Soft jig manual

The user manual of soft jig for Version 2.0 and 3.0b

SAMSUNG

1.CONDITION OF MONITOR BEFORE ADJUSTMENT

1.Face the monitor east
2.Locate the monitor to the place where there is no magnetic field
3.Degauss the monitor with the external degausser
 If don't have,degauss the monitor with the monitor's own degaussing funct.
4.Before adjustment,turn the monitor on and warm it up for 30 minutes at least.
5.Check the monitor's internal electronic adjustment ,and make sure that
 such as B+,high voltage,G2,and so on.

2.COMPOSITION OF SOFTJIG EQUIPMENT

1) In case of using Interface Board 2.0.
 -.SOFTWARE DISKETTE: SOFTJIG PROGRAM FOR WINDOWS95
 -.INTERFACE BOARD(VER 2.0 ,CODE NO: BH81-90001K)
 -.A cable for parallel communication (25PIN TO 25PIN,CODE NO : BH81-90001H)
 -.7.5~12V DC ADAPTOR
 -.D-SUB SIGNAL CABLE(15PIN TO 15PIN CABLE
     THAT HAS ADDITIONAL 3-PIN CONNECTOR,CODE NO : BH81-90001J)

2) In case of using MIT-2031.
 -.SOFTWARE : Samsung Monitor A/S Jig3.0b
 -.INTERFACE BOARD(MIT-2031 ,CODE NO:)
 -.A cable for parallel communication (25PIN TO 25PIN,CODE NO : BH81-90001H)

 ** Remark : It's the condition for using Signal Generator.

3.OTHER EQUIPMENT NEEDED
 1. PERSONAL COMPUTER OR SYGNAL GENERATOR
 2. CA-100 OR COLOR ANALYZER(FOR MEASURING W/B ADJUSTMENT)
 3. TEMPLATE JIG OR MEASURING EQUIPMENT FOR PICTURE(FOR MEASURING PICTURE)
 4. SERVICE MANUAL

4.SETTING EQUIPMENT
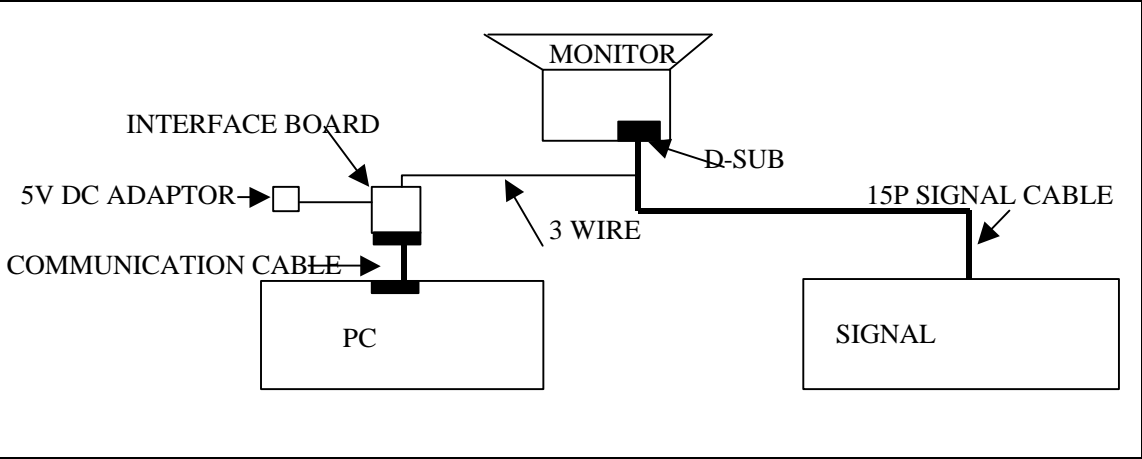
1) In case of using Interface Board 2.0.

