ESC/VP21 Command User's Guide for Business Projectors

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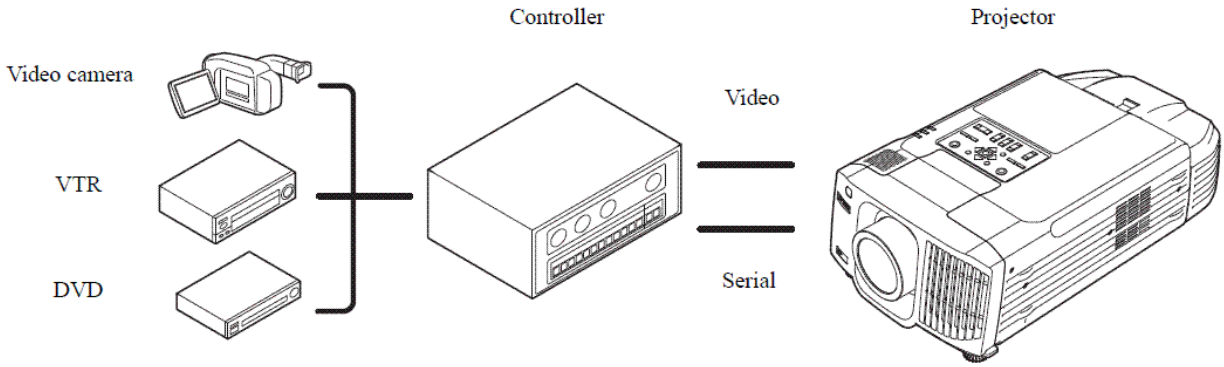
1. Introduction to ESC/VP21

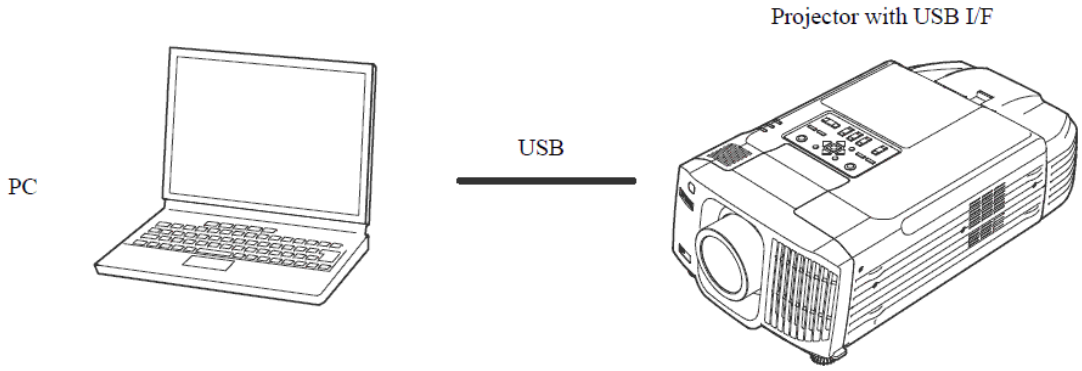
ESC/VP21 is a control command and protocol for Epson projectors, which is used for A/V controller to control and monitor Epson projectors. The command codes are comprised of ASCII codes. Therefore the command codes can be understood very easily and you can easily control projectors using a PC with a terminal emulator such as Microsoft Hyper terminal.
Since ESC/VP21 is independent of communication protocols. Serial, USB or TCP/IP network can be used to transmit the commands to projectors.

* Serial connection
A/V controller normally use as serial connection to control projectors. Refer to Appendix for details.



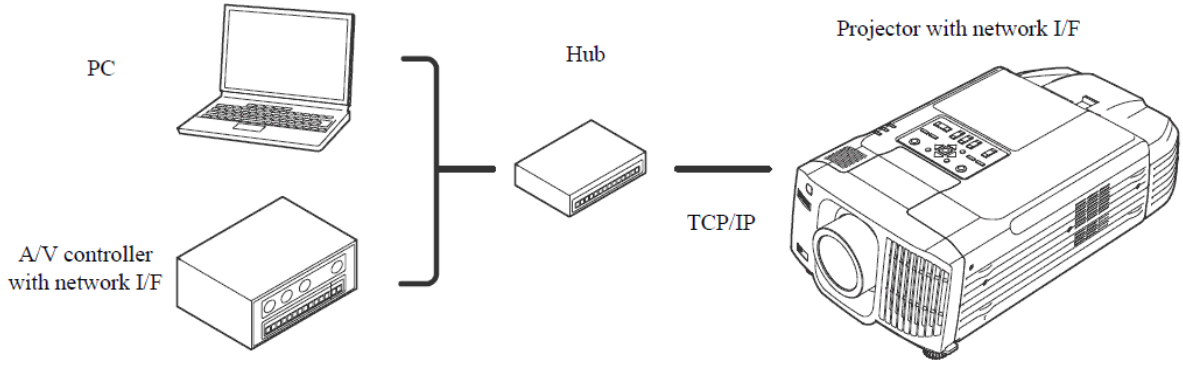
* USB connection

A USB interface can be used to control a projector. Refer to Appendix for details.



* Network connection

After establishing a TCP session, ESC/VP21 commands can be sent to projectors. Refer to ESC/VP.net protocol manual



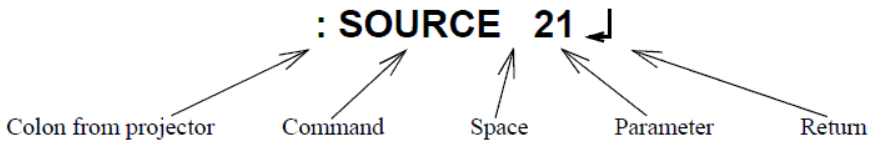
2. ESC/VP21 Command Formats

2.1. Set command format

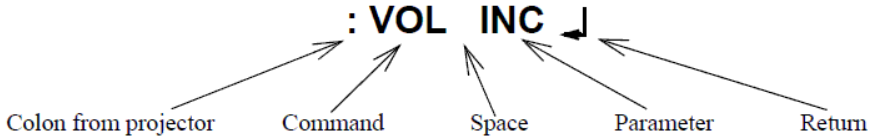
A set command consists of a command and a parameter. Projector returns a colon after executing the command. There are two types of parameters. One is fixed such as ON, OFF, or 21. Other is a step parameter such as INC, DEC or INIT.

INC: increments the parameter by one.
DEC: decrements the parameter by one.
INIT: initializes the parameter.

