**CIS**

English

**3G-SDI/HD-SDI**

**FULL HD CMOS Color Camera**

# VCC-HD3N

## Product Specifications
## & Operational Manual

**CIS Corporation**

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1.   Handling Precautions

The camera module must not be used for any nuclear equipment or aerospace equipment with which mechanical failure or malfunction could result in serious bodily injury or loss of human life.   Our warranty does not apply to damages or defects caused by irregular and/or abnormal use of the product.

Please observe all warnings and cautions stated below.
Our warranty does not apply to **damages or malfunctions caused by neglecting these precautions.**

- Do not use or store the camera in the dusty or humid places.

- Do not apply excessive force, vibration, or static electricity that could damage the camera.   Handle the camera with caution.

- Do not shoot direct images that are extremely bright (e.g., light source, sun, etc.), and when camera is not in use, please put the lens cap on.   When extremely strong light source is shot, smear or blooming may occur.

- Follow the instructions in Chapter 6. "External Connector Specifications" for connecting the camera module.   Improper connection may cause damages not only to the camera module but also to the connected devices.

- Confirm the mutual ground potential carefully before connecting the camera to other equipment. AC leaks from the connected devices may cause damages or destroy the camera.

- Do not apply excessive voltage. (Use only the specified voltage.)   Unstable or improper power supply voltage may cause damages or malfunction of the camera assembly.

- Since VCC-HD3N is a highly-dense camera module, appropriate heat dissipation shall be considered. We recommend using a metal base or others to install the camera.

2. Product Outline

VCC-HD3N is a full HD color camera module utilizing a 1/1.8 type global shutter CMOS sensor.

Video output 1080 60p/59.94p/50p (3G-SDI), 1080 60i/59.94i/50i/30p/29.97p/25p/24p/23.97p (HD-SDI),

720 60p/59.94p/50p (HD-SDI) are corresponded.

Features
- ☐ CIS own designed Image Signal Processor, "Clairvu$^{TM}$" for superb imaging quality.
- ☐ Small foot print: 29mm × 29mm × 77mm (without protruding portion)
- ☐ Gen Lock function (3 values analog signals or black burst)
- ☐ Camera can be controlled by RS-232C
- ☐ LTC (Longitudinal Time code)
- ☐ Connecting to an optional remote controller, camera settings can be set by OSD (On Screen Display).

3.   Bundled Items

3.1   Standard Bundled Items
- ☐ Camera module, VCC-HD3N
- ☐ C/CS conversion ring (attached to the camera)
- ☐ Lens mount cap (attached to the camera)
- ☐ 6pins connector for power

3.2   Packaging
- ☐ Individual carton
- ☐ Master carton (10pcs/carton)
  * Master carton may change depends on the quantity to be shipped per delivery.

3.3   Optional Items
- ☐ RU-100 remote controller (OSD control, RS232C to USB conversion)

4.    Specifications

### 4.1    General Specifications

| (1) | Pickup Device | Device type | 1/1.8 type CMOS sensor (Color) |
|---|---|---|---|
| | | Effective pixel numbers | 2064(H) × 1544(V) |
| | | Unit cell size | 3.45μm(H) × 3.45μm(V) |
| | | Chip size | 7.121mm(H) × 5.327mm(V)    (entire pixels area) |
| | | | 6.624mm(H) × 3.726mm(V)    (video output area) |

| (2) | Resolution | 1080p,1080i : | 1920(H) × 1080(V) |
|---|---|---|---|
| | | 720p : | 1280(H) × 720(V) |

(3)    Aspect Ratio                    16 : 9

(4)    Video Output Format

| 1920 x 1080p @60fps(Level A) | 3G-SDI |
|---|---|
| 1920 x 1080p @60fps(Level B) | 3G-SDI |
| 1920 x 1080p @59.94fps(Level A) | 3G-SDI |
| 1920 x 1080p @59.94fps(Level B) | 3G-SDI |
| 1920 x 1080p @50fps(Level A) | 3G-SDI |
| 1920 x 1080p @50fps(Level B) | 3G-SDI |
| 1920 x 1080i  @60fps | HD-SDI |
| 1920 x 1080i  @59.94fps | HD-SDI |
| 1920 x 1080i  @50fps | HD-SDI |
| 1920 x 1080p  @30fps | HD-SDI |
| 1920 x 1080p  @29.97fps | HD-SDI |
| 1920 x 1080p  @25fps | HD-SDI |
| 1920 x 1080p  @24fps | HD-SDI |
| 1920 x 1080p  @23.97fps | HD-SDI |
| 1280 x 720p  @60fps | HD-SDI |
| 1280 x 720p  @59.94fps | HD-SDI |
| 1280 x 720p  @50fps | HD-SDI |

(5)    Sync Systems                   Internal / External  Sync.

(6)    Video Output Standard          3G-SDI/HD-SDI : Y/Pb/Pr(4:2:2 10bit)   BNC   75Ω terminal

(7)    Sensitivity                    F5.6   2000lx

(8)    Minimum Illumination            F1.4   5lx

Conditions: VIDEO 50%, AGC 30dB, Electric shutter OFF

(9)    Power Requirement              DC+9 ~ +15V

(10)  Power Consumption (typ.)        4W   at DC+12V IN

(11)  Dimensions                     Refer to overall dimension drawing.

(12)  Weight                         Approx.  92g

(13)  Lens Mount                     C/CS lens mount（selectable with a conversion ring）※Please refer to the dimension drawing.

(14)  Gain Setting                   AGC (Maximum gain: 0dB~48dB)          ※Noises may be noticeable at high gain.
                                     MANUAL: 0dB~48dB

(15)  Shutter Speed Variable Range    MANUAL: 1/13600s~1/25s

* Shutter speed slower than 1/60s will be limited by the frame rate corresponding to the video output format.

AUTO: 1/13600s~1/25s (Upper limit and lower limit can be set)

* Same as MANUAL, shutter speed slower than 1/60s will be limited by the frame rate corresponding to the video output format.

(16)  White    Balance    Adjustment    AUTO, AUTO (Outdoor), ATW, 7 different Preset, MANUAL, User preset 1~5, and OnePush
       Range                            Preset:
                                        Daylight(5500K), Cloudy(6500K), Shade(8000K), Tungsten(3200K), Fluorescent(White),
                                        Fluorescent(Neutral White), Fluorescent(Daylight)

| | | |
|---|---|---|
| (17) | Auto Exposure Detection | Average/Center-Weighted/Spot/Backlight Compensation |
| (18) | Flicker Cancellation | ON, OFF (typ.)  *Valid at 60fps, 59.94fps, 30fps, and 29.97fps. |
| (19) | Edge Enhancement | OFF, 1~7 (typ.2) |
| (20) | Color Correction | Standard, Fluorescent Light, Tungsten Lamp |
| (21) | Color Saturation Adjustment | 0% (B/W)~100% (typ.) ~200% |
| (22) | Color Compression | OFF, 1~7 (typ.5) |
| (23) | Noise Reduction | ON, OFF |
| (24) | Gamma (Contrast) | BT.709 -2, BT.709 -1, BT.709, BT.709 +1, BT.709 +2 |
| (25) | Master Pedestal | -100 ~ 0 ~ +100 |
| (26) | Pedestal (R, G, B) | RGB: -100 ~ 0(typ.) ~ +100 each |
| (27) | Color Balance | RGB: 50 ~ 100(typ.) ~ 150 each |
| (28) | Pixel Defect (White spot) Correction | Corrected at factory setting. |
| (29) | LTC | OFF, ON   The external SMPTE Time code can be input to LTC IN terminal. (Internal self-running time code is resettable). |
| (30) | Preset (Camera Settings) | 1, 2, 3, and 4 (Four kinds of preset can be set.) |
| (31) | DC IRIS Output | Auto/Open selectable. Can be used with electric shutter. (Electric shutter has priority.) |
| (32) | Remote Control Operation | The camera can be controlled via RS-232C communications with φ3.5 plug (4poles). Camera settings can be controlled by control software via PC.   With connecting the optional remote controller, camera settings can be set on OSD (On Screen Display). |

(33) Safety/Quality Standards    UL:   Conform to UL Standard including materials and others.

