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I. Application

This document defines the communications method for control of the NEC LCD monitor, MultiSync C431 /C501 /C551 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  

##### 3.2 LAN control

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

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

##### 3.3 Communication timing

The controller should wait for a 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, Auto Setup, Factory Reset: 10 seconds
4. Communication Format

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

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**
    - 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 24. and 5.5.2)

- **Controller**
  - **Command**
    - Header | Message | Check Code | Delimiter
  - **Command Reply**
    - Header | Message | Check Code | Delimiter

  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 26.

  The monitor replies a proper message defined for each
### 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</td>
<td>2nd</td>
<td>3rd</td>
<td>4th</td>
<td>5th</td>
<td>6th - 7th</td>
</tr>
</tbody>
</table>

1st byte) SOH: Start of Header

ASCII SOH (01h)

2nd byte) Reserved: Reserved for future extensions.

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

3rd byte) Destination: Destination equipment ID. (Receiver)

Specify a commands receiver’s address.

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

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

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

<table>
<thead>
<tr>
<th>Monitor ID</th>
<th>Destination Address</th>
<th>Monitor ID</th>
<th>Destination Address</th>
<th>Monitor ID</th>
<th>Destination Address</th>
<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>8 Eh</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>5 Eh</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>7 Eh</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>9 Eh</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>6 Eh</td>
<td>71</td>
<td>87h</td>
<td>96</td>
<td>10h</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>11h</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>12h</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>13h</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>14h</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('1:')</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>I</td>
<td>39h('9')</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>I</td>
<td>39h('9')</td>
</tr>
</tbody>
</table>

(8/104)
Ex.) If you want to control a monitor that has the "ID No." as '1', specify a destination address 'A'(41h). If you want to control all of the monitors which are connected by a daisy chain, specify a destination address '*'(2Ah).

4th byte) Source: Source equipment ID. (Sender)

Specify a sender address.

The controller must be '0' (30h).

On the reply, the monitor sets the own MONITOR ID in here.

5th byte) Message Type: (Case sensitive.)

Refer to section 4.2 "Message block format" for more details.

ASCII 'A' (41h): Command.

ASCII 'B' (42h): Command reply.

ASCII 'C' (43h): Get current parameter from a monitor.

ASCII 'D' (44h): "Get parameter" reply.

ASCII 'E' (45h): Set parameter.

ASCII 'F' (46h): "Set parameter" reply.

6th - 7th bytes) Message Length:

Specify the length of the message (that follows the header) from STX to ETX.

This length includes STX and ETX.

The byte data must be encoded to ASCII characters.

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

The byte data 0Bh must be encoded to ASCII characters '0' and 'B' (30h and 42h).
4.2 Message block format

"Message block format" is allied to the "Message Type" in the "Header".

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

1) Get current parameter

The controller sends this message when you want to get the status of the monitor.

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

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

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

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

2) Get Parameter reply

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

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

<table>
<thead>
<tr>
<th>STX</th>
<th>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>MSB</td>
</tr>
</tbody>
</table>

➤ Refer to section 5.3 “Set parameter” for more details.

4) Set Parameter reply

The monitor replies with this message for a confirmation of the "Set parameter message".

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

<table>
<thead>
<tr>
<th>STX</th>
<th>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.

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

XOR: Exclusive OR

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code (BCC)</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH</td>
<td>Reserved</td>
<td>Destination Address</td>
<td>Source Address</td>
</tr>
<tr>
<td>01</td>
<td>30</td>
<td>41</td>
<td>30</td>
</tr>
<tr>
<td>D_0</td>
<td>D_1</td>
<td>D_2</td>
<td>D_3</td>
</tr>
</tbody>
</table>

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

\[- 30h \text{ XOR } 41h \text{ XOR } 30h \text{ XOR } 45h \text{ XOR } 30h \text{ XOR } 41h \]

\[- 02h \text{ XOR } 30h \text{ XOR } 30h \text{ XOR } 31h \text{ XOR } 30h \text{ XOR } 30h \]

\[- 30h \text{ XOR } 36h \text{ XOR } 34h \text{ XOR } 03h \]

\[- 77h \]

4.4 Delimiter

Packet delimiter code: \[ \text{Header} \quad \text{Message} \quad \text{Check code} \quad \text{Delimiter} \]

ASCII CR (0Dh).
5. Message type
5.1 Get current Parameter from a monitor.

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

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

<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></td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td>2nd-3rd</td>
<td>4th-5th</td>
<td>6th-7th</td>
<td>8th</td>
<td>9th</td>
<td>10th-11th</td>
<td>12th</td>
</tr>
<tr>
<td>14th-17th</td>
<td>18th</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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-11th 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>1st</td>
<td>2nd-3rd</td>
<td>4th-5th</td>
<td>6th-9th</td>
<td>10th</td>
</tr>
</tbody>
</table>

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

The controller requests a monitor to change value.

1st byte) STX: Start of Message

ASCII STX (02h)

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

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

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

Refer to the Operation code table.

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

This OP code data must be encoded to ASCII characters.

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

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

Refer to the Operation code table.

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

This data must be encoded to ASCII characters.

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

2nd = ASCII '1' (31h)

3rd = ASCII '2' (32h)

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

10th byte) ETX: End of Message

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

<table>
<thead>
<tr>
<th>STX</th>
<th>Result</th>
<th>OP code page</th>
<th>OP code</th>
<th>Type</th>
<th>Max value</th>
<th>Requested setting Value</th>
<th>ETX</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hi</td>
<td>Lo</td>
<td>Hi</td>
<td>Lo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st</td>
<td>2nd-3rd</td>
<td>4th-5th</td>
<td>6th-7th</td>
<td>8th-9th</td>
<td>10th-13th</td>
<td>14th-17th</td>
<td>18th</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'-'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;

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

- H Freq: Horizontal Frequency in unit 0.01kHz
- V Freq: Vertical Frequency in unit 0.01Hz

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

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

- To tell the controller that the monitor does not have any answer to give to the host (not ready or not expected)
- Complete "NULL Message" command packet as follows:
  01h-30h-30h-41h-42h-30h-34h-02h-42h-45h-03h-CHK-0Dh
  SOH-'0'-'0'-'A'-'B'-'0'-'4'-STX-'B'-'E'-ETX-CHK- CR
IV. Control Commands

6. Typical procedure example

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

6.1. How to change the "Backlight" setting.

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID-'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'.
'C' (43h): Message type is "Get parameter command".
'0'-6' (30h, 36h): Message length is 6 bytes.

