

S P E C F I L E



The PT-DW90XE is not equipped with a lens.

Product Number : **PT-DW90XE**

Product Name : 3-Chip DLP™ Projector

Specifications

Main unit

Power supply		220–240 V AC, 4.8 A, 50/60 Hz
Power consumption		900 W (950 VA at 240 V) (0.3 W with standby mode set to ECO.*1 8 W with standby mode set to NORMAL. Both with fan stopped.)
DLP™ chip	Panel size	21.6 mm (0.85 inches) diagonal (16:9 aspect ratio)
	Display method	DLP™ chip × 3 (R, G, B), DLP™ projection system
	Pixels	1,049,088 (1,366 × 768) × 3, total of 3,147,264 pixels
Lens		Optional powered zoom/focus lenses
Lamp		355 W UHM lamps (× 2) (dual lamp system)
Screen size		1.78–15.24 m (70–600 inches) (1.78–7.62 m (70–300 inches) with the ET-D75LE5), 16:9 aspect ratio
Brightness*2		9,600 lumens (dual lamp, high mode)
Centre-to-corner uniformity*2		90%
Contrast*2		10,000:1 (full on/full off, in dynamic iris 3 mode)
Resolution		1,366 × 768 pixels (Input signals that exceed this resolution will be converted to 1,366 × 768 pixels.)
Scanning frequency	HDMI/DVI-D/RGB	Horizontal: 15–100 kHz, vertical: 24–120 Hz, Dot clock: 162 MHz or lower
	YPbPr (YCbCr)	525i (480i): fH 15.75 kHz; fV 60 Hz, 625i (576i): fH 15.63 kHz; fV 50 Hz, 525p (480p): fH 31.50 kHz; fV 60 Hz, 625p (576p): fH 31.25 kHz; fV 50 Hz, 750 (720)/60p: fH 45.00 kHz; fV 60 Hz, 750 (720)/50p: fH 37.50 kHz; fV 50 Hz, 1035/60i: fH 33.75 kHz; fV 60 Hz, 1125 (1080)/60i: fH 33.75 kHz; fV 60 Hz, 1125 (1080)/50i: fH 28.13 kHz; fV 50 Hz, 1080/25p: fH 28.13 kHz; fV 25 Hz, 1080/24p: fH 27.00 kHz; fV 24 Hz, 1080/24sF: fH 27.00 kHz; fV 48 Hz, 1080/30p: fH 33.75 kHz; fV 30 Hz, 1080/60p: fH 67.50 kHz; fV 60 Hz, 1080/50p: fH 56.25 kHz; fV 50 Hz
	S-Video/Video	Horizontal: 15.75/15.63 kHz, vertical: 50/60 Hz, (NTSC, NTSC4.43, PAL, PAL60, PAL-N, PAL-M, SECAM)
Optical axis shift		±70% (±60% with the ET-D75LE6) from centre of screen, powered ±30% (±20% with the ET-D75LE6) from centre of screen, powered
Keystone correction range		Vertical: ±40° (±22° with the ET-D75LE5, ±28° with the ET-D75LE6)
Installation		Ceiling/floor, front/rear

Terminals	HDMI IN	HDMI 19-pin × 1, Deep Colour, compatible with HDCP, 480p, 576p, 720/60p, 720/50p, 1080/60i, 1080/50i, 1080/24p, 1080/24sF, 1080/25p, 1080/30p, 1080/60p, 1080/50p (non-interlaced signals only), VGA (640 × 480)–WUXGA*3 (1,920 × 1,200), dot clock: 25–162 MHz NOTE: Compatible with non-interlaced signals only.
	DVI-D IN	DVI-D 24-pin × 1, DVI 1.0 compliant, HDCP compatible, for single link only 480p, 576p, 720/60p, 720/50p, 1080/60i, 1080/50i, 1080/24p, 1080/24sF, 1080/25p, 1080/30p, 1080/60p, 1080/50p, VGA (640 × 480)–WUXGA*3 (1,920 × 1,200), dot clock: 25–162 MHz NOTE: Compatible with non-interlaced signals only.
	RGB 1 IN R, G, B	BNC × 5 R: 0.7 Vp-p, 75 ohms, G: 0.7 Vp-p (G: 1.0 Vp-p for sync on G), 75 ohms, B: 0.7 Vp-p, 75 ohms HD, VD/SYNC: TTL, high impedance, positive/negative automatic
	Y, PB, PR (Y, CB, CR)	Y: 1.0 Vp-p (including sync signal), PB/PR (CB/CR): 0.7 Vp-p, 75 ohms NOTE: SYNC/HD and VD terminals do not accept tri-level sync signals.
	RGB 2 IN R, G, B	D-sub HD 15-pin (female) × 1 R: 0.7 Vp-p, 75 ohms, G: 0.7 Vp-p (G: 1.0 Vp-p for sync on G), 75 ohms, B: 0.7 Vp-p, 75 ohms HD, VD/SYNC: TTL, high impedance, positive/negative automatic
	Y, PB, PR (Y, CB, CR)	Y: 1.0 Vp-p (including sync signal), PB/PR (CB/CR): 0.7 Vp-p, 75 ohms NOTE: SYNC/HD and VD terminals do not accept tri-level sync signals.
	VIDEO IN	BNC × 1, 1.0 Vp-p, 75 ohms
	S-VIDEO IN	Mini DIN 4-pin × 1, Y: 1.0 Vp-p, C: 0.286 Vp-p, 75 ohms
	SERIAL IN	D-sub 9-pin × 1 for external control (RS-232C compliant)
	SERIAL OUT	D-sub 9-pin × 1 for link control
	REMOTE 1 IN	M3 jack × 1 for wired remote control
	REMOTE 1 OUT	M3 jack × 1 for link control
	REMOTE 2 IN	D-sub 9-pin × 1 for external control (parallel)
	LAN	RJ-45 × 1 for network connection, 100Base-TX/10Base-T, compliant with PLink™ (class 1)
Power cord length		3.0 m (9 ft 10 in)
Cabinet materials		Moulded plastic
Dimensions (W × H × D):		530 mm × 200 mm*4 × 548.5 mm*5 (20-7/8" × 7-7/8" *4 × 21-19/32" *5) (without lens)
Weight*6		Approx. 24 kg (52.9 lbs) (without lens)
Operating temperature		0°–45°C (32°–113°F)*7
Operating humidity		10%–80% (no condensation)
Remote control unit		
Power supply		3 V DC (R6/LR6 type battery × 2)
Operation range*8		Approx. 30 m (98 ft 5 in) when operated from directly in front of the signal receptor
Dimensions (W × H × D)		51 × 176 × 28 mm (2" × 6-15/16" × 1-3/32")
Weight		Approx. 134 g (4.7 oz) (including batteries)

