External Control for LCD8205

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>History</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ver. 1.0</td>
<td>Dec. 9, 2008</td>
<td>The first edition.</td>
</tr>
</tbody>
</table>
1. Application

- This document defines the communications method for control of the LCD8205 monitor.

2. Connectors and Writing

Connector: D-Sub 9-pin
Cable: Cross (reversed) cable or null modem cable
(please refer to LCD 8205 User’s Manual)

3. Communication Parameter

<table>
<thead>
<tr>
<th>Item</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baud Rate</td>
<td>9600 bps</td>
</tr>
<tr>
<td>Data Bit</td>
<td>8 bit</td>
</tr>
<tr>
<td>Stop Bit</td>
<td>1 bit</td>
</tr>
<tr>
<td>Parity Bit</td>
<td>None</td>
</tr>
<tr>
<td>Stream Control</td>
<td>None</td>
</tr>
</tbody>
</table>

3.1. Communication timing

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

4.1. Basic Command List

4.1.1. VCP Command

<table>
<thead>
<tr>
<th>Command</th>
<th>Page</th>
<th>Communication Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Picture Mode</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>Brightness</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>Contrast</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>Tint</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>Sharpness</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>Color Temp (R/G/B)</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>Auto in progress</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>Volume</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>Balance</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>OSD Tone</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>BG Gray</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>Fan Control</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>Input</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>Mute</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>Cooling Fan Status</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>Read Out Temperature</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>Hours Running On Time</td>
<td>p.12-p.16</td>
<td></td>
</tr>
<tr>
<td>Display Device On Time</td>
<td>p.12-p.16</td>
<td></td>
</tr>
</tbody>
</table>

Basic (p.5)

4.1.2. Power Command

<table>
<thead>
<tr>
<th>Command</th>
<th>Page</th>
<th>Communication Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Mode</td>
<td>p.17</td>
<td></td>
</tr>
<tr>
<td>POWER On/Off</td>
<td>p.18</td>
<td>Basic (p.5)</td>
</tr>
</tbody>
</table>
### 4.2. Optional Command List

<table>
<thead>
<tr>
<th>Command</th>
<th>Page</th>
<th>Communication Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>LANGUAGE</td>
<td>p.24</td>
<td></td>
</tr>
<tr>
<td>CURRENTSOURCE</td>
<td>p.25</td>
<td></td>
</tr>
<tr>
<td>PC_PICTUREMODE</td>
<td>p.26</td>
<td></td>
</tr>
<tr>
<td>COLORTEMP</td>
<td>p.27</td>
<td></td>
</tr>
<tr>
<td>CONTRAST</td>
<td>p.28</td>
<td></td>
</tr>
<tr>
<td>BRIGHTNESS</td>
<td>p.29</td>
<td></td>
</tr>
<tr>
<td>SHARPNESS</td>
<td>p.30</td>
<td></td>
</tr>
<tr>
<td>RF_PICTUREMODE</td>
<td>p.31</td>
<td></td>
</tr>
<tr>
<td>RF_COLORTONE</td>
<td>p.32</td>
<td></td>
</tr>
<tr>
<td>RF_CONTRAST</td>
<td>p.33</td>
<td></td>
</tr>
<tr>
<td>RF_BRIGHTNESS</td>
<td>p.34</td>
<td></td>
</tr>
<tr>
<td>RF_COLOR</td>
<td>p.35</td>
<td></td>
</tr>
<tr>
<td>NTSC_TINT</td>
<td>p.36</td>
<td></td>
</tr>
<tr>
<td>RF_SHARPNESS</td>
<td>p.37</td>
<td></td>
</tr>
<tr>
<td>SCALEMODE</td>
<td>p.38</td>
<td></td>
</tr>
<tr>
<td>USERRED</td>
<td>p.39</td>
<td></td>
</tr>
<tr>
<td>USERGREEN</td>
<td>p.40</td>
<td></td>
</tr>
<tr>
<td>USERBLUE</td>
<td>p.41</td>
<td></td>
</tr>
<tr>
<td>MUTE</td>
<td>p.42</td>
<td></td>
</tr>
<tr>
<td>SOUNDSTD</td>
<td>p.43</td>
<td></td>
</tr>
<tr>
<td>AUTOVOLUME</td>
<td>p.44</td>
<td></td>
</tr>
<tr>
<td>VOLUME</td>
<td>p.45</td>
<td></td>
</tr>
<tr>
<td>BALANCE</td>
<td>p.46</td>
<td></td>
</tr>
<tr>
<td>Equalizer</td>
<td>p.47</td>
<td></td>
</tr>
<tr>
<td>ONHOUR</td>
<td>p.48</td>
<td></td>
</tr>
<tr>
<td>ONMINUTE</td>
<td>p.49</td>
<td></td>
</tr>
<tr>
<td>ONTIMEONOFF</td>
<td>p.50</td>
<td></td>
</tr>
<tr>
<td>ONTIMEVOL</td>
<td>p.51</td>
<td></td>
</tr>
<tr>
<td>OFFHOUR</td>
<td>p.52</td>
<td></td>
</tr>
<tr>
<td>OFFMINUTE</td>
<td>p.53</td>
<td></td>
</tr>
<tr>
<td>OFFTIMEONOFF</td>
<td>p.54</td>
<td></td>
</tr>
<tr>
<td>HALFTONE</td>
<td>p.55</td>
<td></td>
</tr>
<tr>
<td>BLUESCREEN</td>
<td>p.56</td>
<td></td>
</tr>
<tr>
<td>PIXELSHIFT_EN</td>
<td>p.57</td>
<td></td>
</tr>
<tr>
<td>WIPER_EN</td>
<td>p.58</td>
<td></td>
</tr>
<tr>
<td>BGGRAY</td>
<td>p.59</td>
<td></td>
</tr>
<tr>
<td>POWER(read only)</td>
<td>p.60</td>
<td></td>
</tr>
<tr>
<td>CURHOUR</td>
<td>p.61</td>
<td></td>
</tr>
<tr>
<td>CURMINUTE</td>
<td>p.62</td>
<td></td>
</tr>
<tr>
<td>MAX_ILLUMINANCE</td>
<td>p.64</td>
<td></td>
</tr>
<tr>
<td>MIN_ILLUMINANCE</td>
<td>p.65</td>
<td></td>
</tr>
<tr>
<td>AUTO_DIM</td>
<td>p.66</td>
<td></td>
</tr>
<tr>
<td>CURTEMP_MAIN</td>
<td>p.68</td>
<td></td>
</tr>
<tr>
<td>CURTEMP_AUX</td>
<td>p.68</td>
<td></td>
</tr>
<tr>
<td>TEMP_THRESHOLD</td>
<td>p.69</td>
<td></td>
</tr>
<tr>
<td>TEMP_HYSTERESIS</td>
<td>p.70</td>
<td></td>
</tr>
<tr>
<td>FAN_CONTROL</td>
<td>p.71</td>
<td></td>
</tr>
<tr>
<td>SETX</td>
<td>p.74</td>
<td></td>
</tr>
<tr>
<td>SETY</td>
<td>p.75</td>
<td></td>
</tr>
<tr>
<td>SETXMAX</td>
<td>p.76</td>
<td></td>
</tr>
<tr>
<td>SETYMAX</td>
<td>p.77</td>
<td></td>
</tr>
<tr>
<td>SETXGAP</td>
<td>p.78</td>
<td></td>
</tr>
<tr>
<td>SETYGAP</td>
<td>p.79</td>
<td></td>
</tr>
</tbody>
</table>

Optional (p.20)
5. Basic Commands

5.1. Communication Format (for Basic Commands)

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

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

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.

