External Control Manual
RS-232C Configuration
(for PDP-614MX and PDP-424MV)

Version 1.0
Dec 2005
**Application**
These specifications are applicable to plasma monitors and communications control from external equipment.

**Connections**
Connections should be made as described below.

<table>
<thead>
<tr>
<th>plasma monitor</th>
<th>External equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>e.g., Personal computer</td>
</tr>
</tbody>
</table>

1) Connector on the plasma monitor side: EXTERNAL CONTROL connector.

**Type of connector: D-Sub 9-pin male**

<table>
<thead>
<tr>
<th>No.</th>
<th>Pin Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No Connection</td>
</tr>
<tr>
<td>2</td>
<td>RXD (Receive data)</td>
</tr>
<tr>
<td>3</td>
<td>TXD (Transmit data)</td>
</tr>
<tr>
<td>4</td>
<td>DTR (DTE side ready)</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
</tr>
<tr>
<td>6</td>
<td>DSR (DCE side ready)</td>
</tr>
<tr>
<td>7</td>
<td>RTS (Ready to send)</td>
</tr>
<tr>
<td>8</td>
<td>CTS (Clear to send)</td>
</tr>
<tr>
<td>9</td>
<td>No Connection</td>
</tr>
</tbody>
</table>
2) Connector on the external equipment side: Serial port (RS-232C) connector. See the specifications of the equipment that is to be connected for the type of connector and the pin assignment.

3) Wiring

**Use a crossed (reverse) cable.**

Wire the cable so that each pair of data lines cross between the two devices. These data line pairs are RXD (Receive data) and TXD (Transmit data), DTR (DTE side ready) and DSR (DCE side ready), and RTS (Ready to send) and CTS (Clear to send).

**Communication Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Communication system</td>
<td>Asynchronous</td>
</tr>
<tr>
<td>(2) Interface</td>
<td>RS-232C</td>
</tr>
<tr>
<td>(3) Baud rate*</td>
<td>1200/2400/4800/9600 (default)/19200/38400bps</td>
</tr>
<tr>
<td>(4) Data length</td>
<td>8 bits</td>
</tr>
<tr>
<td>(5) Parity</td>
<td>Non</td>
</tr>
<tr>
<td>(6) Stop bit</td>
<td>1 bit</td>
</tr>
<tr>
<td>(7) Communication code</td>
<td>Hex</td>
</tr>
<tr>
<td>(8) Flow control</td>
<td>Non</td>
</tr>
</tbody>
</table>

* Selectable in the service menu.
**Communication Format**

![Communication Format Diagram]

**Command1**

Command 1, along with command 2, is a number used to distinguish each command. When making it operate using ID, bit1 and bit0 are set up as follows.

- **Bit1, Bit0 Unit ID distinction bit**
  - 11B: Usually, a form (with no ID)
  - 10B: Usually, a form (with no ID)
  - 01B: Set ID
  - 00B: Video wall ID

In the case of ACK, when the lower order 4 bits is FH (as in 3FH and 7FH), this indicates that the commands and data of the supported equipment have been received. When the lower order 4 bits is BH (as in 3BH and 7BH), this indicates that unsupported commands and data have been received.

**Unit ID1,2 (UA1,UA2)**

Unit ID 1 and unit ID 2 are numbers used to identify the equipment that is to be connected. 60H is used for the plasma monitor and 80H is used for external control equipment such as a personal computer.

1) **Unit ID 1**: Indicates the equipment sending the signal. When supporting Set ID by the command 1, 4 bits of low ranks of Set ID are set up.
2) **Unit ID 2**: Indicates the equipment receiving the signal. When supporting Set ID by the command 1, 4 bits of higher ranks of Set ID are set up.

* Set ID: it is the apparatus number assigned to each plasma monitor.

**Command 2**

Command 2, along with command 1, is a number used to distinguish each command.

**Check Sum (CKS), Error Processing, and ACK**

1) The check sum described below and RS-232C odd parity are used together for a check of the received data. The check sum is
the lower order 8 bits of one frame of sent or received data comprising the sum total of Command 1, Unit ID 1 and 2, Command 2, Data Length, and Data.

Check Sum Example

<table>
<thead>
<tr>
<th>DFH</th>
<th>80H</th>
<th>60H</th>
<th>47H</th>
<th>01H</th>
<th>01H</th>
<th>08H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command1</td>
<td>Unit ID1</td>
<td>Unit ID2</td>
<td>Command2</td>
<td>Data Length</td>
<td>Data</td>
<td>Check Sum</td>
</tr>
</tbody>
</table>

Total 208H

2) Error Processing
- When the communication interval is vacant for more than 4 ms, thereafter a received Command 1 will be recognized. If, at this time, meaningful data cannot be recognized, that data will not be recognized (as valid data).
- An ACK will not be returned unless the receive data error, the check sum error, and the receive data are all taken in.
The control method of the set by Set ID

When controlling two or more sets of plasma monitors, if the command using Set ID is used, it will become controllable individually.

The example of the POWER ON command to the plasma monitor which set ID as "5" is shown below.

It is not based on ID but is the POWER ON command to all sets.

```
9F  80  60  4E  00  CD
```

In ID= "5", the value of ID-1=4 is set up.

```
9D  84  60  4E  00  CF
```

The example of a change in the single mode of a 4th page multi-system configuration and the multi-mode is shown below.

ID of the set used as a master(etc PC) is set to 50, and it assumes that ID is shaken by AUTO ID to each set. ID shaken at each set is as follows.

- Upper left set (master) ID = 50 = 32h
- Upper right set ID = 51 = 33h
- Lower right set ID = 52 = 34h
- Lower left set ID = 53 = 35h

Transmission Data

```
DD  81  63  03  03  03  01  00  CB
DD  82  63  03  03  03  02  00  CD
DD  83  63  03  03  03  03  00  CF
DD  84  63  03  03  03  04  00  D1
```

Transmission of the above command performs a 4th page multi SPLIT display.

Moreover, the following commands are published in order to change a 4th page multi-display into a single mode display.

```
DF  80  60  03  03  01  01  00  C7
```

All sets become a single mode display by the above-mentioned command.

Since this command does not specify Set ID, all sets execute it.

*:Control by ID may not be able to be performed depending on connection with external control apparatus.
## Command Reference List