Supplied accessories

Power cord with security lock (× 1)
 Wireless/wired remote control unit (× 1)
 Batteries for remote control (R6/LR6 type × 2)
 Safety wire rope (× 1)

Optional accessories

Zoom lens (1.0–1.2:1)	ET-D75LE6
Zoom lens (1.4–1.9:1)	ET-D75LE10
Zoom lens (1.8–2.7:1)	ET-D75LE20
Zoom lens (2.7–5.2:1)	ET-D75LE30
Zoom lens (5.2–8.2:1)	ET-D75LE4
Zoom lens (8.2–15.4:1)	ET-D75LE8
Fixed-focus lens (0.8:1)	ET-D75LE5
Lens motor cover	ET-D75MC1
Ceiling mount bracket	ET-PKD310H (for high ceilings) ET-PKD310S (for low ceilings)
Attachment for ceiling mount bracket	ET-PAD310
Frame	ET-PFD310
Smoke cut filter	ET-SFD310
Replacement lamp unit	ET-LAD310 (one bulb) ET-LAD310W (a set of two bulbs)
Replacement filter unit	ET-ACF310

Weights and dimensions shown are approximate. Specifications subject to change without notice.

*1 When the standby mode is set to ECO, network functions such as power on over the LAN network will not operate, and the serial output terminal cannot be used. Also, only certain commands can be received for external control using the serial terminal.

*2 Measurement, measuring conditions, and method of notation all comply with ISO 21118 international standards.

*3 WUXGA resolution is supported only when the signals are compliant with VESA CVT-RB (Coordinated Video Timing-Reduced Blanking).

*4 With legs at shortest position.

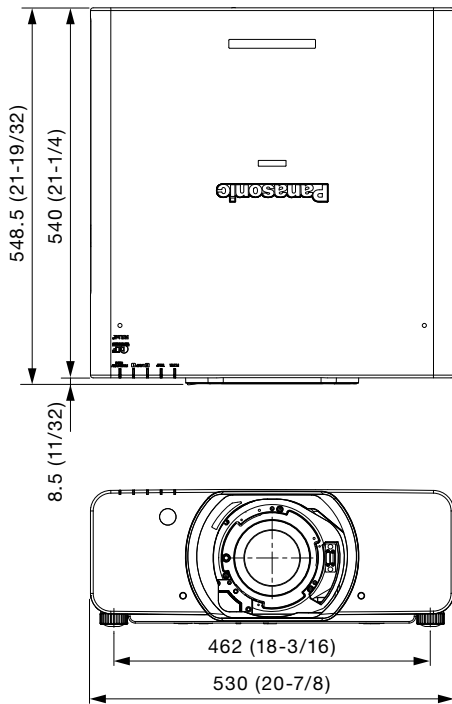
*5 Excluding the optional lens.

*6 Average value (excluding the optional lens). May differ depending on models.

*7 The operating temperature range is 0°C (32°F) to 40°C (104°F) when used in High-Altitude mode (1,400 m (4,593 ft) to 2,700 m (8,858 ft)).

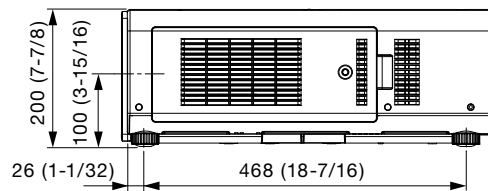
*8 Operation range differs depending on environments.

Dimensions

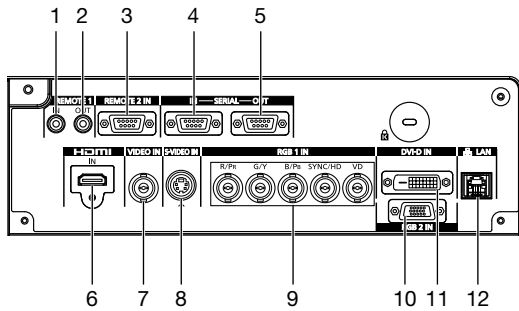


unit : mm (inch)

NOTE: This illustration is not drawn to scale.

