

=====  
Control Commands for NEC Plasma (Basic) Rev 1.0

Copyright (C) NEC Solutions (America), Inc. 2002-2006

-----  
Updated on November 29, 2006

-----  
This file contains information about NEC plasma control commands.

Model Name

VP : PX-42VP4/42VP4D/42VP5

VM : PX-42VM4/42VM5

VR : PX-42VR5

XM : PX-42XM2/42XM3/42XM4/42XM5/50XM3/50XM4/50XM5/50XM6/61XM2+/61XM3/61XM4/60XM5

XR : PX-42XR3/42XR4/42XR5/50XR4/50XR5/50XR6/61XR3/61XR4/60XR5

=====  
Contents

1. Plasma Control
2. Connection Method
3. Interface Conditions
4. List of Commands
5. Command Descriptions
6. Table of Response Error Codes

=====  
1. Plasma Control

-----  
NEC plasmas make use of control commands that control the functions of the plasma via connection with a personal computer or another device.

=====  
2. Connection Method

-----  
The following 3 kinds of connection methods are available for sending and receiving control commands.

1. Serial connection using the serial port on the plasma  
A serial cable is required.

Status of supported connection

	(1) Serial port
PX-42VP4/42VP4D/42VP5	Yes
PX-42VM4/42VM5	Yes
PX-42VR5	Yes
PX-42XM2/42XM3/42XM4/42XM5/50XM3/50XM4/50XM5/50XM6/61XM2+/61XM3/61XM4/60XM5	Yes
PX-42XR3/42XR4/42XR5/50XR4/50XR5/50XR6/61XR3/61XR4/60XR5	Yes

Yes: Supported

No: Not supported

=====  
3. Interface Conditions

---

## Serial connection

---

The communications method conforms to the RS-232C standard.

Baud rate: 9600 bps  
Data length: 8 bits  
Parity bit: Odd parity  
Stop bits: 1 bit  
Communications mode: Full duplex

The control connector is described below.

The PC CONTROL connector is a D-SUB 9-pin connector.

- 1
- 2 To TxD of PC
- 3 To RxD of PC
- 4
- 5 To GND of PC
- 6
- 7 To CTS of PC
- 8 To RTS of PC
- 9

---

---

## 4. List of Commands

---

\* Example for command

Command name	Example		
001. POWER ON	9FH	4EH	00H
002. POWER OFF	9FH	4FH	00H
003. INPUT SW CHANGE	DFH	47H	01H
004. VOLUME GAIN DATA	DFH	7FH	03H
005. AUDIO MUTE ON	9FH	3EH	00H
006. AUDIO MUTE OFF	9FH	3FH	00H
007. CONTRAST GAIN DATA	DFH	7FH	03H
008. BRIGHT GAIN DATA	DFH	7FH	03H
009. SHARPNESS GAIN DATA	DFH	7FH	03H
010. COLOR GAIN DATA	DFH	7FH	03H
011. TINT GAIN DATA	DFH	7FH	03H
012. PICTURE MODE SELECT	DFH	0AH	01H
013. COLOR TEMP SELECT	DFH	00H	01H
014. RED GAIN DATA	DFH	7FH	04H
015. GREEN GAIN DATA	DFH	7FH	04H
016. BLUE GAIN DATA	DFH	7FH	04H
018. BASS GAIN DATA	DFH	7FH	03H
019. TREBLE GAIN DATA	DFH	7FH	03H
020. BALANCE GAIN DATA	DFH	7FH	03H
021. SCREEN MODE SELECT	DFH	51H	01H
022. V.POSITION GAIN DATA	DFH	7FH	03H
023. H.POSITION GAIN DATA	DFH	7FH	03H
024. V-HEIGHT GAIN DATA	DFH	7FH	03H
025. H-WIDTH GAIN DATA	DFH	7FH	03H
026. AUTO PICTURE SELECT	DFH	7FH	03H
033. Long Life Set (PDP Saver Set)	DFH	6BH	03H
035. ALL RESET	1FH	54H	00H
039. BNC INPUT	DFH	8CH	01H
042. FREQUENCY REQUEST	1FH	26H	00H
043. INPUT MODE REQUEST	1FH	41H	00H
044. VIDEO ADJUST REQUEST	1FH	45H	00H
045. AUDIO SELECT REQUEST	1FH	6FH	00H

046. FAILURE MODE REQUEST	1FH	3FH	00H
052. RUNNING SENSE	1FH	88H	00H
056. MULTI MODE SELECT	DFH	03H	03H
057. MULTI MODE REQUEST	1FH	3BH	00H
059. MULTI (SPLIT) SCREEN SELECT	DFH	07H	01H
067. PICTURE MEMORY SELECT	DFH	38H	01H
068. PICTURE MEMORY SET	DFH	25H	02H
079. VOLUME GAIN REQUEST	1FH	0EH	00H
082. SEAMLESS SWITCH	DFH	7EH	03H

\* Availability by Model

-----  
Model No.

