SONY

DATA PROJECTOR
VPL-CX75

DATA PROJECTOR
VPL-CX85

DATA PROJECTOR
VPL-FX51

DATA PROJECTOR
VPL-PX35

DATA PROJECTOR
VPL-PX40

DATA PROJECTOR
VPL-PX41

PROTOCOL MANUAL
1st Edition (Revised 5)

⚠警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理などを行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l’entretien. Afin de réduire les risques de décharge électrique, d’incendie ou de blessure n’effectuer que les réparations indiquées dans le mode d’emploi à moins d’être qualifié pour en effectuer d’autres. Pour toute réparation faire appel à une personne compétente uniquement.

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Appendix A. Setup Method For VPL-PX35 and PX40

1. Introduction

This protocol manual describes the basic configuration and basic operations of various commands used for projector. Projector can be controlled using the commands provided in “Appendix”. Using an external CONTROLLER , etc., inputs can be switched and the power can also be turned on and off. In the following paragraphs, “CONTROLLER” means an external device such as a PC which controls projector using these commands.

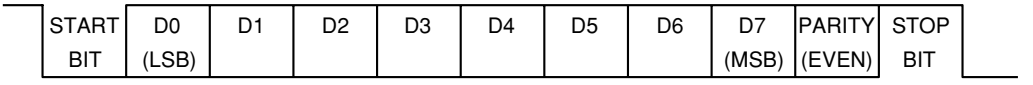
2. RS-232C (VPL-CX75 is excluded.)

2-1. Communication Specifications

<RS-232C Communication Signal>

- Full duplex communication channels (Flow control not performed.)
- Start-stop synchronism system
- Baud rate: 38.4 kbps (bits per second)
- The bit configuration is defined as follows.

1 START Bit + 8 DATA Bits + 1 PARITY Bit + 1 STOP Bit



EVEN Parity.....Total number of “1”s from D0 to D7 is an even number.

2-2. Command Block Format

The code from B0 to B7 as described below are transmitted.

	Transmission from the Master side	Reception in the Master side	Reception in the Master side (With Data)
B0	START CODE : 0 × A9		
B1	ITEM NUMBER	ACK / NAK	ITEM NUMBER
B2			
B3	SET / GET	ACK	REPLY
B4	DATA	DUMMY DATA	DATA
B5			
B6	CHECK SUM		
B7	END CODE : 0 × 9A		

B0 START CORD
Common in the all FORMAT

B6 CHECK SUM
B1 to B5 are calculated by OR;

<Example of Calculation>

0 × A9	1010	1001	0 × A9	1010	1001
0 × A9	1010	1001	0 × 9A	1001	1010
Answer	1010	1001	Answer	1011	1011
		0 × A9			0 × BB

B7 END CODE
Common in the all FORMAT

2-3. Block Format

	Transmission from the Master side	Data transmission to the Projector
B0	START CODE	Start of Command
B1	ITEM NUMBER	Set the Data Category Value desired. Refer to the Appendix B Table 1 for details.
B2		
B3	SET / GET	SET: 0 x 00 (Set data) GET: 0 x 01 (Get data)
B4	DATA	SET: Data to be set (Refer to the Appendix B Table 2) GET: Unused. Set Dummy data [0 x 00, 0 x 00]
B5		
B6	CHECK SUM	Check Sum
B7	END CODE	End of Command

	Reception in the Master side	Receive results of the data transmission from the Projector.
B0	START CODE	Start of Command
B1	ACK / NAK	Results correspond with the data transmission Refer to the Appendix B Table 3 for the data in detail.
B2		
B3	ACK	[0 x 03] Express Reply data either of ACK, or NAK
B4	DUMMY DATA	This data does not mean any senses. Dummy Data [0 x 00, 0 x 00] is stored.
B5		
B6	CHECK SUM	Check Sum
B7	END CODE	End of Command

	Reception in the Master side (With Data)	Receive data from the Projector
B0	START CODE	Start of Command
B1	ITEM NUMBER	Data to acquire Refer to the Appendix B Table 1 in detail.
B2		
B3	REPLY	[0 x 02] Express data to be Reply data
B4	DATA	Received data Refer to the Appendix B Table 2 in detail.
B5		
B6	CHECK SUM	Check Sum
B7	END CODE	End of Command

2-4. Connection

<RS-232C Connection>

Communication is enabled by the use of a D-Sub 9 Pin cross (reverse) cable.
The pin assignment of D-Sub 9 Pin and D-Sub 25 Pin is as follows.

D-Sub 9 Pin	D-Sub 25 Pin	Name	
Shell = FG	1	FG	Grounding for safety protection or cable shield
3	2	TxD	Transmission data
2	3	RxD	Reception data
7	4	RTS	Transmission request
8	5	CTS	Transmission permission
6	6	DSR	Data set ready
5	7	SG	GND for signal
1	8	DCD	Data channel signal carrier detection
4	20	DTR	Data terminal ready
9	22	RI	Calling display (Presence/absence of calling signal)

Pins indicated as D-Sub 25 Pin are not used.
Assured cable length: 15 m (However, assurance may not be applicable for some cables.)

The software for controlling the projector from a PC is intended for performing transmission and reception for only the TxD and RxD lines.
Therefore there is no handshake normally performed by RS-232C.

2-5. Communication Procedure

2-5-1. Outline of Communication

All communication between CONTROLLER (PC, etc.) and DEVICE (PROJECTOR) is performed by the command block format. Communication is started by the issue of a command at CONTROLLER and ended when the return Data is sent to CONTROLLER after DEVICE receives the command.
CONTROLLER is prohibited from sending several commands at one time. This means that after CONTROLLER sends one command, it cannot send other commands until DEVICE returns the return Data.
DEVICE sends the return Data after processing the command. The time from when CONTROLLER sends the command until the return Data is returned differs according to the contents of the command.

Note

When Sircs Direct Command is sent, return Data may not be returned in some cases.

