SONY®

Trinitron® Color Video Monitor

Model:

PVM-14M2MDU
PVM-20M2MDU
PVM-14M2MDE
PVM-20M2MDE
PVM-14M2MDA
PVM-20M2MDA

Interface Manual for

Programmers

Before operating the unit, please read this manual thoroughly and retain it for future references.

Contents

Communication Format

Asynchronous, bit serial signal
• Based on RS-232C
• Data signaling rate: 9600 baud/sec

The bit composition is defined as follows:

1 START bit +8 DATA bits + 1 PARITY bit + 1 STOP bit

"1" (Mark)

Start Bit	Bit 0 (LSB)	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7 (MSB)	Parity Bit	Stop Bit	

"0" (Space)
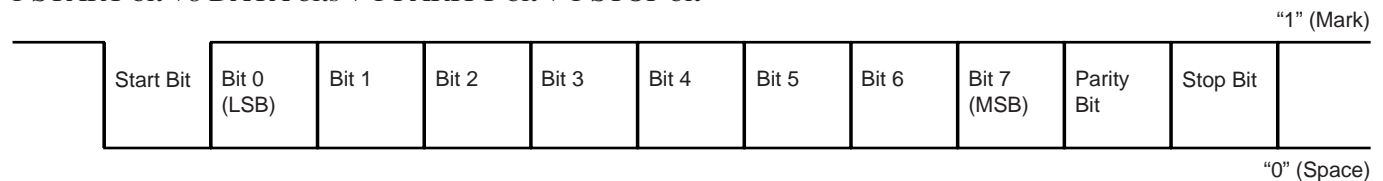
PARITY: Even
STOP BIT: One bit

Command Block Format

Data communication between the remote control device and the monitor is performed in accordance with the following format.

STX	Byte Count	Destination Address	Source Address	Command Block	Checksum
1 byte	1 byte	1 byte	1 byte	n bytes	1 byte

- STX: start of text code value equals 02hex.
- Byte Count
  This indicates the number of data bytes (maximum 255 bytes) which have been inserted between this byte and the Checksum byte.
  Values 00hex, 01hex, 02hex are illegal values.
- Destination address:
  One byte address value which defines who the message is for. Value 01hex should be specified.
- Source address:
  One byte address value which defines where the message came from. This is who to reply to with the message. Value from 41hex to 7Fhex should be specified.

- Command Block
  This designates a particular command. Refer to "Command Description" for the details.
- Checksum
  This value is set so that the bottom eight bits of the sum of all bytes from the byte count to the checksum inclusive are zero.

Communication Protocol

The remote control device should take the initiative in communication between the remote controller and the monitors.
The monitor will carry out one of the following three actions within 9 milliseconds of receiving the message.
- When the received message is an undefined message or a communication error occurs then issue: NAK (05hex)
- When the received command is a question then issue: Specific Reply + Data
- When the received command is anything else issue: ACK

The remote control should not issue any other commands until the response has been received from the monitor.
The remote control should not leave a gap between bytes to be transmitted of more than ten milliseconds. Otherwise the monitor will treat the message as received in ERROR.
If the remote control unit receives a NAK from the monitor it must wait more than ten milliseconds before transmitting any more messages.

Connections

Pin assignment for the RS-232C connector is as follows.

```
 5   4   3   2   1
   9   8   7   6
```
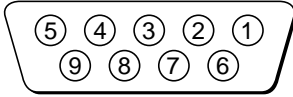
Pin number	Signal
1	Unused
2	RX
3	TX
4	Unused
5	GND
6	Unused
7	RTS
8	CTS
9	Unused

Features of the Command Protocol

This protocol provides the following features when individual monitors are controlled.
- The ability to change the parameters of the monitor without changing the NV RAM settings. These parameters include Presets, White Balance and Input Configuration.
- Switch functions can be changed.
- The ability to remotely make settings and adjustments normally made with the monitors's menu.
- The ability to save current monitors parameters into the NV RAM for safe keeping.

Command Table

Using this protocol, the following commands can be
executed by the monitors.
All values in the following table are hexadecimal.