CE

      EMC  2014/30/EU

         Emission：EN61000-6-3:2007+A1:2011

         Immunity：EN61000-6-2:2005

RoHS: 2011/65/EU

      EN50581(RoHS2)

FCC Class A Digital Device
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.

| | | | |
|---|---|---|---|
| (34) | Durability | Vibration | Acceleration : $98m/s^2$ (10G) |
| | | | Frequency   : 20~200 Hz |
| | | | Direction    : X, Y, and Z, 3 directions |
| | | | Testing Time : 120min for each direction |
| | | Shock | No malfunction shall be occurred with $980m/s^2$(100G) for ±X,±Y, and ±Z, 6 directions. |
| (35) | Operation Environment | Operation guaranteed | - 5 ~ +45℃       Humidity 20 ~ 80%RH   with no condensation |
| (36) | Storage Environment | | Storage Temperature: -25~+60℃, Humidity 20 ~ 80%RH with no condensation. |

<3G-SDI output Level A and Level B>

The difference between Level A and Level B is the way of mapping Y signal and Cb/Cr signal onto 3G-SDI standard signal. The difference does not affect the resolution of the video signal.   Some 3G-SDI receivers correspond to either Level A or B, whereas other receivers correspond to both Levels, so please set the camera mode to match your 3G-SDI receiver.

5.    Part Names and Functions
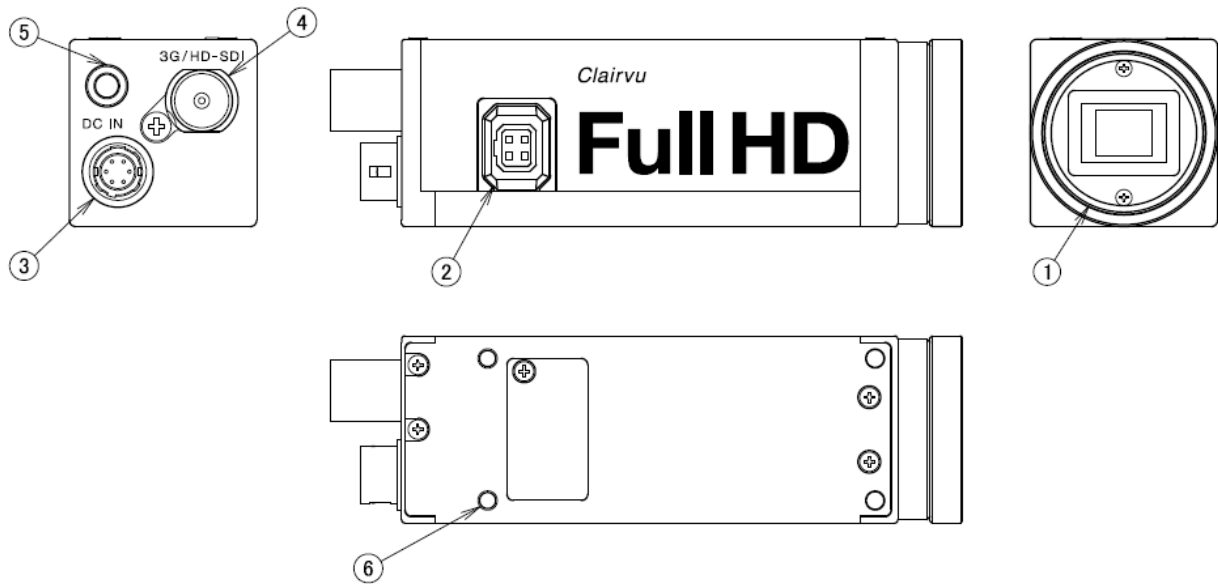


① C/CS Mount

To mount a C or CS mount lens.

To mount a C mount lens, keep the C/CS conversion ring attached.    (Shipped from our factory with conversion ring attached.)    To mount a CS mount lens, remove the C/CS conversion ring.

Screw length from the lens mount surface shall be less than 6mm.    And protruding portion of the lens shall be less than 8mm. When lens is not mounted, please put the attached lens mount cap on.


② DC IRIS Connector

Connector for DC IRIS lens.


③ Connector for Power input, Gen Lock, and LTC signal input

Please refer to the external connector pin assignment.


④  Video Signal Output

With a BNC cable, connect to a 3G-SDI input monitor or HD-SDI input monitor.    (Analog monitors cannot be connected.)

BNC cables with high frequency characteristics correspond to 3G-SDI or HD-SDI shall be used.


⑤  φ3.5(4 poles) connector (RS-232C)

Connector for RS-232C

Please refer to the external connector pin assignment.

Please refer to the other materials for the details on serial communications.


* Do not connect it to any audio equipment such as earphones and headsets.
Connecting to such equipment may cause malfunction.

⑥ Screw Holes for camera installation

4 screw holes to install the camera.

Please be noted that the depth of the front screw holes and the rear screw holes are different.

6.    External Connector Specifications

### 6.1  6 pins Circular Connector
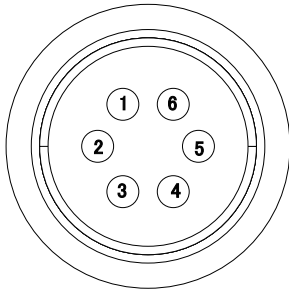
| Model Name | HR10-7R-6PA (HIROSE) |
|---|---|
| Pin No. | Description |
| 1 | Power IN DC+12V |
| 2 | EXT SYNC IN |
| 3 | LTC IN |
| 4 | N.C. |
| 5 | GND |
| 6 | GND |

### 6.2  BNC
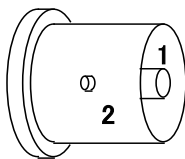
| Model Name | BCJ-BPLHA (CANARE) |
|---|---|
| Pin No. | Description |
| 1 | 3G-SDI/HD-SDI output |
| 2 | GND |

### 6.3  DC IRIS Connector
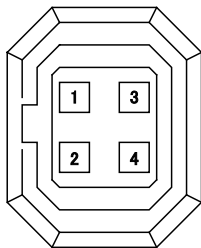
| Model Name | D4-156N-200A (Technical Electron. Co. LTD) |
|---|---|
| Pin No. | Description |
| 1 | DAMP- |
| 2 | DAMP+ |
| 3 | DRIVE+ |
| 4 | DRIVE-(GND) |