5.1.1. Header block format (fixed length)

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH</td>
<td>Reserved '0'</td>
<td>Destination</td>
<td>Source</td>
</tr>
<tr>
<td>1\textsuperscript{st}</td>
<td>2\textsuperscript{nd}</td>
<td>3\textsuperscript{rd}</td>
<td>4\textsuperscript{th}</td>
</tr>
<tr>
<td></td>
<td>Reserved '0'</td>
<td>Destination</td>
<td>Source</td>
</tr>
<tr>
<td></td>
<td>2\textsuperscript{nd}</td>
<td>3\textsuperscript{rd}</td>
<td>4\textsuperscript{th}</td>
</tr>
</tbody>
</table>

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

3\textsuperscript{rd} byte) Destination: Destination equipment ID. (Receiver)
Specify a commands receiver’s address.
This value must match the “Monitor ID No.” set in the OSD.
“Monitor ID” to “Destination Address” conversion table is as follows,

<table>
<thead>
<tr>
<th>Monitor ID</th>
<th>Destination Address (ASCII)</th>
<th>Monitor ID</th>
<th>Destination Address (ASCII)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>'A' (41h)</td>
<td>14</td>
<td>'N' (4Eh)</td>
</tr>
<tr>
<td>2</td>
<td>'B' (42h)</td>
<td>15</td>
<td>'O' (4Fh)</td>
</tr>
<tr>
<td>3</td>
<td>'C' (43h)</td>
<td>16</td>
<td>'P' (50h)</td>
</tr>
<tr>
<td>4</td>
<td>'D' (44h)</td>
<td>17</td>
<td>'Q' (51h)</td>
</tr>
<tr>
<td>5</td>
<td>'E' (45h)</td>
<td>18</td>
<td>'R' (52h)</td>
</tr>
<tr>
<td>6</td>
<td>'F' (46h)</td>
<td>19</td>
<td>'S' (53h)</td>
</tr>
<tr>
<td>7</td>
<td>'G' (47h)</td>
<td>20</td>
<td>'T' (54h)</td>
</tr>
<tr>
<td>8</td>
<td>'H' (48h)</td>
<td>21</td>
<td>'U' (55h)</td>
</tr>
<tr>
<td>9</td>
<td>'I' (49h)</td>
<td>22</td>
<td>'V' (56h)</td>
</tr>
<tr>
<td>10</td>
<td>'J' (4Ah)</td>
<td>23</td>
<td>'W' (57h)</td>
</tr>
<tr>
<td>11</td>
<td>'K' (4Bh)</td>
<td>24</td>
<td>'X' (58h)</td>
</tr>
<tr>
<td>12</td>
<td>'L' (4Ch)</td>
<td>25</td>
<td>'Y' (59h)</td>
</tr>
<tr>
<td>13</td>
<td>'M' (4Dh)</td>
<td>26</td>
<td>'Z' (5Ah)</td>
</tr>
<tr>
<td>ALL</td>
<td>'*' (2Ah)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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).

5th byte) Message Type: (Case sensitive.)
Refer to section 5.1.2. “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).

5.1.2. Message block format

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

Refer to the section 5.2. “Message type” 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 5.3.1. “VCP (OP code page/OP code) List”.
"Message type" 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 5.2.1. “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 type" of the "Get parameter reply" is as follows,

<table>
<thead>
<tr>
<th>STX</th>
<th>Result OP code page</th>
<th>OP code</th>
<th>Type</th>
<th>Max value</th>
<th>Current Value</th>
<th>ETX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hi</td>
<td>Lo</td>
<td>Hi</td>
<td>Lo</td>
<td>Hi</td>
<td>Lo</td>
<td>MSB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LSB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MSB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LSB</td>
</tr>
</tbody>
</table>
<< Refer to section 5.2.2. "Get parameter reply" for more details. >>

3) Set parameter
The controller sends this message to change a setting of the monitor.
"Message type" 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>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LSB</td>
</tr>
</tbody>
</table>
<< Refer to section 5.2.3. "Set parameter" for more details.>>

4) Set Parameter reply
The monitor replies with this message for a confirmation of the "Set parameter message".
"Message type" of the "Set parameter reply" is as follows,

<table>
<thead>
<tr>
<th>STX</th>
<th>Result OP code page</th>
<th>OP code</th>
<th>Type</th>
<th>Max value</th>
<th>Requested setting Value</th>
<th>ETX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hi</td>
<td>Lo</td>
<td>Hi</td>
<td>Lo</td>
<td>Hi</td>
<td>Lo</td>
<td>MSB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LSB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MSB</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LSB</td>
</tr>
</tbody>
</table>
<< Refer to section 5.2.4. "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 "power control", etc. Refer to section 5.4. "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 5.4. "Commands message" for more details.
5.1.3. Check code

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

\[
\text{SOH} \quad D_0 \\
\text{Reserved} \quad D_1 \\
\text{Destination} \quad D_2 \\
\text{Source} \quad D_3 \\
\text{Type} \quad D_4 \\
\text{Length} \quad D_5 \\
\text{STX} \quad D_6 \\
\text{Data} \quad D_7 \\
\vert \\
\vdots \\
\text{ETX} \quad D_n \\
\text{Check code} \quad D_{n+1}
\]

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

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</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH</td>
<td>Reserved</td>
<td>Destination</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) \[D_{17} = D_1 \oplus D_2 \oplus D_3 \oplus \ldots \oplus D_{14} \oplus D_{15} \oplus D_{16} \]

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

\[= 77h\]

5.1.4. Delimiter

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

5.2.1. Get current Parameter from a monitor.

Send this message when you want to get the status of a monitor.
For the status that you want to get, specify the "OP code page" the "OP code", refer to 5.3.1. "VCP (OP code page/OP code) List".

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 5.3.1. "VCP (OP code page/OP code) List" 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 5.3.1. "VCP (OP code page/OP code) List".

4th-5th bytes) OP code: Operation code
Refer to 5.3.1. "VCP (OP code page/OP code) List" 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 5.3.1. "VCP (OP code page/OP code) List".

6th byte) ETX: End of Message
ASCII ETX (03h)

5.2.2. "Get parameter" reply

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

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

2nd-3rd bytes) Result code.
These bytes indicate a result of the requested commands as follows,
00h: No Error.
01h: Unsupported operation with this monitor or unsupported operation under current condition.
This result code from the monitor is encoded to ASCII characters.
Ex.) The byte data 01h is encoded to ASCII character '0' and '1' (30h and 31h).

4th-5th bytes) OP code page: Operation code page.
These bytes indicate a replying item's OP code page.
This returned value from the monitor is encoded to ASCII characters.
Ex.) The byte data 02h is encoded to ASCII character '0' and '2' (30h and 32h).
Refer to 5.3.1. "VCP (OP code page/OP code) List".

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 5.3.1. "VCP (OP code page/OP code) List".
Ex.) The byte data 1Ah is encoded to ASCII character '1' and 'A' (31h and 41h).
8th -9th bytes) Type: Operation type code
00h: Set parameter
01h: Momentary
Like the Auto Setup function which automatically changes the parameter.
This returned value from the monitor is encoded to ASCII characters.
Ex.) The byte data 01h is encoded to ASCII character '0' and '1' (30h and 31h).

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

14th -17th bytes) Current Value: (16bits)
This returned value from the monitor is encoded to ASCII characters.
Ex.) '0','1','2' and '3' means 0123h (291)

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

5.2.3. Set parameter

<table>
<thead>
<tr>
<th>STX</th>
<th>Hi</th>
<th>Lo</th>
<th>Hi</th>
<th>Lo</th>
<th>Hi</th>
<th>Lo</th>
<th>ETX</th>
</tr>
</thead>
</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 5.3.1. “VCP (OP code page/OP code) List”.

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 5.3.1. “VCP (OP code page/OP code) List”.

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)

5.2.4. "Set parameter" reply

<table>
<thead>
<tr>
<th>STX</th>
<th>Hi</th>
<th>Lo</th>
<th>Hi</th>
<th>Lo</th>
<th>Hi</th>
<th>Lo</th>
<th>ETX</th>
</tr>
</thead>
</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 byte) 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 byte) 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 5.3.1. “VCP (OP code page/OP code) List”.

6th-7th byte) 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 5.3.1. “VCP (OP code page/OP code) List”.

