Ikegami

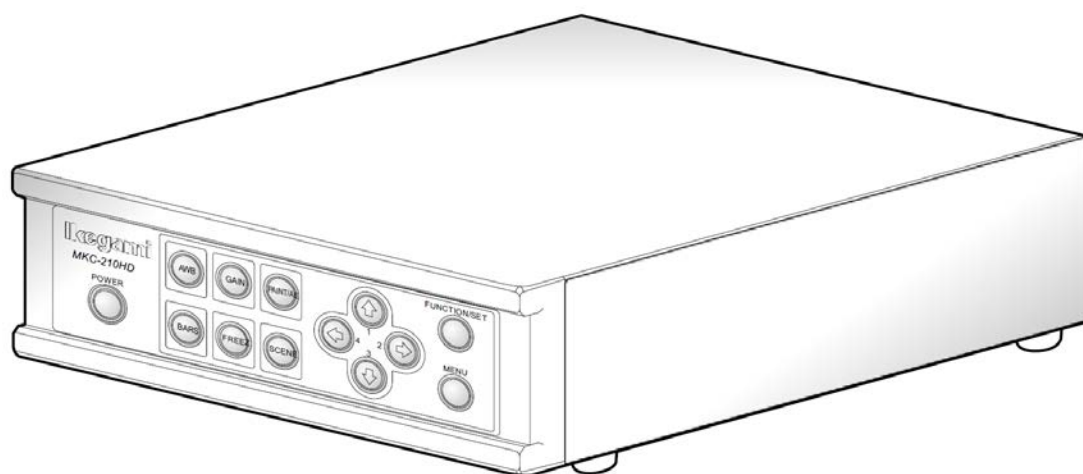## Instruction Manual   *Simple Recorder Module*

Before start using this device, read this instruction manual thoroughly for correct use.

Introduction

This instruction manual explains the simple recorder module (factory shipping option) compatible with the MKC camera.

Before start using this device, read this instruction manual thoroughly for correct use.

Caution

 * In case video could not be recorded due to failure of this device or the recording media, take note in advance that we do not bear any responsibility for the situation.
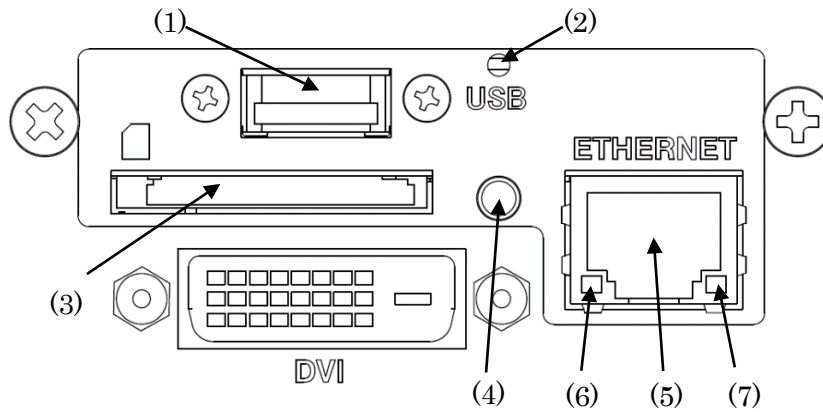
 * In the following cases, the recorded data may get damaged (lost). However, take note in advance that we do not bear any responsibility for any damage occurred by damage of the data.
- When the recording media is used incorrectly
- When the recording media is not connected to the device properly
- When the recording media incurred electric and/or mechanical shock
- When the recording media is disconnected or the device power is turned off during

 accessing to the recording media

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Details of Components

① USB port

　　It is used to connect the USB storage device.

② USB access LED

　　It lights up during recording to the USB storage device.

　　Do not remove the USB storage device while this LED is on (recording).

③ SD CARD

　　It is used to insert a SD card or a SDHC card.

　　It is not compatible with SDXC cards.

④ SD access LED

　　It lights up during recording to the SD card.

　　Do not remove the SD card while this LED is on (recording).

⑤ Ethernet connector

　　It is used to connect the Ethernet cable (category 5 or higher).

⑥ ACT LED

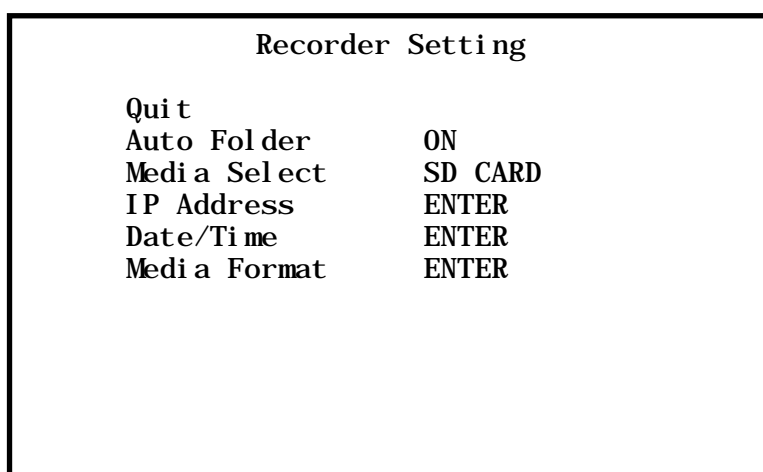　　It blinks during communication via Ethernet.

