# External Control

**NEC LCD Monitor**

## INDEX

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Application</td>
<td>4</td>
</tr>
<tr>
<td>II. Preparation</td>
<td>5</td>
</tr>
<tr>
<td>2. Connectors and wiring</td>
<td>5</td>
</tr>
<tr>
<td>2.1 RS-232C Remote control</td>
<td>5</td>
</tr>
<tr>
<td>2.2 LAN control</td>
<td>5</td>
</tr>
<tr>
<td>2.3 Multi Monitors Connection</td>
<td>6</td>
</tr>
<tr>
<td>III. Communication specification</td>
<td>7</td>
</tr>
<tr>
<td>3. Communication Parameter</td>
<td>7</td>
</tr>
<tr>
<td>3.1 RS-232C Remote control</td>
<td>7</td>
</tr>
<tr>
<td>3.2 LAN control</td>
<td>7</td>
</tr>
<tr>
<td>3.3 Communication timing</td>
<td>7</td>
</tr>
<tr>
<td>4. Communication Format</td>
<td>8</td>
</tr>
<tr>
<td>4.1 Header block format (fixed length)</td>
<td>9</td>
</tr>
<tr>
<td>4.2 Message block format</td>
<td>11</td>
</tr>
<tr>
<td>4.3 Check code</td>
<td>13</td>
</tr>
<tr>
<td>4.4 Delimiter</td>
<td>14</td>
</tr>
<tr>
<td>5. Message type</td>
<td>15</td>
</tr>
<tr>
<td>5.1 Get current Parameter from a monitor</td>
<td>15</td>
</tr>
<tr>
<td>5.2 &quot;Get parameter&quot; reply</td>
<td>16</td>
</tr>
<tr>
<td>5.3 Set parameter</td>
<td>18</td>
</tr>
<tr>
<td>5.4 &quot;Set parameter&quot; reply</td>
<td>19</td>
</tr>
<tr>
<td>5.5 Commands</td>
<td>20</td>
</tr>
<tr>
<td>5.5.1 Save Current Settings</td>
<td>20</td>
</tr>
<tr>
<td>5.5.2 Get Timing Report and Timing reply</td>
<td>21</td>
</tr>
<tr>
<td>5.5.3 NULL Message</td>
<td>22</td>
</tr>
<tr>
<td>IV. Control Commands</td>
<td>23</td>
</tr>
<tr>
<td>6. Typical procedure example</td>
<td>23</td>
</tr>
<tr>
<td>6.1. How to change the &quot;Backlight&quot; setting</td>
<td>23</td>
</tr>
<tr>
<td>6.2. How to read the measurement value of the built-in temperature sensors</td>
<td>26</td>
</tr>
<tr>
<td>6.3. Operation Code (OP code) Table</td>
<td>29</td>
</tr>
<tr>
<td>6.4. Operation Code (OP code) Table for INPUT CONFIGURATION</td>
<td>44</td>
</tr>
<tr>
<td>7. Power control procedure</td>
<td>45</td>
</tr>
<tr>
<td>7.1 Power status read</td>
<td>45</td>
</tr>
<tr>
<td>7.2 Power control</td>
<td>47</td>
</tr>
</tbody>
</table>
8. Asset Data read and write ........................................... 49
   8.1 Asset Data Read Request and reply .......................... 49
   8.2 Asset Data write .................................................. 51

9. Date & Time read and write ........................................ 53
   9.1 Date & Time Read .................................................. 53
   9.2 Date & Time Write ............................................... 55

10. Schedule read and write .......................................... 58
    10.1 Schedule Read .................................................... 58
    10.2 Schedule Write .................................................. 63

11. Self diagnosis ....................................................... 73
    11.1 Self-diagnosis status read .................................. 73

12. Serial No. & Model Name Read ................................. 75
    12.1 Serial No. Read .................................................. 75
    12.2 Model Name Read ................................................. 77

13. Security Lock ....................................................... 79
    13.1 Security Lock Control ......................................... 79

14. Direct TV Channel Read & Write ............................... 81
    14.1 Direct TV Channel Read & Reply ............................ 81
    14.2 Direct TV Channel Write & Reply ........................... 82

15. Daylight Saving read & write ................................... 83
    15.1 Daylight Saving Read ......................................... 83
    15.2 Daylight Saving Write ........................................ 85

16. Firmware Version .................................................. 87
    16.1 Firmware Version Read ....................................... 87

17. Auto ID ............................................................... 89
    17.1 Auto ID Execute ................................................ 89
    17.2 Auto ID Complete .............................................. 91
    17.3 Auto ID Reset ................................................... 93

18. Input Name .......................................................... 94
    18.1 Input Name Read ................................................ 94
    18.2 Input Name Write ................................................. 96
    18.3 Input Name Reset ................................................. 98

19. Power Save Mode .................................................. 100
    19.1 Power Save Mode Read ....................................... 100
    19.2 Power Save Mode Write ....................................... 102
    19.3 Auto Power Save Time Read .................................. 104
    19.4 Auto Power Save Time Write .................................. 105
    19.5 Auto Standby Time Read ...................................... 107
19.6 Auto Standby Time Write ............................................................ 108
20. Setting Copy ................................................................. 110
   20.1 Setting Copy Read .................................................. 110
   20.2 Setting Copy Write .................................................. 112
   20.3 Setting Copy Start .................................................. 114
21. Security Enable ............................................................. 116
   21.1 Security Enable Read .............................................. 116
   21.2 Security Enable Write ............................................. 118
22. LAN MAC Address ......................................................... 120
   22.1 LAN MAC Address Read ........................................... 120
23. Proof of Play ................................................................. 122
   23.1 Set Proof of Play Operation Mode ................................. 122
   23.2 Get Proof of Play Current ......................................... 124
   23.3 Get Proof of Play Status .......................................... 126
   23.4 Get Proof of Play Number to Number ............................. 128
I. Application
This document defines the communications method for control of the NEC LCD monitor, MultiSync X841UHD, X981UHD, X651UHD when using an external controller.
II. Preparation

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

NOTE: Use a category 5 or higher LAN cable.
2.3 Multi Monitors Connection

You can control multiple monitors by using RS-232C, REMOTE IN or LAN daisy-chain connection.

<table>
<thead>
<tr>
<th>Main Monitor Connector</th>
<th>Sub Monitors Connector</th>
</tr>
</thead>
<tbody>
<tr>
<td>IN</td>
<td>OUT</td>
</tr>
<tr>
<td>RS-232C</td>
<td>MAC</td>
</tr>
<tr>
<td>REMOTE IN</td>
<td>LAN2</td>
</tr>
<tr>
<td>LAN1</td>
<td></td>
</tr>
</tbody>
</table>

(Please refer “Controlling the LCD monitor via LAN control” on User’s manual.)

In this connection, a command is transmitted to the connected MultiSync on the following environment.
1. AUTO ID function is performed on Main Monitor.
   (Please refer “MULTI DISPLAY of OSD (On-Screen-Display) Controls” on User’s manual.)
2. Destination byte of Command Header is "MONITOR ID = ALL", "GROUP ID" or "MONITOR ID of Sub Monitor".
   (Please refer section 4.1.)
III. Communication specification

3. Communication Parameter

3.1 RS-232C Remote control

<table>
<thead>
<tr>
<th>(1) Communication system</th>
<th>Asynchronous</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Interface</td>
<td>RS-232C</td>
</tr>
<tr>
<td>(3) Baud rate</td>
<td>9600bps</td>
</tr>
<tr>
<td>(4) Data length</td>
<td>8bits</td>
</tr>
<tr>
<td>(5) Parity</td>
<td>None</td>
</tr>
<tr>
<td>(6) Stop bit</td>
<td>1 bit</td>
</tr>
<tr>
<td>(7) Communication code</td>
<td>ASCII</td>
</tr>
</tbody>
</table>

3.2 LAN control

<table>
<thead>
<tr>
<th>(1) Communication system</th>
<th>TCP/IP (Internet protocol suite)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(2) Interface</td>
<td>Ethernet (CSMA/CD)</td>
</tr>
<tr>
<td>(3) Communication layer</td>
<td>Transport layer (TCP)</td>
</tr>
<tr>
<td></td>
<td>* Using the payload of TCP segment.</td>
</tr>
<tr>
<td>(4) IP address</td>
<td>(Default) Automatic setup</td>
</tr>
<tr>
<td></td>
<td>* If you need to change,</td>
</tr>
<tr>
<td></td>
<td>Please refer &quot;Network settings&quot; on User’s manual.</td>
</tr>
<tr>
<td>(5) Port No.</td>
<td>7142 (Fixed)</td>
</tr>
</tbody>
</table>

(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 reply packet before the next command is sent.

(Note)

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

- Power On, Power Off: 15 seconds
- Input, PIP Input, Auto Setup, Factory Reset: 10 seconds
4. Communication Format

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

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

- For the general command (see the part "6.3. Operation Code (OP code) Table")
  - Get Parameter
    - The controller sends command to get a value from the monitor that you want to change.
    - The monitor replies a current value of the requested item.
  - Set Parameter
    - The controller sends commands to set an adjusted value.
    - The monitor replies to the controller for confirmation.
  - Save Current Setting Command
    - The controller requests to store the adjusted value to the monitor.
    - The monitor replies to the controller for confirmation.

- For the special command (see the part 7 to 23. and 5.5.2)
  - Command
    - The control does not suitable for above fixed protocol; use the proper command for each control. Please refer section 5.5 and section 7 to 23.
    - The monitor replies a proper message defined for each control.
4.1 Header block format (fixed length)

<table>
<thead>
<tr>
<th></th>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH</td>
<td>Reserved</td>
<td>Destination</td>
<td>Source</td>
<td>Message Type</td>
</tr>
</tbody>
</table>

1\(^{st}\) byte) SOH: Start of Header
- ASCII SOH (01h)

2\(^{nd}\) byte) Reserved: Reserved for future extensions.
- On this monitor, it must be ASCII '0' (30h).

3\(^{rd}\) byte) 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,

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

| ALL       | 2Ah ('*')          |

<table>
<thead>
<tr>
<th>Group ID</th>
<th>Destination Address</th>
<th>Group ID</th>
<th>Destination Address</th>
<th>Group ID</th>
<th>Destination Address</th>
<th>Group ID</th>
<th>Destination Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>31h ('A')</td>
<td>D</td>
<td>34h ('G')</td>
<td>G</td>
<td>37h ('M')</td>
<td>J</td>
<td>3Ah ('L')</td>
</tr>
<tr>
<td>B</td>
<td>32h ('B')</td>
<td>E</td>
<td>35h ('H')</td>
<td>H</td>
<td>38h ('N')</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>33h ('C')</td>
<td>F</td>
<td>36h ('I')</td>
<td>I</td>
<td>39h ('O')</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(9/130)
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).

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

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

6th - 7th 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).
4.2 Message block format

"Message block format" is allied to the "Message Type" in the "Header".
Refer to the section 4.1 "Header block 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,

<table>
<thead>
<tr>
<th>STX</th>
<th>OP code page</th>
<th>OP code</th>
<th>ETX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hi</td>
<td>Lo</td>
<td>Hi</td>
<td>Lo</td>
</tr>
</tbody>
</table>

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

2) Get Parameter reply

The monitor will reply with the status of the requested item specified by the controller
in the "Get parameter message".
"Message format" of the "Get parameter reply" is as follows,

<table>
<thead>
<tr>
<th>STX</th>
<th>OP code page</th>
<th>OP code</th>
<th>Type</th>
<th>Max value</th>
<th>Current Value</th>
<th>ETX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hi</td>
<td>Lo</td>
<td>Hi</td>
<td>Lo</td>
<td>Hi</td>
<td>Lo</td>
<td>MSB</td>
</tr>
</tbody>
</table>

- 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,

<table>
<thead>
<tr>
<th>STX</th>
<th>OP code page</th>
<th>OP code</th>
<th>Set Value</th>
<th>ETX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hi</td>
<td>Lo</td>
<td>Hi</td>
<td>Lo</td>
<td>MSB</td>
</tr>
</tbody>
</table>

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

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,

<table>
<thead>
<tr>
<th>STX</th>
<th>OP code page</th>
<th>OP code</th>
<th>Type</th>
<th>Max value</th>
<th>Requested setting Value</th>
<th>ETX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hi</td>
<td>Lo</td>
<td>Hi</td>
<td>Lo</td>
<td>Hi</td>
<td>Lo</td>
<td>MSB</td>
</tr>
</tbody>
</table>

- 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.
4.3 Check code

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

\[ D_{n+1} = D_1 \text{ XOR } D_2 \text{ XOR } D_3 \text{ XOR } \ldots \text{ XOR } D_n \]

XOR: Exclusive OR

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

| Header | Message | Check code | Delimiter |

Packet delimiter code; ASCII CR(0Dh).
5. Message type

5.1 Get current Parameter from a monitor.

<table>
<thead>
<tr>
<th>STX</th>
<th>OP code page</th>
<th>OP code</th>
<th>ETX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hi</td>
<td>Lo</td>
<td>Hi</td>
<td>Lo</td>
</tr>
</tbody>
</table>

STX: Start of Message

ASCII STX (02h)

2nd-3rd bytes) OP code page: Operation code page.

Specify the "OP code page" for the control which you want to get the status.
Refer to "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-5th bytes) 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.

6th byte) ETX: End of Message

ASCII ETX (03h)
5.2 "Get parameter" reply

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

1st byte) STX: Start of Message

ASCII STX (02h)

2nd-3rd bytes) Result code.

These bytes indicate a result of the requested commands as follows,

00h: No Error.

01h: Unsupported operation with this monitor or unsupported operation under current condition.

This result code from the monitor is encoded to ASCII characters.

Ex.) The byte data 01h is encoded to ASCII character '0' and '1' (30h and 31h).

4th-5th bytes) OP code page: Operation code page.

These bytes indicate a replying item's OP code page.

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

Ex.) The byte data 02h is encoded to ASCII character '0' and '2' (30h and 32h).

Refer to the operation code table.

6th-7th bytes) OP code: Operation code

These bytes indicate a replying item's OP code.

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

Refer to the operation code table.

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

8th-9th bytes) Type: Operation type code

00h: Set parameter

01h: Momentary

Like the Auto Setup function which automatically changes the parameter.

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

Ex.) The byte data 01h is encoded to ASCII character '0' and '1' (30h and 31h).

10th-13th bytes) Max. value: Maximum value which monitor can accept. (16bits)

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

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

14th-17th bytes) Current Value: (16bits)

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

Ex.) '0','1','2' and '3' means 0123h (291)
18th byte) ETX: End of Message

ASCII ETX (03h)
5.3 Set parameter

<table>
<thead>
<tr>
<th>STX</th>
<th>OP code page</th>
<th>OP code</th>
<th>Set Value</th>
<th>ETX</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hi</td>
<td>Lo</td>
<td>Hi</td>
<td>Lo</td>
</tr>
<tr>
<td>1st</td>
<td>2nd-3rd</td>
<td>4th-5th</td>
<td>6th-9th</td>
<td>10th</td>
</tr>
</tbody>
</table>

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

The controller requests a monitor to change value.

1st byte) STX: Start of Message

ASCII STX (02h)

2nd-3rd bytes) OP code page: Operation code page

This OP code page data must be encoded to ASCII characters.

Ex.) The byte data 02h must be encoded to ASCII '0' and '2' (30h and 32h).

Refer to the Operation code table.

4th-5th bytes) OP code: Operation code

This OP code data must be encoded to ASCII characters.

Ex.) OP code 1Ah -> OP code (Hi) = ASCII '1' (31h)

OP code (Lo) = ASCII 'A' (41h)

Refer to the Operation code table.

6th-9th bytes) Set value: (16bit)

This data must be encoded to ASCII characters.

Ex.) 0123h -> 1st (MSB) = ASCII '0' (30h)

2nd = ASCII '1' (31h)

3rd = ASCII '2' (32h)

4th (LSB) = ASCII '3' (33h)

10th byte) ETX: End of Message

ASCII ETX (03h)
5.4 "Set parameter" reply

<table>
<thead>
<tr>
<th>STX</th>
<th>Result</th>
<th>OP code page</th>
<th>OP code</th>
<th>Type</th>
<th>Max value</th>
<th>Requested setting Value</th>
<th>ETX</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Hi Lo</td>
<td>Hi Lo</td>
<td>Hi Lo</td>
<td>MSB</td>
<td>LSB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hi Lo</td>
<td>Hi Lo</td>
<td>Hi Lo</td>
<td>Hi Lo</td>
<td>LSB</td>
<td>LSB</td>
<td></td>
</tr>
</tbody>
</table>

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

1st byte) STX: Start of Message
ASCII STX (02h)

2nd-3rd bytes) Result code
ASCII '0''0' (30h, 30h): No Error.
ASCII '0''1' (30h, 31h): Unsupported operation with this monitor or unsupported operation under current condition.