<table>
<thead>
<tr>
<th>CMD1</th>
<th>CMD2</th>
<th>LEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Power ON</td>
<td>9FH</td>
</tr>
<tr>
<td>02</td>
<td>Power OFF</td>
<td>9FH</td>
</tr>
<tr>
<td>03</td>
<td>Input Switch Change</td>
<td>DFH</td>
</tr>
<tr>
<td>04</td>
<td>VOLUME Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>05</td>
<td>AUDIO Mute ON</td>
<td>9FH</td>
</tr>
<tr>
<td>06</td>
<td>AUDIO Mute OFF</td>
<td>9FH</td>
</tr>
<tr>
<td>07</td>
<td>CONTRAST Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>08</td>
<td>BRIGHT Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>09</td>
<td>SHARPNESS Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>10</td>
<td>Color Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>11</td>
<td>TINT Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>12</td>
<td>AV SELECTION Select</td>
<td>DFH</td>
</tr>
<tr>
<td>13</td>
<td>COLOR TEMP SELECT</td>
<td>DFH</td>
</tr>
<tr>
<td>14</td>
<td>RED Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>15</td>
<td>GREEN Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>16</td>
<td>BLUE Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>17</td>
<td>DNR MODE Set</td>
<td>DFH</td>
</tr>
<tr>
<td>18</td>
<td>BASS Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>19</td>
<td>TREBLE Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>20</td>
<td>BALANCE Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>21</td>
<td>SCREEN SIZE Select</td>
<td>DFH</td>
</tr>
<tr>
<td>22</td>
<td>V.POSITION Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>23</td>
<td>H.POSITION Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>24</td>
<td>V.SIZE Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>25</td>
<td>H.SIZE Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>26</td>
<td>AUTO PICTURE Select</td>
<td>DFH</td>
</tr>
<tr>
<td>27</td>
<td>PHASE Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>28</td>
<td>CLOCK Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>29</td>
<td>OSM ADJ. position Data</td>
<td>DFH</td>
</tr>
<tr>
<td>30</td>
<td>POWER MGT Select</td>
<td>DFH</td>
</tr>
<tr>
<td>31</td>
<td>SIDE MASK Set</td>
<td>DFH</td>
</tr>
<tr>
<td>32</td>
<td>PURECINEMA Set</td>
<td>DFH</td>
</tr>
<tr>
<td>33</td>
<td>LONG LIFE Set</td>
<td>DFH</td>
</tr>
<tr>
<td>34</td>
<td>SCREEN WIPER Set</td>
<td>DFH</td>
</tr>
<tr>
<td>35</td>
<td>ALL RESET</td>
<td>1FH</td>
</tr>
<tr>
<td>36</td>
<td>Audio Inut Set</td>
<td>DFH</td>
</tr>
<tr>
<td>37</td>
<td>BNC INPUT</td>
<td>DFH</td>
</tr>
<tr>
<td>38</td>
<td>RGB Select</td>
<td>DFH</td>
</tr>
<tr>
<td>39</td>
<td>HD Select</td>
<td>DFH</td>
</tr>
<tr>
<td>40</td>
<td>LANGUAGE Select</td>
<td>DFH</td>
</tr>
<tr>
<td>41</td>
<td>COLOR SYSTEM Select</td>
<td>DFH</td>
</tr>
<tr>
<td>42</td>
<td>FREQUENCY Request</td>
<td>1FH</td>
</tr>
<tr>
<td>43</td>
<td>Input MODE Request</td>
<td>1FH</td>
</tr>
<tr>
<td>44</td>
<td>VIDEO ADJ Request</td>
<td>1FH</td>
</tr>
<tr>
<td>45</td>
<td>Audio Select Request</td>
<td>1FH</td>
</tr>
<tr>
<td>46</td>
<td>Failure Mode Request</td>
<td>1FH</td>
</tr>
<tr>
<td>47</td>
<td>MODEL NAME Request</td>
<td>1FH</td>
</tr>
<tr>
<td>48</td>
<td>LOW TONE</td>
<td>DFH</td>
</tr>
<tr>
<td>49</td>
<td>C.DETAIL ADJ</td>
<td>DFH</td>
</tr>
<tr>
<td>50</td>
<td>GAMMA Gain Data</td>
<td>DFH</td>
</tr>
<tr>
<td>51</td>
<td>Running Sense</td>
<td>1FH</td>
</tr>
<tr>
<td>52</td>
<td>OSM OBITER</td>
<td>DFH</td>
</tr>
<tr>
<td>53</td>
<td>Input Skip</td>
<td>5FH</td>
</tr>
<tr>
<td>54</td>
<td>SERIAL No. Request</td>
<td>1FH</td>
</tr>
<tr>
<td>55</td>
<td>S1/S2 SELECT</td>
<td>DFH</td>
</tr>
<tr>
<td>56</td>
<td>SOFT FOCUS</td>
<td>DFH</td>
</tr>
<tr>
<td>57</td>
<td>PLUG and PLAY</td>
<td>DFH</td>
</tr>
<tr>
<td>58</td>
<td>BLACK LEVEL (DIGITAL SIGNAL LEVEL)</td>
<td>DFH</td>
</tr>
<tr>
<td>59</td>
<td>OSM CONTRAST</td>
<td>DFH</td>
</tr>
<tr>
<td></td>
<td>Command</td>
<td>DFH</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------</td>
<td>-----</td>
</tr>
<tr>
<td>29</td>
<td>OSM Select</td>
<td>DFH</td>
</tr>
<tr>
<td>35</td>
<td>INVESE Set</td>
<td>DFH</td>
</tr>
<tr>
<td>51</td>
<td>TIMER SWITCH</td>
<td>DFH</td>
</tr>
<tr>
<td>54</td>
<td>TIMER PROGRAM SETTING</td>
<td>DFH</td>
</tr>
<tr>
<td>55</td>
<td>PRESENT TIME SETTING</td>
<td>DFH</td>
</tr>
<tr>
<td>56</td>
<td>MULTI MODE Select</td>
<td>DFH</td>
</tr>
<tr>
<td>57</td>
<td>MULTI MODE Request</td>
<td>1FH</td>
</tr>
<tr>
<td>58</td>
<td>AUTO ID SET START</td>
<td>5FH</td>
</tr>
<tr>
<td>59</td>
<td>PLE LINK</td>
<td>DFH</td>
</tr>
<tr>
<td>60</td>
<td>VIDEO WALL SETTING</td>
<td>DFH</td>
</tr>
<tr>
<td>61</td>
<td>POWER DELAY ON</td>
<td>DFH</td>
</tr>
<tr>
<td></td>
<td>(DIVIDER setting : 1/4/9)</td>
<td></td>
</tr>
<tr>
<td>62</td>
<td>POWER DELAY ON</td>
<td>DFH</td>
</tr>
<tr>
<td></td>
<td>(DIVIDER setting : 16/25)</td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>ORBITTER SET</td>
<td>DFH</td>
</tr>
<tr>
<td>67</td>
<td>OSM ANGLE</td>
<td>DFH</td>
</tr>
<tr>
<td>69*1</td>
<td>PICTURE Size</td>
<td>DFH</td>
</tr>
<tr>
<td>70</td>
<td>OPTION Select</td>
<td>DFH</td>
</tr>
<tr>
<td>71</td>
<td>REPEAT Timer</td>
<td>DFH</td>
</tr>
</tbody>
</table>
01. Power ON

*Function*

The external control equipment switches on the power of the plasma monitor.

*Transmission Data*

\[ 9FH \ 80H \ 60H \ 4EH \ 00H \ CKS \]

*ACK*

The plasma monitor returns the following ACK when the power is switched on.

\[ 3FH \ 60H \ 80H \ 4EH \ 00H \ CKS \]

**NOTE:** Do not set the Power ON or Power OFF command continuously.

02. Power OFF

*Function*

The external control equipment switches off the power of the plasma monitor.

*Transmission Data*

\[ 9FH \ 80H \ 60H \ 4FH \ 00H \ CKS \]

*ACK*

The plasma monitor returns the following ACK when the power is switched off.

\[ 3FH \ 60H \ 80H \ 4FH \ 00H \ CKS \]

**NOTE:** Do not set the Power ON or Power OFF command continuously.
03. Input Switch Change

*Function*

The external control equipment switches the input of the plasma monitor.

*Transmission Data*

<table>
<thead>
<tr>
<th>DFH</th>
<th>80H</th>
<th>60H</th>
<th>47H</th>
<th>01H</th>
<th>DATA00</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00 : Input Select</td>
<td>01H : Video1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>02H : Video2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>03H : Video3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>05H : COMPNT1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>06H : COMPNT2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>07H : PC1DSUB</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>08H : PC2-BNC</td>
<td></td>
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<tr>
<td></td>
<td>0CH : PC3-DVI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*ACK*

The plasma monitor returns the following ACK when the input is switched.

| 3FH | 60H | 80H | 47H | 00H | CKS |
04. VOLUME Gain Data

Function
The external control equipment changes the VOLUME gain data of the plasma monitor.

Transmission Data

<table>
<thead>
<tr>
<th>DFH 80H 60H 7FH 03H DATA00 DATA01 DATA02 CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00: USER SOUND Gain Flag 05H</td>
</tr>
<tr>
<td>DATA01: VOLUME Gain Flag 01H</td>
</tr>
<tr>
<td>DATA02: VOLUME Gain 00H: Step0</td>
</tr>
<tr>
<td>:</td>
</tr>
<tr>
<td>0AH: Step10 (Default)</td>
</tr>
<tr>
<td>:</td>
</tr>
<tr>
<td>2AH: Step42</td>
</tr>
</tbody>
</table>

ACK

<table>
<thead>
<tr>
<th>7FH 60H 80H 7FH 02H DATA00 DATA01 CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00: USER SOUND Gain Flag 05H</td>
</tr>
<tr>
<td>DATA01: VOLUME Gain Flag 01H</td>
</tr>
</tbody>
</table>

05. AUDIO Mute ON

Function
The external control equipment switches on AUDIO Mute of the plasma monitor.

Transmission Data

| 9FH 80H 60H 3EH 00H CKS                        |

ACK

| 3FH 60H 80H 3EH 00H CKS                        |

06. AUDIO Mute OFF

Function
The external control equipment switches off AUDIO Mute of the plasma monitor.

Transmission Data

| 9FH 80H 60H 3FH 00H CKS                        |

ACK

| 3FH 60H 80H 3FH 00H CKS                        |
07. CONTRAST Gain Data

**Function**
The external control equipment changes the CONTRAST gain data of the plasma monitor.

**Transmission Data**

<table>
<thead>
<tr>
<th>DFH</th>
<th>80H</th>
<th>60H</th>
<th>7FH</th>
<th>03H</th>
<th>DATA00</th>
<th>DATA01</th>
<th>DATA02</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00 : USER PICTURE Gain Flag</td>
<td>01H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA01 : CONTRAST Gain Flag</td>
<td>07H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA02 : CONTRAST Gain</td>
<td>CCH : -52</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>FFH : -01</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>00H : 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>01H : +01</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
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<td>14H : +20</td>
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</table>

**ACK**

<table>
<thead>
<tr>
<th>7FH</th>
<th>60H</th>
<th>80H</th>
<th>7FH</th>
<th>02H</th>
<th>DATA00</th>
<th>DATA01</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00 : USER PICTURE Gain Flag</td>
<td>01H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA01 : CONTRAST Gain Flag</td>
<td>07H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

08. BRIGHT Gain Data

**Function**
The external control equipment changes the BRIGHT gain data of the plasma monitor.

**Transmission Data**

<table>
<thead>
<tr>
<th>DFH</th>
<th>80H</th>
<th>60H</th>
<th>7FH</th>
<th>03H</th>
<th>DATA00</th>
<th>DATA01</th>
<th>DATA02</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00 : USER PICTURE Gain Flag</td>
<td>01H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA01 : BRIGHT Gain Flag</td>
<td>08H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA02 : BRIGHT Gain</td>
<td>E0H : -32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FFH : -01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>00H : 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>01H : +01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20H : +32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ACK**

<table>
<thead>
<tr>
<th>7FH</th>
<th>60H</th>
<th>80H</th>
<th>7FH</th>
<th>02H</th>
<th>DATA00</th>
<th>DATA01</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00 : USER PICTURE Gain Flag</td>
<td>01H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA01 : BRIGHT Gain Flag</td>
<td>08H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

09. SHARPNESS Gain Data

**Function**
The external control equipment changes the SHARPNESS gain data of the plasma monitor.

**Transmission Data**

<table>
<thead>
<tr>
<th>DFH</th>
<th>80H</th>
<th>60H</th>
<th>7FH</th>
<th>03H</th>
<th>DATA00</th>
<th>DATA01</th>
<th>DATA02</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00 : USER PICTURE Gain Flag</td>
<td>01H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA01 : SHARPNESS Gain Flag</td>
<td>06H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA02 : SHARPNESS Gain</td>
<td>F0H : -16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FFH : -01</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>00H : 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
01H : +01
:  
10H : +16

Only when a RGB signal is connected
DATA02 : SHARPNESS Gain
01H : 1
02H : 2
03H : 3
04H : 4

ACK

7FH  60H  80H  7FH  02H  DATA00  DATA01  CKS
DATA00 : USER PICTURE Gain Flag  01H
DATA01 : SHARPNESS Gain Flag  06H
10. COLOR Gain Data

Function
The external control equipment changes the COLOR gain data of the plasma monitor.

