ESC/VP21 Communication Manual

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Revision History

Revision	Issued Date	Page	Description
1	2001.9.27	All pages	First Release
2	2002.03.28	All pages	EMP-TS10 are added. An overall revision due to the above new product addition.
3	2002.04.08	All pages	EMP-720 and EMP-730 are added. An overall revision due to the above new product addition.
4	2002.05.13	All pages	EMP-30 are added. An overall revision due to the above new product addition.
5	2002.10.18	All pages	EMP-520,EMP-52,EMP-73/53 are added. An overall revision due to the above new product addition.
6	2003.2.21	All pages	EMP-735,EMP-8300 are added. An overall revision due to the above new product addition.
7	2003.3.27	All pages	EMP-7800 are added. An overall revision due to the above new product addition.
8	2003.5.1	All pages	EMP-S1 are added. An overall revision due to the above new product addition.
9	2003.6.25	p.14	Correction of a clerical error.

1.Scope

1.1.Objective

This manual describes the ESC/VP21 communication protocol used in Seiko Epson projectors in order to control the projectors remotely.

2.Applicable Models

EMP-600/800/810/811/820,EMP-TS10,EMP-720/730/520,EMP-30/52 ,EMP-73/53,EMP-735, EMP-8300,EMP-7800,EMP-S1

Commands with step parameters

(**O**Supported **-**Not supported)

Model / Item		810/800 /600	TS10	720/730/ 520	30/52	73/53	735	8300	7800	S1
Sound control	Volume	O	O	O	O	O	O	O	O	O
	Treble	O	O	O	O	O	O	O	O	-
	Bass	O	O	-	-	-	-	O	O	-
Display control	Brightness	O	O	O	O	O	O	O	O	O
	Black Level	-	-	-	-	-	-	O	-	-
	White Level	-	-	-	-	-	-	O	-	-
	Contrast	O	O	O	O	O	O	O	O	O
	Synchronization	O	O	O	O	O	O	O	O	O
	Tracking	O	O	O	O	O	O	O	O	O
	Sharpness	O	O	O	O	O	O	O	O	O
	Horizontal position	O	O	O	O	O	O	O	O	O
	Vertical position	O	O	O	O	O	O	O	O	O
	V-Keystone	O	O	O	O	O	O	O	O	O
	H-Keystone	O	O	-	-	-	-	-	O	-
	Tele Wide	-	-	-	O	-	-	-	-	O
Color control	Red Setting	O	O	O	O	O	O	O	O	-
	Green Setting	O	O	O	O	O	O	O	O	-
	Blue Setting	O	O	O	O	O	O	O	O	-
	Color Temperature Setting	O	O	O	O	O	O	O	O	O
	Color Setting	O	O	O	O	O	O	O	O	O
	Tint Setting	O	O	O	O	O	O	O	O	-

Ccmmands without step parameters

(**O**Supported   **-**Not supported)

Model / Item		Parameter	810/800 /600	TS10	720/730	30	73/53
Power control	Power on	PWR ON	O	O	O	O	O
	Power off	PWR OFF	O	O	O	O	O
	Power status	PWR?	O	O	O	O	O
System control	Reset all	INITALL	O	O	O	O	O
	Lamp hour	LAMP?	O	O	O	O	O
	Brightness Control	LUMINANCE*	-	-	-	-	O
Screen control	A/V Mute	MUTE ON/OF	O	O	O	O	O
	Freeze	FREEZE ON/OFF	-	-	O	O	O
Audio input control	Audio Input	AUDIO 01-03	O	O	O	O	O
Display control	Rear Projection	HREVERSE ON/OFF	O	O	O	O	O
	Ceiling	VREVERSE ON/OFF	O	O	O	O	O
Color control	Color Mode	CMODE*	O	O	O	O	O
	Color Control Setting	CSEL 01/02	O	O	O	O	O
	Noise Reduction	NR ON/OFF	O	O	-	-	O
Special function	Start PinP	PINP *	O	O	-	-	-
	End PinP	PINP OFF	O	O	-	-	-
	A/V Mute Screen	MSEL 00-02	O	O	O	O	O
	Auto Keystone	AUTOKEYSTON ON/OFF	-	-	O	-	O
Input Source	Input Source	SOURCE *	O	O	O	O	O
Key operation	Key operation	KEY *	O	O	O	O	O

