

SHARP®

MULTIMEDIA PROJECTOR

MODEL

PG-MB60X

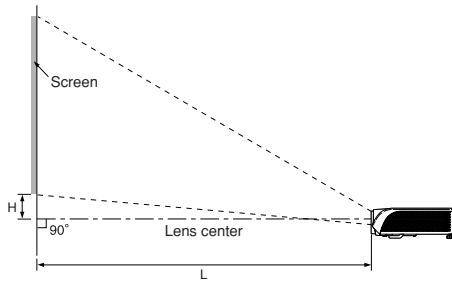
SETUP GUIDE

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Screen Size and Projection Distance

The projection screen size varies according to the distance from the lens of the projector to the screen. Install the projector so that projected images are projected onto the screen at the optimum size by referring to the table below. Use the values in the table as a reference when installing the projector.

Side View



NORMAL Mode (4:3)

Picture (Screen) size			Projection distance [L]		Distance from the bottom of the image to the lens center [H]
Diag. [χ]	Width	Height	Minimum [L1]	Maximum [L2]	
300" (762 cm)	610 cm (240")	457 cm (180")	9.1 m (29' 9")	13.7 m (44' 9")	-10.2 cm (-4 1/64")
250" (635 cm)	508 cm (200")	381 cm (150")	7.6 m (24' 9")	11.4 m (37' 4")	-8.5 cm (-3 11/32")
200" (508 cm)	406 cm (160")	305 cm (120")	6.0 m (19'10")	9.1 m (29' 10")	-6.8 cm (-2 43/64")
150" (381 cm)	305 cm (120")	229 cm (90")	4.5 m (14'10")	6.8 m (22' 5")	-5.1 cm (-2 1/64")
100" (254 cm)	203 cm (80")	152 cm (60")	3.0 m (9'11")	4.6 m (14'11")	-3.4 cm (-1 11/32")
84" (213 cm)	171 cm (67")	128 cm (50")	2.5 m (8' 4")	3.8 m (12' 6")	-2.9 cm (-1 1/8")
72" (183 cm)	146 cm (58")	110 cm (43")	2.2 m (7' 2")	3.3 m (10' 9")	-2.4 cm (-31/32")
60" (152 cm)	122 cm (48")	91 cm (36")	1.8 m (5'11")	2.7 m (8'11")	-2.0 cm (-51/64")
40" (102 cm)	81 cm (32")	61 cm (24")	1.2 m (4' 0")	1.8 m (6' 0")	-1.4 cm (-17/32")

χ: Picture size (diag.) (in/cm)
 L: Projection distance(m/ft)
 L1: Minimum projection distance (m/ft)
 L2: Maximum projection distance (m/ft)
 H: Distance from the bottom of the image to the lens center (cm/in)

The formula for picture size and projection distance
[m/cm]
 L1 (m) = 0.0302χ
 L2 (m) = 0.0455χ
 H (cm) = -0.034χ
[Feet/inches]
 L1 (ft) = 0.0302χ / 0.3048
 L2 (ft) = 0.0455χ / 0.3048
 H (in) = -0.034χ / 2.54

STRETCH Mode (16:9)

