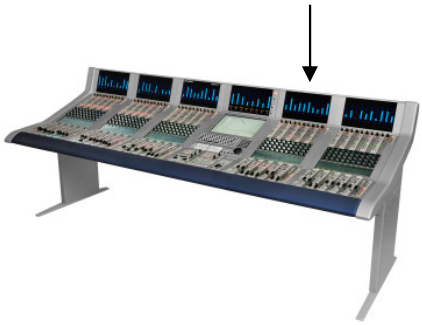
# 1. General Overview

## Table of Contents

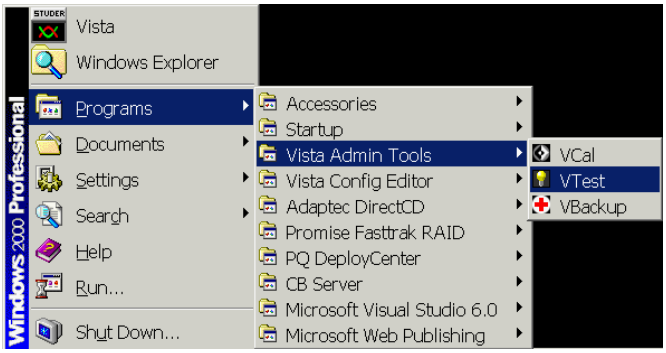
# 2. Fader Bay and Bargraph Meter Panels

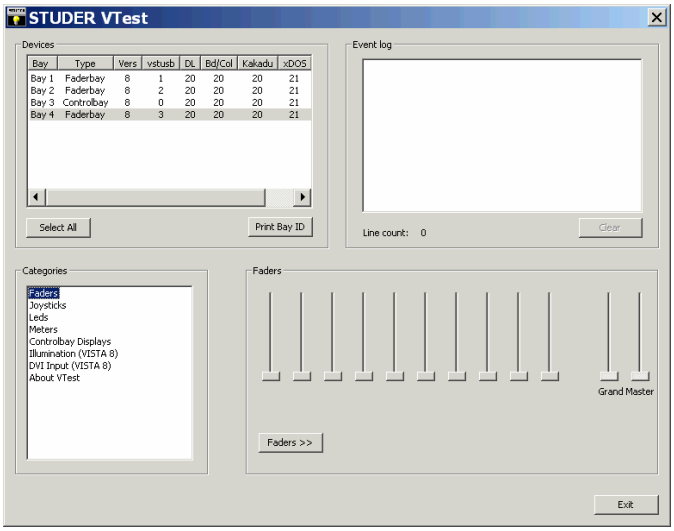


| | Vista 6 | Vista 7 | Vista 8 |
|---|---|---|---|
| Fader Bay | 1.949.021.00 | 1.949.020.00 | 1.949.022.00 |
| TFT Interface | 1.949.085.00 | 1.949.085.00 | 1.949.070.82 |
| Control Board Fader Bay | 1.949.120.21 | 1.949.120.21 | 1.949.122.20 |
| Fader Driver | 1.949.130.81 | 1.949.130.81 | 1.949.130.81 |
| Fader Front Board Vista | 1.949.134.00 | 1.949.135.00 | 1.949.139.00 |
| I/O Front Board Vista | 1.949.137.00 | 1.949.138.00 | 1.949.137.00 |
| Meter Panel | 1.949.025.00 | 1.949.025.00 | 1.949.040.00 |
| Meter Panel with Logo | 1.949.027.00 | 1.949.026.00 | 1.949.043.00 |
| Bargraph Fader Bay | 1.949.140.00 | 1.949.140.00 | 1.949.147.00 |
| Meter Panel with Logo & Switches | 1.949.037.00 | | |
| Bargraph Fader Bay with Switches | 1.949.145.00 | | |

## Fader Calibration

Start Vtest Utility




1. Select bay to calibrate (or mark 'Select all' for calibrating all bays) and choose category 'Faders'.

2. Start process with 'Clear Calibration' in "Faders >>" menu.
   All faders of the selected bay will automatically start calibration of the bottom fader position, indicated by up-down movements. When properly finished, each fader will be placed on the '-10dB' position.

