1. Main Features

1-1 Compact, lightweight, high luminance 5000 lm
A compact AISYS optical system that provides both brightness and contrast, an original high-performance image processor that achieves enhanced color reproduction, a high-definition projection lens that is a compilation of optical design technologies for unleashing the full potential of 4K resolution, and a 4K LCOS panel that can project smooth high-quality images were integrated to realize a 5000 lumen high-luminance 4K model with industry leading compactness and lightweight.

1-2 Two high-performance image processors
This product uses two Canon’s proprietary image processors to support 4K image processing. They provide various functions as well as reproduce high-quality, true-to-life 4K images.

1-3 4K adaptive wide zoom lens
In addition to supporting 4K high definition, the projection lens of this product is designed with a throw ratio between 1.0 and 1.3, which is wider than typical standard projection lenses. This feature can meet customer needs in the simulation market and the like.
Further, the lens is designed so that the f-number is F2.6 over the entire zoom region. As such, the variation in brightness due to zoom control is suppressed to minimum.

1-4 High-definition edge blending technologies
The product contains technologies that make edge blending projection, a way of connecting multiple images, more beautiful.
1) Low distortion projection lens with no more than 0.12% TV distortion.
2) Sub pixel correction that electrically corrects color displacement in unit of 0.1 pixels in a specific area of the screen.
3) Equipped with a framed mask to shield the extra light around the LCOS panel

1-5 Curved surface projection technologies
The product includes technologies for projecting images beautifully onto a dome-shaped screen and the like.
1) Supports curved surface screens with a periphery focus adjustment function that corrects the curvature of the image field and an optical correction function that is separate from the general focus drive.
2) Ensures field of depth with a large f-number (F2.6) projection lens and provides beautiful projection onto a curved surface as the f-number can be increased with the variable aperture arranged inside the illumination optical system.
3) Has an exterior where a portrait mirror can be mounted

1-6 Optimal movie performance for simulation applications
In order to accommodate simulation applications, this product includes technologies for producing 4K movies in real time with low level of motion blurring.
1) Low-delay playback that suppresses the delay from input to display to about 1.0 frame (at 60 Hz) (*3)
2) Employs a new system for movie visibility improvement (MB reduction) to display smoother movies than before.

1-7 HDMI 2.0 / HDCP 2.2
The built-in HDMI 2.0 port enables 4K video playback at 60 Hz from a Blu-ray player via an HDMI cable. Further, protection of high quality 4K contents has become stronger with the compliance of HDCP 2.2, the latest encryption technology for copyright protection.

*1: The function that is displayed as “Advanced registration” on the menu screen
*2: Adjustable for 9x6 points.
*3: Keystone and other scaling functions are off. The image input is DVI 1x4 or HDMI 1x2.
## 2. Specifications

