Specifications

Main unit

Power supply
AC 100-240 V, 50 Hz/60 Hz (Taiwan: AC 110 V, 60 Hz)

Power consumption**
465 W (5.0 A-2.0 A) (Taiwan: 4.7 A)

**OPERATING MODE**
- **NORMAL**: 370 W
- **ECO**: 295 W
- **QUIET**: 295 W

**STANDBY MODE**
- **NORMAL**: <DC OUT> terminal not in use: 10 W
  - [IN STANDBY MODE] set to [OFF], [QUICK STARTUP] set to [OFF], and <DC OUT> terminal in use: 25 W
  - [IN STANDBY MODE] set to [ON], [QUICK STARTUP] set to [OFF], and <DC OUT> terminal in use: 35 W
  - [IN STANDBY MODE] set to [ON], [QUICK STARTUP] set to [ON], and <DC OUT> terminal in use: 65 W
- **ECO**: Approx. 0.5 W

BTU value
Max. 1,587 BTU

DLP™ chip Panel size
17.0 mm [0.67 in] diagonal (16:10 aspect ratio)

Projection system
DLP™ chip x 1, DLP™ projection system

Pixels
2,304,000 (1920 x 1200 pixels)

Light source
Laser diodes

Light output
5,200 lm (ANSI)**/5,400 lm (Center)**
When [PICTURE MODE] is set to [DYNAMIC], [DAYLIGHT VIEW] is set to [OFF], [DYNAMIC CONTRAST] is set to [OFF], [LIGHT OUTPUT] is set to [100%] and [AUTO POWER SAVE] is set to [OFF]

Time until light output declines to 50%**
20,000 hours

Resolution
1920 x 1200 pixels

Contrast ratio**
20,000:1 (All White/All Black)
When [PICTURE MODE] is set to [DYNAMIC], [OPERATING MODE] is set to [NORMAL], Dynamic Contrast 1

Screen size (diagonal)
1.02-7.62 m [40-300 in], 16:10 aspect ratio

Center to corner zone ratio**
90%

Lens
2.0x manual zoom (throw ratio: 1.46-2.94:1), manual focus, F 2.0-3.4, f 21.5-43.0 mm

Lens shift
- Vertical (from center of screen): -44% ~ +64% (manual)
- Horizontal (from center of screen): -27% ~ +34% (manual)

Geometry Correction Range

- Only [KEYSTONE] used
- [KEYSTONE] and [CURVED] used together
- Only [CURVED] used

- When [SCREEN ADJUSTMENT] is used, the focus of the entire screen may be lost as correction increases.
- Make the curved screen a circular arc shape with one part of a perfect circle removed.

Installation
Ceiling/floor, front/rear

As of September 2020
FRZ50G_STM_01_04/09/2020
Compatibility Signal
- **Video input**
  - Horizontal: 15.73 kHz, Vertical: 59.94 Hz

- **Y/C input**
  - Horizontal: 15.63 kHz, Vertical: 50 Hz

- **RGB input**
  - Resolution: 640 x 400 to 1920 x 1200
  - Dot clock frequency: 162 MHz or less
  - PIAS (Panasonic Intelligent Auto Scanning) system

- **YCC/YPbPr input**
  - Resolution: 480i/576i*5 to 1920 x 1080
  - Dot clock frequency: 148.5 MHz or less

- **HDMI input**
  - Moving image signal resolution: 480i*5/576i*5 to 1080p
  - Still image signal resolution: 640 x 400 to 1920 x 1200 (non-interlace)
  - Dot clock frequency: 25 MHz to 594 MHz
  - The HD/SYNC and VD terminals do not support 3 value SYNC.

