BEKO

42" PLASMA TELEVISION

Service Manual
PA Chassis
Version1.0

CONTENTS   PAGE

SAFETY PRECAUTIONS

IMPORTANT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These parts are identified by ⚠ in the Schematic Diagram and Replacement Parts List.
It is essential that these special safety parts should be replaced with the same components as recommended in this manual to prevent X-RADIATION, Shock, Fire, or other Hazards.
Do not modify the original design without permission of manufacturer.

General Guidance

An **Isolation Transformer should always be used** during the servicing of a receiver whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks.

It will also protect the receiver and it's components from being damaged by accidental shorts of the circuitary that may be inadvertently introduced during the service operation.

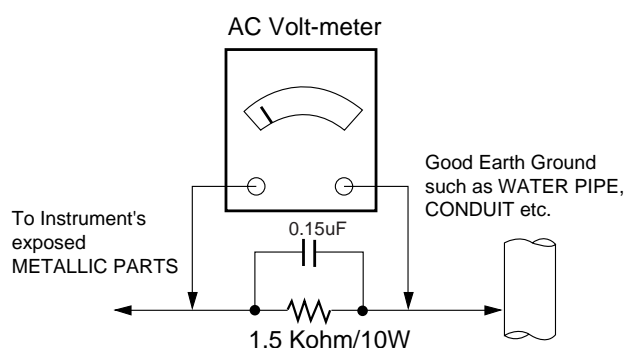If any fuse (or Fusible Resistor) in this monitor is blown, replace it with the specified.

When replacing a high wattage resistor (Oxide Metal Film Resistor, over 1W), keep the resistor 10mm away from PCB.

Keep wires away from high voltage or high temperature parts.

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X-RAY Radiation

Leakage Current Cold Check(Antenna Cold Check)
With the instrument AC plug removed from AC source, connect an electrical jumper across the two AC plug prongs. Place the AC switch in the on positioin, connect one lead of ohm-meter to the AC plug prongs tied together and touch other ohm-meter lead in turn to each exposed metallic parts such as antenna terminals, phone jacks, etc.
If the exposed metallic part has a return path to the chassis, the measured resistance should be between 1MΩ and 5.2MΩ.
When the exposed metal has no return path to the chassis the reading must be infinite.
An other abnormality exists that must be corrected before the receiver is returned to the customer.

Leakage Current Hot Check (See below Figure)
Plug the AC cord directly into the AC outlet.
Do not use a line Isolation Transformer during this check.
Connect 1.5K/10watt resistor in parallel with a 0.15uF capacitor between a known good earth ground (Water Pipe, Conduit, etc.) and the exposed metallic parts.
Measure the AC voltage across the resistor using AC voltmeter with 1000 ohms/volt or more sensitivity.
Reverse plug the AC cord into the AC outlet and repeat AC voltage measurements for each esposed metallic part. Any voltage measured must not exceed 0.75 volt RMS which is

corresponds to 0.5mA.
In case any measurement is out of the limits sepcified, there is possibility of shock hazard and the set must be checked and repaired before it is returned to the customer.

Leakage Current Hot Check circuit

AC Volt-meter

Good Earth Ground such as WATER PIPE, CONDUIT etc.

To Instrument's exposed METALLIC PARTS

0.15uF

1.5 Kohm/10W

Standards

The plasma display at hand is an information technology device.

The plasma display complies with the following guidelines and standards:

- 89/336/CEE from 3 May 1989 with subsequent modifications (Directive 92/31/CEE from April 1992 and Directive 93/68/CEE from 22 July 1993)

- 73/23/CEE from 19 February 1973 with subsequent modifications (Directive 93/68/CEE from 22 July 1993)

- EN55022, EN55024, EN61000-3-2/-3 (Electromagnetic Compatibility)

- EN60950 (Safety Requirements)

The conformity with the requirements is characterised by the CE symbol attached to the product.

REFERENCE:
This is a Class A device. This device can cause radio disturbances in the living area; in this case the operator can be required to implement appropriate measures.

⚠ WARNING

Suitable measures could be:

- In the event of disturbances, connect the device with a different socket
- Align the antenna of a disturbed radio receiver differently
- Increase the distance between the disturbed device and this product

The manufacturer cannot be held liable for operation beyond the operating conditions as described in the manual. In addition, your product liability and warranty claims expire as a result of such action.

Important notes on safety!

Read and heed the notes on safety so that no hazard to your health arises during contractual use. Errors during installation and connection can damage the device or subsequently related devices.
Always keep the operating instructions within reach. Heed the warnings on the device and in the operating instructions.

- General reference
Before you connect the plasma display, please carefully read through the general notes on safety and the operating instructions. Only in this manner can you utilise all functions safely and reliably.

As far as possible, keep the operating instructions together with the device so that you can use it to look up information.

Heed the warnings on the device and in the operating instructions.

Never allow children to utilise electrical devices without supervision.

- Operation
The plasma TV acquired by you, meets the highest quality codes and standards to be found in this business segment. A plasma display consists of a multitude of so called pixels. One pixel consists of 3 elements (red, green and blue). Even using the highest quality control practices during the manufacture of the displays, it can not be 100 % excluded that some pixels or pixel elements will be defective. These defects may appear as permanent illuminated pixels, non illuminating pixels or unstable pixels (flickering) respectively. We therefore ask for your understanding when we declare that these defects are not covered under the warranty liability. This is valid insofar that the sum of all defective pixels or pixel elements does not exceed 0,01 % of the total amount.

The brightness and contrast of plasma displays decreases with time.

Plasma displays are phosphor based and under certain operating conditions, a so-called „Burn-In" effect may occur. This is in fact a degrigation of the phosphor and is a natural process in plasma technology.

Such operating conditions are:
- static images being displayed for long periods
- continues display of the same background
- use of a non full screen format (e.g. 4:3) for a long periods.

Once Burn-In has occurred it is normally irreversible.

To avoid or to reduce the Burn-In effect, please follow the listed recommendations:
- please use moving images or continuous moving static images in full screen format (slide show) during the first 100 hours of operation
- please use your plasma TV in a full screen format (16:9)
- in case the plasma display is used as a PC monitor, please activate the screen saver
- if possible please use moving images
- always switch the screen off, if it is not in use
- decrease contrast and brightness as much as possible
- if possible display images with maximum colour depth and scale

Certain conditions may cause a humming noise in the displays electronics. This is usually caused by the mains power supply having different ground wires. One remedy for solving this problem is to insert a filter between antenna cable and antenna input. These filters are available at all specialised trade outlets.

If the plasma display is connected to an external antenna, it has to be grounded to protect against electrical hazards and static discharges. The grounding must conform and be in accordance with the actual regulations in force.

Important notes on safety!

- **Environmental conditions**
  Never operate the plasma display under environmental conditions which differ from those of the technical data. Divergent conditions can lead to endangerment, fire or breakdown of the device.

  Protect the plasma display against moisture. This pertains to permanent high humidity, the proximity to water, water drops and water splashes as well as rain. Do not place any water-filled containers (e.g. vases) on the device.

  Protect the device against heat. Avoid the proximity to fire, heating devices, ovens or permanent exposure to direct sunlight.

  Protect the display against heat accumulation. Do not cover the ventilation slots. Maintain a distance of at least 10 cm above and below the ventilation from sides 4cm from rear 4cm slots as well as laterally to furniture and to the ceiling. Do not furnish the device with curtains.

  The display is designed for mounting in landscape format on walls or installations.

- **Mains connection**
  The mains input and the mains switch are located on the rear side. The mains input is located on the upper right and the mains switch is placed in the upper middle. For safe disconnection of the display from the mains voltage, the mains switch is to be turned off and the mains cable is to be removed from the mains input module.
  Connect the plasma display only to a socket with earthing contacts installed according to regulations, and whose main voltage conforms with the device's technical data. See to it that the mains plug and the socket are accessible at all times. Install the mains cable in such a fashion that nobody can get caught in it. Use only the supplied mains cable. Protect it against damages, and do not make any alterations to it. Never use a damaged mains cable.

- **Signal inputs**
  Always turn the plasma display and the signal source off before you establish a connection between both devices.

- **Disturbances**
  In the event of damages to the mains cable or the device, immediately pull the mains plug from the socket.
  Under no circumstances should you attempt to open and/or to repair the device yourself. Instead, contact our Service Hotline or another suitable professional workshop.

- **Batteries**
  Batteries can be life-threatening when swallowed. That's why you should safeguard batteries from the reach of small children. Immediate medical assistance should be utilised if a battery has been swallowed.
  Always take the exhausted batteries out of the remote control immediately, since these leak and can cause damage as a result.
  The enclosed batteries may not be charged or reactivated by other means, not taken apart, thrown in fire or short-circuited.

  TO FULLY DISCONNECT THE TV SWITCH OFF THE MAINS SOCKET AND REMOVE THE POWER PLUG.

Important notes on safety!

Exhausted batteries do not belong in household waste. The batteries must be disposed of at the collection points provided for this purpose.

- **Cleaning and maintenance**
  Before cleaning, turn the device off, and pull the mains plug from the socket. Wait a few minutes so that the capacitors in the device can be completely discharged.

  Use only a slightly dampened, soft cloth for cleaning. You should avoid chemical solvents and cleaning agents, because these can damage the surfaces.

- The plasma display generates high voltage internally for the gas discharge. Turn the device off and pull the mains plug from the socket during installation, maintenance and repairs. Wait a few minutes so that the capacitors in the device can be completely discharged.

- In case foreign elements such as water, liquids, metal parts, etc. get into the plasma display, pull the mains plug out immediately. Never attempt to touch anything inside the device with any kind of objects. The danger of an electric shock or accident exists.

- Pull out the mains plug immediately if smoke, unpleasant odour or unusual noises are emitted from the device. Also proceed in the same manner if the display is no longer able to present an image after being turned on or during operation. Never attempt to continue operating the display in this condition.

- In the event of lengthy absence or during thunderstorms, pull the mains plug from the socket, and pull the house antenna socket from the antenna jack.

- Never plug-in or pull-out the mains plug with wet hands. Never operate the mains switch with wet hands.

- Utilise only the supplied mains cable. Protect it against damages, and do not make any alterations to it. Never use a damaged mains cable.

- The plasma display has a glass surface. Should the device be subjected to excessive loading (e.g. through shock, vibration, bending and heat shock), the glass surface can break. Do not subject the glass surface to any pressure or shock. Should the glass be broken, immediately pull the mains plug and do not touch the broken glass with bare hands.

- When the plasma display has been switched to the stand-by mode it is still connected to the mains. You must switch the mains switch into the O position or pull the mains plug from the socket for complete disconnection.

- For ergonomic reasons it is recommended to avoid using red and blue fonts or symbols on dark backgrounds. Such a display causes poor readability due to the lower contrast, and prematurely fatigues the eyes. Therefore, please use high-contrast displays as much as possible, e.g. black font on a white background.

- During the connection of external loudspeakers, pay attention to the loudspeaker output technical data. In the event of insufficient dimensioning of the loudspeaker, the loudspeaker and/or the built-in amplifier can be damaged.

- Packaging and packing resources which are no longer needed are able to be recycled, and should always be turned in for recycling.

Product Introduction

State of the art signal processing, a flat 16:9 plasma display with 106 cm screen diagonal, and an attractive housing which features lesser modular depth in combination with a user-friendly, interactive remote control present a new generation of information presentation.

The utilisation of the newest plasma display generation guarantees high-contrast, brilliant video images as well as computer displays and presentations. A variety of interconnection options facilitate integration into existing and new systems of visualisation.

• Display: flat - large - slim
  The new plasma display offers 852 x 480 pixel resolution on a screen surface of 920mm x 512mm. 16.7 million colours with 256 RGB gradations (8bit resolution) offer unlimited colour display and true-to-detail image playback. Enjoy video and data images on a 106 cm screen diagonal, and be impressed by the slight depth of only 129mm.

•Quiet
  A new type of cooling system enables the operation of the plasma display without disturbing fan noises. Quiet like a conventional television, the plasma display provides the new standard for the living room and for the conference room.
  A remaining audio noise level of approx. 25 dB A in consequence of plasma technology corresponds to the current state of the art.

• Everything in one housing
  Display, power supply and image & sound signal processing are accommodated in one housing. This facilitates mounting on the wall. Hanging on a wall like a painting, all signal inputs and outputs are easily accessible. Bothe of the loudspeaker jacks offer well-balanced listening pleasure in connection with external loudspeakers.

• Video / Computer VGA / Audio
  The broad connection capability provides the PAL/NTSC/SECAM video standards (CVBS, RGB and Y/C), multistandard TV tuner (which offers up to 99 TV channels with automatic and manual programming), VGA/SVGA, and even includes a 16:9 VGA format with 848 x 480 pixel resolution.

• User interface
  IR remote control and On-Screen-Display (OSD) make operation a matter of child's play. The OSD offers clearly structured menus for the selection of signal sources, image and sound.

• Digital signal processing
  The plasma display is equipped with the latest standard of digital signal processing in 8-bit technology. It offers – to name just a few things – characteristics such as efficient algorithms in order to present 4:3 video and data images in high quality while filling the screen on a 16:9 display.

• all circumstances
  In order to maintain the high contrast ratio and the outstanding readability even under critical lighting conditions, the new front glass pane is provided with fine etching on the front side.

• Installation: Simple and fast
  Various attachment devices are provided to you for installation — no matter whether the display is attached to the wall, or even installed on the floor or a table.

• Advantages of digital technique
  Digital graphics cards offer superior imaging performances. With the digital DVI connection the plasma display offers convincing performances, and remains downwardly compatible to existing analogue graphics cards.

• Digital noise suppression

  per OSD, and align the quality of the image material accordingaly. The automatic reduction of noise suppression ensures artefact-free reproduction of rapidly moving image components.

• Exact and constant colour rendition
  The superior, finely-nuanced colour rendition is supplemented by the possibility of gamma adjustment. You can make the optimal gamma, colour temperature, contrast and brightness adjustment for every input per OSD.

PC FORMATS	DOS Modes 640 x 400 and 720 x 400
	VGA (640 x 480) @ 50Hz – 90Hz repetition rate
	SVGA (800 x 600) @ 50Hz – 90Hz repetition rate
	WVGA (848 x 480) @ 50Hz – 90Hz repetition rate
	XGA (1024 x 768) @ 50Hz – 90Hz repetition rate
IMAGE FORMATS	4:3, 16:9, zoom, user zoom, screen-filling, automatic non-linear
INPUTS/VIDEO	Mini DIN . . . . Y/C / Hi 8 (PAL, SECAM, NTSC)
	Cinch . . . . CVBS Video In (PAL, SECAM, NTSC)
	SCART 1 . . . . CVBS, RGB (PAL, SECAM, NTSC), CVBS output
	SCART 2 . . . . CVBS (PAL, SECAM, NTSC),
	RF Tuner . . . . VHF/UHF/HYPERBAND for terrestrial antennas or cable networks (47MHz to 861MHz) (PAL/SECAM)
PC	DVI (I) . . . . VGA/SVGA/WVGA/XGA Analogue and digital (DVI)
AUDIO INPUTS	Y/C (S-Video)
	CVBS
	SCART 1
	SCART 2
	PC
OUTPUTS	Audio Line Out . . adjustable
	loudspeaker . . . . 2 x 7W sine @ 4
CONTROL	On-Screen Display Menu . . . . 6 languages (D, GB, F, I, E, NL)
	IR remote control CMM3
VIDEOTEXT	TOP FLOF . . . . 256 pages of memory control with special keys on the remote control
VOLTAGE	220V – 240V AC alternating voltage 50Hz/60Hz
CURRENT	1,8A

SCREEN

- Size:
  42" - 106cm
- Format:
  16:9
- Presentable image size:
  920 mm (horizontal) x 518 mm (vertical)
- Elimination of reflections:
  Finely etched filter screens
- Transmission:
  52 %
- Angle of viewing:
  > 160°
- Contrast ratio:
  600 : 1 (dark room) typ.

RESOLUTION
- Resolution:
  852 x 480 pixels

COLOUR DISPLAY
- Colour display:
  16.7 million simultaneous colours

OPERATION
- Control elements:
  Mains switch, IR remote control, On-Screen-Display, automatic and manual tuning system with automatic channel storage, 99 channel slots

PC FREQUENCY RANGE
- Horizontal 30 kHz – 80 kHz
  vertical 50 Hz – 90 Hz
  clock frequency 95 MHz max.
- DOS 640 x 400 and 720 x 400
  VGA (640 x 480)@ 50Hz - 90Hz repeat rate
  SVGA (800 x 600)@ 50Hz - 90Hz repeat rate
  WVGA (848 x 480) @ 50Hz - 90Hz repeat rate
  XGA (1024 x 768) @ 50Hz - 90Hz repeat rate
- Format presentation
  PC 1:1, Format-filling, User Zoom
  (40% - 140%), Fit-to-Screen

VIDEO/SYNCHRONISATION
  RGB analogue and automatic sync recognition
- Level: 0.7Vss +/– 3dB @ 75Ω
- Sync types: Sync-on-Green (SoG), Composite, Separate
- Level: TTL
- VESA DDC: Version 2B compatible
- Cinch (RCA plug) and SCART, 1Vrms nominal

VIDEO STANDARDS
- Video: PAL/SECAM/NTSC
- TV tuner: PAL/SECAM
- 47 MHz to 861 MHz: VHF/UHF/HYPERBAND for terrestrial antennas or cable networks
- PALplus, Cinescope: Automatic format recognition
- Format presentations: 4:3, 16:9, Zoom, User Zoom (40% - 140%), Fit-to-Screen, Non Linear, Auto

VIDEO/PC INPUTS
- Mains connection: IEC plug-and-socket connector
- TV tuner input: IEC plug-and-socket connector, 75Ω input resistance
- SCART inputs: RGB(1), CVBS "On", CVBS "Off", Audio On/Off
- CVBS input: Cinch (RCA plug) 1Vss @ 75 Ω input resistance
- Y/C (S-Video) input: Mini DIN (HOSIDEN)
  Y: 1Vss @ 75Ω input resistance
  C: 0.3Vss (PAL), 0.286Vss (SECAM) @ 75Ω input resistance
- VGA/SVGA/WVGA/XGA: DVI-I (DDWG)

AUDIO
- Stereo inputs: 3 x Cinch, 1Vrms (CVBS, Y/C, PC)
- Stereo inputs: 2 x SCART, 1Vrms
- Stereo line output: 1 x Cinch, adjustable
- Stereo LS output:
  1 x Cinch, 2 x 7 W sine @ 8Ω, 20 Hz – 20 kHz

OPERATING CONDITIONS
- Temperature range (operation):
  +5°C to +35°C
- Temperature range (storage):
  –20°C to +60°C
- Humidity (non-condensing):
  10% to 85%
- Altitude: max. 2,000 m (ca. 7,000 ft)
- Voltage supply: AC 220-240V
- Network frequency: 50Hz/60Hz ±10%
- Power consumption: 1.8 A 280 W typical;
  5 W (RMS) Stand-by mode
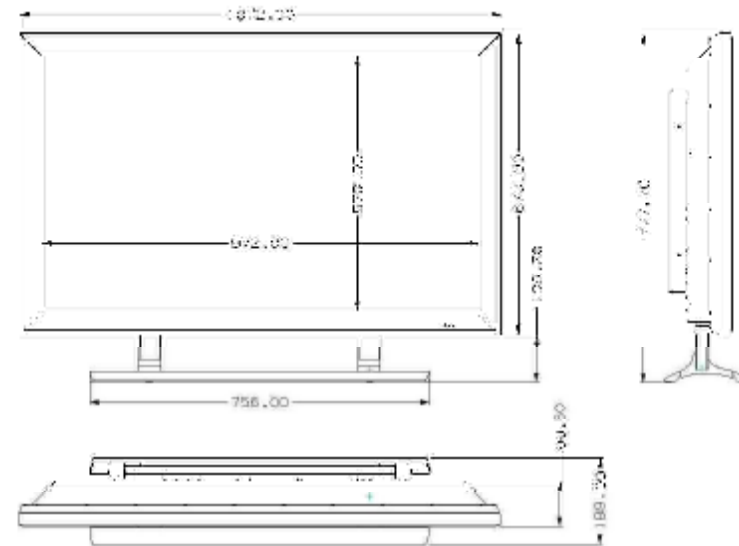
CONFORMITIES
- EMC: EN55022, EN55024, EN61000-3-2/-3
- Safety: EN60950, CE

DIMENSIONS & WEIGHT
- H x W x D:
  approx. 670 x 1072 x 99,6 mm
- Weight:
  approx. 45,6 kg

IR REMOTE CONTROL
- CMM3
- Range: approx. 7 m
- Functional angle: +/–30°
- Code: RECS 80

Installation and Start-up

Checking the Scope of Delivery

Your plasma display has been tested with great care and packed before delivery. It is available for use immediately after unpacking. After unpacking the display, please check for possible transport damages and completeness of delivery. In the event of transport damages, the supplier can only allow your claims if you inform them about this before the initial start-up. If a part of the scope of delivery is missing, please contact the Service Hotline. The missing component will be sent to you immediately without charge. Please always keep this operator's manual in the vicinity of the installation site so that it is available at your side for support at all times.

Scope of delivery:

1. Plasma Display
2. Remote control
3. 2 x LR03 batteries
4. Mains cable
5. Operator's manual
6. Warranty card

- Place the carton upright with the underside on firm ground. You will recognise the top side by the direction of the arrowheads on the longitudinal side.

- Open the packaging tape on the opening edge, and fold back both lids outwardly.

- Remove both of the packing elements which are lying on the top, as well as the packing element which is located on the back side of the device.

- Now remove the carton, along with the accessory parts which are located on the back side, from the packaging.

- Remove the wall bracket from the back side of the device. For this purpose, please slightly tilt the display forward at first, and pull out the Styrofoam block which is situated between the back side of the device and the wall bracket. After that you can pull out (upwardly) the wall bracket from the packaging.

- Depending on your choice, you can either mount the wall bracket on the mounting site, or place the standing pedestal on a secure base surface.

- After mounting the wall bracket or the table base, remove the protective foil on the upper side of the display so that you can remove the display from the packaging.

- Always remove the display from the packaging only with two people. Trying to remove the display by yourself is hazardous to your health.

- Hang the removed display either in the wall mounting bracket unit or place the display on the standing base.

- Please pay attention that you do not place the display on its underside, because the infrared sensor is located there.

Packing

Packing dimensions H x W x D: approx. 839 x 1264 x 288 mm

TOP

TOP

REAR

OPENING EDGE

FRONT
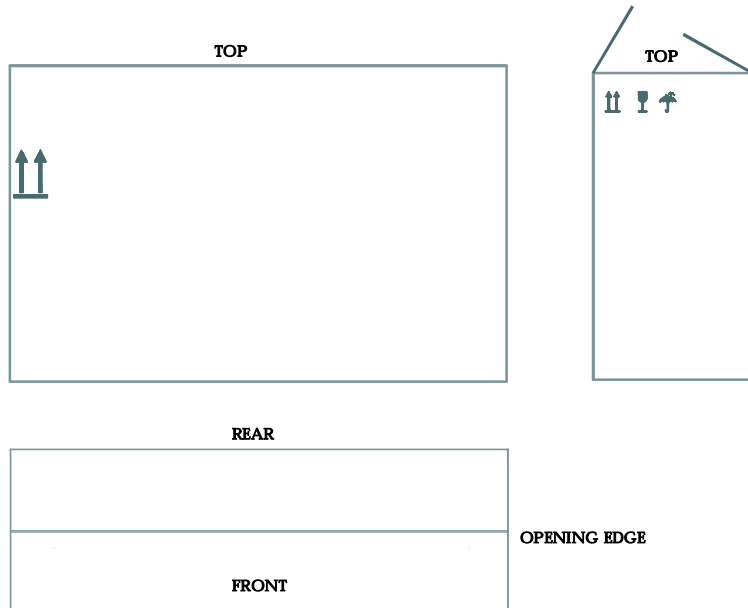
For Your Information and Safety

Installation references

Select the installation site according to the following criteria:

1. Line of vision
Despite its very large line of vision, the plasma display provides the best performance in a directly vertical line of vision. Align the display along the axis of the most frequently utilised line of vision.

2. Installation site
A suitable installation site should comply with the following criteria:

•Light reflections	Avoid installation opposite windows or other light sources.
•Access to mains input	The mains input and mains switch should be easily accessible at all times.
• Ventilation	Maintain a distance of at least 10 cm above and beneath the ventilation slots to furnishings or to the ceiling.
•Ambient temperature	It must lie between 5° and 35C for safe and reliable operation.

