

***DUKANE***

Projector  
Control Command  
Reference Manual

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# Introduction

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This manual describes the commands used to control an Dukane-made projector from a PC or other external device. A projector can be controlled by exchanging commands with an external device connected via a serial port or network.

The manual assumes basic knowledge of projectors. For information about the functions of the model in use and how to adjust the device, see the operation manual of the projector. For information about the connection between the projector and an external device, see "1 Connecting an External Device" (page 5). Connect an external device as appropriate for the usage environment of the projector.

## Models for which the control commands are available

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See the Appendix "Connecting an External Device".

## Conventions

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For information about how commands and responses are expressed in this manual, see "2.1 Understanding command details" (page 10).

## NOTES

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# 1. Connecting an External Device

---

This chapter describes how to connect the projector to an external device and communication conditions.

## 1.1 Connection interface

The projector can be connected to a PC or other external device using the methods mentioned below.

For information about the connection method supported by the model in use, see the Appendix "Connecting an External Device".

- Connection using a serial port
- Connection via a network

### Connection using a serial port

---

This method connects a PC and the projector using a serial cable (cross cable).

Connect the serial cable to the PC CONTROL port of the projector. The pin assignment of the serial cable is shown below.

<Connection between the PC CONTROL port (D-SUB 9P) and external device>

Pin number	Projector	External device
1	(Not used)	(Not used)
2	RxD	TxD
3	TxD	RxD
4	(Not used)	(Not used)
5	GND	GND
6	(Not used)	(Not used)
7	RTS	CTS
8	CTS	RTS
9	(Not used)	(Not used)

## Connection via a network

### Information

- Before connecting an external device via a network, check with the network administrator.
- Some models cannot receive commands in standby mode. See Appendix "Standby Mode setting for receiving commands".

### ▶ Connection using a wired LAN

This method connects a PC and the projector using a LAN cable. For information about the type of LAN cable to be used (straight or cross), contact the network administrator. The pin assignment of the LAN port is shown below.

<LAN port (RJ-45 8-pin connector)>

Pin number	Function	Description
1	TD+	Transmit Data (+)
2	TD-	Transmit Data (-)
3	RD+	Receive Data (+)
4	—	Not used
5	—	Not used
6	RD-	Receive Data (-)
7	—	Not used
8	—	Not used

### ▶ Connection using a wireless LAN

This method connects a PC via a wireless LAN by connecting a wireless LAN unit to the projector. For information about the available wireless LAN units, see the operation manual of the model in use.

## 1.2 Communication conditions

For information about the connection methods available for the model in use, see the Appendix "Connecting an External Device".

### Serial connection

The RS-232C-compliant communication method is supported. Specify the communication settings of the software used to send and receive commands, as shown below.

Item	Detail
Baud rate	115200/38400/19200/9600/4800 bps
Data length	8 bits
Parity bit	None
Stop bit	1 bit
Communication mode	Full duplex

### LAN connection

#### ▶ Wired LAN

Item	Detail
Data rate	Auto switchable (10/100 Mbps)
Supported standard	IEEE802.3 (10BASE-T) IEEE802.3u (100BASE-TX, Auto-Negotiation)

#### ▶ Wireless LAN

See the operation manual of the wireless LAN unit to be used.

#### ▶ Port number

Use TCP port number "7142" for sending and receiving commands.

## 2. Command List

Command	Description	Page to see
009. ERROR STATUS REQUEST	Gets information about errors occurring in the projector.	13
015. POWER ON	Turns on the power of the projector.	15
016. POWER OFF	Turns off the power of the projector.	16
018. INPUT SW CHANGE	Switches the input terminal or entry list.	17
020. PICTURE MUTE ON	Turns the picture mute on.	19
021. PICTURE MUTE OFF	Turns the picture mute off.	20
022. SOUND MUTE ON	Turns the sound mute on.	21
023. SOUND MUTE OFF	Turns the sound mute off.	22
024. ONSCREEN MUTE ON	Turns the onscreen mute on.	23
025. ONSCREEN MUTE OFF	Turns the onscreen mute off.	24
030-1. PICTURE ADJUST	Adjusts the picture.	25
030-2. VOLUME ADJUST	Adjusts the sound volume.	27
030-12. ASPECT ADJUST	Adjusts the aspect.	29
030-15. OTHER ADJUST	Adjusts the various gains.	30
037. INFORMATION REQUEST	Gets the information of the projector.	32
037-3. FILTER USAGE INFORMATION REQUEST	Gets filter usage information such as usage time.	33
037-4. LAMP INFORMATION REQUEST 3	Gets lamp information such as usage time and remaining life.	34
037-6. CARBON SAVINGS INFORMATION REQUEST	Gets the Carbon Saving values on the projector.	36
050. REMOTE KEY CODE	Sends the key code for remote control.	38
051. SHUTTER CLOSE	Closes the lens shutter.	40
052. SHUTTER OPEN	Opens the lens shutter.	41
053. LENS CONTROL	Adjusts the lens position.	42
053-1. LENS CONTROL REQUEST	Gets adjusted values of the lens position.	44
053-2. LENS CONTROL 2	Adjusts the lens position.	46
053-3. LENS MEMORY CONTROL	Controls the lens memory.	48
053-4. REFERENCE LENS MEMORY CONTROL	Controls the reference lens memory.	50
053-5. LENS MEMORY OPTION REQUEST	Gets the value set for the lens memory.	52
053-6. LENS MEMORY OPTION SET	Sets the lens memory.	53
053-7. LENS INFORMATION REQUEST	Gets information about the lens of the projector.	55
053-10. LENS PROFILE SET	Selects the profile number of the reference lens memory.	56
053-11. LENS PROFILE REQUEST	Gets the selected profile number of the reference lens memory.	57
060-1. GAIN PARAMETER REQUEST 3	Gets adjusted values of the picture, volume, and backlight.	58



Command	Description	Page to see
078-1. SETTING REQUEST	Gets information of the projector.	60
078-2. RUNNING STATUS REQUEST	Gets the information about the operation status of the projector.	61
078-3. INPUT STATUS REQUEST	Gets the information about the input signal status of the projector.	62
078-4. MUTE STATUS REQUEST	Gets the mute status of the projector.	64
078-5. MODEL NAME REQUEST	Gets the model name of the projector.	66
078-6. COVER STATUS REQUEST	Gets the status of the mirror cover or lens cover.	67
079. FREEZE CONTROL	Controls whether to turn the freeze function on or off.	68
084. INFORMATION STRING REQUEST	Gets information strings (English) displayed on the projector.	69
097-8. ECO MODE REQUEST	Gets the value set for the eco mode.	70
097-45. LAN PROJECTOR NAME REQUEST	Gets the projector name.	71
097-155. LAN MAC ADDRESS STATUS REQUEST2	Gets the MAC address of the projector.	72
097-198. PIP/PICTURE BY PICTURE REQUEST	Gets the value set for the picture in picture and picture by picture.	73
097-243-1. EDGE BLENDING MODE REQUEST	Gets the value set for the edge blending.	75
098-8. ECO MODE SET	Sets the eco mode.	76
098-45. LAN PROJECTOR NAME SET	Sets the projector name.	77
098-198. PIP/PICTURE BY PICTURE SET	Sets the picture in picture or picture by picture.	78
098-243-1. EDGE BLENDING MODE SET	Sets the edge blending.	80
305-1. BASE MODEL TYPE REQUEST	Gets the base model type of the projector.	81
305-2. SERIAL NUMBER REQUEST	Gets the serial number of the projector.	82
305-3. BASIC INFORMATION REQUEST	Gets the operation status of the projector.	83
319-10. AUDIO SELECT SET	Sets the audio select.	85

## 2.1 Understanding command details

In this manual, commands and responses are expressed as follows.

```
20h 88h <ID1> <ID2> 0Ch <DATA01> - <DATA12> <CKS>
```

Command/response	A series of strings enclosed in a frame represents a command or response (in hexadecimal notation).
Parameter	A character string in italic enclosed in brackets represents a parameter. For information about the parameters that are common to the control commands (ID1, ID2, CKS, LEN, ERR1, and ERR2), see "2.2 Parameters" (page 10). For information about those parameters whose content varies from command to command (DATA), see the description of the relevant command.