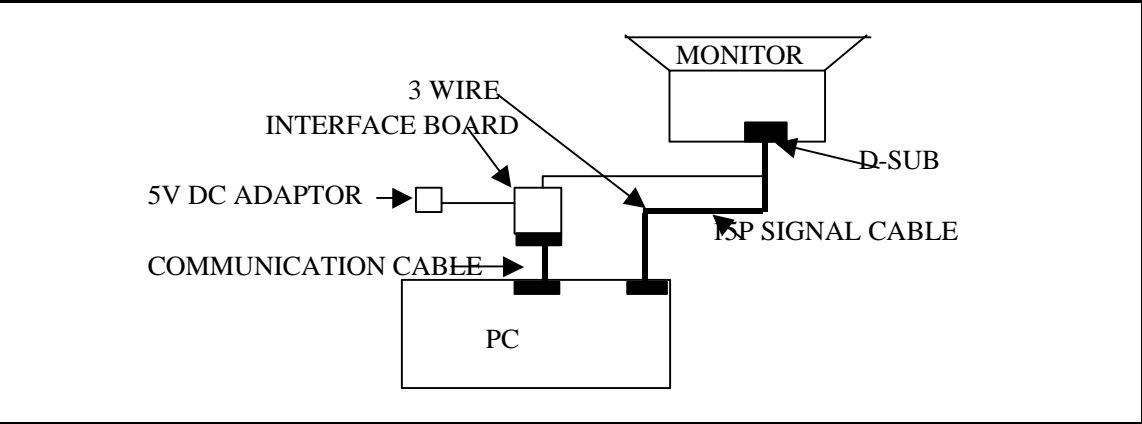Figure 1-1 : When using SIGNAL GENERATOR

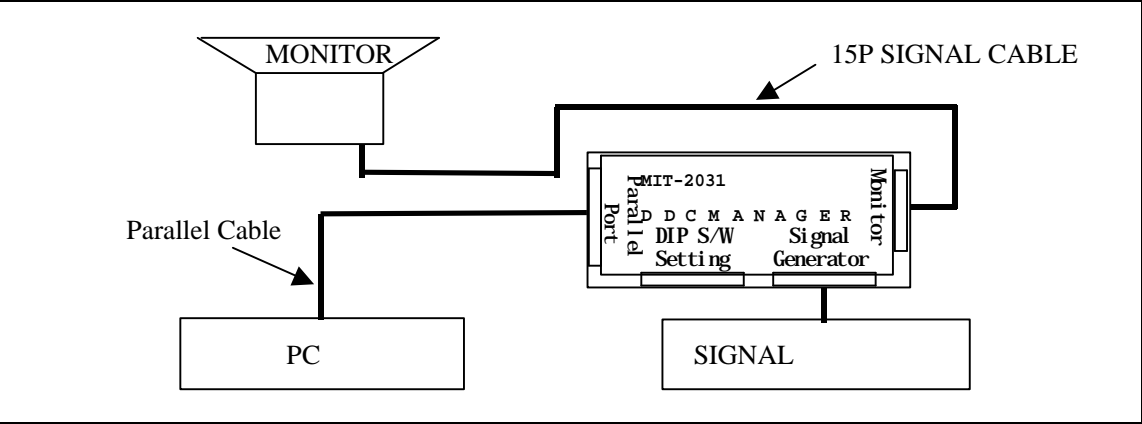Figure 1-2 : When using PC

2) In case of using MIT-2031.
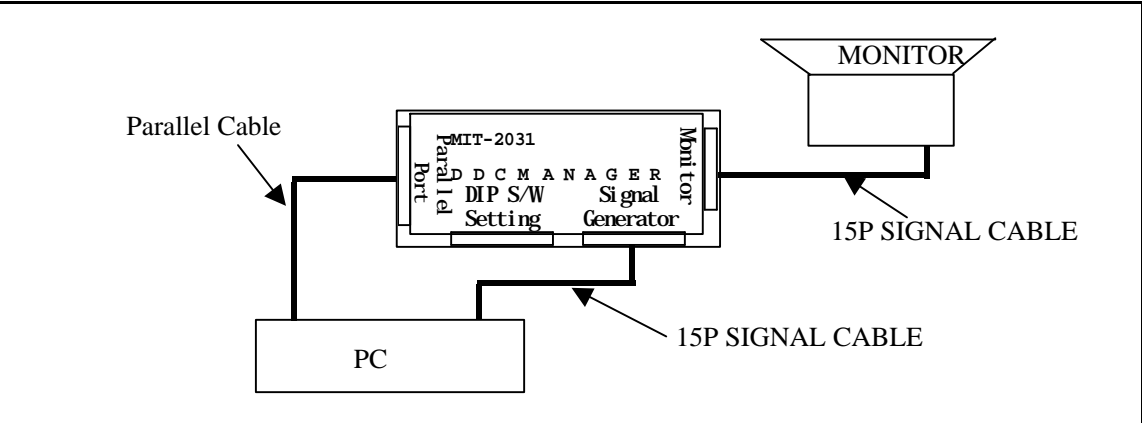

Figure1-3 : When using SIGNAL GENERATOR.

Figure1-4 : When using PC.

NOTE : Setting equipment

NOTE : Setting equipment
  1.Use a 7.5~12VDC ADAPTOR as a source power of interface board.
   (It can cause failure or damage in the equipment by using higher or lower.)

  2.Set the equipment such as FIGURE 1-1 to adjust all the PRESET MODE.
   (Please follow figure 1-1 because it is the most conventional
    and recommended method.)
  3.We won't recommand you using FIGURE 1-2 as your setup.
   You may adjust only a few mode because The PC must have same frequency timing
   and polarity with the monitor's preset mode.
   With this method,
    you can't adjust closely because the disply pattern is not good.
  4.When connecting the signal cable,connect the end of the cable(that is nearest
   to the 3 wire harness) to the monitor .The 3 wire is for communication.

  5.The saved data by using the monitor's function key is not the preset mode
   but the user mode.So if you save the picture with another mode
   by the monitor's function key on the same frequency timing
   ,the user mode will be updated.