### 2-1 Basic specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>4K501ST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Type</td>
<td><strong>Product type</strong></td>
</tr>
<tr>
<td></td>
<td>Projector</td>
</tr>
<tr>
<td>2) Imaging device, number</td>
<td><strong>Reflective LCD panel (LCOS) ×3</strong></td>
</tr>
<tr>
<td>3) LCOS panel</td>
<td><strong>Number of pixels</strong> 4096×2400</td>
</tr>
<tr>
<td></td>
<td><strong>Size, Aspect ratio</strong> 0.76 inch, 128:75 (about 17:10)</td>
</tr>
<tr>
<td>4) Driving system</td>
<td>Active Matrix</td>
</tr>
<tr>
<td>5) Projection lens</td>
<td><strong>Lens configuration</strong> 12 groups 16 elements</td>
</tr>
<tr>
<td></td>
<td><strong>F number, Focal length</strong> F2.6, f=17.2 ~ 22.3 mm</td>
</tr>
<tr>
<td></td>
<td><strong>Zoom magnification</strong> 1.3 times</td>
</tr>
<tr>
<td></td>
<td><strong>Projection distance</strong> 0.9 – 17.7 m</td>
</tr>
<tr>
<td></td>
<td><strong>Distance for 100 &quot; image</strong> 2.2 – 2.9 m</td>
</tr>
<tr>
<td></td>
<td>**Throw ratio (<strong>1) 1.0:1 ~ 1.3:1</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Operation</strong> Zoom: powered, Focus: powered, Lens shift: Powered Marginal focus: powered</td>
</tr>
<tr>
<td>6) Light source</td>
<td><strong>Type</strong> Super High Pressure Lamp for projectors</td>
</tr>
<tr>
<td></td>
<td>**Power (<strong>2) 400/300 W</strong></td>
</tr>
<tr>
<td>7) Imaging system</td>
<td><strong>Optical system</strong> Dichroic mirror and PBS color separation-combination system</td>
</tr>
<tr>
<td></td>
<td>**Brightness (<strong>2) 5000/3750 lm</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Marginal lumination ratio</strong> 88%</td>
</tr>
<tr>
<td></td>
<td><strong>Contrast ratio</strong> 3000:1</td>
</tr>
<tr>
<td></td>
<td><strong>Image size (4096 x 2400) 40 – 600 inches</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Lens shift</strong> V: ± 60%, H: ±10%</td>
</tr>
<tr>
<td></td>
<td><strong>Electronic zoom (for length) Not provided</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Keystone correction</strong> V ±20°, H ±20°</td>
</tr>
<tr>
<td>8) Terminals</td>
<td><strong>DVI-D x4 Digital PC input</strong></td>
</tr>
<tr>
<td></td>
<td><strong>HDMI x2 Digital PC/Digital video input</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Mini jack x2 Audio input x1, Audio output x1</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Mini jack x1 Wired remote control connection</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Dsub9 RS-232C connection</strong></td>
</tr>
<tr>
<td></td>
<td><strong>USB Type A USB connection</strong></td>
</tr>
<tr>
<td></td>
<td><strong>RJ-45 Network connection (1000BASE-T / 100BASE-TX / 10BASE-T)</strong></td>
</tr>
<tr>
<td>9) DVI (single)</td>
<td>1280x480, 800x600, 1280x720, 1024x768, 1366x768, 1440x900, 1280x1024, 1920x1080, 2048x1080, 2560x1080, 1920x1200, 2048x1200, 2560x1440, 3840x2160(*3), 4096x2160(*3)</td>
</tr>
<tr>
<td>10) HDMI (single)</td>
<td>640x480, 720x480, 720p576, 800x600, 1280x720, 1024x768, 1366x768, 1440x900, 1280x1024, 1920x1080, 2048x1080, 2560x1080, 1920x1200, 2048x1200, 2560x1440, 2560x1600, 3840x2160, 4096x2160</td>
</tr>
<tr>
<td>11) HDMI 1x2</td>
<td>640x480, 720x480, 720p576, 800x600, 1280x720, 1024x768, 1366x768, 1440x900, 1280x1024, 1920x1080, 2048x1080, 2560x1080, 1920x1200, 2048x1200, 2560x1440, 2560x1600, 3840x2160, 4096x2160</td>
</tr>
<tr>
<td>12) HDMI 1x4</td>
<td>640x480, 720x480, 720p576, 800x600, 1280x720, 1024x768, 1366x768, 1440x900, 1280x1024, 1920x1080, 2048x1080, 2560x1080, 1920x1200, 2048x1200, 2560x1440, 2560x1600, 3840x2160, 4096x2160</td>
</tr>
<tr>
<td>13) DVI 1x2</td>
<td>2560x1080, 2560x1440, 2560x1600, 3840x2160(*3), 4096x2160(*3)</td>
</tr>
<tr>
<td>14) DVI 2x2</td>
<td>3840x2160, 4096x2160, 4096x2304(*5), 3200x2400(*5), 3840x2400(*5), 4096x2400(*5)</td>
</tr>
<tr>
<td>15) DVI 1x4</td>
<td>3840x2160, 4096x2160, 4096x2304(*5), 3840x2400(*5), 4096x2400(*5)</td>
</tr>
<tr>
<td>16) HDMI 1x2</td>
<td>1280x480, 1440x480, 1440p576, 2560x720, 3840x1080, 2560x1600, 3840x2160, 4096x2160, 3200x2400(*5), 3840x2400(*4)(*5)</td>
</tr>
<tr>
<td>Adjustable feet</td>
<td>Four locations on the bottom, Extension length: 12 mm</td>
</tr>
<tr>
<td>Mechanics</td>
<td><strong>Built-in speaker</strong> 5 W, Monaural</td>
</tr>
<tr>
<td></td>
<td><strong>Dimensions</strong> W: 470 mm, H: 175 mm, D: 533.5 mm</td>
</tr>
<tr>
<td></td>
<td><strong>Weight</strong> 18 kg</td>
</tr>
<tr>
<td></td>
<td>**Noise level (<strong>2) 39/34 dB</strong></td>
</tr>
<tr>
<td>Others</td>
<td><strong>Power supply</strong> AC100 - 240 V : 50/60 Hz</td>
</tr>
<tr>
<td></td>
<td>**Power consumption (<strong>2) 600/475 W</strong></td>
</tr>
<tr>
<td></td>
<td>**Standby power consumption (<strong>6) 0.8/0.4 W</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Operation environment</strong> 0°C ~ 40°C, 20%RH ~ 85%RH</td>
</tr>
<tr>
<td></td>
<td><strong>Storage environment</strong> -20°C ~ 60°C</td>
</tr>
</tbody>
</table>

---

*1: Calculated value for 70" image
*2: Lamp mode is Full power/Power saver. Brightness in Power saver mode is only a calculated value, and is not guaranteed as specification
*3: Only low frequencies (24 to 30 Hz) are supported.
*4: EDID is not supported.
*5: Supported when “Panel drive mode” is set to “4096x2400”
*6: Network “ON” (Low-power) / “OFF”
2-2 Image size and projection distance

This product is suited to project pictures in maximum size of 600 inches. Projection distance to the corresponding picture size is as follows. Note that zoom and focus operations on this product is powered.

Image of height H is projected in the range from the shortest distance \( L(W) \) to the longest distance \( L(T) \).

\( (W) \) means the wide end and \( (T) \) means the tele end.

This product allows the lens shift ratio to be varied. The left figure shows an example of 1:1 and image is divided with the optical axis at the center.

