FAST Drive / FAST Dock

User's Manual
Rev. 2.08 E

Photron

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Introduction

Thank you for purchasing this Photron high speed camera.

This document describes the necessary procedures, settings, and precautions when using the FAST Drive high speed camera and FAST Dock.

Read the entire manual before using the product.

If you have any questions, please contact us using the information listed at the end of this document.

Using the Manual

This section explains the layout of the manual.

- Introduction
  Explanation on this manual
- Using the System Safely and Correctly
  Rules that must be followed to ensure safe use of this product
- Chapter 1 Overview
  Overview of this product
- Chapter 2 Connecting to Camera
  How to connect the FAST Drive to the high-speed camera
- Chapter 3 Remote Controller Operation
  How to manage data and enter the settings using the remote controller
- Chapter 4 Photron FASTCAM Viewer Operation
  How to operate the FAST Drive using the PFV
- Chapter 5 Product Specifications
  Specifications for the FAST Drive and FAST Dock
- Chapter 6 Contact Information
  Information for contacting Photron regarding any questions you may have or if the product is defective

Manual Notation

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

Icon/Symbol	Description
IMPORTANT	This symbol indicates content that should always be read.
CAUTION	This symbol indicates instructions that should always be followed when using the software, or things to be careful of when using the software.
NOTE	This symbol indicates supplementary items to be aware of when using the system.
REFERENCE	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 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. 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 AC cable or plug.
(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 system 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 system.
Doing so can cause fire, electric shock, or malfunction from short circuit or heat.

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

■ Do not plug in or unplug the power cord with wet hands.
Doing so can cause electric shock.

■ Make sure the power plug is fully insert into the socket.
Not fully plugging in the power cable can cause fire from electric shock or heat.

■ When something is wrong with the system, unplug the power cable 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 system emits smoke, a strange smell, or strange sound.

Using the system 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.

Caution

- Always unplug the system when cleaning it or when it is unused for a long period of time. Leaving or storing the system connected to the power source might cause fire from insulation deterioration or electrical discharge.
- Consult Photron in advance when you perform an event by which laser light or direct rays fall on the image sensor surface.
- Do not set the system 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 system 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 0 to 40 °C, humidity of 80 % 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 equipment in a location where the temperature goes below -20 °C or higher than 60 °C. Be sure not to allow condensastion to form inside the system.
- This device is for indoor use, do not use it outdoors.
  Do not use in a location that has dust.
- When shipping, remove the connecting cable and use the original packaging or a dedicated carrying case.
  Do not ship the equipment in an environment where the temperature goes below -20 °C or higher than 60 °C. Also, prevent condensation from forming during shipment.

Handling of the AC Adapter

To ensure safe use of the Photron FASTCAM series, please follow the instructions for proper storage of the supplied AC adapter.

If there is any problem with the AC adapter or cable, stop using it immediately and contact your local Photron office.

■ Storage Method

- When storing the AC adapter or cable, make sure that no stress is placed on the root of the AC adapter or the cable.
- Do not wrap the cable around the AC adapter, but loosely bundle it.
- When storing the AC adapter in the camera' s carrying case, store it so that no strain is placed on the root of the AC adapter and the cable.

■ Appearance Check

- Before use, check the appearance of the AC adapter and cable for any abnormalities.
- If there are any cracks or tears on the surface, it may cause fire, electric shock, or short circuit.

  Immediately stop using the AC adapter and contact your local Photron office.

Cleaning of the Image Sensor Surface

Electrostatic Discharge (ESD) events may cause immediate and unrecoverable damage to the image sensor. Read the following instructions and take EXTREME CARE when cleaning the image sensor surface.

- ALWAYS take appropriate anti-static precautions when cleaning or working near the Image sensor.
- DO NOT use any form of cleaning equipment using electrostatic or 'charged fiber' technology.

- Discharge any electrostatic build up in your body by touching a grounded metallic surface before working near the camera sensor.
- Very gently, use only clean and dry air to remove dust from surface of the image sensor.
- To remove stubborn contamination, use the highest grade (e.g., VLSI grade) pure Isopropyl alcohol (IPA) with optical wipes of 'clean room' grade.
- Extreme care must be taken! Gently wipe across the sensor in a single action.
  DO NOT rub to avoid abrasive damage to delicate optical coatings on the glass surface.

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1

Chapter 1 Overview

This chapter gives an overview of the system.

1.1. Precautions

- This document explains how to save data to the FAST Drive and view data when using models that support the FAST Drive from the FASTCAM series.

- The explanations in this document also include usage of the Photron FASTCAM Viewer (“PFV”). The PFV must be installed in advance.

- Communication between the FAST Drive and the PC uses Gigabit EtherNet and USB 3.0.
  If your PC does not support those standards, the transfer speed may be significantly reduced and save operations may fail.

- The ACCESS light (LED) lights up when connecting to the high-speed camera.
  The ACCESS light flashes when accessing or saving data.
  This product is hot-pluggable, but do not disconnect the cable when the light is flashing. Doing so may result in data corruption or prevent data from being saved.

- Read the hardware manual for camera main unit, PFV users’ manual and manual of the PC you use before using this product.

2

Chapter 2 Connecting to Camera

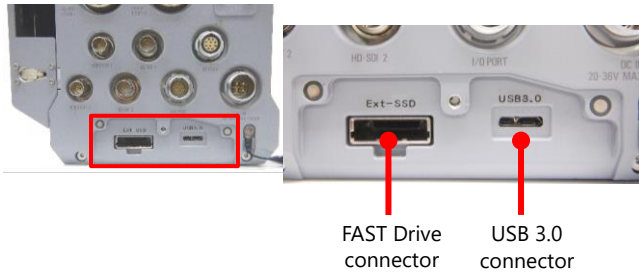
This section explains how to connect the FAST Drive to the Photron high-speed camera.

2.1. How to connect

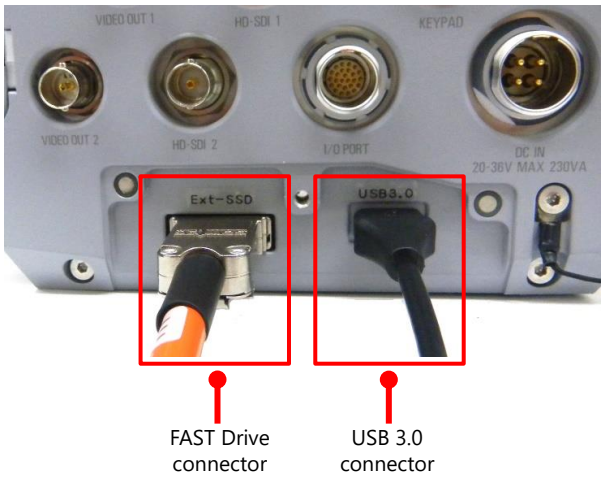
This section explains how to connect the FAST Drive to the Photron high speed camera and PC.

