

ESC/VP Level6 Serial Communication Manual Ver.2

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REVISION STATUS

Revision	Issued Date	Description
1	2001.1.15	First Release
2	2001.4.27	Clerical error correction. The power on command of EMP-7600/5600.

1. OUTLINE

This manual describes the ESC/VP Level 6 protocol for communication with projectors manufactured by Seiko Epson.

2. APPLICATION

This manual applies to the following models.

[Applicable models]

- EMP-8100/9100
- EMP-8150
- EMP-7700/7600/5600

4. COMMAND TYPES

The types of commands used can be divided into apply commands and reply commands. Both of these command types can be further divided into setting commands, acquisition commands and initialization commands. Apply commands are used to make settings, acquire information and carry out initialization, and reply commands provide responses to apply commands.

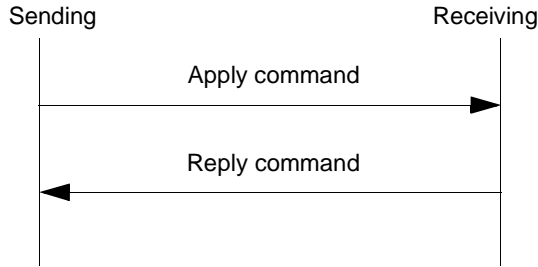


Figure 4-1. Apply/Reply Command

The table below gives details on each command.

Table 4-1. Details on each command

Command Types		Caption
Apply command	Set/Report/Indicate/Request	Sets, reports, indicates and requests values
	Get	Gets the current value.
	Initialize	Initializes a value.
	Package	Command which combines the attributes of setting, reporting, indicating and requesting
Reply command	Set/Report/Indicate/Request	Response to an apply command for setting, reporting, indicating or requesting
	Get	Return Packet for getting
	Initialize	Return Packet for initializing
	Package	Response to a package apply command
	Alert	Alert response to apply commands

(4) FromTo

: Specifies the sending and receiving ends of the FromTo command. (1 byte)
 Indicates sending end between 7th and 4th bit and receiving end between 3rd to 0th bit.

The basic FromTo combination is shown below.

Table 5-3. List of FromTo codes (bit)

Machines	Code (bit)
PC (RS-232C communication)	0x00
Master projector or stand-alone projector	0x01
Slave projector 1 - slave projector 7	0x02 to 0x08

The apply/reply codes using FromTo combinations are shown below.

Table 5-4. List of FromTo codes for apply commands

From	To	Apply
PC (Serial)	Projector (Master)	0x01
	Projector (Slave1 to 7)	0x02 to 0x08

Table 5-5. List of FromTo codes for reply commands

From	To	Reply
PC (Serial)	Projector (Master)	0x10
	Projector (Slave1 to 7)	0x92 to 0x98

(5) Functional Classification (Group)

: Represents the functional classification as classification codes. (1 byte)

Table 5-6. List of Functional Classification

Functional classification	Group Code	Caption
Special control (Special)	0x00	Performs switching and resetting the operating mode.
Screen control (Screen)	0x01	Controls the display screen.
Audio control (Audio)	0x02	Controls the audio.
PC control (PC)	0x03	Controls PC's image quality.
VIDEO control (Video)	0x04	Controls Video's image quality.
Display control (Display)	0x05	Controls the display.
Option (Option)	0x06	Sets the additional functions for the whole projector.
Custom (Custom)	0x07	Sets the additional functions that user can program.
Reserved	0x08	
Reserved	0x09	
Reserved	0x0E	
Reserved	0x0F	
Stack control (Stack)	0x10	Performs various kinds of controls of Stack.
EasyMP.net control (EasyMP.net)	0x20	Performs various kinds of controls of EasyMP.net.

(6) Function (Item)

: ESC/VP functions and the classification code for those are as follows. (1 byte)

Table 5-7. List of Function

Functional classification	Group Code	Function	Item Code	Functional classification	Group Code	Function	Item Code				
Special Control (Special)	0x00	※ Power	0x03	Video Control (Video)	0x04	※ Brightness	0x00				
		※ Communication rate	0x06			※ Contrast	0x01				
		Initialize all	0x07			※ Sharpness	0x02				
		※ Lamp on	0x09			※ Color	0x03				
		Cursor Speed	0x10			※ Tint	0x04				
		△ Password	0x11			※ Video mode	0x05				
		※ Error Information	0x12	Smooth motion	0x06						
		△ Administrator Log on	0x13	Display Control (Display)	0x05	Horizontal Position	0x00				
		△ Administrator Log off	0x14			Vertical Position	0x01				
		※ Key code	0x16			※ Rear Proj.	0x02				
		Serial command	0x17			※ Ceiling	0x03				
		○ Max/Min	0x18			Color Temperature	0x04				
		Alert	0x19			Black Level	0x08				
		○ Product ID	0x20			White Level	0x09				
		○ Software version	0x21			Auto color temperature	0x0A				
		○ Protocol version	0xFF			Select color temperature	0x0B				
		Screen Control (Screen)	0x01			※ Input source	0x00	Option (Option)	0x06	○ Language	0x00
						※ Input mode	0x01			※ Source Prompt	0x03
○ ※ Freeze	0x02					※ Blank	0x04				
○ ※ A/V Mute	0x03			Set user gamma	0x08						
Audio Control (Audio)	0x02	Volume	0x00	※ BNC	0x09						
		Bass	0x06	※ Keystone	0x0F						
		Treble	0x07	※ Startup screen	0x10						
		SRS SPACE	0x08	※ Message	0x11						
		SRS CENTER	0x09	Comp2 Sync termination	0x13						
PC Control (PC)	0x03	※ Brightness	0x00	Option (Option)	0x06	※ V keystone	0x14				
		※ Contrast	0x01			※ DelayON	0x15				
		※ Sync.	0x02			※ Comp1/DVI	0x16				
		※ Tracking	0x03			※ Sleep Mode	0x17				
		Get tracking base	0x04			○ ※ Computer2 input format	0x19				
		Get PC Frequency	0x0A			Custom (Custom)	0x07	※ PinP	0x08		
		Get Resolution	0x0B					○ ※ PinP audio selection setting	0x09		
		Sharpness	0x0D			Stack Control (Stack)	0x10	○ Check Stack state	0x00		
		※ Resolution	0x0E					○ Check Stack	0x01		
		Preset	0x0F					Lock/Unlock	0x04		
		○ Automatic setup	0x12					○ Source changing	0x06		
		○ Automatic black level adjustment	0x13								
		○ Automatic white level adjustment	0x14								

○ : Valid for Master projector or Stand-alone projector only

△ : Valid for Master projector only

※ : Commands listed in the abridged manual

(7) Parameters

: Parameters differ for each command, so refer the separate descriptions for each command.

* In the case of items for which the setting range can be adjusted, the parameter values are the values in the table below which have been converted to hexadecimal format.