Set command example 1



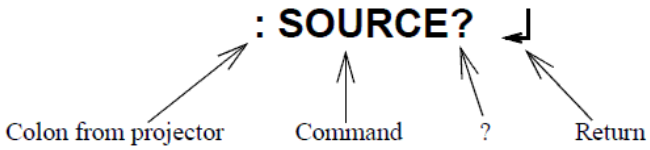
Set command example 2



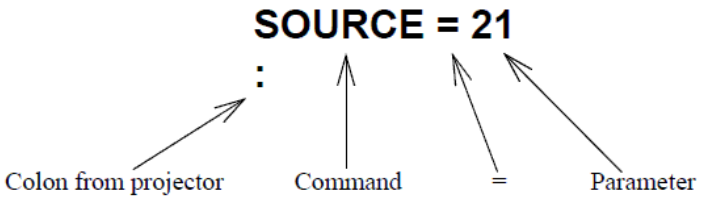
2.2. Get command format

A get command consists of a command and ?. Projector returns a response parameter after executing the command.

Get command example



Response parameter example



2.3. Null command

The null command is as command code of the return key code (Hex 0D). Projector returns a colon。The null command can be used to confirm that the projector is in operation.

2.4. Illegal commands

Projector returns "ERR" and a return key code (Hex 0D) and a colon when it receives invalid commands.

ERR

:

3. Applicable models

EMP-600/800/8110/811/820, 30/52, 720/730/520, 73/83/74/54, 735, 8300/9300, 7800/7850, S1/S1H, 61/81, 830/835, 740/745/732/737, 821/828, 7900/7950, S3/S4, 765/760, 755/750, 62/82/X3, 1715/1710/1705/1700, 6000/6100, 1815/1810, S5/X5/83/822, 260/280, 6010/6110, 400W/410W, 83+/822+, 1825/, EX90, G5350/G5300/G5150/G5100/G5200W/G5000, S6/X6/W6, 1735W/1730W/1725/1720, Z80000WU/Z8050W,S7/X7/W7, S8/X8/W8, 1830/1900/1910/1915/1920W/1925W, 440W, 450W/We/Wi, 460/e/i, EB-84H/He/L, 85H/HV,824H, 825H/HV, 826WH/WHV, 84+, 85+, 825+, 826W+

4. Projector state and commands

4.1. Standby state (Operation indicator is in orange)

When a projector is in a standby state, executable commands depends on projector models and standby configuration (network on, network off). Refer to the following table.

Models	Configuration	Executable commands
61/81, 830/835, 821/828 740/745/732/737, 760/765 S3/S4, 765/760/755/750 62/82/X3(76), 6100/6000 1715/1710/1705/1700 1815/1810/1825 S5/X5/83/822/823/83+/822+, 260/280, 400W/410W G5350/G5300/G5100/G5200W/ G5150/G5000, 6110/6010, 1735W/1730W/1725/1720 84/85/824/825/826W Z8000WU/Z8050W S7/X7/W7, S8/X8/W8 1900/1910/1915/1920W/1925W 84H/85H/825H/826H 440W/450W/460 84H/He/L, 85H/HV,824H, 825H/HV, 826WH/WHV, 84+, 85+, 825+, 826W+	Network on/off or Communication on/off	PWR ON PWR? LAMP?
7800/7850 8300/8350/9300 7900/7950 (note3)	Network on	PWR ON, PWR?, SOURCE?, Null command(note1)
	Network off	PWR ON(Note2)
Others	-	

(note1) EMP-61/81/830/835/740/745/821/828 returns "ERR" when it received commands other than PWR ON, PWR?, LAMP? and Null commands.
(note2) EMP-7800/7850 returns "ERR" when it received commands other than PWR ON, PWR?, SOURCE? and Null commands.
(note3) EMP-8300/9300 returns "ERR" when it received commands other than PWR ON, SOURCE xx, PWR?, SOURCE? and Null commands

All projectors returns "ERR" when the command format is not good. All projectors returns "ERR" when the projector is not ready to reply the command. A null command is command name for "ENTER" or "RETURE" key of the keyboard the reply is ":".

4.2. Power on state (Operation indicator is in green)

All commands are executable.

5. Command transmission timing

5.1. Standby state

1). For all mode with the standby configuration of "network on"
The first command can be sent anytime and the subsequent commands should be sent after receiving a colon from the projector.
2). Other than 1)
PWR ON can be sent any time.

5.2. Power on state

A command should be sent after receiving the colon of the previous command from the projector. The following is an exception. When the PWR OFF command is sent to 7800/7850/8300/9300 with the standby configuration of "network off", the subsequent command should be sent 10 seconds after the colon is received.
In case that you can not wait for the colon and send a command after receiving it, instead send a command after the execution time listed in the following table.

Command	Models	Execution time
PWR ON	Others	40seconds
	830/835(note5) 7900/7950/740/745	20seconds
	61/81/821/S3/S4	25seconds
PWR OFF (note4)	600/800/810/811/820	130seconds
	Others	50seconds
	740745, 732/737, 821	20seconds
	S3/S4, 765/760/755/750, 830/835 82, 6100, 1715/1710/1705/1700, 1815/1810/1825, X5/822/823, 400W/410W, G5350/G5100/G5200W S6/X6/W6,1735W/1730W/1725/1720, 84/85/824/825/826W,440W/450W/460 84H/He/L, 85H/HV,824H, 825H/HV, 826WH/WHV, 84+, 85+, 825+,826W+	10seconds
SOURCE (note3)	-	5seconds (note2)
All others	-	3seconds

(note1) When a projector receives the PWR ON command, it tries to ignite the lamp by activating the ballast unit. In case that the lamp fails to be ignited, it tries to ignite the lamp three times at maximum. When the lamp fails to be ignited three times, it is a lamp failure.
The projector returns a colon within 40, 70 and 100 seconds when successful in the first, second and third times respectively.

(note2) When the input vide sync signal is stable, a colon is returned within 5 seconds. However, it may take more than 5 seconds when the input video sync signal is unstable.

(note3) Projector initiates the process of the input video signal recognition when it receives a SOURCE command. If the signal of the video input is changing (for example, from SVGA to XGA by A/V controller) during the process of the input video signal recognition, the projector returns "ERR".

(note4) Projectors execute the PWR OFF command after they start completely.

(note5) Projectors might return "ERR" when "Quick Setup" and "Auto Focus" functions are set to ON.

5.3. Warning and abnormal cases

Projector executes commands normally while a warning indicator such as a high temperature warning is on.
Projector does not execute commands nor return a colon when the projector is in an abnormal state such as a lamp failure and abnormal high temperature.
As for EMP-6100/6000, EMP-1715/1710/1705/1700, EMP-1815/1810, EMP-S5/X5/83/822 and the following models, when an abnormal state is continued for 130 seconds after, PWR ON command becomes possible.

6. Error Status

A projector returns the error status when a projector receives "ERR?" command.