### 6.4  φ3.5mm 4 poles (RS-232C) Connector
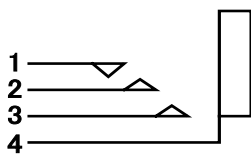
| Model Name | MJ |
|---|---|
| Pin No. | Description |
| 1 | Power(+5V)  *For optional |
| 2 | TXD(Camera) |
| 3 | RXD(Camera) |
| 4 | GND |

Connection of φ3.5 (4 poles) Connector (RS-232C)
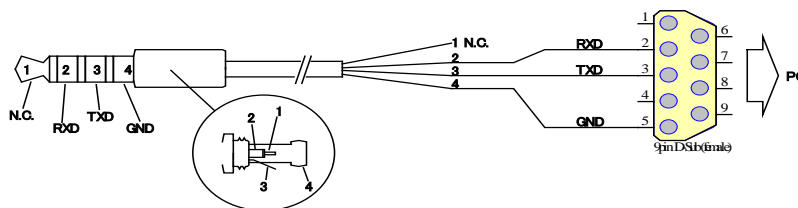
7.    GenLock

Input analog external sync signals (black burst or 3-value SYNC) to the EXT SYNC IN terminal of 6pins connector to enable Gen Lock function. The external sync signals to be supplied shall depend on its video output format, therefore, please refer to the chart below and input appropriate signals.

| CAMERA FORMAT | | EXT SYNC IN | | | | |
|---|---|---|---|---|---|---|
| | 1080p60A | | | 1080i60 | 720p60 | 1080p30 |
| | 1080p59.9A | NTSC | | 1080i59.9 | 720p59.9 | 1080p29.9 |
| | 1080p50A | | PAL | 1080i50 | 720p50 | 1080p25 |
| | 1080p60B | | | 1080i60 | 720p60 | 1080p30 |
| | 1080p59.9B | NTSC | | 1080i59.9 | 720p59.9 | 1080p29.9 |
| | 1080p50B | | PAL | 1080i50 | 720p50 | 1080p25 |
| | 1080i60 | | | 1080i60 | 720p60 | 1080p30 |
| | 1080i59.94 | NTSC | | 1080i59.9 | 720p59.9 | 1080p29.9 |
| | 1080i50 | | PAL | 1080i50 | 720p50 | 1080p25 |
| | 1080p30 | | | 1080i60 | 720p60 | 1080p30 |
| | 1080p29.9 | NTSC | | 1080i59.9 | 720p59.9 | 1080p29.9 |
| | 1080p25 | | PAL | 1080i50 | 720p50 | 1080p25 |
| | 1080p24 | | | | | 1080p24 |
| | 1080p23 | | | | | 1080p23.9 |
| | 720p60 | | | 1080i60 | 720p60 | 1080p30 |
| | 720p59.9 | NTSC | | 1080i59.9 | 720p59.9 | 1080p29.9 |
| | 720p50 | | PAL | 1080i50 | 720p50 | 1080p25 |

- ·    Input Black Burst signals for NTSC/PAL signal.
- ·    Input 3-value SYNC signals for other than NTSC/PAL signal.
- ·    EXT SYNC IN is terminated with 75Ω. (It becomes high impedance when camera power is OFF).
- ·    When the external signals specified above are input, the camera becomes external sync mode automatically.
- ·    When no external signal is input, the camera operates in internal sync mode.
- ·    The image may be disturbed right after the external signal is input, but this is not malfunction.
- ·    When a signal other than specified above combination is input to the EXT SYNC IN terminal, the image might be disturbed or no image might be output.

8.    LTC (Longitudinal Time Code)

- ·    Time code can be inserted into 3G/HD SDI signals.
- ·    Input LTC signals (time code) to the LTC IN terminal of the 6pins connector to insert external time code.
- ·    And, when no signal is input into the LTC IN terminal, internal time code can be inserted.
- ·    Internal time code starts with 00:00:00. 00 when power is ON, and when any signals are input into the LTC IN terminal, it will be switched to the external time code.
- ·    With this situation, if no signal is input into the LTC IN terminal, it starts self-running from the set time code.
- ·    Signal Format: SMPTE Time code      Signal Level: 0.5 ~ 2[Vp-p]

9.    Defective Pixel Correction

9.1  Precautions:
When the user executes Defective Pixel Correction and "SAVE", the data at the factory setting will be over-written,
so that the data cannot be back to the factory setting data even when "INIT" command was executed.
Execute "INIT", then "SAVE" to overwrite the preset data (camera settings) with the factory setting data.
If you do not wish to overwrite the preset data, load the preset data before executing SAVE.
The defective pixel correction data will be saved in one area regardless of its preset number.
Since the function only supports the white defects correction, the black defects cannot be corrected.   And, the
function is not necessarily able to correct all the white defects.   In addition, due to the effect from the noises or the
temperature conditions, the correction result may not be always the same.
Please be noted that improper command execution such as under no light-blocking, or taking wrong procedure, may
cause incorrect operation of the executed command function or abnormal images.

9.2  How to execute "Defective Pixel Correction"
・    Execute "INIT" to restore the factory settings.
・    Attach the bundled cap to the lens mount for light-blocking, then wait for about 5 seconds.
・    Execute "Defective Pixel Correction" and SAVE.

10.  Serial Communication

10.1  Serial Communication Settings

| | | |
|---|---|---|
| Transmit Speed | : | 9600bps |
| Data Length | : | 8bit |
| Start bit | : | 1bit |
| Parity bit | : | NO |
| Stop bit | : | 1bit |

10.2  Command

| Command | Parameter 1 | Parameter 2 | Function |
|---|---|---|---|
| GU | Command number | Usually "None" | Acquire the camera data |
| SU | Command number | Data 1, Data 2, ... | Set the camera data |
| SAVE | None | None | Save the camera settings |
| INIT | None | None | Initialize the camera settings |

There are several kinds of commands, GU (Get User) command to acquire the camera data, SU (Set User) command to set the camera data, SAVE command to save the set data, and others.

・ Separate COMMAND and PARAMETER by a space.
・ Input COMMAND in capital letters.
・ Parameters with 0x are regarded as hexadecimal, the one with 0 are as octal, and the one as-is are as decimal to parse.
・ Numbers (0~9), decimal point, and alphabet other than hexadecimal (0~9, a~f) cannot be input.
・ Identifiable letters from the head are to be analyzed.
・ Command from the head to the linefeed code, [¥r]or[¥n], is to be regarded as one command to be analyzed.
・ The returned command from the PC will be received by the camera, and then echoed back. The line feed code when echoing back shall be [¥r][¥n].
・ Command completion shall be judged with >[sp]
・ The next command shall be issued after completion of the prior command.