- 01 : PX-42VM4/42VP4/42VP4D  
02 : PX-42XM2  
03 : PX-50XM3  
04 : PX-61XM2+  
05 : PX-42VM5/42VP5/42XM3  
06 : PX-42VR5/42XR3  
07 : PX-50XR4/61XR3  
08 : PX-42XM4/42XM5/50XM6/50XM5/61XM4/60XM5  
09 : PX-42XR4/42XR5/50XR5/50XR6/61XR4/60XR5

Meaning of Symbol

-----  
\* Supported

- Not supported

• Availability by Model

Command Name	1	2	3	4	5	6	7	8	9
1	POWER ON	*	*	*	*	*	*	*	*
2	POWER OFF	*	*	*	*	*	*	*	*
3	INPUT SW CHANGE	*	*	*	*	*	*	*	*
4	VOLUME GAIN DATA	*	*	*	*	*	*	*	*
5	AUDIO MUTE ON	*	*	*	*	*	*	*	*
6	AUDIO MUTE OFF	*	*	*	*	*	*	*	*
7	CONTRAST GAIN DATA	*	*	*	*	*	*	*	*
8	BRIGHT GAIN DATA	*	*	*	*	*	*	*	*
9	SHARPNESS GAIN DATA	*	*	*	*	*	*	*	*
10	COLOR GAIN DATA	*	*	*	*	*	*	*	*
11	TINT GAIN DATA	*	*	*	*	*	*	*	*
12	PICTURE MODE SELECT	*	*	*	*	*	*	*	*
13	COLOR TEMP SELECT	*	*	*	*	*	*	*	*
14	RED GAIN DATA	*	*	*	*	*	*	*	*
15	GREEN GAIN DATA	*	*	*	*	*	*	*	*
16	BLUE GAIN DATA	*	*	*	*	*	*	*	*
18	BASS GAIN DATA	*	*	*	*	*	*	*	*
19	TREBLE GAIN DATA	*	*	*	*	*	*	*	*
20	BALANCE GAIN DATA	*	*	*	*	*	*	*	*
21	SCREEN MODE SELECT	*	*	*	*	*	*	*	*
22	V.POSITION GAIN DATA	*	*	*	*	*	*	*	*
23	H.POSITION GAIN DATA	*	*	*	*	*	*	*	*
24	V.HEGHT GAIN DATA	*	*	*	*	*	*	*	*
25	H-WIDTH GAIN DATA	*	*	*	*	*	*	*	*
26	AUTO PICTURE SELECT	*	*	*	*	*	*	*	*
33	LONG LIFE SET (PDP Saver Set)	*	*	*	*	*	*	*	*
35	ALL RESET	*	*	*	*	*	*	*	*
39	BNC INPUT	*	*	*	*	*	*	*	-
42	FREQUENCY REQUEST	*	*	*	*	*	*	*	*
43	INPUT MODE REQUEST	*	*	*	*	*	*	*	*
44	VIDEO ADJUST REQUEST	*	*	*	*	*	*	*	*
45	AUDIO SELECT REQUEST	*	*	*	*	*	*	*	*
46	FAILURE MODE REQUEST	*	*	*	*	*	*	*	*
52	RUNNING SENSE	*	*	*	*	*	*	*	*
56	MULTI MODE SELECT	*	*	*	*	*	*	*	-
57	MULTI MODE REQUEST	*	*	*	*	*	*	*	-
59	MULTI (SPLIT) SCREEN SELECT	-	-	-	*	-	-	*	*
67	PICTURE MEMORY SELECT	-	-	-	-	-	*	*	*
68	PICTURE MEMORY SET	-	-	-	-	-	*	*	*
79	VOLUME GAIN DATA REQUEST	-	-	-	-	-	*	*	*
82	SEAMLESS SWITCH	-	-	-	-	*	*	*	*

=====

## 5. Command Descriptions

-----

Precautions with Inscriptions:

(\*3) Checksum : "CKS" inscription

This is the value of the lower 8 bits of the results calculated in byte units from all the of the data up to the immediately preceding data.

Example)

20H 81H 01H 60H 01H 00H 03H  
+ + + + + = CKS

(\*4) Response error number

This is the value of the error number at the time of an error.  
See "NAK" of "6-2. Data portion of response".

### 001. POWER ON

\*\*\*\*\*

Function:

This command switches on the main power of the plasma.

Command:

9FH 80H 60H 4EH 00H CKS

Response: At the time of a success

3FH 60H 80H 4EH 00H CKS

Supplement:

The plasma doesn't accept another command during power on processing.

### 002. POWER OFF

\*\*\*\*\*

Function:

This command switches off the main power of the plasma.

Command:

9FH 80H 60H 4FH 00H CKS

Response: At the time of a success

3FH 60H 80H 4FH 00H CKS

Supplement:

The plasma doesn't accept another command during power off processing.

### 003. INPUT SW CHANGE

\*\*\*\*\*

Function:

This command switches the input terminal.