- **DIGITAL LINK input**
  - Moving image signal resolution: 480i*5/576i*5 to 1080p
  - Still image signal resolution: 640 x 400 to 1920 x 1200 (non-interlace)
  - Dot clock frequency: 25 MHz to 297 MHz

Terminals
- **COMPUTER 1 IN**
  - D-sub HD 15-pin (female) x 1
    - **RGB signal**
    - 0.7 V (p-p) 75 Ω (SYNC ON GREEN: 1.0 V (p-p) 75 Ω)
    - SYNCHD TTL high impedance, automatic positive/negative polarity compatible
    - VD TTL high impedance, automatic positive/negative polarity compatible
  - **YPbPr signal**
    - Y: 1.0 V (p-p) including synchronization signal, PA: 0.7 V (p-p) 75 Ω
  - **Y/C signal**
    - Y: 1.0 V (p-p), C: 0.286 V (p-p) 75 Ω

- **COMPUTER 2 IN/1 OUT**
  - D-sub HD 15-pin (female) x 1
    - **RGB signal**
    - 0.7 V (p-p) 75 Ω (SYNC ON GREEN: 1.0 V (p-p) 75 Ω)
    - SYNCHD TTL high impedance, automatic positive/negative polarity compatible
    - VD TTL high impedance, automatic positive/negative polarity compatible
  - **YPbPr signal**
    - Y: 1.0 V (p-p) including synchronization signal, PA: 0.7 V (p-p) 75 Ω

- **HDMI 1 IN/HDMI 2 IN**
  - HDMI 19-pin x 2
    - Compatible with HDCP 2.3, Deep Color, 4K/60p signal input*, CEC supported
  - Audio signal
    - Linear PCM (sampling frequency: 48 kHz/44.1 kHz/32 kHz)

- **VIDEO IN**
  - pin jack x 1
    - 1.0 V (p-p) 75 Ω

- **AUDIO IN**
  - pin jack x 2 (L-R)
    - 0.5 V (rms), input impedance 22 kΩ or more

- **VARIABLE AUDIO OUT**
  - M3 stereo mini jack x 1 (monitor output, stereo compatible)
    - 0 V (rms) to 1.80 V (rms) (variable), output impedance 2.2 kΩ or less

- **SERIAL IN**
  - D-Sub 9 p x 1
    - RS-232C compliant, for computer control

- **DIGITAL LINK/LAN**
  - RJ-45 x 1
    - for network and DIGITAL LINK connections (HDBaseT™ compliant), PJLink (class 2) compatible, 10Base-TX, Art-Net compatible, HDCP 2.3 compatible, Deep Color compatible, 4K/60p signal input*6
  - **LAN**
    - RJ-45 x 1
      - for network connection, PJLink (class 2) compatible, 10Base-T/100Base-TX, Art-Net compatible

- **DC OUT**
  - USB connector (type A) x 1
    - for power supply only (DC 5 V, maximum 2 A)

Power cord length
- 3.0 m [118-1/8 in], 2.0 m [78-3/4 in] (for Taiwan)

Cabinet materials
- Molded plastic

Dimension (W x H x D)
- 498 x 168*7 x 492 mm [19-5/8 x 6-5/8*7 x 19-3/8 in]

Weight**
- Approx. 16.0 kg (35.3 lbs)

Operating noise**
- 32 dB (NORMAL) / 27 dB (QUIET)

Operating environment
- Operating temperature: 0-45 °C (32-113 °F)**
- Operating humidity: 10-80% (no condensation)

Laser Classification
- Laser Class: Class 1 (IEC/EN 60825-1:2014)

Remote control unit
- Power supply: 3V DC (AAA/R03/LR03 battery x 2)
- Operation range: Approx. 30 m [98 ft 5 in] (when operated directly in front of signal receiver)
- Dimensions (W x H x D): 48 x 145 x 27 mm [1-7/8 x 5-23/32 x 1-1/16 in]
- Weight: Approx. 102 g (3.60 ozs.) including batteries

As of September 2020
1-Chip DLP™ Projectors

**Operating Temperature** 25 °C (77 °F), Altitude 700 m (2297 ft), IEC62087:2008

**Measurement, measuring conditions, and method of notation** all comply with ISO/IEC 21118: 2020 international standards. Value is average of all products when shipped.

