

2. Alignment and Adjustments

2-1 Service Mode

2-1-1 SERVICE MODE Entry Method (General Transmitter)

■ Using the Customer Remote

1. Turn the power off and set to stand-by mode.
2. Press the remote buttons in this order; POWER OFF-MUTE-1-8-2- POWER ON to turn the set on.
3. The set turns on and enters service mode.

■ Using the Factory Remote

1. Turn the power on.
2. Press the remote buttons in this order : Info-Factory.
3. The set enters service mode.


※ If you fail to enter service mode, repeat steps 1 and 2 above.

2-1-2 Initial SERVICE MODE DISPLAY State

2-1-2(A) OSD DISPLAY

Factory Mode	Current Input Mode	
01. Picture Improvement	▶	☞ Indicates selected input mode
02. Initial Setting	▶	☞ Picture Adjustment
03. PIP/TTX/Test Pattern	▶	☞ Setting the Initial Values
04. Option-1	▶	☞ Setting the Special Features
05. Option-2	▶	☞ Options-1 : Particular Product Options
06. Reset	▶	☞ Options-2 : PDP Properties Options
Release : 2004-05-12-09:00		☞ Initializing after saving the adjustments
Version : T_NELNUS_1007		☞ Software Version Information

2-1-2(B) Button Operations in SERVICE MODE

Menu	Displays all menus
UP/DOWN	Cursor moves to select items
LEFT/RIGHT	To increase and decrease the data of the selected items
 (ENTER)	Confirm your choice(Store OR Enter)
SOURCE button	Change input source

♣ While in Tuner mode, the direct access buttons can be used to select and change channels.

2-2 WHITE Balance Coordinates

2-2-1 SP-P4251 White Balance Adjustment

1. W/B Adjustment is required for the following six modes :

DVI → Component(720p) → Component(1080i) → PC → VIDEO (Video port) → VIDEO (Graphic port)

2. Adjustment Method (Signal equipment : MSPG-925LTH, Measurement equipment : CA210)

■ MSPG-925LTH

Equipment that outputs analog and digital signals simultaneously

(Analog / Digital signal output / TV signal output (S-Video included) / HDTV signal output)

- Digital Serial : TMDS (DVI24, Si1160) + DVI-I (Analog, Digital)

- Monitor Signal (Analog): R, G, B, HS, VS, CS

- TV Signal (CVBS) : NTSC M, NTSC J (7.5 IRE On/Off) (BNC or RCA), PAL B, D, G, H, I, PAL M, Nc

- D-TV Signal (1080i, 720p, 480p)

♣ MSPG-925 is used to adjust the W/B.

■ CA210 : Color Analyzers adjusting brightness, chromaticity and etc.

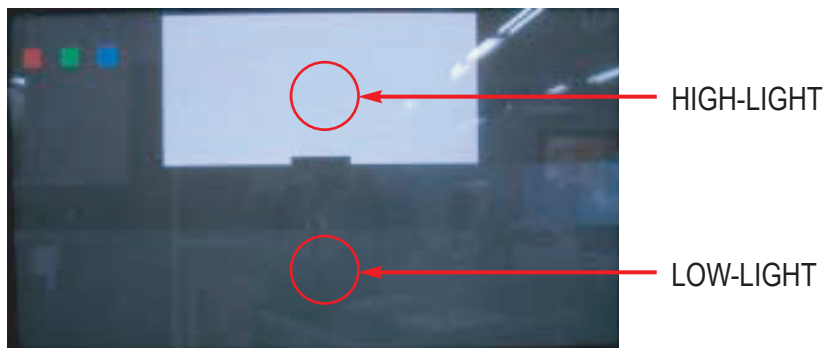
- R.G.B monochrome correction, brightness and gamma character adjustment

- White Balance and flickering measurement

(a) DVI

1) Input Toshiba Pattern at 720p resolution using MSPG-925LTH (model:#6, pattern:#16).

2) These are the point of measurement using CA210.



3) Press "MUTE-1-8-2-POWER ON" to enter the factory mode.

4) Select "01.Picture Improvement" → "01.White Balance"

5) Keep the value of Y as adjusting "07.Sub Contrast(for HIGH)" & "08.Sub Brightness(for LOW)".

6) Keep the coordinate value of x and y as adjusting the value of R,G,B.

Adjust the coordinate x as the value of Red, and the coordinate y as the value of Blue.

<※ Generally, the value of Green is fixed.>

- Adjust the value of "Drive(01~03)" as the high point and the value of "Cutoff(04~06)" as low point.