Reference (instructions) for Wall Mounting
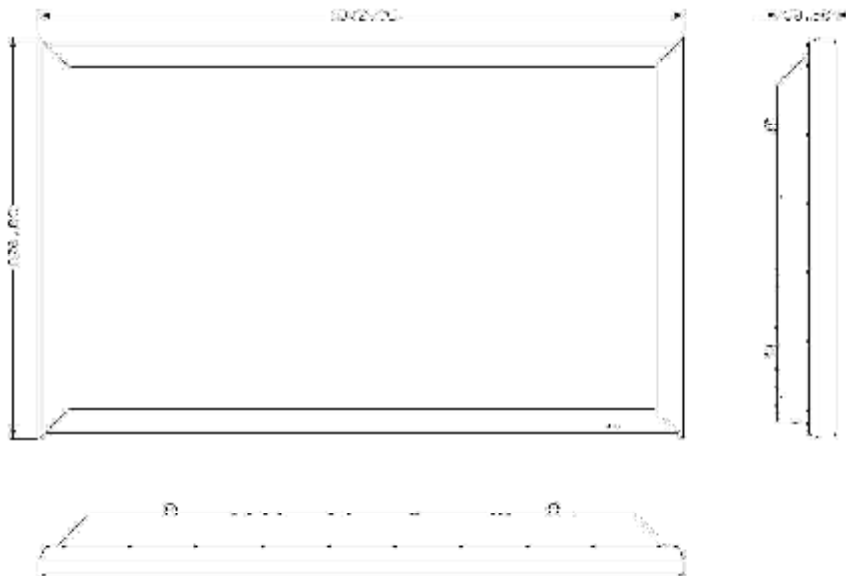
- The plasma display may only be mounted on vertical (plumb) walls by means of the wall mounting unit.
- Before beginning the mounting, make sure that the display is turned off and the mains cable and signal cable are unplugged.
- The background has to be firm and structurally able to carry a load.
- Appropriate materials are to be utilised for varying wall superstructures, such as wooden walls or hollow-space walls. If there's any doubt, contact your responsible sales or service department.

The wall mounting unit is located on the back side of the device. It consists of two vertical brackets which are connected with cross studs. In the packaging you will find a template which will facilitate the mounting on the wall.
The wall mounting unit functions as a type of interface between the display and the wall. The concept consists of attaching the mounting unit to the wall with the help of the template in the first phase, and thereafter hanging the display in the mounting unit.
The manufacturer recommends using M8 dowels.
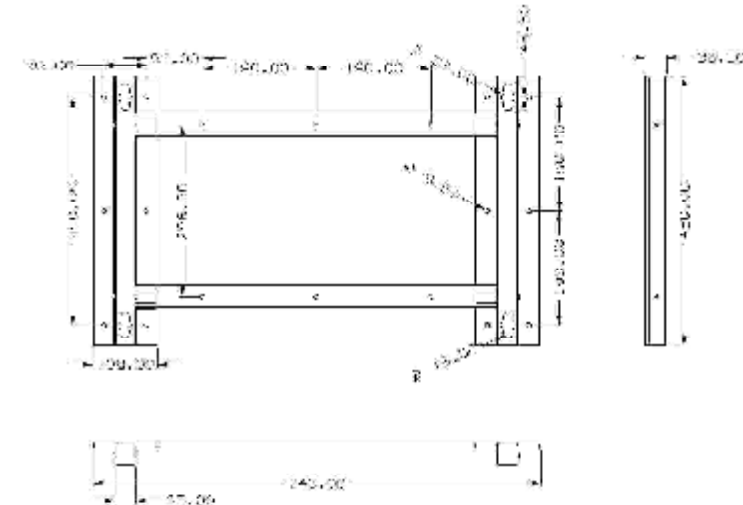
- The attachment points are situated horizontally at a spacing of 746 mm and vertically at a spacing of 380 mm. The spacing between the upper edge and the upper attachment point amounts to 65.5 mm, including the plastic covering.
- The centre of each of the attachment points is shifted 15 mm inwards in reference to the vertical edge of the wall mounting unit.
- The holes for the screws have a diameter of 8,5 mm.
- Please see to it that the display is about 126,25 mm lower than the attachment points on the wall after being mounted.
- Mount the display with the pins on the back side in the larger openings of the wall mounting unit, and slowly lower it into the U-shaped cut-out.

Reference (instructions) for Table Mounting

The table base is located in the accessories carton. It consists of the wall mounting unit and the two L-shaped feet which are connected with one another as a table base.

- Insert the two L-shaped feet from below into the vertical bracket of the wall mounting unit.
- Screw in each foot base and wall mounting unit with the enclosed attachment material (2 screws each for lateral attachment and in the rear at the attachment points). The screw type is M8 hexagon socket with spanner wrench size 5.
- Place the table base on a stable and horizontal base surface.
- Mount the display with the pins on the back side into the larger openings of the wall mounting unit, and slowly lower it into the U-shaped cut-out.

Installation of Connecting Line
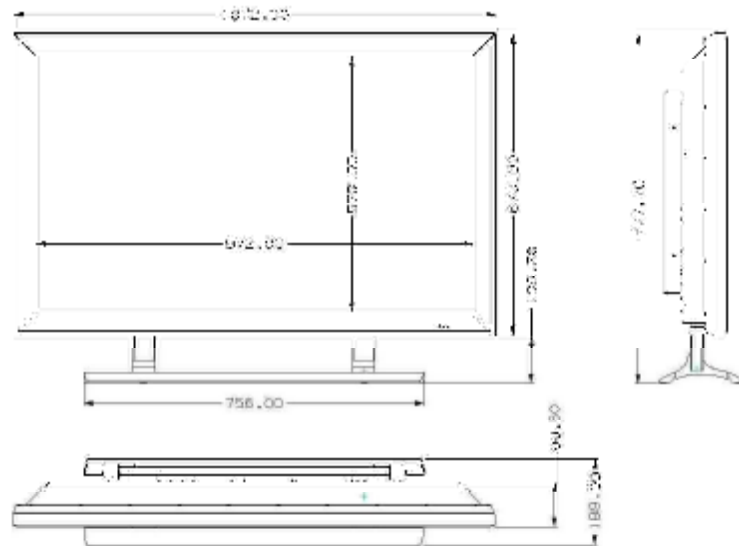
The following is to be heeded during the connection and installation of the mains cable and the video cable (e.g. SCART, Y/C . . .):

- Please lead the connecting lines to the rear. Please pay attention that the signal lines are not placed directly along the display surface.
- In the interest of good image quality, utilise only shielded, high-quality signal cable. A high-quality 75Ω coaxial cable should be utilised for connecting the video signal. Poor quality signal cable can result in strong disturbances and formation of shadows in the displayed image, as well as exceeding the permissible EMC level. The mechanical interlocks of the individual plug-and-socket connectors are necessary for perfect and safe operation of the device.
- You should also avoid placing signal sources such as a PC or a video recorder in front of the display. Please place these signal sources on the side or behind of the display.

Start-up

There are a few tasks to take care of before you turn on your plasma display for the first time.

- Turn your plasma display off during all tasks for start-up, and pull the mains plug from the socket.

1. Connection of signal sources: TV, VIDEO, PC
2. Connection of sound playback
3. Install the batteries in the remote control
4. Connect the mains cable
5. Turn on the plasma display

Connection of Signal Sources

Connect the cables of your signal sources at the input panel of the plasma display.
You need an antenna cable for the built-in TV tuner, and a suitable cinch cable for external audio signal sources.
Cables for connecting PC signal sources are provided.

- Always turn the device off before connecting a signal source to your plasma display.

2.7.2 Connection of Sound (playback)

Your plasma display has various audio outputs located on the input panel for sound playback. The connection of your hi-fi or Dolby Surround system is also possible, as well as the connection of external loudspeakers to your built-in amplifier.

- Turn your plasma display off before you connect external loudspeakers. Note the technical data of the loudspeaker output, and pay attention to sufficient dimensioning of the loudspeaker.
- Always turn the device off before you establish a connection between your hi-fi or Dolby Surround system and your plasma display.

Remote Control

All of your plasma display's selection and adjustment possibilities are able to be carried out with the remote control. Menus on the display are available for your support. You will find the description of the menus starting on page 25 in this manual.

• Remote control range: 7m
   The remote control only functions properly when there is no obstruction between the operation and the infrared sensor on the front side of the plasma display.

It can happen that the display is not able to receive the remote control signals or their function range is severely inhibited, although there is no obstruction in the way. The reason for this is the infrared radiation which the display itself emits. Come closer to the display with the remote control.

The remote control range is reduced when the batteries become weaker. In this case, please replace the batteries.

• Installing the batteries
   Please push aside the battery compartment cover with a downward motion. The cover unlocks and is able to be removed.
   Insert the enclosed batteries. While doing so, pay attention to the proper polarity of the batteries. This is indicated in the battery compartment.
   In order to close the battery compartment, put the cover back on again, and carefully press it shut. Your remote control is now ready for operation.

IR Remote Sensor

30°
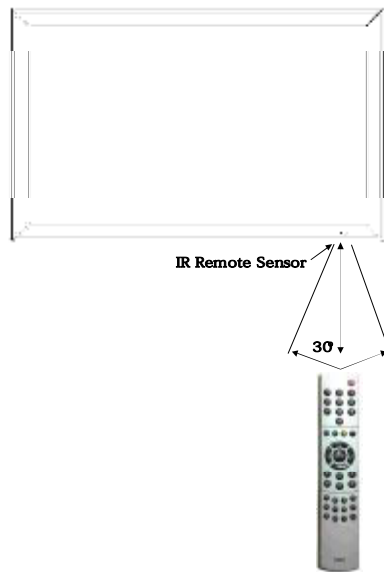
⚠ CAUTION

Reference for disposal of batteries:
Exhausted batteries do not belong in household waste. They must be deposited at a collection site for old batteries (e.g. battery collection box at dealer) or turned in with hazardous waste.

Connection of Mains Cable

Always utilise the enclosed mains cable in order to guarantee optimal image quality.
First of all, insert the mains cable into the input panel, and only thereafter into the socket.

• Never utilise a damaged mains cable!
• Use only sockets with a protective earthing conductor system to ensure safe operation.

A line filter and switches for stabilisation of the supply voltages ensure safe operation within normal mains voltage variations. In case the mains voltage lies beyond the stated limits, please contact your responsible sales office. In the event the mains cable cannot be utilised on account of differing standards in your country, please see to it that you utilise a mains cable commensurate with the country-specific standards which are listed in the following:

• USA   UL
• Germany   VDE
• Canada   CSA
• Switzerland   SEV
• Great Britain BASEC/BS
• Japan   MITI

This list is not complete. For reasons of safety it may be necessary to select a different safety standard.

At any rate, the mains cable has to consist of three wire conductors of at least 10A/0.75 mm² in order to avoid an accident as a result of electric shock. One of the three wires is implemented on both ends of the cable as an earthing contact connection.

Socket   On   Off

Mains input   Input panel (below)   Mains swicth (Under side)

Input panel   Operational display / Infared sensor
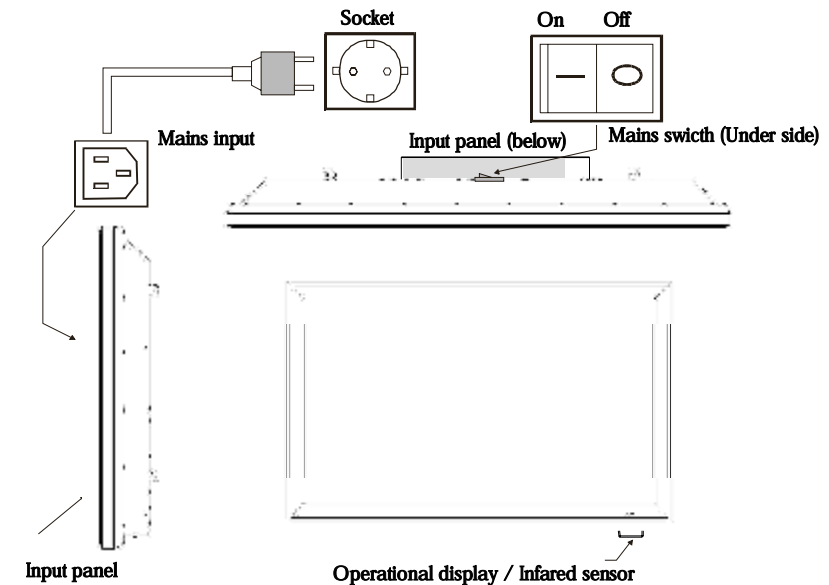
Turning On the Plasma Display

You can only control your plasma display with the remote control when the device is in stand-by mode. Switch the mains switch in the input panel into position I . The operational display on the front side of the display screen lights up red.

• The plasma display is always connected to the power supply network in stand-by mode. You must

switch the mains switch into position 0 and pull the mains plug from the socket for complete disconnection.

• The display has a mains adapter, and can be operated with a supply voltage of 220V - 240V AC and 50Hz/60Hz±10%.

• The SCART 1 video input provides the connection to CVBS and RGB video inputs, a CVBS output for connecting a video recorder, and audio inputs & outputs.
• The SCART 2 video input provides CVBS video inputs, a CVBS output for connecting a video recorder, and audio inputs & outputs.
• The RF tuner input with IEC jack links the display for connection of terrestrial antennas or cable channel systems.

• The combined input DVI-I (analogue and digital) serves for the connection of high-resolution graphic card signals.
• The RS232 control input for connecting a PC facilitates diagnosis in the event of servicing.
• The OSD input menu enables you to select the desired video input.
• The "ADJUSTMENT" menu enables you to set the configuration of inputs so that, for example, the same input is presented after turning on the display.

Interconnection Options

Appliance Coupler Summary

On the plasma display's input panel you will find interconnection options for:

• Terrestrial antenna
• cable network
• Video recorder
• Satellite tuner
• Video-CD player
• DVD player
• Video camera
• Personal computer

Please note that for safe operation only devices can be connected to the interfaces which comply with the corresponding safety requirements.

The plasma display's input panel provides various connections as a link to video sources (PAL, SECAM and NTSC) such as video cameras, DVD players and video recorders.
• The Y/C input (S-Video) provides the analogue luminance and colour signals on separate lines. It is frequently utilised as a link to video cameras and DVD players.

• The CVBS video input provides the luminance and colour signals on one line. It provides a cinch plug-and-socket connector which is a very reasonable and simple link, and is frequently utilised as a link to video recorders.

Connection to Compatible PC's

The plasma display is suitable for utilisation together with compatible computers. Your PC has one of the following configurations:

• A built-in graphics adapter.
• An installed graphics card.

Both variations have one analogue and one digital video output jack for connection of a monitor. If you are not sure about which jack the monitor is to be connected to, you can read more about this in either the graphics card or computer user manuals. In case of doubt, ask for details at your service department. Please use only the enclosed signal cable for connection.

For the connection of your monitor to the system, proceed as follows:

1. Turn off the power supply to the computer and the display.
2. In case it is necessary, install a graphics card according to the directions in the graphics card user manual. Make sure that the graphics card utilised generates a video format that lies within the limits which are stated in the specifications (VGA, XGA).
3. Connect the signal cable to the display's signal input (DVI-I), and to your computer's corresponding video jack (15-pin HD-Sub) or DVI.

Attention: Falsely connected signal cables can lead to irregularities in monitor operation, a poor image quality or damage to the display, and shorten service life as a result.

4. Connect the supplied mains cable on one side with the display, and on the other side with a grounded wall socket.
5. Turn on the display and the computer, and select an appropriate input (PC/RGB or PC/DVI).
6. During the first utilisation of an analogue video format (RGB). The plasma display always automatically executes the auto-adjust function. During this period the display image "shuttles about" in order to attain the optimal position and playback.

7. You can store frequently used formats as user formats. The display recognises these formats, and immediately presents them in correct fashion without execution of the auto-adjust function.
8. Finish the adjustment of your display by actuating the following listed OSD function, which is found in the "INPUTS ADJUSTMENT" menu: "USER FORMATS".
9. The DDC compatibility ensures that the utilised graphics card only generates video formats within the limits stated in the specifications.
10. Many graphics cards offer formats with 848 x 480 screen resolution in 16:9 format. The utilisation of this resolution is recommended for optimal display presentation. Please use 848 x 480 screen resolution only with vertical frequency ranges of 60 Hz or 88 Hz

Reference:
With some inconvenient PC formats, the H/V position and image size have to possibly be manually adjusted for ending the alignment with the geometric adjustments in this menu. The "AUTO-ADJUST" function is extremely dependent on the image presentation.

The presentation of a white frame or a grid cross is well-suited. Should problems arise during connection of the display, please read Chapter 6: "Maintenance (Maintenance and Repairs), use the description of the individual OSD functions, or contact your service site.

⚠ ATTENTION

Operating mode at the beginning of utilisation
Due to the functionality of the Plasma-TV please pay attention, that particularly during the first 100 to 150 operation hours the display has to operate with a full screen format adjustment (see submenu Display, Picture Format). This prevents the formation of brightness differences in the display areas. As an alternative to the picture format 4:3 the adjustment Video NLS should be selected.
Further on, in order to prevent the formation of permanent shadows in the displayed image, please avoid to show fixed-images of any kind (PC mode, teletext pages, Photo CD image etc.) during the first operation hours. If the Plasma-TV will be used as a PC monitor, the utilisation of a screensaver is recommended.

PC mode
For optimal image reproduction, we recommend the 848 x 480, 640 x 480 or 720 x 400 pixel resolutions. The 848 x 480 pixel resolution corresponds to the display matrix, and offers the best image reproduction. You can obtain the driver for this resolution on the Internet pages of most of the well-known manufacturers of graphics cards.
In contrast to applications with CRT monitors, with flat displays it is not necessary to select a high image refresh for a flicker-free presentation. A refresh of 60Hz is recommended.

Video recorder mode
The utilisation of Y/C (S-Video) inputs (see fig. page 18) is recommended for enhancement of image quality - if your recorder offers playback in Y/C (S-Video) format.

DVD player mode
The application of the RGB operating mode, which can be connected to the SCART 1 input, is recommended for optimal utilisation. In case your player does not offer this operating mode, please use the Y/C (S-Video) signal mode (see fig. page 18).

Image sticking
The manufacturer would like to point out to you that during lengthy viewing of freeze pictures (e.g. PC playback), the image is still slightly visible in the full mask for a few minutes during the subsequent playback of a different source. This is known as "image sticking". This "vanishing" residual image is caused by the system, and does not represent a flaw. Therefore it cannot be considered as a case for warranty claim.

Video cable
A high-quality 75Ω coaxial cable should be utilised for the connection of the video signal. Poor quality signal cable can result in strong disturbances and formation of shadows in the displayed image, as well as exceeding the permissible EMC level. The mechanical interlocks of the individual plug-and-socket connectors are necessary for perfect and safe operation of the device.

Remote control

Direct Functions

- The remote control only functions if the plasma display has been turned on with the mains switch beforehand.

STDBY After you have turned on the display once with the mains switch, you can turn it on and off with the remote control (stand-by). Press the keys TV, VIDEO, PC, or 1,2, ... in order to turn on the display. Press the stand-by button in order to switch the display into stand-by mode.

CAUTION If the display has been turned on in stand-by mode, it is still linked with the mains. For complete disconnection you must first switch the mains switch into the "off" (0) position, and then pull the mains cable.

TV You can switch directly to TV mode with this key.

VIDEO You can switch directly to VIDEO mode (SCART1 -> SCART2 -> CVBS -> Y/C) with this key.

PC You can switch directly to PC mode (PC RGB -> PC DVI) with this key.

FREEZE With this key you can "freeze" the actual image. The freeze picture remains on the screen until you push this key again.

TEXT This key serves for switching into the teletext operating mode.

Mute This key turns the sound off until you press the key again or change the volume.

M/S With this key you can switch between playback in stereo, "Stereo Enlarged", mono, or "pseudo stereo"; or, respectively, you can switch between Channel A or B in two-language sound.

MENU OSD user guide recall and abort

P▲ / P This function enables the selection of television channels in ascending or descending order.

VOL + / VOL – You can increase and decrease the volume of the audio playback with this key.

◄ ► This function enables the selection and aborting of the submenu.

1 ... 9 and 0 Direct statement of programme slot, teletext page selection.

- /-- With this key you can switch between the one-digit programme numbers (1...9) and the two-digit numbers (11...99).

PIP With this key you can recall the Picture-in-Picture (PIP) function, which allows the simultaneous presentation of video signals on the PC signal. The PIP is always blended into the lower right corner. You can change the size and the position in the OSD.

L/? With this key you can jump directly into the TV operating mode in the "PROGRAMME LIST" menu.

AUTO In the PC mode you can call the AUTOADJUST function with this key. In the other operating modes you call hereby directly the picture format AUTO.

F With this key you can switch back and forth between the different image formats (1:1 -> Fit to Screen -> User Zoom) or (4:3 -> 16:9 -> User Zoom).

i Pressing this key shows information on the current programme and on the signal source. You can switch through the individual submenus by pressing this key on the basic setting.

With this key you can fade in and fade out the time.

Red, green, blue key Teletext
The respective function is determined by the actual teletext page and described there.
If the TV channel offers TOP teletext information, you will recognise this in the multicoloured info line at the bottom.

M / RED The red key is utilised in the teletext and auto-tuning mode.
In the teletext mode the function assignment is effected through a fade-in in the lower display area. In most cases the red key is assigned for the selection function.
In the auto-tuning operating mode the function assignment is effected by the fade-in of a red field.

GREEN	In the teletext mode the green key is often utilised for downward movement. Function depends on TV channel. Can also call other functions.
RED	In the teletext mode the red key is often utilised for upward movement. Function depends on TV channel. Can also call other functions.
BLUE	In the teletext mode the blue key is often utilised for the activation of a selected function or page. Function depends on TV channel. Can also call other functions.
FREEZE	Page change stopping/starting. Some teletext pages consist of several sub-pages, which are automatically broadcast in succession. With this key you can hold the page being shown at the moment on the display.
PAGE	Enlarge page. Press this key several times. At first, the upper, and then the lower and then the complete teletext page will be shown.
L / ?	There are hidden messages on some teletext pages. Press this key to view the messages.
	Directly selecting the page Enter the desired number of the page with the numerical keys. As long as the number is incomplete, the display "P 2 – –" appears in the upper left corner of the display screen.
F 1	Configuration-contingent assignment, unused.
F 2	Configuration-contingent assignment, unused.
F 3	Configuration-contingent assignment, unused.
F 4	Configuration-contingent assignment, unused.

There are six keys on the remote control for menu control. These keys have the following functions:

1. Press the MENU key and the main menu appears on the upper left hand edge of the screen. The main menu "INPUTS" is illustrated in colour, and is ready for the selection of an input with the ► key. Press the► key in order to activate the selected submenu or the selected function. The selected menu is blended in and provides you with further functions.

2. Press the◄ key in order to exit the selected submenu or the selected function.

3. Press the▲ key or▼ keys in order to make a selection in the main menu or in submenus. The selected menu or the selected function is illustrated in colour during the selection.

4. Press the► key to activate a function. In many cases, the selected function will be displayed as a bar graph and figures. The ◄ key reduces the value of a selected function, and the ► key increases the value. The implemented values are executed immediately.

5. Exiting the OSD stores the changes made.

6. You can exit the OSD by pressing the "MENU" key. In this case the OSD will fade out immediately.

Main Menu

Inputs >
Picture >
Display >
Sound >
Set Up >
Info >

INPUTS Submenu

Inputs >	Select:	PC (RGB)
Picture >	Source Settings	>
Display >		
Sound >		
Set Up >		
Info >		

- PC (DVI)
- PC (RGB)
- CVBS
- SCART 2 (without RGB)
- SCART 1 (with RGB)
- Tuner
- Y/C (S-Video)

- The submenu INPUTS is dependent on the selected signal source.

SOURCE SETTINGS Submenu

PC (RGB)	H freq.:	38 kHz
	V freq.:	60 Hz
	Pixel Clk:	43.53 MHz
	H / V Pol:	+ / -
	User timings	>
	Auto Setup	®
	V Pos.:	
	V Size:	
	H Size:	
	H Pos.:	
	Phase:	

Auto Mode Set Up of geometry parameter

- The plasma display always executes the auto-adjust function automatically during the initial utilisation of a video format. During this time the display presentation shuttles back and forth in order to obtain the optimal position and playback.
- You can store frequently used formats as user timings. The display recognises these formats, and immediately presents them in correct fashion without execution of the auto-adjust function.
- The DDC compatibility ensures that the graphic cards utilised only generate video formats within the limits stated in the specifications.