The following projectors can return the error status while the projectors become the error status after cooling down.
EMP-1700/1705/1710/1715, 6000/6100/6110/6010, 1815/1810/1825, S5/X5/83/ EB-G5000/G5100/G5150/G5200W/G5300/G5350
And later models.

[The other models except the above models]
The models except the above models can return the error status while the projectors

The following table shows the return codes and the meaning of error status.

Command	Return code
ERR?	00 :There is no error or the error is recovered
	01 : Fan error
	03 : Lamp failure at power on
	04 : High internal temperature error
	06 : Lamp error
	07 : Open Lamp cover door error
	08 : Cinema filter error
	09 : Electric dual-layered capacitor is disconnected
	0A : Auto iris error
	0B : Subsystem Error
	0C : Low air flow error
	0D : Air filter air flow sensor error
	0E : Power supply unit error (Ballast)
	0F : Shutter error
	10 : Cooling system error (peltiert element)
	11 : Cooling system error (Pump)

7. Command list and applicable models

7.1. Command table 1 (Fixed parameter)

(O : Supported - : Not supported)

Function	Command	600/800/ 810/811/ 820	720/ 730/ 520/ 735	30/ 52	73/ 53/ 74/ 54	8300/ 8350/ 9300	7800/ 7850/ 7900/ 7950	S1/ S1H	61/ 81	830/ 835
Power	PWR	O	O	O	O	O	O	O	O	O
Input source	SOURCE	O	O	O	O	O	O	O	O	O
PinP setting	PINP	O	-	-	-	O	O	-	-	O
A/V Mute Screen	MSEL	O	O	O	O	O	O	O	O	O
Auto Keystone	AUTOKEYSTONE	-	O	-	O	-	O	-	O	O
Aspect setting	ASPECT	-	-	-	O	O	O	O		O
Color mode	CMODE	O	O	O	O	O	O	O	O	O
Lamp hour	LAMP?	O	O	O	O	O	O	O	O	O
Brightness level	LUMINANCE	-	-	-	O	O	O	-	O	O
A/V Mute	MUTE	O	O	O	O	O	O	O	O	O
Freeze	FREEZE	-	O	O	O	O	O	O	O	O
Rear projection	HREVERSE	O	O	O	O	O	O	O	O	O
Ceiling	VREVERSE	O	O	O	O	O	O	O	O	O
Audio input	AUDIO	O	-	O	O	-	O	-	-	-
Key operation	KEY	O	O	O	O	O	O	O	O	O

Function	Command	740/745 732/737 760/765 755/750	821 828	S3 X3 S4	62 82	6100 6000	1715/ 1710/ 1705/ 1700	1812/ 1810/ 1825	S5/X5 83/822 83+/ 822+ EX90	260 280
Power	PWR	O	O	O	O	O	O	O	O	O
Input source	SOURCE	O	O	O	O	O	O	O	O	O
PinP setting	PINP	-	-	-	-	-	-	-	-	-
A/V Mute Screen	MSEL	O	O	O	O	O	O	O	O	O
Auto Keystone	AUTOKEYSTONE	O	O		O	-	-	-	O no S5	O no 260
Aspect setting	ASPECT	O	-O	O	O	O	O	O	O	O
Color mode	CMODE	O	O	O	O	O	O	O	O	O
Lamp hour	LAMP?	O	O	O	O	O	O	O	O	O
Brightness level	LUMINANCE	O	O	O	O	O	O	O	O	O
A/V Mute	MUTE	O	O	O	O	O	O	O	O	O
Freeze	FREEZE	O	O	O	O	O	O	O	O	O
Rear projection	HREVERSE	O	O	O	O	O	O	O	O	O
Ceiling	VREVERSE	O	O	O	O	O	O	O	O	O
Audio input	AUDIO	-	-	-	-	O	-	-	-	-
Key operation	KEY	O	O	O	O	O	O	O	O	O
Closed Caption	CCAP	-	-	-	-	O	-	-	-	-
Air filter alarm timer	FLWARNING	-	-	-	-	O	-	-	-	-
Air filter timer	FLTIME	-	-	-	-	O	-	-	-	-
Air filter usage time	FILTER	-	-	-	-	O	-	-	-	-

Function	Command	G5350 G5300 G5200W G5150 G5100 G5000	S6/S62 X6/ W6	1735W/ 1730W/ 1725/ 1720	84/85/ 824/825 826W	Z8000WU Z8050W	S7/X7/ W7 S8	X8/ W8	1910/ 1915/ 1920W/ 1925W
Power	PWR	O	O	O	O	O	O	O	O
Input source	SOURCE	O	O	O	O	O	O	O	O
PinP setting	PINP	-	-	-	-	-	-	-	-
A/V Mute Screen	MSEL	O	O	O	O	O	O	O	O
Auto Keystone	AUTOKEYSTONE	-	O X6,W6 Only	O	O	-	-	O	O
Aspect setting	ASPECT	O	O	O	O	O	O	O	O
Color mode	CMODE	O	O	O	O	O	O	O	O
Lamp hour	LAMP?	O	O	O	O	O	O	O	O
Brightness level	LUMINANCE	O	O	O	O	O	O	O	O
A/V Mute	MUTE	O	O	O	O	O	O	O	O
Freeze	FREEZE	O	O	O	O	O	O	O	O
Rear projection	HREVERSE	O	O	O	O	O	O	O	O
Ceiling	VREVERSE	O	O	O	O	O	O	O	O
Audio input	AUDIO	-	-	-	-	-	-	-	-
Key operation	KEY	O	O	O	O	O	O	O	O
Closed Caption	CCAP	O	O	O	O	O	O (w/o S8)	-	O
Air filter alarm timer	FLWARNING	-	-	-	-	-	-	-	-
Air filter timer	FLTIME	-	-	-	-	-	-	-	-
Air filter usage time	FILTER	-	-	-	-	-	-	-	-
Serial Number	SNO?	-	-	-	O	O	-	-	O

Function	Command	460/e/i 450W/e/i 440W	84H/He/L 84+	825H/HV, 826WH/W HV, 85+, 825+, 826W+	824H				
Power	PWR	O	O	O	O				
Input source	SOURCE	O	O	O	O				
PinP setting	PINP	-	-	-	-				
A/V Mute Screen	MSEL	O	O	O	O				
Auto Keystone	AUTOKEYSTONE	O	O	O	O				
Aspect setting	ASPECT	O	O	O	O				
Color mode	CMODE	O	O	O	O				
Lamp hour	LAMP?	O	O	O	O				
Brightness level	LUMINANCE	O	O	O	O				
A/V Mute	MUTE	O	O	O	O				
Freeze	FREEZE	O	O	O	O				
Rear projection	HREVERSE	O	O	O	O				
Ceiling	VREVERSE	O	O	O	O				
Audio input	AUDIO	-	-	-	-				
Key operation	KEY	O	O	O	O				
Closed Caption	CCAP	O	O	O	O				
Air filter alarm timer	FLWARNING	-	-	-	-				
Air filter timer	FLTIME	-	-	-	-				
Air filter usage time	FILTER	-	-	-	-				
Serial Number	SNO?	O	O	O	O				