Command from Remote Control			Return from Monitor		
Specific Command	Name	Data Bytes	Specific Command	Name	Data Bytes
21	Input Config	3	04	ACK	0
28	Selected Offset	1	04	ACK	0
29	On Switch Function	1	04	ACK	0
2A	Off Switch Function	1	04	ACK	0
2B	Select Display	1	04	ACK	0
2C	Select Menu	1	04	ACK	0
2E	Select Caption	1	04	ACK	0
2F	Select RGB Mode	1	04	ACK	0
40	White Balance Data	X	04	ACK	0
41	Preset Data	X	04	ACK	0
45	NV Ram Save	X	04	ACK	0
47	Preset Adjust	X	04	ACK	0
4C	Sub Control Data	X	04	ACK	0
4D	V Hold Data	1	04	ACK	0
4E	Reset Data	X	04	ACK	0
51	Split Phase Data	1	04	ACK	0
60	Status Sense 1	1	70	Status Reply 1	X
61	White Balance Sense	1	71	White Balance Reply	D
62	Preset Sense	1	72	Preset Reply	D
6B	Sub Control Sense	0	7B	Sub Control Reply	4
6C	V Hold Sense	0	7C	V Hold Reply	1
6D	Status Sense 2	1	7D	Status Reply 2	X
6E	Status Remote	1	7E	Status Remote Reply	X

X: varies depending on the number of data items.
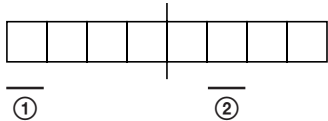
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Command Description

Input Config (21H)

Used to control the current video signal being displayed on the monitor.
The switches effectively being controlled are Input Connector, Sync, System, Preset White Balance.

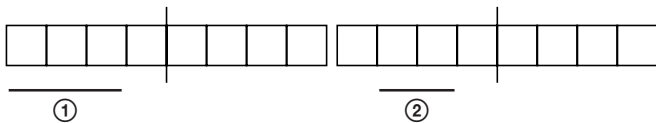The command has two sections.

1. Information being changed.

Bits which are not specified here are undefined bits and their values are always ignored.
① **Input connector information**
② **Preset white balance information**

The bit is set for the corresponding information to be applied to the monitor. If no bits are set the command is effectively ignored.

2. Values to be applied.
The values are specified as follows:

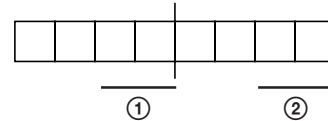Bits which are not specified here are undefined bits and their values are always ignored.
① **Input connector**
  LINE A = 000
  LINE B = 001
  RGB/COMPONENT A = 010
  RGB/COMPONENT B = 011
  SPLIT = 100
② **Preset white balance**
  6500K = 00
  5600K = 01
  9300K = 11
  User = 10

These values are applied to the current monitor state.

Selected Offset (28H)

Defines which type of offset is to be applied to COMPONENT and NTSC signals when these types of signals are selected for displaying.
The values are specified as follows:

Bits which are not specified here are undefined bits and their values are always ignored.
① **COMPONENT Offset**
  N10/SMPTE = 01
  Betacam 0% = 10
  Betacam 7.5% = 11
② **NTSC Offset**
  NTSC 0% = 01
  NTSC 7.5% = 10

On Switch Function (29H)

This command is used to switch a selected monitor function. This command has one of two meanings dependent upon which function is controlled, either the function is to be put to the on state or the equivalent of a key press has occurred.
The following table shows the functions that can be specified and what action is taken.

Name of Function	Specific Command	Action Taken
Remote/Local	30	Remote applied
Degauss	31	Degauss applied
Underscan	33	Underscan applied
Tally	35	Tally applied
Overscan	36	Overscan applied

## Off Switch Function (2AH)

Used to toggle some functions to the off state.
The following table shows the functions that can be specified and what action is taken.