USER TIMINGS Submenu

H freq.:			
V freq.:			
Pixel Clk:			
H / V pole:			
User timings	>	Position	1
Auto Setup	®	Recall	®
V pos.:		Save	®
V size:		Delete all	®
H size:			
H pos.:			
Phase:			

SOURCE SETTINGS Submenu

PC (DVI)	H freq.:	38 kHz
	V freq.:	60 Hz
	Pixel Clk:	43.53 MHz
	H / V Pol:	+ / -
	Auto Setup	®

SOURCE SETTINGS Submenu

Inputs >	Select:	YC		
Picture >	Source Settings	>	TV Standard:	PAL BG
Display >			VCR Stability:	On
Sound >				
Set Up >				
Info >				

- The following TV standards are automatically recognised and indicated in the OSD after recognition: PAL/SECAM/NTSC.
- VCR stability can be turned on or off. Turning on this function improves the image reproduction with connected video recorders which are slightly unstable.

SOURCE SETTINGS Submenu

Inputs >	Select:	CVBS		
Picture >	Source Settings >	TV Standard:	PAL BG	
Display >		VCR Stability:	On	
Sound >				
Set Up >				
Info >				

- The following TV standards are automatically recognised and indicated in the OSD after recognition: PAL/SECAM/NTSC.
- VCR stability can be turned on or off. Turning on this function improves the image reproduction with connected video recorders which are slightly unstable.

SOURCE SETTINGS Submenu

Inputs >	Select:	SCART 1		
Picture >	Source Settings >	TV Standard:	PAL BG	
Display >		TV SCART:	Decoder	
Sound >		RGB Input:	Scart	
Set Up >		VCR Stability:	On	
Info >				

- The following TV standards are automatically recognised and indicated in the OSD after recognition: PAL/SECAM/NTSC.
- VCR stability can be turned on or off. Turning on this function improves the image reproduction with connected video recorders which are slightly unstable.
- The TV SCART option provides the functions DECODER, VCR and NOT USED.
- The submenu RGB INPUT offers the following choices: ALWAYS, SCART, NOT USED.

SOURCE SETTINGS Submenu

Inputs >	Select:	SCART 2		
Picture >	Source Settings >	TV Standard:	PAL BG	
Display >		TV SCART:	Decoder	
Sound >		VCR Stability:	On	
Set Up >				
Info >				

- The following TV standards are automatically recognised and indicated in the OSD after recognition: PAL/SECAM/NTSC.
- VCR stability can be turned on or off. Turning on this function improves the image reproduction with connected video recorders which are slightly unstable.
- The TV SCART option provides the functions DECODER, VCR and NOT USED.

SOURCE SETTINGS Submenu

Inputs >	Select:	TUNER		
Picture >	Source Settings >	Auto Search	>	
Display >		Manual Search	>	
Sound >		Sort	>	
Set Up >		Delete	>	
Info >				

AUTO SEARCH Submenu

TV Standard:	PAL BG
Search Form:	
Start Search ®	
Program Start Point:	

You can select the following TV standards:
- Auto DK, Auto BG, Auto I, Auto I, Auto I`
- SECAM DK, SECAM I, SECAM I`, SECAM BG
- PAL DK, PAL I, PAL BG

TV Standard:	
Search Form:	All Programmes
Start Search ®	New Programmes
Program Start Point:	

TV Standard:	
Search Form:	
Start Search ®	
Program Start Point:	10

TV Standard:	
Search Form:	
Start Search ®	
Program Start Point:	10

START SEARCH Submenu

1 ARD	2	3	4	5	6	7	8	9	10
11 ZDF									
21 WDR									
31 ___									
41									
51									
61									
71									
81									
91								99	
Search in Progress … 10% (Red) ? : Abort search									

Inputs >	Select:	TUNER	
Picture >	Source Settings >	Auto Search	>
Display >		Manual Search	>
Sound >		Sort	>
Set Up >		Delete	>
Info >			

MANUAL SEARCH Submenu

Programme:	11
TV Standard:	PAL BG
Frequency:	055.05 MHz
Name:	ZDF

SOURCE SETTINGS Submenu

Inputs >	Select:	TUNER	
Picture >	Source Settings >	Auto Search	>
Display >		Manual Search	>
Sound >		Sort	>
Set Up >		Delete	>
Info >			

SORTING Submenu

1 ARD	2	3	4	5	6	7	8	9	10
11 ZDF									
21 WDR									
31 ---									
41									
51									
61									
71									
81									
91								99	
(Green)_ : Select a programme. Current = 31 MENU: Stop sorting									
(Blue)_ : Insert an empty programme at current position.									
(Yellow)_ : Swap selected programme with current position.									

Inputs >	Select:	TUNER	
Picture >	Source Settings >	Auto Search	>
Display >		Manual Search	>
Sound >		Sorting	>
Set Up >		Delete	>
Info >			

DELETE Submenu

1 ARD	2	3	4	5	6	7	8	9	10
11 ZDF									
21 WDR									
31 ---									
41									
51									
61									
71									
81									
91								99	
(Red)_ : Delete current programme MENU: Stop deleting									
(Green)_ : Select delete range start point. Current = 31									
(Blue)_ : Select delete range end point. Current = 31									
(Yellow)_ : Confirm delete from start point to end point.									

Submenu PICTURE for PC Signals

Inputs >			
Picture >	Contrast:	92	
Display >	Brightness:	48	
Sound >	Sharpness:		
Set Up >			
Info >			

- Contrast, Brightness -> Press the ▲ key to increase the value of the Set Up, and ▼ to make the image darker. Range 0 to 127.
- Image definition -> Press the ▲ key to enhance the image definition. 5 definition settings are available.

Submenu PICTURE for Video Input Signals

Inputs >			
Picture >	Contrast:	92	
Display >	Brightness:	48	
Sound >	Sharpness:		
Set Up >	Color:	40	
Info >	DNC:	15	
	Photo CD:		On
	Interlace:		Auto Mode
	Anti-flicker:		On

- Contrast, Brightness -> Press the ▲ key to increase and/or ▼ decrease the Set Ups.
- Sharpness -> Adjustable filter functions which can enhance the image definition of the playback depending on the programme material.
- Color -> Press the ▲ key to change the entire colour sensation in the direction Green, and press the ⃝ key to change it in the direction violet.
- The menu point DNC (Digital Noise Control) allows the connection of noise suppression in 32 intervals, which enhances the image quality in weak signals.
- The menu point Photo CD allows the optimised connection of colour and interlaced Set Ups for the playback of Photo CD images.
- The Interlace menu point enables switching between an optimised interlace playback for freeze pictures, automatic switching between freeze pictures and video images for camera operation and movie playback.
- The Anti-flicker menu point switches during the playback of video signals between a synchronous and jerk-free 50 Hz operation and a flicker-free 60 Hz operation. The display starts up after first being turn on in 60 Hz operation.
- "On" signifies 60Hz operation and "Off" signifies 50Hz operation. The slight flickering in 50 Hz is strongly contingent on the displayed image material. The selected setting is retained after the display is turned off.

Submenu DISPLAY for PC Signals

Inputs >				
Picture >				
Display >	Picture Format	>	Zoom:	Full Screen
Sound >	Color Temperature:		User zoom:	
Set Up >	Picture Contrast:			
Info >	Picture-In-Picture	>		
	Freeze Picture	®		
	User Color Temp	>		

- The Zoom submenu allows the Set Up of a series of zoom factors which allow the partial, complete or enlarged display of the image.
- The Zoom menu point allows the following choices: Full Screen, PC FILL AR, User Zoom, PC 1:1.
- PC Fill AR scales the input format to 480 lines, and scales the horizontal resolution in 4:3 formats to 640 points, in order not to alter the aspect ratios.
- PC 1:1 does not scale the input format in horizontal and vertical direction. It is centrally displayed in the centre of the screen.

Submenu DISPLAY for Video Signals

Inputs >				
Picture >				
Display >	Picture Format	>	Zoom:	Full Screen
Sound >	Color Temperature:		User zoom:	
Set Up >	Picture Contrast:			
Info >	Freeze Picture	®		
	User Color Temp	>		

- The Zoom submenu allows the Set Up of a series of zoom factors which allow the partial, complete or enlarged display of the image.
- The Zoom menu point allows the following choices: Video 4:3, Full Screen, Video 16:9, Zoom, User Zoom, Video NIS (non-linear scaling), Auto.
- The effects of these zoom functions on the image presentation are summarised in section 5.

Submenu DISPLAY for PC / Video Signals

Inputs >				
Picture >				
Display >	Picture Format	>		
Sound >	Color Temperature:		normal	warm
Set Up >	Picture Contrast:			normal
Info >	Picture-In-Picture	>		cold
	Freeze Picture	®		User
	User Color Temp	>		

- Open the selection with the ► key, and select one of the indicated colour temperatures. You can configure the user colour temperature at the end of the DISPLAY menu.

Submenu DISPLAY for PC / Video Signals

Inputs >				
Picture >				
Display >	Picture Format	>		
Sound >	Color Temperature:			
Set Up >	Picture Contrast:		Light	Light
Info >	Picture-In-Picture	>		Ideal
	Freeze Picture	®		Dark
	User Color Temp	>		

- Open the selection with the ► key, and select one of the indicated contrast characteristics.

Submenu DISPLAY for PC Signals

Inputs >				
Picture >				
Display >	Picture Format	>		
Sound >	Color Temperature:			
Set Up >	Picture Contrast:			
Info >	Picture-In-Picture	>	Size (On/Off)	Off
	Freeze Picture	®	Source:	Tuner
	User Color Temp	>	Horizontal Pos.:	
			Vertical Pos.:	

- The Picture-in-Picture (PIP) menu appears only during selection of one of the two PC signal sources. The PC image is displayed in the full mask, and the selected video image can be called-in as a fade-in.
- Open the selection with the ► key, and start the image fade-in by selecting PIP "On".
- The size of the fade-in can be additionally changed here in three intervals – from small via medium to large.
- The source for the image fade-in can be selected from among all video outputs.
- The position of the fade-in can be changed in a vertical and horizontal direction. The fade-in always starts in the lower right corner so that the OSD is not concealed.

Submenu DISPLAY for PC / Video Signals

Inputs >		
Picture >		
Display >	Picture Format	>
Sound >	Color Temperature:	
Set Up >	Picture Contrast:	
Info >	Picture-In-Picture	>
	Freeze Picture	®
	User Color Temp	>

- You can stop or continue the video image in this menu or with the FREEZE key.

Submenu DISPLAY for PC / Video Signals

Inputs >				
Picture >				
Display >	Picture Format	>		
Sound >	Color Temperature:			
Set Up >	Picture Contrast:			
Info >	Picture-In-Picture	>		
	Freeze Picture	®		
	User Color Temp	>	Red	128	▮▮▮▮
			Green	127	▮▮▮▮
			Blue	128	▮▮▮▮

Submenu SOUND for PC / Video Signals

Inputs >		
Picture >		
Display >		
Sound >	Volume:	▮▮▮
Set Up >	Balance:	▮▮
Info >	Equalizer:	Rock
	Option:	Stereo
	Volume Line Out:	▮▮▮
	Max Startup Volume:	▮▮
	AVC:	On
	User equalizer	>

Submenu Sound for PC / Video Signals

Inputs >			
Picture >			
Display >			
Sound >	Volume:		
Set Up >	Balance:		
Info >	Equalizer:		
	Option:		
	Volume Line Out:		
	Max Startup Volume:		
	AVC:		
	User equalizer	>	< 120 Hz	▮▮▮
			500 Hz	▮▮
			1.5 kHz	▮▮
			5 kHz	▮▮
			> 10 kHz	▮▮

Submenu SET UP for PC / Video Signals

Inputs >		
Picture >		
Display >		
Sound >		
Set Up >	Display Source Info:	On
Info >	Language:	English
	OSD Set Up	>
	Pwr Down / Stand-By	>
	Reset to factory Defaults	>
	Sleep Timer:	Off

- Choices for info fade-in: "On" or "Off"
- Language choices: German, English, French, Italian, Spanish, Dutch

Submenu SET UP for PC / Video Signals

Inputs >				
Picture >				
Display >				
Sound >				
Set Up >	Display Source Info:	On		
Info >	Language:	English		
	OSD Set Up	>	Time Out:	5 sec.
	Pwr Down / Stand-By	>	Transparency:	Off
	Reset to factory Defaults	>		
	Sleep Timer:	Off		

- Choices for Sleep Timer disable and Transparency OSD: "Off" and "On".
- Time Out choices: "Off", 5, 10 and 15 seconds after the last actuation.

Submenu SET UP for PC / Video Signals

Inputs >				
Picture >				
Display >				
Sound >				
Set Up >	Display Source Info:	On		
Info >	Language:	English		
	OSD Set Up	>		
	Pwr Down / Stand-By	>	Show Logo:	On
	Reset to factory Defaults	>	Reaction on PC syncs:	Off
	Sleep Timer:	Off		

- Choices for Display, Logo and Reaction PC sync: "OFF" and "ON".
- Sleep Timer choices: "Off", 0:30, 1:00, 1:30, 2:00, 2:30.
- Activate the selection with the ▸ key, and switch back and forth with the key ▴ and ▾.

Submenu INFO

Inputs >		
Picture >		
Display >		
Sound >		
Set Up >		
Info >	Current Temperature:	30.5
	Hardware version:	Rev. 03
	Software version:	V02e

5.0 Format Set Ups

5.1 Video Signal Source

In the DISPLAY menu the OSD offers seven different operating modes in order to optimally present the different signal sources and video formats on the 16:9 width format display.
With the help of the following descriptions you can select the most suitable mode which are indicated by the mode of operation of the display modes. The user zoom can also be utilised with PC signals.

4:3 mode
This mode presents a PAL 4:3 image in correct aspect ratio. Dark streaks are visible on the right and left margin of the image. PAL 4:3 images with 576 lines are converted into 480 visible lines and 640 visible pixels.

Video NLS (non Linear Scaling)
This mode scales the input signal "fit-to-screen" in a horizontal and vertical direction as well as in a non-linear fashion; i.e., the image contents are illustrated in the middle of the screen like the original, and a stronger scaling takes place on the margin.

Full Screen (Fit-to-Screen)
This mode enlarges or reduces input formats in horizontal and vertical direction so that the image is always presented as "fit-to-screen".

Auto (Automatic)
This mode automatically scales the input signal in a horizontal and vertical direction on a fit-to-screen display. It recognises 16:9 movie material, and scales the material with the predetermined factors.

Video 16:9 Mode
This mode presents a 16:9 image in such a fashion that no dark streaks are visible on the upper and lower margin of the image. As a result of the scaling in vertical direction, a portion of the 576 lines is not symmetrically presented on the upper and lower margin of the image.

ZOOM
The manual conversion from the 4:3 mode into the Zoom mode stretches the image in a vertical and horizontal direction by ca. 20% by means of the Full Screen presentation. As a result, the black streaks on the lower and upper margin of the image, which appear in 4:3 format in the presentation of Cinescope movies, are reduced to a minimum or disappear entirely.

USER ZOOM MODE
The user mode zoom enables a reduction or an enlargement of the image size in a vertical and horizontal direction. The Set Up range varies from 40% to 140% of the original image size.

6.0 Error Analysis and Possible Recovery

ERROR
Complete display failure, although the mains plug is inserted and the device is turned on with the mains switch and remote control.

POSSIBLE CAUSE
• Power supply interrupted
• Defect fuse
• Defect mains cable

POSSIBLE RECOVERY
• Call Service Hotline

ERROR
Dark display

POSSIBLE CAUSE
• Contrast setting too low
• No input signal

POSSIBLE RECOVERY
• Correctly adjust brightness and/or contrast
• Correctly connect cable, check video source

ERROR
No colour or excessive colours

POSSIBLE CAUSE
• No signal from the computer for the missing colour
• Poor signal connection

POSSIBLE RECOVERY
• Check computer/video source
• Correctly connect cable

ERROR
No/poor vertical and/or horizontal synchronisation.

POSSIBLE CAUSE
• Sync lines have a poor connection
• Poor signal connection

POSSIBLE RECOVERY
• Screw in the utilised plug-and-socket connectors correctly.
• Check the individual connection lines

ERROR
The remote control does not function.

POSSIBLE CAUSE
• The batteries are empty.
• There is an obstruction between the remote control and the sensor.
• The remote control is beyond its operating range.

POSSIBLE RECOVERY
• Insert new batteries.
• Remove the obstruction between the remote control and the sensor.
• Operate the remote control in the stated range.

ERROR
The displayed image is too dark.

POSSIBLE CAUSE
• The display screen quality is not adjusted properly.

POSSIBLE RECOVERY
• Correct the image brightness and contrast.

ERROR
No signal appears on the screen.

POSSIBLE CAUSE
• You have selected the false input channel.
• The display cannot function with the provided signals.

POSSIBLE RECOVERY
• Switch to the appropriate input.
• Make the signal available in the proper format.

ERROR
Individual letters are not displayed (PC mode).

POSSIBLE RECOVERY
• Adjust the proper phase position.
• Check the setting of the image width.
• Execute Auto Adjust.

ERROR
Horizontal streaks in TV or video signals

POSSIBLE CAUSE
• Signal source placed in front of the display.
• Video cable shielding is insufficient.

POSSIBLE RECOVERY
• Always place signal sources on the side of or behind the display.
• Utilise only high-quality signal cable with greater screen damping.

Repairs

⚠ **WARNING**

Do not repair the display yourself! In this case your warranty expires in addition to your personal endangerment.

Should an error appear which cannot be repaired on-site, please contact the Service Hotline. On account of the modular design of the display, it is possible to repair your device quickly and at low cost. Any intervention into the device which exceeds operator-specific external adjustments, in particular the dismantling of protective coverings, is reserved solely for personnel trained for this purpose, in compliance with VBG4 (Accident Prevention Regulations, workplace safety).

Of course, complete displays can be sent back to the manufacturer for repair. Should you do this, please include the following information on your display:

1. Description of the defect
Describe the exact symptoms on your repair order as thoroughly as possible. Should the problem arise periodically, please include this in your error description.

2. Specific statements
Should your device have been, for instance, exchanged or modified, please indicate this in any return shipment. In the event of an already undertaken modification, should it be desired that this modification is retained, please also indicate this.

3. Invoicing
Please indicate the desired type of invoicing, i.e. let us know whether an estimate with or without cost release is desired on your part before repair of the device. Should no details be provided for this purpose, the repairs will be effected according to standard procedure.

Cleaning the Display and Housing

Dust and other dirt which gather on the display impair the image quality and should be removed from time to time.

```
⚠ CAUTION
```

Pull the mains plug before beginning cleaning.

Cleaning the plasma display can be split up into different areas:

1. Display surface
Moisten a clean cloth (do not soak) with an environmentally friendly glass cleaner. It contains spirits as active substance (up to 98%) and biologically degradable surface-active agents. Glass cleaner removes fingerprints, fatty dirt, dust and nicotine deposits. In order to prevent formation of streaks, clean the display with circular motions. Dry the display with a second, clean cloth.

2. Housing surface
It is recommended to rid the housing of dust and other dirt beforehand with a feather duster. The feather duster must be comprised of non-conductive material such as plastic or wood. Moisten a clean cloth (do not soak) with a liquid such as environmentally friendly glass cleaner and/or an antistatic plastic cleaner. It cleans the surface and additionally protects against electrostatic charging, which is one of the main reasons for the dust gathering on the display. In accordance with EU recommendation, this cleaning agent contains less than 5% anionic surface-active agents, alcohol and some scents. In accordance with GefStoff V [hazardous materials ordinance], these cleaning agents are designated as inflammable substances; however, according to the VbF [inflammable liquids ordinance], they are not combustible.

Declaration of Return

The supplier is aware of the growing importance of environmental protection and waste prevention. Even during the beginning of a product development considerable emphasis is placed on effective utilisation of material, reusable parts and materials, and easy dismantling at the end of the product lifetime. The modular design of the colour plasma display and the materials utilised enable easy separation in sensible portions, which represents a basic prerequisite for waste separation and recycling.
We guarantee to take the colour plasma display back from you at the end of the product lifetime. We ensure that all parts are recycled in an adequate manner, or will be brought to a waste disposal site for the protection of our environment. Please contact our service department for more extensive information.

Technical Specifications

Product Attributes

The colour plasma display complies with the following specifications, when
• the power supply lies within the specified range,
• the display has been in operation for at least 30 minutes,
• the timing, video input and the display size are specified as follows.
Where no other information is effected, all details in these technical specifications have been measured in accordance with the VESA Standard Display Specifications and Test Procedures.

• **OSD and IR remote control**
Clearly coherent and well-designed menus and the operation of the IR remote control make the operation of the diverse input sources as easy as child's play. The following menus are available for you:Info, Sound, Picture, Display, Inputs Set Up The most important functions such as channel switching, format switching, switching of TV / VGA mode and volume are provided directly on the remote control.

• **Audio equaliser**
In addition to volume and balance control, 5 OSD slide controls (120 Hz, 500 Hz, 1.5 kHz, 5 kHz, 10 kHz) for sound influence are available to you.

• **Multisync VGA display**
The multisync technology enables operation on different PC formats – from VGA to XGA, up to a maximum clock frequency of 95 MHz. The auto-adjust function and the parameter storage ensure that adjustment on a new format is easy, and that a format which has been adjusted once is automatically recognised and optimally presented in the best image quality when turning on the device the next time.

• **Digital comb filter**
In order to increase the horizontal resolution in a standing, vertical line structure, the mixed signals for the colour and black-and-white image must be separated. The digital comb filter provides the desired signal separation through the multiple filtering. A clear separation enhances the horizontal resolution in the presentation of vertical structures, and guarantees clear colour transitions even in the presentation of high-resolution images.

• **8-bit digital signal processing**
The digital signal processing functions with 8 bits per colour. This resolution guarantees precise playback without loss of information or colour. The result is a natural image with fine details and 256 grey scales.

• **Adjustable audio inputs and outputs**
The volume level of the audio output is adjustable in the "Sound" menu.

• **Gamma correction**
The non-linear gamma correction increases the number of perceptible grey scales, and prevents image saturation in the upper range.

• **Colour temperature control**
Individual colour temperature control guarantees precise colour rendition.

• **Stand-by**
The display can be switched to stand-by mode per infrared remote control, which reduces the power consumption to only 5 W. When it is activated, the stand-by mode is indicated by a brightly glowing red LED on the front side of the device.

• **Multistandard TV tuner**
The multistandard TV tuner (PAL/SECAM) receives signals from terrestrial antennas or from a cable network. The input frequency range varies from 47 to 861 MHz. You can also connect your satellite receiver output here or on the SCART input.

• **Teletext system**
The videotext system offers brand-new information and new developments concerning sports events, weather forecasts and politics.

• **Progressive scan through de-interlacing**
Digital signal processing transforms the received fields into pictures by means of internal de-interlacing, and thus achieves precise image presentation on a 16:9 display screen. The switching between 50 Hz and 60 Hz optimises rapid motion sequences and reduces the image flickers in the presentation of very bright images.

1. DESCRIPTION

The S42SD-YD06 is a 42-inch wide full color plasma display module with a resolution of 852(H) × 480(V) pixels. The display module includes the Plasma Display Panel(PDP), the Panel driving electronics, the Logic Control Board, and the SMPS(PSU).