8th-9th byte) 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 byte) 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 byte) 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)
### 5.3. VCP Command

#### 5.3.1. VCP (OP code page/OP code) List

<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>Picture Mode</td>
<td>02h</td>
<td>1Ah</td>
<td>0: User</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1: Dynamic</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2: Standard</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3: Movie</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4: Mild</td>
<td></td>
</tr>
<tr>
<td>Brightness</td>
<td>00h</td>
<td>10h</td>
<td>0: dark</td>
<td>User only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100: bright</td>
<td></td>
</tr>
<tr>
<td>Contrast</td>
<td>00h</td>
<td>12h</td>
<td>0: low</td>
<td>User only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100: high</td>
<td></td>
</tr>
<tr>
<td>Color</td>
<td>02h</td>
<td>1Fh</td>
<td>0: pale</td>
<td>User only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100: deep</td>
<td></td>
</tr>
<tr>
<td>Tint</td>
<td>00h</td>
<td>90h</td>
<td>0:</td>
<td>User only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100:</td>
<td></td>
</tr>
<tr>
<td>Sharpness</td>
<td>00h</td>
<td>8Ch/87h</td>
<td>0: dull</td>
<td>User only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100: sharp</td>
<td></td>
</tr>
<tr>
<td>Color Temp</td>
<td>NA</td>
<td>NA</td>
<td>User</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Normal</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cool1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cool2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Warm1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Warm2</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>00h</td>
<td>16h</td>
<td>0:</td>
<td>User only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100:</td>
<td></td>
</tr>
<tr>
<td>G</td>
<td>00h</td>
<td>18h</td>
<td>0:</td>
<td>User only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100:</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>00h</td>
<td>1Ah</td>
<td>0:</td>
<td>User only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100:</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>02h</td>
<td>70h</td>
<td>1: Normal</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2: Full</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3: Wide</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4: Zoom</td>
<td></td>
</tr>
<tr>
<td>Auto in progress</td>
<td>00h</td>
<td>1Eh</td>
<td>1: Execute</td>
<td>Only PC mode</td>
</tr>
<tr>
<td>Volume</td>
<td>00h</td>
<td>62h</td>
<td>0: whisper</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100: loud</td>
<td></td>
</tr>
<tr>
<td>Balance</td>
<td>00h</td>
<td>93h</td>
<td>0: Left</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>50: (Center)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100: Right</td>
<td></td>
</tr>
<tr>
<td>Language</td>
<td>00h</td>
<td>68h</td>
<td>0: NOP</td>
<td>OSD Language</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1: English</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2: German</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3: French</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4: Spanish</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12: Portuguese</td>
<td></td>
</tr>
<tr>
<td><strong>OSD Tone</strong></td>
<td>02h</td>
<td>B8h</td>
<td>0: None 1: Off (Opaque) 2: ON</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>-----</td>
<td>-----</td>
<td>-----------------------------</td>
<td></td>
</tr>
<tr>
<td><strong>BG Gray</strong></td>
<td>02h</td>
<td>DFh</td>
<td>0: black / Max: white</td>
<td></td>
</tr>
<tr>
<td><strong>Fan Control</strong></td>
<td>02h</td>
<td>7Dh</td>
<td>0: None 1: Auto 2: Always On</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fan control not used the 'off' command.</td>
<td></td>
</tr>
<tr>
<td><strong>Input</strong></td>
<td>00h</td>
<td>60h</td>
<td>0: NOP 1: PC 3: DVI 4: HDMI 5: AV1 6: AVZ 7: S-VIDEO 12: Component</td>
<td></td>
</tr>
<tr>
<td><strong>Mute</strong></td>
<td>00h</td>
<td>8Dh</td>
<td>0,2: UNMUTE 1: MUTE</td>
<td></td>
</tr>
<tr>
<td><strong>Cooling Fan Status</strong></td>
<td>02h</td>
<td>7Bh</td>
<td>0: off 1: on</td>
<td>Get only</td>
</tr>
<tr>
<td><strong>Read Out Temperature</strong></td>
<td>02h</td>
<td>79h</td>
<td>Get only</td>
<td>Get current temperature of main sensor. (only get)</td>
</tr>
<tr>
<td><strong>Hours Running On Time</strong></td>
<td>00h</td>
<td>FAh</td>
<td>Only read</td>
<td>1 count/30 minute</td>
</tr>
<tr>
<td><strong>Display Device On Time</strong></td>
<td>00h</td>
<td>FF</td>
<td>Only read</td>
<td>1 count/30 minute</td>
</tr>
</tbody>
</table>
5.3.2. How to change the “Brightness” setting.

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

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 CR</td>
<td></td>
</tr>
</tbody>
</table>

Header

SOH (01h): Start Of Header

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 5.1.3. "Check code" for a BCC calculation.

Delimiter

CR (0Dh): End of packet

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

<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'-0'-0'-1'-0'-0'-0'-0'-0'-0'-0'-0'-0'-6'-4'-0'-3'-2'-ETX</td>
<td>BCC CR</td>
<td></td>
</tr>
</tbody>
</table>

Header

SOH (01h): Start Of Header

'0' (30h): Reserved

Monitor ID: Indicate a replying Monitor ID.

Ex.) When this byte is set to 'A', the replying Monitor ID is '1'.

'D' (44h): Message Type is "Get parameter reply".

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

Message

STX (02h): Start of Message

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

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

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

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

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

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

ETX (03h): End of Message

Check code

BCC: Block Check Code

Refer to the section 5.1.3. "Check code" for a BCC calculation.

Delimiter

CR (0Dh): End of packet
Step 3. The controller requests the monitor to change the Brightness 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'.
- '0' (30h): Message sender is the controller.
- 'E' (45h): Message Type is "Set parameter command".
- '0'-'A' (30h, 41h): Message length is 10 bytes.

**Message**
- STX (02h): Start of Message
- '0'-='0' (30h, 30h): Operation code page number is 0.
- '1'-='0' (31h, 30h): Operation code is 10h (in the page 0).
- '0'-='5'-='0' (30h, 30h, 35h, 30h): Set Brightness setting 80(0050h).
- ETX (03h): End of Message

**Check code**
- BCC: Block Check Code
  - Refer to the section 5.1.3. "Check code" for a BCC calculation.

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

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

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

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

**Message**
- STX (02h): Start of Message
- '0'-='0' (30h, 30h): Result code. No error.
- '0'-='0' (30h, 30h): Operation code page number is 0.
- '1'-='0' (31h, 30h): Operation code is 10h (in the page 0).
- '0'-='0' (30h, 30h): This operation is "Set parameter" type.
- '0'-='0'-='6'-='4' (30h, 30h, 36h, 34h): Brightness max value is 100(0064h).
- '0'-='0'-='5'-='0' (30h, 30h, 35h, 30h): Received a Brightness setting was 80(0050h).
- ETX (03h): End of Message

**Check code**
- BCC: Block Check Code
  - Refer to the section 5.1.3. "Check code" for a BCC calculation.

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

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

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

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-Monitor ID='0'-='A'-='0'-='4'</td>
<td>STX='0'-='C'-='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 store the setting.
   Ex.) If Monitor ID is '1', specify 'A'.

'0' (30h): Message sender is the controller.
'A' (41h): Message type is "Command".
'0'-'4' (30h, 34h): Message length is 4 bytes.

Message
STX (02h): Start of Message
'0'-'C' (30h, 43h): Command code is 0Ch as "Save current settings".
ETX (03h): End of Message

Check code
BCC: Block Check Code
   Refer to the section 5.1.3. "Check code" for a BCC calculation.

Delimiter
CR (0Dh): End of packet
5.4. Commands message

5.4.1. Power Command

| Power control procedure | Power Mode (Power status read) | 01h | D6h | 1: ON 2: Standby 4: OFF | Get only | Power control (Power control) | C2h, 03h | D6h | 1: ON 4: OFF | Set only |

5.4.2. Power status read

<table>
<thead>
<tr>
<th>Header</th>
<th>Message</th>
<th>Check code</th>
<th>Delimiter</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOH-'0'-'0'-Monitor ID-'B'-'1'-2</td>
<td>STX-'0'-'2'-0-'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 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 5.1.3. "Check code" for a BCC calculation.

Delimiter
- CR (0Dh): End of packet

<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'-6'-0'-0'-0'-4'-0'-0'-0'-1'-ETX</td>
<td>BCC</td>
<td>CR</td>
</tr>
</tbody>
</table>

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

Message
- STX (02h): Start of Message
- '0'-2'-0'-0'-D'-6'-0'-0'-0'-0'-0'-0'-0'-1'-ETX | BCC | CR |
'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 5.1.3. "Check code" for a BCC calculation.

Delimiter
CR (0Dh): End of packet

5.4.3. Power control

<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'-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 5.1.3. "Check code" for a BCC calculation.

Delimiter
CR (0Dh): End of packet

Header
SOH (01h): Start Of Header
'0' (30h): Reserved
Monitor ID: Specify the Monitor ID which you want to change a setting.
  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.

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 5.1.3. “Check code” for a BCC calculation.