※ Auto Color

- Must be executed in Component/PC before adjusting White Balance.

- 1) Input Auto Color Pattern with MSPG-925LTH(model:#6, pattern:#21).



- 2) Press "MUTE-1-8-2-POWER ON" to enter the factory mode.
- 3) Select "01.Picture Improvement" → "01.White Balance" → "15.Auto Color" and Select "Off" → "On".
- 4) It takes a few seconds to execute it.

(b) Component

- 1) Execute Auto Color in the method described above.
- 2) Input Toshiba Pattern at 720p resolution (model:#6, pattern:#16).
- 3) Select "01.Picture Improvement" → "01.White Balance".
- 4) Adjust White Balance by selecting and adjusting Items 01. - 08. as performed in DVI mode.
- 5) Change input to Toshiba Pattern at 1080i resolution (model:#5, pattern:#16).
- 6) Adjust White Balance by selecting and adjusting Items 01. - 08. as performed in DVI mode.

(c) PC

- 1) Execute Auto Color in the method described above.
- 2) Input Toshiba Pattern at 800 x 600 (model:#16, pattern:#16).
- 3) Select "01.Picture Improvement" → "01.White Balance".
- 4) Adjust White Balance by selecting and adjusting Items 01 - 08 as performed in DVI mode.

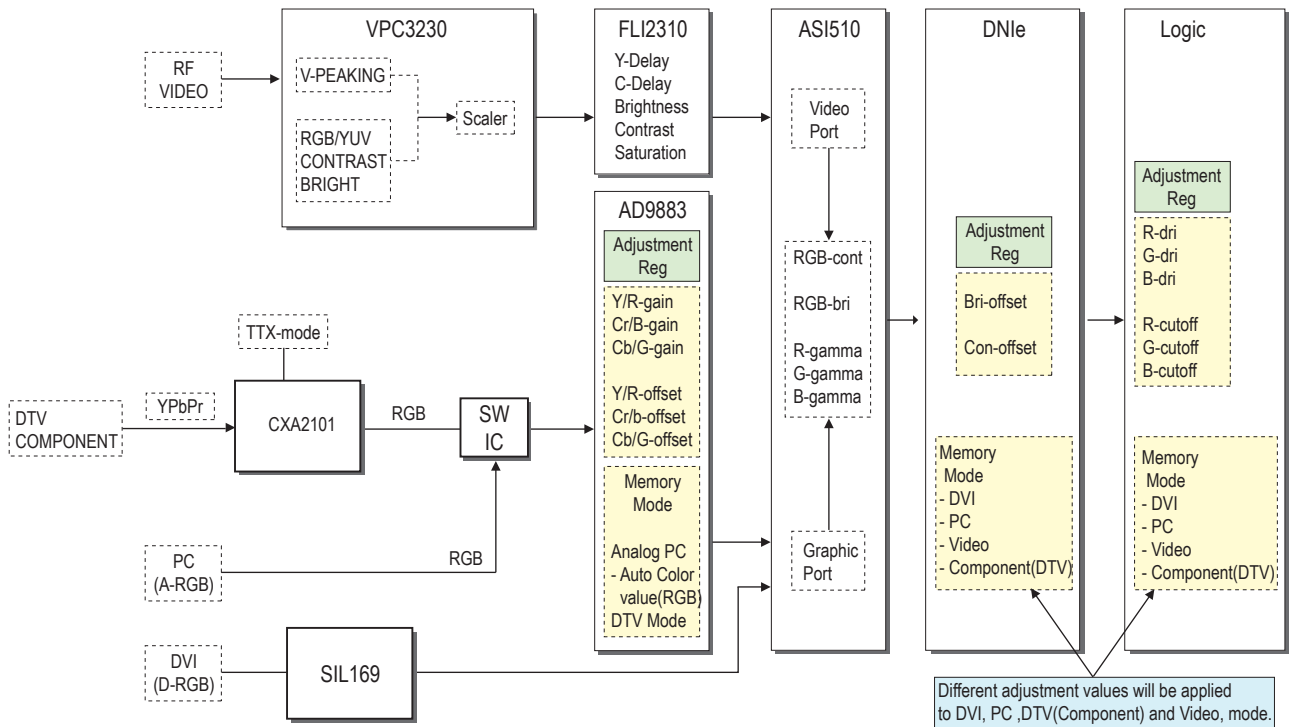
(d) Video

The video signal uses the video port when there is no other input signal.

