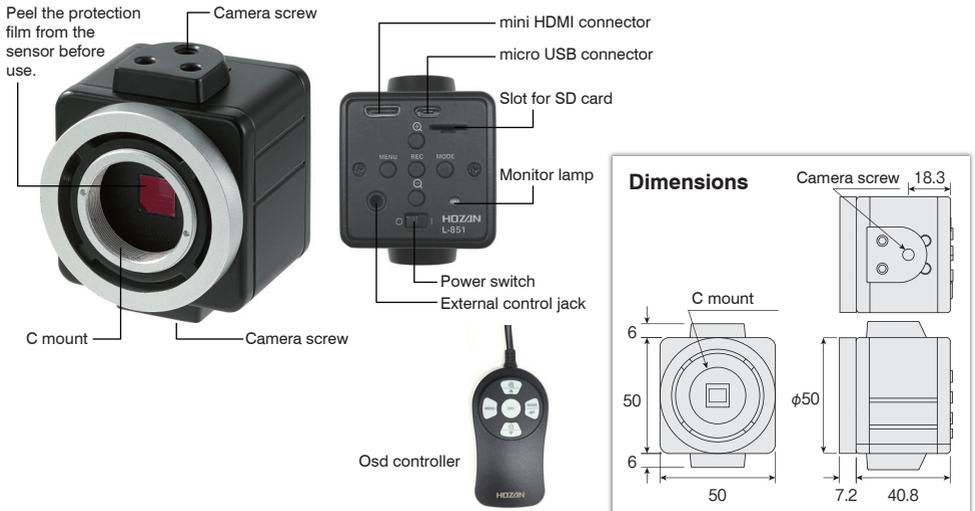


# L-851 FULL HD CAMERA

Thank you for purchasing the HOZAN L-851 FULL HD CAMERA. With proper care and handling, this fine instrument will provide years of trouble-free operation. Please read this entire instruction manual carefully before attempting to place this instrument in service. Please keep this instruction manual available for reference.

## Identification of parts and contents



## Specifications

Image sensor	1/2.8" CMOS
Interface connector	HDMI
Display resolution (max)	1920×1080 (2000000 picture elements)
Save resolution (Max)	Still picture 1920×1080 (2000000 picture elements) Video 1920×1080 (2000000 picture elements)/ 1280×720 (900000 picture elements)
File formats	Still picture JPG / Video AVI
recoding media	microSD/SDHC/SDXC card (Max128GB)
Frame rate	Max 60FPS
Lens mount	C mount
Rating	5Vdc
Power consumption	2.5W
Dimensions	50(W) X 50(H)X 48(D) mmw/o projections
Weight	163g

## Warning and caution symbols

These symbols are used throughout the instruction manual to alert the user to potential safety hazards as follows:

 **Warning** ... Notice when incorrect handling could cause the user's death or serious injury.

 **Caution** ... Notice when incorrect handling could cause injury to the user or material damage.

Even if the instructions do not have  mark, there are some possibilities for a serious situation. Follow the instructions.

## Precautions

This Full HD camera is for expanding inspection. Do not use for any other purpose.

### **Warning**

1. Do not soak in liquid such as water, chemical and oil. Do not operate with wet hands. These could cause a short circuit, a electric shock or a fire. These could cause malfunction.
2. Do not use near a heating element or a flammable thing. The USB camera could burn.
3. Cut off the connection when lightning. This could cause a shock.
4. Do not modify or reassemble this product. This could cause a fire, a shock or an injury.
5. Connect to the computer following the instructions by that manufacturer..
6. For your health, avoid prolonged use and give eyes a rest.

### **Caution**

1. Do not use or store this product, a computer and other device where;  
+vibration exists                      +static electricity or electrical noises generates  
+a lot of dust exists                    +strong magnetism generates  
+it is high temp./humidity            +exposed in direct sunlight
2. Do not pull the cable of the USB connector when remove from the computer. This could cause malfunction.
3. Pay attention when attach or detach the lens in a state that the L-835 is connected. The connecting cable could be stranded causing malfunction.
4. If settle in an inspecting equipment, put on a stable place.
5. When it is out of use for a long period, disconnect from the computer and store with the cap.
6. Do not turn towards the direct sunlight while combining with the lens. The image sensor could be damaged.
7. These cause a malfunction of the C mount;  
+to over screw in when mount a lens  
+to lift holding only the camera under state of combining with a heavy lenses such as L-815/L-816

# Make sure of the contents

Make sure that these items are in the package before use.