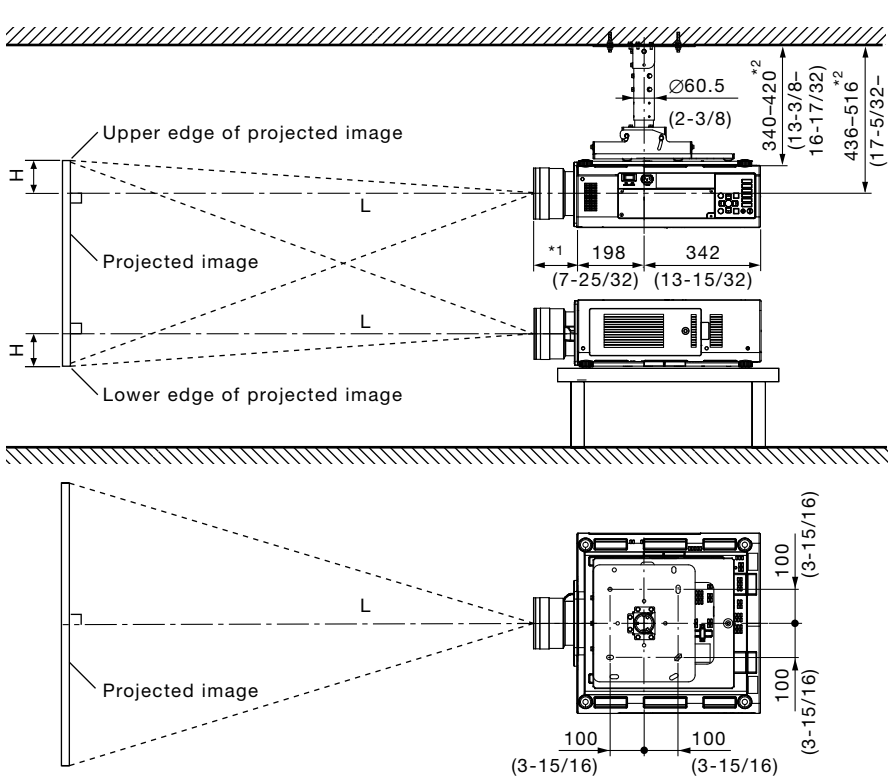


Terminals



- | | |
|-------------------|------------------|
| 1 Remote 1 input | 7 Video input |
| 2 Remote 1 output | 8 S-Video input |
| 3 Remote 2 input | 9 RGB 1 input |
| 4 Serial input | 10 RGB 2 Input |
| 5 Serial output | 11 DVI-D input |
| 6 HDMI input | 12 LAN connector |

Standard setting-up position (when installed using the ET-PKD310H)



- *1 When the lens protrudes to the maximum.
- 212 mm (8-11/32") with the ET-D75LE6
 - 125 mm (4-29/32") with the ET-D75LE10
 - 114 mm (4-1/2") with the ET-D75LE1
 - 121 mm (4-3/4") with the ET-D75LE20
 - 99 mm (3-29/32") with the ET-D75LE2
 - 121 mm (4-3/4") with the ET-D75LE30
 - 102 mm (4-1/32") with the ET-D75LE3
 - 126 mm (4-31/32") with the ET-D75LE4
 - 254 mm (10") with the ET-D75LE8
 - 202 mm (7-15/16") with the ET-D75LE5

*2 Adjustable in 40 mm (1-9/16") steps.

unit : mm (inch)

Caution:

- All construction work should be done by a qualified technician.
- When mounting to the ceiling, use the special mounting bracket. To prevent the projector from swaying or dropping, attach the wire that is included with the projector between the mounting bracket and the ceiling.

Projection distance for 16:9 aspect ratio screen
(ET-D75LE6/D75LE10/D75LE20/D75LE30/D75LE4/D75LE8/D75LE5)

Unit: metres

Screen size (diagonal)	Distance to screen (L)												Height from the edge of screen to centre of lens (H)					
	Zoom											Fixed-focus	Zoom lenses		Fixed- focus lens			
	ET-D75LE6 Zoom lens		ET-D75LE10 Zoom lens		ET-D75LE20 Zoom lens		ET-D75LE30 Zoom lens		ET-D75LE4 Zoom lens		ET-D75LE8 Zoom lens		ET-D75LE5 Fixed-focus lens	Except ET-D75LE6		ET-D75LE6		
[m] / [in]	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
1.78 / 70	1.56	1.87	2.18	2.82	2.82	4.10	4.07	7.94	7.94	12.71	12.43	23.65	1.15	-0.17	-1.05	-0.09	-0.96	0.44
2.03 / 80	1.79	2.14	2.51	3.24	3.23	4.70	4.67	9.10	9.09	14.54	14.26	27.08	1.33	-0.20	-1.20	-0.10	-1.10	0.50
2.29 / 90	2.02	2.42	2.83	3.66	3.65	5.31	5.27	10.26	10.25	16.38	16.09	30.51	1.50	-0.22	-1.35	-0.11	-1.23	0.56
2.54 / 100	2.25	2.70	3.16	4.08	4.06	5.91	5.87	11.42	11.40	18.21	17.92	33.94	1.68	-0.25	-1.49	-0.13	-1.37	0.62
3.05 / 120	2.72	3.25	3.80	4.92	4.89	7.11	7.07	13.75	13.70	21.87	21.59	40.80	2.03	-0.30	-1.79	-0.15	-1.64	0.75
3.81 / 150	3.41	4.08	4.78	6.18	6.14	8.92	8.86	17.23	17.15	27.36	27.08	51.10	2.56	-0.37	-2.24	-0.19	-2.06	0.93
5.08 / 200	4.56	5.47	6.40	8.27	8.21	11.93	11.85	23.03	22.91	36.51	36.23	68.25	3.45	-0.50	-2.99	-0.25	-2.74	1.25
6.35 / 250	5.72	6.85	8.02	10.36	10.28	14.95	14.84	28.83	28.67	45.67	45.39	85.40	4.33	-0.62	-3.74	-0.31	-3.42	1.56
7.62 / 300	6.87	8.24	9.64	12.46	12.36	17.96	17.83	34.63	34.42	54.82	54.54	102.55	5.21	-0.75	-4.48	-0.37	-4.11	1.87
10.16 / 400	9.18	11.01	12.88	16.65	16.50	23.98	23.81	46.23	45.93	73.13	72.85	136.85	-	-1.00	-5.98	-0.50	-5.48	-
12.70 / 500	11.49	13.78	16.12	20.84	20.65	30.01	29.80	57.83	57.45	91.43	91.16	171.16	-	-1.25	-7.47	-0.62	-6.85	-
15.24 / 600	13.80	16.55	19.36	25.02	24.80	36.03	35.78	69.43	68.96	109.74	109.47	205.46	-	-1.49	-8.97	-0.75	-8.22	-