Command:

DFH 80H 60H 47H 01H DATA00 CKS

Data Portion Contents

DATA00 Input Select

Terminal number	Terminal name	VM	VP	VR	XM	XR
01H	Video1	*	*	*	*	*
02H	Video2	*	*	*	*	*
03H	Video3	*	*	*	*	-
05H	DVD/HD1	*	*	*	*	*
06H	DVD/HD2	*	*	*	*	*
07H	RGB/PC	-	-	-	-	*
07H	RGB1/PC1	*	*	*	*	-
08H	RGB2/PC2	*	*	*	*	-
0CH	RGB3/PC3	*	*	*	*	-
0DH	HD3 (SCART3)	*	*	*	*	-
0EH	DVD/HD3 (HDMI)	-	-	-	-	*
1AH	DVD/HD4 (HDMI)	-	-	-	-	*

\* : Supported  
- : Not supported

Response: At the time of a success

3FH 60H 80H 47H 00H CKS

Command example:

\* When switching to the Video1 connector

DFH 80H 60H 47H 01H 01H 08H

#### 004. VOLUME GAIN DATA

\*\*\*\*\*

Function:

This command sets the volume.

Command:

DFH 80H 60H 7FH 02H DATA00 DATA01 DATA02 CKS

Data Portion Contents

DATA00 05H : User Sound Gain Flag  
DATA01 01H : Volume Gain Flag  
DATA02 Volume Gain

00H : Step 0  
:  
0AH : Step 10 (default)  
:  
2AH : Step 42

Response: At the time of a success

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

Data Portion Contents

---

DATA00      05H : User Sound Gain Flag  
DATA01      01H : Volume Gain Flag

Command example:

\* Setting Volume to "10"

DFH 80H 60H 7FH 02H 05H 01H 46H

005. AUDIO MUTE ON

\*\*\*\*\*

Function:

This command mutes the sound.

Command:

9FH 80H 60H 3EH 00H CKS

Response: At the time of a success

3FH 60H 80H 3EH 00H CKS

Supplement:

\* Sound mute is cancelled for the following:

Input connector switching

Video signal switching

Volume adjustment

006. AUDIO MUTE OFF

\*\*\*\*\*

Function:

This command cancels the sound muting.

Command:

9FH 80H 60H 3FH 00H CKS

Response: At the time of a success

3FH 60H 80H 3FH 00H CKS

007. CONTRAST GAIN DATA

\*\*\*\*\*

Function:

This command controls the Contrast gain of the picture.

Command:

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

Data Portion Contents

---

DATA00      01H : User Picture Gain Flag  
DATA01      07H : Contrast Gain Flag  
DATA02      Contrast Gain  
             CCH : -52  
             :  
             FFH : -01  
             00H : 0

01H : +01  
:  
14H : +20

Response: At the time of a success  
7FH 60H 80H 7FH 02H DATA00 DATA01 CKS

Data Portion Contents

-----  
DATA00 01H : User Picture Gain Flag  
DATA01 07H : Contrast Gain Flag

008. BRIGHT GAIN DATA

\*\*\*\*\*

Function:  
This command controls the Bright gain of the picture.

Command:  
DFH 80H 60H 7FH 03H DATA00 DATA01 DATA02 CKS

Data Portion Contents

-----  
DATA00 01H : User Picture Gain Flag  
DATA01 08H : Bright Gain Flag  
DATA02 Bright Gain  
E0H : -32  
:  
FFH : -01  
00H : 0  
01H : +01  
:  
20H : +32

Response: At the time of a success  
7FH 60H 80H 7FH 02H DATA00 DATA01 CKS

Data Portion Contents

-----  
DATA00 01H : User Picture Gain Flag  
DATA01 08H : Bright Gain Flag

009. SHARPNESS GAIN DATA

\*\*\*\*\*

Function:  
This command controls the Sharpness gain of the picture.

Command:  
DFH 80H 60H 7FH 03H DATA00 DATA01 DATA02 CKS

Data Portion Contents

-----  
DATA00 01H : User Picture Gain Flag  
DATA01 06H : Sharpness Gain Flag  
DATA02 Sharpness Gain  
F0H : -16  
:  
FFH : -01  
00H : 0  
01H : +01  
:  
10H : +16

Only when an RGB signal is connected

DATA02 Sharpness Gain

- 01H : 1
- 02H : 2
- 03H : 3
- 04H : 4

Response: At the time of a success

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

Data Portion Contents

-----

DATA00	01H : User Picture Gain Flag
DATA01	06H : Sharpness Gain Flag

### 010. COLOR GAIN DATA

\*\*\*\*\*

Function:

This command controls the Color gain of the picture.

Command:

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

Data Portion Contents

-----

DATA00	01H : User Picture Gain Flag
DATA01	04H : Color Gain Flag
DATA02	Color Gain
	E0H : -32
	:
	FFH : -01
	00H : 0
	01H : +01
	:
	20H : +32

Response: At the time of a success

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

Data Portion Contents

-----

DATA00	01H : User Picture Gain Flag
DATA01	04H : Color Gain Flag

### 011. TINT GAIN DATA

\*\*\*\*\*

Function:

This command controls the Tint gain of the picture.

Command:

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

Data Portion Contents

-----

DATA00	01H : User Picture Gain Flag
DATA01	05H : Color Gain Flag
DATA02	Color Gain
	E0H : -32
	:



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

Response: At the time of a success  
7FH 60H 80H 7FH 02H DATA00 DATA01 CKS

Data Portion Contents

-----  
DATA00      01H : User Picture Gain Flag  
DATA01      05H : Tint Gain Flag

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

012. PICTURE MODE SELECT

\*\*\*\*\*

Function:  
This command sets the Picture mode of the picture.