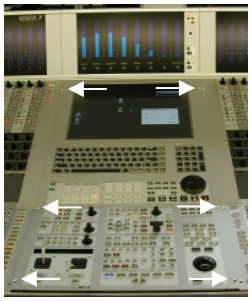
3. Wait until all faders are waiting on the -10dB position, and carefully adjust each of them at the exact -10dB mark.
   Confirm by pressing any of the nearby keys.
   All faders will then proceed with calibration movements below and above the -10dB position.

4. The calibration is finished when all faders reverted to their initial position.

**Please note** : on a Vista 8 Control Bay, fader and joystick calibration are always combined - when performing a fader calibration the joysticks need to by adjusted as well as a second step.
If a calibration process gets stuck it can be interrupted anytime by pressing 5 keys on the corresponding bay simultaneously.

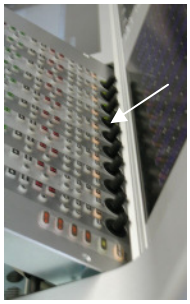
## Replacement of Motor Faders

Vista Motor Faders are available with Studer Spare Part No 1.950.044.00-V.

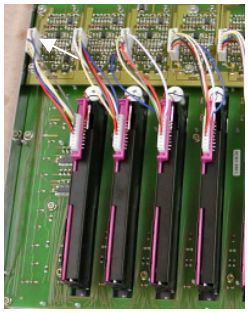


1. Switch Off Desk Supply and remove the 6 fastening screws.

2. Swing the bay up into service position and lock it with the support leg.



3. Take care not to touch the potentiometers in the uppermost position !



4. Remove the connector at the fader driver board

5. Remove fader knob the 2 attachment screws. The fader is now ready to be replaced

6. Insert a new fader and proceed in reverse order.

**Note !**

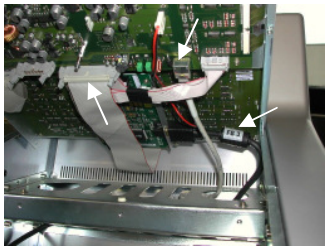
Always perform a fader calibration after a fader replacement

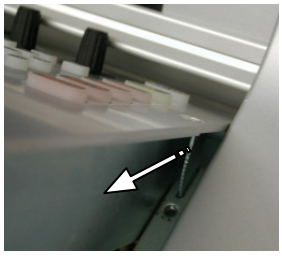
For regular maintenanance refer to the corresponding Fader Care service note.

## Replacement of Fader Bay

Replacing a fader bay is easy and straight forward. There are 3 single cables which provide power supply and USB control signal (RJ45 connector), video signal for the TFT display (D-Type video connector) and control signals to the meter panel (flat ribbon cable).
The bay can be locked in a service position, after removing the cables it can be completely removed.

Open the Bay and lock the support leg





**Note !**
Always store the bay to a flat ESD safe place. Always ship the bay in the original transport box.

See step 1-3 above

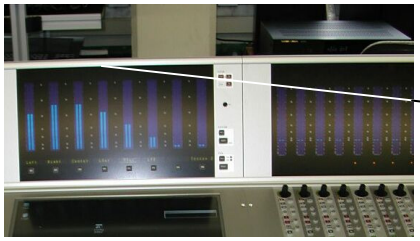
4. Disconnect supply, video and meter cable .

5. Mount the leg to the bay lock again and remove the bay carefully to the front.

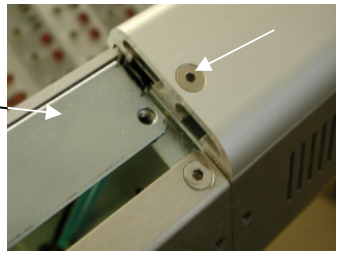
6. Install the bay in reverse order from step 5 to 1.

