

Digital high speed camera

### HAS-U1/HAS-U2

# Hardware settings user manual

This manual provides safety and installation instructions.

Please read this manual thoroughly before using.

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List of included items	4
Parts names	5
Setting up procedures	6
Connecting to optional accessories	9
Using USB3.0 hub	10
Product specifications	11

Support information

Important safety instructions



### Table of contents

Important safety instructions	3
List of included items	4
Parts names ·····	5
Setting up procedures ······	6
Connecting to optional accessories	9
Using USB3.0 hub ·····	10
Product specifications ·····	11
Support information	11



#### — Introduction —

Thank you very much for your purchase.

Please read this manual thoroughly before installation and operation, and keep this manual for future reference.

### — Important safety instructions —

### **△** Caution for safety -

- Do not handle plug or appliance with wet hands.
- Do not plug or unplug the cable when the camera is turned on.
- If your device needs repair, please contact our technical support center.
- ullet Do not disassemble or modify HAS-U1  $\cdot$  HAS-U2.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### List of included items

- 1 Camera body
- 2 USB3.0 cable
- 3 Sync master cable\*
- 4 Trigger button\*
- 5 USB3.0 hub\*
- 6 Software CD

- 7 Branch connector\*
- 8 BNC cable\*
- 9 External sync cable \*
- 10 High brightness LED strobe\*
- 11 Synctrigger cable for U1 and U2\*

\* = optional accessory



1 Camera body



2 USB3.0 cable



3 Sync master cable\*
(FST-SYNC-MST-1)



4 Trigger button\*



5 USB3.0 hub\*



6 Software CD



7 Branch connector\*



8 BNC cable\*



9 External sync cable\*
(MD8S-BNCx2)



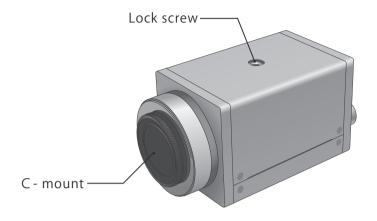
10 High brightness LED strobe\*



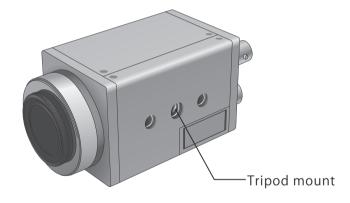
11 Sync trigger cable for U1 and U2\*

## Parts names

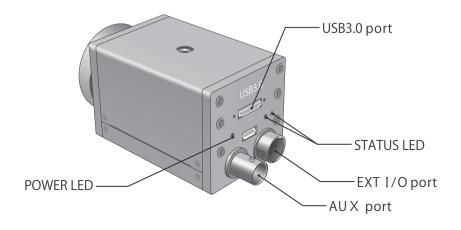
#### 1 Top and Front



#### 2 Bottom



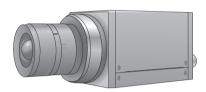
### 3 Rear



# Setting up procedures

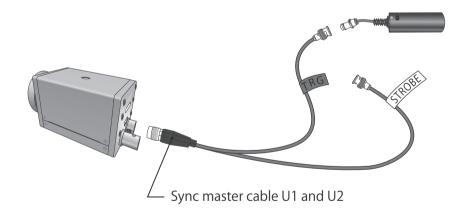
How to connect camera directly to your PC.

- 1 When connecting the camera to a PC directly, please attach C-mount lens and remove the lens cover.
- 2 Make sure that the camera is firmly attached to a tripod.





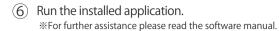
(3) When it is necessary to use an external trigger and / or to synchronize with LED lights, please use a sync trigger cable for U1 and U2.

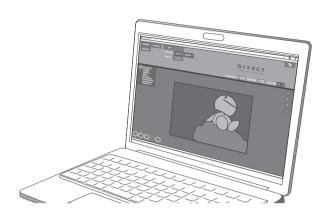


- (4) Connect USB3.0 cable (Standard-A) to your PC.
- (5) Connect USB3.0 cable (microB) to the camera.