2-6. Communication Rules

- When sending a command from CONTROLLER, the return Data from PROJECTOR should be received first before sending the next command. Even if the next command is sent before receiving the return Data, since PROJECTOR will not be able to receive that command, it does not return a response to CONTROLLER. Consequently, no error code is also sent.
  The following lists the approximate waiting times for PROJECTOR to return the return Data after CONTROLLER sends the command.
- When a communication error occurs, PROJECTOR ignores the Data received until now, and set into the reception standby state.
- For undefined commands or commends determined as invalid by PROJECTOR, PROJECTOR will send the “NAK” return Data to CONTROLLER .
- Take note that when Data is written when the input signal of PROJECTOR is unstable, that Data (value) will not be incorporated.
- When INDEX specified SIRCS direct command is transmitted, leave an interval of 45 msec until the next transmission. (Do not return the return Data (ACK, NAK) when the SIRCS direct command is received.)

2-7. Approximate Return Waiting Times

The await-return time is approx. 30 msec.

Note

This is the case, unless the communications are interfered anyway.

3. NETWORK

3-1. Introduction

This section describes the specifications, performance and operations of the network service that is going to be installed in the target projector.

3-1-1. Advertisement

The advertisement service is provided to facilitate development of a PC application that can automatically detect a projector on the network. This function is achieved by broadcasting the equipment information periodically to the network.

3-1-1-1. Function

The equipment information shown below is transmitted as the broadcast packet periodically (at certain intervals).

Information	Description
Category	Category of the equipment
Equipment name	Name of the equipment
Serial number	Serial number of the equipment
Installation information	Installation location of the equipment
Community	Community name of the equipment
Power status	Power status of the equipment

Notes

- The category of projector is 0x0a.
- The power status sets ffffh if communication error occurs.

Protocol

The SDAP protocol is defined in order to provide this service.

Item	Description
Protocol name	SDAP (Simple Display Advertisement Protocol)
Transport	UDP
Port number	53862
BC interval	Once every 30 seconds (initial value)

3-1-1-2. Setup Items

The items that can be set for the advertisement service are described below.

Setup items	Description
Port	Port number
Interval	Broadcast interval

3-1-2. Remote Control

The remote control service is provided that can control the target equipment from remote location via network. The SDCP protocol that serves to acquire the basic information such as equipment name and serial numbers is installed in this projector.

3-1-2-1. Function

This responds to the control command and requests for acquiring the status and information supplied from clients.

Control request
Enables the input to be selected and picture control to be adjusted.

SIRCS request
Enables remote control by sending the SIRCS code.

Status request
Enables equipment status information such as power status, error information and power-on time to be acquired.

Information request
Enables equipment information such as equipment name, serial number and installation information to be acquired.

Protocol

Item	Description
Protocol name	SDCP (Simple Display Control Protocol)
Transport	TCP
Port number	53484
TCP connection timeout	30 seconds

3-1-2-2. Setup Items

The items that can be set for the remote control service are described below.

Setup item	Description
Port	Port number
Timeout	TCP connection timeout time

3-2. SDAP Protocol

This section describes the SDAP packet structure.

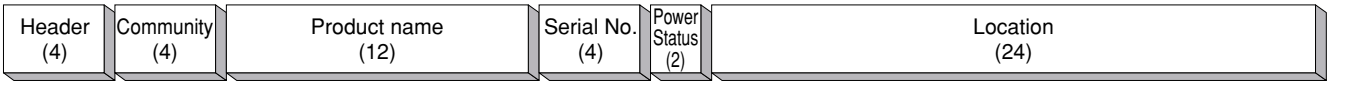


Fig.1 Packet structure

1) Header
The header consists of ID (16 bit), version (8 bit) and category (8 bits).

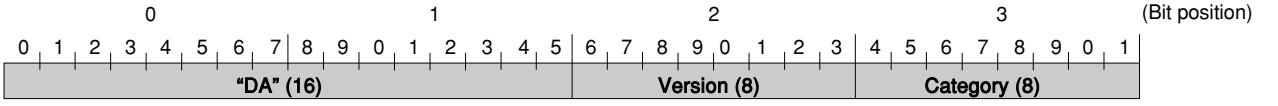


Fig. 2 Header

ID
It is fixed to "DA".

Version
This indicates the version number of protocol.
It is fixed to 01h (version 1).

Category
Category number 0x0a of the projector is entered here.

2) Community
The community that is set in the display equipment is entered. Community consists of four alphanumeric characters (case sensitive). The display equipment has the default value "SONY" when shipped from the factory.

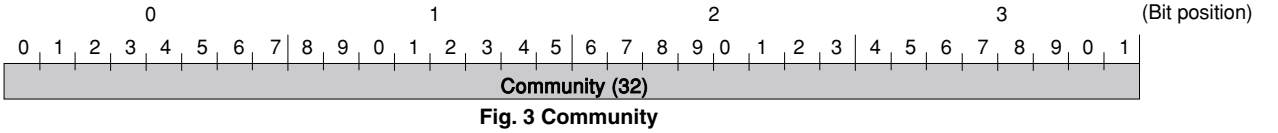


Fig. 3 Community

3) Equipment Information

Product Name
Name of equipment (Maximum twelve characters)
In case, less than twelve characters, 00h is entered in the blank space.

Serial No.
Serial number is entered.

Power Status.
Power supply status of the equipment is entered.

Location
Information of installation location (Maximum twenty four characters)
In case, less than twenty four characters, 00h is entered in the blank space.

3-3. SDCP Protocol

This section describes the packet structure of SDCP.

Fig. 1 Packet structure

3-3-1. Format

3-3-1-1. Header

The header consists of Version (8 bits) and Category (8 bits).

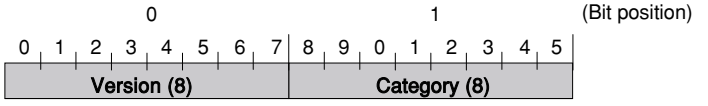


Fig. 2 Header structure

Version

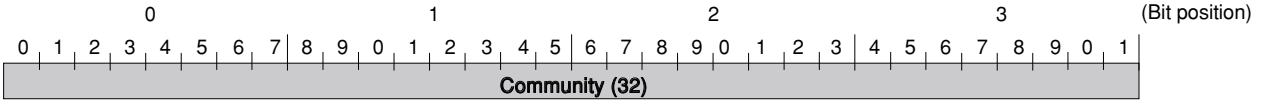
This indicates the version number of protocol.
It is fixed to 02h (version 2).