Command:  
DFH 80H 60H 0AH 01H DATA00 CKS

Data Portion Contents

-----  
DATA00      01H : NORMAL  
             02H : THEATER1 (not with a still picture of a PC)  
             03H : THEATER2 (not with a still picture of a PC)  
             04H : DEFAULT  
             05H : BRIGHT

Response: At the time of a success  
7FH 60H 80H 0AH DATA00 CKS

Data Portion Contents

-----  
DATA00      01H : NORMAL  
             02H : THEATER1  
             03H : THEATER2  
             04H : DEFAULT  
             05H : BRIGHT

013. COLOR TEMP SELECT

\*\*\*\*\*

Function:  
This command sets the Color Temp mode of the picture.

Command:  
DFH 80H 60H 00H 01H DATA00 CKS

Data Portion Contents

-----  
DATA00      00H : LOW  
             01H : MIDDLE  
             02H : HIGH  
             03H : MIDDLE LOW

Response: At the time of a success  
7FH 60H 80H 00H DATA00 CKS

Data Portion Contents

-----  
DATA00      00H : LOW  
             01H : MIDDLE  
             02H : HIGH  
             03H : MIDDLE LOW

014. RED GAIN DATA

\*\*\*\*\*

Function:  
This command controls the Red gain of the picture.

Command:  
DFH 80H 60H 7FH 04H DATA00 DATA01 DATA02 DATA03 CKS

Data Portion Contents

-----  
DATA00      01H : User Picture Gain Flag  
DATA01      01H : Red Gain Flag  
DATA02      Red Gain1 (Bias)  
             D8H : -40  
             :  
             FFH : -01  
             00H : 0  
             01H : +01  
             :  
             1EH : +30  
  
DATA03      Red Gain2 (Drive)  
             D8H : -40  
             :  
             FFH : -01  
             00H : 0  
             01H : +01  
             :  
             1EH : +30

Response: At the time of a success  
7FH 60H 80H 7FH 02H DATA00 DATA01 CKS

Data Portion Contents

-----  
DATA00      01H : User Picture Gain Flag  
DATA01      01H : Red Gain Flag

015. GREEN GAIN DATA

\*\*\*\*\*

Function:  
This command controls the Green gain of the picture.

Command:  
DFH 80H 60H 7FH 04H DATA00 DATA01 DATA02 DATA03 CKS

Data Portion Contents

-----  
DATA00      01H : User Picture Gain Flag  
DATA01      02H : Green Gain Flag  
DATA02      Green Gain1 (Bias)

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

DATA03 Green Gain2 (Drive)  
D8H : -40  
:  
FFH : -01  
00H : 0  
01H : +01  
:  
1EH : +30

Response: At the time of a success  
7FH 60H 80H 7FH 02H DATA00 DATA01 CKS

Data Portion Contents

-----  
DATA00 01H : User Picture Gain Flag  
DATA01 02H : Green Gain Flag

016. BLUE GAIN DATA

\*\*\*\*\*

Function:  
This command controls the Blue gain of the picture.

Command:  
DFH 80H 60H 7FH 04H DATA00 DATA01 DATA02 DATA03 CKS

Data Portion Contents

-----  
DATA00 01H : User Picture Gain Flag  
DATA01 03H : Blue Gain Flag  
DATA02 Blue Gain1 (Bias)  
D8H : -40  
:  
FFH : -01  
00H : 0  
01H : +01  
:  
1EH : +30  
  
DATA03 Blue Gain2 (Drive)  
D8H : -40  
:  
FFH : -01  
00H : 0  
01H : +01  
:  
1EH : +30

Response: At the time of a success  
7FH 60H 80H 7FH 02H DATA00 DATA01 CKS

Data Portion Contents

-----  
DATA00 01H : User Picture Gain Flag  
DATA01 03H : Blue Gain Flag

## 018. BASS GAIN DATA

\*\*\*\*\*

### Function:

This command controls the Bass gain for the audio.

### Command:

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

### Data Portion Contents

-----  
DATA00      05H : User Picture Gain Flag  
DATA01      03H : Bass Gain Flag  
DATA02      Bass Gain  
             F3H : -13  
             :  
             FFH : -01  
             00H : 0  
             01H : +01  
             :  
             0DH : +13

### Response: At the time of a success

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

### Data Portion Contents

-----  
DATA00      05H : User Picture Gain Flag  
DATA01      03H : Bass Gain Flag

## 019. TREBLE GAIN DATA

\*\*\*\*\*

### Function:

This command controls the Treble gain for the audio.

### Command:

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

### Data Portion Contents

-----  
DATA00      05H : User Picture Gain Flag  
DATA01      04H : Treble Gain Flag  
DATA02      Treble Gain  
             F3H : -13  
             :  
             FFH : -01  
             00H : 0  
             01H : +01  
             :  
             0DH : +13

### Response: At the time of a success

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

### Data Portion Contents

-----  
DATA00      05H : User Picture Gain Flag  
DATA01      04H : Treble Gain Flag

## 020. BALANCE GAIN DATA

\*\*\*\*\*

Function:

This command controls the Balance gain for the audio.