Picture (Screen) size			Projection distance [L]		Distance from the bottom of the image to the lens center [H]
Diag. [χ]	Width	Height	Minimum [L1]	Maximum [L2]	
250" (635 cm)	553 cm (218")	311 cm (123")	8.2 m (27' 0")	12.4 m (40' 8")	-61.1 cm (-24 5/64")
225" (572 cm)	498 cm (196")	280 cm (110")	7.4 m (24' 3")	11.2 m (36' 7")	-55.0 cm (-21 43/64")
200" (508 cm)	443 cm (174")	249 cm (98")	6.6 m (21' 7")	9.9 m (32' 6")	-48.9 cm (-19 17/64")
150" (381 cm)	332 cm (131")	187 cm (74")	4.9 m (16' 2")	7.4 m (24' 5")	-36.7 cm (-14 14/32")
133" (338 cm)	294 cm (116")	166 cm (65")	4.4 m (14' 4")	6.6 m (21' 8")	-32.5 cm (-12 13/16")
106" (269 cm)	235 cm (92")	132 cm (52")	3.5 m (11' 5")	5.3 m (17' 3")	-25.9 cm (-10 13/64")
100" (254 cm)	221 cm (87")	125 cm (49")	3.3 m (10'10")	5.0 m (16' 3")	-24.5 cm (-9 5/8")
92" (234 cm)	204 cm (80")	115 cm (45")	3.0 m (9'11")	4.6 m (15' 0")	-22.5 cm (-8 55/64")
84" (213 cm)	186 cm (73")	105 cm (41")	2.8 m (9' 1")	4.2 m (13' 8")	-20.5 cm (-8 3/32")
72" (183 cm)	159 cm (63")	90 cm (35")	2.4 m (7' 9")	3.6 m (11' 9")	-17.6 cm (-6 15/16")
60" (152 cm)	133 cm (52")	75 cm (29")	2.0 m (6' 6")	3.0 m (9' 9")	-14.7 cm (-5 25/32")
40" (102 cm)	89 cm (35")	50 cm (20")	1.3 m (4' 4")	2.0 m (6' 6")	-9.8 cm (-3 55/64")

χ: Picture size (diag.) (in/cm)
 L: Projection distance(m/ft)
 L1: Minimum projection distance (m/ft)
 L2: Maximum projection distance (m/ft)
 H: Distance from the bottom of the image to the lens center (cm/in)

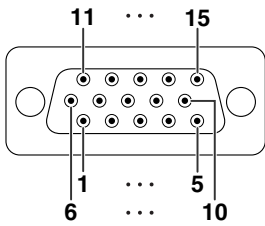
The formula for picture size and projection distance
[m/cm]
 L1 (m) = 0.0329χ
 L2 (m) = 0.04957χ
 H (cm) = -0.24459χ
[Feet/inches]
 L1 (ft) = 0.0329χ / 0.3048
 L2 (ft) = 0.04957χ / 0.3048
 H (in) = -0.24459χ / 2.54

Note

- There may be an error of ± 3% in the above values.
- Values with a minus (-) sign indicate that the lens center is lower than the bottom of the image.

Connecting Pin Assignments

INPUT 1/INPUT 2 and OUTPUT RGB Signal Terminal: 15-pin Mini D-sub female connector



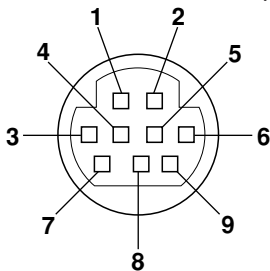
RGB Input

1. Video input (red)
2. Video input (green/sync on green)
3. Video input (blue)
4. Not connected
5. Not connected
6. Earth (red)
7. Earth (green/sync on green)
8. Earth (blue)
9. Not connected
10. GND
11. Not connected
12. Bi-directional data
13. Horizontal sync signal: TTL level
14. Vertical sync signal: TTL level
15. Data clock

Component Input

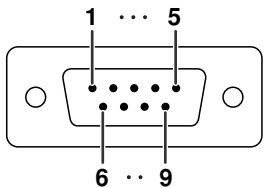
1. P_R (C_R)
2. Y
3. P_B (C_B)
4. Not connected
5. Not connected
6. Earth (P_R)
7. Earth (Y)
8. Earth (P_B)
9. Not connected
10. Not connected
11. Not connected
12. Not connected
13. Not connected
14. Not connected
15. Not connected

RS-232C Terminal: 9-pin Mini DIN female connector



Pin No.	Signal	Name	I/O	Reference
1				Not connected
2	RD	Receive Data	Input	Connected to internal circuit
3	SD	Send Data	Output	Connected to internal circuit
4				Not connected
5	SG	Signal Ground		Connected to internal circuit
6				Not connected
7	RS			Connected to Pin 8
8	CS			Connected to Pin 7
9				Not connected

DIN-D-sub RS-232C adaptor: 9-pin D-sub male connector



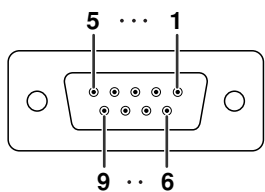
Pin No.	Signal	Name	I/O	Reference
1				Not connected
2	RD	Receive Data	Input	Connected to internal circuit
3	SD	Send Data	Output	Connected to internal circuit
4				Not connected
5	SG	Signal Ground		Connected to internal circuit
6				Not connected
7	RS			Connected to internal circuit
8	CS			Connected to internal circuit
9				Not connected



Note

- Pin 8 (CS) and Pin 7 (RS) are short circuited inside the projector.