Delimiter

CR (0Dh): End of packet
6. Optional Commands

6.1. Communication Format (for Optional Commands)

6.1.1. Virtual Remote Control

Command Format
0xF0 : F = Command Start Sending, X = No of Byte to Send
Current Example (0xF4) : Start Sending 4 Bytes of Packet Data

6.1.2. Setting Parameters to Juno

Command Format
0xF0 : F = Command Send Start, X = No of Byte to Send
Current Example (0xF5) : Start Send 5 Byte of Packet Data

6.1.3. Read Parameters from Juno

Command Format
0xF0 : F = Command Start Sending, X = No of Byte to Send
Example
0xF4 : Start Sending 4 Bytes of Packet Data
0xF1 : Start Sending 1 Byte of Packet Data
### 6.2. Control Command Packet

#### 6.2.1. System Parameter Direct Settings/Read Packet

<table>
<thead>
<tr>
<th>CMD Command</th>
<th>Data1 Target</th>
<th>Data2 ID</th>
<th>Data3 CMD</th>
<th>Data4 Param</th>
<th>Data5 Value</th>
<th>Description</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x05 (Start Set) 0x04 (Start Get)</td>
<td>0x88(Set) 0x89(Get)</td>
<td>0x00</td>
<td>0xFE</td>
<td>0x00</td>
<td>0x00~0xFF (By Min-Max)</td>
<td>LANGUAGE</td>
<td>0 5</td>
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<tr>
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<td>Not Send in Get Mode</td>
<td>CURRENTSOURCE</td>
<td>0 10</td>
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<td>PC_PICTUREMODE</td>
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<td>COLORTEMP</td>
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<td>RF_CONTRAST</td>
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<td>Description</td>
<td>Value 1</td>
<td>Value 2</td>
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<td>Min Illuminance</td>
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<td>0x38</td>
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<td>Temp Hysteresis</td>
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<td>0x3C</td>
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<td>2</td>
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<td>0x3E</td>
<td>Set Y</td>
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<td>2</td>
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<td>0x3F</td>
<td>Set Xmax</td>
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<td>3</td>
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<td>0x40</td>
<td>Set Ymax</td>
<td>1</td>
<td>3</td>
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<td></td>
</tr>
<tr>
<td>0x41</td>
<td>Set X gap</td>
<td>0</td>
<td>200</td>
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<tr>
<td>0x42</td>
<td>Set Y gap</td>
<td>0</td>
<td>200</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notice

(1) CURSOURCE Setting Value
AV1:0, AV2:1, AV3:2, COMP1:6, DVI:9, DSUB:10

(2) MAX_ILLUMINANCE Settings
Setting Value = Ambient Level (by LUX) / 100
Ex) Desired Ambient is 10000 Lux, Setting is 100 (= 10000 / 100)

(3) MIN_ILLUMINANCE Settings
Setting Value = Ambient Level (by LUX) / 10
Ex) Desired Ambient is 200 Lux, Setting is 20 (= 200 / 10)

(4) TEMP_THRESHOLD Settings
Setting Value = Desired temperature (by Celsius) x 2 + 60
Ex) Desired temperature is 60 °C, Setting is 180 (= 60 x 2 + 60)

(5) TEMP_HYSTERESIS Settings
Setting Value = Desired Hysteresis (by Celsius) x 2
Ex) Desired Hysteresis is 2 °C, Setting is 4 (= 2 x 2)
6.3. Control Examples at Master PC

6.3.1. Set Input Source to RGB Input

<table>
<thead>
<tr>
<th>CMD</th>
<th>Packet (5Bytes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x05</td>
<td>0x88</td>
</tr>
<tr>
<td>Start Send</td>
<td>0</td>
</tr>
<tr>
<td>Target</td>
<td>0x0F</td>
</tr>
<tr>
<td>ID</td>
<td>0x01</td>
</tr>
<tr>
<td>CURRENTSOURCE</td>
<td>0x01</td>
</tr>
<tr>
<td>ID</td>
<td>0x01</td>
</tr>
<tr>
<td>RGB(-10)</td>
<td></td>
</tr>
</tbody>
</table>

6.3.2. Read Power State

<table>
<thead>
<tr>
<th>PC</th>
<th>CMD</th>
<th>Packet(4Bytes)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0x05</td>
<td>Start Send</td>
</tr>
<tr>
<td></td>
<td>0x88</td>
<td>Target</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>ID</td>
</tr>
<tr>
<td></td>
<td>0x0F</td>
<td>Set Param CMD</td>
</tr>
<tr>
<td></td>
<td>0x0F</td>
<td>POWER_STS</td>
</tr>
</tbody>
</table>

JUNO
(Response)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Packet(1Byte)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x05</td>
<td>Start Send</td>
</tr>
<tr>
<td></td>
<td>1/(on) or 0/(off) Value</td>
</tr>
</tbody>
</table>
7. Typical procedure example

The following is a sample of procedures to control the monitor, these are examples of “Set parameter”, “Get parameter”.

7.1. “Language” Control procedure

7.1.1. Language Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Target</td>
<td>Monitor ID</td>
<td>CMD</td>
<td>Parameter</td>
<td>Value</td>
</tr>
<tr>
<td>(0xF5)</td>
<td>(0x88)</td>
<td>(0x00)</td>
<td>(0xFE)</td>
<td>(0x00)</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter (0x00) : ‘Language’ parameter
Value : Data value
0 : English
1 : Spanish
2 : Portugues
3 : German
4 : French

7.1.2. Language state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Target</td>
<td>Monitor ID</td>
<td>CMD</td>
<td>Parameter</td>
</tr>
<tr>
<td>(0xF4)</td>
<td>(0x89)</td>
<td>(0x00)</td>
<td>(0xFE)</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter (0x00) : ‘Language’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value</td>
</tr>
<tr>
<td>(0xF1)</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current Language getting value
0 : English
1 : Spanish
2 : Portugues
3 : German
4 : French
## 7.2. “CURRENTSOURCE” Control procedure

### 7.2.1. Current Source Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>0xF5</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x01)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit  
Target (0x88) : Set bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD (0xFE) : command data  
Parameter(0x01) : ‘Current Source’ parameter  
Value : Data value  
0 : AV1  
1 : AV2  
2 : AV3  
6 : COMPONENT  
9 : DVI  
10 : DSUB

### 7.2.2. Current Source state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0xF4</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x01)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit  
Target (0x89) : Get bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD(0xFE) : command data  
Parameter (0x01) : ‘Current Source’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>0xF1</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit  
Value : Current Source getting value  
0 : AV1  
1 : AV2  
2 : AV3  
6 : COMPONENT  
9 : DVI  
10 : DSUB
7.3. “PC_PICTUREMODE” Control procedure

7.3.1. Picture Control (PC, Digital video mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x02)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x02) : 'PC_PICTUREMODE' parameter
Value : Data value
  0 : User
  1 : dynamic
  2 : standard
  3 : movie
  4 : mild

7.3.2. Current Picture state read (PC, Digital video mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x02)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x02) : 'PC_PICTUREMODE' parameter

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current PC mode PICTURE getting value
  0 : User
  1 : dynamic
  2 : standard
  3 : movie
  4 : mild
7.4. “COLORTEMP” Control procedure

7.4.1. Color temperature Control (PC, Digital video mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x03)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter (0x03) : 'COLORTEMP' parameter
Value : Data value
0 : User
1 : cool2
2 : cool1
3 : normal
4 : warm1
5 : warm2

7.4.2. Current Color temperature state read (PC, Digital video mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter (0x03) : 'COLORTEMP' parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current color temperature getting value
0 : User
1 : cool2
2 : cool1
3 : normal
4 : warm1
5 : warm2
7.5. “CONTRAST” Control procedure

7.5.1. Contrast Control (PC, Digital video mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x04)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x04) : ‘CONTRAST ’ parameter
Value: 0 ~ 100 (range)

7.5.2. Current Contrast state read (PC, Digital video mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x04)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x04) : ‘CONTRAST ’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current CONTRAST getting value
0 ~ 100 (range)
7.6. “BRIGHTNESS” Control procedure

7.6.1. Brightness Control (PC, Digital video mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target</td>
<td>Monitor ID</td>
<td>CMD</td>
<td>Parameter</td>
<td>Value</td>
</tr>
<tr>
<td>(0xF5)</td>
<td>(0x88)</td>
<td>(0x00)</td>
<td>(0xFE)</td>
<td>(0x05)</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x05) : ‘ BRIGHTNESS ’ parameter
Value: Data value
  0 : User
  1 : dynamic
  2 : standard
  3 : movie
  4 : mild