## Replacement of Bargraph Meter

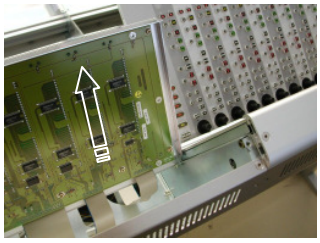
The bargraph module is connected to the corresponding bay with a single flat ribbon cable. A replacement is possible from the top of the desk :



1. Switch Off Desk Supply and remove the screws on the top of the meter frame

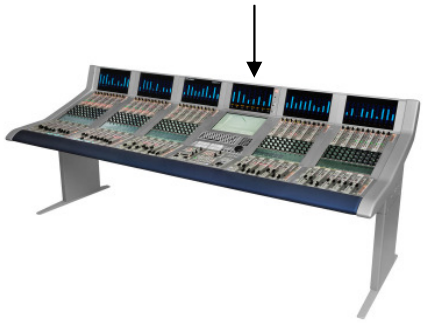


2. Lift of the cover profile



3. Carefully lift up the meter module and unplug the flat ribbon cable to the bay.

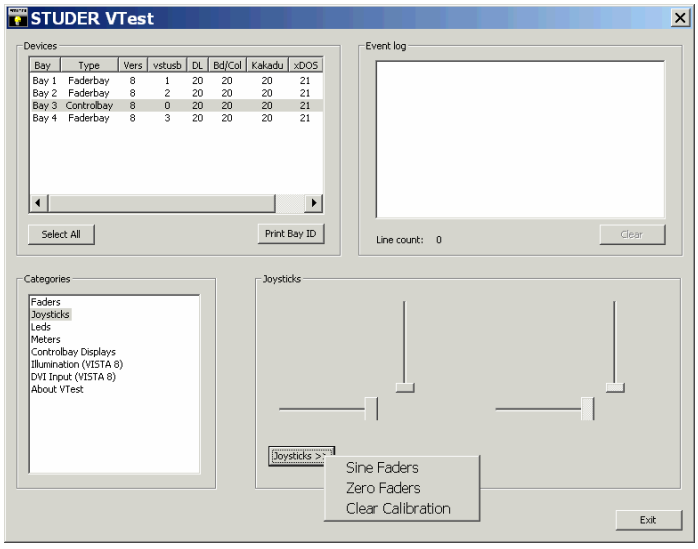
# 3. Control Bay and Bargraph Meter Panels



| | Vista 6 | Vista 7 | Vista 8 |
|---|---|---|---|
| Control Bay | 1.949.031.00 | 1.949.030.81 | 1.949.032.00 |
| Control Board Control Bay | 1.949.121.21 | 1.949.121.21 | 1.949.122.20 |
| Center Front Board bottom | 1.949.125.00 | 1.949.125.00 | 1.949.136.00 |
| Center Front Board top | 1.949.129.00 | 1.949.128.81 | 1.949.127.00 |
| TFT Module Control Bay | 1.949.075.82 | 1.949.075.82 | 1.949.070.82 |
| Fader Driver Board | | | 1.949.130.81 |
| Grand Master Driver Board | | | 1.949.131.00 |
| Grand Master Front Board | | | 1.949.133.00 |
| Meter Panel Control Bay | 1.949.036.00 | 1.949.035.00 | 1.949.047.00 |
| Bargraph Control Bay | 1.949.143.00 | 1.949.143.00 | 1.949.142.00 |

## Joystick Calibration

Start VTest Utility




Select control bay to calibrate, and choose 'Joystick' category.

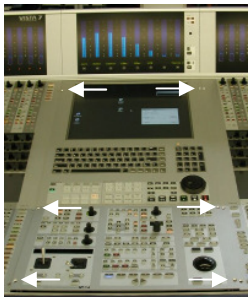
1. Start process with 'Clear Calibration' from "Joystick >>" menu.
2. Place the left joystick at the LEFT border and confirm with any key. The UP/DOWN key will start blinking.
3. Place the left joystick at the LOWER border and confirm with any key. The first calibration process starts, wait until the LEFT/RIGHT key is blinking.
4. Place the left joystick at the RIGHT border and confirm with any key. The UP/DOWN key will start blinking.
5. Place the left joystick at the UPPER border and confirm with any key. The second calibration process starts.
6. Wait until the UP/DOWN key of the right Joystick is blinking and proceed as described in step 2-5
7. When finished, both joysticks are placed in the lower left position again.

