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You can read the recommendations in the user guide, the technical guide or the installation guide for HITACHI CP-X444. You'll find the answers to all your questions on the HITACHI CP-X444 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual HITACHI CP-X444
User guide HITACHI CP-X444
Operating instructions HITACHI CP-X444
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Projector
CP-X444/CP-X440
User's Manual – Operating Guide
Technical

Example of computer signal

Resolution (H x V)	H. frequency (kHz)	V. frequency (Hz)	Rating	Signal mode
720 x 400	37.9	85.0	VESA	TEXT
640 x 480	31.5	59.9	VESA	VGA (60Hz)
640 x 480	37.9	72.8	VESA	VGA (72Hz)
640 x 480	37.5	75.0	VESA	VGA (75Hz)
640 x 480	43.3	85.0	VESA	VGA (85Hz)
800 x 600	35.2	56.3	VESA	SVGA (56Hz)
800 x 600	37.9	60.3	VESA	SVGA (60Hz)
800 x 600	48.1	72.2	VESA	SVGA (72Hz)
800 x 600	46.9	75.0	VESA	SVGA (75Hz)
800 x 600	53.7	85.1	VESA	SVGA (85Hz)
832 x 624	49.7	74.5		Mac 16" mode
1024 x 768	48.4	60.0	VESA	XGA (60Hz)
1024 x 768	56.5	70.1	VESA	XGA (70Hz)
1024 x 768	60.0	75.0	VESA	XGA (75Hz)
1024 x 768	68.7	85.0	VESA	XGA (85Hz)
1152 x 864	67.5	75.0	VESA	SXGA (75Hz)
1280 x 960	60.0	60.0	VESA	SXGA (60Hz)
1280 x 1024	64.0	60.0	VESA	SXGA (60Hz)
1280 x 1024	80.0	75.0	VESA	SXGA (75Hz)
1280 x 1024	91.1	85.0	VESA	SXGA (85Hz)
1600 x 1200	75.0	60.0	VESA	UXGA (60Hz)

NOTE

- Be sure to check jack type, signal level, timing and resolution before connecting this projector to a computer.
- Some computers may have multiple display screen modes. Use of some of these modes will not be possible with this projector.
- Depending on the input signal, full-size display may not be possible in some cases. Refer to the number of display pixels above.
- Although the projector can display signals with resolution up to UXGA (1600x1200), the signal will be converted to the projector's panel resolution before being displayed. The best display performance will be achieved if the resolutions of the input signal and projector panel are identical.
- Automatically adjustment may not function correctly with some input signals.
- The image may not be displayed correctly when the input sync signal is a composite sync or a sync on G.



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Manual abstract:

@@ · Some computers may have multiple display screen modes. Use of some of these modes will not be possible with this projector. @@ Refer to the number of display pixels above. · Although the projector can display signals with resolution up to UXGA (1600x1200), the signal will be converted to the projector's panel resolution before being displayed. The best display performance will be achieved if the resolutions of the input signal and projector panel are identical. · Automatically adjustment may not function correctly with some input signals. · The image may not be displayed correctly when the input sync signal is a composite sync or a sync on G. 1 Example of computer signal Initial set signals The following signals are used for the initial settings. The signal timing of some computer models may be different. In such case, adjust the items V POSITION and H POSITION in the IMAGE menu.

Back porch (B) Data H. Sync. Sync (A) Computer/ Horizontal signal timing (s) Signal (A) (B) (C) (D) TEXT 2.0 3.0 2.0.

3 1.0 VGA (60Hz) 3.8 1.9 25.4 0.

6 VGA (72Hz) 1.3 3.8 20.3 1.0 VGA (75Hz) 2.0 3.8 20.3 0.5 VGA (85Hz) 1.6 2.

2 17.8 1.6 SVGA (56Hz) 2.0 3.6 22.2 0.7 SVGA (60Hz) 3.2 2.2 20.0 1.

0 SVGA (72Hz) 2.4 1.3 16.0 1.1 SVGA (75Hz) 1.

6 3.2 16.2 0.3 SVGA (85Hz) 1.1 2.

7 14.2 0.6 Mac 16" mode 1.1 3.9 14.5 0.6 XGA (60Hz) 2.1 2.5 15.8 0.

4 XGA (70Hz) 1.8 1.9 13.7 0.3 XGA (75Hz) 1.2 2.2 13.0 0.2 XGA (85Hz) 1.0 2.

2 10.8 0.5 1152 x 864 1.2 2.4 10.

7 0.6 (75Hz) 1280 x 960 1.0 2.9 11.9 0.