7.6.2. Current Brightness state read(PC, Digital video mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target</td>
<td>Monitor ID</td>
<td>CMD</td>
<td>Parameter</td>
</tr>
<tr>
<td>(0xF4)</td>
<td>(0x89)</td>
<td>(0x00)</td>
<td>(0xFE)</td>
<td>(0x05)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x05) : ‘ BRIGHTNESS ’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Value</td>
</tr>
<tr>
<td>(0xF1)</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current BRIGHTNESS getting value
  0 : User
  1 : dynamic
  2 : standard
  3 : movie
  4 : mild
7.7. “SHARPNESS” Control procedure

7.7.1. Sharpness Control (PC, Digital video mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x06)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x06) : ‘SHARPNESS’ parameter
Value: 0 ~ 100 / step 5 (range)

7.7.2. Current Sharpness state read (PC, Digital video mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x06)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x06) : ‘SHARPNESS’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current SHARPNESS getting value
0 ~ 100 / step 5 (range)
7.8. “RF_PICTUREMODE” Control procedure
7.8.1. Picture Control (AV, S-video, Component mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x07)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x07) : ‘PICTUREMODE ’ parameter
Value : Data value
0 : User
1 : dynamic
2 : standard
3 : movie
4 : mild

7.8.2. Current Picture state read (AV, S-video, Component mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x07) : ‘RF_PICTURE ’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current Picture getting value
0 : User
1 : dynamic
2 : standard
3 : movie
4 : mild
7.9. “RF_COLOR TONE” Control procedure
7.9.1. Color temperature Control (AV, S-video, Component mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x08)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x08) : 'RF_COLOR TONE' parameter
Value : Data value
1 : cool2
2 : cool1
3 : normal
4 : warm1
5 : warm2

7.9.2. Current RF_COLOR TONE state read (AV, S-video, Component mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x08)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x08) : 'RF_COLOR TONE' parameter

<table>
<thead>
<tr>
<th>CMD</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current RF_COLOR TONE getting value
1 : cool2
2 : cool1
3 : normal
4 : warm1
5 : warm2
7.10. “RF_CONTRAST” Control procedure

7.10.1. Contrast Control (AV, S-video, Component mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x09)</td>
<td>Value</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x09) : ‘RF_CONTRAST’ parameter
Value: 0 ~ 100 (range)

7.10.2. Current Contrast state read(AV, S-video, Component mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x09)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x09) : ‘RF_CONTRAST’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current RF_CONTRAST getting value
0 ~ 100 (range)
7.11. “RF_BRIGHTNESS” Control procedure

7.11.1. Brightness Control (AV, S-video, Component mode)

<table>
<thead>
<tr>
<th></th>
<th>CMD (0xF5)</th>
<th>Data1 Target (0x88)</th>
<th>Data2 Monitor ID (0x00)</th>
<th>Data3 CMD (0xFE)</th>
<th>Data4 Parameter (0x0A)</th>
<th>Data5 Value</th>
</tr>
</thead>
</table>

- Command (0xF5) : Start bit
- Target (0x88) : Set bit
- Monitor ID (0x00) : Default value -> 0x00
- CMD (0xFE) : command data
- Parameter (0x0A) : ‘RF_BRIGHTNESS’ parameter
- Value: 0 ~ 100 (range)

7.11.2. Current Brightness state read (AV, S-video, Component mode)

<table>
<thead>
<tr>
<th></th>
<th>CMD (0xF4)</th>
<th>Data1 Target (0x89)</th>
<th>Data2 Monitor ID (0x00)</th>
<th>Data3 CMD (0xFE)</th>
<th>Data4 Parameter (0x0A)</th>
</tr>
</thead>
</table>

- Command (0xF4) : Start bit
- Target (0x89) : Get bit
- Monitor ID (0x00) : Default value -> 0x00
- CMD (0xFE) : command data
- Parameter (0x0A) : ‘RF_BRIGHTNESS’ parameter

<table>
<thead>
<tr>
<th></th>
<th>CMD (0xF1)</th>
<th>Data1 Value</th>
</tr>
</thead>
</table>

- Command (0xF1) : Start send bit
- Value: Current RF_BRIGHTNESS getting value
  - 0 ~ 100 (range)
### 7.12. “RF_COLOR” Control procedure

#### 7.12.1. Color Control (AV, S-video, Component mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x0B)</td>
<td>Value</td>
</tr>
</tbody>
</table>

- **Command (0xF5)**: Start bit
- **Target (0x88)**: Set bit
- **Monitor ID (0x00)**: Default value -> 0x00
- **CMD (0xFE)**: command data
- **Parameter (0x0B)**: ‘RF_COLOR’ parameter
- **Value**: 0 ~ 100 (range)

#### 7.12.2. Current Color state read (AV, S-video, Component mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x0B)</td>
</tr>
</tbody>
</table>

- **Command (0xF4)**: Start bit
- **Target (0x89)**: Get bit
- **Monitor ID (0x00)**: Default value -> 0x00
- **CMD (0xFE)**: command data
- **Parameter (0x0B)**: ‘RF_COLOR’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

- **Command (0xF1)**: Start send bit
- **Value**: Current RF_COLOR getting value
  - 0 ~ 100 (range)
### 7.13. “NTSC_TINT” Control procedure
#### 7.13.1. TINT Control (AV, S-video, Component mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x0C)</td>
<td>Value</td>
</tr>
</tbody>
</table>

- Command (0xF5) : Start bit
- Target (0x88) : Set bit
- Monitor ID (0x00) : Default value -> 0x00
- CMD (0xFE) : command data
- Parameter(0x0C) : ‘NTSC_TINT’ parameter
- Value: 0 ~ 100 (range)

#### 7.13.2. Current TINT state read (AV, S-video, Component mode)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x0C)</td>
</tr>
</tbody>
</table>

- Command (0xF4) : Start bit
- Target (0x89) : Get bit
- Monitor ID (0x00) : Default value -> 0x00
- CMD(0xFE) : command data
- Parameter (0x0C) : ‘NTSC_TINT’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

- Command (0xF1) : Start send bit
- Value : Current NTSC_TINT getting value
  - 0 ~ 100 (range)
7.14. “RF_SHARPNESS” Control procedure


<table>
<thead>
<tr>
<th>CMD (0xF5)</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x0D)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter (0x0D) : 'RF_SHARPNESS' parameter
Value: 0 ~ 100 (range)

7.14.2. Current Sharpness state read(AV, S-video, Component mode)

<table>
<thead>
<tr>
<th>CMD (0xF4)</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x0D)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter (0x0D) : 'RF_SHARPNESS' parameter

<table>
<thead>
<tr>
<th>CMD (0xF1)</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current RF_SHARPNESS getting value
0 ~ 100 (range)
7.15. “SCALEMODE” Control procedure

7.15.1. Current Scale mode Control

<table>
<thead>
<tr>
<th>Command (0xF5)</th>
<th>Data1 Target (0x88)</th>
<th>Data2 Monitor ID (0x00)</th>
<th>Data3 CMD (0xFE)</th>
<th>Data4 Parameter (0x0E)</th>
<th>Value</th>
</tr>
</thead>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter (0x0E) : ’SCALEMODE’ parameter
Value : Data value

1 : Full Scn
2 : Panorama
3 : Zoom1
4 : Zoom2
5 : 4:3
6 : 14:9
7 : 4:3
8 : Full Scn
9 : 1:1

7.15.2. Current Scale mode state read

<table>
<thead>
<tr>
<th>Command (0xF4)</th>
<th>Data1 Target (0x89)</th>
<th>Data2 Monitor ID (0x00)</th>
<th>Data3 CMD (0xFE)</th>
<th>Data4 Parameter (0x0E)</th>
</tr>
</thead>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter (0x0E) : ’SCALEMODE’ parameter

<table>
<thead>
<tr>
<th>Command (0xF1)</th>
<th>Data1 Value</th>
</tr>
</thead>
</table>

Command (0xF1) : Start send bit
Value : Current Source getting value

1 : Full Scn
2 : Panorama
3 : Zoom1
4 : Zoom2
5 : 4:3
6 : 14:9
7 : 4:3
8 : Full Scn
9 : 1:1

AV, S-video, Component mode
PC, Digital video mode
### 7.16. "USERRED" Control procedure

#### 7.16.1. USERRED Control

<table>
<thead>
<tr>
<th>CMD (0xF5)</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x0F)</td>
<td>Value</td>
</tr>
</tbody>
</table>

- **Command (0xF5)**: Start bit
- **Target (0x88)**: Set bit
- **Monitor ID (0x00)**: Default value -> 0x00
- **CMD (0xFE)**: command data
- **Parameter (0x0F)**: 'USERRED' parameter
- **Value**: 0 ~ 100 (range)