Transmission Data
```
DFH  80H  60H  7FH  03H  DATA00  DATA01  DATA02  CKS
DATA00 : USER PICTURE Gain Flag    01H
DATA01 : COLOR Gain Flag    04H
DATA02 : COLOR Gain
E0H : -32
FFH : -01
00H : 0
01H : +01
...  
20H : +32
```

* COLOR Gain is from -22 (EAH) to +22 (16H) only during video.

ACK
```
7FH  60H  80H  7FH  02H  DATA00  DATA01  CKS
DATA00 : USER PICTURE Gain Flag    01H
DATA01 : COLOR Gain Flag    04H
```

11. TINT Gain Data

Function
The external control equipment changes the TINT gain data of the plasma monitor.

Transmission Data
```
DFH  80H  60H  7FH  03H  DATA00  DATA01  DATA02  CKS
DATA00 : USER PICTURE Gain Flag    01H
DATA01 : TINT Gain Flag    05H
DATA02 : TINT Gain
E0H : -32
FFH : -01
00H : 0
01H : +01
...  
20H : +32
```

* TINT Gain is from -22 (EAH) to +22 (16H) only during video.

ACK
```
7FH  60H  80H  7FH  02H  DATA00  DATA01  CKS
DATA00 : USER PICTURE Gain Flag    01H
DATA01 : TINT Gain Flag    05H
```

12. AV SELECTION Select

Function
The external control equipment sets the av selection of the plasma monitor.

Transmission Data
```
DFH  80H  60H  0AH  01H  DATA00  CKS
DATA00 :  01H : STD
02H : MOVIE1*
03H : MOVIE2*
04H : Default
05H : Dynamic*
```

* It cannot choose in the still picture input of a personal computer
13. COLOR TEMP SELECT

Function
The external control equipment changes the COLOR TEMP of the plasma monitor.

Transmission Data

\[
\text{DFH} \ 80H \ 60H \ 00H \ 01H \ \text{DATA00} \ \text{CKS}
\]

\[
\text{DATA00:} \ 00H: \text{low} \\
01H: \text{middle} \\
02H: \text{high} \\
03H: \text{middle low}
\]

ACK

\[
\text{7FH} \ 60H \ 80H \ 00H \ 01H \ \text{DATA00} \ \text{CKS}
\]

\[
\text{DATA00:} \ 00H: \text{low} \\
01H: \text{middle} \\
02H: \text{high} \\
03H: \text{middle low}
\]

14. RED Gain Data

Function
The external control equipment changes the RED Gain Data of the plasma monitor.

Transmission Data

\[
\text{DFH} \ 80H \ 60H \ 04H \ \text{DATA00 to DATA03} \ \text{CKS}
\]

\[
\text{DATA00: USER PICTURE Gain Flag} \ 01H \\
\text{DATA01: RED Gain Flag} \ 01H \\
\text{DATA02: RED Low} \ D8H: -40 \\
\quad : \ FFH: -01 \\
\quad : \ 00H: 0 \\
\quad : \ 01H: +01 \\
\quad : \ 1EH: +30 \\
\text{DATA03: RED High} \\
\text{D8H: -40} \\
\quad : \ FFH: -01 \\
\quad : \ 00H: 0 \\
\quad : \ 01H: +01 \\
\quad : \ 1EH: +30
\]

ACK

\[
\text{7FH} \ 60H \ 80H \ 02H \ \text{DATA00 DATA01} \ \text{CKS}
\]

\[
\text{DATA00: USER PICTURE Gain Flag} \ 01H \\
\text{DATA01: RED Gain Flag} \ 01H
\]
15. GREEN Gain Data

**Function**
The external control equipment changes the GREEN Gain Data of the plasma monitor.

**Transmission Data**

```
DFH 80H  60H  7FH  04H  DATA00 to DATA03  CKS
DATA00 : USER PICTURE Gain Flag  01H
DATA01 : GREEN Gain Flag  02H
DATA02 : GREEN Low
  D8H : -40
  FFH : -01
  00H : 0
  01H : +01
  1EH : +30
DATA03: GREEN High
  D8H : -40
  FFH : -01
  00H : 0
  01H : +01
  1EH : +30
```

**ACK**

```
7FH  60H  80H  7FH  02H  DATA00  DATA01  CKS
DATA00: USER PICTURE Gain Flag  01H
DATA01: GREEN Gain Flag  02H
```
16. BLUE Gain Data

**Function**
The external control equipment changes the BLUE Gain Data of the plasma monitor.

**Transmission Data**
```
DFH  80H  60H  7FH  04H  DATA00 to DATA03  CKS
DATA00 : USER PICTURE Gain Flag  01H
DATA01 : BLUE Gain Flag  03H
DATA02 : BLUE Low  D8H :-40
    : FFH : -01
    : 00H : 0
    : 01H : +01
    : 1EH : +30
DATA03: BLUE High  D8H :-40
    : FFH : -01
    : 00H : 0
    : 01H : +01
    : 1EH : +30
```

**ACK**
```
7FH  60H  80H  7FH  02H  DATA00  DATA01  CKS
DATA00: USER PICTURE Gain Flag  01H
DATA01: BLUE Gain Flag  03H
```
17. DNR MODE Set

**Function**
The external control equipment sets the NR (Noise Reduction) mode of the plasma monitor.

**Transmission Data**

\[
\text{DFH 80H 60H C0H 01H DATA00 CKS}
\]

DATA00: 01H : OFF  
02H : LOW  
03H : MID  
04H : HIGH  

**ACK**

\[
\text{7FH 60H 80H C0H 01H DATA00 CKS}
\]

DATA00: 01H : OFF  
02H : LOW  
03H : MID  
04H : HIGH  

18. BASS Gain Data

**Function**
The external control equipment changes the BASS gain data of the plasma monitor.

**Transmission Data**

\[
\text{DFH 80H 60H 7FH 03H DATA00 DATA01 DATA02 CKS}
\]

DATA00 : USER PICTURE Gain Flag 05H  
DATA01 : BASS Gain Flag 03H  
DATA02 : BASS Gain F3H : -13  
: FFH : -01  
00H : 0  
01H : +01  
: 0DH : +13  

**ACK**

\[
\text{7FH 60H 80H 7FH 02H DATA00 DATA01 CKS}
\]

DATA00 : USER PICTURE Gain Flag 05H  
DATA01 : BASS Gain Flag 03H
19. TREBLE Gain Data

*Function*

The external control equipment changes the TREBLE gain data of the plasma monitor.

*Transmission Data*

```
DFH  80H  60H  7FH  03H  DATA00  DATA01  DATA02  CKS
DATA00 : USER PICTURE Gain Flag    05H
DATA01 : TREBLE Gain Flag         04H
DATA02 : TREBLE Gain
          FFH : -01
          00H : 0
          01H : +01
          : 0DH : +13
```

*ACK*

```
7FH  80H  60H  7FH  02H  DATA00  DATA01  CKS
DATA00: USER PICTURE Gain Flag    05H
DATA01: TREBLE Gain Flag         04H
```

20. BALANCE Gain Data

*Function*

The external control equipment changes the BALANCE gain data of the plasma monitor.

*Transmission Data*

```
DFH  80H  60H  7FH  03H  DATA00  DATA01  DATA02  CKS
DATA00 : USER PICTURE Gain Flag    05H
DATA01 : BALANCE Gain Flag         02H
DATA02 : BALANCE Gain
          EAH : -22
          : FFH : -01
          00H : 0
          01H : +01
          : 16H : +22
```

*ACK*

```
7FH  80H  60H  7FH  02H  DATA00  DATA01  CKS
DATA00: USER PICTURE Gain Flag    05H
DATA01: BALANCE Gain Flag         02H
```

1. SCREEN SIZE Select

*Function*

The external control equipment switches the screen mode of the plasma monitor.