- Camera • Osd controller • AC Adapter • HDMI cable • Power cable
- microSDHCcard • Hex Wrench • instruction manual

## Operation

- 1 Remove the cap of the camera, then screw the lens into the mount of the camera clockwise.
- 2 The connecting format of the camera and the lens is C mount.

\* Please remove the mount base according to the shape of the lens.

### Caution

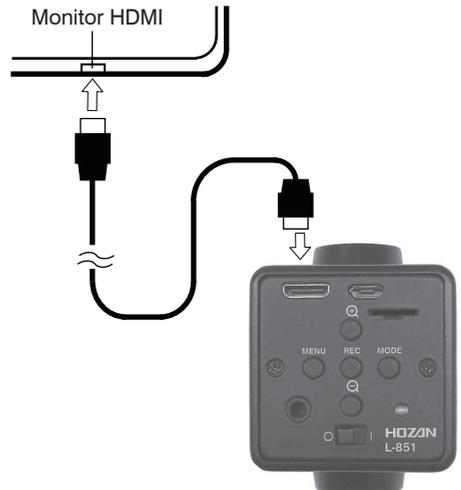
Do not touch the screws that fix the C mount.  
The focus will not match.



- 3 Connect the unit and the monitor display, aspect ratio 16:9, which have HDMI inlet using the HDMI cable.

### If use other than the provided HDMI cable

Double shielded HDMI cables specified as HDMI 2.0 or more and up to 5m length are recommended. The signal carried through a long cable beyond 5m may decrease and the monitor cannot display the image, depending also on the monitor's specifications. Please make sure of the standards and specifications of the camera and apparatus.



# Operation

- 4** Connect the microUSB of the power cable to the microUSB terminal of the camera.

Connect the USB of the power cable to the PC or monitor, or attach the included AC adapter and connect it to the outlet and turn on the power.

The monitor lamp lights in red.

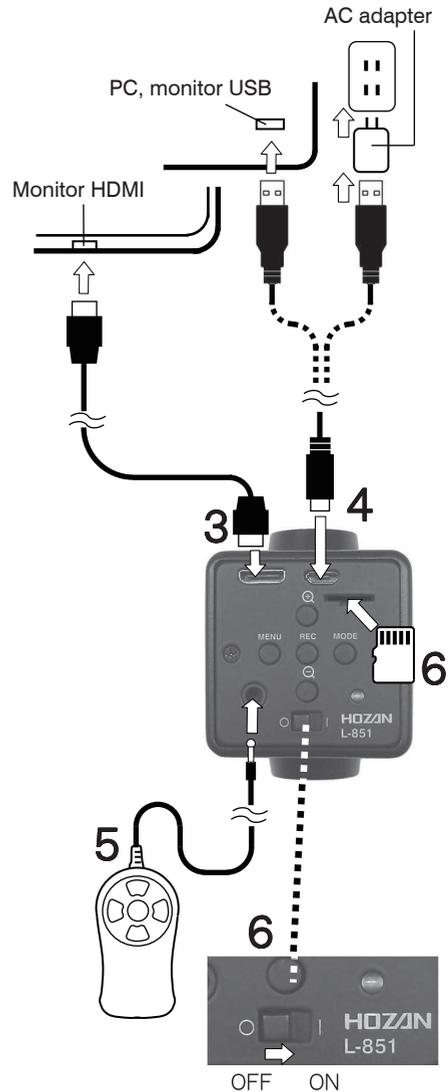
- 5** Connect Osd controller.
- ※ Please remove / insert the osd controller when the power supply is OFF. It will malfunction if it is done when the power is on.
  - ※ You can also operate with buttons on the main unit without connecting the osd controller.

- 6** Insert the SD card and turn on the power. The monitor lamp turns yellowish green.

- ※ Please insert / remove SD card when power supply is OFF. It will malfunction if it is done when the power is on.

- 7** Switch the input of the monitor to HDMI, focusing while looking at the monitor and shooting.

- ※ Depending on the monitor you are using, it may take some time to start up. Please check the monitor setting.



# Operation

## Description for buttons

Body buttons and OSD controller operation buttons are common.  
Operations other than power ON / OFF can be performed with the OSD controller.



- MENU : displaying menu or not
- MODE (  ) : Switching between still images, videos, and playback, (decision)
-  (  ) : Expansion(move adobe)
-  (  ) : Shrinking(move below)
- REC : Still image shooting, Video shooting start / stop

\* In ( ), operation explanation at menu display  
MENU long press : Freeze function shortcut key  
MODE long press : Shortcut key for cross line function

## Mode description

Still image shooting mode  / Video shooting mode  / Playback mode   
It consists of 3, and it switches with the MODE button

Follow the function explanation from the still image shooting mode, P.6, video shooting mode, P.9, and playback mode P.12.