#### 7.16.2. Current USERRED state read

<table>
<thead>
<tr>
<th>CMD (0xF4)</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x0F)</td>
</tr>
</tbody>
</table>

- **Command (0xF4)**: Start bit
- **Target (0x89)**: Get bit
- **Monitor ID (0x00)**: Default value -> 0x00
- **CMD (0xFE)**: command data
- **Parameter (0x0F)**: 'USERRED' parameter

<table>
<thead>
<tr>
<th>CMD (0xF1)</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Value</td>
</tr>
</tbody>
</table>

- **Command (0xF1)**: Start send bit
- **Value**: Current USERRED getting value
  - 0 ~ 100 (range)
7.17. “USERGREEN” Control procedure

7.17.1. USERGREEN Control

<table>
<thead>
<tr>
<th>CMD (0xF5)</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x10)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x10) : ‘USERGREEN’ parameter
Value: 0 ~ 100 (range)

7.17.2. Current USERGREEN state read

<table>
<thead>
<tr>
<th>CMD (0xF4)</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x10)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x10) : ‘USERGREEN’ parameter

<table>
<thead>
<tr>
<th>CMD (0xF1)</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current USERGREEN getting value
0 ~ 100 (range)
7.18. "USERBLUE" Control procedure

7.18.1. USERBLUE Control

<table>
<thead>
<tr>
<th>CMD (0xF5)</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x11)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x11) : 'USERBLUE' parameter
Value: 0 ~ 100 (range)

7.18.2. Current USERGREEN state read

<table>
<thead>
<tr>
<th>CMD (0xF4)</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x11)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x11) : 'USERBLUE' parameter

<table>
<thead>
<tr>
<th>CMD (0xF1)</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current USERBLUE getting value
0 ~ 100 (range)
7.19. “MUTE” Control procedure

7.19.1. Mute Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target</td>
<td>Monitor ID</td>
<td>Command</td>
<td>Parameter</td>
<td>Value</td>
</tr>
<tr>
<td>(0xF5)</td>
<td>(0x88)</td>
<td>(0x00)</td>
<td>(0xFE)</td>
<td>(0x16)</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x16) : ‘ MUTE ’ parameter
Value: Data value
   0 : Mute Off
   1 : Mute On

7.19.2. Current Mute state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target</td>
<td>Monitor ID</td>
<td>CMD</td>
<td>Parameter</td>
</tr>
<tr>
<td>(0xF4)</td>
<td>(0x89)</td>
<td>(0x00)</td>
<td>(0xFE)</td>
<td>(0x16)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x16) : ‘ MUTE ’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Value</td>
</tr>
<tr>
<td>(0xF1)</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current MUTE getting value
   0 : Mute Off
   1 : Mute On
7.20. “SOUNDSTD” Control procedure

7.20.1. Sound STD Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x17)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x17) : ‘SOUNDSTD ’ parameter
Value: Data value
  0 : User
  1 : Standard
  2 : Music
  3 : Movie
  4 : Speech

7.20.2. Current SOUNDSTD state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x17)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x17) : ‘SOUNDSTD ’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current SOUNDSTD getting value
  0 : User
  1 : Standard
  2 : Music
  3 : Movie
  4 : Speech
7.21. “AUTOVOLUME” Control procedure

7.21.1. Auto Volume Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x18)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x18) : ‘AUTOVOLUME’ parameter
Value: Data value
0 : Off
1 : On

7.21.2. Current AUTOVOLUME state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x18)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x18) : ‘AUTOVOLUME’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current AUTOVOLUME getting value
0 : Off
1 : On
7.22. “VOLUME” Control procedure

7.22.1. VOLUME Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x1A)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter (0x1A) : 'VOLUME' parameter
Value: 0 ~ 100 (range)

7.22.2. Current VOLUME state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x1A)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter (0x1A) : 'VOLUME' parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current VOLUME getting value
0 ~ 100 (range)
7.23. “BALANCE” Control procedure

7.23.1. BALANCE Control (sound L+R balance)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x1C)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88)  : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x1C) : ‘BALANCE ’ parameter
Value: 0 ~ 100 (range)

7.23.2. Current BALANCE state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x1C)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89)  : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x1C) : ‘BALANCE ’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current BALANCE getting value
0 ~ 100 (range)
### 7.24. “Equalizer” Control procedure

#### 7.24.1. Equalizer Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter</td>
<td>Value</td>
</tr>
</tbody>
</table>

- **Command (0xF5)** : Start bit
- **Target (0x88)** : Set bit
- **Monitor ID (0x00)** : Default value -> 0x00
- **CMD (0xFE)** : command data

**Parameter**
- 0x1D : EQ 100Hz
- 0x1E : EQ 300Hz
- 0x1F : EQ 1KHz
- 0x20 : EQ 3KHz
- 0x21 : EQ 10KHz

**Value**: 0 ~ 20 (range)

#### 7.24.2. Current BALANCE state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter</td>
</tr>
</tbody>
</table>

- **Command (0xF4)** : Start bit
- **Target (0x89)** : Get bit
- **Monitor ID (0x00)** : Default value -> 0x00
- **CMD(0xFE)** : command data

**Parameter**
- 0x1D : EQ 100Hz
- 0x1E : EQ 300Hz
- 0x1F : EQ 1KHz
- 0x20 : EQ 3KHz
- 0x21 : EQ 10KHz

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

- **Command (0xF1)** : Start send bit
- **Value**: Current Equalizer getting value
- **Value**: 0 ~ 20 (range)
7.25.  “ONHOUR” Control procedure

7.25.1. ONHOUR Control (Power on time)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target</td>
<td>Monitor ID</td>
<td>CMD</td>
<td>Parameter</td>
<td>Value</td>
</tr>
<tr>
<td></td>
<td>(0x88)</td>
<td>(0x00)</td>
<td>(0xFE)</td>
<td>(0x22)</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x22) : ‘ONHOUR’ parameter
Value: 0 ~ 23 (range)

7.25.2. Current ONHOUR state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target</td>
<td>Monitor ID</td>
<td>CMD</td>
<td>Parameter</td>
</tr>
<tr>
<td></td>
<td>(0x89)</td>
<td>(0x00)</td>
<td>(0xFE)</td>
<td>(0x22)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x22) : ‘ONHOUR’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current ONHOUR getting value
       0 ~ 23 (range)
7.26. “ONMINUTE” Control procedure

7.26.1. ONMINUTE Control (Power on time)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x23)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit  
Target (0x88) : Set bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD (0xFE) : command data  
Parameter(0x23) : ‘ONMINUTE’ parameter  
Value: 0 ~ 59 (range)

7.26.2. Current ONMINUTE state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x23)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit  
Target (0x89) : Get bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD(0xFE) : command data  
Parameter (0x23) : ‘ONMINUTE’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit  
Value : Current ONMINUTE getting value  
0 ~ 59 (range)
7.27. "ONTIMEONOFF" Control procedure

7.27.1. ONTIMEONOFF Control (Power ON time control)

<table>
<thead>
<tr>
<th>CMD (0xF5)</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x24)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter (0x24) : "ONTIMEONOFF" parameter
Value: Data value
0 : Disable
1 : Enable

7.27.2. Current ONTIMEONOFF state read

<table>
<thead>
<tr>
<th>CMD (0xF4)</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x24)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter (0x24) : "ONTIMEONOFF" parameter

<table>
<thead>
<tr>
<th>CMD (0xF1)</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current ONTIMEONOFF getting value
0 : Disable
1 : Enable
7.28. "ONTIMEVOL" Control procedure
7.28.1. ONTIMEVOL Control (Power ON Volume)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>0xF5</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x25)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0x5F) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x25) : ‘ONTIMEVOL’ parameter
Value: 0 ~ 100 (range)

7.28.2. Current ONTIMEVOL state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0xF4</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x25)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x25) : ‘ONTIMEVOL’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>0xF1</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current ONTIMEVOL getting value
0 ~ 100 (range)
### 7.29. "OFFHOUR" Control procedure

#### 7.29.1. OFFHOUR Control (Power OFF time)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target</td>
<td>Monitor ID</td>
<td>CMD</td>
<td>Parameter</td>
<td>Value</td>
</tr>
<tr>
<td>(0xF5)</td>
<td>(0x88)</td>
<td>(0x00)</td>
<td>(0xFE)</td>
<td>(0x26)</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit  
Target (0x88) : Set bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD (0xFE) : command data  
Parameter(0x26) : 'OFFHOUR' parameter  
Value: 0 ~ 23 (range)