Message
STX (02h): Start of Message
'0'-0' (30h, 30h): Operation code page number is 0.
'1'-0' (31h, 30h): Operation code is 10h (in the OP code page 0).
ETX (03h): End of Message

Check code
BCC: Block Check Code
Refer to the section 4.3 “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'-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'-6'-4' (30h, 30h, 36h, 34h): Backlight max value is 100(0064h).
'0'-3'-2' (30h, 30h, 33h, 32h): Current Backlight setting is 50(0032h).
ETX (03h): End of Message
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 '-'0 '-5'-0 '-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

Header
- SOH (01h): Start of Header
- '0' (30h): Reserved
- Monitor ID: Specify the Monitor ID of which you want to change a setting.
  Ex.) If Monitor ID is '1', specify 'A'.
- 'E' (45h): Message 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' (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'-0'-0'-0'-0'-0'-0'-0'-5'-0'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

Header
- SOH (01h): Start of Header
- '0' (30h): Reserved
- '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' (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-\n'0'-'A'-\n'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'-\n'C' (30h, 43h): Command code is 0Ch as "Save current settings".
ETX (03h): End of Message

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

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

MultiSync C431/ C501/ C551 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'- '0'- '1' (30h, 30h, 30h, 31h): Select the temperature sensor #1 (01h).
00h: No meaning
01h: Sensor #1
02h: Sensor #2
03h: Sensor #3
ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet

Step 2. The monitor replies for confirmation.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'- 'O'- '2'</td>
<td>STX-'0'- '0'- '0'- '2'- '7'- '8'- '0'- '0'- '0'- '3'- '0'- '0'- '1'- ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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

Message
STX (02h): Start of Message
'0'- '0' (30h, 30h): Result code. No error.
'0'- '2' (30h, 32h): Operation code page number is 2.
'7'- '8' (37h, 38h): Operation code is 78h (in the page 2).
'0'- '0' (30h, 30h): This operation is "Set parameter" type.
'0'- '0'- '0'- '3' (30h, 30h, 30h, 33h): Number of temperature sensors are 3 (0003h).
'0'- '0'- '0'- '1' (30h, 30h, 30h, 31h): temperature sensor is #1.
ETX (03h): End of Message
Check code
BCC: Block Check Code
Refer to the section 4.3 “Check code” for a BCC calculation.

Delimiter
CR (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'-'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'-0'-F'-F'-F'-F'-0'-0'-3'-2'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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

Message
STX (02h): Start of Message
'0'-'0' (30h, 30h): Result code. No error.
'0'-'2' (30h, 32h): Operation code page number is 2.
'7'-'9' (37h, 39h): Operation code is 79h (in the page 2).
'0'-'0' (30h, 30h): This operation is "Set parameter" type.
'F'-F'-F'-F' (46h, 46h, 46h, 46h): Maximum value.
'0'-'0'-'3'-'2' (30h, 30h, 33h, 32h): The temperature is 25 degrees Celsius.
Readout value is 2's complement.

<table>
<thead>
<tr>
<th>Temperature [Celsius]</th>
<th>Readout value</th>
<th>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>FFFPh</td>
</tr>
<tr>
<td>- 25.0</td>
<td>1111 1111 1100 1110</td>
<td>FFC6h</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