Model / Item		Parameter	735	8300	7800	S1
Power control	Power on	PWR ON	O	O	O	O
	Power off	PWR OFF	O	O	O	O
	Power status	PWR?	O	O	O	O
System control	Reset all	INITALL	O	O	O	O
	Lamp hour	LAMP?	O	O	O	O
	LUMINANCE	LUMINANCE 00/01	-	O	O	-
Screen control	A/V Mute	MUTE ON/OF	O	O	O	O
	Freeze	FREEZE ON/OFF	O	O	O	O
Audio input control	Audio Input	AUDIO 01-03	O	O	O	-
Display control	Rear Projection	HREVERSE ON/OFF	O	O	O	O
	Ceiling	VREVERSE ON/OFF	O	O	O	O
Color control	Color Mode	CMODE*	O	O	O	O
	Color Control Setting	CSEL 01/02	O	O	O	-
	Noise Reduction	NR ON/OFF	-	-	-	-
Special function	Start PinP	PINP *	-	O	O	-
	End PinP	PINP OFF	-	O	O	-
	A/V Mute Screen	MSEL 00-02	O	O	O	O
	Auto Keystone	AUTOKEYSTON ON/OFF	O	-	O	-
Input Source	Input Source	SOURCE *	O	O	O	O
Key operation	Key operation	KEY *	O	O	O	O

*It indicates in the text.

3.ESC/VP Command Structure

3.1.Status Display

The prompt after a normal execution is " **:** ".
The prompt after abnormal execution is "ERR" followed by " **:** ".
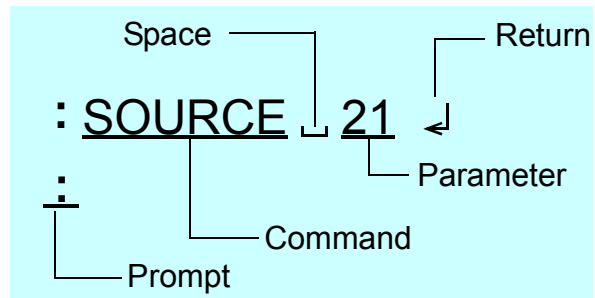
• Examples of normal execution

    : SOURCE 21⏎
    :

    : BRIGHT INIT⏎
    :

    • An example of abnormal execution
    : SOURCE VIDEO⏎
  ERR
    :

    • An example of status commands
    : VOL?⏎
  VOL=24
    :

Space —————— Return

: <u>SOURCE</u> ⎵ 21 ⏎

                —— Parameter

:

        —— Command

—— Prompt

An example using Hyper Terminal
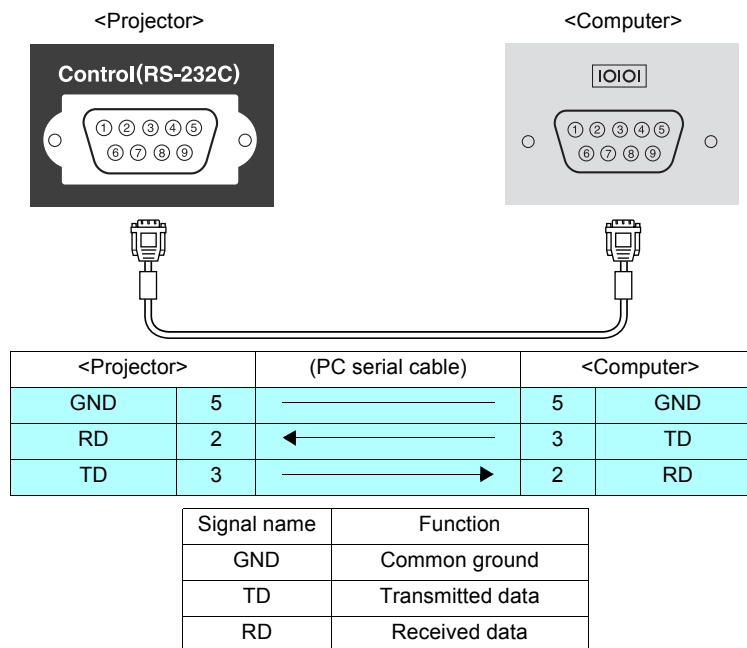* A colon ":" is a return command and is not required to input.