Command:

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

Data Portion Contents

-----  
DATA00 05H : User Picture Gain Flag  
DATA01 02H : Balance Gain Flag  
DATA02 Balance Gain  
EAH : -22  
:  
FFH : -01  
00H : 0  
01H : +01  
:  
16H : +22

Response: At the time of a success

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

Data Portion Contents

-----  
DATA00 05H : User Picture Gain Flag  
DATA01 02H : Balance Gain Flag

## 021. SCREEN MODE SELECT

\*\*\*\*\*

Function:

This command sets the Screen mode of the picture.

Command:

DFH 80H 60H 51H 01H DATA00 CKS

Data Portion Contents

-----  
DATA00 02H : STADIUM  
03H : ZOOM  
03H : NORMAL  
05H : FULL  
06H : REAL  
08H : UNDERSCAN  
09H : 14:9  
0AH : 2.35:1

Response: At the time of a success

7FH 60H 80H 51H 01H DATA00 CKS

Data Portion Contents

-----  
DATA00 02H : STADIUM  
03H : ZOOM  
03H : NORMAL  
05H : FULL  
06H : REAL  
08H : UNDERSCAN  
09H : 14:9  
0AH : 2.35:1

\* Normally "08:UNDERSCAN" can not be selected

## 022. V.POSITION GAIN DATA

\*\*\*\*\*

### Function:

This command sets the V. Position gain of the picture.

### Command:

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

### Data Portion Contents

-----  
DATA00      03H : User Picture Gain Flag  
DATA01      01H : V. Position Gain Flag  
DATA02      V. Position Gain  
            C0H : -64  
            :  
            FFH : -01  
            00H : 0  
            01H : +01  
            :  
            40H : +64

### Response: At the time of a success

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

### Data Portion Contents

-----  
DATA00      03H : User Picture Gain Flag  
DATA01      01H : V. Position Gain Flag

## 023. H.POSITION GAIN DATA

\*\*\*\*\*

### Function:

This command sets the H. Position gain of the picture.

### Command:

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

### Data Portion Contents

-----  
DATA00      03H : User Picture Gain Flag  
DATA01      02H : H. Position Gain Flag  
DATA02      H. Position Gain  
            80H : -128  
            :  
            FFH : -01  
            00H : 0  
            01H : +01  
            :  
            7FH : +127

### Response: At the time of a success

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

### Data Portion Contents

-----  
DATA00      03H : User Picture Gain Flag  
DATA01      02H : H. Position Gain Flag

024. V.HEIGHT GAIN DATA

\*\*\*\*\*

Function:

This command sets the V. Height gain of the picture.

Command:

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

Data Portion Contents

```

-----
DATA00      03H : User Picture Gain Flag
DATA01      07H : V. Height Gain Flag
DATA02      V. Height Gain
             00H : 0
             :
             40H : +64

```

Response: At the time of a success

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

Data Portion Contents

```

-----
DATA00      03H : User Picture Gain Flag
DATA01      07H : V. Height Gain Flag

```

025. H.WIDTH GAIN DATA

\*\*\*\*\*

Function:

This command sets the H. Width gain of the picture.

Command:

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

Data Portion Contents

```

-----
DATA00      03H : User Picture Gain Flag
DATA01      08H : H. Width Gain Flag
DATA02      H. Position Gain
             00H : 0
             :
             40H : +64

```

Response: At the time of a success

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

Data Portion Contents

```

-----
DATA00      03H : User Picture Gain Flag
DATA01      08H : H. Width Gain Flag

```

026. AUTO PICTURE SELECT

\*\*\*\*\*

Function:

This command sets the Auto Picture gain of the plasma.

Command:

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

Data Portion Contents

```

-----
DATA00      03H : User Picture Gain Flag
DATA01      09H : Auto Picture Select Flag
DATA02      00H : ON
              01H : OFF

```

Response: At the time of a success

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

Data Portion Contents

```

-----
DATA00      03H : User Picture Gain Flag
DATA01      08H : Auto Picture Select Flag
DATA02      00H : ON
              01H : OFF

```

033. LONG LIFE SET (PDP SAVER Set)

\*\*\*\*\*

Function:

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

Command:

DFH 80H 60H 6BH 03H DATA00 DATA01 DATA02 CKS

Data Portion Contents

```

-----
DATA00 :    PLE 01H : 100%(AUTO)
              02H : 75%(LOCK1)
              03H : 50%(LOCK2)
              04H : 25%(LOCK3)
DATA01 :    INVERSE/WHITE 01H : INVERSE
              02H : OFF
              03H :WHITE
DATA02 :    ORBITER (PICTURE SHIFT) 01H : AUTO1
              02H : OFF
              03H : AUTO2

```

Response: At the time of a success:

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

035. ALL RESET

\*\*\*\*\*

Function:

This command resets the user adjustments of the plasma.

Command:

1FH 80H 60H 54H 00H CKS

Response: At the time of a success

3FH 60H 80H 54H 00H CKS



### 039. BNC INPUT

\*\*\*\*\*

#### Function:

This command sets the BNC Input for the incoming signal.

