

RS232C Control Spec.
for
VP-12S3

1. PC Control

Interface

- * RS-232C(Straight Cable)
- * Baud rate: 9600 bps
- * Data length: 8 bits
- * Parity: None
- * Stop bit: 1 bit
- * Flow Control: RTS/CTS
- * Communication procedure:..... Full duplex

2. PC Control Command Reference

2.1. Command Communications Sequence

Projector returns ACK, NAK, or Status after reception of Command within 1 second.

An ASCII code is used for data. It is discriminated whether transmitting character sequences are a capital letter and a small letter.

Although there is no distinction of a capital letter small letter, let a capital letter be a standard.

Command transmission and Status reply add Start Character and End Character as follows.

Start Character	:	'@'	
End Character	:	0x0D	
Command Sample	:	"@PWR?", 0x0D	(Request Power Status)
Feedback Sample	:	"@PWR1", 0x0D, 0x0A	(Power Status = On)

ACK and NAK use the following control code.

ACK(Reception success)	:	0x06, 0x0D, 0x0A
NAK(Reception failure)	:	0x15, 0x0D, 0x0A

A reception side cancels data before '@'. When 0x0D comes, with '@' not coming, NAK (reception failure) is returned.

That which made Hex the ASCII code is used for transmission and reception of digital data.

Between a command and a numerical value, '/' is inserted as a delimiter.

For Example: When 26(decimal) of the number is expressed

'1', 'A' → 0x31, 0x41

2.2. Normal Command

It is Command which demands processing.

In data other than an appointed command, or the state where '@' does not come, when 0x0D comes, it becomes reception failure, and NAK is returned.

Commands, such as Power On Command at the time of notes Standby (Fan operation), return only ACK, when processing is not carried out.

For example: When Power On is sent to Projector.

Command transmission from PC.

"@PWR", 0x0D

After Command processing end and from a projector to a reply

0x06, 0x0D, 0x0A (ACK reception success)

or 0x15, 0x0D, 0x0A (NAK reception failure)

2.3. Request Status Command

It is Command which demands Status.

Projector returns Status or NAK.

In data other than an appointed command, or the state where '@' does not come, when 0x0D comes, it becomes reception failure, and NAK is returned.

For Example: When Power Status is requested to Projector.

Command transmission from PC.

"@PWR?", 0x0D

After Command processing end and from a projector to a reply

"@PWR1", 0x0D, 0x0A (Power On)

or "@PWR0", 0x0D, 0x0A (Standby)

or 0x15, 0x0D, 0x0A (NAK reception failure)

2.4. Normal Command List

Command		Character	Sample
Power	Power On	PWR1	"@PWR1",0x0D
	Standby	PWR0	"@PWR0",0x0D
Source	Component 1	CMP1	"@CMP1",0x0D
	Component 2	CMP2	"@CMP2",0x0D
	S-Video	SVD	"@SVD",0x0D
	Video	VDO	"@VDO",0x0D
	RGB	RGB	"@RGB",0x0D
	AUX	AUX	"@AUX",0x0D
Preset	Theater 1	THE1	"@THE1",0x0D
	Theater 2	THE2	"@THE2",0x0D
	Theater 3	THE3	"@THE3",0x0D
	Theater Default	THED	"@THED",0x0D
	Standard 1	STD1	"@STD1",0x0D
	Standard 2	STD2	"@STD2",0x0D
	Standard 3	STD3	"@STD3",0x0D
	Standard Default	STDD	"@STDD",0x0D
	Dynamic 1	DYN1	"@DYN1",0x0D
	Dynamic 2	DYN2	"@DYN2",0x0D
	Dynamic 3	DYN3	"@DYN3",0x0D
	Dynamic Default	DYND	"@DYND",0x0D
	User A 1	USRA1	"@USRA1",0x0D
	User A 2	USRA2	"@USRA2",0x0D
	User A 3	USRA3	"@USRA3",0x0D
	User B 1	USRB1	"@USRB1",0x0D
	User B 2	USRB2	"@USRB2",0x0D
	User B 3	USRB3	"@USRB3",0x0D
	User C 1	USRC1	"@USRC1",0x0D
	User C 2	USRC2	"@USRC2",0x0D
User C 3	USRC3	"@USRC3",0x0D	
Aspect	Normal	NML	"@NML",0x0D
	Through	THRH	"@THRH",0x0D
	Full	FULL	"@FULL",0x0D
	Zoom	ZOOM	"@ZOOM",0x0D
V-Mute	V-Mute On	MUT1	"@MUT1",0x0D
	V-Mute Off	MUT0	"@MUT0",0x0D
Keystone V	Keystone V +	KEYV+	"@KEYV+",0x0D
	Keystone V -	KEYV-	"@KEYV-",0x0D
	Keystone V +- ##	KEYV/+##	"@KEYV/+0F",0x0D
Keystone H	Keystone H +	KEYH+	"@KEYH+",0x0D
	Keystone H -	KEYH-	"@KEYH-",0x0D
	Keystone H +- ##	KEYH/+##	"@KEYH/+0F",0x0D
Focus	Focus On	FOC1	"@FOC1",0x0D
	Focus Off	FOC0	"@FOC0",0x0D