2.1.1. Connecting to the high-speed camera

1. Remove the FAST Drive slot cover on the rear of the camera.



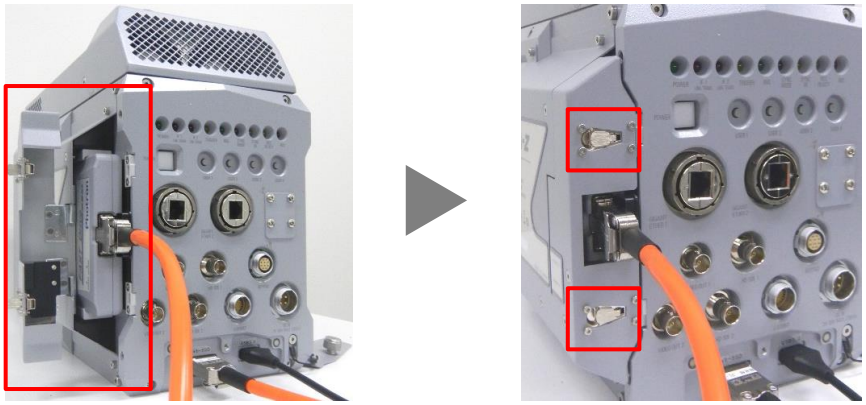
2. The camera is equipped with a FAST Drive connector and a USB 3.0 connector.



3. Connect the dedicated cable to the FAST Drive connector and the USB cable (micro B) to the USB 3.0 connector.

4. Connect the opposite end of the dedicated cable to the FAST Drive.

5. Set the FAST Drive in the camera's dedicated holder and lock it.



6. Connect the USB cable (type A) to the PC's USB 3.0 connector.

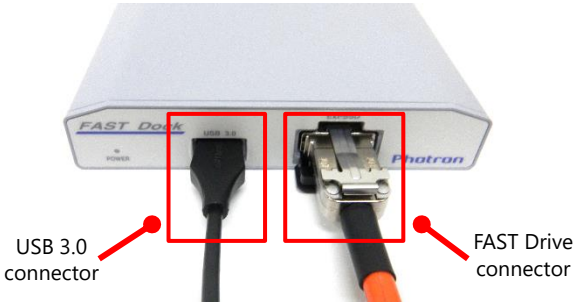
CAUTION

The FAST Drive driver must be installed in advance.
Refer to "2.1.3 Installing the driver" on page 18 for installing the driver.

2.1.2. Connecting to the PC (Using FAST Dock)

1. Connect the AC power supply adapter to the rear of the FAST Dock.

2. Connect the AC cable to the AC power supply adapter.
3. Connect the AC cable to the power outlet.



4. Connect the dedicated cable to the FAST Dock's FAST Drive connector and the USB cable (micro B) to the USB 3.0 connector.

5. Connect the opposite end of the dedicated cable to the FAST Drive.
6. Connect the USB cable (type A) to the PC.

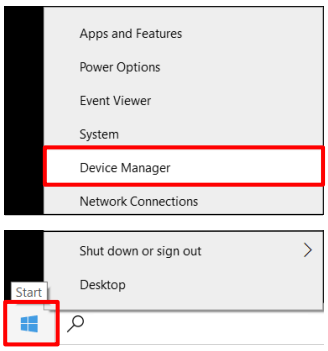
CAUTION

The FAST Drive driver must be installed in advance.
Refer to "2.1.3 Installing the driver" on page 18 for installing the driver.

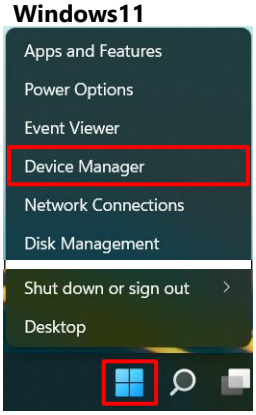
2.1.3. Installing the driver

Install the FAST Drive drivers before using FAST Drive with PC.
Follow the procedures below to setup the drivers.

Windows10

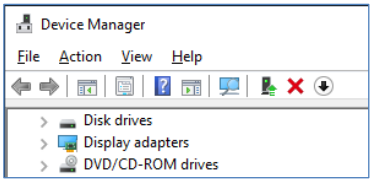


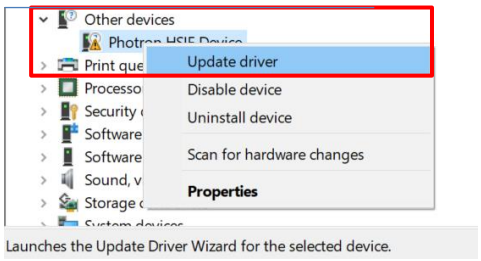
Windows11



1. Connect the USB3.0 cable (type A) to the PC.

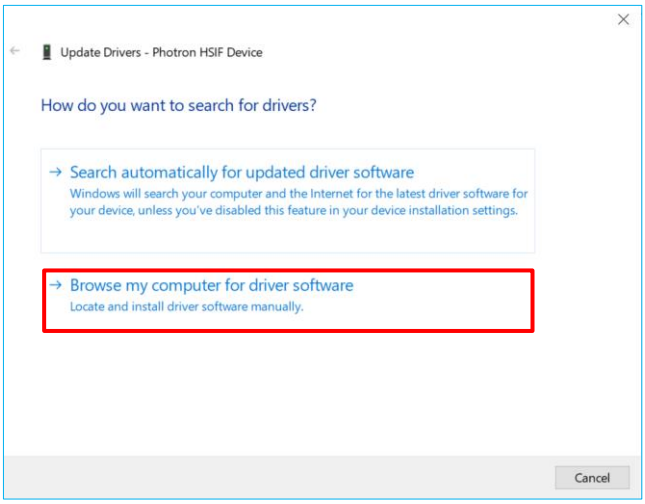
2. Right-click the Windows Start button and click the [Device Manager].



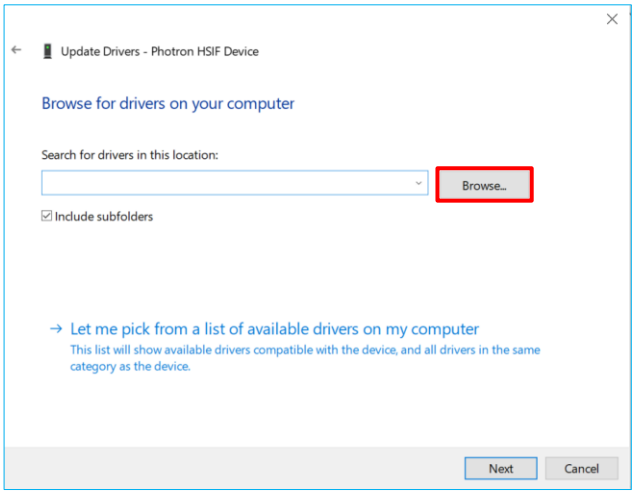


3. Right-click the [Photron HSIF Device] under the [Other devices].

4. Click the [Update driver].



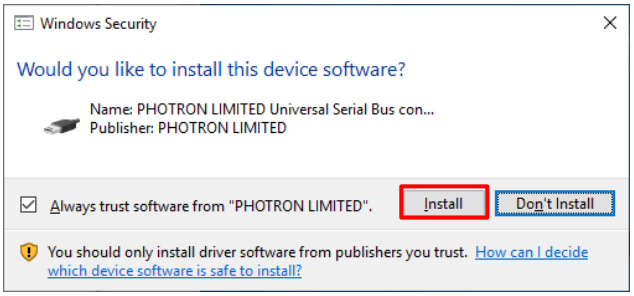
5. Click the [Browse my computer for driver software].