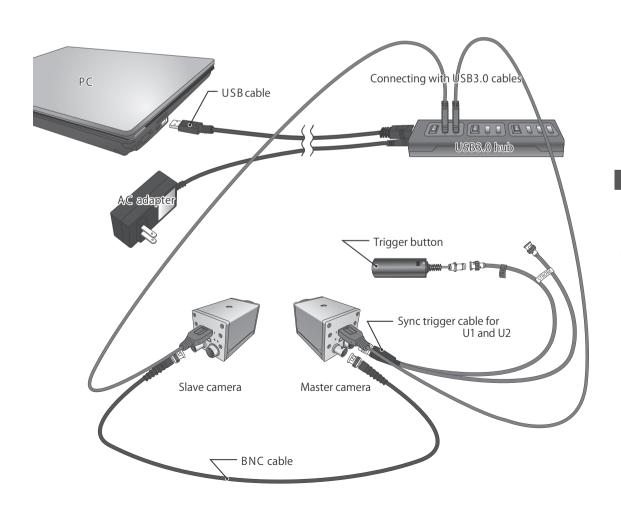






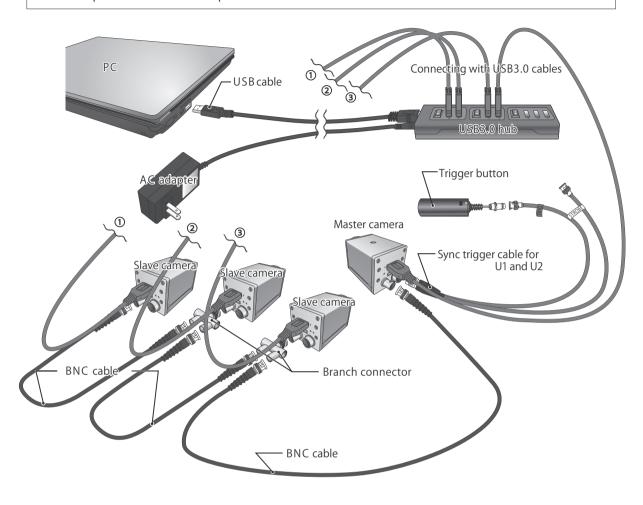
#### Connecting with multiple cameras.

\* Example of two-camera setup.

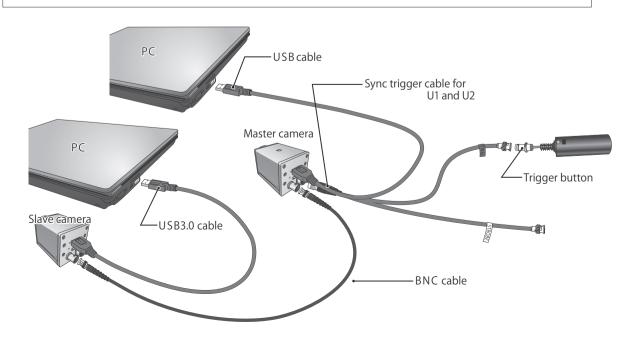


#### Connecting with multiple cameras.

\* Example of four-camera setup.