*Transmission Data*

```
DFH  80H  60H  51H  01H  DATA00  CKS
DATA00  02H : WIDE
           03H : ZOOM
           04H : STD
           05H : FULL
           06H : DOT BY DOT
           08H : UNDERSCAN
           09H : 14:9
```
0AH : 2.35:1

ACK

7FH  60H  80H  51H  01H  DATA00  CKS
DATA00 02H : WIDE
  03H : ZOOM
  04H : STD
  05H : FULL
  06H : DOT BY DOT
  08H : UNDERSCAN
  09H : 14:9
  0AH : 2.35:1
22. V.POSITION Gain Data

**Function**
The external control equipment changes the V. POSITION gain data of the plasma monitor.

**Transmission Data**

<table>
<thead>
<tr>
<th>DFH</th>
<th>80H</th>
<th>60H</th>
<th>7FH</th>
<th>03H</th>
<th>DATA00</th>
<th>DATA01</th>
<th>DATA02</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>USER PICTURE Gain Flag</td>
<td>USER PICTURE Gain Flag</td>
<td>V.POSITION Gain</td>
<td></td>
</tr>
<tr>
<td>DATA00 :</td>
<td>03H</td>
<td>DATA01 :</td>
<td>01H</td>
<td>DATA02 :</td>
<td>C0H : -64</td>
<td>FFH : -01</td>
<td>00H : 0</td>
<td>01H : +01</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>40H : +64</td>
</tr>
</tbody>
</table>

**ACK**

<table>
<thead>
<tr>
<th>7FH</th>
<th>60H</th>
<th>80H</th>
<th>7FH</th>
<th>02H</th>
<th>DATA00</th>
<th>DATA01</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>USER PICTURE Gain Flag</td>
<td>USER PICTURE Gain Flag</td>
<td></td>
</tr>
<tr>
<td>DATA00 :</td>
<td>03H</td>
<td>DATA01 :</td>
<td>01H</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
23. H.POSITION Gain Data

Function

The external control equipment changes the H. POSITION gain data of the plasma monitor.

Transmission Data

DFH 80H 60H 7FH 03H DATA00 DATA01 DATA02 CKS
DATA00 : USER PICTURE Gain Flag 03H
DATA01 : H.POSITION Gain Flag 02H
DATA02 : H.POSITION Gain
80H : -128
FFH : -01
00H : 0
01H : +01
7FH : +127

ACK

7FH 60H 80H 7FH 02H DATA00 DATA01 CKS
DATA00 : USER PICTURE Gain Flag 03H
DATA01 : H.POSITION Gain Flag 02H

24. V.SIZE Gain Data

Function

The external control equipment changes the V.SIZE gain data of the plasma monitor.

Transmission Data

DFH 80H 60H 7FH 03H DATA00 DATA01 DATA02 CKS
DATA00 : USER PICTURE Gain Flag 03H
DATA01 : V.SIZE Gain Flag 07H
DATA02 : V.SIZE Gain
00H : 0
40H : +64

ACK

7FH 60H 80H 7FH 02H DATA00 DATA01 CKS
DATA00 : USER PICTURE Gain Flag 03H
DATA01 : V.SIZE Gain Flag 07H
25. H.SIZE Gain Data

Function
The external control equipment changes the H.SIZE gain data of the plasma monitor.

Transmission Data

<table>
<thead>
<tr>
<th>DFH 80H 60H 7FH 03H</th>
<th>DATA00</th>
<th>DATA01</th>
<th>DATA02</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00 : USER PICTURE Gain Flag</td>
<td>03H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA01 : H.SIZE Gain Flag</td>
<td>08H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA02 : H.SIZE Gain</td>
<td>00H : 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40H : +64</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ACK

<table>
<thead>
<tr>
<th>7FH 60H 80H 7FH 02H</th>
<th>DATA00</th>
<th>DATA01</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00 : USER PICTURE Gain Flag</td>
<td>03H</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA01 : H.SIZE Gain Flag</td>
<td>08H</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

26. AUTO PICTURE Select

Function
The external control equipment switches on or off the AUTO PICTURE of the plasma monitor.

Transmission Data

<table>
<thead>
<tr>
<th>DFH 80H 60H 7FH 03H</th>
<th>DATA00</th>
<th>DATA01</th>
<th>DATA02</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00 : USER PICTURE Gain Flag</td>
<td>03H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA01 : AUTO PICTURE Select Flag</td>
<td>09H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA02 : AUTO PICTURE Select</td>
<td>00H : ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>:</td>
<td>01H : OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ACK

<table>
<thead>
<tr>
<th>7FH 60H 80H 7FH 03H</th>
<th>DATA00</th>
<th>DATA01</th>
<th>DATA02</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00 : USER PICTURE Gain Flag</td>
<td>03H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA01 : AUTO PICTURE Select Flag</td>
<td>09H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA02 : AUTO PICTURE Select</td>
<td>00H : ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>:</td>
<td>01H : OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
27. PHASE Gain Data

**Function**
The external control equipment changes the PHASE gain data (Phase) of the plasma monitor.

**Transmission Data**

```
DFH 80H 60H 7FH 03H DATA00 DATA01 DATA02 CKS
DATA00 : USER PICTURE Gain Flag  03H
DATA01 : PHASE Gain Flag    03H
DATA02 : PHASE Gain    00H : 0
              : 40H : +64
```

**ACK**

```
7FH 60H 80H 7FH 02H DATA00 DATA01 CKS
DATA00: USER PICTURE Gain Flag  03H
DATA01: PHASE Gain Flag      03H
```

28. CLOCK Gain Data

**Function**
The external control equipment changes the CLOCK gain data (ratio of frequency division) of the plasma monitor.

**Transmission Data**

```
DFH 80H 60H 7FH 03H DATA00 DATA01 DATA02 CKS
DATA00 : USER PICTURE Gain Flag  03H
DATA01 : CLOCK Gain Flag    04H
DATA02 : CLOCK Gain    C0H : -64
              : FFH : -01
              : 00H : 0
              : 01H : +01
              : 40H : +64
```

**ACK**

```
7FH 60H 80H 7FH 02H DATA00 DATA01 CKS
DATA00: USER PICTURE Gain Flag  03H
DATA01: CLOCK Gain Flag      04H
```
29. OSM ADJ. POSITION Data

**Function**
The external control equipment sets the position of the OSM menu of the plasma monitor.

**Transmission Data**

```
DFH 80H 60H 1AH 02H DATA00 DATA01 CKS
DATA00 : OSM ADJ. Gain Flag 02H
DATA01 01H : 1(TOP LEFT)
          02H : 2(TOP CENTER)
          03H : 3(TOP RIGHT)
          04H : 4(BOTTOM LEFT)
          05H : 5(BOTTOM CENTER)
          06H : 6(BOTTOM RIGHT)
```

**ACK**

```
7FH 60H 80H 1AH 01H DATA00 CKS
DATA00 : OSM ADJ. Gain Flag 02H
```

30. POWER MGT Select

**Function**
The external control equipment switches on or off the POWER MANAGEMENT of the plasma monitor.

**Transmission Data**

```
DFH 80H 60H 1AH 02H DATA00 DATA01 CKS
DATA00 : POWER MGT Select 03H
DATA01 01H : ON
          02H : OFF
```

**ACK**

```
7FH 60H 80H 1AH 02H DATA00 DATA01 CKS
DATA00 : POWER MGT Select 03H
DATA01 01H : ON
          02H : OFF
```

31. SIDE MASK Set

**Function**
The external control equipment sets the SIDE MASK of the plasma monitor.

**Transmission Data**

```
DFH 80H 60H C6H 01H DATA00 CKS
DATA00 : SIDE MASK 00H : 0
          0FH : 15
```

**ACK**

```
7FH 60H 80H C6H 01H DATA00 CKS
DATA00 : SIDE MASK 00H : 0
          0FH : 15
```

32. PURECINEMA Set
Function
The external control equipment switches on or off the PURECINEMA of the plasma monitor.

Transmission Data

<table>
<thead>
<tr>
<th>DFH</th>
<th>80H</th>
<th>60H</th>
<th>C1H</th>
<th>01H</th>
<th>DATA00</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00 : PURECINEMA Set</td>
<td>01H : ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02H : OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ACK

<table>
<thead>
<tr>
<th>7FH</th>
<th>60H</th>
<th>80H</th>
<th>C1H</th>
<th>01H</th>
<th>DATA00</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00 : PURECINEMA Set</td>
<td>01H : ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>02H : OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
33. LONG LIFE Set

**Function**
The external control equipment sets the PLE, ORBITER, and INVERSE (inverse of image brightness) or WHITE of the plasma monitor.

**Transmission Data**

<table>
<thead>
<tr>
<th>DFH 80H 60H 6BH 03H DATA00 DATA01 DATA02 CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00 : PLE</td>
</tr>
<tr>
<td>01H : AUTO</td>
</tr>
<tr>
<td>02H : LOCK1</td>
</tr>
<tr>
<td>03H : LOCK2</td>
</tr>
<tr>
<td>04H : LOCK3</td>
</tr>
<tr>
<td>DATA01 : INVERSE/WHITE</td>
</tr>
<tr>
<td>01H : INVERSE</td>
</tr>
<tr>
<td>02H : OFF</td>
</tr>
<tr>
<td>03H : WHITE</td>
</tr>
<tr>
<td>DATA02 : ORBITER</td>
</tr>
<tr>
<td>01H : AUTO1</td>
</tr>
<tr>
<td>02H : OFF</td>
</tr>
<tr>
<td>03H : AUTO2</td>
</tr>
</tbody>
</table>

**ACK**
The plasma monitor returns the following ACK when setting the PLE, ORBITER, and INVERSE (inverse of image brightness) or WHITE:

3FH 60H 80H 6BH 00H CKS
34. SCREEN WIPER Set

**Function**
The external control equipment sets the SCREEN WIPER of the plasma monitor.

**Transmission Data**
- DFH 80H 60H C8H 04H DATA00 to DATA03 CKS
- DATA00 : SCREEN WIPER
  - 00H : No operation
  - 01H : ON
  - 02H : OFF
- DATA01 :
  - 00H : fixed
- DATA02 :
  - FFH : fixed
- DATA03 :
  - 01H : fixed

**ACK**
- 3FH 60H 80H C8H 00H CKS

35. ALL RESET

**Function**
The external control equipment resets the user adjustment of the plasma monitor.

**Transmission Data**
- 1FH 80H 60H 54H 00H CKS

**ACK**
- 3FH 60H 80H 54H 00H CKS
36. Audio Select Set

**Function**
The external control equipment sets combinations of audio and video inputs for the plasma monitor.

**Transmission Data**

<table>
<thead>
<tr>
<th>DFH</th>
<th>80H</th>
<th>60H</th>
<th>70H</th>
<th>02H</th>
<th>DATA00</th>
<th>DATA01</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>01H : AUDIO1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>02H : AUDIO2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>03H : AUDIO3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>01H : VIDEO1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>02H : VIDEO2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>03H : VIDEO3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>05H : COMPNT1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>06H : COMPNT2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>07H : PC1DSUB</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>08H : PC2-BNC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0CH : PC3-DVI</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ACK**
The plasma monitor returns the following ACK when the input is switched.

