External Control

1. Application

This document defines the communications method for control of the NEC LCD monitor, MultiSync X461UN /X461HB /X431BT /P401 /P461 /P521 /P701 /S401 /S461 /S521 and MULTEOS M401 /M461 when using an external controller.

2. Connectors and wiring

2.1 RS-232C Remote control Connector: 9-pin D-Sub 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

Connector: RJ-45 10/100 BASE-T Cable: Category 5 or higher LAN cable

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

3. Communication Parameter

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

3.2 LAN control

	Communication system Interface	TCP/IP (Internet protocol suite) Ethernet (CSMA/CD)
(3)	Communication layer	Transport layer (TCP)
		* Using the payload of TCP segment.
(4)	IP address	(Default) 192.168.0.10
		* 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.

3.3 Communication timing

The controller should wait for a packet interval before next command is sent. The packet interval needs to be longer than 600msec for the LCD monitor.

4. Communication Format

Header Message Ch	heck Code Delimiter	
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The command packet consists of four parts, Header, Message, Check code and Delimiter.

Sequence of a typical procedure to control a monitor is as follows, [A controller and a monitor, two-way communication composition figure]

Cont	roller						Mon	itor	
		Get	Para	ameter —		•		The	controller sends command to
	Delimiter	Check Cod	e	Message	Header	\sim	>>		a value from the monitor that
		det.			- 1			you	want to change.
				ameter Re				m1	
	<	Неас	ler	Message	Check Cod	le D	elimiter		nonitor replies a current value .he requested item.
		Set	Par	rameter —		•		01 0	
	Delimiter	Check Cod	e	Message	Header				controller sends commands to
			_		·			set	an adjusted value.
		Set	Par	rameter R		1		The	monitor replies to the
1	<	Неас	er	Message	Check Cod	e D	elimiter		roller for confirmation.
		Get	Pa	rameter -		→			
	Delimiter			Message	Header			The	controller sends command to
			-					_	a value for confirmation.
	<	Get	: Pa	rameter H				-	
	<	Head	ler	Message	Check Cod	le D	elimiter	1110	monitor replies an adjusted
		Save Cu	rre	nt Settin	g Command	1 —	\rightarrow	valu	le.
ľ	Delimiter		1	Message	Header		\searrow	. The	controller requests to store
								the a	adjusted value to the monitor.
	←	-Save C	ırre	ent Settin	ng Comman	d Re	ply	_	
	\sim	Head	ler	Message	Check Cod	le D	elimiter		monitor replies to the roller for confirmation.
	,						,		
								_	control does not suitable for
		C	omma	and		→			re fixed protocol; use the per command for each control.
	Delimiter	Check Cod	e	Message	Header		>>	~ ~	ser command for each control.
					I~				ion 7 to 13.
	•			Command R				m1	
	<	Неас	er	Message	Check Cod	le D	elimiter		monitor replies a proper age defined for each control.
	,						,		age actined for each control.
•									

4.1 Header block format (fixed length)

Header Message Check code Delimiter

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

1stbyte) SOH: Start of Header ASCII SOH (01h) 2ndbyte) Reserved: Reserved for future extensions.

On this monitor, it must be ASCII '0'(30h).

3rdbyte) Destination: Destination equipment ID. (Receiver)

Specify a commands receiver's address.

The controller sets the "MONITOR ID" or "GROUP ID" of the monitor controlled in here.

On the reply, the monitor sets 0' (30h), always.

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

Monitor	Destination	Monitor	Destination	Monitor	Destination	Monitor	Destination
ID	Address	ID	Address	ID	Address	ID	Address
1	41h(<code>`A'</code>)	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	Alh
23	57h(` \ ')	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(`*')						

Group ID	Destination Address	Group ID	Destination Address	Group ID	Destination Address	Group ID	Destination Address
A	31h('1')	D	34h(`4')	G	37h(` 7 ')	J	3Ah(`:')
В	32h(`2')	Е	35h(`5')	Н	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).

4thbyte) 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.

5thbyte) 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.

 6^{th} -7^{th} bytes) 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).

1.2 Message block format	Header	Message	Check code	Delimiter
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"Message block format" is allied to the "Message Type" in the "Header".

Refer to the section 6 "Message format" for more detail.

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 "Appendix A. Operation code table".

"Message format" of the "Get current parameter" is as follows,

CTTY	OP coo	le page	OP cc	<u>r</u> rv	
SIX	Hi	Lo	Hi	Lo	LIN

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

2) Get Parameter reply

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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,

STX	Re	esult		code age	OP c	ode	Туре	:	М	ax va	lue	Curre	nt V	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.

3) Set parameter

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

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

STX		code age	OP c	ode	Set Va	alue	è		ETX
	Hi	Lo	Hi	Lo	MSB			LSB	

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

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,

STX	Rea	sult	OP code page		OP code		Туре		М	Max value			Requested setting Value				ETX
	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo	MSB			LSB	MSB			LSB	
		Refe	r to s	ection	5.4 "	Set pa	aramete	er rep	lv″ for	more	de	etails.					

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

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.

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.

4.5 Check code

Header Message Check code Delimiter

Check code is the Block Check Code (BCC) between the Header and the End of Message except SOH.

		27	2 ⁶	2 ⁵	2 ⁴	2 ³	2 ²	2 ¹	2 ⁰
SOH	D ₀								
Reserved	D_1								
Destination	D_2								
Source	D_3								
Туре	D_4								
Length(H)	D_5								
Length(L)	D_6								
STX	D_7								
Data	D ₈								
ETX	D_n								
Check code	D_{n+1}	P	Р	Р	Р	Р	Ρ	Р	Р

XOR: Exclusive OR

Following is an example of a Check code (BCC) calculation.

	Header										Mes	sage					Check	
SOH	Reserved	Destination Address	Source Address	Message type	Message len	gth	STX	OP code		ETX	code (BCC)	Delimiter						
01	30	41	30	45	30	41	02	30	30	31	30	30	30	36	34	03	77	0D
D ₀	D_1	D_2	D ₃	D ₄	D5	D ₆	D7	D ₈	D9	D ₁₀	D ₁₁	D ₁₂	D ₁₃	D ₁₄	D ₁₅	D16	D ₁₇	D ₁₈

Check code (BCC) $\rm D_{17}$ = $\rm D_1$ xor $\rm D_2$ xor $\rm D_3$ xor ... xor $\rm D_{14}$ xor $\rm D_{15}$ xor $\rm D_{16}$

= 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

4.6 Delimiter

Header Message Check code Delimiter

Packet delimiter code; ASCII CR(ODh).

5. Message type

```
5.1 Get current Parameter from a monitor.
```

C.L.N.	OP cod	le page	OP cod	e	ETV
SIX	Hi	Lo	Hi	Lo	LIA
1 st	2 nd	-3 rd	4 th	-5 th	6 th

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 "Appendix A. Operation code table".

```
1<sup>st</sup>byte) STX: Start of Message
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ASCII STX (02h)

 $2^{\text{nd}}\text{-}3^{\text{rd}}\text{bytes})$ OP code page: Operation code page.

Specify the "OP code page" for the control which you want to get the status.

Refer to "Appendix A Operation code table" 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 Operation code table. (Appendix A)

4th-5thbytes) OP code: Operation code

Refer to "Appendix A Operation code table" 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 Operation code table.

```
6<sup>th</sup>byte) ETX: End of Message
```

ASCII ETX (03h)

5.2 "Get parameter" reply

CULA	Resu	ılt	OP co	de page	OP	code	Тζ	уре	М	ax ·	val	ue	Cu	rre	nt Va	alue	<u>р</u> ту
SIX	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo	MSB			LSB	MSB			LSB	EIA
1 st	2 nd -3		4 ^{t1}	^h -5 th	6 th	-7^{th}	8 th	-9 th	1	.0 th	-13	3 th		14 ^{ti}	^h -17	th	18 th

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

1stbyte) STX: Start of Message

ASCII STX (02h)

2nd-3rdbytes) 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).

 $4^{\text{th}}-5^{\text{th}}\text{bytes})$ 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 operation code table.

 6^{th} –7 $^{\text{th}}\text{bytes})$ 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 operation code table.

Ex.) The byte data 1Ah is encoded to ASCII character '1' and 'A' (31h and 41h).

8th -9thbytes) 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-13thbytes) 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 -17thbytes) Current Value: (16bits)

This returned value from the monitor is encoded to ASCII characters.

Ex.) '0','1','2' and '3' means 0123h (291)

18thbyte) ETX: End of Message

ASCII ETX (03h)

5.3 Set parameter

CTTV	OP code	e page	OP code		Set Value		ŪΨV			
SIA	Hi	Lo	Hi	Lo	MSB			LSB	LIA	
1 st	2 nd -	3 rd	4 th	-5 th		6 th	ⁿ -9'	th	10 th	

Send this message to change monitor's adjustment and so on. The controller requests a monitor to change value.

1stbyte) STX: Start of Message

ASCII STX (02h)

2nd-3rdbytes) 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 Operation code table. $4^{\text{th}}\text{-}5^{\text{th}}\text{bytes})$ 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 Operation code table. 6th-9thbytes) Set value:(16bit) This data must be encoded to ASCII characters. Ex.) 0123h -> $1^{st}(MSB) = ASCII '0' (30h)$ 2nd = ASCII '1' (31h) 3^{rd} = ASCII '2' (32h) $4^{\text{th}}(\text{LSB}) = \text{ASCII} '3' (33h)$ 10thbyte) ETX: End of Message

ASCII ETX (03h)

5.4 "Set parameter" reply

STX	Res	sult	OP c	ode page	OP	code	Тγ	vре	Max value		Reque	Requested setting Value					
	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo	MSB			LSB	MSB			LSB	
1 st	2 nd	-3 rd	4	th -5 th	6 th	-7 th	8 th	-9 th		10 th -	-13	th	-	L4 th	-17	7 th	18 th

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

1stbyte) STX: Start of Message

ASCII STX (02h)

2nd-3rdbytes) 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.

 $4^{th}-5^{th}$ 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 Operation code table.

 $6^{\text{th}}\text{-}7^{\text{th}}\text{bytes})$ 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 Operation code table

 $8^{th}-9^{th}$ 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-13thbytes) 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 -17thbytes) 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)

18thbyte) ETX: End of Message

ASCII ETX (03h)

5.5 Commands

"Command message format" depends on each command. Some commands are shown with usage. Refer to section 7 to 13.

5.5.1 Save Current Settings.

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

omv	Comman	d code	ртv
SIA	'0'	'C'	EIA

> 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'-'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	Comma	nc	d code	ETX	
517	'0'		'7'	EIA	
\triangleright	Send	" (07"(30h,	37h)	as

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;

ст.х	Com	mand		SS		ΗF	req.		V Freq.				FTY
DIX	'4'	'E'	Hi	Lo	MSB			LSB	MSB			LSB	BIX

> 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 O	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

CTTV	Command	d code	τπv
DIV	'B'	'E'	LIA

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

6. Typical procedure example

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 "Brightness" setting.

Step 1. The controller requests the Monitor to reply with the current brightness 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
STX (02h): Start of 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 4.5 "Check code" for a BCC calculation.

Delimiter CR (0Dh): End of packet

Step 2. The monitor replies with current Brightness setting and capability to support this operation.

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

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 STX (02h): Start of 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): Brightness max value is 100(0064h). '0'-'0'-'3'-'2' (30h, 30h, 33h, 32h): Current Brightness setting is 50(0032h) . ETX (03h): End of Message Check code BCC: Block Check Code Refer to the section 4.5 "Check code" for a BCC calculation. Delimiter CR (0Dh): End of packet

Step 3. The controller request the monitor to change the Brightness setting

Header	Message	Check code	Delimite
OH-'0'-Monitor ID-'0'-'E'-'0'-'A'	STX-'0'-'0'-'1'-'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 i	s '1', specify 'A'.		
'0' (30h): Message sender is the	e controller .		
'E' (45h): Message Type is "Set	parameter command".		
'0'-'A' (30h, 41h): Message leng	gth is 10 bytes.		
Message			
STX (02h): Start of Message			
'0'-'0' (30h, 30h): Operation co	ode page number is 0.		
'1'-'0' (31h, 30h): Operation co	ode is 10h (in the page 0).		
'0'-'0'-'5'-'0' (30h, 30h, 35h,	30h): Set Brightness setting 80(0050h).		
ETX (03h): End of Message			
Check code			
BCC: Block Check Code			
BUC, BIOCK CHECK COUE			

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'-'1'-'0'-'0'-'0'-'0'	BCC	CR
	-'0'-'6'-'4'-'0'-'0'-'5'-'0'-ETX		

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
   STX (02h): Start of 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): Brightness max value is 100(0064h).
    '0'-'0'-'5'-'0' (30h, 30h, 35h, 30h): Received a Brightness setting was 80(0050h) .
    ETX (03h): End of Message
 Check code
    BCC: Block Check Code
        Refer to the section 4.5 "Check code" for a BCC calculation.
 Delimiter
   CR (0Dh): End of packet
      Repeat Step 1 and Step 2, if you need to check the Brightness setting. (Recommended)
 Step 5. Request the monitor to store the Brightness 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
   STX (02h): Start of 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 4.5 "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.

MultiSync X461UN /X461HB /X431BT /P401 /P461 /P521 /P701 /S401 /S461 /S521 and MULTEOS M401 /M461

have three built-in temperature sensors.

The controller can monitor inside temperatures by using those sensors with external control.

The following shows the procedure for reading the temperatures from the sensors.

Step	1.	Select	а	temperature	sensor	which	you	want	to	read.	
------	----	--------	---	-------------	--------	-------	-----	------	----	-------	--

Header			Delimiter	
SOH-'0'-MonitorID-'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				
	ID which you want to get a value.			
Ex.) If Monitor ID i				
'0' (30h): Message sender is th				
'E' (45h): Message Type is "Set				
'0'-'A' (30h, 41h): Message ler	1			
_				
Message				
STX (02h): Start of Message				
'0'-'2' (30h, 32h): Operation (code page number is 2.			
'7'-'8' (37h, 38h): Operation (code is 78h (on page 2).			
'0'-'0'-'1' (30h, 30h, 30h	, 31h): Select the temperature sensor $\#1$ ()1h).		
00h: No meaning				
01h: Sensor #1				
02h: Sensor #2				
03h: Sensor #3				
ETX (03h): End of Message				
Check code				
BCC: Block Check Code				
	"Check code" for a BCC calculation.			