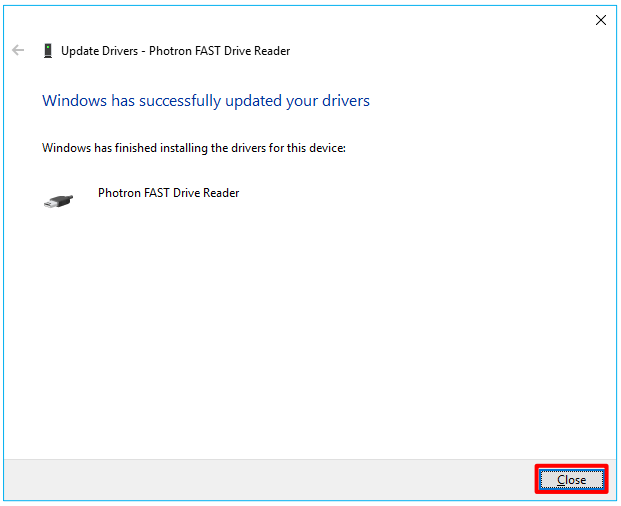
6. Specify the PFV4 installation DVD as the location of drivers.

   Select the driver according to the OS and bit number of your PC.

   In case of Windows 10, 64bit
   Driver\Win10_11\64bit(x64)\FASTCAM USB DRIVER



7. Click the [Install] button.



8. The message appears when the installation has been finished.
   Click the “Close” button to finish the procedures.

CAUTION

The FAST Drive driver must be installed in advance.

3

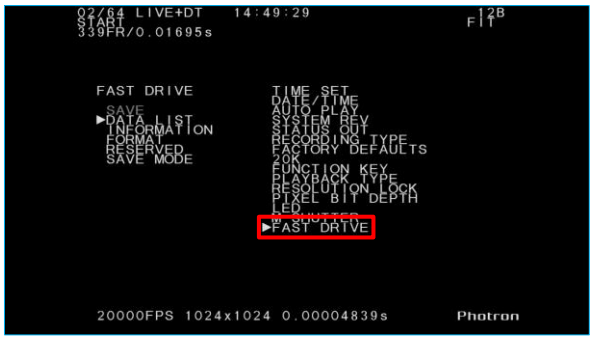
Chapter 3 Remote Controller Operation

This section explains how to save data and enter settings using the remote controller.

3.1. Using Remote Controller

3.1.1. FAST Drive Menu

Display the menu to operate the FAST Drive.

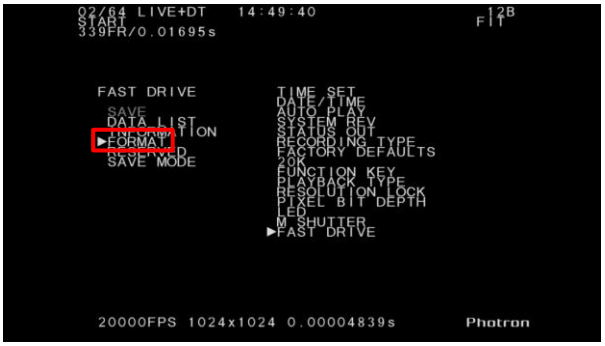


1. Press the [MENU] key on the remote controller to open the menu screen.
2. From the menu screen, press [OTHERS] - [FAST DRIVE] and then the [ENTER] key.

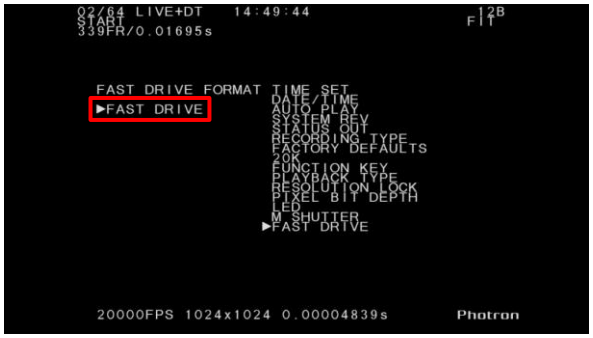
The [FAST DRIVE] Menu is displayed.

3.1.2. FORMAT (Erase All)

Format the FAST Drive to prepare it for use. This erases all the data on the FAST Drive.



1. Press the [MENU] key on the remote controller to open the menu screen.
2. From the [FAST DRIVE] menu, select [FORMAT] and press the [ENTER] key.



3. Press the [ENTER] key while [FAST DRIVE] is selected.

4. A message is displayed to confirm if you really wish to format the FAST Drive. Press the [ENTER] key if they are no problems.

5. The display will count up to 1,025 during formatting.

6. The display returns to the [OTHERS] menu when the formatting has completed.

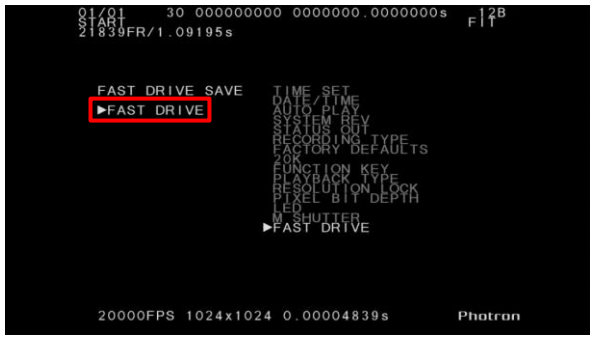
NOTE

If for some reason it is unable to format the drive, an error message such as the following is displayed.
In such a case, press the [ENTER] key to return to the [OTHERS] menu.

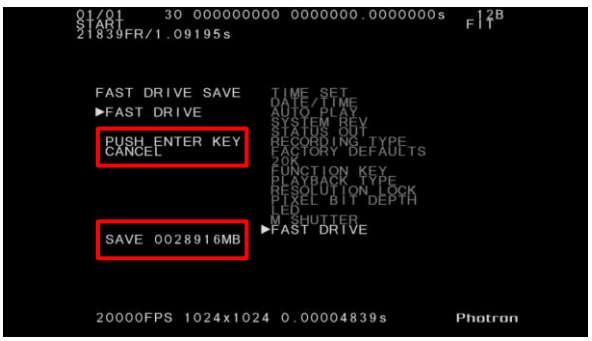
3.1.3. SAVE

Save the image data in the camera's memory to the FAST Drive.

1. Set the camera to PLAYBACK status and open the [FAST DRIVE] menu.
2. Select the [SAVE] item and press the [ENTER] key.



3. Press the [ENTER] key while [FAST DRIVE] is selected.



4. The save operation begins. While the data is being saved, the display counts down in units of megabytes to show the remaining storage capacity.
   Press the [ENTER] key to cancel the operation.