Unit: feet

Screen size (diagonal)	Distance to screen (L)												Height from the edge of screen to centre of lens (H)					
	Zoom											Fixed-focus	Zoom lenses		Fixed- focus lens			
	ET-D75LE6 Zoom lens		ET-D75LE10 Zoom lens		ET-D75LE20 Zoom lens		ET-D75LE30 Zoom lens		ET-D75LE4 Zoom lens		ET-D75LE8 Zoom lens		ET-D75LE5 Fixed-focus lens	Except ET-D75LE6		ET-D75LE6		
[m] / [in]	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.
1.78 / 70	5.1	6.1	7.2	9.3	9.2	13.5	13.4	26.1	26.1	41.7	40.8	77.6	3.8	-0.6	-3.4	-0.3	-3.2	1.4
2.03 / 80	5.9	7.0	8.2	10.6	10.6	15.4	15.3	29.9	29.8	47.7	46.8	88.9	4.4	-0.7	-3.9	-0.3	-3.6	1.6
2.29 / 90	6.6	7.9	9.3	12.0	12.0	17.4	17.3	33.7	33.6	53.7	52.8	100.1	4.9	-0.7	-4.4	-0.4	-4.1	1.8
2.54 / 100	7.4	8.8	10.4	13.4	13.3	19.4	19.3	37.5	37.4	59.7	58.8	111.4	5.5	-0.8	-4.9	-0.4	-4.5	2.0
3.05 / 120	8.9	10.7	12.5	16.1	16.0	23.3	23.2	45.1	44.9	71.7	70.8	133.9	6.7	-1.0	-5.9	-0.5	-5.4	2.5
3.81 / 150	11.2	13.4	15.7	20.3	20.1	29.3	29.1	56.5	56.3	89.8	88.8	167.6	8.4	-1.2	-7.4	-0.6	-6.7	3.1
5.08 / 200	15.0	17.9	21.0	27.1	26.9	39.2	38.9	75.5	75.2	119.8	118.9	223.9	11.3	-1.6	-9.8	-0.8	-9.0	4.1
6.35 / 250	18.8	22.5	26.3	34.0	33.7	49.0	48.7	94.6	94.0	149.8	148.9	280.2	14.2	-2.0	-12.3	-1.0	-11.2	5.1
7.62 / 300	22.5	27.0	31.6	40.9	40.5	58.9	58.5	113.6	112.9	179.9	178.9	336.4	17.1	-2.5	-14.7	-1.2	-13.5	6.1
10.16 / 400	30.1	36.1	42.2	54.6	54.1	78.7	78.1	151.7	150.7	239.9	239.0	449.0	-	-3.3	-19.6	-1.6	-18.0	-
12.70 / 500	37.7	45.2	52.9	68.4	67.7	98.5	97.8	189.7	188.5	300.0	299.1	561.5	-	-4.1	-24.5	-2.0	-22.5	-
15.24 / 600	45.3	54.3	63.5	82.1	81.3	118.2	117.4	227.8	226.2	360.0	359.1	674.1	-	-4.9	-29.4	-2.5	-27.0	-

- The value for L (distance to screen) varies slightly within ±5% depending on the zoom lens characteristics.
- At the shortest projection distance, the zoom lens characteristics may cause slight image distortion.
- When vertical keystone correction is used, the image is corrected in the direction that reduces its projected size.

NOTE: When the fixed-focus lens is mounted, the optical lens shift function cannot be used.

Projection distance for 16:9 aspect ratio screen
(ET-D75LE1/D75LE2/D75LE3)

Unit: metres

Screen size (diagonal)	Distance to screen (L)						Height from the edge of screen to centre of lens (H)
	ET-D75LE1 Zoom lens		ET-D75LE2 Zoom lens		ET-D75LE3 Zoom lens		
	min.	max.	min.	max.	min.	max.	
[m] / [in]							
1.78 / 70	2.32	3.10	3.14	4.72	4.73	7.94	-0.17 – 1.05
2.03 / 80	2.66	3.56	3.60	5.41	5.42	9.09	-0.20 – 1.20
2.29 / 90	3.01	4.02	4.06	6.10	6.11	10.24	-0.22 – 1.35
2.54 / 100	3.35	4.48	4.52	6.79	6.80	11.39	-0.25 – 1.49
3.05 / 120	4.04	5.39	5.44	8.17	8.18	13.69	-0.30 – 1.79
3.81 / 150	5.06	6.77	6.81	10.23	10.24	17.15	-0.37 – 2.24
5.08 / 200	6.78	9.05	9.11	13.68	13.69	22.90	-0.50 – 2.99
6.35 / 250	8.49	11.34	11.41	17.13	17.14	28.66	-0.62 – 3.74
7.62 / 300	10.20	13.63	13.71	20.57	20.58	34.42	-0.75 – 4.48
10.16 / 400	13.63	18.21	18.30	27.47	27.48	45.93	-1.00 – 5.98
12.70 / 500	17.05	22.78	22.90	34.36	34.37	57.44	-1.25 – 7.47
15.24 / 600	20.48	27.36	27.49	41.25	41.26	68.95	-1.49 – 8.97

Unit: feet

Screen size (diagonal)	Distance to screen (L)						Height from the edge of screen to centre of lens (H)
	ET-D75LE1 Zoom lens		ET-D75LE2 Zoom lens		ET-D75LE3 Zoom lens		
	min.	max.	min.	max.	min.	max.	
[m] / [in]							
1.78 / 70	7.6	10.2	10.3	15.5	15.5	26.0	-0.6 – 3.4
2.03 / 80	8.7	11.7	11.8	17.7	17.8	29.8	-0.7 – 3.9
2.29 / 90	9.9	13.2	13.3	20.0	20.0	33.6	-0.7 – 4.4
2.54 / 100	11.0	14.7	14.8	22.3	22.3	37.4	-0.8 – 4.9
3.05 / 120	13.2	17.7	17.8	26.8	26.8	44.9	-1.0 – 5.9
3.81 / 150	16.6	22.2	22.4	33.6	33.6	56.3	-1.2 – 7.4
5.08 / 200	22.2	29.7	29.9	44.9	44.9	75.1	-1.6 – 9.8
6.35 / 250	27.8	37.2	37.4	56.2	56.2	94.0	-2.0 – 12.3
7.62 / 300	33.5	44.7	45.0	67.5	67.5	112.9	-2.5 – 14.7
10.16 / 400	44.7	59.7	60.0	90.1	90.1	150.7	-3.3 – 19.6
12.70 / 500	55.9	74.7	75.1	112.7	112.8	188.5	-4.1 – 24.5
15.24 / 600	67.2	89.8	90.2	135.3	135.4	226.2	-4.9 – 29.4

- The value for L (distance to screen) varies slightly within ±5% depending on the zoom lens characteristics.
- At the shortest projection distance, the zoom lens characteristics may cause slight image distortion.
- When vertical keystone correction is used, the image is corrected in the direction that reduces its projected size.

NOTE: When the fixed-focus lens is mounted, the optical lens shift function cannot be used.

Calculation of the projection distance

For a screen size different from the above, use the equation below to calculate the projection distance.