If the camera screen does not move while in use, turn off the power and then turn it back on.

If the power light remains on even when the power is turned off, unplug the power cable and try again.

\* Data before saving may be deleted.

# Operation

## Still image shooting mode

[ It means that it is still image mode ]



It means that it is still image mode

Approximate remaining number of recordable images is displayed.

\* Depending on the remaining amount of data, it may differ from the actual number of shots.

Icon of setting menu is displayed.

Display resolution.

It is different from preservation resolution.

Use the [REC] button to shoot still images.

Use the [▲] button to enlarge (1 to 4 magnifications) or [▼] to zoom out.

## Icon list

EV [A] EV [S] EV [-10] ~ EV [+10] ...Exposure (auto / single-auto / manual -10 to +10)

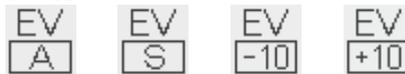
WB [A] WB [S] WB [M] ...White balance (auto / single-auto / manual)

[3] ...3 pictures continuous      [⊕ ⊖] ...self timer      30 OFF 60 OFF ...Auto power off

[TT] ...Freeze      SD ~~SD~~ ...SD card (Confirmed / Unverified)

## Menu list Default setting in [ ]

### • Exposure [Auto]



Adjust the exposure.

Auto : Always adjust the exposure automatically.

Single-auto : Adjust the exposure automatically when you press the OK button. Hold the exposure until you press the OK button again.

Manual : You can fine-tune the exposure manually with the semi-auto value as the center value.

Adjustment is possible from -10 to +10.

Numbers are displayed when you select the manual.

Please change the number with [▲] [▼] button. Use the [MODE] button to decide the number.

Press the [MENU] button to return to the menu list.

# Operation

- **White balance (Wb) [AUTO]**



Adjust the white balance.

Auto : Always adjust the white balance automatically.

Single-auto : Adjusts the color of the photographed object at the time the decision button is pressed as the reference of white.

Please decide semi - auto with the whole face captured by blank paper etc.

Manual : Fine adjustment of white balance manually with semi-auto value as center value. When you select the manual, RGB and numbers appear.

With the [▲] and [▼] buttons

Change the number (1 to 255), select RGB with the [MODE] button.

Use the [MENU] button to confirm the number.

Press the [MENU] button to return to the menu list.

- **3 sequeuce [OFF]**



We shoot still images three consecutive images.

- **Quality [Normal]**

Adjust image quality.

Fine : Save images with high image quality (large capacity).

Normal : Save with standard image quality and capacity.

Economy : Reduce the capacity and save the image (low image quality).

- **HDR [OFF]**

Shoot with HDR.

\* HDR (High Dynamic Range): Displays the difference in light and dark of the image less, It is a function to suppress the overexposed and blackout of the image.

- **Sharpness [Medium]**

Sets the intensity of the contrast (strong, soft, low).

- **Capture mode [OFF]**



The shutter will automatically shut off after a certain period of time (2 seconds, 5 seconds, 10 seconds). During self-timer setting, when you press the shooting button, the set number of seconds A countdown appears on the left side of the icon.

- **Color [color]**

Select color display or black and white display (color / black & white).

It is also reflected in the shot image (save).

- **Quick review [OFF]**

Immediately after shooting, the shot image is displayed.

Display time can be set (2 seconds, 5 seconds).

- **Auto power off [OFF]**



The power turns off automatically when a certain period of time elapses with no operation (30 minutes and 60 minutes)

# Operation

- **Language: Japanese]**

Set language (Japanese · English · Simplified Chinese → 繁體中文).

- **Frequency [60 Hz]**

Set the power supply frequency.

It is effective when flickering of fluorescent light etc. occurs. Please adjust to the power supply frequency of your area (50 Hz / 60 Hz).

- **Image rotation [Standard]**

Invert / rotate the display image.

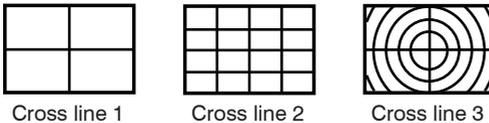


- **Frozen [Off]**  Shortcut key: Press and hold the [MENU] button

Fixes the current display screen. If you perform other operations, freezing will be canceled. Fixed images can not be saved. Please use it for temporary holding. After selecting [On], confirm with the [MENU] button.

- **Reticle [OFF]** Shortcut key: Press and hold the [MODE] button

You can set the line.



