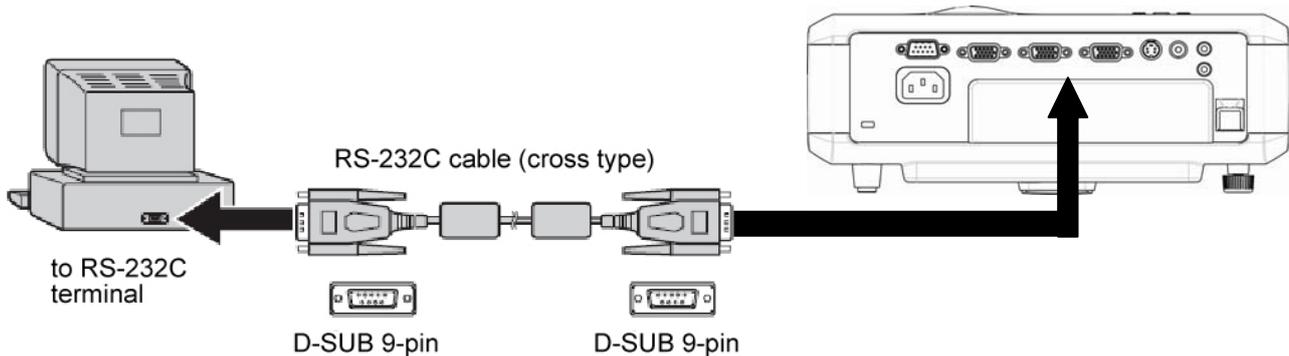


Controlling the projector using a personal computer

1. Connection:

Below shows the illustration of connection between PC and Projector.

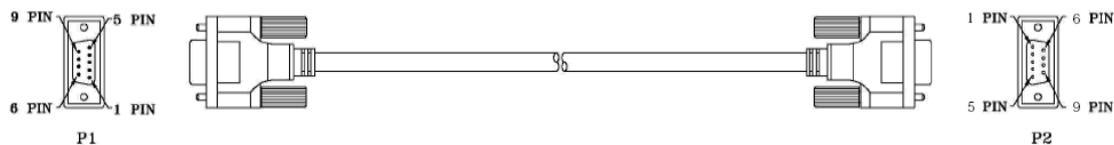


<CAUTION>

- ◆ Make sure that your computer and projector are turned off before connection.
- ◆ Power on the computer first, and then plug the power cord of the projector.
(It may cause Com port incorrect function, if you do not follow this instruction)
- ◆ Adapters may be necessary depending on the PC connected to this projector. Please contact with your dealer for further details.
- ◆ If the projector has LAN control port, please change “Control by RS-232C” in LAN Control Settings menu.

2. Hardware connection

<Control cable>

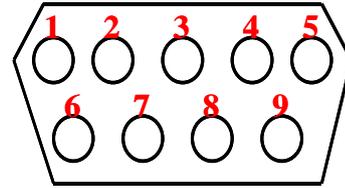


WIRE CONNECTION

WIRE ARRANGEMENT		
P1	COLOR	P2
1	BLACK	1
2	BROWN	3
3	RED	2
4	ORANGE	4
5	YELLOW	5
6	GREEN	6
7	BLUE	8
8	PURPLE	7
9	GRAY	9
CASE	DRAIN WIRE	CASE

<Pin assignment for PC side>

Pin	Description	Pin	Description
1	NC	2	RXD
3	TXD	4	NC
5	GND	6	NC
7	RTS	8	CTS
9	NC		



Interface

RS-232 protocol	
Baud Rate	115200 bps (fixed)
Data Length	8 bit
Parity Check	None
Stop Bit	1 bit
Flow Control	None

3. Software connection:

1) Control command

The command consists of the start code, function code, and end code. The length of the command varies among the functions.

	Start code	Function code	End code
ASCII code	<CR>	Function	<CR>
HEX code	"0D"	Function	"0D"

*Refer Table 1 in Section 3 for Function code.

2) Control sequence

- (1) Send the command from the personal computer to the projector.
- (2) When give ASCII <CR> (Hex code:"0D"), it will echo ASCII">" (Hex code: "3E"). It means projector is ready to accept RS-232 command.
- (3) If no any command, it should echo <CR> <LF>(Hex code:"0D" "0A") after 5 seconds.(5 sec time out)
- (4) When any command is received,each input character will be echoed.
- (5) If command do not have end code, it should echo <CR> <LF>(Hex code:"0D" "0A") after 5 seconds.(5 sec time out)
- (6) After sending input character,the projector send <CR> <CR> <LF>(Hex code:"0D" "0D" "0A").
- (7) When the projector is standby,the projector can receive only some command(example:power status,lamp time).Against other command,it will echo ACK "*Block item#".
- (8) If the command format is illegal, it will echo ACK "***Illegal format#".
- (9) If the command format is correct, but it is not valid for this model, it will echo ACK "***Unsupported item#".

