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I. Application
This document defines the communications method for control of the NEC LCD monitor, MultiSync P404 /P484 /P554 /V404 /V484 /V554/ V404-T/ V484-T/ V554-T/ P654Q/ P754Q/ V554Q/ V754Q/ V864Q/ V984Q/ C651Q/ C751Q/ C861Q/ C981Q/ UN462A/ UN462VA/ UN492S/ UN492VS/ UN552/ UN552V/ UN552B/ UN552VS 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.

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

3. Communication Parameter

3.1 RS-232C Remote control

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

(Note)
A byte interval of the command should be within the 100ms.

3.2 LAN control

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

(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. Note: Don’t add extra data (Example: padding data) after 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")

  - Controller
    - Get Parameter
      - Header, Message, Check Code, Delimiter
    - Get Parameter Reply
      - Header, Message, Check Code, Delimiter
    - Set Parameter
      - Header, Message, Check Code, Delimiter
    - Set Parameter Reply
      - Header, Message, Check Code, Delimiter
    - Get Parameter
      - Header, Message, Check Code, Delimiter
    - Get Parameter Reply
      - Header, Message, Check Code, Delimiter
    - Save Current Setting Command
      - Header, Message, Check Code, Delimiter
    - Save Current Setting Command Reply
      - Header, Message, Check Code, Delimiter
  - Monitor

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.

The controller sends commands to set an adjusted value.

The monitor replies to the controller for confirmation.

The controller sends command to get a value for confirmation.

The monitor replies an adjusted value.

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 28. and 5.5.2)

  - Controller
    - Command
      - Header, Message, Check Code, Delimiter
    - Command Reply
      - Header, Message, Check Code, Delimiter
  - Monitor

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 28.

The monitor replies a proper message defined for each control.
### 4.1 Header block format (fixed length)

<table>
<thead>
<tr>
<th>SOH</th>
<th>Reserved</th>
<th>Destination</th>
<th>Source</th>
<th>Message Type</th>
<th>Message Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st byte) SOH: Start of Header</td>
<td>ASCII SOH (01h)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd byte) Reserved: Reserved for future extensions.</td>
<td>On this monitor, it must be ASCII '0'(30h).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd byte) Destination: Destination equipment ID. (Receiver)</td>
<td>Specify a commands receiver’s address.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The controller sets the “MONITOR ID” or “GROUP ID” of the monitor controlled in here.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>On the reply, the monitor sets '0' (30h), always.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“MONITOR ID”, “GROUP ID” to “Destination Address” conversion table is as follows,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<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('1')</td>
<td>D</td>
<td>34h('4')</td>
<td>G</td>
<td>37h('7')</td>
<td>J</td>
<td>3Ah(';')</td>
</tr>
<tr>
<td>B</td>
<td>32h('2')</td>
<td>E</td>
<td>35h('5')</td>
<td>H</td>
<td>38h('8')</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>33h('3')</td>
<td>F</td>
<td>36h('6')</td>
<td>I</td>
<td>39h('9')</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(8/145)
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 'x'(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>Result</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>
<td>LSB</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>LSB</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>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>Hi</td>
<td>Lo</td>
<td>Hi</td>
<td>Lo</td>
<td>Hi</td>
<td>Lo</td>
<td>MSB</td>
<td>LSB</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.

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

XOR: Exclusive OR

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

<table>
<thead>
<tr>
<th>SOH</th>
<th>Reserved</th>
<th>Destination Address</th>
<th>Source Address</th>
<th>Message type</th>
<th>Message length</th>
<th>STX</th>
<th>OP code page</th>
<th>OP code</th>
<th>Set Value</th>
<th>ETX</th>
<th>Check code (BCC)</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>30</td>
<td>41</td>
<td>30</td>
<td>45</td>
<td>30</td>
<td>41</td>
<td>02</td>
<td>30</td>
<td>30</td>
<td>31</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

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

\[ = 30h \ xor \ 41h \ xor \ 30h \ xor \ 45h \ xor \ 30h \ xor \ 41h \]
\[ \ xor \ 02h \ xor \ 30h \ xor \ 30h \ xor \ 31h \ xor \ 30h \ xor \ 30h \]
\[ \ xor \ 30h \ xor \ 36h \ xor \ 34h \ xor \ 03h \]

\[ = 77h \]
4.4 Delimiter

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

5.1 Get current Parameter from a monitor.

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

For the status that you want to get, specify the “OP code page” the “OP code”, refer to “Appendix A. Operation code table”.

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

2nd-3rd bytes) OP code page: Operation code page.
   Specify the “OP code page” for the control which you want to get the status.
   Refer to “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>Hi</td>
<td>Lo</td>
<td>Hi</td>
<td>Lo</td>
<td>Hi</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>1st byte</th>
<th>2nd-3rd bytes</th>
<th>4th-5th bytes</th>
<th>6th-7th bytes</th>
<th>8th-9th bytes</th>
<th>10th-13th bytes</th>
<th>14th-17th bytes</th>
<th>18th byte</th>
</tr>
</thead>
<tbody>
<tr>
<td>STX</td>
<td>Result OP code page</td>
<td>OP code</td>
<td>Type</td>
<td>Max value</td>
<td>Requested setting Value</td>
<td>ETX</td>
<td></td>
</tr>
<tr>
<td>Hi</td>
<td>Lo</td>
<td>Hi</td>
<td>Lo</td>
<td>Hi</td>
<td>Lo</td>
<td>MSB</td>
<td>LSB</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 25.

5.5.1 Save Current Settings.

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

- Send "0C" (30h, 43h) as Save current settings command.
- Complete "Save Current setting" command packet as follows;

  ASCII: 01h-30h-41h-30h-41h-30h-34h-02h-30h-43h-03h-CHK-0Dh

  SOH-'0'-'A'-'0'-'A'-'0'-'4'-STX-'0'-'C'-ETX-CHK-CR

The monitor replies the packet for confirmation as follows;

  SOH-'0'-'0'-'A'-'B'-'0'-'6'-STX-'0'-'0'-'0'-'C'-ETX-CHK-CR
5.5.2 Get Timing Report and Timing reply.

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

- Send "07"(30h, 37h) as Get Timing Report command.
- Complete "Get Timing Report" command packet as follows;
  ASCII: 01h-30h-41h-30h-41h-30h-34h-02h-30h-37h-03h-CHK-0Dh
  SOH-'0'-'A'-'0'-'A'-'0'-'4'-STX-'0'-'7'-ETX-CHK- CR

The monitor replies status as the following format;

<table>
<thead>
<tr>
<th>STX</th>
<th>Command code</th>
<th>SS</th>
<th>H Freq.</th>
<th>V Freq.</th>
<th>ETX</th>
</tr>
</thead>
<tbody>
<tr>
<td>'4'</td>
<td>'E'</td>
<td>Hi</td>
<td>Lo</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: Positive Horizontal sync polarity
    0: Negative Horizontal sync polarity.
  - Bit 0: 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;

<table>
<thead>
<tr>
<th>STX</th>
<th>Command code</th>
<th>ETX</th>
</tr>
</thead>
<tbody>
<tr>
<td>'B'</td>
<td>'A'</td>
<td>'E'</td>
</tr>
</tbody>
</table>

01h-30h-30h-41h-42h-30h-34h-02h-42h-45h-03h-CHK-0Dh
SOH-'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-0-C-0-6</td>
<td>STX-0-0-1-0-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 from which you want to get a value.

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

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

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

'0'-0-6' (30h, 36h): Message length is 6 bytes.

Message

STX (02h): Start of Message

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

'1'-0' (31h, 30h): Operation code is 10h (in the OP code page 0).

ETX (03h): End of Message

Check code

BCC: Block Check Code

Refer to the section 4.3 "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-Monitor ID-0-1-2</td>
<td>STX-0-0-0-0-1-0-0-0-0-0-0-0-0-0-0-0-6-4-0-0-3-2-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'-0' (30h, 30h): Operation code page number is 0.

'1'-0' (31h, 30h): Operation code is 10h (in the page 0).

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

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

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

ETX (03h): End of Message

Check code

(22/145)
Step 3. The controller request 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'-Monitor ID- '0'-E-'0'-A</td>
<td>STX-'0'-0'-1'-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'.
'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'-0 (30h, 30h): Operation code page number is 0.
'1'-0 (31h, 30h): Operation code is 10h (in the page 0).
'0'-5-0'-0' (30h, 30h, 35h, 30h): Set Backlight setting 80(0050h).
ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet

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- Monitor ID - F-1-2</td>
<td>STX-0-0-1-0-0-6-4-0-0-5-0-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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

Message
STX (02h): Start of Message
'0'-0 (30h, 30h): Result code. No error.
'0'-0 (30h, 30h): Operation code page number is 0.
'1'-0 (31h, 30h): Operation code is 10h (in the page 0).
'0'-0 (30h, 30h): This operation is "Set parameter" type.
'0'-6-4 (30h, 30h, 36h, 34h): Backlight max value is 100(0064h).
'0'-5-0'-0' (30h, 30h, 35h, 30h): 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-'0'-Monitor ID-'0'-'A-'0-'4'</td>
<td>STX-'0'-'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.

Target displays 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-'0'-A</td>
<td>STX-'0'-2-'7'-8-'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'-1' (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>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID- '0'-1-2</td>
<td>STX-'0'-0'-2-'7'-8-'0'-0'-0'-0'-1'-ETX</td>
<td>BCC</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'-0'-0'-0'-1'-ETX** (operation is "Set parameter" type.
- **'0'-0'-0'-3'-1'-0'-0'-0'-0'-0'-1'-ETX** (number of temperature sensors are 3 (0003h).
- **'0'-0'-0'-1'-1' (30h, 30h, 30h, 31h):** temperature sensor is #1.

**ETX (03h):** End of Message
Check code
  BCC: Block Check Code
  Refer to the section 4.3 "Check code" for a BCC calculation.

Delimiter
  CR (0Dh): End of packet

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 (0Dh): 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'-'0'-Monitor ID- 'd'-'1'- '2'</td>
<td>STX-'0'- '0'- '2'- '7'- '9'- '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.

(26/145)
Readout value is 2's complement.