However, signal uses the graphic port in PIP mode, which includes other input signals (PC, DVI, Component, etc.), Video adjustment should be performed with Video port and Graphic port separately.

- 1) Input Toshiba Pattern to Video Input (model:#2, pattern:#16).
- 2) Select "04.Option-1" → "10.Video Port."
- 3) Set "10. Video Port" equal to "Video".
- 4) At Main SVC Menu, select "01.Picture Improvement" → "01.White Balance."
- 5) Adjust Items 01 - 08 as performed in DVI mode.
- 6) Return to Main SVC menu and select "04.Option-1" → "10.Video Port."
- 7) Set "10. Video Port" equal to "Graphic".
- 8) At Main SVC Menu, select "01.Picture Improvement" → "01.White Balance".
- 9) Adjust Items 01 → 08 as performed in DVI Mode.

※ Thus, Micom saves the W/B data separately for each memory mode of the block (See the block diagram given below) during W/B adjustment.



2-2-2 White Balance Coordinates by Mode

(a) GLASS FILTER CODE : BN67-00105A

		Video	Component	PC	DVI
H/L	x	285	285	280	280
	y	295	295	288	285
	Y(fL)	38	36	39.5	36
L/L	x	285	285	280	280
	y	295	295	295	295
	Y(fL)	0.6	0.6	0.6	0.65

(b) GLASS FILTER CODE : BN67-00128A

		Video	Component	PC	DVI
H/L	x	285	285	285	280
	y	295	295	285	285
	Y(fL)	40	37	38.5	38
L/L	x	285	285	280	280
	y	295	295	295	285
	Y(fL)	0.7	0.7	0.6	0.6

2-3 Factory Data

2-3-1 Factory OSD Main Menu

Factory Mode	Current Input Mode	
01. Picture Improvement	▶	☞ Indicates selected input mode
02. Initial Setting	▶	☞ Picture Adjustment
03. PIP/Test Pattern	▶	☞ Setting the Initial Values
04. Option-1	▶	☞ Setting the Special Features
05. Option-2	▶	☞ Setting particular product options
06. Reset	▶	☞ Setting PDP Properties Options
		☞ Initializing after saving the adjustments
		☞ Software Version Information
Release : 2004-05-12-09:00		
Version : T_NELNUS_1007		

01. Picture Improve

01. Picture Improvement	Current Input Mode	
01. White Balance	▶	☞ White Balance Adjustment
02. Color	▶	☞ Color Adjustment
03. Cont/Bri Enhancement	▶	☞ Contrast & Brightness Enhancement
04. Detail Enhancement	▶	☞ Detail Enhancement Sharpness Adjustment
05. Y/C Delay	▶	☞ Y/C Delay Setting according to the System and Input Modes
06. Motion	▶	☞ Motion Enhancing Adjustment
07. DNle	▶	☞ DNle Registers
08. DNle Additional	▶	☞ DNle Registers
09. Logic	▶	☞ Logic Registers of the Panel
10. Picture Size	▶	☞ Picture Size Registers

01.Picture Improve ⇒ 01.White Balance Adjustment

ITEM		Relevant IC	Initial Values of Input Modes			
			Video	Component	PC	DVI
01.White Balance	TV		Mode-1	Mode-2	Mode-3	Mode-4
01.R Drive	140	Logic	W/B	W/B	W/B	W/B
02.G Drive	128		W/B	W/B	W/B	W/B
03.B Drive	120		W/B	W/B	W/B	W/B
04.R Cutoff	128		W/B	W/B	W/B	W/B
05.G Cutoff	128		W/B	W/B	W/B	W/B
06.B Cutoff	128		W/B	W/B	W/B	W/B
07.Sub Contrast	37	DNle	W/B	W/B	W/B	W/B
08.Sub Brightness	54		W/B	W/B	W/B	W/B
09.R Gain	X	AD9883	x	142	142	x
10.G Gain	X		x	142	142	x
11.B Gain	X		x	142	142	x
12.R/Cr Offset	X		x	60	60	x
13.G/Y Offset	X		x	48	48	x
14.B/Cb Offset	X		x	64	64	x
15.Auto color	on/off		x	O	O	x
※ Input modes require respective storing the changes after adjustment.						