**Please note** : on a Vista 8 Control Bay, fader and joystick calibration are always combined - when performing a fader calibration the joysticks need to by adjusted as well as a second step.
If a calibration process gets stuck it can be interrupted anytime by pressing 5 keys on the corresponding bay simultaneously.

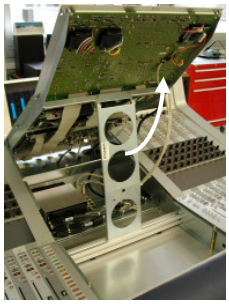
## Replacement of Control Bay

Replacing the Control Bay is as easy as described for the fader bay. Switch off the desk, remove fastening screws, put bay into service position, remove cables, pull the bay out carefully and place it on a flat ESD safe surface.

## Replacement of Control Bay TFT Module 1.949.075.82 (Vista 6 and 7)



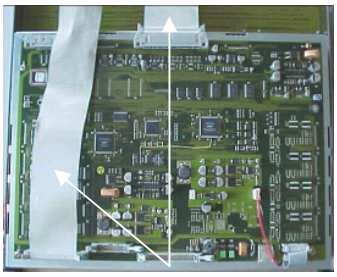
1. Switch Off Desk Supply and remove the 6 fastening screws.



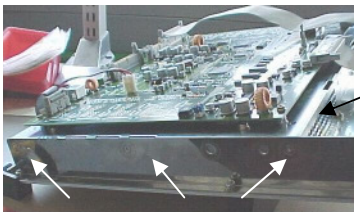
2. Swing the bay up into service position and lock it with the support leg.

3. Disconnect supply, video, trackball / keyboard and meter cable. Attach the leg to the bay again and pull the bay away from the desk.

**Note !**
Always store the bay on a flat ESD safe place.



4. Disconnect the flat ribbon cables on the control board. Remove the 5 screws and the bolt and take away the control board.



TFT Module 1.949.075.82

6. Remove 3 screws on each side of the panel and lift out TFT module carefully

7. Take care that glass surface is free of dirt and dust, insert new module and attach it with the 2 x 3 screws. Reconnect the control board and the flat ribbon cables.

8. Re-install the bay in reverse order.

# 3. Remote Fader Bays 1.949.700.00 - 1.949.708.00

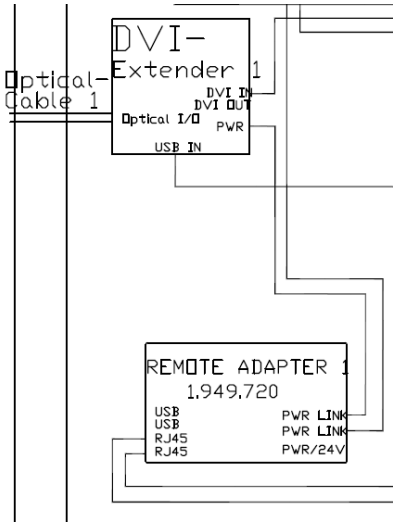
| | Vista 6 | Vista 7 | Vista 8 |
|---|---|---|---|
| Remote Bay 10CH | 1.949.705.00 | 1.949.700.00 | 1.949.707.00 |
| Remote Bay 20CH | 1.949.706.00 | 1.949.701.00 | 1.949.708.00 |

Remote Bays are connected with a DVI Extender 89.20.1146 which carries both DVI video signal and USB control signal for one bay. A remote bay therefore consists of

- 1 or 2 Fader Bays
- 1 Power Supply 89.20.2015
- 1 Remote Adapter Board 1.949.721.00