## 2.2 Parameters

The parameters that are used in the control commands are listed below.

Parameter name		Description
ID1	Control ID	The value of the "control ID" set for the projector is used.
ID2	Model code	This varies depending on the model in use.
CKS	Checksum	The checksum is calculated as follows. ① Add all preceding bytes of data. ② Use the value of the low-order one byte (eight bits) of the addition result obtained in ① as the checksum.
LEN	Data length	This indicates the data length of the data part (DATA??) following LEN (in bytes).
DATA??	Variable length data	This varies depending on the character string stored.
ERR1 ERR2	Response error	The cause of an error is represented by a combination of error codes. For information about error codes, see "2.4 Error code list" (page 12).

### Example of checksum calculation

```
20h 81h 01h 60h 01h 00h <CKS>
```

- ① Add all the data preceding the checksum.

$$"20h + 81h + 01h + 60h + 01h + 00h = 103h"$$

- ② Use the low-order one byte "03h" of the addition result obtained in ① as the checksum.

## 2.3 Responses

After a command is sent to the projector, its result is returned as a response. How a response is returned differs depending on the execution result of the command.

### When the execution of a command succeeds

---

When the command does not request data, a response is returned with no data part.

When the command requests data, a response is returned with data added to data parts.

### When the execution of a command fails

---

A response is returned with the cause of the failed command execution indicated in <ERR1> and <ERR2>.

(Example) POWER ON

#### ▶ Command

```
02h 00h 00h 00h 00h 02h
```

#### ▶ Response

```
A2h 00h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 2.4 Error code list

The following table lists the combinations of error codes (ERR1 and ERR2) and describes the error indicated by each combination.

ERR1	ERR2	Error description
00h	00h	The command cannot be recognized.
00h	01h	The command is not supported by the model in use.
01h	00h	The specified value is invalid.
01h	01h	The specified input terminal is invalid.
01h	02h	The specified language is invalid.
02h	00h	Memory allocation error
02h	02h	Memory in use
02h	03h	The specified value cannot be set.
02h	04h	Forced onscreen mute on
02h	06h	Viewer error
02h	07h	No signal
02h	08h	A test pattern or filer is displayed.
02h	09h	No PC card is inserted.
02h	0Ah	Memory operation error
02h	0Ch	An entry list is displayed.
02h	0Dh	The command cannot be accepted because the power is off.
02h	0Eh	The command execution failed.
02h	0Fh	There is no authority necessary for the operation.
03h	00h	The specified gain number is incorrect.
03h	01h	The specified gain is invalid.
03h	02h	Adjustment failed.

## 3. Command details

---

### 3.1 [ 009. ERROR STATUS REQUEST ]

Gets information about errors occurring in the projector.

#### Command

---

```
00h 88h 00h 00h 00h 88h
```

#### Response

---

▶ When the command succeeds

```
20h 88h <ID1> <ID2> 0Ch <DATA01> - <DATA12> <CKS>
```

▶ When the command fails

```
A0h 88h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

---

---

#### Data part

---

---

- DATA1 - DATA12.....Error information is provided. A bit set to "0" indicates that the data is normal, and a bit set to "1" indicates an error. For an error information list, see the next page.

<Error information list>

Item	Description			
DATA01	Error status (1)			
	Bit0	Cover error	Bit4	Fan error
	Bit1	Temperature error (bi-metallic strip)	Bit5	Power error
	Bit2	None (fixed to 0)	Bit6	Lamp (or lamp 1) off or backlight off
	Bit3	Fan error	Bit7	Lamp (or lamp 1) in a replacement moratorium
DATA02	Error status (2)			
	Bit0	Lamp (or lamp 1) usage time exceeded the limit	Bit4	None (fixed to 0)
	Bit1	Formatter error	Bit5	None (fixed to 0)
	Bit2	Lamp 2 off	Bit6	None (fixed to 0)
	Bit3	None (fixed to 0)	Bit7	Refer to the extend status.
DATA03	Error status (3)			
	Bit0	None (fixed to 0)	Bit4	Lamp (or lamp 1) data error
	Bit1	FPGA error	Bit5	Mirror cover error
	Bit2	Temperature error (temperature sensor)	Bit6	Lamp 2 in a replacement moratorium
	Bit3	Lamp (or lamp 1) not present	Bit7	Lamp 2 usage time exceeded the limit
DATA04	Error status (4)			
	Bit0	Lamp 2 not present	Bit4	None (fixed to 0)
	Bit1	Lamp 2 data error	Bit5	Ballast communication error
	Bit2	Temperature error due to dust	Bit6	Iris calibration error
	Bit3	Foreign matter sensor error	Bit7	The lens is not installed properly.
DATA05 - 08	Reserved for the system			
DATA09	Extended status			
	Bit0	The portrait cover side is up	Bit4	None (fixed to 0)
	Bit1	The interlock switch is open.	Bit5	None (fixed to 0)
	Bit2	System error has occurred. (Slave CPU)	Bit6	None (fixed to 0)
	Bit3	System error has occurred (Formatter)	Bit7	None (fixed to 0)
DATA10 - 12	Reserved for the system			

## 3.2 [ 015. POWER ON ]

Turns on the power of the projector.

### Information

While this command is turning on the power, no other command can be accepted.

### Command

---

```
02h 00h 00h 00h 00h 02h
```

### Response

---

#### ▶ When the command succeeds

```
22h 00h <ID1> <ID2> 00h <CKS>
```

#### ▶ When the command fails

```
A2h 00h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 3.3 [ 016. POWER OFF ]

Turns off the power of the projector.

### Information

While this command is turning off the power (including the cooling time), no other command can be accepted.

### Command

---

```
02h 01h 00h 00h 00h 03h
```

### Response

---

#### ▶ When the command succeeds

```
22h 01h <ID1> <ID2> 00h <CKS>
```

#### ▶ When the command fails

```
A2h 01h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```



## 3.4 [ 018. INPUT SW CHANGE ]

Switches the input terminal or entry list.

### Command

```
02h 03h 00h 00h 02h 01h <DATA01> <CKS>
```

### Data part

Item	Description
DATA01	Input terminal

### Information

For the values of input terminal, see the Appendix "Supplementary Information by Command".

### ► Command example

The following command switches the input terminal to a video port (DATA01: 06h).

```
02h 03h 00h 00h 02h 01h 06h 0Eh
```

## Response

---

### ▶ When the command succeeds

22h 03h <ID1> <ID2> 01h <DATA01> <CKS>

---

---

### Data part

---

---

Item	Description	
DATA01	Execution result	
	00h	Ended successfully.
	FFh	Ended with an error (no signal switch is made).