5.LOADING THE ADJUSTING PROGRAM
  1.After powering PC on,change to the root directory.
  2.Make the directory "C:\SOFTJIG"
  3.Copy file of the diskette to the "C:\SOFTJIG" directory.
  4.Extracting the zipped file "ALL AS.EXE" by clicking "ALL AS.EXE" with mouse.
  4.Make a icon with the "SERVICE.EXE" .
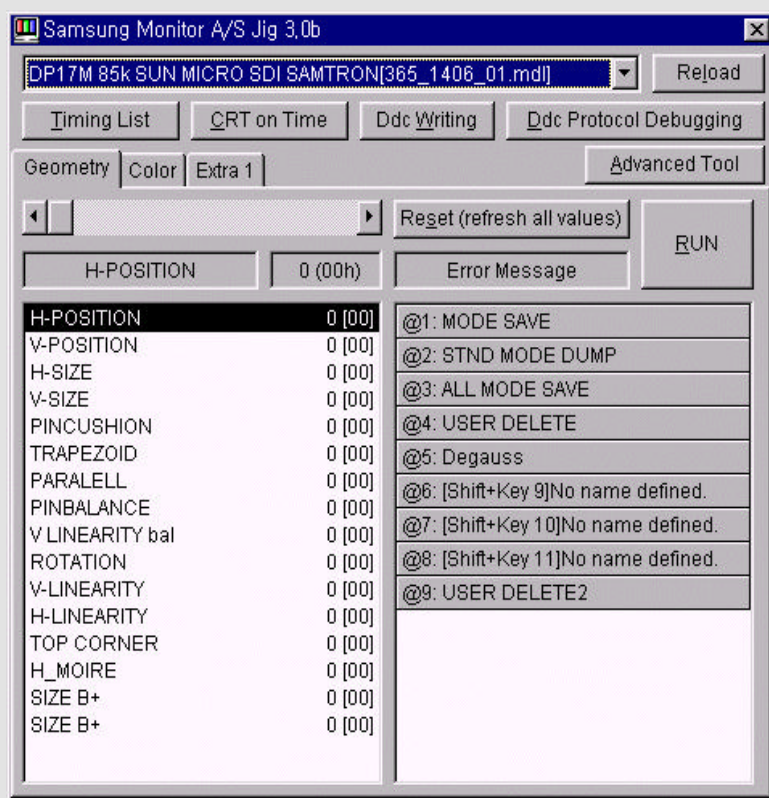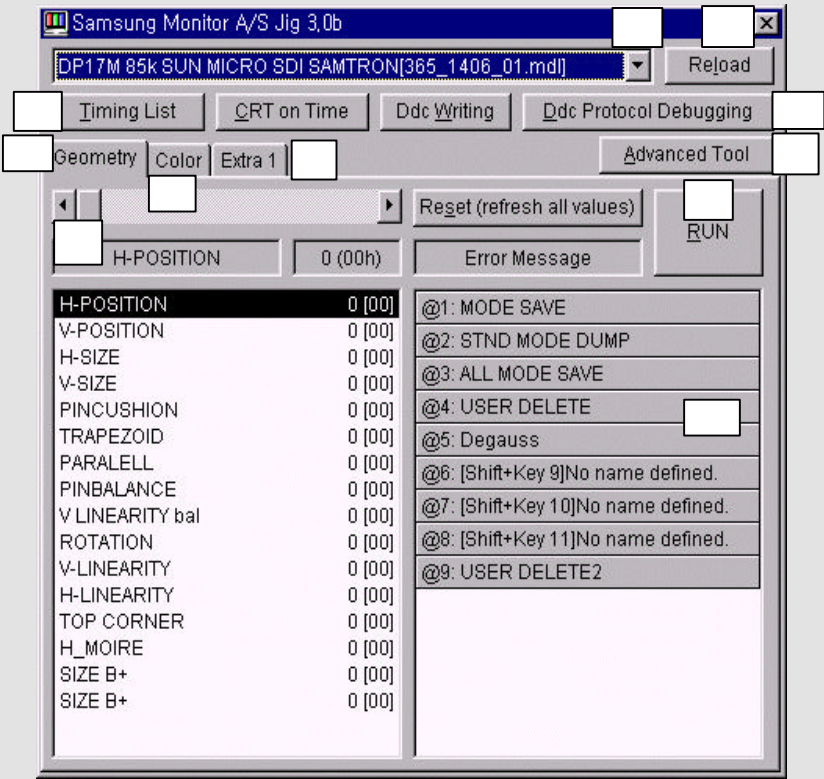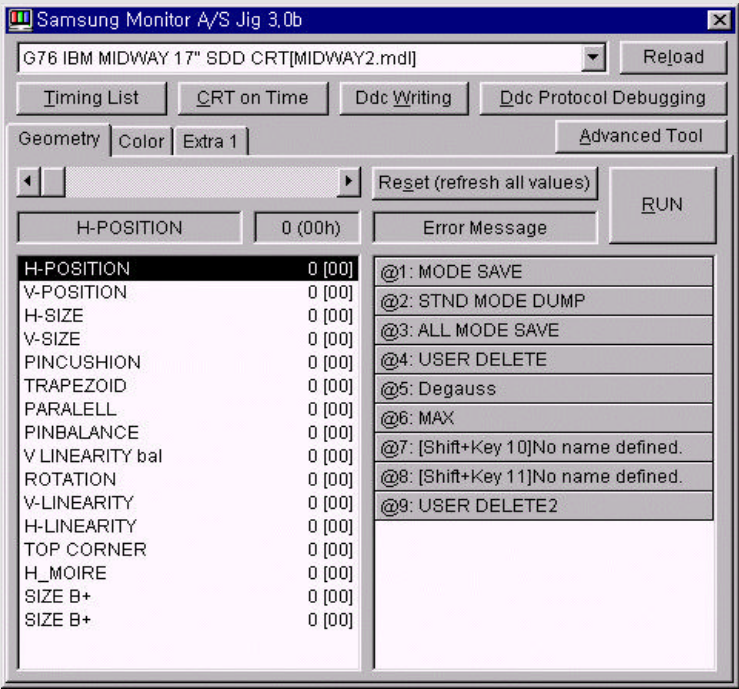 5.Click the icon of the "SERVICE.EXE".

Figure 2-1 : MAIN SCREEN

6.MAIN MENU REVIEW

:Loading the " MODEL FILE" that want to adjust(midway2.mdl FILE as a example)

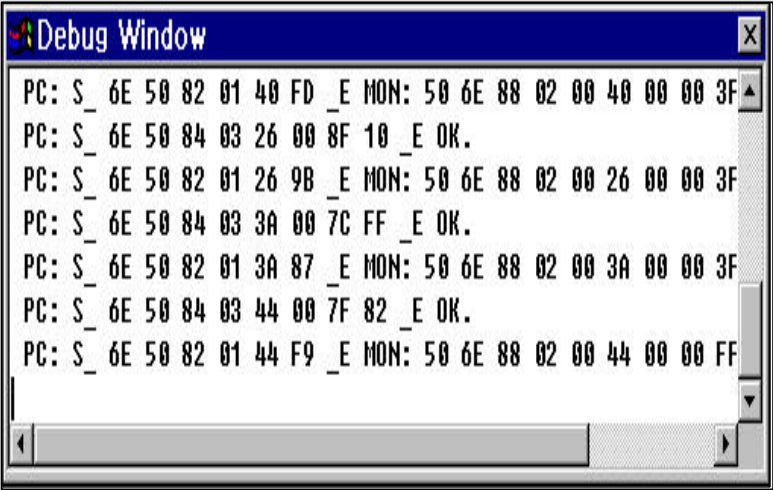: Reloading the model file that was loaded.

: Displaying the "PRESET MODE" of model file to adjust.
  By using the "Preset Timing",H/V Frequency,Polarity,Resolution,and so on.
  This is the information that was read not from monitor but from model file.