Name of Function	Specific Command	Action Taken
Remote/Local	30	Local applied
Underscan	33	Underscan removed
Tally	35	Tally removed
Overscan	36	Overscan removed

Select Display (2BH)

Defines the color system display (function to display the color system of the signal being received in the lower left corner of the screen) for the monitor and the language to display text in.
The values are specified as follows:
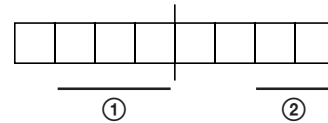
Bits which are not specified here are undefined bits and their values are always ignored.
① **Selected Language**
English = 001
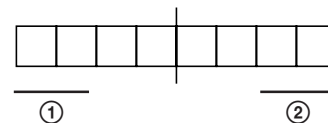German = 010
French = 011
Italian = 100
Spanish = 101
② **Selected Color System Display**
Auto = 01
ON = 10
OFF = 11

Select Menu (2CH)

Defines Chroma Setup and 358 Trap Filter items of the menu for the monitor.
The values are specified as follows:

Bits which are not specified here are undefined bits and their values are always ignored.
① **358 Trap Filter**
ON = 10
OFF = 01
② **Chroma Setup**
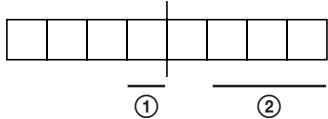OFF = 01
ON = 10
Auto Adjust = 11

Select Caption (2EH)

This command is only valid for the PVM-14M2MDU and PVM-20M2MDU.

This command defines the caption selection for the monitor.
The values are specified as follows:

Bits which are not specified here are undefined bits and their values are always ignored.
① **Option Status (Reply Only)**
   No Option = 0
   With Board = 1
② **Caption Select**
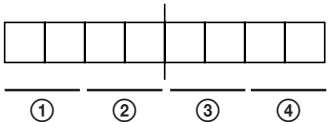   OFF = 001
   Caption 1 = 010
   Caption 2 = 011
   Text 1 = 100
   Text 2 = 101

Select RGB Mode (2FH)

Defines the RGB Mode selection for the monitor.
The values are specified as follows:

① **Video signal when using the RGB/COMPONENT B input connector**
   RGB = 01
   COMPONENT = 10
② **Sync signal when using the RGB/COMPONENT B input connector**
   Internal = 01
   External = 10
③ **Video signal when using the RGB/COMPONENT A input connector**
   RGB = 01
   COMPONENT = 10
④ **Sync signal when using the RGB/COMPONENT A input connector**
   Internal = 01
   External = 10
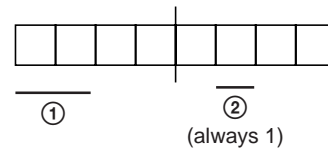
White Balance Data (40H)

This command is used to set values for the white balance data into the volatile RAM of the monitor.

The command has three components:
1. Range of color temperature values to be saved
2. The Elements of White Balance data being sent
3. The White Balance values to be saved
Each of these elements is described below
1. Range of color temperature values to be saved is the first byte of the data within the command block of the message. The values are specified as follows:

Bits which are not specified here are undefined bits and their values are always ignored.
① **3200 Switch**
   ON (3200K - 5000K) = 10
   OFF (5000K - 10000K) = 01
② **User preset switch**
   Be sure to specify 1.

2. The Elements of White Balance data being sent is the second byte of data contained within the command block of the message.
   Several items of white balance data can be specified in one message stream. Only those elements that need to be changed are indicated in this byte.
   The values of data being sent are indicated by a 1 being set in the appropriate bit position. Otherwise a 0 in the bit position indicates no data to be changed.
   If the value is zero no values are changed and the message is basically ignored.

The values are specified as follows:
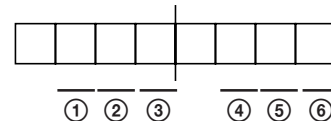
Bits which are not specified here are undefined bits and their values are always ignored.
① **Blue Bias Value**
② **Green Bias Value**
③ **Red Bias Value**
④ **Blue Gain Value**
⑤ **Green Gain Value**
⑥ **Red Gain Value**

3. The White Balance values to be stored
Each value requires two bytes of data, the first byte of the pairing is the Most Significant byte.
The pairs of bytes start at the Least Significant Bit end of the elements of data being sent i.e. if the data to be saved is blue gain and red bias then the first pair of white balance value bytes is blue gain and the last pair is red bias.
If there are not enough or too many data bytes of white balance data to be saved then no values are changed and the message is effectively ignored.
The values are specified as follows:

