



65-inch class Touch Screen LCD Display

## TH-65BF1E

### ● Product specification (design and specification subject to change without notice)

#### ■ DISPLAY

|                                       |                                   |
|---------------------------------------|-----------------------------------|
| Screen Size (Diagonal)                | 65 inch (1638 mm)                 |
| Panel Type / Backlight                | LCD VA panel / E-LED              |
| Aspect Ratio                          | 16:9                              |
| Effective Display Area (W x H)        | 1428 x 803 mm                     |
| Number of Pixels (H x V)              | 1920 x 1080 pixel                 |
| Brightness                            | 350 cd/m <sup>2</sup> (typ.)      |
| Contrast Ratio                        | 4000:1 (typ.)                     |
| Dynamic Contrast                      | 50000:1                           |
| Response Time                         | 6.5 ms (G to G)                   |
| Viewing Angle (Horizontal / Vertical) | 178 degrees / 178 degrees (CR≥10) |
| Panel Life*                           | approx. 50000 hours (typ.)        |

\* An approximate time until the panel brightness decreases to half of its original value.

#### ■ TOUCH PANEL

|                  |                                                                                |
|------------------|--------------------------------------------------------------------------------|
| Detection Method | Infrared blocking detection method                                             |
| Touch operation  | up to 12-point multi touch* <sup>1</sup>                                       |
| OS               | Windows (7 / 8.1 / 10)<br>Mac (OS X 10.10 / 10.11, macOS Sierra)* <sup>2</sup> |

\*<sup>1</sup> : When using the Whiteboard Software for Windows®. Up to 4-points when using the Built-in Whiteboard Software and Whiteboard Software for Mac.

\*<sup>2</sup> : When using Mac Single touch.

• Windows is trademarks of Microsoft Corporation in the United States and other countries. Mac, Mac OS X, macOS are trademarks of Apple Inc., registered in the U.S. and other countries.

#### ■ CONNECTION TERMINAL

|                         |                                                            |                                                                                                                                                                                                                                           |
|-------------------------|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HDMI IN                 | HDMI TYPE A connector x 2                                  | Linear PCM (Sampling frequency : 48 kHz/44.1 kHz/32 kHz)                                                                                                                                                                                  |
| COMPONENT/RGB IN        | BNC x 1 set                                                | Y/G : BNC Contact Plug with sync 1.0 Vp-p (75 Ω)<br>P <sub>B</sub> /C <sub>B</sub> /B : BNC Contact Plug without sync 0.7 Vp-p (75 Ω)<br>P <sub>R</sub> /C <sub>R</sub> /R : BNC Contact Plug without sync 0.7 Vp-p (75 Ω)                |
| AUDIO IN                | Stereo mini jack (M3) x 1 (Shared with VIDEO IN)           | 0.5 V rms                                                                                                                                                                                                                                 |
| VIDEO IN                | BNC x 1                                                    | 1.0 V p-p (75 Ω)                                                                                                                                                                                                                          |
| AUDIO IN                | Stereo mini jack (M3) x 1 (Shared with COMPONENT / RGB IN) | 0.5 V rms                                                                                                                                                                                                                                 |
| DVI-D IN                | DVI-D 24-pin x 1                                           | Compliance with DVI Revision 1.0<br>Compatible with HDCP 1.1                                                                                                                                                                              |
| AUDIO IN                | Stereo mini jack (M3) x 1 (Shared with PC IN)              | 0.5 V rms                                                                                                                                                                                                                                 |
| PC IN                   | Mini D-sub 15 pin (DDC2B) x 1                              | Y/G : with sync 1.0 Vp-p (75 Ω)<br>: without sync 0.7 Vp-p (75 Ω)<br>P <sub>B</sub> /C <sub>B</sub> /B : without sync 0.7 Vp-p (75 Ω)<br>P <sub>R</sub> /C <sub>R</sub> /R : without sync 0.7 Vp-p (75 Ω)<br>HD/VD : TTL (high impedance) |
| AUDIO IN                | Stereo mini jack (M3) x 1 (Shared with DVI-D IN)           | 0.5 V rms                                                                                                                                                                                                                                 |
| PC OUT                  | Mini D-Sub 15-pin x 1                                      | R : 0.7 V p-p (75Ω)<br>G : 0.7 V p-p (75Ω)<br>B : 0.7 V p-p (75Ω)<br>HD/VD : 3.5~5.0 V p-p                                                                                                                                                |
| SERIAL IN               | D-sub 9pin x 1, RS-232C Compatible                         |                                                                                                                                                                                                                                           |
| DIGITAL LINK/LAN        | RJ45 x 1, 100BASE-TX, Compatible with PLink                |                                                                                                                                                                                                                                           |
| External Speaker        | 8 Ω, 20 W [10 W + 10 W] (10 %THD)                          |                                                                                                                                                                                                                                           |
| USB A                   | TYPE A USB connector x 1 (For Memory Viewer)               |                                                                                                                                                                                                                                           |
| USB B                   | TYPE B USB connector x 1 (For Touch panel)                 |                                                                                                                                                                                                                                           |
| Function Slot : SLOT2.0 | 1 (Vacant)                                                 |                                                                                                                                                                                                                                           |