### ▶ When the command fails

A2h 03h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>

## 3.5 [ 020. PICTURE MUTE ON ]

Turns the picture mute on.

### Information

If any of the following operations is done, the picture mute is turned off.

- Input terminal switch
- Video signal switch

### Command

---

```
02h 10h 00h 00h 00h 12h
```

### Response

---

#### ▶ When the command succeeds

```
22h 10h <ID1> <ID2> 00h <CKS>
```

#### ▶ When the command fails

```
A2h 10h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 3.6 [ 021. PICTURE MUTE OFF ]

Turns the picture mute off.

### Command

---

```
02h 11h 00h 00h 00h 13h
```

### Response

---

#### ▶ When the command succeeds

```
22h 11h <ID1> <ID2> 00h <CKS>
```

#### ▶ When the command fails

```
A2h 11h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 3.7 [ 022. SOUND MUTE ON ]

Turns the sound mute on.

### Information

If any of the following operations is done, the sound mute is turned off.

- Input terminal switch
- Video signal switch
- Sound volume adjustment

### Command

```
02h 12h 00h 00h 00h 14h
```

### Response

#### ▶ When the command succeeds

```
22h 12h <ID1> <ID2> 00h <CKS>
```

#### ▶ When the command fails

```
A2h 12h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 3.8 [ 023. SOUND MUTE OFF ]

Turns the sound mute off.

### Command

---

```
02h 13h 00h 00h 00h 15h
```

### Response

---

#### ▶ When the command succeeds

```
22h 13h <ID1> <ID2> 00h <CKS>
```

#### ▶ When the command fails

```
A2h 13h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 3.9 [ 024. ONSCREEN MUTE ON ]

Turns the onscreen mute on.

### Information

If any of the following operations is done, the onscreen mute is turned off.

- Input terminal switch
- Video signal switch

### Command

---

```
02h 14h 00h 00h 00h 16h
```

### Response

---

#### ▶ When the command succeeds

```
22h 14h <ID1> <ID2> 00h <CKS>
```

#### ▶ When the command fails

```
A2h 14h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 3.10 [ 025. ONSCREEN MUTE OFF ]

Turns the onscreen mute off.

### Command

---

```
02h 15h 00h 00h 00h 17h
```

### Response

---

#### ▶ When the command succeeds

```
22h 15h <ID1> <ID2> 00h <CKS>
```

#### ▶ When the command fails

```
A2h 15h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```



## 3.11 [ 030-1. PICTURE ADJUST ]

Adjusts the picture.

### Command

```
03h 10h 00h 00h 05h <DATA01> FFh <DATA02> - <DATA04> <CKS>
```

### Data part

Item	Description	
DATA01	Adjustment target	
	00h	Brightness
	01h	Contrast
	02h	Color
	03h	Hue
	04h	Sharpness
DATA02	Adjustment mode	
	00h	Specify an absolute value
	01h	Specify a relative value
DATA03	Adjustment value (low-order 8 bits)	
DATA04	Adjustment value (high-order 8 bits)	

### ► Command example

- ① The following command sets brightness to "10".

```
03h 10h 00h 00h 05h 00h FFh 00h 0Ah 00h 21h
```

- ② The following command sets brightness to "-10".

```
03h 10h 00h 00h 05h 00h FFh 00h F6h FFh 0Ch
```

## Response

---

### ▶ When the command succeeds

23h 10h <ID1> <ID2> 02h <DATA01> <DATA02> <CKS>

---

---

### Data part

---

---

Item	Description	
DATA01	Execution result	
DATA02	0000h	Ended successfully.
	Other than 0000h	Ended with an error.

### ▶ When the command fails

A3h 10h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>

## 3.12 [ 030-2. VOLUME ADJUST ]

Adjusts the sound volume.

### Command

```
03h 10h 00h 00h 05h 05h 00h <DATA01> - <DATA03> <CKS>
```

### Data part

Item	Description	
DATA01	Adjustment mode	
	00h	Specify an absolute value
	01h	Specify a relative value
DATA02	Adjustment value (low-order 8 bits)	
DATA03	Adjustment value (high-order 8 bits)	

### ▶ Command example

The following command set the sound volume to "10".

```
03h 10h 00h 00h 05h 05h 00h 00h 0Ah 00h 27h
```

## Response

---

### ▶ When the command succeeds

23h 10h <ID1> <ID2> 02h <DATA01> <DATA02> <CKS>
---

---

---

### Data part

---

---

Item	Description	
DATA01	Execution result	
DATA02	0000h	Ended successfully.
	Other than 0000h	Ended with an error.

### ▶ When the command fails

A3h 10h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
---

## 3.13 [ 030-12. ASPECT ADJUST ]

Adjusts the aspect.

### Command

```
03h 10h 00h 00h 05h 18h 00h 00h <DATA01> 00h <CKS>
```

#### Data part

Item	Description
DATA01	Value set for the aspect

#### Information

For information about the values set for the aspect, see the Appendix "Supplementary Information by Command".

### Response

#### ▶ When the command succeeds

```
23h 10h <ID1> <ID2> 02h <DATA01> <DATA02> <CKS>
```

#### Data part

Item	Description
DATA01	Execution result
DATA02	0000h Ended successfully.
	Other than 0000h Ended with an error.

#### ▶ When the command fails

```
A3h 10h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 3.14 [ 030-15. OTHER ADJUST ]

Adjusts the various gains.

### Command

```
03h 10h 00h 00h 05h <DATA01> - <DATA05> <CKS>
```

### Data part

Item	Description		
DATA01	DATA01	DATA02	Adjustment target
DATA02	96h	FFh	LAMP ADJUST / LIGHT ADJUST
DATA03	Adjustment mode		
	00h	Specify an absolute value	
	01h	Specify a relative value	
DATA04	Adjustment value (low-order 8 bits)		
DATA05	Adjustment value (high-order 8 bits)		

## Response

### ▶ When the command succeeds

23h 10h <ID1> <ID2> 02h <DATA01> <DATA02> <CKS>

### Data part

Item	Description	
DATA01	Execution result	
DATA02	0000h	Ended successfully.
	Other than 0000h	Ended with an error.

### ▶ When the command fails

A3h 10h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>

## 3.15 [ 037. INFORMATION REQUEST ]

Gets the information of the projector.

### Command

```
03h 8Ah 00h 00h 00h 8Dh
```

### Response

#### ▶ When the command succeeds

```
23h 8Ah <ID1> <ID2> 62h <DATA01> - <DATA98> <CKS>
```

#### Data part

Item	Description
DATA01 - 49	Projector name (NUL: termination character string).
DATA50 - 82	Reserved for the system
DATA83 - 86	Lamp usage time (seconds)
DATA87 - 90	Filter usage time (seconds)
DATA91 - 98	Reserved for the system

#### ▶ When the command fails

```
A3h 8Ah <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

#### ▶ Response example

When the lamp usage time is 18000 seconds (5 hours)

```
23h 8Ah <ID1> <ID2> 62h <DATA01> - <DATA82> 50h 46h 00h 00h  
<DATA87> - <DATA98> <CKS>
```

Lamp usage time (DATA83 – DATA86) = 18000 / 3600 = 5 hours

#### Information

While the usage time can be obtained in one-second units, the information is updated at one-minute intervals.