⑦ LINK LED

　　It lights up when other device is connected.

Setting

The setting of the simple recorder module can be changed from the MKC camera menu. Select "Recorder Setting" and press SET. The Recorder Setting screen opens.

Recorder Setting Screen

Setting of the simple recorder and formatting of the recording media are available.

```
              Recorder Setting

     Quit
     Auto Folder       ON
     Media Select      SD CARD
     IP Address        ENTER
     Date/Time         ENTER
     Media Format      ENTER
```

Item	Setting	Content
Auto Folder		It sets the automatic folder creating function.
	ON	It uses the automatic folder creating function.
	OFF	It disables the automatic folder creating function.
Media Select		It selects the recording media to be preferentially used.
	SD CARD	The SD card is preferentially used for recording.
	USB Storage	The USB memory and the hard disc are preferentially used for recording.
IP Address		It sets IP addresses.
Date/Time		It sets dates and times.
Media Format		It formats the recording media.

Operation

Functions of the simple recorder can be operated by using the Foot Switch or the FUNCTION switches on the front panel.

Recording Still Images

Set SNAPSHOT to one of Foot Switches 1 to 4 on the Foot Switch Setting screen.

◎ **How to use Foot Switch**

Still images can be recorded by pressing Foot Switch with a number that is set to SNAPSHOT.

◎ **How to use buttons on the front panel**
　　※ MKC-210HD becomes fixed to function 1.

　① Press the FUNCTION/SET button.
　　The FUNCTION/SET button lights up, and the FUNCTION mode starts.
　　(Pressing the FUNCTION/SET button again ends the FUNCTION mode.)

　② Still images can be recorded by pressing the arrow key with a number that is set to SNAPSHOT on the Foot Switch Setting screen.

Recording Videos

Set RECORDING to one of Foot Switches 1 to 4 on the Foot Switch Setting screen.

◎ **How to use Foot Switch**

Recording of a video can be started by pressing Foot Switch with a number that is set to RECORDING.
Pressing Foot Switch again can stop recording.

◎ **How to use buttons on the front panel**

　　※　MKC-210HD becomes fixed to function 2.
　　　　（CCU Firmware V1.08a does not support this function.）

① Press the FUNCTION/SET button.
　　The FUNCTION/SET button lights up, and the FUNCTION mode starts.
　　(Pressing the FUNCTION/SET button again ends the FUNCTION mode.)

② Pressing the arrow key with a number that is set to RECORDING on the Foot Switch
　　Setting screen starts recording of a video.

③ Pressing the arrow key again stops recording the video.

Function

File Format

Still images and videos are stored in the recording media in the following formats.

Type	Extension	Content
Still image	jpg	It records still images in the JPEG format.
Video	avi	It records videos encoded in H.264 in the AVI format.

The file name becomes "*date and time_serial number.extension.*"

For example, the file name of a video, of which recording was started at 12h34m56s on January 31th, 2015, is "20150131123456_001.avi."

When recording the video for a long time, the file is recorded by being divided by every 1 GB.

Every time the file is divided, the serial number of the file name increases.

Recording Time of Videos

The recording times of the videos are as follows.

Media capacity	HIGH (12 Mbps)	MID (8 Mbps)	LOW (5 Mbps)
128 GB	Approx. 24 hours	Approx. 36 hours	Approx. 58 hours
32 GB	Approx. 6 hours	Approx. 9 hours	Approx. 14 hours

* The recording time changes depending on the video.

* When any camera other than MKC-700HD is used, videos are recorded in the HIGH (12 Mbps) setting.

Automatic Folder Creating Function

When the automatic folder creating function is turned on, the folder is newly created when the medium is inserted (or the power is turned on) and the data recording is tried for the first time. The still images and videos are recorded in the newly created folder.

The folder serial number contained in the folder name starts from 0000.

When the automatic folder creating function is off, the new folder is not created and the still images and videos are recorded in the existing folder.

However, if the folder 0000 does not exist in the recording media, the folder with the number 0000 is created, and the data is recorded in the newly created folder 0000.

Up to 600 files of still images and videos can be recorded per folder.

Videos recorded in the simple recorder module can be played by using popular video playback software on the computer.
Playback on the MKC camera is not supported.

Playback with the following software has been confirmed.
- VLC Media Player
- Windows Media Player

Supported Recording Media

◎ SD card

It supports both SD card and SDHC card.

It does not support SDXC card.

◎ USB storage

It supports USB2.0 memory and hard disc.

With USB3.0 hard disc, sufficient power supply might be not possible.

When the recording medium has several partitions, the simple recorder module can use only the first partition.
Recording media with encryption function cannot be used.

