs depending on the trigger mode that was set at the time of recording.

### ■ Switching to MEMORY mode

1. Press the [LIVE / MEMORY] key on the Keypad to switch between LIVE mode and MEMORY mode alternately.

When the mode is switched to MEMORY mode, the LIVE display on the LCD screen will disappear.



2. In MEMORY mode, use the playback control keys on the Keypad to play back recorded data, play back frame by frame, and perform other operations.

For details on the operation of the playback control keys, refer to “2.1 Using the Keypad” on page 22.



3. Press the [Playback/Stop] or [Reverse Playback/Stop] key and [L/R] key on the Keypad to change the playback speed.

The current playback speed will be displayed at the top of the screen.

## 2.4.3 Playback Screen Zoom In / Out (Zoom, Scroll)

Photron high-speed camera uses a high-resolution sensor. Therefore, the default setting for the ZOOM rate is “FIT”, which enlarges or reduces the size so that the entire camera image appears on the LCD screen. Pressing the [ZOOM] key on the upper left of the Keypad will bring up the menu, and the camera image will be resized. The current setting status is displayed in the upper center of the screen.



Also, if you change the zoom rate, only a part of the camera image will be displayed on the LCD depending on the rate. The LCD display can be scrolled by pressing the [Up], [Down], [Left], and [Right] key on the Keypad when the menu is not displayed.

Setting	Description
FIT	The camera image will be fitted and displayed according to the size of the LCD. Displays the entire camera image on the LCD at the maximum magnification.
FILL	The camera image will be fitted and displayed according to the size of the LCD. Displays the width of the camera image at a magnification that matches the width of the LCD.
x 1	Displays the height and width of the image at 100% on the LCD.
x 2	Displays the height and width of the image at 200% on the LCD.
x 4	Displays the height and width of the image at 400% on the LCD.
x 8	Displays the height and width of the image at 800% on the LCD.
x 16	Displays the height and width of the image at 1,600% on the LCD.

### NOTE

- The zoom ratio you can select is limited by your camera.
- When the resolution setting of the camera is set to a specific combination (when the ratio of horizontal to vertical resolution is greater than 25:1 or the ratio is greater than 1:15), the display on the LCD may be stretched vertically or displayed off-center.
- Use the ZOOM setting to change the display settings. This is due to the display specifications of the product, and the actual recording data is normal.
- Example of a combination where the ratio of horizontal to vertical resolution is greater than 25:1  
Resolution 892 x 32 (Ratio 27.8:1)  
Resolution 1,024 x 32 (Ratio 32:1)
- Example of a combination where the ratio of horizontal to vertical resolution is greater than 1:15  
Resolution 32 x 480 (Ratio 1:15)  
Resolution 128 x 2,304 (Ratio 1:18)

## 2.4.4 Segment Playback

---

When you want to play back only a part of the entire image recorded at high speed, you can specify the start and end points of the area you want to view and play back only that area.

This function is called “Segment Playback”.



To use the Segment Playback function, use the playback control keys to move to the desired start frame in MEMORY mode, and press the [SET START] key. In the confirmation screen, press the [SET START] or [OK] key again to set.

This will specify the start point.

Next, move to the desired end frame, and press the [SET END] key in the same way.

The end point will be specified, and playback will loop through the range from the start point to the end point.

When the Segment Playback is set, the SET START/SET END LEDs will light up respectively.

To release Segment Playback, press the [SET START] and [SET END] keys again to release the start and end points.

## 2.4.5 Playback Marker

---

You can set a marker on the frame and jump to it instantly.



### ◆ Trigger Frame

Press the [Trigger frame jump] key to jump to the trigger frame of the recorded data.

In the case of START trigger mode, it jumps to the beginning, and in the case of CENTER trigger mode, it jumps to the center.

In the case of the RANDOM trigger modes, each time you press the [Trigger frame jump] key, it jumps to the trigger frame input multiple times in order.

### ◆ Event Frame

Press the [Event frame jump] key to jump to the event frame of the recorded data.

The event frame is recorded by setting the camera's I/O connector to [EVENT POS/NEG] and inputting a signal during recording.

### ◆ Marker Frame

Press the [Marker frame jump] key to jump to any frame you specify during playback by Keypad.