RS-232C Cable recommended connection: 9-pin D-sub female connector



Pin No.	Signal	Pin No.	Signal
1	CD	1	CD
2	RD	2	RD
3	SD	3	SD
4	ER	4	ER
5	SG	5	SG
6	DR	6	DR
7	RS	7	RS
8	CS	8	CS
9	CI	9	CI

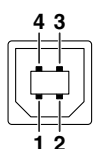


Note

- Depending on the controlling device used, it may be necessary to connect Pin 4 and Pin 6 on the controlling device (e.g. computer).



USB Terminal: 4-pin B-type USB female connector



Pin No.	Signal	Name
1	VCC	USB power
2	USB-	USB data-
3	USB+	USB data+
4	SG	GND

RS-232C Specifications and Commands

Computer control

A computer can be used to control the projector by connecting an RS-232C serial control cable (cross type, commercially available) to the projector. (See page 27 of the projector's operation manual for connection.)

Communication conditions

Set the serial port settings of the computer to match that of the table.

Signal format: Conforms to RS-232C standard.

Parity bit: None

Baud rate*: 9,600 bps / 115,200 bps

Stop bit: 1 bit

Data length: 8 bits

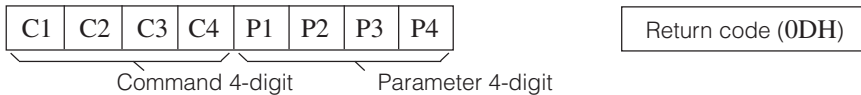
Flow control: None

*Set the projector's baud rate to the same rate as used by the computer.

Basic format

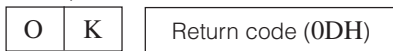
Commands from the computer are sent in the following order: command, parameter, and return code. After the projector processes the command from the computer, it sends a response code to the computer.

Command format



Response code format

Normal response



Problem response (communication error or incorrect command)



Info

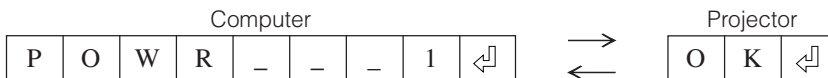
- When controlling the projector using RS-232C commands from a computer, wait at least 30 seconds after the power has been turned on, and then transmit the commands. After putting the projector into standby mode, wait at least 90 seconds until the cooling fan stops, and then transmit the commands.
- If more than one command will be sent to the projector, wait for projector reply before sending next command.

Note

- When the projector receives the following commands, the on-screen display will not disappear and these commands will not reset the "Auto Power Off" function timer when no signal is present.
POWR????, TABN___1, TLPS___1, TLTT___1, TLTL___1

Commands

Example: When turning on the projector, make the following setting.



Control Contents	Command	Parameter	Return
Standby	P O W R	_ _ _ 0	OK or ERR
Power On	P O W R	_ _ _ 1	OK or ERR
Power Status	P O W R	? ? ? ?	0 : Standby, 1 : On
Projector Status	T A B N	_ _ _ 1	0 : Normal, 1 : Temp High, 2 : Fan Err, 8 : Lamp Life 5% or less, 16 : Lamp Burnt-out, 32 : Lamp Ignition Failure, 64 : Temp Abnormally High
Lamp Status	T L P S	_ _ _ 1	0 : Off, 1 : On, 2 : Retry, 3 : Waiting, 4 : Lamp Error
Volume (0-60)	V O L A	_ _ _ *	OK or ERR
AV Mute : Off	I M B K	_ _ _ 0	OK or ERR
AV Mute : On	I M B K	_ _ _ 1	OK or ERR
Keystone (-127 ~ +127)	K E Y S	* * * *	OK or ERR
INPUT 1 (RGB1)	I R G B	_ _ _ 1	OK or ERR
INPUT 2 (RGB2)	I R G B	_ _ _ 2	OK or ERR
INPUT 3 (Video)	I V E D	_ _ _ 1	OK or ERR
INPUT 4 (S-Video)	I V E D	_ _ _ 2	OK or ERR
Freeze : Off	F R E Z	_ _ _ 0	OK or ERR
Freeze : On	F R E Z	_ _ _ 1	OK or ERR
Auto Sync Start	A D J S	_ _ _ 1	OK or ERR