## 3.16 [ 037-3. FILTER USAGE INFORMATION REQUEST ]

Gets filter usage information such as usage time.

### Command

```
03h 95h 00h 00h 00h 98h
```

### Response

#### ▶ When the command succeeds

```
23h 95h <ID1> <ID2> 08h <DATA01> - <DATA08> <CKS>
```

#### Data part

Item	Description
DATA01 - 04	Filter usage time (seconds)
DATA05 - 08	Filter alarm start time (seconds)

#### Information

If no time is defined, "-1" is returned.

#### ▶ When the command fails

```
A3h 95h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 3.17 [ 037-4. LAMP INFORMATION REQUEST 3 ]

Gets lamp usage information such as usage time or remaining life. When the eco mode is enabled, the values in the obtained information reflect the eco mode.

### Command

```
03h 96h 00h 00h 02h <DATA01> <DATA02> <CKS>
```

### Data part

Item	Description	
DATA01	Target	
	00h	Lamp 1
	01h	Lamp 2
DATA02	Content	
	01h	Lamp usage time (seconds)
	04h	Lamp remaining life (%)

### Information

"01h" (Lamp 2) in DATA01 is effective only for two-lamp projector models.

### ► Command example

The following command gets the lamp usage time.

```
03h 96h 00h 00h 02h 00h 01h 9Ch
```

## Response

### ▶ When the command succeeds

```
23h 96h <ID1> <ID2> 06h <DATA01> - <DATA06> <CKS>
```

### Data part

Item	Description	
DATA01	Target	
	00h	Lamp 1
	01h	Lamp 2
DATA02	Content	
	01h	Lamp usage time (seconds)
	04h	Lamp remaining life (%)
DATA03 - 06	Obtained information	

### ▶ When the command fails

```
A3h 96h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

### ▶ Response example

When the lamp usage time is 18000 seconds (5 hours)

```
23h 96h <ID1> <ID2> 06h 00h 01h 50h 46h 00h 00h <CKS>
```

Lamp usage time (DATA03 - DATA06) = 18000 / 3600 = 5 hours

### Information

- While the lamp usage time can be obtained in one-second units, the information is updated at one-minute intervals.
- If the lamp replacement deadline is exceeded, a negative value is returned as the lamp remaining life (%).

## 3.18 [ 037-6. CARBON SAVINGS INFORMATION REQUEST ]

Gets the Carbon Saving values on the projector.

### Command

```
03h 9Ah 00h 00h 01h <DATA01> <CKS>
```

### Data part

Item	Description	
DATA01	Target	
	00h	Total Carbon Savings
	01h	Carbon Savings during operation

## Response

### ▶ When the command succeeds

```
23h 9Ah <ID1> <ID2> 09h <DATA01> - <DATA09> <CKS>
```

#### Data part

Item	Description	
DATA01	Target	
	00h	Total Carbon Savings
	01h	Carbon Savings during operation
DATA02 - 05	Carbon Savings (Kilogram	Maximum: 99999[kg])
DATA06 - 09	Carbon Savings (Milligram	Maximum:999999[mg])

### ▶ When the command fails

```
A3h 9Ah <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

### ▶ Response example

When the Carbon Savings value is 2460.06375[kg].

```
23h 9Ah <ID1> <ID2> 09h 00h 9Ch 90h 00h 00h 06h F9h 00h 00h  
<CKS>
```

## 3.19 [ 050. REMOTE KEY CODE ]

Sends the key code for remote control.

### Command

02h 0Fh 00h 00h 02h <DATA01> <DATA02> <CKS>

### Data part

Item	Description
DATA01	Key code (WORD type)
DATA02	For the combinations of key codes, see Table "Key code list".

<Key code list>

Key code	DATA01	DATA02	Key name
2	02h	00h	POWER ON
3	03h	00h	POWER OFF
5	05h	00h	AUTO
6	06h	00h	MENU
7	07h	00h	UP
8	08h	00h	DOWN
9	09h	00h	RIGHT
10	0Ah	00h	LEFT
11	0Bh	00h	ENTER
12	0Ch	00h	EXIT
13	0Dh	00h	HELP
15	0Fh	00h	MAGNIFY UP
16	10h	00h	MAGNIFY DOWN
19	13h	00h	MUTE
41	29h	00h	PICTURE
75	4Bh	00h	COMPUTER1
76	4Ch	00h	COMPUTER2
79	4Fh	00h	VIDEO1
81	51h	00h	S-VIDEO1
132	84h	00h	VOLUME UP
133	85h	00h	VOLUME DOWN
138	8Ah	00h	FREEZE
163	A3h	00h	ASPECT

Key code	DATA01	DATA02	Key name
215	D7h	00h	SOURCE
238	EEh	00h	LAMP MODE/ECO

▶ **Command example**

The following command sends the key code "AUTO".

02h 0Fh 00h 00h 02h 05h 00h 18h
---------------------------------

## Response

▶ **When the command succeeds**

22h 0Fh <ID1> <ID2> 01h <DATA01> <CKS>
--

### Data part

Item	Description	
DATA01	Execution result	
	00h	Ended successfully.
	FFh	Ended with an error.

▶ **When the command fails**

A2h 0Fh <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
---

## 3.20 [ 051. SHUTTER CLOSE ]

Closes the lens shutter.

### Command

---

```
02h 16h 00h 00h 00h 18h
```

### Response

---

#### ▶ When the command succeeds

```
22h 16h <ID1> <ID2> 00h <CKS>
```

#### ▶ When the command fails

```
A2h 16h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```



## 3.21 [ 052. SHUTTER OPEN ]

Opens the lens shutter.

### Command

```
02h 17h 00h 00h 00h 19h
```

### Response

#### ▶ When the command succeeds

```
22h 17h <ID1> <ID2> 00h <CKS>
```

#### ▶ When the command fails

```
A2h 17h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 3.22 [ 053. LENS CONTROL ]

Adjusts the lens position.

### Command

```
02h 18h 00h 00h 02h <DATA01> <DATA02> <CKS>
```

### Data part

Item	Description	
DATA01	Target	
	00h	Zoom
	01h	Focus
	02h	Lens Shift (H)
	03h	Lens Shift (V)
DATA02	Content	
	00h	Stop
	01h	Drives for 1 second in the direction of plus
	02h	Drives for 0.5 second in the direction of plus
	03h	Drives for 0.25 second in the direction of plus
	7Fh	Drives in the direction of plus
	81h	Drives in the direction of minus
	FDh	Drives for 0.25 second in the direction of minus
	FEh	Drives for 0.5 second in the direction of minus
	FFh	Drives for 1 second in the direction of minus

### Information

After sending "7Fh" (Drives in the direction of plus) or "81h" (Drives in the direction of minus) in DATA02, you can stop driving lens by sending "00h".

## Response

### ▶ When the command succeeds

```
22h 18h <ID1> <ID2> 01h <DATA01> <CKS>
```

#### Data part

Item	Description	
DATA01	Execution result	
	00h	Ended successfully.
	FFh	Ended with an error.

### ▶ When the command fails

```
A2h 18h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

#### Information

While the lens is being driven, you can control the lens position without a stop by issuing the same command.

## 3.23 [ 053-1. LENS CONTROL REQUEST ]

Gets adjusted values of the lens position.