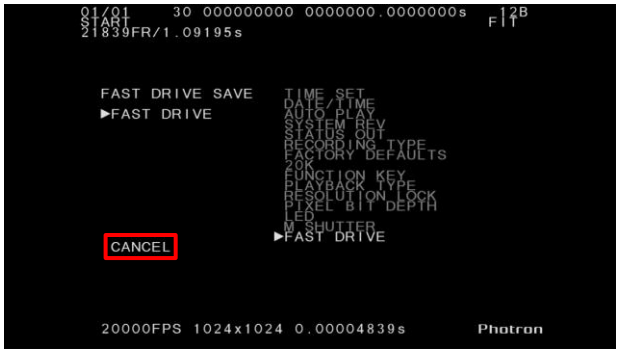
5. The display returns to the [OTHERS] menu when the saving operation has completed.

CAUTION

All the image data in the camera's memory is saved. You cannot select which data to save.

NOTE

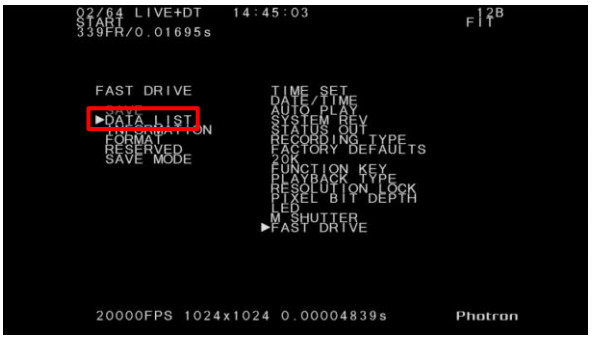
- Press the [ENTER] key while saving to cancel the operation.
  [CANCEL] is displayed on the screen while the operation is being canceled, and then display returns to the [OTHERS] menu.



- If for some reason it is unable to save the data, an error message such as the following is displayed. In such a case, press the [ENTER] key to return to [OTHERS].

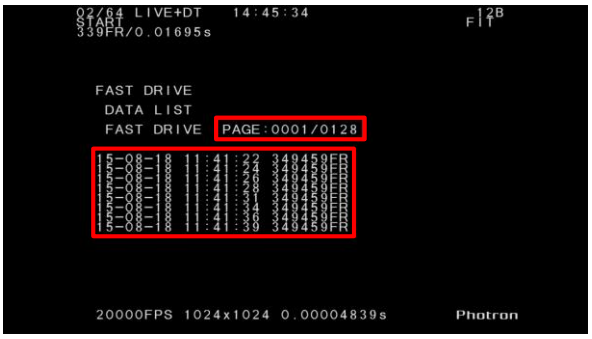
3.1.4. DATA LIST

Display the data saved on the FAST Drive as a list (8 data items at a time).

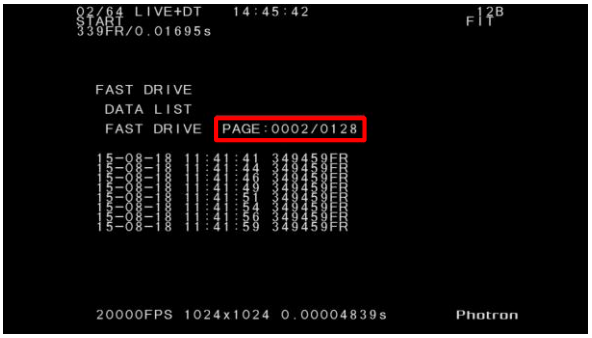


1. From the [FAST DRIVE] menu, select the [DATA LIST] item and press the [ENTER] key.

2. Press the [ENTER] key while [FAST DRIVE] is selected.



3. The data saved on the FAST Drive is displayed as a list.
   The list displays the save completion date and time, and the number of saved frames in the order that they were saved.



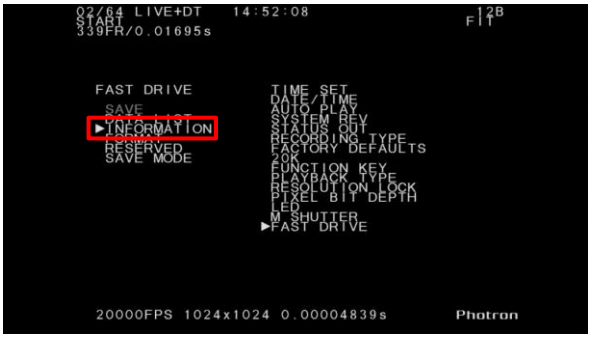
4. Press the [►] key on the remote controller to display the next page and [◄] for the previous page.

NOTE

- If the current page is the first page, then pressing the [◄] displays the last page.
- A maximum of 1,024 data items can be saved, and up to 128 pages can be displayed.

3.1.5. INFORMATION

Display the total capacity of the FAST Drive.



1. From the [FAST DRIVE] menu, select the [INFORMATION] item and press the [ENTER] key.

2. The total capacity of the FAST Drive is displayed.

3.1.6. SAVE MODE

Set either of the following modes to save data to the FAST Drive.

Mode	Setting Description
MANUAL	Save from the FAST DRIVE menu
AUTO	Automatically save when recording finishes

1. From the [FAST DRIVE] menu, select the [SAVE MODE] item and press the [ENTER] key.

2. Use the remote controller's [▲▼] key to select [MANUAL] or [AUTO] and press the [ENTER] key.

3.1.7. Operation During AUTO Mode

When the SAVE MODE is set to [AUTO], the camera starts saving to the FAST Drive immediately after the recording finishes. The following explains the operations when the trigger mode is set to [START].

REFERENCE

The settings must be set with the PFV to start saving to the FAST Drive immediately after the recording finishes. For more details, refer to “Auto save settings” on page 34.

1. Start recording.

<READY (standby status)>

<REC (recording status)>

2. [SAVE] is displayed when the recording finishes, and the camera starts saving to the FAST Drive.

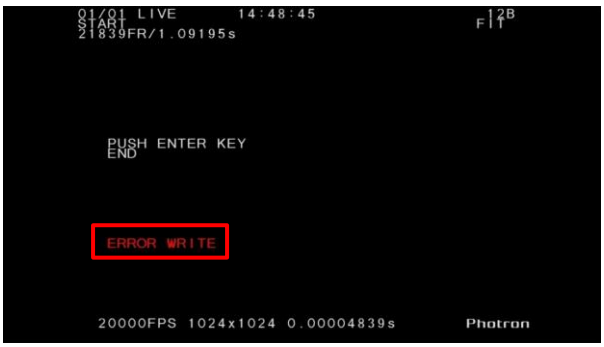
3. While the data is being saved, the display counts down in units of megabytes to show the remaining storage capacity.
   Press the [ENTER] key to cancel the operation.

4. The display returns to the [LIVE] screen when the save operation finishes.

NOTE

- Press the [ENTER] key while saving to cancel the operation.
  [CANCEL] is displayed on the screen while the operation is being canceled, and then the display returns to the [OTHERS] menu.

- If for some reason it is unable to save the data, an error message such as the following is displayed. In such a case, press the [ENTER] key to return to [OTHERS].