Aspect ratio 16:9**Zoom lenses**

ET-D75LE6	minimum	$L (m) = (\text{diagonal screen size in inches}) \times 0.0231 - 0.0566$
	maximum	$L (m) = (\text{diagonal screen size in inches}) \times 0.0277 - 0.0736$
ET-D75LE10	minimum	$L (m) = (\text{diagonal screen size in inches}) \times 0.0324 - 0.0857$
	maximum	$L (m) = (\text{diagonal screen size in inches}) \times 0.0419 - 0.1085$
ET-D75LE1	minimum	$L (m) = (\text{diagonal screen size in inches}) \times 0.0343 - 0.0760$
	maximum	$L (m) = (\text{diagonal screen size in inches}) \times 0.0458 - 0.1004$
ET-D75LE20	minimum	$L (m) = (\text{diagonal screen size in inches}) \times 0.0415 - 0.0832$
	maximum	$L (m) = (\text{diagonal screen size in inches}) \times 0.0602 - 0.1162$
ET-D75LE2	minimum	$L (m) = (\text{diagonal screen size in inches}) \times 0.0460 - 0.0795$
	maximum	$L (m) = (\text{diagonal screen size in inches}) \times 0.0689 - 0.1064$
ET-D75LE30	minimum	$L (m) = (\text{diagonal screen size in inches}) \times 0.0598 - 0.1131$
	maximum	$L (m) = (\text{diagonal screen size in inches}) \times 0.1160 - 0.1765$
ET-D75LE3	minimum	$L (m) = (\text{diagonal screen size in inches}) \times 0.0689 - 0.0958$
	maximum	$L (m) = (\text{diagonal screen size in inches}) \times 0.1151 - 0.1216$
ET-D75LE4	minimum	$L (m) = (\text{diagonal screen size in inches}) \times 0.1151 - 0.1158$
	maximum	$L (m) = (\text{diagonal screen size in inches}) \times 0.1831 - 0.1013$
ET-D75LE8	minimum	$L (m) = (\text{diagonal screen size in inches}) \times 0.1831 - 0.3862$
	maximum	$L (m) = (\text{diagonal screen size in inches}) \times 0.3430 - 0.3598$

Fixed-focus lens

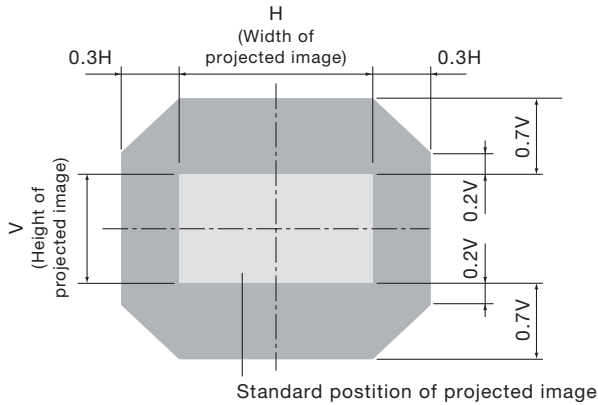
ET-D75LE5		$L (m) = (\text{diagonal screen size in inches}) \times 0.0176 - 0.0835$
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• Distances calculated with the above equations will include slight deviations.

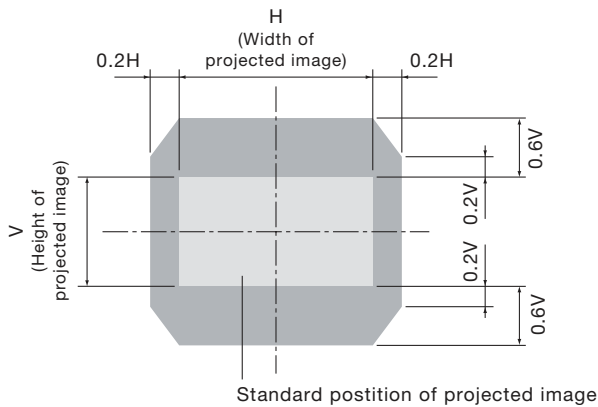
Shift range

Optical axis shift function allows to shift the position of a projected image as shown below.

- **When the lens except the ET-D75LE6 is mounted**



- **When the ET-D75LE6 is mounted**



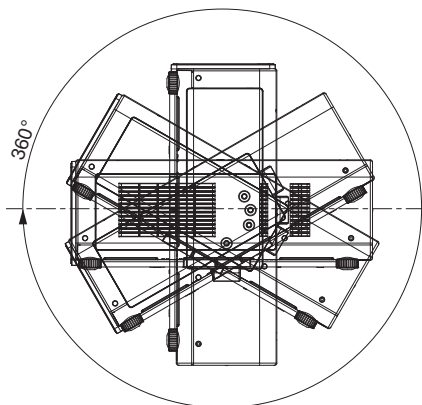
- Because the ET-D75LE5 is a fixed short-throw lens, the lens shift function cannot be used with it.

Installable angle

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

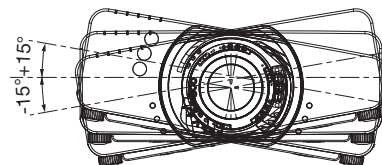
- **Vertical direction**

The projector may be installed at a vertical angle of 360°.



- **Horizontal direction**

The projector may be installed at a horizontal angle of ±15°.



List of compatible signals

The signals that can be input to this projector are shown in the table below. Horizontal scanning frequencies of 15 to 100 kHz, vertical scanning frequencies of 24 to 120 Hz, and a dot clock of 162 MHz maximum can be input.

NOTE: The native resolution of this projector is 1,366 × 768 pixels. If the display resolution of the input signal is different from the native resolution, image compression or expansion will be used to convert the input signal to a level within the native resolution.