#### Command:

DFH 80H 60H 8CH 01H DATA00 CKS

#### Data Portion Contents

-----  
DATA00      BNC Select  
             01H : RGB  
             02H : Component

#### Response: At the time of a success

7FH 60H 80H 8CH 01H DATA00 CKS

#### Data Portion Contents

-----  
DATA00      BNC Select  
             01H : RGB  
             02H : Component

### 042. FREQUENCY REQUEST

\*\*\*\*\*

#### Function:

This command inquires the Horizontal Frequency, Vertical Frequency, Horizontal Sync Polarity, Vertical Sync Polarity, Mode and Resolution of the incoming signal.

#### Command:

1FH 80H 60H 26H 00H CKS

#### Response: At the time of a success

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

#### Data Portion Contents

-----  
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

Mode

DATA06 00H : No Signal -  
01H-80H : RGB Signal (identification number of PC)  
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

DATA 07 Dots (low-order byte)  
00H : 0 (No Signal: 00H)  
:  
FFH : 255  
DATA 08 Dots (high-order byte)  
00H : 257 (No Signal: 00H)  
:  
FFH : 255  
DATA 09 Lines (low-order byte)  
00H : 0 (No Signal: 00H)  
:  
FFH : 255  
DATA 10 Lines (high-order byte)  
00H : 257 (No Signal: 00H)  
:  
FFH : 255

043. INPUT MODE REQUEST

\*\*\*\*\*

Function:

This command sets the Screen mode of the picture.

Command:

1FH 80H 60H 41H 00H CKS

Response: At the time of a success

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

Data Portion Contents

-----  
DATA00 Input Select  
01H : VIDEO1\*#  
02H : VIDEO2\*#  
03H : VIDEO3\*  
04H : DVD/HD1\*  
05H : DVD/HD1#  
05H : PC1\*  
06H : PC2\*

06H : DVD/HD2#  
 07H : PC/RGB#  
 0AH : DVD (DVD1)\*  
 0CH : HD2\*  
 0DH : DVD2\*  
 0EH : PC3\*  
 0EH : DVD/HD3 (HDMI)#  
 0FH : DVD3 (SCART3)\*  
 1AH : DVD/HD4 (HDMI)#

- \* PX-42VM4/42VP4/42VP4D/42VM5/42VP5/42VR5/42XM2/42XM3/42XM4/42XM5
- \* PX-50XM3/50XM4/50XM5/50XM6
- \* PX-61XM2/61XM3/61XM4/60XM5
- # PX-42XR4/42XR5/50XR5/50XR6/61XR4/60XR5

#### 44. VIDEO ADJUST REQUEST

\*\*\*\*\*

Function:

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

Command:

1FH 80H 60H 45H 00H CKS

Response: At the time of success

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

Data Portion Contents

```

-----
DATA00      RED Gain (Bias)
            D8H : -40
            :
            FFH : -01
            00H : 0
            01H : +01
            :
            1EH : +30
DATA01      GREEN Gain (Bias)
            D8H : -40
            :
            FFH : -01
            00H : 0
            01H : +01
            :
            1EH : +30
DATA02      BLUE Gain (Bias)
            D8H : -40
            :
            FFH : -01
            00H : 0
            01H : +01
            :
            1EH : +30
DATA03      COLOR Gain
            E0H : -32
            :
            FFH : -01
            00H : 0
            01H : +01
            :
            20H : +32
DATA04      TINT Gain
            E0H : -32
            :
  
```

```

                FFH : -01
                00H : 0
                01H : +01
                :
DATA05         20H : +32
                SHARPNESS Gain
                FOH : -16
                :
                FFH : -01
                00H : 0
                01H : +01
                :
DATA06         10H : +16
                CONTRAST Gain
                CCH : -52
                :
                FFH : -01
                00H : 0
                01H : +01
                :
DATA07         14H : +20
                BRIGHT Gain
                E0H : -32
                :
                FFH : -01
                00H : 0
                01H : +01
                :
DATA08         20H : +32
                RED Gain (Drive)
                D8H : -40
                :
                FFH : -01
                00H : 0
                01H : +01
                :
DATA09         1EH : +30
                GREEN Gain (Drive)
                D8H : -40
                :
                FFH : -01
                00H : 0
                01H : +01
                :
DATA0A         1EH : +30
                BLUE Gain (Drive)
                D8H : -40
                :
                FFH : -01
                00H : 0
                01H : +01
                :
DATA0B         1EH : +30
                COLOR TEMP SELECT
                00H: low
                01H: middle
                02H: high
                03H: middle low

```

#### 045. AUDIO SELECT REQUEST

\*\*\*\*\*

Function:

This command inquires the audio and video combinations.