### Command

```
02h 1Ch 00h 00h 02h <DATA01> 00h <CKS>
```

### Data part

Item	Description	
DATA01	Target	
	00h	Zoom
	01h	Focus
	02h	Lens Shift (H)
	03h	Lens Shift (V)

## Response

### ▶ When the command succeeds

22h 1Ch <ID1> <ID2> 08h <DATA01> 00h <DATA02> - <DATA07> <CKS>

### Data part

Item	Description	
DATA01	Target	
	00h	Zoom
	01h	Focus
	02h	Lens Shift (H)
	03h	Lens Shift (V)
DATA02	Upper limit of the adjustment range (low-order 8 bits)	
DATA03	Upper limit of the adjustment range (high-order 8 bits)	
DATA04	Lower limit of the adjustment range (low-order 8 bits)	
DATA05	Lower limit of the adjustment range (high-order 8 bits)	
DATA06	Current value (low-order 8 bits)	
DATA07	Current value (high-order 8 bits)	

### ▶ When the command fails

A2h 1Ch <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>

## 3.24 [ 053-2. LENS CONTROL 2 ]

Adjusts the lens position.

### Command

```
02h 1Dh 00h 00h 04h <DATA01> - <DATA04> <CKS>
```

### Data part

Item	Description	
DATA01	Target	
	00h	Zoom
	01h	Focus
	02h	Lens Shift (H)
	03h	Lens Shift (V)
	FFh	Stop
DATA02	Adjustment mode	
	00h	Specify an absolute value
	02h	Specify a relative value
DATA03	Adjustment value (low-order 8 bits)	
DATA04	Adjustment value (high-order 8 bits)	

### Information

If specifying "Stop" in DATA01, the Adjustment mode and Adjustment value are not referenced.

## Response

### ▶ When the command succeeds

22h 1Dh <ID1> <ID2> 02h <DATA01> <DATA02> <CKS>

### Data part

Item	Description	
DATA01	Target	
	00h	Zoom
	01h	Focus
	02h	Lens Shift (H)
	03h	Lens Shift (V)
	FFh	Stop
DATA02	Adjustment mode	
	00h	Specify an absolute value
	02h	Specify a relative value

### ▶ When the command fails

A2h 1Dh <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>

## 3.25 [ 053-3. LENS MEMORY CONTROL ]

Controls the lens memory.

### Information

See [ 053-4. REFERENCE LENS MEMORY CONTROL ] for controlling the reference lens memory.

### Command

02h 1Eh 00h 00h 01h <DATA01> <CKS>
------------------------------------

### Data part

Item	Description	
DATA01	Operation	
	00h	MOVE
	01h	STORE
	02h	RESET



## Response

### ▶ When the command succeeds

22h 1Eh <ID1> <ID2> 02h <DATA01> <DATA02> <CKS>

### Data part

Item	Description	
DATA01	Operation	
	00h	MOVE
	01h	STORE
	02h	RESET
DATA02	Execution result	
	00h	Ended successfully.
	FFh	Ended with an error.

### ▶ When the command fails

A2h 1Eh <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>

## 3.26 [ 053-4. REFERENCE LENS MEMORY CONTROL ]

Controls the reference lens memory.

### Information

- See [ 053-3. LENS MEMORY CONTROL ] for controlling the lens memory.
- This command controls the profile number specified in [053-10 LENS PROFILE SET ].

### Command

02h 1Fh 00h 00h 01h <DATA01> <CKS>

### Data part

Item	Description	
DATA01	Operation	
	00h	MOVE
	01h	STORE
	02h	RESET

## Response

### ▶ When the command succeeds

22h 1Fh <ID1> <ID2> 02h <DATA01> <DATA02> <CKS>

#### Data part

Item	Description	
DATA01	Operation	
	00h	MOVE
	01h	STORE
	02h	RESET
DATA02	Execution result	
	00h	Ended successfully.
	FFh	Ended with an error.

### ▶ When the command fails

A2h 1Fh <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>

## 3.27 [ 053-5. LENS MEMORY OPTION REQUEST ]

Gets the value set for the lens memory.

### Command

02h 20h 00h 00h 01h <DATA01> <CKS>

#### Data part

Item	Description	
DATA01	Target	
	00h	LOAD BY SIGNAL
	01h	FORCED MUTE

### Response

#### ▶ When the command succeeds

22h 20h <ID1> <ID2> 02h <DATA01> <DATA02> <CKS>

#### Data part

Item	Description	
DATA01	Target	
	00h	LOAD BY SIGNAL
	01h	FORCED MUTE
DATA02	Setting value	
	00h	OFF
	01h	ON

#### ▶ When the command fails

A2h 20h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>

## 3.28 [ 053-6. LENS MEMORY OPTION SET ]

Sets the lens memory.

### Command

02h 21h 00h 00h 02h <DATA01> <DATA02> <CKS>

### Data part

Item	Description	
DATA01	Target	
	00h	LOAD BY SIGNAL
	01h	FORCED MUTE
DATA02	Setting value	
	00h	OFF
	01h	ON

## Response

### ▶ When the command succeeds

22h 21h <ID1> <ID2> 02h <DATA01> <DATA02> <CKS>

#### Data part

Item	Description	
DATA01	Target	
	00h	LOAD BY SIGNAL
	01h	FORCED MUTE
DATA02	Execution result	
	00h	Ended successfully.
	01h	Ended with an error.

### ▶ When the command fails

A2h 21h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>

## 3.29 [ 053-7. LENS INFORMATION REQUEST ]

Gets information about the lens of the projector.

### Command

```
02h 22h 00h 00h 01h 00h 25h
```

### Response

#### ▶ When the command succeeds

```
22h 22h <ID1> <ID2> 02h 00h <DATA01> <CKS>
```

#### Data part

Item	Description					
DATA01	Target					
	Bit0	Lens memory		Bit4	Lens Shift (V)	
		0	Stop		0	Stop
		1	During operation		1	During operation
	Bit1	Zoom		Bit5	Reserved for the system	
		0	Stop			
		1	During operation			
	Bit2	Focus		Bit6	Reserved for the system	
		0	Stop			
		1	During operation			
	Bit3	Lens Shift (H)		Bit7	Reserved for the system	
		0	Stop			
1		During operation				

#### ▶ When the command fails

```
A2h 22h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

### 3.30 [ 053-10. LENS PROFILE SET ]

Selects the profile number of the reference lens memory.

#### Command

```
02h 27h 00h 00h 01h <DATA01> <CKS>
```

#### Data part

Item	Description	
DATA01	Profile number	
	00h	Profile 1
	01h	Profile 2

#### Response

##### ▶ When the command succeeds

```
22h 27h <ID1> <ID2> 02h <DATA01> <DATA02> <CKS>
```

#### Data part

Item	Description	
DATA01	Profile number	
	00h	Profile 1
	01h	Profile 2
DATA02	Execution result	
	00h	Ended successfully.
	01h	Ended with an error.

##### ▶ When the command fails

```
A2h 27h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```



## 3.31 [ 053-11. LENS PROFILE REQUEST ]

Gets the selected profile number of the reference lens memory.