Note : Use capital letters for commands and parameters.

4.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,TS10,30/52,73/53,8300,7800,S1)

• Select RS-232C at Advanced Setting of the Menu.
• Communication condition
  Baud rate   **:** 9600 bps
  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

*Theres no effect if DTR and DSR are not used.

USB Connection (600/800/810/811/820,TS10,720/730/520,73/53,735,8300,7800)

• For 600/800/810811/820/TS10, select USB at Advanced of the Menu. For 720/730/520 and 73/53, set Link 21L
  to 1 at Advanced Setting of the Menu.For 8300, select USB at Advanced2 of the Menu.
• Epson USB COM Driver has to be installed in your computer to use USB fpr 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).
• Connector   **:** USB(B type)

5.Notes

The following restrictions apply when the projector is in the standby mode.
 1) The power on command "PWR ON" is the only command accepted by the projector.
 2) The "PWR ON" command has to be written in capital letters.
 3) Other set and get commands are not accepted. There are no error messages from the projector when those commands are sent to the projector.
 4) The other commands can be used for projector control after the projection is started.

6.Commands with step parameters

Step parameter
  • Incremental parameter for integer counter
  "INC" used in place of the parameter increments the current value of the parameter by a step.

  • Decremental parameter for integer counter
  "DEC" used in place of the parameter decrements the current value of the parameter.

  • Initialization parameter
  "INIT" used in the parameter sets the parameter to the initial value.

 *INC cannot increase the step above the maximum step. DEC cannot decrease the step below the minimum step. The
  "ERR" message followed by "**:**" is returned when such commands are used.

6.1.Sound control

Item	Function	Set commands	Model	Initial value	Steps
Volume	Set the volume level	VOL xx	600/800/820	15	32
			TS10	15	32
			720/730/520	10	21
			30/52	10	21
			73/53	10	21
			735	10	21
			8300	15	32
			7800	0	63
			S1	10	21
Treble	Set treble level	TONEH xx	600/800/820	0	13
			TS10	0	13
			720/730/520	0	17
			30/52	0	17
			73/53	-	-
			735	0	17
			8300	0	13
			7800	0	13
			S1	-	-
Bass	Set bass level	TONEL xx	600/800/820	0	13
			TS10	0	13
			720/730/520	-	-
			30/52	-	-
			73/53	-	-
			735	-	-
			8300	0	13
			7800	0	13
			S1	-	-

6.2.Display control

Item	Function	Set commands	Model	Initial value	Steps
Brightness	Set brightness	BRIGHT xx	600/800/820	0	61
			TS10	0	61
			720/730/520	0	129
			30/52	0	129
			73/53	0	129
			735	0	129
			8300	0	61
			7800	0	61
			S1	0	41
Black Level	Set black level	BLACK xx	600/800/820	-	-
			TS10	-	-
			720/730/520	-	-
			30/52	-	-
			73/53	-	-
			735	-	-
			8300	0	32
			7800	-	-
			S1	-	-
White Level	Set white level	WHITE xx	600/800/820	-	-
			TS10	-	-
			720/730/520	-	-
			30/52	-	-
			73/53	-	-
			735	-	-
			8300	0	32
			7800	-	-
			S1	-	-
Contrast	Set contrast	CONTRAST xx	600/800/820	0	61
			TS10	0	61
			720/730/520	0	65
			30/52	0	65
			73/53	0	65
			735	0	65
			8300	0	61
			7800	0	61
			S1	0	41
Synchronization	Set SYNC value	SYNC xx	600/800/820	0	64
			TS10	0	64
			720/730/520	0	32
			30/52	0	32
			73/53	0	32
			735	0	32
			8300	0	64
			7800	0	64
			S1	0	32