### 4K501ST

<table>
<thead>
<tr>
<th>Image size (4096x2400)</th>
<th>Projection distance [m]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[inches]</td>
<td>Width [m]</td>
</tr>
<tr>
<td>40</td>
<td>0.9</td>
</tr>
<tr>
<td>60</td>
<td>1.3</td>
</tr>
<tr>
<td>80</td>
<td>1.8</td>
</tr>
<tr>
<td>100</td>
<td>2.2</td>
</tr>
<tr>
<td>120</td>
<td>2.6</td>
</tr>
<tr>
<td>140</td>
<td>3.1</td>
</tr>
<tr>
<td>160</td>
<td>3.5</td>
</tr>
<tr>
<td>180</td>
<td>3.9</td>
</tr>
<tr>
<td>200</td>
<td>4.4</td>
</tr>
<tr>
<td>220</td>
<td>4.8</td>
</tr>
<tr>
<td>240</td>
<td>5.3</td>
</tr>
<tr>
<td>260</td>
<td>5.7</td>
</tr>
<tr>
<td>280</td>
<td>6.1</td>
</tr>
<tr>
<td>300</td>
<td>6.6</td>
</tr>
<tr>
<td>350</td>
<td>7.7</td>
</tr>
<tr>
<td>400</td>
<td>8.8</td>
</tr>
<tr>
<td>450</td>
<td>9.9</td>
</tr>
<tr>
<td>500</td>
<td>11.0</td>
</tr>
<tr>
<td>550</td>
<td>12.1</td>
</tr>
<tr>
<td>600</td>
<td>13.2</td>
</tr>
</tbody>
</table>

The distances listed on the table have been rounded off and are therefore approximate values.
2-3 Lens shift function and image position

This product has a lens shift function that can move the image position vertically and horizontally. The followings are the lens shift specifications of the 4K501ST.

<table>
<thead>
<tr>
<th>Model</th>
<th>4K501ST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amount of Lens shift</td>
<td></td>
</tr>
<tr>
<td>(V)</td>
<td>-60% ~ 60%</td>
</tr>
<tr>
<td>(H)</td>
<td>-10% ~ 10%</td>
</tr>
<tr>
<td>Lens shift ratio</td>
<td></td>
</tr>
<tr>
<td>(V)</td>
<td>-1:1 ~ 11:1</td>
</tr>
<tr>
<td>(H)</td>
<td>4:6 ~ 6:4</td>
</tr>
</tbody>
</table>

The following figure shows the area in which the image can be moved and the guaranteed optical performance range of this product. The center of the crosshair is the optical axis of the lens. The octagonal area excluding the four corners (light gray) is the guaranteed optical performance range. Note that the sizes of the four corners that are outside the guaranteed range are the same.

※ Moving the image outside the guaranteed optical performance range may cause shade to appear in the corner area of the image. (e.g., 60% vertical, 10% horizontal → the upper right corner of the image becomes dark)

We recommend that you do not use the product in this manner but rather adjust the installation position so that the image is within the guaranteed range.
2-4 Adjustable feet

Four adjustable feet are provided on the bottom of the product.

The length of these feet can be adjusted to minimize the horizontal tilt of the image projected on the screen.

Rotate the adjustable legs to adjust their lengths.

The maximum extension length of each leg is 12 mm.

The front-to-back angle of this product can be adjusted in the range of ±1.5 relative to the surface that the product is placed on.

* The figure is for explanation only and different from the actual product shape.
2-5 Notes on installation
Because this product adopts a wide angle lens, the following phenomenon may arise. These are not failures, and there is no problem with this product.

- Image coloring

When the image is viewed at an angle of 60 degrees or more from the front, a portion of the image appears colored. If viewed from the left, the left side of the image appears colored in magenta. If viewed from the right, the right side of the image appears in the same way. Likewise, if viewed from a vertical angle, the top or bottom side appears colored in green. This phenomenon occurs as a result of polarization properties but may not be noticeable depending on the screen type.

The following figure shows an example when the image is viewed from the sides.

If viewed from direct A, area A’ appears colored in magenta.
If viewed from direct B, area B’ appears colored in magenta.
3. Image signals

3-1 Number of terminals used for image input

This product is equipped with a system that transmits image signals through several transmission cables to display high resolution image signals that could not be transmitted previously with a single transmission cable (DVI, HDMI).

The different combinations of image input terminals that the product uses are shown below.

① Single terminal input (DVI1, DVI2, DVI3, DVI4, HDMI1, HDMI2)

The conventional method of transmitting image signals using a single transmission cable. The screen of the output equipment is played back as is.

② Two terminal input (DVI1+DVI3, HDMI1+HDMI2)

A method of transmitting image signals using two transmission cables. For example, when transmitting a 3840x2160 image, each cable carries a 1920x2160 signal. Image signals are divided into two signals, transmitted, composed, and played back.

For DVI, signal A is received through DVI1 and signal B through DVI3. For HDMI, signal A is received through HDMI1 and signal B through HDMI2.

③ Four terminal input, quadrant (DVI 2x2)

One of the methods of transmitting image signals using four transmission cables. For example, when transmitting a 3840x2160 image, each cable carries a 1920x1080 signal. Image signals are divided into quadrants, transmitted, composed, and played back.

Signal A is received through DVI1, signal B through DVI2, signal C through DVI3, and signal D through DVI4.
Four terminal input, side by side (DVI 1x4)
One of the methods of transmitting image signals using four transmission cables.
For example, when transmitting a 3840x2160 image, each cable carries a 960x2160 signal.
Image signals are divided horizontally into four parts, transmitted, composed, and played back.

![Diagram](image)

Signal A is received through DVI1, signal B through DVI2, signal C through DVI3, and signal D through DVI4.