4

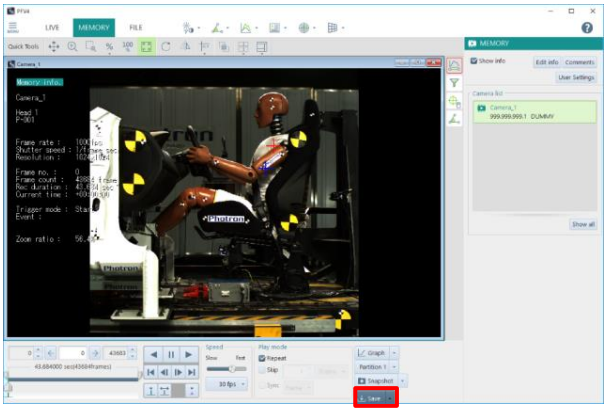
Chapter 4 Photron FASTCAM Viewer Operation

This section explains how to operate the FAST Drive using the Photron FASTCAM Viewer (PFV).

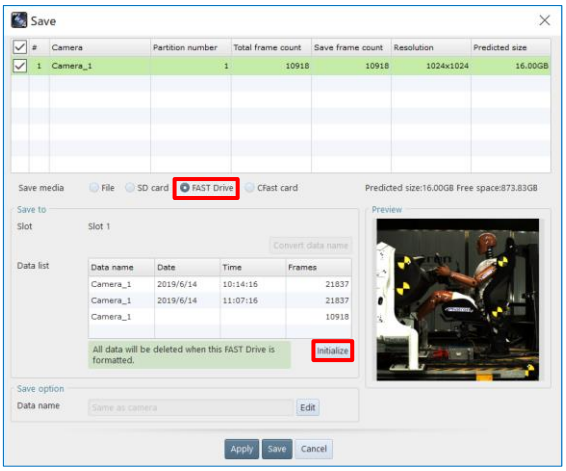
4.1. Operating on PFV

4.1.1. Initialization (Formatting)

Erase all the data on the FAST Drive. Operate in the MEMORY mode.

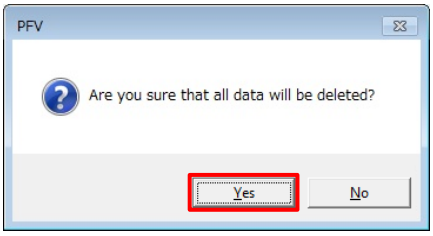


1. Click the [Save] button in the recording / playback panel.
   "Save" dialog appears.

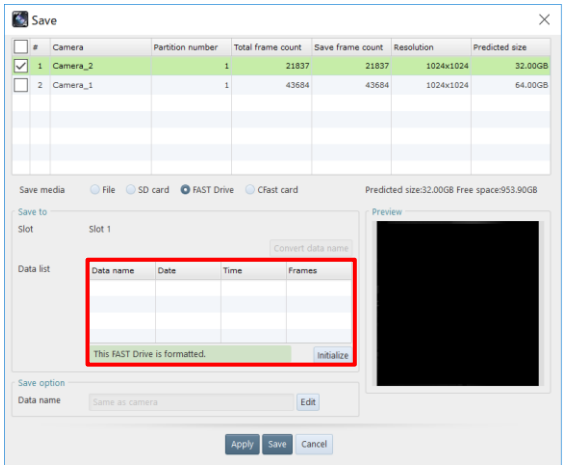


2. Select [FAST Drive] from the list of save media.

3. Click the [Initialize] button.



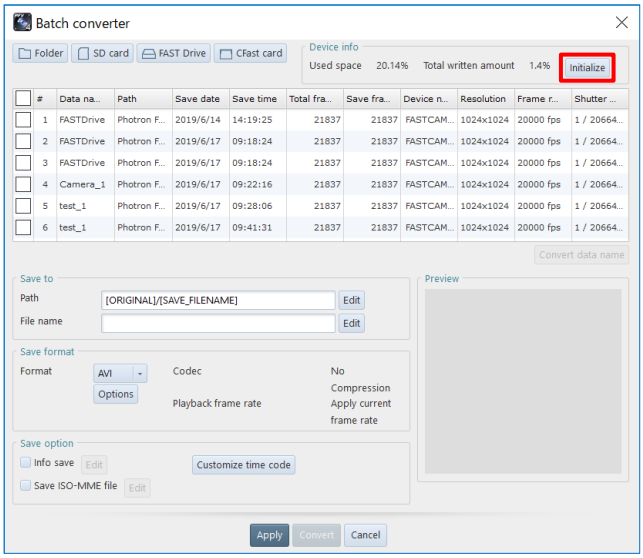
4. The confirmation screen is displayed. Click the [OK] button.



5. The [Data List] information disappears when the formatting finishes.

NOTE

Formatting can also be conducted from the [Batch converter] button in the function panel.



4.1.2. Saving to FAST Drive

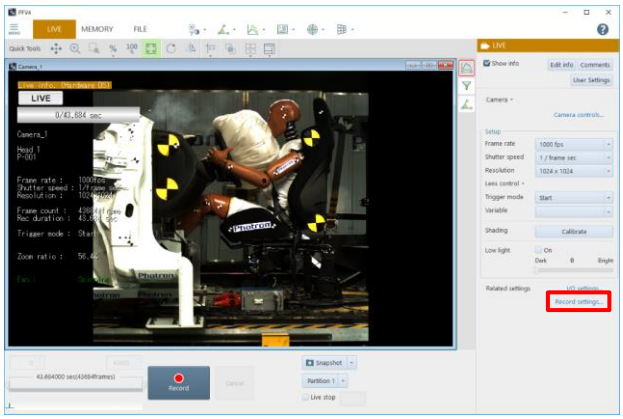
Save recording data to FAST Drive. The data can be saved to the FAST Drive automatically or manually (MANUAL) from the PFV. Check the remaining storage capacity before saving.

CAUTION

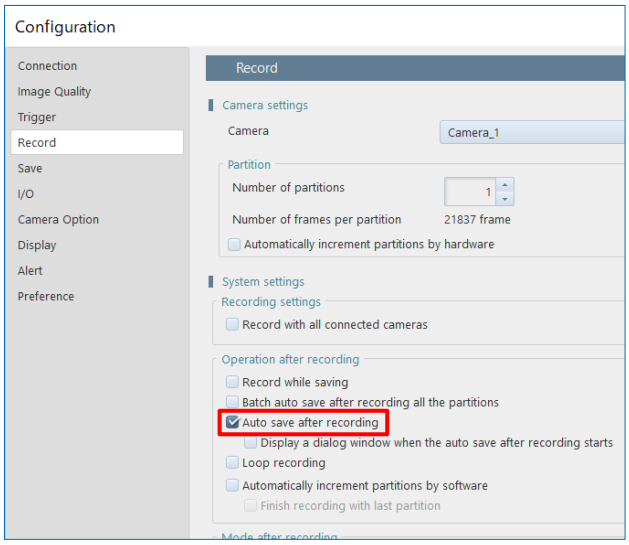
All the image data in the camera's memory is saved. You cannot select which data to save.

■ Auto save settings

Automatically save the recorded data to the FAST Drive after recording. Configure the settings for auto save from the record settings.