7.2. Command table 2 (Step parameter)

(O: Supported -: Not supported)

Function	Command	600/800/ 810/811/ 820	720/ 730/ 520/ 735	30/ 52	73/ 53/ 74/ 54	8300/ 8350/ 9300	7800/ 7850/ 7900/ 7950	S1/ S1H	61/ 81	830/ 835
Adjust the volume	VOL	O	O	O	O	O	O	O	O	O
Adjust the treble setting (Adjust the tone setting)	TONEH	-	-	-	-	-	-	-	-	-
Adjust the bass setting	TONEL	-	-	-	-	-	-	-	-	-
Set brightness	BRIGHT	O	O	O	O	O	O	O	O	O
Set contrast	CONTRAST	O	O	O	O	O	O	O	O	O
Set tint	TINT	O	O	O	O	O	O	O	O	O
Set vertical keystone value	VKEYSTONE	O	O	O	O	O	O	O	O	O
Set horizontal keystone value	HKEYSTONE	O					O			O

Function	Command	740/745 732/737 760/765 755/750	821 828	S3/ S4 62/82	6100 6000	6110 6010	1715/ 1710/ 1705/ 1700	1815/ 1810/ 1825	X5/ 822/ 83/83+ 822+ EX90	400W/ 410W
Adjust the volume	VOL	O	O	O	O	O	O	O	O	O
Adjust the treble setting (Adjust the tone setting)	TONEH	-	-	-	-	-	-	-	-	-
Adjust the bass setting	TONEL	-	-	-	-	-	-	-	-	-
Set brightness	BRIGHT	O	O	O	O	O	O	O	O	O
Set contrast	CONTRAST	O	O	O	O	O	O	O	O	O
Set tint	TINT	O	O	O	O	O	O	O	O	O
Set vertical keystone value	VKEYSTONE	O	O	O	O	O	O	O	O	O
Set horizontal keystone value	HKEYSTONE	-	-	-	-	-	-	O	-	-

Function	Command	G5350 G5300 G5150 G5100 G5000 G5200W	S6/S62 X6/W6	1735W 1730W 1725 1720	84/85 824 825 826W	Z8000WU/ Z8050W	S7/S8 X7/X8 W7/W8	1910/ 1915/ 1920W/ 1925W	460/e/i 450W/e/i 440W
Adjust the volume	VOL	O	O	O	O	-	O	O	
Adjust the treble setting (Adjust the tone setting)	TONEH	-	-	-	-	-	-	-	
Adjust the bass setting	TONEL	-	-	-	-	-	-	-	
Set brightness	BRIGHT	O	O	O	O	O	O	O	
Set contrast	CONTRAST	O	O	O	O	O	O	O	
Set tint	TINT	O	O	O	O	O	O	O	
Set vertical keystone value	VKEYSTONE	O	O	O	O	O	O	O	
Set horizontal keystone value	HKEYSTONE	O	-	-	-	O	-	-	
Adjust the zoom	ZOOM	-	-	-	-	O	-	-	-
Adjust the focus	FOCUS	-	-	-	-	O	-	-	-
Adjust the vertical lens shift	LENS	-	-	-	-	O	-	-	-
Adjust the horizontal lens shift	HLENS	-	-	-	-	O	-	-	-

Function	Command	84H/He/L 84+	825H/HV, 826WH/WHV, 85+, 825+, 826W+	824H				
Adjust the volume	VOL	O	O	O				
Adjust the treble setting (Adjust the tone setting)	TONEH	-	-	-				
Adjust the bass setting	TONEL	-	-	-				
Set brightness	BRIGHT	O	O	O				
Set contrast	CONTRAST	O	O	O				
Set tint	TINT	O	O	O				
Set vertical keystone value	VKEYSTONE	O	O	O				
Set horizontal keystone value	HKEYSTONE	-	-	-				
Adjust the zoom	ZOOM	-	-	-				
Adjust the focus	FOCUS	-	-	-				
Adjust the vertical lens shift	LENS	-	-	-				
Adjust the horizontal lens shift	HLENS	-	-	-				

8. Command Details

8.1. Command table 1 (Fixed parameter)

Set commands	Get commands	Parameter for set (Return code for get)	Models	Function
PWR xx	-	ON	All models	Power ON/OFF
	-	OFF		
	PWR?	00: "Standby" as the time of "Network off"	61/81, 830/835, 740/745/732/737 760/765, 821/828, 7900/7950. S3/S4 755/750, 400W/410W, 6100/6000, 6110/6010, 1715/1710/1705/1700 1815/1810/1825, S5/X5/83/822/83+/822+ G5350/G5300/G5150/ G5100/G5000/G5200W S6/S62/X6/W6, 1735W/1730W/1725/1720 84/85/824/825/826W Z8000WU/Z8050W S7/SX7/W7/S8/X8/W8 1900/1910/1915/1920W/1925W/1830 440W/450W/460 84H/He/L, 85H/HV,824H, 825H/HV, 826WH/WHV, 84+, 85+, 825+,826W+	Return the "Standby" at the time of "Network off" status check.
		01: Power on	All models	Return the power status check
		02: Warm up	6100/6000, 6110/6010, 1715/1710/1705/1700, 1815/1810/1825 S5/X5/83/822/83+/822+, 260/280, S6/S62/X6/W6 G5350/G5300/G5150/G5100/G5000/G5200W 1735W/1730W/1725/1720, 84/85/824/825/826W Z8000WU/Z8050W, S7/X7/W7/S8/X8/W8 1900/1910/1915/1920W/1925W/1830 440W/450W/460, 84H/He/L, 85H/HV,824H, 825H/HV, 826WH/WHV, 84+, 85+, 825+,826W+	Return the warm up status check
		03: Cooling down		Return the cooling down status check
		04: "Standby" at the time of "Network on"	7800/7850/7900/7950 8300/8350/9300, 61/81 830/835, 740/745, 760/765, 821/828 755/750, 82, 6100/6000, 1715/1705 1815/1810/1825, 83/822/83+/822+ G5350/G5300/G5150/G5100/G5000/G5200W 1735W/1725, 84/85/824/825/826W Z8000WU/ Z8050W, S7/X7/W7/S8/X8/W8 1900/1910/1915/1920W/1925W/1830 440W/450W/460, 84H/He/L, 85H/HV,824H, 825H/HV, 826WH/WHV, 84+, 85+, 825+,826W+	Return the "Standby" at the time of "Network on " status check
		05: Abnormal standby	6100/6000, 1715/1710/1705/1700 1815/1810/1825, X5/822/823 G5350/G5300/G5150/G5100/G5000/G5200W S6/S62/X6/W6, 1735W/1730W/1725/1720 84/85/824/826W Z8000WU/ Z8050W, S7/X7/W7/S8/X8/W8 1900/1910/1915/1920W/1925W/1830 440W/450W/460, 84H/He/L, 85H/HV,824H, 825H/HV, 826WH/WHV, 84+, 85+, 825+,826W+	After the fixed time passes, an abnormal standby is returned after this machine is abnormally generated.

