

IMAGE CLARIFYING UNIT  
**FORTEVISION**

**FV-3000HS**



INSTRUCTION MANUAL









# Safety Rules

Thank you for purchasing our product, this time.










Before using this unit, be sure to carefully read this instruction manual and understand its contents, and exercise sufficient caution for safety when handling this unit.

In this instruction manual, the signal words, "WARNING" and "CAUTION", are used against prospective hazards according to the hazardous level.

<b>WARNING</b> 	<b>Indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.</b>
<b>CAUTION</b> 	<b>Indicates a hazardous situation which, if not avoided, could result in personal injury or property damage.</b>

 <b>WARNING</b>	
	Do not connect any AC adapter other than the one attached as an accessory.
	Do not touch any internal parts nor modify the product by opening its cover.
	Do not adapt this unit for any applications such as life-related transportation machinery, medical equipment, aerospace equipment and atomic energy-related equipment, which require higher reliability.
	This unit is designed so that safety is secured when used indoors. Therefore, be sure to use it indoors.
	Immediately turn OFF the power supply if smoke or abnormal smell has been generated.
	Do not touch this unit, its power cable, and the video signal cable in the event of thunder. Otherwise, an electric shock may result.
	Do not splash any liquid like water on the product. Do not put any container with some liquid in it on and around the top plate.

## CAUTION

	Do not use this unit in an environment at low or high temperature extreme.
	Do not change the settings of the operation setting switches by opening the unit case.
	Exercise caution when connecting I/O cables since no warranty is given to any influence on other equipment due to incorrect cable connections at the input/output terminals.
	Set the unit on a flat and stable place.
	Do not use the unit in an environment where magnetic or electric field is intense or waveform distortion or noise of the input power supply is great.
	Do not move the main body of the unit, applying excess force on it with its cables connected.
	Regularly check the power cord against tear of its sheath, open-circuit, etc.
	Gently wipe with a soft cloth wet with a neutral detergent when the panel surface is dirty. Do not use volatile solvent like thinner and benzene.
	Do not play the attached CD on a music CD player as it includes various documents and software.

## Notices on Use

- Though the contrast improvement algorithm built in this unit is designed to successfully process the images in various situations, its performance may not be prominent when a great offset is given to the video input signal or the image adjustment parameters (such as "Brightness") of the target monitor is quite different from the standard.
- The image clarifying function of this unit is designed, targeting the natural (non-artificial) images taken by a camera, etc. Good results may not be obtained or unnatural images may result for artificially created or processed images, such as graphical images on a personal computer.

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# 1. Introduction

This is an image processing unit that improves the visibility of objects by clarifying video images at low contrast. Images whose visibility has lowered due to various factors such as low illuminance, backlight, and fogs are optimized easy on human eyes. Our original real time image clarifying technology "ForteVision" is introduced into the image clarifying processing. The built-in contrast improvement processing and Gaussian noise filter processing have improved contrast and reduced noise at low illuminance. The adopted video signal covers HD-SDI and can be easily built into the existing video transmission system.

Since image clarifying processing is executed automatically, it is not necessary to change the setting of each parameter even when external light condition has changed.

Normally, no adjustment is necessary for the improvement level, but the image clarifying processing strength level can be switched over in 3 steps. (However, note that noise and contour may become obvious if the image clarifying processing strength level is raised).

The range adjustment function is also incorporated to process the video signal whose range is compressed.

All the operations other than power ON of this unit is done by the attached USB control software only.