```
CR (0Dh): End of packet
```

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'-'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
  STX (02h): Start of Message
  '0'-'0' (30h, 30h): Result code. No error.
  '0'-'2' (30h, 32h): Operation code page number is 2.
  ^{\prime}7^{\prime}-^{\prime}8^{\prime} (37h, 38h): Operation code is 78h (in the page 2).
  '0'-'0' (30h, 30h): This operation is "Set parameter" type.
  '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 4.5 "Check code" for a BCC calculation.
```

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 STX (02h): Start of Message '0'-'2' (30h, 32h): Operation code page number is 2. '7'-'9' (37h, 39h): Operation code is 79h (in the page 2). ETX (03h): End of Message Check code BCC: Block Check Code Refer to the section 4.5 "Check code" for a BCC calculation. Delimiter CR (ODh): End of packet 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'-'2'-'7'-'9'-'0'-'0'	BCC	CR
	-'F'-'F'-'F'-'F'-'0'-'0'-'3'-'2'-ETX		
Header			
SOH (01h): Start of 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

STX (02h): Start of 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.

Readout value is 2's complement.

Temperature[Celsius]	Readout value	
[[emperature[cersius]	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

ETX (03h): End of Message

```
Check code
BCC: Block Check Code
Refer to the section 4.5 "Check code" for a BCC calculation.
```

```
Delimiter
CR (0Dh): End of packet
```

7. Power control procedure

7.1 Power status read

1) The controller requests the monitor to reply a current power status.

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

Header

```
SOH (01h): Start Of Header
  '0' (30h): Reserved
  Monitor ID: Specify the Monitor ID from which you want to get status.
             Ex.) If Monitor ID is '1', specify 'A'.
  '0' (30h): Message sender is the controller.
  'A' (41h): Message Type is "Command".
  '0'-'6' (30h, 36h): Message length is 6 bytes.
Message
 STX (02h): Start of Message
  '0'-'1'-'D'-'6': Get power status command.
  ETX (03h): End of Message
Check code
  BCC: Block Check Code
      Refer to the section 4.5 "Check code" for a BCC calculation.
Delimiter
  CR (0Dh): End of packet
```

2) The monitor returns with the current power status.

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

```
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'.
  'B' (42h): Message Type is "Command reply".
  '1'-'2' (31h, 32h): Message length is 18 bytes.
Message
  STX(02h):Start of Message
  '0'-'2' (30h, 32h): Reserved data
  '0'-'0' (30h, 30h): Result code
                  00: No Error.
                  01: Unsupported.
  'D'-'6'(44h, 36h): Display power mode code
  '0'-'0' (30h, 30h): Parameter type code is "Set parameter".
  '0'-'0'-'0'-'4' (30h, 30h, 30h, 34h): Power mode is 4 types.
  '0'-'0'-'0'-'1' (30h, 30h, 30h, 31h): Current power mode
                                 <Status>
```

```
0001: ON
0002: Stand-by (power save)
0003: Suspend (power save)
0004: OFF (same as IR power off)
ETX (03h): End of Message
Check code
BCC: Block Check Code
Refer to the section 4.5 "Check code" for a BCC calculation.
```

CR (0Dh): End of packet

7.2 Power control

1) The controller requests the monitor to control monitor power.

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

Header

```
SOH (01h): Start Of Header
  '0' (30h): Reserved
 Monitor ID: Specify the Monitor ID which you want to change a setting.
             Ex.) If Monitor ID is '1', specify 'A'.
  '0' (30h): Message sender is the controller.
  'A' (41h): Message type is "Command".
  '0'-'C (30h, 43h): Message length is 12 bytes.
Message
 STX (02h): Start of Message
  'C'-'2'-'0'-'3'-'D'-'6' (43h, 32h, 30h, 33h, 44h, 36h): power control command
  '0'-'0'-'1' (30h, 30h, 30h, 31h): Power mode
                                  0001: ON
                                  0002, 0003: Do not set.
                                  0004: OFF (same as the power off by IR)
 ETX (03h): End of Message
Check code
```

BCC: Block Check Code Refer to the section 4.5 "Check code" for a BCC calculation.

Delimiter

CR (0Dh): End of packet

2) The monitor replies a data for confirmation.

Header	Message	Check ode	Delimiter
SOH-'0'-'0'-Monitor	STX-'0'-'0'-'C'-'2'-'0'-'3'-'D'-'6'-	BCC	CR
ID-'B'-'0'-'E'	'0'-'0'-'0'-'1'-ETX		

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'.

'B' (42h): Message type is "Command reply".

'N'-'N': Message length

Note.) The maximum data length that can be written to the monitor at a time is 32bytes. Ex.) The byte data 20h is encoded as ASCII characters '2' and '0' (32h and 30h).

Message

Header

STX (02h): Start of Message

```
'0'-'0' (30h, 30h): Result code. No error.

'C'-'2','0'-'3'-'D'-'6' (43h, 32h, 30h, 33h, 44h, 36h): power control reply command

→ The monitor replies same as power control command to the controller.

'0'-'0'-'0'-'1' (30h, 30h, 30h, 31h): Power mode

0001: ON

0002, 0003: Do not set.

0004: OFF (same as the power off by IR)

ETX (03h): End of Message

Check code

BCC: Block Check Code

Refer to the section 4.5 "Check code" for a BCC calculation.

Delimiter

CR (0Dh): End of packet
```

8. Asset Data read and write

MultiSync X461UN /X461HB /X431BT /P401 /P461 /P521 /P701 /S401 /S461 /S521 and MULTEOS M401 /M461

have the area for to store user's asset data of up to 64bytes.

8.1 Asset Data Read Request and reply

This command is used in order to read Asset Data.

1) The controller requests the monitor to reply with Asset data.

Header	Message	Check code	Delimiter
SOH-'0'-Monitor ID-'0'-'A'-'0'-'A'	STX-'C'-'0'-'B'-'0'-'0'-'2'-'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 data.
             Ex.) If Monitor ID is '1', specify 'A'.
  '0' (30h): Message sender is the controller.
  'A' (41h): Message type is "Command".
  '0'-'A' (30h, 41h): Message length is 10 bytes.
Message
  STX (02h): Start of Message
  'C'-'0'-'B' (43h, 30h, 30h, 42h): Asset read request command.
  '0'-'0' (30h, 30h): Offset data from top of the Asset data.
   At first set 00h: Read data from the top of Asset data area.
  '2'-'0' (32h, 30h): Read out data length is 32bytes.
   Secondly set 20h: Read data from the 32bytes offset point in the Asset data area.
                      Maximum readout length is 32bytes at a time.
  ETX (03h): End of Message
Check code
 BCC: Block Check Code
      Refer to the section 4.5 "Check code" for a BCC calculation.
Delimiter
  CR (0Dh): End of packet
```

2) The monitor replies Asset data to the controller.

Header	Message	Check code	Delimiter
SOH-'0'-'0'-Monitor ID-'B'-N-N	STX-'C'-'1'-'0'-'B'-	BCC	CR
	Data(0)-Data(1)Data(N)-ETX		

Header

ETX (03h): End of Message Check code BCC: Block Check Code Refer to the section 4.5 "Check code" for a BCC calculation. Delimiter CR (0Dh): End of packet

8.2 Asset Data write

This command is used in order to write Asset Data.

1) The controller requests the monitor to write Asset data.

Header	Message	Check code	Delimiter
SOH-'0'-Monitor ID-'0'-'A'-N-N	STX-'C'-'0'-'E'-'0'-'E'-'0'-	BCC	CR
	Data(0)-Data(1)Data(N)-ETX		

Header

```
Message
```

```
STX (02h): Start of Message
'C'-'0'-'0'-'E' (43h, 30h, 30h, 45h): Asset Data writes command
'0'-'0'(30h, 30h): Offset address from top of Asset data.
        00h : Write data from top of the Asset data area.
        Data(0) -- Data(N): Asset data. The data must be ASCII characters strings.
        ETX (03h): End of Message
Check code
        BCC: Block Check Code
```

```
Refer to the section 4.5 "Check code" for a BCC calculation.
```

Delimiter

CR (0Dh): End of packet

2) The monitor replies a data for confirmation.

Header	Message	Check code	Delimiter
SOH-'0'-'0'-MonitorID-'B'-N-N	STX-'0'-'0'-'C'-'0'-'E'-'0'-'0'-	BCC	CR
	Data(0)-Data(1)Data(N)-ETX		

Header

Note.) The maximum data length that can be written to the monitor at a time is 32bytes. Ex.) The byte data 20h is encoded as ASCII characters '2' and '0' (34h and 30h).

Message

```
STX (02h): Start of Message
'0'-'0': Result code. No error.
'C'-'0'-'E' (43h, 30h, 30h, 45h): Asset Data write command
'0'-'0'(30h, 30h): Offset address from top of Asset data.
        00h : Write data into from top of the Asset data area.
Data(0) -- Data(N): Asset data. The data must be ASCII characters strings.
ETX (03h): End of Message
Check code
BCC: Block Check Code
```

Refer to the section 4.5 "Check code" for a BCC calculation.

Delimiter

CR (0Dh): End of packet

9. Date & Time read and write

9.1 Date & Time Read

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

```
1) The controller requests the monitor to reply with the Date & Time.
```

Header	Message	Check code	Delimiter
SOH-'0'-Monitor	STX-'C'-'2'-'1'-'1'-ETX	BCC	CR
ID-'0'-'A'-'0'-'6'			

Header

Message

SOH

```
STX (02h): Start of Message
'C'-'2'-'1'-'1' (43h, 32h, 31h, 31h): Date & time read request command.
ETX (03h): End of Message
```

Check code BCC: Block Check Code Refer to the section 4.5 "Check code" for a BCC calculation.

Delimiter CR (0Dh): End of packet

2) The monitor replies Date & Time to the controller.

Header	Message	Check code	Delimiter
H-'0'-'0'-Monitor ID-'B'-'1'-'4'	STX-'C'-'3'-'1'-'1'-YY-MM-DD-WW-HH-MN -DS-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'.
'B' (42h): Message type is "Command reply"
'1'-'4'(31h, 34h): Message length
Message
```

```
STX (02h): Start of Message
```

```
'C'-'3'-'1'-'1' (43h, 33h, 31h, 31h): Date & Time read reply command
  'YY'-'MM'-'DD'-'WW'-'HH'-'MN'-'DS': Date & Time data
        YY: Year (offset 2000)
           '0'-'0'(30h, 30h): 2000
              '6'-'3'(36h, 33h): 2099 (99 = 63h)
        MM: Month
            '0'-'1'(30h, 31h): January
              '0'-'C'(30h, 43h): December
        DD: Day
             '0'-'1'(30h, 31h): 1
             '1'-'E'(31h, 45h): 30(=1Eh)
             '1'-'F'(31h, 46h): 31(=1Fh)
        WW: weekdays
            '0'-'0'(30h, 30h): Sunday
            '0'-'1'(30h, 31h): Monday
            '0'-'2'(30h, 32h): Tuesday
'0'-'3'(30h, 33h): Wednesday
             '0'-'4'(30h, 34h): Thursday
             '0'-'5'(30h, 35h): Friday
            '0'-'6'(30h, 36h): Saturday
        HH: Hours
             '0'-'0'(30h, 30h): 0
             '1'-'7'(31h, 37h): 23 (=17h)
       MN: Minutes
             '0'-'0'(30h, 30h): 0
               '3'-'B' (33h, 42h): 59 (=3Bh)
        DS: Daylight saving (Summer time)
             '0'-'0'(30h, 30h): NO
             '0'-'1'(30h, 31h): YES
  ETX (03h): End of Message
Check code
  BCC: Block Check Code
       Refer to the section 4.5 "Check code" for a BCC calculation.
Delimiter
  CR (0Dh): End of packet
```

9.2 Date & Time Write

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

1) The controller requests the monitor to write Date & Time.

Header	Message	Check code	Delimiter
SOH-'0'-Monitor ID-'0'-'A'-'1'-'2'	STX-'C'-'2'-'1'-'2'-YY-MM-DD-WW-HH-MN -DS-ETX	BCC	CR

```
Message
  STX (02h): Start of Message
  'C'-'2'-'1'-'2' (43h, 32h, 31h, 32h): Date & Time write command
  'YY'-'MM'-'DD'-'WW'-'HH'-'MN'-'DS': Date & Time data
       YY: Year (offset 2000)
           '0'-'0'(30h, 30h): 2000
           '6'-'3'(36h, 33h): 2099 (99 = 63h)
        MM: Month
            '0'-'1'(30h, 31h): January
            '0'-'C'(30h, 43h): December
        DD: Day
            '0'-'1'(30h, 31h): 1
             '1'-'E'(31h, 45h): 30(=1Eh)
             '1'-'F'(31h, 46h): 31(=1Fh)
        WW: weekdays
            '0'-'0'(30h, 30h): Sunday
            '0'-'1'(30h, 31h): Monday
            '0'-'2'(30h, 32h): Tuesday
            '0'-'3'(30h, 33h): Wednesday
            '0'-'4'(30h, 34h): Thursday
            '0'-'5'(30h, 35h): Friday
            '0'-'6'(30h, 36h): Saturday
        HH: Hours
            '0'-'0'(30h, 30h): 0
             '1'-'7'(31h, 37h): 23 (=17h)
        MN: Minutes
            '0'-'0'(30h, 30h): 0
               '3'-'B' (33h, 42h): 59 (=3Bh)
        DS: Daylight saving (Summer time)
            '0'-'0'(30h, 30h): NO
            '0'-'1'(30h, 31h): YES
  ETX (03h): End of Message
Check code
  BCC: Block Check Code
       Refer to the section 4.5 "Check code" for a BCC calculation.
Delimiter
  CR (0Dh): End of packet
```

2) The monitor replies a data for confirmation.