2. FEATURES

- Wide aspect ratio(16:9) 42 inch diagonal display screen. The display area is 932.94㎜ wide and 532.80㎜ high.
- Slim and light weight. The display module is 60㎜ in depth and weights only approx.18㎏ exclusive of power supply(power supply = approx. 2.64kg).
- 16.77 million colors by combination of 8 bits R,G and B digital data.
- High Luminance, High contrast, Wide viewing angle. The screen has a white peak Luminance of typical 650 cd/㎡, contrast of typical 1,000:1 and a viewing angle of greater than 160° comparable to those of CRTs.
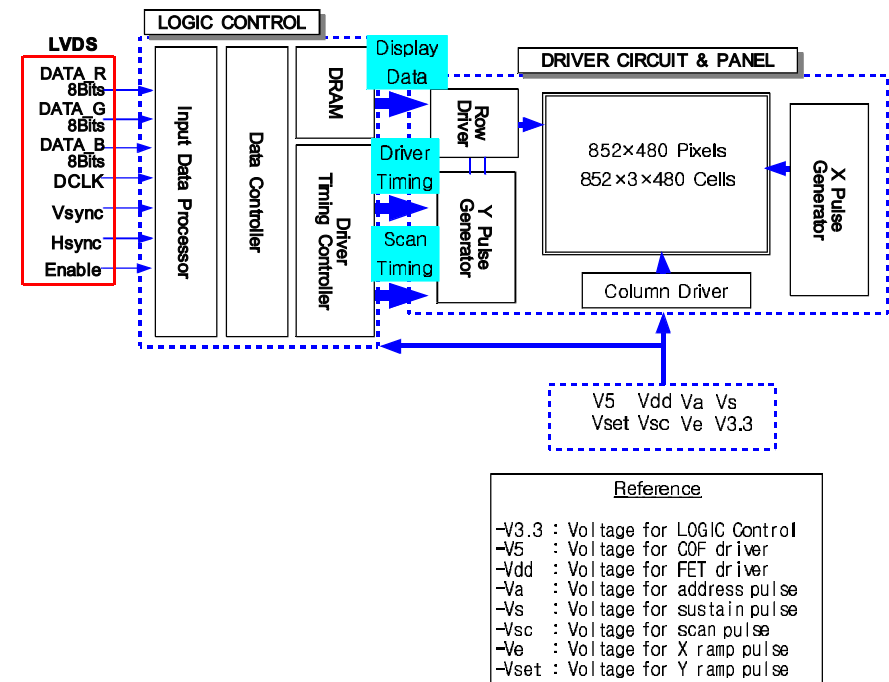
3. PRODUCT NAME AND MODEL NUMBER

- Product name : 42-inch Full Color Plasma Display Module3 (abbreviation : PDP Module3)
- Model number : S42SD-YD06

4. FUNCTION OUTLINE

- The plasma display Module has an APC(Automatic Power Control) function which restricts power consumption within the certain value with regard to each display load ratio.
- The plasma display Module is operated by following digital video signals; Vertical synchronous signal, Horizontal synchronous signal, Enable signal and 8bits data signal of each R,G, and B color. All signals are based on LVDS level.
- The plasma display Module is operated at 50Hz or 60Hz frame rate. An external frame rate conversion is required in order to display the other formats.
- The plasma display Module requires 8 types of input power voltages; voltage for LOGIC, voltage for COF driver IC, voltage for gate driver, voltage for sustain, erase, address, set and scan.
- The plasma display Module is operated at progressive signal only. An external progressive scan conversion is required in order to display the other formats.
- The plasma display Module requires 90~240V, 50~60Hz of input power voltage
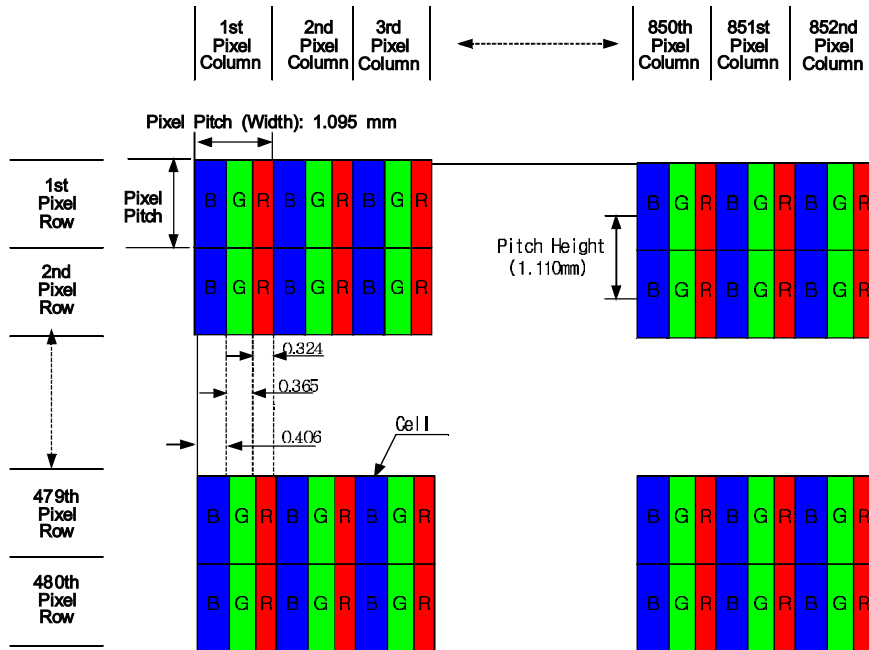
5. BLOCK DIAGRAM

Reference

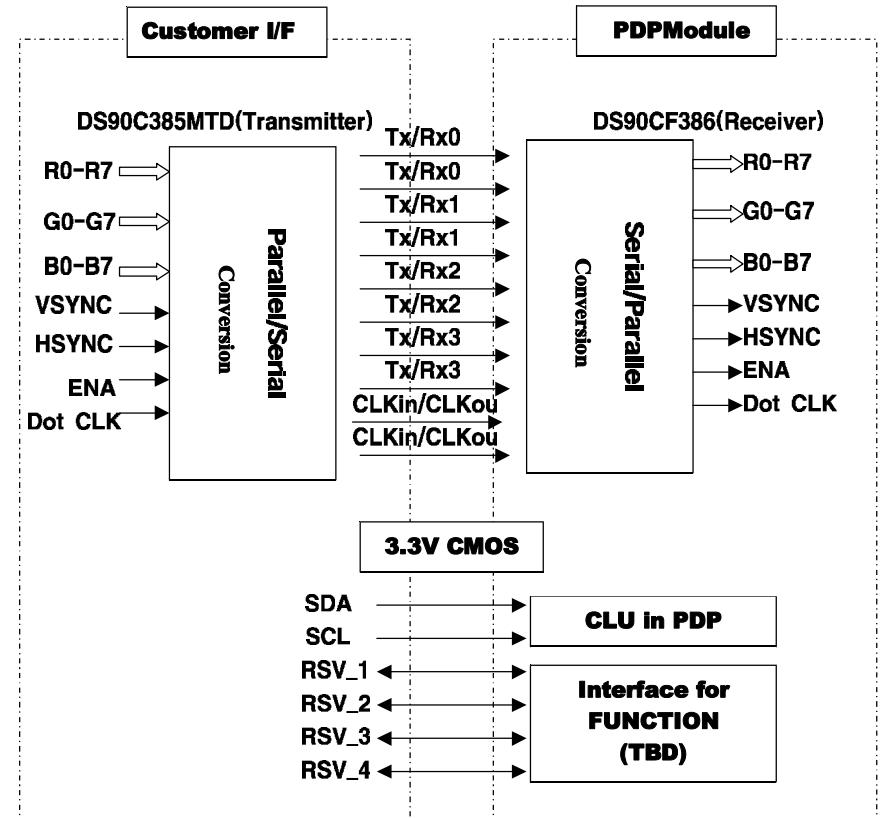-V3.3 : Voltage for LOGIC Control
-V5 : Voltage for COF driver
-Vdd : Voltage for FET driver
-Va : Voltage for address pulse
-Vs : Voltage for sustain pulse
-Vsc : Voltage for scan pulse
-Ve : Voltage for X ramp pulse
-Vset : Voltage for Y ramp pulse

Display Cell Arrangement

| 1st Pixel Column | 2nd Pixel Column | 3rd Pixel Column | ←----→ | 850th Pixel Column | 851st Pixel Column | 852nd Pixel Column |

Pixel Pitch (Width): 1.095 mm

Pixel Pitch

1st Pixel Row
2nd Pixel Row

Pitch Height (1.110mm)

0.324
0.365
0.406

Cell

479th Pixel Row
480th Pixel Row

Figure Display Cell Arrangement

Interface Signal Specifications

Configuration Context

Customer I/F

DS90C385MTD(Transmitter)

Parallel/Serial Conversion

R0-R7
G0-G7
B0-B7
VSYNC
HSYNC
ENA
Dot CLK

Tx/Rx0
Tx/Rx0
Tx/Rx1
Tx/Rx1
Tx/Rx2
Tx/Rx2
Tx/Rx3
Tx/Rx3
CLKin/CLKou
CLKin/CLKou

PDPModule

DS90CF386(Receiver)

Serial/Parallel Conversion

R0-R7
G0-G7
B0-B7
VSYNC
HSYNC
ENA
Dot CLK

3.3V CMOS

SDA
SCL

CLU in PDP

RSV_1
RSV_2
RSV_3
RSV_4

Interface for FUNCTION (TBD)

Interface Function Specifications (input data and display processing)

- 852-dot data signals are inputted to this product to display data.
- The Video signal and control signal input section uses a low voltage differential signaling (LVDS) interface.
- An I2C bus serial data interface is used for the communication between Image of Customer side and the CLU (Control LOGIC Module) of this PDP Module.

Input Signal Definition

No	Item	Signal name		Q	I/O	Method	Definition
1	Display Signal	Video Signal	RXIN0- RXIN0+ RXIN1- RXIN1+ RXIN2- RXIN2+ RXIN3- RXIN3+	1 1 1 1 1 1 1 1	Input	LVDS Differentials	Differential serial data signal. Input video and timing signals after differential serial conversation using a dedicated transceiver. The serial data signal is transmitted seven times faster than the base signal.
		Dot Clock	RXCLKIN- RXCLKIN+	1 1	Input	LVDS Differential	Differential clock signal. Input the clock signal after differential conversation using a dedicated transceiver. The clock signal is transmitted at the same speed as the base signal.
2	MPU Communication	Communication	SDA SCL	1 1	Input	LVTTL (I2C)	I2C bus serial data communication signal. Communication with the CLU (Control Logic Module) of this product is enabled.
		Control	RSV1 RSV2 RSV3	1 1 1	Input	LVTTL	These are reserved pins for future use. Function for each line is TBD.
			PDP_GO	1	Input	LVTTL	This signal makes SMPS gives voltage output such as 3.3V, 5V, 8.6V, Va, Vaudio etc. from PFC block.

LVDS Signal Definition and Function

A video signal (display data signal and control signal) is converted from parallel data to serial data with the LVDS transmitter and further converted into four sets of differential signals before inputted to this PDP Module. These signals are transmitted seven times faster than the dot clock signals. The dot clock signal is converted into one set of differential signals.
The LVDS signal definitions and functions are as follows (in Italic)::

Interface Signal Function			
Symbol	I/O	Function	Remarks
RxIN0-	I	Display Data Signal:	LVDS signal
RxIN0+	I	R0, R1, R2, R3, R4, R5, G0	LVDS signal
RxIN1-	I	Display Data Signal:	LVDS signal
RxIN1+	I	G1, G2, G3, G4, G5, B0, B1	LVDS signal
RxIN2-	I	Display Data Signal:	LVDS signal
RxIN2+	I	B2, B3, B4, B5, Hsync, Vsync, BLANK	LVDS signal
RxIN3-	I	Display Data Signal and Control Signal:	LVDS signal
RxIN3+	I	R6, R7, G6, G7, B6, B7, PARITY	LVDS signal
RxCLKin-	I	Dot Clock Signal:	LVDS signal
RxCLKin+	I	CLK	LVDS signal
SDA	I	I2C serial data	3.3V CMOS
SCL	I	Clock signal for SDA	3.3V CMOS
RSV1/2/3/4	I/O	Reserved interface signals (Note 1)	3.3V CMOS

Note 1: RSV1, RSV2, RSV3 and RSV4 are reserved for Customer's interface needs.
For example, signals are used to control power-on/off sequence.
These signals could be inputed or outputed to a PDP Module.

Video Signal Definition and Function

The table below indicates the definitions and functions of input video signals before LVDS conversion.

Interfaces Signal Functions		
Symbol	Function	Remarks
R7 to R0	8 bits red video signal (note 1)	Display data signal: R7: MSB*, R0: LSB**
G7 to G0	8 bits green video signal (note 1)	Display data signal: G7: MSB*, G0: LSB**
B7 to B0	8 bits blue video signal (note 1)	Display data signal: B7: MSB*, B0: LSB**
HSYNC	Horizontal synchronous signal	This signal specifies the data period for one horizontal line. Control of the next line begins at the rising edge of Hsync.
VSYNC	Vertical synchronous signal	Timing signal that controls the start of the screen. Control of the next screen begins at the rising edge of Vsync.
Dot CLK	Clock for video signal	Latch the video signal at falling edge.

* MSB: Most Significant Bit (Highest Intensity Bit)
**LSB: Least Significant Bit (Lowest Intensity Bit)
Note 1: The RGB signal may be compensated with Inverse γ circuit (E/D (=Error Diffusion) must be included) before inputted to the PDP Module. In order to obtain good characteristic of low level's gray scale, inverse γ correction and E/D process are advisory to be performed after inputted to the PDP Module.

Electrical Condition of Interface Signals

Maximum Ratings

Common conditions : Ta = 25℃, Vcc = 3.3V

Absolute Ratings					
Item		Parameter	Symbol	Ratings	Module
Input Signals	LVDS	Rx0-/+, Rx1-+, Rx2-/+, Rx3-/+, CLKin-/+	Input Voltage	Vi	-0.3~3.6	V
			Input Current	Ii	-	mA
	3.3V CMOS	SDA, SCL, PDP_GO, RSV1(TBD)	Input Voltage	Vi	-0.3~3.6	V
			Input Current	Ii	-15	mA
Output Signals	3.3V CMOS	RSV1(TBD), PDP_GO	Output Voltage	Vo	-0.3~3.5	V
			Output Current	Io	±20	mA

Electrical Characteristics

Common conditions : Ta =25℃, Vcc = 3.3V

Electrical Characteristics							
Signal	Item	Symbol	Conditions	Min.	Typ.	Max.	Module
LVDS	High level input voltage	V_{th}	V_{CM}=1.2V	-	-	100	mV
	Low level input voltage	V_{tl}	V_{CM}=1.2V	-100	-	-	mV
	Input current	I_{in}	V_{IN}=+2.4/GND	-10	-	+10	μA
I2C	Input Voltage	V_{ih}		0.7*Vcc	-	Vcc+0.5	V
		V_{il}		-0.5	-	0.3*Vcc	V
	Input Capacitance	V_{in}	-	-	-	8	pF
	Output Voltage	V_{oh}	I_{oh} = 8 mA	2.4	-	-	V
		V_{ol}	-	-	-	0.4	V
	Output Current	I_{ol}	-	-	-	10	mA
3.3V CMOS	High level input voltage	V_{ih}	-	2.0	-	-	V
	Low level input voltage	V_{il}	-	-	-	0.8	V
	Input current	I_i	V_I=Vcc or GND	-	-	±5.0	μA
	High level output voltage	V_{oh}	Io = -1 mA	2.4	-	-	V
	Low level output current	V_{ol}	Io = 1 mA	-	-	0.4	V

LVDS Transmitter Pin Assignment

PIN NO.	Input	In/Out	PIN NO.
1	Vcc	R4	56
2	R7(MSB)	R3	55
3	R5	R2	54
4	G0	GND	53
5	GND	R1	52
6	G1	R0	51
7	G2	R6	50
8	G6	GND	49
9	Vcc	0-	48
10	G7(MSB)	0+	47
11	G3	1-	46
12	G4	1+	45
13	GND	Vcc	44
14	G5	GND	43
15	B0	2-	42
16	B6	2+	41
17	R_FB	CLK-	40
18	B7(MSB)	CLK+	39
19	B1	3-	38
20	B2	3+	37
21	GND	GND	36
22	B3	GND	35
23	B4	Vcc	34
24	B5	GND	33
25	RES	PDWN	32
26	Vcc	Dot_CLK	31
27	HSYNC	EN	30
28	VSYNC	GND	29

DS90C385T

Connector Specifications

Pin No.	Signal Name	Pin No.	Signal Name
1	RxIN0-	2	GND
3	RxIN0+	4	SCL (I2C)
5	RxIN1-	6	GND
7	RxIN1+	8	SDA (I2C)
9	RxIN2-	10	GND
11	RxIN2+	12	RSV1
13	RxCLKIN-	14	PDP_GO
15	RxCLKIN+	16	N.C
17	RxIN3-	18	N.C
19	RxIN3+	20	GND

* Connector: DF13-20DP-1.25V (Maker: HIROSE DENKI)
* Housing: DF13-20DS-1.25C (Maker: HIROSE DENKI)
* Contact: DF-2630SCF (Maker: HIROSE DENKI)
 * **Note 1**: RSV1, RSV2, and RSV3 are left for future use. For SDI PDP Module, SDI & **BEKO** will decide signal definition and specification after discussion.

AC INPUT (CN8004) CONNECTOR
Part number : JST B2P3-VH

Pin #	Signal
1	AC Line
2	N.C
3	AC Neutral

DC OUTPUT CONNECTORS

1) IMAGE_ANALOG (CN8001) CONNECTOR
Part number : JST B6B-EH-A

Pin#	Signal
1	5V_SCV
2	5V_SCV
3	5V_SCV
4	GND
5	GND
6	GND

2) IMAGE_DIGITAL (CN8002) CONNECTOR
Part number : JST B13B-EH-A

Pin#	Signal
1	9V_STBY
2	9V_STBY_SW
3	12V_SCV
4	5V_STBY_SW
5	3.3V_STBY_SW
6	N.C
7	N.C
8	GND
9	Power OK
10	Thermal DET
11	PWR ON/OFF
12	N.C
13	N.C

POWER_OK : signal indicating all outputs are being operated as the specification

3) Audio (CN8002) CONNECTOR
Part number : JST B7B-EH-A

Pin#	Signal
1	VSND_POS
2	VSND_POS
3	GND
4	GND
5	GND
6	9V_STBY
7	DC_PROT

4) Logic (CN8009) CONNECTOR
Part number : Molex 35312-10

Pin#	Signal
1	D3.3V1
2	D3.3V1

3	GND
4	GND
5	D5V
6	GND
7	N.C
8	N.C
9	Vs_ON
10	GND

5) X Drive (CN8007) CONNECTOR

Part number : Molex 35313-09

Pin#	Signal
1	D5V
2	Vg
3	GND
4	GND
5	Ve
6	GND
7	GND
8	Vs
9	Vs

6) Y Drive (CN8008) CONNECTOR

Part number : Molex 35313-10

Pin#	Signal
1	D5V
2	Vg
3	GND
4	Vscan
5	GND
6	Vset
7	GND
8	GND
9	Vs
10	Vs

7) SD Buffer (CN8004) & HD Buffer (CN8005) CONNECTORS

Part number : Molex 35313-05

Pin#	Signal
1	Va
2	Va
3	N.C
4	GND
5	GND

OUTPUT PROTECTION

No damage and fire, smoke shall occur during faults

1) OVER VOLTAGE PROTECTION

The power supply shall provide latch-mode over voltage protection

Output	Over Voltage Limit
Vs(+85V)	95V to 110V
Va(+75V)	85V to 100V
5V(+5V)	5.5V to 6.5V
3.3V(+3.3V)	3.45V to 4.5V

2) UNDER VOLTAGE PROTECTION

The power supply shall have shut down mode under voltage protection

Output	Under Voltage Limit
Vs(+85V)	55V to 60V
Va(+75V)	40V to 45V
Vset(+85V)	40V to 45V
Ve(+110V)	80V to 85V
Vscan(+75V)	60V to 65 V
3.3V(+3.3V)	2.0V to 2.7V
5V(+5V)	3.0V to 3.5V

3) SHORT CIRCUIT PROTECTION

If any outputs are shorted to the secondary return(R<0.03ohm), No damage shall result.

4) NO LOAD OPERATION

The power supply shall operate at no load condition.

No damage and hazardous condition will occur at no load condition

Label

Label Type
(Label for the PDP Module

PDP MODULE

SDI   SERIAL NO.

cRUus
E211281
E233314

TUV

bar code

MODEL : S42SD-YD06
RATED INPUT : 100-240V~, 50/60Hz, 4-2A
MANUFACTURED : xxxx.xx.xx

MADE IN KOREA

(2) Label for power specification

□NTSC			□ NTSC/PAL		
Va	Vsc	Vs	Ve	Vset	
VSB	3.3SBSW	VCC	D5V	8V6	VFAN
5.2V	3.3V	3.3V	5.2V	8.6V	9.5V
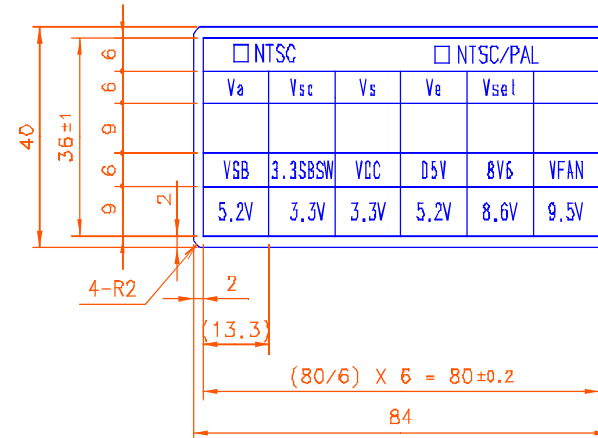
Reference

- Vscan : Voltage for Display driver
- Vset : Voltage for Display driver
- Vs : Voltage for Display driver
- Ve : Voltage for Display driver
- Va : Voltage for Column driver

Label location
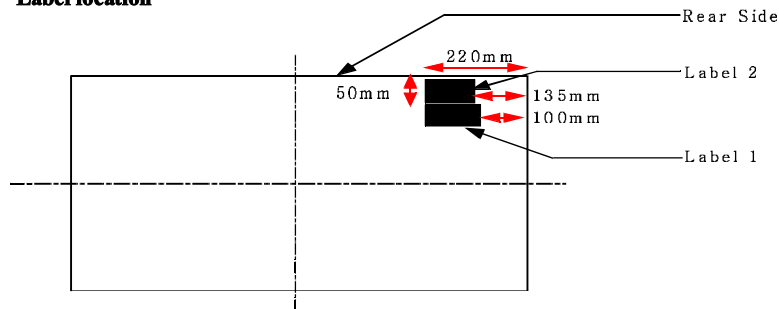
【Notes】
1. Label-1 is a label for the PDP Module.
2. Label-2 is a label for the power specification.

Serial No.

10 1 0 07 05 0001

| Serial No : 0001~9999 |
| Date : 01~31 |
| Month : 01~12 |
| Year : 00(2000) |
| ~99(2099) |
| Line No : 1 ~ 9 |
| (0:Pilot Line) |
| Type : 02~48 (ex.42SD:10) |
| (Step of even) |
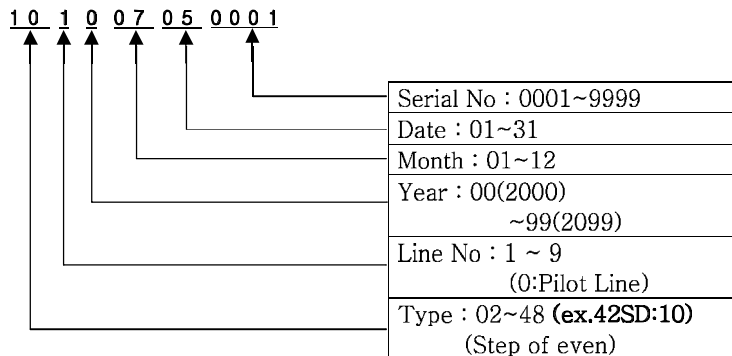
WARNING / CAUTION / NOTICE

TO PREVENT POSSIBLE DANGER, DAMAGE, AND BODILY HARM, PLEASE CONSIDER AND OBSERVE ALL WARNINGS AND CAUTIONS CONTAINED IN THIS PARAGRAPH.

Warning

If you do not consider the following warnings, it could result in death or serious injury

(1) The S42SD-YD06 Module is controlled by high voltage about 350V. If you need to handle the Module during operation or just after power-off, you must take proper precautions against electric shock and must not touch the drive circuit portion and metallic part of S42SD-YD06 Module within 5 minutes.
The capacitors in the drive circuit portion remain temporarily charged even after the power is turned off. After turning off the power, you must be sure to wait at least one minute before touching the Module. If the remain voltage is strong enough, it could result in electric shock.

(2) Do not use any other power supply voltage other than the voltage specified in this product specifications. If you use power voltage deviated from the specifications, it could result in product failure.

(3) Do not operate or install under the deviated surroundings from the environmental specification set for the below; in moisture, rain or near water-for example, bath tub, laundry tub, kitchen sink; in a wet basement; or near a swimming pool; and also near fire or heater - for example, near or over radiator or heat resistor; or where it is exposed to direct sunlight; or somewhere like that. If you use the S42SD-YD06 Module in places mentioned above, it could result in electric shock, fire hazard or product failure.