4th-5th bytes) OP code page: Echoes back the Operation code page for confirmation.
Reply data from the monitor is encoded to ASCII characters.
Ex.) OP code page 02h -> OP code page = ASCII '0' and '2' (30h and 32h)
Refer to Operation code table.

6th-7th bytes) OP code: Echoes back the Operation code for confirmation.
Reply data from the monitor is encoded to ASCII characters.
Ex.) OP code 1Ah -> OP code (Hi) = ASCII '1' (31h)
      OP code (Lo) = ASCII 'A' (41h)
Refer to Operation code table.

8th-9th bytes) Type: Operation type code
ASCII '0''0' (30h, 30h): Set parameter
ASCII '0''1' (30h, 31h): Momentary
Like Auto Setup function, that automatically changes the parameter.

10th-13th bytes) Max. value: Maximum value that monitor can accept. (16bits)
Reply data from the monitor is encoded to ASCII characters.
Ex.) '0''1''2''3' means 0123h (291)

14th-17th bytes) Requested setting Value: Echoes back the parameter for confirmation. (16bits)
Reply data from the monitor is encoded to ASCII characters.
Ex.) '0''1''2''3' means 0123h (291)

18th byte) ETX: End of Message
ASCII ETX (03h)
5.5 Commands

"Command message format" depends on each command. 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.

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.

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

- Send "07"(30h, 37h) as Get Timing Report command.
- Complete "Get Timing Report" command packet as follows;

| ASCII | SOH-'0'-'A'-'0'-'A'-'0'-'4'-STX-'0'-'7'-ETX-CHK- CR |

The monitor replies status as the following format;

<table>
<thead>
<tr>
<th>Command code</th>
<th>SS</th>
<th>H Freq.</th>
<th>V Freq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>01h</td>
<td>4h</td>
<td>Hi</td>
<td>Lo</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MSB</td>
<td>LSB</td>
</tr>
</tbody>
</table>

- SS: Timing status byte
  - Bit 7 = 1: Sync Frequency is out of range.
  - Bit 6 = 1: Unstable count
  - Bit 5-2 Reserved (Don't care)
  - Bit 1 1:Positive Horizontal sync polarity.
            0:Negative Horizontal sync polarity.
  - Bit 0 1:Positive Vertical sync polarity.
            0:Negative Vertical sync polarity.
- H Freq: Horizontal Frequency in unit 0.01kHz
- V Freq: Vertical Frequency in unit 0.01Hz

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

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

- To tell the controller that the monitor does not have any answer to give to the host (not ready or not expected)
- A null message will be returned by the monitor if the "Start Proof of Play" command is sent and the monitor has already started Proof of Play.
- A null message will be returned by the monitor if the "Stop Proof of Play" command is sent and the monitor has not started Proof of Play.
- 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
IV. Control Commands

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 “Backlight” setting.

Step 1. The controller requests the Monitor to reply with the current brightness setting and capability to support this operation. (Get parameter)

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID-</td>
<td>STX-'0'-0'-1'-0'-6'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
<tr>
<td>'0'-'C'-'0'-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'9'-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Header

SOH (01h): Start of Header

'M0' (30h): Reserved

Monitor ID: Specify the Monitor ID from which you want to get a value.

Ex.) If Monitor ID is '1', specify 'A'.

'M0' (30h): Message sender is the controller.

'C' (43h): Message type is "Get parameter command".

'M0'-'6' (30h, 36h): Message length is 6 bytes.

Message

STX (02h): Start of Message

'0'-0' (30h, 0h): Operation code page number is 0.

'1'-0' (31h, 0h): Operation code is 10h (in the OP code page 0).

ETX (03h): End of Message

Check code

BCC: Block Check Code

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

Delimiter

CR (0Dh): End of packet

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-0'-0'-0'-1'-2'-</td>
<td>STX-'0'-0'-0'-0'-1'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-6'-4'-0'-0'-3'-2'-</td>
<td>BCC</td>
<td>CR</td>
</tr>
<tr>
<td></td>
<td>-0'-0'-6'-4'-0'-0'-0'-3'-2'-ETX</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Header

SOH (01h): Start of Header

'M0' (30h): Reserved

'M0' (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, 0h): Operation code is 10h (in the page 0).

'0'-0' (30h, 30h): This operation is "Set parameter" type.

'0'-0'-6'-4' (30h, 30h, 36h, 34h): Backlight max value is 100(0064h).

'0'-0'-3'-2' (30h, 30h, 33h, 32h): Current Backlight setting is 50(0032h).

ETX (03h): End of Message

Check code

BCC: Block Check Code

Refer to the section 4.3 "Check code" for a BCC calculation.
Step 3. The controller requests the monitor to change the Backlight setting

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0', 'E', '0', 'A'</td>
<td>STX='0', '0', '1', '0', '0', '0', '0', '5', '0', 'ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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'.
'E' (45h): Message sender is the controller.
'Monitor ID: Specify the Monitor ID of which you want to change a setting.
Ex.) If Monitor ID is '1', specify 'A'.
'E' (45h): Message sender is the controller.
'Monitor ID: Specify the Monitor ID of which you want to change a setting.
Ex.) If Monitor ID is '1', specify 'A'.
'E' (45h): Message sender is the controller.
'Monitor ID: Specify the Monitor ID of which you want to change a setting.
Ex.) If Monitor ID is '1', specify 'A'.
'E' (45h): Message sender is the controller.
'Monitor ID: Specify the Monitor ID of which you want to change a setting.
Ex.) If Monitor ID is '1', specify 'A'.
'E' (45h): Message sender is the controller.
'Monitor ID: Specify the Monitor ID of which you want to change a setting.
Ex.) If Monitor ID is '1', specify 'A'.
'E' (45h): Message sender is the controller.
'Monitor ID: Specify the Monitor ID of which you want to change a setting.
Ex.) If Monitor ID is '1', specify 'A'.
'E' (45h): Message sender is the controller.

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 page 0).
'0'-'0'-'5'-'0' (30h, 30h, 5h, 0h): Set Backlight setting 80 (0050h).
ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0', '0', 'F', '1', '2'</td>
<td>STX='0', '0', '1', '0', '0', '0', '0', '6', '4', '0', '0', '5', '0', 'ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

Header
SOH (01h): Start of Header
'0' (30h): Reserved
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, 6h, 4h): Backlight max value is 100 (0064h).
'0'-'0'-'5'-'0' (30h, 30h, 5h, 0h): Received a Backlight setting was 80 (0050h).
ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet
Repeat Step 1 and Step 2, if you need to check the Backlight setting. (Recommended)

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-&quot;0&quot;-Monitor ID-&quot;0&quot;-'A'-&quot;0&quot;-'4'</td>
<td>STX-&quot;0&quot;-'C'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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 4.3 "Check code" for a BCC calculation.

Delimiter

CR (0Dh): End of packet
6.2. How to read the measurement value of the built-in temperature sensors.

MultiSync X841UHD, X981UHD, X651UHD 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 a temperature sensor which you want to read.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID- '0'-'E'-01h-A'</td>
<td>STX='0'-2'-7'-8'- '0'-0'-0'-1'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**Header**

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

**Message**

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'-'0'-'1' (30h, 30h, 30h, 31h): Select the temperature sensor #1 (01h).  
00h: No meaning  
01h: Sensor #1  
02h: Sensor #2  
03h: Sensor #3  
ETX (03h): End of Message

**Check code**

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

**Delimiter**

CR (0Dh): End of packet

Step 2. The monitor replies for confirmation.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID- 'F'-1'-2'</td>
<td>STX='0'-0'-0'-8'-7'-8'-0'-0'-0'-1'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**Header**

SOH (01h): Start of Header  
'0' (30h): Reserved  
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.  
'7'-'8' (37h, 38h): Operation code is 78h (in the page 2).  
'0'-'0' (30h, 30h): This operation is "Set parameter" type.
'0'-'0'-'0'-'3' (30h, 30h, 30h, 33h): Number of temperature sensors are 3 (0003h).
'0'-'0'-'0'-'1' (30h, 30h, 30h, 31h): temperature sensor is #1.
ETX (03h): End of Message

Check code

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

Delimiter

CR (00dh): End of packet

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID- '0'-'C'- '0'-'6'</td>
<td>STX-'0'-'2'-'7'-'9'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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 4.3 "Check code" for a BCC calculation.

Delimiter

CR (00dh): End of packet

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID- '0'- '1'-'2'</td>
<td>STX-'0'-'0'- '0'- '1'- '2'- '7'- '9'- '0'- '0'- 'F'- 'F'- 'F'- 'F'- '0'- '0'- '3'- '2'- ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Temperature [Celsius]</th>
<th>Readout value</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>+125.0</td>
<td>0000 0000 1111 1010</td>
<td>00FAh</td>
<td></td>
</tr>
<tr>
<td>+ 25.0</td>
<td>0000 0000 0011 0010</td>
<td>0032h</td>
<td></td>
</tr>
<tr>
<td>+ 0.5</td>
<td>0000 0000 0000 0001</td>
<td>0001h</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>0000 0000 0000 0000</td>
<td>0000h</td>
<td></td>
</tr>
<tr>
<td>- 0.5</td>
<td>1111 1111 1111 1111</td>
<td>FFFFh</td>
<td></td>
</tr>
<tr>
<td>- 25.0</td>
<td>1111 1111 1100 1110</td>
<td>FFCEh</td>
<td></td>
</tr>
<tr>
<td>- 55.0</td>
<td>1111 1111 1001 0010</td>
<td>FF92h</td>
<td></td>
</tr>
</tbody>
</table>

ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet
<table>
<thead>
<tr>
<th>Item</th>
<th>OP code page</th>
<th>OP code</th>
<th>Parameter</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>BACKLIGHT</td>
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<td>00h</td>
<td>12h</td>
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<td>00h</td>
<td>8Ch</td>
<td>0: dull</td>
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<td>BRIGHTNESS</td>
<td>00h</td>
<td>92h</td>
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<td>00h</td>
<td>14h</td>
<td>0:10000K</td>
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<td>11(0Bh): CUSTOM</td>
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<td>R GAIN</td>
<td>00h</td>
<td>16h</td>
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<td>255(FFh): Bright</td>
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<td>B GAIN</td>
<td>00h</td>
<td>18h</td>
<td>0: Dark</td>
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<td>255(FFh): Bright</td>
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<td>G GAIN</td>
<td>00h</td>
<td>1Ah</td>
<td>0: Dark</td>
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<td>255(FFh): Bright</td>
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<td>0: 9Bh</td>
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<td>100(64h):(center)</td>
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<td>200(C8h):</td>
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<td>9Dh</td>
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<td>9Fh</td>
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<td>8: 2.4</td>
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<td>7: S GAMMA</td>
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<td>5: DICOM SIM.</td>
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<td>6: PROGRAMABLE1</td>
<td>PROGRAMABLE2</td>
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<td>13(0Dh):</td>
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<td>UHD UPSCALING</td>
<td>11h</td>
<td>09h</td>
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<td></td>
<td>1: LOW</td>
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<td>2: MIDDLE</td>
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<td>3: HIGH</td>
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<td>OP code</td>
<td>Parameter</td>
<td>Remarks</td>
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| PICTURE MODE         | 02h          | 1Ah     | 0: No mean  
1: sRGB  
3: HIGHLIGHT  
4: STANDARD  
5: CINEMA  
8: CUSTOM1  
9: CUSTOM2  
13(0Dh): SVE-1 SETTING  
14(0Eh): SVE-2 SETTING  
15(0Fh): SVE-3 SETTING  
16(10h): SVE-4 SETTING  
17(11h): SVE-5 SETTING | sRGB:  
PC mode only  
CINEMA:  
A/V mode only |
| SVE-(1-5) SETTINGS   | 10h          | 51h     | 0: No mean  
1: sRGB  
2: Adobe RGB SIM  
3: DCI SIM  
4: REC-BT.709  
5: HIGHLIGHT  
6: FULL  
7: DICOM SIM  
8: PROGRAMMABLE1  
9: PROGRAMMABLE2  
10(0Ah): PROGRAMMABLE3  
11(0Bh): PROGRAMMABLE4  
12(0Ch): PROGRAMMABLE5  
13(0Dh): eciRGB v2 | |
| LUMINANCE            | 02h          | B3h     | 0(0%): Dark  
600(0258h)(100%): Bright  
Note: Conversion equation  
Value = (OSD Value/100)  
* (600-40)+40 |
| WHITE                | 00h          | 54h     | 0: 2600K  
74(4Ah): 10000K  
00h 14h 2: NAVIVE  
11(0Bh): CUSTOM |
| WHITE x              | 10h          | 52h     | 250(00FAh): 0.250  
480(01E0h): 0.480 |
| WHITE y              | 10h          | 53h     | 250(00FAh): 0.250  
480(01E0h): 0.480 |
| GAMMA                | 02h          | 68h     | 0: No mean  
5: DICOM SIM  
9: CST  
11(0Bh): sRGB  
12(0Ch): L STAR |
| CUSTOM VALUE         | 02h          | E8h     | 0: 0.5(MIN)  
350(015Eh): 4.0(MAX) |
| BLACK                | 10h          | 54h     | 1: 0.1(MIN)  
50(32h): 5.0(MAX) |
| RED x                | 10h          | 55h     | 550(0226h): 0.550  
800(0320h): 0.800 |
| RED y                | 10h          | 56h     | 200(00C8h): 0.200  
400(0190h): 0.400 |
| GREEN x              | 10h          | 57h     | 100(0064h): 0.100  
350(015Eh): 0.350 |
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<th>OP code</th>
<th>OP code</th>
<th>Parameter</th>
<th>Remarks</th>
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<tr>
<td>GREEN y</td>
<td>10h</td>
<td>58h</td>
<td>500(01F4h): 0.500</td>
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<td></td>
<td></td>
<td></td>
<td>900(0384h): 0.900</td>
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<td></td>
<td></td>
<td></td>
<td>900(0384h): 0.900</td>
<td></td>
</tr>
<tr>
<td>BLUE x</td>
<td>10h</td>
<td>59h</td>
<td>0: 0.000</td>
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<td></td>
<td></td>
<td></td>
<td>250(00FAh): 0.250</td>
<td></td>
</tr>
<tr>
<td>BLUE y</td>
<td>10h</td>
<td>5Ah</td>
<td>0: 0.000</td>
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<td>150(0096h): 0.150</td>
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<td>10h</td>
<td>5Bh</td>
<td>0: No mean 1: OFF 2: P 3: D 4: T</td>
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<td></td>
<td></td>
<td>5: GRAY</td>
<td></td>
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<td>UNIFORMITY</td>
<td>02h</td>
<td>EEh</td>
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<td></td>
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<td>5</td>
<td></td>
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<tr>
<td>METAMERISM</td>
<td>10h</td>
<td>5Ch</td>
<td>0: No mean 1: OFF 2: ON</td>
<td>Momentary</td>
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<tr>
<td>RESET (PICTURE)</td>
<td>02h</td>
<td>CBh</td>
<td>0: No mean 2: Reset Picture category</td>
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<td>ASPECT</td>
<td>02h</td>
<td>70h</td>
<td>0: No mean 1: NORMAL 2: FULL 3:</td>
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<td>WIDE 4: ZOOM 5: DYNAMIC 7: 1:1</td>
<td>Dynamic A/V mode only</td>
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<td>2Ch</td>
<td>The following commands can also be used.</td>
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<td>0-89(59h): No mean 90(5Ah): 90%</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>91(5Bh): 91%</td>
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<td></td>
<td></td>
<td></td>
<td>100(64h): 100%</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>300(12Ch): 300%</td>
<td></td>
</tr>
<tr>
<td>H ZOOM</td>
<td>11h</td>
<td>2Dh</td>
<td>0-89(59h): No mean 90(5Ah): 90%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>91(5Bh): 91%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100(64h): 100%</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>300(12Ch): 300%</td>
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(31/130)
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<th>OP code</th>
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<th>Remarks</th>
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<tr>
<td>V ZOOM</td>
<td>11h</td>
<td>2Eh</td>
<td>0-89 (5Ah): No mean</td>
<td>The following commands can also be used.</td>
</tr>
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<td></td>
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<td>90 (5Ah): 90%</td>
<td>OP code page 02h</td>
</tr>
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<td></td>
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<td>91 (5Bh): 91%</td>
<td>OP code 6Dh</td>
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<td></td>
<td>100 (64h): 100%</td>
<td>Parameter 0: No mean</td>
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<td></td>
<td></td>
<td>300 (12Ch): 300%</td>
<td>1: 100%</td>
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<td>2: 101%</td>
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<td>201 (C9h): 300%</td>
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<td>H POS</td>
<td>02h</td>
<td>CCh</td>
<td>0: Left side</td>
<td>Momentary</td>
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<td>200 (C8h): Right side</td>
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<td>V POS</td>
<td>02h</td>
<td>CDh</td>
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<td>200 (C8h): Up side</td>
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<td>D7h</td>
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<td>CBh</td>
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<td>00h</td>
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<td>30 (1Eh): Center</td>
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<td>6: Center</td>
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<td>10h</td>
<td>CAh</td>
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<td></td>
<td>1: OFF</td>
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<td>2: ON</td>
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<td>DELAY TIME</td>
<td>10h</td>
<td>CBh</td>
<td>0: (small)</td>
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<td></td>
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<td>100(64h): (large)</td>
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<td>02h</td>
<td>CBh</td>
<td>0: No mean</td>
<td>Momentary</td>
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<td>02h</td>
<td>2Bh</td>
<td>0: Off</td>
<td>1 hour/step</td>
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<td>1: 1 hour</td>
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<td>2: 24(18h): 24 hours</td>
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<td>E5h</td>
<td>0: No mean</td>
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<td>1: No.1 Enable</td>
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<td>7: No.7 Enable</td>
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<td>DISABLE</td>
<td>02h</td>
<td>E6h</td>
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<td>SCHEDULE SETTINGS</td>
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<td>Refer to section 10</td>
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<td>DATE &amp; TIME</td>
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<td>Refer to section 9</td>
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<td>DAYLIGHT SAVING</td>
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<td>Refer to section 9 and 15</td>
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<tr>
<td>RESET (SCHEDULE)</td>
<td>02h</td>
<td>CBh</td>
<td>0: No mean</td>
<td>Momentary</td>
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<td>5: Reset Schedule category</td>
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<td>KEEP MULTI PICTURE MODE</td>
<td>10h</td>
<td>82h</td>
<td>0: No mean</td>
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<td>MULTI PICTURE</td>
<td>02h</td>
<td>72h</td>
<td>0: No mean</td>
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<td>1: Off</td>
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<td>2: PIP</td>
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<td>5: PBP (PBPl, PBP2, PBP3)</td>
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<td>PICTURE NUMBER / PICTURE MODE</td>
<td>10h</td>
<td>B5h</td>
<td>If MULTI PICTURE is set PIP</td>
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<td></td>
<td></td>
<td>0: No mean</td>
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<td>2: 2WINDOWS, PIP</td>
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<td>3: 3WINDOWS, PIP</td>
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<td>If MULTI PICTURE is set PBP</td>
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<td>1: 2WINDOWS, PBPl</td>
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<td>3: 3WINDOWS, PBPl</td>
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<td>4: 4WINDOWS, PBPl</td>
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<td>5: 4WINDOWS, PBP2</td>
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<td>6: 4WINDOWS, PBP3</td>
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<td>ACTIVE PICTURE</td>
<td>11h</td>
<td>0Bh</td>
<td>0: No mean</td>
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<td>1: PICTURE1</td>
<td></td>
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<td>2: PICTURE2</td>
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<td>3: PICTURE3</td>
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<td>4: PICTURE4</td>
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<tr>
<td>ACTIVE FRAME</td>
<td>11h</td>
<td>0Dh</td>
<td>0: No mean</td>
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<td>1: OFF</td>
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<td>2: ON</td>
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<td>Item</td>
<td>OP code</td>
<td>OP code</td>
<td>Parameter</td>
<td>Remarks</td>
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<tr>
<td>INPUT SELECT</td>
<td>PICTURE1</td>
<td>11h</td>
<td>0Eh</td>
<td>0: No mean</td>
</tr>
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<td>3: DVI1</td>
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<tr>
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<td>4: DVI2</td>
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<td>13(0Dh): OPTION</td>
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<td>15(0Fh): DPORT</td>
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<td>PICTURE2</td>
<td>11h</td>
<td>0Fh</td>
<td>16(10h): DPORT2</td>
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<td>17(11h): HDMI1</td>
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<td>18(12h): HDMI2</td>
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<td>PICTURE3</td>
<td>11h</td>
<td>10h</td>
<td>130(82h): HDMI3</td>
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<td></td>
<td>131(83h): HDMI4</td>
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<td>PICTURE4</td>
<td>11h</td>
<td>11h</td>
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<tr>
<td>PICTURE SIZE</td>
<td>10h</td>
<td>B9h</td>
<td>0(small)</td>
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<td>80(large)</td>
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<td>PICTURE POSITION</td>
<td>X</td>
<td>02h</td>
<td>74h</td>
<td>0: left</td>
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<td></td>
<td>100(64h): right</td>
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<tr>
<td></td>
<td>Y</td>
<td>02h</td>
<td>75h</td>
<td>0: top</td>
</tr>
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<td>100(64h): bottom</td>
</tr>
<tr>
<td>PICTURE ASPECT</td>
<td>10h</td>
<td>83h</td>
<td>0: No mean</td>
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<td>1: NORMAL</td>
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<td>2: FULL</td>
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<td>3: WIDE</td>
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<td>4: ZOOM</td>
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</tr>
<tr>
<td>ROTATE</td>
<td>ROTATE ALL</td>
<td>11h</td>
<td>16h</td>
<td>0: No mean</td>
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<tr>
<td></td>
<td>PICTURE1</td>
<td>11h</td>
<td>12h</td>
<td>1: OFF</td>
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<tr>
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<td>PICTURE2</td>
<td>11h</td>
<td>13h</td>
<td>2: ON</td>
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<td>PICTURE3</td>
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<td>14h</td>
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<td>PICTURE4</td>
<td>11h</td>
<td>15h</td>
<td></td>
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<tr>
<td>TEXT TICKER MODE</td>
<td>10h</td>
<td>08h</td>
<td>0: No mean</td>
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<td></td>
<td>1: OFF</td>
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<td>2: HORIZONTAL</td>
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<td>3: VERTICAL</td>
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<tr>
<td>TEXT TICKER POSITION</td>
<td>10h</td>
<td>09h</td>
<td>0: Top/Left</td>
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<td></td>
<td></td>
<td>100(64h): Bottom/Right</td>
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<tr>
<td>TEXT TICKER SIZE</td>
<td>10h</td>
<td>0Ah</td>
<td>0: Do not set.</td>
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<td>2: Narrow(2/24)</td>
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<td>8: Wide(8/24)</td>
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<td>DETECT</td>
<td>10h</td>
<td>0Ch</td>
<td>0: No mean</td>
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<td>1: AUTO</td>
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<td>2: OFF</td>
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<tr>
<td>PICTURE1</td>
<td>11h</td>
<td>2Ah</td>
<td>0: No mean</td>
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<td></td>
<td></td>
<td>3: DVI1</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>4: DVI2</td>
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<td>13(0Dh): OPTION</td>
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<td></td>
<td>15(0Fh): DPORT</td>
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<td>PICTURE2</td>
<td>11h</td>
<td>2Bh</td>
<td>16(10h): DPORT2</td>
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<td>17(11h): HDMI1</td>
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<td>130(82h): HDMI3</td>
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<td>131(83h): HDMI4</td>
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<tr>
<td>RESET (PIP)</td>
<td>02h</td>
<td>CBh</td>
<td>0: No mean</td>
<td></td>
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<td>6: Reset PIP Category</td>
<td>Momentary</td>
</tr>
<tr>
<td>Item</td>
<td>OP code</td>
<td>OP code</td>
<td>Parameter</td>
<td>Remarks</td>
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<tr>
<td>LANGUAGE</td>
<td>00h</td>
<td>68h</td>
<td>0: No mean 1: ENGLISH 2: GERMAN 3: FRENCH 4: SPANISH 5: JAPANESE 6: ITALIAN 7: SWEDISH 9: RUSSIAN 14(0Eh): CHINESE</td>
<td>OSD Language</td>
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<tr>
<td>MENU DISPLAY TIME</td>
<td>00h</td>
<td>FCh</td>
<td>0-1: Do not set. 2: 10s 3: 15s 48(30h): 240s</td>
<td>5sec/step</td>
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<tr>
<td>OSD POSITION X</td>
<td>02h</td>
<td>38h</td>
<td>0: Left 255(FFh): Right</td>
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<td></td>
<td></td>
<td></td>
<td>0: Down 255(FFh): Up</td>
<td></td>
</tr>
<tr>
<td>INFORMATION OSD</td>
<td>02h</td>
<td>3Dh</td>
<td>0:Disable information OSD 3-10(0Ah): OSD timer [seconds]</td>
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<td>MONITOR INFORMATION</td>
<td></td>
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<td>MODEL NAME Refer to section 12</td>
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<td>SERIAL Refer to section 12</td>
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<td></td>
<td>FIRMWARE1 Refer to section 16</td>
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<td>FIRMWARE4</td>
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<tr>
<td>CARBON SAVINGS</td>
<td>10h</td>
<td>10h</td>
<td>0 – 999(3E7h)(g) 0 – 65535(FFFFh)(kg)</td>
<td>Read Only</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11h</td>
<td>(g) /11h (kg)</td>
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</tr>
<tr>
<td>CARBON USAGE</td>
<td>10h</td>
<td>26h</td>
<td>0 – 999(3E7h)(g) 0 – 65535(FFFFh)(kg)</td>
<td>Read Only</td>
</tr>
<tr>
<td></td>
<td></td>
<td>27h</td>
<td>(g) /27h (kg)</td>
<td></td>
</tr>
<tr>
<td>OSD TRANSPARENCY</td>
<td>02h</td>
<td>B8h</td>
<td>0: No mean 1: OFF 2: ON</td>
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</tr>
<tr>
<td>OSD ROTATION</td>
<td>02h</td>
<td>41h</td>
<td>0: Landscape 1: Rotated</td>
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<tr>
<td>INPUT NAME</td>
<td></td>
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<td>NAME RESET Refer to section 18</td>
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<tr>
<td>MEMO</td>
<td>10h</td>
<td>BAh</td>
<td>0: No mean 1: Display a Memo 2: Undisplay a Memo</td>
<td></td>
</tr>
<tr>
<td>RESET (OSD)</td>
<td>02h</td>
<td>CBh</td>
<td>0: No mean 7: Reset OSD category Momentary</td>
<td></td>
</tr>
<tr>
<td>MONITOR ID</td>
<td>02h</td>
<td>3Eh</td>
<td>1-100:ID</td>
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</tr>
<tr>
<td>GROUP ID</td>
<td>10h</td>
<td>7Fh</td>
<td>0: No assignment 1: Group A 2: Group B 3: Group AB 4: Group C 5: Group AC 6: Group D 7: Group E 8: Group F 9: Group G 10: Group H 1023(3FFh):Group ABCDEFGHIJ</td>
<td>Bit0:Group A Bit1:Group B Bit2:Group C Bit3:Group D Bit4:Group E Bit5:Group F Bit6:Group G Bit7:Group H Bit8:Group I Bit9:Group J</td>
</tr>
<tr>
<td>Item</td>
<td>OP code</td>
<td>OP code</td>
<td>Parameter</td>
<td>Remarks</td>
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<td>---------------------</td>
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</tr>
<tr>
<td>IR LOCK SETTING</td>
<td>MODE SELECT</td>
<td>10h</td>
<td>D4h</td>
<td>0: No mean&lt;br&gt;1: UNLOCK&lt;br&gt;2: ALL LOCK&lt;br&gt;3: CUSTOM LOCK</td>
</tr>
<tr>
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<td>The following commands can also be used. OP code page 02h OP code 3Fh Parameter 0: No mean 1: NORMAL 4: LOCK</td>
</tr>
<tr>
<td></td>
<td>POWER</td>
<td>10h</td>
<td>D5h</td>
<td>0: No mean&lt;br&gt;1: UNLOCK&lt;br&gt;2: LOCK</td>
</tr>
<tr>
<td></td>
<td>VOLUME</td>
<td>10h</td>
<td>D6h</td>
<td>0: No mean&lt;br&gt;1: UNLOCK&lt;br&gt;2: LOCK</td>
</tr>
<tr>
<td></td>
<td>MIN VOL</td>
<td>10h</td>
<td>D7h</td>
<td>0 (whisper)&lt;br&gt;100(64h) (laud)</td>
</tr>
<tr>
<td></td>
<td>MAX VOL</td>
<td>10h</td>
<td>D8h</td>
<td>0 (whisper)&lt;br&gt;100(64h) (laud)</td>
</tr>
<tr>
<td></td>
<td>INPUT</td>
<td>10h</td>
<td>D9h</td>
<td>0: No mean&lt;br&gt;1: UNLOCK&lt;br&gt;2: LOCK</td>
</tr>
<tr>
<td></td>
<td>UNLOCK SELECT</td>
<td>10h</td>
<td>DAh</td>
<td>0: No mean&lt;br&gt;3: DVI1&lt;br&gt;4: DVI2&lt;br&gt;13(0Dh): OPTION&lt;br&gt;15(0Fh): DPORT&lt;br&gt;16(10h): DPORT2&lt;br&gt;17(11h): HDMI1&lt;br&gt;18(12h): HDMI2&lt;br&gt;130(82h): HDMI3&lt;br&gt;131(83h): HDMI4&lt;br&gt;132(84h): PREST1&lt;br&gt;133(85h): PREST2&lt;br&gt;134(86h): PREST3</td>
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<td></td>
<td></td>
<td>10h DBh</td>
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<td></td>
<td></td>
<td>10h DCh</td>
</tr>
<tr>
<td></td>
<td>POWER ON DELAY</td>
<td>02h</td>
<td>D8h</td>
<td>0: OFF (0sec)&lt;br&gt;50(32h): 50sec</td>
</tr>
<tr>
<td></td>
<td>LINK TO ID</td>
<td>10h</td>
<td>BCb</td>
<td>0: No mean&lt;br&gt;1: OFF&lt;br&gt;2: ON</td>
</tr>
<tr>
<td></td>
<td>POWER INDICATOR</td>
<td>02h</td>
<td>BEh</td>
<td>0: No mean&lt;br&gt;1: ON&lt;br&gt;2: OFF</td>
</tr>
<tr>
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<td>SETTING COPY</td>
<td>Refer to section 20</td>
<td></td>
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<tr>
<td></td>
<td>RESET (MULTI DISPLAY)</td>
<td>02h</td>
<td>CBh</td>
<td>0: No mean&lt;br&gt;8: Reset Multi Display</td>
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<td></td>
<td>Momentary Category</td>
</tr>
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<td>POWER SAVE</td>
<td>Refer to section 19</td>
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<td>DISPLAY PROTECTION</td>
<td>HEAT STATUS</td>
<td>FAN1/2/3</td>
<td>02h</td>
<td>7Ah /7Bh</td>
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<td>0: No mean&lt;br&gt;1: FAN#1&lt;br&gt;2: FAN#2&lt;br&gt;3: FAN#3</td>
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<td>Read status of target FAN.(7Bh) 0: OFF&lt;br&gt;1: ON&lt;br&gt;2: ERROR</td>
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<td>BACKLIGTR</td>
<td>Refer to section 11 (Self-diagnosis status read)</td>
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<td>TEMPERATURE SENSOR1/2/3</td>
<td>02h 79h</td>
<td>Return value is 2’s complement. (0.5°C step)</td>
<td>Offset affects to a selected sensor. Select sensor (Page02h OPcode78h) 1: SENSOR #1 2: SENSOR #2 3: SENSOR #3</td>
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<td>FAN CONTROL COOLING FAN</td>
<td>02h 7Dh</td>
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<td>FAN SPEED</td>
<td>10h 3Fh</td>
<td>0: No mean 1: HIGH 2: LOW</td>
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<td>SENSOR1</td>
<td>10h E0h/E1h</td>
<td>E0h: Set centigrade 0 – 65535(FFFFh) E1h: Set offset from max. value 0 – 10(0Ah)</td>
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<td>SENSOR2</td>
<td>10h E2h/E3h</td>
<td>E2h: Set centigrade 0 – 65535(FFFFh) E3h: Set offset from max. value 0 – 10(0Ah)</td>
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<td>SENSOR3</td>
<td>10h E4h/E5h</td>
<td>E4h: Set centigrade 0 – 65535(FFFFh) E5h: Set offset from max. value 0 – 10(0Ah)</td>
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<td>02h DBh</td>
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<td>02h DCh</td>
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<td>02h DDh</td>
<td>0: OFF(0s) 190(5Ah): 900s 10s/step</td>
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<td>02h DFh</td>
<td>0: Black 1: 100(64h): White</td>
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<td>02h CBh</td>
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(37/130)
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<td>02h</td>
<td>40h</td>
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<td>13(0Dh): OPTION</td>
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<td>10h</td>
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<td>10h</td>
<td>CEh</td>
<td>When you set up &quot;SUPER&quot;, please set up INPUT1 and INPUT2 first.</td>
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<td>18h</td>
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(38/130)
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<td>DisplayPort</td>
<td>10h</td>
<td>F1h/F2h</td>
<td>Select target DPORT. (F1h) 0: No mean 1: DPORT 2: DPORT2 Read / Write status of target DPORT.(F2h) 0: No mean 1: 1.1a 2: 1.2</td>
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<td>11h</td>
<td>19h</td>
<td>0: No mean 1: RBR 2: HBR 3: HBR2</td>
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<td>HDMI SIGNAL</td>
<td>10h</td>
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<td>DEINTERLACE</td>
<td>02h</td>
<td>25h</td>
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<td>MOVIE SETTING</td>
<td>TELECINE</td>
<td>02h</td>
<td>23h</td>
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<td>02h</td>
<td>E3h</td>
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<td>B0h</td>
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<td>C0h</td>
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<td>C2h</td>
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<td>10h</td>
<td>C6h</td>
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<td>DEh</td>
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<td>78h</td>
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<td>600(258h): long</td>
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<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>INPUT</td>
<td>11h</td>
<td>06h</td>
<td>0: No mean</td>
<td>The following commands can also be used.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3: DVI1</td>
<td>OP code page 00h</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4: DVI2</td>
<td>OP code 60h Parameter</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>13(0Dh): OPTION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15(0Fh): DPORT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16(10h): DPORT2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>17(11h): HDMI1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>18(12h): HDMI2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>130(82h): HDMI3</td>
<td>0: No mean 3: DVI1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>131(83h): HDMI4</td>
<td>4: DVI2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>132(84h): PRESET1</td>
<td>13: OPTION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>133(85h): PRESET2</td>
<td>15: DPORT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>134(86h): PRESET3</td>
<td>16: DPORT2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17: HDMI1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18: HDMI2</td>
</tr>
<tr>
<td>AUDIO INPUT</td>
<td>02h</td>
<td>2Eh</td>
<td>0: No mean</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1: LINE IN</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4: HDMI</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6: OPTION</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7: DPORT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8: DPORT2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10(0Ah): HDMI2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11(0Bh): HDMI3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12(0Ch): HDMI4</td>
<td></td>
</tr>
<tr>
<td>VOLUME UP/DOWN</td>
<td>00h</td>
<td>62h</td>
<td>0: whisper</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100(64h): loud</td>
<td></td>
</tr>
<tr>
<td>MUTE</td>
<td>00h</td>
<td>8Dh</td>
<td>0: UNMUTE(Set only)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1: MUTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2: UNMUTE</td>
<td></td>
</tr>
<tr>
<td>SCREEN MUTE</td>
<td>10h</td>
<td>B6h</td>
<td>0: No mean</td>
<td>This operation requires supported option TV tuner.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1: SCREEN MUTE ON</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2: SCREEN MUTE OFF</td>
<td></td>
</tr>
<tr>
<td>MTS</td>
<td>02h</td>
<td>2Ch</td>
<td>0: No mean</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1: Main</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2: Sub</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3: Main + Sub</td>
<td></td>
</tr>
<tr>
<td>PICTURE MODE</td>
<td>02h</td>
<td>1Ah</td>
<td>0: No mean</td>
<td>sRGB: PC mode only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1: sRGB</td>
<td>CINEMA: A/V mode only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3: HIGHLIGHT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4: STANDARD</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5: CINEMA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8: CUSTOM1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9: CUSTOM2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>13(0Dh): SVE-1 SETTING</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>14(0Eh): SVE-2 SETTING</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15(0Fh): SVE-3 SETTING</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16(10h): SVE-4 SETTING</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>17(11h): SVE-5 SETTING</td>
<td></td>
</tr>
<tr>
<td>ASPECT</td>
<td>02h</td>
<td>70h</td>
<td>0: No mean</td>
<td>WIDE: A/V mode only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1: NORMAL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2: FULL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3: WIDE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4: ZOOM</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5: DYNAMIC</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7: 1:1 (Off/dot by dot)</td>
<td></td>
</tr>
<tr>
<td>MULTI PICTURE MODE ON/OFF</td>
<td>02h</td>
<td>72h</td>
<td>0: No mean</td>
<td></td>
</tr>
<tr>
<td>STILL ON/OFF</td>
<td></td>
<td></td>
<td>1: Off</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2: PIP</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4: STILL</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5: PBP(PBP1, PBP2, PBP3)</td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>OP code</td>
<td>OP code</td>
<td>Parameter</td>
<td>Remarks</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------</td>
<td>---------</td>
<td>---------------------------------------------------------------------------</td>
<td>----------------------------</td>
</tr>
</tbody>
</table>
| PICTURE NUMBER                | 10h     | 85h     | If MULTI PICTURE is set PIP  
0: No mean  
2: 2WINDOWS, PIP  
3: 3WINDOWS, PIP  
If MULTI PICTURE is set PBP  
0: No mean  
1: 2WINDOWS, PB1  
3: 3WINDOWS, PB1  
4: 3WINDOWS, PB2  
5: 3WINDOWS, PB3  
6: 4WINDOWS, PB1                                                                 |                            |
| MULTI PICTURE INPUT           | 02h     | 73h     | 0: No mean  
3: DVI1  
4: DVI2  
13(ODh): OPTION  
15(OFh): DPOR1  
16(10h): DPOR2  
17(11h): HDMI1  
18(12h): HDMI2  
130(82h): HDMI3  
131(83h): HDMI4                                                                 |                            |
| ACTIVE PICTURE                | 11h     | 0Bh     | 0: No mean  
1: PICTURE1  
2: PICTURE2  
3: PICTURE3  
4: PICTURE4                                                                 |                            |
| ROTATE                        | ROTATE ALL  
PICTURE1                    | 11h     | 16h     | 0: No mean  
1: OFF  
2: ON                                                                 |                            |
| STILL CAPTURE                 | 02h     | 76h     | 0: OFF  
1: CAPTURE                                                                 | Momentary                   |
| SIGNAL INFORMATION            | 02h     | EAh     | 0: No mean  
1: OFF  
2: ON                                                                 |                            |
| TV-CHANNEL UP/DOWN            | 00h     | 8Bh     | 0: No mean  
1: UP  
2: DOWN                                                                 | This operation requires supported option TV tuner. |
| SELECT TEMPERATURE SENSOR     | 02h     | 78h     | 0: No mean  
1: SENSOR #1  
2: SENSOR #2  
3: SENSOR #3                                                                 |                            |
| READOUT A TEMPERATURE         | 02h     | 79h     | Returned value is 2's complement.  
Refer to section 6.2                                                                 | Read only                   |
| READOUT CARBON FOOTPRINT (g)  | 10h     | 10h     | 0:  
| 999(3E7h):                                                                 | Read only                   |
| READOUT CARBON FOOTPRINT (kg) | 10h     | 11h     | 0:  
| 65535(FFFFh):                                                                 | Read only                   |
| READOUT CARBON USAGE (g)      | 10h     | 26h     | 0:  
<p>| 999(3E7h):                                                                 | Read only                   |</p>
<table>
<thead>
<tr>
<th>Item</th>
<th>OP code</th>
<th>OP code</th>
<th>Parameter</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>READOUT CARBON USAGE (kg)</td>
<td>10h</td>
<td>27h</td>
<td>0:</td>
<td>Read only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>65535(FFFFh):</td>
<td></td>
</tr>
</tbody>
</table>
### 6.4. Operation Code (OP code) for INPUT CONFIGURATION