RS-232C Specifications and Commands

Control Contents	Command	Parameter	Return
INPUT 1 Resize : Normal	R A S R	1	OK or ERR
INPUT 1 Resize : Dot By Dot	R A S R	3	OK or ERR
INPUT 1 Resize : Border	R A S R	6	OK or ERR
INPUT 1 Resize : Stretch	R A S R	2	OK or ERR
INPUT 2 Resize : Normal	R B S R	1	OK or ERR
INPUT 2 Resize : Dot By Dot	R B S R	3	OK or ERR
INPUT 2 Resize : Border	R B S R	6	OK or ERR
INPUT 2 Resize : Stretch	R B S R	2	OK or ERR
INPUT 3 Resize : Normal	R A S V	1	OK or ERR
INPUT 3 Resize : Border	R A S V	3	OK or ERR
INPUT 3 Resize : Stretch	R A S V	2	OK or ERR
INPUT 4 Resize : Normal	R B S V	1	OK or ERR
INPUT 4 Resize : Border	R B S V	3	OK or ERR
INPUT 4 Resize : Stretch	R B S V	2	OK or ERR
INPUT 1 Picture Mode : Standard	R A P S	10	OK or ERR
INPUT 1 Picture Mode : Presentation	R A P S	11	OK or ERR
INPUT 1 Picture Mode : Cinema	R A P S	12	OK or ERR
INPUT 1 Picture Mode : Game	R A P S	13	OK or ERR
INPUT 2 Picture Mode : Standard	R B P S	10	OK or ERR
INPUT 2 Picture Mode : Presentation	R B P S	11	OK or ERR
INPUT 2 Picture Mode : Cinema	R B P S	12	OK or ERR
INPUT 2 Picture Mode : Game	R B P S	13	OK or ERR
INPUT 3 Picture Mode : Standard	V A P S	10	OK or ERR
INPUT 3 Picture Mode : Presentation	V A P S	11	OK or ERR
INPUT 3 Picture Mode : Cinema	V A P S	12	OK or ERR
INPUT 3 Picture Mode : Game	V A P S	13	OK or ERR
INPUT 4 Picture Mode : Standard	V B P S	10	OK or ERR
INPUT 4 Picture Mode : Presentation	V B P S	11	OK or ERR
INPUT 4 Picture Mode : Cinema	V B P S	12	OK or ERR
INPUT 4 Picture Mode : Game	V B P S	13	OK or ERR
INPUT 1 Bright Boost (0 -10)	R A W E	**	OK or ERR
INPUT 2 Bright Boost (0 -10)	R B W E	**	OK or ERR
INPUT 3 Bright Boost (0 -10)	V A W E	**	OK or ERR
INPUT 4 Bright Boost (0 -10)	V B W E	**	OK or ERR
INPUT 1 CLR Temp *	R A C T	**	OK or ERR
INPUT 2 CLR Temp *	R B C T	**	OK or ERR
INPUT 3 CLR Temp *	V A C T	**	OK or ERR
INPUT 4 CLR Temp *	V B C T	**	OK or ERR
INPUT 1 sRGB : Off	C S R A	0	OK or ERR
INPUT 1 sRGB : On	C S R A	1	OK or ERR
INPUT 2 sRGB : Off	C S R B	0	OK or ERR
INPUT 2 sRGB : On	C S R B	1	OK or ERR
INPUT 1 Signal Type : Auto	I A S I	0	OK or ERR
INPUT 1 Signal Type : RGB	I A S I	1	OK or ERR
INPUT 1 Signal Type : Component	I A S I	2	OK or ERR
INPUT 2 Signal Type : Auto	I B S I	0	OK or ERR
INPUT 2 Signal Type : RGB	I B S I	1	OK or ERR
INPUT 2 Signal Type : Component	I B S I	2	OK or ERR
INPUT 1 Adjustment Reset	R A R E	1	OK or ERR
INPUT 2 Adjustment Reset	R B R E	1	OK or ERR
INPUT 3 Adjustment Reset	V A R E	1	OK or ERR
INPUT 4 Adjustment Reset	V B R E	1	OK or ERR