<table>
<thead>
<tr>
<th>Item</th>
<th>OP code page</th>
<th>OP code</th>
<th>Parameter</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INPUT</strong></td>
<td>00h</td>
<td>60h</td>
<td>0: No mean</td>
<td>OP code page 11h, OP code 06h operation is same.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1: VGA(RGB)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5: VIDEO</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12(0Ch): YGA(YPbPr)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15(0Fh): DisplayPort</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>17(11h): HDMI1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>18(12h): HDMI2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>130(82h): HDMI3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>135(87h): MP</td>
<td></td>
</tr>
<tr>
<td><strong>PICTURE MODE</strong></td>
<td>02h</td>
<td>1Ah</td>
<td>0: No mean</td>
<td>sRGB: PC mode only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1: sRGB</td>
<td>CINEMA: A/V mode only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3: HIGHBRIGHT</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4: STANDARD</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5: CINEMA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8: CUSTOM1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>9: CUSTOM2</td>
<td></td>
</tr>
<tr>
<td><strong>BACKLIGHT</strong></td>
<td>00h</td>
<td>10h</td>
<td>0: dark</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100(64h): bright</td>
<td></td>
</tr>
<tr>
<td><strong>BRIGHTNESS</strong></td>
<td>00h</td>
<td>92h</td>
<td>0: dark</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100(64h): bright</td>
<td></td>
</tr>
<tr>
<td><strong>GAMMA CORRECTION</strong></td>
<td>02h</td>
<td>68h</td>
<td>0: No mean</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1: NATIVE</td>
<td></td>
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<td>4: 2.2</td>
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<td>8: 2.4</td>
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</tr>
<tr>
<td><strong>COLOR</strong></td>
<td>02h</td>
<td>1Fh</td>
<td>0: pale</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100(64h): deep</td>
<td></td>
</tr>
<tr>
<td><strong>COLOR TEMPERATURE</strong></td>
<td>00h</td>
<td>54h</td>
<td>0:2600K</td>
<td>100K/step</td>
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<td>74(4Ah):10000K</td>
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<td><strong>COLOR TEMPERATURE (CUSTOM)</strong></td>
<td>00h</td>
<td>14h</td>
<td>9: 10000K</td>
<td>Select &quot;CUSTOM&quot; to adjust the R G B gain.</td>
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<td></td>
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<td>11(0Bh): CUSTOM</td>
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<tr>
<td><strong>R GAIN</strong></td>
<td>00h</td>
<td>16h</td>
<td>0: Dark</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>255(FFh): Bright</td>
<td></td>
</tr>
<tr>
<td><strong>B GAIN</strong></td>
<td>00h</td>
<td>18h</td>
<td>0: Dark</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>255(FFh): Bright</td>
<td></td>
</tr>
<tr>
<td><strong>G GAIN</strong></td>
<td>00h</td>
<td>1Ah</td>
<td>0: Dark</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>255(FFh): Bright</td>
<td></td>
</tr>
<tr>
<td><strong>COLOR CONTROL</strong></td>
<td>00h</td>
<td>RED:</td>
<td>0:</td>
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<td></td>
<td></td>
<td>9Bh</td>
<td>1: 100(64h):{center}</td>
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<td></td>
<td></td>
<td>YELLOW:</td>
<td>2: 200(C8h):</td>
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<td></td>
<td></td>
<td>9Ch</td>
<td>3:</td>
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<td></td>
<td>GREEN:</td>
<td>4:</td>
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<td></td>
<td></td>
<td>9Dh</td>
<td>5:</td>
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<td></td>
<td>CYAN:</td>
<td>6:</td>
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<td></td>
<td>9Eh</td>
<td>7:</td>
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<td>BLUE:</td>
<td>8:</td>
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<td></td>
<td>9Fh</td>
<td>9:</td>
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<td>MAGENTA:</td>
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<td>A0h</td>
<td>11:</td>
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<td><strong>HUE</strong></td>
<td>00h</td>
<td>90h</td>
<td>0: purplish</td>
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<td>100(64h): greenish</td>
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<td><strong>CONTRAST</strong></td>
<td>00h</td>
<td>12h</td>
<td>0: low</td>
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<td></td>
<td></td>
<td>100(64h): high</td>
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<td>Item</td>
<td>OP code page</td>
<td>OP code</td>
<td>Parameter</td>
<td>Remarks</td>
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<tr>
<td>SHARPNESS</td>
<td>00h</td>
<td>8Ch</td>
<td>0: dull</td>
<td></td>
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<td></td>
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<td></td>
<td>24(18h): sharp</td>
<td></td>
</tr>
<tr>
<td>AUTO SETUP</td>
<td>00h</td>
<td>1Eh</td>
<td>0: No mean</td>
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<td></td>
<td></td>
<td></td>
<td>1: Execute</td>
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<td>AUTO ADJUST</td>
<td>10h</td>
<td>B7h</td>
<td>0: No mean</td>
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<td></td>
<td></td>
<td></td>
<td>1: OFF</td>
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<td></td>
<td></td>
<td>2: ON</td>
<td></td>
</tr>
<tr>
<td>H POSITION</td>
<td>00h</td>
<td>20h</td>
<td>0: Left side</td>
<td>Depends on a display timing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>200: Right side</td>
<td></td>
</tr>
<tr>
<td>V POSITION</td>
<td>00h</td>
<td>30h</td>
<td>0: Bottom side</td>
<td>Depends on a display timing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>200: Top side</td>
<td></td>
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<tr>
<td>CLOCK</td>
<td>00h</td>
<td>0Eh</td>
<td>0</td>
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<td>PHASE</td>
<td>00h</td>
<td>3Eh</td>
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<td>30</td>
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<td>COLOR SYSTEM</td>
<td>02h</td>
<td>21h</td>
<td>0: No mean</td>
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<td>1: NTSC</td>
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<td>2: PAL</td>