**Average light-output value of all shipped products measured at center of screen in NORMAL Mode.**

**Around this time, light output will have decreased by approximately 50%.** IEC62087: 2008 Broadcast contents, NORMAL Mode, Dynamic Contrast [2], under conditions with 30°C (86°F), 700m (2,297ft) above sea level, and 0.15 mg/m³ of particulate matter. Estimated time until light output declines to 50% varies depending on environment.

**Only dot clock frequency 27MHz (Pixel Repetition signal) is supported.**

**4K/60p input signal is converted to projector’s resolution (1920 x 1200).**

**With legs at shortest position.**

**Average value. May differ depending on the actual unit.**

**The operating environment temperature should be between 0°C (32°F) and 40°C (104°F) if the projector is used at an altitude between 1400m (4593ft) and 4200m (13780ft) above sea level.**

When the [PROJECTOR SETUP] menu → [ECO MANAGEMENT] → [OPERATING MODE] is set to [ECO] or [QUIET], the projector cannot be used at an altitude of 2700m (8858ft) or higher above sea level.

When using the projector at an altitude lower than 2700m (8858ft) above sea level, and the operating environment temperature becomes 30°C (86°F) or higher, the light output may be reduced to protect the projector.

When using the projector at an altitude between 2700m (8858ft) and 4200m (13780ft), and the operating environment temperature becomes 25°C (77°F) or higher, the light output may be reduced to protect the projector.

**Other Applications**
- Multi Monitoring Control Software (for Windows)
- Logo Transfer Software (for Windows)

**Supplied accessories**
- Wireless remote control unit (x 1)
- Power cord with secure lock (x 1) (x 2 for Europe/ASIA models)
- Batteries for remote control (AAA/R03 or AAA/LR03 battery x 2)

**Optional accessories**
- Ceiling Mount Bracket ET-PKD120H (for high ceiling)
- ET-PKD120S (for low ceiling)
- Projector Mount Bracket ET-PKD130B
- DIGITAL LINK Switcher ET-YFB200G
- Digital Interface Box ET-YFB100G
- Early Warning Software ET-SWA100 Series
- D-sub/S-VIDEO Conversion Cable ET-AOSV

*The suffix of the Model No. differs according to the license type.*

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- Power cord with secure lock (x 1) (x 2 for Europe/ASIA models)
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*The suffix of the Model No. differs according to the license type.*
Dimensions

NOTE: This illustration is not drawn to scale.

Terminals

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIDEO IN</td>
<td>COMPUTER 1 IN</td>
<td>COMPUTER 2 IN/1 OUT</td>
<td>HDMI 1 IN/HDMI 2 IN</td>
<td>DIGITAL LINK/LAN</td>
<td>LAN</td>
<td>AUDIO IN 1</td>
<td>SERIAL IN</td>
<td>AUDIO IN 2/AUDIO IN 3</td>
<td>VARIABLE AUDIO OUT</td>
<td>DC OUT</td>
</tr>
</tbody>
</table>
Projected image and throw distance

Install the projector referring to the projected image size and projection distance. Image size and image position can be adjusted in accordance with the screen size and screen position.

- Following illustration is prepared on the assumption that the projected image size and position have been aligned to fit full in the screen.

| L (LW/LT)*1 | Projection distance |
| SW | Projected image height |
| SZ | Projected image width |
| H | Distance from the lens center to the bottom edge of the projected image |
| SD | Projected image size |

*1 LW : Minimum projection distance  
LT  : Maximum projection distance

Standard setting-up position

Illustrations show the projector installed using optional ceiling mount bracket ET-PKD120H, optional bracket assembly ET-PKD130B.