Set commands	Get commands	Parameter for set (Return code for get)	Models	Function
SOURCE xx	SOURCE?	11: PC1 (analog RGB) 12: PC1 (digital RGB) 13: PC1 (RGB-Video) 21: PC2 (analog RGB) 22: PC2 (RGB-Video) 23: Component Video (YCbCr) 24: Component Video (YPbPr) 41: Video (RCA) 42: Video (S)	600/800/810/811/820	Select the input source
		11: RGB 14: Input1 (YCbCr) 15: Input1 (YPbPr) 40: Video 41: Video (RCA) 42: Video (S)	30/52 73/53 720/730/520/735 S1/S1H	
		50: EasyMP	735	
		10: INPUT1 (D-Sub) 11: INPUT1 (analog RGB) 13: INPUT1 (RGB-Video) 20: INPUT2 (D-Sub) 21: INPUT2 (analog RGB) 23: INPUT2 (RGB-Video) 30: INPUT3 (DVI-D) 31: INPUT3 (D-RGB) 40: Video 41: Video (RCA) 42: Video (S) B0: INPUT4 (BNC) B1: INPUT4 (analog RGB) B2: INPUT4 (RGB-Video) B3: INPUT4 (YCbCr) B4: INPUT4 (YPbPr)	8300/9300	
		10: INPUT1 (D-Sub) 11: INPUT1 (analog RGB) 13: INPUT1 (RGB-Video) 30: INPUT3 (DVI-D) 31: INPUT3 (D-RGB) 40: Video 41: Video (RCA) 42: Video (S) B0: INPUT4 (BNC) B1: INPUT4 (analog RGB) B2: INPUT4 (RGB-Video) B3: INPUT4 (YCbCr) B4: INPUT4 (YPbPr)	7800/7850	
		50: EasyMP	7850/8350+ELPXP01	
		11: RGB 14: Input1 (YCbCr) 15: Input1 (YPbPr) 20: INPUT2 21: INPUT2 (RGB) 24: INPUT2 (YCbCr) 25: INPUT2 (YPbPr) 40: Video 41: Video (RCA) 42: Video (S)	54/74	

Set commands	Get commands	Parameter for set (Return code of get)	Models	Function
SOURCE xx	SOURCE?	10: Input 1 11: Input 1 (RGB) 14: Input 1 (Component) 20: Input 2 21: Input 2 (RGB) 24: Input 2 (Component) 40: Video 41: Video (RCA) 42: Video (S)	61/81 821/828 62/82 6100/600, 6110/6010 830/835 1815/1810/1825 83/822/83+/822+, 280 400W/410W	Select the input source
		10: Input 1 11: Input 1 (RGB) 14: Input 1 (Component) 30: HDMI (W6 only) 40: Video 41: Video (RCA) 42: Video (S)	740/745, 732/737 760/765, S3/S4 755/750,X3(76), 260 1715/1710/1705/1700 S5/X5/EX90, S6/S62/X6/W6 1735W/1730W/1725/1720 1900	
		50: EasyMP	745, 737, 835, 1715/1705, 1815/1825 G5350, 1735W/1725	
		51: USB Display	S6/S62/X6/W6, 1900	
		52: Slideshow	W6	
		10: INPUT1 (D-Sub) 11: INPUT1 (RGB) 14: INPUT1 (Component) 30: INPUT3 (DVI-D) 31: INPUT3 (D-RGB) 40: Video 41: Video (RCA) 42: Video (S) B0: INPUT4 (BNC) B1: INPUT4 (RGB) B4: INPUT4 (Component)	7900/7950	
		10: INPUT1 (D-Sub) 11: INPUT1 (RGB) 14: INPUT1 (Component) 20: INPUT2 (D-Sub) 21: INPUT2 (RGB) 24: INPUT2 (Component) 30: INPUT3 (HDMI) 31: INPUT3 (D-RGB) 33: INPUT3 (RGB-Video) 34: INPUT3 (YCbCr) 35: INPUT3 (YPbPr) 40: Video 41: Video (RCA) 42: Video (S) 45: Video1 (BNC) B0: INPUT4 (5BNC) B1: INPUT4 (RGB) B4: INPUT4 (Component)	G5350 G5300 G5150 G5100 G5200W	
		10: INPUT1 (D-Sub) 11: INPUT1 (RGB) 14: INPUT1 (Component) 20: INPUT2 (D-Sub) 21: INPUT2 (RGB) 24: INPUT2 (Component) 40: Video 41: Video (RCA) 42: Video (S) 45: Video1 (BNC)	G5000	

Set commands	Get commands	Parameter for set (Return code of get)	Models	Function
SOURCE xx	SOURCE?	10: INPUT1 11: INPUT1 (RGB) 14: INPUT1 (Component) 20: INPUT2 (D-Sub) 21: INPUT2 (RGB) 24: INPUT2 (Component) 40: Video 41: Video (RCA) 42: Video (S) 51: EasyMP (USB Display) 52: EasyMP (USB 85/824/825/826W only) 53: EasyMP (LAN 85/825/826W only)	84/85/824/825/826W	
		10: INPUT1 11: INPUT1 (RGB Analog) 14: INPUT1 (Component) 24: INPUT2 (Component) 30: INPUT3 (DVI-D) 31: INPUT3 (D-RGB) 40: Video 42: Video (S) 45: Video1 (BNC) 53: LAN (Z8050W only) A0: HDMI B0: INPUT4 (5BNC) B1: INPUT4 (RGB-Analog) B4: INPUT4 (Component)	Z8000WU/Z8050W	
		10: INPUT1 11: INPUT1 (RGB) 14: INPUT1 (Component) 40: Video 41: Video (RCA) 42: Video (S) 51: USB Display	S7/X7/W7 S8	
		10: INPUT1 11: INPUT1 (RGB) 14: INPUT1 (Component) 30: HDMI 40: Video 41: Video (RCA) 42: Video (S) 51: USB Display 52: USB	X8/W8	
		10: INPUT1 11: INPUT1 (RGB) 14: INPUT1 (Component) 20: INPUT2 21: INPUT2 (RGB) 24: INPUT2 (Component) 30: HDMI 40: Video 41: Video (RCA) 42: Video (S) 51: USB Display 52: USB1 53: LAN 54: USB2	1915/1925W	