### Command

02h 28h 00h 00h 00h 2Ah

### Response

#### ▶ When the command succeeds

22h 28h <ID1> <ID2> 02h <DATA01> <DATA02> <CKS>

#### Data part

Item	Description	
DATA01	Profile number	
	00h	Profile 1
	01h	Profile 2
DATA02	Reserved for the system	

#### ▶ When the command fails

A2h 28h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>

## 3.32 [ 060-1. GAIN PARAMETER REQUEST 3 ]

Gets adjusted values of the picture, volume, and so on.

### Command

```
03h 05h 00h 00h 03h <DATA01> 00h 00h <CKS>
```

### Data part

Item	Description	
DATA01	Adjusted value name	
	00h	PICTURE / BRIGHTNESS
	01h	PICTURE / CONTRAST
	02h	PICTURE / COLOR
	03h	PICTURE / HUE
	04h	PICTURE / SHARPNESS
	05h	VOLUME
	96h	LAMP ADJUST / LIGHT ADJUST

### ▶ Command example

The following command gets the adjusted value of the picture (brightness).

```
03h 05h 00h 00h 03h 00h 00h 00h 0Bh
```

## Response

### ▶ When the command succeeds

```
23h 05h <ID1> <ID2> 10h <DATA01> - <DATA16> <CKS>
```

### Data part

Item	Description	
DATA01	Adjusted value status	
	00h	Display not possible
	01h	Adjustment not possible
	02h	Adjustment possible
	FFh	The specified gain does not exist.
DATA02	Upper limit of the adjustment range (low-order 8 bits)	
DATA03	Upper limit of the adjustment range (high-order 8 bits)	
DATA04	Lower limit of the adjustment range (low-order 8 bits)	
DATA05	Lower limit of the adjustment range (high-order 8 bits)	
DATA06	Default value (low-order 8 bits)	
DATA07	Default value (high-order 8 bits)	
DATA08	Current value (low-order 8 bits)	
DATA09	Current value (high-order 8 bits)	
DATA10	Wide adjustment width (low-order 8 bits)	
DATA11	Wide adjustment width (high-order 8 bits)	
DATA12	Narrow adjustment width (low-order 8 bits)	
DATA13	Narrow adjustment width (high-order 8 bits)	
DATA14	Whether the default value is valid or invalid	
	00h	The default value is invalid.
	01h	The default value is valid.
DATA15 DATA16	Reserved for the system	

### ▶ When the command fails

```
A3h 05h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 3.33 [ 078-1. SETTING REQUEST ]

Gets information of the projector.

### Command

00h 85h 00h 00h 01h 00h 86h

### Response

#### ▶ When the command succeeds

20h 85h <ID1> <ID2> 20h <DATA01> - <DATA32> <CKS>

#### Data part

Item	Description	
DATA01 - 03	Base model type	
DATA04	Sound function	
	00h	Not available
	01h	Available
DATA05	Profile number	
	00h	Not available
	01h	Clock function
	02h	Sleep timer function
	03h	Clock function and Sleep timer function
DATA06 - 32	Reserved for the system	

#### Information

For the values of the base model types, see the Appendix "Supplementary Information by Command".

#### ▶ When the command fails

A0h 85h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>

### 3.34 [ 078-2. RUNNING STATUS REQUEST ]

Gets the information about the operation status of the projector.

#### Command

00h 85h 00h 00h 01h 01h 87h

#### Response

##### ▶ When the command succeeds

20h 85h <ID1> <ID2> 10h <DATA01> - <DATA16> <CKS>

#### Data part

Item	Description			
DATA01 - 02	Reserved for the system			
DATA03	Power status			
	00h	Standby	FFh	Not supported
	01h	Power on	—	—
DATA04	Cooling process			
	00h	Not executed	FFh	Not supported
	01h	During execution	—	—
DATA05	Power On/Off process			
	00h	Not executed	FFh	Not supported
	01h	During execution	—	—
DATA06	Operation status			
	00h	Standby (Sleep)	0Fh	Standby (Power saving)
	04h	Power on	10h	Network standby
	05h	Cooling	FFh	Not supported
	06h	Standby (error)	—	—
DATA07 - 16	Reserved for the system			

##### ▶ When the command fails

A0h 85h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>

### 3.35 [ 078-3. INPUT STATUS REQUEST ]

Gets the information about the input signal status of the projector.

#### Command

00h 85h 00h 00h 01h 02h 88h

#### Response

##### ▶ When the command succeeds

20h 85h <ID1> <ID2> 10h <DATA01> - <DATA16> <CKS>

#### Data part

Item	Description			
DATA01	Signal switch process			
	00h	Not executed	FFh	Not supported
	01h	During execution	—	—
DATA02	Signal list number			
	00h – C7h	Signal list number - 1	FFh	Not supported
DATA03	Selection signal type 1			
	01h	1	04h	4
	02h	2	05h	5
	03h	3	—	—
DATA04	Selection signal type 2			
	01h	COMPUTER	20h	DVI-D
	02h	VIDEO	21h	HDMI
	03h	S-VIDEO	22h	DisplayPort
	04h	COMPONENT	23h	VIEWER(6-10)
	05h	Reserved for the system	FFh	Not Source Input
	07h	VIEWER(1-5)	—	—

Item	Description			
DATA05	Signal list type			
	00h	Default	FFh	Not supported
	01h	User	—	—
DATA06	Test pattern display			
	00h	Not displayed	FFh	Not supported
	01h	Displayed	—	—
DATA07 - 08	Reserved for the system			
DATA09	Content displayed			
	00h	Video signal displayed	03h	Test pattern displayed
	01h	No signal	04h	LAN displayed
	02h	Viewer displayed	FFh	Not supported
DATA10 - 16	Reserved for the system			

### Information

- A value which is "1" smaller than a practical value will be returned as a signal list number. For finding out a practical number, add "1" to the returned value.
- For information about the Selection signal type, see the Appendix "Supplementary Information by Command".

### ► When the command fails

A0h 85h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
---

### ► Response example

When the signal list number is 10.

20h 85h <ID1> <ID2> 10h <DATA01> 09h <DATA03> - <DATA16> <CKS>
--

## 3.36 [ 078-4. MUTE STATUS REQUEST ]

Gets the mute status of the projector.

### Command

```
00h 85h 00h 00h 01h 03h 89h
```

### Response

#### ▶ When the command succeeds

```
20h 85h <ID1> <ID2> 10h <DATA01> - <DATA16> <CKS>
```

#### Data part

Item	Description	
DATA01	Picture mute	
	00h	Off
	01h	On
	FFh	Not supported
DATA02	Sound mute	
	00h	Off
	01h	On
	FFh	Not supported
DATA03	Onscreen mute	
	00h	Off
	01h	On
	FFh	Not supported



Item	Description	
DATA04	Forced onscreen mute	
	00h	Off
	01h	On
	FFh	Not supported
DATA05	Onscreen display	
	00h	Not displayed
	01h	Displayed
	FFh	Not supported
DATA06 - 16	Reserved for the system	

► **When the command fails**

A0h 85h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
---

## 3.37 [ 078-5. MODEL NAME REQUEST ]

Gets the model name of the projector.

### Command

```
00h 85h 00h 00h 01h 04h 8Ah
```

### Response

#### ▶ When the command succeeds

```
20h 85h <ID1> <ID2> 20h <DATA01> - <DATA32> <CKS>
```

#### Data part

Item	Description
DATA01 - 32	Model name (NUL: termination character string)

#### ▶ When the command fails

```
A0h 85h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

### 3.38 [ 078-6. COVER STATUS REQUEST ]

Gets the status of the mirror cover or lens cover.