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<td>3: SECAM</td>
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<td>4: AUTO</td>
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<td>5: 4.43NTSC</td>
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<td>6: PAL-60</td>
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<td>INPUT RESOLUTION</td>
<td>02h</td>
<td>DAh</td>
<td>0: No mean</td>
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<td></td>
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<td>1: Auto</td>
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<td>2: 1024x768</td>
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<td>3: 1280x768</td>
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<td>4: 1360x768</td>
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<td>ASPECT</td>
<td>02h</td>
<td>70h</td>
<td>0: No mean</td>
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<td>1: NORMAL</td>
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<td>2: FULL</td>
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<td></td>
<td>3: WIDE</td>
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<td>4: ZOOM</td>
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<td></td>
<td>6: DYNAMIC</td>
<td>Wide: Dynamic A/V mode only</td>
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<td>7: 1:1</td>
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<tr>
<td>ZOOM</td>
<td>11h</td>
<td>2Ch</td>
<td>0-89(59h): No mean</td>
<td>The following commands can also be used.</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>90(5Ah): 90%</td>
<td>OP code page 02h OP code 6Fh Parameter</td>
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<tr>
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<td></td>
<td></td>
<td>91(5Bh): 91%</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>100(6Ah): 100%</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>300(12Ch): 300%</td>
<td></td>
</tr>
<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>
</tr>
<tr>
<td>H ZOOM</td>
<td>11h</td>
<td>2Dh</td>
<td>0-89(59h): No mean 90(5Ah): 90% 91(5Bh): 91% 100(64h): 100% 300(12Ch): 300%</td>
<td>The following commands can also be used. OP code page 02h OP code 6Ch Parameter 0: No mean 1: 100% 2: 101% 3: 300%</td>
</tr>
<tr>
<td>V ZOOM</td>
<td>11h</td>
<td>2Eh</td>
<td>0-89(59h): No mean 90(5Ah): 90% 91(5Bh): 91% 100(64h): 100% 300(12Ch): 300%</td>
<td>The following commands can also be used. OP code page 02h OP code 6Dh Parameter 0: No mean 1: 100% 2: 101% 3: 300%</td>
</tr>
<tr>
<td>H POS</td>
<td>02h</td>
<td>CCCh</td>
<td>0: Left side 200(C8h): Right side</td>
<td></td>
</tr>
<tr>
<td>V POS</td>
<td>02h</td>
<td>CDCh</td>
<td>0: Down side 200(C8h): Up side</td>
<td></td>
</tr>
<tr>
<td>OVER SCAN</td>
<td>02h</td>
<td>E3h</td>
<td>0: No mean 1: OFF 2: ON</td>
<td></td>
</tr>
<tr>
<td>NOISE REDUCTION</td>
<td>02h</td>
<td>26h</td>
<td>0: Off 3: High</td>
<td>Page62 OP code 20h also works as same.</td>
</tr>
<tr>
<td>TELECINE</td>
<td>02h</td>
<td>23h</td>
<td>0: No mean 1: Off 2: Auto</td>
<td></td>
</tr>
<tr>
<td>ADAPTIVE CONTRAST</td>
<td>02h</td>
<td>8Dh</td>
<td>0: No mean 1: Off 2: LOW 4: High</td>
<td></td>
</tr>
<tr>
<td>RESET (PICTURE)</td>
<td>02h</td>
<td>CBh</td>
<td>0: No mean 2: Reset Picture category</td>
<td>Momentary</td>
</tr>
<tr>
<td>VOLUME</td>
<td>00h</td>
<td>62h</td>
<td>0: whisper 100(64h): loud</td>
<td></td>
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<tr>
<td>BALANCE</td>
<td>00h</td>
<td>93h</td>
<td>0: Left 30(1Eh): (Center) 60(3Ch): Right</td>
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<tr>
<td></td>
<td>00h</td>
<td>94h</td>
<td>0: No mean 1: MONOURAL 2: STEREO</td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>OP code</td>
<td>OP code</td>
<td>Parameter</td>
<td>Remarks</td>
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<tr>
<td>SURROUND</td>
<td>02h</td>
<td>34h</td>
<td>0: No mean 1: OFF 2: ON</td>
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<tr>
<td>TREBLE</td>
<td>00h</td>
<td>8Fh</td>
<td>0: Min. 6: (Center) 12(0Ch): Max.</td>
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<tr>
<td>BASS</td>
<td>00h</td>
<td>91h</td>
<td>0: Min. 6: (Center) 12(0Ch): Max.</td>
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<tr>
<td>AUDIO INPUT</td>
<td>02h</td>
<td>2Eh</td>
<td>0: No mean 1: IN1 2: IN2 4: HDMI1 7: DisplayPort 10(0Ah): HDMI2 11(0Bh): HDMI3 13(0Dh): MP</td>
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<tr>
<td>LINE OUT</td>
<td>10h</td>
<td>81h</td>
<td>0: No mean 1: FIXED 2: VARIABLE</td>
<td></td>
</tr>
<tr>
<td>AUDIO DELAY</td>
<td>10h</td>
<td>CAh</td>
<td>0: No mean 1: OFF 2: ON</td>
<td></td>
</tr>
<tr>
<td>DELAY TIME</td>
<td>10h</td>
<td>CBh</td>
<td>0: (small) 100(64h): (large)</td>
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<tr>
<td>RESET (AUDIO)</td>
<td>02h</td>
<td>CBh</td>
<td>0: No mean 4: Reset Audio category Momentary</td>
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</tr>
<tr>
<td>ENABLE</td>
<td>02h</td>
<td>E5h</td>
<td>0: No mean 1: No.1 Enable 30(1Eh): No.30 Enable</td>
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</tr>
<tr>
<td>DISABLE</td>
<td>02h</td>
<td>E6h</td>
<td>0: No mean 1: No.1 Disable 30(1Eh): No.30 Disable</td>
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</tr>
<tr>
<td>SCHEDULE SETTINGS</td>
<td></td>
<td></td>
<td>Refer to chapter 10</td>
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<td>HOLIDAY SETTINGS</td>
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<td>Refer to chapter 11</td>
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<td>WEEKEND SETTINGS</td>
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<td>Refer to chapter 12</td>
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<td>DATE &amp; TIME</td>
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<td>Refer to chapter 9</td>
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<td>DAYLIGHT SAVING</td>
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<td>Refer to chapter 16</td>
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<tr>
<td>OFF TIMER</td>
<td>02h</td>
<td>2Bh</td>
<td>0: Off 1 hour 24(18h): 24 hour 1 hour/step</td>
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<td>RESET (SCHEDULE)</td>
<td>02h</td>
<td>CBh</td>
<td>0: No mean 5: Reset Schedule category Momentary</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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<td><strong>INPUT DETECT</strong></td>
<td>02h</td>
<td>40h</td>
<td>0: FIRST DETECT</td>
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<td>1: LAST DETECT</td>
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<td>2: NONE</td>