1. Click "Record settings. . ." in the function panel.
   "Save" dialog appears.

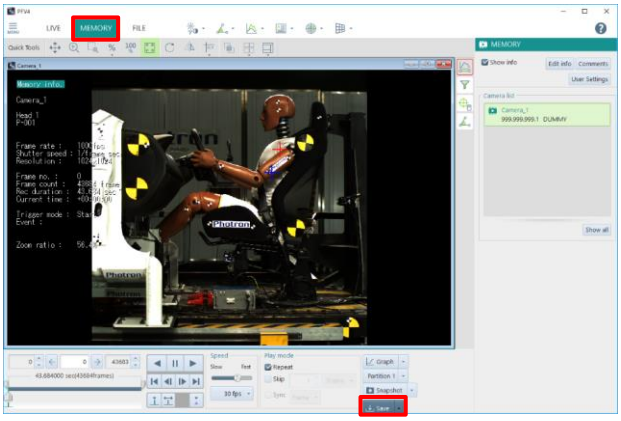


2. Check "Auto save after recording" under [Operation after recording].
3. Click the [OK] button.
4. Switch the mode to the [MEMORY] mode.
5. Click the [Save] button in the recording / playback panel.
6. Select [FAST Drive] from the list of save media within the dialog appeared and click the [Apply] button.

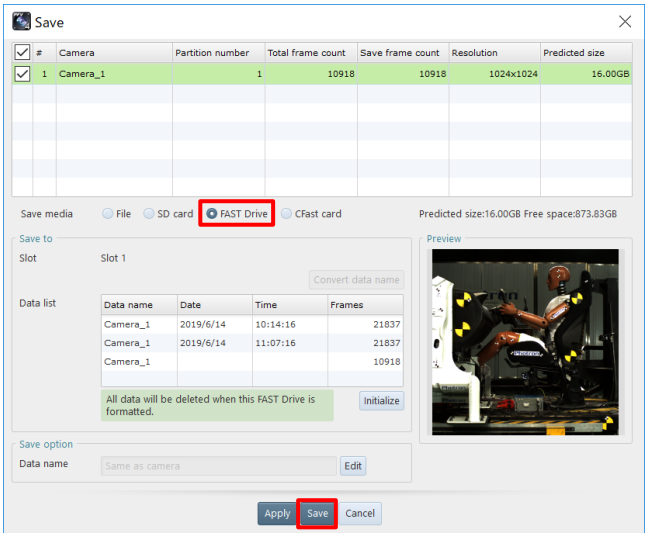
Once the settings are entered, the files will be automatically saved to the FAST Drive after recording is complete.

■ Manual saving

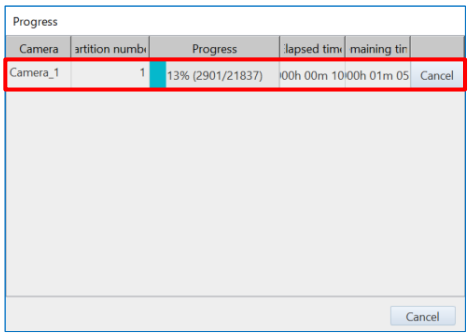
Save the image data in the camera's memory to the FAST Drive.



1. Switch to the [MEMORY] mode and click the [Save] button.



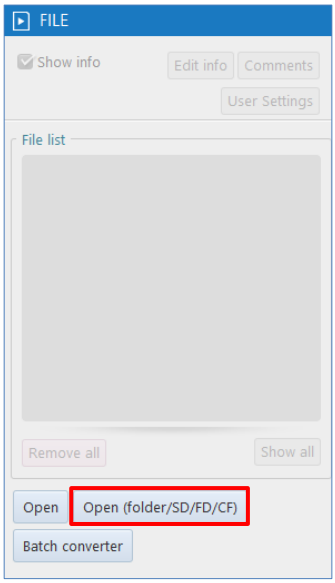
2. Select [FAST Drive] and click the [Save] button.



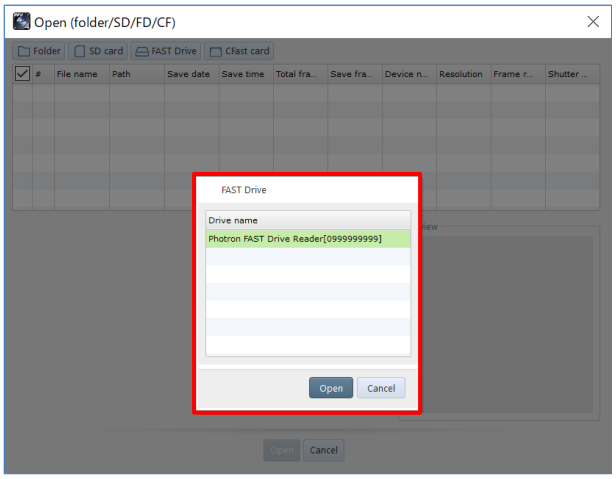
3. A progress bar and a remaining capacity countdown are displayed when the save operation begins.

4.1.3. Playing Saved Data

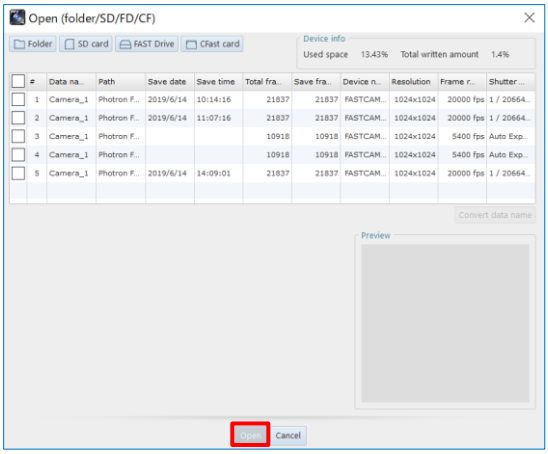
Play the data that was saved to the FAST Drive.



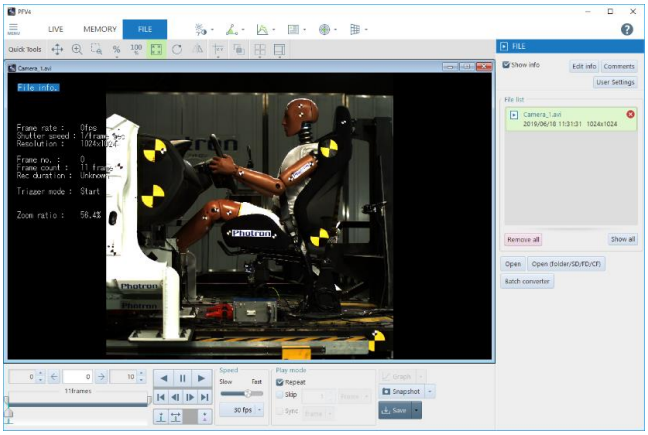
1. Switch to the [FILE] mode and click the [Open (folder/SD/FD/CF)] button in the function panel.
   The [FAST Drive] dialog appears.



2. Select the desired drive from the list of [Drive name] and click the [Open] button.



3. Check the data to open from the file list and click the [Open] button.
   The selected data is displayed.



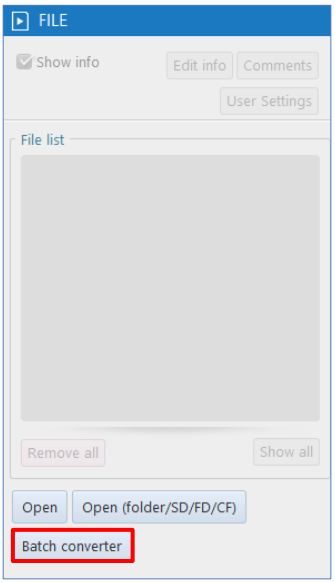
4. The same operations can be performed like standard file playback.