Header	Message	Check code	Delimiter
SOH-'0'-'0'-Monitor ID-'B'-'1'-'6'	STX-'C'-'3'-'1'-'2'-ST-YY-MM-DD-WW-HH-MN	BCC	CR
	-DS-ETX		

```
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'.
'B' (42h): Message type is "Command reply".
'1'-'6'(31h, 36h): Message length
Message
STX (02h): Start of Message
'C'-'3'-'1'-'2' (43h, 33h, 31h, 32h): Date & Time write reply command
```

```
ST: Date & Time Status command
        '0'-'0'(30h, 30h): No error
        '0'-'1'(30h, 31h): Error
  'YY'-'MM'-'DD'-'WW'-'HH'-'MN'-'DS': Date & Time data
        YY: Year (offset 2000)
           '0'-'0'(30h, 30h): 2000
           '6'-'3'(36h, 33h): 2099 (99 = 63h)
        MM: Month
            '0'-'1'(30h, 31h): January
            '0'-'C'(30h, 43h): December
        DD: Day
            '0'-'1'(30h, 31h): 1
             '1'-'E'(31h, 45h): 30(=1Eh)
             '1'-'F'(31h, 46h): 31(=1Fh)
        WW: weekdays
            '0'-'0'(30h, 30h): Sunday
            '0'-'1'(30h, 31h): Monday
            '0'-'2'(30h, 32h): Tuesday
            '0'-'3'(30h, 33h): Wednesday
            '0'-'4'(30h, 34h): Thursday
            '0'-'5'(30h, 35h): Friday
            '0'-'6'(30h, 36h): Saturday
        HH: Hours
            '0'-'0'(30h, 30h): 0
             '1'-'7'(31h, 37h): 23 (=17h)
        MN: Minutes
            '0'-'0'(30h, 30h): 0
              '3'-'B' (33h, 42h): 59 (=3Bh)
        DS: Daylight saving (Summer time)
            '0'-'0'(30h, 30h): NO
            '0'-'1'(30h, 31h): YES
  ETX (03h): End of Message
Check code
  BCC: Block Check Code
       Refer to the section 4.5 "Check code" for a BCC calculation.
Delimiter
  CR (0Dh): End of packet
```

10. Schedule read and write

10.1 Schedule Read

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

1) The controller requests the monitor to read Schedule.

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

Header
SOH (01h): Start Of Header
'0' (30h): Reserved
Monitor ID: Specify the Monitor ID of which you want to get status.
Ex.) If Monitor ID is '1', specify 'A'.
'0' (30h): Message sender is the controller.
'A' (41h): Message type is "Command".

'0'-'8'(30h, 38h): Message length

```
Message
```

Check code

BCC: Block Check Code Refer to the section 4.5 "Check code" for a BCC calculation.

Delimiter

CR (0Dh): End of packet

2) The monitor replies Schedule to the controller.

Header	Message	Check code	Delimiter
SOH-'0'-'0'-Monitor ID-'B'-'2'-'6'	STX-'C'-'3'-'2'-'1'-PG-ON HOUR-ON MIN-	BCC	CR
	OFF HOUR-OFF MIN-INPUT-WD-FL-P MODE-		
	EXT1-EXT2-EXT3-EXT4-EXT5-EXT6-EXT7-ETX		

```
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'.
  'B' (42h): Message type is "Command reply".
  '2'-'6'(32h, 36h): Message length
Message
  STX (02h): Start of Message
  'C'-'3'-'2'-'1' (43h, 33h, 32h, 31h): Schedule read reply command
  PG-ON HOURS-ON MIN-OFF HOURS-OFF MIN-INPUT-WD-FL-P MODE-
  EXT1-EXT2-EXT3-EXT4-EXT5-EXT6-EXT7: Schedule data
       PG: Program No.
            '0'-'0'(30h, 30h): Program No.1
            '0'-'6'(30h, 36h): Program No.7
       ON_HOUR: Turn on time (hour)
            '0'-'0'(30h, 30h): 00
             '1'-'7'(31h, 37h): 23 (=17h)
            '1'-'8'(31h, 38h): ON timer isn't set.
       ON_MIN: Turn on time (minute)
            '0'-'0'(30h, 30h): 0
            '3'-'B'(33h, 42h): 59
            '3'-'C'(33h, 43h): On timer isn't set.
        OFF_HOUR: Turn off time (hour)
            '0'-'0'(30h, 30h): 00
              '1'-'7'(31h, 37h): 23 (=17h)
            '1'-'8'(31h, 38h): Off timer isn't set.
       OFF_MIN: Turn off time (minute)
            '0'-'0'(30h, 30h): 0
              '3'-'B'(33h, 42h): 59 (=3Bh)
            '3'-'C'(33h, 43h): Off timer isn't set.
       INPUT: Timer input
            '0'-'0'(30h,30h): No mean (works on last memory)
```

```
'0'-'1'(30h,31h): VGA
          '0'-'2'(30h,32h): RGB/HV
          '0'-'3'(30h,33h): DVI
          '0'-'5'(30h,35h): Video1
          '0'-'6'(30h,36h): Video2
          '0'-'7'(30h,37h): S-Video
          '0'-'A'(30h,41h): TV
          '0'-'C'(30h,43h): DVD/HD1
          '0'-'D'(30h,44h): Option
          '0'-'E'(30h,45h): DVD/HD2
          '0'-'F'(30h,46h): Display Port
          '1'-'1'(31h,31h): HDMI
     WD: Week setting
          bit 0: Monday
          bit 1: Tuesday
          bit 2: Wednesday
          bit 3: Thursday
          bit 4: Friday
          bit 5: Saturday
          bit 6: Sunday
          EX.
          '0'-'1'(30h, 31h): Monday
          '0'-'4'(30h, 34h): Wednesday
          '0'-'F'(30h, 46h): Monday, Tuesday, Wednesday and Thursday
          '7'-'F'(37h, 46h): Monday to Sunday
     FL: Option
          bit 0: 0:once 1:Everyday
          bit 1: 0:once 1:Every week
          bit 2: 0:Disable 1:Enable
          EX.
          '0'-'1'(30h, 31h): Disable, Everyday
          '0'-'4'(30h, 34h): Enable, once
     P MODE: Picture mode
          '0'-'0'(30h,30h): No mean (works on last memory)
          '0'-'1'(30h,31h): sRGB
          '0'-'3'(30h,33h): Hi-Bright
          '0'-'4'(30h,34h): Standard
          '0'-'5'(30h,34h): Cinema
          '0'-'6'(30h,36h): ISF-Day
          '0'-'7'(30h,37h): ISF-Night
          '0'-'B'(30h,42h): Ambient-1
          '0'-'C'(30h,43h): Ambient-2
     EXT1: Extension1
          '0'-'0'(30h,30h): (On this monitor, it is always '00')
     EXT2: Extension 2
          '0'-'0'(30h,30h): (On this monitor, it is always '00')
     EXT3: Extension 3
          '0'-'0'(30h,30h): (On this monitor, it is always '00')
     EXT4: Extension 4
          '0'-'0'(30h,30h): (On this monitor, it is always '00')
     EXT5: Extension 5
          '0'-'0'(30h,30h): (On this monitor, it is always '00')
      EXT6: Extension 6
          '0'-'0'(30h,30h): (On this monitor, it is always '00')
      EXT7: Extension 7
          '0'-'0'(30h,30h): (On this monitor, it is always '00')
ETX (03h): End of Message
```

```
Check code
BCC: Block Check Code
Refer to the section 4.5 "Check code" for a BCC calculation.
Delimiter
```

```
CR (0Dh): End of packet
```

***Following command also can be used for to keep backward compatibility, in order to read the setting of the Schedule.

1) The controller requests the monitor to read Schedule.

Header	Message	Check code	Delimiter
SOH-'0'-Monitor ID-'0'-'A'-'0'-'8'	STX-'C'-'2'-'1'-'3'-PG-ETX	BCC	CR

Header

Message

Check code BCC: Block Check Code Refer to the section 4.5 "Check code" for a BCC calculation.

Delimiter

CR (ODh): End of packet

2) The monitor replies Schedule to the controller.

Header	Message	Check code	Delimiter
SOH-'0'-'0'-Monitor ID-'B'-'1'-'6'	STX-'C'-'3'-'1'-'3'-PG-ON HOUR-ON MIN-	BCC	CR
	OFF HOUR-OFF MIN-INPUT-WD-FL-ETX		

```
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'.
  'B' (42h): Message type is "Command reply".
  '1'-'6'(31h, 36h): Message length
Message
  STX (02h): Start of Message
  'C'-'3'-'1'-'3' (43h, 33h, 31h, 33h): Schedule read reply command
  PG-ON HOURS-ON MIN-OFF HOURS-OFF MIN-INPUT-WD-FL: Schedule data
       PG: Program No.
            '0'-'0'(30h, 30h): Program No.1
            '0'-'6'(30h, 36h): Program No.7
        ON_HOUR: Turn on time (hour)
```

```
'0'-'0'(30h, 30h): 00
              '1'-'7'(31h, 37h): 23 (=17h)
             '1'-'8'(31h, 38h): ON timer isn't set.
        ON_MIN: Turn on time (minute)
            '0'-'0'(30h, 30h): 0
             '3'-'B'(33h, 42h): 59
             '3'-'C'(33h, 43h): On timer isn't set.
        OFF_HOUR: Turn off time (hour)
             '0'-'0'(30h, 30h): 00
              '1'-'7'(31h, 37h): 23 (=17h)
             '1'-'8'(31h, 38h): Off timer isn't set.
        OFF_MIN: Turn off time (minute)
             '0'-'0'(30h, 30h): 0
              '3'-'B'(33h, 42h): 59 (=3Bh)
             '3'-'C'(33h, 43h): Off timer isn't set.
        INPUT: Timer input
             '0'-'0'(30h, 30h): DVI
             '0'-'1'(30h, 31h): VGA
             '0'-'2'(30h, 32h): RGB/HV
'0'-'3'(30h, 33h): DVD/HD1
'0'-'4'(30h, 34h): VIDEO
             '0'-'5'(30h, 35h): S-VIDEO
             '0'-'7'(30h,30h): No mean (Works on last memory)
        WD: Week setting
            bit 0: Monday
             bit 1: Tuesday
             bit 2: Wednesday
             bit 3: Thursday
             bit 4: Friday
             bit 5: Saturday
            bit 6: Sunday
             EX.
             '0'-'1'(30h, 31h): Monday
'0'-'4'(30h, 34h): Wednesday
             '0'-'F'(30h, 46h): Monday, Tuesday, Wednesday and Thursday
             '7'-'F'(37h, 46h): Monday to Sunday
        FL: Option
             bit 0: 0:once 1:Everyday
             bit 1: 0:once 1:Every week
            bit 2: 0:Disable 1:Enable
             EX.
             '0'-'1'(30h, 31h): Disable, Everyday
             '0'-'4'(30h, 34h): Enable, once
  ETX (03h): End of Message
Check code
  BCC: Block Check Code
       Refer to the section 4.5 "Check code" for a BCC calculation.
Delimiter
 CR (0Dh): End of packet
```

```
10.2 Schedule Write
```

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

1) The controller requests the monitor to write Schedule.

Header	Message	Check code	Delimiter
SOH-'0'-Monitor ID-'0'-'A'-'2'-'6'	STX-'C'-'2'-'2'-PG-ON HOUR-ON MIN-	BCC	CR
	OFF HOUR-OFF MIN-INPUT-WD-FL-P MODE-		
	EXT1-EXT2-EXT3-EXT4-EXT5-EXT6-EXT7-ETX		

```
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.
  'A' (41h): Message type is "Command".
  '2'-'6'(32h, 36h): Message length.
Message
  STX (02h): Start of Message
  'C'-'2'-'2'-'2' (43h, 32h, 32h, 32h): Schedule writes command
  PG-ON HOURS-ON MIN-OFF HOURS-OFF MIN-INPUT-WD-FL-P MODE
  EXT1-EXT2-EXT3-EXT4-EXT5-EXT6-EXT7: Schedule data
       PG: Program No.
            '0'-'0'(30h, 30h): Program No.1
              '0'-'6'(30h, 36h): Program No.7
        ON_HOUR: Turn on time (hour)
            '0'-'0'(30h, 30h): 00
              '1'-'7'(31h, 37h): 23 (=17h)
            '1'-'8'(31h, 38h): ON timer isn't set.
       ON_MIN: Turn on time (minute)
            '0'-'0'(30h, 30h): 0
              '3'-'B'(33h, 42h): 59
            '3'-'C'(33h, 43h): On timer isn't set.
       OFF_HOUR: Turn off time (hour)
            '0'-'0'(30h, 30h): 00
              '1'-'7'(31h, 37h): 23 (=17h)
            '1'-'8'(31h, 38h): Off timer isn't set.
       OFF_MIN: Turn off time (minute)
            '0'-'0'(30h, 30h): 0
              '3'-'B'(33h, 42h): 59 (=3Bh)
            '3'-'C'(33h, 43h): Off timer isn't set.
        INPUT: Timer input
            '0'-'0'(30h,30h): No mean (works on last memory)
            '0'-'1'(30h,31h): VGA
            '0'-'2'(30h,32h): RGB/HV
            '0'-'3'(30h,33h): DVI
            '0'-'4'(30h,34h): HDMI (Set only)
            '0'-'5'(30h,35h): Video1
            '0'-'6'(30h,36h): Video2
            '0'-'7'(30h,37h): S-Video
            '0'-'A'(30h,41h): TV
            '0'-'C'(30h,43h): DVD/HD1
            '0'-'D'(30h,44h): Option
            '0'-'E'(30h,45h): DVD/HD2
            '0'-'F'(30h,46h): Display Port
            '1'-'1'(31h,31h): HDMI
            * Please select active input on your system (setting).
            * If you select inactive input here, the input change execution will be ignored.
```

```
WD: Week setting
            bit 0: Monday
            bit 1: Tuesday
            bit 2: Wednesday
            bit 3: Thursday
            bit 4: Friday
            bit 5: Saturday
            bit 6: Sunday
            EX.
            '0'-'1'(30h, 31h): Monday
            '0'-'4'(30h, 34h): Wednesday
            '0'-'F'(30h, 46h): Monday, Tuesday, Wednesday and Thursday
            '7'-'F'(37h, 46h): Monday to Sunday
        FL: Option
            bit 0: 0:once 1:Everyday
            bit 1: 0:once 1:Every week
            bit 2: 0:Disable 1:Enable
             * When bit 0 and bit 1 are '1', it behaves as Everyday.
            EX.
            '0'-'1'(30h, 31h): Disable, Everyday
            '0'-'4'(30h, 34h): Enable, once
        P MODE: Picture mode
            '0'-'0'(30h,30h): No mean (Works on last memory)
            '0'-'1'(30h,31h): sRGB
            '0'-'3'(30h,33h): Hi-Bright
            '0'-'4'(30h,34h): Standard
            '0'-'5'(30h,34h): Cinema
            '0'-'6'(30h,36h): ISF-Day
            '0'-'7'(30h,37h): ISF-Night
            '0'-'B'(30h,42h): Ambient-1
            '0'-'C'(30h,43h): Ambient-2
            * Please select active picture mode on your system (setting).
            * If you select inactive picture mode here, the input change execution will be ignored.
        EXT1: Extension1
            '0'-'0'(30h,30h): (On this monitor, it is always '00')
        EXT2: Extension 2
            '0'-'0'(30h,30h): (On this monitor, it is always '00')
        EXT3: Extension 3
            '0'-'0'(30h,30h): (On this monitor, it is always '00')
        EXT4: Extension 4
            '0'-'0'(30h,30h): (On this monitor, it is always '00')
        EXT5: Extension 5
            '0'-'0'(30h,30h): (On this monitor, it is always '00')
        EXT6: Extension 6
            '0'-'0'(30h,30h): (On this monitor, it is always '00')
        EXT7: Extension 7
            '0'-'0'(30h,30h): (On this monitor, it is always '00')
  ETX (03h): End of Message
Check code
  BCC: Block Check Code
       Refer to the section 4.5 "Check code" for a BCC calculation.
Delimiter
  CR (0Dh): End of packet
```