<table>
<thead>
<tr>
<th>Temperature [Celsius]</th>
<th>Readout value</th>
<th>Hexadecimal</th>
</tr>
</thead>
<tbody>
<tr>
<td>+125.0</td>
<td>0000 0000 1111 1010</td>
<td>00FAh</td>
</tr>
<tr>
<td>+25.0</td>
<td>0000 0000 0011 0010</td>
<td>0032h</td>
</tr>
<tr>
<td>+0.5</td>
<td>0000 0000 0000 0001</td>
<td>0001h</td>
</tr>
<tr>
<td>0</td>
<td>0000 0000 0000 0000</td>
<td>0000h</td>
</tr>
<tr>
<td>-0.5</td>
<td>1111 1111 1111 1111</td>
<td>FFFFh</td>
</tr>
<tr>
<td>-25.0</td>
<td>1111 1111 1100 1110</td>
<td>FFCEh</td>
</tr>
<tr>
<td>-55.0</td>
<td>1111 1111 1001 0010</td>
<td>FF92h</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
## 6.3. Operation Code (OP code) Table

### 1) SPECTRAVIEW ENGINE Setting = OFF

<table>
<thead>
<tr>
<th>Item</th>
<th>OP code</th>
<th>OP code Parameter</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INPUT</strong></td>
<td>00h</td>
<td>60h</td>
<td>0: No mean</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1: VGA (RGB) *1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3: DVI *1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5: VIDEO *1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12(0Ch): YGAPbPr *1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>13(0Dh): OPTION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16(10h): DisplayPort1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>17(11h): HDMI1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>18(12h): HDMI2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>130(82h): HDMI2 *2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>135(87h): MP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>136(88h): COMPUTE MODULE</td>
</tr>
<tr>
<td><strong>PICTURE MODE</strong></td>
<td>02h</td>
<td>1Ah</td>
<td>0: No mean</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1: sRGB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3: HIGHBRIGHT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4: STANDARD</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5: CINEMA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8: CUSTOM1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9: CUSTOM2</td>
</tr>
<tr>
<td><strong>BACKLIGHT</strong></td>
<td>00h</td>
<td>10h</td>
<td>0: dark</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100(64h): bright</td>
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<td>00h</td>
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<td>02h</td>
<td>68h</td>
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<td>02h</td>
<td>1Fh</td>
<td>0: pale</td>
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<td>90 (5Ah): 90%</td>
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<td>The following commands can also</td>
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<td>62h</td>
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<td>Read / Write status of target DisplayPort. (F2h)</td>
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<td>02h</td>
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<td>68h</td>
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<td>02h</td>
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<td>0 - 999(3E7h) (g)</td>
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<td>CBh</td>
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<td>USB BOOT MODE</td>
<td>11h</td>
<td>7Eh</td>
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<td>11h</td>
<td>7Fh</td>
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<td>2: ENABLE</td>
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<td>MONITOR CONTROL</td>
<td>11h</td>
<td>80h</td>
<td>0: No mean</td>
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</tr>
<tr>
<td>SHUTDOWN SIGNAL</td>
<td>11h</td>
<td>81h</td>
<td>0: No mean</td>
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<tr>
<td>POWER OFF DELAY</td>
<td>11h</td>
<td>82h</td>
<td>30 (1Eh): short</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>600 (258h): long</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>*1step: 1sec.</td>
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<tr>
<td>WDT</td>
<td>11h</td>
<td>9Bh</td>
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<td></td>
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<td></td>
</tr>
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<td></td>
<td></td>
<td>2: Enable</td>
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**SYSTEM INFORMATION**

- **MODEL NAME**: Refer to chapter 14
- **SERIAL**: Refer to chapter 14
- **CARBON SAVINGS**: 0 - 999(3E7h) (g), 0 - 65535(FFFFh) (kg) Read Only
- **CARBON USAGE**: 0 - 999(3E7h) (g), 0 - 65535(FFFFh) (kg) Read Only
- **FIRMWARE**: Refer to chapter 18
- **MAC ADDRESS**: Refer to Chapter 25
- **FACTORY RESET**: 02h CBh 0: No mean 1: Factory Reset Momentary

**POWER**

- **POWER SUPPLY**: 11h 7Ch 0: No mean 1: OFF 2: ON
- **AUTO POWER ON**: 11h 7Dh 0: No mean 1: DISABLE 2: ENABLE

**SERVICE MENU**

- **SETTING LOCK**: Refer to Chapter 27
- **USB BOOT MODE**: 11h 7Eh 0: No mean 1: DISABLE 2: ENABLE
- **IR SIGNAL**: 11h 7Fh 0: No mean 1: DISABLE 2: ENABLE
- **MONITOR CONTROL**: 11h 80h 0: No mean 1: DISABLE 2: ENABLE
- **SHUTDOWN SIGNAL**: 11h 81h 0: No mean 1: DISABLE 2: ENABLE
- **POWER OFF DELAY**: 11h 82h 30 (1Eh): short 600 (258h): long *1step: 1sec.
- **WDT**: 11h 9Bh 0: No mean 1: Disable 2: Enable

**COMPUTE MODULE**

- **WDT**: 11h 9Bh 0: No mean 1: Disable 2: Enable
<table>
<thead>
<tr>
<th>Item</th>
<th>OP code</th>
<th>OP code</th>
<th>Parameter</th>
<th>Remarks</th>
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<tr>
<td><strong>START UP TIME</strong></td>
<td>11h</td>
<td>9Ch</td>
<td>0: No mean</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
<td>1 (short)</td>
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<td></td>
<td></td>
<td></td>
<td>30 (1Eh)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>{long}</td>
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</tr>
<tr>
<td></td>
<td></td>
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<td>*1step: 10sec.</td>
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<td><strong>REIOD TIME</strong></td>
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<td>0: No mean</td>
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<td></td>
<td></td>
<td>1 (short)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30 (1Eh)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>{long}</td>
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<td>*1step: 10sec.</td>
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<tr>
<td><strong>MUTE</strong></td>
<td>00h</td>
<td>8Dh</td>
<td>0: UNMUTE</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Set only)</td>
<td></td>
</tr>
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<td>2: UNMUTE</td>
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<td><strong>SCREEN MUTE</strong></td>
<td>10h</td>
<td>B6h</td>
<td>0: No mean</td>
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<td>1: SCREEN MUTE ON</td>
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</tr>
<tr>
<td><strong>MTS</strong></td>
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<td>2Ch</td>
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<td></td>
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<td>1: Main</td>
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<td>2: Sub</td>
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<td></td>
<td>3: Main + Sub</td>
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<td>This operation requires supported option TV tuner.</td>
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<td><strong>SOUND</strong></td>
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<td>1: Off</td>
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<td>2: ON</td>
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<td>Same as 'SURROUND'</td>
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<td>76h</td>
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<td>1: CAPTURE</td>
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<td>EAh</td>
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<td></td>
<td></td>
<td>1: Off</td>
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<td></td>
<td></td>
<td></td>
<td>2: ON</td>
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<tr>
<td><strong>TV-CHANNEL UP/DOWN</strong></td>
<td>00h</td>
<td>8Bh</td>
<td>0: No mean</td>
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<td></td>
<td></td>
<td></td>
<td>1: UP</td>
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</tr>
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<td></td>
<td></td>
<td>2: DOWN</td>
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<td>This operation requires supported option TV tuner.</td>
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*1 Available on P404/ P484/ P554/ V404/ V484/ V554/ V404-T/ V484-T/ V554-T/ UN462A/ UN462VA/ UN492S/ UN492VS/ UN552/ UN552V/ UN552S/ UN552VS

*2 Not available on P404/ P484/ P554/ V404/ V484/ V554/ V404-T/ V484-T/ V554-T

*3 Available on UN462A/ UN462VA/ UN492S/ UN492VS/ UN552/ UN552V/ UN552S/ UN552VS
2) SPECTRAVIEW ENGINE Setting - ON

(for P404/ P484/ P554/ V404/ V484/ V554/ V404-T/ V484-T/ V554-T/ P654Q/ P754Q/ V554Q/ V654Q/
V754Q/ V864Q/ V984Q/ C651Q/ C751Q/ C861Q/ C981Q)

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<td>14(0Eh): SVE-2 SETTING</td>
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<td>15(0Fh): SVE-3 SETTING</td>
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<td>3: DCI SIM</td>
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<td>Value = (OSD Value/100) x (600-40)+40</td>
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<td>68h</td>
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<td>5: DICOM SIM</td>
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<td>12(0Ch): L STAR</td>
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<td>E8h</td>
<td>0: 0.5(MIN)</td>
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<td>350(015Eh): 4.0 (MAX)</td>
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<td>00h</td>
<td>0Bh</td>
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<td>Default value is 100.</td>
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<td>WHITE = (3000+(WHITE increment x Value))</td>
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<td>14h</td>
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<td>WHITE x</td>
<td>10h</td>
<td>52h</td>
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<td>480(01E0h): 0.480</td>
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<td>WHITE y</td>
<td>10h</td>
<td>53h</td>
<td>250(00FAh): 0.250</td>
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<td>480(01E0h): 0.480</td>
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<tr>
<td>RED x</td>
<td>10h</td>
<td>55h</td>
<td>550 (0226h): 0.550</td>
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<td>RED y</td>
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<td>56h</td>
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<td>57h</td>
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<td>58h</td>
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<td>59h</td>
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<td>5Ah</td>
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<td>5Bh</td>
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</table>
3) SPECTRAVIEW ENGINE Setting = ON
(for UN462A/ UN462VA/ UN492S/ UN492VS/ UN552/ UN552V/ UN552S/ UN552VS)