Caution

- All construction work should be done by a qualified technician.
- When mounting to the ceiling, use the special mounting bracket.
  Furthermore, in order to prevent it from falling down from the ceiling, use the supplied wire on the mounting bracket.
Projection distance

A ±5% error in listed projection distances may occur. When [SCREEN ADJUSTMENT] is used, distance is corrected to become smaller than the specified image size.

<table>
<thead>
<tr>
<th>Projected image size</th>
<th>Aspect ratio 16:10</th>
<th>Aspect ratio 16:9</th>
<th>Aspect ratio 4:3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagonal (SD)</td>
<td>Projection distance (L)</td>
<td>Height position (H)</td>
<td>Projection distance (L)</td>
</tr>
<tr>
<td>1.02/ 40</td>
<td>1.22</td>
<td>2.51</td>
<td>0.08</td>
</tr>
<tr>
<td>1.27/ 50</td>
<td>1.54</td>
<td>3.15</td>
<td>-0.09</td>
</tr>
<tr>
<td>1.52/ 60</td>
<td>1.86</td>
<td>3.78</td>
<td>-0.11</td>
</tr>
<tr>
<td>1.78/ 70</td>
<td>2.18</td>
<td>4.42</td>
<td>-0.13</td>
</tr>
<tr>
<td>2.03/ 80</td>
<td>2.50</td>
<td>5.06</td>
<td>-0.15</td>
</tr>
<tr>
<td>2.29/ 90</td>
<td>2.82</td>
<td>5.70</td>
<td>-0.17</td>
</tr>
<tr>
<td>2.54/100</td>
<td>3.14</td>
<td>6.34</td>
<td>-0.19</td>
</tr>
<tr>
<td>3.05/120</td>
<td>3.78</td>
<td>7.61</td>
<td>-0.23</td>
</tr>
<tr>
<td>3.81/150</td>
<td>4.74</td>
<td>9.53</td>
<td>-0.28</td>
</tr>
<tr>
<td>5.08/200</td>
<td>6.34</td>
<td>12.72</td>
<td>-0.38</td>
</tr>
<tr>
<td>6.35/250</td>
<td>7.94</td>
<td>15.91</td>
<td>-0.47</td>
</tr>
<tr>
<td>7.62/300</td>
<td>9.54</td>
<td>19.10</td>
<td>-0.57</td>
</tr>
</tbody>
</table>

Unit: meters

Calculation of the projection distance

To use a projected image size not listed in this manual, check the projected image size SD (m) and use the respective formula to calculate the value.

The unit of all the formulae is m. (Values obtained by the following calculation formulae contain a slight error.) When calculating the value using image size designation (value in inches), multiply the value in inches by 0.0254 and substitute it into SD in the formula.

<table>
<thead>
<tr>
<th>Projected image size Height (SH)</th>
<th>Aspect ratio 16:10</th>
<th>Aspect ratio 16:9</th>
<th>Aspect ratio 4:3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SD x 0.530</td>
<td>SD x 0.490</td>
<td>SD x 0.6</td>
</tr>
<tr>
<td>Projected image size Width (SW)</td>
<td>= SD x 0.848</td>
<td>= SD x 0.872</td>
<td>= SD x 0.8</td>
</tr>
<tr>
<td>Minimum projection distance (LW)</td>
<td>= 1.2598 x SD - 0.0526</td>
<td>= 1.2949 x SD - 0.0526</td>
<td>= 1.4262 x SD - 0.0526</td>
</tr>
<tr>
<td>Maximum projection distance (LT)</td>
<td>= 2.5118 x SD - 0.0390</td>
<td>= 2.5816 x SD - 0.0390</td>
<td>= 2.8436 x SD - 0.0390</td>
</tr>
</tbody>
</table>

As of September 2020
**Adjustment range by the lens position shift (optical shift)**

Based on the standard projection position using the optical axis shift function, the projection position can be adjusted in the range shown in the following figure. Following figure shows the adjustment range when the projector is installed on the floor.

- Optimal image can be achieved by installing the projector squarely in front of the screen and adjusting the lens shift lever to center.