Category

Category number 0x0a of the projector is entered here. Projector checks the category number. If a different category number is entered, the request is ignored.

3-3-1-2. Community

When the community Data matches the community that is set in the display equipment, the request is executed. Community consists of four alphanumeric characters (case sensitive). All display equipment has the default value “SONY” when shipped from the factory.

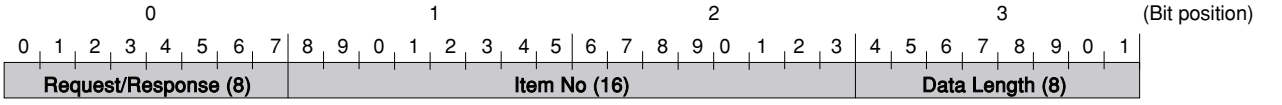


Note

Community should be entered with four characters. Three characters or less are not accepted.

3-3-1-3. Command

This section describes the format of the request command and the response command.



(1) Request
This section describes the format of the request command that is issued from the host PC to the projector.

Community
This is the same alphanumeric characters as those of community that is set in the projector to which request is going to be sent.

Request
There are only two types of request. One is the GET request to acquire the projector information and status. The other is the SET request to modify the projector setup.

Request	Contents
SET (00h)	Used to control turning the power on/off and to control the input selector, and to change the various setups.
SET (01h)	Used to acquire the installation information, equipment status and various setup values.

Item No.
This is the item number of the request target.

Data Length
This is the length of the Data accompanying the request. The maximum length is 128 bytes. If there is no Data, it is 0.

Data
This is the Data accompanying the request.

(2) Response
This section describes the format of the response command which is used to return a response to the host PC from the projector.

Community
The same alphanumeric characters as those of the request is entered.

Response
The response returns the result of executing the request from the host PC.

Response	Contents
NG (00h)	Indicates that the request is illegal or cannot be executed.
OK (01h)	Indicates that the request was executed correctly.

Item No.
The same value as those of the request is entered.

Data Length
This is the length of the Data accompanying the response. The maximum length is 128 bytes. If there is no Data, it is 0.

Data
This is the Data accompanying the response.

3-3-1-4. SET Request

The SET request is used to set a new value in the specified item. Details of the request and the response are described below.

Request

Request	Item No.	Data Length	Data
00h	Item No.	n	Set Data (n byte)

Response

OK (01h)	Item No.	0

3-3-1-5. GET Request

The GET request is used to acquire the value of the specified item. Details of the request and the response are described below.

Request

Request	Item No.	Data Length
01h	Item No.	0

Response

OK (01h)	Item No.	n	Get Data (n byte)

3-3-1-6. ERROR Response

When an error occurs in the contents of a request or in the result of execution, NG is returned as the response.

NG (00h)	Item No.	2	Error Code (16)

3-3-2. Items

Category	Contents	SET	GET
00**h	Used to control and to change the various setups.	○	○
01**h	Used to acquire the status.		○
03**h	Used to reset memory.	○	
17**h	Sircs (15 bit category)	○	
19**h	Sircs (20 bit category)	○	
80**h	Used to acquire equipment information.		○
90**h	Used to acquire network setup information.		○

3-3-2-1. Model Dependent Category

The supported contents of 00**h, 01**h, 03**h, 17**h and 19**h change depending on the model.
Details are shown on Appendix.

3-3-2-2. Equipment Information Acquisition (80**h)

Used to acquire the equipment information.

Lower byte	Contents	SET	GET
00h	Category Code		○
01h	Model name		○
02h	Serial number		○
03h	Installation location	○	○

0x8000 Category code

1 byte

0x8001 Model name

Alphanumeric 12 characters
If the number of characters is less than 12, the remaining digits are filled with 00h.

0x8002 Serial number

4 bytes

Note

The serial number is in the range of 00000000 to 99999999.

0x8003 Installation location

Alphanumeric 24 characters
If the number of characters is less than 24, the remaining digits are filled with 00h.

3-3-2-3. Network Information Acquisition (90**h)

Used to acquire the network setup information.

Lower bytes	Contents	SET	GET
00h	MAC Address		○
01h	IP Address		○
02h	Subnet Mask		○
03h	Default Gateway		○
04h	DHCP		○

0x9000 Mac Address
6 bytes

0x9001 IP Address
4 bytes

0x9002 Subnet Mask
4 bytes

0x9003 Default Mask
4 bytes

0x9004 DHCP
1 byte
DHCP invalid : 0
DHCP valid : 1

3-3-3. Error Code

The error code list is shown below with a detailed description of each.

Category	Error	Error Code
Item Error (01**h)	Invalid Item	01h
	Invalid Item Request	02h
	Invalid Length	03h
	Invalid Data	04h
	Short Data	11h
	Not Applicable Item	80h
Community Error (02**h)	Different Community	01h
Request Error (10**h)	Invalid Version	01h
	Invalid Category	02h
	Invalid Request	03h
	Short Header	11h
	Short Community	12h
	Short Command	13h
Network Error (20**h)	Timeout	01h
Comm Error (F0**h)	Timeout	01h
	Check Sum Error	10h
	Framing Error	20h
	Parity Error	30h
	Over Run Error	40h
	Other Comm Error	50h
	Unknown Response	F0h
NVRAM Error (F1**h)	Read Error	10h
	Write Error	20h

3-3-3-1. Item Error

This error occurs when the Item No. of a request is illegal or its Data is illegal. The conditions for occurrence of the respective errors are shown below.

Invalid Item
An unsupported Item No. is specified.

Example 1: The unsupported category 0xA** is specified.
Example 2: The unsupported Item No. 0x8010 is specified.

Invalid Item Request
The Item No. is supported but an unsupported Request is issued.

Example: An attempt is made to set Data in the Model Name (0x8001).

Invalid Length
Data Length of the specified Item No. is too long.

Example: An attempt is made to set 25 byte Data in the installation location (0x8003).

Invalid Data
Data of the specified Item No. is outside the setting range.

Example: An attempt is made to set 101 in the Item when the setting range of the Item is 1 to 100.