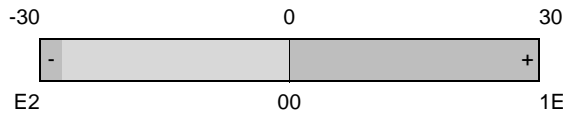


Table 5-8. Hexadecimal conversion list

Decimal	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Hexadecimal	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E
Decimal	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-11	-12	-13	-14	-15	-16	-17	-18	-19	-20	-21	-22	-23	-24	-25	-26	-27	-28	-29	-30
Hexadecimal	FF	FE	FD	FC	FB	FA	F9	F8	F7	F6	F5	F4	F3	F2	F1	F0	EF	EE	ED	EC	EB	EA	E9	E8	E7	E6	E5	E4	E3	E2

* If a reply command contains an error attribute, the following parameter (2 bytes) is set.

Table 5-9. List of error parameters

Parameters	Error type	Error condition
0x0001	Network in use	An attempt was made to communicate with the projector via a network connection, but another computer was already communicating with the projector.
0x0002	No applicable setting	Parameter is outside the setting range and FromTo is incorrect. Command is not supported, or unknown command.
0x0003	Resource error	Insufficient EasyMP.net resources.
0x0004	Download in progress	Projector is in download mode.
0x0005	Setting not currently possible	The apply command received cannot be processed.
0x0006	Lamp off	Projector lamp is switched off.
0x0007	Error between projector and EasyMP.net	When the command was sent via EasyMP.net and too many retries or timeouts occur between EasyMP.net and the projector, it indicates an error upstream from EasyMP.net.
0x0008	EasyMP.net rebooting	EasyMP.net is at end sequence.
0x0009	Status mismatch	A command which was different from the expected command was received.
0x000A	Projector error	When too many retries or timeouts occur between master and slave projectors when connected in a stack, it indicates an error upstream from the master projector.
0x000B	Network not connected	An attempt at communication with the computer (network) was made, but no computer (network) exists.
0x000C	Locked	An item which has been locked by the administrator (installer) was specified.
0x000D	Not available for stack	A command which cannot be used for a stack configuration was specified.

(8) Checksum

: Represent checksum (1 byte)

Checksum calculation method

All bytes of data from the size to the parameters is added together, and the twos complement of the result in hexadecimal format is subtracted from 0x0100 to obtain the checksum.

Example) For the command "1D 0007 01 10 00 02 0A CS"

$$0x00 + 0x07 + 0x01 + 0x10 + 0x00 + 0x02 + 0x0A = 0x24 \quad \text{--->} \quad 0x0100 - 0x24 = \mathbf{0xDC}$$

6. CONTROL CODE

00 SPECIAL CONTROL

Command structure Type	Apply								Reply							
	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum

03 : Power

Controls the projector power and gets the present power state.

<In the case of a power on setup of EMP-7600/5600>

Set	1B	07	01	--	00	03	01	F4	1B	06	81 C1	--	00	03	--	CS
-----	----	----	----	----	----	----	----	----	----	----	----------	----	----	----	----	----

<In cases other than a power on setup of EMP-7600/5600, and the case of EMP-8100/9100/8150/7700>

[Parameter] Data relating to the power states.

0x00: PowerOFF

0x01: PowerON

0x02: Suspend

0x10: During Startup

0x11: Cool down

0x20: System fault

* Although setting 0x02 and later in parameter and sending command to the projector, returns NG in replay. 0x02 and later are available just for informing from the projector.

Set	1D	0009	01	FT	00	03	00 01	CS	1D	0008 000A	81 C1	FT	00	03	-- PARA	CS
Get	1D	0008	02	FT	00	03	--	CS	1D	0009 000A	82 C2	FT	00	03	PARA	CS

06 : Communication rate

Controls the communication rate.

[Parameter] Data relating to communication rate.

<For EMP-8100/9100/8150/7700>

0x00: 9600bps

0x01: 19200bps

0x02: 38400bps

0x03: 57600bps

<For EMP-7600/5600>

0x00: 9600bps

0x01: 19200bps

0x02: 38400bps

Set	1D	0009	01	FT	00	06	PARA	CS	1D	0008 000A	81 C1	FT	00	06	-- PARA	CS
Get	1D	0008	02	FT	00	06	--	CS	1D	0009 000A	82 C2	FT	00	06	PARA	CS
Initialize	1D	0008	03	FT	00	06	--	CS	1D	0009 000A	83 C3	FT	00	06	PARA	CS

07 : Initialize all

Initializes all the functions.

[Parameter] Data relating to start and end of initialization.

0x00: Start

0x01: Complete

* When the initialization has been performed from the projector, parameter 0x00 at the start and parameter 0x01 at the end are set and this command will be sent.

* When performing the initialization to the projector, sets 0x00 on demand and nothing has to be sent at the end.

Set	1D	0009	01	FT	00	07	PARA	CS	1D	0008 000A	81 C1	FT	00	07	-- PARA	CS
-----	----	------	----	----	----	----	------	----	----	--------------	----------	----	----	----	------------	----

09 : Lamp Hour

Gets the present lamp hour.

[Parameter] Returns the present lamp hour (in hours) (2 bytes)

Get	1D	0008	02	FT	00	09	--	CS	1D	000A 000A	82 C2	FT	00	09	PARA	CS
-----	----	------	----	----	----	----	----	----	----	--------------	----------	----	----	----	------	----

10 : Cursor Speed

Controls the cursor speed.

[Parameter] Data relating to cursor speed.

0x00: Low

0x01: Medium

0x02: High

Set	1D	0009	01	FT	00	10	PARA	CS	1D	0008 000A	81 C1	FT	00	10	-- PARA	CS
Get	1D	0008	02	FT	00	10	--	CS	1D	0009 000A	82 C2	FT	00	10	PARA	CS
Initialize	1D	0008	03	FT	00	10	--	CS	1D	0009 000A	83 C3	FT	00	10	PARA	CS

00 SPECIAL CONTROL

Command structure Type	Apply								Reply							
	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum

11 : Password (Applicable models: EMP-8100/8150/9100, * Only valid for Master projector)

Sets a password for installer only use.

[Parameter] Password: ASCII 16 letters

- * When the password which you set was within 16 letter, padding NULL(0x00) is done.
- * NG is sent in reply when it is not logged on (User 00-13) by an administrator.
(To log in as an administrator, use the Group 0x00, Item 0x13 administrator login command.)

*1 When there is no password set, returns null(0x00).

*2 After initializing, the password will be null(0x00).

Set	1D	0018	01	FT	00	11	PARA	CS	1D	0008 000A	81 C1	FT	00	11	-- PARA	CS
Get	1D	0008	02	FT	00	11	--	CS	1D	0018 000A	82 C2	FT	00	11	PARA*1	CS
Initialize	1D	0008	03	FT	00	11	--	CS	1D	0018 000A	83 C3	FT	00	11	00*2	CS

12 : Error information

Gets and reports projector error information.