It returns to Commands with step parameters

Item	Function	Set commands	Model	Initial value	Steps
Tracking	Set tracking	TRACKING xx	600/800/820	depends on connection	256
			TS10	depends on connection	256
			720/730/520	depends on connection	128
			30/52	depends on connection	128
			73/53	depends on connection	128
			735	depends on connection	128
			8300	depends on connection	128
			7800	depends on connection	256
			S1	depends on connection	128
Sharpness	Set sharpness	SHARP xx	600/800/820	0	12
			TS10	0	12
			720/730/520	0	12
			30/52	0	12
			73/53	0	12
			735	0	12
			8300	0	13
			7800	0	11
			S1	0	10
Horizontal position	Set horizontal position	HPOS xx	600/800/820	depends on connection	256
			TS10	depends on connection	256
			720/730/520	depends on connection	256
			30/52	depends on connection	61
			73/53	depends on connection	128
			735	depends on connection	256
			8300	depends on connection	256
			7800	depends on connection	256
			S1	depends on connection	146

Item	Function	Set commands	Model	Initial value	Steps
Vertical position	Set vertical position	VPOS xx	600/800/820	depends on connection	37
			TS10	depends on connection	37
			720/730/520	depends on connection	37
			30/52	depends on connection	35
			73/53	depends on connection	36
			735	depends on connection	37
			8300	depends on connection	37
			7800	depends on connection	37
			S1	depends on connection	36
V-Keystone	Set vertical keystone value	VKEYSTONE xx	600/800/820	0	120
			TS10	0	120
			720/730/520	0	61
			30/52	0	61
			73/53	0	61
			735	0	61
			8300	0	129
			7800	0	129
			S1	0	61
H-Keystone	Set horizontal keystone value	HKEYSTONE xx	600/800/820	0	56
			TS10	0	56
			720/730/520	-	-
			30/52	-	-
			73/53	-	-
			735	-	-
			8300	-	-
			7800	0	69
			S1	-	-
Tele Wide	Set tele wide	ZOOM xx	600/800/820	-	-
			TS10	-	-
			720/730/520	-	-
			30/52	0	25
			73/53	-	-
			735	-	-
			8300	-	-
			7800	-	-
			S1	0	32

It returns to Commands with step parameters

6.3.Color control

Item	Function	Set commands	Model	Initial value	Steps
Red Setting	Set red setting	RED xx	600/800/820	0	33
			TS10	0	33
			720/730/520	0	33
			30/52	0	33
			73/53	0	33
			735	0	33
			8300	0	33
			7800	0	33
			S1	-	-
Green Setting	Set green setting	GREEN xx	600/800/820	0	33
			TS10	0	33
			720/730/520	0	33
			30/52	0	33
			73/53	0	33
			735	0	33
			8300	0	33
			7800	0	33
			S1	-	-
Blue Setting	Set blue setting	BLUE xx	600/800/820	0	33
			TS10	0	33
			720/730/520	0	33
			30/52	0	33
			73/53	0	33
			735	0	33
			8300	0	33
			7800	0	33
			S1	-	-
Color Temperature Setting	Set color temperature setting	CTEMP xx	600/800/820	7500	11
			TS10	7500	11
			720/730/520	8000	11
			30/52	7000	11
			73/53	7000	11
			735	8000	11
			8300	7500	11
			7800	7500	11
			S1	Mediam	3
Color Setting	Set color setting	DENSITY xx	600/800/820	0	31
			TS10	0	31
			720/730/520	0	65
			30/52	0	65
			73/53	0	65
			735	0	65
			8300	0	31
			7800	0	15
			S1	0	25
Tint Setting	Set tint Setting	TINT xx	600/800/820	0	31
			TS10	0	31
			720/730/520	0	65
			30/52	0	65
			73/53	0	65
			735	0	65
			8300	0	31
			7800	0	11
			S1	0	65

It returns to Commands with step parameters

7.Commands without step parameters

7.1.Power control

Item	Function	Set commands	Get commands	Parameter for set (Return code for get)
Power on	Power on *can be used only at standby	PWR ON	-	ON
Power off	Power off	PWR OFF	-	OFF
Power status	Return the power status *can be used only at power on	-	PWR?	1 : Power on

7.2.System control

Item	Function	Set commands	Get commands	Parameter for set (Return code for get)
Reset all	initializes the settings. *The lamp hours, user logo and language are not initialized.	INITALL	-	-
Lamp hour	return the lamp hour	-	LAMP?	0-32767
Brightness Control	Set brightness control	LUMINANCE xx	LUMINANCE ?	00 : High 01 : Low