# 2. Basic Specifications

Item	Specifications
Input video signal	HD-SDI
Input signal format	Full HD digital (1920 × 1080 60 i)
Input signal terminal	BNC connector 75 Ω
Output video signal	HD-SDI
Output signal format	Full HD digital (1920 × 1080 60 i)
Output signal terminal	BNC connector 75 Ω
Pass-through function	Input video is output as is when the unit is powered OFF.
Image clarifying processing strength adjustment	3-step switchover of OFF / Normal / Enhance
Range adjustment	3-step switchover of Full / Limited / Custom
Brightness adjustment	3-step switchover of Low / Middle / High
Audio signal	Not adaptable
Remote control	USB
Control unit connector	USB-B connector
Power supply voltage	100 - 240 V +/-10% AC 50 / 60 Hz (attached AC adapter)
Power consumption	5 W
Environmental conditions	Temperature: 0 °C - 50 °C (32 °F - 122 °F) Humidity: 20 % - 80 % (with no dew deposition)
Mass	1.3 kg (with AC adapter excluded)
Outside dimensions	205 mm (W) × 143 mm (D) × 44 mm (H) (Projections excluded.)

\*Adjustment value can be changed by the USB control software.

# 3. Configurations

- Unit (main body) × 1 pc
- AC adapter × 1 pc
- USB cable × 1
- Instruction manual(this paper) × 1
- CD (USB control software and instruction manual included.) × 1 pc

## 4. Panel (Operation / Connections)

### 4.1. Front panel



#### ① POWER

Turns ON/OFF the power supply of this unit.  
The periphery of the button lights up when pressed ON.

### 4.2. Rear panel



#### ① Digital video signal input

This is the input terminal (BNC) of the HD-SDI video signal. Video signal that needs image processing is inputted from this terminal.

#### ② Digital video signal output

This is the output terminal (BNC) of the HD-SDI video signal. Processed video signal is outputted from this terminal.  
The input video signal is outputted as is when this unit is powered OFF.

#### ③ USB input

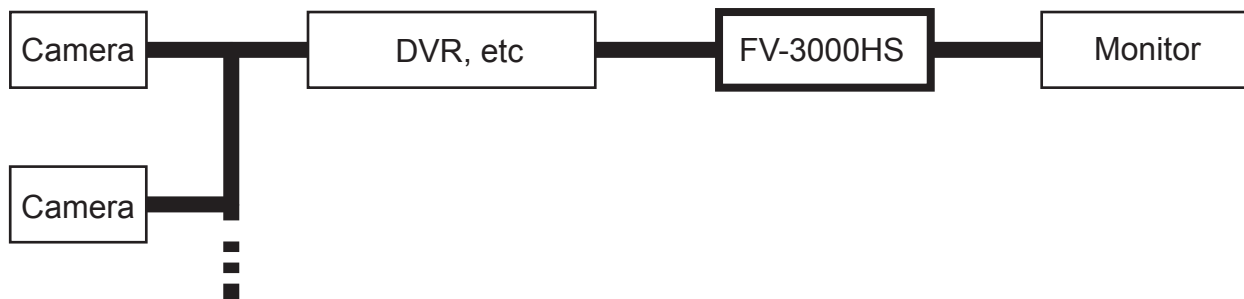
This is a control input terminal conformed with the USB 2.0 standard. This unit can be remote-operated by connecting with a personal computer, using the attached USB control software.

#### ④ Power supply terminal

Connect the attached AC adapter. Never connect any AC adapter other than the attached.