<table>
<thead>
<tr>
<th>3FH</th>
<th>60H</th>
<th>80H</th>
<th>70H</th>
<th>00H</th>
<th>CKS</th>
</tr>
</thead>
</table>

* The plasma monitor returns “Not Available” when selecting the video input same as the one set at one of the AUDIO 1 to 3.

**Example:**
The plasma monitor returns “Not Available” when selecting the VIDEO1 for AUDIO2 or VIDEO3 after VIDEO1 has been set to AUDIO1.
37. BNC INPUT

*Function*
The external control equipment sets the BNC SELECT of the plasma monitor.

*Transmission Data*

\[
\text{DFH} \ 80 \ 60 \ 8 \ 01 \ \text{DATA00} \ \text{CKS}
\]

DATA00 : BNC SELECT
01H : RGB
02H : Component

*ACK*
The plasma monitor returns the following ACK when setting the BNC SELECT:

\[
\text{7FH} \ 60 \ 80 \ 8 \ 01 \ \text{DATA00} \ \text{CKS}
\]

DATA00 : BNC SELECT
01H : RGB
02H : Component

38. RGB Select

*Function*
The external control equipment sets the RGB SELECT of the plasma monitor.

*Transmission Data*

\[
\text{DFH} \ 80 \ 60 \ 8B \ 01 \ \text{DATA00} \ \text{CKS}
\]

DATA00
01H : AUTO
02H : STILL
03H : MOTION
04H : WIDE1
05H : WIDE2
06H : DTV
07H : WIDE3
08H : WIDE4

*ACK*

\[
\text{7FH} \ 60 \ 80 \ 8B \ 01 \ \text{DATA00} \ \text{CKS}
\]

DATA00
01H : AUTO
02H : STILL
03H : MOTION
04H : WIDE1
05H : WIDE2
06H : DTV
07H : WIDE3
08H : WIDE4

39. HD Select

*Function*
The external control equipment sets the HD SELECT of the plasma monitor.

*Transmission Data*

\[
\text{DFH} \ 80 \ 60 \ 8A \ 01 \ \text{DATA00} \ \text{CKS}
\]

DATA00
01H : 1035I
02H : 1080A
03H : 1080B

*ACK*

\[
\text{7FH} \ 60 \ 80 \ 8A \ 01 \ \text{DATA00} \ \text{CKS}
\]

DATA00
01H : 1035I
02H : 1080A
03H : 1080B
40. LANGUAGE Select

**Function**
The external control equipment sets the LANGUAGE SELECT of the plasma monitor.

**Transmission Data**
```
DFH  80H  60H  5BH  01H  DATA00  CKS
DATA00:  01H : ENGLISH
         02H : GERMAN
         03H : FRENCH
         04H : SPANISH
         05H : ITALIAN
         06H : SWEDISH
         07H : JAPANESE
         0AH : CHINESE
```

**ACK**
```
7FH  60H  80H  5BH  01H  DATA00  CKS
DATA00:  01H : ENGLISH
         02H : GERMAN
         03H : FRENCH
         04H : SPANISH
         05H : ITALIAN
         06H : SWEDISH
         07H : JAPANESE
         0AH : CHINESE
```

41. COLOR SYSTEM Select

**Function**
The external control equipment sets the COLOR SYSTEM of the plasma monitor.

**Transmission Data**
```
DFH  80H  60H  5CH  01H  DATA00  CKS
DATA00:  01H : 3.58NTSC
         02H : 4.43NTSC
         03H : PAL
         04H : SECAM
         0AH : AUTO
         0BH : PAL60
         0DH : PAL-M
         0EH : PAL-N
```

**ACK**
```
7FH  60H  80H  5CH  01H  DATA00  CKS
DATA00:  01H : 3.58NTSC
         02H : 4.43NTSC
         03H : PAL
         04H : SECAM
         0AH : AUTO
         0BH : PAL60
         0DH : PAL-M
         0EH : PAL-N
```
42. FREQUENCY Request(SIGNAL INFORMATION)

**Function**
The external control equipment inquires the Horizontal frequency, Vertical frequency, Horizontal sync polarity, Vertical sync polarity, Mode, and Resolution of the plasma monitor.

**Transmission Data**

```
1FH  80H  60H  26H  00H  CKS
```

**ACK**

```
7FH  60H  80H  26H  0BH  DATA00 to DATA0A  CKS
```

**Horizontal frequency**
```
DATA00: Integer part
  00H: 0 (No signal: 00H)
  FFH : 255

DATA01: One decimal place
  00H: 0 (No signal: 00H)
  09H : 9
```

**Vertical frequency**
```
DATA02: Integer part
  00H: 0 (No signal: 00H)
  FFH : 255

DATA03: One decimal place
  00H: 0 (No signal: 00H)
  09H : 9
```

**Horizontal sync polarity**
```
DATA04
  00H : -
  01H : Positive
  02H : Negative
```

**Vertical sync polarity**
```
DATA05
  00H : -
  01H : Positive
  02H : Negative
PDP-614MX External Control Manual

MODE
DATA06  00H  : No signal  —
  01H to 80H  : RGB signal  Identification number of PC mode
    81H  : Video signal  3.58NTSC
    82H  :  4.43NTSC
    83H  :  PAL
    84H  :  PAL-M
    85H  :  PAL-N
    86H  :  PAL60
    87H  :  SECAM
    88H  :  B/W60
    89H  :  B/W50
    A0H  :  HD/DVD/DTV signal  480I
    A1H  :  480P
    A2H  :  576I
    A3H  :  576P
    A4H  :  720P
    A5H  :  1035I
    A6H  :  1080I

RESOLUTION
DATA07: Dots (Low-order byte) 00H: 0 (No signal: 00H)
  :  FFH  255
DATA08: Dots (High-order byte) 00H: 257 (No signal: 00H)
  :  FFH
DATA09: Lines (Low-order byte) 00H: 0 (No signal: 00H)
  :  FFH  255
DATA10: Lines (High-order byte) 00H: 257 (No signal: 00H)
  :  FFH
43. Input MODE Request

FUNCTION
The display returns the current input information by the external control equipment’s request.

TRANSMISSION DATA

1FH 80H 60H 41H 00H CKS

ACK

7FH 60H 80H 41H 01H DATA00 CKS

DATA00: Input Select
01H: Video
02H: Video2
03H: Video3
04H: COMPNT1
05H: PC1DSUB
06H: PC2-BNC
0CH: COMPNT2
0EH: PC3-DVI

44. VIDEO ADJ. Request

FUNCTION
The display returns the video adjustments information by the external control equipment’s request.

TRANSMISSION DATA

1FH 80H 60H 45H 00H CKS

ACK

7FH 60H 80H 45H 0CH DATA00 to DATA0B CKS

DATA00: RED Gain (Low)
D8H: -40
: FFH: -01
00H: 0
1EH: +30

DATA01: GREEN Gain (Low)
D8H: -40
: FFH: -01
00H: 0
1EH: +30

DATA02: BLUE Gain (Low)
D8H: -40
: FFH: -01
00H: 0
1EH: +30

DATA03: COLOR Gain
E0H: -32
: FFH: -01
00H: 0
1EH: +30

* COLOR Gain is from -22 (EAH) to +22 (16H) only during video.
DATA04: TINT Gain

E0H : -32
FFH : -01
00H : 0
01H : +01
20H : +32

* TINT Gain is from -22 (EAH) to +22 (16H) only during video.

DATA05: SHARPNESS Gain

F0H : -16
FFH : -01
00H : 0
01H : +01
10H : +16

DATA06: CONTRAST Gain

CCH : -52
FFH : -01
00H : 0
01H : +01
14H : +20

DATA07: BRIGHT Gain

E0H : -32
FFH : -01
00H : 0
01H : +01
20H : +32

DATA08: RED Gain (High)

D8H : -40
FFH : -01
00H : 0
01H : +01
1EH : +30

DATA09: GREEN Gain (High)

D8H : -40
FFH : -01
00H : 0
01H : +01
1EH : +30

DATA0A: BLUE Gain (High)

D8H : -40
FFH : -01
00H : 0
DATA0B: COLOR TEMP SELECT  
00H: low  
01H: middle  
02H: high  
03H: middle low

45. Audio Select Request

*Function*

The external control equipment inquires the current combinations of audio and video inputs for the plasma monitor.

*Transmission Data*

```
01H 80H 60H 6FH 00H CKS
```

*ACK*

The plasma monitor returns the following ACK:

```
7FH 60H 80H 6FH 03H DATA00 DATA01 DATA02 CKS
```

```plaintext
DATA00 : AUDIO1  
01H-0CH : VISUAL INPUT DATA  
DATA01 : AUDIO2  
01H-0CH : VISUAL INPUT DATA  
DATA02 : AUDIO3  
01H-0CH : VISUAL INPUT DATA
```

*<VISUAL INPUT DATA>*