NOTE

[FAST Drive Data No. xx] is displayed in the screen title when playing data stored on the FAST Drive.

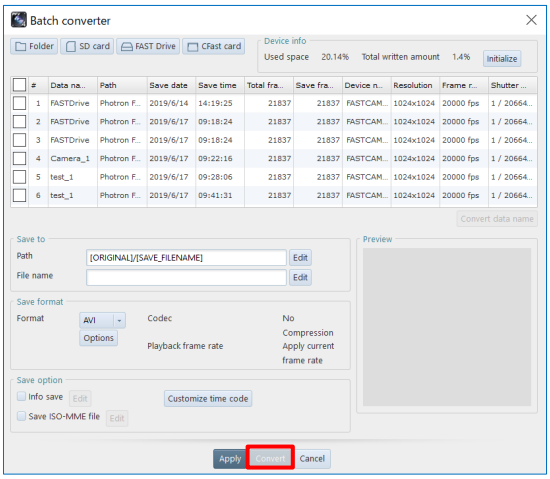
4.1.4. Downloading to PC

Download the data in FAST Drive to PC.



1. Switch to the [FILE] mode and click the [Batch converter] button in the function panel.

   The [Batch converter] dialog appears.



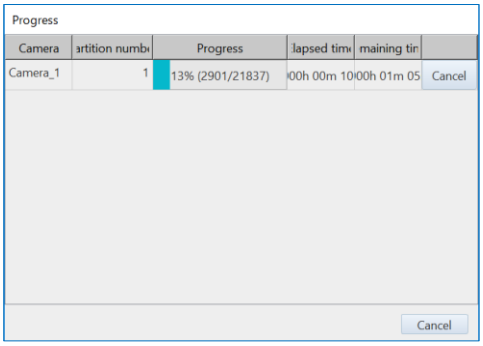
2. Specify files to convert, “Save to”, “Save format”, “Save option” and so on and click the [Convert] button.

NOTE

- To specify the save destination, click the [Edit] button under the [Save Path and File Name] and set the destination.
- To set the details of the save format, click the [Option] button.

REFERENCE

For more details about save format options, refer to “Photron FASTCAM Viewer4 User’s Manual”.



3. Conversion processing status is shown when conversion process has started.

5

Chapter 5 Product Specifications

This section explains the product's specifications.

5.1. Product Specifications

5.1.1. General Specifications

■ FAST Drive

Environmental Conditions	
Storage temperature range	-20 to 60 degrees (prevent condensation)
Storage humidity range	Less than 85 % (prevent condensation)
Temperature range for guaranteed performance	0 to 45 degrees (prevent condensation)
Humidity range for guaranteed performance	Less than 80 % (prevent condensation)
Maximum altitude for use	Less than 2,000 m
External Dimensions	
Unit	23.0 (H) x 102.0 (W) x 146.5 (D) mm, excluding protrusions 0.90” (H) x 4.01” (W) x 5.76” (D)
Weight	
Unit	400 g, 0.88 lbs

■ FAST Dock

Environmental Conditions	
Storage temperature range	-20 to 60 degrees (prevent condensation)
Storage humidity range	Less than 85 % (prevent condensation)
Temperature range for guaranteed performance	0 to 45 degrees (prevent condensation)
Humidity range for guaranteed performance	Less than 80 % (prevent condensation)
Maximum altitude for use	Less than 2,000 m
External Dimensions	
Unit	27.0 (H) x 140.0 (W) x 193.0 (D) mm, excluding protrusions 1.06” (H) x 5.51” (W) x 7.59” (D)
Unit’s DC Power Supply	
Power supply voltage	24 V
Power consumption	20 VA
Weight	
Unit	600 g, 1.62 lbs

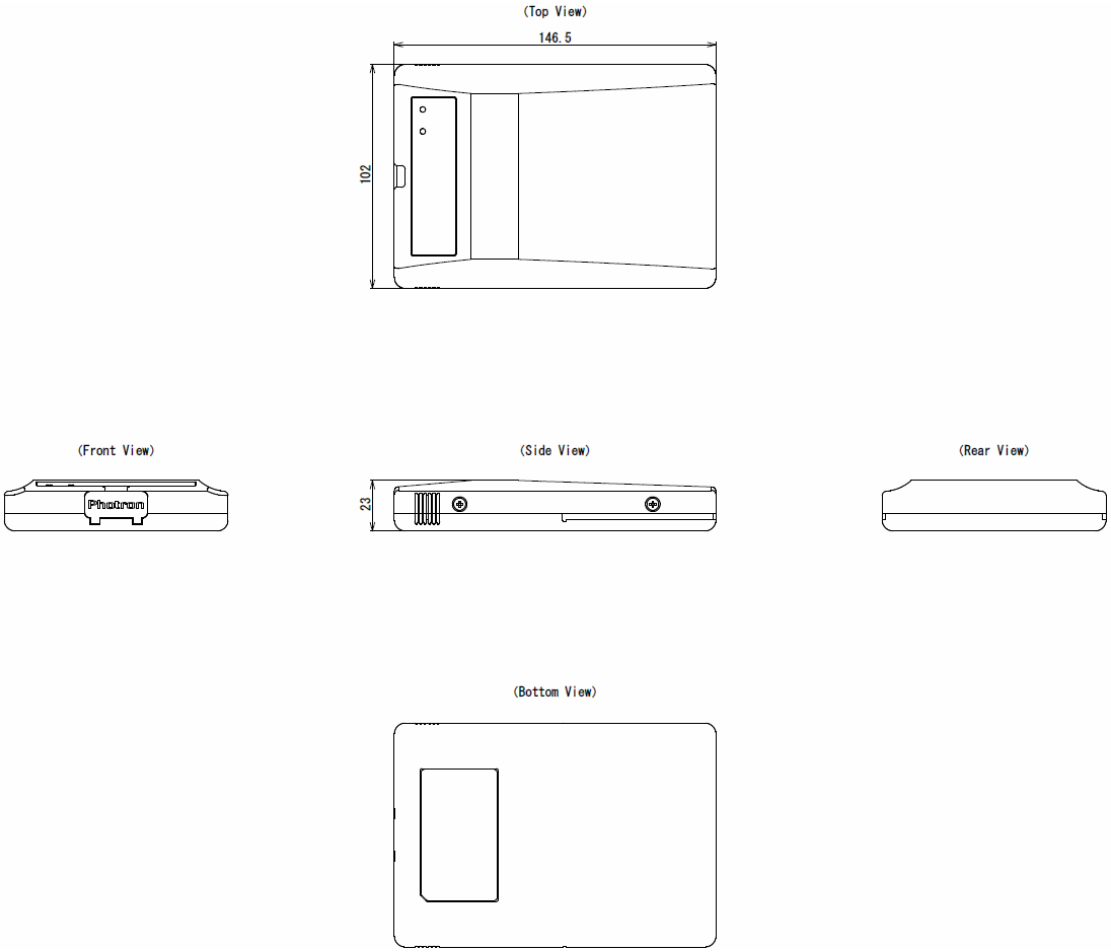
5.1.2. AC Adapter

Manufacturer		ADAPTER TECHNOLOGY CO LTD
Type		PW-080A4-1Y240A
Rating	Input	AC100 to 240V, 50 to 60Hz, up to 2 A
	Output	DC24V, 3.34A
Dimensions		40.0 (H) x 69.0 (W) x 132.0 (D), excluding protrusions 1.57” (H) x 2.71” (W) x 5.19” (D)
Weight		440.0g 0.9lbs