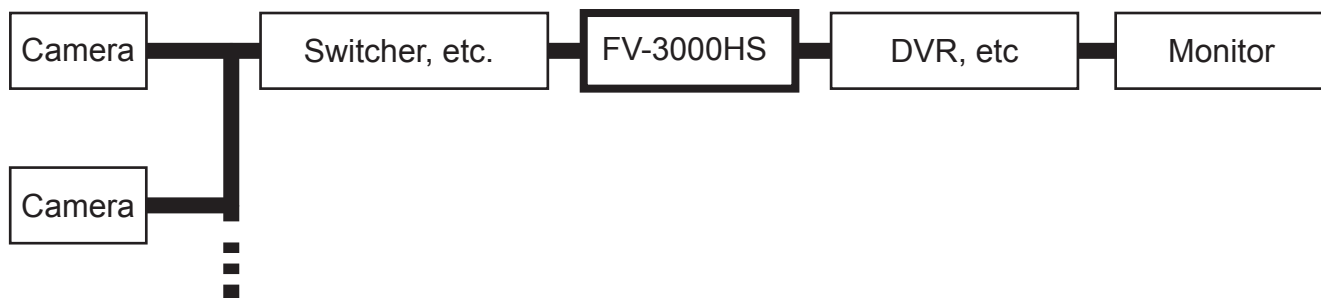
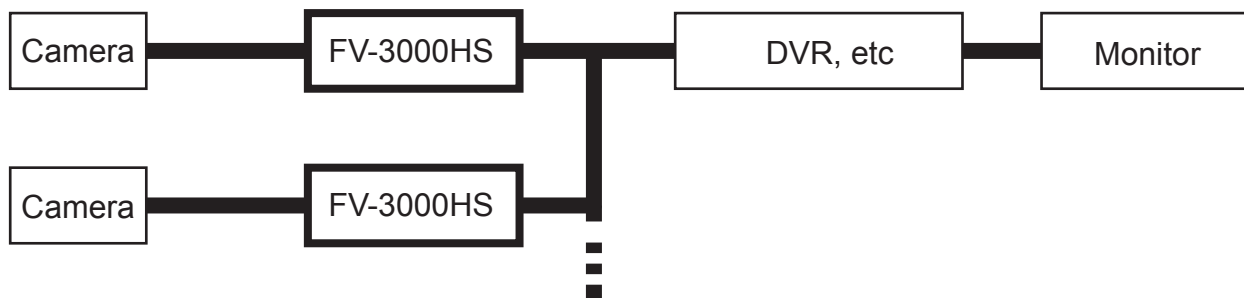
### 4.3. Connection diagram

When the video data from a video recorder is image-clarifying-processed and displayed on a monitor:



When the image data from a camera is image-optimized and then outputted to a video recorder:

\* The image data from a camera can be optimized in real time.



\* Since the I/O signal of FV-3000HS is HD-SDI (BNC), a converter and the like is necessary in case of other signal format.

## 5. USB Control Functions

### 5.1. Outline

The setting of each function can be remotely switched over from a distance when this unit is connected with a personal computer with a USB cable.

Install the attached USB control software to remotely control from a personal computer.

### 5.2. Adaptable OS

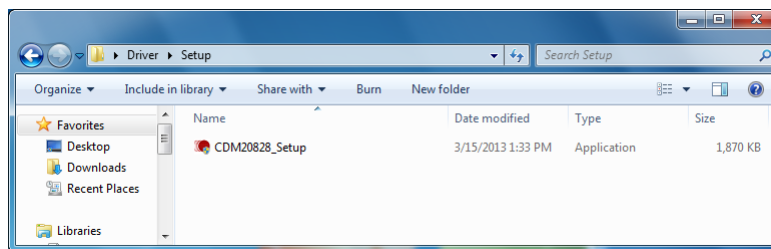
The attached USB control software supports the following OS environment.

- Microsoft Windows Vista (32bit/64bit)
- Microsoft Windows 7 (32bit/64bit)
- Microsoft Windows 8 (32bit/64bit)

### 5.3. Installation of driver

#### 5.3.1. Startup of installer

Execute "Driver\Setup\CDM20828\_Setup.exe" in the attached CD.



#### 5.3.2. Setup wizard

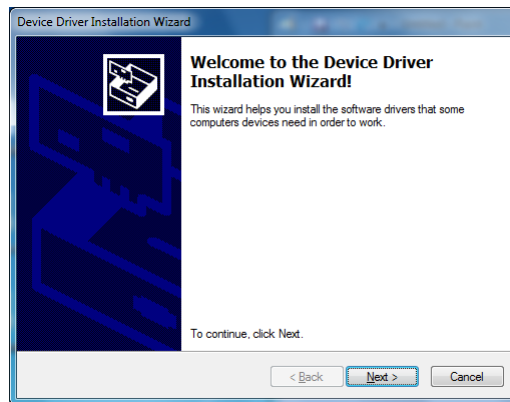
The installer starts. Click on "Extract".