**Notes for receiving signals through multiple terminals**
In order to reproduce images correctly when an image signal is divided and received through multiple terminals, the following items must at least be the same for each of the divided image signals.
- Period
- Resolution, frequency
- Color format

These are the typically same because it is assumed that images from a single output device will be divided and output. However, this may not be true depending on the specifications of the output device.

3-2 About Multi input mode select

On this product, EDID (a list of resolutions that can be received) is selected using “Multi input mode select”. (The EDID is selected separately for DVI and HDMI.) (*1)

If set to “Normal the EDID will be a list containing a portion of the image signals that use a single terminal and a portion of the image signals that use several terminals.
With this setting, image signals with different number of terminals can be selected on the image output equipment side and output.

However, because not all image signals can be accommodated, if a setting is not in the list, the following menu is used to select a setting with specific number of terminals.

Install settings → Professional settings → Multi input mode select

Here, the DVI or HDMI setting is changed from Standard to the number of terminals to be used (Single, 1x2, 2x2, or 1x4).

*1: EDID are different between panel drive mode settings
3-3 Supported image signal type

Image signals that the product can display are listed below. The description of blanking information is provided later. Interlace signals are denoted with (I).

For DVI input, a signal whose dot clock is less than 165 MHz is a single link signal, and that whose dot clock is 165 MHz or higher is a dual link signal.

### DVI (single)

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Frequency</th>
<th>Setting (*1)</th>
<th>Blanking information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Horizontal [kHz]</td>
<td>Vertical [Hz]</td>
<td>Dot clock [MHz]</td>
</tr>
<tr>
<td>640x480</td>
<td>31.469</td>
<td>59.940</td>
<td>25.175</td>
</tr>
<tr>
<td>800x600</td>
<td>37.879</td>
<td>60.317</td>
<td>40.000</td>
</tr>
<tr>
<td>1280x720</td>
<td>45.000</td>
<td>60.000</td>
<td>74.250</td>
</tr>
<tr>
<td>1024x768</td>
<td>48.363</td>
<td>60.004</td>
<td>65.000</td>
</tr>
<tr>
<td>1366x768</td>
<td>47.712</td>
<td>59.790</td>
<td>85.500</td>
</tr>
<tr>
<td>1440x900</td>
<td>48.000</td>
<td>60.000</td>
<td>72.000</td>
</tr>
<tr>
<td>1280x1024</td>
<td>55.935</td>
<td>59.887</td>
<td>106.500</td>
</tr>
<tr>
<td>1920x1080</td>
<td>55.469</td>
<td>59.901</td>
<td>88.750</td>
</tr>
<tr>
<td>2048x1080</td>
<td>66.576</td>
<td>59.924</td>
<td>147.000</td>
</tr>
<tr>
<td>2560x1080</td>
<td>66.636</td>
<td>59.978</td>
<td>181.250</td>
</tr>
<tr>
<td>1920x1200</td>
<td>74.038</td>
<td>59.950</td>
<td>154.000</td>
</tr>
<tr>
<td>2048x1200</td>
<td>74.049</td>
<td>59.959</td>
<td>163.500</td>
</tr>
<tr>
<td>2560x1440</td>
<td>88.787</td>
<td>59.951</td>
<td>241.500</td>
</tr>
<tr>
<td>2560x1600</td>
<td>98.611</td>
<td>59.910</td>
<td>256.000</td>
</tr>
<tr>
<td>3840x2160</td>
<td>52.438</td>
<td>23.999</td>
<td>209.750</td>
</tr>
<tr>
<td>4096x2160</td>
<td>52.397</td>
<td>23.980</td>
<td>223.000</td>
</tr>
</tbody>
</table>

### DVI 1x2

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Frequency</th>
<th>Setting (*1)</th>
<th>Blanking information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Horizontal [kHz]</td>
<td>Vertical [Hz]</td>
<td>Dot clock [MHz]</td>
</tr>
<tr>
<td>2560x1080</td>
<td>66.493</td>
<td>59.850</td>
<td>95.750</td>
</tr>
<tr>
<td>2560x1440</td>
<td>88.715</td>
<td>59.902</td>
<td>127.750</td>
</tr>
<tr>
<td>2560x1600</td>
<td>98.611</td>
<td>59.910</td>
<td>142.000</td>
</tr>
<tr>
<td>3840x2160</td>
<td>52.512</td>
<td>23.956</td>
<td>132.750</td>
</tr>
<tr>
<td>54.000</td>
<td>24.000</td>
<td>148.500</td>
<td>(3)</td>
</tr>
<tr>
<td>67.500</td>
<td>30.000</td>
<td>148.500</td>
<td>(2)</td>
</tr>
<tr>
<td>4096x2160</td>
<td>52.515</td>
<td>23.957</td>
<td>142.000</td>
</tr>
<tr>
<td>52.423</td>
<td>23.992</td>
<td>115.750</td>
<td>(2)</td>
</tr>
<tr>
<td>54.000</td>
<td>24.000</td>
<td>148.500</td>
<td>(3)</td>
</tr>
<tr>
<td>67.500</td>
<td>30.000</td>
<td>148.500</td>
<td>(2)</td>
</tr>
</tbody>
</table>

*1: Indicates multi input mode settings that allow image signal to be used

*2: Since EDID is not supported, the setting has no effect (standard recommended).

