

# External Control(Rev1.2)

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# 1. Application

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This document defines the communications method for control of the NEC LCD monitor, when using an external controller.

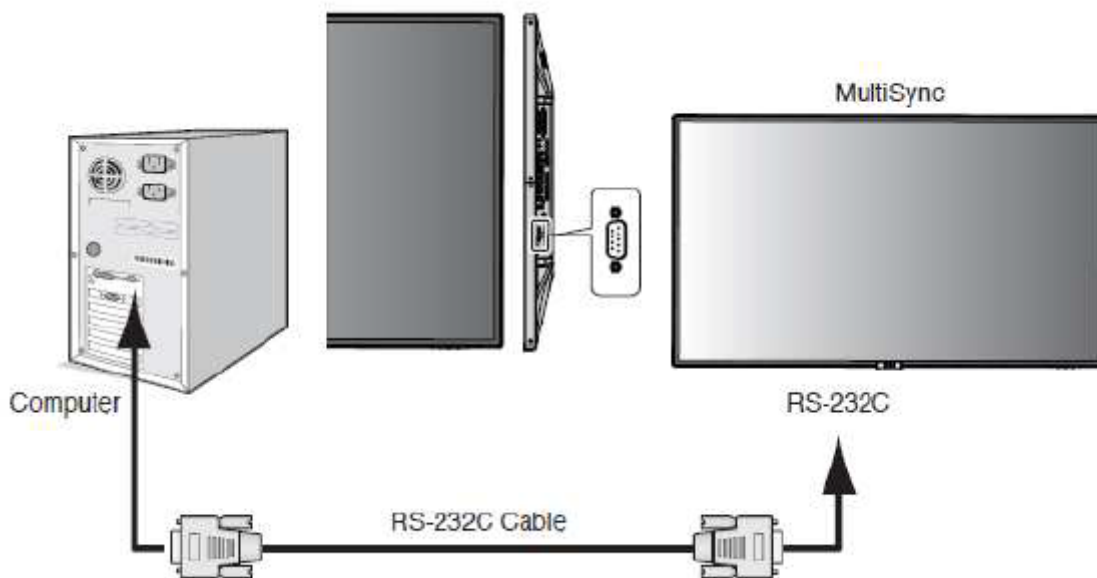
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## 2. Connectors and wiring

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### 2.1. RS-232C Remote control

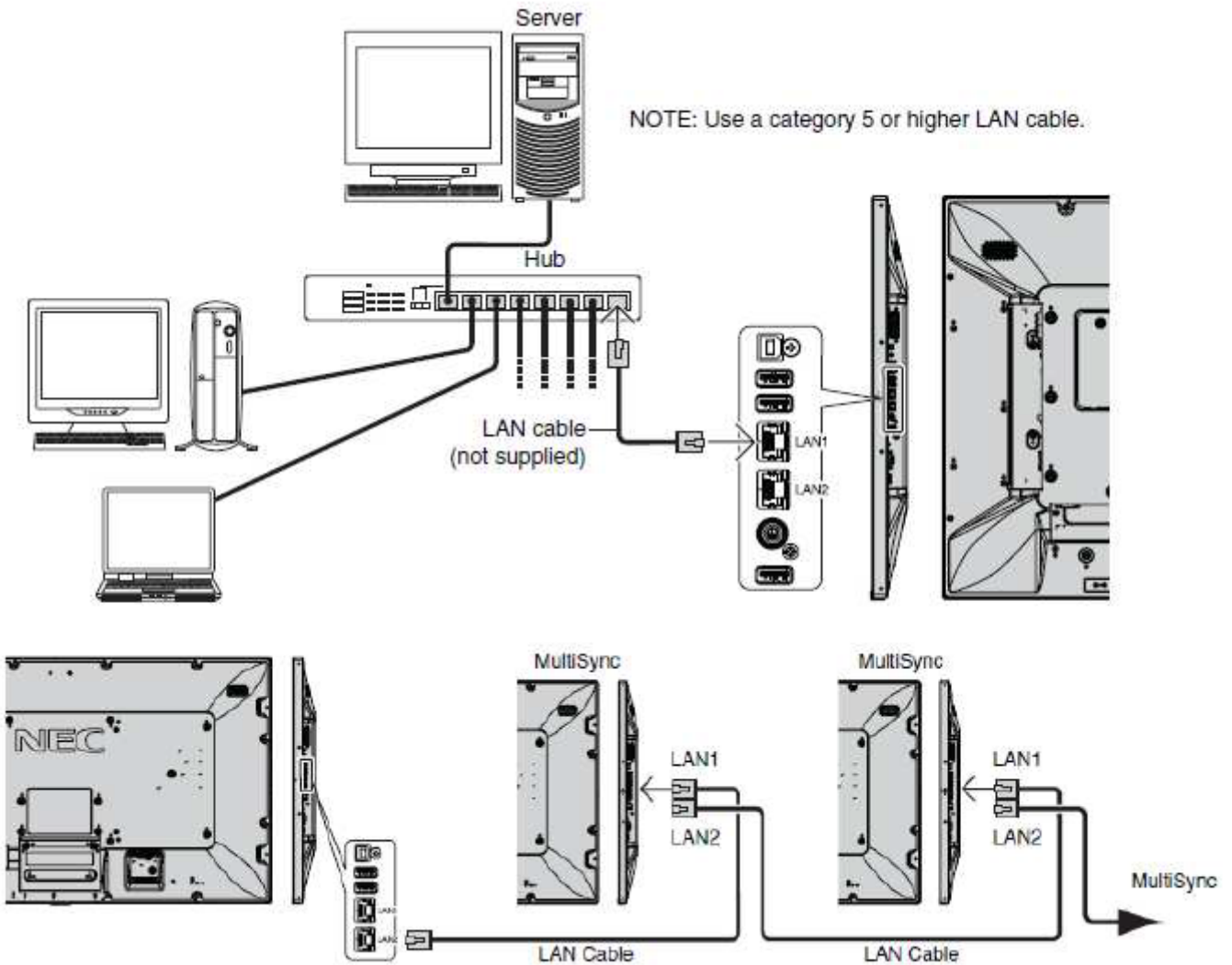
- |               |  |
|---------------|--|
| (1) Connector | 9-pin D-Sub                                |
| (2) Cable     | Cross (reversed) cable or null modem cable |



(Please refer "Controlling the LCD monitor via RS-232C Remote control" on User's manual.)

## 2.2. LAN control

- |               |                                |
|---------------|--------------------------------|
| (1) Connector | RJ-45 10/100 BASE-T            |
| (2) Cable     | Category 5 or higher LAN cable |



(Please refer "Controlling the LCD monitor via LAN control" on User's manual.)

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## 3. Communication Parameter

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### 3.1. RS-232C Remote control

(1) Communication system	Asynchronous
(2) Interface	RS-232C
(3) Baud rate	9600bps
(4) Data length	8bits
(5) Parity	None
(6) Stop bit	1 bit
(7) Communication code	ASCII

#### 3.1.1. Communication timing

The controller should wait for a reply packet before the next command is sent.

(Note)

When the following commands are sent, a controller should wait for specified period after receiving the reply command before sending the next command.

- Power On, Power Off: 15 seconds
- Input, PIP Input, Auto Setup, Factory Reset: 10 seconds

### 3.2. LAN control

(1) Communication system	TCP/IP (Internet protocol suite)
(2) Interface	Ethernet (CSMA/CD)
(3) Communication layer	Transport layer (TCP) * Using the payload of TCP segment.
(4) IP address	(Default) DHCP:On * If you need to change, Please refer "Network settings" on User's manual.
(5) Port No.	7142 (Fixed)

[Note]

The monitor will disconnect the connection if no packet data is received for 15 minutes. And the controller (PC) has to re-connect to control the monitor again, after 15 minutes or more.

#### 3.2.1. Communication timing

The controller should wait for a reply packet before the next command is sent.

(Note)

When the following commands are sent, a controller should wait for specified period after receiving the reply command before sending the next command.

- Power On, Power Off: 15 seconds
- Input, PIP Input, Auto Setup, Factory Reset: 10 seconds

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## 4. Communication Format

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There are two types of external control commands: VCP and CTL.

The command consists of four parts: Header, Message, Check code, and Delimiter.

The contents of Message vary depending on the type of command.

Header	Message	Check Code	Delimiter
--------	---------	------------	-----------

Follow the instructions below for more information on each.

Messages and other common components of the VCP command are described in this chapter.

■ Detailed description of message for VCP command

- See the part [4.2. Message block format](#)

■ Detailed description of message for CTL command

- See the part [7. CTL commands](#)

## 4.1. Header block format (fixed length)

| **Header** | Message | Check Code | Delimiter |

### 4.1.1. Header format

SOH	Reserved '0'	Destination	Source	Message Type	Message Length
1st	2nd	3rd	4th	5th	6th-7th

1st) SOH: Start of Header  
ASCII SOH (01h)

2nd) Reserved: Reserved for future extensions.  
On this monitor, it must be ASCII '0' (30h).

3rd) Destination: Destination equipment ID. (Receiver)  
Specify a commands receiver's address.  
This value must match the "MONITOR ID" or "GROUP ID" set in the OSD.  
On the reply, the monitor sets '0' (30h), always.

4th) Source: Source equipment ID. (Sender)  
Specify a sender address.  
The controller must be '0' (30h).  
On the reply, the monitor sets the own MONITOR ID in here.

5th) Message Type: (Case sensitive.)  
Refer to section 4.2 "Message block format" for more details.  
ASCII 'A' (41h): Command.  
ASCII 'B' (42h): Command reply.  
ASCII 'C' (43h): Get current parameter from a monitor.  
ASCII 'D' (44h): "Get parameter" reply.  
ASCII 'E' (45h): Set parameter.  
ASCII 'F' (46h): "Set parameter" reply.

6th -7th) Message Length:  
Specify the length of the message (that follows the header) from STX to ETX.  
This length includes STX and ETX.  
The byte data must be encoded to ASCII characters.

Ex.)  
The byte data 3Ah must be encoded to ASCII characters '3' and 'A' (33h and 41h).  
The byte data 0Bh must be encoded to ASCII characters '0' and 'B' (30h and 42h).



"MONITOR ID", "GROUP ID" to "Destination Address" conversion table is as follows,

Monitor ID	Destination Address	Monitor ID	Destination Address	Monitor ID	Destination Address	Monitor ID	Destination Address
1	41h('A')	26	5Ah('Z')	51	73h	76	8ch
2	42h('B')	27	5Bh	52	74h	77	8Dh
3	43h('C')	28	5Ch	53	75h	78	8Eh
4	44h('D')	29	5Dh	54	76h	79	8Fh
5	45h('E')	30	5Eh	55	77h	80	90h
6	46h('F')	31	5Fh	56	78h	81	91h
7	47h('G')	32	60h	57	79h	82	92h
8	48h('H')	33	61h	58	7Ah	83	93h
9	49h('I')	34	62h	59	7Bh	84	94h
10	4Ah('J')	35	63h	60	7Ch	85	95h
11	4Bh('K')	36	64h	61	7Dh	86	96h
12	4Ch('L')	37	65h	62	7Eh	87	97h
13	4Dh('M')	38	66h	63	7Fh	88	98h
14	4Eh('N')	39	67h	64	80h	89	99h
15	4Fh('O')	40	68h	65	81h	90	9Ah
16	50h('P')	41	69h	66	82h	91	9Bh
17	51h('Q')	42	6Ah	67	83h	92	9Ch
18	52h('R')	43	6Bh	68	84h	93	9Dh
19	53h('S')	44	6Ch	69	85h	94	9Eh
20	54h('T')	45	6Dh	70	86h	95	9Fh
21	55h('U')	46	6Eh	71	87h	96	A0h
22	56h('V')	47	6Fh	72	88h	97	A1h
23	57h('W')	48	70h	73	89h	98	A2h
24	58h('X')	49	71h	74	8Ah	99	A3h
25	59h('Y')	50	72h	75	8Bh	100	A4h
ALL	2Ah('*')						

<b>Group ID</b>	<b>Destination Address</b>	<b>Group ID</b>	<b>Destination Address</b>	<b>Group ID</b>	<b>Destination Address</b>	<b>Group ID</b>	<b>Destination Address</b>
A	31h('1')	D	34h('4')	G	37h('7')	J	3Ah(':')
B	32h('2')	E	35h('5')	H	38h('8')		
C	33h('3')	F	36h('6')	I	39h('9')		

Ex.) If you want to control a monitor that has the "ID No." as '1', specify a destination address 'A'(41h).

If you want to control all of the monitors which are connected by a daisy chain, specify a destination address '\* '(2Ah).

## 4.2. Message block format

| Header | **Message** | Check Code | Delimiter |

“Message block format” is allied to the “Message Type” in the “Header”.

Refer to the section 4.1 “Header block format” for more detail.

### 4.2.1. Get current parameter

The controller sends this message when you want to get the status of the monitor. For the status that you want to get, specify the “OP code page” and “OP code”, refer to chapter 8.

“Message format” of the “Get current parameter” is as follows.

#### 4.2.1.1. Get current parameter format

STX	OP Code Page		OP Code		ETX
	Hi	Lo	Hi	Lo	

Refer to section 5.1 “Get current parameter from a monitor.” for more details.

### 4.2.2. Get Parameter reply

The monitor will reply with the status of the requested item specified by the controller in the “Get parameter message”.

“Message format” of the “Get parameter reply” is as follows.

#### 4.2.2.1. Get Parameter reply format

STX	Result		OP Code Page		OP code		Type		Max value			Current Value			ETX
	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo	MSB	...	LSB	MSB	...	LSB	

Refer to section 5.2 “Get parameter reply” for more details.

### 4.2.3. Set parameter

The controller sends this message to change a setting of the monitor.

Message format of the "Set parameter" is as follows.

#### 4.2.3.1. Set parameter format

STX	OP Code Page		OP code		Set value			ETX
	Hi	Lo	Hi	Lo	MSB	...	LSB	

Refer to section 5.3 "Set parameter" for more details.

### 4.2.4. Set Parameter reply

The monitor replies with this message for a confirmation of the "Set parameter message". Message format of the "Set parameter reply" is as follows.

#### 4.2.4.1. Set parameter reply format

STX	Result		OP Code Page		OP code		Type		Max value			Requested Setting Value			ETX
	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo	MSB	...	LSB	MSB	...	LSB	

Refer to section 5.4 "Set parameter reply" for more details.

### 4.2.5. Command

"Command message" format depends on each command.

Usually, this "command message" is used for some non-slider controls and some special operations, such as "Save current settings", "Get timing report", "Power control", "Schedule", etc.

Refer to section 5.5 "Commands message" for more details.

### 4.2.6. Command reply

The monitor replies to a query from the controller. "Command reply message" format depends on each command.

Refer to section 5.5 "Commands message" for more details.

### 4.3. Check code

| Header | Message | **Check code** | Delimiter |

#### 4.3.1. Formatted and calculate.

Use the figure below to learn how check code is formatted and calculated.

First, place the check code format after ETX in the command.

Therefore, place the Check code at the position of 'D9' in the figure below.

Header						Message					
SOH	Resv.	Dest	Src	Type	Length	STX	Data	-	-	ETX	Check code
D0	D1	D2	D3	D4	D5	D6	D7	-	-	D8	D9

Next, as an example of calculating Check code, sum the values listed above each column from 'D1' to 'D16' in the figure below.

Therefore, we calculate the total value from '30' (30h) to '03' (03h) in the figure below.

As a result of the calculation, the check code of the command in the figure below is '77'(77h), so set it to Check code.

※ Check code may be described as Block Check Code (BCC) in the command details described below.

Header						Message										Check code (BCC)	Delimiter	
SOH	Resv.	Dest	Src	Type	Length	STX	OP Code	Page	OP Code	Set Value			ETX					
01h	30h	41h	30h	45h	30h	41h	02h	30h	30h	31h	30h	30h	30h	36h	34h	03h	77h	0Dh
D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14	D15	D16	D17	D18

Check code (BCC) D17 = D1 xor D2 xor D3 xor ... xor D14 xor D15 xor D16  
 = 30h xor 41h xor 30h xor 45h xor 30h xor 41h xor 02h xor 30h xor  
 30h xor 31h xor 30h xor 30h xor 30h xor 36h xor 34h xor 03h  
 = 77h

### 4.4. Delimiter

| Header | Message | Check code | **Delimiter** |

Delimiter does not have the formats and calculations described so far.

Specify 'CR'(0Dh) in ASCII for the Command Delimiter.

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## 5. Message type

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### 5.1. Get current Parameter from a monitor

#### 5.1.1. Get current parameter format

STX	OP Code Page		OP Code		ETX
	Hi	Lo	Hi	Lo	
1st	2nd - 3rd		4th - 5th		6th

Send this message when you want to get the status of a monitor.

