

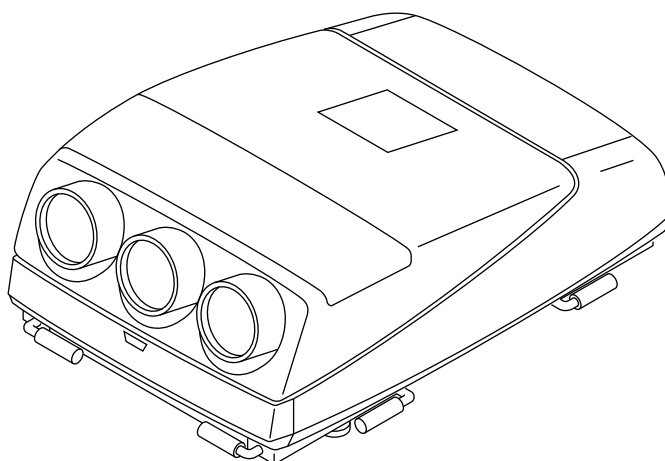
PROTOCOL MANUAL

For General Release

<i>MODEL</i> EEEEEE	<i>DEST.</i> EEE	<i>CHASSIS NO.</i> EEEEEE
<i>VPH-G90U</i>	<i>US/CND</i>	<i>SCC-K81D-A</i>
<i>VPH-G90E</i>	<i>AEP</i>	<i>SCC-K82E-A</i>
<i>VPH-G90M</i>	<i>E</i>	<i>SCC-N96A-A</i>

VERSION 1.0

Projector Firmware ARC32



MULTISCAN PROJECTOR

SONY[®]

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1. INTRODUCTION

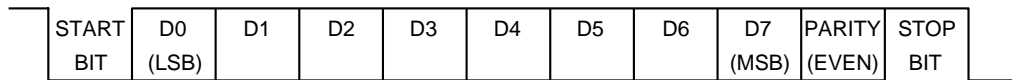
This protocol manual describes the basic configuration and basic operations of various commands used for projector. Projector can be controlled using the commands in the List of Commands provided in Section 10 “COMMANDS”. Using an external CONTROLLER or SWITCHER, etc., inputs can be switched and the 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. COMMUNICATION SPECIFICATIONS

2-1. RS-232C COMMUNICATION SIGNAL

- Full duplex communication channels (Flow control not performed.)
- Start-stop synchronism system
- Baud rate: 38.4 k, 19.2 k, 9600 bps (bits per second)
- The bit configuration is defined as follows.
- RS-422A and PJ COM have the same bit configuration.

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. RS-422A COMMUNICATION SIGNAL

- Full duplex (4-wire) communication channels
- Start-stop synchronism system bit serial word serial digital signal
- Baud rate: 38.4 k, 19.2 k, 9600 bps (bits per second)
- Refer to "2-1. RS-232C Communication Signal" for details on the bit configuration.

2-3. PJ COM COMMUNICATION SIGNAL

- Half duplex (4-wire) PROJECTOR dedicated communication channels
- Start/stop system bit serial word serial digital signal
- Baud rate: 38.4 k, 19.2 k, 9600 bps (bits per second)
- Refer to "2-1. RS-232C Communication Signal" for details on the bit configuration.

3. COMMAND BLOCK FORMAT

The code from B0 to B (m + 2) as described below is/are transmitted.

①
B0
Start Code

②				
B1	B2	B3	B4	B5
Peripheral Index	Group Index		Device Index	
RECEIVER (To) Index				

③				
B6	B7	B8	B9	B10
Peripheral Index	Group Index		Device Index	
SENDER (From) Index				

④		
B11	B12	B13
Cmd1	Cmd2	Cmd3
COMMAND		

⑤
B14
Data Length 1 (B16 + 2) (02 — 81 h)
Check Data Length

⑥	⑦
B15	B16
Data Length 2 (B15*128)	Data Length 3 (00 — 7 Fh)
Total Data Length B15 *128 + B16	
Data Length	

⑧	
Bn	Bm
Data (n)	Data (n + 1,2,3,4...)
Data	

Bn = B (16 + 1)
Bm = B (16 + Total Data Length)

⑨
B (m + 1)
Check SUM

⑩
B (m + 2)
End Code

4. DATA OF CODE

① Start Condition

Bn	NAME	DATA	NOTE
B0	Start Code	A5	Indicates the first packet

② INDEX Header

/*-- RECEIVER INDEX --*/

B1	PERIPHERAL INDEX	00 ~ 03	00 : All, 01 : Projector, 02 : Switcher, 03 : Controller
B2	GROUP INDEX UPPER BYTE	00	Group Index = 0000 ~ 0063 hex
B3	GROUP INDEX LOWER BYTE	00 ~ 63	
B4	DEVICE INDEX UPPER BYTE	00	Device Index = 0000 ~ 0063 hex
B5	DEVICE INDEX LOWER BYTE	00 ~ 63	

/*-- SENDER INDEX --*/

B6	PERIPHERAL INDEX	01 ~ 03	01 : Projector, 02 : Switcher, 03 : Controller
B7	GROUP INDEX UPPER BYTE	00	Group Index = 0001 ~ 0063 hex
B8	GROUP INDEX LOWER BYTE	01 ~ 63	
B9	DEVICE INDEX UPPER BYTE	00	Device Index = 0001 ~ 0063 hex
B10	DEVICE INDEX LOWER BYTE	01 ~ 63	

/*-- Command --*/

B11	CMD1	Refer to attached	
B12	CMD2	Refer to attached	
B13	CMD3		Receiving Device Peripheral INDEX = 01
			Receiving Device Peripheral INDEX = 02
		00	Projector All
		10 ~ 7F	CRT Projector (10 CRT All)
	80 ~ AF	LCD Projector (80 LCD All)	10 : PC-3000
	B0 ~ FF	DMD Projector (B0 DMD All)	

Note : CMD1 and CMD2 are assigned with different commands for each unit. Consequently, there is no compatibility of commands between units. For details of the commands, refer to the respective list of commands for the units.

③ Sub Data Size

B14	Data Length 1	02 ~ 81	(B16 + 2 hex) Data Size
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Note : Error when 82 to FF hex codes are included.

④ Data Size (*1)

B15	Data Length 2	00 ~ 10	(B15 *80 hex) Data Size
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Note : Error when 11 to FF hex codes are included

⑤ **Data Size**

B16	Data Length 3	00 ~ 7F	Size of ⑥
-----	---------------	---------	-----------

Note : Error when 80 to FF hex codes are included.

Calculate the actual ⑥ Data length using the following method.
 Calculate the Total Data Length using the B15 (*1) and B16 Data.

<Example>

If B15 = 02 h and B16 = 7 fh, calculate the Total Data Size as follows.

Data Length indicated by B15.

$$2 * 128 = 256 \text{ Byte}$$

Data Length indicated by B16.

$$127 \text{ Byte}$$

The Data Length indicated by Total is ;

$$(B15) 256 \text{ Byte} + B (16) 127 \text{ Byte} = 383 \text{ Byte.}$$

⑥ **Data**

Bn~Bm	Data	XX	Indicates the last packet
-------	------	----	---------------------------

$$Bn = B (16 + 1)$$

$$Bm = B (16 + \text{Total Data Length})$$

⑦ **Check SUM**

B (m + 1)	Check Sum	XX	Checksum of Data from ② to ⑥ (Calculate the XOR of the Data from ② to ⑥.)
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XOR is the exclusive OR.

It is as follows when calculated by 1 bit.

Taking A XOR B = C ;

A	B	C
0	0	0
1	0	1
0	1	1
1	1	0

<Example of Calculation>

When 0XA5 (165) and 0XA5 (165) are calculated by XOR ;

A5	10100101	(165)
A5	10100101	(165)
Answer	00000000	(0)

When 0XA5 (165) and 0X5A (90) are calculated by XOR ;

Answer

A5	10100101	(165)
5A	01011010	(90)
Answer	11111111	(255)

⑧ **End Condition**

B (m + 2)	END Code	5A	No Data in some cases
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5. BASIC OPERATIONS

5-1. COMMON OPERATIONS OF RS-232C/422A

RS-232C and RS-422A use the same port. Transmission and reception are performed only for the TX line and RX line in the case of softwares using the same commands (based on the software conditions). Handshaking normally established by RS-232C is therefore not performed.

5-2. PJ COM OPERATIONS

PJ COM is a port specially developed for projector based on RS-485. It therefore has no compatibility with the commercially available RS-485. (Special uses only)

PJ COM is a half duplex communication composed of the data line and control line. The control line is normally called as busy line, indicating whether the PJ COM line is available for use. Transmission is performed only when this line is free. If in use, data is transmitted to the Data line.

5-3. BASIC OPERATIONS

Transmission and reception by RS-232C/422A and PJ COM are performed using the same protocols. The data received by RS-232C/422A is input to the unit once to confirm that there are no errors in the data, and it is then transmitted to PJ COM again. Basic operations at PJ COM are the same. The data input to the unit once is checked that there are no errors, and is transmitted to RS-232C/422A again. The unit serves as a communication bridge.

6. CONNECTION

6-1. 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.)

6-2. RS-422A CONNECTION

If the distance between the CONTROLLER and PROJECTOR is long, the transmission distance can be extended with the use of the following conversion tool.

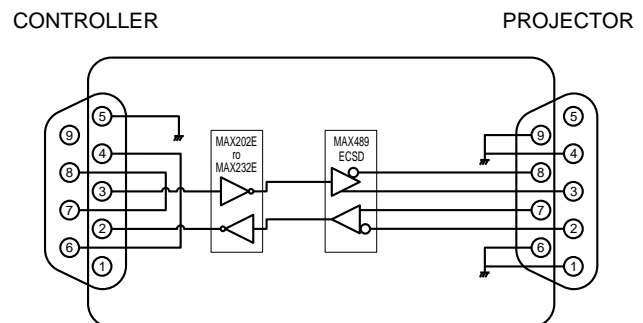
Assured cable length : 50 m (However, assurance may not be applicable for some cables.)

Conversion tool

Connector : 9 Pin D-subminiature female (D-9S)

If CONTROLLER is wired with RS-232C and PROJECTOR is with RS-422A, the following connection is recommended.

signal	pin	Controller	Projector or Switcher
	1	NC	GND
	2	RX DA	$\overline{\text{TX}}$
	3	TX DA	RX
	4	NC	GND
	5	GND	NC
	6	DSR	GND
	7	RTS	TX
	8	CTS	$\overline{\text{RX}}$
	9	NC	GND



6-3. PJ COM CONNECTION

Port for connecting PROJECTOR and SWITCHER.

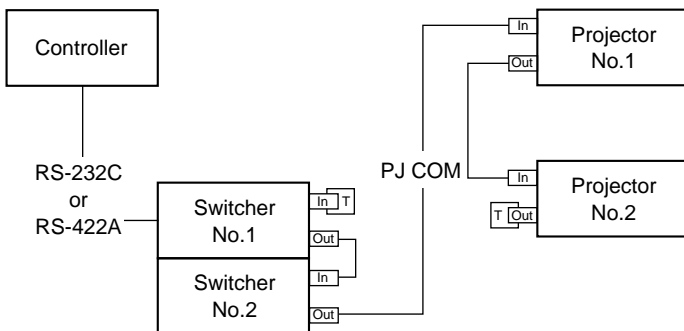
Communication is enabled by using the normal 9Pin D-Sub straight (normal) cable (RS-232C cable). This however applies to cables which are connected to all pins only.