Preset Timing

G76 IBM MIDWAY 17" SDD CRT

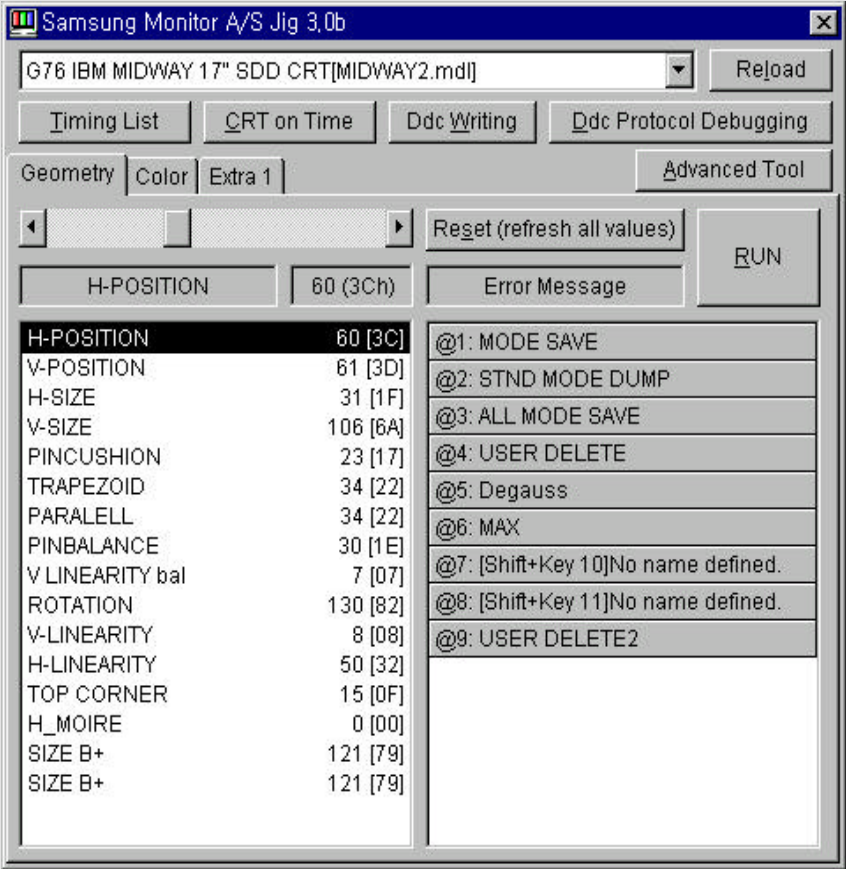| No	H(kHz)	V(Hz)	Pol	Resolution	Samsung Standard
0	68.70	85.00	PP		44: VESA 1024 85Hz
1	53.70	85.00	PP		43: VESA 800 85Hz
2	43.30	85.00	NN		42: VESA 640 85Hz
3	60.00	75.00	PP		19: VESA 1024 75Hz
4	46.90	75.00	PP		18: VESA 800 75Hz
5	37.50	75.00	NN		17: VESA 640 75Hz
6	31.50	70.00	NP		2: IBM VGA2 70Hz
7	31.50	60.00	NN		3: IBM VGA3 60Hz
8	79.90	75.00	PP		20: VESA 1280 75Hz
9	81.30	65.00	PP		49: VESA 1600 65Hz

 Feature :Displaying the saved EDID(Extended Display Identification Data)
        in the eeprom of the monitor and modifying the data by byte.
The function of the Memory "READ/WRITE" is for the R&D
If use,please make a attention not to make a mistake.

Advanced I2C Debugging Tool

MONITOR EEPROM PAGE0

Auto reading ☐

5C	0D	0C	01	8E	0B	00	1E	09	10	00	FF	01	01	3B	3C
61	3F	00	47	17	23	23	1E	06	10	00	FF	01	01	B0	55
5C	3E	16	5C	16	22	23	1E	09	10	00	FF	02	41	3B	46
32	3B	0A	44	16	23	22	1E	08	10	00	FF	03	C1	D4	4B
3C	3D	01	45	16	22	21	1E	07	10	00	FF	03	C2	18	55
38	3B	02	44	16	22	22	1E	08	30	00	FF	07	C2	58	4B
3C	3D	00	45	17	22	22	1E	07	20	00	FF	07	C2	AE	55
32	3B	0A	44	17	22	22	1D	08	10	00	FF	08	C3	1F	4B
3C	8E	05	00	8E	0D	00	8E	10	00	2D	80	00	FF	FF	FF
3C	3D	00	45	17	22	22	1E	07	20	00	FF	FF	FF	FF	FF
3C	3D	00	45	17	22	22	1E	07	20	00	FF	FF	FF	FF	FF
3C	3D	00	45	17	22	22	1E	07	20	00	FF	FF	FF	FF	FF
FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
14	00	FF	FF	00	FF	FF	FF	FF	FF	FF	FF	FF	03	61	A2
22	FF	93	08	FF	FF	F0	09	FF	0D	0D	00	00	08	00	00
5E	82	82	FF	08	58	5B	FF	FF	FF	FF	FF	FF	FF	FF	FF

Address & Data

Addr 00 ◁ ▷

Data 5C   92

◀ ▯ ▶

☐ ☑ ☐ ☑ ☑ ☑ ☐ ☐

Read | Write

Get all | Set all

Save | Load

Direct I/O ☐

: Displaying the communication procedure by running special function
after clicking "Debug" to find the error or explain for other people.

```
Debug Window                                              X

PC: S_ 6E 50 82 01 40 FD _E MON: 50 6E 88 02 00 40 00 00 3F
PC: S_ 6E 50 84 03 26 00 8F 10 _E OK.
PC: S_ 6E 50 82 01 26 9B _E MON: 50 6E 88 02 00 26 00 00 3F
PC: S_ 6E 50 84 03 3A 00 7C FF _E OK.
PC: S_ 6E 50 82 01 3A 87 _E MON: 50 6E 88 02 00 3A 00 00 3F
PC: S_ 6E 50 84 03 44 00 7F 82 _E OK.
PC: S_ 6E 50 82 01 44 F9 _E MON: 50 6E 88 02 00 44 00 00 FF
```

: The ICON for display adjustment

```
Samsung Monitor A/S Jig 3.0b                                X

G76 IBM MIDWAY 17" SDD CRT[MIDWAY2.mdl]         ▼   Reload

Timing List    CRT on Time    Ddc Writing    Ddc Protocol Debugging

Geometry | Color | Extra 1 |                        Advanced Tool

◄ |          |              | ►   Reset (refresh all values)
                                                            RUN
H-POSITION          60 (3Ch)       Error Message

H-POSITION          60 [3C]    @1: MODE SAVE
V-POSITION          61 [3D]    @2: STND MODE DUMP
H-SIZE              31 [1F]    @3: ALL MODE SAVE
V-SIZE             106 [6A]    @4: USER DELETE
PINCUSHION          23 [17]    @5: Degauss
TRAPEZOID           34 [22]    @6: MAX
PARALELL            34 [22]
PINBALANCE          30 [1E]    @7: [Shift+Key 10]No name defined.
V LINEARITY bal      7 [07]    @8: [Shift+Key 11]No name defined.
ROTATION           130 [82]    @9: USER DELETE2
V-LINEARITY          8 [08]
H-LINEARITY         50 [32]
TOP CORNER          15 [0F]
H_MOIRE              0 [00]
SIZE B+            121 [79]
SIZE B+            121 [79]
```

* Refer the display adjustment for more detail content.