#### ■ AUDIO

|                  |                                           |
|------------------|-------------------------------------------|
| Built in Speaker | 10 W 8 Ω, Full Range : 120 mm x 40 mm x 2 |
| Speaker          | 20 W [10 W + 10 W] (10 %THD)              |

#### ■ ELECTRICAL

|                                    |                         |
|------------------------------------|-------------------------|
| Power Requirements                 | 220-240 V AC 50 / 60 Hz |
| Power Consumption                  | 215 W                   |
| On Mode Average Power Consumption* | approx. 165 W           |
| Power Off Condition                | approx. 0.3 W           |
| Stand-by Condition                 | approx. 0.5 W           |
| Apparent power                     | approx. 215 VA          |

\* Based on IEC 62087 Ed.2 measurement method.

#### ■ MECHANICAL

|                               |                                                                      |
|-------------------------------|----------------------------------------------------------------------|
| Dimensions (W x H x D)        | 1517 x 892 x 108 mm                                                  |
| Bezel Width                   | T/R/L/B approx. 39 mm                                                |
| Carton Dimensions (W x H x D) | 1720 x 1027 x 286 mm                                                 |
| Weight                        | approx. 58 kg                                                        |
| Gross Weight                  | approx. 68 kg                                                        |
| Cabinet Material / Color      | Aluminum / Black                                                     |
| Pitch for Wall-Hanging        | 684 x 300 mm (Installed by: M8 screws / Screw hole depth 15 - 20 mm) |
| Protection Glass Thickness    | approx. 2.9 mm / Anti Glare                                          |

#### ■ INSTALLATION REQUIREMENT

|               |                                                    |
|---------------|----------------------------------------------------|
| Orientation   | Landscape / Portrait                               |
| Tilting Angle | Up to 45 degrees backward in landscape orientation |

\* Please contact your sales representative with regard to the tilt angle before installation.

\* When installing the display on portrait setting, be sure to install with the power indicator at the topside of the display.