White balance value
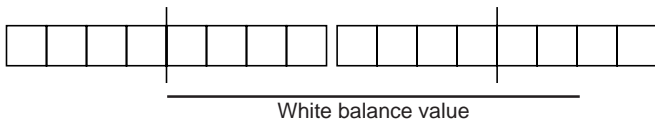
Bits which are not specified here are undefined bits and their values are always ignored.
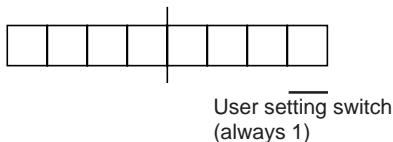
Preset Data (41H)

This command is used to set values for the Preset data into the volatile RAM of the monitor.
The values changed by this command will be lost when the controlled monitor is switched from remote to local unless they are saved in the NV RAM. The settings of the front panel controls will be ignored while the monitor is controlled via this protocol.
The Preset data consists of Chroma, Phase, Brightness, Contrast, Aperture and Volume.

The command has three components:
1. User setting switch
2. The Elements of Preset data being sent
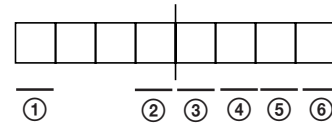3. The Preset Values to be saved

Each of these elements is described below.

1. Be sure to set (1) the least significant bit of the first byte of the data within the command block of the message.

User setting switch
(always 1)

Bits other than the LSB are undefined bits and their values are always ignored.

2. The Elements of Preset data being sent is the second byte of data contained within the command block of the message.
Several items of Preset data can be specified in one message stream. Only those elements that need to be changed are indicated in this byte.
The values of data being sent are indicated by a 1 being set in the appropriate bit position. Otherwise a 0 in the bit position indicates no data to be changed.
If the value is zero no values are changed and the message is basically ignored.
The values are specified as follows:

① ② ③ ④ ⑤ ⑥

Bits which are not specified here are undefined bits and their values are always ignored.
① **Volume**
② **Contrast**
③ **Aperture**
④ **Brightness**
⑤ **Phase**
⑥ **Chroma**

3. The Preset values to be saved
Each value requires two bytes of data, the first byte of the pairing is the Most Significant byte.
The pairs of bytes start at the Least Significant Bit end of the elements of data being sent i.e. if the data to be saved is Phase and Contrast then the first pair of Preset value bytes is Phase and the last pair is Contrast.
If there are not enough or too many data bytes of Preset values to be saved then no values are changed and the message is effectively ignored.
The values are specified as follows:

Preset data value
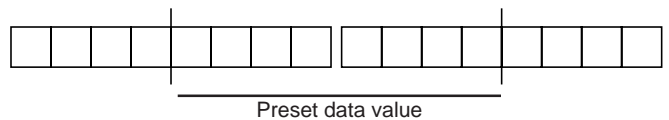
Bits which are not specified here are undefined bits and their values are always ignored.

NV RAM Save (45H)

This command is used to store data into the NV RAM. The data is taken from the current volatile memory locations and stored into the NV RAM.

The command has three portions:
1. Specific area of the NV RAM the data should be stored in.
2. The Elements of data to be saved.
3. The data items to be saved if necessary.

The following sections explain the meaning behind each of these portions:
1. Specific area of the NV RAM the data should be stored in.
   Be sure to set (1) the user area bit of the first byte of the data within the command block of the message.

User area bit
(always 1)
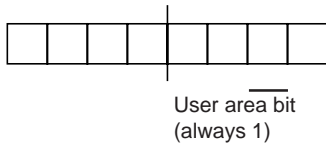
Bits which are not specified here are undefined bits and their values are always ignored.
If the user area bit is cleared (0), data will not be saved in the NV RAM.
This operation will take sometime to complete, approximately ten seconds. Therefore it is advised that the remote control device waits this period of time.