: The ICON for white balance

Samsung Monitor A/S Jig 3,0b	☒

G76 IBM MIDWAY 17" SDD CRT[MIDWAY2.mdl] ▼ | Reload

| Timing List | CRT on Time | Ddc Writing | Ddc Protocol Debugging |

Geometry Color Extra 1   Advanced Tool

◄ [_____] ► | Reset (refresh all values) | RUN

| RED GAIN | 101 (65h) | Error Message |

RED GAIN	101 [65]	@1: CHANNEL 1
GREEN GAIN	92 [5C]	@2: CHANNEL 2
BLUE GAIN	64 [40]	@3: CHANNEL 3
RED CUTOFF	141 [8D]	@4: COLOR SAVE
GREEN CUTOFF	146 [92]	@5: STND COLOR DUMP
BLUE CUTOFF	117 [75]	@6: ALL COLOR SAVE
BRIGHTNESS	88 [58]	@7: USER DELETE
CONTRAST	255 [FF]	@8: CHANNEL 4
ABL	223 [DF]	@9: USER DELETE2

*Refer the white balance adjustment for more content.

: "EXTRA 1" Icon : Especially for G2 adjustment
  Some model use the VR and the other model uses the MICOM like this.
  you can know that on this icon when you load the "MODEL FILE".
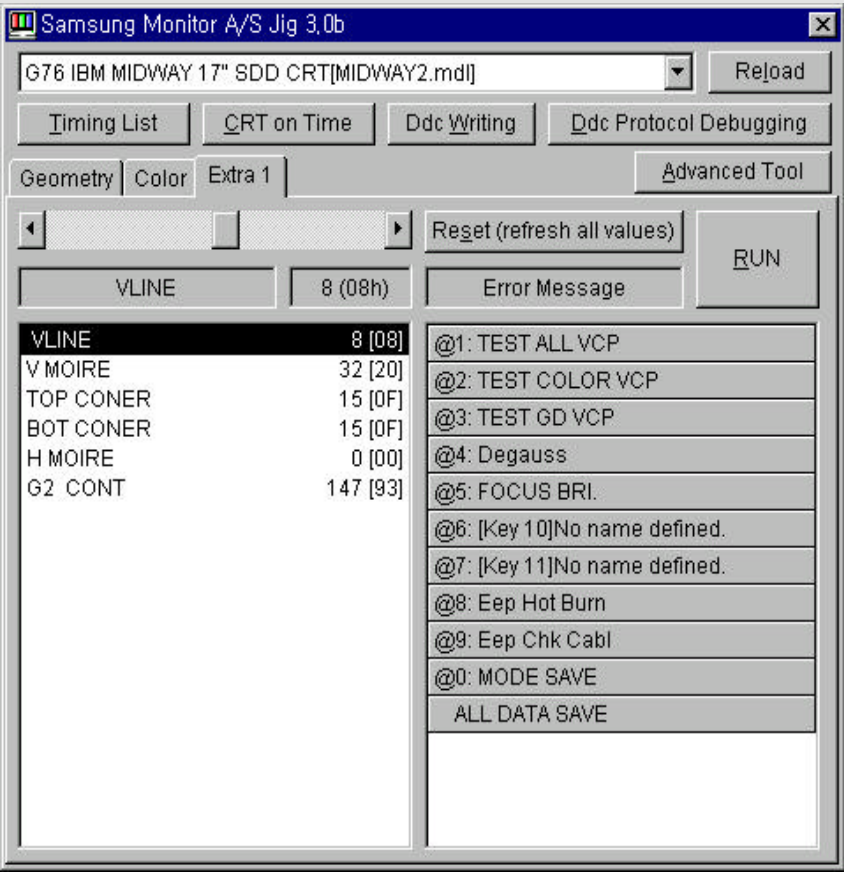
 *Refer to the G2 adjustment for more content.

Must click the "RUN" icon after clicking to use the "@:"type icon.

: The key to adjust or change of picture by MICOM program.
 Use the left key to decrease and use the right key to increase.

:The icon to save the changed data by control key and to save the initial data
To use the "RUN" KEY, you must click the one of "@ : "type KEY
    on the bottom right.

7. Adjusting the G2 Voltage

This adjustment is the circuit adjustment that must be adjustend before
adjusting picture and this model use the MICOM program.

1.Click the "EXTRA1" after loading the "MODEL FILE" that want to adjust.
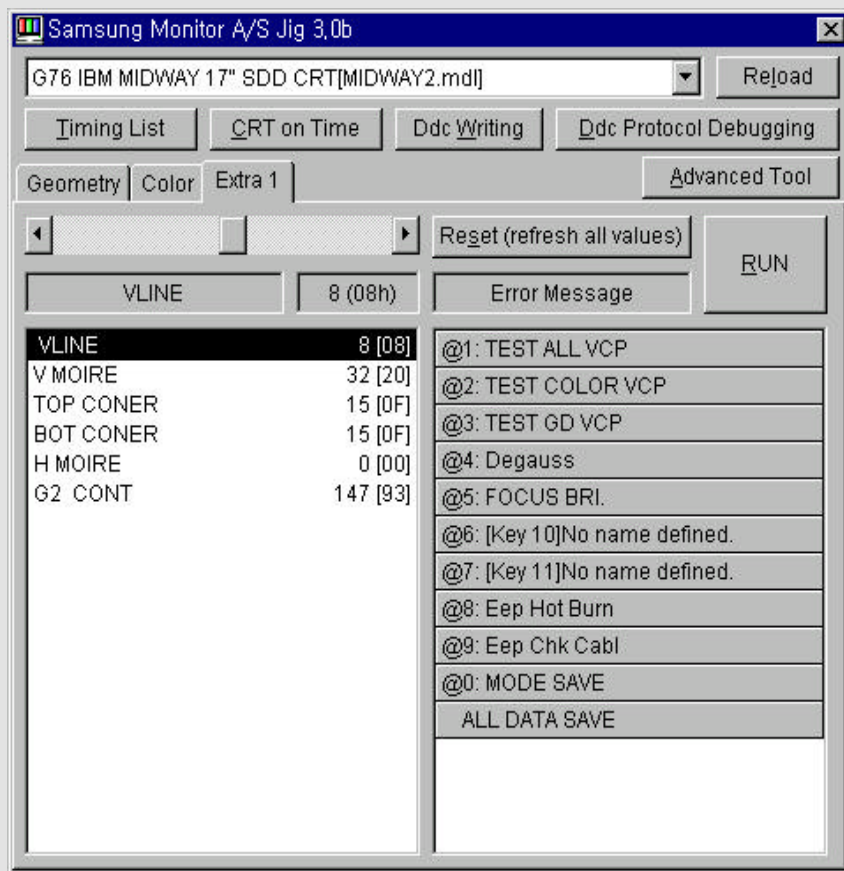
2.Make contrast and brightness zero condition by clicking "NO VCP"
   and "RUN" by turn.