Command:

1FH 80H 60H 6FH 00H 6EH

Response: At the time of a success

7FH 60H 80H 61H 03H DATA00 DATA01 DATA02 CKS

Data Portion Contents

-----  
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\*  
04H : DVD/HD1\*  
05H : DVD/HD1#  
05H : PC1\*  
06H : PC2\*  
06H : DVD/HD2\*#  
07H : PC/RGB\*#  
0AH : DVD (DVD1)\*  
0CH : HD2\*  
0DH : DVD2\*  
0EH : PC3\*  
0EH : DVD/HD3 (HDMI)#  
0FH : DVD3 (SCART3)\*  
1AH : DVD/HD4 (HDMI)#

- \* PX-42VM4/42VP4/42VP4D/42VM5/42VP5/42VR5/42XM2/42XM3/42XM4/42XM5
- \* PX-50XM3/50XM4/50XM5/50XM6
- \* PX-61XM2/61XM3/61XM4/60XM5
- # PX-42XR4/42XR5/50XR5/50XR6/61XR4/60XR5

046. FAILURE MODE REQUEST

\*\*\*\*\*

Function:

This command inquires the detection of any failures within the plasma.

Command:

1FH 80H 60H 3FH 00H CKS

Response: At the time of a success

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

Data Portion Contents

-----  
DATA00      Failure Mode  
             Bit 0 : PDP MODULE  
                     0 : Abnormal  
                     1 : Normal  
             Bit 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 : fixed (backup)  
 Bit 6 : fixed (backup)  
 Bit 7 : fixed (backup)  
 DATA01 Failure Mode 2  
 Bit 0-7 : 1:fixed (backup)

052. RUNNING SENSE

\*\*\*\*\*

Function:

This command acquires the operation mode of the plasma.

Command:

1FH 80H 60H 88H 00H CKS

Response: At the time of a success

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

Data Portion Contents

-----

DATA	Status of operation
	Bit 7 : Fixed
	0 = No execution(Normal condition)
	Bit 6 : Fixed
	0 = No execution(Normal condition)
	Bit 5 : Fixed
	0 = No execution(Normal condition)
	Bit 4 : Fixed
	0 = No execution(Normal condition)
	Bit 3 : Fixed
	0 = No execution(Normal condition)
	Bit 2 : Power Status
	0 = Power On
	1 = Power Off (Standby)
	Bit 1 : Fixed
	1 = -
	Bit 0 : Fixed
	1 = -

056. MULTI MODE SELECT

\*\*\*\*\*

Function:

This command selects the video wall configuration of the plasma.

Command:

DFH 80H 60H 03H 03H DATA00 DATA01 DATA02 CKS

Data Portion Contents

-----

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)

DATA02 Disp Mode  
 00H : Split  
 01H : Blanking

Response: At the time of a success  
 7FH 60H 80H 03H 03H DATA00 DATA01 DATA02 CKS

Data Portion Contents

-----

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)

DATA02      Disp Mode  
              00H : Split  
              01H : Blanking

#### 057. MULTI MODE Request

\*\*\*\*\*

Function:

This command requests the video wall configuration of the plasma.

Command:

1FH 80H 60H 3BH 00H CKS

Response: At the time of a success

7FH 60H 80H 3BH 03H DATA00 DATA01 DATA02 CKS

Data Portion Contents

-----  
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)  
  
DATA02      Disp Mode  
              00H : Split  
              01H : Blanking



## 059. MULTI (SPLIT) SCREEN SELECT

\*\*\*\*\*

### Function:

This command selects either single mode, side-by-side or picture in picture of the plasma.

### Command:

DFH 80H 60H 07H 01H DATA00 CKS

### Data Portion Contents

-----  
DATA00: 00H: Single Screen  
01H: Side by Side 1 (Same Size Screen)  
02H: Side-by-Side 2R (Left Screen smaller)  
03H: Picture in Picture 1 (sub screen Bottom Left) with size1  
04H: Picture in Picture2(sub screen Bottom Right) with size1  
05H: Side-by-Side 2L (Left Screen Bigger)  
06H: Picture in Picture 1(sub screen Bottom Left) with size2  
07H: Picture in Picture 2(sub screen Bottom Right) with size2  
08H: Picture in Picture 1(sub screen Bottom Left) with size3  
09H: Picture in Picture 2(sub screen Bottom Right) with size3  
0AH: Picture in Picture 1(sub screen Bottom Left) with size4  
0BH: Picture in Picture 2(sub screen Bottom Right) with size4  
41H: Picture in Picture 3(sub screen Top Right) with size1  
42H: Picture in Picture 3(sub screen Top Right) with size2  
43H: Picture in Picture 3(sub screen Top Right) with size3  
44H: Picture in Picture 3(sub screen Top Right) with size4  
45H: Picture in Picture 4(sub screen Top Left) with size1  
46H: Picture in Picture 4(sub screen Top Left) with size2  
47H: Picture in Picture 4(sub screen Top Left) with size3  
48H: Picture in Picture 4(sub screen Top Left) with size4  
49H: Side by Side 3 (Same Size Screen vertical expand)  
4AH: Side by Side 4 R(Left Screen smaller vertical expand)  
4BH: Side by Side 4 L(Left Screen Bigger vertical expand)  
10H: SWAP  
A0H: PIP OFF  
A1H: PIP ON  
In case of Side by Side mode;  
20H: Active Left  
21H: Active Right  
In case of Picture in picture mode;  
30H: Active Main  
31H: Active Sub  
A2H:NORMAL(NO FADE IN/FADE OUT)  
A3H:FADE(FADE IN/FADE OUT)