Display mode	Display resolution (dots) ¹	Scanning frequency		Dot clock frequency (MHz)	Format	
		H (kHz)	V (kHz)			
NTSC/NTSC4.43/PAL-M/PAL6	720 × 480i	15.7	59.9	–	VIDEO/S-VIDEO	
PAL/PAL-N/SECAM	720 × 576i	15.6	50.0	–		
480i (525i)	720 × 480i	15.7	59.9	13.5	SDI/RGB/YPbPr	
576i (625i)	720 × 576i	15.6	50.0	13.5		
480p (525p)	720 × 483	31.5	59.9	27.0	HDMI/DVI-D/ RGB/YPbPr	
576p (625p)	720 × 576	31.3	50.0	27.0		
720/60p	1280 × 720	45.0	60.0	74.3		
720/50p	1280 × 720	37.5	50.0	74.3		
1080/60i	1920 × 1080i	33.8	60.0	74.3		
1080/50i	1920 × 1080i	28.1	50.0	74.3		
1080/24p	1920 × 1080	27.0	24.0	74.3		
1080/24sF	1920 × 1080i	27.0	24.0	74.3		
1080/25p	1920 × 1080	28.1	50.0	74.3		
1080/30p		33.8	60.0	74.3		
1080/60p		67.5	60.0	148.5		
1080/50p		56.3	50.0	148.5		
VGA400	640 × 400	31.5	70.1	25.2		HDMI/DVI-D/RGB
		37.9	85.1	31.5		
VGA480	640 × 480	31.5	59.9	25.2		
		35.0	66.7	30.2		
		37.9	72.8	31.5		
		37.5	75.0	31.5		
		43.3	85.0	36.0		
SVGA	800 × 600	35.2	56.3	36.0		
		37.9	60.3	40.0		
		48.1	72.2	50.0		
		46.9	75.0	49.5		
		53.7	85.1	56.3		
MAC16	832 × 624	49.7	74.6	57.3		
XGA	1024 × 768	39.6	50.0	51.9		
		48.4	60.0	65.0		
		56.5	70.1	75.0		
		60.0	75.0	78.8		
		65.5	81.6	86.0		
		68.7	85.0	94.5		
		80.0	100.0	105.0		
		96.7	120.0	130.0		
MXGA	1152 × 864	53.7	60.0	81.6		
		64.0	71.2	94.2		
		67.5	74.9	108.0		
		76.7	85.0	121.5		
MAC21	1152 × 870	68.7	75.1	100.0		
1280 × 700	1280 × 700	37.1	49.8	60.5		
		44.8	59.9	74.5		
1280 × 768	1280 × 768	39.6	49.9	65.3		
		47.8	59.9	79.5		
	1280 × 768 ²	47.4	60.0	68.3		
	1280 × 768	60.3	74.9	102.3		
		68.6	84.8	117.5		

1. The “i” appearing after the resolution indicates an interlaced signal.

2. WUXGA resolution is supported only when the signals are compliant with VESA CVT-RB (Coordinated Video Timing-Reduced Blanking).

Display mode	Display resolution (dots) ¹	Scanning frequency		Dot clock frequency (MHz)	Format
		H (kHz)	V (kHz)		
1280 × 800	1280 × 800	41.3	50.0	68.0	HDMI/DVI-D/RGB
		49.7	59.8	83.5	
	1280 × 800 ²	49.3	59.9	71.0	
	1280 × 800	62.8	74.9	106.5	
		71.6	84.9	122.5	
MSXGA	1280 × 960	60.0	60.0	108.0	
SXGA	1280 × 1024	52.4	50.0	88.0	
		64.0	60.0	108.0	
		72.3	66.3	125.0	
		78.2	72.0	135.1	
		80.0	75.0	135.0	
1366×768	1280 × 768	47.7	59.8	84.8	
		39.6	49.9	69.0	
SXGA+	1400 × 1050	54.1	50.0	99.9	
		64.0	60.0	108.0	
		65.2	60.0	122.6	
		65.3	60.0	121.8	
		78.8	72.0	149.3	
WXGA+	1440 × 900	82.2	75.0	155.9	
		55.9	59.9	106.5	
		46.3	49.9	86.8	
UXGA60	1600 × 1200	75.0	60.0	162.0	
WSXGA+	1680 × 1050	65.3	60.0	146.3	
		54.1	50.0	119.5	
1920×1080	1920 × 1080	55.6	49.9	141.5	
	1920 × 1080 ²	66.6	59.9	138.5	
	1920 × 1080	67.2	60.0	173.0	RGB
WUXGA	1920 × 1200	61.8	49.9	158.3	HDMI/DVI-D/RGB
	1920 × 1200 ²	74.0	60.0	154.0	
	1920 × 1200	74.6	59.9	193.3	RGB

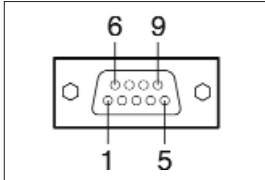
1. The “i” appearing after the resolution indicates an interlaced signal.

2. WUXGA resolution is supported only when the signals are compliant with VESA CVT-RB (Coordinated Video Timing-Reduced Blanking).

Serial connector

The serial connector complies with RS-232C. To control the projector from a personal computer, commands must be input through communication software, based on the format and satisfying the communication conditions shown below.

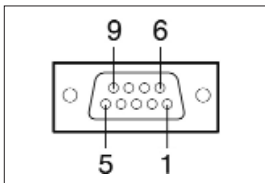
Pin assignments and signal names



D-sub 9-pin (female) Serial input

No.	Signal name	Description	No.	Signal name	Description
1	-	NC	6	-	NC
2	TXD	Send data	7	CTS	Connected internally
3	RXD	Receive data	8	RTS	Connected internally
4	-	Connected internally	9	-	NC
5	GND	Ground			

Pin assignments and signal names



D-sub 9-pin (male) Serial output

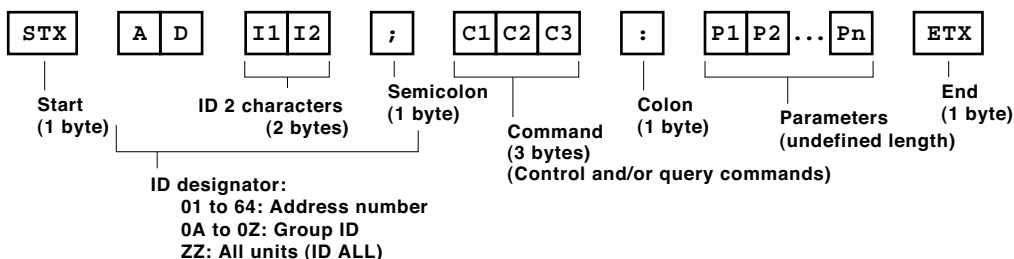
No.	Signal name	Description	No.	Signal name	Description
1	-	NC	6	-	NC
2	RXD	Receive data	7	RTS	Connected internally
3	TXD	Send data	8	CTS	Connected internally
4	-	Connected internally	9	-	NC
5	GND	Ground			