【Example of Get Command】
To get the information on the Command No.10

| | | |
|---|---|---|
| [Send] | GU[sp]10[¥r] | |
| [Returned value] | GU[sp]10[¥r][¥n] | [Echo back] |
| [Returned value] | 50[¥r][¥n] | [Acquired Data + line feed] |
| [Returned value] | [¥r] [¥n] | [Line feed] |
| [Returned value] | >[sp] | [Prompt + space] |

| |
|---|
| [¥r]=CR(0x0D) |
| [¥n]=LF(0x0A) |
| [sp]=Space(0x20) |

【Example of Set Command】
To set 30 to the Command No.10

| | | |
|---|---|---|
| [Send] | SU[sp]10[sp]30[¥r] | |
| [Returned value] | SU[sp]10[sp]30[¥r][n] | [Echo back] |
| [Returned value] | [¥r] [¥n] | [Line feed] |
| [Returned value] | >[sp] | [Prompt + Space] |

【Example of SAVE Command】

[Send]              SAVE[¥r]

[Returned value]    SAVE[¥r][¥n]                        [Echo back]

[Returned value]    [¥r] [¥n]                           [Line feed]

[Returned value]    >[sp]                               [Prompt + Space]

【Example of SAVE Command】

[Send]              SAVE[¥r]

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10.3 Command List

| Video Format 1 | | | | |
|---|---|---|---|---|
| | Command No. | Set Value | Initial Value | How to set the command. And other information. |
| Video Format | 1 | 0: 1080p 60fps LevelA<br>1: 1080p 59.94fps LevelA<br>2: 1080p 50fps LevelA<br>3: 1080p 60fps LevelB<br>4: 1080p 59.94fps LevelB<br>5: 1080p 50fps LevelB<br>6: 1080i 60fps<br>7: 1080i 59.94fps<br>8: 1080i 50fps<br>9: 1080p 30fps<br>10: 1080p 29.97fps<br>11: 1080p 25fps<br>12: 1080p 24fps<br>13: 1080p 23.97fps<br>14: 720p 60fps<br>15: 720p 59.94fps<br>16: 720p 50fps | 6 | To set video format. |

| AE related 2~19 | | | | |
|---|---|---|---|---|
| | Command No. | Set Value | Initial Value | How to set the command. And other information. |
| Gain Mode | 2 | 0: Manual<br>1: Auto | 1 | To set gain mode. |
| Gain Value | 3 | Magnification×0x10000<br>x1 (0dB) ~ x251 (48dB) | 0x10000 (65536) | To set gain value. Valid when gain mode is at Manual<br>EX.) To set x2 (6dB)：SU 3 0x00020000<br>※Refer to 10.4.1 Quick Reference Matrix for Settings. |
| Gain Max Value | 4 | Magnification×0x10000<br>x1 (0dB) ~ x251 (48dB) | 0x200000 (2097152) | To set the Max gain value when gain mode is at Auto.<br>※Refer to 10.4.1 Quick Reference Matrix for Settings. |
| Shutter Mode | 5 | 0: Manual<br>1: Auto | 1 | To set shutter control mode. |

| Name | No. | Parameter | Default | Description |
|---|---|---|---|---|
| Shutter Value | 6 | Exposure time [sec]×0x100000 1/25s ~ 1/13600s | 0x4444 (17476) 1/60s | To set shutter value (exposure time). Valid when shutter mode is at Manual. *Shutter speed slower than 1/60s will be limited by the frame rate corresponding to the video output format. ※Refer to 10.4.2 Quick Reference Matrix for Settings. ※Note 1. |
| Shutter Limit | 7 | The 1st Parameter: Max. value Exposure time [sec]×0x100000 1/25s ~ 1/13600s | 0x4444 (17476) 1/60s | To set the shutter range when shutter mode is at Auto. Example) To set Max=1/60s, Min=1/8000s. SU 7 0x4444 0x83 *Shutter speed slower than 1/60s will be limited by the frame rate corresponding to the video output format. Setting value will be error if Max< Min is set. * Refer to 10.4.2 Quick Reference Matrix for Settings. ※Note 1. |
| | | The 2nd Parameter: Min. value Exposure time [sec]×0x100000 1/25s ~ 1/13600s | 0x4D (77) | |
| Metering Mode | 8 | 0: Average 1: Center-Weighted 2: Spot 3: Backlight Compensation | 1 | To set metering mode. |
| Spot Block | 9 | The 1st Parameter: X value: 0~15 | 7 | Set the X, Y, W, and H value at Spot metering. X: X coordinate of the left edge block Y: Y coordinate of the top block W: Width of the metering area (number of block) H: Height of the metering area (number of block) Example) SU 9 7 7 2 2 |
| | | The 2nd Parameter: Y value: 0~15 | 7 | |
| | | The 3rd Parameter: W value: 1~16 | 2 | |
| | | The 4th Parameter: H value: 1~16 | 2 | |
| AE Speed | 10 | 0~15 | 10 | To set AE convergence speed. |
| Exposure Compensation Value | 11 | 0(-18dB)~18(0dB)~36 (18dB)/per 1dB | 18 | To set exposure compensation value. |
| Flicker Cancel | 12 | 0: OFF 1: ON | 0 | To set flicker cancel, ON/OFF. ※Note 2 |
| Gain Value, Plus Minus | 13 | -1 | None | Lower the gain value by 1dB from the current one. Valid when Gain Mode is at Manual. (Write only) |
| | | 1 | | Raise the gain value by 1dB from the current one. Valid when Gain Mode is at Manual. (Write only) |
| Shutter Speed, Plus Minus | 14 | -1 | None | Lower the shutter speed by 1 step (1/4EV) from the current one. (Shutter value becomes bigger.) Valid when Shutter Mode is at Manual. (Write only) ※Note 1 |

| | | 1 | | Raise the shutter speed by 1 step (1/4EV) from the current one.   (Shutter value becomes smaller.)   Valid when Shutter Mode is at Manual. (Write only)<br>※Note 1 |

※Note 1: There may be gap (small differences) between the set shutter value and the actual shutter value.
For the actual shutter value, please refer to Section 10.4.3. Actual Shutter Value limited by output format.

※Note 2: Flicker cancel function becomes invalid at 50fps, 25fps, 24fps, and 23.97fps regardless of its settings.

| WB related 20～29 | | | | |
|---|---|---|---|---|
| | Command No. | Set Value | Initial Value | How to set the command. And other information. |
| Wb  Mode | 20 | 0: Auto<br>1: Auto(Outdoor)<br>2: DayLight (Sunlight)<br>3: Cloudy<br>4: Shade<br>5: Tungsten (Light bulb)<br>6: Flw (Fluorescent light White)<br>7: Fln (Fluorescent light noon/daytime White))<br>8: Fld (Fluorescent light daylight)<br>9: Auto(ATW)<br>10: OnePush<br>11: Manual<br>12: Preset1<br>13: Preset2<br>14: Preset3<br>15: Preset4<br>16: Preset5 | 0 | To set white balance mode. |
| Preset | 21 | 1: Preset1<br>2: Preset2<br>3: Preset3<br>4: Preset4<br>5: Preset5 | None | (Write  Only)<br>Store the current WB value as a preset value. Stored value will not be saved unless otherwise executing SAVE. |
| Blue Gain | 22 | 0 ~ 800(%) | 190 | To set B gain when WB mode is at Manual and at Preset. |
| Red Gain | 23 | 0 ~ 800(%) | 199 | To set R gain when WB mode is at Manual and at Preset. |
| One  Push Trigger | 24 | 1: Trigger  Start | None | (Write  Only)<br>To start operation when WB mode is at One Push. |