\* When using the shortcut key, the crosslines used until the last time are displayed. If the default setting is Off, Crossline 1 will be displayed.

- **Format**

Erases all data in the SD card.

For SD cards used for the first time on this machine, format first.

When formatting is done, all data saved on the SD card will be deleted.

- **Default setting**

Restore all settings to the initial state.

- **Date time**

Set the date and time. Use the [▲] [▼] buttons to select a number, press the [MODE] button

Press the [MENU] button to return to the menu list.

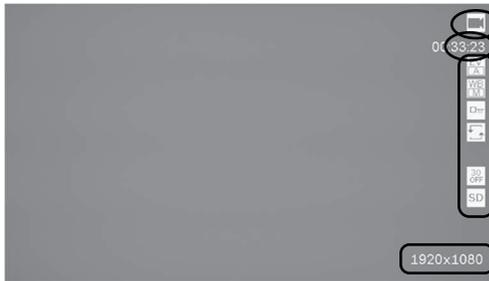
- **Version**

You can check the version of the current camera. Firmware up on web page

There is a case to guide a date.

# Operation

## 【Video shooting mode 】



It means that it is Video shooting mode

Approximate remaining number of recordable images is displayed.  
\* Depending on the remaining amount of data, it may differ from the actual number of shots.

Icon of setting menu is displayed.

Display resolution.

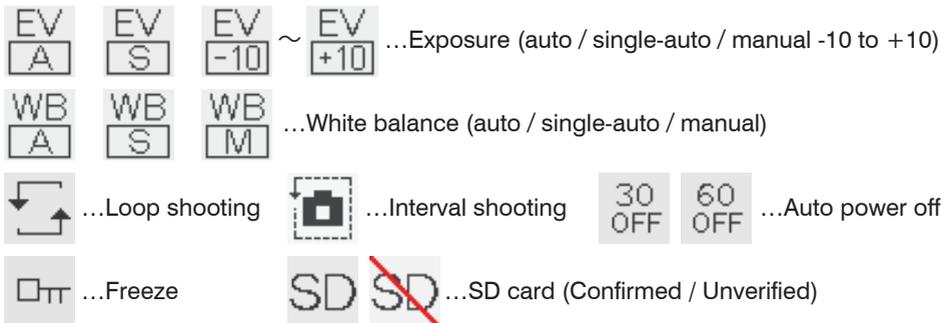
\* It is different from preservation resolution.

Press the [REC] button to start video shooting, and press the [REC] button again to stop.

Use the [▲] button to enlarge (1 to 4 times) or [▼] button to zoom out.

Operations other than enlargement / reduction can not be performed during shooting. The monitor lamp (yellow green) flashes while video is being shot.

## Icon list



## Menu list Default setting in [ ]

### • Exposure [Auto]



Adjust the exposure.

Auto : Always adjust the exposure automatically.

Single-auto : Adjust the exposure automatically when you press the OK button. Hold the exposure until you press the OK button again.

Manual : You can fine-tune the exposure manually with the semi-auto value as the center value.

Adjustment is possible from -10 to +10.

Numbers are displayed when you select the manual.

Please change the number with [▲] [▼] button. Use the [MODE] button to decide the number.

Press the [MENU] button to return to the menu list.

# Operation

## • White balance (WB) [AUTO]



Adjust the white balance.

Auto : Always adjust the white balance automatically.

Single-auto : Adjusts the color of the photographed object at the time the decision button is pressed as the reference of white.

Please decide semi - auto with the whole face captured by blank paper etc.

Manual : Fine adjustment of white balance manually with semi-auto value as center value

When you select the manual, RGB and numbers appear. With the [▲] and [▼] buttons

Change the number (1 to 255), select RGB with the [MODE] button.

Use the [MENU] button to confirm the number.

Press the [MENU] button to return to the menu list.

## • Loop recording [OFF]



It keeps saving videos by dividing it at regular time intervals (3 minutes, 5 minutes, 10 minutes).

\* It can not be selected simultaneously with interval shooting.

\* Because of the characteristics of the SD card, videos with 1 file 4GB or more can not be saved.

If you are using a 4 GB or larger SD card, even if loop shooting is turned off,

The video is divided at 4 GB (about 30 minutes) (shooting will continue).

## • Time lapse record [OFF]



Shoot still images at regular intervals and create frame advance videos

(10 sheets / second [5 times speed] 5 sheets / second [10 times speed] 2 sheets / second [25 times speed]).

\* Can not be selected simultaneously with loop shooting.