01~06 : Logic
07~08 : DNle
09~15 : AD9883

01.Picture Improve ⇒ 02.Color Adjustment

ITEM		Relevant IC	Initial Values of Input Modes			
			Video	Component	PC	DVI
02.Color	TV		Mode-1	Mode-2	Mode-3	Mode-4
01.Saturation	140	VPC3230	140	x	x	x
02.Tint	32		32	x	x	x
03.RGB/YUV U-SAT	49		49	x	x	x
04.RGB/YUV V-SAT	47		47	x	x	x
05.RGB/YUV Tint	0		0	x	x	x
06.FLI-saturation	100	FLI2310	100	x	x	x
07.R Gamma	31	ASI510	31	32	32	32
08.G Gamma	32		32	32	32	32
09.B Gamma	32		32	32	32	32
10.Gain-Sel	1	CXA2151Q	1	x	x	x
11.Cr Gain	7		7	x	x	x
12.Cb Gain	7		7	x	x	x
13.Y Gain	1		1	x	x	x

01~05 : VPC3230

07~09 : ASI510

06 : FLI2310

10~13 : CXA2151Q

01.Picture Improve ⇒ 03.Contrast & Brightness Enhancement

ITEM		Relevant IC	Initial Values of Input Modes			
			Video	Component	PC	DVI
03.Cont/Bri Enhancement	TV		Mode-1	Mode-2	Mode-3	Mode-4
01.Contrast	40	VPC3230	40	x	x	x
02.Brightness	27		27	x	x	x
03.RGB/YUV Contrast	28		28	x	x	x
04.RGB/YUV Brightness	67		67	x	x	x
05.FLI-Contrast	128	FLI2310	128	x	x	x
06.FLI-Brightness	120		120	x	x	x
07.R Contrast	32	ASI510	32	32	32	32
08.G Contrast	32		32	32	32	32
09.B Contrast	32		32	32	32	32
10.R Brightness	0		0	0	0	0
11.G Brightness	0		0	0	0	0
12.B Brightness	0		0	0	0	0

01~04 : VPC3230

07~12 : ASI510

05~06 : FLI2310

01.Picture Improve ⇒ 04.Detail Enhancement

ITEM		Relevant IC	Initial Values of Input Modes			
			Video	Component	PC	DVI
04.Detail Enhancement	TV		Mode-1	Mode-2	Mode-3	Mode-4
01.VAPGAIN	4	uPD64083	4	x	x	x
02.VAPINV	16		16	x	x	x
03.YPFT	3		3	x	x	x
04.YPFG	9		9	x	x	x
05.Peaking	3	VPC3230	3	x	x	x
06.Peaking Filter	2		2	x	x	x
07.Coring	0		0	x	x	x
08.HPLL_ERR_MIN	18		18	x	x	x
09.HPLL_ERR_MAX	80		80	x	x	x
10.V_SLICER	0		0	x	x	x
11.HenhGain	127	FLI2310	127	x	x	x
12.HLEGain	64		64	x	x	x
13.HChrEnGain	32		32	x	x	x

01~04 : uPD64083

05~10 : VPC3230

11~13 : FLI2310

01.Picture Improve ⇒ 05.Y/C Delay Setting according to the System and Input Modes

ITEM		Relevant IC	Initial Values of Input Modes			
			Video	Component	PC	DVI
05.Y/C Delay	TV		Mode-1	Mode-2	Mode-3	Mode-4
01. NTSC	0	VPC3230	0	x	x	x
02. NTSC-AV	0		0	x	x	x
03. Not Used						
04. Not Used						
05. FLI-Y	5	FLI2310	5	x	x	x
06. FLI-C	11		11	x	x	x

01~02 : VPC3230

05~06 : FLI2310

01.Picture Improve ⇒ 06.Motion Enhancing Adjustment

ITEM		Relevant IC	Initial Values of Input Modes			
			Video	Component	PC	DVI
06.Motion	TV		Mode-1	Mode-2	Mode-3	Mode-4
01.HPLL Speed-1	0	VPC3230	0	x	x	x
02.Auto Lock	0		0	x	x	x
03.V-motion Tresh	32	FLI2310	32	x	x	x
04.Not Used						
05.Not Used						