<table>
<thead>
<tr>
<th>Item</th>
<th>OP code</th>
<th>OP code</th>
<th>Parameter</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESET1</td>
<td>11h</td>
<td>1Fh</td>
<td>0: No mean 1: OFF 2: LEFT &amp; RIGHT (HDMIx2 or DVIx2) 3: TOP &amp; BOTTOM (HDMIx2 or DVIx2) 4: DIVIDE QUARTERS (HDMIx4)</td>
<td></td>
</tr>
<tr>
<td>PRESET2</td>
<td>11h</td>
<td>20h</td>
<td>0: No mean 1: OFF 2: LEFT &amp; RIGHT (HDMIx2 or DVIx2) 3: TOP &amp; BOTTOM (HDMIx2 or DVIx2)</td>
<td></td>
</tr>
<tr>
<td>PRESET3</td>
<td>11h</td>
<td>21h</td>
<td>0: No mean 1: OFF 2: LEFT &amp; RIGHT (DPORTx2) 3: TOP &amp; BOTTOM (DPORTx2)</td>
<td></td>
</tr>
<tr>
<td>SELECT INPUT</td>
<td>TOP LEFT</td>
<td>11h</td>
<td>22h</td>
<td>0: No mean 3: DVI1 13(0Dh): OPTION</td>
</tr>
<tr>
<td></td>
<td>TOP RIGHT</td>
<td>11h</td>
<td>23h</td>
<td>4: DVI2</td>
</tr>
<tr>
<td></td>
<td>BOTTOM LEFT</td>
<td>11h</td>
<td>24h</td>
<td>15(0Fh): DPORT</td>
</tr>
<tr>
<td></td>
<td>BOTTOM RIGHT</td>
<td>11h</td>
<td>25h</td>
<td>16(10h): DPORT2 17(11h): HDMI1</td>
</tr>
<tr>
<td></td>
<td>LEFT</td>
<td>11h</td>
<td>26h</td>
<td>18(12h): HDMI2</td>
</tr>
<tr>
<td></td>
<td>RIGHT</td>
<td>11h</td>
<td>27h</td>
<td>130(82h): HDMI3</td>
</tr>
<tr>
<td></td>
<td>TOP</td>
<td>11h</td>
<td>28h</td>
<td>131(83h): HDMI4</td>
</tr>
</tbody>
</table>
|            | BOTTOM | 11h | 29h | Set up, when PRESET1 is set as "DIVIDE QUARTERS". Set up, when PRESET1, 2 or 3 is set as "LEFT & RIGHT" or "TOP & BOTTOM".
7. Power control procedure

7.1 Power status read

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-0'-Monitor ID-’0’-’A’-’0’-’6’</td>
<td>STX-’0’-’1’-’D’-’6’-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**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 4.3 “Check code” for a BCC calculation.

**Delimiter**
- CR (0Dh): End of packet

2) The monitor returns with the current power status.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-’0’-’0’-Monitor ID-’B’-’1’-’2’</td>
<td>STX-’0’-’2’-’0’-’0’-’D’-’6’-’0’-’0’-’0’-’4’-’0’-’0’-’0’-’1’-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**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 4.3 “Check code” for a BCC calculation.

Delimiter
CR (0Dh): End of packet
7.2 Power control

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-'0'-Monitor ID- '0'-'A'-'0'-C'</td>
<td>STX-'C'-'2'-'0'-'3'-'D'-'6'-'0'-'0'-'0'-1'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**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'-'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 4.3 "Check code" for a BCC calculation.

**Delimiter**
- **CR (0Dh):** End of packet

2) The monitor replies a data for confirmation.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-'0'-Monitor ID- 'B'-'0'-'E'</td>
<td>STX-'0'-'0'-'C'-'2'-'0'-'3'-'D'-'6'-'0'-'0'-'0'-1'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**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'-'E': 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**
- **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

(47/130)
Check code

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

Delimiter
CR (0Dh): End of packet
8. Asset Data read and write

MultiSync X481UHD, X981UHD, X651UHD 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.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-0-Monitor ID-0-A-0-A</td>
<td>STX-C-0-B-0-0-2-2-ETX</td>
<td>BCC CR</td>
<td></td>
</tr>
</tbody>
</table>

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’-’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.
  - 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 4.3 “Check code” for a BCC calculation.

Delimiter
- CR (0Dh): End of packet

2) The monitor replies Asset data to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-0-0-Monitor ID-B-N-N</td>
<td>STX-C-1-0-0-N-ETX</td>
<td>BCC CR</td>
<td></td>
</tr>
</tbody>
</table>

Header
- SOH (01h): Start of Header
- '0' (30h): Reserved
- 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.) This length includes STX and ETX.

Message
- STX (02h): Start of Message
- ‘C’-’1’-’0’-’B’ (43h, 31h, 30h, 42h): Asset read reply command
- Data(0) – Data(N): Retuned Asset data
  - Ex.) When Data(n) is 1234h, replying data is (31h 32h, 33h, 34h).
- ETX (03h): End of Message

Check code
- BCC: Block Check Code
Refer to the section 4.3 “Check code” for a BCC calculation.

Delimiter
CR (0Dh): End of packet
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.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID-</td>
<td>STX-'C'-0'-E'-0'-0'-0'-0'-Data(0)-Data(1)-</td>
<td>BCC</td>
<td>CR</td>
</tr>
<tr>
<td>'0'-A'-N-N</td>
<td>---Data(N)-ETX</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Header**
- SOH (01h): Start of Header
- '0' (30h): Reserved
- Monitor ID: Specify the Monitor ID in which you want to write data.
  - Ex.) If Monitor ID is '1', specify 'A'.
- '0' (30h): Message sender is the controller.
- 'A' (41h): Message type is "Command".
- N-N: Message length
  - Note.) The maximum data length that can be written to the monitor at a time is 32bytes.

**Message**
- STX (02h): Start of Message
- 'C'-0'-E' (43h, 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 4.3 "Check code" for a BCC calculation.

**Delimiter**
- CR (0Dh): End of packet

2) The monitor replies a data for confirmation.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-0'-Monitor ID-</td>
<td>STX-'0'-0'-C'-0'-0'-0'-0'-0'-Data(0)-Data(1)-</td>
<td>BCC</td>
<td>CR</td>
</tr>
<tr>
<td>'B'-N-N</td>
<td>---Data(N)-ETX</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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.

**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 4.3 "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.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID- '0'-A'-0'-6'</td>
<td>STX-'C'-2'-1'-1'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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'-6'(30h, 36h): Message length

Message
- 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 4.3 “Check code” for a BCC calculation.

Delimiter
- CR (0Dh): End of packet

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-0'-Monitor ID- 'B'-1'-4'</td>
<td>STX-'C'-3'-1'-1'- YYYY-MM-DD-WW-HH-MN-DS-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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
- YYYY-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(=Eh)
'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)

MM: 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 4.3 "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.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID- '0'-'A'-'1'-'2'</td>
<td>STX-'C'-'2'-'1'-'2'- YY-MM-DD-WW-HH-MN-DS-ETX</td>
<td>BCC CR</td>
<td></td>
</tr>
</tbody>
</table>

**Header**

SOH (01h): Start of Header

0' (30h): Reserved

Monitor ID: Specify the Monitor ID of which you want to change the setting.

Ex.) If Monitor ID is '1', specify 'A'.

0' (30h): Message sender is the controller.

'A' (41h): Message type is "Command".

'1'-'2' (31h, 32h): Message length

**Message**

STX (02h): Start of Message

'C'-'2'-'1'-'2' (43h, 32h, 31h, 32h): Date & Time write command

'YY'-'MM'-DD'-WW'-HH'-MN': 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 (=38h)

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 4.3 "Check code" for a BCC calculation.

(55/130)
2) The monitor replies a data for confirmation.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-'0'-Monitor ID- \ 'B'-'1'-'6'</td>
<td>STX-'C'-'3'-'1'-'2'-ST-YY-MM-DD-WW-HH-MN-DS-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**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'-\'WM\'-\'DD\'-\'WW\'-\'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

(56/130)
Check code
  BCC: Block Check Code
  Refer to the section 4.3 "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.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-‘0’-Monitor ID-‘0’-‘A’-‘0’-‘8’</td>
<td>STX-‘C’-‘2’-‘2’-‘1’-PG-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**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**

- **STX (02h):** Start of Message
- **‘C’-‘2’-‘2’-‘1’ (43h, 32h, 32h, 31h):** Schedule read request command.
- **PG:** Program No.
  - Ø The data must be ASCII characters strings.
- **ETX (03h):** End of Message

**Check code**

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

**Delimiter**

- **CR (0Dh):** End of packet

2) The monitor replies Schedule to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-‘0’-‘0’-Monitor ID-‘B’-‘2’-‘6’</td>
<td>STX-‘C’-‘3’-‘2’-‘1’-PG-ON HOUR-ON MIN-OFF HOUR-OFF MIN-INPUT-WD-P MODE-EXT1-EXT2-EXT3-EXT4-EXT5-EXT6-EXT7-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**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:** 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'-'3'(30h,33h): DVI1
  '0'-'4'(30h,34h): DVI2
  '0'-'D'(30h,44h): OPTION
  '0'-'F'(30h,46h): DPORT
  '1'-'0'(31h,30h): DPORT2
  '1'-'1'(31h,31h): HDMI
  '8'-'2'(38h,32h): HDMI3
  '8'-'3'(38h,33h): HDMI4

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): TUESDAY
  '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): HIGHLIGHT
  '0'-'4'(30h,34h): STANDARD
  '0'-'5'(30h,34h): CINEMA
  '0'-'8'(30h,38h): CUSTOM1
  '0'-'9'(30h,39h): CUSTOM2
  '0'-'D'(30h,44h): SVE-1 SETTING
  '0'-'E'(30h,45h): SVE-2 SETTING
  '0'-'F'(30h,46h): SVE-3 SETTING
  '1'-'0'(31h,30h): SVE-4 SETTING
  '1'-'1'(31h,31h): SVE-5 SETTING
EXT1: Extension 1
'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 4.3 "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.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-'0'-'A'-'0'-'8'</td>
<td>STX-'C'-'2'-'1'-'3'-PG-ETX</td>
<td>BCC CR</td>
<td></td>
</tr>
</tbody>
</table>

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

STX (02h): Start of Message
'C'-'2'-'1'-'3' (43h, 32h, 31h, 33h): Schedule read request command.
PG: Program No.
   Ex.) The data must be ASCII characters strings.
ETX (03h): End of Message

Check code

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

Delimiter

CR (0Dh): End of packet

2) The monitor replies Schedule to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-'0'-Monitor ID- 'B'-'1'-'6'</td>
<td>STX='C'- '3'- '1'- '3'-PG-ON HOUR-ON MIN- OFF HOUR- OFF MIN- INPUT-WD-FL-ETX</td>
<td>BCC CR</td>
<td></td>
</tr>
</tbody>
</table>

Header

SOH (01h): Start of Header
'0' (30h): Reserved
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): DVI1
- '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): TUESDAY
- '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 4.3 "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.