## ● Applicable Input Signals

V : VIDEO  
R : D-sub RGB  
Y : YCbCr/YbPr

D : DVI-D  
H : HDMI  
DL : DIGITAL LINK

### ■ Picture signal form

| Correspondence signal         | Resolution dot      | Scan rate        |               | Dot clock rate (MHz) | Input format | SignalName        |
|-------------------------------|---------------------|------------------|---------------|----------------------|--------------|-------------------|
|                               |                     | Horizontal (kHz) | Vertical (Hz) |                      |              |                   |
| NTSC/NTSC4.43/<br>PAL-M/PAL60 | 720 x 480i          | 15.73            | 59.94         | 13.50                | V            | NTSC              |
| PAL/PAL-N/SECAM               | 720 x 576i          | 15.63            | 50.00         | 13.50                | V            | PAL               |
| 525i (480i)                   | 720 x 480i          | 15.73            | 59.94         | 13.50                | R/Y          | 525/60i (Analog)  |
| 625i (575i)                   | 720 x 575i          | 15.63            | 50.00         | 13.50                | R/Y          | 625/50i (Analog)  |
| 525i (480i)                   | 720 (1440) x 480i*2 | 15.73            | 59.94         | 27.00                | D/H/DL       | 525/60i (Digital) |
| 625i (576i)                   | 720 (1440) x 576i*2 | 15.63            | 50.00         | 27.00                | D/H/DL       | 625/50i (Digital) |
| 525p (480p)                   | 720 x 480           | 31.47            | 59.94         | 27.00                | R/Y/D/H/DL*5 | 525/60p           |
| 625p (575p)                   | 720 x 575           | 31.25            | 50.00         | 27.00                | R/Y          |                   |
| 625p (576p)                   | 720 x 576           | 31.25            | 50.00         | 27.00                | D/H/DL       | 625/50p (576/50p) |
| 750 (720)/60p                 | 1280 x 720          | 45.00            | 60.00         | 74.25                | R/Y/D/H/DL   | 750/60p           |
| 750 (720)/50p                 | 1280 x 720          | 37.50            | 50.00         | 74.25                | R/Y/D/H/DL   | 750/50p           |
| 1125 (1080)/60i*1             | 1920 x 1080i        | 33.75            | 60.00         | 74.25                | R/Y/D/H/DL   | 1125/60i          |
| 1125 (1080)/50i               | 1920 x 1080i        | 28.13            | 50.00         | 74.25                | R/Y/D/H/DL   | 1125/50i          |
| 1125 (1080)/24p               | 1920 x 1080         | 27.00            | 24.00         | 74.25                | R/Y/D/H/DL   | 1125/24p          |
| 1125 (1080)/24PsF             | 1920 x 1080i        | 27.00            | 48.00         | 74.25                | R/Y          | 1125/24PsF        |
| 1125 (1080)/25p               | 1920 x 1080         | 28.13            | 25.00         | 74.25                | R/Y/D        | 1125/25p          |
| 1125 (1080)/30p               | 1920 x 1080         | 33.75            | 30.00         | 74.25                | R/Y/D        | 1125/30p          |
| 1125 (1080)/60p               | 1920 x 1080         | 67.50            | 60.00         | 148.50               | R/Y/D/H/DL   | 1125/60p          |
| 1125 (1080)/50p               | 1920 x 1080         | 56.25            | 50.00         | 148.50               | R/Y/D/H/DL   | 1125/50p          |
| 1250 (1080)/50i               | 1920 x 1080i        | 31.25            | 50.00         | 74.25                | R/Y          |                   |
| 2048 x 1080/24PsF             | 2048 x 1080i        | 27.00            | 48.00         | 74.25                | *8           |                   |
| 2048 x 1080/24p               | 2048 x 1080         | 27.00            | 24.00         | 74.25                | *8           |                   |

### ■ PC signal form

| Correspondence signal | Resolution dot | Scan rate        |               | Dot clock rate (MHz) | Input format | SignalName     |
|-----------------------|----------------|------------------|---------------|----------------------|--------------|----------------|
|                       |                | Horizontal (kHz) | Vertical (Hz) |                      |              |                |
| 640 x 400*4           | 640 x 400      | 31.46            | 70.07         | 25.17                | R/Y          | VGA70          |
| 640 x 480*4           | 640 x 480      | 31.47            | 59.94         | 25.18                | R/Y/D/H/DL*6 | VGA60          |
|                       |                | 35.00            | 66.67         | 30.24                | R/Y          |                |
|                       |                | 37.86            | 72.81         | 31.50                | R/Y          | VGA72          |
|                       |                | 37.50            | 75.00         | 31.50                | R/Y          | VGA75          |
|                       |                | 43.27            | 85.01         | 36.00                | R/Y          | VGA85          |
| 800 x 600*4           | 800 x 600      | 35.16            | 56.25         | 36.00                | R/Y          | SVGA56         |
|                       |                | 37.88            | 60.32         | 40.00                | R/Y/D/H/DL   | SVGA60         |
|                       |                | 48.08            | 72.19         | 50.00                | R/Y          | SVGA72         |
|                       |                | 46.88            | 75.00         | 49.50                | R/Y          | SVGA75         |
|                       |                | 53.67            | 85.06         | 56.25                | R/Y          | SVGA85         |
| 832 x 624*4           | 832 x 624      | 49.72            | 74.54         | 57.28                | R/Y          | MAC16          |
| 852 x 480*4           | 852 x 480      | 31.47            | 59.94         | 33.54                | R/Y*6        |                |
|                       |                |                  |               | 34.24                | D/H/DL       | WVGA60         |
| 1024 x 768*4          | 1024 x 768     | 39.55            | 50.00         | 51.89                | D/H/DL       | XGA50          |
|                       |                | 48.36            | 60.00         | 65.00                | R/Y/D/H/DL   | XGA60          |
|                       |                | 56.48            | 70.07         | 75.00                | R/Y          | XGA70          |
|                       |                | 60.02            | 75.03         | 78.75                | R/Y          | XGA75          |
|                       |                | 68.68            | 85.00         | 94.50                | R/Y          | XGA85          |
| 1066 x 600*4          | 1066 x 600     | 37.64            | 59.94         | 53.00                | R/Y/D/H/DL   | WSVGA60        |
| 1152 x 864*4          | 1152 x 864     | 53.70            | 60.00         | 81.62                | D/H/DL       | XGA+           |
|                       |                | 67.50            | 75.00         | 108.00               | R/Y          | 1152x864_75Hz  |
| 1152 x 870*4          | 1152 x 870     | 68.68            | 75.06         | 100.00               | R/Y          | MAC21          |
| 1280 x 768*4          | 1280 x 768     | 47.70            | 60.00         | 80.14                | R/Y          | WXGA60_GTF     |
| 1280 x 800*4          | 1280 x 800     | 49.31            | 59.91         | 71.00                | R/Y/D/H/DL   | VESA1280RB     |
|                       |                | 49.70            | 59.81         | 83.50                | R/Y/D/H/DL   | VESA1280CVT    |
| 1280 x 960*4          | 1280 x 960     | 60.00            | 60.00         | 108.00               | R/Y          | Quad_VGA_60    |
|                       |                | 85.94            | 85.00         | 148.50               | R/Y          | Quad_VGA_85    |
| 1280 x 1024*4         | 1280 x 1024    | 63.98            | 60.02         | 108.00               | R/Y/D/H/DL   | SXGA60         |
|                       |                | 79.98            | 75.03         | 135.00               | R/Y          | SXGA75         |
|                       |                | 91.15            | 85.02         | 157.50               | R/Y          | SXGA85         |
| 1366 x 768*4          | 1366 x 768     | 39.55            | 50.00         | 69.92                | D/H/DL       | WXGA50         |
|                       |                | 48.36            | 60.00         | 86.71                | R/Y/D/H/DL   | WXGA60         |
| 1400 x 1050           | 1400 x 1050    | 65.22            | 60.00         | 122.61               | D/H/DL       | SXGA+60GTF     |
| 1440 x 900*4          | 1440 x 900     | 55.47            | 59.90         | 88.75                | R/Y/D/H/DL   | 1440x900/60RB  |
|                       |                | 55.93            | 59.89         | 106.50               | R/Y/D/H/DL   | 1440x900/60GTF |
| 1600 x 1200*4         | 1600 x 1200*3  | 75.00            | 60.00         | 162.00               | R/Y/D/H/DL   | UXGA60         |
|                       | 1600 x 1200*3  | 81.25            | 65.00         | 175.50               | R/Y          |                |
| 1920 x 1080*4         | 1920 x 1080    | 67.50            | 60.00         | 148.50               | R/Y/D/H/DL*7 | 1920x1080/60TV |
| 1920 x 1200           | 1920 x 1200*3  | 74.04            | 59.95         | 154.00               | D/H/DL       | WUXGA60RB      |