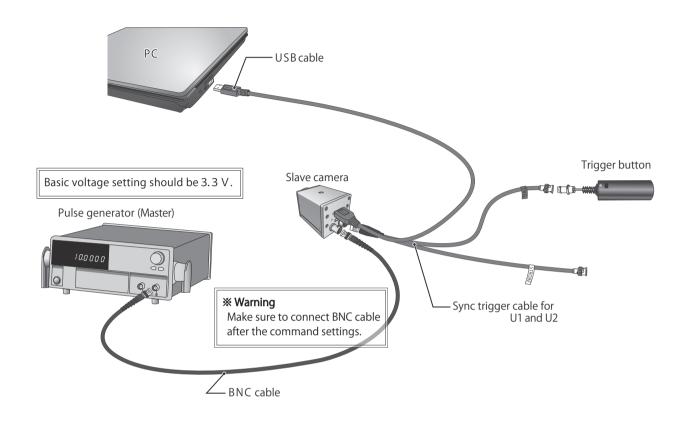


#### Connecting a camera to a PC $\times$ 2 pairs.

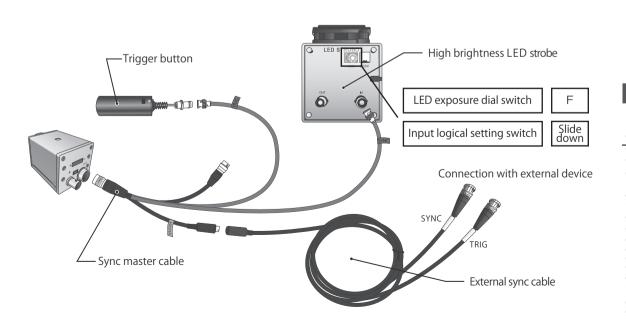


#### Using external device as the master.

Example: How to record at the frequency of a pulse generator.



#### Connecting with optional accessories.

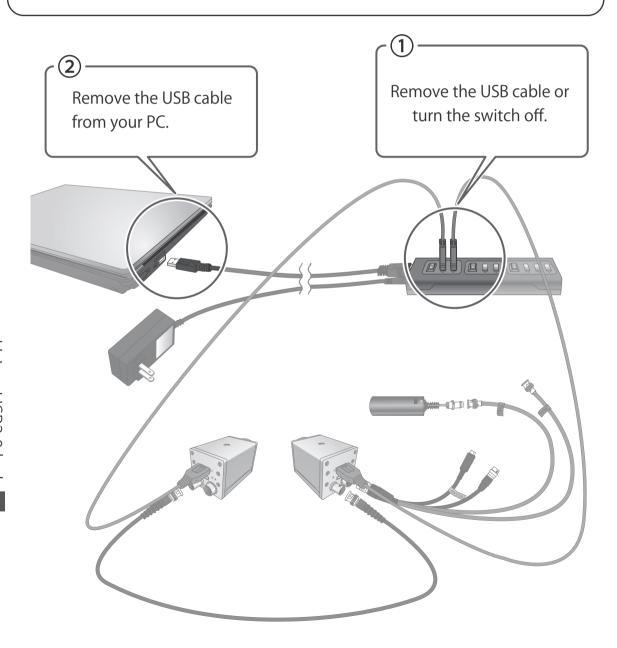


## Using USB3.0 hub

### **△**Caution!

When using USB3.0 hub, be sure to follow the instructions below. Otherwise, it may lead to problems with the camera or USB3.0 hub.

- 1) Remove all the cameras connected to USB3.0 hub.
- ② Remove USB3.0 hub from your PC.



### Product specifications

#### HAS-U1

Camera	
Camera type	Mono (HAS-U1M)
	Color (HAS-U1C)
Sensor	CMOS
A/D	10bit
Effective resolution	1280 x 1024 (1.3M pixel)
Sensor format	1/2 inch
Lens mount	С
Recording mode	Embedded memory / DMA transfer
Memory size	2GB
Data output	USB3.0
Interface	Micro-B
Shutter (exposure)	Minimum 1/100,000sec $(10 \mu\text{S})$
Sensitivity	7.7V/lux.s
Power supply	USB bus power
	12 pin
Electric requirement	Under 4.5W
Weight	Approx. 210g
Size	44mm×44mm×81.5mm

#### HAS-U2

Camera	
Camera type	Mono (HAS-U2M)
	Color (HAS-U2C)
Sensor	CMOS
A/D	10bit
Effective resolution	2592x 2048 (5.3 M pixel)
Sensor format	1inch
Lens mount	С
Recording mode	Embedded memory / DMA transfer
Memory size	2GB
Data output	USB3.0
Interface	Micro-B
Shutter (exposure)	Minimum 1/100,000sec (10 μ S)
Sensitivity	7.5V/lux.s
Power supply	USB bus power
	12 pin
Electric requirement	Under 4.5 W
Weight	Approx. 210g
Size	44mm×44mm×81.5mm

# Support information

Please contact our local office for software updates and customized options as well as other inquiries.



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 $\begin{array}{l} \mbox{Digital high speed camera} \\ \mbox{HAS-U1/HAS-U2} \end{array}$ 

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