For the status that you want to get, specify the "OP code page" the "OP code", refer to chapter 8.

- \* 1st byte) STX: Start of Message  
ASCII STX (02h)
- \* 2nd-3rd bytes) OP code page: Operation code page.  
Specify the "OP code page" for the control which you want to get the status.  
Refer to chapter 8 for each item.  
OP code page data must be encoded to ASCII characters.  
Ex.)  
The byte data 02h must be encoded to ASCII characters '0' and '2' (30h and 32h).  
OP code page 02h -> OP code page (Hi) = ASCII '0' (30h)  
                                    OP code page (Lo) = ASCII '2' (32h)  
Refer to chapter 8.
- \* 4th-5th bytes) OP code: Operation code  
Refer to "VcpTable" for each item.  
OP code data must be encoded to ASCII characters.  
Ex.)  
The byte data 3Ah must be encoded to ASCII characters '3' and 'A' (33h and 41h).  
OP code 3Ah -> OP code (Hi) = ASCII '3' (33h)  
                                    OP code (Lo) = ASCII 'A' (41h)  
Refer to chapter 8.
- \* 6th byte) ETX: End of Message  
ASCII ETX (03h)

## 5.2. "Get parameter" reply

### 5.2.1. Get parameter reply format

STX	Result		OP Code Page		OP code		Type		Max value			Current Value			ETX
	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo	MSB	...	LSB	MSB	...	LSB	
1st	2nd-3rd		4th-5th		6th-7th		8th-9th		10th- 13th			14th - 17th			18th

The monitor replies with a current value and the status of the requested item (operation code).

- \* 1st byte) STX: Start of Message  
ASCII STX (02h)
- \* 2nd-3rd bytes) Result:Result code.  
These bytes indicate a result of the requested commands as follows.  
00h: No Error.  
01h: Unsupported operation with this monitor or unsupported operation under current condition.  
This result code from the monitor is encoded to ASCII characters.  
Ex.)  
The byte data 01h is encoded to ASCII character '0' and '1' (30h and 31h).
- \* 4th-5th bytes) OP code page: Operation code page.  
These bytes indicate a replying item's OP code page.  
This returned value from the monitor is encoded to ASCII characters.  
Ex.)  
The byte data 02h is encoded to ASCII character '0' and '2' (30h and 32h).  
Refer to the "VcpTable".
- \* 6th-7th bytes) OP code: Operation code  
These bytes indicate a replying item's OP code.  
This returned value from the monitor is encoded to ASCII characters.  
Refer to the "VcpTable".  
Ex.)  
The byte data 1Ah is encoded to ASCII character '1' and 'A' (31h and 41h).
- \* 8th-9th bytes) Type: Operation type code  
00h: Set parameter  
01h: Momentary  
Like the Auto Setup function which automatically changes the parameter.  
This returned value from the monitor is encoded to ASCII characters.  
Ex.)  
The byte data 01h is encoded to ASCII character '0' and '1' (30h and 31h).
- \* 10th-13th bytes) Max. value: Maximum value which monitor can accept. (16bits)  
This returned value from the monitor is encoded to ASCII characters.  
Ex.)  
'0', '1', '2' and '3' means 0123h (291)
- \* 14th-17th bytes) Current Value: (16bits)  
This returned value from the monitor is encoded to ASCII characters.  
Ex.)  
'0', '1', '2' and '3' means 0123h (291)
- \* 18th byte) ETX: End of Message  
ASCII ETX (03h)

## 5.3. Set parameter

### 5.3.1. Set parameter format

STX	OP Code Page		OP code		Set value				ETX
	Hi	Lo	Hi	Lo	MSB			LSB	
1st	2nd-3rd		4th-5th		6th-9th				10th

Send this message to change monitor's adjustment and so on.

The controller requests a monitor to change value.

- \* 1st byte) STX: Start of Message  
ASCII STX (02h)
- \* 2nd-3rd bytes) OP code page: Operation code page  
This OP code page data must be encoded to ASCII characters.  
Ex.) The byte data 02h must be encoded to ASCII '0' and '2' (30h and 32h).  
Refer to the "VcpTable".
- \* 4th-5th bytes) OP code: Operation code  
This OP code data must be encoded to ASCII characters.  
Ex.) OP code 1Ah -> OP code (Hi) = ASCII '1' (31h)  
OP code (Lo) = ASCII 'A' (41h)  
Refer to the "VcpTable".
- \* 6th-9th bytes) Set value: (16bit)  
This data must be encoded to ASCII characters.  
Ex.) 0123h -> 1st(MSB) = ASCII '0' (30h)  
2nd = ASCII '1' (31h)  
3rd = ASCII '2' (32h)  
4th(LSB) = ASCII '3' (33h)
- \* 10th byte) ETX: End of Message  
ASCII ETX (03h)



## 5.4. "Set parameter" reply

### 5.4.1. Set parameter reply format

STX	Result		OP Code Page		OP code		Type		Max value			Requested Setting Value			ETX
	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo	MSB	...	LSB	MSB	...	LSB	
1st	2nd-3rd		4th-5th		6th-7th		8th-9th		10th-13th			14th-17th			18th

The Monitor echoes back the parameter and status of the requested operation code.

- \* 1st byte) STX: Start of Message  
ASCII STX (02h)
- \* 2nd-3rd bytes) Result code  
ASCII '0''0' (30h, 30h): No Error.  
ASCII '0''1' (30h, 31h): Unsupported operation with this monitor or unsupported operation under current condition.
- \* 4th-5th bytes) OP code page: Echoes back the Operation code page for confirmation.  
Reply data from the monitor is encoded to ASCII characters.  
Ex.)  
OP code page 02h -> OP code page = ASCII '0' and '2' (30h and 32h)  
Refer to "VcpTable".
- \* 6th-7th bytes) OP code: Echoes back the Operation code for confirmation.  
Reply data from the monitor is encoded to ASCII characters.  
Ex.)  
OP code 1Ah -> OP code (Hi) = ASCII '1' (31h)  
                  OP code (Lo) = ASCII 'A' (41h)  
Refer to "VcpTable".
- \* 8th-9th bytes) Type: Operation type code  
ASCII '0''0' (30h, 30h): Set parameter  
ASCII '0''1' (30h, 31h): Momentary  
Like Auto Setup function, that automatically changes the parameter.
- \* 10th-13th bytes) Max. value: Maximum value that monitor can accept. (16bits)  
Reply data from the monitor is encoded to ASCII characters.  
Ex.) '0''1''2''3' means 0123h (291)
- \* 14th-17th bytes) Requested setting Value: Echoes back the parameter for confirmation. (16bits)  
Reply data from the monitor is encoded to ASCII characters.  
Ex.) '0''1''2''3' means 0123h (291)
- \* 18th byte) ETX: End of Message  
ASCII ETX (03h)

## 5.5. Commands

"Command message format" depends on each command.

### 5.5.1. Save Current Settings

The controller requests for the monitor to store the adjusted value.

#### 5.5.1.1. Format

STX	Command Code		ETX
	'0'	'C'	

Send "OC"(30h, 43h) as Save current settings command.

Complete "Save Current setting" command packet as follows.

```
ASCII : 01h-30h-41h-30h-41h-30h-34h-02h-30h-43h-03h-CHK-0Dh
        SOH-'0'-'A'-'0'-'A'-'0'-'4'-STX-'0'-'C'-ETX-CHK-CR
The monitor replies the packet for confirmation as follows.
        SOH-'0'-'0'-'A'-'B'-'0'-'6'-STX-'0'-'0'-'0'-'C'-ETX-CHK- CR
```

## 5.5.2. Get Timing Report and Timing reply

The controller requests the monitor to report the displayed image timing.

STX	Command Code		ETX
	'0'	'7'	

Send "07"(30h, 37h) as Get Timing Report command.

Complete "Get Timing Report" command packet as follows.

```
ASCII : 01h-30h-41h-30h-41h-30h-34h-02h-30h-37h-03h-CHK-0Dh
        SOH-'0'-'A'-'0'-'A'-'0'-'4'-STX-'0'-'7'-ETX-CHK-CR
```

The monitor replies status as the following format.

STX	Command		SS		H Freq.				V Freq.				ETX
	'4'	'E'	Hi	Lo	MSB			LSB	MSB			LSB	

\* SS: Timing status byte

Bit 7 = 1 : Sync Frequency is out of range.

Bit 6 = 1 : Unstable count

Bit 5-2 Reserved (Don't care)

Bit 1 1:Positive Horizontal sync polarity.  
0:Negative Horizontal sync polarity.

Bit 0 1:Positive Vertical sync polarity.  
0:Negative Vertical sync polarity.

\* H Freq: Horizontal Frequency in unit 0.01kHz

\* V Freq: Vertical Frequency in unit 0.01Hz

Ex.) When H Freq is '1'2'A'9' (31h, 32h, 41h, 39h), it means 47.77kHz.

### 5.5.3. NULL Message

#### 5.5.3.1. Format

STX	Command Code		ETX
	'B'	'E'	

The NULL message returned from the monitor is used in the following cases.

- \* A timeout error has occurred. (The default timeout is 10sec.)
- \* The monitor receives an unsupported message type.
- \* The monitor detects a packet BCC (Block Check Code) error.
- \* To tell the controller that the monitor does not have any answer to give to the host (not ready or not expected)
- \* Following operations need a certain time for to execute, so the monitor will return this message when another message is received during execution.
  - Power ON, Power OFF, Auto Setup, Input, PIP Input, Auto Setup and Factory reset.
- \* Complete "NULL Message" command packet as follows.  
01h-30h-30h-41h-42h-30h-34h-02h-42h-45h-03h-CHK-0Dh  
SOH-'0'-'0'-'A'-'B'-'0'-'4'-STX-'B'-'E'-ETX-CHK-CR

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## 6. Typical procedure example

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The following is a sample of procedures to control the monitor, these are examples of "Get parameter", "Set parameter" and "Save current settings".

### 6.1. How to change the "Backlight" setting.

6.1.1. Step 1. The controller requests the Monitor to reply with the current backlight setting and capability to support this operation.

(Get parameter)

Header	Message	Check code	Delimiter
SOH-'0'-Monitor ID -'0'-'C'-'0'-'6'	STX-'0'-'0'-'1'-'0'-ETX	BCC	CR

#### Header

SOH (01h) : Start of Header.  
'0' (30h) : Reserved.  
Monitor ID: Specify the Monitor ID from which you want to get a value.  
Ex.) If Monitor ID is '1', specify 'A'.  
'0' (30h) : Message sender is the controller.  
'C' (43h) : Message type is "Get parameter command".  
'0'-'6' (30h, 36h) : Message length is 6 bytes.

#### Message

'0'-'0'(30h, 30h) : Operation code page number is 0.  
'1'-'0'(31h, 30h) : Operation code is 10h (in the OP code page 0).  
ETX (03h) : End of Message

#### Check code

BCC : Block Check Code  
Refer to the section 4.3 "Check code" for a BCC calculation.

#### Delimiter

CR (0Dh) : End of packet

**6.1.2. Step 2. The monitor replies with current Backlight setting and capability to support this operation.**

Header	Message	Check code	Delimiter
SOH-'0'-'0'-Monitor ID -'D'-'1'-'2'	STX-'0'-'0'-'0'-'0'-'1'-'0'-'0'-'0' -'0'-'0'-'6'-'4'-'0'-'0'-'3'-'2'-ETX	BCC	CR

**Header**

SOH (01h) : Start of Header  
 '0' (30h) : Reserved  
 '0' (30h) : Message receiver is the controller.  
 Monitor ID: Indicate a replying Monitor ID.  
     Ex.) When this byte is set to 'A', the replying Monitor ID is '1'.  
 'D' (44h) : Message Type is "Get parameter reply".  
 '1'-'2' (31h, 32h) : Message length is 18 bytes.

**Message**

'0'-'0'(30h, 30h) : Result code. No error.  
 '0'-'0'(30h, 30h) : Operation code page number is 0.  
 '1'-'0'(31h, 30h) : Operation code is 10h (in the page 0).  
 '0'-'0'(30h, 30h) : This operation is "Set parameter" type.  
 '0'-'0'-'6'-'4'(30h, 30h, 36h, 34h)  
     : Backlight max value is 100(0064h).  
 '0'-'0'-'3'-'2'(30h, 30h, 33h, 32h)  
     : Current Backlight setting is 50(0032h) .  
 ETX (03h) : End of Message

**Check code**

BCC : Block Check Code  
 Refer to the section 4.3 "Check code" for a BCC calculation.

**Delimiter**

CR (0Dh) : End of packet

### 6.1.3. Step 3. The controller request the monitor to change the Backlight setting

Header	Message	Check code	Delimiter
SOH-'0'-Monitor ID -'0'-'E'-'0'-'A'	STX-'0'-'0'-'1'-'0' -'0'-'0'-'5'-'0'-ETX	BCC	CR

#### Header

SOH (01h) : Start of Header  
'0' (30h) : Reserved  
Monitor ID: Specify the Monitor ID of which you want to change a setting.  
Ex.) If Monitor ID is '1', specify 'A'.  
'0' (30h) : Message sender is the controller.  
'E' (45h) : Message Type is "Set parameter command".  
'0'-'A' (30h, 41h) : Message length is 10 bytes.

#### Message

'0'-'0'(30h, 30h) : Operation code page number is 0.  
'1'-'0'(31h, 30h) : Operation code is 10h (in the page 0).  
'0'-'0'-'5'-'0'(30h, 30h, 35h, 30h)  
: Set Backlight setting 80(0050h).  
ETX (03h) : End of Message

#### Check code

BCC : Block Check Code  
Refer to the section 4.3 "Check code" for a BCC calculation.

#### Delimiter

CR (0Dh) : End of packet

**6.1.4. Step 4. The monitor replies with a message for confirmation.**

Header	Message	Check code	Delimiter
SOH-'0'-'0'-Monitor ID -'F'-'1'-'2'	STX-'0'-'0'-'0'-'0'-'1'-'0'-'0'-'0' -'0'-'0'-'6'-'4'-'0'-'0'-'5'-'0'-ETX	BCC	CR

**Header**

SOH (01h) : Start of Header  
 '0' (30h) : Reserved  
 '0' (30h) : Message receiver is the controller.  
 Monitor ID: Indicate a replying Monitor ID.  
           Ex.) When this byte is set to 'A', the replying Monitor ID is '1'.  
 'F' (46h) : Message Type is "Set parameter reply".  
 '1'-'2' (31h, 32h) : Message length is 18 bytes.

**Message**

'0'-'0'(30h, 30h) : Result code. No error.  
 '0'-'0'(30h, 30h) : Operation code page number is 0.  
 '1'-'0'(31h, 30h) : Operation code is 10h (in the page 0).  
 '0'-'0'(30h, 30h) : This operation is "Set parameter" type.  
 '0'-'0'-'6'-'4'(30h, 30h, 36h, 34h)  
                   : Backlight max value is 100(0064h).  
 '0'-'0'-'5'-'0'(30h, 30h, 35h, 30h)  
                   : Current Backlight setting is 80(0050h) .  
 ETX (03h) : End of Message

**Check code**

BCC : Block Check Code  
 Refer to the section 4.3 "Check code" for a BCC calculation.

**Delimiter**

CR (0Dh) : End of packet

Repeat Step 1 and Step 2, if you need to check the Backlight setting. (Recommended)



### 6.1.5. Step 5. Request the monitor to store the Backlight setting. (Save Current Settings Command)

Header	Message	Check code	Delimiter
SOH-'0'-Monitor ID -'0'-'A'-'0'-'4'	STX-'0'-'C'-ETX	BCC	CR

#### Header

SOH (01h) : Start of Header  
'0' (30h) : Reserved  
Monitor ID: Specify the Monitor ID which you want to store the setting.  
Ex.) If Monitor ID is '1', specify 'A'.  
'0' (30h) : Message sender is the controller.  
'A' (41h) : Message type is "Command".  
'0'-'4' (30h, 34h) : Message length is 4 bytes.

#### Message

'0'-'C' (30h, 43h) : Command code is 0Ch as "Save current settings".  
ETX (03h) : End of Message

#### Check code

BCC : Block Check Code  
Refer to the section 4.3 "Check code" for a BCC calculation.

#### Delimiter

CR (0Dh) : End of packet

## 6.2. How to read the measurement value of the built-in temperature sensors.

If the display has a built-in temperature sensor, the controller uses these sensors through external control. You can monitor the internal temperature.

The temperature read procedure is shown below as an example of how to use it.