\*1: When 1125 (1035)/60i signal is input, it is displayed as 1125 (1080)/60i signal.

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

\*3: Displayed with image elements thinned out in the image processing circuit.

\*4: The picture may not be displayed correctly with the PC signal from COMPONENT IN/RGB IN inputs.

\*5: When selected the RGB format and 525p signal input to the PC IN terminal, it is recognized as VGA 60 Hz signal.

Note: Signals without above specification may not be displayed properly.

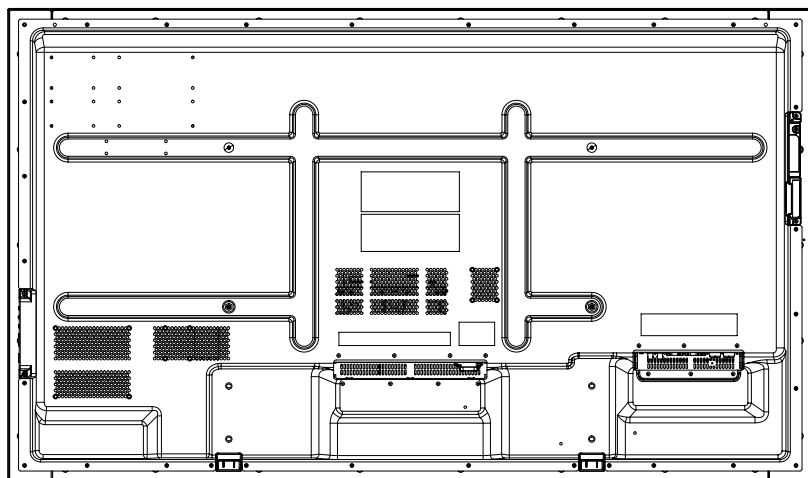
\*6 When inputted VGA 60 Hz format signal from the other than PC IN terminal, it is recognized as 525p signal.

\*7 When the signal is input to the PC IN, RGB IN and COMPONENT IN terminal, it is recognized as 1125 (1080)/60p signal.