The marked frame can be set by pressing the [Marker frame set] key at any frame during playback.

## 2.5 Main Menu Details (LIVE mode)

This section describes the main menu settings in LIVE mode. The contents of each setting are the same as the PFV4 settings.

### NOTE

For details of the functions, refer to the PFV4 Users Manual.

### 2.5.1 I/O SETTING

In the [I/O SETTING] menu, you can set the settings for the camera's terminals, as well as the signal delay and signal width.



Setting	Description
*** IN *** OUT	Sets detailed settings for the corresponding terminal and the function to be assigned.
*** IN DELAY *** OUT DELAY	Sets the delay between the actual operation of the camera and the output of the corresponding signal.
*** OUT WIDTH	Sets the output width of the corresponding signal.
SYNC IN	Changes the setting for synchronous operation to the signal input to the INPUT (GENERAL IN) terminal of the camera.
IRIG IN	Changes the setting for synchronous operation to the IRIG signal input to the IRIG IN terminal of the camera.

### NOTE

The “INPUT1, 2” and “OUTPUT1, 2” terminals on the camera are indicated as “GENERAL IN1, 2” and “GENERAL OUT1, 2” respectively.



## 2.5.2 ADJUST

In the [ADJUST] menu, you can set the camera's LUT (look-up table), color temperature, color enhancement and enable/disable shading function.



Setting	Description
LUT SELECT	Sets the camera's LUT (look-up table).
COLOR TEMP	Sets the camera's color temperature. This is displayed with a color camera.
COLOR ENHANCEMENT	Sets the camera's color enhancement mode. This is displayed with a color camera.
SHADING	Turns shading calibration ON/OFF.

## 2.5.3 VARIABLE MODE

In the [VARIABLE MODE] menu, you can set detailed frame rate and resolution settings that cannot be set in [FRAME RATE] and [RESOLUTION].



Setting	Description
FRAME RATE	This mode determines the frame rate first, and then determines the resolution that can be set at that resolution.
RESOLUTION	This mode determines the resolution first, and then determines the frame rate that can be set at that resolution.
LOAD	Loads the variable settings that have already been created.
ERASE	Deletes a variable setting that has already been created.

## 2.5.4 EXPOSURE SETTING

In the [EXPOSURE SETTING] menu, you can change settings related to exposure.



Setting	Description
SHUTTER LOCK	Sets the shutter lock function ON/OFF. When set to ON, if the same shutter speed can be set before and after changing the frame rate, the shutter speed will not be changed.
DS SHUTTER	Sets the ON/OFF and detailed settings of the dual-slope shutter.
LOW SHUTTER SPEED	Sets the low-speed shutter function ON/OFF.

## 2.5.5 AUTO EXPOSURE

In the [AUTO EXPOSURE] menu, you can change the settings related to the auto exposure function.



Setting	Description
ADJUSTMENT	Sets the threshold value and other details of auto exposure function.
AREA	Sets the area to be used for judging the auto exposure function.
ON/OFF	Sets the auto exposure function ON/OFF.

## 2.5.6 RECORD SETTING

In the [RECORD SETTING] menu, you can change settings related to recording.



Setting	Description
RECORDING TYPE	Sets the camera operation when a signal is input.
RESOLUTION LOCK	Sets the RESOLUTION LOCK function ON/OFF. When sets to ON, if the same resolution can be set before and after the frame rate is changed, the resolution will not be changed.

## 2.5.7 DISPLAY

In the [DISPLAY] menu, you can change the settings related to the LCD display.



Setting	Description
OSD CUSTOM	Sets whether to show or hide the OSD display (settings shown on the screen) for each item.
SHUTTER DISPLAY	Changes the shutter speed display from 1/xxxx sec to 0.xxxx sec by default.
PLAYBACK TYPE	Sets whether to loop playback when it reaches the beginning or end.
AUTO OSD OFF	Sets ON/OFF for the function that automatically turns off the OSD when playing back in MEMORY mode.
OSD	Sets whether to show or hide the OSD in both LIVE and MEMORY modes.
SET START FRAME	Sets whether to reset or retain the playback start frame and end frame when playback is performed in MEMORY mode after recording and then moved to LIVE mode and then returned to MEMORY mode again.
GRID	Sets whether to display a crosshair in the center of the LCD screen.
ZOOM TARGET	Sets whether to apply the ZOOM setting to LCD or HD-SDI.
KEYPAD BRIGHTNESS	Sets the brightness of the Keypad's LCD in five levels.