2) The monitor replies a data for confirmation. Header Mess

2) The monitor replies a data for	confirmation.		
Header	Message	Check code	Delimiter
OFF HOU	-'3'-'2'-'2'-ST-PG-ON HOUR-ON MIN- R-OFF MIN-INPUT-WD-FL-P MODE- T2-EXT3-EXT4-EXT5-EXT6-EXT7-ETX	BCC	CR
EXIL-EX	12-EXI3-EXI4-EXI5-EXI6-EXI7-EIX		
Header			
SOH (01h): Start Of Header			
'0' (30h): Reserved			
'0' (30h): Message receiver is t			
Monitor ID: Indicate a replying			
	is set to 'A', the replying Monito	or ID is '1'.	
'B' (42h): Message type is "Comm	and reply".		
'2'-'8'(32h, 38h): Message lengt	h		
Message			
STX (02h): Start of Message			
'C'-'3'-'2'-'2' (43h, 33h, 32h,	32h): Schedule writes reply comman	d	
ST: Schedule Status command			
'0'-'0'(30h, 30h): No erro	r		
'0'-'1'(30h, 31h): Error			
PG-ON HOURS-ON MIN-OFF HOURS-OFF	MIN-INPUT-WD-FL-P MODE		
EXT1-EXT2-EXT3-EXT4-EXT5-EXT6-EX	T7: Schedule data		
PG: Program No.			
'0'-'0'(30h, 30h): Pro	gram No.1		
'0'-'6'(30h, 36h): Pro	gram No.7		
ON_HOUR: Turn on time (hou	r)		
'0'-'0'(30h, 30h): 00			
'1'-'7'(31h, 37h): 23	(=17h)		
'1'-'8'(31h, 38h): ON	timer isn't set.		
ON_MIN: Turn on time (minu	ite)		
'0'-'0'(30h, 30h): 0			
'3'-'B'(33h, 42h): 59			
'3'-'C'(33h, 43h): On	timer isn't set.		
OFF_HOUR: Turn off time (h	our)		
'0'-'0'(30h, 30h): 00			
'1'-'7'(31h, 37h): 23			
'1'-'8'(31h, 38h): Off	timer isn't set.		
OFF_MIN: Turn off time (mi	.nute)		
'0'-'0'(30h, 30h): 0			
'3'-'B'(33h, 42h): 59	(=3Bh)		
'3'-'C'(33h, 43h): Off	timer isn't set.		
INPUT: Timer input			
'0'-'0'(30h,30h): No m	ean (works on last memory)		
'0'-'1'(30h,31h): VGA			
'0'-'2'(30h,32h): RGB/	HV		
'0'-'3'(30h,33h): DVI			
'0'-'5'(30h,35h): Vide	ol		
'0'-'6'(30h,36h): Vide	02		
'0'-'7'(30h,37h): S-Vi			
'0'-'A'(30h,41h): TV			
'0'-'C'(30h,43h): DVD/	HD1		
'0'-'D'(30h,44h): Opti			
'0'-'E'(30h,45h): DVD/			
'0'-'F'(30h,46h): Disp			
'1'-'1'(31h,31h): HDMI	-		
WD: Week setting			
bit 0: Monday			
*			

```
bit 1: Tuesday
            bit 2: Wednesday
            bit 3: Thursday
            bit 4: Friday
            bit 5: Saturday
            bit 6: Sunday
            EX.
            '0'-'1'(30h, 31h): Monday
            '0'-'4'(30h, 34h): Wednesday
            '0'-'F'(30h, 46h): Monday, Tuesday, Wednesday and Thursday
            '7'-'F'(37h, 46h): Monday to Sunday
       FL: Option
            bit 0: 0:once 1:Everyday
            bit 1: 0:once 1:Every week
            bit 2: 0:Disable 1:Enable
            * When bit 0 and bit 1 are '1', it behaves as Everyday.
            EX.
            '0'-'1'(30h, 31h): Disable, Everyday
            '0'-'4'(30h, 34h): Enable, once
       P MODE: Picture mode
            '0'-'0'(30h,30h): No mean (works on last memory)
            '0'-'1'(30h,31h): sRGB
            '0'-'3'(30h,33h): Hi-Bright
            '0'-'4'(30h,34h): Standard
            '0'-'5'(30h,34h): Cinema
            '0'-'6'(30h,36h): ISF-Day
            '0'-'7'(30h,37h): ISF-Night
            '0'-'B'(30h,42h): Ambient-1
            '0'-'C'(30h,43h): Ambient-2
       EXT1: Extension1
            '0'-'0'(30h,30h): (On this monitor, it is always '00')
       EXT2: Extension 2
            '0'-'0'(30h,30h): (On this monitor, it is always '00')
       EXT3: Extension 3
            '0'-'0'(30h,30h): (On this monitor, it is always '00')
       EXT4: Extension 4
            '0'-'0'(30h,30h): (On this monitor, it is always '00')
       EXT5: Extension 5
            '0'-'0'(30h,30h): (On this monitor, it is always '00')
       EXT6: Extension 6
            '0'-'0'(30h,30h): (On this monitor, it is always '00')
        EXT7: Extension 7
            '0'-'0'(30h,30h): (On this monitor, it is always '00')
  ETX (03h): End of Message
Check code
  BCC: Block Check Code
       Refer to the section 4.5 "Check code" for a BCC calculation.
Delimiter
  CR (0Dh): End of packet
3) The controller requests the monitor to write Enable/Disable Schedule.
```

Header	Message	Check code	Delimiter
SOH-'0'-Monitor ID-'0'-'A'-'0'-'A'	STX-'C'-'2'-'1'-'5'-PG-EN-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.
          'A' (41h): Message type is "Command".
          '0'-'A'(30h, 41h): Message length
        Message
          STX (02h): Start of Message
          'C'-'2'-'1'-'5' (43h, 32h, 31h, 35h): Enable/Disable Schedule writes command
          PG-EN: Enable/Disable Schedule data
                PG: Program No.
                     '0'-'0'(30h, 30h): Program No.1
                       '0'-'6'(30h, 36h): Program No.7
                EN: Enable /Disable
                     '0'-'0'(30h, 30h): Disable
                     '0'-'1'(30h, 31h): Enable
          ETX (03h): End of Message
        Check code
          BCC: Block Check Code
               Refer to the section 4.5 "Check code" for a BCC calculation.
        Delimiter
          CR (0Dh): End of packet
        4) The monitor replies a data for confirmation.
              Header
                                                    Message
                                                                           Check code
                                                                                         Delimiter
                                       STX-'C'-'3'-'1'-'5'-ST-PG-EN-ETX
                                                                           BCC
SOH-'0'-'0'-Monitor ID-'B'-'0'-'C'
                                                                                         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'.
          'B' (42h): Message type is "Command reply".
          '0'-'C' (30h, 43h): Message length
        Message
          STX (02h): Start of Message
          'C'-'3'-'1'-'5' (43h, 33h, 31h, 35h): Enable/Disable Schedule writes reply command
          ST: Enable/Disable Schedule Status command
                '0'-'0'(30h, 30h): No error
'0'-'1'(30h, 31h): Error
          PG-EN: Enable/Disable Schedule data
                PG: Program No.
                    '0'-'0'(30h, 30h): Program No.1
                    '0'-'6'(30h, 36h): Program No.7
          EN: Enable /Disable
                     '0'-'0'(30h, 30h): Disable
                    '0'-'1'(30h, 31h): Enable
          ETX (03h): End of Message
        Check code
          BCC: Block Check Code
               Refer to the section 4.5 "Check code" for a BCC calculation.
        Delimiter
          CR (0Dh): End of packet
```

***Following command also can be used for to keep backward compatibility, in order to write the setting of the Schedule.

1) The controller requests the monitor to write Schedule.

Header	Message	Check code	Delimiter
SOH-'0'-Monitor ID-'0'-'A'-'1'-'6'	STX-'C'-'2'-'1'-'4'-PG-ON HOUR-ON MIN-	BCC	CR
	OFF HOUR-OFF MIN-INPUT-WD-FL-ETX		

```
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.
  'A' (41h): Message type is "Command".
  '1'-'6'(31h, 36h): Message length.
Message
  STX (02h): Start of Message
  'C'-'2'-'1'-'4' (43h, 32h, 31h, 34h): Schedule writes command
  PG-ON HOURS-ON MIN-OFF HOURS-OFF MIN-INPUT-WD-FL: Schedule data
       PG: Program No.
            '0'-'0'(30h, 30h): Program No.1
              '0'-'6'(30h, 36h): Program No.7
       ON_HOUR: Turn on time (hour)
            '0'-'0'(30h, 30h): 00
            '1'-'7'(31h, 37h): 23 (=17h)
            '1'-'8'(31h, 38h): ON timer isn't set.
        ON_MIN: Turn on time (minute)
            '0'-'0'(30h, 30h): 0
            '3'-'B'(33h, 42h): 59
            '3'-'C'(33h, 43h): On timer isn't set.
       OFF_HOUR: Turn off time (hour)
            '0'-'0'(30h, 30h): 00
            '1'-'7'(31h, 37h): 23 (=17h)
            '1'-'8'(31h, 38h): Off timer isn't set.
       OFF_MIN: Turn off time (minute)
            '0'-'0'(30h, 30h): 0
              '3'-'B'(33h, 42h): 59 (=3Bh)
            '3'-'C'(33h, 43h): Off timer isn't set.
        INPUT: Timer input
            '0'-'0'(30h, 30h): DVI
            '0'-'1'(30h, 31h): VGA
            '0'-'2'(30h, 32h): RGB/HV
            '0'-'3'(30h, 33h): DVD/HD1
            '0'-'4'(30h, 34h): VIDEO
            '0'-'5'(30h, 35h): S-VIDEO
            '0'-'7'(30h, 37h): (Works on last memory)
            * Please select active input on your system (setting).
            * If you select inactive input here, the input change execution will be ignored.
       WD: Week setting
            bit 0: Monday
            bit 1: Tuesday
            bit 2: Wednesday
            bit 3: Thursday
```

```
bit 4: Friday
             bit 5: Saturday
             bit 6: Sunday
             EX.
             '0'-'1'(30h, 31h): Monday
             '0'-'4'(30h, 34h): Wednesday
             ^{\prime}\mbox{O'-'F'}(\mbox{30h},\ \mbox{46h}) : Monday, Tuesday, Wednesday and Thursday
             '7'-'F'(37h, 46h): Monday to Sunday
         FL: Option
             bit 0: 0:once 1:Everyday
             bit 1: 0:once 1:Every week
             bit 2: 0:Disable 1:Enable
              * When bit 0 and bit 1 are '1', it behaves as Everyday.
             EX.
             '0'-'1'(30h, 31h): Disable, Everyday
             '0'-'4'(30h, 34h): Enable, once
  ETX (03h): End of Message
Check code
  BCC: Block Check Code
       Refer to the section 4.5 "Check code" for a BCC calculation.
Delimiter
  CR (0Dh): End of packet
```

