

*Micro Four Thirds Lens Option
for
FASTCAM Multi*

 **Hardware Manual**

Revision 1.01E

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 users will be required to correct the interference at their 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.

- The copyright of this manual is held by PHOTRON LIMITED.
- Product specifications and manual contents can change without advanced notification.
- This manual was created taking every possible measure to ensure the accuracy of its contents. However, if you find a section which is unclear, a mistake, or an omission, please contact PHOTRON LIMITED using the contact information provided at the end of the manual.
- PHOTRON LIMITED bears no responsibility for the results of using the product or from following the instructions in this manual.

Introduction

Thank you for your purchase of Photron's high-speed camera system option, the "Micro Four Thirds Lens Option for FASTCAM Multi" (referred to below as the option).

This manual contains the operating instructions and warnings necessary for using the option.

Before using the option, 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.

Manual Notation

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

Icon/Symbol	Description
	This symbol indicates content that should always be read.
	This symbol indicates instructions that should always be followed when using the software, or things to be careful of when using the software.
	This symbol indicates supplementary items to be aware of when using the system.
	This symbol indicates the location of a reference.
	This symbol indicates a space for you to make notes.
“ ”	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 Manual

This section explains the layout of the manual. For other options, please refer to each manual

◆ Introduction

The introduction explains the manual and safety precautions.

◆ Chapter 1. Overview

This chapter gives an overview of the system and an explanation of its features.

◆ Chapter 2. Functions

This chapter explains the system's functions. Refer to the "Photron FASTCAM Viewer User's Manual" for additional details on using a PC to control the system.

◆ Chapter 3. Specifications

This chapter explains the system'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.

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 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.



- When something is wrong with the system, unplug the Main Unit's 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 produces smoke, a strange smell, or strange sound.Using the system in these conditions might cause a fire or electric shock.



Caution



- 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.



- Ambient temperature 0-45° C, humidity 85% RH or lower, maximum altitude 2,000m or lower. In addition, if exceeding these limits, use in a condensation-free environment. Doing so can cause malfunction.



- Do not store the equipment in a location where the temperature goes below -20°C or higher than 60°C. Also, prevent condensation from forming during shipment.



- 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.



European Union (and EEA) only



These symbols indicate that this product is not to be disposed of with your household waste, according to the WEEE Directive (2012/19/EU), the Battery Directive (2013/56/EU) 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.

(EEA: Norway, Iceland and Liechtenstein)



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Chapter 1. Overview

1.1. Product Overview and Features

1.2. Components and Accessories

1.3. Part Names

1.4. Installation

1.1. Product Overview and Features

This product is a Micro Four Thirds lens control option for FASTCAM Multi Camera Head HS-01 (hereinafter referred to as HS-01).

Controller software “PFV” will allow you to control focus, aperture, and zoom of a Micro Four Thirds lens remotely through the Gigabit Ethernet.



Micro Four Thirds Lens Option for FASTCAM Multi

1.2. Components and Accessories

1.2.1. Components

The system's standard components are listed below. Remove the components from the packaging and check them.

- | | | |
|----|---|--------|
| 1. | Micro Four Thirds Lens Option for FASTCAM Multi | 1 |
| 2. | Micro Four Thirds Lens Cap | 1 |
| 3. | Micro Four Thirds Lens Option for FASTCAM Multi Hardware Manual (This manual) | 1 |
| 4. | Flange-back adjustment shims (Thickness: 0.1mm, 0.15mm, 0.2mm, 0.3mm and 0.4mm) | 1 each |

Supplement

- Screws are not bundled with this option. Use the screws which are attached on a Camera Head.

1.2.2. Accessories/Options

This product is attached to FASTCAM Multi camera head for actual operation. In addition, the following optional items are offered for the FASTCAM Multi camera system (as of March 2015).