#### Command

00h 85h 00h 00h 01h 05h 8Bh

#### Response

##### ▶ When the command succeeds

20h 85h <ID1> <ID2> 01h <DATA01> <CKS>

#### Data part

Item	Description	
DATA01	Status	
	00h	Normal (cover opened)
	01h	Cover closed

##### ▶ When the command fails

A0h 85h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>

## 3.39 [ 079. FREEZE CONTROL ]

Controls whether to turn the freeze function on or off.

### Command

01h 98h 00h 00h 01h <DATA01> <CKS>

#### Data part

Item	Description	
DATA01	Operation	
	01h	Turns the freeze function on.
	02h	Turns the freeze function off.

### Response

#### ▶ When the command succeeds

21h 98h <ID1> <ID2> 01h <DATA01> <CKS>

#### Data part

Item	Description	
DATA01	Execution result	
	00h	Ended successfully.
	01h	Ended with an error.

#### ▶ When the command fails

A1h 98h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>

## 3.40 [ 084. INFORMATION STRING REQUEST ]

Gets the information strings (English) displayed on the projector.

### Command

```
00h D0h 00h 00h 03h 00h <DATA01> 01h <CKS>
```

#### Data part

Item	Description	
DATA01	Information type	
	03h	Horizontal synchronous frequency
	04h	Vertical synchronous frequency

### Response

#### ▶ When the command succeeds

```
20h D0h <ID1> <ID2> LEN <DATA01> 01h <DATA02> - <DATA??> <CKS>
```

#### Data part

Item	Description	
DATA01	Information type	
	03h	Horizontal synchronous frequency
	04h	Vertical synchronous frequency
DATA02	Label/information string length (excluding NUL characters)	
DATA03 - ??	Label/information strings (NUL: termination character string)	

#### ▶ When the command fails

```
A0h D0h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 3.41 [ 097-8. ECO MODE REQUEST ]

Gets the value set for the eco mode.

### Information

Depending on the projector, the value for the "Light mode" or "Lamp mode" will be returned.

### Command

```
03h B0h 00h 00h 01h 07h BBh
```

### Response

#### ▶ When the command succeeds

```
23h B0h <ID1> <ID2> 02h 07h <DATA01> <CKS>
```

#### Data part

Item	Description
DATA01	Value set for the eco mode

### Information

For information about the values set for the eco mode, see the Appendix "Supplementary Information by Command".

#### ▶ When the command fails

```
A3h B0h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 3.42 [ 097-45. LAN PROJECTOR NAME REQUEST ]

Gets the projector name.

### Command

```
03h B0h 00h 00h 01h 2Ch E0h
```

### Response

#### ▶ When the command succeeds

```
23h B0h <ID1> <ID2> 12h 2Ch <DATA01> - <DATA17> <CKS>
```

#### Data part

Item	Description
DATA01 - 17	Projector name (NUL: termination character string)

#### ▶ When the command fails

```
A3h B0h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 3.43 [ 097-155. LAN MAC ADDRESS STATUS REQUEST2 ]

Gets the MAC address of the projector.

### Command

```
03h B0h 00h 00h 02h 9Ah 00h 4Fh
```

### Response

#### ▶ When the command succeeds

```
23h B0h <ID1> <ID2> 08h 9Ah 00h <DATA01> - <DATA06> <CKS>
```

#### Data part

Item	Description
DATA01 - 06	MAC address

#### ▶ When the command fails

```
A3h B0h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

#### ▶ Response example

When the MAC address of the projector is "01h-23h-45h-67h-89h-ABh", the following response is returned.

```
23h B0h <ID1> <ID2> 08h 9Ah 00h 01h 23h 45h 67h 89h ABh <CKS>
```



## 3.44 [ 097-198. PIP/PICTURE BY PICTURE REQUEST ]

Gets the value set for the picture in picture and picture by picture.

### Command

```
03h B0h 00h 00h 02h C5h <DATA01> <CKS>
```

### Data part

Item	Description	
DATA01	Target	
	00h	MODE
	01h	START POSITION
	02h	SUB INPUT / SUB INPUT 1
	09h	SUB INPUT 2
	0Ah	SUB INPUT 3

## Response

### ▶ When the command succeeds

23h B0h <ID1> <ID2> 03h C5h <DATA01> <DATA02> <CKS>

### Data part

Item	Description	
DATA01	Target	
	00h	MODE
	01h	START POSITION
	02h	SUB INPUT / SUB INPUT 1
	09h	SUB INPUT 2
	0Ah	SUB INPUT 3
DATA02	Setting value (when DATA01 is 00h "MODE")	
	00h	PIP
	01h	PICTURE BY PICTURE
	Setting value (when DATA01 is 01h "START POSITION")	
	00h	TOP-LEFT
	01h	TOP-RIGHT
	02h	BOTTOM-LEFT
	03h	BOTTOM-RIGHT
	Sub input setting value (when DATA01 is 02h "SUB INPUT / SUB INPUT 1")	
	Sub input setting value (when DATA01 is 09h "SUB INPUT 2")	
	Sub input setting value (when DATA01 is 0Ah "SUB INPUT 3")	

### Information

For the values of the Sub input setting value, see the Appendix "Supplementary Information by Command".

### ▶ When the command fails

A3h B0h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>

### 3.45 [ 097-243-1. EDGE BLENDING MODE REQUEST ]

Gets the value set for the edge blending.

#### Command

03h B0h 00h 00h 02h DFh 00h 94h

#### Response

##### ▶ When the command succeeds

23h B0h <ID1> <ID2> 03h DFh 00h <DATA01> <CKS>

#### Data part

Item	Description	
DATA01	Setting value	
	00h	OFF
	01h	ON

##### ▶ When the command fails

A3h B0h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>

## 3.46 [ 098-8. ECO MODE SET ]

Sets the eco mode.

### Information

Depending on the projector, the "Light mode" or "Lamp mode" will be set.

### Command

```
03h B1h 00h 00h 02h 07h <DATA01> <CKS>
```

Item	Description
DATA01	Value set for the eco mode

### Information

For information about the values set for the eco mode, see the Appendix "Supplementary Information by Command".

### Response

#### ▶ When the command succeeds

```
23h B1h <ID1> <ID2> 02h 07h <DATA01> <CKS>
```

#### Data part

Item	Description	
DATA01	Execution result	
	00h	Ended successfully.
	01h	Ended with an error.

#### ▶ When the command fails

```
A3h B1h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 3.47 [ 098-45. LAN PROJECTOR NAME SET ]

Sets the projector name.

### Command

```
03h B1h 00h 00h 12h 2Ch <DATA01> - <DATA16> 00h <CKS>
```

#### Data part

Item	Description
DATA01 - 16	Projector name (up to 16 bytes)

### Response

#### ▶ When the command succeeds

```
23h B1h <ID1> <ID2> 02h 2Ch <DATA01> <CKS>
```

#### Data part

Item	Description	
DATA01	Execution result	
	00h	Ended successfully.
	01h	Ended with an error.

#### ▶ When the command fails

```
A3h B1h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 3.48 [ 098-198. PIP/PICTURE BY PICTURE SET ]

Sets the picture in picture or picture by picture.