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

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.
'O'-0'(30h, 30h): Program No.1
'O'-6'(30h, 36h): Program No.7

ON_HOUR: Turn on time (hour)
'O'-0'(30h, 30h): 00
'O'-7'(31h, 37h): 23 (=17h)
'O'-8'(31h, 38h): ON timer isn't set.

ON_MIN: Turn on time (minute)
'O'-0'(30h, 30h): 0
'3'-B'(33h, 42h): 59
'3'-C'(33h, 43h): On timer isn't set.

OFF_HOUR: Turn off time (hour)
'O'-0'(30h, 30h): 00
'O'-7'(31h, 37h): 23 (=17h)
'O'-8'(31h, 38h): Off timer isn't set.

OFF_MIN: Turn off time (minute)
'O'-0'(30h, 30h): 0
'3'-B'(33h, 42h): 59 (=3Bh)
'3'-C'(33h, 43h): Off timer isn't set.

Note:
* The same time as ON time and OFF time cannot be set.
* Set '1'-8' to ON/OFF_HOUR and '3'-C' to ON/OFF_MIN, when ON/OFF time is deleted.

INPUT: Timer input
'O'-0'(30h,30h): No mean (works on last memory)
'O'-3'(30h,33h): DVI1
'O'-4'(30h,34h): DVI2
'O'-'D'(30h,44h): OPTION
'O'-'F'(30h,46h): DPOR2
'I'-0'(31h,30h): DPOR2
'I'-1'(31h,31h): HDMI
'I'-2'(31h,32h): HDMI2

(63/130)
'8'-'2'(38h,32h): HDMI3
'8'-'3'(38h,33h): HDMI4
* 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): 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): HIGHTBRIGHT
'0'-'4'(30h,34h): STANDARD
'0'-'5'(30h,34h): CINEMA
'0'-'8'(30h,38h): CUSTOM1
'0'-'9'(30h,39h): CUSTOM2
'0'-'D'(30h,44h): SVE-1 SETTING
'0'-'E'(30h,45h): SVE-2 SETTING
'0'-'F'(30h,46h): SVE-3 SETTING
'1'-'0'(31h,30h): SVE-4 SETTING
'1'-'1'(31h,31h): SVE-5 SETTING
* Please select active picture mode on your system (setting).
* If you select inactive picture mode here, the input change execution will be ignored.

EXT1: Extension 1
'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 4.3 "Check code" for a BCC calculation.

Delimiter
CR (0Dh): End of packet

2) The monitor replies a data for confirmation.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-&quot;0&quot;-&quot;0&quot;-Monitor ID-&quot;B&quot;-&quot;2&quot;-&quot;8&quot;</td>
<td>STX-&quot;C&quot;-&quot;3&quot;-&quot;2&quot;-&quot;2&quot;-ST-PG-ON HOUR-ON MIN- \ OFF HOUR- \ OFF MIN- \ INPUT- \ WD-FL-P MODE- \ EXT1-EXT2-EXT3-EXT4-EXT5-EXT6-EXT7-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

Header
SOH (01h): Start of Header
'0' (30h): Reserved
Monitor ID: Indicate a replying Monitor ID.
Ex.) When this byte is set to 'A', the replying Monitor ID is '1'.
Monitor ID: Message type is "Command reply".
Monitor ID: Message length

Message
STX (02h): Start of Message
'C'-'3'-'2'-'2' (43h, 33h, 32h, 32h): Schedule writes reply command
ST: Schedule Status command
'0'-'0'(30h, 30h): No error
'0'-'1'(30h, 31h): Error
PG-ON HOUR-ON MIN-OFF HOUR-OFF MIN-INPUT-WD-FL-P MODE
EX1-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): 00
'3'-'B'(33h, 42h): 59 (=3Bh)
'3'-'C'(33h, 43h): Off 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): 00
'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'-'3'(30h, 33h): DVI1
'0'-'4'(30h, 34h): DVI2
'0'-'D'(30h, 44h): OPTION
'0'-'F'(30h, 46h): DPORT
'1'-'0'(31h, 30h): DPORT2
'1'-'1'(31h,31h): HDMI
'1'-'2'(31h,32h): HDMI2
'8'-'2'(38h,32h): HDMI3
'8'-'3'(38h,33h): HDMI4

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): TUESDAY
'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 M O D E: Picture mode
'0'-'0'(30h,30h): No mean (works on last memory)
'0'-'1'(30h,31h): sRGB
'0'-'3'(30h,33h): HIGHTHIGHT
'0'-'4'(30h,34h): STANDARD
'0'-'5'(30h,35h): CINEMA
'0'-'6'(30h,36h): CUSTOM1
'0'-'7'(30h,37h): CUSTOM2
'0'-'D'(30h,44h): SVE-1 SETTING
'0'-'E'(30h,45h): SVE-2 SETTING
'0'-'F'(30h,46h): SVE-3 SETTING
'1'-'0'(31h,30h): SVE-4 SETTING
'1'-'1'(31h,31h): SVE-5 SETTING

 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 4.3 "Check code" for a BCC calculation.

Delimiter
CR (0Dh): End of packet

3) The controller requests the monitor to write Enable/Disable Schedule.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-'0'-Monitor ID-'0'-A-'0'-A</td>
<td>STX-'C'-2'-1'-5'-PG-EN-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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 4.3 "Check code" for a BCC calculation.

Delimiter
CR (0Dh): End of packet

4) The monitor replies a data for confirmation.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-0'-Monitor ID-'B'-0'-C'</td>
<td>STX-'C'-3'-1'-5'-ST-PG-EN-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

Header
SOH (01h): Start of Header
'0' (30h): Reserved
'B' (42h): 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 4.3 “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.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID- '0'-A='1'-'6'</td>
<td>STX-'C'-2-'1'-4'-PG-ON HOUR-ON MIN- OFF HOUR-OFF MIN-INPUT-WD-FL-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**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'.

'O' (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): DVI1

'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

(69/130)
EX.
'0'-'1'(30h, 31h): MONDAY
'0'-'4'(30h, 34h): TUESDAY
'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

ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet

2) The monitor replies a data for confirmation.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID-</td>
<td>STX-'C'-ST-PG-ON HOUR-ON MIN-OFF HOUR-OFF MIN-INPUT-WD-FL-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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'-ST: Schedule Status command
'0'-ON_HOUR-ON_MIN-OFF_HOUR-OFF_MIN-INPUT-WD-FL: Schedule data
PG: Program No.
'0'-Program No.1
'0'-Program No.7

ON_HOUR: Turn on time (hour)
'0'-00 (30h, 30h): 00

ON_MIN: Turn on time (minute)
'0'-00 (30h, 30h): 0

OFF_HOUR: Turn off time (hour)
'0'-00 (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): DVI1
'0'-'7'(30h, 37h): 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): TUESDAY
'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

ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet

3) The controller requests the monitor to write Enable/Disable Schedule.

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'-'I'-'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 4.3 "Check code" for a BCC calculation.

Delimiter
CR (0Dh): End of packet

4) The monitor replies a data for confirmation.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID='B'-ETX</td>
<td>-'0'-'0'-STX-'C'-R-EN-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

Header
SOH (01h): Start of Header
'0' (30h): Reserved
'B' (42h): Message type is "Command reply".
Monitor ID: Indicate a replying Monitor ID.
Ex.) When this byte is set to 'A', the replying Monitor ID is '1'.
'Message length

Message
STX (02h): Start of Message
'C'-R-EN: 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
'0'-Program No.
'0'-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 4.3 "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.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID-</td>
<td>STX='B'-''0'-'A'-'0'-'4'</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

Header

SOH (01h): Start of Header
'B' (42h): Command
Monitor ID: Specify the Monitor ID which you want to get status.
Ex.) If Monitor ID is '1', specify 'A'.

'B'-'1' (42h, 31h): Self-diagnosis command

Message

STX (02h): Start of Message

Check code

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

Delimiter

CR (0Dh): End of packet

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID-</td>
<td>STX='A'-''0'-N-N</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

Header

SOH (01h): Start of Header
'B' (42h): Command
Monitor ID: Indicate a replying Monitor ID.
Ex.) When this byte is set to 'A', the replying Monitor ID is '1'.

N-N: Message length
Ex.) The byte data 20h is encoded as ASCII characters '2' and '0' (34h and 30h).

Message

STX (02h): Start of Message

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: Panel-power/Option slot2 power +24V 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: LED Backlight abnormality
'9'-'1'(39h, 31h):91: LED Backlight abnormality
'A'-'0'(41h, 30h):A0: Temperature abnormality - shutdown
'A'-'1'(41h, 31h):A1: Temperature abnormality - half brightness
'A'-'2'(41h, 32h):A2: SENSOR reached at the temperature that the user had specified.

(73/130)
'B'-'O'(42h, 30h): B0: No signal
'D'-'O'(44h, 30h): D0: PROOF OF PLAY buffer reduction
'E'-'O'(45h, 30h): E0: System error

ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet
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.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID- '0'-A'-0'-6'</td>
<td>STX='C'-2'-1'-6'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**Header**
- SOH (01h): Start of Header
- '0' (30h): Reserved
- Monitor ID: Specify the Monitor ID which you want to get serial number.
  - 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

**Message**
- STX (02h): Start of Message
- 'C'-2'-1'-6' (43h, 32h, 31h, 36h): Serial No. command
- ETX (03h): End of Message

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

**Delimiter**
- CR (0Dh): End of packet

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-0'-Monitor ID- B'-N-N</td>
<td>STX='C'-3'-1'-6'-</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**Header**
- SOH (01h): Start of Header
- '0' (30h): Reserved
- 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
  - The byte data 20h is encoded as ASCII characters '2' and '0' (32h and 30h).
  - Ex.) For example when receiving Serial Number data 33h 31h 33h 32h 33h 33h 33h 34h
    - Step1: Serial Number data is encoded as character string.
      - Example:
        - 33h 31h 33h 32h 33h 33h 33h 34h -> '3','1','3','2','3','3','3','4'
    - Step2: Decode pairs of ASCII characters to hexadecimal values.
      - Example:
        - '3','1','3','2','3','3','4' -> 31h 32h 33h 34h
    - Step3: Byte data represents the ASCII string data.
      - Example:
        - 31h 32h 33h 34h -> "1234"
  - Result: Serial Number is "1234".

(75/130)
Note: No null termination character is sent.

ETX (03h): End of Message

Check code

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

Delimiter
CR (0Dh): End of packet
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.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-‘0’-Monitor ID- ‘0’-‘A’-‘0’-‘6’</td>
<td>STX-‘C’-‘2’-‘1’-‘7’-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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 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 4.3 "Check code" for a BCC calculation.

Delimiter
- **CR (0Dh): End of packet**

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-‘0’-’0’-Monitor ID- ‘B’-N-N</td>
<td>STX-‘C’-‘3’-‘1’-‘7’-Data(0) -Data(1)------Data(n)-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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**
  - The byte data 20h is encoded as ASCII characters ‘2’ and ‘0’ (32h and 30h).
  - Ex.) For example when receiving Model Name data 35h 30h 33h 34h 33h 30h 33h 33h
    - Step1: Model Name data is encoded character string.
      - Example: 35h 30h 33h 34h 33h 30h 33h 33h
      - Step2: Decode pairs of ASCII characters to hexadecimal values.
        - Example: 5, 0, 3, 4, 3, 0, 3, 3
      - Step3: Byte data represents the ASCII string data.
        - Example: 5, 0, 3, 4, 3, 0, 3, 3
    - Note: No null termination character is sent.

ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet
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.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-MonitorID- '0'-'A'-1'-0'</td>
<td>STX-'C'-2'-1'-4'- EN-P1-P2-P3-P4-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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'- '0' (31h, 30h): Message length

Message
STX (02h): Start of Message
'C'-2'-1'-4' (43h, 32h, 31h, 44h): Security Lock Control command
EN=P1=P2=P3-P4: Lock condition control data
EN: SECURE MODE
  '0'- '0' (30h, 30h): OFF
  '0'- '1' (30h, 31h): START-UP LOCK
  '0'- '2' (30h, 32h): CONTROL LOCK
  '0'- '3' (30h, 33h): BOTH LOCK

P1: Security Pass code 1st
  '0'- '0' (30h, 30h): "0"
  '0'- '9' (30h, 39h): "9"

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 4.3 "Check code" for a BCC calculation.

Delimiter
CR (0Dh): End of packet

(79/130)
2) The monitor replies the result to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-'0'-Monitor ID- 'B'-'0'-'A'</td>
<td>STX-'C'-'3'-'1'-'D'- ST-EN-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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: SECURE MODE (Current condition)
     '0'-'0'(30h, 30h): OFF
     '0'-'1'(30h, 31h): START-UP LOCK
     '0'-'2'(30h, 32h): CONTROL LOCK
     '0'-'3'(30h, 33h): BOTH LOCK

ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet
14. Direct TV Channel Read & Write

When DTV unit (Option unit) is installed, channel settings is read and write directly.

14.1 Direct TV Channel Read & Reply

1) The controller requests the monitor to read channel information.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID= 'A'-'0'-16</td>
<td>STX-C'-2'-2'-C'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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 type is "Command".
- '0'-'6' (30h, 36h): Message length

Message
- STX (02h): Start of Message
- 'C'-2'-2'-C' (43h, 32h, 32h, 43h): Direct TV Channel Read command
- ETX (03h): End of Message

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

Delimiter
- CR (0Dh): End of packet

2) The monitor replies the result to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID= 'B'-1-2</td>
<td>STX-C'-3'-2'-C'-MajorCH-MinorCH-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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 = 18bytes

Message
- STX (02h): Start of Message
- 'C'-3'-2'-C' (43h, 33h, 32h, 43h): Direct TV Channel read reply command
- MajorCH: Major Channel (00000000h – FFFFFFFFh),
  - '0'-'0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0' - 'F'-F'-F'-F'-F'-F'-F'-F'-F'-F'
- MinorCH: Minor Channel (0000h – FFFFh),
  - '0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0' - 'F'-F'-F'-F'-F'-F'-F'-F'-F'
- ETX (03h): End of Message

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

Delimiter
- CR (0Dh): End of packet

(81/130)
14.2 Direct TV Channel Write & Reply

1) The controller requests the monitor to write channel information.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID- '0'-A'-1'-2'</td>
<td>STX-'C'-2'-2'-'D'- MajorCH-MinorCH-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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 type is "Command".
- '1'-2'(31h, 32h): Message length = 18bytes

Message
- STX (02h): Start of Message
- 'C'-2'-2'-D' (43h, 32h, 32h, 44h): Direct TV Channel write command
- MajorCH: Major Channel (00000000h – FFFFFFFFh)
  - '0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'
- MinorCH: Minor Channel (0000h – FFFFh)
  - '0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'
- ETX (03h): End of Message

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

Delimiter
- CR (0Dh): End of packet

2) The monitor replies the result to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-0'-Monitor ID- 'B'-1'-2'</td>
<td>STX-'C'-3'-2'-D'- MajorCH-MinorCH-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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 = 18bytes

Message
- STX (02h): Start of Message
- 'C'-3'-2'-D' (43h, 33h, 32h, 43h): Direct TV Channel write reply command
- MajorCH: Major Channel (00000000h – FFFFFFFFh)
  - '0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'
- MinorCH: Minor Channel (0000h – FFFFh)
  - '0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'-0'
- ETX (03h): End of Message