9 (60Hz) 1280 x 1024 1.0 2.3 11.9 0.4 (60Hz) 1280 x 1024 1.1 1.8 9.5 0.2 (75Hz) 1280 x 1024 1.0 1.

4 8.1 0.4 (85Hz) 1600 x 1200 1.2 1.9 9.9 0.4 (60Hz) Front porch (D) Back porch (b) Data V. Sync. Sync (a) Computer/ Vertical signal timing (lines) Signal (a) (b) (c) (d) TEXT 3 42 400 1 VGA (60Hz) 2 33 480 10 VGA (72Hz) 3 28 480 9 VGA (75Hz) 3 16 480 1 VGA (85Hz) 3 25 480 1 SVGA (56Hz) 2 22 600 1 SVGA (60Hz) 4 23 600 1 SVGA (72Hz) 6 23 600 37 SVGA (75Hz) 3 21 600 1 SVGA (85Hz) 3 27 600 1 Mac 16" mode 3 39 624 1 XGA (60Hz) 6 29 768 3 XGA (70Hz) 6 29 768 3 XGA (75Hz) 3 28 768 1 XGA (85Hz) 3 36 768 1 1152 x 864 3 32 864 1 (75Hz) 1280 x 960 3 36 960 1 (60Hz) 1280 x 1024 3 38 1024 1 (60Hz) 1280 x 1024 3 37 1024 2 (75Hz) 1280 x 1024 3 44 1024 1 (85Hz) 1600 x 1200 3 46 1200 1 (60Hz) Front porch (d) Display interval (C) Display interval (c) 2 Connection to the ports Connection to the ports A RGB IN1 B RGB IN2 C E COMPONENT VIDEO RGB OUT K CONTROL AUDIO 1-IN AUDIO-OUT L F CR/PR CB/PB Y D M J R-AUDIO 2-L VIDEO S-VIDEO I H G A RGB IN 1, B RGB IN 2, C RGB OUT D-sub 15pin mini shrink jack · Video signal: RGB separate, Analog, 0.7Vp-p, 75 terminated (positive) · H/V.

sync. Signal: TTL level (positive/negative) · Composite sync. Signal: TTL level 5 10 4 9 3 8 2 7 1 6 15 14 13 12 11 At RGB signal Pin 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 Signal Pin 1 2 3 4 5 6 7 8 9 10 11 At component video signal Signal Video Red CR/PR Video Green Y Video Blue CB/PB (No connection) (No connection) Ground Ground Ground Red CR/PR Ground Ground Green Y Ground Ground Blue CB/PB Ground (No connection) (No connection) Ground Ground (No connection) A : SDA (DDC data), B / C : (No connection) (No connection) 15 H. sync / Composite sync. V.

sync. * except for RGB OUT. A : SCL (DDC clock), B / C : (No connection) 3 Connection to the ports COMPONENT VIDEO D Y, E CB/PB, F CR/PR RCA jack x3 · System: 525i(480i), 525p(480p), 625i(576i), 750p(720p), 1125i(1080i) Port Signal Y Component video Y, 1.0±0.1Vp-p, 75 terminator with composite CB/PB Component video CB/PB, 0.

7±0.1Vp-p, 75 terminator CR/PR Component video CR/PR, 0.7±0.1Vp-p, 75 terminator G S-VIDEO Mini DIN 4pin jack Pin 1 2 3 4 1 3 2 4 Signal Color signal 0.286Vp-p (NTSC, burst), 75 terminator Color signal 0.300Vp-p (PAL/SECAM, burst) 75 terminator Brightness signal, 1.0Vp-p, 75 terminator Ground Ground H VIDEO RCA jack · System: NTSC, PAL, SECAM, PAL-M, PAL-N, NTSC4.43, PAL60 · 1.0±0.1Vp-p, 75 terminator 4 Connection to the ports K AUDIO 1-IN (Ø3.

5 stereo mini jack), I J AUDIO 2 L/R (RCA jack) · 200mVrms(max.) 50k termination L AUDIO OUT (Ø3.5 stereo mini jack) · 200mVrms(max.) 1k output impedance M CONTROL D-sub 9pin plug 1 6 2 7 3 8 4 9 5 · About the details of RS-232C communication, please refer to the following page. @@ Connect the CONTROL port of the projector with a RS-232C port of 2. the computer by a RS-232C cable (cross). @@@@ Protocol Consist of header (7 bytes) + command data (6 bytes). 2. @@@@2 GET Read projector internal setup value. 4 INCREMENT Increment setup value by 1.