```
2) The monitor replies a data for confirmation.
```

```
Header
                                                       Message
                                                                                  Check code
                                                                                                Delimiter
SOH-'0'-'0'-Monitor ID-'B'-'1'-'8'
                                      STX-'C'-'3'-'1'-'4'-ST-PG-ON HOUR-ON MIN-
                                                                                  BCC
                                                                                                CR
                                      OFF HOUR-OFF MIN-INPUT-WD-FL-ETX
          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'.
            'B' (42h): Message type is "Command reply".
            '1'-'8'(31h, 38h): Message length
          Message
            STX (02h): Start of Message
            'C'-'3'-'1'-'4' (43h, 33h, 31h, 34h): Schedule writes reply command
            ST: Schedule Status command
                  '0'-'0'(30h, 30h): No error
'0'-'1'(30h, 31h): Error
            PG-ON HOURS-ON MIN-OFF HOURS-OFF MIN-INPUT-WD-FL: Schedule data
                  PG: Program No.
                      '0'-'0'(30h, 30h): Program No.1
                      '0'-'6'(30h, 36h): Program No.7
                  ON_HOUR: Turn on time (hour)
                       '0'-'0'(30h, 30h): 00
                        '1'-'7'(31h, 37h): 23 (=17h)
                       '1'-'8'(31h, 38h): ON timer isn't set.
                  ON_MIN: Turn on time (minute)
                      '0'-'0'(30h, 30h): 0
                       '3'-'B'(33h, 42h): 59
                       '3'-'C'(33h, 43h): On timer isn't set.
                  OFF_HOUR: Turn off time (hour)
                       '0'-'0'(30h, 30h): 00
```

```
'1'-'7'(31h, 37h): 23 (=17h)
              '1'-'8'(31h, 38h): Off timer isn't set.
          OFF_MIN: Turn off time (minute)
              '0'-'0'(30h, 30h): 0
              '3'-'B'(33h, 42h): 59 (=3Bh)
              '3'-'C'(33h, 43h): Off timer isn't set.
          INPUT: Timer input
              '0'-'0'(30h, 30h): DVI
              '0'-'1'(30h, 31h): VGA
              '0'-'2'(30h, 32h): RGB/HV
              '0'-'3'(30h, 33h): DVD/HD1
              '0'-'4'(30h, 34h): VIDEO
              '0'-'5'(30h, 35h): S-VIDEO
              '0'-'7'(30h,30h): No mean (Works on last memory)
          WD: Week setting
              bit 0: Monday
              bit 1: Tuesday
              bit 2: Wednesday
              bit 3: Thursday
              bit 4: Friday
              bit 5: Saturday
              bit 6: Sunday
              EX.
              '0'-'1'(30h, 31h): Monday
              '0'-'4'(30h, 34h): Wednesday
              ^{\prime}\mbox{O'-'F'}(\mbox{30h},\mbox{ 46h}) : Monday, Tuesday, Wednesday and Thursday
              '7'-'F'(37h, 46h): Monday to Sunday
          FL: Option
              bit 0: 0:once 1:Everyday
              bit 1: 0:once 1:Every week
              bit 2: 0:Disable 1:Enable
              * When bit 0 and bit 1 are '1', it behaves as Everyday.
              EX.
              '0'-'1'(30h, 31h): Disable, Everyday
              '0'-'4'(30h, 34h): Enable, once
   ETX (03h): End of Message
  Check code
    BCC: Block Check Code
        Refer to the section 4.5 "Check code" for a BCC calculation.
 Delimiter
   CR (0Dh): End of packet
  3) The controller requests the monitor to write Enable/Disable Schedule
             Header
                                                Message
                                                                       Check code
SOH-'0'-Monitor ID-'0'-'A'-'0'-'A' STX-'C'-'2'-'1'-'5'-PG-EN-ETX
                                                                       BCC
  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.
    'A' (41h): Message type is "Command".
    '0'-'A'(30h, 41h): Message length
```

Message

STX (02h): Start of Message

'C'-'2'-'1'-'5' (43h, 32h, 31h, 35h): Enable/Disable Schedule writes command

Delimiter

CR

```
PG-EN: Enable/Disable Schedule data
               PG: Program No.
                    '0'-'0'(30h, 30h): Program No.1
                    '0'-'6'(30h, 36h): Program No.7
               EN: Enable /Disable
                    '0'-'0'(30h, 30h): Disable
                    '0'-'1'(30h, 31h): Enable
          ETX (03h): End of Message
       Check code
          BCC: Block Check Code
               Refer to the section 4.5 "Check code" for a BCC calculation.
       Delimiter
          CR (0Dh): End of packet
        4) The monitor replies a data for confirmation.
                                                   Message
              Header
                                                                          Check code
                                                                                        Delimiter
                                      STX-'C'-'3'-'1'-'5'-ST-PG-EN-ETX
SOH-'0'-'0'-Monitor ID-'B'-'0'-'C'
                                                                          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'.
          'B' (42h): Message type is "Command reply".
          '0'-'C' (30h, 43h): Message length
       Message
          STX (02h): Start of Message
          'C'-'3'-'1'-'5' (43h, 33h, 31h, 35h): Enable/Disable Schedule writes reply command
          ST: Enable/Disable Schedule Status command
                '0'-'0'(30h, 30h): No error
                '0'-'1'(30h, 31h): Error
          PG-EN: Enable/Disable Schedule data
               PG: Program No.
                    '0'-'0'(30h, 30h): Program No.1
                    '0'-'6'(30h, 36h): Program No.7
          EN: Enable /Disable
                    '0'-'0'(30h, 30h): Disable
                    '0'-'1'(30h, 31h): Enable
          ETX (03h): End of Message
        Check code
          BCC: Block Check Code
              Refer to the section 4.5 "Check code" for a BCC calculation.
       Delimiter
         CR (0Dh): End of packet
```

11. Self diagnosis

11.1 Self-diagnosis status read

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

1) The controller requests the monitor to read Self-diagnosis status.

Header	Message	Check code	Delimiter
SOH-'0'-Monitor ID-'0'-'A'-'0'-'4'	STX-'B'-'1'-ETX	BCC	CR

Header

SOH (01h): Start of Header '0' (30h): Reserved Monitor ID: Specify the Monitor ID which you want to get status. 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 Message STX (02h): Start of Message 'B'-'1' (42h, 31h): Self-diagnosis command ETX (03h): End of Message Check code BCC: Block Check Code

Refer to the section 4.5 "Check code" for a BCC calculation.

Delimiter

CR (0Dh): End of packet

2) The monitor replies a result of the self-diagnosis.

Header	Message	Check code	Delimiter
SOH-'0'-'0'-Monitor ID-'B'-N-N	STX-'A'-'1'-	BCC	CR
	ST(0)-ST(1)ST(n)-ETX		

```
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'.
  'B' (42h): Message type is "Command reply".
  N-N: Message length
              Note.) The maximum data length that can be written to the monitor at a time is 32bytes.
              Ex.) The byte data 20h is encoded as ASCII characters '2' and '0' (34h and 30h).
Message
  STX (02h): Start of Message
  'A'-'1' (41h, 31h): Application Test Report reply command
  ST: Result of self-tests
        '0'-'0'(30h, 30h):00: Normal
        '7'-'0'(37h, 30h):70: Standby-power +3.3V abnormality
        '7'-'1'(37h, 31h):71: Standby-power +5V abnormality
        '7'-'2'(37h, 32h):72: Panel-power +12V abnormality
        '7'-'3'(37h, 33h):73: Main-power +2.5V abnormality
        '7'-'4'(37h, 34h):74: Main-power +1.8V abnormality
        '7'-'5'(37h, 35h):75: Main-power +5V abnormality
        '7'-'6'(37h, 36h):76: Sub-power +3.3V abnormality
        '7'-'7'(37h, 37h):77: Main-power +3.3V abnormality
        '8'-'0'(38h, 30h):80: Cooling fan-1 abnormality
'8'-'1'(38h, 31h):81: Cooling fan-2 abnormality
         ('8'-'2'(38h, 32h):82: Cooling fan-3 abnormality)
        '9'-'0'(39h, 30h):90: Inverter abnormality
        'A'-'0'(41h, 30h):A0: Temperature abnormality - shutdown
        'A'-'1'(41h, 31h):A1: Temperature abnormality - half brightness
  ETX (03h): End of Message
Check code
  BCC: Block Check Code
       Refer to the section 4.5 "Check code" for a BCC calculation.
Delimiter
  CR (0Dh): End of packet
```

12. Serial No. & Model Name Read

12.1 Serial No. Read

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

1) The controller requests the monitor to read a serial number.

Header	Message	Check code	Delimiter
SOH-'0'-Monitor ID-'0'-'A'-'0'-'6'	STX-'C'-'2'-'1'-'6'-ETX	BCC	CR
Header SOH (01h): Start Of Header '0' (30h): Reserved Monitor ID: Specify the Monitor I Ex.) If Monitor ID is '0' (30h): Message sender is the 'A' (41h): Message type is "Comma '0'-'6'(30h, 36h): Message length	s 'l', specify 'A'. controller. and".	rial number.	
Message STX (02h): Start of Message 'C'-'2'-'1'-'6' (43h, 32h, 31h ETX (03h): End of Message	, 36h): Serial No. command		
Check code BCC: Block Check Code Refer to the section 4.5 °Cl	neck code" for a BCC calcula	ation.	
Delimiter CR (0Dh): End of packet			

2) The monitor replies the serial No. data to the controller.

			Delimiter
SOH-'0'-'0'-Monitor ID-'B'-N-N	STX-'C'-'3'-'1'-'6'-	BCC	CR
	Data(0)-Data(1)Data(n)-ETX		

```
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'.
'B' (42h): Message type is "Command reply".
N-N: Message length
              Note.) The maximum data length that can be returned from the monitor at a time is
                     32bytes.
              Ex.) The byte data 20h is encoded as ASCII characters '2' and '0' (32h and 30h).
Message
  STX (02h): Start of Message
   'C'-'3'-'1'-'6' (41h, 33h, 31h, 36h): Serial No. reply command
  Data(0)-Data(1)----Data(n):Serial Number
   \geq
          These data are encoded to ASCII characters strings.
 ETX (03h): End of Message
Check code
  BCC: Block Check Code
       Refer to the section 4.5 "Check code" for a BCC calculation.
Delimiter
  CR (0Dh): End of packet
12.2 Model Name Read
This command is used in order to read the Model Name.
1) The controller requests the monitor to read Model Name.
            Header
                                           Message
                                                              Check code
                                                                            Delimiter
```

SOH-'0'-Monitor ID-'0'-'A'-'0'-'6'	STX-'C'-'2'-'1'-'7'-ETX	BCC	CR
------------------------------------	-------------------------	-----	----

```
Header
SOH (01h): Start Of Header
'0' (30h): Reserved
Monitor ID: Specify the Monitor ID which you want to get Model Name.
Ex.) If Monitor ID is '1', specify 'A'.
'0' (30h): Message sender is the controller.
'A' (41h): Message sender is the controller.
'A' (41h): Message type is "Command".
'0'-'6'(30h, 36h): Message length
```

Message

```
STX (02h): Start of Message
 'C'-'2'-'1'-'7' (43h, 32h, 31h, 37h): Model Name command
 ETX (03h): End of Message
```

Check code

```
BCC: Block Check Code
```

Refer to the section 4.5 "Check code" for a BCC calculation.

Delimiter

CR (0Dh): End of packet

2) The monitor replies the model name data to the controller.

Header	Message	Check code	Delimiter
SOH-'0'-'0'-Monitor ID-'B'-N-N	STX-'C'-'3'-'1'-'7'-Data(0) -Data(1) -Data(n)-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'.
  'B' (42h): Message type is "Command reply".
  N-N: Message length
             Note.) The maximum data length that can be returned from the monitor at a time is
                     32bytes.
              Ex.) The byte data 20h is encoded as ASCII characters '2' and '0' (32h and 30h).
Message
  STX (02h): Start of Message
  'C'-'3'-'1'-'7' (43h, 33h, 31h, 37h): Model Name reply Command
  Data(0) -Data(1)----Data(n):Model name
   ⊳
          These data are encoded to ASCII characters strings.
  ETX (03h): End of Message
Check code
  BCC: Block Check Code
       Refer to the section 4.5 "Check code" for a BCC calculation.
Delimiter
```

```
CR (0Dh): End of packet
```

13. Security Lock

13.1 Security Lock Control

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 "EN" parameter.

1) The controller requests the monitor to set the condition of security lock.

1) The controller requests the mor	itor to set the condition of security ?	lock.	
Header	Message	Check code	Delimiter
SOH-'0'-MonitorID-'0'-'A'-'1'-'0'	STX-'C'-'2'-'1'-'D'-EN-P1-P2-P3-P4-ET	X BCC	CR
Header SOH (01h): Start Of Header '0' (30h): Reserved Monitor ID: Specify the Monitor Ex.) If Monitor ID i '0' (30h): Message sender is the 'A' (41h): Message type is "Comm '1'-'0'(31h, 30h): Message lengt	e controller. Mand".	ng.	
<pre>Message STX (02h): Start of Message 'C'-'2'-'1'-'D' (43h, 32h, 31h, EN-P1-P2-P3-P4: Lock condition of EN: Enable /Disable '0'-'0'(30h, 30h): Dis '0'-'1'(30h, 31h): Ena P1: Security Pass code 1st '0'-'0'(30h, 30h): "0' '0'-'9'(30h, 39h): "9'</pre>	sable able		
P2: Security Pass code 2nd '0'-'0'(30h, 30h): "0' '0'-'9'(30h, 39h): "9'			
P3: Security Pass code 3rd '0'-'0'(30h, 30h): "0' '0'-'9'(30h, 39h): "9'			
P4: Security Pass code 4th '0'-'0'(30h, 30h): "0' '0'-'9'(30h, 39h): "9'			
ETX (03h): End of Message			
Check code BCC: Block Check Code Refer to the section 4.5 °C	heck code" for a BCC calculation.		
Delimiter CR (0Dh): End of packet			
2) The monitor replies the result	to the controller.		
Header	Meggage (1)	hadk gode	Delimiter

Header	Message	Check code	Delimiter
SOH-'0'-'0'-Monitor ID-'B'-'0'-'A'	STX-'C'-'3'-'1'-'D'-ST-EN-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'.

'B' (42h): Message type is "Command reply".