(4) If any foreign objects (e.g. water, liquid and metallic chip or dust) entered the S42SD-YD06 Module, the power supply voltage to the S42SD-YD06 Module must be turned off immediately. Also, never push objects of any kind into the S42SD-YD06 Module as they may touch dangerous voltage point or make short circuits that could result in fire hazard or electric shock.

(5) If smoke, offensive smell or unusual noise should come from the S42SD-YD06 Module, the power supply voltage to the S42SD-YD06 Module must be turned off immediately. Also, when the S42SD-YD06 screen fails to display any picture after the power-on or during operation, the power supply must be turned off immediately. Do not continue to operate the S42SD-YD06 Module under these conditions.

(6) Do not disconnect or connect the S42SD-YD06 Module's connector while the power supply is on, or immediately after power off. Because the S42SD-YD06 Module is operated by high voltage, and the capacitors in drive circuit remain temporarily charged even after the power is turned off. If you need to disconnect or reconnect it, you have to wait at least one minute after power off.

(7) Do not disconnect or connect the powerconnector by a wet hand. The voltage of the product may be strong enough to cause an electric shock.

(8) Do not damage the power cable of the S42SD-YD06 Module, also do not modify it.

(9) When the power cable or connector is damaged or frayed, do not use it.

(10) When the power connector is covered with dust, please wipe it out with a dry cloth before the power on.

Caution

If you do not consider the following cautions, it may result in personal injury or damage facilities.

(1) Do not set the S42SD-YD06 Module on an unstable place, vibrating place and inclined place. The S42SD-YD06 Module may fall or collapse, and it may cause serious injury to a person, and serious damage to the product.

(2) If you need to remove the S42SD-YD06 Module to another place, you must turn off the power supply and detach the interface cable and power cable from the S42SD-YD06 Module beforehand, and watch your steps not to step on the cables during the operation. If the cables are damaged during the transport, it may result in fire hazard or electric shock. Also if the S42SD-YD06 Module is dropped or fallen, it may cause a serious injury to a person.

(3) When you draw or insert the S42SD-YD06 's cable, you must turn off the power supply and do it (with) holding the connector. If you forcibly draw the cable, the electric wire in the cable can be exposed or broken. It may result in fire hazard or electric shock.

(4) When you carry the S42SD-YD06 Module, it should be done with at least two workers in order to avoid any unexpected accidents.

(5) The S42SD-YD06 Module has a glass-plate. If the S42SD-YD06 Module is inflicted with excessive stress - for example; shock, vibration, bending or heat-shock, the glass plate could be broken. It may result in a personal injury. Also, do not press or strike the glass surface.

(6) If the glass panel was broken, do not touch it with bare hand. It may result in a cut injury.

(7) Do not place any object on the glass panel. It may be the cause of the scratch or break of the glass panel.

(8) Do not place any object on the S42SD-YD06 Module. It may result in a personal injury due to fall or drop.
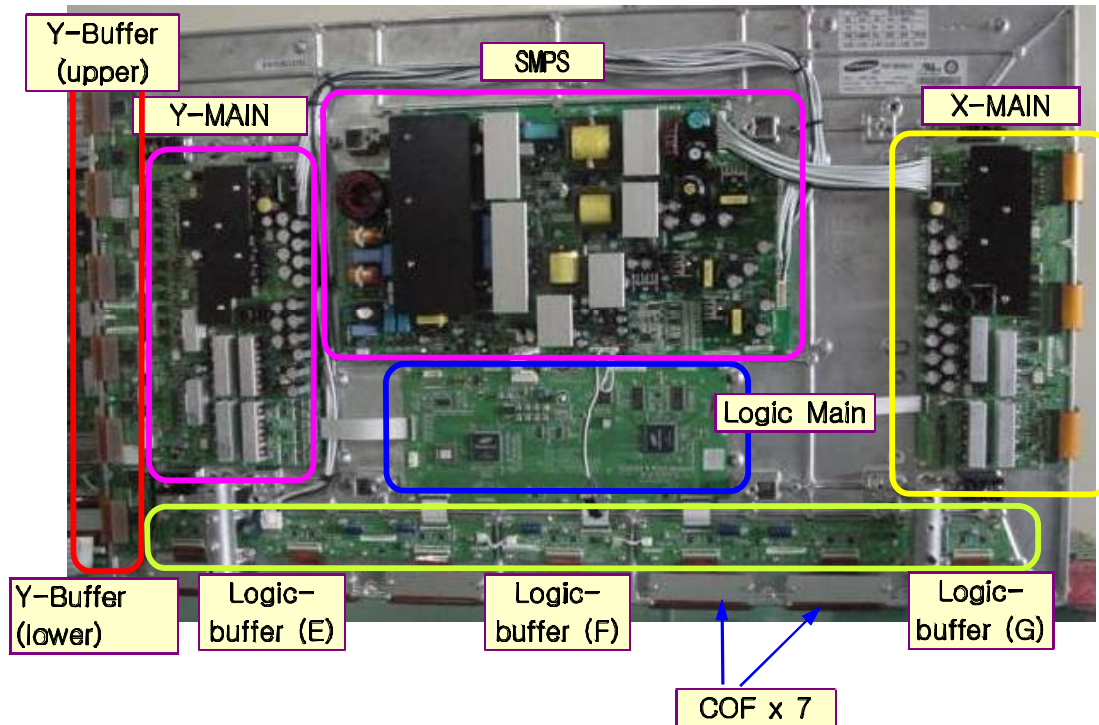
Function of PBA

■.**SMPS(Switching Mode Power Supply)** : A supplier which supplies voltage and current to operate assemblies mounted to each board and Panel.

■.**X Driver Board** : According to the timing provided from Logic board, switches FETs and generates driving waveform which is provided to X electrode of Panel through Connector.

■.**Y Driver Board** : According to the timing provided from Logic board, switches FETs and generate driving waveform which is provided to Y electrode of Panel sequentially through Scan Driver IC of Scan Buffer.

■.**Logic Main Board** : Processes image signal and generates Address driving output signal & XY driving signal

■.**Logic Buffer Board(E,F)** : Transfers data signal and control signal to COF.

■.**Scan Buffer(Upper,Lower)** : A board allows scan waveform to Y terminal, which is consisted of Upper Board and Lower Board. **(Y-Buffer(Upper,Lower))**

■.**AC Noise Filter** : It blocks Noise(Low Frequency) and Surge inflowed from AC LINE, and affects (EMC,EMI) safety requirement according to AC Filter.

■.**COF(Chip on Flexible)** : It allows Va pulse to address electrode within address period and forms address discharge according to the electric potential difference between Va pulse and the Scan pulse allowed to Y electrode. It is manufactured in COF form and one COF is consisted of four DATA Drive IC .

Repair Process

Receiving Module or B'd

↓

Repairment

→
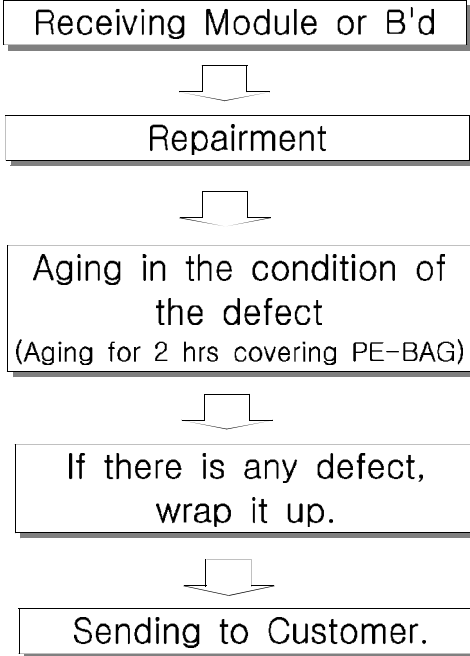
※ **Caution**
-. Use exiting 256K when changing Logic B'd
-. Adjust the Drive Waveform when changing Y-B'd
  (Refer to how to adjust the waveform)
-. Check and see if the waveform is right
  enlarging a oscilloscope (Refer to Picture 1)
-. Adjust each Voltage when changing SMPS

↓

Aging in the condition of the defect
(Aging for 2 hrs covering PE-BAG)

↓

※ **Caution**
-. Check SW2001 (Setting into External Mode)
-. Check Short-Bar(J8002) in SMPS
   B E K O : O (insert)
-. Remove JIG Relay S/W connector
-. Remove JIG AC socket

If there is any defect, wrap it up.

↓

Sending to Customer.

T/S method on No Picture and Abnormal Screen
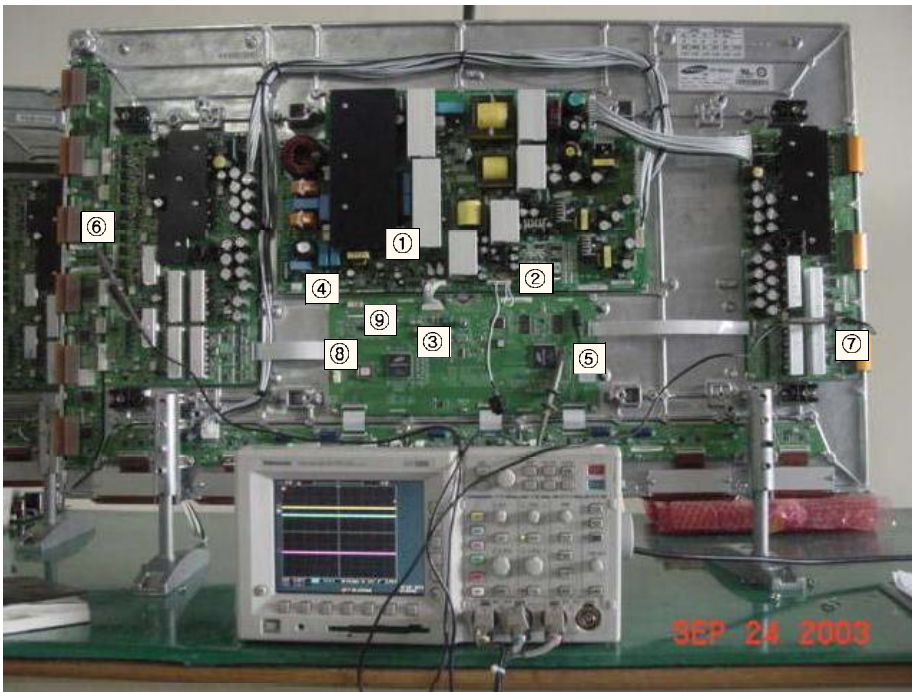
1) Preparation
  ①.Insert Short Bar(J8002) in SMPS
  ②.Connect Relay Jig S/W JIG
  ③.Change Logic B'd S/W
     into internal mode

external Mode	Internal Mode
1 2 3 4	1 2 3 4
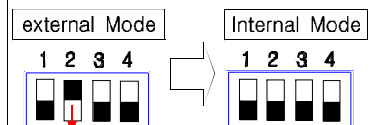
  ④.Insert JIG AC socke
  ※Oscilloscope
  ⑤.CH1 : V-SYNC   (CN201)
  ⑥.CH2 : Y-output (OUT4)
  ⑦.CH3 : X-output (TP OUT)
  ⑧.Connect Key-scan B'd
2) Turn-On.
  -.Turn on Power S/W
  -.Check LED in Logic B'd(⑨)
  -.Check waveform of X-B'd andY-B'd
     [Refer to Picture 1]
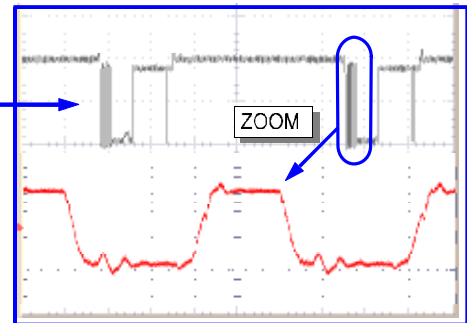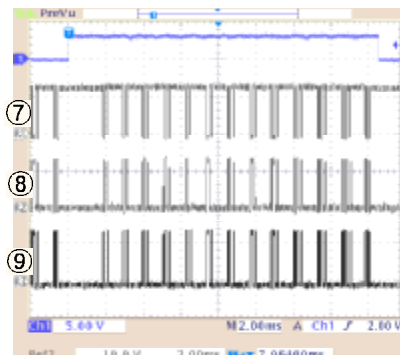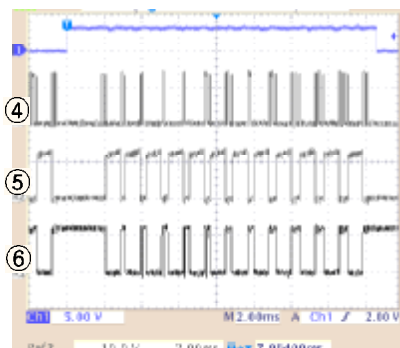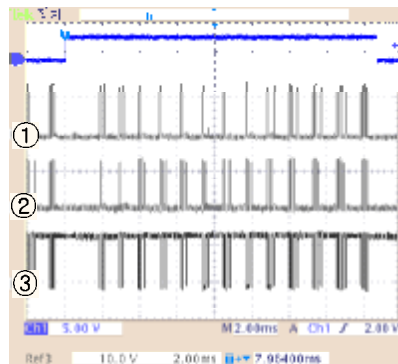
[Picture 1] Waveform of X-B'd, Y-B'd

⑤
⑥
⑦

Ch1 2.00 V   Ch2 100   M2.00ms A Ch1 ∫ 2.04 V
Ref1   100 V   2.00ms   8.00000ms
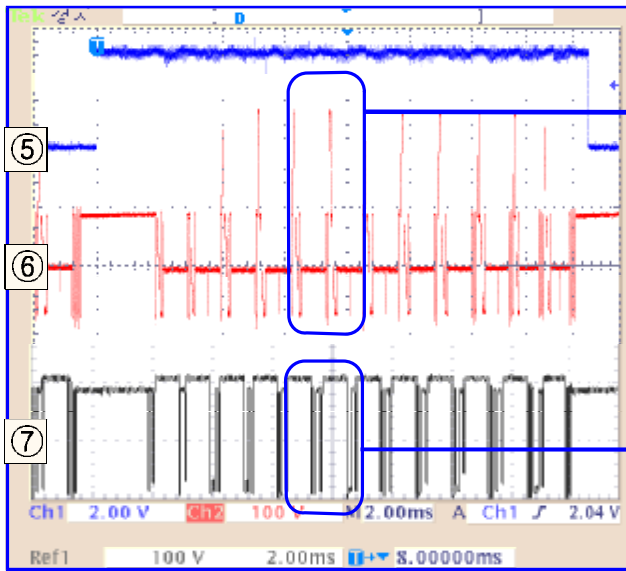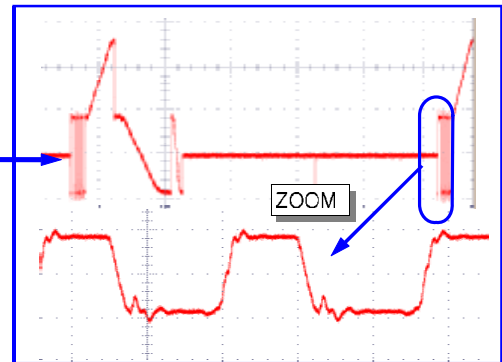
ZOOM
ZOOM
ZOOM
ZOOM

T/S method on abnormal waveform of X-B'd

①Xf
TP12~14

②Xr
TP9~11

③Xs
TP5~8

④Xg
TP1~4

⑤Xe
TP31~32

⑥Xp
TP24~29

⑦Xh
TP19~22

⑧Xl
TP15~18

⑨Vcc_f
TP23

①
②
③

Ch1 5.00 V   M2.00ms A Ch1 ∫ 2.00 V
Ref3   10.0 V   2.00ms   7.96400ms

④
⑤
⑥

Ch1 5.00 V   M2.00ms A Ch1 ∫ 2.00 V
Ref3   10.0 V   2.00ms   7.96400ms

⑦
⑧
⑨

Ch1 5.00 V   M2.00ms A Ch1 ∫ 2.00 V
Ref3   10.0 V   2.00ms   7.96400ms
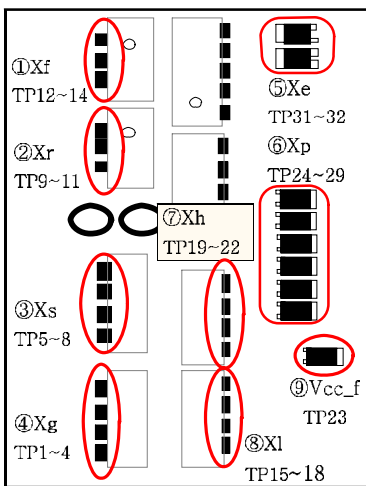
1. Preparation
   1).Connect SMPS with X-B'd using Jig Cable
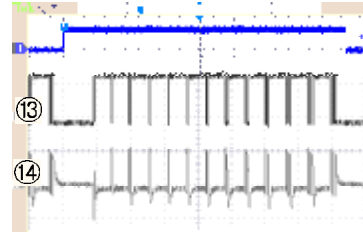   (only for Vcc(15V), VDD(5V), GND)
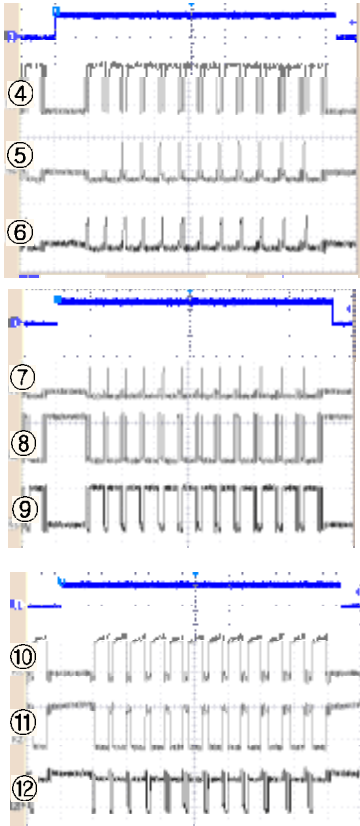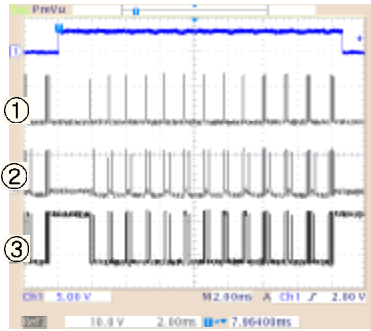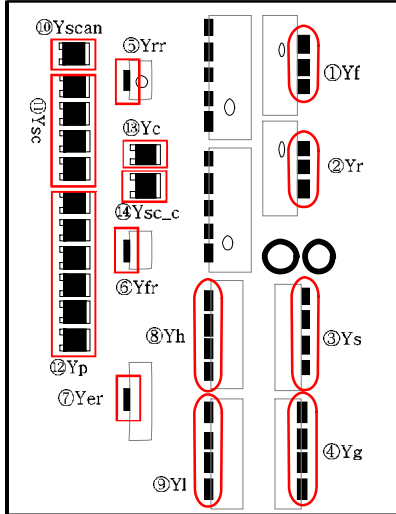
   Y – JIG cable (3P)   X – JIG cable (4P)

   2).Disconnect a cable between SMPS and Y-B'd
      and FFC between Logic B'd and Logic Buffer

2. Turn-On
   1) After Turn-On, Check TP at ⑨ FET Gate
      if defective, check Q4048, ZD4001.
   2) Check TP(Test Point) at FET gate.
   3) Check FET and 314J relevant to abnormal
      waveform if different from normal
   4) Check Fuse(F4003) at Vs
   5) Compare real waveform with waveform of
      Picurt 1

T/S method on abnormal waveform of X-B'd

⑩Yscan ⑤Yrr ①Yf
⑪Ysc ⑬Yc ②Yr
⑭Ysc_c
⑥Yfr ③Ys
⑧Yh
⑫Yp ④Yg
⑦Yer ⑨Yl

④ ⑤ ⑥ ⑬ ⑭

⑦ ⑧ ⑨

① ② ③ ⑩ ⑪ ⑫

PreVu

Ch1 5.00 V   M2.00ms A Ch1 ƒ 2.80 V
10.0 V   2.00ms ∎←▸ 7.86400ms

1. Preparation
   1).Connect SMPS with Y-B'd using Jig Cable
       (only for Vcc(15V), VDD(5V), GND)

   Y – JIG
   cable (3P)

   X – JIG
   cable
   (4P)
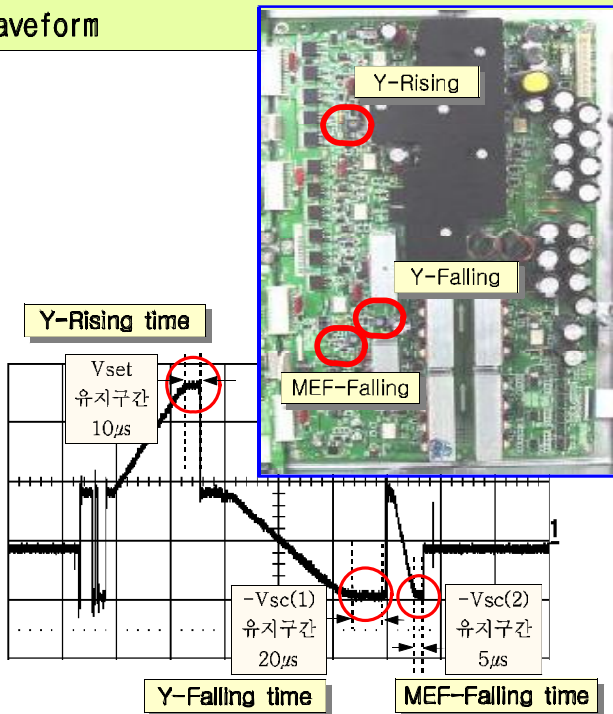
   2).Disconnect a cable between SMPS and X-B'd
       and FFC between Logic B'd and Logic Buffer

2. Turn-On
   1) After Turn-On, Check TP at ⑬ FET Gate
      if defective, check Q5043, ZD5001.
   2) Check TP(Test Point) at FET gate.
   3) Check FET and 314J relevant to abnormal
      waveform if different from normal
   4) Check Fuse(F5003) at Vs.
   5) Compare real waveform with waveform of
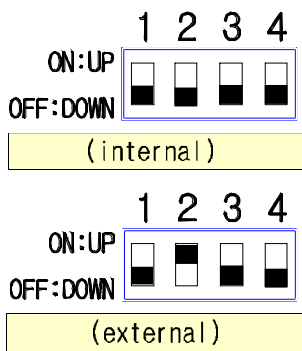   Picurt 1

How to adjust waveform

Waveform		Procedure

Y-Rising

Y-Falling

MEF-Falling

Y-Rising time

Vset
유지구간
10μs

-Vsc(1)
유지구간
20μs

-Vsc(2)
유지구간
5μs

Y-Falling time   MEF-Falling time

1) Make Full White on Screen.

2) Observe waveform using Oscilloscope.