<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>PICTURE MODE</td>
<td>02h</td>
<td>1Ah</td>
<td>0: No mean</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>13(0Dh): 1</td>
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<td>14(0Eh): 2</td>
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<td>16(10h): 4</td>
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<td>17(11h): 5</td>
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<tr>
<td>PRESET</td>
<td>10h</td>
<td>51h</td>
<td>0: No mean</td>
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<td>1: sRGB</td>
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<td>2: Adobe RGB SIM</td>
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<td>3: DCI-P3</td>
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<td>4: REC.709</td>
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<td>6: FULL</td>
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<td>7: DICOM.sim</td>
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<td>8: PROGRAMMABLE1</td>
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<td>13(0Dh): eciRGB v2 SIM</td>
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<td>19(13h): Low Blue</td>
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<td></td>
<td>20(14h): Rec.2100 (HLG)</td>
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<td>21(15h): Rec.2100 (PQ)</td>
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<td>22(16h): Signage</td>
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<td>23(17h): TV Studio</td>
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<tr>
<td>LUMINANCE</td>
<td>02h</td>
<td>B3h</td>
<td>20cd/m²: Dark</td>
<td>1000cd/m²: Bright</td>
</tr>
<tr>
<td>BLACK</td>
<td>10h</td>
<td>54h</td>
<td>1: 0.1 (MIN)</td>
<td>50 (32h): 5.0 (MAX)</td>
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<td>GAMMA</td>
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<td>68h</td>
<td>0: No mean</td>
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<td></td>
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<td></td>
<td>5: DICOM</td>
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<td>6: Programmable</td>
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<td>9: Custom</td>
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<td>11(0Bh): sRGB</td>
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<td></td>
<td></td>
<td>12(0Ch): L STAR</td>
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<td>15(0Fh): Rec.1886</td>
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<td>16(10h): HDR-Hybrid Log</td>
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<td>17(11h): HDR-2084 (PQ)</td>
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<tr>
<td>CUSTOM VALUE</td>
<td>02h</td>
<td>E8h</td>
<td>0: 0.5 (MIN)</td>
<td>350 (015Eh): 4.0 (MAX)</td>
</tr>
<tr>
<td>SYSTEM GAMMA</td>
<td>11h</td>
<td>B8h</td>
<td>0: Auto</td>
<td>5: 0.5 (MIN)</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>20(14h): 2.0 (MAX)</td>
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<tr>
<td>PEAK LUMI.</td>
<td>11h</td>
<td>B9h</td>
<td>0: Auto</td>
<td>1: 100cd/m²</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100: 10000cd/m²</td>
<td></td>
</tr>
<tr>
<td>WHITE</td>
<td>00h</td>
<td>0Bh</td>
<td>0: No mean</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>1: 5000 (1388h)</td>
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<td>Note: WHITE increment:</td>
<td>Default value is 100.</td>
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<td>Note: Conversion equation</td>
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<td></td>
<td></td>
<td>WHITE = (3000 + (WHITE increment x Value))</td>
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<td></td>
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<td></td>
<td>Note: Conversion</td>
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<tr>
<td></td>
<td>00h</td>
<td>0Ch</td>
<td>0: 3000K</td>
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<td>120 (78h)</td>
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<tr>
<td>WHITE</td>
<td>00h</td>
<td>14h</td>
<td>2: NAVIVE</td>
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<td></td>
<td></td>
<td>11(0Bh): CUSTOM</td>
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<tr>
<td>Item</td>
<td>OP code page</td>
<td>OP code</td>
<td>Parameter</td>
<td>Remarks</td>
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<td>--------------</td>
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<td>------------------------------</td>
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<tr>
<td>WHITE x</td>
<td>10h</td>
<td>52h</td>
<td>250 (00FAh): 0.250</td>
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<td></td>
<td></td>
<td>480 (01E0h): 0.480</td>
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<tr>
<td>WHITE y</td>
<td>10h</td>
<td>53h</td>
<td>250 (00FAh): 0.250</td>
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<td>480 (01E0h): 0.430</td>
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<tr>
<td>RED x</td>
<td>10h</td>
<td>55h</td>
<td>550 (0226h): 0.550</td>
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<td>800 (0320h): 0.800</td>
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<tr>
<td>RED y</td>
<td>10h</td>
<td>56h</td>
<td>200 (00C6h): 0.200</td>
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<td>400 (0190h): 0.400</td>
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<td>GREEN x</td>
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<td>57h</td>
<td>100 (0064h): 0.100</td>
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<td>350 (015Eh): 0.350</td>
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<td>GREEN y</td>
<td>10h</td>
<td>58h</td>
<td>500 (01F4h): 0.500</td>
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<td>900 (0384h): 0.900</td>
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<td>BLUE x</td>
<td>10h</td>
<td>59h</td>
<td>0: 0.000</td>
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<td>250 (00FAh): 0.250</td>
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<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>3D LUT EMU.</td>
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<td>69h</td>
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<td></td>
<td></td>
<td></td>
<td>1: OFF</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2: ON</td>
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</tr>
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<td>3: COMPARE</td>
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<td>COLOR VISION EMU.</td>
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<td>5Bh</td>
<td>0: No mean</td>
<td>1: OFF</td>
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<tr>
<td>RED HUE</td>
<td>00h</td>
<td>9Bh</td>
<td>0: Magenta</td>
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</tr>
<tr>
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<td>200 (C8h): Yellow</td>
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<td>RED SAT.</td>
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<td>12h</td>
<td>0: Low</td>
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<td>200 (C8h): High</td>
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</tr>
<tr>
<td>RED OFFSET</td>
<td>02h</td>
<td>F1h</td>
<td>0: Dark</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>200 (C8h): Light</td>
<td></td>
</tr>
<tr>
<td>YELLOW HUE</td>
<td>00h</td>
<td>9Ch</td>
<td>0: Red</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>200 (C8h): Green</td>
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<tr>
<td>YELLOW SAT.</td>
<td>02h</td>
<td>13h</td>
<td>0: Low</td>
<td></td>
</tr>
<tr>
<td></td>
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<td>200 (C8h): High</td>
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<tr>
<td>YELLOW OFFSET</td>
<td>02h</td>
<td>F2h</td>
<td>0: Dark</td>
<td>200 (C8h): Light</td>
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<tr>
<td>GREEN HUE</td>
<td>00h</td>
<td>9Dh</td>
<td>0: Yellow</td>
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<td>200 (C8h): Cyan</td>
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</tr>
<tr>
<td>GREEN SAT.</td>
<td>02h</td>
<td>14h</td>
<td>0: Low</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>200 (C8h): High</td>
<td></td>
</tr>
<tr>
<td>GREEN OFFSET</td>
<td>02h</td>
<td>F3h</td>
<td>0: Dark</td>
<td>200 (C8h): Light</td>
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<tr>
<td>CYAN HUE</td>
<td>00h</td>
<td>9Eh</td>
<td>0: Green</td>
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</tr>
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<td></td>
<td></td>
<td></td>
<td>200 (C8h): Blue</td>
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</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><strong>BLUE</strong></td>
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<tr>
<td>SAT.</td>
<td>02h</td>
<td>15h</td>
<td>0: Low</td>
<td>200(C8h): High</td>
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<tr>
<td>OFFSET</td>
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<td>F4h</td>
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<td>200(C8h): Light</td>
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<tr>
<td>HUE</td>
<td>00h</td>
<td>9Fh</td>
<td>0: Cyan</td>
<td>200(C8h): Magenta</td>
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<tr>
<td>SAT.</td>
<td>02h</td>
<td>16h</td>
<td>0: Low</td>
<td>200(C8h): High</td>
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<tr>
<td>OFFSET</td>
<td>02h</td>
<td>F5h</td>
<td>0: Dark</td>
<td>200(C8h): Light</td>
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<td><strong>MAGENTA</strong></td>
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</tr>
<tr>
<td>HUE</td>
<td>00h</td>
<td>A0h</td>
<td>0: Blue</td>
<td>200(C8h): Red</td>
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<tr>
<td>SAT.</td>
<td>02h</td>
<td>17h</td>
<td>0: Low</td>
<td>200(C8h): High</td>
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<tr>
<td>OFFSET</td>
<td>02h</td>
<td>F6h</td>
<td>0: Dark</td>
<td>200(C8h): Light</td>
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<tr>
<td><strong>PICTURE SETTINGS</strong></td>
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<td></td>
</tr>
<tr>
<td>UNIFORMITY</td>
<td>02h</td>
<td>FFh</td>
<td>0: OFF</td>
<td>1 5</td>
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</tbody>
</table>

(49/145)
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='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'.
'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'.
'STOH' (02h): Start of Message
'0'-1-'D'-6': Get power status command.
ETX (03h): End of Message

Message
STX (02h): Start of Message
'0'-1-'D'-6': Get power status command.
ETX (03h): End of Message

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'-Monitor ID='B'-1-'2'</td>
<td>STX-'0'-2-'0'-0-'D'-6'-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
Monitor ID: Indicate a replying Monitor ID.
   Ex.) If Monitor ID is '1', specify 'A'.
'0'-1-'D'-6': Get power status command.
Monitor ID: Indicate a replying Monitor ID.
   Ex.) When this byte is set to 'A', the replying Monitor ID is '1'.
'STOH' (02h): Start of Message
'0'-1-'D'-6': Get power status command.
ETX (03h): End of Message

Message
STX (02h): Start of Message
'0'-1-'D'-6': Get power status command.
ETX (03h): End of Message

(50/145)
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'-Monitor ID-</td>
<td>STX-'C'-2'-0'-3'-D'-6'-</td>
<td>BCC</td>
<td>CR</td>
</tr>
<tr>
<td>'0'-A-'0'-C'</td>
<td>'0'-0'-0'-0'-1'-ETX</td>
<td></td>
<td></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-</td>
<td>STX-'0'-0'-C'-2'-0'-3'-D'-</td>
<td>BCC</td>
<td>CR</td>
</tr>
<tr>
<td>'B'-0'-E'</td>
<td>'6'-0'-0'-0'-1'-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.
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

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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

Target displays 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'-0'-B'- '0'-0'-2'-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 from which you want to get data.
Ex.) If Monitor ID is '1', specify 'A'.
'A' (41h): Message type is "Command".
'0'-A' (30h, 41h): Message length is 10 bytes.

Message
STX (02h): Start of Message
'C'-0'-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'-Monitor ID- 'B'-N-N</td>
<td>STX-'C'-1'-0'-B'- 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.) This length includes STX and ETX.

Message
STX (02h): Start of Message
'C'-1'-0'-0'-B' (43h, 31h, 30h, 42h): Asset read reply command
Data(0) - Data(N): Returned 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- 'A'-N-N</td>
<td>STX-'C'-'0'- '0'- '0'- 'E'- '0'- '0'- 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
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 32 bytes.

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

Check code
BCC: Block Check Code
Refer to the section 4.3 "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- 'B'-N-N</td>
<td>STX-'0'- '0'- 'C'- '0'- '0'- 'E'- '0'- '0'- 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
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 32 bytes.