### Response: At the time of success

7FH 60H 80H 07H 01H DATA00 CKS

### Data Portion Contents

-----  
DATA00: 00H: Single Screen  
01H: Side by Side 1 (Same Size Screen)  
02H: Side-by-Side 2R (Left Screen smaller)  
03H: Picture in Picture 1 (sub screen Bottom Left) with size1  
04H: Picture in Picture2(sub screen Bottom Right) with size1  
05H: Side-by-Side 2L (Left Screen Bigger)  
06H: Picture in Picture 1(sub screen Bottom Left) with size2  
07H: Picture in Picture 2(sub screen Bottom Right) with size2  
08H: Picture in Picture 1(sub screen Bottom Left) with size3  
09H: Picture in Picture 2(sub screen Bottom Right) with size3  
0AH: Picture in Picture 1(sub screen Bottom Left) with size4  
0BH: Picture in Picture 2(sub screen Bottom Right) with size4  
41H: Picture in Picture 3(sub screen Top Right) with size1  
42H: Picture in Picture 3(sub screen Top Right) with size2  
43H: Picture in Picture 3(sub screen Top Right) with size3  
44H: Picture in Picture 3(sub screen Top Right) with size4

45H: Picture in Picture 4(sub screen Top Left) with size1  
46H: Picture in Picture 4(sub screen Top Left) with size2  
47H: Picture in Picture 4(sub screen Top Left) with size3  
48H: Picture in Picture 4(sub screen Top Left) with size4  
49H: Side by Side 3 (Same Size Screen vertical expand)  
4AH: Side-by-Side 4R (Left Screen smaller vertical expand)  
4BH: Side-by-Side 4L (Left Screen Bigger vertical expand)  
10H: SWAP  
A0H: PIP OFF  
A1H: PIP ON  
In case of Side by Side mode;  
20H: Active Left  
21H: Active Right  
In case of Picture in picture mode;  
30H: Active Main  
31H: Active Sub  
A2H:NORMAL(NO FADE IN/FADE OUT)  
A3H:FADE(FADE IN/FADE OUT)

#### 067. PICTURE MEMORY SELECT

\*\*\*\*\*

Function:

This command selects the Picture Memory function of a plasma.

Command:

DFH 80H 60H 38H 01H DATA00 CKS

Data Portion Contents

-----  
DATA00:      MEMORY select  
              00H : OFF  
              01H : MEMORY1  
              02H : MEMORY2  
              03H : MEMORY3  
              04H : MEMORY4  
              05H : MEMORY5  
              06H : MEMORY6

Response: At the time of success

7FH 60H 80H 38H 01H CKS

Data Portion Contents

-----  
DATA00:      00H : OFF  
              01H : MEMORY1  
              02H : MEMORY2  
              03H : MEMORY3  
              04H : MEMORY4

#### 068. PICTURE MEMORY SET

\*\*\*\*\*

Function:

This command sets and reset the Picture Memory function of a plasma.

Command:

DFH 80H 60H 25H 02H DATA00 DATA01 CKS

Data Portion Contents

-----  
DATA00:      01H : SET  
              02H : RESET  
DATA01:      MEMORY select

00H : OFF  
01H : MEMORY1  
02H : MEMORY2  
03H : MEMORY3  
04H : MEMORY4  
05H : MEMORY5  
06H : MEMORY6

Response:

7FH 60H 80H 25H 01H CKS

Data Portion Contents

-----  
DATA00:     01H : SET  
              02H : RESET

#### 079. VOLUME GAIN REQUEST

\*\*\*\*\*

Function:

This command inquires the volume gain for plasma.

Command:

1FH 80H 60H 0EH 00H CKS

Response:

DFH 60H 80H 0EH 01H DATA00 CKS

Data Portion Contents

-----  
DATA00:     VOLUME Gain  
              : 00H-2AH  
              00H : 0  
              0FH : 15  
              10H : 16  
              1FH : 31  
              2AH : 42  
              FFH : MUTE

#### 082. SEAMLESS SWITCH SELECT

\*\*\*\*\*

Function:

This command selects the seamless switch function of the plasma.

Command:

DFH 80H 60H 7EH 01H DATA00 DATA01 DATA02 CKS

Data Portion Contents

-----  
DATA00:     SEAMLESS SWITCH  
              01H :OFF  
              02H :ON  
DATA01 :     SELECT1  
              01H : Video1  
              02H : Video2  
              03H : Video3  
              05H : DVD/HD1  
              06H : DVD/HD2( SCART1/SCART2)  
              07H : RGB1 / PC1  
              08H : RGB2 / PC2  
              0CH : RGB3 / PC3  
              0DH : HD3(SCART3)  
DATA02 :     SELECT2  
              01H : Video1

02H : Video2  
03H : Video3  
05H : DVD/HD1  
06H : DVD/HD2( SCART1/SCART2)  
07H : RGB1 / PC1  
08H : RGB2 / PC2  
0CH : RGB3 / PC3  
0DH : HD3(SCART3)

Response: At the time of success

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

Data Portion Contents

---

DATA00

01H : OFF  
02H : ON