Control Contents	Command	Parameter	Return
Auto Sync : Off	A A D J	0	OK or ERR
Auto Sync : On	A A D J	1	OK or ERR
Lamp Usage Time (hour)	T L T T	1	0 - 9999
Remaining Lamp Life (Percentage)	T L T L	1	0 - 100
OSD Display : Off	I M D I	0	OK or ERR
OSD Display : On	I M D I	1	OK or ERR
Video System : Auto	M E S Y	1	OK or ERR
Video System : PAL	M E S Y	2	OK or ERR
Video System : SECAM	M E S Y	3	OK or ERR
Video System : NTSC4.43	M E S Y	4	OK or ERR
Video System : NTSC3.58	M E S Y	5	OK or ERR
Video System : PAL-M	M E S Y	6	OK or ERR
Video System : PAL-N	M E S Y	7	OK or ERR
Video System : PAL-60	M E S Y	8	OK or ERR
Background : Logo	I M B G	1	OK or ERR
Background : Blue	I M B G	3	OK or ERR
Background : None	I M B G	4	OK or ERR
Eco Mode : Standard	T H M D	0	OK or ERR
Eco Mode : Eco	T H M D	1	OK or ERR
Auto Power Off : Disable	A P O W	0	OK or ERR
Auto Power Off : Enable	A P O W	1	OK or ERR
Auto Keystone : Off	A T K S	0	OK or ERR
Auto Keystone : On	A T K S	1	OK or ERR
Speaker : Off	A S P K	0	OK or ERR
Speaker : On	A S P K	1	OK or ERR
Audio Out : FAO	A O U T	1	OK or ERR
Audio Out : VAO	A O U T	2	OK or ERR
PRJ Mode : Reverse Off	I M R E	0	OK or ERR
PRJ Mode : Reverse On	I M R E	1	OK or ERR
PRJ Mode : Invert Off	I M I N	0	OK or ERR
PRJ Mode : Invert On	I M I N	1	OK or ERR
Monitor Out : Disable	M O U T	0	OK or ERR
Monitor Out : Enable	M O U T	1	OK or ERR
All Reset	A L R E	1	OK or ERR
Language : English	M E L A	1	OK or ERR
Language : Deutsch	M E L A	2	OK or ERR
Language : Español	M E L A	3	OK or ERR
Language : Nederlands	M E L A	4	OK or ERR
Language : Français	M E L A	5	OK or ERR
Language : Italiano	M E L A	6	OK or ERR
Language : Svenska	M E L A	7	OK or ERR
Language : 日本語	M E L A	8	OK or ERR
Language : Português	M E L A	9	OK or ERR
Language : 汉语	M E L A	10	OK or ERR
Language : 한국어	M E L A	11	OK or ERR
Model Name Check	T N A M	1	PGMB60X
Model Name Check 2	M N R D	1	PG-MB60X

Note

- If an underbar (_) appears in the parameter column, enter a space.
 - If an asterisk (*) appears in the parameter column, enter a value in the range indicated in brackets under Control Contents.
- *1 Parameters of CLR Temp settings are as follows.

CLR Temps	Parameter
5500K	_ 0 5 5
6500K	_ 0 6 5
7500K	_ 0 7 5
8500K	_ 0 8 5
9300K	_ 0 9 3
10500K	_ 1 0 5

Dimensions

Units: inches (mm)