01~02 : VPC3230

03 : FLI2310

01.Picture Improve ⇒ 07.DNle Registers

ITEM		Relevant IC	Initial Values of Input Modes			
			Video	Component	PC	DVI
07. DNle	TV		Mode-1	Mode-2	Mode-3	Mode-4
01. SUB BRIGHT	W/B	DNle	W/B	W/B	W/B	W/B
02. SUB CONT	W/B		W/B	W/B	W/B	W/B
03. SCALE MAX	48		48	48	48	48
04. SCALE MIN	16		16	16	16	16
05. TH HPF	0		0	0	0	0
06. TH EDGE	4		4	4	4	4
07. NR SEL	2		2	2	2	2
08. CE UPPER	220		220	220	220	220
09. CE CUTOFF	32		32	32	32	32
10. CE GAIN	64		64	64	64	64
11. DCE GAIN	75		75	75	75	75
12. SKIN ON	0		0	0	0	0
13. CTI GAIN	0		0	0	0	0
14. DE NOISE GAIN	8		8	8	8	8
15. TH CORING	3		3	3	3	3
16. PATT SEL	0		0	0	0	0
17. NOISE TH2	100		100	100	100	100
18. H CONT	63		63	63	63	63
19. V CONT	32		32	32	32	32
20. BLACK GAIN	11		11	11	11	11
21. WHITE GAIN	31		31	31	31	31
22. WTE GAIN	300		300	300	300	300
23. CTE GAIN	176		176	176	176	176

01~23 : DNle

01.Picture Improve ⇒ 08.Logic Registers

ITEM		Relevant IC	Initial Values of Input Modes			
			Video	Component	PC	DVI
09.Logic	TV		Mode-1	Mode-2	Mode-3	Mode-4
01.R DRIVE	W/B	Logic	W/B	W/B	W/B	W/B
02.G DRIVE	128		128	128	128	128
03.B DRIVE	W/B		W/B	W/B	W/B	W/B
04.R CUTOFF	W/B		W/B	W/B	W/B	W/B
05.G CUTOFF	128		128	128	128	128
06.B CUTOFF	W/B		W/B	W/B	W/B	W/B
07.GAMMA	1		1	1	1	1
08.GTS SET	1		1	1	1	1
09.ERD MODE	2		2	2	2	2
10.RANDOM NOISE	0		0	0	0	0
11.DIFF FILTER	1		1	1	1	1
12.APC	1		1	1	1	1
13.APC SET	0		0	0	0	0
14.APC VALUE	127		127	127	127	127
15.ACTIVE VPOS	12		12	12	12	12
16.ACTIVE HPOS	19		19	19	19	19
17.VSYNC POS	3		3	3	3	3
18.HSYNC POS	32		32	32	32	32
19.VSYNC WIDTH	2		2	2	2	2
20.HSYNC WIDTH	12		12	12	12	12

01~20 : Logic

01.Picture Improve ⇒ 09.Picture Size

ITEM		Relevant IC	Initial Values of Input Modes			
			Video	Component	PC	DVI
10.Picture Size	TV		Mode-1	Mode-2	Mode-3	Mode-4
01. H START OFFSET	0	ASI510	0	0	0	0
02. V START OFFSET	0		0	0	0	0
03. H END OFFSET	0		0	0	0	0
04. V END OFFSET	0		0	0	0	0
05.OVERSCAN B	63		63	63	63	63
06.OVERSCAN G	63		63	63	63	63
07.OVERSCAN R	63		63	63	63	63

01~07 : ASI510

02.Setting the Initial Values**02.Initial Setting**

- 01. Initial P-Mode
- 02. P-Mode Value
- 03. Initial Color Tone
- 04. Color Tone Value

Current Input Mode

- ☞ Indicates selected input mode
- ☞ Reset after saving the P-Mode adjustments
- ☞ P-MODE the data Values
- ☞ Reset after saving the color tone adjustments
- ☞ Color tone the data Values

02.Initial Setting ⇒ 01.Initial P-Mode**01.Initial P-Mode**

- 01. Dynamic
- 02. Standard
- 03. Movie
- 04. Custom

Current Input Mode

Available options for the PC/DVI Mode are High,Middle, Low and Custom.

02.Initial Setting ⇒ 02.P-Mode Value**02. P-Mode Value**

- 01. Dynamic
- 02. Standard
- 03. Movie
- 04. Custom

Current Input Mode

Available options for the PC/DVI Mode are High,Middle, Low and Custom.