2. The Elements of data to be saved are defined in the second and third bytes of data.
   The appropriate bit is set (1) when the data is being saved, otherwise the bit is cleared (0).
   If the value is zero nothing is saved and the message is basically ignored.
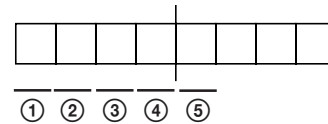   The values are specified as follows:

① ② ③
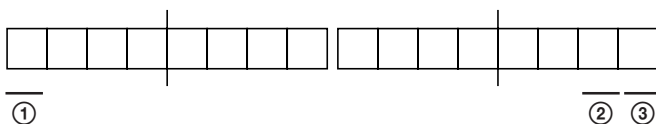
Bits which are not specified here are undefined bits and their values are always ignored.
① **Adjustable data**
② **White balance data**
③ **Selectable data (Input Config., Menu)**

3. In the fourth byte of the data, set (1) the bits which correspond to the adjustable data items to be saved in the NV RAM.

The values are specified as follows:

① ② ③ ④ ⑤

Bits which are not specified here are undefined bits and their values are always ignored.
① **V hold**
② **Sub control**
③ **User preset**
④ **Chroma setup**
⑤ **Split phase**

Preset Adjust (47H)

This command is used to adjust the Preset data values which are being displayed on the monitor. The Preset data consists of Chroma, Phase, Brightness, Contrast, Aperture and Volume.

The command has two components:
1. The Elements of Preset data being sent
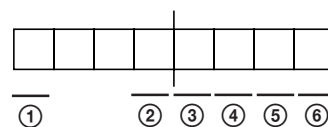2. The Preset Adjustment Values to be used

Each of these elements is described below.
1. The Elements of Preset data being sent is the first byte of data contained within the command block. Several items of Preset data can be specified in one message stream. Only those elements that need to be changed are indicated in this byte.
   The values of data being sent are indicated by a 1 being set in the appropriate bit position. Otherwise a zero in the bit position indicates no data to be changed.
   If the value is zero no values are changed and the message is basically ignored.

The values are specified as follows:

① ② ③ ④ ⑤ ⑥

Bits which are not specified here are undefined bits and their values are always ignored.
① **Volume value**
② **Contrast value**
③ **Aperture value**
④ **Brightness value**
⑤ **Phase value**
⑥ **Chroma value**

2. The Preset Adjustment values to be used
   Each value requires two bytes of data, the first byte of the pairing is the always ignored byte. The second byte is a signed value, this allows for +/– adjustments.

   The pairs of bytes start at the Least Significant Bit end of the elements of data being sent i.e. if the data to be adjusted is Phase and Contrast then the first pair of Preset value bytes is Phase and the last pair is Contrast.
   If there are not enough or too many data bytes of Preset values then no values are changed and the message is effectively ignored.

Sub Control Data (4CH)

This command is used to specify the Sub Control data of the monitor.

The command has two components:
1. The Elements of Sub Control data being sent
2. The Data values to be used

Each of these elements is described below
1. The Elements of Sub Control data being sent is the first byte of data contained within the command block.
   Several items of Sub Control data can be specified in one message stream. Only those elements that need to be changed are indicated in this byte.
   The values of data being sent are indicated by a 1 being set in the appropriate bit position. Otherwise a 0 in the bit position indicates no data to be changed.
   If the value is 0 no values are changed and the message is basically ignored.

   The values are specified as follows:

   ```
   ┌──┬──┬──┬──┬──┬──┬──┬──┐
   │  │  │  │  │  │  │  │  │
   └──┴──┴──┴──┴──┴──┴──┴──┘
    ①        ②  ③  ④
   ```
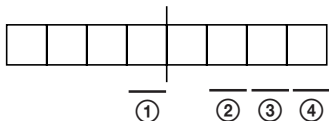
   Bits which are not specified here are undefined bits and their values are always ignored.
   ① **Contrast value**
   ② **Brightness value**
   ③ **Phase value**
   ④ **Chroma value**

2. The Data values to be used
   Each value is one byte of data, up to a maximum value of 100 (7 bit data, MSB always 0).

The data bytes start at the Least Significant Bit end of the elements of data being sent i.e. if the data to be adjusted is Phase and Contrast then the first byte of Data value bytes is Phase and the last byte is Contrast.
If there are not enough or too many data bytes of data values then no values are changed and the message is effectively ignored.