| Image Quality related 30~59 | | | | |
|---|---|---|---|---|
| | Command No. | Set Value | Initial Value | How to set the command. And other information. |
| Edge Level | 30 | 0: Off<br>1:1<br>2:2<br>3:3<br>4:4<br>5:5<br>6:6<br>7:7 | 2 | To set the level of edge. |
| Gamma | 35 | 0: BT.709 -2<br>1: BT.709 -1<br>2: BT.709<br>3: BT.709 +1<br>4: BT.709 +2 | 2 | To set gamma.<br>The level of contrast can change by set value 0~4. |
| Master Pedestal | 37 | -100~+100 | 0 | To set master pedestal. |
| Red Pedestal | 38 | -100~+100 | 0 | To set Red pedestal. |
| Green Pedestal | 39 | -100~+100 | 0 | To set Green pedestal. |
| Blue Pedestal | 40 | -100~+100 | 0 | To set Blue pedestal. |
| Red Balance | 41 | 0~200 | 100 | To set Red balance. |
| Green Balance | 42 | 0~200 | 100 | To set Green balance. |
| Blue Balance | 43 | 0~200 | 100 | To set Blue balance. |
| Color Saturation | 45 | 0~200 | 100 | To set color saturation control. |
| Noise Reduction | 50 | 0 : Noise reduction OFF<br>1 : Noise reduction ON | 0 | To set the Noise Reduction. |
| Color Correction | 52 | 0: Auto<br>1: Standard<br>2: Fluorescent light<br>3: Tungsten lamp | 0 | To set color correction. |
| Color Suppression | 53 | 0~7 | 5 | To set color suppression. |

| Lens Control related 60~ | | | | |
|---|---|---|---|---|
| | Command No. | Set Value | Initial Value | How to set the command. And other information. |
| DC Iris Mode | 61 | 0:  OPEN<br>1:  Auto | 0 | Set to OPEN when a DC Iris Lens is NOT in use. ※Note 3 |
| DC Iris Response Speed | 77 | 0:  Low<br>1:  Mid<br>2:  High | 1 | To set the speed of DC Iris response when DC Iris Mode is at Auto.   When it is set to High, the response speed of DC Iris becomes faster. And when it is set to Low, the response speed of DC Iris becomes slower. |

※Note 3. When a high luminance object is shot with DC iris function, hunting could occur under some conditions.
In such cases, adjust DC Iris Response Speed or Exposure Compensation Value to try to reduce it.

| OSD related 90~ | | | | |
|---|---|---|---|---|
| | Command No. | Set Value | Initial Value | How to set the command. And other information. |
| OSD UP button | 90 | 0: One push<br>1: Continuous push | None | Command to operate OSD. With continuous push operation, send the command every 60msec. |
| OSD DOWN button | 91 | 0: One push<br>1: Continuous push | None | |
| OSD R button | 92 | 0: One push<br>1: Continuous push | None | |
| OSD L button | 93 | 0: One push<br>1: Continuous push | None | |
| OSD CENTER button | 94 | 0: One push<br>1: Continuous push | None | Use as a Set button. |
| Menu  Color | 95 | 0:   Black<br>1:   Blue<br>2:   Red<br>3:   Magenta<br>4:   Green<br>5:   Cyan<br>6:   Yellow<br>7:   White | 7 | To set the font color of OSD. |
| Select  Color | 96 | 0:   Black<br>1:   Blue<br>2:   Red<br>3:   Magenta<br>4:   Green<br>5:   Cyan<br>6:   Yellow<br>7:   White | 5 | To set the selected letter's font color of OSD. If  the same color as the menu color is specified, it will be an error, because the selected letters cannot be recognized. |

### Others in 100s

| | Command No. | Set Value | Initial Value | How to set the command. And other information. |
|---|---|---|---|---|
| Camera Setting Store | 100 | 0~3 | Initial is 0 | Four kinds of camera settings can be stored. The stored values cannot be saved until SAVE command is executed. The stored data and set values will not be initialized by executing INIT command. |
| Camera Setting Load | 101 | 0~3 | Initial is 0 | To reflect the stored setting values set by Camera Setting Store, to the camera. The set value will not be initialized by executing INIT command. *When Camera Setting Store is executed, the setting values forcibly become the one set by Camera Setting Store. |
| LTC OFF/ON | 103 | 0: OFF / 1: ON | 0 | To set LTC signals OFF/ON. |
| LTC Reset | 104 | 1: Reset | | (Write Only) To reset the internal free-running timer of LTC. |
| VPHASE | 106 | -1024~1023 | 0 | To set the V phase of GenLock. |
| HPHASE | 107 | -2048~2047 | 0 | To set the H phase of GenLock. ※Note 4. |
| H Flip | 110 | 0: OFF / 1: ON | 0 | Flip the image horizontally (right and left). |
| V Flip | 111 | 0: OFF / 1: ON | 0 | Flip the image vertically (up and down). |

※Note 4. Some gap might occur to the setting values by reboot the power, changing the format, V phase adjustment, or H phase adjustment.

### No Command Numbers

| | Command No. | Set Value | Initial Value | How to set the command. And other information. |
|---|---|---|---|---|
| SAVE | None | None | None | To save camera settings. SAVE with capital letters. *As to pixel defects correction, only one table can be saved. |
| INIT | None | None | None | To initialize the camera settings. INIT with capital letters. |
| GVI | None | 1: Microcomputer's version 2: FPGA's version | None | To acquire the firmware's version. The letter strings such as 0.1 shall be responded. |

| SDDW | None | 512 | | 0 | To start detection of pixel defects. Please refer to the Section 9. Defective Pixel Correction, for the details. |
|---|---|---|---|---|---|

### 10.4  Quick Reference Matrix for Settings

#### 10.4.1    Gain Settings

| | Magnification | dB | GainValue (Magnificationx0x10000) | |
|---|---|---|---|---|
| | | | DEC | HEX |
| **0** | **1.000** | **0.000** | **65536** | **00010000** |
| 1 | 1.122 | 1.003 | 73561 | 00011F59 |
| 2 | 1.260 | 2.007 | 82570 | 0001428A |
| 3 | 1.414 | 3.010 | 92681 | 00016A09 |
| 4 | 1.587 | 4.014 | 104031 | 0001965F |
| 5 | 1.782 | 5.017 | 116771 | 0001C823 |
| **6** | **2.000** | **6.021** | **131072** | **00020000** |
| 7 | 2.245 | 7.024 | 147123 | 00023EB3 |
| 8 | 2.520 | 8.027 | 165140 | 00028514 |
| 9 | 2.828 | 9.031 | 185363 | 0002D413 |
| 10 | 3.175 | 10.034 | 208063 | 00032CBF |
| 11 | 3.564 | 11.038 | 233543 | 00039047 |
| **12** | **4.000** | **12.041** | **262144** | **00040000** |
| 13 | 4.490 | 13.045 | 294246 | 00047D66 |
| 14 | 5.040 | 14.048 | 330280 | 00050A28 |
| 15 | 5.657 | 15.051 | 370727 | 0005A827 |
| 16 | 6.350 | 16.055 | 416127 | 0006597F |
| 17 | 7.127 | 17.058 | 467087 | 0007208F |
| **18** | **8.000** | **18.062** | **524288** | **00080000** |
| 19 | 8.980 | 19.065 | 588493 | 0008FACD |
| 20 | 10.079 | 20.069 | 660561 | 000A1451 |
| 21 | 11.314 | 21.072 | 741455 | 000B504F |
| 22 | 12.699 | 22.076 | 832255 | 000CB2FF |
| 23 | 14.254 | 23.079 | 934175 | 000E411F |
| **24** | **16.000** | **24.082** | **1048576** | **00100000** |
| 25 | 17.959 | 25.086 | 1176986 | 0011F59A |
| 26 | 20.159 | 26.089 | 1321122 | 001428A2 |
| 27 | 22.627 | 27.093 | 1482910 | 0016A09E |
| 28 | 25.398 | 28.096 | 1664510 | 001965FE |
| 29 | 28.509 | 29.100 | 1868350 | 001C823E |
| **30** | **32.000** | **30.103** | **2097152** | **00200000** |
| 31 | 35.919 | 31.106 | 2353974 | 0023EB36 |
| 32 | 40.317 | 32.110 | 2642246 | 00285146 |
| 33 | 45.255 | 33.113 | 2965821 | 002D413D |
| 34 | 50.797 | 34.117 | 3329021 | 0032CBFD |