Short Data
The length of Data is shorter than the value specified by the Data Length.

Example: The actual Data length is 9 bytes but Data Length is 10.

Not Applicable Item
An item that is not valid at present is specified.

Example: The item to switch the display is specified when the main power is off.

3-3-3-2. Community Error

This error occurs when community is different.

Example: “ABCD” is specified when “SONY” is set.

3-3-3-3. Request Error

This error occurs when Header or Command is illegal. The conditions of occurrence of the respective errors are shown below.

Invalid Version

The version of the Header is other than 2.

Note

When another version is supported, an error occurs in all versions other than the supported version.

Invalid Category

The category does not match.

Example: 0x0B is specified in the device of Category = 0x0A.

Invalid Request

An unsupported request is specified.

Example: Request = 0x02 is specified.

Short Header

The received Data is 1 byte.

Short Community

The received Data is in the range of 2 to 5 bytes.

Short Command

The received Data is in the range of 6 to 9 bytes.

3-3-3-4. Network Error

This is an error that occurs in TCP/IP. The conditions of occurrence of the respective errors are shown below.

Timeout

Communication was interrupted.

3-3-3-5. Comm Error

This is an error in communication with the main control microprocessor of the display.

Timeout
Reception Data is not returned after Data is sent.

Check Sum Error
A check sum error occurred in the main control microprocessor of the display.

Framing Error
A framing error occurred.

Parity Error
A parity error occurred.

Over Run Error
An overrun error occurred.

Other Comm Error
Another error occurred.

Unknown Response
The Data cannot be processed was received.

3-3-3-6. NVRAM Error

Read Error
Reading from NVRAM was failed.

Write Error
Writing to NVRAM was failed.

Appendix A. Setup Method For VPL-PX35 and PX40

Establishing the network setup such as IP address can be implemented from the PC browser, and the information such as installation location can be viewed on the PC browser.

A-1. Command

A-1-1. Setting

Enter the following command using the format shown below in a browser as URL, and then the simple response is returned.

Format

```
http://IP address/Item?Value
```

IP address	The IP address that is assigned to the network block
Item	Name of the setup item
Value	Setting value

Response

The following HTML is returned that enables to confirm OK or NG simply.

```
<HTML>
<TITLE>
IP address
</TITLE>
<BODY>
&lt; Equipment name: Serial number&gt;<BR><BR>
Result [Item = Value]
</BODY>
</HTML>
```

IP address	The IP address that is assigned to the network block
Equipment name	Name of the equipment in which setup is implemented
Serial number	Serial number of the equipment in which setup is implemented
Result	Result (OK or NG) is displayed.
Item	Name of the setup item
Value	Setting value

A-1-2. Display

Enter the following command using the format shown below in a browser as URL, and then value of the setting item is displayed.

Format

```
http://IP address/Item
```

IP address	The IP address that is assigned to the network block
Item	Name of the setup item

Response

The following HTML is returned.

```
<HTML>
<TITLE>
IP address
</TITLE>
<BODY>
&lt; Equipment name: Serial number&gt;<BR><BR>
Result [Item = Value]
</BODY>
</HTML>
```

IP address	The IP address that is assigned to the network block
Equipment name	Name of the equipment that has acquired the setup value
Serial number	Serial number of the equipment that has acquired the setup value
Result	Result (OK or NG) is displayed.
Item	Name of the setup item
Value	Setting value

A-2. Setting Command

Each setting item is described below.

Equipment information

Item	Description	Default
location	Sets location of the equipment installation. (Maximum 24 alphanumeric characters)	–
Community	Sets the equipment community. (Maximum 4 alphanumeric characters)	SONY

Note

Location and community do not support Japanese character.

Network setup

Item	Description	Default
dhcp	Specifies method of setting IP address.	No
ipaddr	IP address	192.168.0.1
subnet	Subnet mask	255.255.0.0
gateway	Default gateway	0.0.0.0
restart	Restarts the network block to make the network setup effective.	

Notes

- When the network setup is changed, execute restart to make the setup effective.
- For the setup of dhcp, set 1 to make DHCP effective and set 0 to make DHCP ineffective.

Service setup

Item	Description	Default
ad_port	Port number of the Advertisement service	53862
ad_interval	Broadcast interval of the Advertisement service (in units of second)	30 (seconds)
ad_ip	IP address of the Advertisement service	0.0.0.0
rc_port	Port number of the Remote Control service	53484
rc_timeout	TCP connection timeout time of the Remote Control service (in units of second)	30 (seconds)

Notes

- When network setup is changed, executing restart is required to make the network setup effective.
- When ad_Interval value is set to 0, the advertisement service is stopped.
- The ad_Interval can be set to 0 or a value in the range of 10 to 65535.
- The rc_timeout can be set to a value in the range of 0 to 65535.

Appendix B

(VPL-FX51)

<Table 1>			<Table 2>			Remarks
Item Number			Data			
Item	Upper byte	Lower byte	Data	Upper byte	Lower byte	
INPUT	00h	01h	VIDEO	00h	00h	Set/Get
			S VIDEO	00h	01h	
			INPUT A	00h	02h	
			INPUT B	00h	03h	
			INPUT C	00h	04h	
CONTRAST	00h	10h	Setting value (0 to 100)	00h	00h to 64h	
BRIGHTNESS	00h	11h	Setting value (0 to 100)	00h	00h to 64h	
COLOR	00h	12h	Setting value (0 to 100)	00h	00h to 64h	
HUE	00h	13h	Setting value (0 to 100)	00h	00h to 64h	
SHARPNESS	00h	14h	Setting value (0 to 100)	00h	00h to 64h	
RGB ENHANCER	00h	15h	Setting value (0 to 100)	00h	00h to 64h	
COL TEMP	00h	17h	LOW	00h	00h	
			HIGH	00h	01h	
DDE	00h	18h	OFF	00h	00h	
			PROGRESSIVE	00h	01h	
			FILM	00h	02h	
ASPECT	00h	20h	16 : 9	00h	00h	
			4 : 3	00h	01h	
SCAN CONV	00h	21h	OFF	00h	00h	
			ON	00h	01h	
PICTURE MUTING	00h	30h	OFF	00h	00h	
			ON	00h	01h	
INPUT A	00h	32h	COMPUTER	00h	00h	
			COMPONENT	00h	01h	
			VIDEO GBR	00h	02h	
LAMP MODE	00h	40h	HIGH	00h	00h	
			STANDARD	00h	01h	
GAIN RED	00h	80h	Setting value (0 to 255)	00h	00h to FFh	
GAIN GREEN	00h	81h	Setting value (0 to 255)	00h	00h to FFh	
GAIN BLUE	00h	82h	Setting value (0 to 255)	00h	00h to FFh	
BIAS RED	00h	83h	Setting value (0 to 255)	00h	00h to FFh	
BIAS GREEN	00h	84h	Setting value (0 to 255)	00h	00h to FFh	
BIAS BLUE	00h	85h	Setting value (0 to 255)	00h	00h to FFh	
STATUS ERROR	01h	01h	NO ERROR	00h	00h	Get only
			LAMP ERROR	00h	01h	
			FAN ERROR	00h	02h	
			COVER ERROR	00h	04h	
			TEMP ERROR	00h	08h	
			D5V ERROR	00h	10h	
			POWER ERROR	00h	20h	
			WARNING ERROR	00h	40h	