7.3.Screen control

Item	Function	Set commands	Get commands	Parameter for set (Return code for get)
A/V Mute	Set A/V Mute	MUTE ON MUTE OFF	MUTE?	ON : A/V Mute ON OFF : A/V Mute OFF
Freeze	Set freeze	FREEZE ON FREEZE OFF	FREEZE?	ON : Freeze ON OFF : Freeze OFF

7.4.Audio input control

Item	Function	Set commands	Get commands	Parameter for set (Return code for get)
Audio Input	Select audio input	AUDIO xx	AUDIO?	01 : Audio1 02 : Audio2 03 : USB

7.5.Display control

Item	Function	Set commands	Get commands	Parameter for set (Return code for get)
Rear Projection	Set rear projection	HREVERSE ON HREVERSE OFF	HREVERSE?	ON : rear ON OFF : rear OFF
Ceiling	Set ceiling projection	VREVERSE ON VREVERSE OFF	VREVERSE?	ON : ceiling ON OFF : ceiling OFF

It returns to Ccmmands without step parameters

7.6.Color control

Item	Function	Set commands	Get commands	Parameter for set (Return code for get)
Color Mode EMP-810/800/600 EMP-720/730/520 EMP-30/52 EMP-73/53 EMP-735	Set color Mode	CMODE xx	CMODE?	01 **:** sRGB 02 **:** Normal 03 **:** Meeting 04 **:** Presentation 05 **:** Theater 06 **:** Amusement
Color Mode EMP-TS10	Set color Mode	CMODE xx	CMODE?	01 **:** sRGB 02 **:** PCI 05 **:** Theater 07 **:** Natural 08 **:** Dynamic
Color Mode EMP-8300 EMP-7800	Set color Mode	CMODE xx	CMODE?	01 **:** sRGB 04 **:** Presentation 05 **:** Theater 08 **:** Dynamic
Color Mode EMP-S1	Set color Mode	CMODE xx	CMODE?	01 **:** sRGB 04 **:** Presentation 05 **:** Theater 06 **:** Living Room 08 **:** Dynamic
Color Control Setting	Set color control cetting	CSEL xx	CSEL?	01 **:** Set color temperature setting 02 **:** Set RGB setting
Noise Reduction	Set noise Reduction	NR ON NR OFF	NR?	ON **:** Noise Reduction ON OFF **:** Noise Reduction OFF

7.7.Special function

Item	Function	Set commands	Get commands	Parameter for set (Return code for get)
Start PinP	start P in P (Ex) PINP 42 1 2 1	PINP [source posX posY size]	-	source **:** Video source of sub-screen (Video or S-video) P.14[Input Source] source code 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)
End PinP	Set End PinP	PINP OFF	-	OFF **:** stop P in P OFF
A/V Mute Screen	Set A/V Mute Screen	MSEL xx	MSEL?	00 **:** Black screen 01 **:** Blue screen 02 **:** User logo
Auto Keystone	Set auto keystone	AUTOKEY-STONE xx	-	ON **:** Auto Keystone ON OFF **:** Auto Keystone OFF

It returns to Ccmmands without step parameters

7.8.Input Source

Item	Function	Set commands	Get commands	Parameter for set (Return code for get)
Input Source EMP-810/800/600 EMP-TS10	Select the input source	SOURCE xx	SOURCE?	11 **:** PC1(analog-RGB) 12 **:** PC1(digital-RGB) 13 **:** PC1(RGB-Video) 21 **:** PC2(analog-RGB) 22 **:** PC2(RGB-Video RGsB) 23 **:** Component Video(YCbCr) 24 **:** Component Video(YPbPr) 41 **:** Video (RCA) 42 **:** Video (S)
Input Source EMP-720/730/520 EMP-30/52 EMP-73/53 EMP-S1	Select the input source	SOURCE xx	SOURCE?	11 **:** RGB 14 **:** Input 1(YPbPr) 15 **:** Input 1(YCbCr) 40 **:** Vlideo 41 **:** Video(RCA) 42 **:** Video(S)
Input Source EMP-735	Select the input source	SOURCE xx	SOURCE?	40 **:** Vlideo 41 **:** Video(RCA) 42 **:** Video(S) 50 **:** EasyMP(IM-X)
Input Source EMP-8300	Select the input source	SOURCE xx	SOURCE?	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) 50 **:** EasyMP(IM-X) B0 **:** INPUT4(BNC) B2 **:** INPUT4(analog-RGB) B3 **:** INPUT4(RGB-Video) B3 **:** INPUT4(YCbCr) B4 **:** INPUT4(YPbPr)
Input Source EMP-7800	Select the input source	SOURCE xx	SOURCE?	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) 50 **:** EasyMP(IM-X) B0 **:** INPUT4(BNC) B2 **:** INPUT4(analog-RGB) B3 **:** INPUT4(RGB-Video) B3 **:** INPUT4(YCbCr) B4 **:** INPUT4(YPbPr)