[Parameter] Projector error information

- The following data is set with an OR:
- 0x00: No error or error is cancelled.
 - 0x01: Fan problem
 - 0x04: Internal temperature is abnormally high.
 - 0x08: Lamp life expectancy is closed to end.
 - 0x20: Lamp problem
 - 0x40: Other failures
 - 0x80: Stack failure (EMP-8100/8150/9100 only)

Set	1D	0009	01	FT	00	12	--	CS	1D	0008 000A	81 C1	FT	00	12	-- PARA	CS
Get	1D	0008	02	FT	00	12	--	CS	1D	0009 000A	82 C2	FT	00	12	PARA	CS

13 : Administrator Log on

(Applicable models: EMP-8100/8150/9100, * Only valid for Master projector)

Administrator Log on

By logging on as an administrator, the administrator -only commands such as Password (00-11) and Lock/Unlock (10-04) become available.

* After using this command, you must use the 00-14 [User Log off]

[Parameter] Password: ASCII 16 letters

- * Returns NG when the password is not effective.

Set	1D	0018	01	FT	00	13	--	CS	1D	0008 000A	81 C1	FT	00	13	-- PARA*1	CS
-----	----	------	----	----	----	----	----	----	----	--------------	----------	----	----	----	--------------	----

14 : Administrator Log off

(Applicable models: EMP-8100/8150/9100, * Only valid for Master projector)

Administrator Log off

By logging off as an administrator, the administrator-only commands such as Password (00-11) and Lock/Unlock (10-04) become invalid.

Set	1D	0008	01	FT	00	14	--	CS	1D	0008 000A	81 C1	FT	00	14	-- PARA	CS
-----	----	------	----	----	----	----	----	----	----	--------------	----------	----	----	----	------------	----

00 SPECIAL CONTROL

Command structure Type	Apply								Reply							
	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum

16 : Key codes

Controls the key codes.

[Parameter] Key attribute length, key attribute, key code length, key code and reserved space are returned in order (12 bytes).

Key attribute length: Size of the key attribute (2 bytes)

Key attribute: Indicates whether following bits are ON or OFF (2 bytes)

Bit 0: 0 = key OFF, 1 = key ON

Bit 1: 0 = shift key OFF, 1 = shift key ON

Key code length: Size of key code (2 bytes)

Key code: (2 bytes)

0x0001: Power	0x0201: HEMP	0x0600: Left mouse button click
0x0002: reserved	0x0202: Enter	0x0601: Right mouse button click
0x0100: Source	0x0203: ESC	0x0700: Volume+
0x0101: Computer	0x0300: Auto	0x0701: Volume-
0x0102: Computer-P	0x0301: Tracking+	0x0702: A/V Mute
0x0103: DVI	0x0302: Tracking-	0x0703: Zoom+
0x0104: Computer2	0x0303: Sync+	0x0704: Zoom-
0x0110: Video	0x0304: Sync-	0x0705: Resize
0x0111: S-Video	0x0500: F1	0x0706: Freeze
0x0112: Video-P	0x0501: F2	0x0707: PinP
0x0113: BNC	0x0502: F3	0x0708: Preset
0x0120: EasyMP.net	0x0503: F4	0x0709: Keystone+
0x0200: Menu	0x0504: F5	0x070A: Keystone-

Reserved: 0x00000000 (4 bytes)

Set	1D	0014	01	FT	00	16	PARA	CS	1D	0008 000A	81 C1	FT	00	16	-- PARA	CS
-----	----	------	----	----	----	----	------	----	----	--------------	----------	----	----	----	------------	----

00 SPECIAL CONTROL

Command structure Type	Apply								Reply							
	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum

17 : Continuous command execution

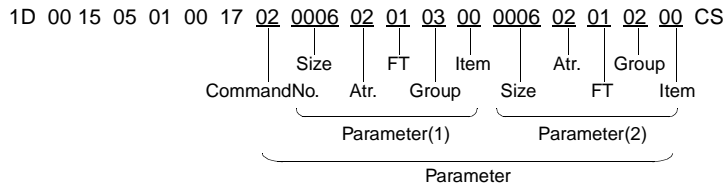
Multiple commands from different Groups and Items can be executed in succession. However, inclusion of attributes is not possible.

[Parameter] Commands are returned in the order of command number and command type.

Command number: Total number of commands to be executed in succession (1 byte)

Command type: Commands are returned in the order of command size, attribute, FromTo, Group, Item and parameters.
 Command size equals attribute size + FromTo size + Group size + Item size + parameter size + 2.

Example) Getting PC brightness (Parameter (1)) and getting volume (parameter (2))
 (PC ---> Projector)



The following commands cannot be used as parameters for these commands.

Group	Item	Functions	Attribute
0x00	0x03	Power	Set
	0x06	Communication rate	Set, Initialize
	0x07	Initialize all	Set
	0x16	Key code	Set
	0x17	Continuous command execution	Package
0x01	0x00	Input source	Set, Initialize
	0x01	Input mode	Set, Initialize
0x03	0x0E	Resolution	Set, Initialize
0x04	0x05	Video mode	Set, Initialize
0x06	0x09	BNC	Set, Initialize
0x10	0x00	Check Sack state	All attributes
	0x01	Check Stack	All attributes

*1 If a command specified in a parameter is incorrect, the parameter attribute is set to an error, and an OK is returned as the attribute for this command. However, an error is returned only when this command cannot be processed.

Package	1D	SIZE	05	FT	00	17	PARA	CS	1D	SIZE	85	FT	00	17	PARA*1	CS
---------	----	------	----	----	----	----	------	----	----	------	----	----	----	----	--------	----

00 SPECIAL CONTROL

Command structure Type	Apply								Reply							
	STX	Size	Attribute	From To	Group	Item	Parameter	Checksum	STX	Size	Attribute	From To	Group	Item	Parameter	Checksum

18 : Maximum value/minimum value (* Only valid for Standalone/Master projector)

Gets the maximum value and minimum value for a command.

[Parameter] **Apply:** Specify the Group (1 byte) and Item (1 byte) for the command to get the maximum and minimum value for in that order.

Reply: The Group (1 byte), Item (1 byte), maximum value (4 bytes) and minimum value (4 bytes) for the specified command are returned in that order.