① check OUT4 TP in Y-buffer(upper).
   Observe the waveform of the third waveform of
   1TV-Field.
② Adjust the division of oscilloscope like the
   left picture
③ Adjust the period of Vset as 10μs,
           that of -Vsc(1) as 20μs,
           that of -Vsc(2) as 5μs,
   turning VR(Variable Resistor)
   (only,when you adjust each period of -Vsc(1) & -Vsc(2)
   adjust Vertical Division of oscilloscope
   as '2V or 5V')
④ VR for Vset   : VR5003 (Y_main)
   VR for -Vsc(1) : VR5001 (Y_main)
   VR for -Vsc(2) : VR5002 (Y_main)

2.4.1 Selecting internal or external & key-scan table

```
      1  2  3  4
ON:UP  [ ][ ][ ][ ]
OFF:DOWN [■][■][■][■]
      (internal)

      1  2  3  4
ON:UP  [ ][■][ ][ ]
OFF:DOWN [■][ ][■][■]
      (external)
```

address	Set	function
PG	00	NTSC
	20	PAL
80	01	pattern
81	FF	gray level
95	adjustable	X,Y color coordinate

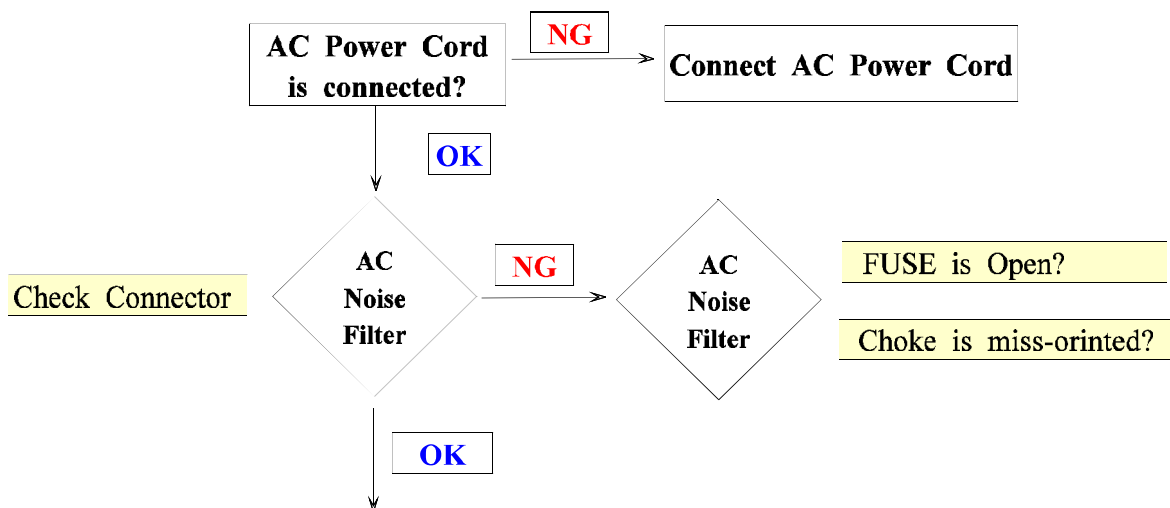| address	Set	function
PG	11	NTSC
	31	PAL
31	adjustable	ERC (X)
32	adjustable	ERC (Y)
※. PG:00 → 12:3456 Setting		

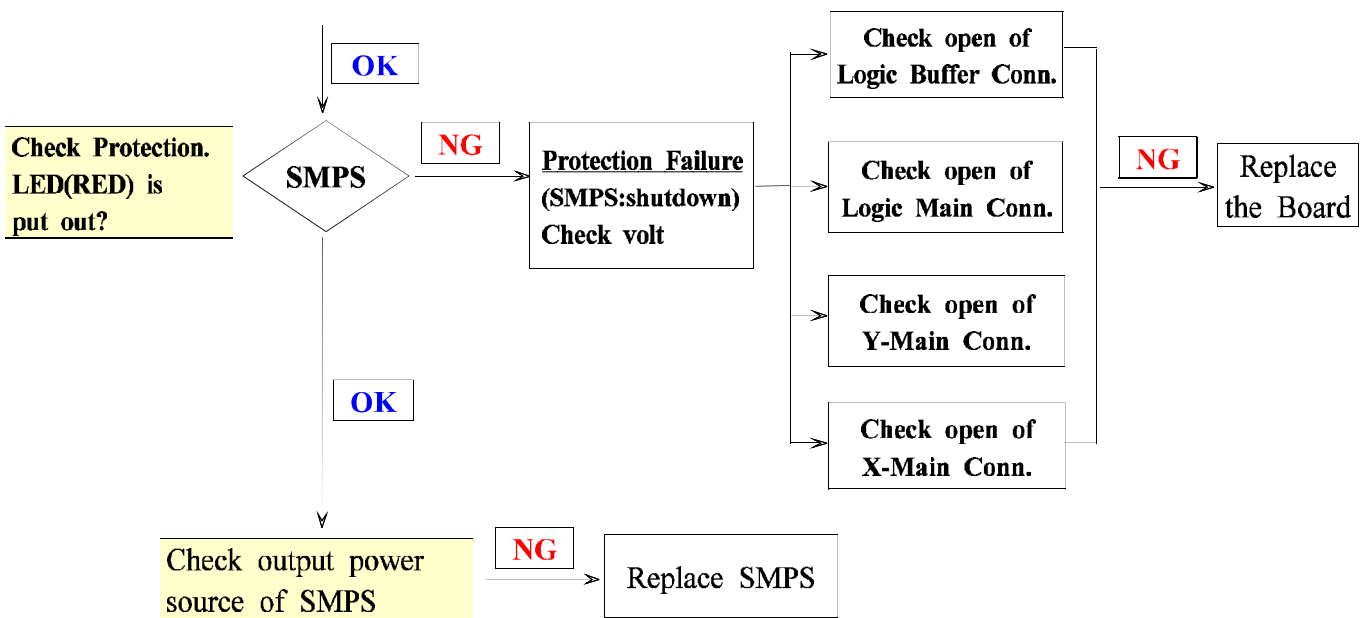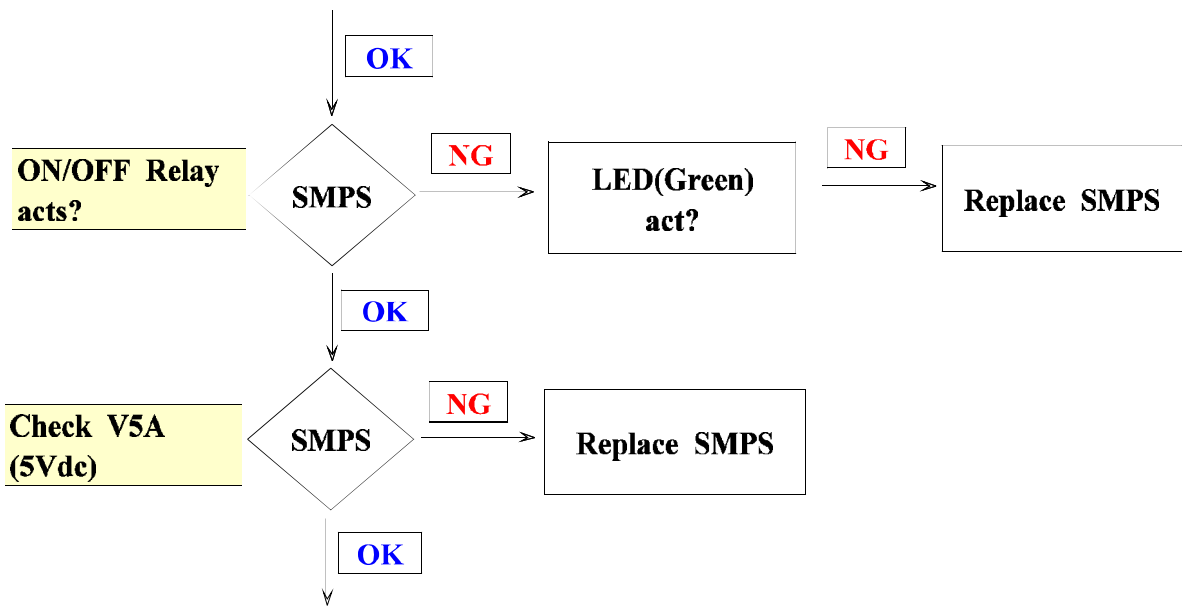| address	Range
31	07(08) , 0a(0b)
32	08(07or09), 0a(0b)

T/S method of actual cases

◈ No Power

■ Symptom : Operating voltages don't exist

■ Trouble Shooting Method

```
        AC Power Cord      --NG-->  Connect AC Power Cord
        is connected?

            │ OK
            ▼
Check Connector    AC
                  Noise    --NG-->      AC        FUSE is Open?
                  Filter              Noise
                                      Filter      Choke is miss-orinted?
            │ OK
            ▼
```

ON/OFF Relay acts? → **SMPS**

OK (into SMPS from top)

SMPS — NG → **LED(Green) act?** — NG → **Replace SMPS**

SMPS — OK ↓

Check V5A (5Vdc) → **SMPS**

SMPS — NG → **Replace SMPS**

SMPS — OK ↓

OK (into SMPS)

Check Protection. LED(RED) is put out? → **SMPS**

SMPS — NG → **Protection Failure (SMPS:shutdown) Check volt** →

- **Check open of Logic Buffer Conn.**
- **Check open of Logic Main Conn.**
- **Check open of Y-Main Conn.**
- **Check open of X-Main Conn.**

— NG → **Replace the Board**

SMPS — OK ↓

Check output power source of SMPS — NG → **Replace SMPS**

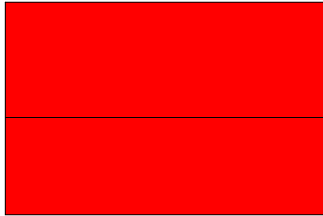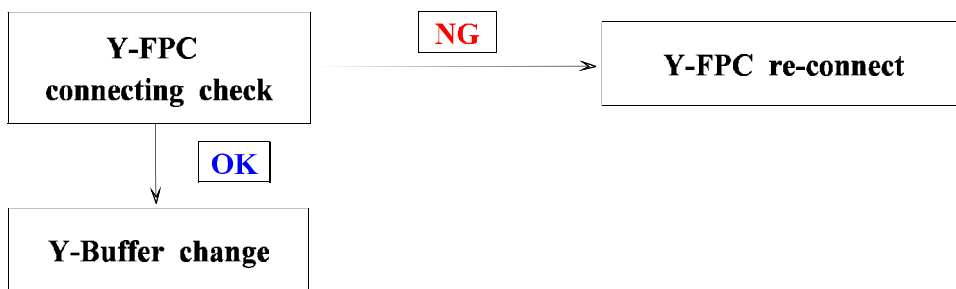## ◈ Sustain(Horizontal Line) Open

■ **Symptom : No lighting of one line, or more in the horizontal direction**

■ Trouble Shooting Method

```
┌──────────────────┐      NG      ┌──────────────────────┐
│     Y-FPC        │ ──────────→  │  Y-FPC re-connect     │
│ connecting check │              └──────────────────────┘
└──────────────────┘
         │ OK
         ↓
┌──────────────────┐
│  Y-Buffer change │
└──────────────────┘
```
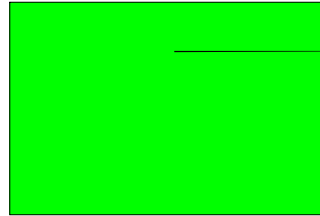
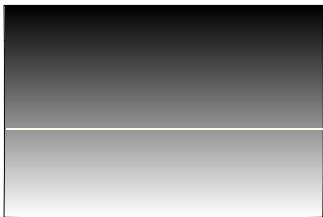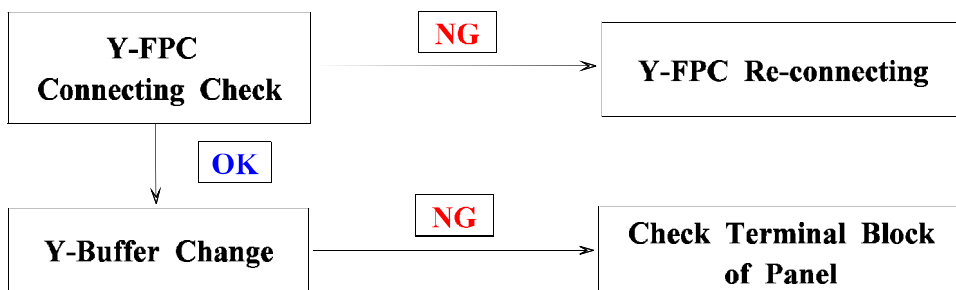## ◈ Sustain(Horizontal Line) Short

■ **Symptom : Much brighter line than nearby lines in Ramp pattern or low gray scale pattern caused by short**

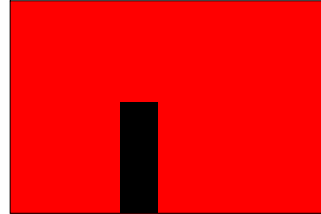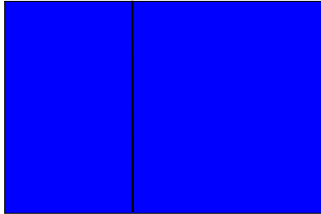■ Trouble Shooting Method

```
┌──────────────────┐      NG      ┌──────────────────────┐
│     Y-FPC        │ ──────────→  │  Y-FPC Re-connecting  │
│ Connecting Check │              └──────────────────────┘
└──────────────────┘
         │ OK
         ↓
┌──────────────────┐      NG      ┌──────────────────────┐
│  Y-Buffer Change │ ──────────→  │  Check Terminal Block │
└──────────────────┘              │       of Panel        │
                                  └──────────────────────┘
```
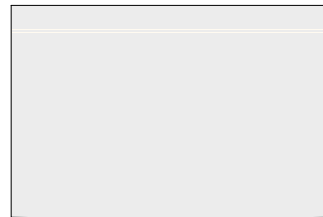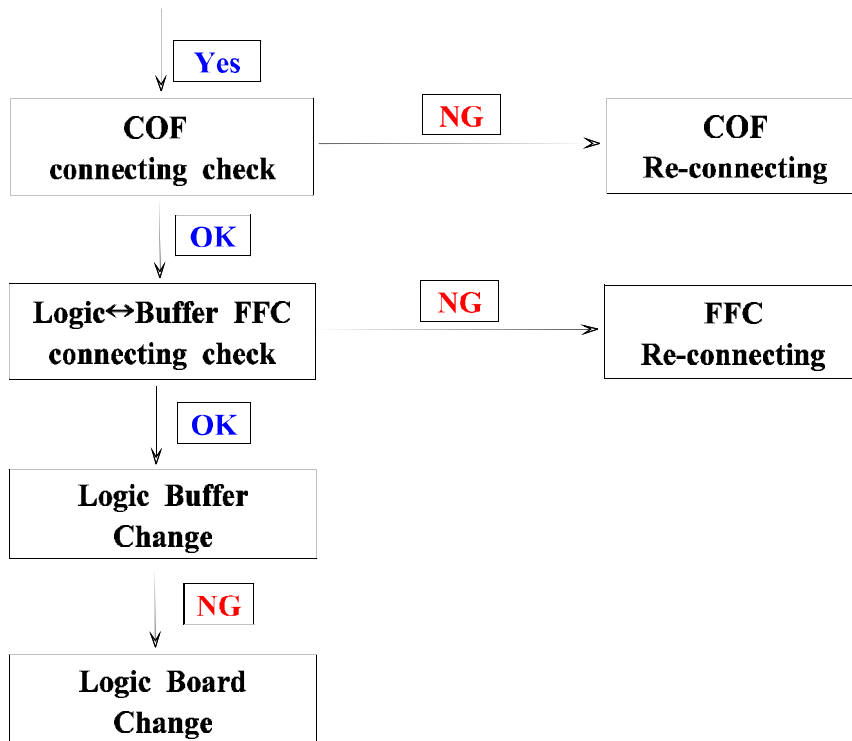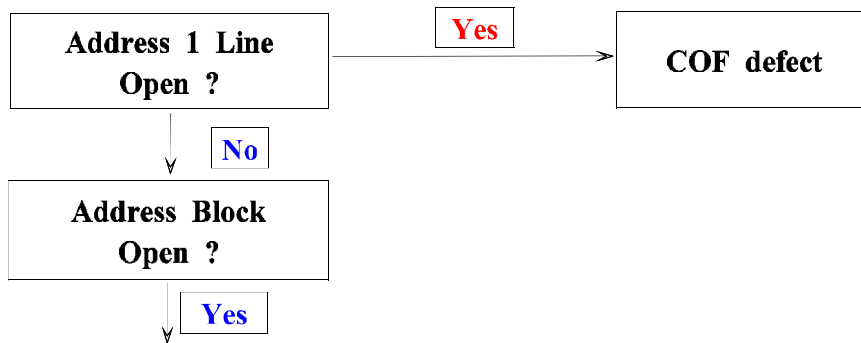
◈ Address(Vertical Line) Open

■ Symptom : No lighting of one line or block in the vertical direction
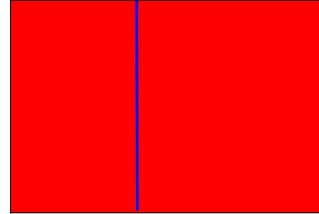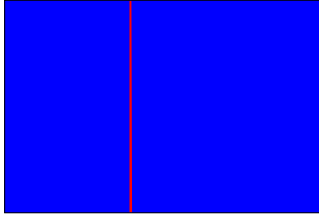   (1 Line open, Block Open)
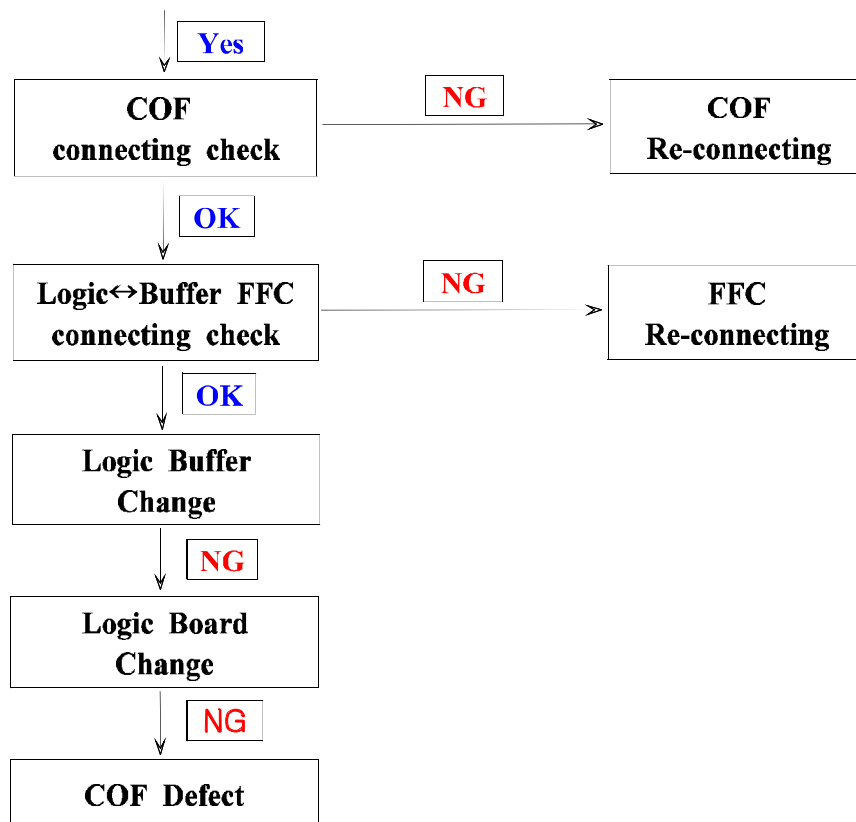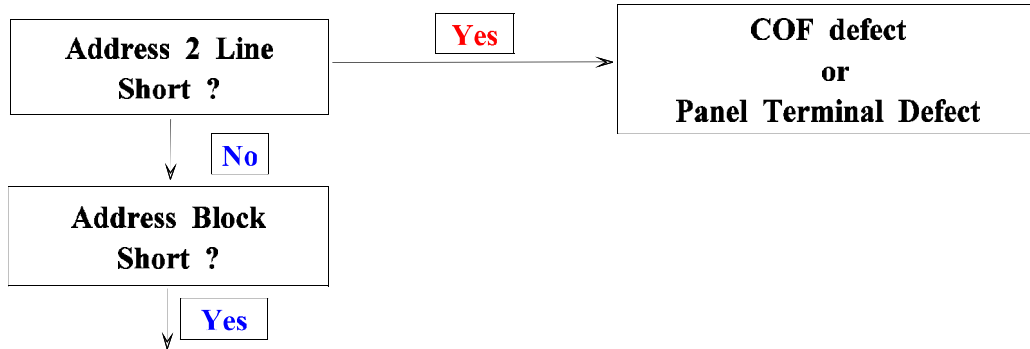

■ Trouble Shooting Method

```
        ┌─────────────────┐      Yes      ┌─────────────────┐
        │  Address 1 Line │ ───────────▶ │   COF defect    │
        │    Open ?       │               │                 │
        └─────────────────┘               └─────────────────┘
               │ No
               ▼
        ┌─────────────────┐
        │  Address Block  │
        │    Open ?       │
        └─────────────────┘
               │ Yes
               ▼
```

```
                    │ Yes
                    ▼
        ┌─────────────────┐      NG       ┌─────────────────┐
        │      COF        │ ───────────▶ │      COF        │
        │ connecting check│               │  Re-connecting  │
        └─────────────────┘               └─────────────────┘
               │ OK
               ▼
        ┌─────────────────┐      NG       ┌─────────────────┐
        │ Logic↔Buffer FFC│ ───────────▶ │      FFC        │
        │ connecting check│               │  Re-connecting  │
        └─────────────────┘               └─────────────────┘
               │ OK
               ▼
        ┌─────────────────┐
        │  Logic Buffer   │
        │    Change       │
        └─────────────────┘
               │ NG
               ▼
        ┌─────────────────┐
        │  Logic Board    │
        │    Change       │
        └─────────────────┘
```

◈ Address(Vertical Line) Short

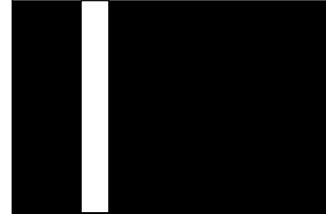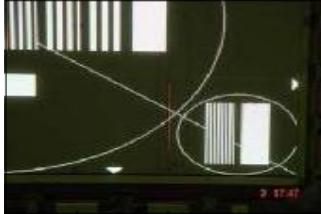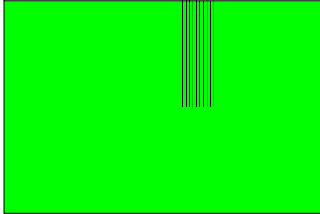■ **Symptom : In a single color pattern, other colors lighting or non lighting caused by address short**

■ Trouble Shooting Method

```
┌─────────────────┐        Yes        ┌────────────────────────┐
│  Address 2 Line │ ───────────────→  │       COF defect       │
│     Short ?     │                   │          or            │
└─────────────────┘                   │  Panel Terminal Defect │
         │  No                        └────────────────────────┘
         ↓
┌─────────────────┐
│  Address Block  │
│     Short ?     │
└─────────────────┘
         │  Yes
         ↓
```

```
         │  Yes
         ↓
┌─────────────────┐      NG       ┌─────────────────┐
│       COF       │ ───────────→  │       COF       │
│ connecting check│               │  Re-connecting  │
└─────────────────┘               └─────────────────┘
         │  OK
         ↓
┌─────────────────┐      NG       ┌─────────────────┐
│ Logic↔Buffer FFC│ ───────────→  │       FFC       │
│ connecting check│               │  Re-connecting  │
└─────────────────┘               └─────────────────┘
         │  OK
         ↓
┌─────────────────┐
│  Logic  Buffer  │
│     Change      │
└─────────────────┘
         │  NG
         ↓
┌─────────────────┐
│  Logic  Board   │
│     Change      │
└─────────────────┘
         │  NG
         ↓
┌─────────────────┐
│   COF  Defect   │
└─────────────────┘
```
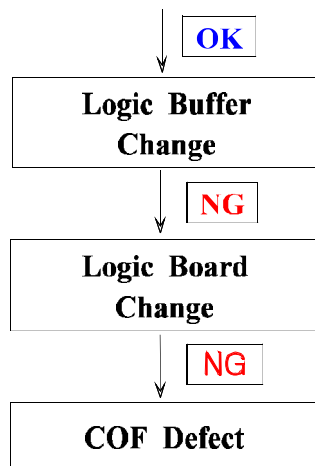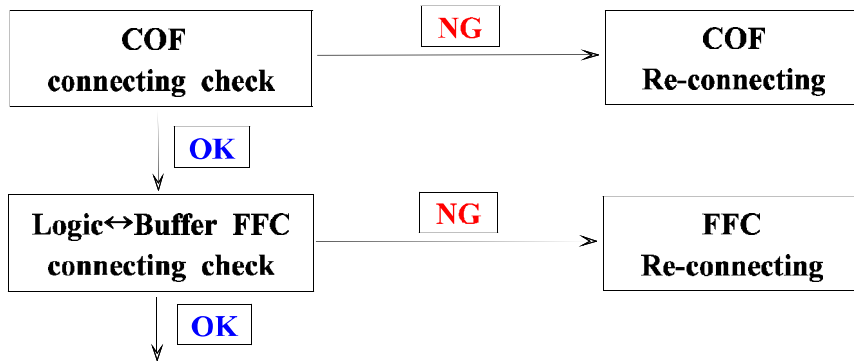
◈ Address(Vertical Line) Output Defect