It returns to Ccmmands without step parameters

7.9.Key operation

Item	Function	Set commands	Get commands	Parameter for set
Key operation	Execute the key (bottom) function of the projector or the remote control.	KEY xx	-	*Refer to following.

Main key(1) (**O** Supported **-** Not supported)

Item	Parameter	810/800/600	TS10	720/730/520	30/52	73/53
Power	01	O	O	O	O	O
Menu	03	O	O	-	-	-
Help	04	O	O	O	O	O
ESC	05	O	O	-	-	-
Auto	14	O	O	-	-	-
A/V Mute	15	O	O	-	-	-
Enter	16	O	O	-	-	-
Resize	17	O	O	-	-	-
Volume+	21	O	O	-	-	-
Volume-	22	O	O	-	-	-
Sync+	23	O	O	-	-	-
Sync-	24	O	O	-	-	-
Tracking+	25	O	O	-	-	-
Tracking-	26	O	O	-	-	-
Up	35	O	O	-	-	-
Down	36	O	O	-	-	-
Left	37	O	O	-	-	-
Right	38	O	O	-	-	-
Computer	41	O	O	-	-	-
Video	42	O	O	-	-	-
Source	48	-	-	O	O	O
VKeystone+	06	-	-	O	O	O
VKeystone-	07	-	-	O	O	O
Wide	1B	-	-	-	O	-
Tele	1C	-	-	-	O	-

Remote controler(1) (**O** Supported **-** Not supported)

Item	Parameter	810/800/600	TS10	720/730/520	30/52	73/53
E-Zoom+	28	O	O	O	O	O
E-Zoom-	29	O	O	O	O	O
Comp1	43	O	O	O	O	O
Comp2	44	O	O	-	-	-
S-Video	45	O	O	-	-	-
Video	46	O	O	-	-	-
Freeze	47	O	O	O	O	O
Enter	49	O	O	O	O	O
1-5	51-55	O	O	-	-	-
Pointer up	58	O	O	O	O	O
Pointer down	59	O	O	O	O	O
Pointer left	5A	O	O	O	O	O
Pointer right	5B	O	O	O	O	O
Pointer right up	5C	O	O	-	-	-
Pointer left up	5D	O	O	-	-	-
Pointer right down	5E	O	O	-	-	-
Pointer left down	5F	O	O	-	-	-
Power	3B	-	-	O	O	O
Menu	3C	-	-	O	O	O
ESC	3D	-	-	O	O	O
A/V Mute	3E	-	-	O	O	O
Color Mode	3F	-	-	O	O	O
Auto	4A	-	-	O	O	O
S-Video/Video	4F	-	-	O	O	O

Main key(2) (**O** Supported **-** Not supported)

Item	Parameter	735	8300	7800	S1
Power	01	O	O	O	O
Menu	03	-	O	O	O
Help	04	O	O	O	-
ESC	05	-	O	O	O
Auto	14	-	O	O	-
A/V Mute	15	-	O	O	-
Enter	16	-	O	O	O
Resize	17	-	O	O	-
Volume+	21	-	O	O	-
Volume-	22	-	O	O	-
Sync+	23	-	O	O	-
Sync-	24	-	O	O	-
Tracking+	25	-	O	O	-
Tracking-	26	-	O	O	-
Up	35	-	O	O	O
Down	36	-	O	O	O
Left	37	-	O	O	O
Right	38	-	O	O	O
Computer	41	-	-	-	-
Video	42	-	-	-	O
Source	48	O	-	-	-
VKeystone+	06	O	O	O	-
VKeystone-	07	O	O	O	-
Wide	1B	-	-	-	-
Tele	1C	-	-	-	-