This command can be used with the following commands:

Group	Item	Functions
0x00	0x09	Lamp on
0x02		All commands in volume control group
0x03	0x00	Brightness
	0x01	Contrast
	0x02	Sync.
	0x03	Tracking
	0x0D	Sharpness
0x04	0x00	Brightness
	0x01	Contrast
	0x02	Sharpness
	0x03	Color
	0x04	Tint
0x05	0x04	Color Temperature
	0x08	Black Level
	0x09	White Level
	0x0C	Color Temperature R
	0x0D	Color Temperature G
	0x0E	Color Temperature B
0x06	0x0F	Keystone
	0x14	V keystone

Get	1D	000A	02	FT	00	18	PARA	CS	1D	0012 000A	82 C2	FT	00	18	PARA	CS
-----	----	------	----	----	----	----	------	----	----	--------------	----------	----	----	----	------	----

19 : Alert

Reports errors occurring before command parsing for each command.

[Parameter] Data relating to parameter length and error code.

Parameter length: Size of parameter (2 bytes)

Error code: (2 bytes)

0x0001: Checksum error

0x0002: H/W error

Alert	(All commands)								1D	000A	8F	FT	00	19	PARA	CS
-------	----------------	--	--	--	--	--	--	--	----	------	----	----	----	----	------	----

20 : Product ID

(* Only valid for Standalone/Master projector)

Gets the product ID.

[Parameter] Data showing the product ID (4 bytes)

0x03300200: EMP-8100

0x03300220: EMP-8150

0x03430100: EMP-9100

0x04200300: EMP-7700

0x04300200: EMP-7600

0x04300100: EMP-5600

Get	1D	0008	02	FT	00	20	--	CS	1D	SIZE 000A	82 C2	FT	00	20	PARA	CS
-----	----	------	----	----	----	----	----	----	----	--------------	----------	----	----	----	------	----

00 SPECIAL CONTROL

Command structure Type	Apply								Reply							
	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum

21 : Software version (* Only valid for Standalone/Master projector)

Gets the software version.

[Parameter] **Apply:** Specify the software for which you would like the version. (1 byte)
 0x01: FR firmware
 0x02: PW firmware
 0x50: EasyMP firmware

[Parameter] **Reply:** Returns the software version.
 (15 bytes for FR/PW firmware, 9 bytes for EasyMP firmware)

Software creation year, software creation month, product ID (or EasyMP-ID), destination and software version are returned in that order.

Software creation year: Last digit of A.D. year (1 ASCII character)

Software creation month: Jan.--Sep: 1--9, Oct.--Dec.: X, Y, Z (1 ASCII character)

Product ID: * Only set when getting version for FR/PW firmware.

Same as Group 0x00, Item 0x20, but contents are an ASCII string (8 ASCII characters)

EasyMP-ID: * Only set when getting version for EasyMP firmware.

EasyMP = 10, EasyMP.net = 20 (2 ASCII characters)

Destination: (1 ASCII character)

X: All, J: Japan, U America, E: Europe, C: China, K: Korea, W: Europe & America

Software version: (4 ASCII characters)

1st character = V, 2nd character = Version, 3rd & 4th characters = Revision

Example) For Version 1.00 of PW for Japan, created January 2000: 01*****JV100 (*****: Product ID)

Example) For Version 1.00 of EasyMP.net for Japan, created January 2000: 0120JV100

Get	1D	0009	02	FT	00	21	PARA	CS	1D	SIZE 000A	82 C2	FT	00	21	PARA	CS
-----	----	------	----	----	----	----	------	----	----	--------------	----------	----	----	----	------	----

FF : Protocol version (* Only valid for Standalone/Master projector)

Gets the ESC/VP command reference version.

[Parameter] Version and revision are returned in that order.

Version: 1 byte

Revision: 1 byte

Example) For Level 6: 0x0600

Get	1D	0008	02	FT	00	FF	--	CS	1D	0009 000A	82 C2	FT	00	FF	PARA	CS
-----	----	------	----	----	----	----	----	----	----	--------------	----------	----	----	----	------	----

01 SCREEN CONTROL

Command structure Type	Apply								Reply							
	STX	Size	Attribute	From To	Group	Item	Parameter	Checksum	STX	Size	Attribute	From To	Group	Item	Parameter	Checksum

00 : Input Source

Controls the input source

[Parameter] Data relating to input source.
 <For EMP-8100/8150/9100/7700> <For EMP-7600/5600>
 0x10: PC1 0x10: PC1
 0x20: Reserved 0x11: PC2 (RGB)
 0x21: Video (Composite) 0x12: Component Video (YCbCr)
 0x22: Video (S) 0x13: Component Video (YPbPr)
 0x30: BNC (RGB) 0x21: Video (Composite)
 0x40: BNC (YCrCb) 0x22: Video (S)
 0x50: DVI 0x50: DVI
 0xE1: Reserved
 0xE2: EasyMP.net

Set	1D	0009	01	FT	01	00	PARA	CS	1D	0008 000A	81 C1	FT	01	00	-- PARA	CS
Get	1D	0008	02	FT	01	00	--	CS	1D	0009 000A	82 C2	FT	01	00	PARA	CS
Initialize	1D	0008	03	FT	01	00	--	CS	1D	0009 000A	83 C3	FT	01	00	PARA	CS

01 : Input mode

Controls the input mode.

[Parameter] Data relating to input mode
 0x00: No mode (NoSignal) 0xE4: PALM 0xEA: 480P
 0x01: PC 0xE5: PAL60 0xEB: 720P
 0xE0: NTSC 0xE6: SECAM 0xEC: 1080I
 0xE1: NTSC4.43 0xE7: NTSC50 0xED: 1080P
 0xE2: PAL 0xE8: YCrCb(50Hz) 0xD0: Not Supported
 0xE3: PALN 0xE9: YCrCb(60Hz)

Set	1D	0009	01	FT	01	01	PARA	CS	1D	0008 000A	81 C1	FT	01	01	-- PARA	CS
Get	1D	0008	02	FT	01	01	--	CS	1D	0009 000A	82 C2	FT	01	01	PARA	CS

02 : Freeze

(* Only valid for Standalone/Master projector)

Controls the Freeze.

Freeze ON: Freezes the image.

[Parameter] Data relating to Freeze
 0x00: Freeze OFF
 0x01: Freeze ON
 0x02: Toggle switch

Set	1D	0009	01	FT	01	02	PARA	CS	1D	0008 000A	81 C1	FT	01	02	-- PARA	CS
Get	1D	0008	02	FT	01	02	--	CS	1D	0009 000A	82 C2	FT	01	02	PARA	CS
Initialize	1D	0008	03	FT	01	02	--	CS	1D	0009 000A	83 C3	FT	01	02	PARA	CS

03 : A/V Mute

(* Only valid for Standalone/Master projector)

Controls the A/V Mute.

A/V Mute ON: Temporarily mutes the image and sound.