Message
STX (02h): Start of Message
'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='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'-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'-4'(31h, 34h): Message length

Message
STX (02h): Start of Message
'C'-'3'-'1'-'1' (43h, 33h, 31h, 31h): Date & time read reply command
'YY'-WM'-DD'-WW'-HH'-MN'-DS': Date & Time data
YY: Year (offset 2000)
'0'-0'(30h, 30h): 2000
'6'-3'(36h, 33h): 2099 (99 = 63h)
MM: Month
'0'-1'(30h, 31h): January
'0'-C'(30h, 43h): December
DD: Day
'0'-1'(30h, 31h): 1
'1'-E'(31h, 45h): 30(=1Eh)

(57/145)
'1'-'F'(31h, 46h): 31 (=1Fh)

WW: weekdays
'0'-'0'(30h, 30h): Sunday
'0'-'1'(30h, 31h): Monday
'0'-'2'(30h, 32h): Tuesday
'0'-'3'(30h, 33h): Wednesday
'0'-'4'(30h, 34h): Thursday
'0'-'5'(30h, 35h): Friday
'0'-'6'(30h, 36h): Saturday

HH: Hours
'0'-'0'(30h, 30h): 0
'1'-'7'(31h, 37h): 23 (=17h)

MN: Minutes
'0'-'0'(30h, 30h): 0
'3'-'B' (33h, 42h): 59 (=3Bh)

DS: Daylight saving (Summer time)
'0'-'0'(30h, 30h): NO
'0'-'1'(30h, 31h): YES

ETX (03h): End of Message

Check code
BCC: Block Check Code
Refer to the section 4.3 “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-MN-DS-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 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'- 'DS': Date & Time data

YY: Year (offset 2000)
   '0'- '0'(30h, 30h): 2000
   '6'- '3'(36h, 33h): 2099 (99 = 63h)

MM: Month
   '0'- '1'(30h, 31h): JANUARY
   '0'- 'C'(30h, 43h): DECEMBER

DD: Day
   '0'- '1'(30h, 31h): 1
   '1'- 'E'(31h, 45h): 30 (=1Eh)
   '1'- 'F'(31h, 46h): 31 (=1Fh)

WW: weekdays
   '0'- '0'(30h, 30h): SUNDAY
   '0'- '1'(30h, 31h): MONDAY
   '0'- '2'(30h, 32h): TUESDAY
   '0'- '3'(30h, 33h): WEDNESDAY
   '0'- '4'(30h, 34h): THURSDAY
   '0'- '5'(30h, 35h): FRIDAY
   '0'- '6'(30h, 36h): SATURDAY

HH: Hours
   '0'- '0'(30h, 30h): 0
   '1'- '7'(31h, 37h): 23 (=17h)

MN: Minutes
   '0'- '0'(30h, 30h): 0
   '3'- 'B'(33h, 42h): 59 (=3Bh)

DS: Daylight saving (Summer time)
   '0'- '0'(30h, 30h): NO
   '0'- '1'(30h, 31h): YES

ETX (03h): End of Message

Check code

BCC: Block Check Code
   Refer to the section 4.3 "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'-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-'MM'-DD'-WW'-HH'-MN'-DS': Date & Time data
YY: Year (offset 2000)
'MM': Month
'DD': Day
'HH': Hours
'MN': Minutes
'DS': Daylight saving (Summer 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
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'-'A'-0-'8'</td>
<td>STX-'C'-2-3-D'-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'-2-3-D' (43h, 32h, 33h, 44h): Schedule read request command.
- PG: Program No.
  - 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'-2-4'</td>
<td>STX-'C'-3-3-D'-PG-EVENT-HOUR-MIN-INPUT-WEEK-TYPE-PMODE-YEAR-MONTH-DAY-ORDER-EXT1-EXT2-EXT3-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'-4' (32h, 34h): Message length

**Message**
- STX (02h): Start of Message
- 'C'-3-3-D' (43h, 33h, 33h, 44h): Schedule read reply command
- PG: Program No.
  - '0'-0' (30h, 30h): Program No.1
  - '1'-D' (31h, 44h): Program No.30
- EVENT: Schedule event
  - '0'-1' (30h, 31h): Power ON
  - '0'-2' (30h, 32h): Power OFF
- HOUR: Time (hour)
  - '0'-0' (30h, 30h): 00
'1'-'7'(31h, 37h): 23 (-17h)
'1'-'8'(31h, 38h): Delete hour

MIN: Time (minute)
'0'-'0'(30h, 30h): 0
'3'-'B'(33h, 42h): 59
'3'-'C'(33h, 43h): Delete minute

INPUT: Input terminal
'0'-'0'(30h,30h): No mean (works on last memory)
'0'-'1'(30h, 31h): VGA(RGB) *1
'0'-'3'(30h, 33h): DVI *1
'0'-'5'(30h, 35h): VIDEO *1
'0'-'C'(30h, 43h): VGA(YPbPr)
'0'-'D'(30h, 44h): OPTION
'0'-'F'(30h, 46h): DisplayPort1
'1'-'0'(31h, 30h): DisplayPort2
'1'-'1'(31h, 31h): HDMI1
'1'-'2'(31h, 32h): HDMI2
'8'-'2'(38h, 32h): HDMI3 *2
'8'-'7'(38h, 37h): MP
'8'-'8'(38h, 38h): COMPUTE MODULE

*1 Available on P404/ P484/ P554/ V404/ V484/ V554/ V404-T/ V484-T/ V554-T/ UN462A/ UN462VA/ UN492S/ UN492VS/ UN552/ UN552V/ UN552S/ UN552VS
*2 Not available on P404/ P484/ P554/ V404/ V484/ V554/ V404-T/ V484-T/ V554-T

WEEK: 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

TYPE: Schedule type
bit 7: Fixed 0
bit 6: 1: Date
bit 5: 1: Holiday
bit 4: 1: Weekend
bit 3: 1: Weekday
bit 2: 0: Disable 1:Enable
bit 1: 1:Every week
bit 0: 1:Every day

EX.
'0'-'1'(30h, 31h): Disable, Everyday
'0'-'4'(30h, 34h): Enable, once

PMODE: Picture mode
'0'-'0'(30h, 30h): No mean (works on last memory)
'0'-'1'(30h, 31h): sRGB
'0'-'3'(30h, 33h): HIGHBRIGHT
'0'-'4'(30h, 34h): STANDARD
'0'-'5'(30h, 35h): CINEMA
'0'-'D'(30h, 44h): CUSTOM1
'0'-'E'(30h, 45h): CUSTOM2

YEAR: Date (year)
'0'-'0'(30h, 30h): 2000
| '6'-'3'(36h, 33h): 2099
'6'-'4'(36h, 34h): Delete year
MONTH: Date (month)
  '0'-'1'(30h, 31h): January
  '0'-'C'(30h, 43h): December
  '0'-'D'(30h, 44h): Delete month

DAY: Date (day)
  '0'-'1'(30h, 31h): 1
  '1'-'F'(31h, 46h): 31
  '2'-'0'(32h, 30h): Delete day

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')

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-</td>
<td>STX-'C'-2'-3'-E'-PG-EVENT-HOUR-MIN-</td>
<td>BCC</td>
<td>CR</td>
</tr>
<tr>
<td>'0'-A'-2'-2'</td>
<td>INPUT-WEEK-TYPE-PMODE-YEAR-MONTH-DAY-</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EXT1-EXT2-EXT3-ETX</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".
'2'- '2' (32h, 32h): Message length.

Message
STX (02h): Start of Message
PG: Program No.
'0'- '0' (30h, 30h): Program No.1
| '1'- 'D' (31h, 44h): Program No.30

EVENT: Schedule event
'0'- '1' (30h, 31h): Power ON
'0'- '2' (30h, 32h): Power OFF

HOUR: Time (hour)
'0'- '0' (30h, 30h): 00
| '1'- '7' (31h, 37h): 23 (=17h)
| '1'- '8' (31h, 38h): Delete hour

MIN: Time (minute)
'0'- '0' (30h, 30h): 0
| '3'- 'B' (33h, 42h): 59
| '3'- 'C' (33h, 43h): Delete minute

INPUT: Input terminal
'0'- '0' (30h, 30h): No mean (works on last memory)
'0'- '1' (30h, 31h): VGA(RGB) *1
'0'- '3' (30h, 33h): DVI *1
'0'- '5' (30h, 35h): VIDEO *1
'0'- 'C' (30h, 43h): VGA(YPbPr) *1
'0'- 'D' (30h, 44h): OPTION
'0'- 'F' (30h, 46h): DisplayPort1
'1'- '0' (31h, 30h): DisplayPort2
'1'- '1' (31h, 31h): HDMI1
| '1'- '2' (31h, 32h): HDMI2
| '8'- '2' (38h, 32h): HDMI3 *2
| '8'- '7' (38h, 37h): MP
| '8'- '8' (38h, 38h): COMPUTE MODULE
*1 Available on P404/ P484/ P554/ V404/ V484/ V554/ V404-T/ V484-T/ V554-T/ UN462A/ UN462VA/ UN492S/ UN492S/ UN552/ UN552V/ UN552S/ UN552VS
*2 Not available on P404/ P484/ P554/ V404/ V484/ V554/ V404-T/ V484-T/ V554-T

WEEK: 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

TYPE: Schedule type
bit 7: Fixed 0
bit 6: 1: Date
bit 5: 1: Holiday
bit 4: 1: Weekend
bit 3: 1: Weekday
bit 2: 0: Disable 1: Enable
bit 1: 1: Every week
bit 0: 1: Every day

EX.
'0'-'1'(30h, 31h): Disable, Everyday
'0'-'4'(30h, 34h): Enable, once

PMODE: Picture mode
'0'-'0'(30h, 30h): No mean (works on last memory)
'0'-'1'(30h, 31h): sRGB
'0'-'3'(30h, 33h): HIGHBRIGHT
'0'-'4'(30h, 34h): STANDARD
'0'-'5'(30h, 34h): CINEMA
'0'-'D'(30h, 44h): CUSTOM1
'0'-'E'(30h, 45h): CUSTOM2

YEAR: Date (year)
'0'-'0'(30h, 30h): 2000
'6'-'3'(36h, 33h): 2099
'6'-'4'(36h, 34h): Delete year
  ➢ If TYPE = date, this parameter is needed.