Remote controler(2) (**O** Supported **-** Not supported)

| Item	Parameter	735	8300	7800	S1
E-Zoom+	28	O	O	O	O
E-Zoom-	29	O	O	O	O
Comp1	43	O	O	O	O
Comp2	44	-	O	-	-
S-Video	45	-	O	O	-
Video	46	-	O	O	-
Freeze	47	O	O	O	O
Enter	49	O	O	O	O
1-5	51-55	-	-	-	-
Pointer up	58	O	O	O	O
Pointer down	59	O	O	O	O
Pointer left	5A	O	O	O	O
Pointer right	5B	O	O	O	O
Pointer right up	5C	-	-	-	-
Pointer left up	5D	-	-	-	-
Pointer right down	5E	-	-	-	-
Pointer left down	5F	-	-	-	-
Power	3B	O	O	O	O
Menu	3C	O	O	O	O
ESC	3D	O	O	O	O
A/V Mute	3E	O	O	O	O
Color Mode	3F	O	O	O	O
Auto	4A	O	O	O	O
S-Video/Video	4F	O	-	-	O

It returns to Ccmmands without step parameters

8.Appendix

It is convenient to use Hyper Terminal included in Microsoft Windows to confirm the operation of ESC/VP21 commands using a PC. If Hyper Terminal is not included in "PROGRAM", install it as follows.

8.1.Hyper terminal installation

• Open the "Add/Remove Programs" icon in the Control Panel.
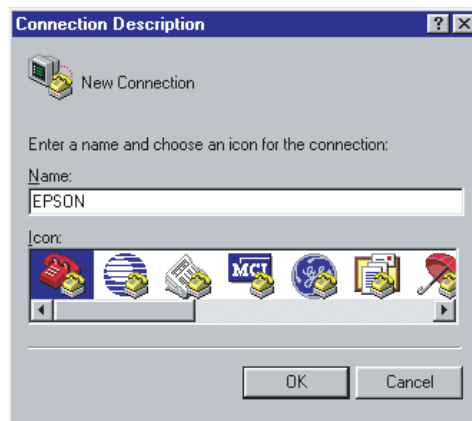• Select "Communications" of "Windows Setup" and click the "Details".
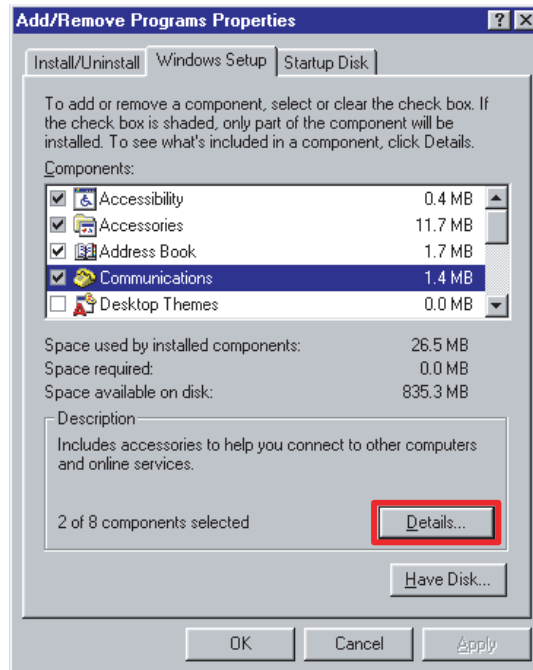
• Mark "Hyper Terminal" and click the "OK" bottom, which completes the installation.
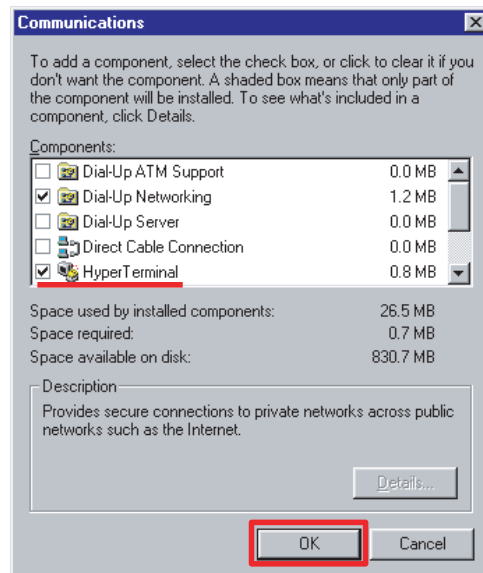
8.2.Hyper Terminal configuration

• Open Hyper terminal, input the name, select an icon and click "OK".