| 35 | 57.018 | 35.120 | 3736700 | 0039047C |
|----|--------|--------|---------|----------|
| **36** | **64.000** | **36.124** | **4194304** | **00400000** |
| 37 | 71.838 | 37.127 | 4707947 | 0047D66B |
| 38 | 80.635 | 38.130 | 5284492 | 0050A28C |
| 39 | 90.510 | 39.134 | 5931642 | 005A827A |
| 40 | 101.594 | 40.137 | 6658043 | 006597FB |
| 41 | 114.035 | 41.141 | 7473400 | 007208F8 |
| **42** | **128.000** | **42.144** | **8388608** | **00800000** |
| 43 | 143.675 | 43.148 | 9415894 | 008FACD6 |
| 44 | 161.270 | 44.151 | 10568984 | 00A14518 |
| 45 | 181.019 | 45.154 | 11863283 | 00B504F3 |
| 46 | 203.187 | 46.158 | 13316085 | 00CB2FF5 |
| 47 | 228.070 | 47.161 | 14946800 | 00E411F0 |
| 48 | 251.189 | 48.000 | 16461899 | 00FB304B |

10.4.2    Shutter Settings

| Exposure Time [s] | ShutValue (Exposure time [s]x0x100000) | |
|---|---|---|
| | DEC | HEX |
| 1/25 | 41943 | 0000A3D7 |
| 1/30 | 34952 | 00008888 |
| **1/60** | **17476** | **00004444** |
| 1/90 | 11650 | 00002D82 |
| **1/100** | **10485** | **000028F5** |
| 1/125 | 8388 | 000020C4 |
| 1/180 | 5825 | 000016C1 |
| 1/250 | 4194 | 00001062 |
| 1/350 | 2995 | 00000BB3 |
| 1/500 | 2097 | 00000831 |
| 1/725 | 1446 | 000005A6 |
| 1/1000 | 1048 | 00000418 |
| 1/1500 | 699 | 000002BB |
| 1/2000 | 524 | 0000020C |
| 1/3000 | 349 | 0000015D |
| 1/4000 | 262 | 00000106 |
| 1/6000 | 174 | 000000AE |
| 1/8000 | 131 | 00000083 |
| 1/9600 | 109 | 0000006D |
| 1/11200 | 94 | 0000005E |
| 1/13600 | 77 | 0000004D |

10.4.3    Actual Shutter Value limited by output format

| Set Value | Shutter Value | Actual Shutter Value | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 60fps | 59.94fps | 50fps | 30fps | 29.97fps | 25fps | 24fps | 23.976fps |
| 1/4000 | 262 | 1/3988 | 1/3984 | 1/4084 | 1/3988 | 1/3984 | 1/3808 | 1/4238 | 1/4234 |
| 1/4800 | 218 | 1/4847 | 1/4842 | 1/4778 | 1/4522 | 1/4518 | 1/5222 | 1/5027 | 1/5023 |
| 1/5600 | 187 | 1/5660 | 1/5654 | 1/5756 | 1/5222 | 1/5217 | | 1/6177 | 1/6172 |
| 1/6800 | 154 | 1/6800 | 1/6794 | 1/7237 | 1/7562 | 1/7555 | 1/6412 | | |
| 1/8000 | 131 | 1/7562 | 1/8508 | 1/8306 | | | 1/8306 | 1/8010 | 1/8003 |
| 1/9600 | 109 | 1/9745 | 1/9736 | 1/9745 | 1/9745 | 1/9736 | | 1/11389 | 1/11379 |
| 1/11200 | 94 | 1/11389 | 1/11379 | 1/11787 | | | 1/11787 | | |
| 1/13600 | 77 | 1/13701 | 1/13690 | 1/14911 | 1/13701 | 1/13689 | | 1/11389 | 1/11379 |

11.    How to Operate the Camera with OSD Function

You can operate the camera with OSD menu on a monitor screen by connecting an optional remote controller to the camera remote controller terminal.   (Note: Optional remote controller sold separately is needed.)

11.1  Switch Operation of OSD Menu by Remote Controller

[CENTER]: To indicate OSD top menu on your monitor screen when it is not shown.

And, it is also used to settle the selected menu.

[▲]  Go up the selected item by one.

[▼] Go down the selected item by one.

[◄] Change the options.

[►] Change the options.

11.2  Indication of OSD Menu

Menu with ▼ at the line end indicates that submenu can be opened with the CENTER button.

Menu with ► at the line head indicates that the item is settled with the CENTER button.

11.3  OSD Menu

| Top Menu | Setting Menu | Selected Items | Explanation |
|---|---|---|---|
| EXIT | None | None | Push the CENTER button to close OSD menu. |
| Output Format | Set Video Format | 1080p 60fps (Level A) | To set video format.<br><br>Select video format with ◄ / ► button,<br><br>then push the CENTER button to confirm. |
| | | 1080p 59.94fps (Level A) | |
| | | 1080p 50fps (Level A) | |
| | | 1080p 60fps (Level B) | |
| | | 1080p 59.94fps (Level B) | |
| | | 1080p 50fps (Level   B) | |

| | | 1080i 60fps | |
|---|---|---|---|
| | | 1080i 59.94fps | |
| | | 1080i 50fps | |
| | | 1080p 30fps | |
| | | 1080p 29.97fps | |
| | | 1080p 25fps | |
| | | 1080p 24fps | |
| | | 1080p 23.97fps | |
| | | 720p 60fps | |
| | | 720p 59.94fps | |
| | | 720p 50fps | |

| Top Menu | Setting Menu | Selected Items | Explanation |
|---|---|---|---|
| Gain/Shutter/IRIS | Gain Mode | Manual/Auto | To set Gain Mode. |
| | Gain Value | 0~48dB | To set the Gain Value when Gain Mode is at Manual. ※Note 1/ ※Note 2 |
| | Gain Max Value | 0~48dB | To set the Max Gain Value when Gain Mode is at Auto. ※Note 1/※Note 2 |
| | Shutter Mode | Manual/Auto | To set Shutter Mode. |
| | Shutter Value | 1/25 | To set the Shutter Value when Shutter Mode is at Manual. Shutter speed lower than 1/60 shall be limited by the frame rate correspond to the video output format. ※Note 1 ※Note 2 ※Note 3 |
| | | 1/30 | |
| | | 1/36 | |
| | | 1/42 | |
| | | 1/50 | |
| | | 1/60 | |
| | | 1/75 | |
| | | 1/90 | |
| | | 1/100 | |
| | | 1/105 | |
| | | 1/120 | |
| | | 1/125 | |
| | | 1/150 | |
| | | 1/180 | |
| | | 1/210 | |
| | | 1/250 | |
| | | 1/300 | |
| | | 1/350 | |
| | | 1/420 | |
| | | 1/500 | |
| | | 1/600 | |
| | | 1/700 | |
| | | 1/840 | |
| | | 1/1000 | |
| | | 1/1200 | |
| | | 1/1400 | |