3.Adjust the G2 voltage after clicking "G2 CONT" by control key.

* G2 voltage will be saved automatically when you adjust.
  So don't need another saving by control key.

8. Adjusting Display

1.Selecting the "GEOMETRY" on the condition of loading the model file.
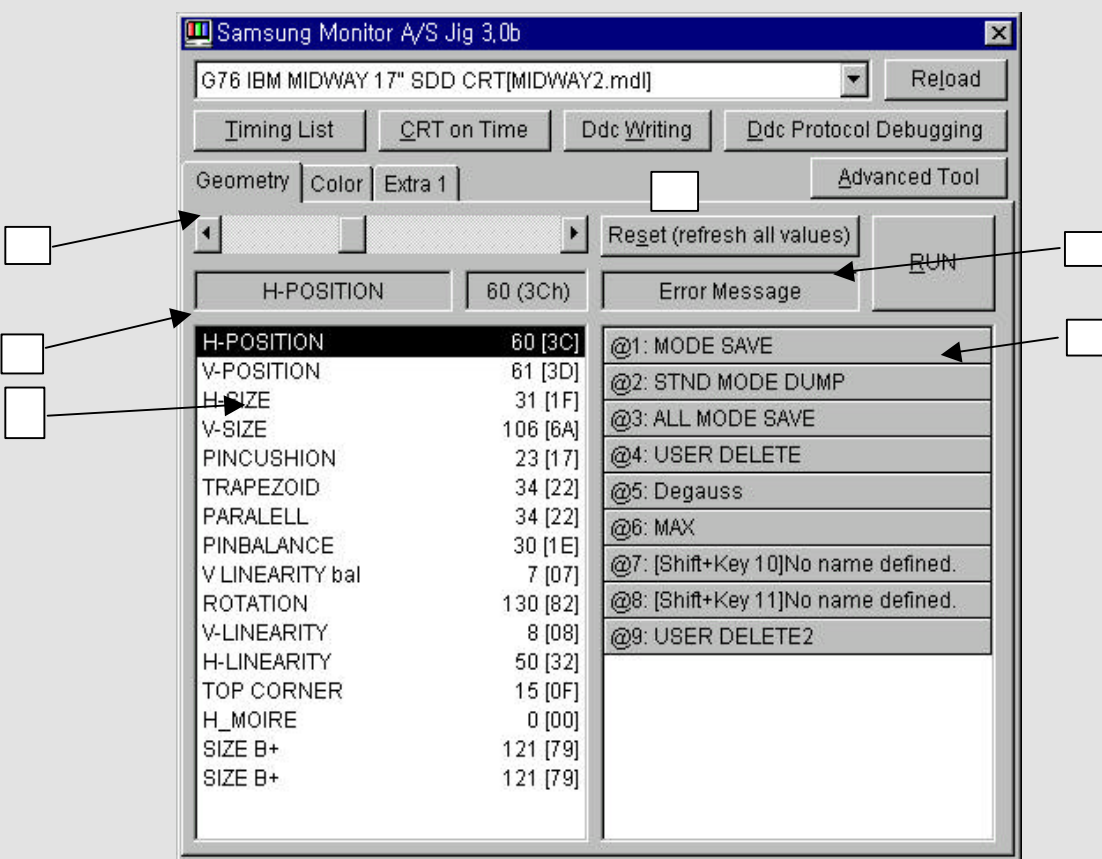
Display control MENU

Example :midway2.MDL(G76 IBM MIDWAY MODEL)

: Adjusting KEY(adjust after selecting the item want to.)
 For example,when move the scroll bar by mouse
 after selecting the "H-POSITION" on the "GEOMETRY"can see the changing of
         h-position on the monitor and the hex data on the menu.

: Making possible to use special function like "ALL MODE SAVE".
 Clicking the "RUN"icon after clicking the menu that want to use.
 The program will displays the result with the message of "OK" or "ERROR"
  on the left side whether the command operates correctly or not .
 The menu indicates selecting "ALL MODE SAVE".

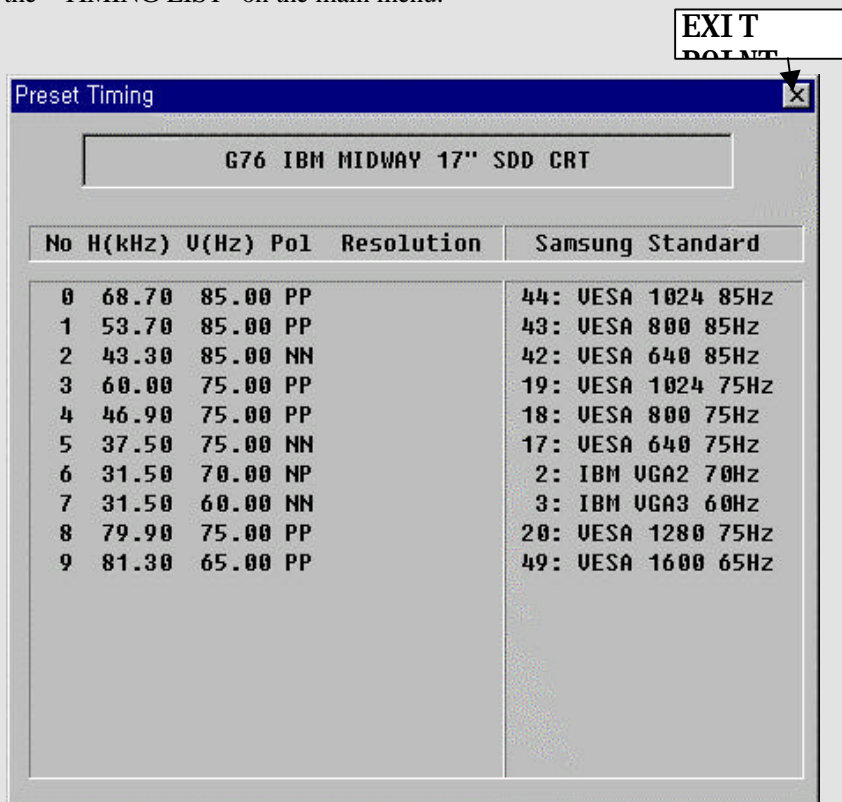: Displaying the result by operating command.