[Parameter] Data relating to A/V Mute
 0x00: A/V Mute OFF
 0x01: A/V Mute ON

Set	1D	0009	01	FT	01	03	PARA	CS	1D	0008 000A	81 C1	FT	01	03	-- PARA	CS
Get	1D	0008	02	FT	01	03	--	CS	1D	0009 000A	82 C2	FT	01	03	PARA	CS
Initialize	1D	0008	03	FT	01	03	--	CS	1D	0009 000A	83 C3	FT	01	03	PARA	CS

02 AUDIO CONTROL

Command structure Type	Apply								Reply							
	STX	Size	Attribute	FromTo	Group	Item	Parameter	check-sum	STX	Size	Attribute	FromTo	Group	Item	Parameter	check-sum

00 : Volume

Controls the volume for the currently-selected audio input.

[Parameter] Volume Value (1 byte)
Setting range: 00 to 1F

Set	1D	0009	01	FT	02	00	PARA	CS	1D	0008 000A	81 C1	FT	02	00	-- PARA	CS
Get	1D	0008	02	FT	02	00	--	CS	1D	0009 000A	82 C2	FT	02	00	PARA	CS
Initialize	1D	0008	03	FT	02	00	--	CS	1D	0009 000A	83 C3	FT	02	00	PARA	CS

06 : Bass

Controls the bass for the currently-selected audio input.

[Parameter] Bass Value (1 byte)
Setting range: FA to FF, 00 to 06

Set	1D	0009	01	FT	02	06	PARA	CS	1D	0008 000A	81 C1	FT	02	06	-- PARA	CS
Get	1D	0008	02	FT	02	06	--	CS	1D	0009 000A	82 C2	FT	02	06	PARA	CS
Initialize	1D	0008	03	FT	02	06	--	CS	1D	0009 000A	83 C3	FT	02	06	PARA	CS

07 : Treble

Controls the treble for the currently-selected audio input.

[Parameter] Treble Value (1 byte)
Setting range: FA to FF, 00 to 06

Set	1D	0009	01	FT	02	07	PARA	CS	1D	0008 000A	81 C1	FT	02	07	-- PARA	CS
Get	1D	0008	02	FT	02	07	--	CS	1D	0009 000A	82 C2	FT	02	07	PARA	CS
Initialize	1D	0008	03	FT	02	07	--	CS	1D	0009 000A	83 C3	FT	02	07	PARA	CS

08 : SRS SPACE

(Applicable models: EMP-8100/8150/9100)

Controls the SRS Space level for the currently-selected audio input.

Adjusts the width of the sound.

[Parameter] SRS SPACE Value (1 byte)
Setting range: 00 to 06

Set	1D	0009	01	FT	02	08	PARA	CS	1D	0008 000A	81 C1	FT	02	08	-- PARA	CS
Get	1D	0008	02	FT	02	08	--	CS	1D	0009 000A	82 C2	FT	02	08	PARA	CS
Initialize	1D	0008	03	FT	02	08	--	CS	1D	0009 000A	83 C3	FT	02	08	PARA	CS

09 : SRS CENTER

(Applicable models: EMP-8100/8150/9100)

Controls the SRS Center level for the currently-selected audio input.

Adjusts the depth of the sound.

[Parameter] SRS CENTER Value (1 byte)
Setting range: 00 to 06

Set	1D	0009	01	FT	02	09	PARA	CS	1D	0008 000A	81 C1	FT	02	09	-- PARA	CS
Get	1D	0008	02	FT	02	09	--	CS	1D	0009 0008	82 C2	FT	02	09	PARA	CS
Initialize	1D	0008	03	FT	02	09	--	CS	1D	0009 0008	83 C3	FT	02	09	PARA	CS

03 PC CONTROL

Command structure Type	Apply								Reply							
	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum

00 : Brightness

Controls the screen brightness for the currently-selected PC input source.

[Parameter] Brightness Value (1 byte)
Setting range: E2 to FF, 00 to 1E

Set	1D	0009	01	FT	03	00	PARA	CS	1D	0008 000A	81 C1	FT	03	00	-- PARA	CS
Get	1D	0008	02	FT	03	00	--	CS	1D	0009 000A	82 C2	FT	03	00	PARA	CS
Initialize	1D	0008	03	FT	03	00	--	CS	1D	0009 000A	83 C3	FT	03	00	PARA	CS

01 : Contrast

Controls the screen contrast for the currently-selected PC input source.

[Parameter] Contrast Value (1 byte)
Setting range: E2 to FF, 00 to 1E

Set	1D	0009	01	FT	03	01	PARA	CS	1D	0008 000A	81 C1	FT	03	01	-- PARA	CS
Get	1D	0008	02	FT	03	01	--	CS	1D	0009 000A	82 C2	FT	03	01	PARA	CS
Initialize	1D	0008	03	FT	03	01	--	CS	1D	0009 000A	83 C3	FT	03	01	PARA	CS

02 : Sync.

Controls the screen synchronization for the currently-selected PC input source.
Adjusts disturbance, blurring and vertical noise that appears on the Computer image.

[Parameter] Sync. Value (1 byte)
Setting range: 00 to 3F

Set	1D	0009	01	FT	03	02	PARA	CS	1D	0008 000A	81 C1	FT	03	02	-- PARA	CS
Get	1D	0008	02	FT	03	02	--	CS	1D	0009 000A	82 C2	FT	03	02	PARA	CS
Initialize	1D	0008	03	FT	03	02	--	CS	1D	0009 000A	83 C3	FT	03	02	PARA	CS

03 : Tracking

Controls the screen tracking for the currently-selected PC input source.
Adjusts vertical stripes that appear on the Computer image.

[Parameter] Tracking Value (2 bytes)
Setting range: 80 to FF, 00 to 7F

Set	1D	000A	01	FT	03	03	PARA	CS	1D	0008 000A	81 C1	FT	03	03	-- PARA	CS
Get	1D	0008	02	FT	03	03	--	CS	1D	000A 000A	82 C2	FT	03	03	PARA	CS
Initialize	1D	0008	03	FT	03	03	--	CS	1D	000A 000A	83 C3	FT	03	03	PARA	CS

04 : Tracking Base

(* Only valid for Standalone/Master projector)

Controls the screen tracking base for the currently-selected PC input source.

[Parameter] Tracking Value (2 bytes)

Set	1D	000A	01	FT	03	04	PARA	CS	1D	0008 000A	81 C1	FT	03	04	-- PARA	CS
Get	1D	0008	02	FT	03	04	--	CS	1D	000A 000A	82 C2	FT	03	04	PARA	CS

03 PC CONTROL

Command structure Type	Apply								Reply							
	STX	Size	Attribute	From To	Group	Item	Parameter	Checksum	STX	Size	Attribute	From To	Group	Item	Parameter	Checksum

0A : PC Frequency

Controls the horizontal and vertical frequencies for the currently-selected PC input source.

[Parameter] Horizontal Frequency (4 bytes), Vertical Frequency (4 bytes)

The frequencies are expressed in the following format.

Horizontal and vertical frequency are multiplied by a factor of 100 and returned as 4-byte integers in that order.

As a result, conversion is required at the time of display.