MONTH: Date (month)
'0'-'1'(30h, 31h): January
'0'-'C'(30h, 43h): December
'0'-'D'(30h, 44h): Delete month
  ➢ If TYPE = date, this parameter is needed.

DAY: Date (day)
'0'-'1'(30h, 31h): 1
'1'-'F'(31h, 46h): 31
'2'-'0'(32h, 30h): Delete day
  ➢ If TYPE = date, this parameter is needed.

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')

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'-2'-4'</td>
<td>STX-'C'-3'-4'-ST-PG-EVENT-HOUR-MIN-INPUT-WEEK-TYPE-PMODE-YEAR-MONTH-DAY-EXT1-EXT2-EXT3-ETX</td>
<td>BCC CR</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".
'2'-4' (32h, 34h): Message length

**Message**

STX (02h): Start of Message
'C'-3'-2'-2' (43h, 33h, 32h, 32h): Schedule writes reply command

ST: Error status
'0'-0' (30h, 30h): No error
'0'-1' (30h, 31h): Error

STX (02h): Start of Message
PG: Program No.
'0'-0' (30h, 30h): Program No.1
'1'-D' (31h, 44h): Program No.30

EVENT: Schedule event
'0'-1' (30h, 31h): Power ON
'0'-2' (30h, 32h): Power OFF

HOUR: Time (hour)
'0'-0' (30h, 30h): 00
'1'-7' (31h, 37h): 23 (=17h)
'1'-8' (31h, 38h): Delete hour

MIN: Time (minute)
'0'-0' (30h, 30h): 0
'3'-B' (33h, 42h): 59
'3'-C' (33h, 43h): Delete minute

INPUT: Input terminal
'0'-0' (30h, 30h): No mean (works on last memory)
'0'-1' (30h, 31h): VGA(RGB) *1
'0'-3' (30h, 33h): DVI *1
'0'-5' (30h, 35h): VIDEO *1
'0'-C' (30h, 43h): VGA(YPbPr)
'0'-D' (30h, 44h): OPTION
'0'-F' (30h, 46h): DisplayPort1
'1'-0' (31h, 30h): DisplayPort2
'1'-1' (31h, 31h): HDMI1
'1'-2' (31h, 32h): HDMI2
'8'-0' (38h, 32h): HDMI3
'8'-7' (38h, 37h): MP
'8'-8' (38h, 38h): COMPUTE MODULE

*1 Available on P404/ P484/ P554/ V404/ V484/ V554/ V404-T/ V484-T/ V554-T/ UN462A/ UN462VA/ UN492S/ UN492VS/ UN552/ UN552V/ UN552S/ UN552VS
*2 Not available on P404/ P484/ P554/ V404/ V484/ V554/ V404-T/ V484-T/ V554-T

**WEEK**

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

TYPE: Schedule type
bit 7: Fixed 0
bit 6: 1: Date
bit 5: 1: Holiday
bit 4: 1: Weekend
bit 3: 1: Weekday
bit 2: 0:Disable 1:Enable
bit 1: 1:Every week
bit 0: 1:Every day

EX.
'0'-'1'(30h, 31h): Disable, Everyday
'0'-'4'(30h, 34h): Enable, once

PMODE: Picture mode
'0'-'0'(30h,30h): No mean (works on last memory)
'0'-'1'(30h,31h): sRGB
'0'-'3'(30h,33h): HIGHBRIGHT
'0'-'4'(30h,34h): STANDARD
'0'-'5'(30h,34h): CINEMA
'0'-'D'(30h,44h): CUSTOM1
'0'-'E'(30h,45h): CUSTOM2

YEAR: Date (year)
'0'-'0'(30h, 30h): 2000
'6'-'3'(36h, 33h): 2099
'6'-'4'(36h, 34h): Delete year

MONTH: Date (month)
'0'-'1'(30h, 31h): January
'0'-'C'(30h, 43h): December
'0'-'D'(30h, 44h): Delete month

DAY: Date (day)
'0'-'1'(30h, 31h): 1
'1'-'F'(31h, 46h): 31
'2'-'0'(32h, 30h): Delete day

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')

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'-'Monitor ID-'0'-A'-0'-A'</td>
<td>STX-'C'-2'-3'-F'-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'-3'-F' (43h, 32h, 33h, 46h): Enable/Disable Schedule writes command
- PG: Program No.
  - '0'-0'(30h, 30h): Program No.1
  - '1'-D'(31h, 44h): Program No.30
- 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-'0'-C'</td>
<td>STX-'C'-3'-3'-F'-ST-PG-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'-C'(30h, 43h): Message length

**Message**
- STX (02h): Start of Message
- 'C'-3'-3'-F' (43h, 33h, 33h, 46h): Enable/Disable Schedule writes reply command
- ST: Error status
  - '0'-0'(30h, 30h): No error
  - '0'-1'(30h, 31h): Error
- PG: Program No.
  - '0'-0'(30h, 30h): Program No.1
  - '1'-D'(31h, 44h): Program No.30
- 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. Holiday read and write

11.1 Holiday Read

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

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'-'A'</td>
<td>STX-'C'-'A'='1'-'9'='0'='0'-'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'-'A' (30h, 41h):** Message length

**Message**

- **STX (02h):** Start of Message
- **'C'-'A'='1'-'9' (43h, 41h, 31h, 39h):** "Holiday" command
- **'0'='0' (30h, 30h):** read request
- **PG:** Program No.
  - **'0'='0' (30h, 30h):** Program No.1
  - **'3'='1' (33h, 31h):** Program No.50
- **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'-'Monitor ID= 'B'='1'='A'</td>
<td>STX='C'-'B'='1'='9'='0'='0'-ST- PG-TP-YEAR-MONTH-DAY-WEEK NO- WEEK-EMON-EDAY-ETX</td>
<td>BCC CR</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"
- **'1'='8' (31h, 38h):** Message length

**Message**

- **STX (02h):** Start of Message
- **'C'-'B'='1'='9' (43h, 42h, 31h, 39h):** Holiday reply command
- **'0'='0' (30h, 30h):** read request
- **ST:** Status
  - **'0'='0' (30h, 30h):** No error
  - **'0'='1' (30h, 31h):** Error
- **PG:** Program No.
  - **'0'='0' (30h, 30h):** Program No.1
  - **'3'='1' (33h, 31h):** Program No.50

(74/145)
TP: Type
  bit 0: End day
  bit 1: Day
  bit 2: Week
  bit 3: Reserved
  bit 4: Reserved
  bit 5: Reserved
  bit 6: Reserved
  bit 7: Reserved

YEAR: Year
  '0'-'0'(30h,30h): No mean
  '0'-'F'(30h,46h): 2015
  |  '6'-'3'(36h,33h): 2099

MONTH: Month
  '0'-'0'(30h,30h): No mean
  '0'-'1'(30h,31h): January
  |  '0'-'C'(31h,43h): December

WEEK NO: Week No.
  '0'-'0'(30h,30h): No mean
  '0'-'1'(30h,31h): 1st week
  '0'-'2'(30h,32h): 2nd week
  |  '0'-'5'(30h,35h): Last week

WEEK: Week
  '0'-'0'(30h,30h): No mean
  '0'-'1'(30h,31h): Monday
  '0'-'2'(30h,32h): Tuesday
  |  '0'-'7'(30h,37h): Sunday

DAY: Day
  '0'-'0'(30h,30h): No mean
  '0'-'1'(30h,31h): 1st
  |  '1'-'F'(31h,46h): 31th

EMON: End month
  '0'-'0'(30h,30h): No mean
  '0'-'1'(30h,31h): January
  |  '0'-'C'(31h,43h): December

EDAY: End day
  '0'-'0'(30h,30h): No mean
  '0'-'1'(30h,31h): 1st
  |  '1'-'F'(31h,46h): 31th

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
11.2 Holiday Write

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

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'='A'='1'='9'='0'='1'='-</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'='A'='1'='9' (43h, 41h, 31h, 39h): "Holiday" command
'0'='1' (30h, 30h): write request

PG: Program No.
   '0'='0'(30h, 30h): Program No.1
   | '3'='1'(33h, 31h): Program No.50

TP: Type
   bit 0: End day
   bit 1: Day
   bit 2: Week
   bit 3: Reserved
   bit 4: Reserved
   bit 5: Reserved
   bit 6: Reserved
   bit 7: Reserved

YEAR: Year
   '0'='0'(30h, 30h): No mean
   '1'='5'(31h, 35h): 2015
   | '6'='3'(36h, 33h): 2099

MONTH: Month
   '0'='0'(30h, 30h): No mean
   '0'='1'(30h, 31h): January
   | '0'='C'(31h, 43h): December

WEEK NO: Week No.
   '0'='0'(30h, 30h): No mean
   '0'='1'(30h, 31h): 1st week
   '0'='2'(30h, 32h): 2nd week
   | '0'='5'(30h, 35h): Last week

WEEK: Week
   '0'='0'(30h, 30h): No mean
   '0'='1'(30h, 31h): Monday
   '0'='2'(30h, 32h): Tuesday
   | '0'='7'(30h, 37h): Sunday

DAY: Day
   '0'='0'(30h, 30h): No mean
'0'-'1'(30h,31h): 1st
'1'-'F'(31h,46h): 31th

EMON: End month
'0'-'0'(30h,30h): No mean
'0'-'1'(30h,31h): January
'0'-'C'(31h,43h): December

EDAY: End day
'0'-'0'(30h,30h): No mean
'0'-'1'(30h,31h): 1st
'1'-'F'(31h,46h): 31th

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'- '1'- 'C'</td>
<td>STX='C'- 'B'- '1'- '9'- '0'- '1'- 'ST- PG-TP-YEAR-MONTH-DAY-WEEK NO- WEEK-EMON-EDAY-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'- 'B'- '1'- '9' (43h, 33h, 31h, 39h): Holiday reply command
'0'- '1' (30h, 30h): write request

ST: Status command
'0'- '0'(30h, 30h): No error
'0'- '1'(30h, 31h): Error

PG: Program No.
'0'- '0'(30h, 30h): Program No.1
'3'- '1'(33h, 31h): Program No.50

TP: Type
bit 0: End day
bit 1: Day
bit 2: Week
bit 3: Reserved
bit 4: Reserved
bit 5: Reserved
bit 6: Reserved
bit 7: Reserved

YEAR: Year
'0'- '0'(30h, 30h): No mean
'0'- 'F'(30h, 46h): 2015
"6'-3'(36h,33h): 2099