02.Initial Setting ⇒ 02.P-Mode Value ⇒ 01.Dynamic

01.Dynamic	Current Input Mode
01. Contrast	◀ 100 ▶
02. Brightness	◀ 45 ▶
03. Sharpness	◀ 75 ▶
04. Color	◀ 55 ▶
05. Tint	◀ 50 ▶

02.Initial Setting ⇒ 02.P-Mode Value ⇒ 02.Standard

02.Standard	Current Input Mode
01. Contrast	◀ 80 ▶
02. Brightness	◀ 50 ▶
03. Sharpness	◀ 50 ▶
04. Color	◀ 50 ▶
05. Tint	◀ 50 ▶

02.Initial Setting ⇒ 02.P-Mode Value ⇒ 03.Movie

03.Movie	Current Input Mode
01. Contrast	◀ 65 ▶
02. Brightness	◀ 55 ▶
03. Sharpness	◀ 25 ▶
04. Color	◀ 50 ▶
05. Tint	◀ 50 ▶

02.Initial Setting ⇒ 02.P-Mode Value ⇒ 04.Custom

04.Custom	Current Input Mode
01. Contrast	◀ 80 ▶
02. Brightness	◀ 50 ▶
03. Sharpness	◀ 50 ▶
04. Color	◀ 50 ▶
05. Tint	◀ 50 ▶

02.Initial Setting ⇒ 03.Initial Color Tone

02.Initial Setting	Current Input Mode
01. Cool2	
02. Cool1	
03. Normal	
04. Warm1	
05. Warm2	

※ Available Settings for the PC Mode are
Custom, Color Tone 1, Color Tone 2, Color Tone 3

※ Available options for the DVI Mode are
ColorTone1, ColorTone2, ColorTone3

02.Initial Setting ⇒ 04.Color Tone Value

04.Color Tone Value	Current Input Mode
01. Cool2	
02. Cool1	
03. Normal	
04. Warm1	
05. Warm2	

- ※ Adjusting and Storing the Changes :
Change the White Balance (Color Temperature)
1. Selecting an item will display the same options as those of White Balance.
 2. Available options for the PC Mode are Custom, Color Tone 1, Color Tone 2, Color Tone 3
 3. Available options for the DVI Mode are ColorTone1, ColorTone2, ColorTone3.
 4. Data Storing is classified according to the PC Mode & Other Modes.

03.PIP/Test Pattern

ITEM		Relevant IC	Initial Values of Input Modes			
			Video	Component	PC	DVI
03.PIP/Test Pattern	TV		Mode-1	Mode-2	Mode-3	Mode-4
01.PIP R CONT	32	ASI510	32	32	32	32
02.PIP G CONT	32		32	32	32	32
03.PIP B CONT	32		32	32	32	32
04.PIP R BRIGHT	0		0	0	0	0
05.PIP G BRIGHT	0		0	0	0	0
06.PIP B BRIGHT	0		0	0	0	0
07.PIP FILTER LC	0		0	0	0	0
08.PIP FILTER ML	0		0	0	0	0
09.PIP FILTER MR	0		0	0	0	0
10.PIP FILTER UC	0		0	0	0	0
11. LOG PATTERN	0	Logic ASI510	0	0	0	0
12. LOG HIGH LEVEL	255		255	255	255	255
13. LOG LOW LEVEL	0		0	0	0	0
14. ASI COLORRBAR	1		1	1	1	1

01~10 : ASI510

11~14 : Logic ASI510

04.Option-1

04.Option-1	Current Input Mode
00. AGC	◀ Off ▶
01. Language	◀ English ▶
02. DDC Write	◀ Off ▶
03. Melody Volume	◀ 6 ▶
04. Tuner	◀ 1-Tuner ▶
05. LNA	◀ Off ▶
06. High Deviation	◀ Off ▶
07. SD Delay	◀ 3 ▶
08. HD Delay	◀ 1 ▶
09. V Mute Time	◀ 6 ▶
10. Video Port Graphic	◀ Graphic ▶

06. High Deviation : To prevent Sound Buzz resulting from regional conditions of the input signal.

07. SD Delay : AV mode Delay

- 1.8ms delay ----- delay 0
- 38ms delay ----- delay 1
- 54ms delay ----- delay 2
- 108ms delay (max) ----- delay 3