Note : Connect all models by cascade connection and terminate each.

Assured cable length : 50 m (However, assurance may not be applicable for some cables.)
The total length including extension should be within 500 m.

6-4. CONNECTION EXAMPLE

System consisting of two SWITCHERs and two PROJECTORs.



Connect CONTROLLER to the RS-232C Port of the nearest unit.

Connect PROJECTOR and SWITCHER using the PJ COM Port.

7. COMMUNICATION PROCEDURE

All communication between CONTROLLER (PC, etc.) and DEVICE (PROJECTOR, SWITCHER) is performed by the transfer 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. In some cases, CONTROLLER may receive data from DEVICE even though it has not sent a command. (For example, during SYS setting, SIRCS command, and switcher information when switcher is selected.)

Note : When All (00 hex) is specified for the INDEX No., return data may not be returned in some cases.

8. COMMUNICATION RULES

- Set the INDEX NUMBER of PROJECTOR and SWITCHER from “01.”
- When sending a command from CONTROLLER, the return data (CMD1 = 10 hex) from PROJECTOR and SWITCHER 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 or SWITCHER ignores the data received until now, and set into the reception standby state.
- For undefined commands or commands determined as invalid by PROJECTOR, PROJECTOR will send the “NAK” return data to CONTROLLER (When the Index is specified only.). Be very careful that the switcher will not send the “NAK”.
- Take note that when data is written when the input signal of PROJECTOR or SWITCHER is unstable, that data (value) will not be incorporated.
- When INDEX specified SIRCS direct command (CMD1 = 17 hex) 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.)

9. APPROXIMATE RETURN WAITING TIMES

CMD1	CMD2	DATA1	TIME (mSec)
11	—	—	32
13	—	—	32
15	—	—	33
30	—	—	33
32	—	—	241

Note : The times shown in this table are when communication is performed one to one between **CONTROLLER** and **DEVICE**, and in the condition that it will not be interrupted by some reason.

10. COMMANDS

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
RETURN DATA FROM PJ <CMD1=10 hex>	ACK(ACKNOWLEDGE)	CONTROLLER ← PROJECTOR	10	10	00
	ACK WITH DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 — DATA #N
	NAK (NOT ACKNOWLEDGE)	CONTROLLER ← PROJECTOR	10	F0	ERROR DATA COMMAND ERROR 01 UNDEFINED COMMAND 02 PROJECTOR HEAD IS NOT POWER ON 03 ANY PROTECT IS ON 04 SIZE ERROR 05 SELECT ERROR 06 RANGE OVER 07 SIRCS BUSY 08 DATA NOT STABILIZED COMMUNICATION ERROR 10 CHECK SUM ERROR 20 FRAMING ERROR 30 PARITY ERROR 40 OVER ERROR 50 OTHER ERROR
STATUS SENSE <CMD1=11 hex>	SOFTWARE VER. REQUEST	CONTROLLER → PROJECTOR	11	00	DATA #1 00 ALL 01 PJ VERSION 02 BOOT VERSION 03 DOWNLOADER VERSION 04 MAIN VERSION 05 FONT VERSION
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 DATA #4 — DATA #20 ALL VERSION (PJ BOOT DOWNLOADER MAIN FONT) DATA 4 Bytes * 5 = 20 Bytes DATA #1 DATA #2 DATA #3 DATA #4 PJ VERSION DATA (4 Bytes) BOOT VERSION DATA (4 Bytes) DOWNLOADER VERSION DATA (4 Bytes) MAIN VERSION DATA (4 Bytes) FONT VERSION DATA (4 Bytes)
	ENVIRONMENT STATUS SENSE	CONTROLLER → PROJECTOR	11	02	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 DATA #4 ENVIRONMENT (4 Bytes) VERSION MODEL SET VERSION : 00000000 VER.1 MODEL : 00000000 NORMAL 00000008 SIMULATION SET : 00000000 VPH-G90
	POWER ACT STATUS SENSE	CONTROLLER → PROJECTOR	11	05	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	POWER ACT 00 STANDBY (OFF) 01 ON
SET MODE ACT STATUS SENSE	CONTROLLER → PROJECTOR	11	07	XX	
RETURN DATA	CONTROLLER ← PROJECTOR	10	20	SET MODE 00 USER 01 PRO 02 SERVICE 03 EXPERT 04 FACTORY	
POLE STATUS SENSE	CONTROLLER → PROJECTOR	11	08	XX	
RETURN DATA	CONTROLLER ← PROJECTOR	10	20	POLE 00 NORMAL 01 HINV 02 VINV 03 HVINV	

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
	LINK CONNECTION STATUS SENSE	CONTROLLER → PROJECTOR	11	09	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	LINK CONNECTION 00 FALSE 01 TRUE
	ALL WHITE MODE STATUS SENSE	CONTROLLER → PROJECTOR	11	0A	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	ALL WHITE 00 OFF 01 ON
	POWER SAVING STATUS SENSE	CONTROLLER → PROJECTOR	11	0B	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	POWER SAVING 00 OFF 01 ON
	PIC MUTING STATUS SENSE	CONTROLLER → PROJECTOR	11	0C	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	PIC MUTING 00 OFF 01 ON
	CUT OFF STATUS SENSE	CONTROLLER → PROJECTOR	11	0D	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 R CUT OFF FLAG G CUT OFF FLAG B CUT OFF FLAG 00 OFF 00 OFF 00 OFF 01 ON 01 ON 01 ON
	FREQUENCY OUT OF RANGE STATUS SENSE	CONTROLLER → PROJECTOR	11	11	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	FREQUENCY OUT OF RANGE 00 FALSE 01 TRUE
	OVER CORRECTION STATUS SENSE	CONTROLLER → PROJECTOR	11	12	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	OVER CORRECTION 00 NORMAL 01 CORRECTION
	COMM ENTER INFO STATUS SENSE	CONTROLLER → PROJECTOR	11	13	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 ORIGIN TARGET DEVICE INDEX INFO. ORIGIN: 00 NOT ORIGIN CONTROL PANEL 80 ORIGIN CONTROL PANEL TARGET DEVICE INDEX INFO.: 00 NOTSEL 01 SEL 02 CHANGENOTSEL 03 CHANGESEL
	COMM TARGET DEVICE INDEX SENSE	CONTROLLER → PROJECTOR	11	14	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 GROUP INDEX DEVICE INDEX 00~63 : 0~99 00~63 : 0~99
	NVM IMEM ENTRY LOAD FROM	CONTROLLER → PROJECTOR	11	15	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	NVM IMEM ENTRY 00~95 : 0~149 (VPH-G90)
	NVM IMEM ENTRY SAVE TO	CONTROLLER → PROJECTOR	11	16	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	NVM IMEM ENTRY 00~95 : 0~149 (VPH-G90)
	SIGNAL STABILIZED STATUS SENSE	CONTROLLER → PROJECTOR	11	18	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	SIGNAL STABILIZED 00 FALSE 01 TRUE

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
	MG ALL ADJ STATUS SENSE	CONTROLLER → PROJECTOR	11	1A	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	MG ALL ADJ 00 JUSTFOCUS 01 DEFOCUS 02 SPOTSHAPE
	INTERNAL VIDEO INSTALLED STATUS SENSE	CONTROLLER → PROJECTOR	11	20	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	INTERNAL VIDEO INSTALLED 00 FALSE 01 TRUE
	EXB INSTALLED STATUS SENSE	CONTROLLER → PROJECTOR	11	21	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	EXB INSTALLED 00 OFF 01 IDTV 02 DRC
	CCQ (IFB-40) INSTALLED STATUS SENSE	CONTROLLER → PROJECTOR	11	22	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	CCQ (IFB-40) 00 FALSE 01 TRUE
	NEW SWITCHER (PC-3000) INSTALLED STATUS SENSE	CONTROLLER → PROJECTOR	11	23	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	NEW SWITCHER INSTALLED 00 FALSE 01 TRUE
	SIGNAL SLOT B STATUS SENSE	CONTROLLER → PROJECTOR	11	24	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	SIGNAL SLOT B 00 NOINPUT 10 VIDEOCVBS 11 VIDEOYC 20 RGB 30 COMP 40 HDTVYPBPR 41 HDTVGBR 50 IDTVCOMP60 51 IDTVNOTCOMP60 80 UNKNOWN 01 OUTPUT
	SIGNAL SLOT C STATUS SENSE	CONTROLLER → PROJECTOR	11	25	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	SIGNAL SLOT C 00 NOINPUT 10 VIDEOCVBS 11 VIDEOYC 20 RGB 30 COMP 40 HDTVYPBPR 41 HDTVGBR 50 IDTVCOMP60 51 IDTVNOTCOMP60 80 UNKNOWN 01 OUTPUT
	OPERATION TIMER STATUS SENSE	CONTROLLER → PROJECTOR	11	30	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 — DATA #4 OPERATION 4 Bytes (* 10 mSec)
	CRT TIMER RGB STATUS SENSE	CONTROLLER → PROJECTOR	11	31	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 — DATA #5 — DATA #9 — DATA #12 CRT R CRT G CRT B 4 Bytes (* 10 mSec) 4 Bytes (* 10 mSec) 4 Bytes (* 10 mSec)
	SET SETTING DESCRIPTION STATUS SENSE	CONTROLLER → PROJECTOR	11	32	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 — DATA #33 — DATA #36 SET NAME SET SERIAL 32 Bytes ASCII CHARACTER 32 Bit CODE

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
	SET SETTING DESCRIPTION STATUS SENSE	CONTROLLER → PROJECTOR	11	33	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 — DATA #32 SET NAME 32 Bytes ASCII CHARACTER
	SET SETTING DESCRIPTION STATUS SENSE	CONTROLLER → PROJECTOR	11	34	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 — DATA #4 SET SERIAL 32 Bit CODE
	USER PRO STATUS SENSE	CONTROLLER → PROJECTOR	11	35	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	PROFESSIONAL USER FLAG 00 FALSE 01 TRUE
	DIRECT POWER ON STATUS SENSE	CONTROLLER → PROJECTOR	11	36	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DIRECT POWER ON/OFF 00 OFF 01 ON
	POWER ON DELAY STATUS SENSE	CONTROLLER → PROJECTOR	11	37	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	POWER ON DELAY 00 OFF 01 ON
	ALL WHITE MODE STATUS SENSE	CONTROLLER → PROJECTOR	11	38	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 ALL WHITE ALL WHITE TIME 00 OFF 1 Bytes (* 1 min) 01 ON
	POWER SAVING STATUS SENSE	CONTROLLER → PROJECTOR	11	3B	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 POWER SAVING POWER SAVING TIME 00 OFF 1 Bytes (* 1 min) 01 ON
	PIC SHIFT ORBITTING STATUS SENSE	CONTROLLER → PROJECTOR	11	3E	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 PIC SHIFT ORBITTING PIC SHIFT ORBITTING LINK X1 MIN PIC SHIFT ORBITTING 00 OFF 00 OFF 1 Bytes (* 1 min) 01 ON 01 ON
	SCAN LINE SHIFT STATUS SENSE	CONTROLLER → PROJECTOR	11	42	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 SCANLINE SHIFT SCANLINESHIFT LINK X1 MIN SCANLINESHIFT 00 OFF 00 OFF 1 Bytes (* 1 min) 01 ON 01 ON
	ABG STATUS SENSE	CONTROLLER → PROJECTOR	11	4C	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	AUTO BACKGROUND 00 OFF 01 ON
	ABL LINK STATUS SENSE	CONTROLLER → PROJECTOR	11	4D	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	ABL LINK 00 OFF 01 ON
	5BNC SWITCHER STATUS SENSE	CONTROLLER → PROJECTOR	11	4E	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	5BNC SWITCHER FLAG 00 OFF 01 ON