MONTH: Month
'0'-'0'(30h,30h): No mean
'0'-'1'(30h,31h): Janualy
'0'-'C'(31h,43h): December

WEEK NO: Week No.
'0'-'0'(30h,30h): No mean
'0'-'1'(30h,31h): 1st week
'0'-'2'(30h,32h): 2nd week
'0'-'5'(30h,35h): Last week

WEEK: Week
'0'-'0'(30h,30h): No mean
'0'-'1'(30h,31h): Monday
'0'-'2'(30h,32h): Tuesday
'0'-'7'(30h,37h): Sunday

DAY: Day
'0'-'0'(30h,30h): No mean
'0'-'1'(30h,31h): 1st
'1'-'F'(31h,46h): 31th

EMON: End month
'0'-'0'(30h,30h): No mean
'0'-'1'(30h,31h): Janualy
'0'-'C'(31h,43h): December

EDAY: End day
'0'-'0'(30h,30h): No mean
'0'-'1'(30h,31h): 1st
'1'-'F'(31h,46h): 31th

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. Weekend read and write

12.1 Weekend Read

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

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'-8'</td>
<td>STX-'C'-A'-1'-A'-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 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'-A'-1'-A' (43h, 41h, 31h, 41h): Weekend command
'0'-0' (30h, 30h): read request
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-'8'-0'-C'</td>
<td>STX-'C'-B'-1'-A'-0'-0'-ST WEEK-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'-0'-C' (30h, 43h): Message length

Message
STX (02h): Start of Message
'C'-B'-1'-A' (43h, 42h, 31h, 41h): Weekend reply command
'0'-0' (30h, 30h): read request
ST: Status
'0'-0' (30h, 30h): No error
'0'-1' (30h, 31h): Error
WEEK: Weekend
'0'-0' (30h, 30h): None
bit assignment of a day of the week.
bit0: Monday
bit1: Tuesday
bit2: Wednesday
bit3: Thursday
bit4: Friday
bit5: Saturday
bit6: Sunday
Example:
Weekend setting is "Saturday" and "Sunday".
'2'-'0' OR '4'-'0' = '6'-'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
12.2 Weekend Write

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

1) The controller requests the monitor to write the setting of Weekend.

<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'-'1'-='A'-='0'-='1'- WEEK-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 the 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'-='A'-'1'-='A' (43h, 41h, 31h, 41h): Weekend command

'0'-='1' (30h, 30h): write request

WEEK: Weekend

'0'-='0' (30h, 30h): None

bit assignment of a day of the week.

bit0: Monday

bit1: Tuesday

bit2: Wednesday

bit3: Thursday

bit4: Friday

bit5: Saturday

bit6: Sunday

Example:

Weekend setting is "Saturday" and "Sunday".

'2'-='0' OR '4'-='0' = '6'-='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 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'-='B'-='1'-='A'-='0'-='1'-ST- WEEK-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'-='C'(30h, 43h): Message length

**Message**

STX (02h): Start of Message

'C'-='B'-='1'-='A' (43h, 33h, 31h, 41h): Weekend reply command

'0'-='1' (30h, 30h): write request

ST: Status

'0'-='0'(30h, 30h): No error

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

WEEK: Weekend
'0'-'0'(30h, 30h): None
bit assignment of a day of the week.
bit0: Monday
bit1: Tuesday
bit2: Wednesday
bit3: Thursday
bit4: Friday
bit5: Saturday
bit6: Sunday
Example:
Weekend setting is “Saturday” and “Sunday”.
'2'-'0' OR '4'-'0' = '6'-'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
13. Self diagnosis

13.1 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= '0'-A'-0'-4'</td>
<td>STX='B'-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 status.
Ex.) If Monitor ID is '1', specify 'A'.
'0' (30h): Message sender is the controller.
'A' (41h): Message type is "Command".
'0'-4' (30h, 34h): Message length

Message
STX (02h): Start of Message
'B'-1' (42h, 31h): Self-diagnosis command
ETX (03h): End of Message

Check code
BCC: Block Check Code
Refer to the section 4.3 "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'-0'-Monitor ID= B'-N-N</td>
<td>STX='A'-1'-ST(0)-ST(1)-------ST(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 written to the monitor at a time is 32bytes.
Ex.) The byte data 20h is encoded as ASCII characters '2' and '0' (34h and 30h).

Message
STX (02h): Start of Message
'A'-1' (41h, 31h): Application Test Report reply command
ST: Result of self-tests
'0'-0' (30h, 30h):00: Normal
'7'-0' (37h, 30h):70: Standby-power +3.3V abnormality
'7'-1' (37h, 31h):71: Standby-power +5V abnormality
'7'-2' (37h, 32h):72: Panel-power +12V abnormality
'7'-8' (37h, 33h):78: Inverter 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'-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.
'B'-'0'(42h, 30h): B0: No signal
'D'-'0'(44h, 30h): D0: PROOF OF PLAY buffer reduction
'E'-'0'(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
14. Serial No. & Model Name Read

14.1 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'-Monitor ID-'B'-N-N</td>
<td>STX-’C’-’3’-’1’-’6’-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
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 33h 34h
Step1: Serial Number data is encoded as character string.
Example:
33h 31h 33h 32h 33h 33h 33h 33h 34h -> '3','1','3','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".

(85/145)
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
14.2 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
'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 -> '5', '0', '3', '4', '3', '0', '3', '3'
   Step2: Decode pairs of ASCII characters to hexadecimal values.
   Example:
   '5', '0', '3', '4', '3', '0', '3', '3' -> 50h 34h 33h
   Step3: Byte data represents the ASCII string data.
   Example:
   50h 34h 33h -> "P403"
   Result: Model Name is "P403".
   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
15. Security Lock

15.1 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-</td>
<td>STX-0-C-2-1-0-D-EN-P1-P2-P3-P4-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'-2-'1'-0-D' (43h, 32h, 31h, 44h): Security Lock Control command
EN-P1-P2-P3-P4: Lock condition control data
EN: Enable /Disable
'0'-0'(30h, 30h): Disable
'0'-1'(30h, 31h): Enable
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
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: Enable /Disable (Current condition)
  '0'- '0'(30h, 30h): Disable
  '0'- '1'(30h, 31h): START-UP LOCK (Enable)
  '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
16. Direct TV Chanel Read & Write

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

16.1 Direct TV Chanel 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='0'-Monitor ID='A'-Monitor ID='0'-Monitor ID='6',</td>
<td>STX='C'-'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'-'C' (43h, 32h, 32h): 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'-Monitor ID='1'-Monitor ID='2'</td>
<td>STX='C'-'3'-'2'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

Header
SOH (01h): Start of Header
'0' (30h): Reserved
'B' (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, 33h): Direct TV Channel read reply command
MajorCH: Major Channel (00000000h - FFFFFFFFh),
    '0'-9'-0'-'0'-9'-0'-9'-0' = 'F'-'F'-'F'-'F'-'F'-'F'-'F'-'F'
MinorCH: Minor Channel (0000h - FFFFh),
    '0'-9'-0'-0'-9'-0' = '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
16.2 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'-Monitor ID- '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, 43h): Direct TV Channel write command
MajorCH: Major Channel (00000000h - FFFFFFFFh),
'M'-0'-0'-0'-0'-F'-0'-0'-F'-0'-F'-0'-F'-0'-F'-0'-F'
MinorCH: Minor Channel (0000h - FFFFh),
'M'-0'-0'-0'-0'-F'-0'-0'-F'-0'-F'-0'-F'-0'-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

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),
'M'-0'-0'-0'-0'-F'-0'-0'-F'-0'-F'-0'-F'-0'-F'
MinorCH: Minor Channel (0000h - FFFFh),
'M'-0'-0'-0'-0'-F'-0'-0'-F'-0'-F'-0'-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
17. Daylight Saving read & write

17.1 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'-Monitor ID- '0'-A-'0'-8'</td>
<td>STX-'C'-A-'0'-1-'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'-1' (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-'B'-2'-0'</td>
<td>STX-'C'-B'-0'-1'-0'-0'-ST-BM-BD1-BD -SD1-BD2-ED1-ED2-ET1-ET2-ID-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".
'2'-0'(32h, 30h): Message length (32bytes)

Message

STX (02h): Start of Message
'C'-B'-0'-1' (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)
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) – 23 (32h, 33h)
BT2: BEGIN TIME2 (Minute)
00h (30h, 30h) – 59 (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) – 23 (32h, 33h)
ET2: END TIME2 (Minute)
00h (30h, 30h) – 59 (35h, 39h)
TD: TIME DIFFERENCE
+01:00 : 00h (30h, 30h)
+00:30 : 01h (30h, 31h)
-00:30 : 02h (30h, 32h)
-01:00 : 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
17.2 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- '0'-'A'-'1'-'E'</td>
<td>STX-'C'-'A'-'0'-'1'-BM-BD1-BD2- BT1-BT2-EM-ED1-ED2-ET1-ET2-TD-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'-'E'(31h, 45h): Message length (30bytes)

**Message**

STX (02h): Start of Message
'C'-'A'-'0'-'1' (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) - 23 (32h, 33h)
- **BT2**: BEGIN TIME2 (Minute)
  - 00h (30h, 30h) - 59 (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) - 23 (32h, 33h)
- **ET2**: END TIME2 (Minute)
  - 00h (30h, 30h) - 59 (35h, 39h)

**TD**: TIME DIFFERENCE
+01:00 : 00h (30h, 30h)
+00:30 : 01h (30h, 31h)
-00:30 : 02h (30h, 32h)
-01:00 : 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 (00Dh): 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'- '1'- '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'- '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 (00Dh): End of packet
18. Firmware Version

18.1 Firmware Version Read

This command is used in order to read a firmware version (FIRMWARE REVISION).