Command		Character	Sample
Black Setup	Black Setup 0IRE	BSET0	"@BSET0",0x0D
	Black Setup 7.5IRE	BSET7	"@BSET7",0x0D
Lamp Mode	Lamp Mode High	LMODEH	"@LMODEH",0x0D
	Lamp Mode Low	LMODEL	"@LMODEL",0x0D
IRIS	IRIS On	IRIS1	"@IRIS1",0x0D
	IRIS Off	IRIS0	"@IRIS0",0x0D
Auto Power Off	Auto Power Off Enable	APO1	"@APO1",0x0D
	Auto Power Off Disable	APO0	"@APO0",0x0D
Cinema	Cinema Auto	CINEMA1	"@CINEMA1",0x0D
	Cinema Off	CINEMA0	"@CINEMA0",0x0D
Remote Control	Cursor Up	UP	"@UP", 0x0D
	Cursor Down	DOWN	"@DOWN", 0x0D
	Cursor Right	RIGHT	"@RIGHT", 0x0D
	Cursor Left	LEFT	"@LEFT", 0x0D
	Cursor Enter	ENTER	"@ENTER", 0x0D
	Menu	MENU	"@MENU", 0x0D
	Information	INFO	"@INFO", 0x0D

Adjustment range

Command	Minimum	Center	Maximum
Keystone V	-1E (-30)	0 (0)	+1E (+30)
Keystone H	-14 (-20)	0 (0)	+14 (+20)

2.5. Request Status Command List

Request Status	Request Command	Answer Sample	
Power	"@PWR?",0x0D	On	"@PWR1",0x0D, 0x0a
		Standby	"@PWR0",0x0D, 0x0a
Source	"@SRC?",0x0D	Component 1	"@CMP1",0x0D, 0x0a
		Component 2	"@CMP2",0x0D, 0x0a
		S-Video	"@SVD",0x0D, 0x0a
		Video	"@VDO",0x0D, 0x0a
		RGB	"@RGB",0x0D, 0x0a
		AUX	"@AUX",0x0D, 0x0a
		Memory	"@MEM?",0x0D
Theater 2	"THE2",0x0D, 0x0a		
Theater 3	"THE3",0x0D, 0x0a		
Theater Default	"THED",0x0D, 0x0a		
Standard 1	"STD1",0x0D, 0x0a		
Standard 2	"STD2",0x0D, 0x0a		
Standard 3	"STD3",0x0D, 0x0a		
Standard Default	"STDD",0x0D, 0x0a		
Dynamic 1	"DYN1",0x0D, 0x0a		
Dynamic 2	"DYN2",0x0D, 0x0a		
Dynamic 3	"DYN3",0x0D, 0x0a		
Dynamic Default	"DYND",0x0D, 0x0a		
User A 1	"USRA1",0x0D, 0x0a		
User A 2	"USRA2",0x0D, 0x0a		
User A 3	"USRA3",0x0D, 0x0a		
User B 1	"USRB1",0x0D, 0x0a		
User B 2	"USRB2",0x0D, 0x0a		
User B 3	"USRB3",0x0D, 0x0a		
User C 1	"USRC1",0x0D, 0x0a		
User C 2	"USRC2",0x0D, 0x0a		
User C 3	"USRC3",0x0D, 0x0a		
Aspect	"@ASP?",0x0D	Normal	"@NML",0x0D
		Through	"@THRH",0x0D
		Full	"@FULL",0x0D
		Zoom	"@ZOOM",0x0D
V-Mute	"@MUT?", 0x0D	On	"@MUT1",0x0D
		Off	"@MUT0",0x0D
Keystone V	"@KEYV?", 0x0D	12	"@KEYV/+0C",0x0D, 0x0a
Keystone H	"@KEYH?", 0x0D	-20	"@KEYH/-14",0x0D, 0x0a
Focus	"@FOC?", 0x0D	On	"@FOC1",0x0D, 0x0a
		Off	"@FOC0",0x0D, 0x0a