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

Delimiter
- CR (0Dh): End of packet
15. Daylight Saving read & write

15.1 Daylight Saving Read

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

1) The controller requests the monitor to reply a Daylight Saving setting.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-'0'-Monitor ID-</td>
<td>'A'-0'-8'</td>
<td>STX-'C'-A'-0'-I'-0'-0'-ETX</td>
<td>BCC</td>
</tr>
</tbody>
</table>

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

Message

STX (02h): Start of Message
'C'-A'-0'-I' (43h, 41h, 30h, 31h): Daylight Saving Command
'0'-0' (30h, 30h): Read
ETX (03h): End of Message

Check code

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

Delimiter

CR (0Dh): End of packet

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-0'-Monitor ID-</td>
<td>'B'-2'-0'</td>
<td>STX-'C'-B'-0'-I'-0'-0'-ST-BM-BD1-BD -BT1-BT2-EM-ED1-ED2-ET1-ET2-TD-ETX</td>
<td>BCC</td>
</tr>
</tbody>
</table>

Header

SOH (01h): Start of Header
'0' (30h): Reserved
Monitor ID: Indicate a replying Monitor ID.
   Ex.) When this byte is set to 'A', replying monitor's ID is '1'.
'B' (42h): Message type is "Command reply".
'2'-0'(32h, 30h): Message length (32bytes)

Message

STX (02h): Start of Message
'C'-B'-0'-I' (43h, 42h, 30h, 31h): Daylight Saving Setting reply command
'0'-0' (30h, 30h): Read
ST: Error Status
   No Error : 00h (30h, 30h)
   Error : 01h (30h, 31h)
BM: BEGIN MONTH
   JANUARY – DECEMBER: 01h (30h, 31h) – 12h (31h, 32h)
BDI: BEGIN DAY
   FIRST : 01h (30h, 31h)
   SECOND : 02h (30h, 32h)
   THIRD : 03h (30h, 33h)
   FOUR : 04h (30h, 34h)
<table>
<thead>
<tr>
<th>Day of the Week</th>
<th>BT1: BEGIN TIME1</th>
<th>BT2: BEGIN TIME2</th>
<th>EM: END MONTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUNDAY</td>
<td>00h (30h, 30h)</td>
<td>00h (30h, 30h)</td>
<td>JANUARY - DECEMBER: 01h (30h, 31h) - 12h (31h, 32h)</td>
</tr>
<tr>
<td>MONDAY</td>
<td>02h (30h, 32h)</td>
<td>02h (30h, 32h)</td>
<td></td>
</tr>
<tr>
<td>TUESDAY</td>
<td>03h (30h, 33h)</td>
<td>03h (30h, 33h)</td>
<td></td>
</tr>
<tr>
<td>WEDNESDAY</td>
<td>04h (30h, 34h)</td>
<td>04h (30h, 34h)</td>
<td></td>
</tr>
<tr>
<td>THURSDAY</td>
<td>05h (30h, 35h)</td>
<td>05h (30h, 35h)</td>
<td></td>
</tr>
<tr>
<td>FRIDAY</td>
<td>06h (30h, 36h)</td>
<td>06h (30h, 36h)</td>
<td></td>
</tr>
<tr>
<td>SATURDAY</td>
<td>07h (30h, 37h)</td>
<td>07h (30h, 37h)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Day of the Week</th>
<th>ED1: END DAY1</th>
<th>ED2: END DAY2</th>
<th>TD: TIME DIFFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST</td>
<td>01h (30h, 31h)</td>
<td></td>
<td>+01:00 : 00h (30h, 30h)</td>
</tr>
<tr>
<td>SECOND</td>
<td>02h (30h, 32h)</td>
<td></td>
<td>+00:30 : 01h (30h, 31h)</td>
</tr>
<tr>
<td>THIRD</td>
<td>03h (30h, 33h)</td>
<td></td>
<td>-00:30 : 02h (30h, 32h)</td>
</tr>
<tr>
<td>FOUR</td>
<td>04h (30h, 34h)</td>
<td></td>
<td>-01:00 : 03h (30h, 33h)</td>
</tr>
<tr>
<td>LAST</td>
<td>05h (30h, 35h)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ED1: END DAY1
|             | FIRST : 01h (30h, 31h) |
|             | SECOND : 02h (30h, 32h) |
|             | THIRD : 03h (30h, 33h)  |
|             | FOUR : 04h (30h, 34h)   |
|             | LAST : 05h (30h, 35h)   |

ED2: END DAY2
|             | SUNDAY : 01h (30h, 31h) |
|             | MONDAY : 02h (30h, 32h) |
|             | TUESDAY : 03h (30h, 33h) |
|             | WEDNESDAY : 04h (30h, 34h) |
|             | THURSDAY : 05h (30h, 35h) |
|             | FRIDAY : 06h (30h, 36h)  |
|             | SATURDAY : 07h (30h, 37h) |

BT1: BEGIN TIME1 (Hour)
00h (30h, 30h) - 23 (32h, 33h)

BT2: BEGIN TIME2 (Minute)
00h (30h, 30h) - 59 (35h, 39h)

Check code

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

Delimiter

CR (0Dh): End of packet
15.2 Daylight Saving Write

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

1) The controller requests the monitor to write Daylight Saving.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID='A'-1='E'</td>
<td>STX='C'-A'-0'-I'-1'-BM-BD1-BD2-BT1-BT2-EM-ED1-ED2-ET1-ET2-TD-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

### 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'='E'(31h, 45h):** Message length (30bytes)

### Message

- **STX (02h):** Start of Message
- **'C'-A'-0'-I'(43h, 41h, 30h, 31h):** Daylight Saving Setting Command
- **'0'-1' (30h, 31h):** Write
- **BM: BEGIN MONTH**
  - JANUARY - DECEMBER: 01h (30h, 31h) - 12h (31h, 32h)
- **BD1: BEGIN DAY1**
  - FIRST : 01h (30h, 31h)
  - SECOND : 02h (30h, 32h)
  - THIRD : 03h (30h, 33h)
  - FOUR : 04h (30h, 34h)
  - LAST : 05h (30h, 35h)
- **BD2: BEGIN DAY2** (Day of the week)
  - SUNDAY : 01h (30h, 31h)
  - MONDAY : 02h (30h, 32h)
  - TUESDAY : 03h (30h, 33h)
  - WEDNESDAY : 04h (30h, 34h)
  - THURSDAY : 05h (30h, 35h)
  - FRIDAY : 06h (30h, 36h)
  - SATURDAY : 07h (30h, 37h)
- **BT1: BEGIN TIME1** (Hour)
  - 00h (30h, 30h) - 23h (32h, 33h)
- **BT2: BEGIN TIME2** (Minute)
  - 00h (30h, 30h) - 59h (35h, 39h)
- **EM: END MONTH**
  - JANUARY - DECEMBER: 01h (30h, 31h) - 12h (31h, 32h)
- **ED1: END DAY1**
  - FIRST : 01h (30h, 31h)
  - SECOND : 02h (30h, 32h)
  - THIRD : 03h (30h, 33h)
  - FOUR : 04h (30h, 34h)
  - LAST : 05h (30h, 35h)
- **ED2: END DAY2** (Day of the week)
  - SUNDAY : 01h (30h, 31h)
  - MONDAY : 02h (30h, 32h)
  - TUESDAY : 03h (30h, 33h)
  - WEDNESDAY : 04h (30h, 34h)
  - THURSDAY : 05h (30h, 35h)
  - FRIDAY : 06h (30h, 36h)
  - SATURDAY : 07h (30h, 37h)
- **ET1: END TIME1** (Hour)
  - 00h (30h, 30h) - 23h (32h, 33h)
- **ET2: END TIME2** (Minute)
  - 00h (30h, 30h) - 59h (35h, 39h)
- **TD: TIME DIFFERENCE**

(85/130)
2) The monitor replies a written in result.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-'0'-Monitor ID='B'-'0'-'A'</td>
<td>STX='C'-B'-0'-1'-0'-0'-ST-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**Header**

SOH (01h): Start of Header

'0' (30h): Reserved

'Message receiver is the controller.

Monitor ID: Indicate a replying Monitor ID.

Ex.) When this byte is set to 'A', replying monitor's ID is '1'.

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

'0'-'A'(30h, 41h): Message length (10bytes)

**Message**

STX (02h): Start of Message

'C'-B'-0'-1' (43h, 42h, 30h, 31h): Daylight Saving Setting Command

'0'-1' (30h, 31h): Write

ST: Error Status

No Error : 00h (30h, 30h)

Error : 01h (30h, 31h)

ETX (03h): End of Message

**Check code**

BCC: Block Check Code

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

**Delimiter**

CR (0Dh): End of packet
## 16. Firmware Version

### 16.1 Firmware Version Read

This command is used in order to read a firmware version.

1) The controller requests the monitor to reply a firmware version.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID='A'-'0'-8'</td>
<td>STX-'C'-A-0-2-TY-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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

**Message**

STX (02h): Start of Message

'C'-A-0-2' (43, 41, 30, 32h): Firmware Version Command

TY: Firmware Type

Firmware1: 00h (30h, 30h)

Firmware2: 01h (30h, 31h)

Firmware3: 02h (30h, 32h)

Firmware4: 03h (30h, 33h)

ETX (03h): End of Message

**Check code**

BCC: Block Check Code

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

**Delimiter**

CR (0Dh): End of packet

2) The monitor replies a firmware version to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID='B'-1-1'</td>
<td>STX-'C'-B-0-2-ST-TY-MV-PP-BV1-BV2-BV3-BR1-BR2-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**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', replying monitor's ID is '1'.

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

'1'-1' (31h, 31h): Message length (17bytes)

**Message**

STX (02h): Start of Message

'C'-B-0-2' (43, 42, 30, 32h): Firmware Version Read reply

ST: Error Status

No Error : 00h (30h, 30h)

Error : 01h (30h, 31h)

TY: Firmware Type

Firmware1: 00h (30h, 30h)

Firmware2: 01h (30h, 31h)

MV: Major Version:
00h (30h, 30h) – 09h (30h, 39h)

PP: Period:
   2 Eh (32h, 45h) (fixed)
BV1: Minor (Basic) Version1:
   00h (30h, 30h) – 09h (30h, 39h)
BV2: Minor (Basic) Version2:
   00h (30h, 30h) – 09h (30h, 39h)
BV3: Minor (Basic) Version3:
   00h (30h, 30h) – 09h (30h, 39h)
BR1: Branch Version1:
   A: 41h (34h, 31h) – Z: 5 Ah (35h, 41h)
BR2: Branch Version1:
   A: 41h (34h, 31h) – Z: 5 Ah (35h, 41h)

Check code

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

Delimiter

CR (0Dh): End of packet
17. Auto ID
17.1 Auto ID Execute

This command is used in order to execute Auto ID function.

1) The controller requests the monitor to execute Auto ID function.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID='A'-'0'='8'</td>
<td>STX='C'-'A'-'0'-'A'-'0'-'1'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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'='8'(30h, 38h): Message length (8byte)

Message
- STX (02h): Start of Message
- 'C'-'A'-'0'-'A' (43h, 41h, 30h, 41h, 30h, 31h): Auto ID Command
- '0'='1' (30h, 30h): Execute
- ETX (03h): End of Message

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

Delimiter
- CR (0Dh): End of packet

2) The monitor replies receipt result.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID='B'-'0'='A'</td>
<td>STX='C'-'B'='0'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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', replying monitor's ID is '1'.
- 'B' (42h): Message type is "Command reply".
- '0'='A'(30h,41h): Message length (10byte)

Message
- STX (02h): Start of Message
- 'C'-'B'='0'- 'A' (43h, 42h, 30h, 42h, 30h, 31h): Auto ID Reply Command
- '0'='1' (30h, 30h): Execute
- ST: Error Status
  No Error : 00h (30h, 30h)
  Error : 01h (30h, 31h)
- ETX (03h): End of Message

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

CR (0Dh): End of packet
17.2 Auto ID Complete

This command is used in order to notify complete status of Auto ID.

1) The monitor sends the controller to complete status of Auto ID.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID- '0'-A'-0'-C'</td>
<td>STX='C'-A'-0'-A'-0'-2'-ST-MON-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

Header

SOH (01h): Start of Header
'o' (30h): Reserved
Monitor ID: Specify the Monitor ID of which you want to change a setting.
Ex.) If Monitor ID is '1', specify 'A'.
o (30h): Message sender is the controller.
'A' (41h): Message type is "Command".
o-"C"(30h,43h): Message length (12byte)

Message

STX (02h): Start of Message
'C'-A'-0'-A'-0'-2' (43h, 41h, 30h, 41h, 30h, 32h): Auto ID
'o'-"2" (30h,32h): Complete
ST: Error Status
  No Error : 00h (30h, 30h)
  Error : 01h (30h, 31h)
MON: DETECTED MONITORS
  01h (30h, 31h) - 64h (36h, 34h)
ETX (03h): End of Message

Check code

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

Delimiter

CR (0Dh): End of packet

2) The controller replies to the monitor.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-0'-Monitor ID- 'B'-0'-A'</td>
<td>STX='C'-B'-0'-A'-0'-2'-ST-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

Header

SOH (01h): Start of Header
'o' (30h): Reserved
'o' (30h): Message receiver is the controller.
Monitor ID: Indicate a replying Monitor ID.
Ex.) When this byte is set to 'A', replying monitor's ID is '1'.
'B' (42h): Message type is "Command reply".
o-'A'(30h,41h): Message length (10byte)

Message

STX (02h): Start of Message
'C'-B'-0'-A' (43h, 42h, 30h, 41h): Auto ID Reply Command
'o'-"2" (30h,32h): Complete
ST : Error Status
  No Error : 00h (30h, 30h) *Fixed
ETX (03h): End of Message
Check code

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

Delimiter

CR (0Dh): End of packet
17.3 Auto ID Reset

This command is used in order to reset Auto ID.

1) The controller requests the monitor to reset Auto ID.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID= '0'-'A'-'0'-'8'</td>
<td>STX='C'-'A'-0-A-0-3-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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

**Message**
- STX (02h): Start of Message
- 'C'-'A'-0-A (43h, 41h, 30h, 41h): Auto ID Command
- '0'- '3' (30h, 33h): Reset
- ETX (03h): End of Message

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

**Delimiter**
- CR (0Dh): End of packet

2) The monitor replies to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID= 'B'-0-A</td>
<td>STX='C'-'B'-0-A-0-3-ST-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**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', replying monitor’s ID is '1'.
- 'B' (42h): Message type is "Command reply".
- '0'- 'A'(30h,41h): Message length (10byte)

**Message**
- STX (02h): Start of Message
- 'C'-'B'-0-A (43h, 42h, 30h, 41h): Auto ID Reply
- '0'- '3' (30h, 33h): Reset
- ST: Error Status
  - No Error : 00h (30h, 30h)
  - Error : 01h (30h, 31h)
- ETX (03h): End of Message

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

**Delimiter**
- CR (0Dh): End of packet
18. Input Name

18.1 Input Name Read

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

1) The controller requests the monitor to reply Input Name setting.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-‘0’-Monitor ID- ‘A’-‘0’-‘8’</td>
<td>STX-‘C’-‘A’-‘0’-‘4’-‘0’-‘0’-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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’-‘8’ (30h, 38h): Message length (8bytes)

Message

STX (02h): Start of Message
‘C’-‘A’-‘0’-‘4’ (43h, 41h, 30h, 34h): Input Name Command
‘0’-‘0’ (30h, 30h): Read
ETX (03h): End of Message

Check code

BCC: Block Check Code
Refers to the section 4.3 “Check code” for a BCC calculation.

Delimiter

CR (0Dh): End of packet

2) The monitor replies Input Name to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-‘0’-‘0’-Monitor ID- ‘B’-LN(H)-LN(L)</td>
<td>STX-‘C’-‘B’-‘0’-‘4’-‘0’-‘0’- ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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’, replying monitor’s ID is ‘1’.
‘B’ (42h): Message type is “Command reply”.
LN(H)-LN(L): Message length (byte length), from STX to ETX
Ex.) The byte data 20h is encoded as ASCII characters ‘2’ and ‘0’ (32h and 30h).

Message

STX (02h): Start of Message
‘C’-‘B’-‘0’-‘4’ (43h, 42h, 30h, 34h): Input Name command reply
‘0’-‘0’ (30h, 30h): Read
Data(n) : Input name *n = Max 14
Ex.) For example when receiving Data(n) of 35h 36h 34h 37h 34h 31h
Step1: Input Name data is encoded as character code.
Example: 35h 36h 34h 37h 34h 31h -> ‘5’-‘6’-‘4’-‘7’-‘4’-‘1’
Step2: Decode pairs of ASCII characters to hexadecimal values.
Example: ‘5’-‘6’-‘4’-‘7’-‘4’-‘1’ -> 56h 47h 41h
Step3: Byte data represents the ASCII string data.
Example:
56h 47h 41h -> "VGA"
Result: Input Name is "VGA".
Note: No null termination character is sent.
ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet
18.2 Input Name Write

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

1) The controller requests the monitor to write Input Name.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID='0'- 'A'- LN(H)-LN(L)</td>
<td>STX='C'- 'A'='0'- '4'- '0'-1'- Data(0)- Data(1)- Data(2)- --- -Data(n)- ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**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".
- LN(H)-LN(L): Message length (byte length), from STX to ETX
  - Ex.) The byte data 20h is encoded as ASCII characters '2' and '0' (32h and 30h).