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-'0'-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 (43h, 41h, 30h, 32h): Firmware Version Command
TY: Firmware Type
Firmware: 00h (30h, 30h)
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-'0'-B-'1'</td>
<td>STX-'C'-B-'0'-1-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 (43h, 42h, 30h, 32h): Firmware Version Read reply
ST: Error Status
No Error: 00h (30h, 30h)
Error : 01h (30h, 31h)
TY: Firmware Type
Firmware: 00h (30h, 30h)
MV: Major Version:
00h (30h, 30h) - 09h (30h, 39h)
PP: Period:
2Eh (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:5Ah (35h, 41h)
BR2: Branch Version2:
  A:41h (34h, 31h) - Z:5Ah (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
19. Auto ID

19.1 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- '0'-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): 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'-0-Monitor ID- 'B'-A-'0'</td>
<td>STX='C'-B-'0'-A-'0'-1-ST-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', 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, 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
19.2 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
'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'-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
'0'-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'-Monitor ID-'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
'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'-A (43h, 42h, 30h, 41h): Auto ID Reply Command
'0'-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
19.3 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'-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
20. Input Name

20.1 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-&quot;0&quot;-Monitor ID-&quot;0&quot;-'A'-&quot;0&quot;-&quot;8&quot;</td>
<td>STX-&quot;C&quot;-&quot;A&quot;-&quot;0&quot;-&quot;4&quot;-&quot;0&quot;-&quot;0&quot;-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

Refer 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-&quot;0&quot;-&quot;0&quot;-Monitor ID-&quot;B&quot;-LN(H)-LN(L)</td>
<td>STX-&quot;C&quot;-&quot;B&quot;-&quot;0&quot;-&quot;4&quot;-&quot;0&quot;-&quot;0&quot;-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.) The byte data 20h is encoded as ASCII characters '2' and '0' (32h and 30h).

Example:

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

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

---

(102/145)
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
20.2 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'-0'-Monitor ID- 'B'-0'-A'</td>
<td>STX-'C''-B''-0''-4''-0''-1''-ST-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'-1' (30h, 31h): 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
20.3 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'-'0'-Monitor ID- 'A'- '0'- '8'</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
21. Auto Tile Matrix

21.1 Auto Tile Matrix Execute

This command is used in order to activate the Auto Tile Matrix Setup.

1) The controller requests the monitor to execute Auto Tile Matrix

<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'- 'A'-'0'- '3'- '0'- '1'- '1'- '2'</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'- '2'(31h, 32h): Message length (18bytes)

Message

STX (02h): Start of Message

'C'- 'A'- '0'- '3' (43h, 41h, 30h, 33h): Auto Tile Matrix Command

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

HM: HORIZONTAL MONITORS

01h (30h, 31h) - 10h (31h, 30h)

VM: VERTICAL MONITORS

01h (30h, 31h) - 10h (31h, 30h)

PID: PATTERN ID

01h (30h, 31h) *Fixed

SEL: CURRENT INPUT SELECT

VGA(RGB) : 01h (30h, 31h) *1

DVI : 03h (30h, 33h) *1

VIDEO : 05h (30h, 35h) *1

VGA(YPbPr) : 0Ch (30h, 43h) *1

OPTION : 0Dh (30h, 44h)

DisplayPort1 : 0Fh (30h, 46h)

DisplayPort2 : 10h (31h, 30h)

HDMI1 : 11h (31h, 31h)

HDMI2 : 12h (31h, 32h)

HDMI3 : 82h (38h, 32h) *2

MP : 87h (38h, 37h)

COMPUTE MODULE : 87h (38h, 37h)

*1 Available on P404/ P484/ P554/ V404/ V484/ V554/ V404-T/ V484-T/ V554-T/ UN462A/

UN462VA/ UN492S/ UN492VS/ UN552/ UN552Y/ UN552S/ UN552YS

*2 Not available on P404/ P484/ P554/ V404/ V484/ V554/ V404-T/ V484-T/ V554-T

TMEM: TILE MATRIX MEM

COMMON : 00h (30h, 30h)

INPUT : 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
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'-'0'-Monitor ID- 'B'-'0'-'A'</td>
<td>STX-'C'-'B'-'0'-'3'-'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'-'3' (43h, 42h, 30h, 33h): Auto Tile Matrix Command

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

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
21.2 Auto Tile Matrix Complete

This command is used in order to notify complete status of Auto Tile Matrix Setup.

1) The monitor notifies that Auto Tile Matrix completed to 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'-'A'= '0'-'A'</td>
<td>STX='C'- 'A'- '0'- '3'- '0'- '2'-ST-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 (10bytes)

Message
STX (02h): Start of Message
'C'- 'A'- '0'- '3'- '0'- '2' (43h, 41h, 30h, 33h, 30h, 32h): Auto Tile Matrix Complete
'0'- '2' (30h, 32h): Notify
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

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'- '3'- '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'- '3' (43h, 42h, 30h, 33h): Auto Tile Matrix Command
'0'- '2' (30h, 32h): Notify
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
21.3 Auto Tile Matrix Monitors Read

This command is used in order to read the setting of H/V Monitors.

1) The controller requests the monitor to reply H/V Monitors 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'- '3'- '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 (8bytes)

**Message**
- STX (02h): Start of Message
- 'C'- 'A'- '0'- '3' (43h, 41h, 30h, 33h): Auto Tile Matrix Command
- '0'- '4' (30h, 34h): Monitors 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 H/V Monitors 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'- 'E'</td>
<td>STX- 'C'- 'B'- '0'- '3'- '0'- '4'- ST-HM-VM-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'- 'E'(30h, 45h): Message length (14bytes)

**Message**
- STX (02h): Start of Message
- 'C'- 'B'- '0'- '3' (43h, 42h, 30h, 33h): Auto Tile Matrix reply
- '0'- '4' (30h, 34h): Monitors Read
- ST: Error Status
  - No Error: 00h (30h, 30h)
  - Error : 01h (30h, 31h)
- HM: H MONITORS
  - 00h - 0Ah (30h, 30h - 30h, 41h)
- VM: V MONITORS
  - 00h - 0Ah (30h, 30h - 30h, 41h)
- 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
21.4 Auto Tile Matrix Monitors Write

This command is used in order to write the setting of H/V Monitors.

1) The controller requests the monitor to write H/V Monitors.

<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'-'A'-'0'-'3'-'0'- '5'-HM-VM-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'-C' (30h, 43h): Message length (12bytes)

**Message**

STX (02h): Start of Message
'C'-A'-0'-3' (43h, 41h, 30h, 33h): Auto Tile Matrix Command
'0'-5' (30h, 34h): Monitors Write
HM: H MONITORS
00h - 0Ah (30h, 30h - 30h, 41h)
VM: V MONITORS
00h - 0Ah (30h, 30h - 30h, 41h)
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-</td>
<td>STX-'C'-B'-0'-3'-0'-5'-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 (14bytes)

**Message**

STX (02h): Start of Message
'C'-B'-0'-3' (43h, 42h, 30h, 33h): Auto Tile Matrix reply
'0'-5' (30h, 34h): Monitors Write
ST: Error Status
No Error: 00h (30h, 30h)
Error: 10h (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
21.5 Auto Tile Matrix Reset

This command is used in order to deactivate the Auto Tile Matrix Setup.

1) The controller requests the monitor to reset Auto Tile Matrix

<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’-’3’-’0’-’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 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".

Message

STX (02h): Start of Message
’C’-’A’-’0’-’3’ (43h, 41h, 30h, 33h): Auto Tile Matrix
’0’-’6’ (30h, 36h): 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 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’-’0’-Monitor ID-’B’-’0’-’A’</td>
<td>STX-’C’-’B’-’0’-’3’-’0’-’6’-ST-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".

Message

STX (02h): Start of Message
’C’-’B’-’0’-’3’ (43h, 42h, 30h, 33h): Auto Tile Matrix
’0’-’6’ (30h, 36h): Off
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
22. Power Save Mode

22.1 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'-Monitor ID- 'B'-0'-A'</td>
<td>STX-C'-B'-0'-0'-MODE-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'-0' (30h, 30h): Read
- MODE: POWER SAVE MODE
  - 00h (30h, 30h): AUTO POWER SAVE
  - 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
22.2 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’</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
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’-’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’ (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’-’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
22.3 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>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID- '0'-A'-0'-8'</td>
<td>STX-'C'-A'-0'-B'-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'-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
22.4 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'-Monitor ID- '0'- 'A'</td>
<td>STX-'C'-'A'- '0'- 'B'- '0'- '3'- 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'- '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'- '0'-Monitor ID- 'B'-'0'-'8'</td>
<td>STX-'C'-'B'- '0'- 'B'- '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'- 'B' (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
22.5 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, 34h): 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
22.6 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-'0'-Monitor ID-'0'-'A'-'0'-A</td>
<td>STX-'C'-'A'-'0'-B-'0'-5'-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

'O'-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-'0'-Monitor ID-'0'-B-'0'-A</td>
<td>STX-'C'-B-'0'-B-'0'-5'-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 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

'O'-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
23. Setting Copy

23.1 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'-'0'-Monitor ID- 'A'- '0'- '8'</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'- '0'-Monitor ID- 'B'- '1'- '0'</td>
<td>STX-'C'- 'B'- '0'- '9'- '0'- '0'- T4-T3-T2-T1- 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'- '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: PIP
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
**23.2 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</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’-'A’-‘0’-‘9’ (43h,41h,30h,39h): Setting Copy command

'0’-‘1’ (30h,31h): Target Write

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: PIP

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
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'-':'9'-':'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'-':'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
23.3 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'-'8'(30h, 38h): Message length (8byte)

Message

STX (02h): Start of Message
'C'-'A'-'0'-'9' (43h, 41h, 30h, 39h): 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, 39h): 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
24. Security Enable

24.1 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'-Monitor ID- '0'- 'A'- '0'- '8'</td>
<td>STX-‘C’-'A’-‘0’-‘C’-‘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, 41h, 30h, 32h): Get Security Enable Disable Reply
- EN: Status
  - 00h: Disable
  - 01h: 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
24.2 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'- ENA-'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
ENA: Enable/Disable
00h (30h, 30h): Disable
01h (30h, 31h): Enable
'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 hex 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 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
      -> '3'- '3'- '3'- '3'- '3'- '3'- '3'- '4'
      Result: The following data is assigned to PWD1-PWD16.
      33h 33h 33h 31h 33h 33h 33h 32h 33h 33h 33h 33h 33h 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

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'- '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
25. LAN MAC Address

25.1 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- '0'-'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'-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 \( \rightarrow n = 4 \)
- 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
26. Proof of Play