(VPL-FX51)

<Table 1>			<Table 2>			Remarks
Item Number			Data			
Item	Upper byte	Lower byte	Data	Upper byte	Lower byte	
STATUS POWER	01h	02h	STANBY	00h	00h	Get only
			START UP	00h	01h	
			STARTUP LAMP	00h	02h	
			POWER ON	00h	03h	
			COOLING1	00h	04h	
			COOLING2	00h	05h	
			SAVING COOLING1	00h	06h	
			SAVING COOLING2	00h	07h	
			SAVING STABY	00h	08h	
CONTROL MODE SEL	01h	05h	USER	00h	00h	
			SERVICE	00h	01h	
LAMP TIMER	01h	13h	USE TIME	0000h-ffffh∗1		
ROM VERSION	01h	1Dh	MAIN ROM VERSION	∗2		
SC ROM VERSION	01h	1Eh	SC ROM VERSION	∗2		
Channel Memory Reset	03h	01h		00h	00h	Set only
Status Memory Reset		02h				
Set Memory Reset		03h				
W/B All Save		04h				
W/B Low Save		05h				
W/B High Save		06h				
Sircs (15bit category)	17h	Refer to table 4	–	00h	00h	Set only∗3
Sircs (20bit category)	19h	Refer to table 5	–	00h	00h	

∗1 Example) In case the lamp timer indicates 1000H, return values are [03h] upper byte and [E8h] lower byte.
∗2 Example) In case the software version is 1.03, return values are [01h] upper byte and [03h] lower byte.
∗3 It is corresponded to single command only.

(VPL-FX51)

<Table 3>			
Item Number		Data	
Item	Data	Upper byte	Lower byte
ACK	–	00h	00h
NAK	Undefined Command	01h	01h
	Size Error		04h
	Select Error		05h
	Range Over		06h
	Not Applicable		0Ah
	Check Sum Error	F0h	10h
	Framing Error		20h
	Parity Error		30h
	Over Rub Error		40h
	Other Comm Error		50h

Approximate Return Waiting Times
The await-return time is approx. 50 msec.

Note

This is the case, unless the communications are interfered anyway.

(VPL-PX35, PX40, PX41)

<Table 1>			<Table 2>			Remarks
Item Number			Data			
Item	Upper byte	Lower byte	Data	Upper byte	Lower byte	
Input	00h	01h	Video	00h	00h	Set/Get
			S-Video	00h	01h	
			Input-A	00h	02h	
			Input-B	00h	03h	
			Input-C	00h	04h	
			Input-D	00h	05h	
Picture Mode	00h	02h	Dynamic	00h	00h	
			Standard	00h	01h	
Contrast	00h	10h	Setting value (0-100)	00h	00h to 64h	
Brightness	00h	11h	Setting value (0-100)	00h	00h to 64h	
Color	00h	12h	Setting value (0-100)	00h	00h to 64h	
Hue	00h	13h	Setting value (0-100)	00h	00h to 64h	
Sharpness	00h	14h	Setting value (0-100)	00h	00h to 64h	
RGB Enhancer	00h	15h	Setting value (0-100)	00h	00h to 64h	
Volume	00h	16h	Setting value (0-100)	00h	00h to 64h	
ColTemp	00h	17h	High	00h	00h	
			Low	00h	01h	
DDE	00h	18h	Off	00h	00h	
			Progressive	00h	01h	
			Film	00h	02h	
Wide Mode	00h	20h	Off	00h	00h	
			On	00h	01h	
Scan Conv	00h	21h	Off	00h	00h	
			On	00h	01h	
Picture Muting	00h	30h	Off	00h	00h	
			On	00h	01h	
Audio Muting	00h	31h	Off	00h	00h	
			On	00h	01h	
Input-D Signal Sel	00h	33h	Computer	00h	00h	
			Component	00h	01h	
			Video GBR	00h	02h	
Lamp Mode	00h	40h	High	00h	00h	
			Standard	00h	01h	
GAIN RED	00h	80h	Setting value (0-255)	00h	00h to FFh	
GAIN GREEN	00h	81h	Setting value (0-255)	00h	00h to FFh	
GAIN BLUE	00h	82h	Setting value (0-255)	00h	00h to FFh	
BIAS RED	00h	83h	Setting value (0-255)	00h	00h to FFh	
BIAS GREEN	00h	84h	Setting value (0-255)	00h	00h to FFh	
BIAS BLUE	00h	85h	Setting value (0-255)	00h	00h to FFh	

(VPL-PX35, PX40, PX41)