* After converted, the unit for the horizontal frequency becomes KHz, and the unit for the vertical frequency becomes Hz (includes 2-figure of a decimal point.)

*1 When outputting video and no-signal, both frequency returns 0(zero).

Set	1D	0010	01	FT	03	0A	PARA	CS	1D	0008 000A	81 C1	FT	03	0A	-- PARA	CS
Get	1D	0008	02	FT	03	0A	--	CS	1D	0010 000A	82 C2	FT	03	0A	PARA 1	CS

0B : Horizontal and vertical scanning resolution

Controls the horizontal and vertical screen resolution for the currently-selected PC input source.

[Parameter] Horizontal Frequency (2 bytes), Vertical Frequency (2 bytes)

The frequencies are expressed in the following format.

Horizontal and vertical frequency returned as 2-byte integers in that order.

Set	1D	000B	01	FT	03	0B	PARA	CS	1D	0008 000A	81 C1	FT	03	0B	-- PARA	CS
Get	1D	0008	02	FT	03	0B	--	CS	1D	000B 000A	82 C2	FT	03	0B	PARA	CS

0D : Sharpness

Controls the screen sharpness for the currently-selected PC input source.

[Parameter] Sharpness Value (1 byte)

Setting range: FA to FF, 00 to 05

Set	1D	0009	01	FT	03	0D	PARA	CS	1D	0008 0008	81 C1	FT	03	0D	--	CS
Get	1D	0008	02	FT	03	0D	--	CS	1D	0009 000A	82 C2	FT	03	0D	PARA	CS
Initialize	1D	0008	03	FT	03	0D	--	CS	1D	0009 000A	83 C3	FT	03	0D	PARA	CS

0E : Input Resolution

Controls the screen input resolution for the currently-selected PC input source.

[Parameter] Input Resolution (1 byte)

0x00: AUTO	0x0D: 720x350	0x1B: 1280x960(1B)
0x01: NTSC(I)	0x0E: 720x400	0x1C: 1280x1024(1C)
0x02: PAL(I)	0x0F: 800x600	0x1D: 1600x1024(1D)
0x03: 1024x768(I)	0x10: MAC16	0x1E: 1600x1200(1E)
0x04: 1120x750(I)	0x11: 960x720	0x1F: 1600x1280(1F)
0x05: 1280x1024(I)	0x12: 720P	0x20: 1920x1080
0x06: 1600x1200(I)	0x13: 1024x480	0x21: 1400x1050
0x07: 1920x1034(I)	0x14: 1024x600	0x80: Preset 1
0x08: 1920x1080(I)	0x15: 1024x768	0x81: Preset 2
0x09: 640x350	0x16: MAC19	0x82: Preset 3
0x0A: 640x400	0x17: 1024x1024	0x83: Preset 4
0x0B: 640x480/MAC13	0x18: 1152x864	0x84: Preset 5
0x0C: 480P	0x19: MAC21	0xA0: Custom 1
	0x1A: 152x900(1A)	0xA1: Custom 2

Set	1D	0009	01	FT	03	0E	PARA	CS	1D	0008 000A	81 C1	FT	03	0E	-- PARA	CS
Get	1D	0008	02	FT	03	0E	--	CS	1D	0009 000A	82 C2	FT	03	0E	PARA	CS
Initialize	1D	0008	03	FT	03	0E	--	CS	1D	0009 000A	83 C3	FT	03	0E	PARA	CS

03 PC CONTROL

Command structure Type	Apply								Reply							
	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum

0F : Preset Entry

Controls the preset entry for the currently-selected PC input source.

It is possible to save the current computer input signal adjustment values (input resolution, tracking, synchronization signals, Brightness, Contrast, Sharpness, Gamma display position).

[Parameter] Preset Number (1 byte)

- 0x00: Preset 1
- 0x01: Preset 2
- 0x02: Preset 3
- 0x03: Preset 4
- 0x04: Preset 5

Set	1D	0009	01	FT	03	0F	PARA	CS	1D	0008 000A	81 C1	FT	03	0F	-- PARA	CS
------------	----	------	----	----	----	----	------	----	----	--------------	----------	----	----	----	------------	----

12 : Automatic setup (* Only valid for Standalone/Master projector)

Reports the start and end of automatic setup.

[Parameter] Data relating to automatic setup status, horizontal resolution and vertical resolution are returned in that order.

(1) Data relating to automatic setup status: (1 byte)

- 0x00: Start
- 0x01: Normal completion
- 0x02: Abnormal completion

(2) Horizontal resolution: (2 bytes)

Only valid at start. NULL is embedded at end.

(3) Vertical resolution: (2 bytes)

Only valid at start. NULL is embedded at end.

Set	1D	000D	01	FT	03	12	PARA	CS	1D	0008 000D	81 C1	FT	03	12	-- PARA	CS
------------	----	------	----	----	----	----	------	----	----	--------------	----------	----	----	----	------------	----

13 : Automatic black level adjustment (* Only valid for Standalone/Master projector)

Reports the start and end of automatic brightness adjustment.

[Parameter] Data relating to automatic adjustment (1 byte)

- 0x00: Start
- 0x01: Normal completion
- 0x02: Abnormal completion

Set	1D	0009	01	FT	03	13	PARA	CS	1D	0008 000A	81 C1	FT	03	13	-- PARA	CS
------------	----	------	----	----	----	----	------	----	----	--------------	----------	----	----	----	------------	----

14 : Automatic white level adjustment (* Only valid for Standalone/Master projector)

Reports the start and end of automatic contrast adjustment.

[Parameter] Data relating to automatic adjustment (1 byte)

- 0x00: Start
- 0x01: Normal completion
- 0x02: Abnormal completion

Set	1D	0009	01	FT	03	14	PARA	CS	1D	0008 000A	81 C1	FT	03	14	-- PARA	CS
------------	----	------	----	----	----	----	------	----	----	--------------	----------	----	----	----	------------	----

04 VIDEO CONTROL

Command structure Type	Apply								Reply							
	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum

00 : Brightness

Controls the screen brightness for the currently-selected video input source.

[Parameter] Brightness Value (1 byte)

Setting range: F1 to FF, 00 to 0F

Set	1D	0009	01	FT	04	00	PARA	CS	1D	0008 000A	81 C1	FT	04	00	-- PARA	CS
Get	1D	0008	02	FT	04	00	--	CS	1D	0009 000A	82 C2	FT	04	00	PARA	CS
Initialize	1D	0008	03	FT	04	00	--	CS	1D	0009 000A	83 C3	FT	04	00	PARA	CS

01 : Contrast

Controls the screen contrast for the currently-selected video input source.