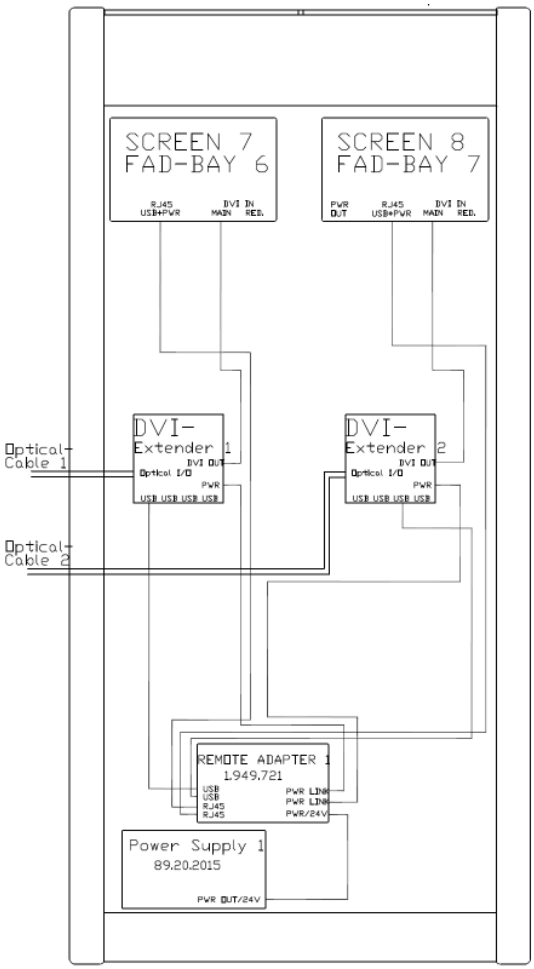
In the desk there is an additional interface board 1.949.720.00 which

- splits the data on the RJ-45 to standard USB connector
- provides the supply voltage for the Extender.




On the remote bay side there is a 1.949.721.00 adapter board which

- provides standby 24V power to the Extender Remote Box. The extender box generates a “On” signal (when USB is present)
- converts the USB signal from the Extender Remote Box back to RJ-45 standard
- adds power to the RJ45 connectors when the Extender Box is sending the “on” signal.



# 4. Desk & PC

| | Vista 6 | Vista 7 | Vista 8 | Vista 8 Red. PC |
|---|---|---|---|---|
| Power Distribution Board | 1.949.150.81 | 1.949.150.81 | 1.949.150.81 | 1.949.152.00 |
| TC Reader Module | 1.949.010.21 | 1.949.010.21 | 1.949.010.21 | |
| Power Supply 24V/20A | 89.20.2014 | | | |
| Power Supply 24V/12A | 89.20.2017 | 89.20.2017 | 89.20.2017 | 89.20.2017 |
| | | | | |
| CD-Rewriter | 89.20.1140 * | 89.20.1140 * | 89.20.1140 * | 89.20.1140 * |
| Trackball | 89.20.1144 ** | 89.20.1144 ** | 89.20.1144 ** | |
| PCI Memnet Card | 1.950.450.20 | 1.950.450.20 | 1.950.450.20 | 1.950.450.20 |
| BlueHeat Serial IF Board | 89.20.1132 | 89.20.1132 | 89.20.1132 | 89.20.1132 |
| | | | | |
| PC Generation 1 only : | | | | |
| EpoX Mainboard (without CPU/RAM) | 89.20.1122 *** | 89.20.1122 *** | 89.20.1122 *** | 89.20.1122 *** |
| IDE Harddisk | 89.20.1130 | 89.20.1130 | 89.20.1130 | 89.20.1130 |
| Matrox Graphics Board | 89.20.1131 | 89.20.1131 | 89.20.1131 | 89.20.1131 |
| Promise IDE RAID Card | 89.20.1136 | 89.20.1136 | 89.20.1136 | |
| | | | | |
| PC Generation 2 only : | | | | |
| ASUS Mainboard (incl. CPU/RAM) | 1.949.990.60 | 1.949.990.60 | 1.949.990.60 | 1.949.990.60 |
| SATA Harddisk | 89.20.1128 | 89.20.1128 | 89.20.1128 | 89.20.1128 |
| NVIDIA Graphics Board | 89.20.1155 | 89.20.1155 | 89.20.1155 | 89.20.1155 |