<Table 1>			<Table 2>			Remarks
Item Number			Data			
Item	Upper byte	Lower byte	Data	Upper byte	Lower byte	
STATUS ERROR	01h	01h	NO ERROR	00h	00h	Get only
			LAMP ERROR	00h	01h	
			FAN ERROR	00h	02h	
			COVER ERROR	00h	04h	
			TEMP ERROR	00h	08h	
			D5V ERROR	00h	10h	
			POWER ERROR	00h	20h	
			WARNING ERROR	00h	40h	
STATUS POWER	01h	02h	STANBY	00h	00h	
			START UP	00h	01h	
			STARTUP LAMP	00h	02h	
			POWER ON	00h	03h	
			COOLING1	00h	04h	
			COOLING2	00h	05h	
			SAVING COOLING1	00h	06h	
			SAVING COOLING2	00h	07h	
			SAVING STABY	00h	08h	
CONTROL MODE SEL	01h	05h	USER MODE	00h	00h	
			SERVICE MODE	00h	01h	
LAMP TIMER	01h	13h	LAMP USE TIME	0000h-ffffh∗1		
ROM VERSION	01h	1Dh	MAIN ROM VERSION	∗2		
SC ROM VERSION	01h	1Eh	SC ROM VERSION	∗2		
STATUS SECURITY∗3	01h	1Fh	Disable	00h	00h	
			Enable	00h	01h	
Channel Memory Reset	03h	01h	–	00h	00h	Set only
Status Memory Reset		02h				
Set Memory Reset		03h				
W/B All Save		04h				
W/B High Save		05h				
W/B Low Save		06h				
Sircs (15 bit category)	17h	Refer to table 6	–	00h	00h	Set only∗4
Sircs (20 bit category)	19h	Refer to table 7	–	00h	00h	

(VPL-PX35, PX40, PX41)

<Table 3>			
Item Number		Data	
Item	Data	Upper byte	Lower byte
ACK	–	00h	00h
NAK	Undefined Command	01h	01h
	Size Error		04h
	Select Error		05h
	Range Over		06h
	Not Applicable		0Ah
	Check Sum Error	F0h	10h
	Framing Error		20h
	Parity Error		30h
	Over Rub Error		40h
	Other Comm Error		50h

∗1 Example) In case the lamp timer indicates 1000H, return values are [03h] upper byte and [E8h] lower byte.

∗2 Example) In case the software version is 1.03, return values are [01h] upper byte and [03h] lower byte.

∗3 While the set is security locked, after power switch is turned on, you can check that pass sword input screen is indicated or not.
During pass word input screen indicating, return values are [00h] upper byte and [01h] lower byte.

∗4 It is corresponded to single command only.

Approximate Return Waiting Times

The await-return time is approx. 50 msec.

Note

This is the case, unless the communications are interfered anyway.

(VPL-CX75)

<Table 1>			<Table 2>			Remarks
Item Number			Data			
Item	Upper byte	Lower byte	Data	Upper byte	Lower byte	
Input	00h	01h	Video	00h	00h	Set/Get
			S-Video	00h	01h	
			Input-A	00h	02h	
			Input-B	00h	03h	
Picture Mode	00h	02h	Dynamic	00h	00h	
			Standard	00h	01h	
Contrast	00h	10h	Setting value (0 - 100)	00h	00h - 64h	
Brightness	00h	11h	Setting value (0 - 100)	00h	00h - 64h	
Color	00h	12h	Setting value (0 - 100)	00h	00h - 64h	
Hue	00h	13h	Setting value (0 - 100)	00h	00h - 64h	
Sharpness	00h	14h	High	00h		
			Middle	01h		
			Low	02h		
Volume	00h	16h	Setting value (0 - 100)	00h	00h - 64h	
ColTemp	00h	17h	High	00h	00h	
			Low	00h	01h	
Wide Mode	00h	20h	Off	00h	00h	
			On	00h	01h	
Scan Conv	00h	21h	Off	00h	00h	
			On	00h	01h	
PictureMuting	00h	30h	Off	00h	00h	
			On	00h	01h	
AudioMuting	00h	31h	Off	00h	00h	
			On	00h	01h	
Input-A Signal Sel	00h	32h	Computer	00h	00h	
			Compornent	00h	01h	
			Video GBR	00h	02h	
Input-B Select	00h	33h	Memory Stick	00h	03h	
			Air Shot	00h	04h	
Lamp Mode	00h	40h	High	00h	00h	
			Standard	00h	01h	
Gain Red	00h	80h	Setting value (0 - 255)	00h	00h - FFh	
Gain Green	00h	81h	Setting value (0 - 255)	00h	00h - FFh	
Gain Blue	00h	82h	Setting value (0 - 255)	00h	00h - FFh	
Bias Red	00h	83h	Setting value (0 - 255)	00h	00h - FFh	
Bias Green	00h	84h	Setting value (0 - 255)	00h	00h - FFh	
Bias Blue	00h	85h	Setting value (0 - 255)	00h	00h - FFh	

(VPL-CX75)

<Table 1>			<Table 2>			Remarks
Item Number			Data			
Item	Upper byte	Lower byte	Data	Upper byte	Lower byte	
Status Error	01h	01h	No Error	00h	00h	Get only
			Lamp Error	00h	01h	
			Fan Error	00h	02h	
			Cover Error	00h	04h	
			Temp Error	00h	08h	
			D5V Error	00h	10h	
			POWER ERROR	00h	20h	
			Warning Error	00h	40h	
Status Power	01h	02h	Stanby	00h	00h	
			Start Up	00h	01h	
			Start Up Lamp	00h	02h	
			Power On	00h	03h	
			Cooling1	00h	04h	
			Cooling2	00h	05h	
			Saving Cooling1	00h	06h	
			Saving Cooling2	00h	07h	
			Saving Stanby	00h	08h	
Control Mode Select	01h	05h	User Mode	00h	00h	
			Service Mode	00h	01h	
Lamp Timer	01h	13h	Lamp Use Time	0000h-FFFFh ∗1		
ROM Version	01h	1Dh	MAIN ROM Version	∗2		
SC ROM Version	01h	1Eh	SC ROM Version	∗2		
Status Security	01h	1Fh	Disable	00h	00h	
			Enable	00h	01h	
Channel Memory Reset	03h	01h	–	00h	00h	Set only
Status Memory Reset		02h				
Set Memory Reset		03h				
W/B All Save		04h				
W/B Low Save		05h				
W/B High Save		06h				
Sircs(15bit category)	17h	Refer to table 8	–	00h	00h	Set only∗4
Sircs(20bit category)	19h	Refer to table 9	–	00h	00h	

(VPL-CX75)

<Table 3>			
Item Number		Data	
Item	Data	Upper byte	Lower byte
ACK	–	00h	00h
NAK	Undefined Command	01h	01h
	Size Error		04h
	Select Error		05h
	Range Over		06h
	Not Applicable		0Ah
	Check Sum Error	F0h	10h
	Framing Error		20h
	Parity Error		30h
	Over Rub Error		40h
	Other Comm Error		50h

∗1 Example) In case the lamp timer indicates 1000H, return values are [03h] upper byte and [E8h] lower byte.