■ **Symptom :** Abnormal output signal of data in specific gray scale or specific pattern except address open and short
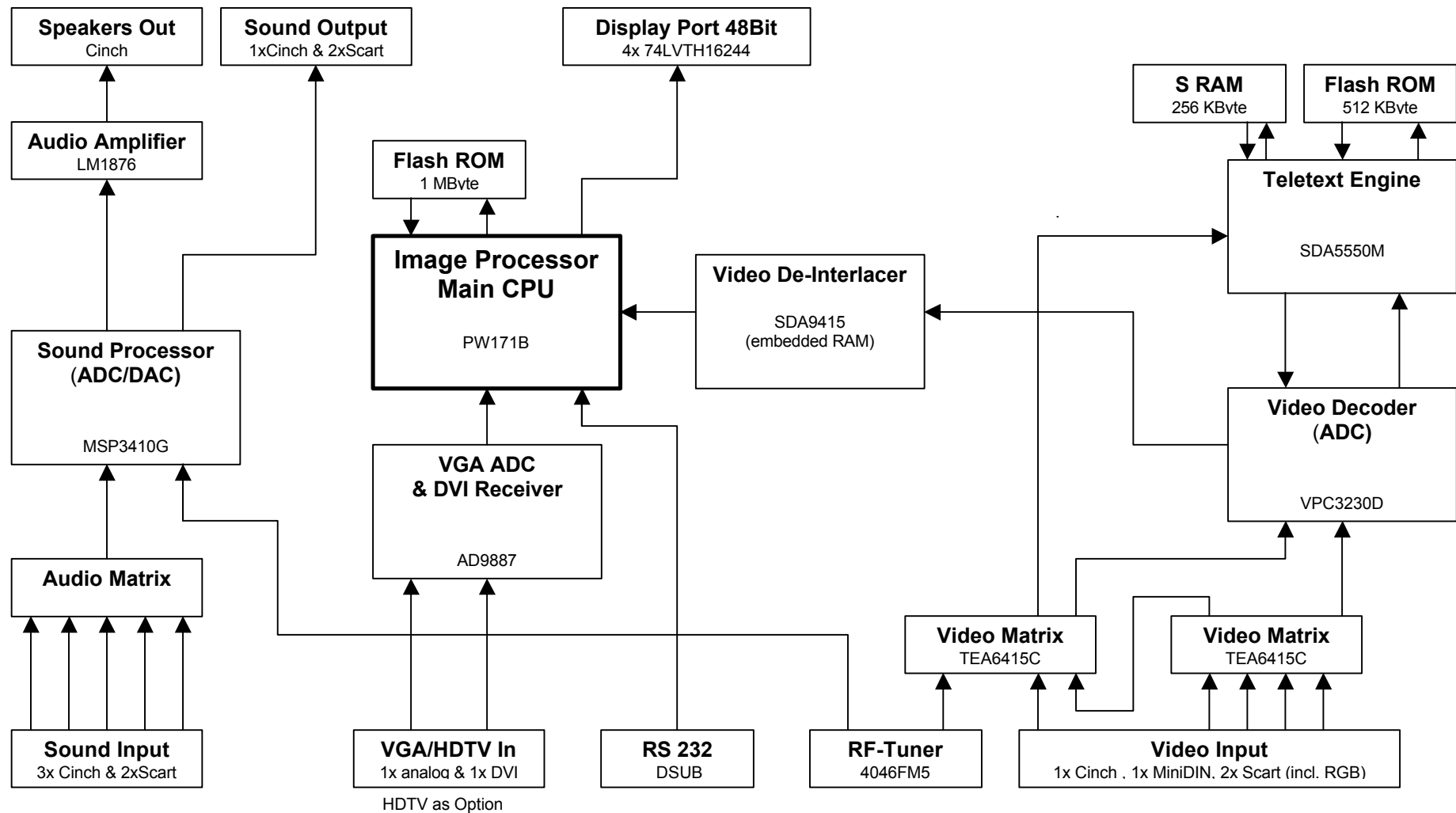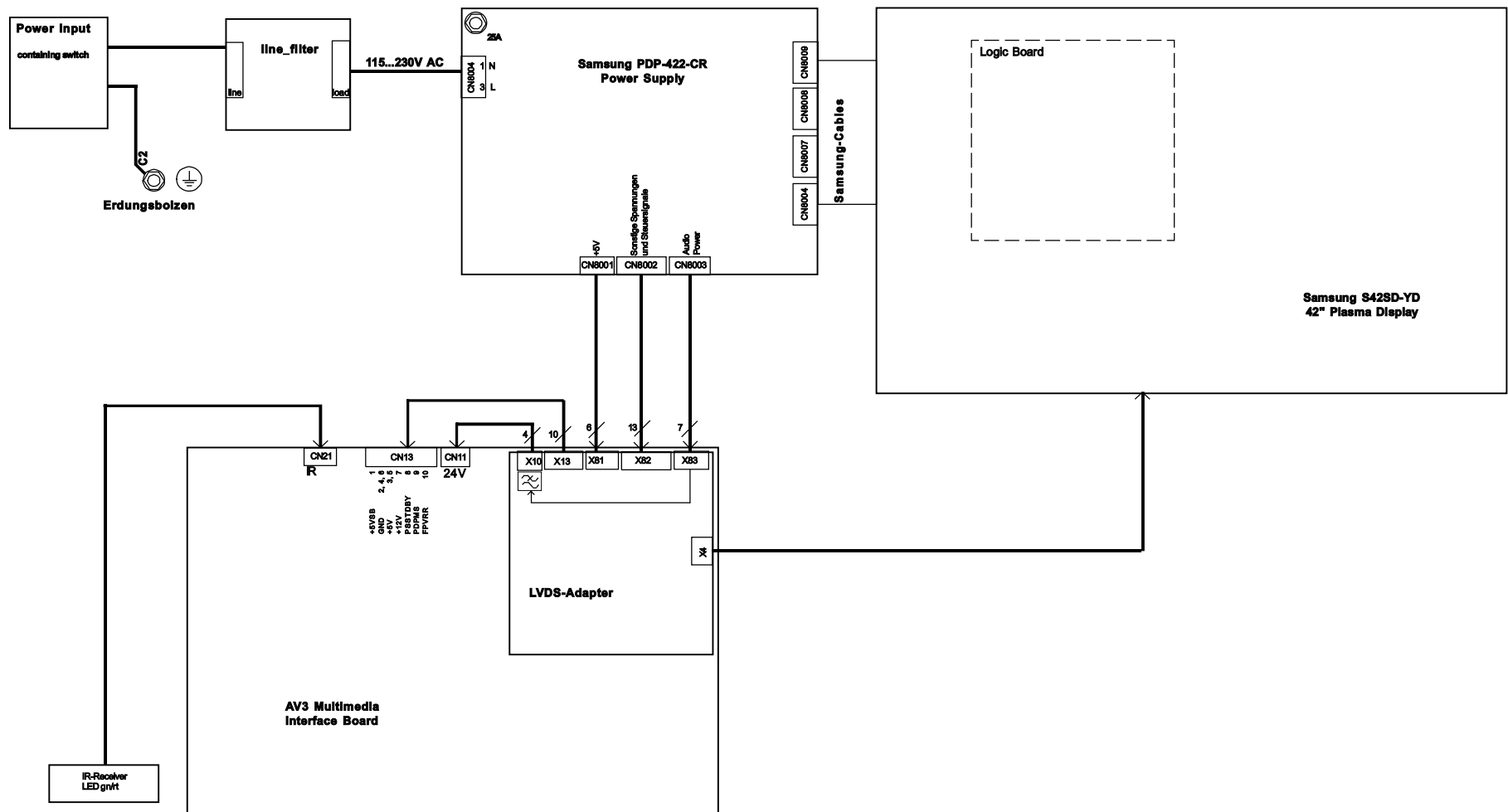

■ Trouble Shooting Method

```
        ┌─────────────────┐     NG     ┌─────────────────┐
        │      COF        │ ─────────> │      COF        │
        │ connecting check│            │  Re-connecting  │
        └─────────────────┘            └─────────────────┘
                 │ OK
                 ▼
        ┌─────────────────┐     NG     ┌─────────────────┐
        │ Logic↔Buffer FFC│ ─────────> │      FFC        │
        │ connecting check│            │  Re-connecting  │
        └─────────────────┘            └─────────────────┘
                 │ OK
                 ▼
```

```
                 │ OK
                 ▼
        ┌─────────────────┐
        │  Logic Buffer   │
        │     Change      │
        └─────────────────┘
                 │ NG
                 ▼
        ┌─────────────────┐
        │  Logic Board    │
        │     Change      │
        └─────────────────┘
                 │ NG
                 ▼
        ┌─────────────────┐
        │   COF Defect    │
        └─────────────────┘
```

BLOCK DIAGRAM AV3 BOARD

Block Diagram AV3 Board

Power Input

containing switch

line_filter

line

load

115...230V AC

C2

Erdungsbolzen

25A

CN804

1 N
3 L

**Samsung PDP-422-CR
Power Supply**

CN8009
CN8008
CN8007
CN8004

Samsung-Cables

Logic Board

**Samsung S42SD-YD
42" Plasma Display**

+5V
Sonstige Spannungen
und Steuersignale
Audio
Power

CN8001 | CN8002 | CN8003

4 | 10 | 6 | 13 | 7

CN21
R

CN13
1
2,4,6
3,5,
7
8
9
10

CN11
24V

+5VSB
GND
+5V
+12V
PSSTDBY
PDPMS
FPVRR

X10 | X13 | X81 | X82 | X83

X4

LVDS-Adapter

**AV3 Multimedia
Interface Board**

IR-Receiver
LED gn/rt

**Connection Diagram
4042 CD - 42" Samsung Plasma**

SERVICE MODE

Entering the service menu with user remote control;

-**enter "1972" when main menu appears**

Item	Setting	Function
Brightness Mode	Auto	To adjust the general brightness
RS232 Setting	19200	Slip speed for software downloads
Customer Logo	X	To choose the customer logo, if available (1, 2, etc.)
Operation Time	-	Shows the operation time since first switch on, can be resetted by technician
Default Color Settings	-	To adjust the general color settings, normal value is: RGB offset 7 and RGB gain 128
Power On Input	Last	Defines which input is active after switching on the unit
Temperature Setting	-	Shows temperature threshold for temperature alert function: Temp1: 60°C; Temp2: 65°C; Temp3: 63°C also shows all time Max and Min temperature, which can be resetted by technician
Full Mask	off	Available functions: inverted, red, green, blue, full white. Might help against Burn In
Sub Volume	-	Defines volume setting of each single input separately
Version / System Info	-	Soft-/Hardware version
Reset Everything		Resets all settings to factory defaults, also erases all channel settings

EXPLODED VIEW (C MODEL)
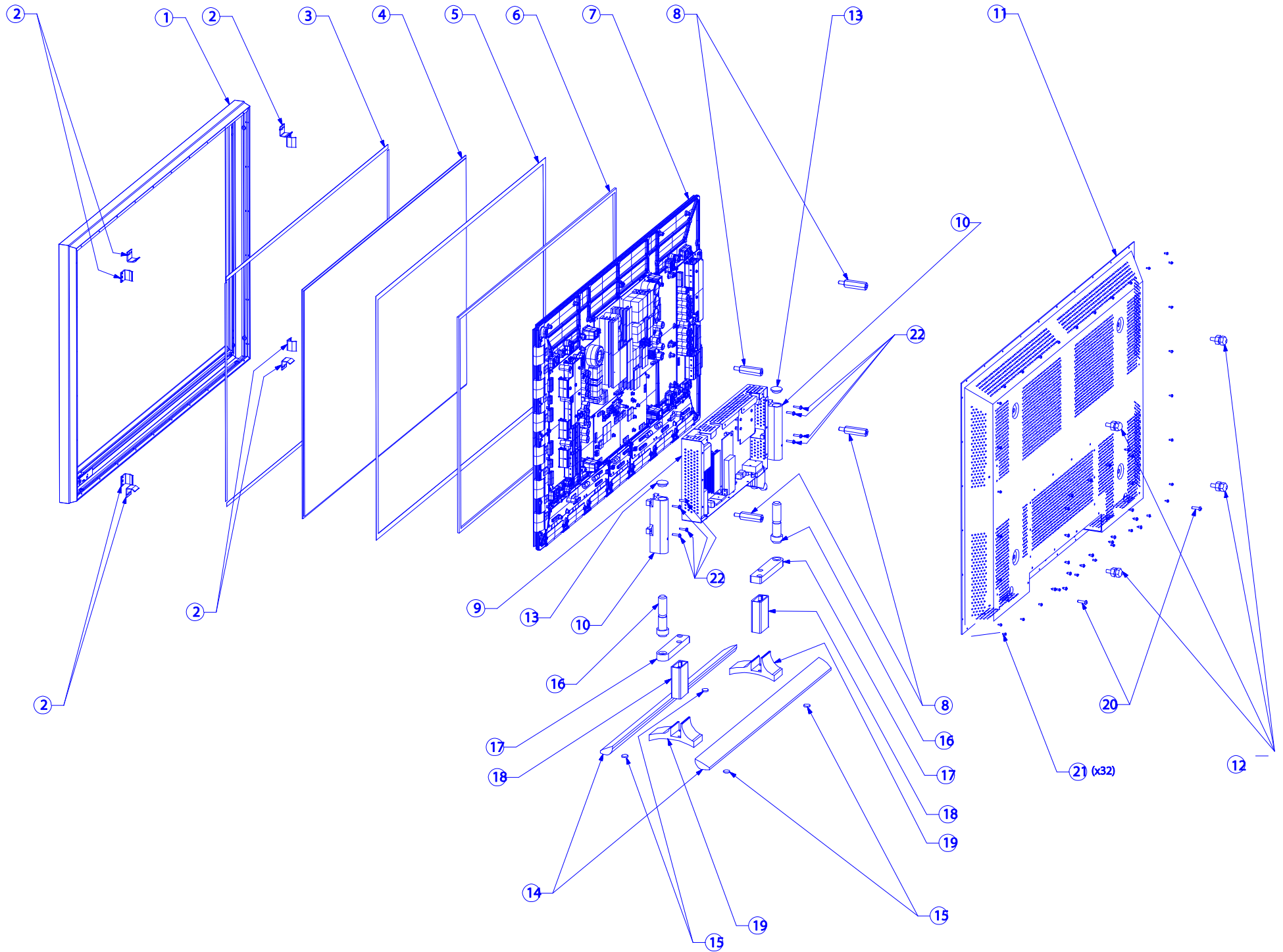
SPEAKER
EXPLODED VIEW
(C MODEL)

X52.108-AS

X52.107-AS

031.093

X52.901

X52.107-AS

X52.381-AS

X52.216

X52.203
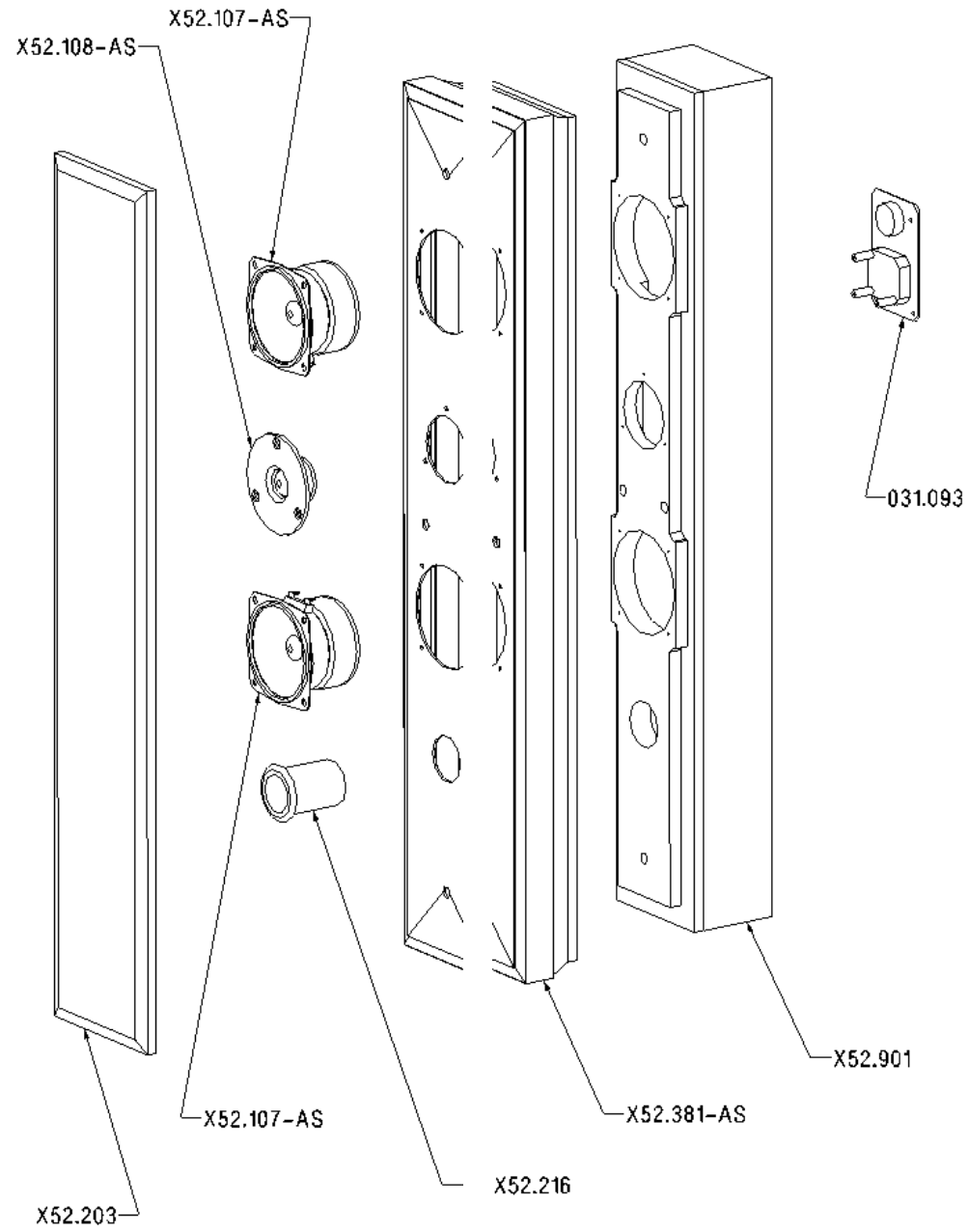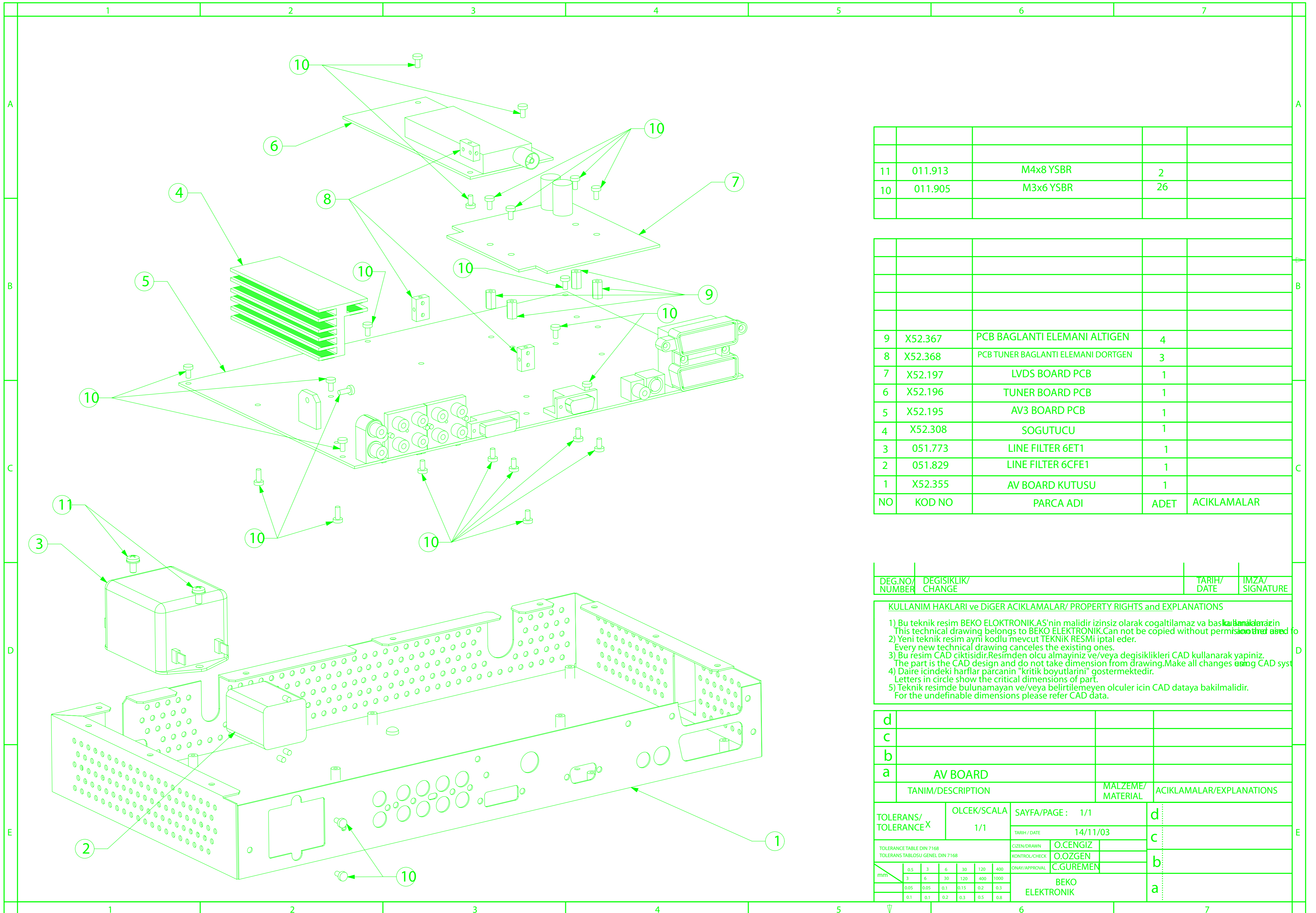
11	011.913	M4x8 YSBR	2	
10	011.905	M3x6 YSBR	26	

9	X52.367	PCB BAGLANTI ELEMANI ALTIGEN	4	
8	X52.368	PCB TUNER BAGLANTI ELEMANI DORTGEN	3	
7	X52.197	LVDS BOARD PCB	1	
6	X52.196	TUNER BOARD PCB	1	
5	X52.195	AV3 BOARD PCB	1	
4	X52.308	SOGUTUCU	1	
3	051.773	LINE FILTER 6ET1	1	
2	051.829	LINE FILTER 6CFE1	1	
1	X52.355	AV BOARD KUTUSU	1	
NO	KOD NO	PARCA ADI	ADET	ACIKLAMALAR

DEG.NO/ NUMBER	DEGISIKLIK/ CHANGE		TARIH/ DATE	IMZA/ SIGNATURE

KULLANIM HAKLARI ve DiGER ACIKLAMALAR/ PROPERTY RIGHTS and EXPLANATIONS

1) Bu teknik resim BEKO ELOKTRONIK.AS'nin malidir izinsiz olarak cogaltilamaz va baska amaclar icin kullanilamaz.
This technical drawing belongs to BEKO ELEKTRONIK.Can not be copied without permission and used to another aim.
2) Yeni teknik resim ayni kodlu mevcut TEKNIK RESMi iptal eder.
Every new technical drawing canceles the existing ones.
3) Bu resim CAD ciktisidir.Resimden olcu almayiniz ve/veya degisiklikleri CAD kullanarak yapiniz.
The part is the CAD design and do not take dimension from drawing.Make all changes using CAD system.
4) Daire icindeki harflar parcanin "kritik boyutlarini" gostermektedir.
Letters in circle show the critical dimensions of part.
5) Teknik resimde bulunamayan ve/veya belirtilemeyen olculer icin CAD dataya bakilmalidir.
For the undefinable dimensions please refer CAD data.

d				
c				
b				
a	AV BOARD			
	TANIM/DESCRIPTION		MALZEME/ MATERIAL	ACIKLAMALAR/EXPLANATIONS

TOLERANS/ TOLERANCE X	OLCEK/SCALA	SAYFA/PAGE : 1/1	d	
	1/1	TARIH / DATE 14/11/03	c	
TOLERANCE TABLE DIN 7168 TOLERANS TABLOSU GENEL DIN 7168		CIZEN/DRAWN O.CENGIZ		
		KONTROL/CHECK O.OZGEN	b	
		ONAY/APPROVAL C.GUREMEN		
		BEKO ELEKTRONIK	a	

EXPLODED VIEW PART LIST

PART NO	DESCRIPTION	NOTES	LOCATION
X52351-AS	TOP COVER 42" B40(C MODEL)WITH COMPLETED		1
090169	DOUBLR SIDE TAPE PDP SPECIAL		3
X51028	MESH FILTER(GLASS EMI) 2273-0008-0092		4
090197	COPPER CONDUCTOR TAPE PDP SPECIAL		5
090196	SPONGE TAPE PDP SPECIAL		6
X51102	PDP V2 PANEL VE POWER SUPPLY		7
X52354	42" PDP BOSS		8
X52355	42" PDP AV BOARD BOTTOM COVER		9
X52357	42" PDP L PANEL CONNECTION PART		10
X52255	42" PDP BACK COVER SILVER		11
X52372	42" PDP BACK COVER COMP.SCREW(M8)		12
011936	SCREW M5X20 W/WASHER PAN HEAD		20
011935	SCREW 30X8 EJOT PT TYPE DG WN1552 TORX		21
011929	SCREW M4X20 W/WASHER PAN HEAD		22

PANEL BOARDS AND PANEL CABLES

PART NO	DESCRIPTION	NOTES	LOCATION
X51103	PCB ASSY X MAIN ASSY (LJ92-00748A)		*
X51104	PCB ASSY LOGIC-BUFFER(G) (LJ92-00634A)		*
X51105	PCB ASSY LOGIC-BUFFER(F) SDI 42 (LJ92-00633A)		*
X51106	PCB ASSY LOGIC-BUFFER(E) SDI 42 (LJ92-00632A)		*
X51107	PCB ASSY Y-BUFFER(UP) SDI 42 (LJ92-00751A)		*
X51108	PCB ASSY Y-BUFFER(DOWN) SDI 42 (LJ92-00750A)		*
X51109	PCB ASSY LOGIC-BOARD SDI 42 (LJ92-00818A)		*
X51110	PCB ASSY SMPS(PSU) SDI 42 (LJ44-00049A)		*
X51111	PCB ASSY Y-BOARD SDI 42 (LJ92-00749A)		*
X51112	FPC 58x61mm(H*V),86LINES,0.6PITCH,80P (LJ94-00002A)		
X51113	FFC CABLE -FLAT LOGIC-XBOARD (3809-001396) 60V,105C,210MM,30P,0.5MM,UL20861		
X51114	FFC CABLE -FLAT (3809-001398) 60V,105C,210MM,30P,0.5MM,UL20861		
X51115	FFC CABLE -FLAT LOGIC-YBOARD (3809-001397) 60V,105C,105MM,40P,0.5MM,UL20861		
X51116	CABLE SMPS-LOGIC (LJ39-00113A)		
X51117	CABLE SMPS-L.BUFFER(E) (LJ39-00151A)		
X51118	CABLE SMPS-XBOARD (LJ39-00152A)		
X51119	CABLE SMPS-YBOARD (LJ39-00153A)		
X51120	CABLE L.BUFFER-L.BUFFER (LJ39-00109A)		

* See panel pic.