## 2.5.8 ETHERNET

In the [ETHERNET] menu, you can change the camera's IP address setting.



Setting	Description
IP ADDRESS	Changes the camera's IP address.

## 2.5.9 DEVICE SETTING

In the [DEVICE SETTING] menu, you can check the camera's version and settings, and perform factory default.



Setting	Description
AUTO PLAY	Sets whether to automatically move to MEMORY mode after recording, and whether to turn auto playback ON/OFF when moving to MEMORY mode.
SYSTEM REV	Check the system revision of the camera.
CAMERA STATUS	Check the settings of the camera, such as frame rate and I/O settings.
HD-SDI FORMAT	Sets the output format from the HD-SDI terminal of the camera.
HD-SDI MODE	Set whether the output from the HD-SDI terminal of the camera is always in LIVE mode or in LIVE mode and MEMORY mode.
KEYPAD BEEP	Turns ON or OFF the sound when a key is pressed on the Keypad.
FACTORY DEFAULTS	Resets the camera to the factory default settings.

## 2.5.10 DATA STORAGE

In the [DATA STORAGE] menu, you can change the settings related to the FAST Drive saving.



Setting	Description
SAVE	Starts saving to a connected FAST Drive. Choose to save the current partition only, save the partitions after the current one, or save all partitions.
DATA LIST	Check the data list in the connected FAST Drive. You will not be able to open data on this screen.
FORMAT	Initialize the connected FAST Drive.
SAVE MODE	Selects the save operation to the connected FAST Drive. <b>MANUAL:</b> Saves manually from the SAVE menu. <b>AUTO:</b> Automatically saves to the FAST Drive after recording. <b>SAVE ALL AFTER REC:</b> Saves the data of all partitions to the FAST Drive after all partitions have been recorded. <b>SAVE DURING REC:</b> After partitioning and recording, the recorded partitions will start to be saved to FAST Drive. At the same time, the next partition will be put into recording standby mode, and can be recorded by trigger input. This operation allows continuous recording and will continue until all partitions are being saved.

## 2.5.11 PARTITION

In the [PARTITION] menu, you can change settings related to camera memory partitioning.



Setting	Description
PARTITION SETUP	Divides the internal memory of the camera into partitions. It allows to record multiple times.
AUTO INCREMENT	Turn on/off the function that automatically puts the camera in standby for recording for the next partition after recording to a partition.



### NOTE

- The divided partitions can be switched by using the upper keys of the Keypad to move backward or forward respectively.
- This is displayed when the camera has partitioning function.

## 2.6 Main Menu Details (MEMORY mode)

This section describes the main menu settings in MEMORY mode.  
The contents of each setting are the same as the PFV4 settings.

In MEMORY mode, the main menu changes as shown below.  
All these menus have the same functions as in LIVE mode.



### NOTE

- For details of the functions, refer to the PFV4 Users Manual.
- Functions other than those described in this manual are not supported for operation from the Remote Keypad. Please operate the unsupported functions directly from PFV.



# 3

## Chapter 3 Product Specifications

This chapter explains the system's specifications.