08. HD Delay : DTV/PC/DVI mode Delay

10. Video Port : Setting of Aurora Input Port for VIDEO signal

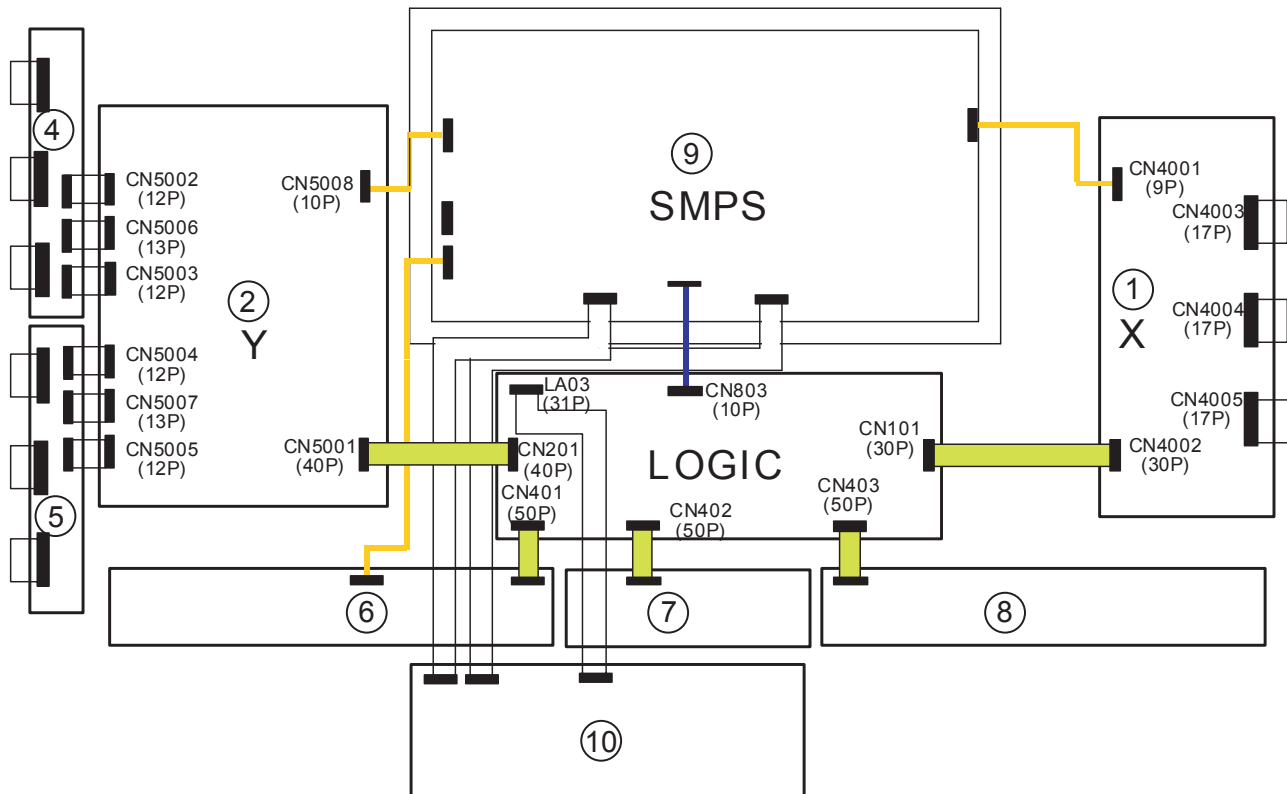
- Graphic : Input Video Signal though Graphic port of Aurora (In case of NON-PIP VIDEO)
- Video : Input Video Signal though Graphic port of Aurora (In case of PIP VIDEO)