: The selected adjusting item.

: The adjusting items that the model have.(the item is different by model.)

: Displaying the data that the monitor's eeprom has .
 Before adjusting display or W/B when changing timing or w/b channel,
     please make sure the monitor's initial data by clicking the "RESET".

2.Selecting the "TIMING LIST" on the main menu.

Preset Timing   ☒

	G76 IBM MIDWAY 17" SDD CRT	

No	H(kHz)	V(Hz)	Pol	Resolution	Samsung Standard
0	68.70	85.00	PP		44: VESA 1024 85Hz
1	53.70	85.00	PP		43: VESA 800 85Hz
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3	60.00	75.00	PP		19: VESA 1024 75Hz
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7	31.50	60.00	NN		3: IBM VGA3 60Hz
8	79.90	75.00	PP		20: VESA 1280 75Hz
9	81.30	65.00	PP		49: VESA 1600 65Hz

Checking the model's " PRESET MODE" and signal generator's Frequency
                                   whether same or not.
Clicking the "EXIT POINT" with mouse to exit the "preset timing".

3.FUNCTION OF EACH MENU

        H_SIZE   :adjust the "H-SIZE".
        H_POSI   :adjust the horizontal position.
        BAREEL   :adjust barrel on the picture
        PARALL   :adjust the palletic tilt of picture
        H_LIN   :adjust the width of horizontal line in picture
        H_CONV   :adjust the horizontal C/G(in specific MODEL)
        H_FOCU   :adjust the horizontal FOCUS(in specific MODEL)
        ROTATE   :adjust the tilt of picture
        V_SIZE   :adjust the vertical size of picture
        V_POSI   :adjust the vertical position of picture
        TRAP   :adjust the above or below width of picture
        PIN_BAL   :adjust the vertical one side of picture
        V_LIN   :adjust the vertical width of each line in picture
        V_CONV   :adjust the vertical c/g of picture(in the specific MODEL)
        V_FOCU   :adjust the vertical FOCUS(in specific MODEL)

        USER DELETE   : delete the all saved mode by USER
                           (the saved mode by not using SOFTJIG)
        STANDARD MODE DUMP : disply the initial data of eprom on the picture

        MODE SAVE :Save the adjusted picture

        ALL MODE SAVE :Save the all PRESET MODE

PRE-ADJUSTING CONDITION
 .Make sure the G2,B+ and high voltage
  by comparing the model's specifications.

*The procedure of adjustment
1.Load the standard mode(frequency) on the signal generator.

2.Click the "USER DELETE"

3.Click the"STANDARD MODE DUMP"(Load the initial data of eprom on the picture)

4.Click the "MODE SAVE"(Save the standard mode)

5.Click the "ALL MODE SAVE"(Save the all mode to the eprom of monitor)

6.Load the "CROSS HATCH" PATTERN on the signal generator.

7.Adjust the picture by using each key on the menu.
  (if you see the abrupt changing of picture when using any key,don't mind.
   it is the cause of maintaining previous data on The PC   )

  The adjust will be started from monitor's eeprom data by clicking "RESET".

  When adjusting the "H-SIZE" on the basic mode of preset mode
  You must adjust the "H-SIZE" on the condition of clicking "SIZE B+".
   (This one will be applied for some model that has this "Icon on the menu.)

  If you do not use this method, the model has problem like over scan or
  minimum size of the h-size on the preset mode or preload mode.

  When adjusting the other mode, don't use "SIZE B+" KEY.

8.Click the "GENERAL FACTORY SAVE" to save after adjusting.

9.Click the "RUN" after clicking " ALL MODE SAVE" to save all mode data.

10.Load the other mode in the signal generator to adjust.

11.Load the "CROSS HATCH" PATTERN in the signal generator.

12.Click the "GENERAL FACTORY SAVE" to save after adjusting.

13.adjust the other mode by the procedure from no 10 to 12.

REMARK: Please keep the procedure on the adjusting picture to save time.
      There are some not mentioned icons because the items are saved
      by initial dumping. So Don't need to change.
      But if you need ,use the icon more carefully.
      To save the adjusted data,you must click the "RUN" icon after cliking
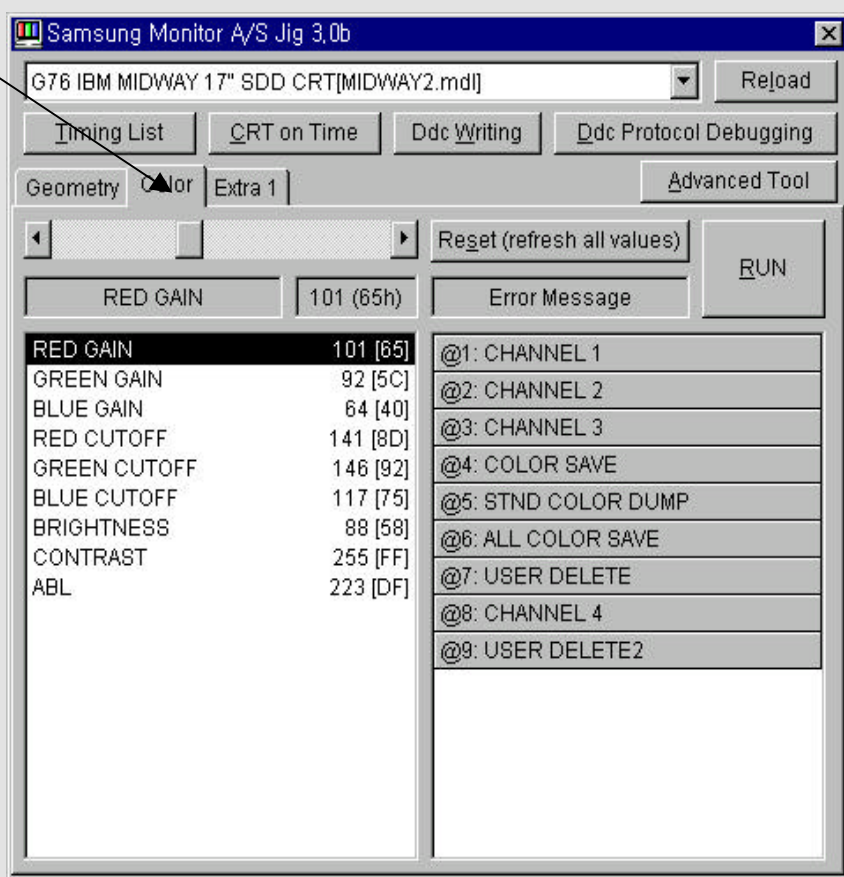   "@: " type icon.