[Parameter] Contrast Value (1 byte)

Setting range: F1 to FF, 00 to 0F

Set	1D	0009	01	FT	04	01	PARA	CS	1D	0008 000A	81 C1	FT	04	01	-- PARA	CS
Get	1D	0008	02	FT	04	01	--	CS	1D	0009 000A	82 C2	FT	04	01	PARA	CS
Initialize	1D	0008	03	FT	04	01	--	CS	1D	0009 000A	83 C3	FT	04	01	PARA	CS

02 : Sharpness

Controls the screen sharpness for the currently-selected video input source.

[Parameter] Sharpness Value (1 byte)

Setting range: FB to FF, 00 to 06

Set	1D	0009	01	FT	04	02	PARA	CS	1D	0008 000A	81 C1	FT	04	02	-- PARA	CS
Get	1D	0008	02	FT	04	02	--	CS	1D	0009 000A	82 C2	FT	04	02	PARA	CS
Initialize	1D	0008	03	FT	04	02	--	CS	1D	0009 000A	83 C3	FT	04	02	PARA	CS

03 : Saturation

Controls the screen saturation for the currently-selected video input source.

[Parameter] Saturation Value (1 byte)

Setting range: F1 to FF, 00 to 0F

Set	1D	0009	01	FT	04	03	PARA	CS	1D	0008 000A	81 C1	FT	04	03	-- PARA	CS
Get	1D	0008	02	FT	04	03	--	CS	1D	0009 000A	82 C2	FT	04	03	PARA	CS
Initialize	1D	0008	03	FT	04	03	--	CS	1D	0009 000A	83 C3	FT	04	03	PARA	CS

04 : Tint

Controls the screen tint for the currently-selected video input source.

[Parameter] Tint Value (1 byte)

Setting range: F1 to FF, 00 to 0F

Set	1D	0009	01	FT	04	04	PARA	CS	1D	0008 000A	81 C1	FT	04	04	-- PARA	CS
Get	1D	0008	02	FT	04	04	--	CS	1D	0009 000A	82 C2	FT	04	04	PARA	CS
Initialize	1D	0008	03	FT	04	04	--	CS	1D	0009 000A	83 C3	FT	04	04	PARA	CS

05 DISPLAY CONTROL

Command structure Type	Apply								Reply							
	STX	Size	Attribute	From To	Group	Item	Parameter	Checksum	STX	Size	Attribute	From To	Group	Item	Parameter	Checksum

09 : Setting White Level (Applicable models: EMP-8100/8150/9100)

Controls the screen white level for the current input source.

[Parameter] White Level Value (1 byte)
Setting range: C1 to FF, 00

Set	1D	0009	01	FT	05	09	PARA	CS	1D	0008 000A	81 C1	FT	05	09	-- PARA	CS
Get	1D	0008	02	FT	05	09	--	CS	1D	0009 000A	82 C2	FT	05	09	PARA	CS
Initialize	1D	0008	03	FT	05	09	--	CS	1D	0009 000A	83 C3	FT	05	09	PARA	CS

0A : Auto Color Temperature (Applicable models: EMP-8100/8150/9100)

Controls whether screen color temperature is adjusted automatically or manually for the current input source.

[Parameter] Data relating to whether color temperature adjustment is automatic or manual.
0x00: Auto
0x01: Manual

Set	1D	0009	01	FT	05	0A	PARA	CS	1D	0008 000A	81 C1	FT	05	0A	-- PARA	CS
Get	1D	0008	02	FT	05	0A	--	CS	1D	0009 000A	82 C2	FT	05	0A	PARA	CS
Initialize	1D	0008	03	FT	05	0A	--	CS	1D	0009 000A	83 C3	FT	05	0A	PARA	CS

0B : Color Temperature Selection

Controls the selection of color temperature details (absolute color temperature/RGB) when "Manual" is selected from "Advanced Settings" --> "Color Settings".

[Parameter] Data relating to absolute color temperature or RGB.
0x00: Absolute color temperature
0x01: RGB

Set	1D	0009	01	FT	05	0B	PARA	CS	1D	0008 000A	81 C1	FT	05	0B	-- PARA	CS
Get	1D	0008	02	FT	05	0B	--	CS	1D	0009 000A	82 C2	FT	05	0B	PARA	CS
Initialize	1D	0008	03	FT	05	0B	--	CS	1D	0009 000A	83 C3	FT	05	0B	PARA	CS

0C : Color Temperature R

Sets color temperature for red.

[Parameter] Color temperature setting for red (1 byte)
Setting range: F0 to FF, 00 to 10

Set	1D	0009	01	FT	05	0C	PARA	CS	1D	0008 000A	81 C1	FT	05	0C	-- PARA	CS
Get	1D	0008	02	FT	05	0C	--	CS	1D	0009 000A	82 C2	FT	05	0C	PARA	CS
Initialize	1D	0008	03	FT	05	0C	--	CS	1D	0009 000A	83 C3	FT	05	0C	PARA	CS

0D : Color Temperature G

Sets color temperature for green.

[Parameter] Color temperature setting for green (1 byte)
Setting range: F0 to FF, 00 to 10

Set	1D	0009	01	FT	05	0D	PARA	CS	1D	0008 000A	81 C1	FT	05	0D	-- PARA	CS
Get	1D	0008	02	FT	05	0D	--	CS	1D	0009 000A	82 C2	FT	05	0D	PARA	CS
Initialize	1D	0008	03	FT	05	0D	--	CS	1D	0009 000A	83 C3	FT	05	0D	PARA	CS

0E : Color Temperature B

Sets color temperature for blue.

[Parameter] Color temperature setting for blue (1 byte)
Setting range: F0 to FF, 00 to 10

Set	1D	0009	01	FT	05	0E	PARA	CS	1D	0008 000A	81 C1	FT	05	0E	-- PARA	CS
Get	1D	0008	02	FT	05	0E	--	CS	1D	0009 000A	82 C2	FT	05	0E	PARA	CS
Initialize	1D	0008	03	FT	05	0E	--	CS	1D	0009 000A	83 C3	FT	05	0E	PARA	CS

06 OPTION

Command structure Type	Apply								Reply							
	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum

0F : Keystone

Controls the keystone correction for the projected images.
Adjusts trapezoid distortion.

[Parameter] Keystone Value (1 byte)
Setting range: 80 to FF, 00 to 7F

Set	1D	0009	01	FT	06	0F	PARA	CS	1D	0008 000A	81 C1	FT	06	0F	-- PARA	CS
Get	1D	0008	02	FT	06	0F	--	CS	1D	0009 000A	82 C2	FT	06	0F	PARA	CS
Initialize	1D	0008	03	FT	06	0F	--	CS	1D	0009 000A	83 C3	FT	06	0F	PARA	CS

10 : Start up Screen

Controls whether the startup screen is displayed or no displayed.
Displays the user logo during warm-up after the power has been switched on.