*3: Only when the “Panel drive mode” is set to “4096x2160”
### DVI 2x2

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Frequency</th>
<th>Setting (*1)</th>
<th>Blanking information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Horizontal [kHz]</td>
<td>Vertical [Hz]</td>
</tr>
<tr>
<td>Composed</td>
<td>Divided</td>
<td>27.000</td>
<td>24.000</td>
</tr>
<tr>
<td>3840x2160</td>
<td>1920x1080</td>
<td>33.750</td>
<td>30.000</td>
</tr>
<tr>
<td>4096x2160</td>
<td>2048x1080</td>
<td>66.587</td>
<td>59.934</td>
</tr>
<tr>
<td>5000x2400</td>
<td>2560x1200</td>
<td>67.158</td>
<td>59.963</td>
</tr>
<tr>
<td>6000x2400</td>
<td>3072x1200</td>
<td>67.500</td>
<td>60.000</td>
</tr>
</tbody>
</table>

### DVI 1x4

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Frequency</th>
<th>Setting (*1)</th>
<th>Blanking information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Horizontal [kHz]</td>
<td>Vertical [Hz]</td>
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<td>135.000</td>
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</tr>
</tbody>
</table>

*1: Indicates multi input mode settings that allow image signal to be used
*2: Since EDID is not supported, the setting has no effect (standard recommended).
*3: Only when the “Panel drive mode” is set to “4096x2160”
*4: Only when the “Panel drive mode” is set to “4096x2400”
*5: In the case of an image signal whose vertical resolution exceeds 2160, if the panel drive mode is set to “4096x2160”, it will be processed as “no signal.” Therefore, set the mode to “4096x2400.”
### HDMI (single)

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Frequency</th>
<th>Setting (*1)</th>
<th>Blanking information</th>
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<td>2560x1080</td>
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<td>112.500</td>
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</tr>
<tr>
<td></td>
<td>135.000</td>
<td>60.000</td>
<td>594.000</td>
</tr>
</tbody>
</table>

*1: Indicates multi input mode settings that allow image signal to be used
*2: Since EDID is not supported, the setting has no effect (standard recommended).
*3: Only when the “Panel drive mode” is set to “4096x2160”
*4: Only when the “Panel drive mode” is set to “4096x2400”
**HDMI 1x2**  
**Follow HDMI-1.4 standards when you input with two HDMI terminals.**

<table>
<thead>
<tr>
<th>Resolution</th>
<th>Frequency</th>
<th>Setting (*1)</th>
<th>Blanking information</th>
</tr>
</thead>
<tbody>
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<td>Vertical [kHz]</td>
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<td>59.940</td>
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<td>59.940</td>
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<td>1440x576</td>
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<td>3840x1080</td>
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<td>50.000</td>
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<td>60.000</td>
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<td>23.992</td>
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</tbody>
</table>

*1: Indicates multi input mode settings that allow image signal to be used  
*2: Since EDID is not supported, the setting has no effect (standard recommended).  
*3: Only when the “Panel drive mode” is set to “4096x2160”  
*4: Only when the “Panel drive mode” is set to “4096x2400”  
*5: In the case of an image signal whose vertical resolution exceeds 2160, if the panel drive mode is set to “4096x2160”, it will be processed as “no signal.” Therefore, set the mode to “4096x2400.”

**About blanking information**

The following figure shows the structure of the blanking period that is inserted between image signal frames.

![Blanking period diagram](https://example.com/blanking_diagram.png)

FP: front porch, SW: synchronizing width, BP: back porch

---

*Canon*
### 3-4 HDMI deep color compatibility table

**●RGB444 and YCbCr444**

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<thead>
<tr>
<th>Resolution (single terminal)</th>
<th>Frequency</th>
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<td>Vertical [Hz]</td>
<td>Dot clock [MHz]</td>
<td>8bit support</td>
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<td>640x480</td>
<td>31.469</td>
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<td>25.175</td>
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</tr>
<tr>
<td>720x576</td>
<td>31.250</td>
<td>50.000</td>
<td>27.000</td>
<td>○</td>
</tr>
<tr>
<td>1280x720</td>
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<td>24.000</td>
<td>59.400</td>
<td>○</td>
</tr>
<tr>
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<td>50.000</td>
<td>74.250</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>45.000</td>
<td>60.000</td>
<td>74.250</td>
<td>○</td>
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<td>1920x1080 (1)</td>
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<tr>
<td></td>
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<td>○</td>
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<td>74.250</td>
<td>○</td>
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<td>67.500</td>
<td>60.000</td>
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<td>○</td>
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<td>24.000</td>
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<td>56.250</td>
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<td>297.000</td>
<td>○</td>
</tr>
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<tr>
<td>4096x2160</td>
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<td>○</td>
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<td>135.000</td>
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**●YCbCr420**

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<td>Horizontal [kHz]</td>
<td>Vertical [Hz]</td>
<td>Dot clock [MHz]</td>
<td>8bit support</td>
</tr>
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<td>3840x2160</td>
<td>112.500</td>
<td>50.000</td>
<td>594.000</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>135.000</td>
<td>60.000</td>
<td>594.000</td>
<td>○</td>
</tr>
<tr>
<td>4096x2160</td>
<td>112.500</td>
<td>50.000</td>
<td>594.000</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>135.000</td>
<td>60.000</td>
<td>594.000</td>
<td>○</td>
</tr>
</tbody>
</table>
3-5 Internal functions

● HDCP

This product is an HDCP version 2.2/1.4-compliant image device.
The digital image signals for HDCP contents that are encrypted and sent from digital devices connected to the HDMI terminal and DVI terminal can be displayed.