**Installable angle**

Install the projector at an angle within the range shown below.

- Projection in all 360° direction
- 360° vertically
- 360° horizontally
- 360° tilted (combination of vertical and horizontal)
Cautions when setting up the projector

- Do not stack projectors on top of each other.
- Do not use the projector supporting it by the top.
- Do not block the intake and exhaust vents of the projector.
- Prevent hot and cool air from the air conditioning system to blow directly to the intake and exhaust vents of the projector.

- Do not install the projector in a confined space.
When installing the projector in a confined space, provide air conditioning or ventilation separately. Exhaust heat may accumulate when the ventilation is not enough, triggering the protection circuit of the projector.
The following table specifies the video signals compatible with the projector.

- **Symbols that indicate formats are as follows.**
  - V: VIDEO, Y/C
  - R: RGB (analog)
  - Y: YC, BCR/YPBPR (analog)
  - H: HDMI
  - DL: DIGITAL LINK

- **Input corresponding to each item in the plug and play column is as follows.**
  - COMPUTER: COMPUTER1/COMPUTER2 input
  - HDMI: HDMI1/HDMI2 input
  - DIGITAL LINK: DIGITAL LINK input

<table>
<thead>
<tr>
<th>Signal name (SIGNAL FORMAT)</th>
<th>Resolution (Dots)</th>
<th>Scanning freq.</th>
<th>Dot clock freq. (MHz)</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Horizontal (kHz)</td>
<td>Vertical (Hz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NTSC/PAL/SECAM 4:3/525i</td>
<td>720 x 480</td>
<td>15.7 59.9</td>
<td>– V</td>
<td>– – – –</td>
</tr>
<tr>
<td>PAL/PAL-N/SECAM 1:1</td>
<td>720 x 576</td>
<td>15.6 50.0</td>
<td>– V</td>
<td>– – – –</td>
</tr>
<tr>
<td>480/60i</td>
<td>720 x 480</td>
<td>15.7 59.9</td>
<td>13.5</td>
<td>R/Y</td>
</tr>
<tr>
<td>576/50i</td>
<td>720 x 576</td>
<td>15.6 50.0</td>
<td>13.5</td>
<td>R/Y</td>
</tr>
<tr>
<td>480/60i**</td>
<td>720(1440) x 576i*2</td>
<td>15.7 59.9</td>
<td>27.0</td>
<td>H/DL</td>
</tr>
<tr>
<td>576/50i**</td>
<td>720(1440) x 576i*2</td>
<td>15.6 50.0</td>
<td>27.0</td>
<td>H/DL</td>
</tr>
<tr>
<td>480/60p</td>
<td>720 x 480</td>
<td>31.5 59.9</td>
<td>27.0</td>
<td>R/Y/DL</td>
</tr>
<tr>
<td>576/50p</td>
<td>720 x 576</td>
<td>31.3 50.0</td>
<td>27.0</td>
<td>R/Y/DL</td>
</tr>
<tr>
<td>720 x 720</td>
<td>450.0 60.0</td>
<td>74.3</td>
<td>R/Y/DL</td>
<td>– – – –</td>
</tr>
<tr>
<td>1080i/60i</td>
<td>1920 x 1080</td>
<td>33.8 60.0</td>
<td>74.3</td>
<td>R/Y/DL</td>
</tr>
<tr>
<td>1080i/50i</td>
<td>1920 x 1080</td>
<td>28.1 50.0</td>
<td>74.3</td>
<td>R/Y/DL</td>
</tr>
<tr>
<td>1080i/24p</td>
<td>1920 x 1080</td>
<td>27.0 24.0</td>
<td>74.3</td>
<td>R/Y/DL</td>
</tr>
<tr>
<td>1080i/25p</td>
<td>1920 x 1080</td>
<td>27.0 25.0</td>
<td>74.3</td>
<td>R/Y/DL</td>
</tr>
<tr>
<td>1080i/30p</td>
<td>1920 x 1080</td>
<td>33.8 30.0</td>
<td>74.3</td>
<td>R/Y/DL</td>
</tr>
<tr>
<td>1080i/60p</td>
<td>1920 x 1080</td>
<td>67.5 60.0</td>
<td>148.5</td>
<td>R/Y/DL</td>
</tr>
<tr>
<td>1080i/50p</td>
<td>1920 x 1080</td>
<td>56.3 50.0</td>
<td>148.5</td>
<td>R/Y/DL</td>
</tr>
<tr>
<td>3840 x 2160/24p</td>
<td>3840 x 2160</td>
<td>54.0 24.0**</td>
<td>297.0</td>
<td>H/DL</td>
</tr>
<tr>
<td>3840 x 2160/25p</td>
<td>3840 x 2160</td>
<td>56.3 25.0</td>
<td>297.0</td>
<td>H/DL</td>
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<tr>
<td>3840 x 2160/30p</td>
<td>3840 x 2160</td>
<td>67.5 30.0**</td>
<td>297.0</td>
<td>H/DL</td>
</tr>
<tr>
<td>3840 x 2160/60p</td>
<td>3840 x 2160**</td>
<td>112.5 60.0**</td>
<td>297.0</td>
<td>H/DL</td>
</tr>
<tr>
<td>3840 x 2160/50p</td>
<td>3840 x 2160**</td>
<td>112.5 60.0**</td>
<td>594.0</td>
<td>H – – – –</td>
</tr>
<tr>
<td>4096 x 2160/24p</td>
<td>4096 x 2160</td>
<td>54.0 24.0**</td>
<td>297.0</td>
<td>H/DL</td>
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<tr>
<td>4096 x 2160/25p</td>
<td>4096 x 2160</td>
<td>56.3 25.0</td>
<td>297.0</td>
<td>H/DL</td>
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<tr>
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<td>4096 x 2160</td>
<td>67.5 30.0**</td>
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<td>4096 x 2160**</td>
<td>112.5 60.0**</td>
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<td>H/DL</td>
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<td>4096 x 2160**</td>
<td>112.5 60.0**</td>
<td>594.0</td>
<td>H – – – –</td>
</tr>
<tr>
<td>1024 x 768/50</td>
<td>1024 x 768</td>
<td>31.5 70.1</td>
<td>25.2</td>
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**Plug and play**