• Serial connection
  Select the communication port (Example : Direct to COM1) in "Connect using".
• USB connection
  Select Epson COM emulation port (COMn) in "Connect using".
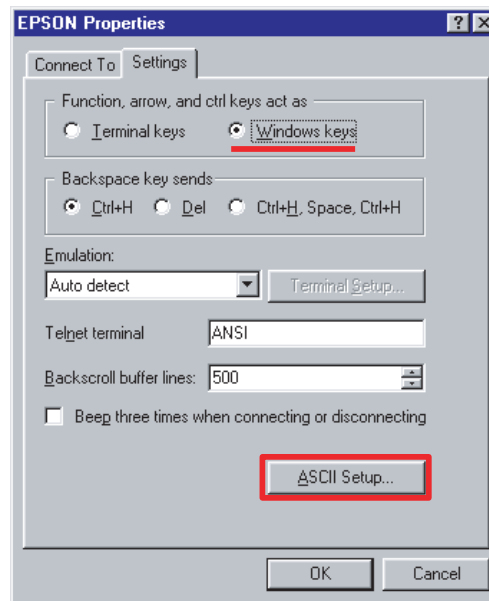 When the COM port is changed,restart Hyper terminal.
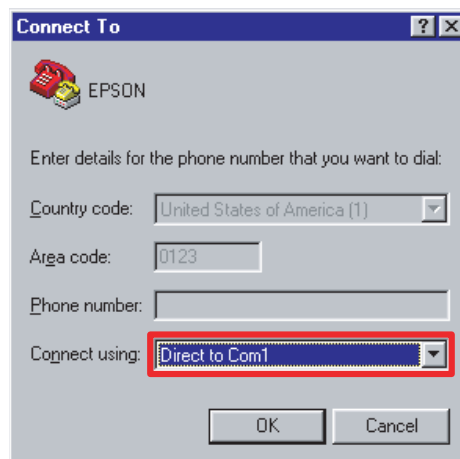
• Select 9600 bps, 8 data bits, no parity, 1 stop bit and None.
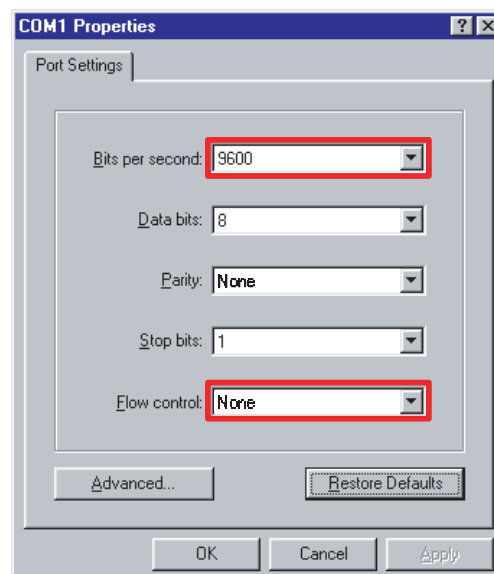
• Open the "property" of Hyper Terminal.
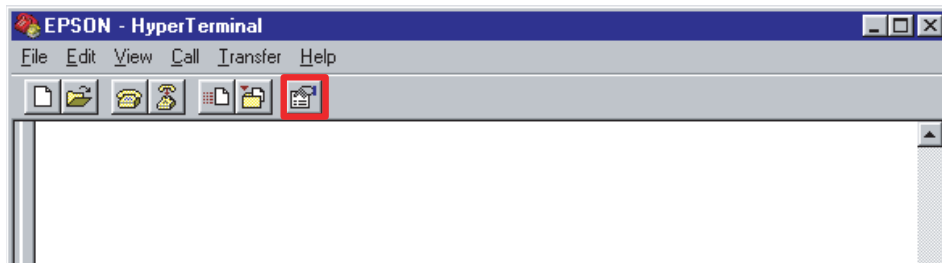
• Mark the "Windows keys" and click "ASCII Setup" bottom.

• Mark "Send line ends with line feeds", "Echo typed characters locally" and "Append line feeds to incoming line ends".
Click "OK", which completes the configuration.