HDCP is an “encryption system for digital video signals.”
It ALSYS a TMDS link with DVI or HDMI terminals.

HDCP transmitter is built in the signal server and HDCP receiver is built in the signal receiver.
This system can make the signals code, transmit, decode and display.

1. The transmitter authenticates the receiver: If the authentication fails, signals are not transmitted.
   Immediately after authentication, a key (the encryption rule) is shared: The key is updated every two seconds.
2. The transmitter encrypts the information with the key and sends the encrypted (digital) signal. If the key update does not match, the transmissions stop.
3. The receiver receives the encrypted signal, decodes the signal with the key, and displays the signal on the display device.

● Frame lock function

Depending on the input signal’s frequency, commonly-used display devices may not be able to synchronize the input signal’s frame with LCD’s frame, thereby showing a mixture of successive 2 frames.
The following illustrates how this mixture of frames (image shift) occurs. Numbers ① to ③ indicates the order in which these images appeared.

In this example, a composite image ② appeared when an object moved from right to left, which is a combination of the frames before and after the movement.
This function synchronizes the LCD’s frame with that of input signal to prevent this kind of frame mixture, and it is effective for input signals of about 23 to 31 Hz and about 47 to 61 Hz.
For frequencies other than these ranges, a different process takes effect in place of Frame Lock (synchronization) to ensure that a single frame appears in the entire LCD. Therefore, composite image like ② would not appear even in those cases.

In the past, asynchronous methods were adequate for inputs from computers because they mainly consisted of still images so no image overlapping could be seen. When moving images are played back, however, image-overlapping takes place because of a slight difference between the image signal and the LCOS-panel drive frequency. As more moving images are played back from computers these days, the frame lock function is used to synchronize computer inputs to counteract this problem, resulting in smooth image playback.
5. States of this product

4-1 States

This product is in one of six states.

<table>
<thead>
<tr>
<th>State (*1)</th>
<th>Outline</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Power</td>
<td>No power is being supplied from outside. The projector does not operate at all.</td>
</tr>
<tr>
<td>Off (Standby)</td>
<td>Power is being supplied from outside. However, the circuit is only partially live and the projector itself is not active. Depending on the Network function setting, this status can be categorized into 3 modes.</td>
</tr>
<tr>
<td>Projection (On)</td>
<td>A status where the projector is used normally. Power is being supplied to the entire circuit. The lamp is lit, and image is projected.</td>
</tr>
<tr>
<td>Lamp Off</td>
<td>Power is supplied to the entire circuit except panel circuit. The lamp is unlit and the cooling fan is operating. Some action changes the projector to the projection state. However, the lamp on time is the same as actual activation.</td>
</tr>
<tr>
<td>Error</td>
<td>Power is being from outside but the projector cannot be activated. To use the projector, action should be taken according to the contents of the error type.</td>
</tr>
<tr>
<td>Pre-warning High temperature</td>
<td>If the temperature becomes almost abnormal, the projector displays the warning of high temperature. This state is cleared when the temperature goes down.</td>
</tr>
<tr>
<td>Pre-warning Lamp replacement</td>
<td>If the lamp replacement conditions are almost satisfied, the projector displays the warning of the lamp replacement. This state is cleared when the lamp counter for replacement is reset.</td>
</tr>
</tbody>
</table>

4-2 Type of Error

Each error state is defined as below.

<table>
<thead>
<tr>
<th>Error name</th>
<th>Outline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature abnormality</td>
<td>• The internal temperature is abnormally high.</td>
</tr>
<tr>
<td></td>
<td>• The outside air temperature is higher than specified.</td>
</tr>
<tr>
<td></td>
<td>• Malfunction of thermal sensor</td>
</tr>
<tr>
<td>Faulty lamp</td>
<td>• The lamp is out of life.</td>
</tr>
<tr>
<td></td>
<td>• The lamp drive circuit is faulty.</td>
</tr>
<tr>
<td>Faulty lamp cover</td>
<td>• The lamp cover is not closed.</td>
</tr>
<tr>
<td>Faulty air filter unit</td>
<td>• No air filter is attached.</td>
</tr>
<tr>
<td>Faulty cooling fan</td>
<td>• The cooling fan does not operate normally.</td>
</tr>
<tr>
<td>Faulty power supply</td>
<td>• The supply voltage is abnormal.</td>
</tr>
<tr>
<td></td>
<td>• Other abnormal is occurred.</td>
</tr>
<tr>
<td>Faulty lens shift connector</td>
<td>• Lens shift connector is not connected (It is necessary to detect the lens shift position)</td>
</tr>
</tbody>
</table>