BOARDS

PART NO	DESCRIPTION	NOTES	LOCATION
X51027	4042-7210-0000 LP-LVDS-ADAPTOR BOARD		
X51025	4042-6302-0100 LP-SIGNAL PROCES.AV3		

	OTHER PARTS		
PART NO	**DESCRIPTION**	**NOTES**	**LOCATION**
X52204F	LENS IR/LED 42" PDP		
X52805	STROPOR TOP LEFT-RIGHT 42PAB40		
X52806	STROPOR BOT.LEFT-RIGHT 42PAB40		
X52807	STROPOR TOP.CENTRAL 42PAB40		
X52808	STROPOR BOTTOM CENTRAL 42PAB40		
X52160	IR/LED ASSY 42" PDP		
101163	CFR 150R J 1/4W 26MM		R901
101163	CFR 150R J 1/4W 26MM		R902
303900	LED ROT		D902
251120	EC 10UF 10V 5*4 R:5		C901
303407	LED ROT LTL 4221N P6 GREEN		D902
452521-01	IR RECEIVER TSOP34838 SS1A		IC901
8R9380	KAUCUK HORZ.FOOD 17" LCD TV		
X52387	DESKTOP LEG ARCH PROFILE PDP		
X52381-AS	DESKTOP SPEAKER 42" B40(C MODEL)AL.FRAME		
X52108-AS	TWEETER 8R 10W(N)/20W(M) PDP 42"		
X52107-AS	SPEAKER 4R 7W(N)/12W(M) PDP 42"		
X52519-AS	CABLE SPAEKER 2P BLACK/RED L=250MM		
X52520-AS	CABLE SPAEKER SINGLE RED L=250MM		
X52522-AS	CABLE SPAEKER SINGLE BLUE L=400MM		
X52521-AS	CABLE SPAEKER SINGLE BLACK L=250MM		
038921	MAIN CABLE PC/MONITOR 2MT EURO		
X52187	RC HAND SET 42" PDP BEKO		
X52524-AS	CABLE HARNESS L=115MM WITH POWER SP MAK.		
X52525-AS	CABLE WITH.TERM.L=190MM WITH MAK.POWER S		
X52526-AS	CABLE HARNESS L=550MM VIDEO/AUDIO BLE.		
X52527-AS	CABLE WITH.TERM.L=110MM YEL-GR1X28X0.22		
X52528-AS	CABLE HARNESS 6POL L=190MM PURPLE		
X52529-AS	CABLE HARNESS 7POL L=320MM PURPLE		
X52531-AS	CABLE HARNESS 10POL L=200MM PURPLE		
X52532-AS	CABLE HARNESS 4POL L=200MM PURPLE		
X52530-AS	CABLE HARNESS 13POL L=350MM PURPLE		
051773	LINE FILTER WITH CAP+RES.6ET1 /CORCOM		
033134	CABLE VGA-DVI-I PDP 42"		
051829	LINE FILTER-2 PDP 6CFE1		
X52514-AS	CABLE SPEKAER-PDP CONN. L=2M		
X51100	DESKTOP GUIDE 42" PDP		
X52801	INS.MAN.(FR+EN+AL+FL+ES+POR+ITA)42PBB40		
031093	SOCKET SPEAKER 42" PDP		
X52804	MANUEL DESKTOP SPEAKER 42" PDP		

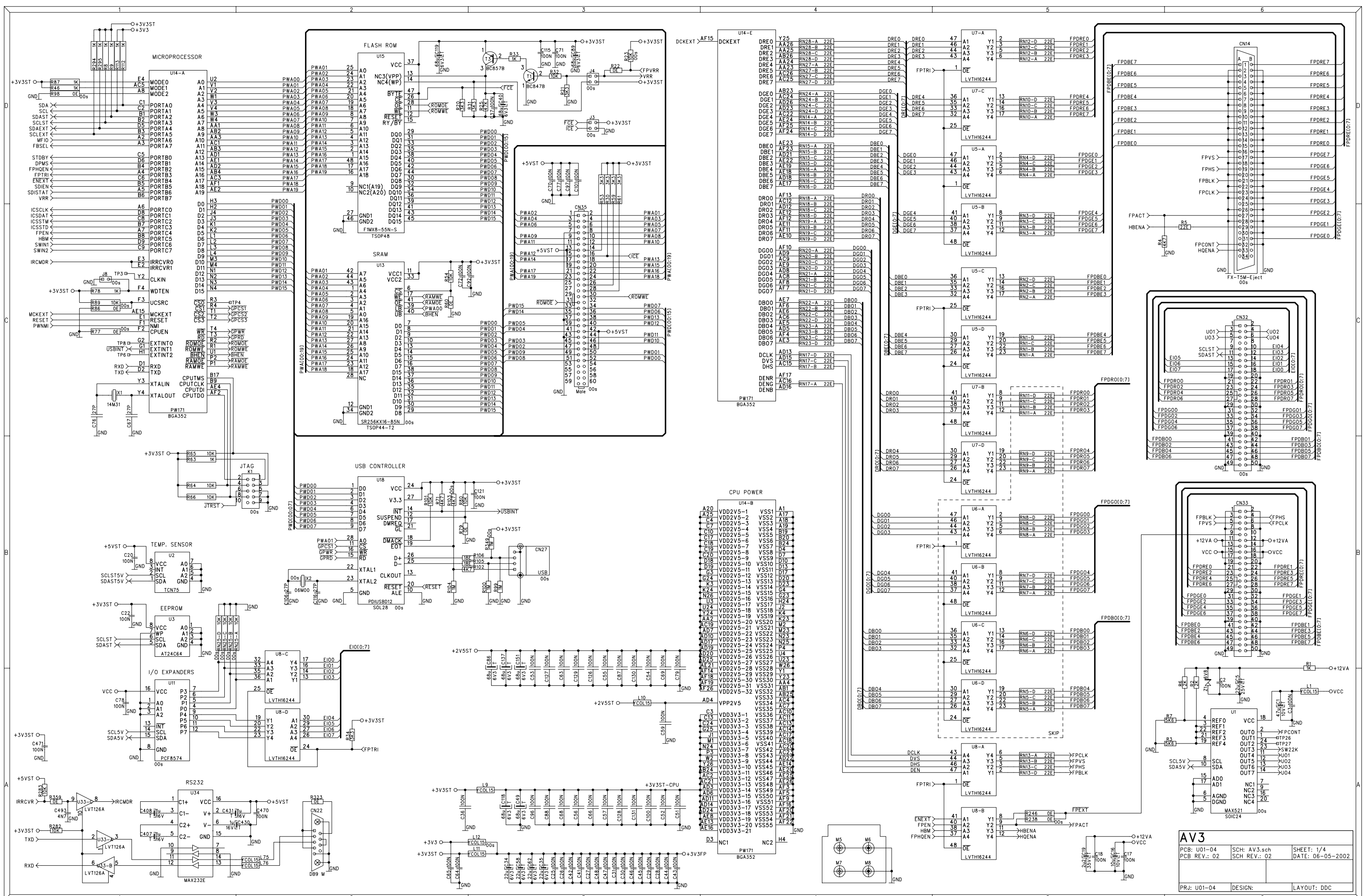This list is tentative , please ask spare part list to Beko with your model number

X1
PINHD-2X18

+5UT
+5UAT
SCL
SDA
MONO
CUBST
SSIF
GND

2x Mounting Plates, I=3,5mm

803,5P A3
803,5P A4
GND
GND

Microtune 4046 FM5 3X8103

A1

7 UT_7
8 US_8
9 SCL_9
10 SDA_10
11 AS_11
GND1
GND2
GND3
GND4
17 NC_17
18 IFSO_18
19 CUBS_19
20 UF_20
21 AF_21

GND
SCL
SDA
GND
GND

MONO
+5U
L2 10uH
C25 100u/10V
GND
C24 470n
GND

CUBST
C26
0805 N.C.
GND
R21 0R
SSIFT

C20 470n
GND
C22 100u/10V
GND
L1 10uH
+5U

+5U
R1
0805 N.C.
+5UT

Kühlfläche in Cu, min. 10x15mm²

78M05
3 GND
4 NC
1 IN
2 OUT
GND
+5U
C2 100u/10V
GND
C19 100n
GND
C21 100n
GND
+5UAT
C1 47u/16V
GND

SSIF
C27 22pF
R24 1K
GND

R27
0805 N.C.
+5U
R22 2K2
V1 BC847B
R23 470R
GND
R25 27K
R26 10K
C28 10pF
SSIFT

Place circuit near tuner!

Widerstände der Netzwerke RN1, 2 u. 3 kurzschließen!

GEB6

AV3

Input DZine-Contr.

I2C-Pegelwandler

Samsung Display

Sound

uC-Steuerung

Netzteil

4 x Mounting Holes

Title: LVDS-Adaptor -
42" Samsung Plasma
AV3 & GEBx & SXGA

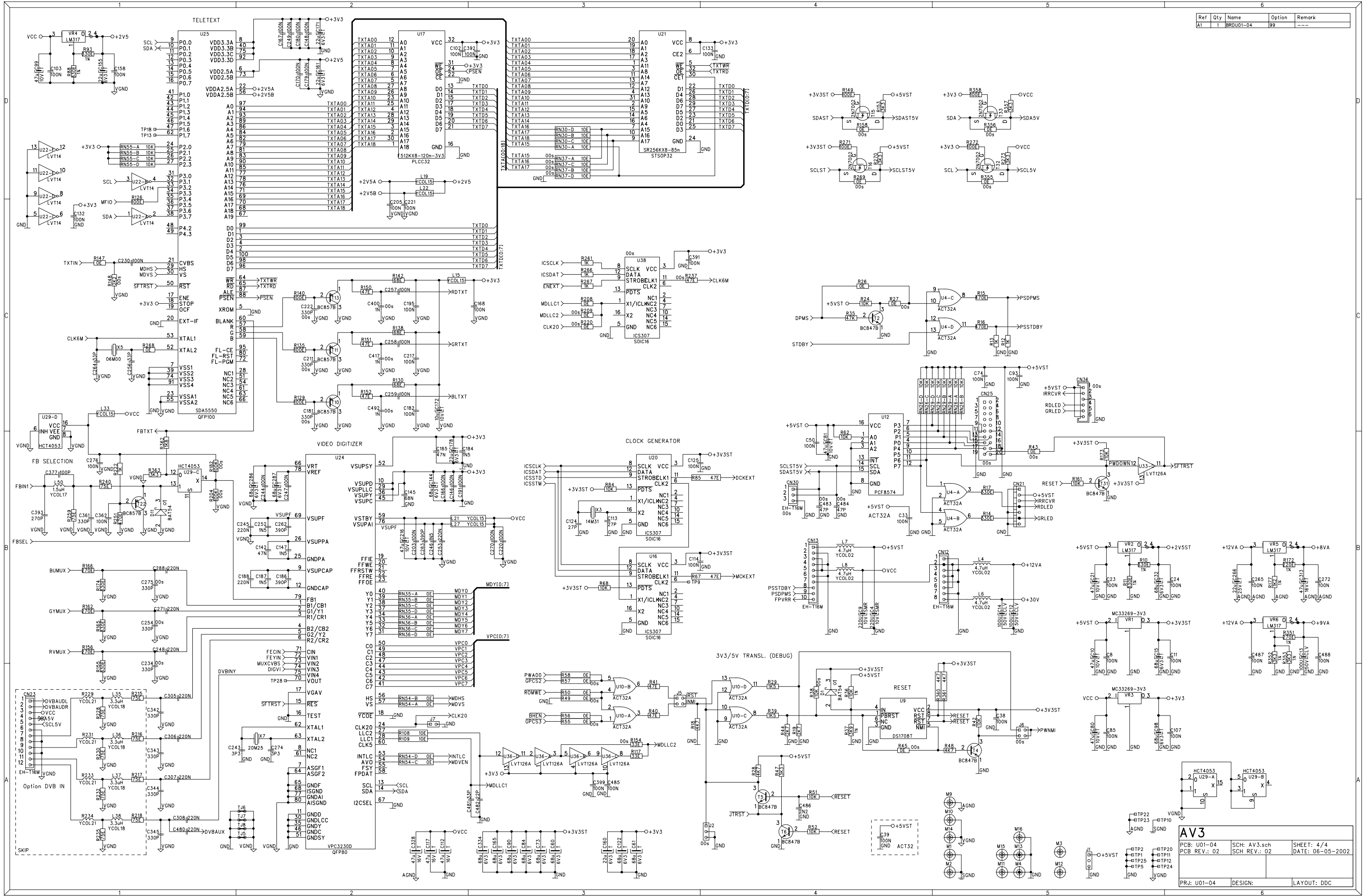Sheet: 1/2   A3

ALC

Photo-Transistor

AV3

PCB: U01-04　　SCH: AV3.sch　　SHEET: 1/4
PCB REV: 02　　SCH REV: 02　　DATE: 06-05-2002

PRJ: U01-04　　DESIGN:　　LAYOUT: DDC

AV3
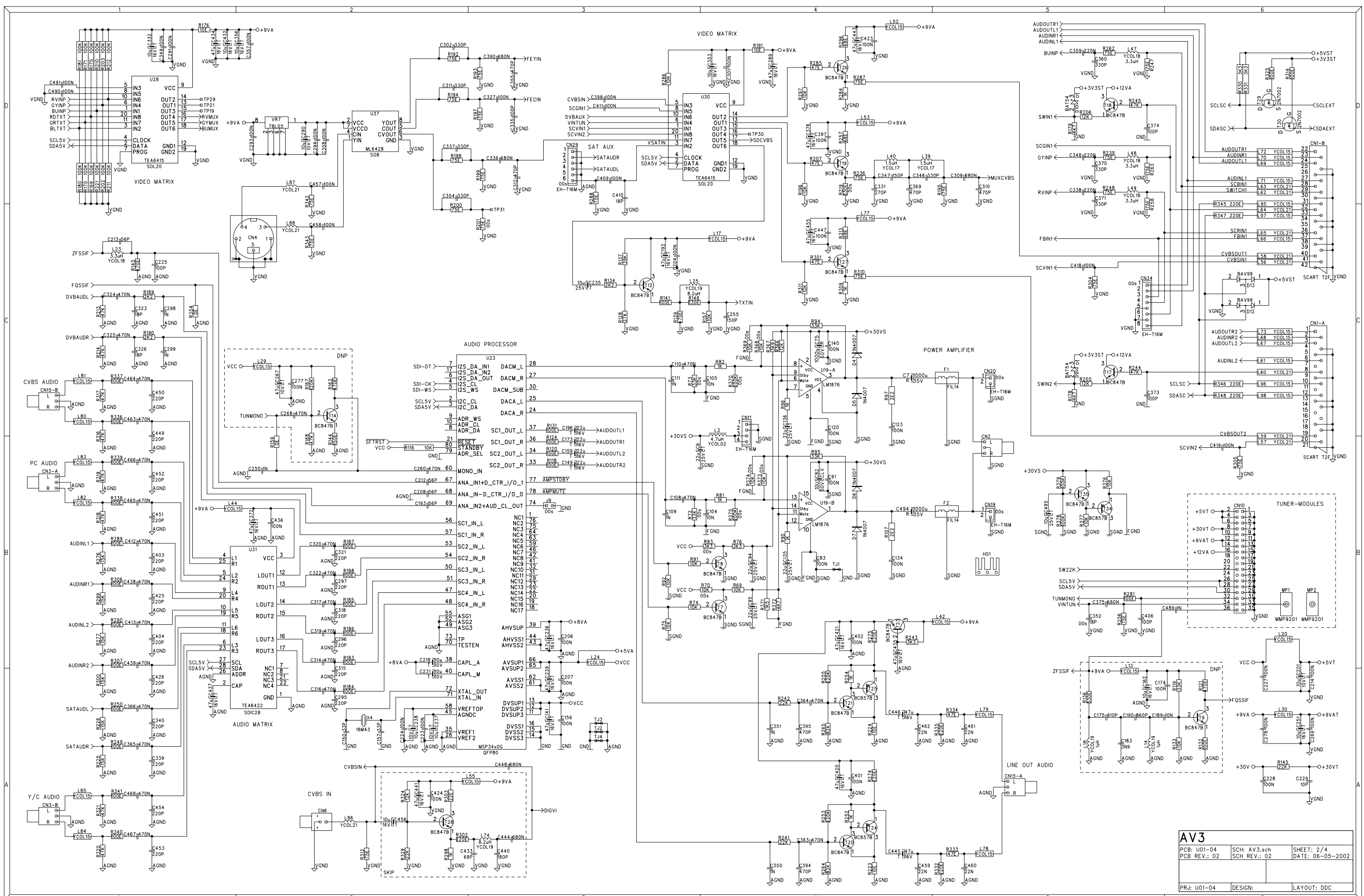
| PCB: U01-04 | SCH: AV3.sch | SHEET: 2/4 |
| PCB REV.: 02 | SCH REV.: 02 | DATE: 06-05-2002 |

| PRJ: U01-04 | DESIGN: | LAYOUT: DDC |

AV3

PCB: U01-04	SCH: AV3.sch	SHEET: 3/4
PCB REV.: 02	SCH REV.: 02	DATE: 06-05-2002

PRJ: U01-04	DESIGN:	LAYOUT: DDC
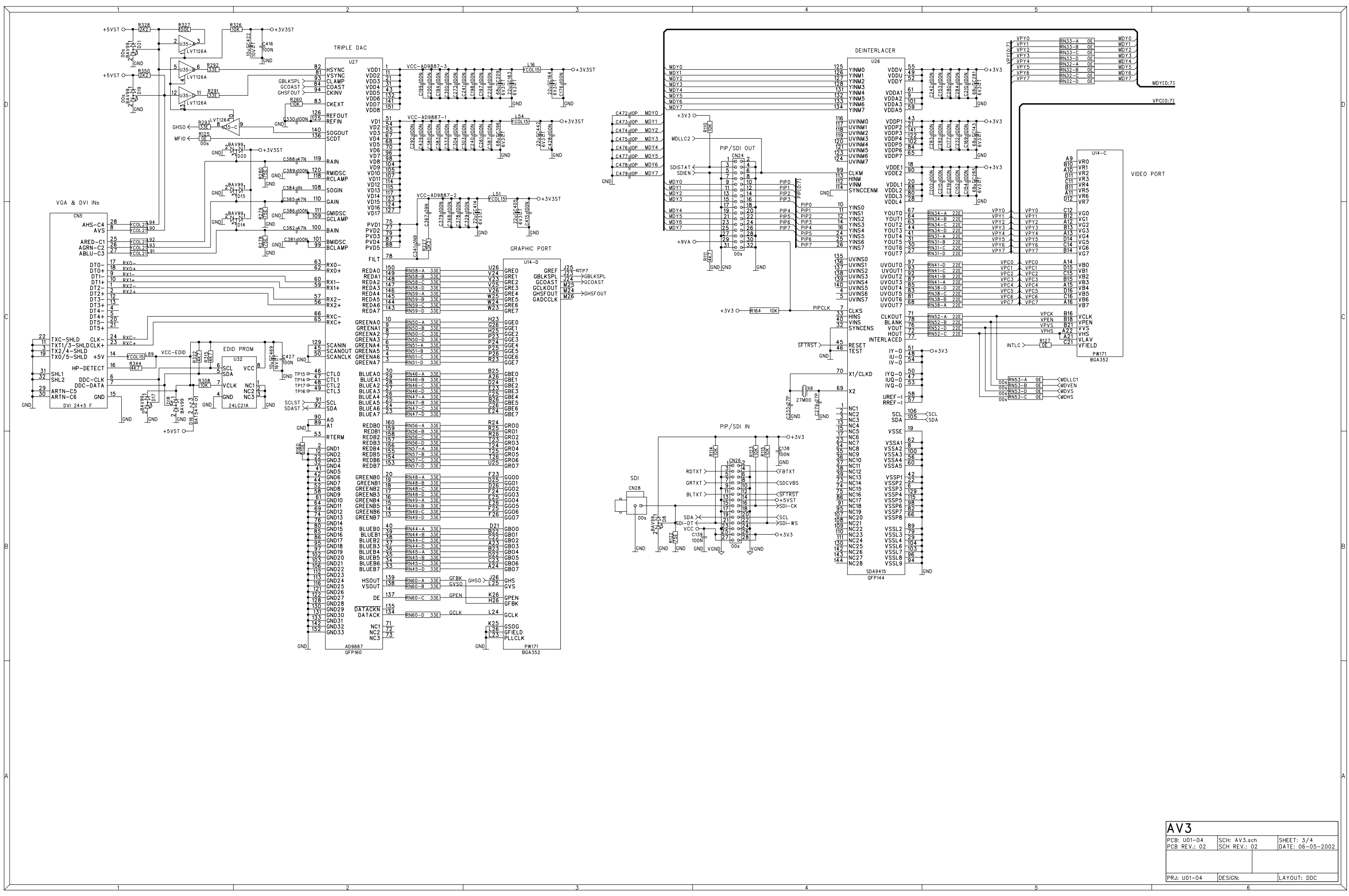
Ref	Qty	Name	Option	Remark
A1	1	BRDU01-04	99	---

AV3

PCB: U01-04	SCH: AV3.sch
PCB REV.: 02	SCH REV.: 02
	SHEET: 4/4
	DATE: 06-05-2002

PRJ: U01-04	DESIGN:	LAYOUT: DDC

TELETEXT

VIDEO DIGITIZER

CLOCK GENERATOR

3V3/5V TRANSL. (DEBUG)

FB SELECTION

Option DVB IN