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<td>3: VIDEO DETECT</td>
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<td>4: CUSTOM DETECT</td>
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<td><strong>CUSTOM DETECT</strong></td>
<td>10h</td>
<td>2Eh</td>
<td>0: No mean</td>
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<td></td>
<td>1: VGA (RGB)</td>
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<td>2: VIDEO</td>
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<td>12(0Ch): YGA (YPbPr)</td>
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<td>15(0Fh): DisplayPort</td>
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<td>17(11h): HDMI1</td>
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<td>18(12h): HDMI2</td>
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<td>130(82h): HDMI3</td>
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<td>135(87h): MP</td>
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<td><strong>PRIORITY1</strong></td>
<td>10h</td>
<td>2Fh</td>
<td>0: No mean</td>
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<td>1: VGA (RGB)</td>
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<td></td>
<td>2: YPbPr</td>
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<td>5: VIDEO</td>
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<tr>
<td><strong>PRIORITY2</strong></td>
<td>10h</td>
<td>30h</td>
<td>0: No mean</td>
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</tr>
<tr>
<td><strong>PRIORITY3</strong></td>
<td>10h</td>
<td>30h</td>
<td>0: No mean</td>
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<td><strong>VGA MODE</strong></td>
<td>10h</td>
<td>8Eh</td>
<td>0: No mean</td>
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<td>1: RGB</td>
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<td>2: YPbPr</td>
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<tr>
<td><strong>DisplayPort BITRATE</strong></td>
<td>11h</td>
<td>19h</td>
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<td>1: RBR</td>
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<td><strong>VIDEO LEVEL</strong></td>
<td>10h</td>
<td>40h</td>
<td>0: No mean</td>
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<td></td>
<td></td>
<td>1: EXPAND</td>
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<td>Return value is 2’s complement. (0.5°C step)</td>
<td>Offset affects to a selected sensor. Select sensor (Page02h OPcode78h) 1 : SENSOR #1 2 : SENSOR #2 3 : SENSOR #3</td>
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<td></td>
<td>3: CUSTOM LOCK</td>
</tr>
<tr>
<td>POWER</td>
<td>11h</td>
<td>6Bh</td>
<td>0: No mean</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1: UNLOCK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2: LOCK</td>
</tr>
<tr>
<td>VOLUME</td>
<td>11h</td>
<td>6Ch</td>
<td>0: No mean</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1: UNLOCK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2: LOCK</td>
</tr>
<tr>
<td>MIN VOL</td>
<td>11h</td>
<td>6Dh</td>
<td>0 (whisper)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAX VOL</td>
<td>11h</td>
<td>6Eh</td>
<td>0 (whisper)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INPUT</td>
<td>11h</td>
<td>6Fh</td>
<td>0: No mean</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1: UNLOCK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2: LOCK</td>
</tr>
<tr>
<td>CHANNEL</td>
<td>10h</td>
<td>D9h</td>
<td>0: No mean</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1: UNLOCK</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2: LOCK</td>
</tr>
<tr>
<td>DDC/CI</td>
<td>10h</td>
<td>BEh</td>
<td>0: No mean</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1: OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2: ON</td>
</tr>
<tr>
<td>PING</td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>IP ADDRESS RESET</td>
<td></td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>Item</td>
<td>OP code page</td>
<td>OP code</td>
<td>Parameter</td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------</td>
<td>---------</td>
<td>-----------</td>
</tr>
<tr>
<td>AUTO DIMMING</td>
<td></td>
<td></td>
<td>0: No mean 1: OFF 2: MODE1 3: MODE2</td>
</tr>
<tr>
<td>ROOM LIGHT SENSING</td>
<td></td>
<td></td>
<td>0 - 100(64h)</td>
</tr>
<tr>
<td>BACKLIGHT SETTING</td>
<td></td>
<td></td>
<td>0 - 100(64h)</td>
</tr>
<tr>
<td>SENSING LUX</td>
<td></td>
<td></td>
<td>Current Illuminance read</td>
</tr>
<tr>
<td>AUTO TURN OFF</td>
<td></td>
<td></td>
<td>0: No mean 1: NO 2: YES</td>
</tr>
<tr>
<td>AUDIO RECEIVER</td>
<td></td>
<td></td>
<td>0: No mean 1: NO 2: YES</td>
</tr>
<tr>
<td>SEARCH DEVICE</td>
<td></td>
<td></td>
<td>0: No mean 1: NO 2: YES</td>
</tr>
<tr>
<td>POWER INDICATOR</td>
<td>02h</td>
<td>BEh</td>
<td>0: No mean 1: Off 2: On</td>
</tr>
<tr>
<td>SCHEDULE INDICATOR</td>
<td>11h</td>
<td>71h</td>
<td>0: No mean 1: Off 2: On</td>
</tr>
<tr>
<td>CEC</td>
<td>11h</td>
<td>76h</td>
<td>0: No mean 1: OFF 2: ON</td>
</tr>
<tr>
<td>CEC</td>
<td>11h</td>
<td>77h</td>
<td>0: No mean 1: NO 2: YES</td>
</tr>
<tr>
<td>CEC</td>
<td>11h</td>
<td>78h</td>
<td>0: No mean 1: NO 2: YES</td>
</tr>
<tr>
<td>CEC</td>
<td>11h</td>
<td>79h</td>
<td>0: No mean 1: NO 2: YES</td>
</tr>
<tr>
<td>RESET (CONTROL)</td>
<td>02h</td>
<td>CBh</td>
<td>0: No mean 12(0Ch): Reset Control</td>
</tr>
<tr>
<td>SYSTEM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MODEL NAME</td>
<td>10h</td>
<td>10h</td>
<td>0 - 999(3E7h)(g) 0 - 65535(FFFFh)(kg) Read Only</td>
</tr>
<tr>
<td>CARBON SAVINGS</td>
<td>10h</td>
<td>10h</td>
<td>0 - 999(3E7h)(g) 0 - 65535(FFFFh)(kg) Read Only</td>
</tr>
<tr>
<td>CARBON USAGE</td>
<td>10h</td>
<td>26h</td>
<td>0 - 999(3E7h)(g) 0 - 65535(FFFFh)(kg) Read Only</td>
</tr>
<tr>
<td>SERIAL</td>
<td>10h</td>
<td>10h</td>
<td>0 - 999(3E7h)(g) 0 - 65535(FFFFh)(kg) Read Only</td>
</tr>
<tr>
<td>FACTORY RESET</td>
<td>02h</td>
<td>CBh</td>
<td>0: No mean 1: Factory Reset Momentary</td>
</tr>
<tr>
<td>Item</td>
<td>OP code page</td>
<td>OP code</td>
<td>Parameter</td>
</tr>
<tr>
<td>---------------------------</td>
<td>--------------</td>
<td>---------</td>
<td>-----------</td>
</tr>
<tr>
<td>MUTE</td>
<td>00h</td>
<td>8Dh</td>
<td>0: UNMUTE (Set only) 1: MUTE 2: UNMUTE</td>
</tr>
<tr>
<td>SCREEN MUTE</td>
<td>10h</td>
<td>B6h</td>
<td>0: No mean 1: SCREEN MUTE ON 2: SCREEN MUTE OFF</td>
</tr>
<tr>
<td>SOUND</td>
<td>02h</td>
<td>34h</td>
<td>0: No mean 1: Off 2: ON</td>
</tr>
<tr>
<td>STILL CAPTURE</td>
<td>02h</td>
<td>76h</td>
<td>0: OFF 1: CAPTURE</td>
</tr>
<tr>
<td>SIGNAL INFORMATION</td>
<td>02h</td>
<td>EAh</td>
<td>0: No mean 1: OFF 2: ON</td>
</tr>
</tbody>
</table>
7. Power control procedure