** Each error state may be caused by a fault other than the above.
## 5. Accessories

| 5-1 Main Supplied Accessories | Remote Control RS-RC05 | Power supply: DC 3.0V (with two AA battery)  
Communication range: approx. 8 m within ±25 degrees of the receiver  
Allows for wireline connection (*1) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Power code</td>
<td>Connects the unit to a power source.</td>
</tr>
<tr>
<td>5-2 Optional Parts</td>
<td>Ceiling Attachment RS-CL15 (*2)</td>
<td>This is used for ceiling mount. (*1)</td>
</tr>
<tr>
<td></td>
<td>Ceiling Pipe 400-600mm RS-CL08</td>
<td>The RS-CL08 is used in combination with the RS-CL15 to suspend the projector at a distance below the ceiling.</td>
</tr>
<tr>
<td></td>
<td>Ceiling Pipe 600-1000mm RS-CL09</td>
<td>The RS-CL09 is used in combination with the RS-CL15 to suspend the projector at a distance below the ceiling.</td>
</tr>
</tbody>
</table>
|                            | Remote Control RS-RC04 | Power supply: DC 3.0V (with two AAA battery)  
Communication range: approx. 8 m within ±25 degrees of the receiver |
|                            | Remote Control RS-RC05 | Same as the supplied remote.                                                                     |
| 5-3 Replacement Parts       | Lamp Assembly with Replacement Air Filter RS-LP10F (RS-LP10+RS-FL03) | RS-LP10  
Super High Pressure Lamp for projectors  
Recommended lamp replacement time (*3)  
400 W: 3000H, 300 W: 4000H |
|                            | Replacement air filter RS-FL03 | This filter is installed at the air intake to prevent dust from entering.                        |

*1: Uses a commercially available audio cable (3.5Ф stereo mini-plug) for cable connection.  
*2: Do not attach a difference model’s attachment. The size and the weight of a product are different from other modes.  
Consult a building professional before attempting to mount the projector to a ceiling.  
*3: This time guarantees a 50% survival rate and a 50% brightness-maintenance rate.  
This value does not guarantee the service life of the lamp.
6. Product Appearance

6-1 Outline Drawings

- Dimensions:
  - W: 470.0 mm, H: 175.0 mm, D: 533.5 mm (18.5 x 6.9 x 21.1 inch) * including protrusion
  - W: 470.0 mm, H: 155.0 mm, D: 515.0 mm (18.5 x 6.1 x 20.3 inch) * not including protrusion
  - Lens center: 122.0 mm from the left side ("front" is the side where lens is attached.)
  - 100.0 mm from the installed surface
- Weight: 18 kg (40 lbs)
- Screw holes for ceiling mount: 4 (M6)
6-2 Part Names

① Projection lens
② LED indicator
③ Terminals and connectors
④ Side control
⑤ Power cord connector
⑥ Infrared remote receiver
⑦ Adjustable feet
⑧ Air intake vent
⑨ Anti-theft lock hole
⑩ Lamp cover
⑪ Exhaust vent
⑫ Infrared remote receiver
6-3 Terminals

<table>
<thead>
<tr>
<th>Type</th>
<th>Terminal</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image input</td>
<td></td>
<td></td>
</tr>
<tr>
<td>①</td>
<td>HDMI (1)</td>
<td>Digital PC/Digital video</td>
</tr>
<tr>
<td>②</td>
<td>HDMI (2)</td>
<td>Digital PC/Digital video</td>
</tr>
<tr>
<td></td>
<td>HDMI (1)</td>
<td>Digital PC</td>
</tr>
<tr>
<td></td>
<td>HDMI (2)</td>
<td>Digital PC</td>
</tr>
<tr>
<td></td>
<td>HDMI (3)</td>
<td>Digital PC</td>
</tr>
<tr>
<td></td>
<td>HDMI (4)</td>
<td>Digital PC</td>
</tr>
<tr>
<td>Audio input</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⑥</td>
<td>Mini jack</td>
<td>Stereo audio</td>
</tr>
<tr>
<td>Audio output</td>
<td></td>
<td></td>
</tr>
<tr>
<td>⑦</td>
<td>Mini jack</td>
<td>Stereo audio</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>③</td>
<td>Dsub9</td>
<td>RS-232C connection</td>
</tr>
<tr>
<td>④</td>
<td>RJ-45</td>
<td>1000BASE-T/100BASE-TX/10BASE-T</td>
</tr>
<tr>
<td>⑤</td>
<td>USB type A</td>
<td>USB connection</td>
</tr>
<tr>
<td>⑧</td>
<td>Mini jack</td>
<td>Wired remote control connection</td>
</tr>
</tbody>
</table>

● Wireline connection for the remote
The unit can be operated by a wired remote RS-RC05 (option).
When a cable is connected to the unit’s remote terminal, the unit switches to a mode in which no infrared signal is accepted, so that the unit would not respond to other remote.
In addition, when a cable is connected to the wireline connection terminal on the remote, the remote also switches to a mode in which no infrared signal is transmitted.
When the remote is wired, the user does not have to make the channel settings on the unit or the remote.

**Note:**
If the cable connecting the unit and the remote breaks, the unit will become inoperable from any remote.
6-4 Indicators and Control buttons