| | | 1/1700 | |
|---|---|---|---|
| | | 1/2000 | |
| | | 1/2400 | |
| | | 1/2800 | |
| | | 1/3400 | |
| | | 1/4000 | |
| | | 1/4800 | |
| | | 1/5600 | |
| | | 1/6800 | |
| | | 1/8000 | |
| | | 1/9600 | |
| | | 1/11200 | |
| | | 1/13600 | |

| Top Menu | Setting Menu | Selected Items | Explanation |
|---|---|---|---|
| Gain/Shutter/IRIS | Shutter Min Limit | Same as Shutter Value | To set the Minimum Shutter Limit when Shutter Mode is at Auto. ※Note 1/※Note 2 |
| | Shutter Max Limit | Same as Shutter Value | To set the Maximum Shutter Limit when Shutter Mode is at Auto. ※Note 1/※Note 2 |
| | Set Shutter Limit | None | Push the CENTER button to settle the shutter limit. When Max < Min is set, the setting will not be valid. |
| | Iris Mode | Open | Set it to Open when DC Iris is not in use. |
| | | Auto | ※Note 5 |
| | Iris Response Speed | 0: Low | To set the response speed of DC Iris when DC Iris is set to Auto.   When it is set to High, DC Iris response speed becomes faster.   And when it is set to Low, DC Iris response speed becomes slower. |
| | | 1: Mid | |
| | | 2: High | |
| | AE Speed | 0~15 | To set AE convergence speed. |
| | ExpCompValue | -18~0~18 [dB] | To set Exposure Compensation Value. |
| | Metering Mode | Average | To set metering mode. Average: Averaging metering Center Weighted: Center weighted metering Spot: Spot metering Backlight Compensation: Backlight compensation metering |
| | | Center Weighted | |
| | | Spot | |
| | | Backlight Comp | |
| | Spot Block X | 0~15 | To select the X coordinate value of the Left edge Block of the metering area when Metering Mode is set to "Spot". |
| | Spot Block Y | 0~15 | To select the Y coordinate value of the Top Block of the metering area when Metering Mode is set to "Spot". |
| | Spot Block W | 1~16 | To select the width (Block number) of the metering area when Metering Mode is set to "Spot". |
| | Spot Block H | 1~16 | To select the height (Block number) of the metering area when Metering Mode is set to "Spot". |

| | Set Spot Block | None | Push the CENTER button to confirm Spot Block, X, Y, W, and H. |
|---|---|---|---|
| | Flicker Cancel | ON/OFF | To set flicker cancel.<br>※Note 4 |

※Note 1: If you prefer setting further details, please set them via serial commands.

※Note 2: The values set via serial commands will be reflected to key operation.

※Note 3: There may be gap (small differences) between the set shutter value and the actual shutter value.
For the actual shutter value, please refer to Section 10.4.3. Actual Shutter Value limited by output format.

※Note 4: Flicker cancel function is invalid at 50fps, 25fps, 24fps, and 23.97fps regardless of its settings.

※Note 5: When a high luminance object is shot with DC iris function, hunting could occur under some conditions.
In such cases, adjust DC Iris Response Speed or Exposure Compensation Value to try to reduce it.

| Top Menu | Setting Menu | Selected Items | Explanation |
|---|---|---|---|
| White Balance | WB Mode | Auto | Select and set WB Mode with ◄/► button. |
| | | Outdoor | |
| | | Daylight (Sun light) | |
| | | Cloudy | |
| | | Shade | |
| | | Tungsten | |
| | | Flw (Fluorescent White) | |
| | | Fln (Fluorescent noon white) | |
| | | Fld (Fluorescent day light) | |
| | | Auto(ATW) | |
| | | One push | |
| | | Manual | |
| | | Preset1 | |
| | | Preset2 | |
| | | Preset3 | |
| | | Preset4 | |
| | | Preset5 | |
| | WB Red Gain | 0~800 | To set Red Gain/Blue Gain when WB Mode is at Manual. |
| | WB Blue Gain | 0~800 | |
| | One Push Start | None | Valid only when WB mode is at One Push.<br>Execute One Push WB with the CENTER button. |
| | Set Preset Number | 1~5 | Select the preset number with the ◄ / ► button, and push the CENTER button to save the current WB value. |

| Top Menu | Setting Menu | Selected Items | Explanation |
|---|---|---|---|
| Image Control | Red Balance | 50~150 | To set Red Balance. ※Note 3 |
| | Green Balance | 50~150 | To set Green Balance. ※Note 3 |
| | Blue Balance | 50~150 | To set Blue Balance. ※Note 3 |
| | Master Pedestal | -100~100 | To set Master Pedestal. |
| | Red Pedestal | -100~100 | To set Red Pedestal. |
| | Green Pedestal | -100~100 | To set Green Pedestal. |
| | Blue Pedestal | -100~100 | To set Blue Pedestal. |
| | Edge Level | 0~7 | To set the edge enhancement Level.   0 is OFF. |
| | Gamma | BT.709 -2 | To set Contrast of BT.709. |
| | | BT.709 -1 | |
| | | BT.709 | |
| | | BT.709 +1 | |
| | | BT.709 +2 | |
| | Noise Reduction | OFF/ON | To set Noise Reduction Noise reduction OFF/ON. |
| | Color Saturation | 0~200 | To set color saturation. |
| | Color Correction | Auto | To set color correction. |
| | | Standard | |
| | | Fluorescent light | |
| | | Tungsten lamp | |
| | Color Suppression | 0~7 | To set color suppression. |
| LTC | LTC | ON/OFF | LTC ON/OFF. |
| | Set LTC Reset | None | To reset LTC with the CENTER button. |
| GenLock | V Phase Offset | -1024~1023 | To set V phase of GenLock. |
| | H Phase Offset | -2048~2047 | To set H phase of GenLock. |

※Note 3: The values 0~200 can be set via serial command.

※Note 4: Some gap might occur to the setting values by reboot the power, changing the format, V phase adjustment, or
        H phase adjustment.

| Top Menu | Setting Menu | Selected Items | Explanation |
|---|---|---|---|
| OSD Color Change | Default Set(White & Cyan) | None | To get the OSD color back to the default setting with the CENTER button. |
| | User Setting | | To set the color to display the OSD menu. |
| | Menu Color | Black | To select the color to display the OSD menu with the ◀/▶ button. |
| | | Blue | |
| | | Green | |
| | | Cyan | |
| | | Red | |
| | | Magenta | |
| | | Yellow | |
| | | White | |
| | Highlight Color | Same as Menu Color | To select the highlight color to display on the OSD menu with the ◀/▶ button. |
| | Set Color | None | Confirm the menu color and the highlight color with the CENTER button. When the same colors are specified for both menu color and highlight color, they will not be settled. |
| Flip | Horizontal Flip | OFF/ON | Horizontal flip (right and left) OFF/ON |
| | Vertical Flip | OFF/ON | Vertical flip (top and bottom) OFF/ON |
| INIT | None | None | To get the camera settings back to the initial settings with the CENTER button. |
| Save/Load | Set Save Data | 0~3 | To save the data to the preset number selected, with the CENTER button. |
| | Really? | NO/YES | To make sure if you really want to save the data to the selected preset. |
| | Enter | None | To execute SAVE or NOT SAVE, then get back to the original screen. |
| | Get Save Data | 0~3 | To call up the data of the selected preset number and reflect it on the screen with the CENTER button. |