```
01H : VIDEO1  
02H : VIDEO2  
03H : VIDEO3  
05H : COMPNT1  
06H : COMPNT2  
07H : PC1DSUB  
08H : PC2-BNC  
0CH : PC3-DVI
```
46. Failure Mode Request

*Function*

The external control equipment inquires the detection of failures of the plasma monitor.

*Transmission Data*

```
1FH  80H  60H  3FH  00H  CKS
```

*ACK*

The plasma monitor returns the following ACK:

```
7FH  60H  80H  3FH  02H  DATA00  DATA01  CKS
```

**DATA00: FAILURE MODE 1**

- **Bit 0 : PDP MODULE**
  - 0: Abnormal
  - 1: Normal
- **Bit 1 : 1: fixed (backup)**
- **Bit 2 : TEMPERATURE**
  - 0: Abnormal
  - 1: Normal
- **Bit 3 : FAN**
  - 0: Abnormal
  - 1: Normal
- **Bit 4 : TEMPERATURE SENSOR**
  - 0: Abnormal
  - 1: Normal
- **Bit 5 : 1: fixed (backup)**
- **Bit 6 : 1: fixed (backup)**
- **Bit 7 : 1: fixed (backup)**

**DATA01: FAILURE MODE 2**

- **Bit 0-7 : 1: fixed (backup)**
47. MODEL NAME Request

**Function**
The external control equipment inquires the product code of the plasma monitor.

**Transmission Data**
1FH  80H  60H  17H  00H  CKS

**ACK**
The plasma monitor returns the following ACK:
7FH  60H  80H  17H  0CH  DATA00 to DATA11  CKS

DATA00 : 1st character of the product code
DATA01 : 2nd character of the product code

DATA11 : 12th character of the product code

Received data

| 00H-09H | 0-9 |
| 80H     | -   |
| 81H     | +   |
| 82H     | X   |
| 83H     | /   |
| 84H     | (   |
| 85H     | )   |
| 86H     | .   |
| 87H     | ‘   |
| 96H     | Blank |

10H-29H : A-Z

<table>
<thead>
<tr>
<th>Received data (H)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>K</td>
<td>L</td>
<td>M</td>
<td>N</td>
<td>O</td>
<td>P</td>
<td>Q</td>
<td>R</td>
<td>S</td>
<td>T</td>
</tr>
<tr>
<td>11</td>
<td>U</td>
<td>V</td>
<td>W</td>
<td>X</td>
<td>Y</td>
<td>Z</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
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<tr>
<td>13</td>
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<td>14</td>
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<td>15</td>
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<td></td>
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<tr>
<td>16</td>
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<tr>
<td>17</td>
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<td>18</td>
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<td></td>
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<tr>
<td>19</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If there are fewer than 12 characters in the product code, product code would be padded right with blanks.

Example: If the product code of your plasma monitor is “50XGA”, the returned codes would be as follows.
DATA00:05H, DATA01:00H, DATA02:27H, DATA03:16H, DATA04:10H, DATA05:96H, DATA06:96H, DATA07:96H, DATA08:96H, DATA09:96H, DATA10:96H, DATA11:96H
48. LOW TONE

**Function**

The external control equipment sets the dithering processing or error diffusion processing of the plasma monitor.

**Transmission Data**

<table>
<thead>
<tr>
<th>DFH</th>
<th>80H</th>
<th>60H</th>
<th>0CH</th>
<th>01H</th>
<th>DATA00</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>AUTO</td>
<td></td>
</tr>
<tr>
<td>DATA00:</td>
<td>00H:</td>
<td>dithering processing (for motion picture)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>01H:</td>
<td>dithering processing (for still picture)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>03H:</td>
<td>error diffusion processing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ACK**

<table>
<thead>
<tr>
<th>7FH</th>
<th>60H</th>
<th>80H</th>
<th>0CH</th>
<th>01H</th>
<th>DATA00</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>AUTO</td>
<td></td>
</tr>
<tr>
<td>DATA00:</td>
<td>00H:</td>
<td>dithering processing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>01H:</td>
<td>dithering processing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>03H:</td>
<td>error diffusion processing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
49. C.DETAIL ADJ

**Function**
External control equipment can adjust RGB each color which a plasma monitor wants to emphasize.

**Transmission Data**

<table>
<thead>
<tr>
<th>DFH</th>
<th>80H</th>
<th>60H</th>
<th>0DH</th>
<th>07H</th>
<th>DATA00 to DATA06</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00:RED</td>
<td>00H : -32</td>
<td>20H : 0</td>
<td>40H : +32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA01:GREEN</td>
<td>00H : -32</td>
<td>20H : 0</td>
<td>40H : +32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA02:BLUE</td>
<td>00H : -32</td>
<td>20H : 0</td>
<td>40H : +32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA03:YELLOW</td>
<td>00H : -32</td>
<td>20H : 0</td>
<td>40H : +32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA04:MAZENTA</td>
<td>00H : -32</td>
<td>20H : 0</td>
<td>40H : +32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA05:CYAN</td>
<td>00H : -32</td>
<td>20H : 0</td>
<td>40H : +32</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA06:RESET</td>
<td>00H : OFF</td>
<td>01H : ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ACK**

7FH 60H 80H 0DH 00H CKS

50. GAMMA GAIN Data

**Function**
External control apparatus changes Gamma of a plasma monitor.

**Transmission Data**

<table>
<thead>
<tr>
<th>DFH</th>
<th>80H</th>
<th>60H</th>
<th>13H</th>
<th>02H</th>
<th>DATA00 DATA01 CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00: GAMMA FLAG</td>
<td>01H : Gamma change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA01: GAMMA</td>
<td>00H : 1(GAMMA2.1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>01H : 2(GAMMA2.2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>02H : 3(GAMMA2.3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>03H : 4(GAMMA2.4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ACK

7FH 60H 80H 13H 01H DATA00 CKS
DATA00: GAMMA FLAG 01H : Gamma change
51. Running Sense

Function
External control apparatus grasps the power supply state of a plasma monitor.
A plasma monitor is made to recognize connection of PC CONTROL.

Transmission Data

1FH 80H 60H 88H 00H CKS

ACK

7FH 60H 80H 88H 01H DATA CKS

DATA: Bit0: Connect Condition
      0: No connection
      1: Connected
Bit1: Fixed
      1:
Bit2: Power Status
      0: POWER ON
      1: POWER OFF(STANBY)
Bit3: Fixed
Bit4: Fixed
Bit5: Fixed
Bit6: Fixed
Bit7: Fixed
52. OSM OBITER

Function
In order to decrease printing of a screen by OSM display, whenever it displays OSM, shift operation of the OSM is carried out.

Transmission Data
DFH 80H 60H 5FH 01H DATA00 CKS
DATA00 01H : OBITER ON
02H : OBITER OFF

ACK
7FH 60H 80H 5FH 01H DATA00 CKS
DATA00 01H : OBITER ON
02H : OBITER OFF

53. Input Skip

Function
In a monitor's key "an input change", when there is no signal, it flies and shifts to the following channel.

Transmission Data
DFH 80H 60H 61H 01H DATA00 CKS
DATA00 01H : ON
02H : OFF

ACK
7FH 60H 80H 61H 01H DATA00 CKS
DATA00 01H : ON
02H : OFF
54. SERIAL No. Request

*Function*
External control apparatus read the serial number of the set recorded by EEPROM of a plasma display.

*Transmission Data*

```
1FH  80H  60H  15H  00H  CKS
```

*ACK*

```
7FH  60H  80H  15H  0CH  DATA00 to DATA11  CKS
```

Even DATA00-DATA11 is set up as follows.
Setting value          00H-09H : 0 - 9
                     96H    : Blank
                     10H-29H : A-Z of Alphabet

55. S1/S2 SELECT

*Function*
External control apparatus sets up the S1/S2 detection of a plasma monitor.

*Transmission Data*