7.1 Power status read

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

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

**Header**
- SOH (01h): Start of Header
- '0' (30h): Reserved
- Monitor ID: Specify the Monitor ID from which you want to get status.
  - Ex.) If Monitor ID is '1', specify 'A'.
- '0' (30h): Message sender is the controller.
- 'A' (41h): Message Type is "Command".
- '0'-6' (30h, 36h): Message length is 6 bytes.

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

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

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

2) The monitor returns with the current power status.

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

**Header**
- SOH (01h): Start of Header
- '0' (30h): Reserved
- '0' (30h): Message receiver is the controller.
- Monitor ID: Indicate a replying Monitor ID.
  - Ex.) When this byte is set to 'A', the replying Monitor ID is '1'.
- 'B' (42h): Message Type is "Command reply".
- '1'-2' (31h, 32h): Message length is 18 bytes.

**Message**
- STX (02h): Start of Message
- '0'-2' (30h, 32h): Reserved data
- '0'-0' (30h, 30h): Result code
  - 00: No Error.
  - 01: Unsupported.
- 'D'-6' (44h, 36h): Display power mode code
- '0'-1' (30h, 30h): Parameter type code is "Set parameter".
- '0'-0'-0'-4' (30h, 30h, 30h, 34h): Power mode is 4 types.
- '0'-0'-0'-1' (30h, 30h, 30h, 31h): Current power mode
  - <Status>
    - 0001: ON
    - 0002: Stand-by (power save)
    - 0003: Suspend (power save)
    - 0004: OFF (same as IR power off)
- ETX (03h): End of Message
Check code
BCC: Block Check Code
Refer to the section 4.3 “Check code” for a BCC calculation.

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

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

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

Header
SOH (01h): Start of Header
'0' (30h): Reserved
Monitor ID: Specify the Monitor ID which you want to change a setting.
Ex.) If Monitor ID is '1', specify 'A'.
'0' (30h): Message sender is the controller.
'A' (41h): Message type is "Command".
'0'-C (30h, 43h): Message length is 12 bytes.

Message
STX (02h): Start of Message
'C'-2'-0'-3'-D'-6' (43h, 32h, 30h, 33h, 44h, 36h): power control command
'0'-0'-0'-1' (30h, 30h, 30h, 31h): Power mode
0001: ON
0002, 0003: Do not set.
0004: OFF (same as the power off by IR)

ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet

2) The monitor replies a data for confirmation.

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

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

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

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

MultiSync C431/ C501/ C551 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'.
'B' (42h): Message type is "Command"
'0'- 'A' (30h, 41h): Message length is 10 bytes.

Message
STX (02h): Start of Message
'C'-'0'- '0'= 'B' (43h, 30h, 30h, 42h): Asset read request command.
'0'- '0' (30h, 30h): Offset data from top of the Asset data.
At first set 00h: Read data from the top of Asset data area.
  Ex.) When Data(n) is 1234h, replying data is (31h 32h, 33h, 34h).
Secondly set 20h: Read data from the 32bytes offset point in the Asset data area.
  Maximum readout length is 32bytes at a time.
ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet

2) The monitor replies Asset data to the controller.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'- '0'= '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'= 'B' (43h, 31h, 30h, 42h): Asset read reply command
Data(0) - Data(N): Retuned Asset data
  Ex.) When Data(n) is 1234h, replying data is (31h 32h, 33h, 34h).
ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet
8.2 Asset Data write

This command is used in order to write Asset Data.

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-'0'-Monitor ID- 'A'-N-N</td>
<td>STX-'C'-0'-0'-E'-0'-0'-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 write command
- '0'-0'(30h, 30h): Offset address from top of Asset data.
  - 00h: Write data from top of the Asset data area.
- Data(0) -- Data(N): Asset data. The data must be ASCII characters strings.
- ETX (03h): End of Message

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

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

2) The monitor replies a data for confirmation.

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-0'-Monitor ID- 'B'-N-N</td>
<td>STX-'0'-0'-C'-0'-0'-E'-0'-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
- '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 32 bytes.

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

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

CR (0Dh): End of packet
9. Date & Time read and write

9.1 Date & Time Read

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

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

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

Header

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

Message

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

Check code

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

Delimiter

CR (0Dh): End of packet

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
</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>
</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
'DD'- 'WW'- 'HH'- 'MN'- 'DS': Date & Time data
YY: Year (offset 2000)
00-00 (30h, 30h): 2000
6-6 (36h, 36h): 2099 (99 = 63h)
MM: Month
0-11 (30h, 31h): January
1-12 (30h, 34h): December
DD: Day
0-1 (30h, 31h): 1
1-2 (31h, 32h): 30
'1'-'F' (31h, 46h): 31 (=1Fh)

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

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

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

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

ETX (03h): End of Message

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

Delimiter
CR (0Dh): End of packet
9.2 Date & Time Write

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

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID- '0'-A'-1'-2'</td>
<td>STX-'C'-2'-1'-2'- YY-MM-DD-WW-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".

Message

STX (02h): Start of Message
'C'-2'-1'-2' (43h, 32h, 31h, 32h): Date & Time write command

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-</td>
<td>STX-'C'-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'.
'1'-'6'(31h, 36h): Message type is "Command reply".

Message
STX (02h): Start of Message
'C'-ST-YY-MM-DD-WW-HH-MN-DS: Date & Time data
   YY: Year (offset 2000)
   MM: Month
   DD: Day
   WW: weekdays
   HH: Hours
   MN: Minutes
   DS: Daylight savings (Summer time)

   '0'-0'(30h, 30h): 0
   '1'-7'(31h, 37h): 23 (~17h)

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'-Monitor ID='0'-'A'-'0'-'8'</td>
<td>STX='C'-3'-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.
- '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'-3'-3'-D' (43h, 33h, 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'-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.
- '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

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'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)  
'0'-'3'(30h,33h): DVI  
'0'-'5'(30h,35h): VIDEO  
'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'-'7'(38h,37h): MP  
'8'-'8'(38h,38h): COMPUTE MODULE

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
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
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'-'A'-'2'-'2'</td>
<td>STX-'C'-'2'-'3'-'E'-PG-EVENT-HOUR-MIN-INPUT-WEEK-TYPE-PMODE-YEAR-MONTH-DAY-EXT1-EXT2-EXT3-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".
'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) |
| '0'-'3'(30h,33h): DVI |
| '0'-'5'(30h,35h): VIDEO |
| '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'-'7'(38h,37h): MP |
| '8'-'8'(38h,38h): COMPUTE MODULE |

| **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: 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