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
	SIRCS RECEIVER STATUS SENSE	CONTROLLER → PROJECTOR	11	4F	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	SIRCS RECEIVER 00 OFF 01 FRONT 02 REAR 03 FRONTREAR
	OSD LANGUAGE STATUS SENSE	CONTROLLER → PROJECTOR	11	50	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	OSD LANGUAGE 00 ENGLISH 01 FRENCH 02 GERMAN 03 ITALIAN 04 SPANISH 05 JAPANESE 06 CHINESE
	STATUS (OSD VISIBLE) STATUS SENSE	CONTROLLER → PROJECTOR	11	51	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	STATUS (OSD VISIBLE) 00 OFF 01 ON
	INPUT STATUS SENSE	CONTROLLER → PROJECTOR	11	52	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 CHANNEL CHANNEL PC-1271 CHANNEL PC-3000 00 VIDEO 11—18 SW'ER1-1 ⁸ 11—18 SW'ER1-1 ⁸ 01 INPUT A 21—28 SW'ER2-1 ⁸ 21—28 SW'ER2-1 ⁸ 02 INPUT B 30 OTHER 31—38 SW'ER3-1 ⁸ 03 INPUT C 41—48 SW'ER4-1 ⁸ 04 PC-1271 51—58 SW'ER5-1 ⁸ 05 PC-3000 61—68 SW'ER6-1 ⁸ 71—78 SW'ER7-1 ⁸ 81—88 SW'ER8-1 ⁸
	VIDEO SETTING SENSE	CONTROLLER → PROJECTOR	11	56	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 SIGNAL COLOR SYSTEM EXB 10 VIDEOCVBS 00 AUTO 00 NOT USE 11 VIDEOYC 07 NTSC 01 IDTV 19 PAL 02 DRC 1D SECAM 05 NTSC443 2B PALM
	INPUT A SETTING SENSE	CONTROLLER → PROJECTOR	11	5B	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 SIGNAL COLOR SYSTEM EXB 10 VIDEOCVBS 00 AUTO 00 NOT USE 11 VIDEOYC 07 NTSC 01 IDTV 20 RGB 19 PAL 02 DRC 30 COMP 1D SECAM 40 HDTVYPBPR 05 NTSC443 41 HDTVGBR 2B PALM
	INPUT B SETTING SENSE	CONTROLLER → PROJECTOR	11	5E	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 SIGNAL COLOR SYSTEM EXB 10 VIDEOCVBS 00 AUTO 00 NOT USE 11 VIDEOYC 07 NTSC 01 IDTV 20 RGB 19 PAL 02 DRC 30 COMP 1D SECAM 40 HDTVYPBPR 05 NTSC443 41 HDTVGBR 2B PALM

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
	INPUT C SETTING SENSE	CONTROLLER → PROJECTOR	11	62	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 SIGNAL 10 VIDEOCVBS 11 VIDEOYC 20 RGB 30 COMP 40 HDTVYPBPR 41 HDTVGBR DATA #2 COLOR SYSTEM 00 AUTO 07 NTSC 19 PAL 1D SECAM 05 NTSC443 2B PALM DATA #3 EXB 00 NOT USE 01 IDTV 02 DRC
	PC-1271 ALL SETTING SENSE	CONTROLLER → PROJECTOR	11	66	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 PC1271SW'ER 1-1 COLOR SYSTEM 00 AUTO 07 NTSC 19 PAL 1D SECAM 05 NTSC443 2B PALM DATA #24 OTHER DATA #25 PC1271SW'ER 1-1 EXB 00 NOT USE 01 IDTV 02 DRC 24 Bytes DATA #48 OTHER 24 Bytes
	SCREEN TYPE SENSE	CONTROLLER → PROJECTOR	11	69	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	SCREEN TYPE 00 SCREEN B 01 SCREEN M
	COLOR UNIFORMITY SETTING SENSE	CONTROLLER → PROJECTOR	11	6A	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	COLOR UNIFORMITY 00 OFF 01 ADJUST 02 PRESET 1 03 PRESET 2
	BRT UNIFORMITY SETTING SENSE	CONTROLLER → PROJECTOR	11	6B	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	BRIGHTNESS UNIFORMITY 00 OFF 01 ADJUST 02 PRESET 1 03 PRESET 2
	INPUT MEM. MANUAL OPERATION SETTING SENSE	CONTROLLER → PROJECTOR	11	6E	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	INPUT MEM. MANUAL OPERATION 00 FALSE 01 TRUE

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
	PC-3000 STATUS SENSE	CONTROLLER → PROJECTOR	11	80	DATA #1 DATA #2 SWITCHER NUMBER SWITCHER STATUS (N Bytes) 00 ALL 00 ALL (15 Bytes) 01 1 01 Existent (1 Bytes) 02 2 02 Switcher Serial (4 Bytes) 03 3 03 Boot Version (4 Bytes) 04 4 04 MainVersion (4 Bytes) 05 5 05 EXB 0 (1 Bytes) 06 6 06 EXB 1 (1 Bytes) 07 7 08 8
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 — DATA #N ONE, ONE (N Bytes) ONE, ALL (15 Bytes) ALL, ONE (8 * N Bytes) ALL, ALL (8 * 15 Bytes) DATA #1 EXISTENT 00 FALSE 01 TRUE DATA #2 DATA #3 DATA #4 DATA #5 SWITCHER SERIAL 4 Bytes DATA #6 DATA #7 DATA #8 DATA #9 BOOT VERSION 4 Bytes DATA #10 DATA #11 DATA #12 DATA #13 MAIN VERSION 4 Bytes DATA #14 DATA #15 EXB 0 EXB 1 00 NOEXB 00 NOEXB 01 MATRX 01 MATRX

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
	PC-3000 CH STATUS SENSE	CONTROLLER → PROJECTOR	11	81	<p>DATA #1 CHANNEL NEW SWITCHER 10, 11—18 SW'ER 1 ALL, 1-1⁻8 20, 21—28 SW'ER 2 ALL, 2-1⁻8 30, 31—38 SW'ER 3 ALL, 3-1⁻8 40, 41—48 SW'ER 4 ALL, 4-1⁻8 50, 51—58 SW'ER 5 ALL, 5-1⁻8 60, 61—68 SW'ER 6 ALL, 6-1⁻8 70, 71—78 SW'ER 7 ALL, 7-1⁻8 80, 81—88 SW'ER 8 ALL, 8-1⁻8</p> <p>DATA #2 SWITCHER CHANNEL STATUS (N Bytes) 00 ALL (20 Bytes) 01 Description (10 Bytes) 02 IFB type (2 Bytes) 03 IFB Setting (1 Bytes) 04 Signal In (1 Bytes) 05 Signale Out (1 Bytes) 06 EXB 0 (1 Bytes) 07 EXB 1 (1 Bytes) 08 EXBPJ (1 Bytes) 09 PJ Color System (1 Bytes) 0A Audio Volume (1 Bytes)</p>
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	<p>DATA #1 — DATA #N ONE, ONE (N Bytes) ONE, ALL (20 Bytes) ALL, ONE (8 * N Bytes) ALL, ALL (8 * 20 Bytes)</p> <p>DATA #1 — #10 SWITCHER CHANNEL DESCRIPTION 10 Bytes ASCII CODE</p> <p>DATA #11,#12 IFB TYPE (16 Bits) 00 NOIFB</p> <p>DATA #13 IFB SETTING 00 NOIFB 01 INPUT 02 OUTPUT</p> <p>DATA #14 SIGNAL IN 00 INVALID 10 VIDEOCVBS 11 VIDEOYC 20 RGB 30 COMP 40 HDTVYPBPR 41 HDTVGBR 60 SDI422</p> <p>DATA #15 SIGNAL OUT 00 INVALID 10 VIDEOCVBS 11 VIDEOYC 20 RGB 30 COMP 40 HDTVYPBPR 41 HDTVGBR 60 SDI422</p> <p>DATA #16 EXB0 00 FALSE 01 TRUE</p> <p>DATA #17 EXB1 00 FALSE 01 TRUE</p> <p>DATA #18 EXBPJ 00 OFF 01 IDTV 02 DRC</p> <p>DATA #19 PJ COLOR SYSTEM 00 AUTO 07 NTSC 19 PAL 1D SECAM 05 NTSC443 2B PALM</p> <p>DATA #20 AUDIO VOLUME 0 - 10</p>
	VIDEO MEMORY DESCRIPTION STATUS	CONTROLLER → PROJECTOR	11	90	<p>MEMORY NUMBER 00 OFF 01 1 02 2 03 3 04 4 05 5 06 6 07 7 08 8 09 9 0A 10</p>
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	<p>DATA #1 — DATA #32 VIDEO MEMORY NAME 32 Bytes ASCII CODE</p>

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA																																																																	
	VIDEO MEMORY SETTING ALL SENSE	CONTROLLER → PROJECTOR	11	91	MEMORY NUMBER 00 OFF 01 1 02 2 03 3 04 4 05 5 06 6 07 7 08 8 09 9 0A 10																																																																	
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	<table border="0"> <tr> <td>DATA #1</td> <td>DATA #2</td> <td>DATA #3</td> <td>DATA #4</td> <td>DATA #5</td> </tr> <tr> <td>COLOR TEMP.</td> <td>COLOR TEMP.CUSTOM</td> <td>D PICTURE</td> <td>V.SHIFT</td> <td>PIC ASPECT</td> </tr> <tr> <td>00 9300K</td> <td>00 9300K</td> <td>00 OFF</td> <td>00 FALSE</td> <td>00 WIDE</td> </tr> <tr> <td>01 6500K</td> <td>01 6500K</td> <td>01 ON</td> <td>01 TRUE</td> <td>01 NARROW</td> </tr> <tr> <td>02 5400K</td> <td>02 5400K</td> <td></td> <td></td> <td></td> </tr> <tr> <td>03 3200K</td> <td>03 3200K</td> <td></td> <td></td> <td></td> </tr> <tr> <td>04 CUSTOM</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <table border="0"> <tr> <td>DATA #6</td> <td>DATA #7</td> <td>DATA #8</td> <td>DATA #9</td> <td>DATA #10</td> </tr> <tr> <td>3D COMB FILTER</td> <td>NTSC SETUP 7.5 FLAG</td> <td>COMPONENT FORMAT</td> <td>PEAKING</td> <td>DRC LEVEL HIGH FLAG</td> </tr> <tr> <td>00 OFF</td> <td>00 FALSE</td> <td>00 FALSE</td> <td>00 OFF</td> <td>00 FALSE</td> </tr> <tr> <td>01 ON</td> <td>01 TRUE</td> <td>01 TRUE</td> <td>01 LOW</td> <td>01 TRUE</td> </tr> <tr> <td></td> <td></td> <td></td> <td>02 MID</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>03 HIGH</td> <td></td> </tr> </table>	DATA #1	DATA #2	DATA #3	DATA #4	DATA #5	COLOR TEMP.	COLOR TEMP.CUSTOM	D PICTURE	V.SHIFT	PIC ASPECT	00 9300K	00 9300K	00 OFF	00 FALSE	00 WIDE	01 6500K	01 6500K	01 ON	01 TRUE	01 NARROW	02 5400K	02 5400K				03 3200K	03 3200K				04 CUSTOM					DATA #6	DATA #7	DATA #8	DATA #9	DATA #10	3D COMB FILTER	NTSC SETUP 7.5 FLAG	COMPONENT FORMAT	PEAKING	DRC LEVEL HIGH FLAG	00 OFF	00 FALSE	00 FALSE	00 OFF	00 FALSE	01 ON	01 TRUE	01 TRUE	01 LOW	01 TRUE				02 MID					03 HIGH	
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	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	D PICTURE 00 OFF 01 ON																																																																	