1. FASTCAM Multi Camera Head HS-01 type 750K-M (Monochrome) (102479)
2. FASTCAM Multi Camera Head HS-01 type 750K-C (Color) (102480)
3. FASTCAM Multi Camera Head HS-01 type 200K-M (Monochrome) (102829)
4. FASTCAM Multi Camera Head HS-01 type 200K-C (Color) (102830)
5. FASTCAM Multi Camera Cable 5m (102481)
6. FASTCAM Multi Camera Cable 10m (102482)
7. FASTCAM Multi LED Light Option (102483)

Supplement

- Many more optional items (lenses and lighting devices) are available to choose from. For details, ask your local sales representative or refer to "5.1. Contact Information".

1.3. Part Names



For each of the system components.

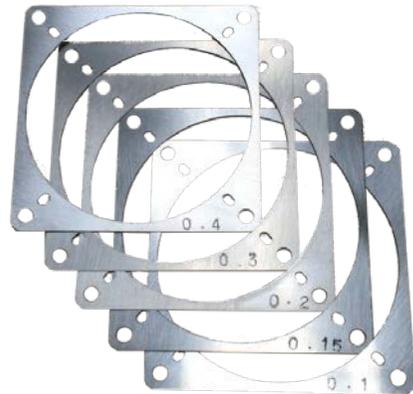
- Do not expose to shock.
- Do not use in an area where flammable gas or dust is present.
- Do not disassemble or modify.
- Do not expose to liquids such as water.
- Do not subject to excessive force.

1.3.1. Micro Four Thirds Lens Mount

This lens mount is specialized for Micro Four Thirds system. Various Micro Four Thirds specification lenses can be used with this lens mount. And the camera control software PFV can control focus, iris and zoom* by remote. (*It depends on a lens specification.)