Set commands	Get commands	Parameter for set (Return code of get)	Models	Function
SOURCE xx	SOURCE?	10: INPUT1 11: INPUT1 (RGB) 14: INPUT1 (Component) 20: INPUT2 21: INPUT2 (RGB) 24: INPUT2 (Component) 40: Video 41: Video (RCA) 42: Video (S) 51: USB Display 52: USB 53: LAN	1910/1920W/1830 440W/450W/460, 85H/HV, 825H/HV, 826WH/WHV, 85+, 825+,826W+ 84H/He/L, 84+(Excluding 52:USB, 53:LAN) 824H(Excluding 53:LAN)	Select input source
PINP [source posX posy size] (Ex) PINP 42_1_ 2_ 1	—	Source: Video source of sub-screen (Video or S-video) posX: X coordinate (0-15) of sub-screen from left Horizontal is divided into 16 (default value is used when omitted) posY: Y coordinate (0-15) of sub-screen from top vertical is divided into 16 (default value is used when omitted) size: Size of sub-screen 0-4 incremental zoom (default value is used when 0 or omitted)	600/800/810/811/820 7800/7850 8300/8350/9300 830/835* 7900/7950	Set PinP *"830/835" cannot specify a sub-screen. Size should put in "0".
PINP xx	—	OFF		End PinP
MSEL xx	MSEL?	00: Black screen 01: Blue screen 02: User logo	600/800/810/811/820 720/730/520,/735 7800/7850, 8300/9300 61/81, 830/835, 740/745 821, 7900/7950, 732/737 S3/S4, 760/765, 755/750 6100/6000, 6110/6010, 1715/1710/1705/1700, 1815/810/1825 S5/X5/83/822/83+/822+, 260/280, G5350/G5300/G5150/G5100/G5200W/ G5000, S6/S62/X6/W6 1735W/1730W/1725/1720 84/85/824/825/826W S7/X7/W7/S8/X8/W8 1915/1925W/1910/1920W 440W/450W/460, 440W/450W/460, 84H/He/L, 85H/HV,824H, 825H/HV, 826WH/WHV, 84+, 85+, 825+,826W+ 84H/He/L, 85H/HV,824H, 825H/HV, 826WH/WHV, 84+, 85+, 825+,826W+	Set A/V mute Screen

Set commands	Get commands	Parameter for set (Return code of get)	Models	Function
AUTOKEYSTONE xx	AUTOKEYSTONE?	ON: Auto keystone ON OFF: Auto keystone OFF	73/53/74/54, 735 7800/7850, 61/81, 830/835 740/745/732/737, 821/828 7900/7950, 760/765, 755/750, 62/82, 1715/1710/1705/1700 1815/1810/1825 X5/822/83/83+/822+, 280, X6/W6 1735W1730W1725/1720 84/85/824/825/826W, X8/W8, 1915/1925W/1910W/1920W/1830440W/450W/460, 84H/He/L, 85H/HV,824H, 825H/HV, 826WH/WHV, 84+, 85+, 825+,826W+	Set auto keystone on or off
ASPECT xx	ASPECT?	00:Normal 10:4:3 12: zoom 4:3 20: 16:9	74/54, 7800/7850 8300/9300 S1/S1H, 830/835 7900/7950	Set aspect ratio
		00:Normal 10:4:3 20: 16:9	73/53, 735, 740/745, 732/737, S3/S4, 760/765, 755/750, 82, 1715/1710/1705/1700 460T/i/e, 84H/He/L, 85H/HV,824H, 825H/HV, 84+, 85+, 825+	
		00: Normal 20: 16:9 40: Full 50: Zoom 60: Real	1735W1730W 826W,/WV 1920W 826WH/WHV, W8 440W, 450W/i/e	
		Input signal is PC 00: Normal 10: 4:3 20: 16:9 Input signal is Component/S-Video. 21: 16:9 (Up) 22: 16:9 (Down)	6100/6000, 1815/1810/1825 S5/X5/822/83/822+/83+ S6/S62/X6 1725/1720	
		Input signal is PC 00: Normal 10: 4:3 20: 16:9 60: Through Input signal is Video 10: 4:3 20: 16:9 Input signal is HDMI 10: 4:3 20: 16:9 30: Auto 60: Through	G5350/G5100	
		Input signal is PC 00: Normal 20: 16:9 40: Full 50: Zoom 60: Through/Real Input signal is HDMI 00: Normal 20: 16:9 30: Auto 40: Full 50: Zoom 60: Through(W8, 1925W:Real)	G5200W W6 1925W	

Set commands	Get commands	Parameter for set (Return code of get)	Models	Function
-	LAMP?	0 ~ 65535	All models	Return the lamp hour
LUMINANCE xx	LUMINANCE?	00: High 01: Low	73/53/74/54, 7800/7850 8300/8350/9300, 61/81 830/835, 740/745, 821 7900/7950, 732/737, S3/S4 760/765, 755/750, 82, 6100 1715/1710/1705/1700 1815/1810/1825, X5/822/823 G5350/G5100/G5200W S6/X6/W6 1735W/1730W/1725/1720 84/85/824/825/826W	Ste brightness level
		00: Normal 01: Eco	Z8000WU/Z8050W S7/X7/W7/S8/X8/W8 1910/1915/1920W/1925W 440W/450W/460, 84H/He/L, 85H/HV,824H, 825H/HV, 826WH/WHV, 84+, 85+, 825+,826W+	
MUTE xx	MUTE?	ON: A/V Mute ON OFF: A/V Mute OFF	All models	Set A/V mute. (Set shutter function in Z8000WU, Z8050W)
FREEZE xx	FREEZE?	ON: FREEZE ON OFF: FREEZE OFF	All models except 600/800/810 /811/820	Set freeze
HREVERSE xx	HREVERSE?	ON: Rear ON OFF: Rear OFF	All models	Set rear projection
VREVERSE xx	VREVERSE?	ON: Ceiling ON OFF: Ceiling OFF	All models (Except 440W/450W/460)	Set ceiling projection
AUDIO xx	AUDIO?	01: Audio 1 (Computer) 02: Audio 2 (Video) 03: USB	600/800/810/811/820	Set audio input
		01: Audio 1 (Computer) 02: Audio 2 (Video)	30/52 73/83/74/54	
		00: Audio 1 (Computer/DVI) 01: Audio 2 (Video) 02: Audio 3 (DVI)	7800/7850 7900/7950	
		01: Audio 1 02: Audio 2	6100	
		01: Audio 1(Internal speaker) 02: Audio 2(External output)	1715/1705 1735W/1725	
KEY xx	-	4A	All models except 600/800/810 /811/820	Perform "Auto-sync" of a remote control button
		47		
CCAP xx	CCAP?	00: OFF 11: CC1 12: CC2 13: CC3 14: CC4 21: TEXT1 22: TEXT2 23: TEXT3 24: TEXT4	6100/6110	