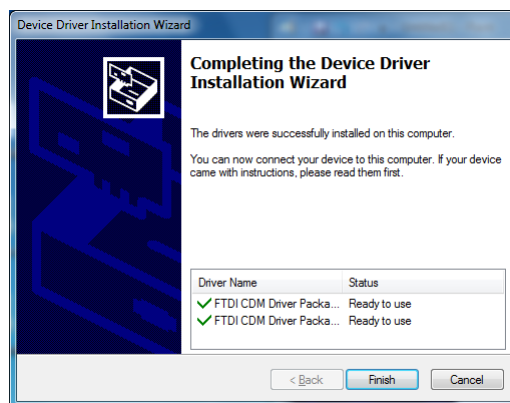
### 5.3.3. Installation of driver

Install the driver. Click on "Next>"



### 5.3.4. Completion of installation

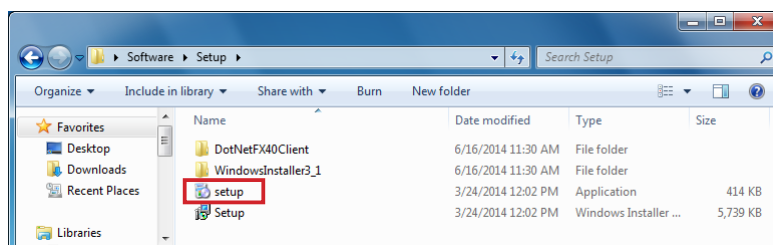
Installation will automatically proceed and complete with the following screen displayed. Then, click on "Finish>"



## 5.4. Installation of control software

### 5.4.1. Startup of installer

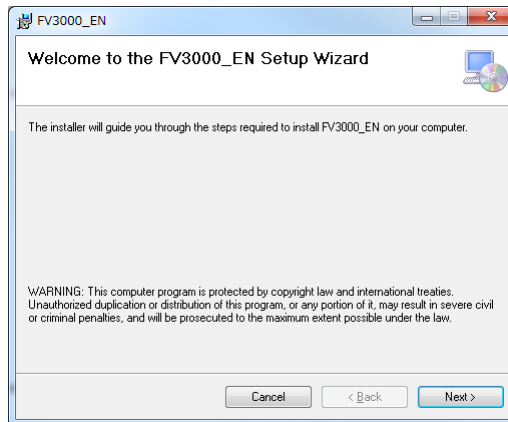
Execute "Software\Setup\Setup.exe" in the attached CD.



## 5.4.2. Setup wizard

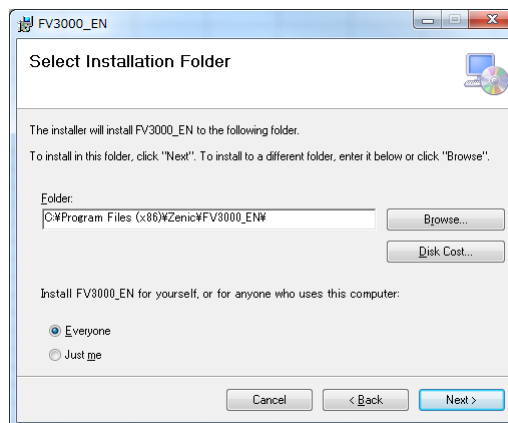
The installer starts. Then, click on "Next>".

\* The setup screen ".NET Framework 4.0" is displayed when ".NET Framework 4.0" is not installed in the personal computer. In this case, install it according to the instruction.



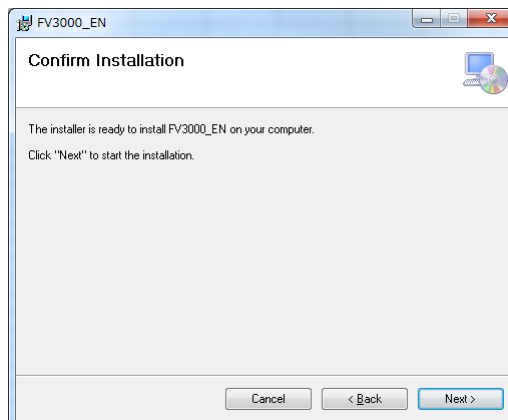
## 5.4.3. Selection of installation folder and user

Select an intended destination folder for installation and a user type ("Everyone" or "Just me"), and then click on "Next>".