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
	SHIFT V NARROW SETTING SENSE	CONTROLLER → PROJECTOR	11	95	MEMORY NUMBER 00 OFF 01 1 02 2 03 3 04 4 05 5 06 6 07 7 08 8 09 9 0A 10
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	V.SHIFT 00 FALSE 01 TRUE
	COMB FILTER 3D SETTING SENSE	CONTROLLER → PROJECTOR	11	97	MEMORY NUMBER 00 OFF 01 1 02 2 03 3 04 4 05 5 06 6 07 7 08 8 09 9 0A 10
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	3D COMB FILTER 00 OFF 01 ON
	NTSC SETUP 7.5 SETTING SENSE	CONTROLLER → PROJECTOR	11	98	MEMORY NUMBER 00 OFF 01 1 02 2 03 3 04 4 05 5 06 6 07 7 08 8 09 9 0A 10
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 NTSC SETUP 7.5 FLAG COMPONENT FORMAT 00 FALSE 00 FALSE 01 TRUE 01 TRUE
	DRC LEVEL HIGH SETTING SENSE	CONTROLLER → PROJECTOR	11	9A	MEMORY NUMBER 00 OFF 01 1 02 2 03 3 04 4 05 5 06 6 07 7 08 8 09 9 0A 10
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DRC LEVEL HIGH FLAG 00 FALSE 01 TRUE
	DESCRIPTION SETTING SENSE	CONTROLLER → PROJECTOR	11	A0	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 — DATA #32 INPUT NAME ASCII CHARACTER (32 Bytes)

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
	INPUT SETTING ALL SENSE	CONTROLLER → PROJECTOR	11	A1	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 VIDEO MEMORY NUMBER 00 OFF 01~0A : 1~10 DATA #2 CLAMP 00 AUTO 01 SONG 02 HC 03 HP 04 TRILEVELS DATA #3 VIDEO LOCK 00 FALSE 01 TRUE DATA #4 SYNC SEL 00 AUTO 01 INTERNAL 02 EXTERNAL 02 EXTERNAL C 03 EXTERNAL HV DATA #5 SYNC ROUTE 00 AUTO 01 NORMAL 02 SYNCWITHVIDEO DATA #6 SYNC OSC SHIFT 00 FALSE 01 TRUE DATA #7 DEFOCUS 00 OFF 01 ON DATA #8 DEFOCUS BLUE SPOT 00 OFF 01 ON
	VIDEO MEM. SETTING SENSE	CONTROLLER → PROJECTOR	11	A2	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	VIDEO MEMORY NUMBER 00 OFF 01~0A : 1~10
	CLAMP SETTING SENSE	CONTROLLER → PROJECTOR	11	A3	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	CLAMP 00 AUTO 01 SONG 02 HC 03 HP 04 TRILEVELS
	VIDEO LOCK SETTING SENSE	CONTROLLER → PROJECTOR	11	A4	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	VIDEO LOCK 00 FALSE 01 TRUE
	SYNC SEL SETTING SENSE	CONTROLLER → PROJECTOR	11	A5	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	SYNC SEL 00 AUTO 01 INTERNAL 02 EXTERNAL 02 EXTERNAL C 03 EXTERNAL HV
	SYNC ROUTE SETTING SENSE	CONTROLLER → PROJECTOR	11	A6	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	SYNC ROUTE 00 AUTO 01 NORMAL 02 SYNCWITHVIDEO
	DEFOCUS SETTING SENSE	CONTROLLER → PROJECTOR	11	A8	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DEFOCUS 00 OFF 01 ON
	DEFOCUS BLUE SPOT SETTING SENSE	CONTROLLER → PROJECTOR	11	A9	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DEFOCUS BLUE SPOT 00 OFF 01 ON

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
SYSTEM SELECT <CMD1=13 hex>	POWER REQ	CONTROLLER PROJECTOR	13	04	POWER REQ 00 STANDBY (OFF) 01 ON
	PIC MUTING SELECT	CONTROLLER PROJECTOR	13	0C	PIC MUTING 00 OFF 01 ON
	CUT OFF ALL SELECT	CONTROLLER PROJECTOR	13	0D	DATA #1 DATA #2 DATA #3 R CUT OFF FLAG G CUT OFF FLAG B CUT OFF FLAG 00 OFF 00 OFF 00 OFF 01 ON 01 ON 01 ON
	CUT OFF RGB SELECT	CONTROLLER PROJECTOR	13	0E	DATA #1 DATA #2 CUT OFF COLOR CUT OFF FLAG 00 R 00 OFF 01 G 01 ON 02 B
	MG ALL ADJ SELECT	CONTROLLER PROJECTOR	13	1A	MG ALL ADJ 00 JUSTFOCUS 01 DEFOCUS 02 SPOTSHAPE
	USER PRO SELECT	CONTROLLER PROJECTOR	13	35	PROFESSIONAL USER FLAG 00 FALSE 01 TRUE
	DIRECT POWER ON SELECT	CONTROLLER PROJECTOR	13	36	DIRECT POWER ON ON/OFF 00 OFF 01 ON
	POWER ON DELAY SELECT	CONTROLLER PROJECTOR	13	37	POWER ON DELAY 00 OFF 01 ON
	ALL WHITE MODE TIME SELECT	CONTROLLER PROJECTOR	13	38	DATA #1 DATA #2 ALL WHITE ALL WHITE TIME 00 OFF 1 Bytes (* 1 min) 01 ON
	ALL WHITE MODE SELECT	CONTROLLER PROJECTOR	13	39	ALL WHITE 00 OFF 01 ON
	ALL WHITE TIME SELECT	CONTROLLER PROJECTOR	13	3A	ALL WHITE TIME 1 Bytes (* 1 min)
	POWER SAVING MODE TIME SELECT	CONTROLLER PROJECTOR	13	3B	DATA #1 DATA #2 POWER SAVING POWER SAVING TIME 00 OFF 1 Bytes (* 1 min) 01 ON
	POWER SAVING MODE SELECT	CONTROLLER PROJECTOR	13	3C	POWER SAVING 00 OFF 01 ON
	POWER SAVING TIME SELECT	CONTROLLER PROJECTOR	13	3D	POWER SAVING TIME 1 Bytes (* 1 min)
	PIC SHIFT ORBITTING SELECT	CONTROLLER PROJECTOR	13	3F	PIC SHIFT ORBITTING 00 OFF 01 ON
	SCAN LINE SHIFT ALL SELECT	CONTROLLER PROJECTOR	13	42	DATA #1 DATA #2 DATA #3 SCAN LINE SHIFT 00 (FIXED) X1 MIN SCAN LINE SHIFT 00 OFF 1 Bytes (* 1 min) 01 ON
	PIC CENT ORBITTING SELECT	CONTROLLER PROJECTOR	13	43	PIC CENT ORBITTING 00 OFF 01 ON
PIC CENT ORBITTING X1min SELECT	CONTROLLER PROJECTOR	13	45	X1 MIN PIC CENT ORBITTING 1 Bytes (* 1 min)	

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA																														
	ABG SELECT	CONTROLLER → PROJECTOR	13	4C	AUTO BACKGROUND 00 OFF 01 ON																														
	ABL Link SELECT	CONTROLLER → PROJECTOR	13	4D	ABL LINK 00 OFF 01 ON																														
	5BNC SWITCHER SELECT	CONTROLLER → PROJECTOR	13	4E	5BNC SWITCHER FLAG 00 OFF 01 ON																														
	SIRCS RECEIVER SELECT	CONTROLLER → PROJECTOR	13	4F	SIRCS RECEIVER 00 OFF 01 FRONT 02 REAR 03 FRONTREAR																														
	OSD LANGUAGE SELECT	CONTROLLER → PROJECTOR	13	50	OSD LANGUAGE 00 ENGLISH 01 FRENCH 02 GERMAN 03 ITALIAN 04 SPANISH 05 JAPANESE 06 CHINESE																														
	STATUS (OSD VISIBLE) SELECT	CONTROLLER → PROJECTOR	13	51	STATUS (OSD VISIBLE) 00 OFF 01 ON																														
	INPUT CHANNEL ALL SELECT	CONTROLLER → PROJECTOR	13	52	<table border="0"> <thead> <tr> <th>DATA #1</th> <th>DATA #2</th> <th>DATA #3</th> </tr> <tr> <th>CHANNEL</th> <th>CHANNEL PC-1271</th> <th>CHANNEL PC-3000</th> </tr> </thead> <tbody> <tr> <td>00 VIDEO</td> <td>11—18 SW'ER1-1~8</td> <td>11—18 SW'ER1-1~8</td> </tr> <tr> <td>01 INPUT A</td> <td>21—28 SW'ER2-1~8</td> <td>21—28 SW'ER2-1~8</td> </tr> <tr> <td>02 INPUT B</td> <td>30 OTHER</td> <td>31—38 SW'ER3-1~8</td> </tr> <tr> <td>03 INPUT C</td> <td></td> <td>41—48 SW'ER4-1~8</td> </tr> <tr> <td>04 PC-1271</td> <td></td> <td>51—58 SW'ER5-1~8</td> </tr> <tr> <td>05 PC-3000</td> <td></td> <td>61—68 SW'ER6-1~8</td> </tr> <tr> <td></td> <td></td> <td>71—78 SW'ER7-1~8</td> </tr> <tr> <td></td> <td></td> <td>81—88 SW'ER8-1~8</td> </tr> </tbody> </table>	DATA #1	DATA #2	DATA #3	CHANNEL	CHANNEL PC-1271	CHANNEL PC-3000	00 VIDEO	11—18 SW'ER1-1~8	11—18 SW'ER1-1~8	01 INPUT A	21—28 SW'ER2-1~8	21—28 SW'ER2-1~8	02 INPUT B	30 OTHER	31—38 SW'ER3-1~8	03 INPUT C		41—48 SW'ER4-1~8	04 PC-1271		51—58 SW'ER5-1~8	05 PC-3000		61—68 SW'ER6-1~8			71—78 SW'ER7-1~8			81—88 SW'ER8-1~8
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03 INPUT C		41—48 SW'ER4-1~8																																	
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05 PC-3000		61—68 SW'ER6-1~8																																	
		71—78 SW'ER7-1~8																																	
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	INPUT CHANNEL SELECT	CONTROLLER → PROJECTOR	13	53	CHANNEL 00 VIDEO 01 INPUT A 02 INPUT B 03 INPUT C 04 OLDSWITCHER 05 NEWSWITCHER																														
	INPUT CHANNEL PC-1271 SELECT	CONTROLLER → PROJECTOR	13	54	CHANNEL PC-1271 11—18 SW'ER1-1~8 21—28 SW'ER2-1~8 30 OTHER																														
	INPUT CHANNEL PC-3000 SELECT	CONTROLLER → PROJECTOR	13	55	CHANNEL PC-3000 11—18 SW'ER1-1~8 21—28 SW'ER2-1~8 31—38 SW'ER3-1~8 41—48 SW'ER4-1~8 51—58 SW'ER5-1~8 61—68 SW'ER6-1~8 71—78 SW'ER7-1~8 81—88 SW'ER8-1~8																														
	VIDEO ALL SETTING SELECT	CONTROLLER → PROJECTOR	13	56	<table border="0"> <thead> <tr> <th>DATA #1</th> <th>DATA #2</th> <th>DATA #3</th> </tr> <tr> <th>SIGNAL</th> <th>COLOR SYSTEM</th> <th>EXB</th> </tr> </thead> <tbody> <tr> <td>10 VIDEOCVBS</td> <td>00 AUTO</td> <td>00 NOT USE</td> </tr> <tr> <td>11 VIDEOYC</td> <td>07 NTSC</td> <td>01 IDTV</td> </tr> <tr> <td></td> <td>19 PAL</td> <td>02 DRC</td> </tr> <tr> <td></td> <td>1D SECAM</td> <td></td> </tr> <tr> <td></td> <td>05 NTSC443</td> <td></td> </tr> <tr> <td></td> <td>2B PALM</td> <td></td> </tr> </tbody> </table>	DATA #1	DATA #2	DATA #3	SIGNAL	COLOR SYSTEM	EXB	10 VIDEOCVBS	00 AUTO	00 NOT USE	11 VIDEOYC	07 NTSC	01 IDTV		19 PAL	02 DRC		1D SECAM			05 NTSC443			2B PALM							
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	VIDEO SIGNAL SETTING SELECT	CONTROLLER → PROJECTOR	13	57	SIGNAL 10 VIDEOCVBS 11 VIDEOYC																														