Set command	Get commands	Parameter for set (Return code of get)	Models	Function
CCAP xx	CCAP?	00: OFF 11: CC1 12: CC2	83/822/83+/822+ 400W/410W G5350/G5300/G5150/G5100/ G5000/G5200W 84/85/824/825/826W Z8000WU/Z8050W S7/X7/W7 1830/1900/1910/1915/ 1920W/1925W 440W/450W/460, 84H/He/L, 85H/HV,824H, 825H/HV, 826WH/WHV, 84+, 85+, 825+,826W+	
FLWARNING xx	FLWARNING?	00: ON 01: OFF	6100/6110	Display setting of warning time of Air filter
FLTIME x1 x2		x1: Object of setting 00: All objects 01: Object 1 02; Object 2 03: Object 3 x2: Set time 0: 1~ 100(100H) 1: 101~ 200 (200H) I 14: 1401 ~ 9999 (1500H)*	6100/6110	Setting of use time of air filter *The maximum value depends on the kind of the air filter and the upper bound value is different.
	FILTER?	0 ~ 65535	6100	Acquisition of use time of air filter
ZOOM		MIN: Adjusts it to Tel side continuously. MAX: Adjusts it to Wide side continuously. INC: Adjusts it to Wide side by one step. DEC: Adjusts it to Tel side by one step. OFF: A continuous adjustment is stopped.	Z8000WU/Z8050W	Electric zoom is adjusted.
	ZOOM?	VOID		
FOCUS		MIN: Adjusts it to short focus side continuously. MAX: Adjusts it to long focus side continuously INC: Adjusts it to long focus side by one step. DEC: Adjusts it to short focus side by one step OFF: A continuous adjustment is stopped.	Z8000WU/Z8050W	Electric focus is adjusted.
	FOCUS?	VOID		
LENS		MIN: Adjusts it to lower side continuously. MAX: Adjusts it to up side continuously INC: Adjusts it to up side by one step. DEC: Adjusts it to lower side by one step OFF: A continuous adjustment is stopped. INIT: The lens position is moved to center.	Z8000WU/Z8050W	Vertical lens shift is adjusted.
	LENS?	VOID		
HLENS		MIN: Adjusts it to left side continuously. MAX: Adjusts it to right side continuously INC: Adjusts it to right side by one step. DEC: Adjusts it to left side by one step OFF: A continuous adjustment is stopped. INIT: The lens position is moved to center.	Z8000WU/Z8050W	Horizontal lens shift is adjusted.
	HLENS?	VOID		

8.2. Command table 2 (Step parameter)

Set commands	Initial value	Steps	Models	Function
VOL xx	15	0 ~ 31	600/800/810/811/820 9300/8350/9300 7800/7850/7900/7950	Set the volume level
	10	0 ~ 20	520/720/730/735, 30/52 73/53/74/54, S1/S1H, 61/81 740/745/732/737/760/765/755/750 821, S3/S4, 82, 6100 1715/1710/1705/1700 1815/1810/1825, X5/822/823 G5350/G5100/G5200W 400W/410W, S6/X6/W6 84/85/824/825/826W 1830/1900/1910/1915/ 1920W/1925W 440W/450W/460, 84H/He/L, 85H/HV,824H, 825H/HV, 826WH/WHV, 84+, 85+, 825+,826W+	
	15	0 ~ 30	830/835	
	15	0 ~ 20	1735W/1730W/1725/1720	
	5	0 ~ 10	S7/X7/W7、S8/X8/W8	
TONEH xx	0	-6 ~ 6	600/800/910/811/820 8300/8350/9300, 830/835 7800/7850/7900/7950	Set bass level
		-8 ~ 8	520/720/730/735, 30/52	
TONEL xx	0	-6 ~ 6	600/800/910/811/820 8300/8350/9300 7800/7850/7900/7950	Set bass level
BRIGHT xx	0	-64 ~ 64	520/720/730/735 30/52, 73/53/74/54	Set brightness level
		-32 ~ 32	61/81, 821	
		-30 ~ 30	600/800/910/811/820 8300/8350/9300, 830/835 7800/7850/7900/7950	
		-24 ~ 24	S4, 6100, 1715/1710/1705/1700 1815/1810/1825, X5/822/823 G5350/G5100/G5200W 400W/410W, S6/X6/W6 1735W/1730W/1725/1720 84/85/824/825/826W Z8000WU/Z8050W S7/X7/W7, S8/X8/W8 1910/1915/1920W/1925W 440W/450W/460, 84H/He/L, 85H/HV,824H, 825H/HV, 826WH/WHV, 84+, 85+, 825+,826W+	
		-20 ~ 20	S1/S1H	
		-12 ~ 12	740/745/732/737/760/765/755/750 S3, 82	

Set commands	Initial value	Steps	Models	Function
CONTRAST xx	0	-32 ~ 32	520/720/730/735, 61/81, 821 30/52, 73/53/74/54 740/745/732/737/760/765/755/750	Set contrast level
		-30 ~ 30	600/800/910/811/820 8300/8350/9300, 830/835 7800/7850/7900/7950 S1/S1H,	
		-12 ~ 12	S3, 82	
		-24 ~ 24	S4, 6100, 1715/1710/1705/1700 1815/1810/1825, X5/822/823 G5350/G5100/G5200W 400W/410W, S6/X6/W6 1735W/1730W/1725/1720 84/85/824/825/826W Z8000WU/Z8050W S7/X7/W7, S8/X8/W8 1910/1915/1920W/1925W 440W/450W/460, 84H/He/L, 85H/HV,824H, 825H/HV, 826WH/WHV, 84+, 85+, 825+,826W+	
TINT xx	0	-12 ~ 12	600/800/910/811/820 520/720/730/735 8300/8350/9300, 830/835	Set tint
		-15 ~ 15	7800/7850/7900/7950	
		-5 ~ 5	1815/1810/1825	
VKEYSTONE xx	0	-90 ~ 90	G5350/G5100/G5200W	Set vertical keystone value
		-80 ~ 80	8300/8350/9300, 830/835 7800/7850/7900/7950	
		-64 ~ 64	S3/S4, 82, 6100, X5/822/823 1715/1710/1705/1710 1735W/1730W/725/1720 S6/X6/W6, 84/85/824/825/826W Z8000WU/Z8050W S7/X7/W7, S8/X8/W8 1910/1915/1920W/1925W	
		-60 ~ 60	600/800/910/811/820 84H/He/L, 85H/HV,824H, 825H/HV, 826WH/WHV, 84+, 85+, 825+,826W+	
		-60 ~ 59	520/720/730/735, 30/52	
		-30 ~ 30	830/835	
		-10 ~ 10	440W/450W/460	
HKEYSTONE xx	0	-64 ~ 64	1815/1810/1825 1925W/1915	Set horizontal keystone value
		-60 ~ 60	G5350/G5100/G5200W Z8000WU/Z8050W	
		-40 ~ 40	7800/7850/7900/7950	
		-39 ~ 39	600/800/910/811/820	
		-29 ~ 29		