### 6.2.1. Step 1. Select a temperature sensor which you want to read.

Header	Message	Check code	Delimiter
SOH-'0'-Monitor ID -'0'-'E'-'0'-'A'	STX-'0'-'2'-'7'-'8' -'0'-'0'-'0'-'1'-ETX	BCC	CR

#### Header

SOH (01h) : Start of Header  
'0' (30h) : Reserved  
Monitor ID: Specify the Monitor ID which you want to get a value.  
Ex.) If Monitor ID is '1', specify 'A'.  
'0' (30h) : Message sender is the controller.  
'E' (45h) : Message Type is "Set parameter command".  
'0'-'A' (30h, 41h) : Message length is 10 bytes

#### Message

'0'-'2'(30h, 32h) : Operation code page number is 2.  
'7'-'8'(37h, 38h) : Operation code is 78h (in the page 2).  
'0'-'0'-'0'-'1'(30h, 30h, 30h, 31h)  
: Select the temperature sensor #1 (01h).  
ETX (03h) : End of Message

#### Check code

BCC : Block Check Code  
Refer to the section 4.3 "Check code" for a BCC calculation.

#### Delimiter

CR (0Dh) : End of packet

## 6.2.2. Step 2. The monitor replies for confirmation.

Header	Message	Check code	Delimiter
SOH-'0'-'0'-Monitor ID -'F'-'1'-'2'	STX-'0'-'0'-'0'-'2'-'7'-'8'-'0'-'0' -'0'-'0'-'0'-'3'-'0'-'0'-'0'-'1'-ETX	BCC	CR

### Header

SOH (01h) : Start of Header  
'0' (30h) : Reserved  
'0' (30h) : Message receiver is the controller.  
Monitor ID: Indicates a replying Monitor ID.  
Ex.) When this byte is set to 'A', the replying Monitor ID is '1'.  
'F' (46h) : Message Type is "Set parameter reply".  
'1'-'2' (31h, 32h) : Message length is 18 bytes.

### Message

'0'-'0'(30h, 30h) : Result code. No error.  
'0'-'2'(30h, 32h) : Operation code page number is 2.  
'7'-'8'(37h, 38h) : Operation code is 78h (in the page 2).  
'0'-'0'(30h, 30h) : This operation is "Set parameter" type.  
'0'-'0'-'0'-'3'(30h, 30h, 30h, 33h)  
: Number of temperature sensors are 3 (0003h).  
'0'-'0'-'0'-'1'(30h, 30h, 30h, 31h)  
: temperature sensor is #1.  
ETX (03h) : End of Message

### Check code

BCC : Block Check Code  
Refer to the section 4.3 "Check code" for a BCC calculation.

### Delimiter

CR (0Dh) : End of packet

### 6.2.3. Step 3. The controller requests the monitor to send the temperature from the selected sensor.

Header	Message	Check code	Delimiter
SOH-'0'-Monitor ID -'0'-'C'-'0'-'6'	STX-'0'-'2'-'7'-'9'-ETX	BCC	CR

#### Header

SOH (01h) : Start of Header  
'0' (30h) : Reserved  
Monitor ID: Specify the Monitor ID which you want to get a value.  
Ex.) If Monitor ID is '1', specify 'A'.  
'0' (30h) : Message sender is the controller.  
'C' (43h) : Message Type is "Get parameter".  
'0'-'6' (30h, 36h) : Message length is 6 bytes.

#### Message

'0'-'2'(30h, 32h) : Operation code page number is 2.  
'7'-'9'(37h, 39h) : Operation code is 79h (in the OP code page 2).  
ETX (03h) : End of Message

#### Check code

BCC : Block Check Code  
Refer to the section 4.3 "Check code" for a BCC calculation.

#### Delimiter

CR (0Dh) : End of packet

#### 6.2.4. Step 4. The monitor replies a temperature of selected sensor.

Header	Message	Check code	Delimiter
SOH-'0'-'0'-Monitor ID -'D'-'1'-'2'	STX-'0'-'0'-'0'-'2'-'7'-'9'-'0'-'0' -'F'-'F'-'F'-'F'-'0'-'0'-'3'-'2'-ETX	BCC	CR

#### Header

SOH (01h) : Start of Header  
 '0' (30h) : Reserved  
 '0' (30h) : Message receiver is the controller.  
 Monitor ID: Indicate a replying Monitor ID.  
     Ex.) When this byte is set to 'A', the replying Monitor ID is '1'.  
 'D' (44h) : Message Type is "Get parameter reply".  
 '1'-'2' (31h, 32h) : Message length is 18 bytes.

#### Message

'0'-'0'(30h, 30h) : Result code. No error.  
 '0'-'2'(30h, 32h) : Operation code page number is 2.  
 '7'-'9'(37h, 39h) : Operation code is 79h (in the page 2).  
 '0'-'0'(30h, 30h) : This operation is "Set parameter" type.  
 'F'-'F'-'F'-'F'(46h, 46h, 46h, 46h)  
     : Maximum value.  
 '0'-'0'-'3'-'2'(30h, 30h, 33h, 32h)  
     : The temperature is 25 degrees Celsius.  
 ETX (03h) : End of Message

Readout value is 2's complement.

Temperature [Celsius]	Readout value	
	Binary	Hexadecimal
+125.0	0000 0000 1111 1010	00FAh
+ 25.0	0000 0000 0011 0010	0032h
+ 0.5	0000 0000 0000 0001	0001h
0	0000 0000 0000 0000	0000h
- 0.5	1111 1111 1111 1111	FFFFh
- 25.0	1111 1111 1100 1110	FFCEh
- 55.0	1111 1111 1001 0010	FF92h

#### Check code

BCC : Block Check Code  
 Refer to the section 4.3 "Check code" for a BCC calculation.

#### Delimiter

CR (0Dh) : End of packet

---

## 7. CTL commands

---

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### System Command

---

#### CTL-0C. Save Current Settings

---

##### 【 Function 】

This command is used in order to store the adjusted value.

##### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'4'-STX "Data " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 34H 02H (D01~02) 03H BCC 0DH
```

Data	Contents
-----	
D01~02	Message "0C"(30H 43H) : Save Current Settings

##### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'6'-STX "Data " 03H BCC 0DH  
[HEX]01H 30H 30H ID 42H 30H 36H 02H (D01~04) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "00C"(30H 30H 30H 43H) : Save Current Settings

##### 【 Note 】

---

## CTL-07. Get Timing Report and Timing reply

---

### 【 Function 】

This command is used in order to report the displayed image timing.

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'4'-STX "Data " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 34H 02H (D01~02) 03H BCC 0DH
```

Data	Contents
-----	
D01~02	Message "07"(30H 37H) : Get Timing Report command.

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'E'-STX "Data " 03H BCC 0DH  
[HEX]01H 30H 30H ID 42H 30H 45H 02H (D01~02 D03~04 D05~08 D09~12) 03H BCC 0DH
```

Data	Contents
-----	
D01~02	Message "4E"(34H 45H) : Command
D03~04	SS Bit 7 = 1: Sync Frequency is out of range. (or No signal.) Bit 6 = 1: Unstable count Bit 5-2 Reserved (Don't care) Bit 1 1:Positive Horizontal sync polarity. 0:Negative Horizontal sync polarity. Bit 0 1:Positive Vertical sync polarity. 0:Negative Vertical sync polarity.
D05~08	H Freq: Horizontal Frequency in unit 0.01kHz
D09~12	V Freq: Vertical Frequency in unit 0.01Hz Ex.) When H Freq is '1' '2' 'A' '9' (31h, 32h, 41h, 39h), it means 47.77kHz.

### 【 Note 】

---

## Power control procedure

---

### CTL-01D6. Power status read

---

#### 【 Function 】

This command is used in order to read a current power status.

#### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'6'-STX "Data " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 36H 02H (D01~04) 03H BCC 0DH
```

Data	Contents
D01~04	Message "01D6"(30H,31H,44H,36H) : Get power status command

#### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'1'-'2'-STX "Data " ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 31H 32H 02H (D01~02 D03~04 D05~06 D07~08 D09~12 D13~16) 03H BCC 0DH
```

Data	Contents
D01~02	Reserved data "02"(30H,32H)
D03~04	Result code "00"(30H,30H) : No Error "01"(30H,31H) : Unsupported
D05~06	Display power mode code "D6"(44H,36H) :
D07~08	Parameter type "00"(30H,30H): Set parameter
D09~12	Max "0004"(30H,30H,30H,34H) : Power mode is 4 types.
D13~16	Current power mode "0001"(30H,30H,30H,31H) : ON "0002"(30H,30H,30H,32H) : Stand-by (power save) "0003"(30H,30H,30H,33H) : Reserved "0004"(30H,30H,30H,34H) : OFF (same as IR power off)

#### 【 Note 】



---

## CTL-C203-D6. Power control

---

### 【 Function 】

This command is used in order to control monitor power.

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'C'-STX "Data          " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 43H 02H (D01~06) (D07~10) 03H BCC 0DH
```

Data	Contents
-----	
D01~06	Message "C203D6"(43H 32H 30H 33H 44H 36H) : power control command
D07~10	Power mode "0001"(30H 30H 30H 31H) : ON "0002"(30H 30H 30H 32H) : Do not set "0003"(30H 30H 30H 33H) : Do not set "0004"(30H 30H 30H 34H) : OFF (same as IR power off)

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'E'-STX "Data          " ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 30H 45H 02H (D01~02) (D03~08) (D09~12) 03H BCC 0DH
```

Data	Contents
-----	
D01~02	Result code "00"(30H 30H) : No Error
D03~08	Message "C203D6"(43H 32H 30H 33H 44H 36H) : power control reply command
D09~12	Power mode "0001"(30H 30H 30H 31H) : ON "0002"(30H 30H 30H 32H) : Do not set "0003"(30H 30H 30H 33H) : Do not set "0004"(30H 30H 30H 34H) : OFF (same as IR power off)

### 【 Note 】

---

## Date & Time read and write

---

### CTL-C211. Date & Time Read

---

#### 【 Function 】

This command is used in order to read the setting of Date & Time.

#### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'6'-STX "Data " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 36H 02H (D01~04) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "C211"(43H 32H 31H 31H) : Date & time read request command

#### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'1'-'4'-STX "Data  
" ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 31H 34H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14) (D15~16)  
(D17~18) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "C311"(43H 33H 31H 31H) : Date & time read reply command
D05~06	Year (offset 2000) "00"(30H 30H) : 2000 ~ "63"(36H 33H) : 2099(63H=99)
D07~08	Month "01"(30H 31H) : 1 ~ "0C"(30H 43H) : 12
D09~10	Day "01"(30H 31H) : 1 ~ "1F"(31H 46H) : 31
D11~12	weekdays "00"(30H 30H) : Sunday "01"(30H 31H) : Monday "02"(30H 32H) : Tuesday "03"(30H 33H) : Wednesday "04"(30H 34H) : Thursday "05"(30H 35H) : Friday "06"(30H 36H) : Saturday
D13~14	Hours "00"(30H 30H) : 0 ~ "17"(31H 37H) : 23
D15~16	Minutes "00"(30H 30H) : 0 ~ "3B"(33H 42H) : 59
D17~18	Reserved "00"(30H 30H)

#### 【 Note 】

---

## CTL-C212. Date & Time Write

---

### 【 Function 】

This command is used in order to write the setting of the Date & Time.

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'1'-'4'-STX "Data
" ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 31H 34H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14) (D15~16)
(D17~18) 03H BCC 0DH
```

Data	Contents
D01~04	Message "C212"(43H 32H 31H 32H) : Date & time read write command
D05~06	Year (offset 2000) "00"(30H 30H) : 2000 ~ "63"(36H 33H) : 2099(63H=99)
D07~08	Month "01"(30H 31H) : 1 ~ "0C"(30H 43H) : 12
D09~10	Day "01"(30H 31H) : 1 ~ "1F"(31H 46H) : 31
D11~12	weekdays "00"(30H 30H) : Sunday "01"(30H 31H) : Monday "02"(30H 32H) : Tuesday "03"(30H 33H) : Wednesday "04"(30H 34H) : Thursday "05"(30H 35H) : Friday "06"(30H 36H) : Saturday
D13~14	Hours "00"(30H 30H) : 0 ~ "17"(31H 37H) : 23
D15~16	Minutes "00"(30H 30H) : 0 ~ "3B"(33H 42H) : 59
D17~18	Reserved "00"(30H 30H)

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'1'-'6'-STX "Data
" ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 31H 36H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14) (D15~16)
(D17~18) (D19~20) 03H BCC 0DH
```

Data	Contents
D01~04	Message "C312"(43H 33H 31H 32H) : Date & Time write reply command
D05~06	Result code "00"(30H 30H)[00H] : No Error "01"(30H 31H)[01H] : Error
D07~08	Year (offset 2000) "00"(30H 30H) : 2000 ~ "63"(36H 33H) : 2099(63H=99)
D09~10	Month "01"(30H 31H) : 1 ~ "0C"(30H 43H) : 12

D11~12	Day	"01"(30H 31H) : 1 ~
		"1F"(31H 46H) : 31
D13~14	weekdays	"00"(30H 30H) : Sunday
		"01"(30H 31H) : Monday
		"02"(30H 32H) : Tuesday
		"03"(30H 33H) : Wednesday
		"04"(30H 34H) : Thursday
		"05"(30H 35H) : Friday
		"06"(30H 36H) : Saturday
D15~16	Hours	"00"(30H 30H) : 0 ~
		"17"(31H 37H) : 23
D17~18	Minutes	"00"(30H 30H) : 0 ~
		"3B"(33H 42H) : 59
D19~20	Reserved	"00"(30H 30H)

【 Note 】

---

## Schedule read and write

---

### CTL-C23D. Schedule Read

---

#### 【 Function 】

This command is used in order to read the setting of the Schedule.

#### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data          " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 36H 02H (D01~04) (D05~06) 03H BCC 0DH
```

Data	Contents
D01~04	Message "C23D"(43H 32H 33H 44H) : Schedule read request command
D05~06	Program No. "00"(30H 30H) : Program No.1 ~ "09"(30H 39H) : Program No.10 The data must be ASCII characters strings.

#### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'2'-'4'-STX "Data  
" ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 32H 34H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14) (D15~16)  
(D17~18) (D19~20) (D21~22) (D23~24) (D25~26) (D27~28) (D29~30) (D31~32) (D33~34) 03H BCC 0DH
```

Data	Contents
D01~04	Message "C33D"(43H 33H 33H 44H) : Schedule read reply command
D05~06	Program No. "00"(30H 30H) : Program No.1 ~ "09"(30H 39H) : Program No.10
D07~08	Schedule event "01"(30H 31H) : Power ON "02"(30H 32H) : Power OFF "03"(30H 33H) : Reserved
D09~10	Time (hour) "00"(30H 30H) : 0 ~ "17"(31H 37H) : 23 "18"(31H 38H) : None
D11~12	Debug "00"(30H 30H) : 0 ~ "3B"(33H 42H) : 59 "3C"(33H 43H) : None
D13~14	Input terminal "00"(30H 30H) : No mean (works on last memory) "0D"(30H 44H) : OPTION "0F"(30H 46H) : DisplayPort1 "11"(31H 31H) : HDMI1 "12"(31H 32H) : HDMI2 "87"(38H 37H) : MP "88"(38H 38H) : COMPUTE MODULE
D15~16	Week setting(※1) bit 0 : Monday bit 1 : Tuesday bit 2 : Wednesday bit 3 : Thursday

D17~18	bit 4 : Friday bit 5 : Saturday bit 6 : Sunday Schedule type(※2) bit 1 : 0=once/1=Every week bit 2 : 0=Disable/1=Enable bit 6 : 0=once/1=Date
D19~20	Picture mode In this monitor, always ignore this setting.
D21~22	Year "00"(30H 30H) : 2015 ~ "63"(36H 33H) : 2099 or "64"(36H 34H) : None
D23~24	Month "01"(30H 31H) : JAN ~ "0C"(30H 43H) : DEC or "0D"(30H 44H) : None
D25~26	Day "01"(30H 31H) : 1 ~ "1F"(31H 46H) : 31 or "20"(32H 30H) : None
D27~28	Order In this monitor, always ignore this setting.
D29~30	Extension1 "00"(30H 30H) : (On this monitor, it is always '00')
D31~32	Extension2 "00"(30H 30H) : (On this monitor, it is always '00')
D33~34	Extension3 "00"(30H 30H) : (On this monitor, it is always '00')

#### 【 Note 】

##### (※1)Bit Pattern

30H 31H("01") : Monday  
 30H 32H("02") : Tuesday  
 30H 33H("03") : Monday, Tuesday  
 30H 34H("04") : Wednesday  
 30H 35H("05") : Monday, Wednesday  
 30H 36H("06") : Tuesday, Wednesday  
 30H 37H("07") : Monday, Tuesday, Wednesday  
 30H 38H("08") : Thursday  
 30H 39H("09") : Monday, Thursday  
 30H 41H("0A") : Tuesday, Thursday  
 30H 42H("0B") : Monday, Tuesday, Thursday  
 30H 43H("0C") : Wednesday, Thursday  
 30H 44H("0D") : Monday, Wednesday, Thursday  
 30H 45H("0E") : Tuesday, Wednesday, Thursday  
 30H 46H("0F") : Monday, Tuesday, Wednesday, Thursday  
 31H 30H("10") : Friday  
 31H 31H("11") : Monday, Friday  
 31H 32H("12") : Tuesday, Friday  
 31H 33H("13") : Monday, Tuesday, Friday  
 31H 34H("14") : Wednesday, Friday  
 31H 35H("15") : Monday, Wednesday, Friday  
 31H 36H("16") : Tuesday, Wednesday, Friday  
 31H 37H("17") : Monday, Tuesday, Wednesday, Friday  
 31H 38H("18") : Thursday, Friday  
 31H 39H("19") : Monday, Thursday, Friday  
 31H 41H("1A") : Tuesday, Thursday, Friday  
 31H 42H("1B") : Monday, Tuesday, Thursday, Friday  
 31H 43H("1C") : Wednesday, Thursday, Friday  
 31H 44H("1D") : Monday, Wednesday, Thursday, Friday  
 31H 45H("1E") : Tuesday, Wednesday, Thursday, Friday  
 31H 46H("1F") : Monday, Tuesday, Wednesday, Thursday, Friday  
 32H 30H("20") : Saturday  
 32H 31H("21") : Monday, Saturday  
 32H 32H("22") : Tuesday, Saturday  
 32H 33H("23") : Monday, Tuesday, Saturday  
 32H 34H("24") : Wednesday, Saturday  
 32H 35H("25") : Monday, Wednesday, Saturday  
 32H 36H("26") : Tuesday, Wednesday, Saturday

32H 37H("27") : Monday, Tuesday, Wednesday, Saturday  
 32H 38H("28") : Thursday, Saturday  
 32H 39H("29") : Monday, Thursday, Saturday  
 32H 41H("2A") : Tuesday, Thursday, Saturday  
 32H 42H("2B") : Monday, Tuesday, Thursday, Saturday  
 32H 43H("2C") : Wednesday, Thursday, Saturday  
 32H 44H("2D") : Monday, Wednesday, Thursday, Saturday  
 32H 45H("2E") : Tuesday, Wednesday, Thursday, Saturday  
 32H 46H("2F") : Monday, Tuesday, Wednesday, Thursday, Saturday  
 33H 30H("30") : Friday, Saturday  
 33H 31H("31") : Monday, Friday, Saturday  
 33H 32H("32") : Tuesday, Friday, Saturday  
 33H 33H("33") : Monday, Tuesday, Friday, Saturday  
 33H 34H("34") : Wednesday, Friday, Saturday  
 33H 35H("35") : Monday, Wednesday, Friday, Saturday  
 33H 36H("36") : Tuesday, Wednesday, Friday, Saturday  
 33H 37H("37") : Monday, Tuesday, Wednesday, Friday, Saturday  
 33H 38H("38") : Thursday, Friday, Saturday  
 33H 39H("39") : Monday, Thursday, Friday, Saturday  
 33H 41H("3A") : Tuesday, Thursday, Friday, Saturday  
 33H 42H("3B") : Monday, Tuesday, Thursday, Friday, Saturday  
 33H 43H("3C") : Wednesday, Thursday, Friday, Saturday  
 33H 44H("3D") : Monday, Wednesday, Thursday, Friday, Saturday  
 33H 45H("3E") : Tuesday, Wednesday, Thursday, Friday, Saturday  
 33H 46H("3F") : Monday, Tuesday, Wednesday, Thursday, Friday, Saturday  
 34H 30H("40") : Sunday  
 34H 31H("41") : Monday, Sunday  
 34H 32H("42") : Tuesday, Sunday  
 34H 33H("43") : Monday, Tuesday, Sunday  
 34H 34H("44") : Wednesday, Sunday  
 34H 35H("45") : Monday, Wednesday, Sunday  
 34H 36H("46") : Tuesday, Wednesday, Sunday  
 34H 37H("47") : Monday, Tuesday, Wednesday, Sunday  
 34H 38H("48") : Thursday, Sunday  
 34H 39H("49") : Monday, Thursday, Sunday  
 34H 41H("4A") : Tuesday, Thursday, Sunday  
 34H 42H("4B") : Monday, Tuesday, Thursday, Sunday  
 34H 43H("4C") : Wednesday, Thursday, Sunday  
 34H 44H("4D") : Monday, Wednesday, Thursday, Sunday  
 34H 45H("4E") : Tuesday, Wednesday, Thursday, Sunday  
 34H 46H("4F") : Monday, Tuesday, Wednesday, Thursday, Sunday  
 35H 30H("50") : Friday, Sunday  
 35H 31H("51") : Monday, Friday, Sunday  
 35H 32H("52") : Tuesday, Friday, Sunday  
 35H 33H("53") : Monday, Tuesday, Friday, Sunday  
 35H 34H("54") : Wednesday, Friday, Sunday  
 35H 35H("55") : Monday, Wednesday, Friday, Sunday  
 35H 36H("56") : Tuesday, Wednesday, Friday, Sunday  
 35H 37H("57") : Monday, Tuesday, Wednesday, Friday, Sunday  
 35H 38H("58") : Thursday, Friday, Sunday  
 35H 39H("59") : Monday, Thursday, Friday, Sunday  
 35H 41H("5A") : Tuesday, Thursday, Friday, Sunday  
 35H 42H("5B") : Monday, Tuesday, Thursday, Friday, Sunday  
 35H 43H("5C") : Wednesday, Thursday, Friday, Sunday  
 35H 44H("5D") : Monday, Wednesday, Thursday, Friday, Sunday  
 35H 45H("5E") : Tuesday, Wednesday, Thursday, Friday, Sunday  
 35H 4FH("5F") : Monday, Tuesday, Wednesday, Thursday, Friday, Sunday  
 36H 30H("60") : Saturday, Sunday  
 36H 31H("61") : Monday, Saturday, Sunday  
 36H 32H("62") : Tuesday, Saturday, Sunday  
 36H 33H("63") : Monday, Tuesday, Saturday, Sunday  
 36H 34H("64") : Wednesday, Saturday, Sunday  
 36H 35H("65") : Monday, Wednesday, Saturday, Sunday  
 36H 36H("66") : Tuesday, Wednesday, Saturday, Sunday  
 36H 37H("67") : Monday, Tuesday, Wednesday, Saturday, Sunday  
 36H 38H("68") : Thursday, Saturday, Sunday  
 36H 39H("69") : Monday, Thursday, Saturday, Sunday  
 36H 41H("6A") : Tuesday, Thursday, Saturday, Sunday  
 36H 42H("6B") : Monday, Tuesday, Thursday, Saturday, Sunday  
 36H 43H("6C") : Wednesday, Thursday, Saturday, Sunday  
 36H 44H("6D") : Monday, Wednesday, Thursday, Saturday, Sunday  
 36H 45H("6E") : Tuesday, Wednesday, Thursday, Saturday, Sunday  
 36H 46H("6F") : Monday, Tuesday, Wednesday, Thursday, Saturday, Sunday

37H 30H("70") : Friday, Saturday, Sunday  
37H 31H("71") : Monday, Friday, Saturday, Sunday  
37H 32H("72") : Tuesday, Friday, Saturday, Sunday  
37H 33H("73") : Monday, Tuesday, Friday, Saturday, Sunday  
37H 34H("74") : Wednesday, Friday, Saturday, Sunday  
37H 35H("75") : Monday, Wednesday, Friday, Saturday, Sunday  
37H 36H("76") : Tuesday, Wednesday, Friday, Saturday, Sunday  
37H 37H("77") : Monday, Tuesday, Wednesday, Friday, Saturday, Sunday  
37H 38H("78") : Thursday, Friday, Saturday, Sunday  
37H 39H("79") : Monday, Thursday, Friday, Saturday, Sunday  
37H 41H("7A") : Tuesday, Thursday, Friday, Saturday, Sunday  
37H 42H("7B") : Monday, Tuesday, Thursday, Friday, Saturday, Sunday  
37H 43H("7C") : Wednesday, Thursday, Friday, Saturday, Sunday  
37H 44H("7D") : Monday, Wednesday, Thursday, Friday, Saturday, Sunday  
37H 45H("7E") : Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday  
37H 46H("7F") : Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday  
(※2)Bit Pattern  
30H 31H("01") : Everyday, Disable  
30H 32H("02") : Every week, Disable  
30H 35H("05") : Everyday, Enable  
30H 36H("06") : Every week, Enable  
30H 38H("08") : Weekday, Disable  
30H 43H("0C") : Weekday, Enable  
31H 30H("10") : Weekend, Disable  
31H 34H("14") : Weekend, Enable  
32H 30H("20") : Holiday, Disable  
32H 34H("24") : Holiday, Enable  
34H 30H("40") : Date, Disable  
34H 34H("44") : Date, Enable



## CTL-C23E. Schedule Write

### 【 Function 】

This command is used in order to write the setting of the Schedule.

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'2'-'4'-STX "Data
" ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 32H 34H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14) (D15~16)
(D17~18) (D19~20) (D21~22) (D23~24) (D25~26) (D27~28) (D29~30) (D31~32) (D33~34) 03H BCC 0DH
```

Data	Contents
D01~04	Message "C23E"(43H 32H 33H 45H) : Schedule write request command
D05~06	Program No. "00"(30H 30H) : Program No.1 ~ "09"(30H 39H) : Program No.10
D07~08	Schedule event "01"(30H 31H) : Power ON "02"(30H 32H) : Power OFF "03"(30H 33H) : Reserved
D09~10	Time (hour) "00"(30H 30H) : 0 ~ "17"(31H 37H) : 23 "18"(31H 38H) : None
D11~12	Debug "00"(30H 30H) : 0 ~ "3B"(33H 42H) : 59 "3C"(33H 43H) : None
D13~14	Input terminal "00"(30H 30H) : No mean (works on last memory) "0D"(30H 44H) : OPTION "0F"(30H 46H) : DisplayPort1 "11"(31H 31H) : HDMI1 "12"(31H 32H) : HDMI2 "87"(38H 37H) : MP "88"(38H 38H) : COMPUTE MODULE
D15~16	Week setting(※1) bit 0 : Monday bit 1 : Tuesday bit 2 : Wednesday bit 3 : Thursday bit 4 : Friday bit 5 : Saturday bit 6 : Sunday
D17~18	Schedule type(※2) bit 0 : 0=once/1=Everyday bit 1 : 0=once/1=Every week bit 2 : 0=Disable/1=Enable bit 3 : 0=once/1=Weekday bit 4 : 0=once/1=Weekend bit 5 : 0=once/1=Holiday bit 6 : 0=once/1=Date
D19~20	Picture mode In this monitor, always ignore this setting.
D21~22	Year "00"(30H 30H) : 2015 ~ "63"(36H 33H) : 2099 or "64"(36H 34H) : None If TYPE = date, this parameter is needed.
D23~24	Month "00"(30H 30H) : None

```

"01"(30H 31H) : JAN ~
"0C"(30H 43H) : DEC or
"0D"(30H 44H) : None
If TYPE = date, this parameter is needed.
D25~26      Day
"00"(30H 30H) : None
"01"(30H 31H) : 1 ~
"1F"(31H 46H) : 31 or
"20"(32H 30H) :                               If TYPE = date, this parameter
is needed.
D27~28      Order
"00"(30H 30H) : Not scheduled to run
"01"(30H 31H) : 1 ~
"1E"(31H 45H) : 30
D29~30      Extension1
"00"(30H 30H) : (On this monitor, it is always '00')
D31~32      Extension2
"00"(30H 30H) : (On this monitor, it is always '00')
D33~34      Extension3
"00"(30H 30H) : (On this monitor, it is always '00')

```

**[ ACK ]**

```

[DAT]SOH-'0'-'0'-ID-'B'-'2'-'6'-STX "Data
" ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 32H 36H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14) (D15~16)
(D17~18) (D19~20) (D21~22) (D23~24) (D25~26) (D27~28) (D29~30) (D31~32) (D33~34) (D35~36) 03H BCC
0DH

```

Data	Contents
D01~04	Message "C33E"(43H 33H 33H 45H) : Schedule write reply command
D05~06	Result code "00"(30H 30H) : No Error "01"(30H 31H) : Error
D07~08	Program No. "00"(30H 30H) : Program No.1 ~ "09"(30H 39H) : Program No.10
D09~10	Schedule Type "01"(30H 31H) : Power ON "02"(30H 32H) : Power OFF "03"(30H 33H) : Reserved
D11~12	Time (hour) "00"(30H 30H) : 0 ~ "17"(31H 37H) : 23 "18"(31H 38H) : None
D13~14	Time (minute) "00"(30H 30H) : 0 ~ "3B"(33H 42H) : 59 "3C"(33H 43H) : None
D15~16	Input terminal "00"(30H 30H) : No mean (works on last memory) "01"(30H 31H) : VGA(RGB) "02"(30H 32H) : RGB/HV "03"(30H 33H) : DVI "04"(30H 34H) : Not support "05"(30H 35H) : VIDEO "06"(30H 36H) : Video2 "07"(30H 37H) : S-Video "08"(30H 38H) : Not support "0A"(30H 41H) : TV "0B"(30H 42H) : Not support "0C"(30H 43H) : VGA(YPbPr) "0D"(30H 44H) : OPTION "0E"(30H 45H) : DVD/HD2 "0F"(30H 46H) : DisplayPort1 "10"(31H 30H) : DisplayPort2 "11"(31H 31H) : HDMI1 "12"(31H 32H) : HDMI2 "80"(38H 30H) : DisplayPort3

"82"(38H 32H) : HDMI3  
 "83"(38H 33H) : HDMI4  
 "84"(38H 34H) : PRESET1  
 "85"(38H 34H) : PRESET2  
 "86"(38H 34H) : PRESET3  
 "87"(38H 37H) : MP  
 "88"(38H 38H) : COMPUTE MODULE

D17~18 Week setting(※1)  
 bit 0 : Monday  
 bit 1 : Tuesday  
 bit 2 : Wednesday  
 bit 3 : Thursday  
 bit 4 : Friday  
 bit 5 : Saturday  
 bit 6 : Sunday

D19~20 Schedule type(※2)  
 bit 0 : 0=once/1=Everyday  
 bit 1 : 0=once/1=Every week  
 bit 2 : 0=Disable/1=Enable  
 bit 3 : 0=once/1=Weekday  
 bit 4 : 0=once/1=Weekend  
 bit 5 : 0=once/1=Holiday  
 bit 6 : 0=once/1=Date

D21~22 Picture mode  
 "00"(30H 30H) : No mean (works on last memory)  
 "01"(30H 31H) : sRGB  
 "02"(30H 32H) : Not support  
 "03"(30H 33H) : HIGHBRIGHT  
 "04"(30H 34H) : STANDARD  
 "05"(30H 35H) : CINEMA  
 "06"(30H 36H) : ISF-Day  
 "07"(30H 37H) : ISF-Night  
 "08"(30H 38H) : CUSTOM1  
 "09"(30H 39H) : CUSTOM2  
 "0A"(30H 41H) : Not support  
 "0B"(30H 42H) : Ambient-1  
 "0C"(30H 43H) : Ambient-2  
 "0D"(30H 44H) : SVE-1  
 "0E"(30H 45H) : SVE-2  
 "0F"(30H 46H) : SVE-3  
 "10"(31H 30H) : SVE-4  
 "11"(31H 31H) : SVE-5

D23~24 Year  
 "00"(30H 30H) : 2000 ~  
 "63"(36H 33H) : 2099 or  
 "64"(36H 34H) : Month  
 "00"(30H 30H) : None  
 "01"(30H 31H) : JAN ~  
 "0C"(30H 43H) : DEC or  
 "0D"(30H 44H) : None

D27~28 Day  
 "00"(30H 30H) : None  
 "01"(30H 31H) : 1 ~  
 "1F"(31H 46H) : 31 or  
 "20"(32H 30H) : None

D29~30 Order  
 "00"(30H 30H) : Not scheduled to run  
 "01"(30H 31H) : 1 ~  
 "1E"(31H 45H) : 30

D31~32 Extension1  
 "00"(30H 30H) : (On this monitor, it is always '00')

D33~34 Extension2  
 "00"(30H 30H) : (On this monitor, it is always '00')

D35~36 Extension3  
 "00"(30H 30H) : (On this monitor, it is always '00')

【 Note 】

---

## Self diagnosis

---

### CTL-B1. Self-diagnosis status read

---

#### 【 Function 】

This command is used in order to read the Self-diagnosis status.

#### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'4'-STX "Data " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 34H 02H (D01~02) 03H BCC 0DH
```

Data	Contents
-----	
D01~02	Message "B1"(42H 31H) : Self-diagnosis command

#### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'N'-'N'-STX "Data " 03H BCC 0DH  
[HEX]01H 30H 30H ID 42H LEN LEN 02H (D01~02) (D03~XX) 03H BCC 0DH
```

Data	Contents
-----	
D01~02	Message "A1"(41H 31H) : Application Test Report reply command
D03~XX	Result of self-tests(XX Max=34) "00"(30H 30H) : Normal "70"(37H 30H) : Main-power +3.3V abnormality "71"(37H 31H) : Main-power +5V abnormality "72"(37H 32H) : Panel-power/FAN-power +12V abnormality "78"(37H 38H) : Audio-power/Converter-power +24V abnormality "80"(38H 30H) : Cooling fan-1 abnormality "81"(38H 31H) : Cooling fan-2 abnormality "82"(38H 32H) : Cooling fan-3 abnormality "A0"(41H 30H) : Temperature abnormality shutdown "A1"(41H 31H) : Temperature abnormality half brightness "A2"(41H 32H) : SENSOR reached at the temperature that the user had specified. "B0"(42H 30H) : NO SIGNAL "D0"(44H 30H) : Error log buffer reduction "E0"(45H 30H) : EEPROM error "E5"(45H 35H) : HDMI_SW error "E7"(45H 37H) : DP block abnormal

#### 【 Note 】

---

## Serial No. & Model Name Read

---

### CTL-C216. Serial No. Read

---

#### 【 Function 】

This command is used in order to read a serial number.

#### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'6'-STX "Data " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 36H 02H (D01~04) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "C216"(43H 32H 31H 36H) : Serial No. command

#### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'- N - N -STX "Data " ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H LEN LEN 02H (D01~04) (D05~XX) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "C316"(43H 33H 31H 36H) : Serial No. reply command
D05~XX	Serial Number(XX Max=30) * The byte data 20h is encoded as ASCII characters '2' and '0' (32h and 30h).  Ex.) For example when receiving Serial Number data 33h 31h 33h 32h 33h 33h 33h 34h Step1: Serial Number data is encoded as character string. Example: 33h 31h 33h 32h 33h 33h 33h 34h -> '3','1','3','2','3','3','3','4' Step2: Decode pairs of ASCII characters to hexadecimal values. Example: '3','1','3','2','3','3','3','4' -> 31h , 32h , 33h , 34h Step3: Byte data represents the ASCII string data. Example: 31h 32h 33h 34h -> "1234" Result: Serial Number is "1234". Note: No null termination character is sent.

#### 【 Note 】

---

## CTL-C217. Model Name Read

---

### 【 Function 】

This command is used in order to read the Model Name.

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'6'-STX "Data " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 36H 02H (D01~04) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "C217"(43H 32H 31H 37H) : Model Name command

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'- N - N -STX "Data " ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H LEN LEN 02H (D01~04) (D05~XX) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "C317"(43H 33H 31H 37H) : Model Name reply Command
D05~XX	Model name(XX Max=36) * The byte data 20h is encoded as ASCII characters '2' and '0' (32h and 30h). Ex.) For example when receiving Model Name data 35h 30h 33h 34h 33h 30h 33h 33h Step1: Model Name data is encoded character string. Example: 35h 30h 33h 34h 33h 30h 33h 33h -> '5','0','3','4','3','0','3','3' Step2: Decode pairs of ASCII characters to hexadecimal values. Example: '5','0','3','4','3','0','3','3' -> 50h , 34h , 30h , 33h Step3: Byte data represents the ASCII string data. Example: 50h 34h 30h 33h -> "P403" Result: Model Name is "P403". Note: No null termination character is sent.

### 【 Note 】

---

## Security Lock

---

### CTL-C21D. Security Lock Control

---

#### 【 Function 】

This command sets the condition of security lock function to "LOCK" or "UNLOCK".

If security pass codes 1st to 4th are matched with monitor resisted pass codes, then this command is executed, and reply no error status and a new condition.  
If codes aren't matched with them then setting isn't changed, and reply error status and a current condition.  
If the monitor receives this command while waiting for Pass codes inputs, then it only checks Pass cords (and releases image muting if Pass codes are OK) and doesn't apply "Enable /Disable" parameter.

#### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'1'-'0'-STX "Data" ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 31H 30H 02H (D01~04) (D05~06) (D07~08) (D09~12) (D13~14) 03H BCC 0DH
```

Data	Contents
D01~04	Message "C21D"(43H 32H 31H 44H) : Security Lock Control command
D05~06	Enable /Disable "00"(30H 30H) : Disable "01"(30H 31H) : START-UP LOCK (Enable) "02"(30H 32H) : CONTROL LOCK "03"(30H 33H) : BOTH LOCK
D07~08	Security Pass code 1 "00"(30H 30H) : 0 ~ "09"(30H 39H) : 9
D09~10	Security Pass code 2 "00"(30H 30H) : 0 ~ "09"(30H 39H) : 9
D11~12	Security Pass code 3 "00"(30H 30H) : 0 ~ "09"(30H 39H) : 9
D13~14	Security Pass code 4 "00"(30H 30H) : 0 ~ "09"(30H 39H) : 9

#### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data" ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH
```

Data	Contents
D01~04	Message "C31D"(43H 33H 31H 44H) : Security Lock Control reply command
D05~06	Result code "00"(30H 30H) : No Error "01"(30H 31H) : Error
D07~08	Enable /Disable (Current condition) "00"(30H 30H) : Disable "01"(30H 31H) : START-UP LOCK (Enable) "02"(30H 32H) : CONTROL LOCK "03"(30H 33H) : BOTH LOCK

【 Note 】



---

## CTL-C205. GAMMA Table Write

---

### 【 Function 】

Gamma table data write to work RAM when this command received.

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'- N - N -STX "Data " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H LEN LEN 02H (D01~04) (D05~06) (D07~08) (D09~XX) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "C205"(43H 32H 30H 35H) : GAMMA Table Write command
D05~06	Start address to read(H)
D07~08	Start address to read(L)
D09~XX	Gamma data(HL) (XX Max=40)

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'- N - N -STX "Data " ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H LEN LEN 02H (D01~04) (D05~06) (D07~08) (D09~XX) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "C305"(43H 33H 30H 35H) : GAMMA Table Read reply command
D05~06	Start address to read(H)
D07~08	Start address to read(L)
D09~XX	Gamma data(HL) (XX Max=40)

### 【 Note 】

---

## MAC Address Read Request & Reply

---

### CTL-C220. MAC Address Read Request

---

#### 【 Function 】

This command is used in order to read the MAC Address.

#### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data          " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 31H 30H 02H (D01~04) (D05~06) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "C220"(43H 32H 32H 40H) : MAC Address Read Request command
D05~06	Select device "00"(30H 30H) :fixed

#### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'- N - N -STX "Data          " ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H LEN LEN 02H (D01~04) (D05~06) (D07~XX) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "C320"(43H 33H 32H 30H) : MAC Address Read Request reply command
D05~06	Select device "00"(30H 30H) :fixed
D07~XX	MAC Address(XX Max=12)

#### 【 Note 】

---

## Daylight Saving Command

---

### CTL-CA01-00. Daylight Saving Read Request

---

#### 【 Function 】

This command is used in order to read Daylight Saving Setting.

#### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data          " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CA01"(43H 41H 30H 31H) : Daylight Saving Command
D05~06	Index "00"(30H 30H) : Read

#### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'2'-'0'-STX "Data  
" ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 32H 30H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14) (D15~16)  
(D17~18) (D19~20) (D21~22) (D23~24) (D25~26) (D27~28) (D29~30) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CB01"(43H 42H 30H 31H) : Daylight Saving reply command
D05~06	Index "00"(30H 30H) : Read
D07~08	Result code "00"(30H 30H) : No Error "01"(30H 31H) : Error
D09~10	BEGIN MONTH "01"(30H 31H) : JANUARY ~ "12"(31H 32H) : DECEMBER
D11~12	BEGIN DAY1 "01"(30H 31H) : FIRST "02"(30H 32H) : SECOND "03"(30H 33H) : THIRD "04"(30H 34H) : FOUR "05"(30H 35H) : LAST
D13~14	BEGIN DAY2 (Day of the week) "01"(30H 31H) : SUNDAY "02"(30H 32H) : MONDAY "03"(30H 33H) : TUESDAY "04"(30H 34H) : WEDNESDAY "05"(30H 35H) : THURSDAY "06"(30H 36H) : FRIDAY "07"(30H 37H) : SATURDAY
D15~16	BEGIN TIME1 (Hour) "00"(30H 30H) ~ "23"(32H 33H)
D17~18	BEGIN TIME2 (Minute) "00"(30H 30H) ~ "59"(35H 39H)
D19~20	END MONTH "01"(30H 31H) : JANUARY ~

D21~22	"12" (31H 32H) : DECEMBER END DAY1 "01" (30H 31H) : FIRST "02" (30H 32H) : SECOND "03" (30H 33H) : THIRD "04" (30H 34H) : FOUR "05" (30H 35H) : LAST
D23~24	END DAY2 (Day of the week) "01" (30H 31H) : SUNDAY "02" (30H 32H) : MONDAY "03" (30H 33H) : TUESDAY "04" (30H 34H) : WEDNESDAY "05" (30H 35H) : THURSDAY "06" (30H 36H) : FRIDAY "07" (30H 37H) : SATURDAY
D25~26	END TIME1 (Hour) "00" (30H 30H) ~ "23" (32H 33H)
D27~28	END TIME2 (Minute) "00" (30H 30H) ~ "59" (35H 39H)
D29~30	TIME DIFFERENCE "00" (30H 30H) : +01:00 "01" (30H 31H) : +00:30 "02" (30H 32H) : -00:30 "03" (30H 33H) : -01:00

【 Note 】

## CTL-CA01-01. Daylight Saving Write Request

### 【 Function 】

This command is used in order to write Daylight Saving Setting.

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'1'-'E'-STX "Data
" ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 31H 45H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14) (D15~16)
(D17~18) (D19~20) (D21~22) (D23~24) (D25~26) (D27~28) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CA01"(43H 41H 30H 31H) : Daylight Saving Setting Command
D05~06	Index "01"(30H 31H) : Write
D07~08	BEGIN MONTH "01"(30H 31H) : JANUARY ~ "12"(31H 32H) : DECEMBER
D09~10	BEGIN DAY1 "01"(30H 31H) : FIRST "02"(30H 32H) : SECOND "03"(30H 33H) : THIRD "04"(30H 34H) : FOUR "05"(30H 35H) : LAST
D11~12	BEGIN DAY2 (Day of the week) "01"(30H 31H) : SUNDAY "02"(30H 32H) : MONDAY "03"(30H 33H) : TUESDAY "04"(30H 34H) : WEDNESDAY "05"(30H 35H) : THURSDAY "06"(30H 36H) : FRIDAY "07"(30H 37H) : SATURDAY
D13~14	BEGIN TIME1 (Hour) "00"(30H 30H) ~ "23"(32H 33H)
D15~16	BEGIN TIME2 (Minute) "00"(30H 30H) ~ "59"(35H 39H)
D17~18	END MONTH "01"(30H 31H) : JANUARY ~ "12"(31H 32H) : DECEMBER
D19~20	END DAY1 "01"(30H 31H) : FIRST "02"(30H 32H) : SECOND "03"(30H 33H) : THIRD "04"(30H 34H) : FOUR "05"(30H 35H) : LAST
D21~22	END DAY2 (Day of the week) "01"(30H 31H) : SUNDAY "02"(30H 32H) : MONDAY "03"(30H 33H) : TUESDAY "04"(30H 34H) : WEDNESDAY "05"(30H 35H) : THURSDAY "06"(30H 36H) : FRIDAY "07"(30H 37H) : SATURDAY
D23~24	END TIME1 (Hour) "00"(30H 30H) ~ "23"(32H 33H)
D25~26	END TIME2 (Minute) "00"(30H 30H) ~ "59"(35H 39H)

D27~28

TIME DIFFERENCE

"00"(30H 30H) : +01:00  
"01"(30H 31H) : +00:30  
"02"(30H 32H) : -00:30  
"03"(30H 33H) : -01:00

【 ACK 】

[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data " ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH

Data

Contents

-----  
D01~04            Message  
                  "CB01"(43H 42H 30H 31H) : Daylight Saving Setting reply command  
D05~06            Index  
                  "01"(30H 31H) : Write  
D07~08            Result code  
                  "00"(30H 30H) : No Error  
                  "01"(30H 31H) : Error

【 Note 】

---

## CTL-CA01-02. Daylight Saving ON/OFF Read

---

### 【 Function 】

This command is used in order to read Daylight Saving ON/OFF Setting.

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data          " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "CA01"(43H 41H 30H 31H) : Daylight Saving Command
D05~06	Index "02"(30H 32H) : ON/OFF Read

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'C'-STX "Data          " ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 30H 43H 02H (D01~04) (D05~06) (D07~08) (D09~10) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "CB01"(43H 42H 30H 31H) : Daylight Saving reply command
D05~06	Index "02"(30H 32H) : ON/OFF Read
D07~08	Result code "00"(30H 30H) : No Error "01"(30H 31H) : Error
D09~10	Daylight Saving Value "00"(30H 30H) : OFF "01"(30H 31H) : ON

### 【 Note 】

---

## CTL-CA01-03. Daylight Saving ON/OFF Write

---

### 【 Function 】

This command is used in order to write Daylight Saving ON/OFF Setting.

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'A'-STX "Data" ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CA01"(43H 41H 30H 31H) : Daylight Saving Setting Command
D05~06	Index "03"(30H 33H) : ON/OFF Write
D07~08	Daylight Saving Value "00"(30H 30H) : OFF "01"(30H 31H) : ON

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data" ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CB01"(43H 42H 30H 31H) : Daylight Saving Setting reply command
D05~06	Index "03"(30H 33H) : ON/OFF Write
D07~08	Result code "00"(30H 30H) : No Error "01"(30H 31H) : Error

### 【 Note 】



---

## Firmware Version Command

---

### CTL-CA02. Firmware Version Read Request

---

#### 【 Function 】

This command is used in order to read Firmware Version.

#### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data          " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "CA02"(43H 41H 30H 32H) : Firmware Version Read Command
D05~06	Firmware Type "00"(30H 30H) : F/W Revision

#### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'1'-'2'-STX "Data          " ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 31H 32H 02H (D01~04) (D05~06) (D07~08) (D09~16) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "CB02"(43H 42H 30H 31H) : Firmware Version Read reply command
D05~06	Result code "00"(30H 30H) : No Error "01"(30H 31H) : Error
D07~08	Firmware Type "00"(30H 30H) : Firmware revision
D09~16	Firmware Version String D09 : R D10 : Major Version "0"(30H) ~ "9"(39H) D11 : Period 2EH (fixed) D12 : Minor (Basic) Version1 "0"(30H) ~ "9"(39H) D13 : Minor (Basic) Version2 "0"(30H) ~ "9"(39H) D14 : Minor (Basic) Version3 "0"(30H) ~ "9"(39H) D15 : Branch Version1 "A"(41H) ~ "Z"(5AH) D16 : Branch Version2 "A"(41H) ~ "Z"(5AH)

#### 【 Note 】

The version information section is an ASCII character string.

---

## Input Name

---

### CTL-CA04-00. Input Name Read Request

---

#### 【 Function 】

This command is used in order to read Input Name.

#### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data          " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CA04"(43H 41H 30H 34H) : Input Name Command
D05~06	Index "00"(30H 30H) : Input Name Read

#### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'- N - N -STX "Data          " ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H LEN LEN 02H (D01~04) (D05~06) (D07~XX) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CB04"(43H 42H 30H 34H) : Input Name reply command
D05~06	Index "00"(30H 30H) : Input Name Read
D07~XX	Input Name XX = Max 34 Max length of actual Input Name 14 characters Ex.)The byte data 20h is encoded as ASCII characters '2' and '0' (32h and 30h).

For example when receiving Data(n) of 35h 36h 34h 37h 34h 31h

Step1: Input Name data is encoded as character code.

Example:

35h 36h 34h 37h 34h 31h -> '5'-'6'-'4'-'7'-'4'-'1'

Step2: Decode pairs of ASCII characters to hexadecimal values.

Example:

'5'-'6'-'4'-'7'-'4'-'1' -> 56h 47h 41h

Step3: Byte data represents the ASCII string data.

Example:

56h 47h 41h -> "VGA"

Result: Input Name is "VGA".

Note: No null termination character is sent.

#### 【 Note 】

---

## CTL-CA04-01. Input Name Write Request

---

### 【 Function 】

This command is used in order to write Input Name.