Micro Four Thirds Lens Mount

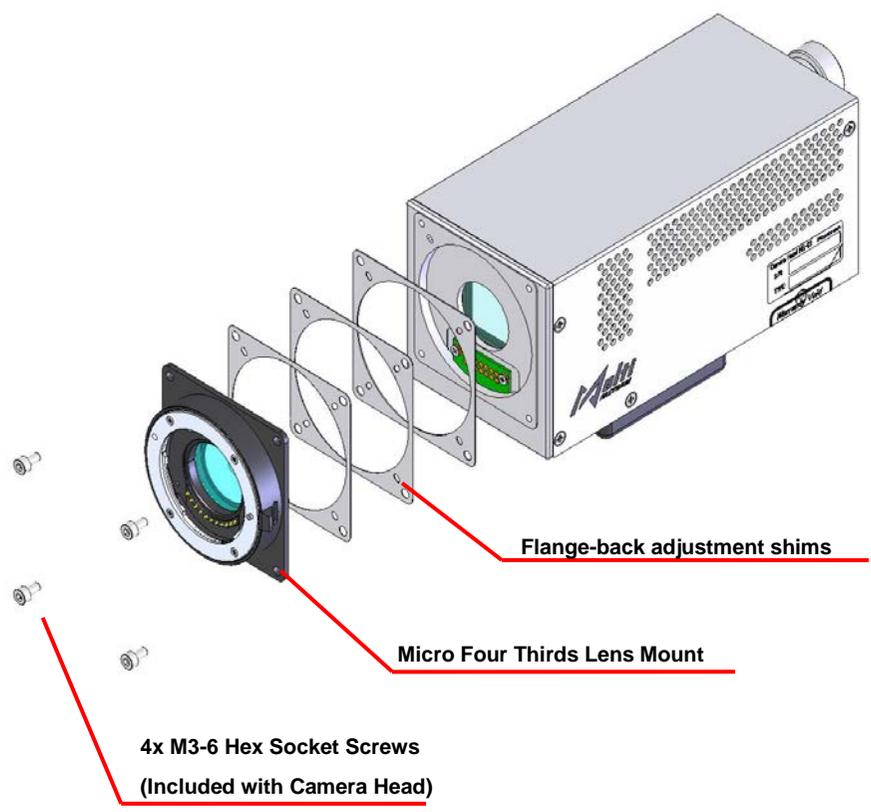


Flange-back adjustment shims

Micro Four Thirds Lens Option for FASTCAM Multi

1.3.2. Part Names

Micro Four Thirds Lens Option for FASTCAM Multi



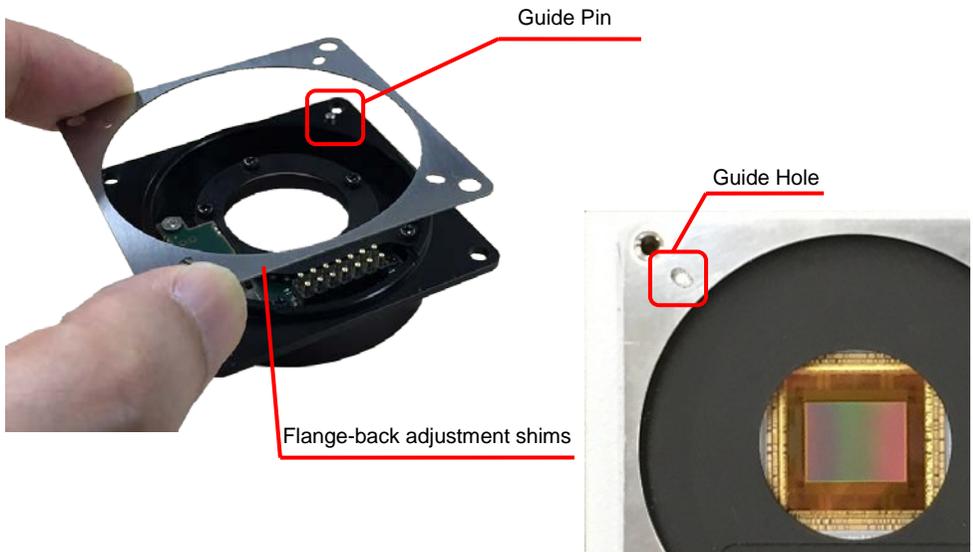
1.4. Installation

Install the lens mount option onto a camera head by following the procedure.

1. Make sure the camera cable is disconnected from the camera head.
2. If G type F mount or C mount is attached, remove it.
3. Remove the four M3 Hex Socket Cap screws by using the hexagonal wrench.

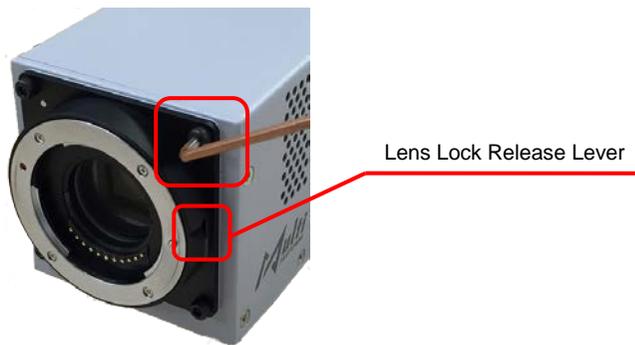


4. Remove the mount.
5. Insert the flange-back adjustment shims between the lens mount option and the camera head HS-01. And then attach the mount on the camera head with matching a mount's guide pin and a camera head's guide hole.



6. Fix the mount by the four screws.

It is the correct position that the lens lock release lever is right side with facing the sensor.



- Be sure to shut down the Main Unit before installing or removing the lens mount. If the lens mount is installed or removed while the system is powered, an error will result.
- Do Not touch the electric contacts with bare hand. If they are touched, it will be a cause of fault.