## • HDR [OFF]

Shoot with HDR.

\* HDR (High Dynamic Range): Displays the difference in light and dark of the image less, It is a function to suppress the overexposed and blackout of the image.

## • Resolution [1920 × 1080]

Set the Save resolution (1920 × 1080 · 1280 × 720)

## • Sharpness [Medium]

Sets the intensity of the contrast (strong, medium, weak).

## • Color [color]

Select color display or black and white display (color / monochrome).

It is also reflected in the shot image (save).

## • Auto power off [OFF]

The power turns off automatically when a certain period of time elapses with no operation (30 minutes and 60 minutes)

# Operation

- **Language: Japanese]**

Set language (Japanese · English · Simplified Chinese → 繁體中文).

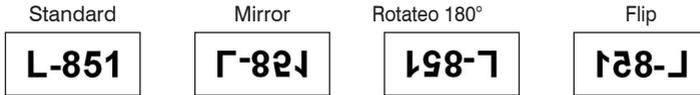
- **Frequency [60 Hz]**

Set the power supply frequency.

It is effective when flickering of fluorescent light etc. occurs. Please adjust to the power supply frequency of your area (50 Hz / 60 Hz).

- **Image rotation [Standard]**

Invert / rotate the display image.

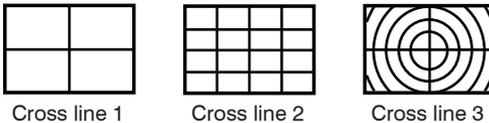


- **Frozen [Off]**  TT Shortcut key: Press and hold the [MENU] button

Fixes the current display screen. If you perform other operations, freezing will be canceled. Fixed images can not be saved. Please use it for temporary holding. After selecting [On], confirm with the [MENU] button.

- **Reticle [OFF]** Shortcut key: Press and hold the [MODE] button

You can set the line.



\* When using the shortcut key, the crosslines used until the last time are displayed. If the default setting is Off, Crossline 1 will be displayed.

- **Format**

Erases all data in the SD card.

For SD cards used for the first time on this machine, format first.

When formatting is done, all data saved on the SD card will be deleted.

- **Default setting**

Restore all settings to the initial state.

- **Date time**

Set the date and time. Use the [▲] [▼] buttons to select a number, press the [MODE] button

Press the [MENU] button to return to the menu list.

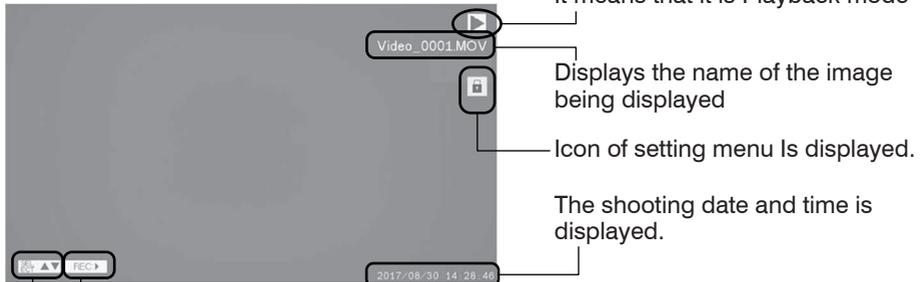
- **Version**

You can check the version of the current camera. Firmware up on web page

There is a case to guide a date.

# Operation

## 【Playback mode ▶】



It means that it is Playback mode

Displays the name of the image being displayed

Icon of setting menu is displayed.

The shooting date and time is displayed.

Play the video with the [REC] button.  
file is It is displayed only when it is a video.  
When playing back videos, the button operations are as follows.



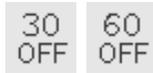
REC: Play / Pause  
MODE: Stop  
▲ : Rewind  
▼ : Fast forward

Images can be switched  
with the [▲] and [▼] buttons.

## Icon list



...Protection



...Auto power off

\* Appears when set in still image / video mode

## Menu list

### • Delete

Delete the taken still image / video (Delete current / Delete all).

### • Protect



Make the captured still image / video can not be deleted.

Lock current : Make the still image / video that is currently playing can not be deleted.

Unlock current : Unprotect the still picture / video currently playing.

Lock all : Make sure that all still images / videos can not be erased.

Unlock all : Unprotect all still images / videos.

### • Slideshow

Display the photos taken with a slideshow.

Set the number of seconds to display each picture (2 seconds, 5 seconds, 8 seconds).

When you start the slide show, it continues to display until it stops.

You can pause / resume with the [REC] button.

Stop the slide show with the [MODE] button.

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