Supported File System

The recording media formatted in FAT32 are supported. The recording media formatted in file systems such as NTFS and exFAT are not supported.
Using the recording media formatted in these file systems becomes possible when the file is formatted again with the simple recorder module.
However, take note that the existing data in the recording media will be lost after formatting.

Recording Media Capacity

The usable capacity in the recording media is limited.

◎ The maximum capacity

Use the recording media with the capacity of 128 GB at the maximum.

When the recording media with the capacity larger than 128 GB is used, recording videos may be not possible due to frame dropping.

When the recording media with the capacity larger than 128 GB is used, format the recording media by using the simple recorder module first. Only the field up to 128 GB is formatted from the beginning.

The remaining unused field cannot be used with the simple recorder; however, the field can be used with computers by formatting with the file system such as NTFS.

◎ The minimum empty capacity

Use the recording media with the empty capacity of 2 GB or larger.

When the empty capacity of the recording media is smaller than 1 GB, recording the video is not possible.

In addition, when the remaining empty capacity becomes smaller than 1 GB during recording, the recording stops.
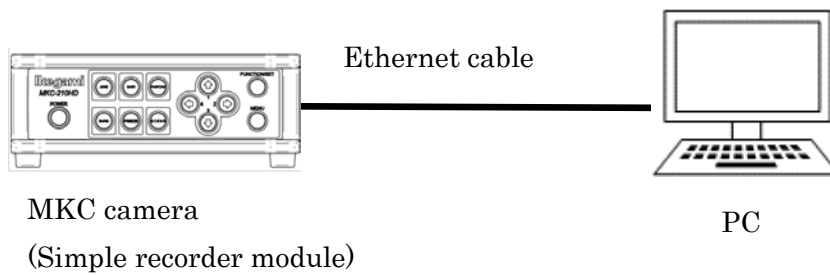
The still images can be continuously recorded until the remaining empty capacity becomes lower than 100 MB.

Network

Videos and still images in the recording media inserted to the simple recorder module can be downloaded by using FTP.

Connection

Connect the simple recorder module and the computer by using the Ethernet cable with the category 5 or higher.

Ethernet cable

MKC camera
(Simple recorder module)

PC

IP Address Setting

Set the IP address of the simple recorder module on the Recorder Setting screen.

Set the IP address that matches the using network environment.

FTP

◎ Connection

Connect to the simple recorder module by using the FTP client software of the computer.

The user name and the password are set as follows.

User name	admin
password	admin

Do not use the FTP communication during recording of a video.

Proper recording becomes impossible.

◎ Folder

When connected with FTP, accessing two folders, "media" and "update," becomes possible.

media	The recording media that is selected with Media Priority.
update	Folder for updating the simple recorder module.

◎ Downloading the recorded data

Folders in the recording media selected with Media Priority become access-able when the media folder is selected.

Downloading the recorded videos and still image files becomes possible.

* Uploading to the recording media and deleting files are not possible.

◎ Updating the firmware

Updating the firmware of the simple recorder module is possible by using the FTP.

(1) Upload the firmware for update to the update folder.

(2) When the FTP is disconnected, update process starts automatically.

(3) The update process ends after approximately 90 seconds.

Do not turn off the camera power during updating.

(4) When the update process ends, check the simple recorder module version on the camera menu.

By using RS-232C of the camera, the simple recorder module can be controlled in more advanced way.

Consult our sales department for the communication commands.

Others

License of Software of Third Parties

This product is using the software made by third parties according to their software licenses. Each software license is exclusively applied to the corresponding software and not applied to all of software in this system.

Distribution of Source Code of Free Software

If GPL/LGPL software used in this product is desired, consult with our sales department.

The software is provided for consideration according to the license.

Specification

(1) Image compression method   Video: H.264 HP, Bit rate max. 12 Mbps

Still image: JPEG, 5-level image quality setting

* Both videos and still images can be recorded simultaneously.

(2) Video input

    Image size   1920 x 1080i

    Frame rate   59.94 / 50 Hz

    Image format   (Y:Pb:Pr) = (4:2:2), YC 8 bit each

(3) Recording

    Video file format   AVI

        Maximum file size 1 GB

        For long-time recording: Divided at every 1 GB

    Still image file format   JPEG

    Recording media   USB memory, USB hard disc

        SD card (SDHC)

        * Number of partitions: 1, Size: Up to 128 GB

    File system   FAT32

(4) Video playback   Popular video player on the computer

(5) Interface   USB2.0 ((Power supply 5V, up to 500 mA is possible)

        SD card

        Ethernet 10Base-T / 100Base-TX

(6) Protocol   IPv4, TCP, UDP, FTP

(7) Control   Serial communication (UART) from the CCU board of the MKC camera

(8) Supported cameras   MKC-210HD, MMC-310HD, MKC-700HD

(9) Power supply   +12 VDC

(10) Power consumption   Approx. 2W (simple recorder only), Approx. 4.5W (when the power is supplied through USB at the max. level)

Ikegami

池上通信機株式會社

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