* the following models have been used before in Vista Desks: Philips PCRW 1208K (89.20.1134), Philips PCRW 5224 (89.20.1139), LiteOn LTR 52327 and SOHR-5239V (89.20.1140). The current software (DirectCD 5.3.4) supports all models, when upgrading from the 1208 to the newer writers, an upgrade of the DirectCD software is required (See Vista Service Note 12/2003)

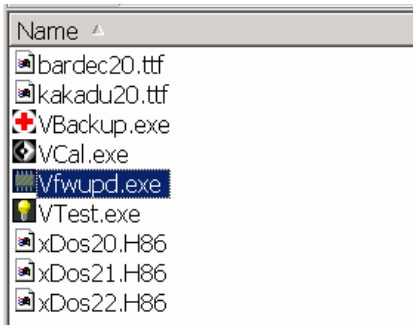
** The trackball 89.20.1134 has been used in Vista 6 and 7 desks. It is mechanically not compatible with the current 89.20.1144 (optical trackball) which is now installed in all desk. Please note that there were different versions of the optical trackball : a dark one for Vista 6/7/8, which was replaced by a first bright one, and finally a second bright one for all desks (incl the redundant Vista 8)

*** Epox Motherboards are only available in limited quantities or as exchange. Upgrade kits to the generation 2 PC systems are available.

## Software Installation

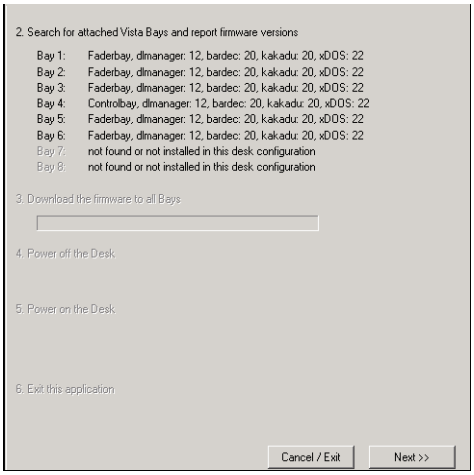
- Burn the installation .zip file onto a CD-R and insert the CD-R into Vista console
- Go to menu Start->Programs->Startup and click on the program „VistaMouseLoader“. This program makes sure that the windows cursor doesn’t reach the area of Vistonics screens.
- If you have a folder called „C:\Vista_old“, delete this folder. Rename your existing folder "C:\Vista" into "C:\Vista_old"
- Extract the installation zip archive (Vista7_Vxxx.zip) on your CD-R to the internal C:\ drive. It will generate a new folder „C:\Vista“ containing the subfolders „C:\Vista\bin_release“, „ C:\Vista\system“ and „ C:\Vista\XML“
- *Registration is only required for upgrades before V3.3 - skip this step for V3.3 installation (or later) : Launch the program file „RegVista.Bat“ in the folder „ C:\Vista “.Confirm that each message ends with the word „successfully“.*
- Go to menu Start->Programs->Startup and click on the program „VistaMouseLoader“. This will make this program active again and you won’t be able to move your mouse cursor outside the GC area of the console.

## Firmware Installation




The VistaAdminTools menu includes all maintenance utilities as well as the firmware program files. For upgrading close the Vista application and start the Vista Firmware Upgrade Utility (Vfwupd.exe).

You will be guided through the firmware upgrade process step by step. Take care NOT to interrupt the sequence until the firmware upgrade is completed ! Switching off the desk's mains supply during the upgrade could leave the Vista desk in a non-working state.




1. First the status of the available firmware is indicated.
2. The second step searches for the installed firmware versions in the desk.