- COMPUTER: COMPUTER1/COMPUTER2 input
- HDMI: HDMI1/HDMI2 input
- DIGITAL LINK: DIGITAL LINK input

**As of September 2020 9/10**

PT-FRZ50 1-Chip DLP™ Projectors
<table>
<thead>
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<th>Signal name (SIGNAL FORMAT)</th>
<th>Resolution (Dots)</th>
<th>Scanning freq.</th>
<th>Dot clock freq. (MHz)</th>
<th>Format</th>
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</tbody>
</table>

*1 Signal with ✓ in the plug and play column is a signal described in the EDID (extended display identification data) of the projector. The signal that does not have ✓ in the plug and play column can also be input if it is described in the format column. The resolution may not be selected in the computer even if the projector is compatible for the signal that does not have ✓ in the plug and play column.

*2 Pixel-Repetition signal (dot clock frequency 27.0 MHz) only

*3 VESA CDT-63B (Reduced Blanking) compliant

*4 Samples the pixels in the image processing circuit and projects the image.

*5 The signal with 1/1.001x vertical scanning frequency is also supported.

*6 YPbPr 4:2:0 format only

Note
- A signal with a different resolution is converted to the number of display dots. The number of display dots is as follows.
  - 1920 x 1200
- The “i” at the end of the resolution indicates an interlaced signal.
- When interlaced signals are connected, flickering may occur on the projected image.
- Even if it is the signal listed in the list of compatible signals, it may not be displayed by the projector if the video signal is recorded in a special format.