[Parameter] Data relating to whether the startup screen is displayed or no displayed
0x00: Non-display
0x01: Display

Set	1D	0009	01	FT	06	10	PARA	CS	1D	0008 000A	81 C1	FT	06	10	-- PARA	CS
Get	1D	0008	02	FT	06	10	--	CS	1D	0009 000A	82 C2	FT	06	10	PARA	CS
Initialize	1D	0008	03	FT	06	10	--	CS	1D	0009 000A	83 C3	FT	06	10	PARA	CS

11 : Message

Controls the screen state when no signal is input.

[Parameter] Data relating to screen state when no signal is input
0x00: Non-display
0x01: Black
0x02: Blue
0x03: Logo

Set	1D	0009	01	FT	06	11	PARA	CS	1D	0008 000A	81 C1	FT	06	11	-- PARA	CS
Get	1D	0008	02	FT	06	11	--	CS	1D	0009 000A	82 C2	FT	06	11	PARA	CS
Initialize	1D	0008	03	FT	06	11	--	CS	1D	0009 000A	83 C3	FT	06	11	PARA	CS

13 : Comp2 Sync Termination

(Applicable models: EMP-8100/8150/9100/7700)

Controls the selection of the Comp2 Sync termination (analog [75 Ω termination]/digital).
Usually used at [OFF]. Set at on with the switcher when analog 75 termination is required.

[Parameter] Data relating to Comp2 Sync termination
0x00: OFF (Digital)
0x01: ON (Analog)

Set	1D	0009	01	FT	06	13	PARA	CS	1D	0008 000A	81 C1	FT	06	13	-- PARA	CS
Get	1D	0008	02	FT	06	13	--	CS	1D	0009 000A	82 C2	FT	06	13	PARA	CS
Initialize	1D	0008	03	FT	06	13	--	CS	1D	0009 000A	83 C3	FT	06	13	PARA	CS

14 : V Keystone

Adjusts the projected image in the vertical direction during keystone correction.

[Parameter] Vertical Keystone Value (1 byte)
Setting range: 80 to FF, 00 to 7F

Set	1D	0009	01	FT	06	14	PARA	CS	1D	0008 000A	81 C1	FT	06	14	-- PARA	CS
Get	1D	0008	02	FT	06	14	--	CS	1D	0009 000A	82 C2	FT	06	14	PARA	CS
Initialize	1D	0008	03	FT	06	14	--	CS	1D	0009 000A	83 C3	FT	06	14	PARA	CS

06 OPTION

Command structure Type	Apply								Reply							
	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum

15 : DelayON (Applicable models: EMP-8100/8150/9100/7700)

Controls the DelayOn ON/OFF setting.

When set to ON, the lamp is on when power is being supplied through the power cable. When set to OFF, this function is disabled.

[Parameter] Data relating to DelayON ON/OFF setting (1 byte)

- 0x00: OFF
- 0x01: ON

Set	1D	0009	01	FT	06	15	PARA	CS	1D	0008 000A	81 C1	FT	06	15	-- PARA	CS
Get	1D	0008	02	FT	06	15	--	CS	1D	0009 000A	82 C2	FT	06	15	PARA	CS
Initialize	1D	0008	03	FT	06	15	--	CS	1D	0009 000A	83 C3	FT	06	15	PARA	CS

16 : Comp1/DV1 selection

Sets the Computer1 or DVI image bus independent of the I/F panel slide switch setting.

Gets the current image bus setting (Computer or DVI).

[Parameter] Data relating to image bus setting (1 byte)

- 0x00: Computer1
- 0x01: DVI

Set	1D	0009	01	FT	06	16	PARA	CS	1D	0008 000A	81 C1	FT	06	16	-- PARA	CS
Get	1D	0008	02	FT	06	16	--	CS	1D	0009 000A	82 C2	FT	06	16	PARA	CS

17 : Sleep Mode

Controls the sleep mode ON/OFF setting.

Energy save function which switches the lamp off if no image signal is input for 30 minutes.

[Parameter] Data relating to sleep mode ON/OFF setting (1 byte)

- 0x00: OFF
- 0x01: ON

Set	1D	0009	01	FT	06	17	PARA	CS	1D	0008 000A	81 C1	FT	06	17	-- PARA	CS
Get	1D	0008	02	FT	06	17	--	CS	1D	0009 000A	82 C2	FT	06	17	PARA	CS
Initialize	1D	0008	03	FT	06	17	--	CS	1D	0009 000A	83 C3	FT	06	17	PARA	CS

19 : Computer2 input format (Applicable models: EMP-7600/5600)

Controls the input format for the Computer2 terminal.

[Parameter] Data relating to Computer2 terminal input format

- 0x00: RGB
- 0x01: YCbCr
- 0x02: YPbCr

Set	1D	0008	01	FT	06	19	PARA	CS	1D	0008 000A	81 C1	FT	06	19	-- PARA	CS
Get	1D	0008	02	FT	06	19	--	CS	1D	0009 000A	82 C2	FT	06	19	PARA	CS
Initialize	1D	0008	03	FT	06	19	--	CS	1D	0009 000A	83 C3	FT	06	19	PARA	CS

07 CUSTOM

Command structure Type	Apply								Reply							
	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum

08 : PinP

Controls the input source which is input by PinP.
 PinP: Adds a sub-screen to the image.

[Parameter] Data relating to input source which is input by PinP
 0x00: Composite video
 0x01: S-Video

Set	1D	0009	01	FT	07	08	PARA	CS	1D	0008 000A	81 C1	FT	07	08	-- PARA	CS
Get	1D	0009	02	FT	07	08	--	CS	1D	0009 000A	82 C2	FT	07	08	PARA	CS
Initialize	1D	0008	03	FT	07	08	--	CS	1D	0009 000A	83 C3	FT	07	08	PARA	CS

09 : PinP audio selection setting (Applicable models: EMP-7600/5600)

Controls the audio selections which are enabled for PinP.

[Parameter] Audio enabled for PinP
 0x00: Main screen
 0x01: Sub screen

Set	1D	0009	01	FT	07	09	PARA	CS	1D	0008 000A	81 C1	FT	07	09	-- PARA	CS
Get	1D	0009	02	FT	07	09	--	CS	1D	0009 000A	82 C2	FT	07	09	PARA	CS
Initialize	1D	0008	03	FT	07	09	--	CS	1D	0009 000A	83 C3	FT	07	09	PARA	CS

10 STACK CONTROL

Command structure Type	Apply								Reply							
	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum	STX	Size	Attribute	From To	Group	Item	Parameter	Check-sum

06 : Source selection method (* Only valid for Standalone/Master projector)

Controls the selection method for the input source during stack mode.

[Parameter] Data relating to whether the source selection method is linked or independent

- 0x00: Linked
- 0x01: Independent

Set	1D	0009	01	FT	10	06	PARA	CS	1D	0008 000A	81 C1	FT	10	06	-- PARA	CS
Get	1D	0008	02	FT	10	06	--	CS	1D	0009 000A	82 C2	FT	10	06	PARA	CS