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
	VIDEO COLOR SETTING SELECT	CONTROLLER → PROJECTOR	13	58	COLOR SYSTEM 00 AUTO 07 NTSC 19 PAL 1D SECAM 05 NTSC443 2B PALM
	VIDEO EXB SETTING SELECT	CONTROLLER → PROJECTOR	13	59	EXB 00 NOT USE 01 IDTV 02 DRC
	INPUT A ALL SETTING ALL SELECT	CONTROLLER → PROJECTOR	13	5A	DATA #1 DATA #2 DATA #3 SIGNAL COLOR SYSTEM EXB 10 VIDEOCVBS 00 AUTO 00 NOT USE 11 VIDEOYC 07 NTSC 01 IDTV 20 RGB 19 PAL 02 DRC 30 COMP 1D SECAM 40 HDTVYPBPR 05 NTSC443 41 HDTVGBR 2B PALM
	INPUT A SIGNAL SETTING SELECT	CONTROLLER → PROJECTOR	13	5B	SIGNAL 10 VIDEOCVBS 11 VIDEOYC 20 RGB 30 COMP 40 HDTVYPBPR 41 HDTVGBR
	INPUT A COLOR SETTING SELECT	CONTROLLER → PROJECTOR	13	5C	COLOR SYSTEM 00 AUTO 07 NTSC 19 PAL 1D SECAM 05 NTSC443 2B PALM
	INPUT A EXB SETTING SELECT	CONTROLLER → PROJECTOR	13	5D	EXB 00 NOT USE 01 IDTV 02 DRC
	INPUT B ALL SETTING SELECT	CONTROLLER → PROJECTOR	13	5E	DATA #1 DATA #2 DATA #3 SIGNAL COLOR SYSTEM EXB 10 VIDEOCVBS 00 AUTO 00 NOT USE 11 VIDEOYC 07 NTSC 01 IDTV 20 RGB 19 PAL 02 DRC 30 COMP 1D SECAM 40 HDTVYPBPR 05 NTSC443 41 HDTVGBR 2B PALM
	INPUT B SIGNAL SETTING SELECT	CONTROLLER → PROJECTOR	13	5F	SIGNAL 10 VIDEOCVBS 11 VIDEOYC 20 RGB 30 COMP 40 HDTVYPBPR 41 HDTVGBR
	INPUT B COLOR SETTING SELECT	CONTROLLER → PROJECTOR	13	60	COLOR SYSTEM 00 AUTO 07 NTSC 19 PAL 1D SECAM 05 NTSC443 2B PALM
	INPUT B EXB SETTING SELECT	CONTROLLER → PROJECTOR	13	61	EXB 00 NOT USE 01 IDTV 02 DRC
	INPUT C ALL SETTING SELECT	CONTROLLER → PROJECTOR	13	62	DATA #1 DATA #2 DATA #3 SIGNAL COLOR SYSTEM EXB 10 VIDEOCVBS 00 AUTO 00 NOT USE 11 VIDEOYC 07 NTSC 01 IDTV 20 RGB 19 PAL 02 DRC 30 COMP 1D SECAM 40 HDTVYPBPR 05 NTSC443 41 HDTVGBR 2B PALM

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
	INPUT C SIGNAL SETTING SELECT	CONTROLLER → PROJECTOR	13	63	SIGNAL 10 VIDEOCVBS 11 VIDEOYC 20 RGB 30 COMP 40 HDTVYPBPR 41 HDTVGBR
	INPUT C COLOR SETTING SELECT	CONTROLLER → PROJECTOR	13	64	COLOR SYSTEM 00 AUTO 07 NTSC 19 PAL 1D SECAM 05 NTSC443 2B PALM
	INPUT C EXB SETTING SELECT	CONTROLLER → PROJECTOR	13	65	EXB 00 NOT USE 01 IDTV 02 DRC
	PC-1271 ALL SETTING SELECT	CONTROLLER → PROJECTOR	13	66	DATA #1 — DATA #24 — DATA #25 — DATA #48 PC-1271 SWITCHER 1-1 — OTHER PC-1271 SWITCHER 1-1 — OTHER COLOR SYSTEM EXB 00 AUTO 00 NOT USE 07 NTSC 01 IDTV 19 PAL 02 DRC 1D SECAM 05 NTSC443 2B PALM 24 Bytes 24 Bytes
	PC-1271 SW'ER COLOR SETTING SELECT	CONTROLLER → PROJECTOR	13	67	DATA #1 — DATA #24 PC-1271 SWITCHER 1-1 — OTHER COLOR SYSTEM 00 AUTO 07 NTSC 19 PAL 1D SECAM 05 NTSC443 2B PALM 24 Bytes
	PC-1271 SW'ER EXB SETTING SELECT	CONTROLLER → PROJECTOR	13	68	DATA #1 — DATA #24 PC-1271 SWITCHER 1-1 — OTHER EXB 00 NOT USE 01 IDTV 02 DRC 24 Bytes
	SCREEN TYPE SELECT	CONTROLLER → PROJECTOR	13	69	SCREEN TYPE 00 SCREEN B 01 SCREEN M
	COLOR UNIFORMITY SETTING SELECT	CONTROLLER → PROJECTOR	13	6A	COLOR UNIFORMITY 00 OFF 01 ADJUST 02 PRESET 1 03 PRESET 2 04 PRESET 3
	BRT UNIFORMITY SETTING SELECT	CONTROLLER → PROJECTOR	13	6B	BRIGHTNESS UNIFORMITY 00 OFF 01 ADJUST 02 PRESET 1 03 PRESET 2 04 PRESET 3
	INPUT MEM. MANUAL OPERATION SETTING SELECT	CONTROLLER → PROJECTOR	13	6E	IMEM MANUAL OPERATION 00 FALSE 01 TRUE

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
	PC-3000 STATUS SELECT	CONTROLLER → PROJECTOR	13	80	<p>DATA #1 DATA #2 SWITCHER NUMBER SWITCHER STATUS (N Bytes) 00 ALL 00 ALL (15 Bytes) 01 1 01 Existent (1 Bytes) 02 2 02 Switcher Serial (4 Bytes) 03 3 03 Boot Version (4 Bytes) 04 4 04 MainVersion (4 Bytes) 05 5 05 EXB 0 (1 Bytes) 06 6 06 EXB 1 (1 Bytes) 07 7 08 8</p> <p>DATA #3 — DATA #N ONE, ONE (N Bytes) ONE, ALL (15 Bytes) ALL, ONE (8 * N Bytes) ALL, ALL (8 * 15 Bytes)</p> <p>DATA #3 EXISTENT 00 FALSE 01 TRUE</p> <p>DATA #4 DATA #5 DATA #6 DATA #7 SWITCHER SERIAL (4 Bytes)</p> <p>DATA #8 DATA #9 DATA #10 DATA #11 BOOT VERSION (4 Bytes)</p> <p>DATA #12 DATA #13 DATA #14 DATA #15 MAIN VERSION (4 Bytes)</p> <p>DATA #16 DATA #17 EXB 0 EXB 1 00 NOEXB 00 NOEXB 01 MATRX 01 MATRX</p>

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
	SW'ER CH SELECT	CONTROLLER → PROJECTOR	13	81	<p>DATA #1 CHANEL PC-3000 10, 11—18 SW'ER ALL, 1-1`8 20, 21—28 SW'ER ALL, 2-1`8 30, 31—38 SW'ER ALL, 3-1`8 40, 41—48 SW'ER ALL, 4-1`8 50, 51—58 SW'ER ALL, 5-1`8 60, 61—68 SW'ER ALL, 6-1`8 70, 71—78 SW'ER ALL, 7-1`8 80, 81—88 SW'ER ALL, 8-1`8</p> <p>DATA #2 SWITCHER CHANNEL STATUS (N Bytes) 00 ALL (20 Bytes) 01 DESCRIPTION (10 Bytes) 02 IFB TYPE (2 Bytes) 03 IFB SETTING (1 Bytes) 04 SIGNAL IN (1 Bytes) 05 SIGNAL OUT (1 Bytes) 06 EXB 0 (1 Bytes) 07 EXB 1 (1 Bytes) 08 EXBPJ (1 Bytes) 09 PJ COLOR SYSTEM (1 Bytes) 0A AUDIO VOLUME (1 Bytes)</p> <p>DATA #3 — DATA #N ONE, ONE (N Bytes) ONE, ALL (20 Bytes) ALL, ONE (8 * N Bytes) ALL, ALL (8 * 20 Bytes)</p> <p>DATA #3 — #12 SWITCHER CHANNEL DESCRIPTION 10 Bytes ASCII CODE</p> <p>DATA #13,#14 IFB TYPE (16 Bits) 00 NOIFB</p> <p>DATA #15 IFB SETTING 00 NOIFB 01 INPUT 02 OUTPUT</p> <p>DATA #16 SIGNAL IN 00 INVALID 10 VIDEOCVBS 11 VIDEOYC 20 RGB 30 COMP 40 HDTVYPBPR 41 HDTVGBR 60 SDI422</p> <p>DATA #17 SIGNAL OUT 00 INVALID 10 VIDEOCVBS 11 VIDEOYC 20 RGB 30 COMP 40 HDTVYPBPR 41 HDTVGBR 60 SDI422</p> <p>DATA #18 EXB0 00 FALSE 01 TRUE</p> <p>DATA #19 EXB1 00 FALSE 01 TRUE</p> <p>DATA #20 EXBPJ 00 OFF 01 IDTV 02 DRC</p> <p>DATA #21 PJ COLOR SYSTEM 00 AUTO 07 NTSC 19 PAL 1D SECAM 05 NTSC443 2B PALM</p> <p>DATA #22 AUDIO VOLUME 0 - 10</p>
	VIDEO MEMORY DESCRIPTION SELECT	CONTROLLER → PROJECTOR	13	90	<p>DATA #1 MEMORY NUMBER 00 OFF 01 1 02 2 03 3 04 4 05 5 06 6 07 7 08 8 09 9 0A 10</p> <p>DATA #2 VIDEO MEMORY NAME 32 Bytes ASCII CODE</p> <p>— DATA #33</p>