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'- N - N -STX "Data " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H LEN LEN 02H (D01~04) (D05~06) (D07~XX) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CA04"(43H 41H 30H 34H) : Input Name command
D05~06	Index "01"(30H 31H) : Input Name Write
D07~XX	Input Name XX = Max 34 Max length of actual Input Name 14 characters Ex.)The byte data 20h is encoded as ASCII characters '2' and '0' (32h and 30h).  In the case of Input Name "VGA" Step1: Input Name data is handled as character code. Example: "VGA" -> 56h 47h 41h (ASCII) Step2: The hexadecimal value of each original character is encoded as two ASCII characters representing the value. Example: 56h 47h 41h -> '5'-'6'-'4'-'7'-'4'-'1' Result: The following data is assigned to Data(n). 35h 36h 34h 37h 34h 31h

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data " ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CB04"(43H 42H 30H 34H) : Input Name reply command
D05~06	Index "01"(30H 31H) : Input Name Write
D07~08	Result code "00"(30H 30H) : No Error "01"(30H 31H) : Error

### 【 Note 】

---

## CTL-CA04-02. Input Name Reset Request

---

### 【 Function 】

This command is used in order to reset Input Name.

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data          " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "CA04"(43H 41H 30H 34H) : Input Name command
D05~06	Index "02"(30H 32H) : Input Name Reset

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data          " ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "CB04"(43H 42H 30H 34H) : Input Name reply command
D05~06	Index "02"(30H 32H) : Input Name Reset
D07~08	Result code "00"(30H 30H) : No Error "01"(30H 31H) : Error

### 【 Note 】

---

## CTL-CA04-03. Input Name of Designated Terminal Read Request

---

### 【 Function 】

This command is used in order to read Input Name of Designated Terminal.

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'A'-STX "Data" ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CA04"(43H 41H 30H 34H) : Input Name command
D05~06	Index "03"(30H 33H) : Designated Terminal Read
D07~08	Input Terminal "00"(30H 30H) : No mean "01"(30H 31H) : VGA(RGB) "03"(30H 33H) : DVI "05"(30H 35H) : VIDEO "09"(30H 39H) : Tuner "0C"(30H 43H) : VGA(YPbPr) "0D"(30H 44H) : OPTION "0F"(30H 46H) : DisplayPort1 "10"(31H 30H) : DisplayPort2 "11"(31H 31H) : HDMI1 "12"(31H 32H) : HDMI2 "82"(38H 32H) : HDMI3 "87"(38H 37H) : MP(Media player) "88"(38H 38H) : COMPUTE MODULE

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'- N - N -STX "Data" ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H LEN LEN 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~XX) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CB04"(43H 42H 30H 34H) : Input Name reply command
D05~06	Index "03"(30H 33H) : Designated Terminal Read
D07~08	Result code "00"(30H 30H) : No Error "01"(30H 31H) : Error
D09~10	Input Terminal Omitted because it is the same as the transmitted data.
D11~XX	Input Name XX = Max 39 Max length of actual Input Name 14 characters

### 【 Note 】

---

## CTL-CA04-04. Input Name of Designated Terminal Write Request

---

### 【 Function 】

This command is used in order to write Input Name of Designated Terminal.

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'- N - N -STX "Data " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H LEN LEN 02H (D01~04) (D05~06) (D07~08) (D09~XX) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CA04"(43H 41H 30H 34H) : Input Name command
D05~06	Index "04"(30H 34H) : Designated Terminal Write
D07~08	Input Terminal "00"(30H 30H) : No mean "01"(30H 31H) : VGA(RGB) "03"(30H 33H) : DVI "05"(30H 35H) : VIDEO "09"(30H 39H) : Tuner "0C"(30H 43H) : VGA(YPbPr) "0D"(30H 44H) : OPTION "0F"(30H 46H) : DisplayPort1 "10"(31H 30H) : DisplayPort2 "11"(31H 31H) : HDMI1 "12"(31H 32H) : HDMI2 "82"(38H 32H) : HDMI3 "87"(38H 37H) : MP(Media player) "88"(38H 38H) : COMPUTE MODULE
D09~XX	Input Name XX = Max 37 Max length of actual Input Name 14 characters

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data " ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CB04"(43H 42H 30H 34H) : Input Name reply command
D05~06	Index "04"(30H 34H) : Designated Terminal Write
D07~08	Result code "00"(30H 30H) : No Error "01"(30H 31H) : Error

### 【 Note 】

---

## CTL-CA04-05. Input Name of Designated Terminal Reset Request

---

### 【 Function 】

This command is used in order to reset Input Name of Designated Terminal.

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'A'-STX "Data" ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CA04"(43H 41H 30H 34H) : Input Name command
D05~06	Index "05"(30H 35H) : Designated Terminal Reset
D07~08	Input Terminal "00"(30H 30H) : ALL Terminal "01"(30H 31H) : VGA(RGB) "03"(30H 33H) : DVI "05"(30H 35H) : VIDEO "09"(30H 39H) : Tuner "0C"(30H 43H) : VGA(YPbPr) "0D"(30H 44H) : OPTION "0F"(30H 46H) : DisplayPort1 "10"(31H 30H) : DisplayPort2 "11"(31H 31H) : HDMI1 "12"(31H 32H) : HDMI2 "82"(38H 32H) : HDMI3 "87"(38H 37H) : MP(Media player) "88"(38H 38H) : COMPUTE MODULE

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data" ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CB04"(43H 42H 30H 34H) : Input Name reply
D05~06	Index "05"(30H 35H) : Designated Terminal Reset
D07~08	Result code "00"(30H 30H) : No Error "01"(30H 31H) : Error

### 【 Note 】

---

## Proof of Play

---

### CTL-CA15-00. Set Proof of Play Operation Mode

---

#### 【 Function 】

This command is used in order to set operation mode of "Proof of Play".

#### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'A'-STX "Data" ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CA15"(43H 41H 31H 35H) : Proof of Play command
D05~06	Index "00"(30H 30H) : Set Proof of Play Operation mode command
D07~08	Mode of Proof of Play. "00"(30H 30H) : Stop "01"(30H 31H) : Start "02"(30H 32H) : Clear Log data

#### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data" ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CB15"(43H 42H 31H 35H) : Proof of Play reply command
D05~06	Index "00"(30H 30H) : Set Proof of Play Operation Mode command
D07~08	Status "00"(30H 30H) : No Error "01"(30H 31H) : Error "02"(30H 32H) : Already Start/Stop/Clear

#### 【 Note 】



---

## CTL-CA15-01. Get Proof of Play Current

---

### 【 Function 】

This command is used in order to get current log data of "Proof of Play".

Note : Proof of Play information cannot be read from the display when it is in either DC Off or PMS states.

The display must be fully powered on to read Proof Of Play information.

Also the display does not continue to create any new logs while it is in DC Off or PMS states.

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data          " ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CA15"(43H 41H 31H 35H) : Proof of Play command
D05~06	Index "01"(30H 31H) : Get Current log of Proof of Play command

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'3'-'4'-STX "Data          " ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 33H 34H 02H (D01~04) (D05~06) (D07~08) (D09~12) (D13~50) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CB15"(43H 42H 31H 35H) : Proof of Play reply command
D05~06	Index "01"(30H 31H) : Get Current log of Proof of Play command
D07~08	Status "00"(30H 30H) : No Error "01"(30H 31H) : Error
D09~10	Current log data Number (High byte)(Low byte) "0001"(30H 30H 30H 31H) : 1 ~ "FFFF"(46H 46H 46H 46H) : 65535
D13~50	Data of Proof of Play

### 【 Note 】

Log Data of Proof of Play : D13~50

D13~14: Check INPUT PICTURE

Same as VCP-00-60. Input Source Select reply parameter.

Refer to VCP-00-60. Input Source Select

D15~22 : Check Input Signal

"00000000"(30H 30H 30H 30H 30H 30H 30H 30H):No signal

"FFFFFFFF"(46H 46H 46H 46H 46H 46H 46H 46H):Invalid signal

"\*\*\*\*\*"(\*\*H \*\*H \*\*H \*\*H \*\*H \*\*H \*\*H \*\*H):Input signal

Ex ) 1920 x 1080

"07800438" : 1920(0768H) x 1080(0438H)

D23~24 : Check INPUT AUDIO

Same as VCP-02-2E. Select Sound Input reply parameter.

Refer to VCP-02-2E. Select Sound Input

D25~26 : Check with or without Audio

"00"(30H 30H) : Audio in

"01"(30H 31H) : No Audio in  
 "02"(30H 32H) : N/A  
 D27~28 : Check status (Picture)  
 "00"(30H 30H) : Normal Picture  
 "01"(30H 31H) : No Picture  
 D29~30 : Check status (Audio)  
 "00"(30H 30H) : Normal Audio  
 "01"(30H 31H) : No Audio  
 D31~34 : Year  
 "\*\*\*\*\*"(\*\*H \*\*H \*\*H \*\*H) : 0~65535(0000h~FFFFH)  
 Ex ) 2014  
 "07DE" : 2014(07DEH)  
 D35~36 : month  
 "01"(30H 31H) : January  
 "02"(30H 32H) : February  
 |  
 "0B"(30H 42H) : November  
 "0C"(30H 43H) : December  
 D37~38 : day  
 "\*\*\*"(\*\*H \*\*H) : 1~31(01H~1FH)  
 D39~40 : hour  
 "\*\*\*"(\*\*H \*\*H) : 0~23(00H~17H)  
 D41~42 : min  
 "\*\*\*"(\*\*H \*\*H) : 0~59(00H~3BH)  
 D43~44 : sec  
 "\*\*\*"(\*\*H \*\*H) : 0~59(00H~3BH)  
 D45~46 : Extension parameter  
 "00"(30H 30H) : Normal Proof of Play event  
 "01"(30H 31H) : Proof of Play event is "last power on time" \*1)  
 "02"(30H 32H) : Power On  
 "03"(30H 33H) : Power Off  
 "04"(30H 34H) - "0F"(30H 46H) : Reserved  
 "10"(31H 30H) : MEDIA PLAYER is stop  
 "11"(31H 31H) : MEDIA PLAYER is start  
 "12"(31H 32H) : MEDIA PLAYER is pause  
 "13"(31H 33H) : MEDIA PLAYER error occur  
 "14"(31H 34H) - "1F"(31H 46H) : Reserved  
 "20"(32H 30H) : Contents Copy from USB  
 "21"(32H 31H) : Contents Copy form network folder  
 "22"(32H 32H) - "2F"(32H 46H) : Reserved  
 "30"(33H 30H) : Contents Copy Success  
 "31"(33H 31H) : Contents Copy Error (No media)  
 "32"(33H 32H) : Contents Copy Error (Connect error)  
 "33"(33H 33H) : Contents Copy Error (Out of disk space)  
 "34"(33H 34H) : Contents Copy Error (Read/Write error)  
 "35"(32H 35H) - 3Fh(33H 46H) : Reserved  
 "40"(34H 30H) : Human detected (Human sensor Status) \*2)  
 "41"(34H 31H) : Human detect cleared (Human Sensor Status) \*2)  
 "42"(34H 32H) - "4F"(34H 46H) : Reserved  
 \*1: Save the time in EEPROM every 15 minutes a period of Power ON.  
 Moreover after Power ON, the first log is "Data16=01h".  
 \*2: Save the Human Sensor status every 30 seconds.  
 D47~50 : Reserve(future use : always "0000")

---

## CTL-CA15-02. Get Proof of Play Status

---

### 【 Function 】

This command is used in order to get status of "Proof of Play".

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data          " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "CA15"(43H 41H 31H 35H) : Proof of Play command
D05~06	Index "02"(30H 32H) : Get Proof of Play Status command

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'1'-'4'-STX "Data          " ETX BCC  
0DH  
[HEX]01H 30H 30H ID 42H 31H 34H 02H (D01~04) (D05~06) (D07~08) (D09~12) (D13~16) (D17~18) 03H BCC  
0DH
```

Data	Contents
-----	
D01~04	Message "CB15"(43H 42H 31H 35H) : Proof of Play reply command
D05~06	Index "02"(30H 32H) : Get Proof of Play Status command
D07~08	Error status "00"(30H 30H) : No Error "01"(30H 31H) : Memory full (some date has been lost) "02"(30H 32H) : other error (other error has priority ver 01h error)
D09~12	Total Number-High byte-Low byte (How many log data items are currently used.) "0001"(30H 30H 30H 31H) : 1 ~ "FFFF"(46H 46H 46H 46H) : 65535
D13~16	Maximum Number-High byte-Low byte (Maximum possible number of log data items) "0001"(30H 30H 30H 31H) : 1 ~ "FFFF"(46H 46H 46H 46H) : 65535
D17~18	Current Proof of Play status. "00"(30H 30H) : Stop "01"(30H 31H) : Start

### 【 Note 】

## CTL-CA15-03. Get Proof of Play Number to Number

### 【 Function 】

This command is used in order to get Number to Number Log Data of "Proof of Play ".

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'1'-'0'-STX "Data" ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 31H 30H 02H (D01~04) (D05~06) (D07~10) (D11~14) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CA15"(43H 41H 31H 35H) : Proof of Play command
D05~06	Index "03"(30H 33H) : Get Proof of Play Number to Number log command
D07~10	Block Number of Start (High byte)(Low byte):BNS(H)(L)
D11~14	Block Number of Stop (High byte)(Low byte) :BNE(H) Max of Total Number of "Proof of Play Log Data" is 100.

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'3'-'4'-STX "Data" ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 33H 34H 02H (D01~04) (D05~06) (D07~08) (D09~12) (D13~50) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CB15"(43H 42H 31H 35H) : Proof of Play reply command
D05~06	Index "03"(30H 33H) : Get Proof of Play Number to Number log command
D07~08	Status "00"(30H 30H) : No Error "01"(30H 31H) : Error
D09~12	log number being returned (High byte)(Low byte)
D13~50	Log Data of Proof of Play of STOP Refer to CTL-CA15-01. Get Proof of Play Current

### 【 Note 】

A reply returns 19 data in order from specified Number to specified Number.  
Ex) Number to Number : 1 to 6

+----+	+-----+
PC	Monitor
+----+	+-----+
Request Number to Number (1 - 6) =====>	[SOH-STX-BNS-BNE-ETX-BCC-CR]
Reply Log Data 19byte (Number 1) <=====	SOH-STX-#1-"Data"-ETX-BCC-CR]
Reply Log Data 19byte (Number 2) <=====	SOH-STX-#2-"Data"-ETX-BCC-CR]
Reply Log Data 19byte (Number 3) <=====	SOH-STX-#3-"Data"-ETX-BCC-CR]
Reply Log Data 19byte (Number 4) <=====	SOH-STX-#4-"Data"-ETX-BCC-CR]

<=====	
Reply Log Data 19byte (Number 5)	SOH-STX-#5-"Data"-ETX-BCC-CR]
<=====	
Reply Log Data 19byte (Number 6)	SOH-STX-#6-"Data"-ETX-BCC-CR]
<=====	

Even if Mode of Proof of Play is Start, memory function is not performed on DC OFF/PMS. But this time, Log data can get by "Get Proof of Play Number to Number".

---

## CTL-CA0B-02. Auto Power Save Time Read Request

---

### 【 Function 】

This command is used in order to read Auto Power Save Time.

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data          " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "CA0B"(43H 41H 30H 42H) : Power Save Mode command
D05~06	Index "02"(30H 32H) : Auto Power Save Read

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data          " ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "CB0B"(43H 42H 30H 42H) : Power Save Mode reply command
D05~06	Index "02"(30H 32H) : Auto Power Save Time Read
D07~08	AUTO POWER SAVE TIME (sec.) "01"(30H 31H) : 1(5sec) - "78"(37H 38H) : 120(600sec)

### 【 Note 】

---

## CTL-CA0B-03. Auto Power Save Time Write Request

---

### 【 Function 】

This command is used in order to write Auto Power Save Time.

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'A'-STX "Data" ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CA0B"(43H 41H 30H 42H) : Power Save Mode command
D05~06	Index "03"(30H 33H) : Auto Power Save Time Write
D07~08	AUTO POWER SAVE TIME (sec.) "01"(30H 31H) : 1(5sec) - "78"(37H 38H) : 120(600sec)

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data" ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CB0B"(43H 42H 30H 42H) : Power Save Mode reply command
D05~06	Index "03"(30H 33H) : Auto Power Save Time Write
D07~08	Result code "00"(30H 30H) : No Error "01"(30H 31H) : Error

### 【 Note 】

---

## Initial Gamma Table

---

### CTL-C208. Initial Gamma Table

---

#### 【 Function 】

Initialize Gamma data from work RAM when this command received.

#### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'6'-STX "Data " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 36H 02H (D01~04) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "C208"(43H 32H 30H 38H) : Initial Gamma Table command

#### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'8'-STX "Data " ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 30H 38H 02H (D01~02) (D03~06) 03H BCC 0DH
```

Data	Contents
-----	
D01~02	Reserved "00"(30H 30H)
D03~06	Message "C308"(43H 33H 30H 38H) : Initial Gamma Table reply command

#### 【 Note 】



---

## Reset Gamma Table

---

### CTL-C209. Reset Gamma Table

---

#### 【 Function 】

Reset Gamma data to work RAM when this command received.