(10) If the command format is correct, but it can't be execute in some condition, it will echo ACK “*Block item#”.

When the staus of projector is green in Table1(at Section 3),the projector can receive the command.

(11) If the command format is correct and the projector operate the function, it will echo ACK such as following list(Table 1 in Section 3).

(12) After sending ACK,the projector send <CR> <LF>(Hex code:"0D" "0A").

Caution: When the projector is turned on, unexpected command occur by lamp noise.

Example

When turning the power ON.

	Sending commands from the PC	Returned code from the projector
ASCII Character	<CR>*pow=on#<CR>	>*pow=on#<CR><CR><LF>*POW=ON#<CR><LF>
Hex data	"0D" "2A" "70" "6F" "77" "3D" "6F" "6E" "23" "0D"	"3E" "2A" "70" "6F" "77" "3D" "6F" "6E" "23" "0D" "0D" "0A" "2A" "50" "4F" "57" "3D" "4F" "4E" "23" "0D" "0A"

When telling power status of the projector

	Sending commands from the PC	Returned code from the projector
ASCII Character	<CR>*pow=?#<CR>	>*pow=?#<CR><CR><LF>*POW=OFF#<CR><LF>
Hex data	"0D" "2A" "70" "6F" "77" "3D" "3F" "23" "0D"	"3E" "2A" "70" "6F" "77" "3D" "3F" "23" "0D" "0D" "0A" "2A" "50" "4F" "57" "3D" "4F" "4E" "46" "23" "0D" "0A"
ASCII Character	<CR>*pow=?#<CR>	>*pow=?#<CR><CR><LF>*POW=ON#<CR><LF>
Hex data	"0D" "2A" "70" "6F" "77" "3D" "3F" "23" "0D"	"3E" "2A" "70" "6F" "77" "3D" "3F" "23" "0D" "0D" "0A" "2A" "50" "4F" "57" "3D" "4F" "4E" "23" "0D" "0A"

When changing to Computer1 input.

	Sending commands from the PC	Returned code from the projector
ASCII Character	<CR>*sour=RGB#<CR>	>*sour=RGB#<CR><CR><LF>*sour=RGB#<CR><LF>
Hex data	"0D" "2A" "73" "6F" "75" "72" "3D" "52" "47" "42" "23" "0D"	"3E" "2A" "73" "6F" "75" "72" "3D" "52" "47" "42" "23" "0D" "0D" "0A" "2A" "53" "4F" "55" "52" "3D" "52" "47" "42" "23" "0D" "0A"

When telling selected input terminal.

	Sending commands from the PC	Returned code from the projector
ASCII Character	<CR>*sour=?#<CR>	>*sour=?#<CR><CR><LF>*sour=VID#<CR><LF>
Hex data	"0D" "2A" "73" "6F" "75" "72" "3D" "3F" "23" "0D"	"3E" "2A" "73" "6F" "75" "72" "3D" "3F" "23" "0D" "0D" "0A" "2A" "53" "4F" "55" "52" "3D" "56" "49" "44" "23" "0D" "0A"

When sending wrong command.

	Sending commands from the PC	Returned code from the projector
ASCII Character	<CR>*sour<CR>	>*sour<CR><CR><LF>*Illegal format#<CR><LF>
Hex data	"0D" "2A" "73" "6F" "75" "72" "0D"	"3E" "2A" "73" "6F" "75" "72" "0D" "0D" "0A" "2A" "49" "6C" "6C" "65" "67" "61" "6C" "20" "66" "6F" "72" "6D" "61" "74" "23" "0D" "0A"

When telling selected input terminal in standby mode.

	Sending commands from the PC	Returned code from the projector
ASCII Character	<CR>*sour=?#<CR>	>*sour=?#<CR><CR><LF>*Block item#<CR><LF>
Hex data	"0D" "2A" "73" "6F" "75" "72" "3D" "3F" "23" "0D"	"3E" "2A" "73" "6F" "75" "72" "3D" "3F" "23" "0D" "0D" "0A" "2A" "42" "6C" "6F" "63" "6B" "20" "69" "74" "65" "6D" "23" "0D" "0A"

3) Operation commands

Table 1. Operation commands list (The projector can receive the command at the green status.)