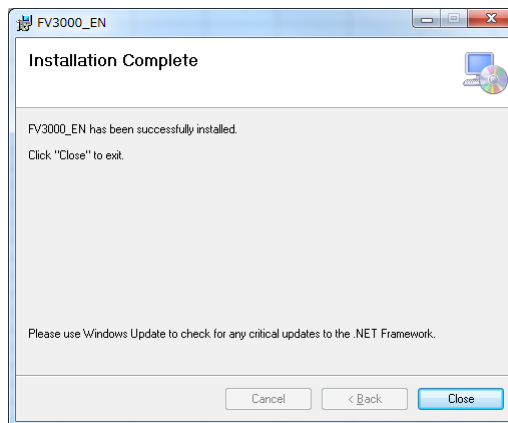
## 5.4.4. Confirmation of installation

The installation confirmation screen is displayed. Then, click on "Next>".



## 5.4.5. Completion of installation

Installation will automatically proceed and complete with the following screen displayed. Then, click on "Close".



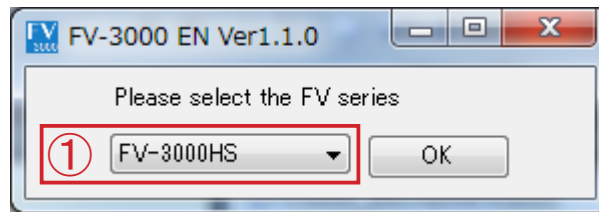
## 5.4.6. Startup of control software

The following short cut icon appears on the desktop as soon as the installation is complete. Double-click on this icon to start the software.



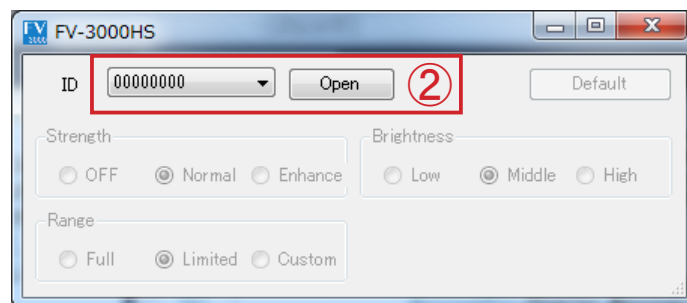
## 5.5. Operation on control software screen

Double-click on the short cut icon to start the control software.



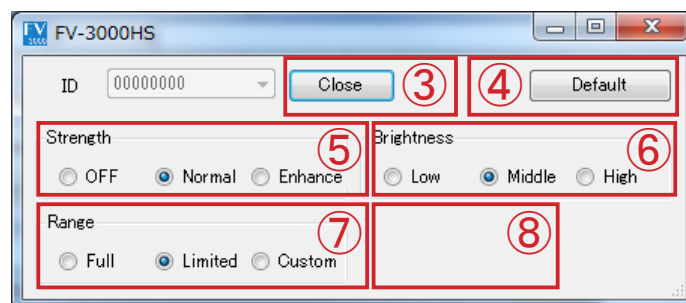
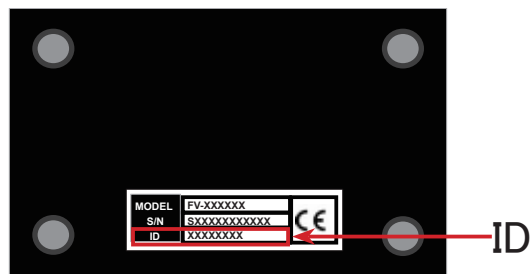
### ① Series selection

By double-clicking the short cut, first of all, the screen as shown above will appear. Then select "FV-3000HS" from the pull down menu and click on. The device selection screen as shown below will appear when the series selection is successful. If the screen is not displayed, confirm that this unit is powered ON and the USB cable is correctly connected.