26.1 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'-A'-0'-A'</td>
<td>STX-'C'-A'-1'-5'-0'-0'-MD- 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'-"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'-B'-0'-A'</td>
<td>STX-'C'-B'-1'-5'-0'-0'-ST-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'-"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
26.2 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'-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 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>
</table>
| SOH-'0'-Monitor ID- '0'-B'-3'-4' | STX-'C'-B'-1'-5'-0'-1'-ST-CNHL- 
CNL-Data(0)-Data(1)-Data(2)---Data(18)-ETX | BCC | CR |

Header

SOH (01h): Start of Header
'0' (30h): Reserved
Monitor ID: Specify the Monitor ID from which you want to get status.
Ex.) If Monitor ID is '1', specify 'A'.
'0' (30h): Message sender is the controller.
'A' (41h): Message Type is "Command".
'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(Page11 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
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
'0'-'0'(30h, 30h): 0
'0'-'1'(30h, 31h): 1
'0'-'2'(30h, 32h): 2
'0'-'3'(30h, 33h): 3
'0'-'4'(30h, 34h): 4
'0'-'5'(30h, 35h): 5
'0'-'6'(30h, 36h): 6
'0'-'7'(30h, 37h): 7
'0'-'8'(30h, 38h): 8
'0'-'9'(30h, 39h): 9
'0'-'A'(30h, 3Ah): 10
'0'-'B'(30h, 3Bh): 11
'0'-'C'(30h, 3Ch): 12
'0'-'D'(30h, 3Dh): 13
'0'-'E'(30h, 3 Eh): 14
'0'-'F'(30h, 3Fh): 15

Data(11): month
'0'-'0'(30h, 30h): January
'0'-'1'(30h, 31h): February
'0'-'2'(30h, 32h): March
'0'-'3'(30h, 33h): April
'0'-'4'(30h, 34h): May
'0'-'5'(30h, 35h): June
'0'-'6'(30h, 36h): July
'0'-'7'(30h, 37h): August
'0'-'8'(30h, 38h): September
'0'-'9'(30h, 39h): October
'0'-'A'(30h, 3Ah): November
'0'-'B'(30h, 3Bh): December

Data(12): day
'0'-'0'(30h, 30h): 1
'0'-'1'(30h, 31h): 2
'0'-'2'(30h, 32h): 3
'0'-'3'(30h, 33h): 4
'0'-'4'(30h, 34h): 5
'0'-'5'(30h, 35h): 6
'0'-'6'(30h, 36h): 7
'0'-'7'(30h, 37h): 8
'0'-'8'(30h, 38h): 9
'0'-'9'(30h, 39h): 10
'0'-'A'(30h, 3Ah): 11
'0'-'B'(30h, 3Bh): 12
'0'-'C'(30h, 3Ch): 13
'0'-'D'(30h, 3Dh): 14
'0'-'E'(30h, 3 Eh): 15
'0'-'F'(30h, 3Fh): 16

Data(13): hour
'0'-'0'(30h, 30h): 0
'0'-'1'(30h, 31h): 1
'0'-'2'(30h, 32h): 2
'0'-'3'(30h, 33h): 3
'0'-'4'(30h, 34h): 4
'0'-'5'(30h, 35h): 5
'0'-'6'(30h, 36h): 6
'0'-'7'(30h, 37h): 7
'0'-'8'(30h, 38h): 8
'0'-'9'(30h, 39h): 9
'0'-'A'(30h, 3Ah): 10
'0'-'B'(30h, 3Bh): 11
'0'-'C'(30h, 3Ch): 12
'0'-'D'(30h, 3Dh): 13
'0'-'E'(30h, 3 Eh): 14
'0'-'F'(30h, 3Fh): 15

Data(14): minute
'0'-'0'(30h, 30h): 0
'0'-'1'(30h, 31h): 1
'0'-'2'(30h, 32h): 2
'0'-'3'(30h, 33h): 3
'0'-'4'(30h, 34h): 4
'0'-'5'(30h, 35h): 5
'0'-'6'(30h, 36h): 6
'0'-'7'(30h, 37h): 7
'0'-'8'(30h, 38h): 8
'0'-'9'(30h, 39h): 9
'0'-'A'(30h, 3Ah): 10
'0'-'B'(30h, 3Bh): 11
'0'-'C'(30h, 3Ch): 12
'0'-'D'(30h, 3Dh): 13
'0'-'E'(30h, 3 Eh): 14
'0'-'F'(30h, 3Fh): 15

Data(15): second
'0'-'0'(30h, 30h): 0
'0'-'1'(30h, 31h): 1
'0'-'2'(30h, 32h): 2
'0'-'3'(30h, 33h): 3
'0'-'4'(30h, 34h): 4
'0'-'5'(30h, 35h): 5
'0'-'6'(30h, 36h): 6
'0'-'7'(30h, 37h): 7
'0'-'8'(30h, 38h): 8
'0'-'9'(30h, 39h): 9
'0'-'A'(30h, 3Ah): 10
'0'-'B'(30h, 3Bh): 11
'0'-'C'(30h, 3Ch): 12
'0'-'D'(30h, 3Dh): 13
'0'-'E'(30h, 3 Eh): 14
'0'-'F'(30h, 3Fh): 15

Data(16): Extention parameter
'0'-'0'(30h, 30h): Normal Proof of Play event
'0'-'1'(30h, 31h): Proof of Play event is "last power on time" *1
'0'-'2'(30h, 32h): Reserved
'1'-'0'(31h, 30h): MEDIA PLAYER is stop
'1'-'1'(31h, 31h): MEDIA PLAYER is start
'1'-'2'(31h, 32h): MEDIA PLAYER is pause
'1'-'3'(31h, 33h): MEDIA PLAYER error occur
'1'-'4'(31h, 34h): '1'-'F'(31h, 46h): Reserved
'2'-'0'(32h, 30h): Contents Copy from USB
'2'-'1'(32h, 31h): Contents Copy form network folder
'2'-'2'(32h, 32h): '2'-'F'(32h, 46h): Reserved

(134/145)
'3'-'0'(33h,30h): Contents Copy Success

'3'-'1'(33h,31h): Contents Copy Error (No media)

'3'-'2'(33h,32h): Contents Copy Error (Connect error)

'3'-'3'(33h,33h): Contents Copy Error (Out of disk space)

'3'-'4'(33h,34h): Contents Copy Error (Read/Write error)

'3'-'5'(32h,35h) – '3'-'F'(33h,46h): Reserved

'4'-'0'(34h,30h): Human detected (Human sensor Status) *2)

'4'-'1'(34h,31h): Human detect cleared (Human Sensor Status) *2)

'4'-'2'(34h,32h) – '4'-'F'(34h,46h): Reserved

*1: After Power ON, the first log is "Data16=01h".

*2: Save the Human Sensor status every 30 minuites.

Data(17)-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
26.3 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>'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 (30h, 32h): 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>'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 (30h, 32h): 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
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
26.4 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

PC Monitor

Request Number to Number {1 to 6} [SOH-STX-BNS-BNE-ETX-BCC-CR]

Reply Log Data(0)-Data(18) (Number 1) [SOH-STX-#1-Data0-Data18-BCC-CR]
Reply Log Data(0)-Data(18) (Number 2) [SOH-STX-#2-Data0-Data18-BCC-CR]
Reply Log Data(0)-Data(18) (Number 3) [SOH-STX-#3-Data0-Data18-BCC-CR]
Reply Log Data(0)-Data(18) (Number 4) [SOH-STX-#4-Data0-Data18-BCC-CR]
Reply Log Data(0)-Data(18) (Number 5) [SOH-STX-#5-Data0-Data18-BCC-CR]
Reply Log Data(0)-Data(18) (Number 6) [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
27. Setting Lock of COMPUTE MODULE

27.1 Setting Lock Control

This command sets the condition of setting lock function of COMPUTE MODULE to "ON" or "OFF". If setting lock password 1st to 4th are matched with monitor resisted password, then this command is executed, and reply no error status. If codes aren't matched with them then setting isn't changed, and reply error status.

1) The controller requests the monitor to set the condition of setting 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'- 'A'- '1'- 'B'-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'- 'A'- '1'- 'B' (43h, 41h, 31h, 42h): Service Lock Control command
EN: Enable /Disable
'0'- '0'(30h, 30h): OFF
'0'- '1'(30h, 31h): ON
P1-P2-P3-P4: Lock condition control data
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
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-</td>
<td>STX-'C'-B'-1'-B'-ST-EN-ETX</td>
<td>BCC CR</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'-B'-1'-B' (43h, 42h, 31h, 42h): Security Lock Control reply command
- ST: Status
  - '0'-0'(30h, 30h): No error
  - '0'-1'(30h, 31h): Error
- EN: Enable /Disable
  - '0'-0'(30h, 30h): OFF
  - '0'-1'(30h, 31h): ON
- 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
28. Emergency Contents
This function which plays files in the EMERGENCY CONTENTS folder in the root folder on SD card automatically using MEDIA PLAYER function.
During playing, a display prohibits operation except power off.
Create "EMERGENCY CONTENTS" folder in a route folder.
"Display command" starts playing, and "Delete command" stops playing.

28.1 Emergency Contents Display
This command is used in order to display Emergency Contents.

1) The controller requests the monitor to display Emergency Contents.

<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'-F-'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-'1'-F (43h, 41h, 31h, 46h): Emergency Contents Command
'0'-1 (30h, 32h): Display
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'-Monitor ID-'B'-A</td>
<td>STX-'C'-B-'1'-F-'0'-1-ST-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-'1'-F (43h, 42h, 31h, 46h): Emergency Contents Reply Command
'0'-1 (30h, 32h): Display
ST: 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
28.2 Emergency Contents Delete

This command is used in order to stop Emergency Contents.

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-'0'-8</td>
<td>STX-'C'-A-1-F-0-0-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".
- '0'-8 (30h, 38h): Message length (8byte)

**Message**
- STX (02h): Start of Message
- 'C'-A-1-F (43h, 41h, 31h, 46h): Emergency Contents Command
- '0'-0 (30h, 30h): Delete
- 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-1-F-0-0-ST-ETX</td>
<td>BCC CR</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'-A (30h, 41h): Message length (10byte)

**Message**
- STX (02h): Start of Message
- 'C'-B-1-F (43h, 42h, 31h, 46h): Emergency Contents Reply Command
- '0'-0 (30h, 30h): Delete
- 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
All data are subject to change without notice.

(June 10, 2019)