## 3.1 Specifications

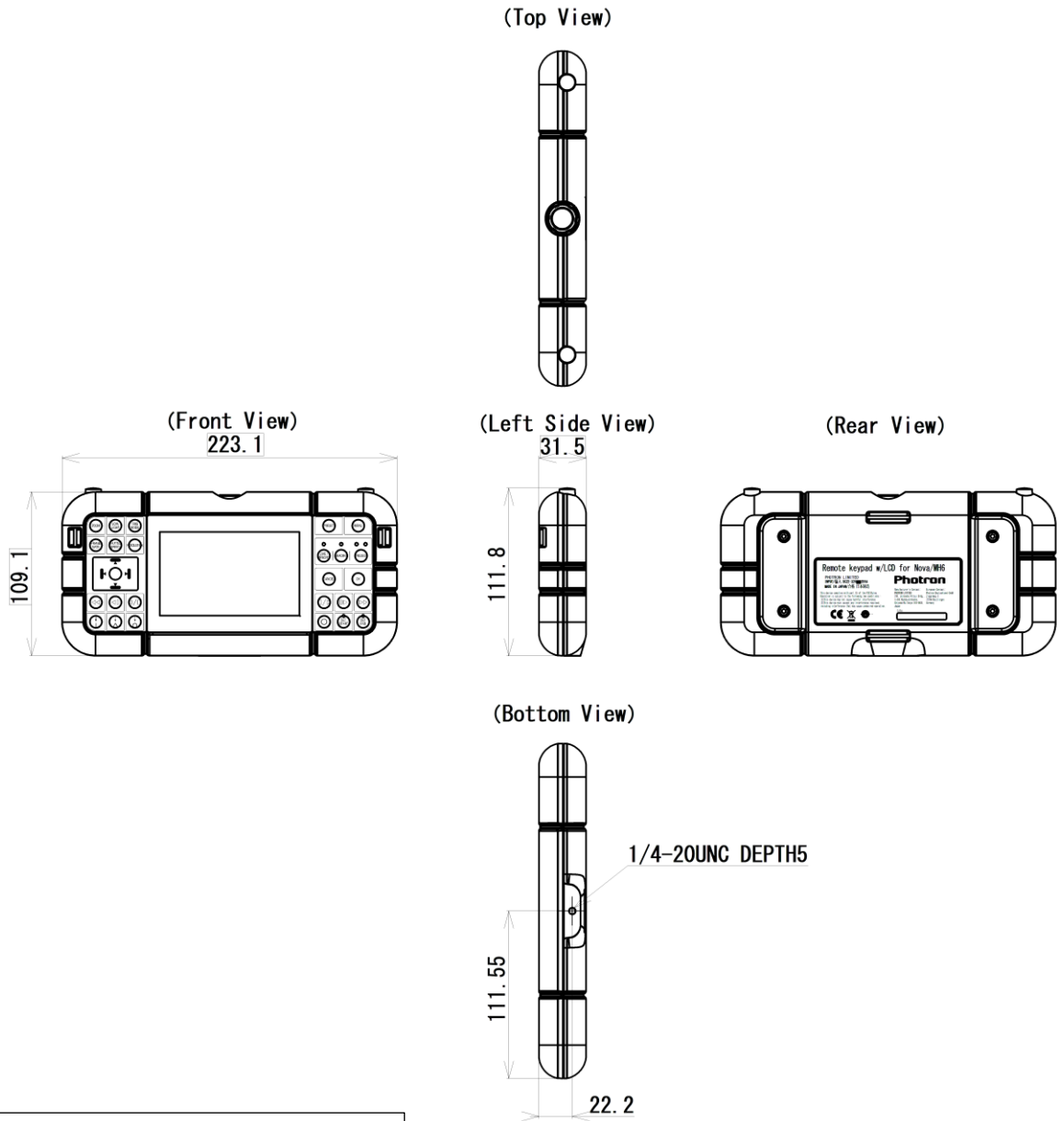
### 3.1.1 General Specifications

<b>Environment Conditions</b>	
Storage Temperature	-20 to 60 deg C (No Condensation) -4 to 140 deg F (No Condensation)
Storage Humidity	85% or less (No Condensation)
Operating Temperature	-10 to 40 deg C (No Condensation) 14 to 104 deg F (No Condensation)
Operating Humidity	85% or less (No Condensation)
Pollution degree	Degree 2 according to IEC60664-1
Overvoltage category	Category II according to IEC60664-1
Maximum use altitude	2,000 m or lower
<b>External Dimensions</b>	
Camera Body	109.1 (H) x 223.1 (W) x 31.5 (D) mm, excluding protrusion 4.29" (H) x 8.78" (W) x 1.24" (D)
<b>DC power supply</b>	
Supply voltage	22V to 36V
Power consumption	Maximum. 15VA
<b>Weight</b>	
Main Unit	0.67 kg 1.48 lbs

## 3.2 Dimensions

### 3.2.1 Main Unit

(mm)



**\* Caution**

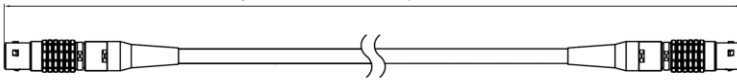
If a screw that is longer than the specified length is forced into the hole, the screw hole and/or the keypad may be damaged.