V Hold Data (4DH)

This command is used to specify the V Hold data. The values are specified as follows:

```
┌──┬──┬──┬──┬──┬──┬──┬──┐
│  │  │  │  │  │  │  │  │
└──┴──┴──┴──┴──┴──┴──┴──┘
       V Hold data value
```
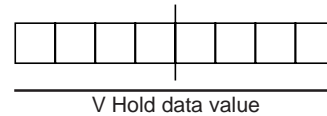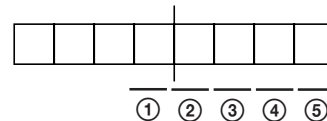
Reset Data (4EH)

This command is used to restore data in the monitor to the factory defaults.
The command has two portions:
1. The Elements of data to be restored
2. The data items to be restored

The following sections explain the meaning behind each of these portions:
1. The Elements of data to be restored.
   The values are specified as follows:

   ```
   ┌──┬──┬──┬──┬──┬──┬──┬──┐
   │  │  │  │  │  │  │  │  │
   └──┴──┴──┴──┴──┴──┴──┴──┘
    ①  ②  ③  ④  ⑤
   ```

   Bits which are not specified here are undefined bits and their values are always ignored.
   ① **Split Phase data**
   ② **V Hold data**
   ③ **Sub Control data**
   ④ **User Preset data**
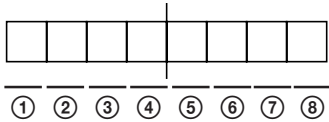   ⑤ **White Balance (user) data**

   The appropriate bit is set (1) when the data is to be restored, otherwise the bit is cleared (0).
   If the value is zero nothing is restored and the message is basically ignored.
   This operation will take approximately ten seconds to execute therefore it is advised that the remote control device waits this period of time.

2. The data items to be restored are defined in the second, third and fourth bytes of data.
This is the last section of data within the message and is used with the White Balance (user), User Preset and Sub Control mentioned above.
The bytes are applied from White Balance (user) data towards Sub Control data.
The values are specified as follows:

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

	White Balance (second byte)	User Preset (third byte)	Sub Control (fourth byte)
①	(Ignored)	Volume	(Ignored)
②	Blue bias	(Ignored)	(Ignored)
③	Green bias	(Ignored)	(Ignored)
④	Red bias	Contrast	Contrast
⑤	(Ignored)	Aperture	(Ignored)
⑥	Blue gain	Bright	Bright
⑦	Green gain	Phase	Phase
⑧	Red gain	Chroma	Chroma

Split Phase Data (51H)

This command is used to specify the Split Phase data.
The values are specified as follows:

Split phase date value
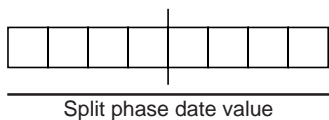
The value is one byte long, up to a maximum value of 100 (7 bit data, MSB always 0).

Status Sense 1 (60H)

This command is used to sense the status of the monitor's current operation.
The remote control device can specify which item of data should be in the reply. The items being asked for are detailed in one data byte.
The requested items are specified as follows:

①   ②
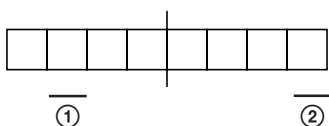
① **Selected Offset**
② **Current Input Configuration**

The monitor will reply with the Status Reply (70H) message.

White Balance Sense (61H)

This command is used to obtain the White Balance data stored in one of the registers of the monitor.
The White Balance data request bit of the first byte of data must be set (1). Bits other than that are undefined bits and their values are always ignored.

White Balance data request
(always 1)
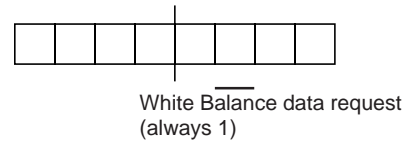
The monitor will reply with the White Balance Reply (71H) message.

Preset Sense (62H)

This command is used to obtain the Preset data stored in one of the registers of the monitor.
The least significant bit of the first byte of data must be set (1). Bits other than this are undefined bits and their values are always ignored.

User Preset deta request
(always 1)
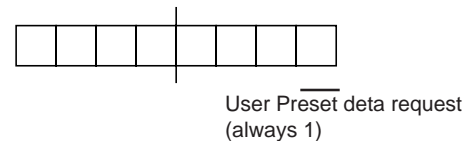
The monitor will reply with the Preset Reply message (72H).