∗2 Example) In case the software version is 1.03, return values are [01h] upper byte and [03h] lower byte.

∗3 While the set is security locked, after power switch is turned on, you can check that pass sword input screen is indicated or not.
During pass word input screen indicating, return values are [00h] upper byte and [01h] lower byte.

∗4 It is corresponded to single command only.

The await-return time of return value is approx. 50 msec.

Note

This is the case, unless the communications are interfered anyway.

(VPL-CX85)

<Table 1>			<Table 2>			Remarks
Item Number			Data			
Item	Upper byte	Lower byte	Data	Upper byte	Lower byte	
Input	00h	01h	Video	00h	00h	Set/Get
			S-Video	00h	01h	
			Input-A	00h	02h	
			Input-B	00h	03h	
			Input-C	00h	04h	
Picture Mode	00h	02h	Dynamic	00h	00h	
			Standard	00h	01h	
Contrast	00h	10h	Setting value (0-100)	00h	00h-64h	
Brightness	00h	11h	Setting value (0-100)	00h	00h-64h	
Color	00h	12h	Setting value (0-100)	00h	00h-64h	
Hue	00h	13h	Setting value (0-100)	00h	00h-64h	
Sharpness	00h	14h	High	00h		
			Middle	01h		
			Low	02h		
Volume	00h	16h	Setting value (0-100)	00h	00h-64h	
ColTemp	00h	17h	High	00h	00h	
			Low	00h	01h	
Wide Mode	00h	20h	Off	00h	00h	
			On	00h	01h	
Scan Conv	00h	21h	Off	00h	00h	
			On	00h	01h	
Picture Muting	00h	30h	Off	00h	00h	
			On	00h	01h	
Audio Muting	00h	31h	Off	00h	00h	
			On	00h	01h	
Input-A Signal Sel	00h	32h	Computer	00h	00h	
			Compornent	00h	01h	
			Video GBR	00h	02h	
Input-C Select	00h	33h	Memory Stick	00h	03h	
			Air Shot	00h	04h	
Lamp Mode	00h	40h	High	00h	00h	
			Standard	00h	01h	
Gain Red	00h	80h	Setting value (0-255)	00h	00h-FFh	
Gain Green	00h	81h	Setting value (0-255)	00h	00h-FFh	
Gain Blue	00h	82h	Setting value (0-255)	00h	00h-FFh	
Bias Red	00h	83h	Setting value (0-255)	00h	00h-FFh	
Bias Green	00h	84h	Setting value (0-255)	00h	00h-FFh	
Bias Blue	00h	85h	Setting value (0-255)	00h	00h-FFh	

(VPL-CX85)

<Table 1>			<Table 2>			Remarks
Item Number			Data			
Item	Upper byte	Lower byte	Data	Upper byte	Lower byte	
Status Error	01h	01h	No Error	00h	00h	Get only
			Lamp Error	00h	01h	
			Fan Error	00h	02h	
			Cover Error	00h	04h	
			Temp Error	00h	08h	
			D5V Error	00h	10h	
			Power Error	00h	20h	
			Warning Error	00h	40h	
Status Power	01h	02h	Stanby	00h	00h	
			Start Up	00h	01h	
			Startup Lamp	00h	02h	
			Power On	00h	03h	
			Cooling1	00h	04h	
			Cooling2	00h	05h	
			Saving Cooling1	00h	06h	
			Saving Cooling2	00h	07h	
			Saving Stanby	00h	08h	
Control Mode Select	01h	05h	User Mode	00h	00h	
			Service Mode	00h	01h	
Lamp Timer	01h	13h	Lamp Use Time	0000h-FFFFh∗1		
ROM Version	01h	1dh	MAIN ROM Version	∗2		
SC ROM Version	01h	1eh	SC ROM Version	∗2		
Status Security*3	01h	1fh	Disable	00h	00h	
			Enable	00h	01h	
Channel Memory Reset	03h	01h	–	00h	00h	Set only
Status Memory Reset		02h				
Set Memory Reset		03h				
W/B All Save		04h				
W/B High Save		05h				
W/B Low Save		06h				
Sircs (15 Bit Category)	17h	Refer to table 10	–	00h	00h	Set only∗4
Sircs (20 Bit Category)	19h	Refer to table 11	–	00h	00h	

(VPL-CX85)

<Table 3>			
Item Number		Data	
Item	Data	Upper byte	Lower byte
ACK	–	00h	00h
NAK	Undefined Command	01h	01h
	Size Error		04h
	Select Error		05h
	Range Over		06h
	Not Applicable		0Ah
	Check Sum Error	F0h	10h
	Framing Error		20h
	Parity Error		30h
	Over Rub Error		40h
	Other Comm Error		50h

∗1 Example) In case the lamp timer indicates 1000H, return values are [03h] upper byte and [E8h] lower byte.

∗2 Example) In case the software version is 1.03, return values are [01h] upper byte and [03h] lower byte.

∗3 While the set is security locked, after power switch is turned on, you can check that pass sword input screen is indicated or not.
During pass word input screen indicating, return values are [00h] upper byte and [01h] lower byte.

∗4 It is corresponded to single command only.

The await-return time of return value is approx. 50 msec.

Notes

- This is the case, unless the communications are interfered anyway.
- If standby mode is set as “low”, the main part of a projector will go into power-saving mode in about 1 minute after standby.
  A command is executed by resending, although “Not Applicable” will return, if a command is sent into power-saving mode.