**Message**
- STX (02h): Start of Message
- 'C'-'A'-'0'-'4' (43h, 41h, 30h, 34h): Input name Command
- '0'-'1' (30h, 31h): Write
- Data(n): Input name *n = Max 14
  - Ex.) In the case of Input Name "VGA"
    - Step1: Input Name data is handled as character code.
      - Example: "VGA" -> 56h 47h 41h (ASCII)
    - Step2: The hexadecimal value of each original character is encoded as two ASCII characters representing the value.
      - Example: 56h 47h 41h -> '5'-'6'-'4'-'7'-'4'-'1'
    - Result: The following data is assigned to Data(n).
      - 35h 36h 34h 37h 34h 31h
- ETX (03h): End of Message

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

**Delimiter**
- CR (0Dh): End of packet

2) The monitor replies a written in result.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID='B'- '0'- 'A'</td>
<td>STX='C'- 'B'='0'- '0'- '1'-ST-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**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', replying monitor’s ID is '1'.
- 'B' (42h): Message type is "Command reply".
- '0'- 'A'(30h, 41h): Message length (10bytes)

**Message**
- STX (02h): Start of Message
- 'C'-'B'-'0'-'4' (43h, 42h, 30h, 34h): Input name Command
- '0'-'1' (30h, 31h): Write
ST: Status
- 00h (30h, 30h): No Error
- 01h (30h, 31h): Error
- ETX (03h): End of Message

Check code

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

Delimiter

CR (0Dh): End of packet
18.3 Input Name Reset

This command is used in order to reset the Input Name.

1) The controller requests the monitor to reset Input Name.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0' Monitor ID='0'-'A'-'0'-'B'</td>
<td>STX='C'-'A'-'0'-'4'-'0'-'2'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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

Message

STX (02h): Start of Message
'C'-'A'-'0'-'4' (43h, 41h, 30h, 34h): Input Name Command
'0'-'2' (30h, 32h): Reset
ETX (03h): End of Message

Check code

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

Delimiter

CR (0Dh): End of packet

2) The monitor replies result.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-'0'-Monitor ID='B'-'0'-'A'</td>
<td>STX='C'-'B'-'0'-'4'-'0'-'2'-ST-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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', replying monitor’s ID is '1'.
'B' (42h): Message type is "Command reply".
'0'-'A' (30h, 41h): Message length (10bytes)

Message

STX (02h): Start of Message
'C'-'B'-'0'-'4' (43h, 42h, 30h, 34h): Input name Command
'0'-'2' (30h, 32h): Reset
ST: Status
   00h (30h, 30h): No Error
   01h (30h, 31h): Error
ETX (03h): End of Message

Check code

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

CR (0Dh): End of packet
19. Power Save Mode

19.1 Power Save Mode Read

This command is used in order to read the Power Save Mode.

1) The controller requests the monitor to read Power Save Mode

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID- '0'-A-'0'-8</td>
<td>STX-'C'-A-'0'-B-'0'-0-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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

Message
STX (02h): Start of Message
'C'-A-'0'-B (43h, 41h, 30h, 42h): Power Save Mode command
'0'-0 (30h, 30h): Read
ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet

2) The monitor replies Power Save Mode to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-0-Monitor ID- 'B'-0-A</td>
<td>STX-'C'-B-'0'-B-'0'-0-MODE-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

Header
SOH (01h): Start of Header
'0' (30h): Reserved
'Monitor ID: Indicate a replying Monitor ID.
Ex.) When this byte is set to 'A', replying monitor's ID is '1'.
'B' (42h): Message type is "Command reply".
'0'-A (30h,41h): Message length (10byte)

Message
STX (02h): Start of Message
'C'-B-'0'-B (43h, 42h, 30h, 42h): Power Save Mode Reply
'0'-0 (30h, 30h): Read
MODE: POWER SAVE MODE
00h (30h, 30h): AUTO POWER SAVE
01h (30h, 31h): AUTO STANDBY
02h (30h, 32h): POWER SAVE OFF
ETX (03h): End of Message

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

CR (0Dh): End of packet
19.2 Power Save Mode Write

This command is used in order to write the setting of Power Save Mode.

1) The controller requests the monitor to write Power Save Mode.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-'Monitor ID- '0'-'A'-0'-A'</td>
<td>STX-'C'-A'-0'-B-0'-1'-MODE-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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 (10byte)

Message

STX (02h): Start of Message
'C'-A'-0'-B' (43h, 41h, 30h, 42h): Power Save Mode command
'0'-1' (30h, 31h): Write
MODE: POWER SAVE MODE
00h (30h, 30h): AUTO POWER SAVE
01h (30h, 31h): AUTO STANDBY
02h (30h, 32h): POWER SAVE OFF
ETX (03h): End of Message

Check code

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

Delimiter

CR (0Dh): End of packet

2) The monitor replies a written in result.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-0'-Monitor ID- 'B'-0'-A'</td>
<td>STX-'C'-B'-0'-B'-0'-1'-ST-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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', replying monitor’s ID is '1'.
'B' (41h): Message type is "Command reply".
'0'-A' (30h, 41h): Message length (10byte)

Message

STX (02h): Start of Message
'C'-B'-0'-B' (43h, 42h, 30h, 42h): Power Save Mode Reply
'0'-1' (30h, 31h): Write
ST: Error Status
No Error : 00h (30h, 30h)
Error : 01h (30h, 31h)
ETX (03h): End of Message

Check code

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

CR (0Dh): End of packet
19.3 Auto Power Save Time Read

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

1) The controller requests the monitor to reply Time setting.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
</table>

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

**Message**
- **STX (02h):** Start of Message
- **'C'-'A'-0-B** (43h, 41h, 30h, 42h): Power Save Mode command
- **'0'-'2'** (30h, 30h): Auto Power Save Read
- **ETX (03h):** End of Message

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

**Delimiter**
- **CR (0Dh):** End of packet

2) The monitor replies Time to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-0-0-Monitor ID-B-0-A</td>
<td>STX-C-B-0-B-0-2-TIME-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**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', replying monitor’s ID is '1'.
- **'B' (42h):** Message type is "Command reply".
- **'0'-A'** (30h, 41h): Message length (10byte)

**Message**
- **STX (02h):** Start of Message
- **'C'-B'-0'-B'** (43h, 42h, 30h, 42h): Power Save Mode Reply
- **'0'-2'** (30h, 32h): Auto Power Save Time Read
- **TIME:** AUTO POWER SAVE TIME (sec.)
  - **00h** (30h, 30h) – **78h** (37h, 38h): 1 (5dec.) – 120 (600sec.)
- **ETX (03h):** End of Message

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

**Delimiter**
- **CR (0Dh):** End of packet
19.4 Auto Power Save Time Write

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

1) The controller requests the monitor to write Time.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'</td>
<td>Monitor ID='A'</td>
<td>BCC</td>
<td>CR</td>
</tr>
<tr>
<td>'0'='A'</td>
<td>0x00h -&gt; '0' '3' 'TIME'</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 (10byte)

Message

STX (02h): Start of Message
'C'='A'='0'='B' (43h, 41h, 30h, 42h): Power Save Mode command
'0'='3' (30h, 33h): Auto Power Save Time Write
TIME: AUTO POWER SAVE TIME (sec.)
00h (30h, 30h) – 78h (37h, 38h): 1 (5dec.) – 120 (600sec.)
ETX (03h): End of Message

Check code

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

Delimiter

CR (0Dh): End of packet

2) The monitor replies a written in result.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'</td>
<td>Monitor ID='B'</td>
<td>BCC</td>
<td>CR</td>
</tr>
<tr>
<td>'0'='B'</td>
<td>0x00h -&gt; '0' '3' 'ST'</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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', replying monitor's ID is '1'.
'B' (42h): Message type is "Command reply".
'0'='8' (30h, 38h): Message length (8byte)

Message

STX (02h): Start of Message
'C'='B'='0'='B' (43h, 42h, 30h, 42h): Power Save Mode Reply
'0'='3' (30h, 33h): Auto Power Save Time Write
ST: Error Status
   No Error : 00h (30h, 30h)
   Error : 01h (30h, 31h)
ETX (03h): End of Message

Check code

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

CR (0Dh): End of packet
19.5 Auto Standby Time Read

This command is used in order to read the setting of Auto Standby Time.

1) The controller requests the monitor to reply Time setting.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID- '0'-A-0'-8'</td>
<td>STX='C'-A'-0'-B'-0'-4'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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

Message
- STX (02h): Start of Message
- 'C'-A'-0'-B' (43h, 41h, 30h, 42h): Power Save Mode command
- '0'-4' (30h, 30h): Auto Standby Time Read
- ETX (03h): End of Message

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

Delimiter
- CR (0Dh): End of packet

2) The monitor replies Time to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-0'-Monitor ID- 'B'-0'-A'</td>
<td>STX='C'-B'-0'-B'-0'-4'-TIME-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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', replying monitor's ID is '1'.
- 'B' (42h): Message type is "Command reply".
- '0'-A'(30h,41h): Message length (10byte)

Message
- STX (02h): Start of Message
- 'C'-B'-0'-B' (43h, 42h, 30h, 42h): Power Save Mode Reply
- '0'-4' (30h, 34h): Auto Standby Time Read
- TIME: AUTO STANDBY TIME (sec.)
  - 00h (30h, 30h) - 78h (37h, 38h): 1 (5dec.) - 120 (600sec.)
- ETX (03h): End of Message

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

Delimiter
- CR (0Dh): End of packet
19.6 Auto Standby Time Write

This command is used in order to write the setting of Auto Standby Time.

1) The controller requests the monitor to write Time.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-&quot;0&quot;-Monitor ID-&quot;0&quot;-&quot;A&quot;-0-&quot;A&quot;</td>
<td>STX-&quot;C&quot;-&quot;A&quot;-&quot;0&quot;-&quot;B&quot;-&quot;0&quot;-&quot;5&quot;-TIME-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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 (10byte)

Message

STX (02h): Start of Message
'C'-'A'-'0'-'B' (43h, 41h, 30h, 42h): Power Save Mode command
'0'-"5" (30h, 35h): Auto Standby Time Write
TIME: AUTO STANDBY TIME (sec.)
00h (30h, 30h) – 78h (37h, 38h): 1 (5dec.) – 120 (600sec.)
ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet

2) The monitor replies a written in result.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-&quot;0&quot;-&quot;0&quot;-Monitor ID-&quot;B&quot;-0-&quot;A&quot;</td>
<td>STX-&quot;C&quot;-&quot;B&quot;-&quot;0&quot;-&quot;B&quot;-&quot;0&quot;-&quot;5&quot;-ST-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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', replying monitor's ID is '1'.
'B' (42h): Message type is "Command reply".
'B'-"A" (30h, 42h): Message length (10byte)

Message

STX (02h): Start of Message
'C'-'B'-'0'-'B' (43h, 42h, 30h, 42h): Power Save Mode Reply
'0'-"5" (30h, 35h): Auto Standby Time Write
ST: Error Status
No Error : 00h (30h, 30h)
Error : 01h (30h, 31h)
ETX (03h): End of Message

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

CR {0Dh}: End of packet
20. Setting Copy

20.1 Setting Copy Read

This command is used in order to read the Setting Copy.

1) The controller requests the monitor to read Setting Copy

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID-'0'-A='1'-CR</td>
<td>STX-'C'-A='0'-9'-0'-0'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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

Message

STX (02h): Start of Message
'C'-A='0'-9' (43h, 41h, 30h, 39h): Setting Copy command
'0'-'0' (30h, 30h): Target Read
ETX (03h): End of Message

Check code

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

Delimiter

CR (0Dh): End of packet

2) The monitor replies Setting Copy to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID-'B'-1='0'-B-0-0-0-0-ETX</td>
<td>STX-'C'-B='0'-9'-0'-0'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

Header

SOH (01h): Start of Header
'0' (30h): Reserved
Monitor ID: Indicate a replying Monitor ID.
Ex.) When this byte is set to 'A', replying monitor's ID is '1'.
'B' (42h): Message type is "Command reply".
'1'-'0' (31h, 30h): Message length (16byte)

Message

STX (02h): Start of Message
'C'-B='0'-9' (43h, 42h, 30h, 39h): Setting Copy Reply
'0'-'0' (30h, 30h): Target Read
T1 - T4: 00h (30h, 30h) - FFh (46h, 46h)
T1 : Setting Copy Target 4 (Bit12-Bit15)
T2 : Setting Copy Target 3 (Bit8-Bit11)
T3 : Setting Copy Target 2 (Bit4-Bit7)
T4 : Setting Copy Target 1 (Bit0-Bit3)
Bit0: ALL INPUT
Bit1: PICTURE
Bit2: ADJUST
Bit3: AUDIO
Bit4: SCHEDULE
Bit5: MP-CTRL

(110/130)
Bit6: OSD
Bit7: MULTI DISP
Bit8: PROTECT
Bit9: EXT-CTRL
Bit10: ADVANCED
Bit11: ADVANCED2
Bit12: HTTP
Bit13: Reserve
Bit14: Reserve
Bit15: Reserve

Ex.) Setting the following value for T4
Bit0: ALL INPUT is OFF (0).
Bit1: PICTURE is OFF (0).
Bit2: ADJUST is ON (1).
Bit3: AUDIO is ON (1).

Step 1: Put above bit in following order.
Bit3-Bit2-Bit1-Bit0
Value: 1100

Step 2: Write the value of Step 1 by a hexadecimal number.
Value: 0Ch

Step 3: Encode the value of Step 2 to ASCII characters.
Value: '0' and 'C' (30h and 43h)

ETX (03h): End of Message

Check code

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

Delimiter

CR (0Dh): End of packet
20.2 Setting Copy Write

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

1) The controller requests the monitor to write Setting Copy.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID- '0'- 'A'- '1'- '0'</td>
<td>STX- 'C'- 'A'- '0'- '9'- '0'- '1'- T4-T3-T2-T1-ETX</td>
<td>BCC CR</td>
<td></td>
</tr>
</tbody>
</table>

**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'-'0'(31h,30h): Message length

**Message**

STX (02h): Start of Message

'C'- 'A'- '0'- '9' (43h,41h,30h,39h): Setting Copy command

'0'-'1' (30h,31h): Target Write

T1 – T4 : 00h (30h, 30h) – FFh (46h, 46h)

Ex.) Setting the following value for T4

Bit0: ALL INPUT

Bit1: PICTURE

Bit2: ADJUST

Bit3: AUDIO

Bit4: SCHEDULE

Bit5: MP-CTRL

Bit6: OSD

Bit7: MULTI DISP

Bit8: PROTECT

Bit9: EXT-CTRL

Bit10: ADVANCED

Bit11: ADVANCED2

Bit12: HTTP

Bit13: Reserve

Bit14: Reserve

Bit15: Reserve

**Ex.)**

Step 1: Put above bit in following order.
Bit3-Bit2-Bit1-Bit0
Value: 1100

Step 2: Write the value of Step 1 by a hexadecimal number.
Value: 0Ch

Step 3: Encode the value of Step 2 to ASCII characters.
Value: '0' and 'C' (30h and 43h)

ETX (03h): End of Message

**Check code**

BCC: Block Check Code

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

**Delimiter**

CR (0Dh): End of packet
2) The monitor replies a written in result.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID='B'-STX='C'-ST='0'-ETX</td>
<td>'0'-'9'-'0'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**Header**

SOH (01h): Start of Header
'0' (30h): Reserved
Monitor ID: Indicate a replying Monitor ID.
Ex.) When this byte is set to 'A', replying monitor’s ID is '1'.
'B' (42h): Message type is "Command reply".
'0'-'A'(30h,41h): Message length (10byte)

**Message**

STX (02h): Start of Message
'C'-B'-0'-9' (43h, 42h, 30h, 39h): Setting Copy Reply
'0'-1' (30h, 30h): Target Write
ST: Status
No Error : 00h (30h, 30h)
Error : 01h (30h, 31h)
ETX (03h): End of Message

**Check code**

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

**Delimiter**

CR (0Dh): End of packet
20.3 Setting Copy Start

This command is used in order to start Setting Copy.