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	VIDEO MEMORY CSETTING ALL SELECT	CONTROLLER → PROJECTOR	13	91	<table border="0"> <thead> <tr> <th>DATA #1</th> <th>DATA #2</th> <th>DATA #3</th> <th>DATA #4</th> <th>DATA #5</th> <th>DATA #6</th> </tr> </thead> <tbody> <tr> <td>MEMORY NUMBER</td> <td>COLOR TEMP.</td> <td>COLOR TEMP. CUSTOM</td> <td>D PICTURE</td> <td>V.SHIFT</td> <td>PIC ASPECT</td> </tr> <tr> <td>00 OFF</td> <td>00 9300K</td> <td>00 9300K</td> <td>00 OFF</td> <td>00 FALSE</td> <td>00 WIDE</td> </tr> <tr> <td>01 1</td> <td>01 6500K</td> <td>01 6500K</td> <td>01 ON</td> <td>01 TRUE</td> <td>01 NARROW</td> </tr> <tr> <td>02 2</td> <td>02 5400K</td> <td>02 5400K</td> <td></td> <td></td> <td></td> </tr> <tr> <td>03 3</td> <td>03 3200K</td> <td>03 3200K</td> <td></td> <td></td> <td></td> </tr> <tr> <td>04 4</td> <td>04 CUSTOM</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>05 5</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>06 6</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>07 7</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>08 8</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>09 9</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>0A 10</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>DATA #7</th> <th>DATA #8</th> <th>DATA #9</th> <th>DATA #10</th> <th>DATA #11</th> <td></td> </tr> <tr> <td>3D COMB FILTER</td> <td>NTSC SETUP 7.5 FLAG</td> <td>COMPONENT FORMAT</td> <td>PEAKING</td> <td>DRC LEVEL HIGH FLAG</td> <td></td> </tr> <tr> <td>00 OFF</td> <td>00 FALSE</td> <td>00 FALSE</td> <td>00 OFF</td> <td>00 FALSE</td> <td></td> </tr> <tr> <td>01 ON</td> <td>01 TRUE</td> <td>01 TRUE</td> <td>01 LOW</td> <td>01 TRUE</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>02 MID</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>03 HIGH</td> <td></td> <td></td> </tr> </tbody> </table>	DATA #1	DATA #2	DATA #3	DATA #4	DATA #5	DATA #6	MEMORY NUMBER	COLOR TEMP.	COLOR TEMP. CUSTOM	D PICTURE	V.SHIFT	PIC ASPECT	00 OFF	00 9300K	00 9300K	00 OFF	00 FALSE	00 WIDE	01 1	01 6500K	01 6500K	01 ON	01 TRUE	01 NARROW	02 2	02 5400K	02 5400K				03 3	03 3200K	03 3200K				04 4	04 CUSTOM					05 5						06 6						07 7						08 8						09 9						0A 10						DATA #7	DATA #8	DATA #9	DATA #10	DATA #11		3D COMB FILTER	NTSC SETUP 7.5 FLAG	COMPONENT FORMAT	PEAKING	DRC LEVEL HIGH FLAG		00 OFF	00 FALSE	00 FALSE	00 OFF	00 FALSE		01 ON	01 TRUE	01 TRUE	01 LOW	01 TRUE					02 MID						03 HIGH		
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	VIDEO LOCK SETTING SELECT	CONTROLLER → PROJECTOR	13	A4	<table border="0"> <tr> <td>VIDEO LOCK</td> </tr> <tr> <td>00 FALSE</td> </tr> <tr> <td>01 TRUE</td> </tr> </table>	VIDEO LOCK	00 FALSE	01 TRUE																																													
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	SYNC SEL SETTING SELECT	CONTROLLER → PROJECTOR	13	A5	<table border="0"> <tr> <td>SYNC SEL</td> </tr> <tr> <td>00 AUTO</td> </tr> <tr> <td>01 INTERNAL</td> </tr> <tr> <td>02 EXTERNAL</td> </tr> <tr> <td>02 EXTERNAL C</td> </tr> <tr> <td>03 EXTERNAL HV</td> </tr> </table>	SYNC SEL	00 AUTO	01 INTERNAL	02 EXTERNAL	02 EXTERNAL C	03 EXTERNAL HV																																										
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	DEFOCUS BLUE SPOT SETTING SELECT	CONTROLLER → PROJECTOR	13	A9	<table border="0"> <tr> <td>DEFOCUS BLUE SPOT</td> </tr> <tr> <td>00 OFF</td> </tr> <tr> <td>01 ON</td> </tr> </table>	DEFOCUS BLUE SPOT	00 OFF	01 ON																																													
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FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
INTERNAL TEST SIGNAL GEN <CMD1=15 hex>	SIGNAL INTERNAL STATUS SENSE	CONTROLLER → PROJECTOR	15	00	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	SIGNAL INTERNAL 00 OFF 01 ON
	OSC INT ON/OFF STATUS SENSE	CONTROLLER → PROJECTOR	15	01	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	OSC INTERNAL 00 OFF 01 ON
	OSC INTERNAL PATTERN STATUS SENSE	CONTROLLER → PROJECTOR	15	10	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	OSC INTERNAL 00—09 : 1—10
	PATTERN STATUS SENSE	CONTROLLER → PROJECTOR	15	11	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	USE PATTERN 00 OFF 01—0D : 1—13
SIGNAL INTERNAL SELECT	CONTROLLER → PROJECTOR	15	20	SIGNAL INTERNAL 00 OFF 01 ON	
OSC INT ON/OFF SELECT	CONTROLLER → PROJECTOR	15	21	OSC INTERNAL 00 OFF 01 ON	
OSC INTERNAL PATTERN SELECT	CONTROLLER → PROJECTOR	15	30	OSC INTERNAL 00—09 : 1—10	
PATTERN SELECT	CONTROLLER → PROJECTOR	15	31	USE PATTERN 00 OFF 01—0D : 1—13	
SIRCS CODE DIRECT for G90 <CMD1=17 hex>	SIRCS CODE DIRECT SEND	CONTROLLER → PROJECTOR	17	00	DATA #1 DATA #2 DATA #3 DATA #4 DATA #5 DATA #6 CATEGORY CODE (2 Bytes) CODE REPEAT/ONE SHOT REPEAT NUMBER (2 Bytes) 4054 (15 Bit PJ CODE) 007F 00 ONE SHOT 0000FFFF 855A (20 Bit PJ CODE) 01 REPEAT
ACTIVE MEMORY READ <CMD1=30 hex>	BIAS DATA READ	CONTROLLER → PROJECTOR	30	00	DATA #1 DATA #2 TEMP. SCREEN 00 9300K 00 SCREEN B 01 6500K 01 SCREEN M 02 5400K 03 3200K 10 VIDEO MEM OFF 111A VIDEO MEM110
	REUTRN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 DATA #4 DATA #5 DATA #6 BIAS COARSE R BIAS FINE R BIAS COARSE G BIAS FINE G BIAS COARSE B BIAS FINE B
	GAIN DATA READ	CONTROLLER → PROJECTOR	30	02	DATA #1 DATA #2 TEMP. SCREEN 00 9300K 00 SCREEN B 01 6500K 01 SCREEN M 02 5400K 03 3200K 10 VIDEO MEM OFF 111A VIDEO MEM110
	REUTRN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 GAIN R GAIN G GAIN B
	GAMMA DATA READ	CONTROLLER → PROJECTOR	30	04	DATA #1 DATA #2 TEMP. SCREEN 00 9300K 00 SCREEN B 01 6500K 01 SCREEN M 02 5400K 03 3200K 10 VIDEO MEM OFF 111A VIDEO MEM110
	REUTRN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 GAMMA R GAMMA G GAMMA B

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
	COLOR UNIFORMITY DATA READ	CONTROLLER → PROJECTOR	30	08	SSET 00 OFF 01 ADJUST 02 PRESET S1 03 PRESET S2
	REUTRN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 DATA #4 COLOR H R COLOR H G COLOR H B COLOR V
	BRIGHT UNIFORMITY READ	CONTROLLER → PROJECTOR	30	09	SSET 00 OFF 01 ADJUST 02 PRESET S1 03 PRESET S2
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 H V
	PICTURE DAC ABL DATA READ	CONTROLLER → PROJECTOR	30	22	INPUT MEMORY 00 0C : 0 12
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 POINT R POINT G POINT B
	PICTURE DAC VPS DATA READ	CONTROLLER → PROJECTOR	30	24	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 LIMIT R LIMIT G LIMIT B
	PICTURE DAC G2 DATA READ	CONTROLLER → PROJECTOR	30	26	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 DATA #4 DATA #5 DATA #6 CONTROL R (0000 03FF) (2 Bytes) CONTROL G (0000 03FF) (2 Bytes) CONTROL B (0000 03FF) (2 Bytes)
	PICTURE CONTROL DATA READ	CONTROLLER → PROJECTOR	30	30	VIDEO MEM NO 00 OFF 01 0A : 1 10
	REUTRN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 DATA #4 DATA #5 CONTR BRT HUE SHARP COLOR
	RGB SIZE DATA READ	CONTROLLER → PROJECTOR	30	32	VIDEO MEM NO 00 OFF 01 0A : 1 10
	REUTRN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 DATA #4 H COARSE H FINE V COARSE V FINE
	RGB SHIFT DATA READ	CONTROLLER → PROJECTOR	30	34	VIDEO MEM NO 00 OFF 01 0A : 1 10
	REUTRN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 H COARSE H FINE V
	BLANKING DATA READ	CONTROLLER → PROJECTOR	30	36	DATA #1 DATA #2 VIDEO MEM NO MODE 00 OFF 00 ORDINARY 01 0A : 1 10 01 PHASE 02 KEY 03 PIN
	REUTRN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 DATA #4 TOP BOTTOM LEFT RIGHT
	CENT DATA READ	CONTROLLER → PROJECTOR	30	40	COLOR 00 R 01 G 02 B
	REUTRN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 DATA #2 DATA #3 DATA #4 DATA #5 DATA #6 DATA #7 DATA #8 H COARSE H FINE SERVICEMAN H FINE H COARSE INVERT H FINE SERVICEMAN INVERT H FINE INVERT V COARSE V FINE SERVICEMAN DATA #9 DATA #10 DATA #11 DATA #12 V FINE V COARSE INVERT V FINE SERVICEMAN INVERT V FINE INVERT