(53/104)
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'-'O'-Monitor ID- 'B'-'2'- '4'</td>
<td>STX- 'C'- '3'- '3'- 'E'- ST- PG- EVENT- HOUR- MIN- INPUT- WEEK- TYPE- PMODE- YEAR- MONTH- DAY- 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'- '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)

'0'- '3'(30h, 33h): DVI

'0'- '5'(30h, 35h): VIDEO

'0'- 'C'(30h, 43h): VGA(YPbPr)

'0'- 'D'(30h, 44h): OPTION

'0'- 'F'(30h, 46h): DisplayPort1

'0'- '0'(31h, 30h): DisplayPort2

'1'- '1'(31h, 31h): HDMI1

'1'- '2'(31h, 32h): HDMI2

'8'- '0'(38h, 37h): MP

'8'- '8'(38h, 38h): COMPUTE MODULE

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.
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: 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'-Monitor ID='0'-Monitor ID='A'</td>
<td>STX='C'-STX='2'-STX='3'-STX='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'-Monitor ID='0'-Monitor ID='0'-Monitor ID='C'</td>
<td>STX='C'-STX='3'-STX='3'-STX='F'-ST-PG-EN-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

**Header**

SOH (01h): Start of Header
'0' (30h): Reserved
'Monitor ID: Message receiver is the controller.
Monitor ID: Specify a replying Monitor ID.
Ex.) When this byte is set to 'A', the replying Monitor ID is '1'.
'0' (30h): Message receiver is the controller.
'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</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'-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</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, 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