Sub Control Sense (6BH)

This command is used to obtain the following Sub Control data.
- Brightness value
- Chroma value
- Phase value
- Contrast value

The monitor will reply with the Sub Control Reply (7BH) message.

V Hold Sense (6CH)

This command is used to obtain the V Hold data of the monitor.
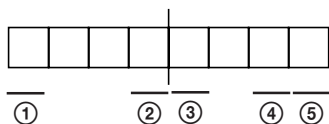The monitor will reply with the V Hold Reply (7CH) message.

Status Sense 2 (6DH)

This command is used to obtain the lesser details of status of the monitor.
The remote control device can specify which item of data should be in the reply. The items being asked for are detailed in one data byte.
Set (1) the bits corresponding to the data items being asked for.
The requested items are specified as follows:

Bits which are not specified here are undefined bits and their values are always ignored.
① **Switch Condition 2**
② **RGB Mode**
③ **Caption Vision (for the U.S.A. and Canada only)**
④ **Menu**
⑤ **Display**

The monitor will reply with the Status Sense 2 Reply (7DH) message.

Status Remote (6EH)

This command is used to obtain the current status of the monitor's remote control ability. The monitor will reply with the Status Remote Reply (7EH) message.

Status Reply 1 (70H)

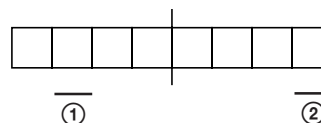This message is used to reply to the status request command.

The reply consists of two portions
1. Elements of reply data
2. Reply data

Each of these portions is described in the following sections:
1. Elements of reply data, first byte of the data reply
   The bits corresponding to the elements of reply data are set (1).
   The values are specified as follows:

   Bits which are not specified here are undefined bits and their values are always ignored.
   ① **Selected Offset**
   ② **Current Input Configuration data**

2. Reply data, which will consist of several bytes.
   The reply data will start at the Least Significant Bit of the data required i.e. Current Input Configuration first.
   Each section of the data reply requires the following details.
   Current Input Configuration: two bytes; the byte order is the same as that specified in the second section under the command Input Config (21H).
   Selected Offset: One byte of data; see command Selected Offset (28H) for details.

White Balance Reply (71H)

This message is used to send the required White Balance data to the remote controller.
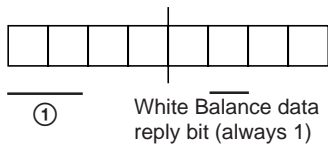
The reply consists of two portions
1. Specification of White Balance data
2. Reply data

Each of these portions is described in the following sections:
1. Specification of White Balance data, first byte of the data reply
   The White Balance data reply bit is set (1).

①   White Balance data
           reply bit (always 1)

① **3200 Switch**
   ON (3200K - 5000K) = 10
   OFF (5000K - 10000K) = 01

Bits which are not specified here are undefined bits and their values are always ignored.

2. Reply data
   The order of the data reply is as follows:
   • Red Gain
   • Green Gain
   • Blue Gain
   • Red Bias
   • Green Bias
   • Blue Bias
   The byte order for each set of data is highest value byte first.

Preset Reply (72H)

This message is used to send the Preset data stored in the register of the monitor to the remote controller.
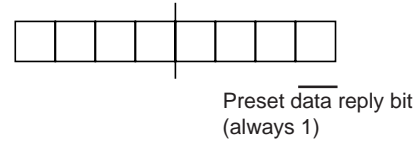
The reply consists of two portions
1. Specification of Preset data
2. Reply data

Each of these portions is described in the following sections:
1. Specification of Preset data, first byte of the data reply
   The least significant bit is set (1).

Preset data reply bit
(always 1)

Bits which are not specified here are undefined bits and their values are always ignored.

2. Reply data
   The order of the data reply is as follows:
   • Chroma value
   • Phase value
   • Brightness value
   • Contrast value
   • Aperture value
   • Volume value
   The byte order for each set of data is highest value byte first.

Sub Control Reply (7BH)

This reply informs the remote control of the values held by the Sub Control data of the monitor.

The order of the data reply is as follows:
• Brightness value
• Chroma value
• Phase value
• Contrast value

Each value is one byte long.

V Hold Reply (7CH)

This reply contains the V Hold Data of the monitor.