Communication conditions (factory setting)

Signal level	RS-232C-compliant
Synchronization method	Start-stop synchronization
Baud rate	9,600 bps
Parity	None
Character length	8 bits
Stop bit	1 bit
X parameter	None
S parameter	None

Basic format

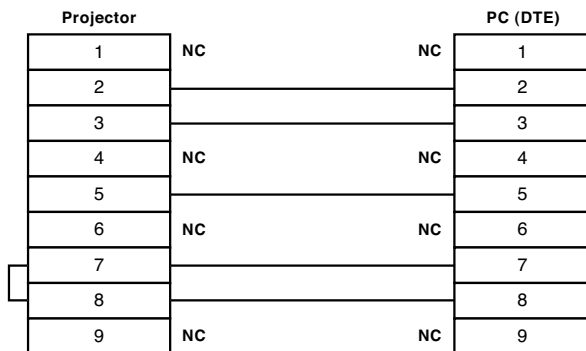
Transmission from the computer begins with STX, then the ID, command, parameter, and ETX are sent in this order. Add parameters according to the details of control.



CAUTION

- It may not be possible to send or receive commands for about 10 to 60 seconds when the lamp is first turned on. If this occurs, wait for 60 seconds, then try sending or receiving again.
- When sending multiple commands, be sure to wait for at least 0.5 second after receiving a response from the projector before sending the next command.
- Additional time is sometimes required for response due to processing inside the projector. Set the time-out period for command response to 10 seconds or more.
- When using two or more units:
 - 1) Set different IDs for each unit.
 - 2) Designate only one unit as RESPONSE (ID ALL) ON and the rest as RESPONSE (ID ALL) OFF.
 - 3) Each group should have only one RESPONSE (ID GROUP) ON and the rest should be RESPONSE (ID GROUP) OFF.

Cable specifications



Control commands

Command : Parameter	Function		Callback
PON	POWER (STANDBY)	Standby power on	PON
POF		Standby power off	POF
IIS:SDI	INPUT SELECT	SDI	IIS:SDI
IIS:HD1		HDMI	IIS:HD1
IIS:DVI		DVI	IIS:DVI
IIS:RG1		RGB 1	IIS:RG1
IIS:RG2		RGB 2	IIS:RG2
IIS:VID		Video	IIS:VID
IIS:SVD		S-Video	IIS:SVD
LPM:0	LAMP SELECT	Dual (two lamps)	LPM:0
LPM:1		Single (one lamp)	LPM:1
OSH:0	SHUTTER	Shutter off	OSH:0
OSH:1		Shutter on	OSH:1
OPP:0	P IN P SELECT	Off	OPP:0
OPP:1		User 1	OPP:1
OPP:2		User 2	OPP:2
OPP:3		User 3	OPP:3
OAS	AUTO SETUP		OAS
VPM:NAT	PICTURE MODE	Natural	VPM:NAT
VPM:STD		Standard	VPM:STD
VPM:DYN		Dynamic	VPM:DYN
VPM:CIN		Cinema	VPM:CIN
VPM:GRA		Graphic	VPM:GRA
VPM:DIC		DICOM	VPM:DIC
VXX:DLVI0=+00000	SYSTEM DAYLIGHT VIEW 2	Off	VXX:DLVI0=+00000
VXX:DLVI0=+00001		1	VXX:DLVI0=+00001
VXX:DLVI0=+00002		2	VXX:DLVI0=+00002
VXX:DLVI0=+00003		3	VXX:DLVI0=+00003
OTE:4	COLOR TEMPERATURE	User 1	OTE:4
OTE:9		User 2	OTE:9
OTE:10		Default	OTE:10
OTE:p1p2p3p4		3200 K – 9300 K (100 K steps)	OTE:p1p2p3p4
TSD:y1y2y3y4m1m2d1d2w	DATE	Date setting	TSD:y1y2y3y4m1m2d1d2w
TST:h1h2m1m2s1s2	TIME	Time setting	TST:h1h2m1m2s1s2
OOS:0	ON SCREEN	On-screen display off	OOS:0
OOS:1		On-screen display on	OOS:1

* Do not send PON, POF, OSH, or OLP commands continuously in a short period of time. Doing so may burst the lamp or shorten the lamp replacement cycle.

* When a command that cannot be executed during standby mode is sent, the projector will send an ER401 command in reply.

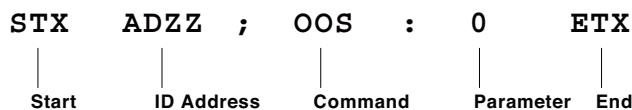
Status asking commands

Command:Parameter	Function	Callback	Description
QPW	Main power status	0 0 0	Standby (Off)
		0 0 1	On
QSH	Shutter function status	0	Off
		1	On
QFZ	Freeze function status	0	Off
		1	On
QIN	Input signal status	SDI	SDI
		HD1	HDMI
		DVI	DVI
		RG1	RGB 1
		RG2	RGB 2
		VID	Video
		SVD	S-Video
QOS	On-screen display status	0	Off
		1	On
QST	Projector run time	p1p2p3p4p5	00000h-99999h
Q\$L: 1	Lamp 1 run time	p1p2p3p4	0000h-9999h
Q\$L: 2	Lamp 2 run time	p1p2p3p4	0000h-9999h
QSL	Lamp operation mode status	0	Dual (two lamps)
		1	Single (one lamp)
QLP	Lamp power mode status	0	High
		1	Low
QPM	Picture mode status	NAT	Natural
		STD	Standard
		DYN	Dynamic
		CIN	Cinema
		GRA	Graphic
		DIC	DICOM
QVX: DLVIO	System daylight view status	DLVIO=+00000	Off
		DLVIO=+00001	1
		DLVIO=+00002	2
		DLVIO=+00003	3
QPP	P in P status	0	Off
		1	User 1
		2	User 2
		3	User 3
QTM: 0	Temperature status	p1p2p3p4 / p5p6p7p8 ^{(*)1}	p0 = Intake air
QTM: 1			p1 = Around lamp
QTM: 2			p2 = Optics module
QGD	Date setting status	y1y2y3y4m1m2d1d2w	yyyymmdd (day of week) ^{(*)2}
QGT	Time setting status	h1h2m1m2s1s2	hhmmss ^{(*)3}

*1 p1p2p3p4: Celsius (°C), p5p6p7p8: Fahrenheit (°F)
 *2 Day of week: Monday = 1, Tuesday = 2, ... Sunday = 7
 *3 Set the date and time to UTC (universal time coordinated).