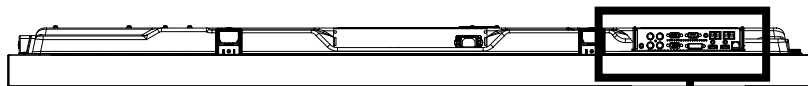
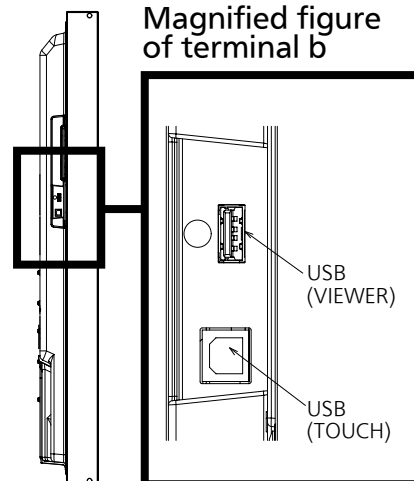
\*8 These signals can be received when the Dual Link HD-SDI Terminal Board (TY-FB11DHD) is installed.

## ● Drawing of terminals

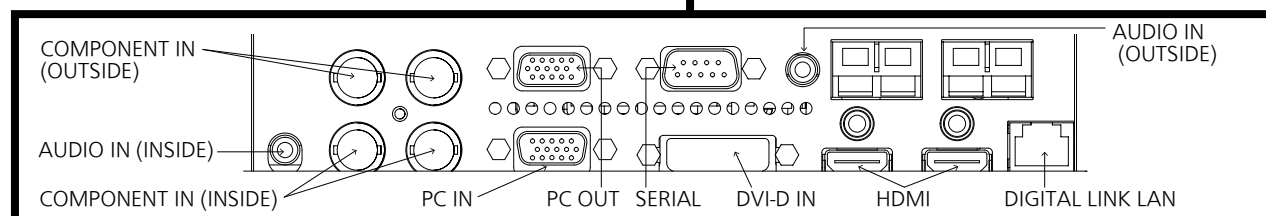
View from back



Magnified figure of terminal b



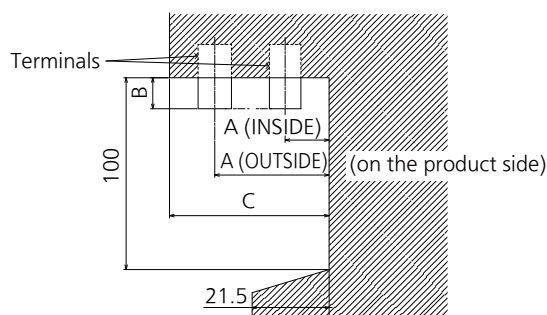
Magnified figure of terminal a



### Sectional view of terminal a

OUTSIDE: COMPONENT IN/PC OUT/SERIAL/AUDIO IN

INSIDE: AUDIO IN/COMPONENT IN/PC IN/DVI-D IN/HDMI/DIGITAL LINK LAN



### Terminal a

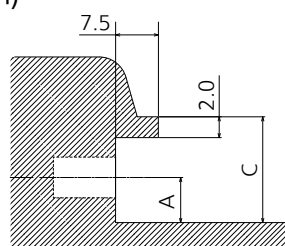
#### 65BF1 Terminal (Bottom)

Units : mm

|   | COMPONENT IN (OUTSIDE) | COMPONENT IN (INSIDE) | AUDIO IN (OUTSIDE) | AUDIO IN (INSIDE) | PC OUT (OUTSIDE) | PC IN (INSIDE) | SERIAL | DVI-D IN | HDMI | DIGITAL LINK LAN |
|---|------------------------|-----------------------|--------------------|-------------------|------------------|----------------|--------|----------|------|------------------|
| A | 26.2                   | 9.2                   | 28.1               | 9.2               | 28.3             | 7.4            | 28.7   | 8.0      | 6.4  | 8.9              |
| B | 12.0                   | 12.0                  | 2.0                | 2.0               | 5.1              | 5.1            | 5.1    | 5.2      |      |                  |
| C | 41.5                   |                       |                    |                   |                  |                |        |          |      |                  |

### Sectional view of terminal b

USB (VIEWER)/USB (TOUCH)



### Terminal b

#### 65BF1 Terminal (Side)

Units : mm

|   | USB (VIEWER) | USB (TOUCH) |
|---|--------------|-------------|
| A | 8.4          | 9.8         |
| B |              |             |
| C | 23.3         |             |

\* Due to the construction of terminal, some types of connecting cable or USB memory device cannot be used.  
Be sure to use connecting cable or USB memory device after confirmation in this drawing.