1) The controller requests the monitor to write Setting Copy Start.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-'0'-Monitor ID-'0'-A-'0'-8</td>
<td>STX-'C'-A-'0'-9-'0'-2-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**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'-9'(30h, 39h): Message length (8byte)

**Message**

STX (02h): Start of Message
'C'-A-'0'-9 (43h, 41h, 30h): Setting Copy command
'0'-2 (30h, 32h): Start
ETX (03h): End of Message

**Check code**

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

**Delimiter**

CR (0Dh): End of packet

2) The monitor replies to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-'0'-Monitor ID-'B'-0-'A'</td>
<td>STX-'C'-B-'0'-9-'0'-2-ST-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**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', replying monitor’s ID is '1'.
'B' (42h): Message type is "Command reply".
'0'-A'(30h, 41h): Message length (10byte)

**Message**

STX (02h): Start of Message
'C'-B-'0'-9 (43h, 42h, 30h): Setting Copy Reply
'0'-2 (30h, 30h): Start
ST: Status
  No Error : 00h (30h, 30h)
  Error : 01h (30h, 31h)
ETX (03h): End of Message

**Check code**

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

CR (0Dh): End of packet
21. Security Enable

21.1 Security Enable Read

This command is used in order to read the Security Enable.

1) The controller requests the monitor to read Security Enable

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-‘0’-‘A’-‘0’-‘8’</td>
<td>STX-‘C’-‘A’-‘0’-‘0’-‘2’-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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’-‘8’ (30h, 38h): Message length (8byte)

Message
STX (02h): Start of Message
‘C’-‘A’-‘0’-‘C’ (43h, 41h, 30h, 43h): Security password Command
‘0’-‘2’ (30h, 32h): Enable Read
ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet

2) The monitor replies Security Enable to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-‘0’-‘0’-Monitor ID-‘B’-‘0’-‘A’</td>
<td>STX-‘C’-‘B’-‘0’-‘C’-‘0’-‘2’-EN-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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’, replying monitor’s ID is ‘1’.
‘B’ (42h): Message type is "Command reply".
‘0’-‘A’ (30h, 41h): Message length (10byte)

Message
STX (02h): Start of Message
‘C’-‘B’-‘0’-‘C’-‘0’-‘2’ (43h, 42h, 30h, 31h, 32h): Get Security Enable Disable Reply
EN: SECURE MODE
  00h (30h, 30h): OFF
  01h (30h, 31h): START-UP LOCK
  02h (30h, 32h): CONTROL LOCK
  03h (30h, 33h): BOTH LOCK
ETX (03h): End of Message

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

Delimiter

CR (0Dh): End of packet
21.2 Security Enable Write

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

1) The controller requests the monitor to set Security password.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID- '0-'A'-1'='C'</td>
<td>STX='C'-'A'-0'-C'-0'-1'-EN='0'-0'-PWD1=PWD16-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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'='C'(31h,43h): Message length (28byte)

Message

STX (02h): Start of Message

'C'='A'=0'-C' (43h, 41h, 30h, 43h): Security Password Command

'0'=1' (30h, 31h): Enable Write

EN: SECURE MODE

00h (30h, 30h): OFF

01h (30h, 31h): START-UP LOCK

02h (30h, 32h): CONTROL LOCK

03h (30h, 33h): BOTH LOCK

'0'=0' (30h, 30h): Reserved

PWD1 – PWD16: Password data

The password data is encoded as the following procedure.

Ex.) In the case of password data "1234"

Step1: Password data is handled as character code.

Example:

"1234" -> 31h 32h 33h 34h (ASCII)

Step2: The hexadecimal value of each original character is encoded as two ASCII characters representing the value.

Example:

31h 32h 33h 34h -> '3'-1'-3'-2'-3'-3'-3'-4'

Step3: Password data is handled as character code once again.

Example:

'3'-1'-3'-2'-3'-3'-3'-4' -> 33h 31h 33h 32h 33h 33h 33h 33h 33h 34h (ASCII)

Step4: The hexadecimal value of each original character is encoded as two ASCII characters representing the value.

Example:

33h 31h 33h 32h 33h 33h 33h 34h

Result: The following data is assigned to PWD1-PWD16.

ETX (03h): End of Message

Check code

BCC: Block Check Code

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

Delimiter

CR (0Dh): End of packet

2) The monitor replies a written in result.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID- 'B'=0'-A'</td>
<td>STX='C'-'B'=0'-C'=0'-1'-ST=ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>
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', replying monitor's ID is '1'.
'B' (42h): Message type is "Command reply".
'0'-'A'(30h,41h): Message length (10byte)

Message
STX (02h): Start of Message
'C'-'B'-'0'-'C' (43h, 42h, 30h, 43h): Security password Reply Command
'0'-'1' (30h, 31h): Enable Write
ST: Error Status
00h: No Error
01h: Error
ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet
22. LAN MAC Address

22.1 LAN MAC Address Read

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

1) The controller requests the monitor to read MAC Address

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID-'A'-0='8'</td>
<td>STX-C-'2'-2-'A'-0='2'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**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'-'8' (30h, 38h): Message length is 8 bytes.

**Message**
- STX (02h): Start of Message
- 'C'-2-'2'-A': LAN read command.
- '0'-'2': MAC Address
- ETX (03h): End of Message

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

**Delimiter**
- CR (0Dh): End of packet

2) The monitor replies MAC Address to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID-'B'-LN(H)-LN(L)</td>
<td>STX-C-'3'-2-'A'-RC-0='2'-IPV-MAC(0)-...-MAC(n)-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**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".
- LN(H)-LN(L): Message length (byte length), from STX to ETX

**Message**
- STX (02h): Start of Message
- 'C'-3-'2'-A': LAN read reply command.
- RC: Reply result Code
  - '0'-0' (30h, 30h): Normal
  - 'F'-F' (46h, 46h): Abnormal
- '0'-'2': MAC Address
- IPV: IPv4 or IPv6
  - '0'-4' (30h, 34h): IPv4
  - '0'-6' (30h, 36h): IPv6
- MAC(0-n): MAC Address
  - In the case of IPv4 -> n = 4

(120/130)
In the case of IPv6 -> n = 7
ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet
23. Proof of Play

23.1 Set Proof of Play Operation Mode

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

1) The controller requests the monitor to set Operation mode of Proof of Play.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID- '0'-Monitor ID- '0'-Monitor ID- '0'-Monitor ID- '0'-Monitor ID- STX-'C'-STX-'A'-STX-'1'-STX-'5'-STX-'0'-STX-'0'-MD-ETX</td>
<td>BCC</td>
<td>CR</td>
<td></td>
</tr>
</tbody>
</table>

**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'-'A' (30h, 41h)**: Message length is 10 bytes.

**Message**

- **STX (02h)**: Start of Message
- **'C'-'A'-'1'-'5'**: Proof of Play command
- **'0'-'0' (30h, 30h)**: Set Proof of Play Operation Mode command
- **MD**: Mode of Proof of Play.
  - **'0'-'0' (30h, 30h)**: Stop
  - **'0'-'1' (30h, 31h)**: Start
  - **'0'-'2' (30h, 32h)**: Clear Log data
- **ETX (03h)**: End of Message

**Check code**

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

**Delimiter**

- **CR (0Dh)**: End of packet

2) The monitor replies the result of set Operation mode to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID- '0'-Monitor ID- '0'-Monitor ID- '0'-Monitor ID- '0'-Monitor ID- STX-'C'-STX-'B'-STX-'1'-STX-'5'-STX-'0'-STX-'0'-ST-ETX</td>
<td>BCC</td>
<td>CR</td>
<td></td>
</tr>
</tbody>
</table>

**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'-'A' (30h, 41h)**: Message length is 10 bytes.

**Message**

- **STX (02h)**: Start of Message
- **'C'-'B'-'1'-'5'**: Proof of Play reply command
- **'0'-'0' (30h, 30h)**: Set Proof of Play Operation Mode command
- **ST**: Status
  - **'0'-'0' (30h, 30h)**: No Error
  - **'0'-'1' (30h, 31h)**: Error
  - **'0'-'2' (30h, 32h)**: Already Start/Stop/Clear
ETX (03h): End of Message

Check code

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

Delimiter

CR (0Dh): End of packet
23.2 Get Proof of Play Current

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

Note: Proof of Play information cannot be read from the display when it is in OFF state. The display must be fully powered on to read Proof of Play information. Also the display does not continue to create any new logs while it is in OFF state.

1) The controller requests the monitor to get Current log data of Proof of Play.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID- '0'-'A'-'0'-'8'</td>
<td>STX-'C'-'A'-'1'-'5'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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'-'8' (30h, 38h) : Message length is 8 bytes.

Message
- STX (02h): Start of Message
- 'C'-'A'-'1'-'5': Proof of Play command
- '0'-'1' (30h,31h): Get Current log of Proof of Play command
- ETX (03h): End of Message

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

Delimiter
- CR (0Dh): End of packet

2) The monitor replies the result of Current log data to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID- '0'-'8'-'3'-'4'</td>
<td>STX-'C'-'B'-'1'-'5'-ST-CNH-CN1-Data(0)-Data(1)-Data(2)- ---Data(18)-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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".
- '3'-'4' (33h, 34h) : Message length is 52 bytes.

Message
- STX (02h): Start of Message
- 'C'-'B'-'1'-'5': Proof of Play reply command
- '0'-'1' (30h,31h): Get Current log of Proof of Play command
- ST : Status
  - No Error : 00h (30h,30h)
  - Error: 01h (30h, 31h)
- CNH: Current log data Number (High byte)
CNL: Current log data Number (Low byte) '0', '0', '0', '1' - 'F', 'F', 'F', 'F' (30h, 30h, 30h, 31h - 46h, 46h, 46h, 46h) : 1 - 65535

Data(0) - Data(18): Data of Proof of Play

Log Data of Proof of Play: Data(0) - Data(18)

Data(0): Check INPUT PICTURE

Same as VCP(Page1 06H Input source) reply parameter.

Refer to Item "INPUT" on page 41.

Data(1) - Data(4): Check Input Signal

'0' - '0' - '0' - '0' - '0' - '0' - '0' - '0' (30h, 30h, 30h, 30h, 30h, 30h, 30h, 30h): No signal

'F' - 'F' - 'F' - 'F' - 'F' - 'F' - 'F' - 'F' (46h, 46h, 46h, 46h, 46h, 46h, 46h, 46h): Invalid signal

'*' - '*' - '*' - '*' - '*' - '*' - '*' - '*' (**h, **h, **h, **h, **h, **h, **h): Input signal

Ex.) 1920 x 1080 '0' - '7' - '8' - '0' - '0' - '4' - '3' - '8' : 1920(0768h) x 1080(0438h)

Data(5): Check INPUT AUDIO

Same as VCP(Page2 2EH Select Sound Input) reply parameter.

Refer to Item "AUDIO INPUT" on page 33.

Data(6): Check with or without Audio

'0' - '0' (30h, 30h): Audio in

'0' - '1' (30h, 31h): No Audio in

'0' - '2' (30h, 32h): N/A

Data(7): Check status (Picture)

'0' - '0' (30h, 30h): Normal Picture

'0' - '1' (30h, 31h): No Picture

Data(8): Check status (Audio)

'0' - '0' (30h, 30h): Normal Audio

'0' - '1' (30h, 31h): No Audio

Data(9) - Data(10): Year

'*' - '*' - '*' - '*' (**h, **h, **h, **h): 0 ~ 65535 (0000h ~ FFFFh)

Ex.) 2014 '0' - '7' - 'D' - 'E' : 2014(07DEh)

Data(11): Month

'0' - '1' (30h, 31h): January

'0' - '2' (30h, 31h): February

'0' - 'B' (30h, 31h): November

'0' - 'C' (30h, 31h): December

Data(12): Day

'*' - '*' (**h, **h): 1 ~ 31 (01h ~ 31h)

Data(13): Hour

'*' - '*' (**h, **h): 0 ~ 23 (00h ~ 17h)

Data(14): Minute

'*' - '*' (**h, **h): 0 ~ 59 (00h ~ 3Bh)

Data(15): Second

'*' - '*' (**h, **h): 0 ~ 59 (00h ~ 3Bh)

Data(16) - Data(18): Reserve (future use: always '0' - '0' - '0' - '0' - '0' - '0')

ETX (03h): End of Message

Check code

BCC: Block Check Code

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

Delimiter

CR (0Dh): End of packet
23.3 Get Proof of Play Status

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

1) The controller requests the monitor to get status of Proof of Play.

```
<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID- '0'-'A'-'0'-'8'</td>
<td>STX='C'-'A'-'1'-'5'-'0'-'2'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>
```

**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'-'8' (30h, 38h) : Message length is 8 bytes.

**Message**
- STX (02h): Start of Message
- 'C'-'A'-'1'-'5': Proof of Play command
- '0'-'2': Get Proof of Play Status command
- ETX (03h): End of Message

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

**Delimiter**
- CR (0Dh): End of packet

2) The monitor replies the status of Proof of Play to the controller.

```
<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID- '0'-'B'-'1'-'4'</td>
<td>STX='C'-'B'-'1'-'5'-'0'-'2'-ST1-ST2-ST3-ST4-ST5-ST6-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>
```

**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".
- '1'-'4' (31h, 34h) : Message length is 20 bytes.

**Message**
- STX (02h): Start of Message
- 'C'-'B'-'1'-'5': Proof of Play reply command
- '0'-'2': Get Proof of Play status command
- ST1: Error status
  - 00h (30h, 30h): No Error
  - 01h (30h, 30h): Memory full (some data has been lost)
  - 02h (30h, 30h): other error (other error has priority ver 01h error)
- ST2: Total Number-High byte (How many log data items are currently used.)
- ST3: Total Number-Low byte (How many log data items are currently used.)
- '0','0','0','0' - 'F','F','F','F' (30h,30h,30h,30h - 46h,46h,46h,46h): 0-65535

(126/130)
ST4: Maximum Number-High byte (Maximum possible number of log data items)
ST5: Maximum Number-Low byte (Maximum possible number of log data items)
'0','0','0','0' - 'F','F','F','F' (30h,30h,30h,30h - 46h,46h,46h,46h): 0 - 65535
    Stop: 00h (30h, 30h)
    Start: 01h (30h, 31h)
    ETX (03h): End of Message

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

Delimiter
    CR (0Dh): End of packet
**23.4 Get Proof of Play Number to Number**

This command is used in order to get Proof of Play number to number log.

1) The controller requests the monitor to get Number to Number log of Proof of Play.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID- '0'- 'A'- '1'- '0'</td>
<td>STX='C'- 'A'- '1'- '5'- '0'- '3'-BNS(H)=- BNS(L)=BNE(H)=BNE(L)=ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**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".
- '1'- '0' (31h, 30h): Message length is 16 bytes.

**Message**

- **STX (02h):** Start of Message
- 'C'- 'A'- '1'- '5': Proof of Play command
- '0'- '3' (30h, 33h): Get Proof of Play Number to Number log command
- **BNS(H):** Block Number of Start (High byte)
- **BNS(L):** Block Number of Start (Low byte)
- **BNE(H):** Block Number of Stop (High byte)
- **BNE(L):** Block Number of Stop (Low byte)
- **ETX (03h):** End of Message

**Check code**

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

**Delimiter**

- **CR (0Dh):** End of packet

2) The monitor replies the number to number log of Proof of Play to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH='0'-Monitor ID- '0'- 'B'- '3'- '4'</td>
<td>STX='C'- 'B'- '1'- '5'- '0'- '3'- LNR(H)= LNR(L)=Data(0)-Data(1)-Data(2) --- Data(18) -ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

* A reply returns data in order from specified Number to specified Number.

**Ex.)**

- Number to Number: 1 to 6
- **Request Number to Number** [SOH—STX-BNS-BNE-ETX-BCC-CR]
- **Reply Log Data(0)–Data(18)** [SOH—STX-#1-Data0—Data18-BCC-CR]
- **Reply Log Data(0)–Data(18)** [SOH—STX-#2-Data0—Data18-BCC-CR]
- **Reply Log Data(0)–Data(18)** [SOH—STX-#3-Data0—Data18-BCC-CR]
- **Reply Log Data(0)–Data(18)** [SOH—STX-#4-Data0—Data18-BCC-CR]
- **Reply Log Data(0)–Data(18)** [SOH—STX-#5-Data0—Data18-BCC-CR]
- **Reply Log Data(0)–Data(18)** [SOH—STX-#6-Data0—Data18-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".
'3'-'4' (33h, 36h) : Message length is 38 bytes.

Message
STX (02h): Start of Message
'C'-'B'-'1'-'5': Proof of Play reply command
'0'-'3' (30h,33h): Get Proof of Play Number to Number log command
LNR (H): log number being returned (High byte)
LNR (L): log number being returned (Low byte)
Data(0)-Data(12): Log Data of Proof of Play of STOP (26byte) : Same as "Get Proof of Play Current"
* Refer to "Get Proof of Play Current"
ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet
All data are subject to change without notice.