Chapter 2. Functions

2.1. Supported Lenses

2.2. Lens Control

2.3. Flange-Back Adjustment Shims

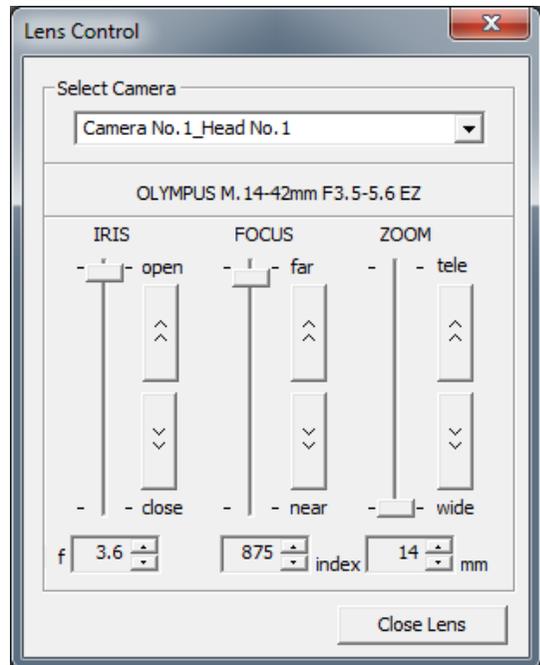
2.1. Supported Lenses

This option supports every lens which is satisfied Micro Four Thirds system's specification.



2.2. Lens Control

PFV can control focus, iris and zoom* by remote. (* It depends on a lens specification.)



Reference

- For details, refer to "2.12.17. Lens Control" of "PFV3 User's Manual".

2.3. Flange-Back Adjustment Shims

This option includes different thickness five shims for adjusting flange-back. The part of distance can be adjusted 0.10mm to 1.05mm by changing the combinations of shims.

The standard combination is 0.75mm (0.15mm +0.20mm +0.40mm).

Shims' combination table

Distance \ Shim	Shim				
	0.10mm	0.15mm	0.20mm	0.30mm	0.40mm
0.10mm	✓				
0.15mm		✓			
0.20mm			✓		
0.25mm	✓	✓			
0.30mm				✓	
0.35mm		✓	✓		
0.40mm					✓
0.45mm		✓		✓	
0.50mm	✓				✓
0.55mm		✓			✓
0.60mm			✓		✓
0.65mm	✓	✓			✓
0.70mm				✓	✓
0.75mm (Standard)		✓	✓		✓
0.80mm	✓			✓	✓
0.85mm		✓		✓	✓
0.90mm			✓	✓	✓
0.95mm	✓	✓		✓	✓
1.00mm	✓		✓	✓	✓
1.05mm		✓	✓	✓	✓

! Caution

- The usable maximum number of shims at same time is four.

✎ Supplement

- The printed numbers of shims indicate their thickness.



Chapter 3. Specifications

3.1. Specifications

3.2. Dimensions

3.1. Specifications

3.1.1. Product Specifications

Lens Mount	Micro Four Thirds Lends Mount
Flange-back adjustment	Adjusted by inserting shims