```
DFH  80H  60H  89H  01H  DATA00  CKS
DATA00  01H : AUTO
       02H : OFF
```

*ACK*

```
7FH  60H  80H  89H  01H  DATA00  CKS
DATA00  01H : AUTO
       02H : OFF
```
56. **SOFT FOCUS**

*Function*

External control apparatus sets up the Soft Focus of a plasma monitor.

*Transmission Data*

<table>
<thead>
<tr>
<th>DFH</th>
<th>80H</th>
<th>60H</th>
<th>65H</th>
<th>01H</th>
<th>DATA00</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00</td>
<td>01H : OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>02H : LEVEL1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>03H : LEVEL2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>04H : LEVEL3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>05H : LEVEL4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*ACK*

<table>
<thead>
<tr>
<th>7FH</th>
<th>60H</th>
<th>80H</th>
<th>65H</th>
<th>01H</th>
<th>DATA00</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00</td>
<td>01H : OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>02H : LEVEL1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>03H : LEVEL2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>04H : LEVEL3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>05H : LEVEL4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

57. **PLUG and PLAY**

*Function*

External control apparatus sets up the Plug and Play of a plasma monitor.

*Transmission Data*

<table>
<thead>
<tr>
<th>DFH</th>
<th>80H</th>
<th>60H</th>
<th>8EH</th>
<th>01H</th>
<th>DATA00</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00</td>
<td>01H : PC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>02H : STB/DVD(HDCP signal)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*ACK*

<table>
<thead>
<tr>
<th>7FH</th>
<th>60H</th>
<th>80H</th>
<th>8EH</th>
<th>01H</th>
<th>DATA00</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00</td>
<td>01H : PC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>02H : STB/DVD(HDCP signal)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
58. BLACK LEVEL SELECT

**Function**
External control apparatus sets up the black level (digital signal level) of a plasma monitor.

**Transmission Data**
```
<table>
<thead>
<tr>
<th>DFH 80H 60H 8FH 01H DATA00 CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00: 01H: LOW</td>
</tr>
<tr>
<td>02H: HIGH</td>
</tr>
</tbody>
</table>
```

**ACK**
```
<table>
<thead>
<tr>
<th>7FH 60H 80H 8FH 01H DATA00 CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00: 01H: LOW</td>
</tr>
<tr>
<td>02H: HIGH</td>
</tr>
</tbody>
</table>
```

59. OSM CONTRAST SELECT

**Function**
External control apparatus selects the OSM contrast function of a plasma monitor.

**Transmission Data**
```
<table>
<thead>
<tr>
<th>DFH 80H 60H 37H 01H DATA00 CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00: 01H: NORMAL</td>
</tr>
<tr>
<td>02H: LOW</td>
</tr>
</tbody>
</table>
```

**ACK**
```
<table>
<thead>
<tr>
<th>7FH 60H 80H 37H 01H DATA00 CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00: 01H: NORMAL</td>
</tr>
<tr>
<td>02H: LOW</td>
</tr>
</tbody>
</table>
```

60. OSM Select

**Function**
The external control equipment switches on or off the on-screen menu (OSM) of the plasma monitor.

**Transmission Data**
```
<table>
<thead>
<tr>
<th>DFH 80H 60H 58H 01H DATA00 CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00: 01H: On-Screen menu On</td>
</tr>
<tr>
<td>02H: On-Screen menu Off</td>
</tr>
</tbody>
</table>
```

**ACK**
```
<table>
<thead>
<tr>
<th>7FH 60H 80H 58H 01H DATA00 CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATA00: 01H: On-Screen menu On</td>
</tr>
<tr>
<td>02H: On-Screen menu Off</td>
</tr>
</tbody>
</table>
```

*Operation is as described in the table below.*

<table>
<thead>
<tr>
<th>Operation</th>
<th>On-Screen Menu (OSM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Display of items and adjustments on the menu</td>
</tr>
<tr>
<td></td>
<td>Volume display, input display, and screen size display</td>
</tr>
<tr>
<td>When screen menu is ON</td>
<td>When screen menu is OFF</td>
</tr>
<tr>
<td>When screen menu is OFF</td>
<td>When screen menu is ON</td>
</tr>
<tr>
<td></td>
<td>When screen menu is OFF</td>
</tr>
</tbody>
</table>
61. **INVERSE Set**

**Function**
The external control equipment sets the INVERSE (inverse of image brightness) and the WHITE of the plasma monitor.

**Transmission Data**

```
<table>
<thead>
<tr>
<th>Function</th>
<th>Data00</th>
<th>Data01</th>
<th>Data02</th>
</tr>
</thead>
<tbody>
<tr>
<td>INVERSE/WHITE</td>
<td>00H: No operation</td>
<td>01H: ON (INVERSE)</td>
<td>02H: OFF</td>
</tr>
<tr>
<td></td>
<td>03H: WHITE</td>
<td>DATA01: WORKING TIME</td>
<td>DATA02: WAITING TIME</td>
</tr>
<tr>
<td></td>
<td>00H: ON</td>
<td>01H: 03M (minutes)</td>
<td>01H: 03M (minutes)</td>
</tr>
<tr>
<td></td>
<td>02H: 06M (minutes)</td>
<td>FFH: 12H (hours) and 45M (minutes)</td>
<td>02H: 06M (minutes)</td>
</tr>
<tr>
<td></td>
<td>FFH: 12H (hours) and 45M (minutes)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

**ACK**

```
3FH 60H 80H C7H 00H CKS
```

**NOTE:** The WORKING TIME and the WAITING TIME can be set in units of 3 minutes.

Example: 03H=9 minutes

1EH=1 hour and 30 minutes
62. TIMER SWITCH

Function
The external control equipment sets the timer reservation of the plasma monitor.

Transmission Data

<table>
<thead>
<tr>
<th>DFH</th>
<th>80H</th>
<th>60H</th>
<th>02H</th>
<th>01H</th>
<th>DATA00</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>00H : Reservation OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>01H : Reservation ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ACK

<table>
<thead>
<tr>
<th>7FH</th>
<th>60H</th>
<th>80H</th>
<th>02H</th>
<th>01H</th>
<th>DATA00</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>00H : Reservation OFF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>01H : Reservation ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

63. TIMER PROGRAM SETTING

Function
External control apparatus sets up the timer program of a plasma monitor.

Transmission Data

<table>
<thead>
<tr>
<th>DFH</th>
<th>80H</th>
<th>60H</th>
<th>30H</th>
<th>08H</th>
<th>DATA00 to DATA07</th>
<th>CKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>01H<del>07H : No1</del>No7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA00 PROGRAM No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA01 DATE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01H~07H : Sunday - Saturday</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>08H : Every day</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>09H~0FH : Every week Sunday - every week Saturday</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FFH : (with No Setup)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA02 ON time (HOUR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00H<del>09H : 00</del>09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10H<del>19H : 10</del>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20H<del>23H : 20</del>23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FFH : (with No Setup)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA03 ON time (MIN)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00H<del>09H : 00</del>09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10H<del>19H : 10</del>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20H<del>29H : 20</del>29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30H<del>39H : 30</del>39</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40H<del>49H : 40</del>49</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50H<del>59H : 50</del>59</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FFH : (with No Setup)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA04 OFF time (HOUR)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00H<del>09H : 00</del>09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10H<del>19H : 10</del>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20H<del>23H : 20</del>23</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FFH : (with No Setup)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DATA05 OFF time(MIN)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00H<del>09H : 00</del>09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10H<del>19H : 10</del>19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20H<del>29H : 20</del>29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30H<del>39H : 30</del>39</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40H<del>49H : 40</del>49</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50H<del>59H : 50</del>59</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FFH : (with No Setup)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
DATA06 INPUT
01H : Video1
02H : Video2
03H : Video3
04H : COMPNT1
05H : COMPNT2
06H : PC1DSUB
07H : PC2-BNC
08H : PC3-DVI
FFH : - (with No Setup)

DATA07 MODE
01H : OBIT
02H : INV
03H : WT
04H : WIPER
FFH : - (with No Setup)

ACK
7FH 60H 80H 30H 00H CKS

64. PRESENT TIME SETTING

Function
External control apparatus sets up the present time of a plasma monitor.

Transmission Data
DFH 80H 60H 31H 03H DATA00 to DATA02 CKS
DATA00 Day of the week 01H-07H : 1-7 (Sunday - Saturday)
DATA01 HOUR 
00H-09H:00-09
10H-19H:10-19
20H-23H:20-23
DATA02 minutes
00H-09H:00-09
10H-19H:10-19
20H-29H:20-29
30H-39H:30-39
40H-49H:40-49
50H-59H:50-59

ACK
7FH 60H 80H 31H 00H CKS

65. MULTI MODE Select

Function
External control apparatus changes MULTI MODE of a plasma monitor.

Transmission Data
DFH 80H 60H 03H 03H DATA00 DATA01 DATA02 CKS
DATA00 (SCREEN DIVIDER SETTING)
01H : Single mode
02H : Multi mode 1 screens
03H : Multi mode 4 screens
04H : Multi mode 9 screens
05H : Multi mode 16 screens
06H : Multi mode 25 screens
DATA01 (POSITION OF DIVIDE)
01H : Upper left selected (4 screens)
02H : Upper right selected (4 screens)
03H : Lower right selected (4 screens)
04H : Lower left selected (4 screens)
07H : Top left selected (9 screens)
08H : Top middle selected (9 screens)
09H : Top right selected (9 screens)
0AH : Middle left selected (9 screens)
0BH : Middle center selected (9 screens)
0CH : Middle right selected (9 screens)
0DH : Bottom left selected (9 screens)
0EH : Bottom middle selected (9 screens)
0FH : Bottom right selected (9 screens)
10H : position 1 (16 screens, refer to figure 1)
11H : position 2 (16 screens, refer to figure 1)
: 
18H : position 9 (16 screens, refer to figure 1)
19H : position 10 (16 screens, refer to figure 1)
: 
1FH : position 16 (16 screens, refer to figure 1)

20H : position 1 (25 screens, refer to figure 2)
21H : position 2 (25 screens, refer to figure 2)
: 
29H : position 10 (25 screens, refer to figure 2)
2AH : position 11 (25 screens, refer to figure 2)
: 
32H : position 19 (25 screens, refer to figure 2)
33H : position 20 (25 screens, refer to figure 2)
: 
38H : position 25 (25 screens, refer to figure 2)

DATA02 (DISP MODE)
00H : SPLIT
01H : BRANKING

ACK
7FH 60H 80H 03H 03H DATA00 DATA01 DATA02 CKS

DATA00 (SCREEN DIVIDER SETTING)
01H : Single mode
02H : Multi mode 1 screens
03H : Multi mode 4 screens
04H : Multi mode 9 screens
05H: Multi mode 16 screens
06H: Multi mode 25 screens