12.    Factory Settings

| Function | Default Settings |
|---|---|
| Video Format Setting | 1920 x 1080i  @60fps |
| Gain Mode | Auto |
| Gain Value (Manual Gain) | 65536(0dB) |
| Max Gain | 2097152 (30dB) |
| Shutter Mode | Auto |
| Shutter Limit Max | 17476(1/60s) |
| Shutter Limit Min | 77(1/13600s) |
| Shutter Value (Manual Shutter) | 17476(1/60s) |
| DC Iris Mode | Open |
| DC Iris Response Speed | Mid |
| Metering Mode | Center-Weight |
| Spot Block | X=7,Y=7, W=2, H=2 |
| Exposure Compensation Value | 18 (0dB) |
| AE Speed | 10 |
| Flicker Cancel | OFF |
| White Balance Setting | Auto |
| Manual Red Gain | 199 |
| Manual Blue Gain | 161 |
| Color Correction | Standard |
| Color Suppression | 5 |
| Color Saturation | 100 |
| Edge Enhancement | 2 |
| Noise Reduction | 0 |
| Gamma | BT.709 |
| Master Pedestal | 0 |
| Pedestal(RGB) | 0 |
| Color Balance (RGB) | 100 |
| LTC | OFF |
| OSD Menu Color | White |
| OSD Select Color | Cyan |
| H Flip | OFF |
| V Flip | OFF |
| GenLock V Offset | 0 |
| GenLock H Offset | 0 |

13.   Dimensions
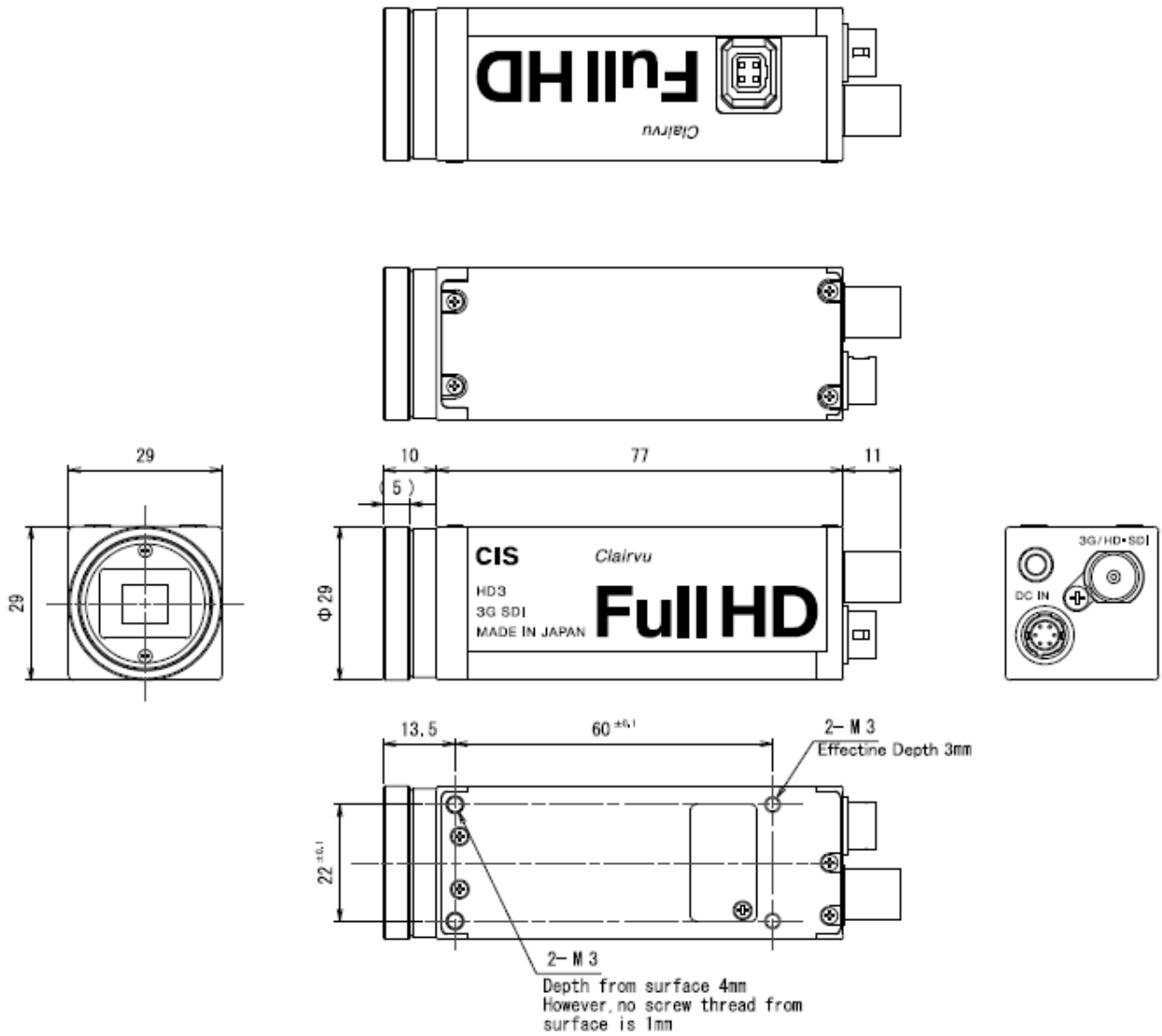


935-0065-00
(Unit: mm)

14.  Cases for Indemnity

The term of warranty of this product is within 1.5 years from the date of shipping out from our factory.
If you use the product properly and discover a defect during the warranty period, and if that was caused by designing or manufacturing, CIS Corporation, at its option, repairs or replaces it at no charge to you.
Products out of warranty period will be subject to charge.   CIS repairs the products as long as it is repairable.

CIS shall be exempted from taking responsibility and held harmless for damages or losses incurred by the following cases.

- In case damages or losses are caused by earthquake, lightning strike, fire, flood disaster, or other acts of God.
- In case damages or losses are caused by deliberate or accidental misuse by the user, or failure to observe the information contained in the instructions in this Product Specification and Operational Manual.
- In case damages or losses are caused by repair or modification conducted by the customer or any unauthorized party.

15.  CMOS Pixel Defect

CIS compensates the noticeable CMOS pixel defects found at the shipping inspection prior to our shipment.
On very rare occasions, however, CMOS pixel defects might be noted with time of usage of the products.   Cause of the CMOS pixel defect is the characteristic phenomenon of CMOS sensor itself and CIS is exempted from taking any responsibilities for them.   Should you have any questions on CMOS pixel defects compensation please contact us.

16.  Product Support

Should you have any problems in function of the product you purchased, and if you need our further analysis and/or repair, please contact the dealer you purchased it from.

Camera Control Sample Software is downloadable via our web but we shall be exempted from taking responsibility and held harmless for damage or malfunction of your hardware and software caused by using this control software.

The purpose of the control software prepared is for you to check operation and evaluate our products.

Please be noted that CIS does not customize the program nor provide source code.

 URL: http://www.ciscorp.co.jp/support_en.php