Status Reply 2 (7DH)

This reply provides the lesser details of status of the monitor.

The reply consists of two portions.
1. Elements of reply data
2. Reply data

Each of these portions is described in the following sections:

1. Elements of reply data, first byte of the data reply
   The bits corresponding to the elements of reply data are set (1).
   The values are specified as follows:

```
┌──┬──┬──┬──┬──┬──┬──┬──┐
│  │  │  │  │  │  │  │  │
└──┴──┴──┴──┴──┴──┴──┴──┘
 ‾‾        ‾‾ ‾‾   ‾‾ ‾‾
 ①         ② ③    ④ ⑤
```
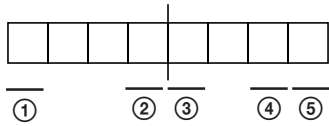
   Bits which are not specified here are undefined bits and their values are always ignored.
   ① **Switch Condition 2**
   ② **RGB Mode**
   ③ **Caption Vision**
   ④ **Menu**
   ⑤ **Display**

2. Reply data
   The data of the reply will start at the Display value (if this data was requested) and finish at the Switch Condition 2 value.
   Each section of the data reply requires the following details
   Display: one byte; the byte value is the same as that specified under the command Select Display (2BH)
   Menu: one byte; the byte value is the same as that specified under the command Select Menu (2CH)
   Caption Vision: one byte; the byte value is the same as that specified under the command Select Caption (2EH)
   RGB Mode: one byte; the byte value is the same as that specified under the command Select RGB Mode (2FH)
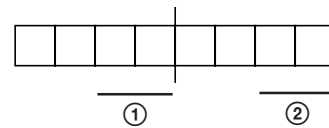   Switch Condition 2: The values are specified as follows:

```
┌──┬──┬──┬──┬──┬──┬──┬──┐
│  │  │  │  │  │  │  │  │
└──┴──┴──┴──┴──┴──┴──┴──┘
           ‾‾ ‾‾ ‾‾
           ① ② ③
```
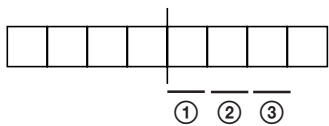
   Bits which are not specified here are undefined bits and their values are always ignored.
   ① **Tally**
   ② **Overscan**
   ③ **Underscan**

Status Remote Reply (7EH)

This reply informs the remote controller of the current remote status of the monitor. The monitor should always reply to questions independent of the actual remote state.

The value being supplied are specified as follows:

```
┌──┬──┬──┬──┬──┬──┬──┬──┐
│  │  │  │  │  │  │  │  │
└──┴──┴──┴──┴──┴──┴──┴──┘
        ‾‾          ‾‾
        ①          ②
```

Bits which are not specified here are undefined bits and their values are always ignored.
① **Control applied**
   Remote mode = 01
   Local mode = 10
② **Type of remote control ready to apply**
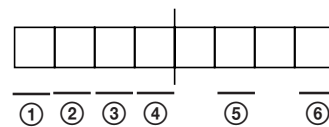   This value should always be 10 (serial).

ACK Reply (04H)

This shows that the command to the monitor was correctly received and executed.

NAK Reply (05H)

Used to specify which type of problem has been found with the serial communication port by the monitor.

The values are specified as follows:

```
┌──┬──┬──┬──┬──┬──┬──┬──┐
│  │  │  │  │  │  │  │  │
└──┴──┴──┴──┴──┴──┴──┴──┘
 ‾‾ ‾‾ ‾‾ ‾‾    ‾‾    ‾‾
 ① ② ③ ④     ⑤     ⑥
```

Bits which are not specified here are undefined bits and their values are always set to 0.
① **Timeout Error:** time between bytes should be less than 10 milliseconds (= 0) otherwise an error occurs (inter byte time > 10 milliseconds = 1)
② **Framing error on received message**
   No error = 0
   Received message had a framing error = 1
③ **Overrun error on received message**
   No error = 0
   Received message had an overrun error = 1
④ **Parity error on received message**
   No error = 0
   Received message had a parity error = 1
⑤ **Checksum error on received message**
   No error = 0
   Received message had a checksum error = 1
⑥ **Undefined message**
   Received message was understood = 0
   Received message was not understood = 1