5.1.3. Dimensional Drawings

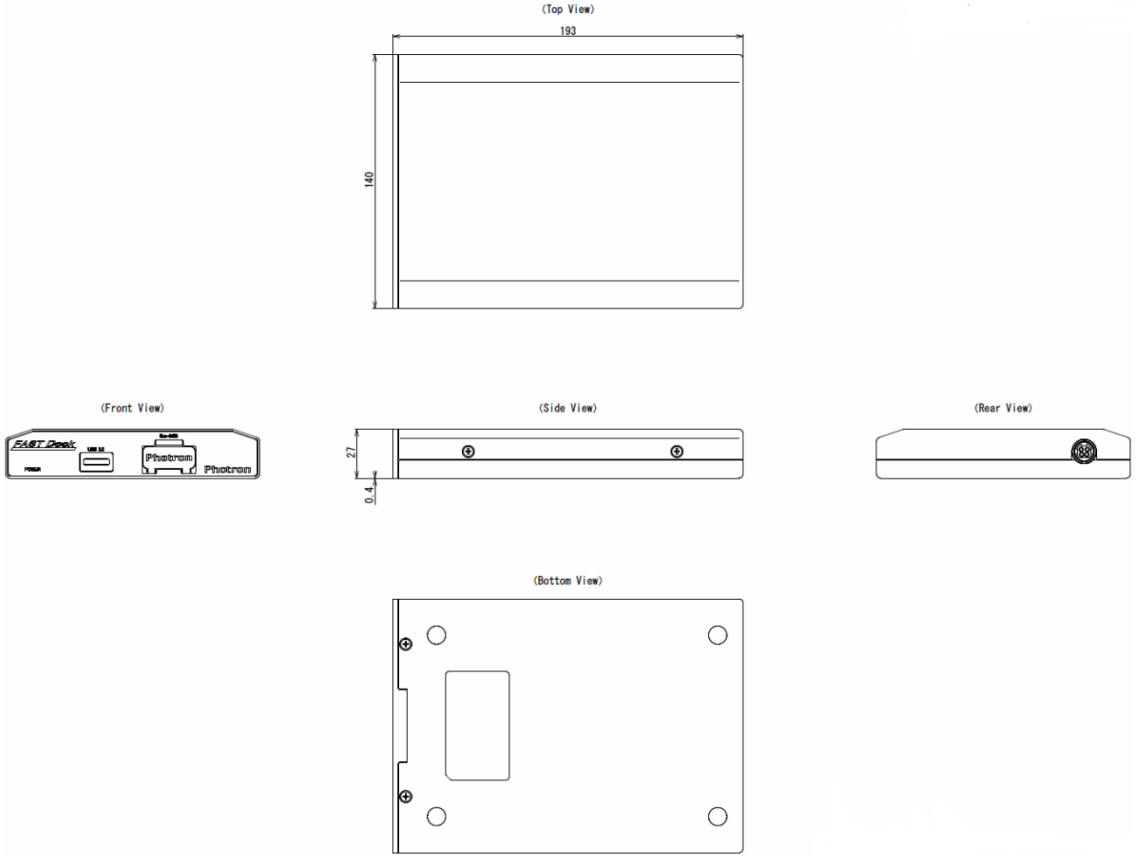
■ FAST Drive

Units: mm



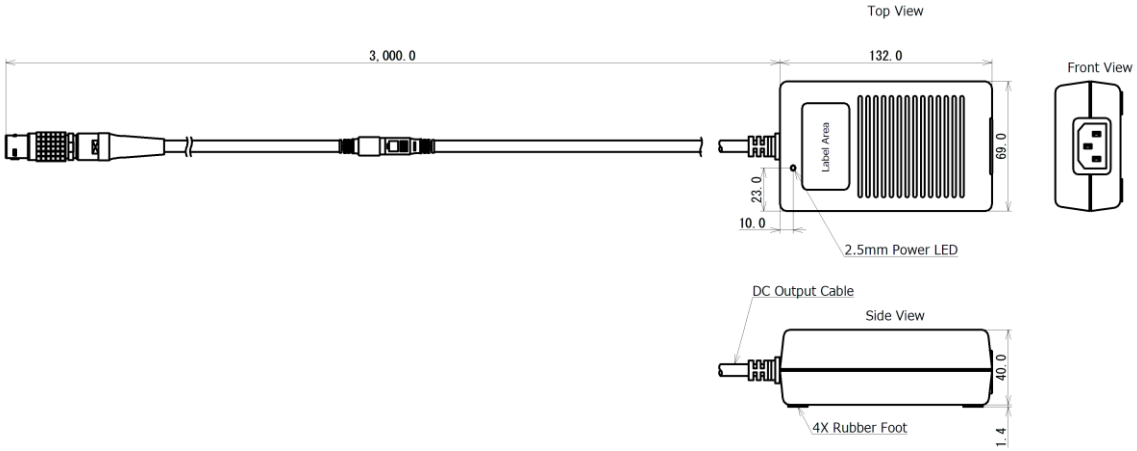
■ FAST Dock

Units: mm



■ AC Power Supply Adapter

Units: mm



6

Chapter 6 Contact Information

6.1. Contacting Photron

For inquires related to FAST Drive / FAST Dock, contact Photron at the contact information listed below. Additionally, the following items will be verified when inquiring, so prepare them in advance.

Items Verified	Example
Contact Information	Company name, school name, customer name, phone number, etc.
Product Name	• Version number of Photron FASTCAM Viewer It can be checked from [MENU] - [About PFV] of the PFV menu bar. • High speed camera name and firmware version From the LIVE mode tab, click the [Edit] icon of a camera item in [Function panel] – [Camera controls] and the information can be checked from [Camera name] and [Firmware ver.] in the “Edit Camera Info” dialog.
Inquiry	Condition

Contact Information	
In Americas and Antipodes	**PHOTRON USA, INC.** 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: image@photron.com Web: www.photron.com
In UK, Africa and India	**PHOTRON (EUROPE) LIMITED** 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: image@photron.com Web: www.photron.com
In Europe outside the UK	**Photron Deutschland GmbH** Ziegelweg 3, 72764 Reutlingen, Germany Phone: +49 (0) 7121 699 7950 Fax: +49 (0) 7121 699 7943 E-mail: image@photron.com Web: www.photron.com
In China	**PHOTRON (SHANGHAI) LIMITED** 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: info@photron.cn.com Web: www.photron.cn.com
In other areas	**PHOTRON LIMITED** 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: image@photron.co.jp Web: www.photron.co.jp

FAST Drive / FAST Dock

User's Manual Rev. 2.08 E

Last Updated August 2023
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