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
SIZE DATA READ		CONTROLLER → PROJECTOR	30	42	COLOR 00 R 01 G 02 B
	REUTRN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 H R COARSE H G H B COARSE DATA #2 H R FINE H COARSE H B FINE DATA #3 V R COARSE H FINE V B COARSE DATA #4 V R FINE V G V B FINE DATA #5 V COARCE DATA #6 V FINE DATA #7 V BIAS COLOR = R COLOR = G COLOR = B
LIN DATA READ		CONTROLLER → PROJECTOR	30	44	COLOR 00 R 01 G 02 B
	REUTRN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 H R COARSE H R/G/B COARSE H B COARSE DATA #2 H R FINE H G FINE H B FINE DATA #3 V R COARSE H BIAS V B COARSE DATA #4 V R FINE V R/G/B COARSE V B FINE DATA #5 V G FINE DATA #6 V BIAS COLOR = R COLOR = G COLOR = B
SKEW DATA READ		CONTROLLER → PROJECTOR	30	46	COLOR 00 R 01 G 02 B
	REUTRN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 H R COARSE H G COARSE H B COARSE DATA #2 H R FINE H G FINE H B FINE DATA #3 V R COARSE V G COARSE V B COARSE DATA #4 V R FINE V G FINE V B FINE COLOR = R COLOR = G COLOR = B
BOW DATA READ		CONTROLLER → PROJECTOR	30	48	COLOR 00 R 01 G 02 B
	REUTRN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 H R COARSE H G COARSE H B COARSE DATA #2 H R FINE H G FINE H B FINE DATA #3 V R COARSE V G COARSE V B COARSE DATA #4 V R FINE V G FINE V B FINE DATA #5 V BIAS COLOR = R COLOR = G COLOR = B
KEY DATA READ		CONTROLLER → PROJECTOR	30	4A	COLOR 00 R 01 G 02 B
	REUTRN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 LEFT R LEFT G LEFT B DATA #2 RIGHT R RIGHT G RIGHT B DATA #3 TOP R TOP G TOP B DATA #4 BOTTOM R BOTTOM G BOTTOM B DATA #5 H DATA #6 V COLOR = R COLOR = G COLOR = B
PIN DATA READ		CONTROLLER → PROJECTOR	30	4C	COLOR 00 R 01 G 02 B
	REUTRN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 LEFT R LEFT G LEFT B DATA #2 RIGHT R RIGHT G RIGHT B DATA #3 TOP R TOP G TOP B DATA #4 BOTTOM R BOTTOM G BOTTOM B DATA #5 H DATA #6 V COLOR = R COLOR = G COLOR = B
ZONE H DATA READ		CONTROLLER → PROJECTOR	30	4E	COLOR 00 R 01 G 02 B
	REUTRN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 ZONE 2 H DATA #24 ZONE 25 H 24 Bytes
ZONE V DATA READ		CONTROLLER → PROJECTOR	30	50	COLOR 00 R 01 G 02 B
	REUTRN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 ZONE 2 V DATA #24 ZONE 21 V 20 Bytes

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
	ZONE H BIAS READ	CONTROLLER → PROJECTOR	30	52	XX
	REUTRN DATA	CONTROLLER ← PROJECTOR	10	20	ZONE 4 H BIAS
	Mg. FOCUS DATA 1 READ	CONTROLLER → PROJECTOR	30	53	COLOR 00 R 01 G 02 B
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 ALL DATA #2 ZONE2 DATA #3 ZONE3 DATA #4 ZONE4 DATA #5 ZONE5 DATA #6 ZONE6 DATA #7 ZONE7 DATA #8 ZONE8 DATA #9 ZONE9 DATA #10 ZONE10 DATA #11 ZONE11 DATA #12 ZONE12 DATA #13 ZONE13
	Mg. FOCUS DATA 2 READ	CONTROLLER → PROJECTOR	30	55	XX
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 PHASE DATA #2 H BIAS DATA #3 V BIAS DATA #4 H B DEFOCUS DATA #5 V B DEFOCUS DATA #6 B DEFOCUS 4PA
	2, 4, 6 POLE DATA READ	CONTROLLER → PROJECTOR	30	57	COLOR 00 R 01 G 02 B
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 2 POLE H DATA #2 2POLE V DATA #3 4 POLE AQP DATA #4 4 POLE DQP DATA #5 6 POLE AHP DATA #6 6 POLE DHP
	AQP DATA READ	CONTROLLER → PROJECTOR	30	59	COLOR 00 R 01 G 02 B
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 LEFT DATA #2 RIGHT DATA #3 TOP DATA #4 BOTTOM DATA #5 LEFT TOP DATA #6 LEFT BOTTOM DATA #7 RIGHT TOP DATA #8 RIGHT BOTTOM
	DQP DATA READ	CONTROLLER → PROJECTOR	30	5B	COLOR 00 R 01 G 02 B
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 LEFT DATA #2 RIGHT DATA #3 TOP DATA #4 BOTTOM DATA #5 LEFT TOP DATA #6 LEFT BOTTOM DATA #7 RIGHT TOP DATA #8 RIGHT BOTTOM
	AHP DATA READ	CONTROLLER → PROJECTOR	30	5D	COLOR 00 R 01 G 02 B
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 LEFT DATA #2 RIGHT DATA #3 TOP DATA #4 BOTTOM DATA #5 LEFT TOP DATA #6 LEFT BOTTOM DATA #7 RIGHT TOP DATA #8 RIGHT BOTTOM
	DHP DATA READ	CONTROLLER → PROJECTOR	30	5F	COLOR 00 R 01 G 02 B
	RETURN DATA	CONTROLLER ← PROJECTOR	10	20	DATA #1 LEFT DATA #2 RIGHT DATA #3 TOP DATA #4 BOTTOM DATA #5 LEFT TOP DATA #6 LFT BOTTOM DATA #7 RIGHT TOP DATA #8 RIGHT BOTTOM
ACTIVE MEMORY WRITE <CMD1=32 hex>	BIAS DATA ALL WRITE	CONTROLLER → PROJECTOR	32	00	DATA #1 TEMP. DATA #2 SCREEN DATA #3 BIAS COARSE R DATA #4 BIAS FINE R DATA #5 BIAS COARSE G DATA #6 BIAS FINE G DATA #7 BIAS COARSE B DATA #8 BIAS FINE B 00 9300K 01 6500K 02 5400K 03 3200K 10 VIDEO MEM OFF 11~1A VIDEO MEM1~10 00 SCREEN B 01 SCREEN M
	BIAS DATA R/G/B WRITE	CONTROLLER → PROJECTOR	32	01	DATA #1 TEMP. DATA #2 SCREEN DATA #3 COLOR DATA #4 BIAS COARSE DATA #5 BIAS FINE 00 9300K 01 6500K 02 5400K 03 3200K 10 VIDEO MEM OFF 11~1A VIDEO MEM1~10 00 R 01 G 02 B