#### 7.29.2. Current OFFHOUR state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target</td>
<td>Monitor ID</td>
<td>CMD</td>
<td>Parameter</td>
</tr>
<tr>
<td>(0xF4)</td>
<td>(0x89)</td>
<td>(0x00)</td>
<td>(0xFE)</td>
<td>(0x26)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit  
Target (0x89) : Get bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD(0xFE) : command data  
Parameter (0x26) : 'OFFHOUR' parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Value</td>
</tr>
<tr>
<td>(0xF1)</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit  
Value : Current OFFHOUR getting value  
0 ~ 23 (range)
7.30. “OFFMINUTE” Control procedure
7.30.1. OFFMINUTE Control (Power OFF time)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x27)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x27) : ‘OFFMINUTE’ parameter
Value: 0 ~ 59 (range)

7.30.2. Current OFFMINUTE state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x27)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x27) : ‘OFFMINUTE’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current OFFMINUTE getting value
0 ~ 59 (range)
7.31. “OFFTIMEONOFF” Control procedure

7.31.1. OFFTIMEONOFF Control (Power OFF time control)

<table>
<thead>
<tr>
<th>Command (0xF5)</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x28)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x28) : 'OFFTIMEONOFF' parameter
Value: Data value
0 : Disable
1 : Enable

7.31.2. Current OFFTIMEONOFF state read

<table>
<thead>
<tr>
<th>Command (0xF4)</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x26)</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x26) : 'OFFTIMEONOFF' parameter

<table>
<thead>
<tr>
<th>Command (0xF1)</th>
<th>Data1</th>
</tr>
</thead>
</table>

Command (0xF1) : Start send bit
Value : Current OFFTIMEONOFF getting value
0 : Disable
1 : Enable
7.32. "HALFTONE" Control procedure

7.32.1. HALFTONE Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x2A)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit  
Target (0x88) : Set bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD (0xFE) : command data  
Parameter (0x2A) : 'HALFTONE' parameter  
Value: Data value  
0 : Disable  
1 : Enable

7.32.2. Current HALFTONE state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x2A)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit  
Target (0x89) : Get bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD(0xFE) : command data  
Parameter (0x2A) : 'HALFTONE' parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit  
Value : Current HALFTONE getting value  
0 : Disable  
1 : Enable
7.33. “BLUESCREEN” Control procedure

7.33.1. BLUESCREEN Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x2B)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x2B) : 'BLUESCREEN' parameter
Value: Data value
  0 : Disable
  1 : Enable

7.33.2. Current BLUESCREEN state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x2B)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x2B) : 'BLUESCREEN' parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current BLUESCREEN getting value
  0 : Disable
  1 : Enable
7.34. “PIXELSHIFT_EN” Control procedure

7.34.1. PIXELSHIFT_EN Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x2C)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x2C) : 'PIXELSHIFT_EN' parameter
Value: Data value
0 : Disable
1 : Enable

7.34.2. Current PIXELSHIFT_EN state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x2C)</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x2C) : 'PIXELSHIFT' parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
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<td></td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current PIXELSHIFT getting value
0 : Disable
1 : Enable
7.35. "WIPER_EN" Control procedure

7.35.1. WIPER Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x2D)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter (0x2D) : 'WIPER' parameter
Value: Data value
   0 : Disable
   1 : Enable

7.35.2. Current WIPER state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x2D)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter (0x2D) : 'WIPER' parameter

<table>
<thead>
<tr>
<th>CMD</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value: Current WIPER getting value
   0 : Disable
   1 : Enable
7.36. "BGGRAY" Control procedure

7.36.1. BGGRAY Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x2E)</td>
<td>Value</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit  
Target (0x88) : Set bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD (0xFE) : command data  
Parameter (0x2E) : 'BGGRAY' parameter  
Value: 0~7 (range)

7.36.2. Current BGGRAY state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x2A)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit  
Target (0x89) : Get bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD (0xFE) : command data  
Parameter (0x2A) : 'BGGRAY' parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
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<td></td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit  
Value : Current BGGRAY getting value  
0~7 (range)
7.37. “POWER” (read only) Control procedure
7.37.1. Current Power state read

<table>
<thead>
<tr>
<th>CMD (0xF4)</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x2F)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x2F) : ‘POWER’ parameter

<table>
<thead>
<tr>
<th>CMD (0xF1)</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current Power state getting value
0 : Power off
1 : Power on
7.38. “CURHOUR” Control procedure

7.38.1. CURHOUR Control (Current time)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x30)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter (0x30) : ‘CURHOUR ’ parameter
Value: 0 ~ 23 (range)

7.28.2. Current CURHOUR state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x30)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x30) : ‘CURHOUR ’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current HOUR getting value
0 ~ 23 (range)
7.39. “CURMINUTE” Control procedure
7.39.1. CURMINUTE Control (Current time)

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>0xF5</td>
<td>Target(0x88)</td>
<td>Monitor ID(0x00)</td>
<td>CMD(0xFE)</td>
<td>Parameter(0x31)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit  
Target (0x88) : Set bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD (0xFE) : command data  
Parameter(0x31) : ‘CURMINUTE’ parameter  
Value: 0 ~ 59 (range)

7.39.2. Current CURMINUTE state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0xF4</td>
<td>Target(0x89)</td>
<td>Monitor ID(0x00)</td>
<td>CMD(0xFE)</td>
<td>Parameter(0x31)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit  
Target (0x89) : Get bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD(0xFE) : command data  
Parameter (0x31) : ‘CURMINUTE’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>0xF1</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit  
Value : Current MINUTE getting value  
0 ~ 59 (range)
Dimming Control (7.40 ~ 7.42)

Auto dimming control mode. Refer to diagram of DBLC

On : Dimming varies by light ambient level

Off : Dimming varies by brightness of image settings

<table>
<thead>
<tr>
<th>MAX_ILLUMINANCE</th>
<th>Max dimming ambient level</th>
<th>Setting Value = Ambient Level (by LUX) / 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN_ILLUMINANCE</td>
<td>Min dimming ambient level</td>
<td>Setting Value = Ambient Level (by LUX) / 10</td>
</tr>
<tr>
<td>AUTO_DIM</td>
<td>Apply auto dimming</td>
<td>0 : off, 1: on</td>
</tr>
</tbody>
</table>

Dynamic Back-Light Control (DBLC)
7.40. "MAX_ILLUMINANCE" Control procedure

7.40.1. MAX_ILLUMINANCE Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target</td>
<td>Monitor ID</td>
<td>CMD</td>
<td>Parameter</td>
<td>Value</td>
</tr>
<tr>
<td>(0xF5)</td>
<td>(0x88)</td>
<td>(0x00)</td>
<td>(0xFE)</td>
<td>(0x33)</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x33) : 'MAX_ILLUMINANCE' parameter
Value: 0 ~ 200 (range)

7.40.2. Current MAX_ILLUMINANCE state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target</td>
<td>Monitor ID</td>
<td>CMD</td>
<td>Parameter</td>
</tr>
<tr>
<td>(0xF4)</td>
<td>(0x89)</td>
<td>(0x00)</td>
<td>(0xFE)</td>
<td>(0x33)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x33) : 'MAX_ILLUMINANCE' parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Value</td>
</tr>
<tr>
<td>(0xF1)</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current MAX_ILLUMINANCE getting value
0 ~ 200 (range)
7.41. “MIN_ILLUMINANCE” Control procedure

7.41.1. MIN_ILLUMINANCE Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x34)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x34) : ‘MIN_ILLUMINANCE ’ parameter
Value: 0 ~ 200 (range)

7.41.2. Current MIN_ILLUMINANCE state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x34)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x34) : ‘MIN_ILLUMINANCE ’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current MIN_ILLUMINANCE getting value
0 ~ 200 (range)
7.42. “AUTO_DIM” Control procedure

7.42.1. AUTO_DIM Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x35)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x35) : ‘AUTO_DIM’ parameter

Value: Data value
0 : off
1 : on

7.42.2. Current AUTO_DIM state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x35)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x35) : ‘AUTO_DIM’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current AUTO_DIM getting value
0 : off
1 : on
Fan Control (7.43 ~ 7.47)

There are three kinds of fan control modes as below; Please refer to diagram of ATC.