9.ADJUSTING WHITE BALANCE

PRE-ADJUSTING CONDITION
  .Make sure the G2,B+,high voltage and heater voltage
  by comparing the model's specifications.

1.Click the " COLOR "icon on the main menu.

CLICK

RED GAIN :adjust the "VIDEO R-GAIN" of picture
GREEN GAIN : adjust the "VIDEO G-GAIN" of picture
BLUE GAIN : adjust the "VIDEO B-GAIN" of picture
RED CUT   :adjust the raster's R-CUTOFF
GREEN CUTOFF : adjust the raster's G-CUTOFF
BLUE CUTOFF : adjust the raster's B-CUTOFF
BRIGHTNESS : adjust the bright of RASTER
CONTRAST :adjust the contrast of picture
ABL   :adjust the video gain on the FULL WHITE pattern

STANDARD COLOR DUMP:Display the initial color data of eprom

COLOR SAVE :Save the adjusted picture by factory adjusting.

ALL COLOR MODE SAVE :Save the all channel color data.

CHANNEL1 : COLOR 1   CHANNEL2 : COLOR 3
CHANNEL2 : COLOR 2

Every model has their color channel,so please review the service manual.

*The procedure of adjusting
1.Load the standard mode(frequency) of each mode1 in the SIGNAL GENERATOR

2.Click the "STANDARD COLOR DUMP(display the color initial data of eprom)

3.Click the "RUN" after clicking "COLOR SAVE" .

4.Click the "RUN" after clicking " ALL COLOR   SAVE" .

5.Click the "CHANNEL1"

6.Load the BACK RASTER PATTERN in the signal generator.
   adjust the X,Y color data by using "R-CUTOFF","G-CUTOFF" and "B-CUTOFF" key.
   (in this time ,please adjust the B-CUTOFF first
     and then after adjust the R-CUTOFF)
  * REMARK : Check whether the BRIGHTNESS is on the max condition.
               If not ,make the condition on the max by using " BRIGHTNESS"key.

7.Adjust the B/Rater to the cutoff by using "BRIGHTNESS" key.

8.Load the "SQUARE(WITHOUT ABL)" PATTERN in the signal generator.
    adjust the X,Y bu using "R-GAIN","G-GAIN" and "B-GAIN" key.

9.Load the "FULL WHITE(WITH ABL)" PATTERN in the signal generator
 Check the X,Y color coordinate and if not correct return to the no 8.
 Adjust the ABL by using "ABL" key.

10.check the w/b coordinate by using "BACK RASTER","SQUARE","FULL WHITE" PATTERN
    in the signal generator.

11.Save the adjusted color data by clicking "COLOR SAVE" key.

12.Do the procedure to adjust the other channel's color by the 5~11procedure.

REMARK:Do keep the procedure to adjust W/B such as color1,color2,color3.
   To save the adjusted data,you must click the "RUN" icon after cliking
     "@: " type icon.

10. REVIEW FOR PROGRAM PROBLEM.

Run the program after setting all of the equipment.

1.About INTERFACE BOARD
 1).Check whether the ADAPTOR's DC level is   7.5~12VDC or not.
 2).Check whether 7805ic's out is 5v or not
               after deassembling the cover of interface board.
 3).Look whether the selectors are "DISPLAY CONTROL", "DDC WRITE" or not.
 4).Look the R12 register's deletting and connecting of R7 and R12
                   with JUMPER WIRE(refer the below picture).
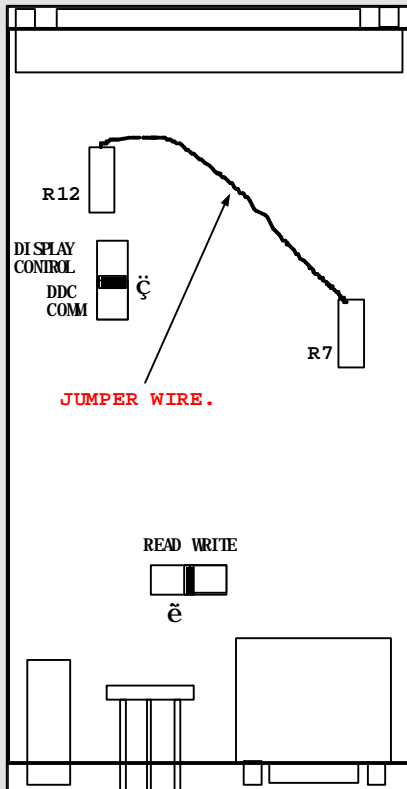
2.Check the GRNERATOR's timing and the MODEL's PRESET MODE such as polarity,etc
 whether same or not.

3.Overwrite the file on the same directory after making a copy from the other pc
       when happening error such as "*.DLL" by running SERVICE.EXE " .

4.Check the model file and "service.ece" file are same directory or not
                when happening "NO MODEL FILE ERROR".

5.Check each pin of communication cable and signal cable are open or short.

6.Use the A/S PROGRAM over WINDOWS95.

7.Check the preset timing and signal generator when happening changing of
          picture or w/b after mode save and user delete .

8.If the program display error message with "Monitir is not connected"
 when clicking "Mode save" or "All mode save",check the model file
 whether the protocol is "DDC2B+" on the 2nd line by opening.
 If not, correct it.

11. INTERFACE BOARD CIRCUIT

TO PC

PIN5 PIN9 PIN1 PIN11 PIN12 PIN13 PIN15 PIN17 PIN25

24LC21

8 PIN SOCKET

DISPLAY CONTROL

DDC

10K

+6V

2.2K

150

150

74LC05

+6V

150

2.2K

2.7K

10K

2.7K

10K

10K

100uF

104

100

150

SCL

150

SDA

SHORT:DDC READ
OPEN :DDC WRITE

D_SUB 15PIN
FEMALE CONNECTOR

PIN 7 PIN14 PIN12 PIN15

TO MONITOR(DDC WIRITE/READ)

CONNECTOR
FOR COMMUNICATION