'0'-'A'(30h, 41h): Message length
```

```
Message
```

```
STX (02h): Start of Message
```

```
'C'-'3'-'1'-'D' (43h, 33h, 31h, 44h): Security Lock Control reply command
ST-EN: Lock condition result data
ST: Status
    '0'-'0'(30h, 30h): No error
    '0'-'1'(30h, 31h): Error
EN: Enable /Disable (Current condition)
    '0'-'0'(30h, 30h): Disable
    '0'-'1'(30h, 31h): Enable
ETX (03h): End of Message
Check code
BCC: Block Check Code
    Refer to the section 4.5 "Check code" for a BCC calculation.
Delimiter
CR (0Dh): End of packet
```

Appendix

A. Operation Code (OP code) Table

Brightness code page code and both code bit code bit Brightness 00h 10h 0: dark interpretation interpretation Sharpness 00h 8Ch 0: dark interpretation interpretation Black Level 00h 9Ch 0: dark interpretation interpretation Color 02h 9Ch 0: dark interpretation interpretation Color 02h 1Ph 0: purplish interpretation interpretation Color control 00h 8Ch 0:2600K interpretation interpretation Color control 00h Red: 9Bh interpretation: ght interpretation: ght interpretation: ght interpretation: ght interpretation: ght Gamma Selection 02h 68h Gamma is DICOM SIM. is Programmable interpretation is DICOM SIM. is Programmable Movie Maptive Contrast 02h 8Dh 0: for is Gamma is DICOM SIM. is Programmable Movie Maptive Contrast 02h 20h 0: for is Gamma is DICOM SIM. is Programmable Movie Maptive Contrast 02h		Item		OP	OP code	Parameter	Remarks
Brightness 00h 10h 0: dark Contrast 00h 12h 0: low Sharpness 00h 8Ch 0: dark Black Level 00h 92h 0: dark Black Level 00h 90h 0: purplish Tint 00h 90h 0: purplish Color 02h 1Ph 0: geneish Color 02h 1Ph 0: 2600K Color Temperature 00h 54h 0:2600K Color control 00h Red: 9Bh Y4(4h):10000K Va(10k): 300 Y4(4h):300 X461BHZ Color control 00h Saturation: 0: Balue: 9Ph 100(64h): Magenta: A0h Saturation: 0: pale 10(0Ah): deep Gamma Selection 02h 68h 0: Movie Adaptive 02h 68h 0: Sindale Studidse 1: off 2: Low 3: Midale Movie Maiptive 02h							
Contrast 00h 12h 0: 10w Sharpness 00h 8Ch 0: dull Black Level 00h 92h 0: dark Tint 00h 90h 0: purplish Color 02h 1Fh 0: purplish Color 02h 1Fh 0:2600K Color Temperature 00h 54h 0:2600K Color control 00h Red: 9Bh 100(64h): deep Color control 00h Seh 0: pale 100064h): 100K/step 100K/step Color control 00h Red: 9Bh 100(64h): Vellow: 9Ch Green: 9Dh 100(64h): x461HB's Blue: 9Fh 100(64h): 100(64h): 100(64h): Gamma Selection 02h 68h 0: pale Shiue: 9Fh 100(64h): deep 10(0Ah): deep Gamma Selection 02h 68h 0: pale Sh 10(0Ah): deep 1: Signmaa 2.4 3: Gamma 2.4 Settin							
Contrast 00h 12h 0: low Sharpness 00h 8Ch 0: dark Black Level 00h 92h 0: dark Tint 00h 90h 0: pale Color 02h 1Fh 0: pale Color Temperature 00h 54h 0:2600K 100K/step Color control 00h Red: 9Bh 0: gamea 100(64h): xK/step Color control 00h Saturation: 0: S0(32h): lcenter) xK/step xK/step Color control 00h Red: 9Bh 0: creation: xK/step xK/step Gamma Selection 02h 68h Gamma 2.2 3: Gamma 4(04h): 300 Movie Adaptive 02h 68h Gamma 2.4 7: S Gamma 5: DICOM SIM. St Drogrammable 0.10K 22 Low 3: Middle 4: High Movie Adaptive 02h 02h 0: Fight Film Mode 02h 10h 0: Off 16(10h): High Film Mode </td <td></td> <td>Brightness</td> <td></td> <td>00h</td> <td>10h</td> <td>0: dark</td> <td></td>		Brightness		00h	10h	0: dark	
Contrast 00h 12h 0: low Sharpness 00h 8Ch 0: dark Black Level 00h 92h 0: dark Tint 00h 90h 0: pale Color 02h 1Fh 0: pale Color Temperature 00h 54h 0:2600K 100K/step Color control 00h Red: 9Bh 0: gamea 100(64h): xK/step Color control 00h Saturation: 0: S0(32h): lcenter) xK/step xK/step Color control 00h Red: 9Bh 0: creation: xK/step xK/step Gamma Selection 02h 68h Gamma 2.2 3: Gamma 4(04h): 300 Movie Adaptive 02h 68h Gamma 2.4 7: S Gamma 5: DICOM SIM. St Drogrammable 0.10K 22 Low 3: Middle 4: High Movie Adaptive 02h 02h 0: Fight Film Mode 02h 10h 0: Off 16(10h): High Film Mode </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>100(64h): bright</td> <td></td>						100(64h): bright	
Sharpness 00h 3Ch 0: dull 		Contrast		00h	12h		1
Sharpness 00h 8Ch 0: dull 82(52h): sharp Black Level 00h 92h 0: dark 63(3Ph): bright Tint 00h 90h 0: purplish 63(3Ph): greenish Color 02h 1Fh 0: pale 63(3Ph): deep Color Temperature 00h 54h 0: 2600K 100K/step Color control 00h Red: 9Bh Yellow: 9Ch 0: 100(64h): 100(64h): Color control 00h Red: 9Bh Yellow: 9Ch 0: 100(64h): 100(64h): Gamma Selection 02h 68h Gamma Table Selection 0: 1: Native Gamma Stigrama2.2 Movie Adaptive Contrast 02h 8Dh 0: Nne 1: Off 2: Low 3: Middle Movie Adaptive Contrast 02h 8Dh 0: Mote 1: Off Noise Reduction 02h 20h 0: Off Film Mode 02h 23h 1: Off Film Mode 02h 1Ah 1: SRGB SRGB:							
Black Level 00h 92h 0: dark Tint 00h 90h 0: purplish Color 02h 1Fh 0: pale Color Temperature 00h 54h 0: 2600K 100K/step Color control 00h 8ed: 9Bh 0: 2600K 100K/step Color control 00h Red: 9Bh 0: 7((4Ah):10000K X461HB's minimum is 4(04h):300 Color control 00h Red: 9Bh 0: 100(64h): Magenta: A0h Saturation: 100(64h): 50(32h):(center) 50(32h):(center) Gamma Selection 02h 68h Gamma Movie Adaptive 02h 68h Settings Contrast 02h 8Dh Noise 02h 20h 00 ff Reduction 10 ff 21 Low 30 H Settings Noise 02h 20h 0 ff Film Mode 02h 23h 1: Off 21 Auto		Charry		0.01-	0.Gh		
Black Level 00h 92h 0: dark Tint 00h 90h 0: purplish Color 02h 1Fh 0: pale Color Temperature 00h 54h 0: 2600K 100K/step Color control 00h 54h 0: 2600K 100K/step Color control 00h Fed: 9Bh 0: 100K/step Color control 00h Red: 9Bh 0: 100K/step Color control 00h Red: 9Bh 0: 100K/step Gamma Selection 02h Red: 9Bh 100(64h): Magenta: A0h Magenta: A0h Saturation: 0: pale 100(64h): Magenta: A0h Gamma Selection 02h 68h Gamma 2: 2 8: Gamma 2: 4 To S Gamma 5: DICOM SIM. 5: DICOM SIM. 5: DICOM SIM. Movie Adaptive 02h 8Dh 0: None Settings Noise 02h 20h 0: Off Film Mode 02h 20h 0: Off		Sharpness		00h	8Ch	0: dull	
Black Level 00h 92h 0: dark Tint 00h 90h 0: purplish Color 02h 1Fh 0: dark Color 02h 1Fh 0: pale Color Temperature 00h 54h 0: 2600K 100K/step Color control 00h 54h 0: 2600K 100K/step Color control 00h Fed: 9Bh 0: 74(4Ah):10000K X461HB's Color control 00h Red: 9Bh 0: 74(4Ah):10000K X461HB's Magenta: A0h Saturation: 9St 100(64h): Magenta: A0h Saturation: 8Ah 1 100(0Ah): deep 100(64h): Gamma Selection 02h 68h Gamma 2.2 8: Gamma2.4 To S Gamma 5: DICOM SIM. 5: DICOM SIM. 5: DICOM SIM. Movie Adaptive 02h 8Dh 0: None Settings Noise 02h 20h 0: Off Film Mode 02h 23h 1: Off						82(52h): sharp	
Tint 00h 90h 0: purplish Color 02h IFh 0: pale Color Temperature 00h 54h 0: 2600X 100K/step Color control 00h 8d: 9Bh 0: 2600X 100K/step Color control 00h Red: 9Bh 0: 74(4Ah):10000K X461HB's Color control 00h Red: 9Bh 0: 74(4Ah):10000K X461HB's Magenta: A0h Sol(32h):(center) 50(32h):(center) 4(04h):300 Color control 00h Red: 9Bh 0: Table Selection Blue: 9Fh 100(64h): 100(64h): Magenta: A0h Saturation: 0: pale 8Ah 10(0Ah): deep 10(0Ah): deep Gamma Selection 02h 68h Gamma=2.4 Y: S Gamma 5: DICOM SIM. 6: Programable Movie Adaptive 02h 8Dh 0: None 1: 0CM Noise 02h 20h 0: Off Reduction 1 1: 0Cff 1: 6((10h) : High		Black Level		00h	92h		
Tint 00h 90h 0: purplish Color 02h IFh 0: pale Color Temperature 00h 54h 0: 2600X 100K/step Color control 00h 8d: 9Bh 0: 2600X 100K/step Color control 00h Red: 9Bh 0: 74(4Ah):10000K X461HB's Color control 00h Red: 9Bh 0: 74(4Ah):10000K X461HB's Magenta: A0h Sol(32h):(center) 50(32h):(center) 4(04h):300 Color control 00h Red: 9Bh 0: Table Selection Blue: 9Fh 100(64h): 100(64h): Magenta: A0h Saturation: 0: pale 8Ah 10(0Ah): deep 10(0Ah): deep Gamma Selection 02h 68h Gamma=2.4 Y: S Gamma 5: DICOM SIM. 6: Programable Movie Adaptive 02h 8Dh 0: None 1: 0CM Noise 02h 20h 0: Off Reduction 1 1: 0Cff 1: 6((10h) : High							
Color 02h 1Fh 0: pale Color Temperature 00h 54h 0:2600K 100K/step Color control 00h F4h 0:2600K 100K/step Color control 00h Red: 9Bh 74(4Ah):10000K X461HB's Color control 00h Red: 9Bh 0: 50(32h):(center) X461HB's Color control 00h Red: 9Bh 100(64h): Magenta: A0h Saturation: 0: pale Gamma Selection 02h 68h Gamma 10(0Ah): deep 10(0Ah): deep Movie Adaptive 02h 68h Gamma 2: 4 7: S Gama 4: 4 S: DICON SIM. 5: DICON SIM. 5: DICON SIM. 5: DICON SIM. 5: DICON SIM. Movie Adaptive 02h 8Dh 0: Midle 4: High Noise 02h 20h 0: Off 1: Midle 1: Gi(10h) : High Film Mode 02h 23h 1: Off 2: Auto 5: RGBE		Tint		00h	00b		
Color 02h 1Fh 0: pale Color Temperature 00h 54h 0:2600K 100K/step Color control 00h 54h 0:2600K 100K/step Color control 00h Red: 9Bh 0: X461HB's Color control 00h Red: 9Bh 0: X461HB's Color control 00h Red: 9Bh 0: X461HB's Magenta: A0h Saturation: 50(32h):(center) 50(32h):(center) 10(064h): Gamma Selection 02h 68h Gamma Table Selection 1:0(0Ah): deep Gamma Selection 02h 68h Gamma=2.2 8: Gamma=2.2 8: Gamma=2.4 Movie Adaptive 02h 8Dh 0: None 1: Off 2: Low Settings Noise 02h 20h 0: Off 1: High Film Mode 02h 23h 1: Off 1: Auto 1: SRGB SRGB:		TINC		0011	9011		
Color Temperature OOh 54h 0:2600K 100K/step Color control OOh 54h 0:2600K 100K/step Color control OOh Red: 9Bh 0: X461HB's minimum is Color control OOh Red: 9Bh 0: ////////////////////////////////////						63(3Fh): greenish	
Color Temperature 00h 54h 0:2600K 100K/step Color control 00h Red: 9Bh 74(4Ah):10000K X461HB's Color control 00h Red: 9Bh 0: 10K/step Color control 00h Red: 9Bh 0: 10K/step Color control 00h Red: 9Bh 0: 100(04h):300 Color control 00h Red: 9Bh 0: 100(64h): Blue: 9Fh 100(64h): 100(64h): 100(0Ah): deep Gamma Selection 02h 68h Gamma=2.4 Table Selection 1: Native Gamma 4: Gamma=2.4 Settings Adaptive 02h 8Dh 0: None Noise 02h 8Dh 0: Off 100(10h): High Noise 02h 20h 0: Off 16(10h): High Film Mode 02h 1Ah 1: SRGB SRGB:		Color		02h	1Fh		
Color Temperature 00h 54h 0:2600K 100K/step Color control 00h Red: 9Bh 74(4Ah):10000K X461HB's Color control 00h Red: 9Bh 0: 10K/step Color control 00h Red: 9Bh 0: 10K/step Color control 00h Red: 9Bh 0: 100(04h):300 Color control 00h Red: 9Bh 0: 100(64h): Blue: 9Fh 100(64h): 100(64h): 100(0Ah): deep Gamma Selection 02h 68h Gamma=2.4 Table Selection 1: Native Gamma 4: Gamma=2.4 Settings Adaptive 02h 8Dh 0: None Noise 02h 8Dh 0: Off 100(10h): High Noise 02h 20h 0: Off 16(10h): High Film Mode 02h 1Ah 1: SRGB SRGB:							