### ② Device opening

Next on the device selection screen, select the ID of FV-3000HS to make setting, and then click on "Open" (The ID of each product is printed on the bottom of the unit). The control screen as shown below will appear when the series selection is successful. If the screen is not displayed, confirm that this unit is powered ON and the USB cable is correctly connected.



### ③ Device close

When completing the software, click on "Close" to close the connection with this unit. The device selection screen will appear again when the operation for device close is successful. Then, click on  icon at the upper right of the window to close the software. If the device selection screen is not displayed, confirm that this unit is powered ON and the USB cable is correctly connected.

④ "Default" button

When this button is clicked on, all the settings of this unit return to those at the product shipment.

⑤ Image clarifying processing strength adjustment

This function improves images hard to see to those easy to see by correcting Contrast.

The images under non-ideal external light conditions at low illuminance, backlight or fogs are corrected adaptively. Strength of correction can be set in 3 steps (Off / Normal / Enhance). We normally recommend "Normal" for setting since noise becomes obvious depending on the image when strength is raised.

Setting	Contents of adjustment
OFF	Image clarifying processing strength is turned off. The input video signal is outputted as is.
Normal	Image clarifying processing strength is turned ON (Normal). Normally use in this mode.
Enhance	Image clarifying processing strength is turned ON (Strength is enhanced).

Each function	Image clarifying processing		
	OFF	Normal	Enhance
Contrast improvement	OFF	ON (Normal)	ON (Enhance)
Brightness adjustment	OFF	ON	ON
Range adjustment	ON	ON	ON

⑥ Brightness adjustment

This function adjusts the brightness of an output image. The standard setting is "Middle". Low brightness portion becomes easy to see by adjusting this setting to "High" when the black level of the display monitor is a bit low. On the other hand, the noise obvious at low brightness portions can be reduced by adjusting this brightness level to "Low".

Setting	Contents of adjustment
Low	Adjusts to a little darker.
Middle	Adjusts to the standard brightness.
High	Adjusts to a little brighter.

⑦ Range adjustment

This button sets the range of the video signal to be inputted to and outputted from this unit. The following three setting options are available to match the specifications of the video signal range of the apparatus to be connected before and after this unit.

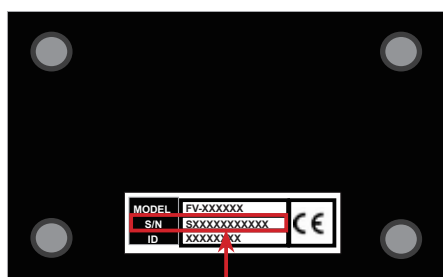
Setting	Input signal range	Output signal range
Full	0 - 255	0 - 255
Limited	16 - 235	16 - 235
Custom	16 - 235	0 - 255

## 6. Troubleshooting

Trouble	Possible cause	Remedy
The unit does not power ON.	The power plug is off the outlet.	Firmly insert the AC adapter to the outlet.
	The power connector is disconnected.	Firmly insert the connector to this unit.
Image does not appear.	BNC connector is disconnected.	Firmly insert the connector to this unit.
	There is no input signal.	Check the input device.
Clarifying does not work.	Setting is at "FV OFF".	Confirm the setting, set to "FV ON".
	Much noise is in the input video.	Adjust setting items and enter the settings.
Clarifying does not work or image is not seemed to be clarified.	Input image is a natural image in daylight.	As for a good natural image in daylight, even if clarifying is turned on, drastic changes may not occur and clarifying just doesn't seem to work(it is not malfunction).

\* Contact our office if a trouble cannot be corrected even after the remedies above are taken or other additional trouble has been generated.

Bottom



Serial No.

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- (2) The contents described in this material neither guarantees the execution of the industrial property rights and other rights nor permits its license.
- (3) The specifications of this unit may be changed without prior notice for the improvement of its performance. The contents in this material may also be revised according to the specification change of this unit.

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