Command example

To set the on-screen display off, send the command as shown below.

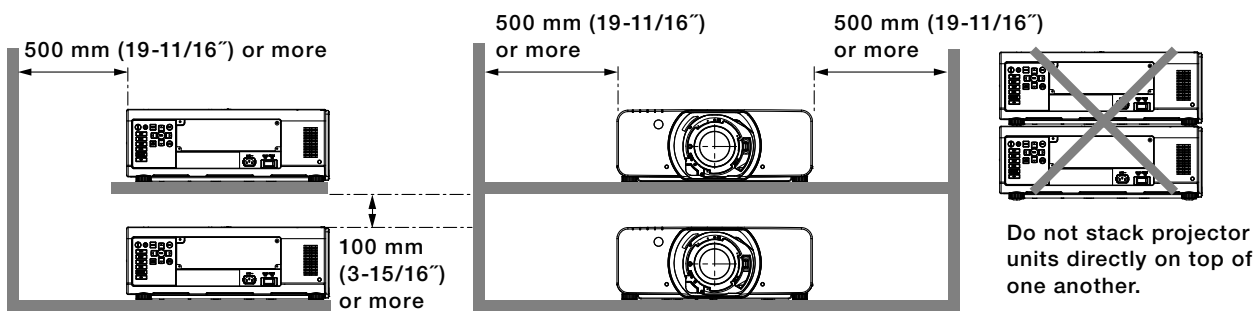


NOTE: When sending commands without parameters, a colon (:) is not necessary.

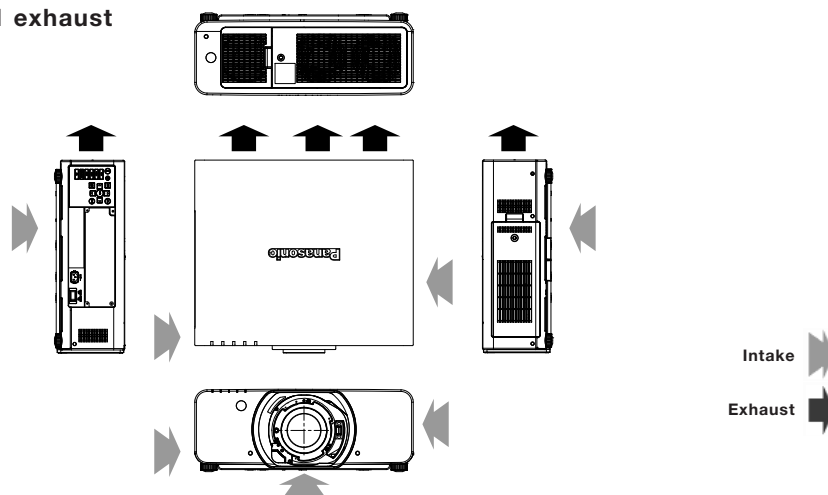
Notes on projector placement and operation

The projector uses a high-wattage lamp that becomes very hot during operation. Please observe the following precautions.

1. Never place objects on top of the projector while it is operating.
2. Make sure there is an unobstructed space of 500 mm (19-11/16") or more around the projector's exhaust openings.
3. Do not stack projector units directly on top of one another. If two units must be stacked for back-up use in ordinary projection, use a method as shown below and provide ample space between the units to ensure that exhaust heat does not accumulate near the intake opening or around the units. Dual stacked projection is not recommended.
4. Make sure that nothing blocks the projector's air intake and exhaust openings. Also, install the projector so that cool or hot air from other air conditioning equipment does not flow directly toward the projector's air intake or exhaust openings.
5. Do not install the projector in an enclosed space. If it is necessary to install it in an enclosed space, add a separate ventilation system. If ventilation is insufficient, hot air will accumulate at the intake opening. This may cause the projector's protective circuit to interrupt projector operation, or may shorten the replacement cycle for the Auto Cleaning Filter (ACF) Unit.
6. If the projector is installed in an enclosed space, ensure that the temperature of the air surrounding the projector is between 0°C (32°F) and 40°C (104°F). Also make sure that the projector's intake and exhaust openings are not blocked. Even though the air surrounding the projector is 40°C (104°F) or less, if hot exhaust air accumulates inside the space, it may cause the projector's protective circuit to interrupt projector operation, or may shorten the replacement cycle for the ACF Unit. Pay particular attention to the surrounding temperature conditions when planning the installation.
7. If the projector is not to be set on the floor using adjuster legs, install it by using the five ceiling-mount screw holes (screw diameter: M6, length of each screw hole in the projector: 8 mm (5/16")). Provide a space of 5 to 10 mm (3/16" to 13/32") between the projector and the mounting surface by inserting metal spacers.



Direction of air intake and exhaust



Operating the projector continuously

1. If the projector is to be operated continuously 24 hours a day, use the dual-lamp optical system's alternating lamp operation (lamp changer) function. The projector cannot be operated continuously 24 hours a day in dual-lamp mode.
Allow a minimum of two hours per day of non-operation time.
2. The lamp replacement cycle duration becomes shorter if the projector is operated repeatedly for short periods.

Replacing the filter unit

The projector is equipped with the Auto Cleaning Filter (ACF) function, which automatically winds the air filter to set a new filter element in place according to operating conditions. The filter unit replacement cycle is approximately 10,000 hours*. Please purchase the ET-ACF310 filter unit for replacement use.

* The replacement cycle given here is a guideline. It may differ depending on the usage environment.

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