05.Option-2

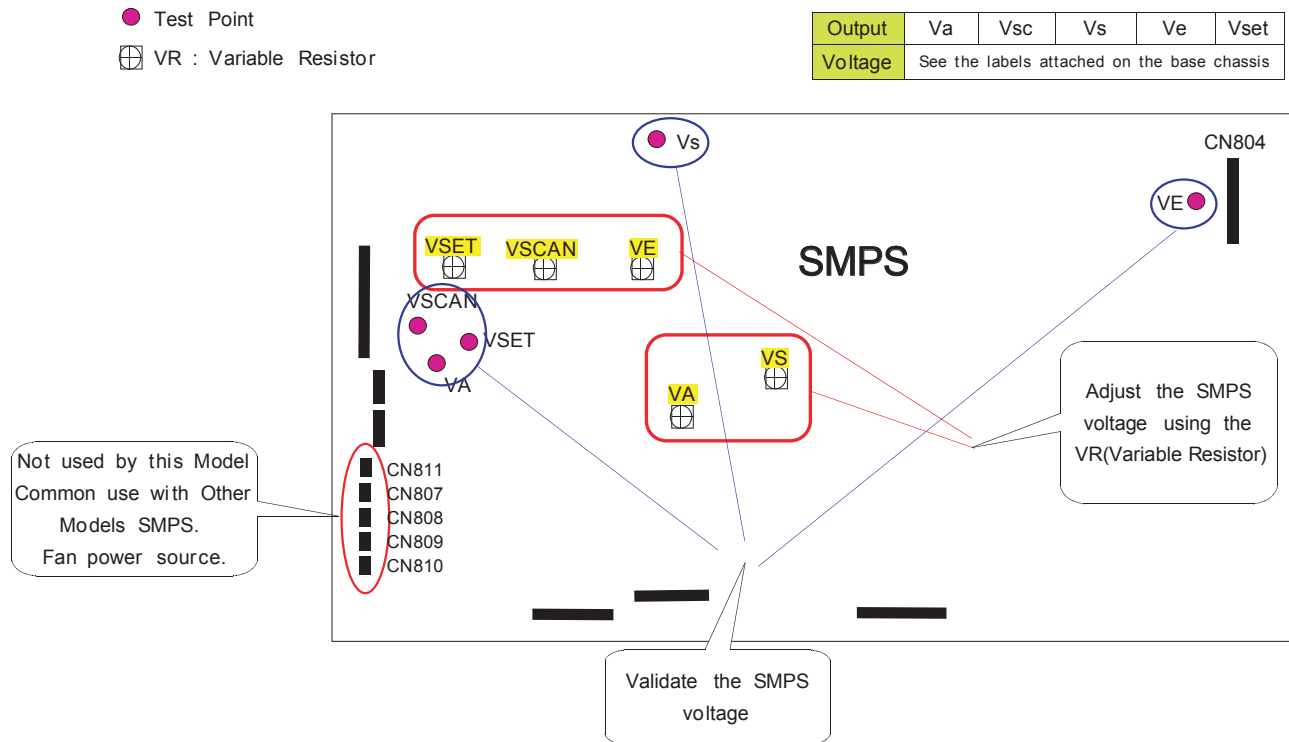
05.Option-2	Current Input Mode
00. Pixel Shift	◀ V ▶
01. Shift Test	◀ 0 ▶
02. Pixel Number	◀ 1 ▶
03. Shift Line	◀ 1 ▶
04. Shift Time	◀ 4 ▶
05. Number Range	◀ 4 ▶
06. Line Range	◀ 4 ▶
07. FLi Memory Clock	◀ 11 ▶
08. DNle DEMO	◀ On ▶
09. PILOT HIGH	◀ 21 ▶
10. PILOT LOW	◀ 16 ▶
11. CHECKSUM	◀ 0000 ▶

00. OFF ↔ V ↔ G ↔ V/G
 01. 0 : minute , 1 : SEC
 02. Left,right movement Pixel
 03. Upper, low movement Pixel
 04. Shift Test

2-4 Module Block



No	Description	Code No	Specification
—	ASSY PDP PANEL	BN96-01209A	M3,S42SD-YD,V3,42INCH,SEMCO SMPS,D65A, V3.1,998X591,852X480,NTSC/PAL,
①	ASSY PCB X MAIN	BN96-00870A	M3,S42SD-YD,D65A, X Main board,LJ92-00758A,V3
②	ASSY PCB Y MAIN	BN96-01211A	M3,S42SD-YD,V3,42",V3.1,SDI CODE,LJ92-00944B,Y MAIN
③	ASSY PCB LOGIC MAIN	BN9601212A	M3,S42SD-YD,V3,42",V3.1,SDI CODE,LJ92-00975C,LOGIC MAIN
④	ASSY PCB BUFFER(up)	BN96-00872A	M3,S42SD-YD,D65A, Y BUFFER(UP),LJ92-00796A,V3
⑤	ASSY PCB BUFFER(down)	BN96-00873A	M3,S42SD-YD,D65A, Y Main board,LJ92-00797A,V3
⑥	ASSY PCB BUFFER(E)	BN96-01213A	M3,S42SD-YD,V3,42",V3.1,SDI CODE,LJ92-00811A,E BUFFER
⑦	ASSY PCB BUFFER(F)	BN96-01214A	M3,S42SD-YD,V3,42",V3.1,SDI CODE,LJ92-00812A,F BUFFER
⑧	ASSY PCB BUFFER(G)	BN96-01215A	M3,S42SD-YD,V3,42",V3.1,SDI CODE,LJ92-00813A,G BUFFER
⑨	ASSY PCB SMPS	BN96-01217A	SPP4231,PS42D4S,110~240V
⑩	ASSY PCB MAIN	BN94-00521C	SP-P4231,D65C,BN41-0



Notes

1. When the SMPS-PCB is replaced, the Va, Vsc, Vs, Ve and Vset voltages must be checked and adjusted to the proper levels indicated on the panel sticker.