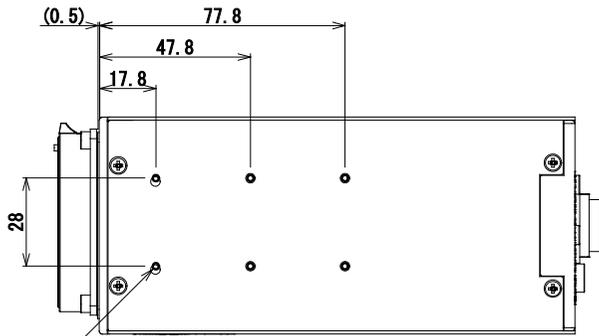
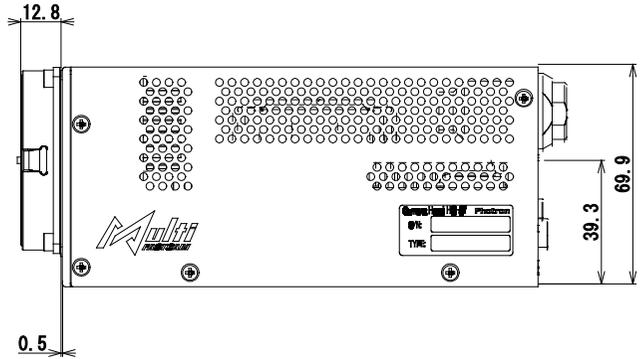
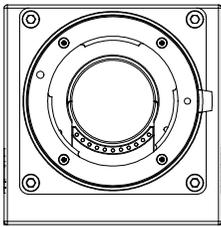
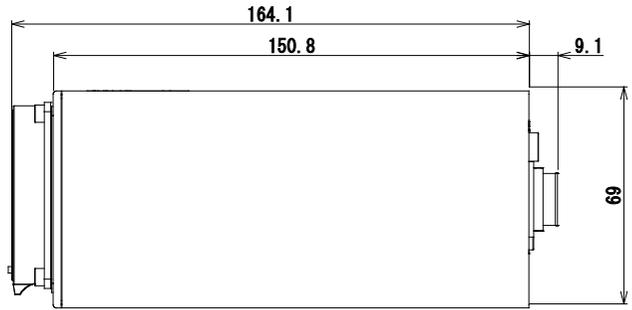
3.1.2. General Specifications

Environment Conditions	
Storage Temperature	-20°C ~ 60°C (No Condensation) -4°F ~ 140°F (No Condensation)
Storage Humidity	85% or less (No Condensation)
Operating Temperature	0 ~ 45°C (No Condensation) 32°F ~ 113°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	2,000m or lower
External Dimensions	
Body	59.2 (H) × 59.2 (W) × 14.8 (D) mm, excluding protrusion 2.3"(H) × 2.3"(W) × 0.6"(D)
Weight	
Body	72g, 0.2lb

3.2. Dimensions

With FASTCAM Multi Camera Head HS-01

(mm)



6-M3 DEPTH4

※Caution
 If installing a longer screw than the specified depth (in mm), its screw hole or the camera may be damaged.



Chapter 4. Warranty

4.1. 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 (flange-back adjustment shims)
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” page 20.

Chapter 5. Contacting Photron

5.1. Contact Information

5.1. Contact Information

For inquires related to Micro Four Thirds Lens Option for FASTCAM Multi, contact Photron at the contact information listed below.

Additionally, the following items will be verified when inquiring, so please prepare them in advance.

Items Verified	Concrete Example
Contact Information	Company, school or organization name, customer contact name, contact phone number, contact e-mail address.
Product Name	Micro Four Thirds Lens Option for FASTCAM Multi
Serial Number	Check on the nameplate seal.
Condition of the system and what is known about it.	

Contact Information	
In Americas and Antipodes	<p>PHOTRON USA, INC. 9520 Padgett Street, Suite 110, San Diego, CA 92126-4426, USA Phone : 800-585-2129 or 858-684-3555 Fax : 858-684-3558 E-mail : image@photron.com / www.photron.com</p>
In Europe, Africa and India	<p>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 / www.photron.com</p>
In China	<p>PHOTRON (SHANGHAI) LIMITED. Room 20C Zhao-Feng World Trade Building, No. 369 Jiangsu Road, ChangNing District, Shanghai 200050 China Phone : 021-5268-3700 Fax : 021-5268-3702 E-mail : info@photron.cn.com / www.photron.cn.com</p>
In other areas	<p>PHOTRON LIMITED 21F, Jimbocho Mitsui Bldg., 1-105 Kanda Jimbocho, Chiyoda-Ku, Tokyo 101-0051 Phone : +81 3 3518 6271 Fax : +81 3 3518 6279 E-mail : image@photron.co.jp www.photron.co.jp</p>

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