5 DECREMENT Decrement setup value by 1. 6 EXECUTE Run a command. @@@@ (2) The projector changes the specified setting to the default value. @@@@ (2) The projector decreases the setting value on the above setting code. @@ When the projector cannot understand the received command When the projector cannot understand the received command, the error code '15H' is sent back to the computer.

Sometimes the projector cannot properly receive the command. In such a case, the command is not executed and the error code '15H' is sent back to the computer. If this error code is returned, send the same command again. When the projector cannot execute the received command. When the projector cannot execute the received command, the error code '1cH' + 'xxxxH' is sent back to the computer.

When the data length is greater than indicated by the data length code, the projector ignore the excess data code. Conversely when the data length is shorter than indicated by the data length code, an error code will be returned to the computer. NOTE · Operation cannot be guaranteed when the projector receives an undefined command or data. @@@@ Ignore this data. · Commands are not accepted during warm-up. 7 RS-232C Communication (continued) Names

Power Set Operation Type Turn off Turn on Get BE EF BE EF BE EF Header 03 03 03 06 00 06 00 06 00 Command Data Type Setting Code 00 60 00 60 00 60 00 01 00 00 00 CRC 2A D3 BA D2 19 D3 Action 01 00 01 00 02 00 Input Source Set RGB IN 1 RGB IN 2 VIDEO S-VIDEO COMPONENT Get (Example return) 00 00 (Off) BE EF 03 BE EF BE EF BE EF BE EF BE EF BE EF BE EF 03 03 03 03 03 01 00 02 00 (On) (Cool down) 06 00 FE D2 01 00 06

00 06 00 06 00 06 00 06 00 06 00 3E D0 6E D3 9E D3 AE D1 CD D2 D9 D8 01 00 01 00 01 00 01 00 02 00 02 00 00 20 00 20 00 20 00 20 00 20 00 20 00 04 00 01 00 02 00 05 00 00 00 00 00 Error Status Get (Example return) 00 00 (Normal) 04 00 (Temp error) 08 00 (Filter error) BRIGHTNESS Get Increment Decrement BRIGHTNESS Reset CONTRAST Execute Get Increment Decrement CONTRAST Reset MODE Set Execute NORMAL CINEMA DYNAMIC Get BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF 03 03 03 03 03 03 03 03 03 03 03 03 01 00 02 00

(Cover error) (Fan error) 05 00 06 00 (Air flow error) (Lamp time error) 09 00 10 00 (Filter missing error) (Inner Sencer error) 06 00 06 00 06 00 06 00 06 00 06 00 06 00 06 00 06 00 89 D2 EF D2 3E D3 58 D3 FD D3 9B D3 4A D2 A4 D2 23 F6 B3 F7 E3 F4 10 F6 02 00 04 00 05 00 06 00 02 00 04 00 05 00 06 00 01 00 01 00 01 00 02 00 03 00 (Lamp error) 07 00 (Cool error) 03 20 03 20 03 20 00 70 04 20 04 20 04 20 01 70 BA 30 BA 30 BA 30 BA 30 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 01 00 04 00 00 00 GAMMA Set #1 DEFAULT #1 CUSTOM #2 DEFAULT #2 CUSTOM #3 DEFAULT #3 CUSTOM Get (Example return) 00 00 01 00 04 00 10 00 (Normal) (Cinema) (Dynamic) (Custom) BE EF 03 06 00 07 E9 01 00 BE EF BE EF