CMD	ACTION	FUNCTION (ASCII Character)	ACK (ASCII Character)	Projector Status				
				Standby	Logo	Searching	Source Display	Cooling
Power	Power On	*pow=on#	*POW=ON#	Green	Red	Red	Red	Red
	Power off	*pow=off#	*POW=OFF#	Red	Red	Green	Green	Red
	Power Status	*pow=?#	*POW=ON#(*POW=OFF#)	Green	Green	Green	Green	Green
Source Selection	VGA/YpPr	*sour=RGB#	*SOUR=RGB#	Red	Red	Green	Green	Red
	VGA/YpPr-2	*sour=RGB2#	*SOUR=RGB2#	Red	Red	Green	Green	Red
	HDMI (Except ES200U)	*sour=hdmi#	*SOUR=HDMI#	Red	Red	Green	Green	Red
	Composite	*sour=vid#	*SOUR=VID#	Red	Red	Green	Green	Red
	SVIDEO	*sour=svid#	*SOUR=SVID#	Red	Red	Green	Green	Red
	Current source	*sour=?#	*SOUR=RGB# (*SOUR=VID# / *SOUR=SVID# etc)	Red	Red	Green	Green	Red
Audio	Mute On	*mute=on#	*MUTE=ON#	Red	Red	Green	Green	Red
	Mute Off	*mute=off#	*MUTE=OFF#	Red	Red	Green	Green	Red
	Mute Status	*mute=?#	*MUTE=ON#/*MUTE=OFF#	Red	Red	Green	Green	Red
	Volume +	*vol=+#	*VOL=+#	Red	Red	Green	Green	Red
	Volume -	*vol=-#	*VOL=-#	Red	Red	Green	Green	Red
	Volume	*vol=?#	*VOL=__# (__ is volume value.)	Red	Red	Green	Green	Red

Picture Setting	Contrast +	*con=+#	*CON=+#					
	Contrast -	*con=-#	*CON=-#					
	Contrast value	*con=?#	*CON=__# (__ is contrast value.)					
	Brightness +	*bri=+#	*BRI=+#					
	Brightness -	*bri=-#	*BRI=-#					
	Brightness value	*bri=?#	*BRI=__# (__ is Brightness value)					
	Aspect 4:3	*asp=4:3#	*ASP=4:3#					
	Aspect 16:9	*asp=16:9#	*ASP=16:9#					
	Aspect Auto	*asp=AUTO#	*ASP=AUTO#					
	Aspect Real	*asp=REAL#	*ASP=REAL#					
	Aspect Full (only EW270U, EW230U-ST)	*asp=FULL#	*ASP=FULL#					
Lamp Control	Lamp 1 Hour	*ltim=?#	*LTIM=__# (__ is Lamp used hour.)					
	Normal mode	*lampm=lnor#	*LAMPM=LNOR#					
	Economic mode	*lampm=eco#	*LAMPM=ECO#					
	LampMode Status	*lampm=?#	*LAMPM=LNOR#(*LAMP M=ECO#)					

Miscellaneous	Blank On	<CR>*blank=on#<CR>	*BLANK=ON#					
	Blank Off	<CR>*blank=off#<CR>	*BLANK=OFF#					
	Blank Status	<CR>*blank=?#<CR>	*BLANK=ON#(*BLANK=OFF#)					
	Freeze On	<CR>*freeze=on#<CR>	*FREEZE=ON#					
	Freeze Off	<CR>*freeze=off#<CR>	*FREEZE=OFF#					
	Freeze Status	<CR>*freeze=?#<CR>	*FREEZE=ON#(*FREEZE=OFF#)					
	Menu On	<CR>*menu#<CR>	*MENU#					
	Up	<CR>*up#<CR>>	*UP#					
	Down	<CR>*down#<CR>	*DOWN#					
	Right	<CR>*right#<CR>	*RIGHT#					
	Left	<CR>*left#<CR>	*LEFT#					
	enter	<CR>*enter#<CR>	*ENTER#					
	Auto	<CR>*auto#<CR>	*AUTO#					
	Zoom In	<CR>*zoomI#<CR>	*ZOOMI#					
	Zoom out	<CR>*zoomO#<CR>	*ZOOMO#					