### 3.2.2 3 m cable

---

(mm)

3,000mm +100/-0mm

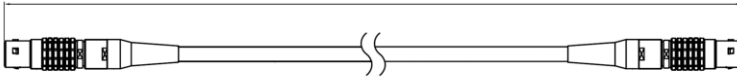


### 3.2.3 10 m cable

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(mm)

10,000mm +100/-0mm



# 4

## Chapter 4 Warranty

This chapter explains about the warranty.

## 4.1 About the Warranty

This system has been shipped having undergone rigorous testing. However, in the unlikely event that it malfunctions due to a manufacturing defect, it will be repaired, at no charge, within the warranty period.

### ◆ Warranty Exceptions

The following exceptions will result in fee-based repair, even within the warranty period.

1. Damage or malfunction as a result of fire, earthquake, water damage, lightning, other natural disasters, pollution, or the effects of abnormal voltage.
2. Damage or malfunction as a result of dropping or mishandling during shipment or when moving after purchase or misuse.
3. Consumable goods (cable, LCD, buttons)
4. When repair, adjustment, or alternation done by an entity other than Photron service has been performed on the system, or damage or malfunction that is determined to be attributed to a fault in the use the product.

For inquires related to malfunction, contact the dealer where the product was purchased, or the nearest Photron office.



### REFERENCE

For inquires related to our product, refer to “5.1 Contact Information” on page 56.

# 5

## Chapter 5 Contacting Photron

This chapter lists the contact information to use when contacting Photron if the system malfunctions or if a portion of the manual is unclear.

## 5.1 Contact Information

For inquiries related to Remote Keypad with LCD, contact Photron at one of the contact points listed below.

Additionally, the following items will be required for verification when inquiring. You are kindly asked to prepare them in advance.

Items Verified	Required Information
Contact Information	Company, school, or organization name, customer contact name, contact phone number, contact e-mail address.
Product Name	Remote Keypad with LCD
Serial Number	Shown in the nameplate seal.
Condition of the system, nature of problem, etc.	

Contact Information	
In Americas and Antipodes	<b>PHOTRON USA, INC.</b> 9520 Padgett Street, Suite 110, San Diego, CA 92126-4426, USA Phone: +1 (800) 585 2129 or +1 (858) 684 3555 Fax: +1 (858) 684 3558 E-mail: <a href="mailto:image@photron.com">image@photron.com</a> Web: <a href="http://www.photron.com">www.photron.com</a>
In UK, Africa and India	<b>PHOTRON (EUROPE) LIMITED</b> The Barn, Bottom Road, West Wycombe, Buckinghamshire HP14 4BS, U.K. Phone: +44 (0) 1494 48 1011 Fax: +44 (0) 1494 48 7011 E-mail: <a href="mailto:image@photron.com">image@photron.com</a> Web: <a href="http://www.photron.com">www.photron.com</a>
In Europe outside the UK	<b>Photron Deutschland GmbH</b> Ziegelweg 3, 72764 Reutlingen, Germany Phone: +49 (0) 7121 699 7950 Fax: +49 (0) 7121 699 7943 E-mail: <a href="mailto:image@photron.com">image@photron.com</a> Web: <a href="http://www.photron.com">www.photron.com</a>
In China	<b>PHOTRON (SHANGHAI) LIMITED</b> Room 20C Zhao-Feng World Trade Building, No. 369 Jiangsu Road Chang Ning District, Shanghai 200050, China Phone: +86 (21) 5268 3700 Fax: +86 (21) 5268 3702 E-mail: <a href="mailto:info@photron.cn.com">info@photron.cn.com</a> Web: <a href="http://www.photron.cn.com">www.photron.cn.com</a>
In other areas	<b>PHOTRON LIMITED</b> 21F, Jinbocho Mitsui Bldg., 1-105 Kanda Jimbocho, Chiyoda-Ku, Tokyo 101-0051, Japan Phone: 050 5211 8270 Fax: +81 (3) 3518 6279 E-mail: <a href="mailto:image@photron.co.jp">image@photron.co.jp</a> Web: <a href="http://www.photron.co.jp">www.photron.co.jp</a>



# Remote Keypad with LCD

Hardware Manual      Rev. 2.03 E

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