- **On**: Activates the fan always.
- **Auto**: Activates/deactivates the fans automatically by temperature variation.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Equation/Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURTEMP_MAIN</td>
<td>Get current temperature of main sensor</td>
<td>Reversed equation of TEMP_THRESHOLD to get real temperature</td>
</tr>
<tr>
<td>CURTEMP_AUX</td>
<td>Get current temperature of aux sensor</td>
<td>Reversed equation of TEMP_THRESHOLD to get real temperature</td>
</tr>
<tr>
<td>TEMP_THRESHOLD</td>
<td>Fan activation temperature</td>
<td>Setting Value = Desired temperature (in Celsius) x 2 + 60</td>
</tr>
<tr>
<td>TEMP_HYSTERESIS</td>
<td>Fan activation hysteresis temperature</td>
<td>Setting Value = Desired Hysteresis (in Celsius) x 2</td>
</tr>
<tr>
<td>FAN_CONTROL</td>
<td>Set fan control mode</td>
<td>1: on, 2: auto</td>
</tr>
</tbody>
</table>
7.43. “CURTEMP_MAIN” Control procedure
7.43.1. Current main Temperature state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x37)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x37) : ‘CURTEMP_MAIN’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current Temperature getting value

7.44. “CURTEMP_AUX” Control procedure
7.44.1. Current aux Temperature state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x38)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x38) : ‘CURTEMP_AUX’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current Temperature getting value
7.45. “TEMP_THRESHOLD” Control procedure

7.45.1. TEMP_THRESHOLD Control

<table>
<thead>
<tr>
<th>CMD (0xF5)</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x39)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x39) : ‘TEMP_THRESHOLD ’ parameter
Value: 60 ~ 200 (range)

7.45.2. Current TEMP_THRESHOLD state read

<table>
<thead>
<tr>
<th>CMD (0xF4)</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x39)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x39) : ‘TEMP_THRESHOLD ’ parameter

<table>
<thead>
<tr>
<th>CMD (0xF1)</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current TEMP_THRESHOLD getting value
60 ~ 200 (range)
7.46. "TEMP_HYSTERESIS" Control procedure

7.46.1. TEMP_HYSTERESIS Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x3A)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit  
Target (0x88) : Set bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD (0xFE) : command data  
Parameter(0x3A) : 'TEMP_HYSTERESIS' parameter  
Value: 2 ~ 20 (range)

7.46.2. Current TEMP_HYSTERESIS state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x3A)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit  
Target (0x89) : Get bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD(0xFE) : command data  
Parameter (0x3A) : 'TEMP_HYSTERESIS' parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit  
Value : Current TEMP_HYSTERESIS getting value  
2 ~ 20 (range)
### 7.47. “FAN_CONTROL” Control procedure

#### 7.47.1. FAN_CONTROL Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x3B)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit  
Target (0x88) : Set bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD (0xFE) : command data  
Parameter (0x3B) : ‘FAN_CONTROL’ parameter  
Value: Data value  
1 : on  
2 : auto

#### 7.47.2. Current FAN_CONTROL state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x3B)</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit  
Target (0x89) : Get bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD (0xFE) : command data  
Parameter (0x3B) : ‘FAN_CONTROL’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit  
Value : Current FAN_CONTROL getting value  
1 : on  
2 : auto
(5.48 ~ 5.53)

- **Video Wall Layout Settings**

![Diagram of Video Wall Layout Settings]

- **X Max**: Maximum number of column tiles to divide video image.
- **Y Max**: Maximum number of row tiles to divide video image.
- **Set X**: Coordinate of video image’s column position.
- **Set Y**: Coordinate of video image’s row position.
Setting the Bezel Corrections for Natural Tiled Image

Bezel Correction for Natural Video Wall Settings

\[
X \text{ Gap} (\%) = 1000 \times \text{Bezel X} / \text{Panel X} \\
Y \text{ Gap} (\%) = 1000 \times \text{Bezel Y} / \text{Panel Y}
\]

- **X Gap**: Proportional Value of Vertical Bezel to Panel size by Per-mil unit.
- **Y Gap**: Proportional Value of Horizontal Bezel to Panel size by Per-mil unit.
7.48. “SETX” Control procedure
7.48.1. SETX Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x3D)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x3D) : ‘SETX’ parameter
Value: 0 ~ 2 (range)

7.48.2. Current SETX state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x3D)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x3D) : ‘SETX’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current SETX getting value
0 ~ 2 (range)
7.49. "SETY" Control procedure

7.49.1. SETY Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0xF5)</td>
<td>Target</td>
<td>Monitor ID</td>
<td>CMD</td>
<td>Parameter</td>
<td>Value</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x3E) : 'SETY' parameter
Value: 0 ~ 2 (range)

7.49.2. Current SETY state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0xF4)</td>
<td>Target</td>
<td>Monitor ID</td>
<td>CMD</td>
<td>Parameter</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x3E) : 'SETY' parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value: Current SETY getting value 0 ~ 2 (range)
7.50. "SETXMAX" Control procedure
7.50.1. SETXMAX Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x3F)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x3F) : 'SETXMAX' parameter
Value: 1 ~ 3 (range)

7.50.2. Current SETXMAX state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x3F)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x3F) : 'SETXMAX' parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current SETXMAX getting value
1 ~ 3 (range)
7.51. “SETYMAX” Control procedure

7.51.1. SETYMAX Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x40)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit
Target (0x88) : Set bit
Monitor ID (0x00) : Default value -> 0x00
CMD (0xFE) : command data
Parameter(0x40) : `SETYMAX` parameter
Value: 1 ~ 3 (range)

7.51.2. Current SETYMAX state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x40)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit
Target (0x89) : Get bit
Monitor ID (0x00) : Default value -> 0x00
CMD(0xFE) : command data
Parameter (0x40) : `SETYMAX` parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit
Value : Current SETYMAX getting value
       1 ~ 3 (range)
### 7.52. “SETXGAP” Control procedure

#### 7.52.1. SETXGAP Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF5)</td>
<td>Target (0x88)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x41)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit  
Target (0x88) : Set bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD (0xFE) : command data  
Parameter (0x41) : ‘SETXGAP’ parameter  
Value: 0 ~ 200 (range)

#### 7.52.2. Current SETXGAP state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF4)</td>
<td>Target (0x89)</td>
<td>Monitor ID (0x00)</td>
<td>CMD (0xFE)</td>
<td>Parameter (0x41)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit  
Target (0x89) : Get bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD (0xFE) : command data  
Parameter (0x41) : ‘SETXGAP’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command (0xF1)</td>
<td>Value</td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit  
Value : Current SETXGAP getting value  
0 ~ 200 (range)
7.53. “SETYGAP” Control procedure

7.53.1. SETYGAP Control

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
<th>Data5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td></td>
<td>Data1</td>
<td>Data2</td>
<td>Data3</td>
<td>Data4</td>
</tr>
<tr>
<td>(0xF5)</td>
<td>Target</td>
<td>Target</td>
<td>Monitor ID</td>
<td>CMD</td>
<td>Parameter</td>
</tr>
<tr>
<td></td>
<td>(0x88)</td>
<td>(0x00)</td>
<td>(0xFE)</td>
<td>(0x42)</td>
<td>(0x42)</td>
</tr>
</tbody>
</table>

Command (0xF5) : Start bit  
Target (0x88) : Set bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD (0xFE) : command data  
Parameter(0x42) : ‘SETYGAP’ parameter  
Value: 0 ~ 200 (range)

7.53.2. Current SETYGAP state read

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
<th>Data2</th>
<th>Data3</th>
<th>Data4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td></td>
<td>Data1</td>
<td>Data2</td>
<td>Data3</td>
</tr>
<tr>
<td>(0xF4)</td>
<td>Target</td>
<td>Target</td>
<td>Monitor ID</td>
<td>CMD</td>
</tr>
<tr>
<td></td>
<td>(0x89)</td>
<td>(0x00)</td>
<td>(0xFE)</td>
<td>(0x42)</td>
</tr>
</tbody>
</table>

Command (0xF4) : Start bit  
Target (0x89) : Get bit  
Monitor ID (0x00) : Default value -> 0x00  
CMD(0xFE) : command data  
Parameter (0x42) : ‘SETYGAP’ parameter

<table>
<thead>
<tr>
<th>CMD</th>
<th>Data1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command</td>
<td>Value</td>
</tr>
<tr>
<td>(0xF1)</td>
<td></td>
</tr>
</tbody>
</table>

Command (0xF1) : Start send bit  
Value : Current SETYGAP getting value  
Value : 0 ~ 200 (range)