#### 【 Command 】

[ASC]SOH-'0'-ID-'0'-'A'-'0'-'6'-STX "Data " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 36H 02H (D01~04) 03H BCC 0DH

Data	Contents
-----	
D01~04	Message "C209"(43H 32H 30H 39H) : Reset Gamma Table command

#### 【 ACK 】

[DAT]SOH-'0'-'0'-ID-'B'-'0'-'8'-STX "Data " ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 30H 38H 02H (D01~02) (D03~06) 03H BCC 0DH

Data	Contents
-----	
D01~02	Reserved "00"(30H 30H)
D03~06	Message "C309"(43H 33H 30H 39H) : Reset Gamma Table reply command

#### 【 Note 】

---

## Lock Settings

---

### CTL-CA32. Lock Settings Read Request

---

#### 【 Function 】

Lock Settings Read Request

#### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'6'-STX "Data  " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 36H 02H (D01~04) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "CA32"(43H 41H 33H 32H) : Lock Settings Read Request command

#### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'1'-'4'-STX "Data  
" ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 31H 34H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14) (D15~16)  
(D17~18) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "CB32"(43H 42H 33H 32H) : Lock Settings Read Request reply command
D05~06	Select "00"(30H 30H) : Key "01"(30H 31H) : IR "02"(30H 32H) : Key & IR
D07~08	Mode "00"(30H 30H) : UNLOCK "01"(30H 31H) : CUSTOM LOCK "02"(30H 32H) : ALL LOCK
D09~10	Power "00"(30H 30H) : UNLOCK "01"(30H 31H) : LOCK
D11~12	Volume "00"(30H 30H) : UNLOCK "01"(30H 31H) : LOCK
D13~14	Min Vol "00"(30H 30H) ~ "64"(36H 34H) : Min Vol 0~00
D15~16	Max Vol "00"(30H 30H) ~ "64"(36H 34H) : Max Vol 0~00
D17~18	Input "00"(30H 30H) : UNLOCK "01"(30H 31H) : LOCK

#### 【 Note 】

## CTL-CA33. Lock Settings Write Request

### 【 Function 】

Lock Settings Write Request

### 【 Command 】

```
[ASC]SOH-'0'-'0'-ID-'0'-'A'-'1'-'4'-STX "Data
" ETX BCC 0DH
[HEX]01H 30H ID 30H 41H 31H 34H 02H (D01~04) (D05~06) (D07~08) (D09~10) (D11~12) (D13~14) (D15~16)
(D17~18) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CA33"(43H 41H 33H 33H) : Lock Settings Write Request command
D05~06	Select "00"(30H 30H) : Key "01"(30H 31H) : IR "02"(30H 32H) : Key & IR
D07~08	Mode "00"(30H 30H) : UNLOCK "01"(30H 31H) : CUSTOM LOCK "02"(30H 32H) : ALL LOCK
D09~10	Power "00"(30H 30H) : UNLOCK "01"(30H 31H) : LOCK
D11~12	Volume "00"(30H 30H) : UNLOCK "01"(30H 31H) : LOCK
D13~14	Min Vol "00"(30H 30H) ~ "64"(36H 34H) : Min Vol 0~00
D15~16	Max Vol "00"(30H 30H) ~ "64"(36H 34H) : Max Vol 0~00
D17~18	Input "00"(30H 30H) : UNLOCK "01"(30H 31H) : LOCK

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'8'-STX "Data" ETX BCC 0DH
[HEX]01H 30H 30H ID 42H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CB33"(43H 42H 33H 33H) : Lock Settings Write Request reply command
D05~06	Result code "00"(30H 30H) : No Error "01"(30H 31H) : Error

### 【 Note 】

D09~D18 are no meaning if Mode(D07~D08) is not CUSTOM LOCK(0x01)  
D13~D16 are no meaning if Volume(D11~D12) is not LOCK(0x01)

---

## CTL-CA1D-0A. CMD\_GET\_MP\_AUTOPLAY

---

### 【 Function 】

CMD\_GET\_MP\_AUTOPLAY

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'8'-STX "Data          " ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 38H 02H (D01~04) (D05~06) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "CA1D"(43H 41H 31H 44H) : Read cmd
D05~06	Index "0A"(30H 41H)

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'C'-STX "Data          " ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 30H 43H 02H (D01~04) (D05~06) (D07~08) (D09~10) 03H BCC 0DH
```

Data	Contents
-----	
D01~04	Message "CB1D"(43H 42H 31H 44H) : Read reply cmd
D05~06	Result code "00"(30H 30H) : No Error "01"(30H 31H) : Error
D07~08	Index "0A"(30H 41H)
D09~10	Auto Play "00"(30H 30H) : OFF "01"(30H 31H) : SLIDESHOW "02"(30H 32H) : MEDIA PACKAGE "03"(30H 33H) : PHOTO "04"(30H 34H) : MUSIC "05"(30H 35H) : MOVIE

### 【 Note 】

---

## CTL-CA1E-0A. CMD\_SET\_MP\_AUTOPLAY

---

### 【 Function 】

CMD\_SET\_MP\_AUTOPLAY

### 【 Command 】

```
[ASC]SOH-'0'-ID-'0'-'A'-'0'-'A'-STX "Data" ETX BCC 0DH  
[HEX]01H 30H ID 30H 41H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CA1E"(43H 41H 31H 45H) : Write cmd
D05~06	Index "0A"(30H 41H)
D07~08	Auto Play "00"(30H 30H) : OFF "01"(30H 31H) : SLIDESHOW "02"(30H 32H) : MEDIA PACKAGE "03"(30H 33H) : PHOTO "04"(30H 34H) : MUSIC "05"(30H 35H) : MOVIE

### 【 ACK 】