DATA01 (POSITION OF DIVIDE)
01H: Upper left selected (4 screens)
02H: Upper right selected (4 screens)
03H: Lower right selected (4 screens)
04H: Lower left selected (4 screens)
07H: Top left selected (9 screens)
08H: Top middle selected (9 screens)
09H: Top right selected (9 screens)
0AH: Middle left selected (9 screens)
0BH: Middle center selected (9 screens)
0CH: Middle right selected (9 screens)
0DH: Bottom left selected (9 screens)
0EH: Bottom middle selected (9 screens)
0FH: Bottom right selected (9 screens)
10H: position1 (16 screens, refer to figure1)
11H: position2 (16 screens, refer to figure1)
18H: position9 (16 screens, refer to figure1)
19H: position10 (16 screens, refer to figure1)
20H: position1 (25 screens, refer to figure2)
21H: position2 (25 screens, refer to figure2)
29H: position10 (25 screens, refer to figure2)
2AH: position11 (25 screens, refer to figure2)
32H: position19 (25 screens, refer to figure2)
33H: position20 (25 screens, refer to figure2)
38H: position25 (25 screens, refer to figure2)

DATA02 (DISP MODE)
00H: SPLIT
01H: BRANKING

### 66. MULTI MODE Request

**Function**

External control apparatus can know the MULTI MODE information on a plasma monitor.
**Transmission Data**

1FH 80H 60H 3BH 00H CKS

**ACK**

7FH 80H 60H 3BH 02H DATA00 DATA01 DATA02 CKS

DATA00 (SCREEN DIVIDER SETTING)
- 01H: Single mode
- 02H: Multi mode 1 screens
- 03H: Multi mode 4 screens
- 04H: Multi mode 9 screens
- 05H: Multi mode 16 screens
- 06H: Multi mode 25 screens

DATA01 (POSITION OF DIVIDE)
- 01H: Upper left selected (4 screens)
- 02H: Upper right selected (4 screens)
- 03H: Lower right selected (4 screens)
- 04H: Lower left selected (4 screens)
- 07H: Top left selected (9 screens)
- 08H: Top middle selected (9 screens)
- 09H: Top right selected (9 screens)
- 0AH: Middle left selected (9 screens)
- 0BH: Middle center selected (9 screens)
- 0CH: Middle right selected (9 screens)
- 0DH: Bottom left selected (9 screens)
- 0EH: Bottom middle selected (9 screens)
- 0FH: Bottom right selected (9 screens)

10H: position1(16 screens, refer to figure1)
11H: position2(16 screens, refer to figure1)

18H: position9(16 screens, refer to figure1)
19H: position10(16 screens, refer to figure1)

1FH: position16 (16 screens, refer to figure1)

20H: position1(25 screens, refer to figure2)
21H: position2(25 screens, refer to figure2)

29H: position10(25 screens, refer to figure2)
2AH: position11(25 screens, refer to figure2)

32H: position19(25 screens, refer to figure2)
33H: position20(25 screens, refer to figure2)

38H: position25(25 screens, refer to figure2)

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**Figure 1**

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**Figure 2**
DATA02 (DISP MODE)
00H : SPLIT
01H : BRANKING
67. AUTO ID SET START

**Function**
External control apparatus sets up ID automatically to two or more plasma monitors.

**Transmission Data**
5FH 80H 60H F0H 01H DATA00 CKS

DATA00 00H~FFH: ID of a master*1 is set up.

*: When you use it by the multi-system, please remove the link input of a master*1.

*1: “Master” means the 1st set of PDP at the time of cable connection at the time of AUTO ID execution.

68. PLE LINK

**Function**
External control apparatus sets up equally PLE between two or more plasma monitors.

**Transmission Data**
DFH 80H 60H F1H 03H DATA00 to DATA02 CKS

DATA00 00H: PLE LINK ON
01H: PLE LINK OFF
DATA01 FFH (fixed)
DATA02 FFH (fixed)

*: Turn on the AUTO ID and set the DIVIDER (at 1, 4 or 9), before this operation

69. VIDEO WALL SETTING

**Function**
External control apparatus sets 4screens or 9screens as a video wall.

**Transmission Data**
DFH 80H 60H F3H 03H DATA00 DATA01 DATA02 CKS

DATA00: 01H: 1 screen
          (Matrix display function does not work.)
         04H: 4 screens (2*2 video wall)
         09H: 9 screens (3*3 video wall)

DATA 01: 00H (fixed)
DATA 02: 01H : Video1
         02H : Video2
         03H : Video3
         04H : COMPNT1
         05H : COMPNT2
         06H : COMPNT3
         07H : PC1DSUB
         08H : PC2-BNC
         09H : PC3-DVI

*: Turn on the AUTO ID, before this operation
*: This command is used to following system.
1. The system configuration is video wall system (4screens or 9screens).
Then please connect each PDP by wired cable.
   In the case of 16 screens or 25 screens video wall system, please refer to No.65.”MULTI MODE Select”.
2. The ID number from a master display is set the continuous number.
70. POWER DELAY ON (at 4 or 9 multiscreen)

**Function**
External control apparatus attaches a time lag to two or more plasma monitors, and turns on a power supply.

**Transmission Data**

```
DFH 80H 60H F2H 01H DATA00 CKS
```

DATA00: 00H-FFH: Delay time (second)

*Turn on the AUTO ID and set the DIVIDER (at 4 or 9), before this operation

*: This command is premised on two or more plasma monitor system composition being multi-systems. In command issue of master^1 OSD operation, the value of DATA00 is 01H (1 second). This command does not have ACK for one-way traffic.

^1: “Master” means the 1st set of PDP at the time of cable connection at the time of AUTO ID execution.

71. POWER DELAY ON (at 16 or 25 multi screens)

**Function**
External control apparatus attaches a time lag to 10 or more plasma monitors, and turns on a power supply.

**Transmission Data**

```
DFH 80H 60H F6H 01H DATA00 CKS
```

DATA00: 01H: mode1
02H: mode2

**ACK**

```
7FH 60H 80H F6H 01H DATA00 CKS
```

DATA00: 01H: mode1
02H: mode2

**NOTE:** When multi mode is 16 or 25, this function is available.
72. ORBITER SET

Function
A picture shift function is set up.

Transmission Data
DFH 80H 60H 1EH 04H DATA00 to DATA03 CKS

DATA00: Mode
00H : OFF
01H : Auto 1
02H : Auto 2
03H : Manual

DATA01: The horizontal amount of movements
1 dot : 01H
to : -
20 dot : 14H

DATA02: The vertical amount of movements
One line : 01H
to : -
20 line : 14H

DATA03: Interval of operation 1 - 5 minutes : 01H - 05H

ACK
7FH 60H 80H 1EH 01H DATA00 CKS

DATA00: Mode
00H : OFF
01H : Auto 1
02H : Auto 2
03H : Manual

* DATA01-03
Auto1,2 setting : 01H fixed
Manual setting : Please set DATA 01-03.

73. OSM ANGLE

Function
The vertical display of OSM and a horizontal display are chosen.

Transmission Data
DFH 80H 60H 60H 01H DATA00 CKS

DATA00 01H : Horizontal display
02H : Vertical display

ACK
7FH 60H 80H 60H 01H DATA00 CKS

DATA00 01H : Horizontal display
02H : Vertical display

74. PICTURE Size

Function
Screen mode selection.
Transmission Data

DFH 80H  60H  2AH  01H  DATA00  CKS
DATA00 01H : ON
02H : OFF

ACK

7FH  60H  80H  2AH  01H  DATA00  CKS
DATA00 01H : ON
02H : OFF

75. OPTION Select

Function
Power-on mode, a control lock, and IR remote are set up.

Transmission Data

DFH  80H  60H  63H  04H  DATA00 to DATA03  CKS
DATA00 : Power ON mode 00H : LAST
01H : Video1
02H : Video2
03H : Video3
05H : COMPNT1
06H : COMPNT2
07H : PC1DSUB
08H : PC2-BNC
0CH : PC3-DVI
DATA01 : Control Lock 00H : OFF
01H : ON
DATA02 : IR remote 00H : OFF
01H : ON
DATA03 : Loop Out 00H : OFF
01H : ON

ACK

7FH  60H  80H  63H  00H  CKS

76. REPEAT Timer

Function
External control apparatus sets up the repeat timer of a plasma monitor.

Transmission Data

DFH  80H  60H  64H  07H  DATA00 to DATA06  CKS
DATA00 : REPEAT Timer OFF
01H : REPEAT Timer ON
DATA01 PROGRAM 1
01H : DIVIDER 1
02H : DIVIDER 4
03H : DIVIDER 9
DATA02 SOURCE 01H : Video1
02H : Video2
03H : Video3
05H : COMPNT1
06H : COMPNT2
07H : PC1DSUB
08H : PC2-BNC
0CH : PC3-DVI

DATA03 WORK TIME
01H-FFH: 1 - 255 minutes (1 minute · 4 hours and 15 minutes)

DATA04 PROGRAM 1
01H : DIVIDER 1
02H : DIVIDER 4
03H : DIVIDER 9

DATA05 SOURCE 01H : Video1
02H : Video2
03H : Video3
05H : COMPNT1
06H : COMPNT2
07H : PC1DSUB
08H : PC2-BNC
0CH : PC3-DVI

DATA06 WORK TIME
01H-FFH: 1 - 255 minutes (1 minute · 4 hours and 15 minutes)

ACK
7FH 60H 80H 64H 00H CKS

* Turn on the AUTO ID, before this operation
External Control Manual
RS-232C Configuration
(for PDP-614MX and PDP-424MV)

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