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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>',</td>
<td>PG-TP-YEAR-MON-DAY-EMON-EDAY-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 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-</td>
<td>STX-‘C’-‘B’-‘1’-‘9’-‘0’-‘1’-ST-</td>
<td>BCC</td>
<td>CR</td>
</tr>
<tr>
<td>'B'-'0'-'C'</td>
<td>PG-TP-YEAR-MONTH-DAY-WEEK NO-</td>
<td>WEEK-EMON-EDAY-ETX</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, 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): 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
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'- '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'(31h, 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, 41h, 31h, 41h): Weekend reply command
'0'-1' (30h, 30h): write 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
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'-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
N-N: 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, 38h):78: Inverter power/Option slot2 power +24V 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
   '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-</td>
<td>STX-'C'-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-</td>
<td>STX-'C'-1'-6'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>
```

**Header**
- SOH (01h): Start of Header
- '0' (30h): Reserved
- '0' (30h): Message receiver is the controller.
- Monitor ID: Indicate a replying Monitor ID.
  - Ex.) When this byte is set to 'A', the replying Monitor ID is '1'.
- 'B' (42h): Message type is "Command reply".
- N-N: Message length
  - Note.) The maximum data length that can be returned from the monitor at a time is 32bytes.
  - Ex.) The byte data 20h is encoded as ASCII characters '2' and '0' (32h and 30h).

**Message**
- STX (02h): Start of Message
- 'C'-3'-1'-6' (41h, 33h, 31h, 36h): Serial No. reply command
- Data(0)-Data(1)---Data(n):Serial Number
  - 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 34h -> '3','1','3','2','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".
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- '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'-</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 33h
   Step3: Byte data represents the ASCII string data.
   Example:
   50h 34h 33h 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.

| Header Message Check Delimiter |
|------------------------------|-----------------|
| SOH-'0'-MonitorID-'0'-'A'- '1'- '0' | STX-'C'- '2'- '1'- 'D'- EN-P1-P2-P3-P4-ETX | BCC CR |

Header

SOH (01h): Start of Header

'0' (30h): Reserved

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

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

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

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

'1'- '0' (31h, 30h): Message length

Message

STX (02h): Start of Message

'C'- '2'- '1'- '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'-</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
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 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'-I-'0'-0-ETX</td>
<td>BCC 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'-I' (43h, 41h, 30h, 31h): Daylight Saving Command
'0'-0' (30h, 30h): Read
ETX (03h): End of Message

Check code

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

Delimiter

CR (0Dh): End of packet

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

<table>
<thead>
<tr>
<th>Header Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID- 'B'-2-'0'</td>
<td>STX-'C'-B-'0'-I-'0'-0-ST-BM-BD1-BD-BT1-BT2-ET1-ET2-TD-ETX</td>
<td>BCC 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'-I' (43h, 42h, 30h, 31h): Daylight Saving Setting reply command
'0'-0' (30h, 30h): Read
ST: Error Status
No Error: 00h (30h, 30h)
Error : 01h (30h, 31h)
BM: BEGIN MONTH
JANUARY - DECEMBER: 01h (30h, 31h) - 12h (31h, 32h)
BD: BEGIN DAY
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-</td>
<td>STX-'C'-A-'0'-1'-0'-1'-BM-BD1-BD2-</td>
<td>BCC</td>
<td>CR</td>
</tr>
<tr>
<td>'0'-A-'1'-E'</td>
<td>BT1-BT2-EM-ED1-ED2-ET1-ET2-TD-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".

'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)
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'-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 (0Dh): 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'-1'</td>
<td>STX-'C'-B'-0'-2'-ST-TY-MV- PP-BV2-BV3-BR1-BR2-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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

19.1 Input Name Read

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

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

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

Header

SOH (01h): Start of Header

'0' (30h): Reserved

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

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

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

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

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

Message

STX (02h): Start of Message

'C'- 'A'- '0'- '4' (43h, 41h, 30h, 34h): Input Name Command

'0'- '0' (30h, 30h): Read

ETX (03h): End of Message

Check code

BCC: Block Check Code

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-'0'- '0'-Monitor ID- 'B'-LN(H)-LN(L)</td>
<td>STX-'C'- 'B'- '0'- '4'- '0'- '0'- 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

'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

The byte data 20h is encoded as ASCII characters '2' and '0' (32h and 30h).

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

Step1: Input Name data is encoded as character code.

Example:

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

Step2: Decode pairs of ASCII characters to hexadecimal values.

Example:

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

(81/104)
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
19.2 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'-'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

   The byte data 20h is encoded as ASCII characters '2' and '0' (32h and 30h).

   Ex.) In the case of Input Name "VGA"

   Step1: Input Name data is handled as character code.

   Example:

   "VGA" -> 56h 47h 41h (ASCII)

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

   Example:

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

   Result: The following data is assigned to Data(n).

   35h 36h 34h 37h 34h 31h

ETX (03h): End of Message

**Check code**

BCC: Block Check Code

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

**Delimiter**

CR (0Dh): End of packet

2) The monitor replies a written in result.

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

**Header**

SOH (01h): Start of Header

'0' (30h): Reserved

Monitor ID: Indicate a replying Monitor ID.

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

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

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

**Message**

STX (02h): Start of Message

'C'-B-0'-4' (43h, 42h, 30h, 34h): Input name Command

'0'-1' (30h, 31h): Write
ST: Status
   00h (30h, 30h): No Error
   01h (30h, 31h): Error
   ETX (03h): End of Message

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

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

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

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID-'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'-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

(85/104)
21. Power Save Mode

21.1 Power Save Mode Read

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

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

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

Header

SOH (01h): Start of Header
'0' (30h): Reserved
Monitor ID: Specify the Monitor ID of which you want to change a setting.
Ex.) If Monitor ID is '1', specify 'A'.
'0' (30h): Message sender is the controller.
'A' (41h): Message type is "Command".
'0'-8' (30h,38h): Message length (8byte)

Message

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

Check code

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

Delimiter

CR (0Dh): End of packet

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

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

Header

SOH (01h): Start of Header
'0' (30h): Reserved
Monitor ID: Indicate a replying Monitor ID.
Ex.) When this byte is set to 'A', replying monitor's ID is '1'.
Monitor ID: Indicate a replying Monitor ID.

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
21.2 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'-'0'-Monitor ID-'0'-A-'0'-A</td>
<td>STX-'C'-A-'0'-B-'0'-1-MODE-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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

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

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

Delimiter
- CR (0Dh): End of packet

2) The monitor replies a written in result.

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

Header
- SOH (01h): Start of Header
- '0' (30h): Reserved
- '0' (30h): Message receiver is the controller.
- Monitor ID: Indicate a replying Monitor ID.
  - Ex.) When this byte is set to 'A', replying monitor's ID is '1'.
- 'B' (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
21.3 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-</td>
<td>STX-'C'-A-'0'-B-'0'-2'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
<tr>
<td>'0'-A-'0'-8'</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Header**

SOH (01h): Start of Header

'0' (30h): Reserved

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

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

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

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

'0'-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-</td>
<td>STX-'C'-B-'0'-B-'0'-2'-TIME-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
<tr>
<td>'0'-A'</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Header**

SOH (01h): Start of Header

'0' (30h): Reserved

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

Monitor ID: Indicate a replying Monitor ID.

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

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

'0'-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
21.4 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- 'A'- 'O'- '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
'O' (30h): Reserved
Monitor ID: Specify the Monitor ID of which you want to change a setting.
Ex.) If Monitor ID is '1', specify 'A'.
'O' (30h): Message sender is the controller.
'A' (41h): Message type is "Command".
'O'- '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'- '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'-Monitor ID- 'B'- 'O'- '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
'O' (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".
'O'- '8'(30h,38h): Message length (8byte)

**Message**

STX (02h): Start of Message
'C'- 'B'- '0'- 'B' (43h, 42h, 30h, 42h): Power Save Mode Reply
'O'- '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. Security Enable

22.1 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-</td>
<td>STX='C'-'A'-'0'-STX='0'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
<tr>
<td>'0'-Monitor ID-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'0'-Monitor ID-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'0'-Monitor ID-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'A'-Monitor ID-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Header

SOH (01h): Start of Header
'0' (30h): Reserved
Monitor ID: Specify the Monitor ID of which you want to change a setting.
Ex.) If Monitor ID is '1', specify 'A'.
'0' (30h): Message sender is the controller.
'A' (41h): Message type is "Command".
'0'-8' (30h, 38h): Message length (8byte)

Message

STX (02h): Start of Message
'C'-'A'-'0'-STX (41h, 43h, 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'-Monitor ID-</td>
<td>STX='C'-'B'-'0'-STX='0'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
<tr>
<td>'0'-Monitor ID-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'0'-Monitor ID-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'0'-Monitor ID-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'A'-Monitor ID-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Header

SOH (01h): Start of Header
'0' (30h): Reserved
'Monitor ID: Indicate a replying Monitor ID.
Ex.) When this byte is set to 'A', 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'-STX (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
22.2 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'- '3'- '2'- '3'- '3'- '3'- '3'- '3'- '3'- '4'
  Result: The following data is assigned to PWD1-PWD16.
  33h 33h 33h 31h 33h 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'-Monitor ID- 'B'- '0'- 'A'</td>
<td>STX- 'C'- 'B'- '0'- 'C'- '0'- '1'- ST- ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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

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

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

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

23.1 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-</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-</td>
<td>STX-'C'-3'-2'-A'-RC-0'-2'-</td>
<td>BCC</td>
<td>CR</td>
</tr>
<tr>
<td>'B'-LN(H)-LN(L)</td>
<td>IPV-MAC(0)-....-MAC(n)-ETX</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Header

- SOH (01h): Start of Header
- '0' (30h): Reserved
- '0' (30h): Message receiver is the controller.
- Monitor ID: Indicate a replying Monitor ID.
  - Ex.) When this byte is set to 'A', the replying Monitor ID is '1'.
- 'B' (42h): Message Type is "Command reply".
- LN(H)-LN(L): Message length (byte length), from STX to ETX

Message

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

24.1 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'-'0'-'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

'B' (42h): 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
24.2 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'-'0'-Monitor ID-'A'-'0'-'8'</td>
<td>STX-'C'-'A'-'1'-'F'-'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'-'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>
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</thead>
<tbody>
<tr>
<td>SOH-'0'- '0'-Monitor ID-'A'</td>
<td>STX-'C'-'B'-'1'-'F'-'0'-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'-'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.