Request Status	Request Command	Answer Sample	
Black Setup	"@BSET?", 0x0D	0IRE	"@BSET0",0x0D, 0x0a
		7.5IRE	"@BSET7",0x0D, 0x0a
Lamp Mode	"@LMODE?", 0x0D	High	"LMODEH",0x0D, 0x0a
		Low	"LMODEL",0x0D, 0x0a
IRIS	"@IRIS?", 0x0D	On	"IRIS1",0x0D, 0x0a
		Off	"IRIS0",0x0D, 0x0a
Auto Power Off	"@APO?", 0x0D	Auto	"@APO1",0x0D, 0x0a
		Off	"@APO0",0x0D, 0x0a
Cinema	"@CNEMA?", 0x0D	Auto	"@CINEMA1",0x0D, 0x0a
		Off	"@CINEMA0",0x0D, 0x0a

*1 The contents of Error are indicated separately.

*2 Version number shows Version of a RC-232C Command group.

2.6. Special Command List

Request Status	Request Command	Answer Sample	
Order Number	"@ORDER", 0x0D	07AV	"@07AV",0x0D, 0x0a
Main u-com Build Num.	"@BUILD_MAIN?", 0x0D	Build 0025	"0025",0x0D, 0x0a
Sub u-com Build Num.	"@BUILD SUB?", 0x0D	Build 0025	"0025",0x0D, 0x0a
Sub Boot Version	"@VER_BOOT?", 0x0D	Ver 0.10	"0010",0x0D, 0x0a
Sub u-com Version	"@VER_SUB?", 0x0xD	Ver 0.10	"0010",0x0D, 0x0a
Main u-com Version	"@VER_MAIN?", 0x0D	Ver 1.00	"0100",0x0D, 0x0a
Gui Version	"@VER_GUI?", 0x0D	Ver 1.00	"0100",0x0D, 0x0a
Lamp Life	"@LAMPLIFE?",0x0D	Lamp Life 100hour	"@LAMPLIFE/00000064", 0x0D, 0x0a
Total Lamp Life	"@TOTALLIFE?", 0x0D	Total Lamp Life 2000hour	"@TOTALLIFE/000007d0", 0x0D, 0x0a
VP Status	"@POW?", 0x0D	Standby	"@STBY",0x0D, 0x0a
		Wait	"@WAIT",0x0D, 0x0a
		Power On	"@PWON",0x0D, 0x0a
		Cooling	"@COOL",0x0D, 0x0a
		Error	"@EROR",0x0D, 0x0a

It is asked for frequency by the following formulas from the return value of V Sync. In addition, since return value is Hex, be careful.

$$\frac{1}{\text{return value} \times \frac{8}{12.288 \times 10^6}} = \text{frequency [Hz]}$$

Build Number expresses the thing of a sub microcomputer.

Boot Program Version number the thing of a sub microcomputer.

Firmware Program Version number the thing of a sub microcomputer.

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