### Command

```
03h B1h 00h 00h 03h C5h <DATA01> <DATA02> <CKS>
```

### Data part

Item	Description	
DATA01	Target	
	00h	MODE
	01h	START POSITION
	02h	SUB INPUT / SUB INPUT 1
	09h	SUB INPUT 2
	0Ah	SUB INPUT 3
DATA02	Setting value (when DATA01 is 00h "Mode")	
	00h	PIP
	01h	PICTURE BY PICTURE
	Setting value (when DATA01 is 01h "START POSITION")	
	00h	TOP-LEFT
	01h	TOP-RIGHT
	02h	BOTTOM-LEFT
	03h	BOTTOM-RIGHT
	Sub input setting value (when DATA01 is 02h "SUB INPUT / SUB INPUT 1")	
	Sub input setting value (when DATA01 is 09h "SUB INPUT 2")	
	Sub input setting value (when DATA01 is 0Ah "SUB INPUT 3")	

### Information

For the values of the Sub input setting value, see the Appendix "Supplementary Information by Command".

## Response

### ▶ When the command succeeds

23h B1h <ID1> <ID2> 03h C5h <DATA01> <DATA02> <CKS>

### Data part

Item	Description	
DATA01	Target	
	00h	MODE
	01h	START POSITION
	02h	SUB INPUT / SUB INPUT 1
	03h	SUB INPUT 2
	04h	SUB INPUT 3
DATA02	Execution result	
	00h	Ended successfully.
	01h	Ended with an error.

### ▶ When the command fails

A3h B1h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>

## 3.49 [ 098-243-1. EDGE BLENDING MODE SET ]

Sets the edge blending.

### Command

03h B1h 00h 00h 03h DFh 00h <DATA01> <CKS>

#### Data part

Item	Description	
DATA01	Setting value	
	00h	00h
	01h	01h

### Response

#### ▶ When the command succeeds

23h B1h <ID1> <ID2> 03h DFh 00h <DATA01> <CKS>

#### Data part

Item	Description	
DATA01	Execution result	
	00h	Ended successfully.
	01h	Ended with an error.

#### ▶ When the command fails

A3h B1h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>



## 3.50 [ 305-1. BASE MODEL TYPE REQUEST ]

Gets the base model type of the projector.

### Command

```
00h BFh 00h 00h 01h 00h C0h
```

### Response

#### ▶ When the command succeeds

```
20h BFh <ID1> <ID2> 10h 00h <DATA01> - <DATA15> <CKS>
```

#### Data part

Item	Description
DATA01 DATA02	Base model type
DATA03 - 11	Model name (NUL: termination character string)
DATA12 DATA13	Base model type
DATA14 DATA15	Reserved for the system

#### Information

For the values of the base model types, see the Appendix "Supplementary Information by Command".

#### ▶ When the command fails

```
A0h BFh <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 3.51 [ 305-2. SERIAL NUMBER REQUEST ]

Gets the serial number of the projector.

### Command

```
00h BFh 00h 00h 02h 01h 06h C8h
```

### Response

#### ▶ When the command succeeds

```
20h BFh <ID1> <ID2> 12h 01h 06h <DATA01> - <DATA16> <CKS>
```

#### Data part

Item	Description
DATA01 - 16	Serial number (NUL: termination character string)

#### ▶ When the command fails

```
A0h BFh <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 3.52 [ 305-3. BASIC INFORMATION REQUEST ]

Gets the basic information about the operation status of the projector.

### Command

```
00h BFh 00h 00h 01h 02h C2h
```

### Response

#### ▶ When the command succeeds

```
20h BFh <ID1> <ID2> 10h 02h <DATA01> - <DATA15> <CKS>
```

### Data part

Item	Description			
DATA01	Operation status			
	00h	Standby (Sleep)	06h	Standby (error)
	04h	Power on	0Fh	Standby (Power saving)
	05h	Cooling	10h	Network standby
DATA02	Content displayed			
	00h	Video signal displayed	04h	LAN displayed
	01h	No signal	05h	Test pattern (user) displayed
	02h	Viewer displayed	10h	Signal being switched
	03h	Test pattern displayed	—	—
DATA03	Selection signal type 1			
	01h	1	04h	4
	02h	2	05h	5
	03h	3	—	—

Item	Description			
DATA04	Selection signal type 2			
	01h	COMPUTER	20h	DVI-D
	02h	VIDEO	21h	HDMI
	03h	S-VIDEO	22h	DisplayPort
	04h	COMPONENT	23h	VIEWER(6-10)
	05h	Reserved for the system	FFh	Not Source Input
	07h	VIEWER(1-5)	—	—
DATA05	Display signal type (effective only when DATA04 is 02h or 03h)			
	00h	NTSC3.58	09h	NTSC3.58 SQZ
	01h	NTSC4.43	0Ah	COMPONENT(60Hz)
	02h	PAL	0Bh	COMPONENT(50Hz)
	03h	PAL60	0Ch	Unknown
	04h	SECAM	0Dh	NTSC
	05h	B/W60	0Eh	PAL-M
	06h	B/W50	0Fh	PAL-L
	07h	PALNM	FFh	Not Video Input
	08h	NTSC3.58 LBX	—	—
DATA06	Video mute			
	00h	Off	01h	On
DATA07	Sound mute			
	00h	Off	01h	On
DATA08	Onscreen mute			
	00h	Off	01h	On
DATA09	Freeze status			
	00h	Off	01h	On
DATA10 - 15	Reserved for the system			

### Information

For information about which parameters are supported, see the Appendix "Supplementary Information by Command".

### ► When the command fails

A0h BFh <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
---

## 3.53 [ 319-10. AUDIO SELECT SET ]

Sets the audio select.

### Command

03h C9h 00h 00h 03h 09h <DATA01> <DATA02> <CKS>

### Data part

Item	Description			
DATA01	Input terminal			
DATA02	Setting value			
	00h	The terminal specified in DATA01	02h	COMPUTER
	01h	BNC	—	—

### Information

For the values of input terminal, see the Appendix "Supplementary Information by Command".

## Response

### ▶ When the command succeeds

```
23h C9h <ID1> <ID2> 03h 09h <DATA01> <DATA02> <CKS>
```

### Data part

Item	Description
DATA01	Input terminal
DATA02	Execution result
	00h Ended successfully. 01h Ended with an error.

### Information

For the values of input terminal, see the Appendix "Supplementary Information by Command".

### ▶ When the command fails

```
A3h C9h <ID1> <ID2> 02h <ERR1> <ERR2> <CKS>
```

## 4. Revision History

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Revision	Date	Description
7.1	April 16, 2020	Corrected the descriptions [037]
7.0	July 6, 2018	Updated the supported command [097-198], [098-198], [319-10]
6.1	May 29, 2017	Corrected the descriptions [053-3], [053-4]
6.0	December 6, 2016	Added the supported commands [051], [052]
5.0	January 6, 2016	Added the Copyright on all pages.
4.0	December 11, 2015	Corrected the supported command [053-6]
3.0	June 16, 2015	Added the supported command [030-15] Updated the supported command [060-1]
2.0	May 29, 2015	Added the supported commands [030-12], [037], [037-6], [053], [053-1], [053-2], [053-3], [053-4], [053-5], [053-6], [053-7], [053-10], [053-11], [078-1], [078-2], [078-3], [078-4], [078-5], [097-198], [097-243-1], [098-8], [098-198], [098-243-1], [319-10] Updated the supported command [009]
1.0	August 22, 2014	First version