Generation Adaptive O2h Red: 9Bh Yellow: 9Ch Green: 9Dh Cyan: 9Eh Blue: 9Ph Blue: 9Ph 100(64h): O: (Camma X461HB's minimum is 4(04h):300 Gamma Selection 00h Red: 9Bh Yellow: 9Ch Green: 9Dh Saturation: 8Ah 0: (Jamma) 100(64h): Gamma Selection 02h 68h Gamma Gamma Gamma Selection 02h 68h Gamma 2.4 7: S Gamma 2		Color Tempera	ture	ՈՍԻ	54h		100K/gten
Color control 00h Red: 9Bh Yellow: 9Ch Green: 9Dh Cyan: 9Eh Blue: 9Fh 100(64h): 0: Gamma Selection 02h 68h Gamma Zama Saturation: 8Ah 0: pale 10(0Ah): deep Gamma Selection 02h 68h Gamma Zama Saturation: 8Ah 0: pale 10(0Ah): deep Movie Adaptive Contrast 02h 68h Gamma Zama Signma Signma Signma Signma Movie Adaptive Reduction 02h 8Dh 0: None Signma Signma Movie Adaptive Reduction 02h 20h 0: None Signma Signma Movie Adaptive Reduction 02h 20h 0: None Signma Signma Movie Adaptive Reduction 02h 20h 0: None Signma Signma Film Mode 02h 20h 0: Off Signma 1 Film Mode 02h 23h 1: SRGB SRGB:		COTOT LEWDELD	CULC	0.011	J 111		TOOKABCED
Generation Other and the second						74(4Ah):10000K	X461HB's
Color control 00h Red: 9Bh Yellow: 9Ch Green: 9Dh Cyan 9Eh Blue: 9Fh Nagenta: A0h 0: Yellow: 9Ch Green: 9Dh Cyan 9Eh Blue: 9Fh 100(64h): Gamma Selection 02h 68h Gamma Table Selection 1: Native Gamma 4: Gamma2.2 8: Gamma2.4 7: S Gamma 5: DICOM SIM. 6: Programmable Movie Settings Adaptive Contrast 02h 8Dh 0: None 1: Off 2: Low 3: Middle 4: High Noise Reduction 02h 20h 02h 0: None 1: Off 2: Low 3: Middle 4: High Noise Reduction 02h 20h 0: Noff 1: Off 2: Low 3: Middle 4: High Picture mode 02h 1Ah 1: SRGB SRGB:							minimum is
PECTAL Yellow: 9Ch Green: 9Dh 50(32h):(center) Blue: 9Fh 100(64h): Magenta: A0h 0: pale Saturation: 0: pale BAh 10(0Ah): deep 10(0Ah): Gamma Selection 02h 68h Gamma Selection 02h 68h Gamma Selection 02h 68h Movie Adaptive 02h Settings Contrast 02h Noise 02h 8Dh Noise 02h Reduction 1: 0ff Settings 02h 20h Picture mode 02h 1Ah				0.01	D 1: 0D1	0.	4(04h):3000K
Bite Green: 9Dh Cyan: 9Eh Blue: 9Fh Saturation: 50(32h):(center) 100(64h): Gamma Selection 02h 68h Movie Adaptive 02h Settings Adaptive Contrast 02h Movie Adaptive Contrast 02h Noise 02h 20h Noise 02h Reduction 1 Film Mode 02h Settings Film Mode Picture mode 02h		Color control		00h			
Bit of the second se						50(32h):(center)	
Gamma Selection 02h 68h 0: pale Gamma Selection 02h 68h Gamma Wovie Adaptive 02h 8Dh 0: None Settings Adaptive 02h 8Dh 0: None Movie Adaptive 02h 8Dh 0: None Settings Adaptive 02h 8Dh 0: None I : Off 2: Low 3: Middle 4: High Noise 02h 20h 0: Off Film Mode 02h 23h 1: Off Picture mode 02h 1Ah 1: SRGB SRGB:							
Gamma Selection 02h 68h Gamma Table Selection I: Native Gamma 4: Gamma=2.2 8: Gamma=2.4 I: S Gamma 5: DICOM SIM. 6: Programmable 6: Programmable Movie Adaptive 02h Settings Adaptive 02h I: Off 2: Low I: Off 2: Low I: Midle 4: High I: Off 16(10h) : High Film Mode 02h 23h Picture mode 02h 1hh	[+]					100(64h):	
Gamma Selection 02h 68h Gamma Table Selection I: Native Gamma 4: Gamma=2.2 8: Gamma=2.4 I: S Gamma 5: DICOM SIM. 6: Programmable 6: Programmable Movie Adaptive 02h Settings Adaptive 02h I: Off 2: Low I: Off 2: Low I: Midle 4: High I: Off 16(10h) : High Film Mode 02h 23h Picture mode 02h 1hh	URI					0: pale	
Gamma Selection 02h 68h Gamma Table Selection I: Native Gamma 4: Gamma=2.2 8: Gamma=2.4 I: S Gamma 5: DICOM SIM. 6: Programmable 6: Programmable Movie Adaptive 02h Settings Adaptive 02h I: Off 2: Low I: Off 2: Low I: Midle 4: High I: Off 16(10h) : High Film Mode 02h 23h Picture mode 02h 1hh	ICT						
Movie SettingsAdaptive Contrast02h8Dh0: None 1: Off 2: Low 3: Middle 4: HighNoise Reduction02h20h0: Off 2: Low 3: Middle 4: HighNoise Reduction02h20h0: off 2: Low 3: Middle 16(10h) : HighPicture mode02h1hh1: SRGB	Ъ					10(0Ah): deep	
Movie Adaptive 02h 8Dh 0: None Settings Adaptive 02h 8Dh 0: None Movie Adaptive 02h 8Dh 0: None Settings Adaptive 02h 8Dh 0: None I: Off 2: Low 3: Middle 4: High Noise 02h 20h 0: Off Film Mode 02h 23h 1: Off Picture mode 02h 1Ah 1: sRGB sRGB:		Gamma Selecti	on	02h	68h		
Movie Adaptive 02h 8Dh 0: None Settings Adaptive 02h 8Dh 0: None Noise 02h 20h 0: None High Noise 02h 20h 0: Off Film Mode 02h 23h 1: Off 1: Off Picture mode 02h 1Ah 1: sRGB sRGB:							
Movie SettingsAdaptive Contrast02h8Dh0: None 1: Off 2: Low 3: Middle 4: HighNoise Reduction02h20h0: Off 1: Off 2: Low 3: Middle 16(10h) : HighFilm Mode02h23h1: Off 2: AutoPicture mode02h1Ah1: sRGB							
Movie Adaptive 02h 8Dh 0: None Settings Contrast 1: Off Noise 02h 20h 0: Off Reduction 1 0: Off Film Mode 02h 23h Picture mode 02h 14h						8: Gamma=2.4	
Movie Adaptive 02h 8Dh 0: None Settings Contrast 1: Off 2: Low Noise 02h 20h 0: Off Reduction 1 0: Off 1 Film Mode 02h 23h 1: Off Picture mode 02h 14h 1: sRGB							
Movie Settings Adaptive Contrast 02h 8Dh 0: None Noise 02h 8Dh 1: Off Noise 02h 20h 3: Middle Reduction 20h 0: Off Film Mode 02h 23h 1: Off Picture mode 02h 1Ah 1: sRGB sRGB:							
Settings Contrast 1: Off Noise 02h 20h 0: Off Reduction 1: Off 1 Film Mode 02h 23h 1: Off Picture mode 02h 1Ah 1: SRGB		Movie	Adaptive	02h	8Dh		
Noise 02h 20h 0: Off Reduction 16(10h) : High Film Mode 02h 23h Picture mode 02h 1Ah				5211			
Noise 02h 20h 0: Off Reduction 16(10h) : High 16(10h) : High Film Mode 02h 23h 1: Off Picture mode 02h 1Ah 1: sRGB sRGB:						2: Low	
Noise Reduction02h 20h20h 16(10h) : HighFilm Mode02h23h1: Off 2: AutoPicture mode02h1Ah1: sRGBsRGB:							
Reduction 16(10h) : High Film Mode 02h 23h 1: Off Picture mode 02h 1Ah 1: sRGB sRGB:			Noise	02h	20h		
Indext Index Index Index <td></td> <td></td> <td></td> <td>0211</td> <td>2011</td> <td></td> <td></td>				0211	2011		
Picture mode 02h 1Ah 1: sRGB sRGB:							
Picture mode 02h 1Ah 1: sRGB sRGB:		Film Mode		02h	23h	-	
		Picture mode		0.02	126		aBCD ·
				u∠n			PC mode only
4: Standard Cinema:							
5: Cinema A/V mode or						5: Cinema	A/V mode only
6: ISF-Day						6: ISF-Day	
7: ISF-Night ISF-Day: 11: Ambient-1 ISF-Night:							ISF-Day: ISF-Night:
							Each needs an
							adjustment by
ISF.							

r	Item		OP	OP code	Parameter	Remarks
			code	or code	FALAMELEL	NEMALKS
			page			
	Ambient	Ambient	10h	33h	0: dark	
	TIMOTCHIC	Brightness	1011	5511		
		Low			100(64h): bright	
		Ambient	10h	34h	0: dark	
		Brightness		0 111		
		High			100(64h): bright	
		Get Current	02h	B4h	0:	Read only
		Illuminance				
					Max.	
		Bright	02h	B5h	0:	Read only
		Sensor Read	-	-		1
					255(FFh)	
	Menu tree res	et	02h	CBh	0: None	Momentary
	(Picture)				2: Reset	-
					Picture category	
	Auto Setup		00h	1Eh	1: Execute	Momentary
	Auto Adjust				N/A	
	H Position		00h	20h	0: Left side	Depends on a
						display
					Max.: Right side	timing
	V Position		00h	30h	0: Bottom side	Depends on a
	V TODICION		0011	5011		display
					Max.: Top side	timing
	Clock		00h	0Eh	0:	01119
	010011		0011	0211		
					Max. :	
	Clock Phase		00h	3Eh	0:	
					Max. :	
	H Resolution		02h	50h	0: Low	
			-			
					Max. : High	
	V Resolution		02h	51h	0: Low	
					Max.: High	
	Input Resolut	ion	02h	DAh	1: Auto	
					2: 1024x768	
H					3: 1280x768	
ns					4: 1360x768	
ADJUST					5: 1366x768	
Ŕ					6: 1400x1050	
					7: 1680x1050	
	Zoom Mode	Base Zoom	02h	CEh	3:16:9-ZOOM	
					4:14:9-ZOOM	
					5:Dynamic	
					1:Off (Real)	
				ļ	2:Custom	
		Zoom	02h	6Fh	1:100%	
					2:101%	
					201:300%	
		Zoom	02h	6Ch	1:100%	
		H-Expansion			2:101%	
		-				
					201:300%	
		7.0.0m	იეგ	6Dh		
		Zoom V-Expansion	02h	וועס	1:100%	
		v-rybangrou			2:101%	
					201:300%	
		Zoom	02h	CCh	0: Left side	
		H-Position				
					Max.: Right side	

	Item		OP	OP code	Parameter	Remarks
			code	or code	I UI UIIIC CCI	ICHIGT VD
			page			
	Zoom		02h	CDh	0: Down side	
		V-Position				
					Max.: Up side	
	Aspect		02h	70h	1: Normal	Wide:
					2: Full	A/V mode only
					3: Wide	(exc.X431BT)
					4: Zoom 5: Trim	Not available
					5. 1110	(X431BT)
						Trim:
						X431BT only
	Menu tree res	et	02h	CBh	0: None	Momentary
	(Adjust)				3: Reset	1 1 1 1
					Adjust category	
	Balance		00h	93h	0: Left	Notavailable
						on X461UN.
					50:(Center)	
			0.01	0.51	100: Right	AT-+
	Treble		00h	8Fh	O: Min.	Not available
					 50:(Center)	on X461UN.
					50. (Center)	
					100: Max.	
	Bass		00h	91h	0: Min.	Notavailable
	Lass		0011	, <u>, , , , , , , , , , , , , , , , , , </u>		on X461UN.
					50:(Center)	
0 L						
AUDIO					100: Max.	
A	PIP Audio				N/A	
	Line out				N/A	
	SURROUND		02h	34h	1: Off	Notavailable
					2: Low (or On)	on X461UN.
	Audio Trant		02h	0.E.b.	3: High (or On) 1: Audio 1(PC)	
	Audio Input		0211	2Eh	1: Audio 1(PC) 2: Audio 2	
					2: Audio 2 3: Audio 3	
					4: HDMI	
					6: TV/Option	
					7: Display Port	
	Menu tree res	et	02h	CBh	0: None	Momentary
	(Audio)				4: Reset	
					Audio category	
	Off Timer		02h	2Bh	0: Off	1 hour/step
					1: 1 hour	
					 24, 24 haven	
	Enable Schedule		02h	E5h	24: 24 hours 0: No Mean	
	Enable Schedule		UZII	E 011	1: No.1 Enable	
臣						
SCHDULE					7: No.7 Enable	
SCF	Disable Sched	ule	02h	E6h	0: No Mean	
	DISADLE SCHEQULE				1: No.1 Disable	
					7: No.7 Disable	
	Menu tree res	et	02h	CBh	0: None	Momentary
	(Schedule)				5: Reset	
					Schedule category	
д	Keep PIP Mode				N/A	

	Them		0.5	0.0	Demosister	Demo1
	Item		OP	OP code	Parameter	Remarks
			code			
	1		page	5.01	1 055	
	PIP Mode		02h	72h	1: Off	POP:
					2: PIP	Side by side
					3: POP	(aspect):
					(4: Still)	Notavailable
					5: Side by side	on X431BT
					(aspect)	
					6: Side by side	POP
					(Full)	aspect Main:
					7: POP aspect Main	POP
					8: POP aspect Sub	aspect Sub:
						X431BT only
	PIP Size		02h	71h	1: Small	
					2: Middle	
					3: Large	
	PIP H Position	L	02h	74h	0: left	
					100(64h): right	
	PIP V Position		02h	75h	0: top	
					100(64h): bottom	
	Aspect				N/A	
	Text Ticker	Mode	10h	08h	0: None	
					1: Off	
					2: Horizontal	
					3: Vertical	
		Position	10h	09h	0: Top/Left	
		robición	1011	0,011		
					100: Bottom/Right	
		Size	10h	0Ah	0-1: Do not set.	
		SIZE	1011	UAII	2: Narrow(2/24)	
					2: NallOw(2/24)	
		Dland	1.0.b	ODh	8: Wide(8/24)	
		Blend	10h	0Bh	1: 10%	
					10, 100%	
			1.01	0.01	10: 100%	