List of SIRCS CODE

(1) 15BIT Category (VPL-FX51 only)

<Table 4>

	x0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x																
1x						POWER ON/OF			CONTRAST + HIGH	CONTRAST – LOW	COLOR + HIGH	COLOR – LOW			BRITNESS + BRIGHT	BRITNESS – DARK
2x	HUE + PURPLISH	HUE – GREENISH	SHARPNESS + SHARP	SHARPNESS – SOFT	PICTURE MUTING	STATUS ON	STATUS OFF			MENU	VIDEO	INPUT A	INPUT B		POWER ON	POWER OFF
3x				CURSOR →	CURSOR ←	CURSOR ↑	CURSOR ↓									
4x		ADJ R	ADJ G	ADJ B				RGB SIZE	RGB SHIFT							
5x			W/B GAIN	W/B BIAS				INPUT SELECT	BLANKING		ENTER				MEMORY	S VIDEO
6x																INPUT C
7x			LENS SHIFT ↑	LENS SHIFT ↓	FOCUS F	FOCUS N		ZOOM L	ZOOM S			RESET			PATTERN	

(2) 20BIT Category (VPL-FX51 only)

<Table 5>

	x0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x																
1x																
2x																
3x											KEYSTONE					
4x																
5x																
6x	APA	DOT PHASE	LENS ZOOM	LENS SHIFT	LENS FOCUS			FREEZE			DIGITAL ZOOM +	DIGITAL ZOOM –				
7x									LENS TOGGLE							

(3) 15BIT Category (VPL-PX35, PX40, PX41)

<Table 6>

	x0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x																
1x			VOLUME+ UP	VOLUME- DOWN	AUDIO MUTING	POWER ON/OF			CONTRAST + HIGH	CONTRAST – LOW	COLOR + HIGH	COLOR – LOW			BRITNESS + BRIGHT	BRITNESS – DARK
2x	HUE + PURPLISH	HUE – GREENISH	SHARPNESS + SHARP	SHARPNESS – SOFT	PICTURE MUTING	STATUS ON	STATUS OFF			MENU	VIDEO	INPUT A	INPUT B		POWER ON	POWER OFF
3x				CURSOR →	CURSOR ←	CURSOR ↑	CURSOR ↓									
4x		ADJ R	ADJ G	ADJ B				RGB SIZE	RGB SHIFT							
5x			W/B GAIN	W/B BIAS				INPUT SELECT			ENTER				MEMORY	S VIDEO
6x																INPUT C
7x	INPUT D											RESET				

(4) 20BIT Category (VPL-PX35, PX40, PX41)

<Table 7>

	x0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x																
1x																
2x																
3x											V KEYSTONE					
4x													DDE TOGGLE			
5x																
6x	APA	DOT PHASE						FREEZE			DIGITAL ZOOM +	DIGITAL ZOOM –				
7x									LENS CONT TOGGLE							

(5) 15BIT Category (VPL-CX75)

<Table 8>

	x0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x																
1x			VOLUME + UP	VOLUME – DOWN	AUDIO MUTING	POWER ON/OF *1			CONTRAST + HIGH	CONTRAST – LOW	COLOR + HIGH	COLOR – LOW			BRITNESS + BRIGHT	BRITNESS – DARK
2x	HUE + PURPLISH	HUE – GREENISH			PICTURE MUTING	STATUS ON	STATUS OFF			MENU	VIDEO	INPUT A	INPUT B		POWER ON *1	POWER OFF
3x				CURSOR →	CURSOR ←	CURSOR ↑	CURSOR ↓									
4x		ADJ R	ADJ G	ADJ B				RGB SIZE	RGB SHIFT							
5x			W/B GAIN	W/B BIAS				INPUT SELECT			ENTER				MEMORY	S VIDEO
6x																
7x					LENS FOCUS F	LENS FOCUS N	AUTO FOCUS	LENS ZOOM L	LENS ZOOM S			RESET				

(6) 20BIT Category (VPL-CX75)

<Table 9>

	x0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x																
1x																
2x																
3x											TILT/ KEYSTONE/ SIDE SHOT		MS PLAY	AIR SHOT	H KEYSTONE +	H KEYSTONE –
4x																
5x																
6x	APA	DOT PHASE	LENS ZOOM		LENS FOCUS			FREEZE			DIGITAL ZOOM +	DIGITAL ZOOM –				
7x									LENS CONT TOGGLE							

(5) 15BIT Category (VPL-CX85)

<Table 10>

	x0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x																
1x			VOLUME + UP	VOLUME – DOWN	AUDIO MUTING	POWER ON/OF ∗1			CONTRAST + HIGH	CONTRAST – LOW	COLOR + HIGH	COLOR – LOW			BRITNESS + BRIGHT	BRITNESS – DARK
2x	HUE + PURPLISH	HUE – GREENISH			PICTURE MUTING	STATUS ON	STATUS OFF			MENU	VIDEO	INPUT A	INPUT B		POWER ON ∗1	POWER OFF
3x				CURSOR →	CURSOR ←	CURSOR ↑	CURSOR ↓									
4x		ADJ R	ADJ G	ADJ B				RGB SIZE	RGB SHIFT							
5x			W/B GAIN	W/B BIAS				INPUT SELECT			ENTER				MEMORY	S VIDEO
6x																INPUT C
7x					LENS FOCUS F	LENS FOCUS N		LENS ZOOM L	LENS ZOOM S			RESET				

∗1 If standby mode is set as “low”, the main part of a projector will go into power-saving mode in about 1 minute after standby. A command is executed by resending, although “Not Applicable” will return, if a command is sent into power-saving mode.

(6) 20BIT Category (VPL-CX85)

<Table 11>

	x0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x																
1x																
2x																
3x											TILT/ KEYSTONE/ SIDE SHOT		MS PLAY	AIR SHOT	H KEYSTONE +	H KEYSTONE –
4x																
5x																
6x	APA	DOT PHASE	LENS ZOOM		LENS FOCUS			FREEZE			DIGITAL ZOOM +	DIGITAL ZOOM –				
7x									LENS CONT TOGGLE							

VPL-CX75 (SY)
VPL-CX85 (SY)
VPL-FX51 (SY)
VPL-PX35 (SY)
VPL-PX40 (SY)
VPL-PX41 (SY) E
9-870-346-66

Sony EMCS Corporation
Ichinomiya Tec

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