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BE EF BE EF BE EF BE EF 03 03 03 03 03 03 06 00 06 00 06 00 06 00 06 00 07 FD 97 E8 97 FC 67 E8 67 FC F4 F0 01 00 01 00 01 00 01 00
02 00 A1 30 A1 30 A1 30 A1 30 A1 30 A1 30 A1 30 20 00 10 00 21 00 11 00 22 00 12 00 00 00 8 RS-232C Communication (continued) Names User Gamma
Pattern Set Operation Type Off 9 step gray scale 15 steps gray scale Ramp Get User Gamma Point 1 Get Increment Decrement User Gamma Point 2 Get
Increment Decrement User Gamma Point 3 Get Increment Decrement User Gamma Point 4 Get Increment Decrement User Gamma Point 5 Get Increment
Decrement User Gamma Point 6 Get Increment Decrement User Gamma Point 7 Get Increment Decrement User Gamma Point 8 Get Increment Decrement
COLOR TEMP Set LOW MIDDLE HIGH CUSTOM Get COLOR TEMP GAIN R Get Increment Decrement BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE
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06 00 06 00 06 00 Command Data Type Setting Code 08 20 08 20 08 20 08 20 08 20 09 22 09 22 09 22 09 22 07 00 21 00 21 00 21 02 70 01 21 01 21 01 21 03 70
03 21 03 21 03 21 02 21 02 21 02 21 04 70 0A 20 04 22 04 22 04 22 04 22 04 22 17 20 17 20 17 20 00 22 00 22 00 22 00 22 00 22 00 22 00 22 00
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71 EC D9 0D 83 6B 83 BA 82 E0 D2 F1 82 97 82 46 83 1C D3 49 83 2F 83 FE 82 B5 82 D3 82 02 83 68 D2 91 D0 0E 72 9E 73 6E 73 FE 72 CE 70 3D 72
4A D7 DA D6 79 D7 9E 75 FE 71 6E 70 6E 75 5E 72 FE 74 0E 71 0D 73 Action 01 00 01 00 01 00 01 00 02 00 02 00 04 00 05 00 06 00 02 00 04 00 05 00
06 00 02 00 04 00 05 00 06 00 02 00 04 00 05 00 06 00 06 00 01 00 01 00 01 00 01 00 01 00 02 00 01 00 01 00 02 00 01 00 01 00 01 00 01
00 01 00 01 00 01 00 02 00 11 RS-232C Communication (continued) Names KEYSTONE V Operation Type Get Increment Decrement KEYSTONE V Reset
WHISPER Set Execute NORMAL WHISPER Get MIRROR Set NORMAL H:INVERT V:INVERT H&V:INVERT Get VOLUME Get Increment Decrement
AUDIO - RGB1 Set TURN OFF Audio1 Audio2 Get AUDIO - RGB2 Set TURN OFF Audio1 Audio2 Get AUDIO - Video Set TURN OFF Audio1 Audio2 Get
AUDIO - S-Video Set TURN OFF Audio1 Audio2 Get AUDIO - Component Set TURN OFF Audio1 Audio2 Get BE EF BE EF BE EF BE EF BE EF BE EF BE EF
BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF
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00 01 00 02 00 00 00 00 00 01 00 02 00 00 00 00 01 00 02 00 00 00 CRC B9 D3 DF D3 0E D2 08 D0 3B 23 AB 22 08 23 C7 D2 57 D3 A7 D3 37 D2 F4
D2 31 D3 57 D3 86 D2 FE DD 6E DC 9E DC CD DD CE DC 5E DD AE DD FD DC 02 DC 92 DD 62 DD 31 DC 46 DC D6 DD 26 DD 75 DC 32 DD A2
DC 52 DC 01 DD Action 02 00 04 00 05 00 06 00 01 00 01 00 02 00 01 00 01 00 01 00 01 00 01 00 02 00 02 00 04 00 05 00 01 00 01 00 01 00 02 00 01 00 01 00
01 00 02 00 01 00 01 00 01 00 01 00 01 00 01 00 02 00 01 00 01 00 01 00 02 00 12 RS-232C Communication (continued) Names MUTE Set Operation
Type TURN OFF TURN ON Get LANGUAGE Set ENGLISH FRANÇAIS DEUTSCH ESPAÑOL ITALIANO NORSK NEDERLANDS PORTUGUÊS BE EF BE
EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF
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POSITION H Get Increment Decrement MENU POSITION H Reset MENU POSITION V Execute Get Increment Decrement MENU POSITION V Reset
Execute BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF
BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF BE EF
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30 05 30 05 30 05 30 05 30 05 30 05 30 05 30 05 30 05 30 05 30 05 30 05 30 05 30 05 30 15 30 15 30 15 30 43 70 16 30 16 30 16 30 44 70 00 00 01 00 00 00 00 00
01 00 02 00 03 00 04 00 05 00 06 00 07 00 08 00 09 00 10 00 0A 00 0B 00 0C 00 0D 00 0E 00 0F 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
CRC 46 D3 D6 D2 75 D3 F7 D3 67 D2 97 D2 07 D3 37 D1 A7 D0 57 D0 C7 D1 37 D4 A7 D5 37 DE 57 D5 C7 D4 F7 D6 67 D7 97 D7 07 D6 C4 D3 04 D7
62 D7 B3 D6 DC C6 40 D7 26 D7 F7 D6 A8 C7 Action 01 00 01 00 02 00 01 00 01 00 01 00 01 00 01 00 01 00 01 00 01 00 01 00 01 00 01 00 01 00 01 00 01 00 01 00 01
00 01 00 01 00 01 00 02 00 02 00 04 00 05 00 06 00 02 00 04 00 05 00 06 00 13 RS-232C Communication (continued) Names OSD BRIGHT.

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