Illuminate to indicate the projector state.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER ON (Green)</td>
<td>Lit</td>
<td>Projection state</td>
</tr>
<tr>
<td>Blinking</td>
<td>Initializing (Off → Projection)</td>
<td></td>
</tr>
<tr>
<td>Off</td>
<td>Other than above</td>
<td></td>
</tr>
<tr>
<td>STAND BY (Red)</td>
<td>Lit</td>
<td>Off state</td>
</tr>
<tr>
<td>Blinking</td>
<td>Shutting down (Projection → Off)</td>
<td></td>
</tr>
<tr>
<td>Off</td>
<td>Other than above</td>
<td></td>
</tr>
<tr>
<td>WARNING (Red)</td>
<td>Lit</td>
<td>Error state</td>
</tr>
<tr>
<td>Blinking</td>
<td>Error state</td>
<td></td>
</tr>
<tr>
<td>Off</td>
<td>No error state</td>
<td></td>
</tr>
<tr>
<td>LAMP (Orange)</td>
<td>Lit</td>
<td>Lamp error (*1), Lamp cover error (*2)</td>
</tr>
<tr>
<td>Blinking</td>
<td>When the lamp replacement period approaches</td>
<td></td>
</tr>
<tr>
<td>Off</td>
<td>Other than above</td>
<td></td>
</tr>
<tr>
<td>TEMP (Red)</td>
<td>Lit</td>
<td>Temperature error</td>
</tr>
<tr>
<td>Blinking</td>
<td>When a temperature error condition is imminent</td>
<td></td>
</tr>
<tr>
<td>Off</td>
<td>Other than above</td>
<td></td>
</tr>
</tbody>
</table>

By the combination of indicator states, various other states are indicated. For details, refer to the user's manual.

*1: [Warning] lights together.  
*2: [Warning] blinks together.

Control the projector by button operation.

1. POWER: Turns the power supply on or off.
2. INPUT: Displays a select screen of input signal for projection.
3. LENS: Changes the display to the focus, marginal focus (when activated), zoom, or lens shift adjustment screen each time the button is pressed.
4. KEYSTONE: Displays the adjustment screen of H-V keystone or Corner adjustment.
5. Direction / VOL: Adjust the volume. (Right and left only)  
Move the pointer vertically or horizontally on a menu screen or other.
6. OK: Confirms a state selected on a menu screen or other.
7. MENU: Displays a menu screen.
6-5 Remote Control
The supplied remote RS-RC05 can be used either through wired or wireless (infrared signal) connection.

### Basic Operations
- **[POWER]**: Power (On/Off)
- **[INPUT]**: Changing of input signal
- **[KEYSTONE]**: H-V keystone/Corner adjustment
- **[MENU]**: Menu
- **[←] [→] [↑] [↓]**: Direction (Moving)
- **[VOL (+ -)]**: Volume adjustment
- **[OK]**: OK

### Menu Screen Operations
- **[ASPECT]**: Aspect selection
- **[TEST PATTERN]**: Test pattern
- **[IMAGE]**: Image mode selection

### Remote Control Triggered Operations
- **[DIGITAL]**: Changing of DVI input
- **[HDMI]**: Changing of HDMI input
- **[EXIT]**: Clears a temporary condition
- **[FOCUS]**: Focus/Marginal focus
- **[ZOOM]**: Zoom adjustment
- **[SHIFT]**: Lens shift adjustment
- **[FREEZE]**: Freeze
- **[BLANK]**: Blank
- **[MUTE]**: Mute
- **[1]~[9]**: Input numbers
- **[Ch]**: Channel setting of remote

### Not Available
- **[AUTO PC]**: (for analog PC input)
- **[ANALOG]**: (Unavailable function)
- **[COMPONENT]**: (Unused signal)
- **[D.ZOOM]**: (Unavailable function)
- **[Fn]**: (Unavailable function)

#### Channel settings on the remote

<table>
<thead>
<tr>
<th>Channel</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ch1</td>
<td>Press and hold [Ch] and [1] buttons for 3 seconds at the same time</td>
</tr>
<tr>
<td>Ch2</td>
<td>Press and hold [Ch] and [2] buttons for 3 seconds at the same time</td>
</tr>
<tr>
<td>Ch3</td>
<td>Press and hold [Ch] and [3] buttons for 3 seconds at the same time</td>
</tr>
<tr>
<td>Ch4</td>
<td>Press and hold [Ch] and [4] buttons for 3 seconds at the same time</td>
</tr>
<tr>
<td>Independent</td>
<td>Press and hold [Ch] and [0] buttons for 3 seconds at the same time</td>
</tr>
</tbody>
</table>

A remote set to “Independent” can control any projector ignoring the projectors’ channel settings.
7. Precautions For Use

● **Do not look into the projection lens while it is projecting.**
  The projector emits very bright light, which may damage your vision.

● **Do not place objects in front of the lens while projecting.**
  Objects may heat up and burn if exposed to the concentrated light of the projector for long periods.

● **Do not block the vent (intake air & exhaust) while the projector is running.**
  Allowing heat to build up inside the unit may lead to malfunctions or risk of fire.

● **Replace the lamp as soon as possible if the lamp burns out or if the replacement time is reached.**
  The projector uses a high-pressure mercury lamp as its light source. This lamp degrades over time and becomes dimmer as it is used. Furthermore, the possibility of the lamp bursting as it is used is extremely high. If the lamp should burst, return the projector to your local service center to have the lamp replaced and the unit inspected.

  **There is a less than half probability of the lamp bursting before the lamp replacement time is reached. Normally it is most likely that the lamp will not burst before the replacement time. Even if the lamp does burst, the number of hours the lamp can be used before that happens varies depending on each lamp. Although extremely minute flaws that may occur during production have been suspected as the cause of the individual differences in the hours of use before a lamp bursts, there is no way to predict this period with accuracy.**

● **In highlands(*1) with low atmospheric pressure, use with the following setting(*2)**
  To prevent internal overheat, set the Fan mode function “High-Altitude”.

  *1: 2300m or more above sea level