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA																																								
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	PICTURE DAC ABL ALL WRITE	CONTROLLER → PROJECTOR	32	22	<table border="0"> <tr> <td>DATA #1</td> <td>DATA #2</td> <td>DATA #3</td> <td>DATA #4</td> </tr> <tr> <td>INPUT MEMORY</td> <td>POINT R</td> <td>POINT G</td> <td>POINT B</td> </tr> <tr> <td>00 0C : 0~12</td> <td></td> <td></td> <td></td> </tr> </table>	DATA #1	DATA #2	DATA #3	DATA #4	INPUT MEMORY	POINT R	POINT G	POINT B	00 0C : 0~12																															
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	LIN DATA ALL WRITE	CONTROLLER → PROJECTOR	32	44	<table border="0"> <tr> <td>DATA #1</td> <td>DATA #2</td> <td>DATA #3</td> <td>DATA #4</td> <td>DATA #5</td> <td>DATA #6</td> <td>DATA #7</td> <td></td> </tr> <tr> <td>COLOR</td> <td>H R COARSE</td> <td>H R FINE</td> <td>V R COARSE</td> <td>V R FINE</td> <td>V G FINE</td> <td>V BIAS</td> <td>COLOR = R</td> </tr> <tr> <td>00 R</td> <td>H R/G/B COARSE</td> <td>H G FINE</td> <td>H BIAS</td> <td>V R/G/B COARSE</td> <td></td> <td></td> <td>COLOR = G</td> </tr> <tr> <td>01 G</td> <td>H B COARSE</td> <td>H B FINE</td> <td>V B COARSE</td> <td>V B FINE</td> <td></td> <td></td> <td>COLOR = B</td> </tr> <tr> <td>02 B</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	DATA #1	DATA #2	DATA #3	DATA #4	DATA #5	DATA #6	DATA #7		COLOR	H R COARSE	H R FINE	V R COARSE	V R FINE	V G FINE	V BIAS	COLOR = R	00 R	H R/G/B COARSE	H G FINE	H BIAS	V R/G/B COARSE			COLOR = G	01 G	H B COARSE	H B FINE	V B COARSE	V B FINE			COLOR = B	02 B							
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	LIN DATA WRITE	CONTROLLER → PROJECTOR	32	45	<table border="0"> <tr> <td>DATA #1</td> <td>DATA #2</td> <td>DATA #3</td> </tr> <tr> <td>COLOR</td> <td>TYPE</td> <td>LIN</td> </tr> <tr> <td>00 R</td> <td>00 HRC HRGBC HBC</td> <td></td> </tr> <tr> <td>01 G</td> <td>01 HRF HGF HBF</td> <td></td> </tr> <tr> <td>02 B</td> <td>02 VRC VRGBC VBC</td> <td></td> </tr> <tr> <td></td> <td>03 VRF VGF VBF</td> <td></td> </tr> <tr> <td></td> <td>04 HBIAS(ONLY G)</td> <td></td> </tr> <tr> <td></td> <td>05 VBIAS(ONLY G)</td> <td></td> </tr> </table>	DATA #1	DATA #2	DATA #3	COLOR	TYPE	LIN	00 R	00 HRC HRGBC HBC		01 G	01 HRF HGF HBF		02 B	02 VRC VRGBC VBC			03 VRF VGF VBF			04 HBIAS(ONLY G)			05 VBIAS(ONLY G)																	
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	BOW DATA ALL WRITE	CONTROLLER → PROJECTOR	32	48	<table border="0"> <tr> <td>DATA #1</td> <td>DATA #2</td> <td>DATA #3</td> <td>DATA #4</td> <td>DATA #5</td> <td>DATA #6</td> <td></td> </tr> <tr> <td>COLOR</td> <td>H R COARSE</td> <td>H R FINE</td> <td>V R COARSE</td> <td>V R FINE</td> <td></td> <td>COLOR = R</td> </tr> <tr> <td>00 R</td> <td>H G COARSE</td> <td>H G FINE</td> <td>V G COARSE</td> <td>V G FINE</td> <td>V BIAS</td> <td>COLOR = G</td> </tr> <tr> <td>01 G</td> <td>H B COARSE</td> <td>H B FINE</td> <td>V B COARSE</td> <td>V B FINE</td> <td></td> <td>COLOR = B</td> </tr> <tr> <td>02 B</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	DATA #1	DATA #2	DATA #3	DATA #4	DATA #5	DATA #6		COLOR	H R COARSE	H R FINE	V R COARSE	V R FINE		COLOR = R	00 R	H G COARSE	H G FINE	V G COARSE	V G FINE	V BIAS	COLOR = G	01 G	H B COARSE	H B FINE	V B COARSE	V B FINE		COLOR = B	02 B											
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	PIN DATA ALL WRITE	CONTROLLER → PROJECTOR	32	4C	<table border="0"> <tr> <td>DATA #1</td> <td>DATA #2</td> <td>DATA #3</td> <td>DATA #4</td> <td>DATA #5</td> <td>DATA #6</td> <td>DATA #7</td> <td></td> </tr> <tr> <td>COLOR</td> <td>LEFT R</td> <td>RIGHT R</td> <td>TOP R</td> <td>BOTTOM R</td> <td></td> <td></td> <td>COLOR = R</td> </tr> <tr> <td>00 R</td> <td>LEFT G</td> <td>RIGHT G</td> <td>TOP G</td> <td>BOTTOM G</td> <td>H</td> <td>V</td> <td>COLOR = G</td> </tr> <tr> <td>01 G</td> <td>LEFT B</td> <td>RIGHT B</td> <td>TOP B</td> <td>BOTTOM B</td> <td></td> <td></td> <td>COLOR = B</td> </tr> <tr> <td>02 B</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	DATA #1	DATA #2	DATA #3	DATA #4	DATA #5	DATA #6	DATA #7		COLOR	LEFT R	RIGHT R	TOP R	BOTTOM R			COLOR = R	00 R	LEFT G	RIGHT G	TOP G	BOTTOM G	H	V	COLOR = G	01 G	LEFT B	RIGHT B	TOP B	BOTTOM B			COLOR = B	02 B							
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	PIN DATA WRITE	CONTROLLER → PROJECTOR	32	4D	<table border="0"> <tr> <td>DATA #1</td> <td>DATA #2</td> <td>DATA #3</td> </tr> <tr> <td>COLOR</td> <td>TYPE</td> <td>PIN</td> </tr> <tr> <td>00 R</td> <td>00 LR LG LB</td> <td></td> </tr> <tr> <td>01 G</td> <td>01 RR RG RB</td> <td></td> </tr> <tr> <td>02 B</td> <td>02 TR TG TB</td> <td></td> </tr> <tr> <td></td> <td>03 BR BG BB</td> <td></td> </tr> <tr> <td></td> <td>04 H (ONLY G)</td> <td></td> </tr> <tr> <td></td> <td>05 V (ONLY G)</td> <td></td> </tr> </table>	DATA #1	DATA #2	DATA #3	COLOR	TYPE	PIN	00 R	00 LR LG LB		01 G	01 RR RG RB		02 B	02 TR TG TB			03 BR BG BB			04 H (ONLY G)			05 V (ONLY G)																	
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FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
	ZONE H DATA ALL WRITE	CONTROLLER → PROJECTOR	32	4E	DATA #1 DATA #2 — DATA #25 COLOR ZONE 2 H — ZONE 25 H 00 R 01 G 02 B 24 Bytes
	ZONE H DATA WRITE	CONTROLLER → PROJECTOR	32	4F	DATA #1 DATA #2 DATA #3 COLOR POSITION ZONE H 00 R 00 ¹⁷ ZONE 2 ²⁵ 01 G 02 B
	ZONE V DATA ALL WRITE	CONTROLLER → PROJECTOR	32	50	DATA #1 DATA #2 — DATA #21 COLOR ZONE 2 V — ZONE 21 V 00 R 01 G 02 B 20 Bytes
	ZONE V DATA WRITE	CONTROLLER → PROJECTOR	32	51	DATA #1 DATA #2 DATA #3 COLOR POSITION ZONE V 00 R 00 ¹³ ZONE 2 ²¹ 01 G 02 B
	ZONE H BIAS WRITE	CONTROLLER → PROJECTOR	32	52	DATA #1 ZONE 4 H BIAS
	Mg. FOCUS DATA 1 ALL WRITE	CONTROLLER → PROJECTOR	32	53	DATA #1 DATA #2 DATA #3 DATA #4 DATA #5 DATA #6 DATA #7 COLOR ALL ZONE2 ZONE3 ZONE4 ZONE5 ZONE6 00 R 01 G 02 B DATA #8 DATA #9 DATA #10 DATA #11 DATA #12 DATA #13 DATA #14 ZONE7 ZONE8 ZONE9 ZONE10 ZONE11 ZONE12 ZONE13
	Mg. FOCUS DATA 1 WRITE	CONTROLLER → PROJECTOR	32	54	DATA #1 DATA #2 DATA #3 COLOR POSITION Mg. FOCUS 00 R 00 ALL 01 G 01 ZONE2 02 B 02 ZONE3 03 ZONE4 04 ZONE5 05 ZONE6 06 ZONE7 07 ZONE8 08 ZONE9 09 ZONE10 10 ZONE11 11 ZONE12 12 ZONE13
	Mg. FOCUS DATA 2 ALL WRITE	CONTROLLER → PROJECTOR	32	55	DATA #1 DATA #2 DATA #3 DATA #4 DATA #5 DATA #6 PHASE H BIAS V BIAS H B DEFOCUS V B DEFOCUS B DEFOCUS 4PA
	Mg. FOCUS DATA 2 WRITE	CONTROLLER → PROJECTOR	32	56	DATA #1 DATA #2 TYPE Mg. FOCUS 00 PHASE 01 H BIAS 02 V BIAS 03 H B DEFOCUS 04 V B DEFOCUS 05 B DEFOCUS 4PA
	2, 4, 6 POLE DATA ALL WRITE	CONTROLLER → PROJECTOR	32	57	DATA #1 DATA #2 DATA #3 DATA #4 DATA #5 DATA #6 DATA #7 COLOR 2 POLE H 2POLE V 4 POLE AQP 4 POLE DQP 6 POLE AHP 6 POLE DHP 00 R 01 G 02 B
	2, 4, 6 POLE DATA WRITE	CONTROLLER → PROJECTOR	32	58	DATA #1 DATA #2 DATA #3 COLOR TYPE 2, 4, 6 POLE 00 R 00 2 POLE H 01 G 01 2 POLE V 02 B 02 4 POLE AQP 03 4 POLE DQP 04 6 POLE AHP 05 6 POLE DHP

FUNCTION	COMMAND	DIRECTION	CMD1	CMD2	DATA
	AQP DATA ALL WRITE	CONTROLLER → PROJECTOR	32	59	DATA #1 COLOR 00 R 01 G 02 B DATA #7 ZONE7 DATA #8 ZONE8 DATA #9 ZONE9 DATA #10 ZONE10 DATA #11 ZONE11 DATA #12 ZONE12 DATA #13 ZONE13
	AQP DATA WRITE	CONTROLLER → PROJECTOR	32	5A	DATA #1 COLOR 00 R 01 G 02 B DATA #2 POSITION 00—0B ZONE 2—13 DATA #3 AQP
	DQP DATA ALL WRITE	CONTROLLER → PROJECTOR	32	5B	DATA #1 COLOR 00 R 01 G 02 B DATA #7 ZONE7 DATA #8 ZONE8 DATA #9 ZONE9 DATA #10 ZONE10 DATA #11 ZONE11 DATA #12 ZONE12 DATA #13 ZONE13
	DQP DATA WRITE	CONTROLLER → PROJECTOR	32	5C	DATA #1 COLOR 00 R 01 G 02 B DATA #2 POSITION 00—0B ZONE 2—13 DATA #3 DQP
	AHP DATA ALL WRITE	CONTROLLER → PROJECTOR	32	5D	DATA #1 COLOR 00 R 01 G 02 B DATA #7 ZONE7 DATA #8 ZONE8 DATA #9 ZONE9 DATA #10 ZONE10 DATA #11 ZONE11 DATA #12 ZONE12 DATA #13 ZONE13
	AHP DATA WRITE	CONTROLLER → PROJECTOR	32	5E	DATA #1 COLOR 00 R 01 G 02 B DATA #2 POSITION 00—0B ZONE 2—13 DATA #3 AHP
	DHP DATA ALL WRITE	CONTROLLER → PROJECTOR	32	5F	DATA #1 COLOR 00 R 01 G 02 B DATA #7 ZONE7 DATA #8 ZONE8 DATA #9 ZONE9 DATA #10 ZONE10 DATA #11 ZONE11 DATA #12 ZONE12 DATA #13 ZONE13
	DHP DATA WRITE	CONTROLLER → PROJECTOR	32	60	DATA #1 COLOR 00 R 01 G 02 B DATA #2 POSITION 00—0B ZONE 2—13 DATA #3 DHP

SIRCS CODE

15 Bit Category (4054 hex)

	x0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x											SWITCHER 1-1	SWITCHER 1-2	SWITCHER 1-3	SWITCHER 1-4	SWITCHER 1-5	SWITCHER 1-6
1x	SWITCHER 1-7	SWITCHER 1-8	VOLUME + UP	VOLUME – DOWN	AUDIO MUTING	POWER ON/OFF			CONTRAST + HIGH	CONTRAST – LOW	COLOR + HIGH	COLOR – LOW	LIOGHT ON	LIGHT OFF	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	CENT	POWER ON	POWER OFF
3x	SYSTEM SET UP	POSITION +	POSITION –	CURSOR →	CURSOR ←	CURSOR ↑	CURSOR ↓	SWITCHER 2-1	SWITCHER 2-2	SWITCHER 2-3	SWITCHER 2-4	SWITCHER 2-5	SWITCHER 2-6	SWITCHER 2-7	SWITCHER 2-8	
4x		ADJ R	ADJ G	ADJ B	CUT OFF R	CUT OFF G	CUT OFF B	RGB SIZE	RGB SHIFT	CENT R	CENT G	CENT B	SIZE	LIN	SKEW	BOW
5x	KEY	PIN	W/B GAIN	W/B BIAS	FOCUS MG	FOCUS LENS	ZONE		BLANKING		ENTER				MEMORY	VIDEO/ S VIDEO
6x	INDEX 0 (ALL)	INDEX 1	INDEX 2	INDEX 3	INDEX 4	INDEX 5	INDEX 6	INDEX 7	INDEX 8	INDEX 9	SCREEN UP	SCREEN DOWN	SCREEN STOP			INPUT C
7x	INPUT D									γ	INPUT OTHER	RESET		NORMAL	PATTERN	

20 Bit Category (855A hex)

	x0	x1	x2	x3	x4	x5	x6	x7	x8	x9	xA	xB	xC	xD	xE	xF
0x											SWITCHER 3-1	SWITCHER 3-2	SWITCHER 3-3	SWITCHER 3-4	SWITCHER 3-5	SWITCHER 3-6
1x	SWITCHER 3-7	SWITCHER 3-8	SWITCHER 4-1	SWITCHER 4-2	SWITCHER 4-3	SWITCHER 4-4	SWITCHER 4-5	SWITCHER 4-6	SWITCHER 4-7	SWITCHER 4-8	SWITCHER 5-1	SWITCHER 5-2	SWITCHER 5-3	SWITCHER 5-4	SWITCHER 5-5	SWITCHER 5-6
2x	SWITCHER 5-7	SWITCHER 5-8	SWITCHER 6-1	SWITCHER 6-2	SWITCHER 6-3	SWITCHER 6-4	SWITCHER 6-5	SWITCHER 6-6	SWITCHER 6-7	SWITCHER 6-8	SWITCHER 7-1	SWITCHER 7-2	SWITCHER 7-3	SWITCHER 7-4	SWITCHER 7-5	SWITCHER 7-6
3x	SWITCHER 7-7	SWITCHER 7-8	SWITCHER 8-1	SWITCHER 8-2	SWITCHER 8-3	SWITCHER 8-4	SWITCHER 8-5	SWITCHER 8-6	SWITCHER 8-7	SWITCHER 8-8						
4x	GP INDEX 0 (ALL)	GP INDEX 1	GP INDEX 2	GP INDEX 3	GP INDEX 4	GP INDEX 5	GP INDEX 6	GP INDEX 7	GP INDEX 8	GP INDEX 9						
5x																
6x						FUNCTION										
7x																

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