```
[DAT]SOH-'0'-'0'-ID-'B'-'0'-'A'-STX "Data" ETX BCC 0DH  
[HEX]01H 30H 30H ID 42H 30H 41H 02H (D01~04) (D05~06) (D07~08) 03H BCC 0DH
```

Data	Contents
D01~04	Message "CB1E"(43H 42H 31H 45H) : Write reply cmd
D05~06	Result code "00"(30H 30H) : No Error "01"(30H 31H) : Error
D07~08	Index "0A"(30H 41H)

### 【 Note 】

## 8. OSD menu and contrast table for each command

A table of settings that exist in the OSD menu of the monitor versus each command.

Some commands that do not exist in the OSD menu are listed in the "Other" section of the comparison table.

【VCP command format】

VCP - "OP code page" - "OP code"

Ex.) VCP-00-60  
 OP code page: 00  
 OP code: 60

OSD		Command	Parameter	
INPUT:	INPUT SELECT	DisplayPort	VCP-00-60 000DH : OPTION 000FH : DisplayPort1 0011H : HDMI1 0012H : HDMI2 0087H : MP 0088H : COMPUTE MODULE	
		HDMI1		
		HDMI2		
		Media Player		
		COMPUTE MODULE		
		OPTION		
	INPUT SETTINGS	INPUT NAME		CTL-CA04-01 CTL-CA04-02 Refer to section 7
		NAME RESET		CTL-CA04-03 Refer to section 7
		AUTO INPUT CHANGE	AUTO INPUT CHANGE	VCP-02-40 0000H : FIRST DETECT 0001H : LAST DETECT 0002H : NONE 0004H : CUSTOM DETECT
			1	VCP-10-2E 0000H : --- 000DH : OPTION 000FH : DisplayPort1 0011H : HDMI1 0012H : HDMI2 0087H : MP 0088H : COMPUTE MODULE
	2	VCP-10-2F 0000H : --- 000DH : OPTION		

					000FH : DisplayPort1 0011H : HDMI1 0012H : HDMI2 0087H : MP 0088H : COMPUTE MODULE	
			3	VCP-10-30	0000H : --- 000DH : OPTION 000FH : DisplayPort1 0011H : HDMI1 0012H : HDMI2 0087H : MP 0088H : COMPUTE MODULE	
	ADVANCED	* Please refer to "INPUT- ADVANCED"		---	---	
INPUT- ADVANCED	INPUT SIGNAL SETTINGS	DisplayPort	BIT RATE	VCP-11-19	0002H : HBR 0003H : HBR2	
		HDMI		VCP-11-68	0001H : Mode1(1.4) 0002H : Mode2(2.0)	
		Media Player	AUTO PLAY	CTL-CA1E- 0A CTL-CA1D- 0A	Refer to section 7	
		OVERSCAN		VCP-02-E3	0001H : Under Scan 0002H : Over Scan 0003H : Auto	
		VIDEO RANGE		VCP-10-40	0001H : EXPANDED SIGNAL 0002H : RAW SIGNAL 0003H : AUTO	
		CEC	CEC		VCP-11-76	0001H : OFF 0002H : MODE1(ON) 0003H : MODE2
			AUTO TURN OFF		VCP-11-77	0001H : NO 0002H : YES
			AUDIO RECEIVER		VCP-11-78	0001H : DISABLE 0002H : ENABLE
			SEARCH DEVICE		VCP-11-79	0001H : NO 0002H : YES

		SIGNAL FORMAT	VCP-11-A3	0001H : AUTO 0002H : RGB 0003H : YCbCr(BT.601) 0004H : YCbCr(BT.709) 0005H : YCbCr(BT.2020)
		SIDE BORDER COLOR	VCP-02-DF	0000H - 0064H ( Black ) - ( White )
		RESET	VCP-02-CB	0001H : All(=Factory Reset) 0002H : Picture 0004H : Audio 0005H : Schedule 000FH : Slot 0010H : Network 0011H : Protect 0013H : Input
PICTURE:	PICTURE MODE		VCP-02-1A	0003H : HIGHBRIGHT 0008H : CUSTOM1 001CH : RETAIL 001DH : CONFERENCING 001EH : TRANSPORTATION 001FH : NATIVE
	BACKLIGHT		VCP-00-10	0000H - 0064H ( Dark ) - ( Bright )
	BACKLIGHT DIMMING		VCP-11-4E	0001H : OFF 0002H : ON
	VIDEO BLACK LEVEL		VCP-00-92	0000H - 0064H ( To Dark ) - ( To Bright )
	GAMMA		VCP-02-68	0001H : NATIVE 0004H : 2.2 0005H : DICOM SIM. 0006H : PROGRAMMABLE1 0007H : S GAMMA 0008H : 2.4 000DH : PROGRAMMABLE2 000EH : PROGRAMMABLE3
	COLOR	COLOR	VCP-02-1F	<u>VCP-02-1F</u>



		VCP-00-8A	0000H - 0064H ( Pale ) - ( To Deep )  <u>VCP-00-8A</u> 0000H - 0064H ( Pale ) - ( To Deep )
COLOR TEMPERATURE	COLOR TEMP:	VCP-00-0C VCP-00-54 CUSTOM: VCP-00-14	<u>VCP-00-0C</u> 0 – (max value: 0001h- FFFFh) 0: Get -> 2600K - 3000K Set -> 3000K > 0: Shall be used as multiplier of the color temperature increment (VCP-00-0B) and result added to base value 3000K.  <u>VCP-00-54</u> 0000H - 004AH (2600K) - (10000K) step : 100K
	R GAIN:	VCP-00-16	0000H - 0064H ( Dark ) - ( Bright )
	G GAIN:	VCP-00-18	0000H - 0064H ( Dark ) - ( Bright )
	B GAIN:	VCP-00-1A	0000H - 0064H ( Dark ) - ( Bright )
COLOR CONTROL	R	VCP-00-9B	0000H - 00C8H ( To Magenta ) - ( To Yellow )
	Y	VCP-00-9C	0000H - 00C8H ( To Red ) - ( To Green )
	G	VCP-00-9D	0000H - 00C8H ( To Yellow ) - ( To Cyan )
	C	VCP-00-9E	0000H - 00C8H ( To Green ) - ( To Blue )
	B	VCP-00-9F	0000H - 00C8H ( To Cyan ) - ( To Magenta )

			M	VCP-00-A0	0000H - 00C8H ( To Blue ) - ( To Red )
	CONTRAST			VCP-00-12	0000H - 0064H ( Low ) - ( High )
	ADVANCED	* Please refer to "PICTURE-ADVANCED"		---	---
PICTURE- ADVANCED	HDR MODE			VCP-11-E5	0004H : Low 0005H : Mid 0006H : High
	SHARPNESS			VCP-00-87 VCP-00-8C	<u>VCP-00-87</u> 0000H - 000AH ( Dull ) - ( Sharp )  <u>VCP-00-8C</u> 0000H - 000AH ( Dull ) - ( Sharp )
	ASPECT	Aspect Settings		VCP-02-70	0001H : NORMAL 0002H : FULL 0003H : WIDE 0004H : ZOOM 0007H : OFF(dot by dot)
		ZOOM	ZOOM	VCP-02-6F VCP-11-2C	<u>VCP-02-6F</u> 0000H : No mean 0001H - 00C9H ( 100% ) - ( 300% )  <u>VCP-11-2C</u> 005AH - 012CH ( 0.90 ) - ( 3.00 ) Other : No mean *The range of values depends on the model.
			HZOOM	VCP-02-6C VCP-11-2D	<u>VCP-02-6C</u> 0000H : No mean 0001H - 00C9H ( 100% ) - ( 300% )  <u>VCP-11-2D</u> 005AH - 012CH ( 0.90 ) - ( 3.00 ) Other : No mean *The range of values depends on the model.

		VZOOM	VCP-02-6D VCP-11-2E	<u>VCP-02-6D</u> 0000H : No mean 0001H - 00C9H ( 100% ) - ( 300% )  <u>VCP-11-2E</u> 005AH - 012CH ( 0.90 ) - ( 3.00 ) Other : No mean *The range of values depends on the model.
		H POS	VCP-02-CC	0000H - 00C8H ( Left Side ) - ( Right Side )
		V POS	VCP-02-CD	0000H - 00C8H ( Down Side ) - ( Up Side )
ADAPTIVE CONTRAST			VCP-02-8D	0001H : OFF 0002H : LOW 0004H : HIGH
AUTO DIMMING	AUTO BRIGHTNESS		VCP-02-2D	0000H : OFF 0001H : ON
	AMBIENT LIGHT SENSING	MODE	VCP-10-C8	0001H : OFF 0002H : ON
		IN BRIGHT	N/A	---
		ILLUMINANCE	VCP-11-F6	0000H - 0064H (Step 5)
		BACKLIGHT	VCP-10-34	0000H - 0064H
		IN DARK	N/A	---
		ILLUMINANCE	VCP-11-F5	0000H - 0064H (Step 5)
		BACKLIGHT	VCP-10-33	0000H - 0064H
		STATUS	N/A	---
		ILLUMINANCE	VCP-02-B4	0000H - FFFFH
	BACKLIGHT	VCP-11-FC	0000H - FFFFH	
HUMAN SENSING	Human Sensing Mode	VCP-10-75	0001H : DISABLE 0002H : AUTO OFF 0004H : CUSTOM	
	BACKLIGHT	VCP-10-DD VCP-10-C6	<u>VCP-10-DD</u> 0001H : Off	

			0002H : On  <u>VCP-10-C6</u> 0000H - 0064H ( Dark ) - ( Light )
		VOLUME	VCP-10-DE VCP-10-C7  <u>VCP-10-C7</u> 0000H - 0064H ( Whisper ) - ( Loud )
		INPUT SELECT	VCP-10-DF VCP-10-D0  <u>VCP-10-DF</u> 0001H : Off 0002H : On  <u>VCP-10-D0</u> 000DH : OPTION 000FH : DisplayPort1 0011H : HDMI1 0012H : HDMI2 0087H : MP 0088H : COMPUTE MODULE
		WAITING TIME	VCP-10-78 0000H - 0258H ( Short ) - ( Long )
TILE MATRIX	H MONITORS		VCP-02-D0 0001H - 000AH : Number of H-Division
	V MONITORS		VCP-02-D1 0001H - 000AH : Number of V-Division
	POSITION		VCP-02-D2 0000H : No mean 0001H - 0064H ( Upper Left ) - ( Lower Right )
	TILE COMP		VCP-02-D5 0001H : NO 0002H : YES
	CONFIRM SETTINGS		VCP-02-D3 0001H : Disable(off) 0002H : Enable(on) 0003H : Disable(off)
RESET		VCP-02-CB 0001H : All(=Factory Reset) 0002H : Picture	

			0004H : Audio 0005H : Schedule 000FH : Slot 0010H : Network 0011H : Protect 0013H : Input		
AUDIO:	AUDIO MODE		VCP-11-D8	0001H : RETAIL 0002H : CONFERENCING 0003H : HIGHBRIGHT 0004H : TRANSPORTATION 0005H : CUSTOM1 0007H : NATIVE	
	VOLUME		VCP-00-62	0000H - 0064H ( Whisper ) - ( Loud )	
	BALANCE	BALANCE	VCP-00-94	0001H : Monaural(Both display audio channels use the left audio channel.) 0002H : Stereo(Incoming left and right audio channels feed separate display output audio channel.) 0002H : Stereo Expanded(As defined by the models)	
		BALANCE ADJUST		VCP-00-93	0000H - 0032H ( To Left ) - ( To Right )
		SURROUND		VCP-02-34	0001H : OFF 0002H : ON 0003H : ON(Set only)
	EQUALIZER	TREBLE	VCP-00-8F	0000H - 000AH ( De-emphasized ) - ( Emphasized )	
		BASS	VCP-00-91	0000H - 000AH ( De-emphasized ) - ( Emphasized )	
	ADVANCED	* Please refer to "AUDIO-ADVANCED"		---	

AUDIO-ADVANCED	LINE OUT		VCP-10-81	0001H : FIXED 0002H : VARIABLE	
	AUDIO DELAY	AUDIO DELAY	VCP-10-CA	0001H : OFF 0002H : ON	
		DELAY TIME	VCP-10-CB	0000H - 0064H ( Small ) - ( Large )	
	INTERNAL SPEAKER		VCP-11-BB	0000H : No mean 0001H : OFF 0002H : ON	
	RESET		VCP-02-CB	0001H : All(=Factory Reset) 0002H : Picture 0004H : Audio 0005H : Schedule 000FH : Slot 0010H : Network 0011H : Protect 0013H : Input	
SCHEDULE:	SCHEDULE INFORMATION	SETTINGS:		CTL-C23D CTL-C23E	Refer to section 7
		POWER:		CTL-C23D CTL-C23E	Refer to section 7
		TIME:		CTL-C23D CTL-C23E	Refer to section 7
		INPUT:		CTL-C23D CTL-C23E	Refer to section 7
		DATE	YEAR	CTL-C23D CTL-C23E	Refer to section 7
			MONTH	CTL-C23D CTL-C23E	Refer to section 7
			DAY	CTL-C23D CTL-C23E	Refer to section 7
	EVERY WEEK		CTL-C23D CTL-C23E	Refer to section 7	
	OFF TIMER		VCP-02-2B	0000H - 0018H ( off ) - ( 24hour )	
	RESET		VCP-02-CB	0001H : All(=Factory Reset) 0002H : Picture	

			0004H : Audio 0005H : Schedule 000FH : Slot 0010H : Network 0011H : Protect 0013H : Input	
SLOT:	ACTIVE SLOT	VCP-11-D9	0001H : OPTION 0002H : COMPUTE MODULE	
	POWER CONTROL	POWER SUPPLY	VCP-11-DA	0001H : ON 0002H : OFF
		POWER BUTTON	VCP-11-DB	0001H : Execute
		FORCE SHUTDOWN	VCP-10-C3	0001H : Execute
		RESET	VCP-11-DC	0001H : Execute
		Connection Status	N/A	---
		Power Status	N/A	---
		Module	N/A	---
		Type	N/A	---
		Interface Version	N/A	---
		Form Factor Size	N/A	---
	Max Power	N/A	---	
	POWER SETTING	AUTO POWER UP	VCP-11-DD	0001H : DISABLE 0002H : ENABLE
		AUTO SHUTDOWN	VCP-11-DE	0001H : DISABLE 0002H : ENABLE
		POWER SUPPLY OFF DELAY	VCP-11-DF	0000H : off 001EH - 0258H ( 30sec ) - ( 600sec )
		AUTO DISPLAY OFF	VCP-10-C1	0001H : DISABLE 0002H : ENABLE
		OFF WARNING	VCP-10-C0	0001H : DISABLE 0002H : ENABLE
	POWER CONTROL	POWER SUPPLY	VCP-11-7C	0001H : OFF 0002H : ON
		POWER BUTTON	VCP-11-E0	0001H : Execute
		RESET	VCP-11-E1	0001H : Execute

	Connection Status	N/A	---
	Power Status	N/A	---
	Module	N/A	---
	Type	N/A	---
POWER SETTING	AUTO POWER UP	VCP-11-7D	0001H : DISABLE 0002H : ENABLE
	AUTO SHUTDOWN	VCP-11-B7	0001H : DISABLE 0002H : ENABLE
	POWER SUPPLY OFF DELAY	VCP-11-82	0000H : OFF 001EH - 0258H ( 30sec ) - ( 600sec )
	AUTO DISPLAY OFF	VCP-11-E2	0001H : DISABLE 0002H : ENABLE
	OFF WARNING	VCP-11-E3	0001H : DISABLE 0002H : ENABLE
ADVANCED SETTING	SHUTDOWN SIGNAL	VCP-11-81	0001H : DISABLE 0002H : ENABLE
	IR SIGNAL	VCP-11-7F	0001H : DISABLE 0002H : ENABLE
	MONITOR CONTROL	VCP-11-80	0001H : DISABLE 0002H : ENABLE
	WDT	VCP-11-9B VCP-11-9E	<u>VCP-11-9B</u> 0001H : DISABLE 0002H : ENABLE  <u>VCP-11-9E</u> 0001H : Reset WDT 0001H : WDT is running 0002H : Stop 0002H : WDT is stopped
	START UP TIME	VCP-11-9C	0001H - 001EH ( 10 ) - ( 300 )
	PERIOD TIME	VCP-11-9D	0001H - 001EH ( 10 ) - ( 300 )
SLOT POWER		VCP-10-41	0001H : OFF 0002H : ON 0003H : AUTO
RESET		VCP-02-CB	0001H : All(=Factory



				Reset) 0002H : Picture 0004H : Audio 0005H : Schedule 000FH : Slot 0010H : Network 0011H : Protect 0013H : Input	
NETWORK:	NETWORK INFORMATION	IP SETTING		N/A	---
		IP ADDRESS:		N/A	---
		SUBNET MASK:		N/A	---
		DEFAULT GATEWAY:		N/A	---
		DNS		N/A	---
		DNS PRIMARY:		N/A	---
		DNS SECONDARY:		CTL-C220	Refer to section 7
		MAC ADDRESS:		N/A	---
		EXECUTE		N/A	---
	NETWORK SECURITY	DISPLAY		VCP-11-CF	0001H : Disable 0002H : Enable
		COMPUTE MODULE		VCP-11-D1	0001H : Disable 0002H : Enable
		APPLY		N/A	---
	PING	IP ADDRESS:		N/A	---
		EXECUTE		N/A	---
		RESET		N/A	---
PROTECT:	POWER SAVE SETTINGS	POWER SAVE		VCP-00-E1	0000H : OFF 0001H : ON
		TIME SETTING		CTL-CA0B-02 CTL-CA0B-03	Refer to section 7
		MODE		VCP-11-EE	0001H : LOW POWER 0002H : NORMAL
		USB	USB POWER	VCP-11-75	0001H : ON 0002H : AUTO
		POWER SAVE MESSAGE		VCP-11-7B	0001H : OFF

			0002H : ON	
	QUICK START (IML-PD)	VCP-11-EA	0001H : DISABLE 0002H : ENABLE	
THERMAL MANAGEMENT	FAN CONTROL	VCP-02-7D	0001H : AUTO(no offset) 0002H : Forced ON	
	FAN SPEED	VCP-10-3F	0001H : HIGH 0002H : LOW	
	DISPLAY	N/A	---	
	FAN STATUS (IML-PD)	VCP-02-7A VCP-02-7B	<u>VCP-02-7A</u> 0001H : Fan#1 0002H : Fan#2  <u>VCP-02-7B</u> 0000H : OFF 0001H : ON 0002H : Error	
		(STATUS)	N/A	---
	INTERNAL TEMPERATURE	(TEMPERATURE) VCP-02-78 VCP-02-79	VCP-02-78 VCP-02-79	<u>VCP-02-78</u> 0001H : Sensor#1 0002H : Sensor#2  <u>VCP-02-79</u> 0000H - FFFFH
	SLOT		N/A	---
	FAN STATUS	VCP-02-7A VCP-02-7B	VCP-02-7A VCP-02-7B	<u>VCP-02-7A</u> 0001H : Fan#1 0002H : Fan#2  <u>VCP-02-7B</u> 0000H : OFF 0001H : ON 0002H : Error
		(SLOT STATUS)	N/A	---
	INTERNAL TEMPERATURE	(TEMPERATURE) VCP-02-78 VCP-02-79	VCP-02-78 VCP-02-79	<u>VCP-02-78</u> 0001H : Sensor#1 0002H : Sensor#2  <u>VCP-02-79</u> 0000H - FFFFH
SYSTEM FAN	OPTION	VCP-11-E7	0001H : NO	

	REQUIREMENT			0002H : YES
		COMPUTE MODULE	VCP-11-E8	0001H : NO 0002H : YES
SCREEN SAVER	MOTION		VCP-02-DD	0000H - 005AH ( 0sec(off) ) - ( 900sec )
	INTERVAL		VCP-02-DD	0000H - 005AH ( 0sec(off) ) - ( 900sec )
	ZOOM		VCP-10-35	0000H - 000AH ( 95% ) - ( 105% )(1Step = 1%)
POWER ON DELAY	DELAY TIME		VCP-02-D8	0000H : OFF 0001H - 0032H ( 1sec ) - ( 50sec )
	LINK TO ID		VCP-10-BC	0001H : OFF 0002H : ON
	ID No.:		N/A	---
	POWER ON TIME:		N/A	---
SECURITY SETTINGS	PASSWORD:		CTL-C21D	Refer to section 7
	SECURE MODE:	START-UP LOCK	CTL-C21D	Refer to section 7
		CONTROL LOCK		
	CHANGE PASSWORD		N/A	---
	CURRENT PASSWORD:		N/A	---
	NEW PASSWORD:		N/A	---
CONFIRM PASSWORD:		N/A	---	
LOCK SETTINGS	SELECT		CTL-CA32 CTL-CA33	Refer to section 7
	MODE			
	POWER			
	VOLUME			
	MIN VOL			
	MAX VOL			
	INPUT			
ALERT MAIL			---	---
RESET			VCP-02-CB	0001H : All(=Factory Reset)

				0002H : Picture 0004H : Audio 0005H : Schedule 000FH : Slot 0010H : Network 0011H : Protect 0013H : Input	
SYSTEM:	MONITOR INFORMATION	MODEL:	CTL-C217	Refer to section 7	
		SERIAL:	CTL-C216	Refer to section 7	
		CARBON SAVINGS:		VCP-10-10 VCP-10-11 VCP-10-28 VCP-10-29	<u>VCP-10-10</u> 0000H - 03E7H  <u>VCP-10-11</u> 0000H - FFFFH  <u>VCP-10-28</u> 0000H - 03E7H  <u>VCP-10-29</u> 0000H - FFFFH
		CARBON USAGE:		VCP-10-2A VCP-10-2B VCP-10-26 VCP-10-27	<u>VCP-10-2A</u> 0000H - 03E7H  <u>VCP-10-2B</u> 0000H - FFFFH  <u>VCP-10-26</u> 0000H - 03E7H  <u>VCP-10-27</u> 0000H - FFFFH
		FIRMWARE	REVISION	CTL-CA02	Refer to section 7
		MAC ADDRESS		CTL-C220	Refer to section 7
		DATE & TIME	YEAR		CTL-C211 CTL-C212
	MONTH				
	DAY				
	TIME				
CURRENT DATE TIME			N/A	---	
DAYLIGHT SAVING	DAYLIGHT SAVING		CTL-CA01-02	Refer to section 7	

			CTL-CA01-03	
	BEGIN MONTH		CTL-CA01-00 CTL-CA01-01	Refer to section 7
	DAY		CTL-CA01-00 CTL-CA01-01	Refer to section 7
	TIME		CTL-CA01-00 CTL-CA01-01	Refer to section 7
	END MONTH		CTL-CA01-00 CTL-CA01-01	Refer to section 7
	DAY		CTL-CA01-00 CTL-CA01-01	Refer to section 7
	TIME		CTL-CA01-00 CTL-CA01-01	Refer to section 7
	TIME DIFFERENCE		CTL-CA01-00 CTL-CA01-01	Refer to section 7
EXTERNAL CONTROL	MONITOR ID:	ID No.	VCP-02-3E	0001H - 0064H
	GROUP ID:		VCP-10-7F	0000H - 03FFH bit 0 : A bit 1 : B bit 2 : C bit 3 : D bit 4 : E bit 5 : F bit 6 : G bit 7 : H bit 8 : I bit 9 : J

	CONTROL TERMINAL	VCP-10-3E	0001H : RS-232C 0002H : LAN
LANGUAGE		VCP-00-68	0001H : English 0002H : German 0003H : French 0004H : Spanish 0005H : Japanese 0006H : Italian 0007H : Swedish 0009H : Russian 000EH : Chinese
OSD	OSD TIME	VCP-00-FC	0000H : Ignored 0001H : Ignored 0002H - 0030H ( 10sec. ) - ( 240sec. )
	OSD POSITION	VCP-02-38 VCP-02-39	<u>VCP-02-38</u> 0000H - 00FFH ( To Left ) - ( To Right )
			<u>VCP-02-39</u> 0000H - 00FFH ( To Bottom ) - ( To Top )
	OSD SIZE	VCP-11-E6	0001H : NORMAL 0002H : EXPAND
	INFORMATION OSD	VCP-02-3D	0000H : OFF 0001H - 0010H : ON(If user get, return 0001H)
	COMMUNICATION INFO.	VCP-11-17	0001H : OFF 0002H : ON
	OSD ROTATION	VCP-02-41	0000H : Normal 0001H : Rotated
KEY GUIDE	VCP-11-7A	0001H : OFF 0002H : ON	
CLONE SETTING	ALL INPUT	N/A	---
	INPUT	N/A	---
	PICTURE	N/A	---
	AUDIO	N/A	---
	SCHEDULE	N/A	---
	SLOT	N/A	---

	NETWORK	N/A	---
	PROTECT	N/A	---
	SYSTEM	N/A	---
	HTTP	N/A	---
	COPY START - USB READ	N/A	---
	COPY START - USB WRITE	N/A	---
POWER INDICATOR		VCP-02-BE	0001H : ON 0002H : OFF
MUTE SETTING (IML-PD)		VCP-11-E9	0001H : AUDIO 0002H : VIDEO 0003H : AUDIO&VIDEO
UPDATE FIRMWARE	EXECUTE	N/A	---
RESET		N/A	---
FACTORY RESET	RESET	VCP-02-CB	0001H : All(=Factory Reset) 0002H : Picture 0004H : Audio 0005H : Schedule 000FH : Slot 0010H : Network 0011H : Protect 0013H : Input

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## Cautions

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The "POWER SAVE MODE" settings in the OSD menu and how to connect to the monitor limit the commands that the monitor supports as follows.

If you want to use the command without limit during power saving, please set "QUICK START" in the OSD menu to "ENABLE".

**【 When using RS232C or LAN in LOW POWER mode 】**

Following 9 commands are supported.

```
VCP-02-3E. Monitor ID
CTL-C2-16. Serial Number Read
CTL-C2-17. Model Name Read
CTL-C2-03. Power Control
VCP-00-60. Input source
CTL-F3. Capabilities Request
CTL-01-D6. Power Status Read
CTL-B1. Self-diagnosis status read
CTL-C2-10. Remote Control Data Code sending format via RS-232C
```

**【 When using LAN in NORMAL mode 】**

Following 19 commands are supported.

```
VCP-02-3E. Monitor ID
CTL-C2-16. Serial Number Read
CTL-C2-17. Model Name Read
CTL-C2-03. Power Control
VCP-00-60. Input source
CTL-F3. Capabilities Request
CTL-01-D6. Power Status Read
CTL-B1. Self-diagnosis status read
CTL-C2-10. Remote Control Data Code sending format via RS-232C
CTL-CA02. Firmware Version Read Request
CTL-C00B. Asset Data Read Request
CTL-C00E. Asset Data write
CTL-C220. MAC Address Read Request
VCP-00-FA. Hours Running On
VCP-00-FF. Display Device On Time
VCP-11-FA. Hours Running "TOTAL" 64bit Ver. (upper)
VCP-11-FB. Hours Running "TOTAL" 64bit Ver. (lower)
VCP-11-FE. Display Device On Time 64bit Ver. (upper)
VCP-11-FF. Display Device On Time 64bit Ver. (lower)
```