		Detect	10h	0Ch	0: None	
					1: Auto	
		- 1 -	1.01	0-1	2: Off	
		Fade In	10h	0Dh	0: None	
					1: On	
					2: Off	
	PIP Input(Sub	input)	02h	73h	0: No mean	This
					1: VGA	operationhas
					2: RGB/HV	limitationof
					3: DVI	selection.
					4: HDMI (Set only)	Please refer
					5: Videol	to the
					6: Video2	monitor
					7: S-Video	instruction
					10: TV	manual.
					12: DVD/HD1	
					13: Option	
					14: DVD/HD2	
					15: Display Port	
					17: HDMI	
	Menu tree rese	t	02h	CBh	0: None	Momentary
	(PIP)				6: Reset	
					PIP category	
	Language		00h	68h	1: English	OSD Language
					2: German	
					3: French	
OSD					4: Spanish	
0°					5: Japanese	
					6: Italian	
					7: Swedish	
			1	1		1
					9: Russian	

	There		0.5		Demonstration	Demol
	Item		OP code page	OP code	Parameter	Remarks
	OSD Turn Off		00h	FCh	0-1: Do not set. 2: 10s 3: 15s	5sec/step
					 48: 240s	
	OSD Position	H Position	02h	38h	0: Left MAX.: Right	
		V Position	02h	39h	0: Down MAX.: Up	
	Information O	SD	02h	3Dh	0:Disable information OSD 3-10: OSD timer [seconds]	
	OSD Transpare	ncy	02h	B8h	0: None 1: Off(Opaque) 2: TYPE1 3: TYPE2	
	Menu tree res (OSD)	et	02h	CBh	0: None 7: Reset OSD category	Momentary
	Monitor ID		02h	3Eh	1-100:ID	
	IR Control		02h	3Fh	1: Normal 2: Primary 3: Secondary 4: Lock (Off)	
	Tile Matrix	H monitor	02h	D0h	1 10	Number ofH-division
	V monit		02h	Dlh	1 10	Number of V-division
		Position	02h	D2h	1: Upper left MAX.: Lower right	
AY		Tile comp	02h	D5h	1: Disable (Off) 2: Enable (On)	
MULTI DISPLAY		Mode	02h	D3h	1: Disable (Off) and display frame 2: Enable (On) 3: Disable (Off) and erase frame (Set only)	
	Power On Delay		02h	D8h	0: Off (0sec) 50:50sec	
	Power Indicator		02h	BEh	0: None 1: On 2: Off	
	External control		10h	3Eh	0: No mean 1: RS-232C 2: LAN	
	Setting copy Menu tree reset (Multi Display)		02h	CBh	N/A 0: None 8: Reset Multi Display category	Momentary
CTIO	Power Save		00h	Elh	0: Off 1: On	
DISPLAY PROTECTIO N	Standby Mode		02h	9Ah	0: None 1: Standby 2: ECO Standby	

	Ttom			OD and a	Damamatan	Domanica
	Item		OP	OP code	Parameter	Remarks
			code			
			page			
	Fan Control		02h	7Dh	0: None	Offset
					1: Auto(No offset)	affects to a
					2: Forced ON	selected
					3: Auto(offset -2)	sensor.
					4: Auto(offset -4)	
					5: Auto(offset -6)	
					6: Auto(offset -8)	
					7: Auto(offset -10)	
	Fan Speed		10h	3Fh	0: None	
					1: High	
					2: Low	
	Screen Saver	Gamma	02h	DBh	1: normal	
	SCICCII Savei	Gaillina	0211	DDII		
					2:screen saving	
		-			gamma	
		Brightness	02h	DCh	1:normal	
					2:decrease	
					brightness	
		Motion	02h	DDh	0: 0s(Off)	10s/step
				-		···· = = = E,
					90: 900s	
			0.01			
	Side Border Color		02h	DFh	0: Black	
					100: White	
	Auto Brightness		02h	2Dh	0: Off	
			-		1: On	
	Menu tree rea	not	02h	CBh	0: None	Momentary
			0211	CBII		Momentary
	(Display Prot	cection)			9: Reset	
					Display Protection	
					category	
	Input Detect		02h	40h	0: First detect	
	-				1: Last detect	
					2: None	
					3: VIDEO detect	
					4: Custom detect	
	Que en la com	Devi e set te s 1	1.01-	0.51		
	Custom	Priority1	10h	2Eh	0: No mean	
	Detect				1: VGA	
					2: RGB/HV	
Advanced Option		Priority2	10h	2Fh	3: DVI	
					4: HDMI (Set only)	
					5: Videol	
		Priority3	10h	30h	6: Video2	
		-			7: S-Video	
		Priority4	10h	31h	10: TV	
					12: DVD/HD1	
					13: Option	
		Priority5	10h	32h	14: DVD/HD2	
			- 011	5	15: Display Port	
					17: HDMI	
	Input change		1	1	N/A	
	Input change	Equalize	10h	3Dh	0: No mean	
			T 1 1 1	וועכ		
	Long Cable	Equatize	-		1. 055	
		Equalize	-		1: Off	
	Long Cable				2: On	
	Long Cable	Pole	10h	36h		
	Long Cable			36h	2: On	
	Long Cable			36h	2: On 0: 	
	Long Cable	Pole	10h		2: On 0: 255(FFh):	
	Long Cable			36h 37h	2: On 0: 	
	Long Cable	Pole	10h		2: On 0: 255(FFh): 0: 	
	Long Cable	Pole Peak	10h 10h	37h	2: On 0: 255(FFh): 0: 255(FFh):	
	Long Cable	Pole	10h		2: On 0: 255(FFh): 0: 	
	Long Cable	Pole Peak	10h 10h	37h	2: On 0: 255(FFh): 0: 255(FFh):	
	Long Cable	Pole Peak	10h 10h	37h	2: On 0: 255(FFh): 0: 255(FFh):	
	Long Cable	Pole Peak Gain	10h 10h 10h	37h 38h	2: On 0: 255(FFh): 0: 255(FFh): 0: 	
	Long Cable	Pole Peak	10h 10h	37h	2: On 0: 255(FFh): 0: 255(FFh): 0: 255(FFh):	
	Long Cable	Pole Peak Gain	10h 10h 10h	37h 38h	2: On 0: 255(FFh): 0: 255(FFh): 0: 255(FFh):	

10011	Item		OP code	Parameter	Remarks
		code			
		page			
	SYNC	02h	Elh	1: Hi(2.2kohm)	
	Terminate	0211	DTH	2: Lo(75ohm)	
DVI Mode	Terminace	02h	CFh	1: DVI-PC	
DVI MOde		0211	CFII		
CODE M. 1		02h	a_1	2: DVI-HD	
SCART Mode	SCART Mode		9Eh	0: Off	
		10h		1: On	
HDMI Signal	HDMI Signal Scan Conversion		40h	0: None	
				1: Expand	
				2: Raw	
Scan Conversi			25h	1: Off(INTERLACE)	
				2: Enable	
				(IP ON/PROGRESSIVE)	
Color Crator	Color Cratom		21h	1: NTSC	
Color System		02h	2111	2: PAL	
				3: SECAM	
				4: Auto	
				5: 4.43NTSC	
				6: PAL-60	
Scan Mode		02h	E3h	1: Under Scan	
				2: Over Scan	
Menu tree rea	set	02h	CBh	0: None	Momentary
(Advanced Opt		0 211	0211	10: Reset Advanced	fiomoniouz j
(Auvanceu opt	,1011)			option category	
			(D)		
Menu tree res		02h	CBh	0: None	Momentary
(Factory rese	et)			1: Factory Reset	
Input		00h	60h	0: No mean	
				1: VGA	
				2: RGB/HV	
				3: DVI	
				4: HDMI (Set only)	
				5: Videol	
				6: Video2	
				7: S-Video	
				10: TV	
				12: DVD/HD1	
				13: Option	
				14: DVD/HD2	
				14: DVD/HD2 15: Display Port	
Audio Input		02h	2Eh	15: Display Port 17: HDMI	
Audio Input		02h	2Eh	15: Display Port 17: HDMI 1: Audio 1(PC)	
Audio Input		02h	2Eh	15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2	
Audio Input		02h	2Eh	15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2 3: Audio 3	
Audio Input		02h	2Eh	15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2 3: Audio 3 4: HDMI	
Audio Input		02h	2Eh	15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2 3: Audio 3 4: HDMI 6: TV/Option	
				15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2 3: Audio 3 4: HDMI 6: TV/Option 7: Display Port	
Audio Input		02h	2Eh 62h	15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2 3: Audio 3 4: HDMI 6: TV/Option	
	m			15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2 3: Audio 3 4: HDMI 6: TV/Option 7: Display Port 0: whisper	
				15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2 3: Audio 3 4: HDMI 6: TV/Option 7: Display Port	
	m			15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2 3: Audio 3 4: HDMI 6: TV/Option 7: Display Port 0: whisper	
Volume UP/Dov	vn	00h	62h	15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2 3: Audio 3 4: HDMI 6: TV/Option 7: Display Port 0: whisper 100: loud	
Volume UP/Dov Mute	vn	00h 00h	62h 8Dh	15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2 3: Audio 3 4: HDMI 6: TV/Option 7: Display Port 0: whisper 1 100: loud 0,2: UNMUTE 1: MUTE	This
Volume UP/Dov	vn	00h	62h	15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2 3: Audio 3 4: HDMI 6: TV/Option 7: Display Port 0: whisper 100: loud 0,2: UNMUTE 1: MUTE 0: None	This
Volume UP/Dov Mute	vn	00h 00h	62h 8Dh	15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2 3: Audio 3 4: HDMI 6: TV/Option 7: Display Port 0: whisper 100: loud 0,2: UNMUTE 1: MUTE 0: None 1: Main	operation
Volume UP/Dov Mute	vn	00h 00h	62h 8Dh	15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2 3: Audio 3 4: HDMI 6: TV/Option 7: Display Port 0: whisper 1 100: loud 0,2: UNMUTE 1: MUTE 0: None 1: Main 2: Sub	operation requires
Volume UP/Dov Mute	vn	00h 00h	62h 8Dh	15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2 3: Audio 3 4: HDMI 6: TV/Option 7: Display Port 0: whisper 100: loud 0,2: UNMUTE 1: MUTE 0: None 1: Main	operation requires supported
Volume UP/Dov Mute	vn	00h 00h	62h 8Dh	15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2 3: Audio 3 4: HDMI 6: TV/Option 7: Display Port 0: whisper 1 100: loud 0,2: UNMUTE 1: MUTE 0: None 1: Main 2: Sub	operation requires supported option T
Volume UP/Dov Mute	vn	00h 00h	62h 8Dh	15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2 3: Audio 3 4: HDMI 6: TV/Option 7: Display Port 0: whisper 1 100: loud 0,2: UNMUTE 1: MUTE 0: None 1: Main 2: Sub 3: Main + Sub	operation requires supported
Volume UP/Dov Mute	vn	00h 00h	62h 8Dh	15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2 3: Audio 3 4: HDMI 6: TV/Option 7: Display Port 0: whisper 1 100: loud 0,2: UNMUTE 1: MUTE 0: None 1: Main 2: Sub	operation requires supported option T
Volume UP/Dov Mute MTS	vn	00h 00h 02h	62h 8Dh 2Ch	15: Display Port 17: HDMI 1: Audio 1(PC) 2: Audio 2 3: Audio 3 4: HDMI 6: TV/Option 7: Display Port 0: whisper 1 100: loud 0,2: UNMUTE 1: MUTE 0: None 1: Main 2: Sub 3: Main + Sub	operation requires supported option T tuner.

	Item	OP	OP code	Parameter	Remarks
		code page			
	Picture Mode	02h	1Ah	1: sRGB 3: Hi-Bright 4: Standard 5: Cinema 6: ISF-Day 7: ISF-Night 11: Ambient-1 12: Ambient-2	sRGB: PC mode only Cinema: A/V mode only ISF-Day: ISF-Night: Each needs an adjustment by ISF.
	Aspect	02h	70h	1: Normal 2: Full 3: Wide 4: Zoom	Wide: A/V mode only
	PIP ON/OFF Still ON/OFF	02h	72h	1: Off 2: PIP 3: POP 4: Still 5:Side by side (aspect) 6: Side by side (Full)	
	PIP Input	02h	73h	0: No mean 1: VGA 2: RGB/HV 3: DVI 4: HDMI (Set only) 5: Video1 6: Video2 7: S-Video 10: TV 12: DVD/HD1 13: Option 14: DVD/HD2 15: Display Port 17: HDMI	This operation has limitation of selection. Please refer to the monitor instruction manual.
	Still Capture	02h	76h	0: Off 1: Capture	Momentary
	Signal Information	02h	EAh	0: No Action 1: Off (No indication) 2: On (Indication)	
	Auto Setup	00h	1Eh	1: Execute	Momentary
	TV-Channel UP/DOWN	00h	8Bh	0: No Action 1: Up 2: Down	This operation requires supported option TV tuner.
Temperature sensor	Select Temperature sensor	02h	78h	1: Sensor #1 2: Sensor #2 3: Sensor #3	
Tempei sen	Readout a temperature	02h	79h	Returned value is 2's complement. Refer to section 6.2	Read only
Carbon footprint	Readout carbon footprint (g)	10h	10h	0: 999:	Read only
Car foot	Readout carbon footprint (kg)	10h	11h	0: 65535:	Read only

All data are subject to change without notice.

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