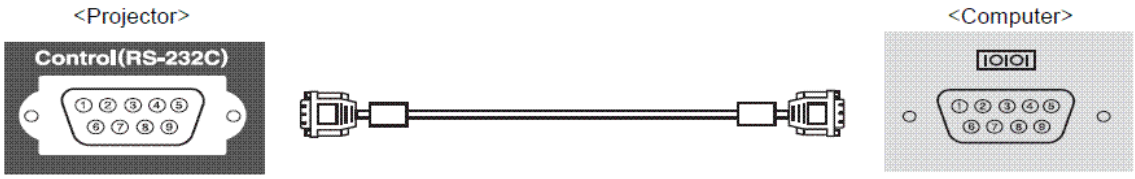
9. Appendix

9.1. Communication specification

A projector and a computer can be connected using a serial or USB port. The projector can be remotely controlled by sending commands to the projector.

Serial connection (600/800/810/811/820, 30/52, 73/53/74/54, 8300/9300, 7800/7850, S1/S1H, 61/81, 830/835/821, 828/7900/7950, 62/82,6100/6000, 1815/1810/1825, 83/822/83+/822+, 260/280, 6110/6010, 400W/410W, G5350/G5300/G5200W/G5150/G5100/G5000, 84/85/824/825/826W, Z800WU/Z8050W, 1830/1900/1910/1915/ 1920W/1925W, 440W/450W/450We/450Wi/460/460e/460i, 84H/84He/84L/85H/85HV/824H/825H/825HV/ 826WH/826WHV)

- Select RS-232C at Advanced Setting of the Menu.
- Communication condition
  Baud rate : 9600bps
  Data length : 8 bits
  Parity : No
  Stop bit : 1 bit
  Flow control : No
- Connector : D-Sub 9pin
- Projector input : Control(RS-232C)



Projector		PC serial cable	Computer	
GND	5	———	5	GND
RD	2	◄———	3	TD
TD	3	———►	2	RD

Signal name	Function
GND	Common ground
TD	Transmitted data
RD	Received data

■ USB connection (600/800/810/811/820, 720/730/520, 73/53/74/54, 735, 8300/9300, 7800/7850, 61/81, 830/835, 740/745/732/737/760/765, 821/828, 7900/7950, S3/S4, 755/750, 62/82/X3, 1715/1710/1705/1700, S5/X5/EX90,260, G5350/G5150, S6/X6/W6, 1735W/1730W/1725/1720, S7/X7/W7, S8/X8/W8, 1925W/1920W/1915/1910)

- For 600/800/810/811/820, 74/54, select USB at advanced setting of the Menu.
- For 720/730/520, 73/53, 740/745, 732/737, S3/S4/X3, 760/765, 1715/1710/1705/1700, S5/X5, 260, select Link 21L at Advanced Setting of the Menu.
- For 8300/8350/9300, select USB at Advanced2 setting of the Menu.
- For 61/81, 830/835/821, select USB at Extended setting of the Menu.
- For 1735W/1730W/1725/1720, S6/X6/W6, S7/X7/W7, S8/X8/W8, select Wireless Mouse and select Link 21L at Extended Setting of the Menu.

- EPSON USB COM Driver has to be installed in your computer to use USB for communication. A COM port is added to your computer, when the projector and your computer is connected by a USB cable. The added COM is listed at PORT (COM/LPT) in the device manager tab of System in Control Panel as EPSON COM Emulation port (COMn).

USB COM Driver	Models
EMPUSBSetup.exe	600/800/810/811/820/720/730/520/73/53/74/54/735
EMPUSB2Setup.exe	7800/7850/8300/9300/61/81/830/835/740/745/732/737 821/828/7900/7950//S3/765/760/755/750/62/82/X3(76) S4/1715/1710/1705/1700/S5/X5/EX90/260/S6/X6/W6 1735W/1730W/1725/1720/S7/X7/W7/S8/X8/W8 1910/1915/1920W/1925W

• Connector : USB(B type)

10. Revision History

Revision	Issued date	Page	Description
A	Sep 16, 2005	All pages	First release.
B	Oct 19, 2005	All pages	Correction of disclaimer. Model EMP-755/750 addition
C	Nov 4, 2005	All pages	Model EMP-62/82/X3(76) addition
D	Apr 17, 2006	All pages	Model EMP-S4 addition
E	Aug 11, 2006	All pages	Model EMP-6100/6000 and EMP-1715/1710/1705/1700 addition
F	Mar 19, 2007	All pages	Model EMP -1815/1810 and EMP-S5/X5/83/822 addition
G	Jun 4, 2007	All pages	Addition of "Applicable Model"
H	Dec 21, 2007	All pages	Model EMP-260/280 addition
I	Apr 23, 2008	All pages	Model EMP-6110/6010, EMP-400W, EMP-83+/822+/EX90 EMP-1825 and EB-G5350/5300/5200W/5150/5100/5000 addition. Addition of Error status.
J	Sep 19, 2008	All pages	Model EB-1735W/1730W/1725/1720, EB-S6/X6/W6 addition
K	Feb 25, 2009	All pages	Model EB-Z8000WU/Z8050W addition.
L	Mar 25, 2009	All pages	Addition of command of EB-Z8000WU/8050W Model EB-410W and EB-84/85/824/825/826W addition.
M	Oct 9, 2009	All pages	Addition EB-410W, EB-S7/X7/W7/S8/X8/W8, EB-1830/1900/1915/1920W/125W Addition of command for getting the serial number
N	Mar.11 , 2010	All pages	Addition EB-440W, 450W/e/i, 460/e/i, EB-84H/He/L, 85H/HV 824H, 825H/HV, 826WH/WHV, 84+, 85+, 825+, 826W+