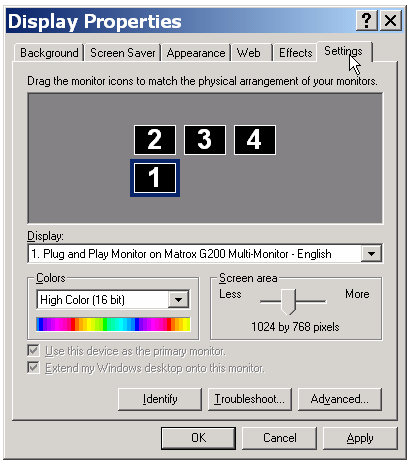
At this step it is possible to verify if a firmware upgrade is required (installed version is older than the current program files) or not. Exit the utility if no upgrade is necessary, proceed with 'Next' for the upgrade.

3. The program files are downloaded to the bays.
4. Switch of the desk hardware (single botttom power switch) and wait until the utility asks to
5. switch the desk on again.
6. Exit the application. The desk is now upgraded.

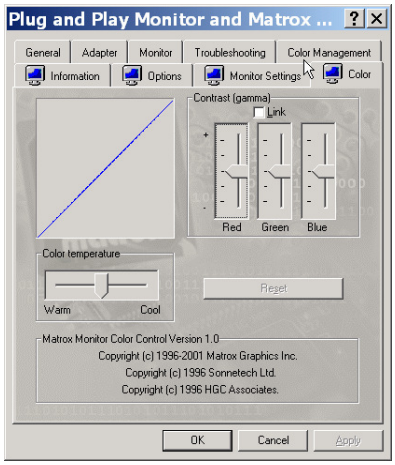
## TFT Settings

Production Vista Desks are fitted with DVI controlled TFT monitors. The brightness my be adjusted in the Vista settings (introduced with V3.5, refer to the manual for details)

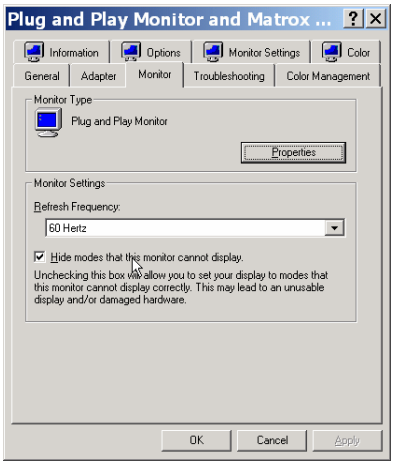
In the Display properties, the following settings are used as default values :




Open Display Properties, e.g. with right-clicking desktop .. choose the 'Settings' tab and select 'Advanced ..'




Go to the Color Tab. Link the 3 colors, press Reset, and increment the setting 4 steps (with UP key)




Check for 60 Hz frequency in the Monitor tab.

Since index-81 version of the control bay provides a second video input of the TFT, the F8 key allows to switch between internal (DVI, control bay) and external use (VGA, any 3rd party external device). If an adjustment of the analog VGA interface is required, please refer to the on-screen interface manual of the board manufacturer. The on-screen control keys are accessible in the enhanced Vtest utility (needs to be started in expert mode)

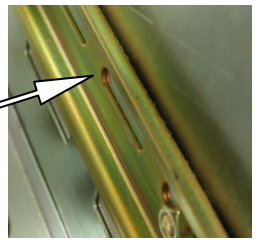
If the Vista is equipped with 2nd generation control system with NVIDIA graphic cards, the order of the icons may be different. For correct order press the “Identify” button in the Display Property – Setting tab, and arrange the icon in the same order as indicated on the bays (the GC screen is always number 1 and located below the other bay icons).

## Power Supply 89.20.2014

The Vista 7 Power Supplies provide 24V / 20A for bays and internal components (see Distribution Board for details). No voltage adjustment is required.
The supplies are locked to mounting rails and can be replaced as follows :

1. Switch off desk and disconnect primary and secondary connectors

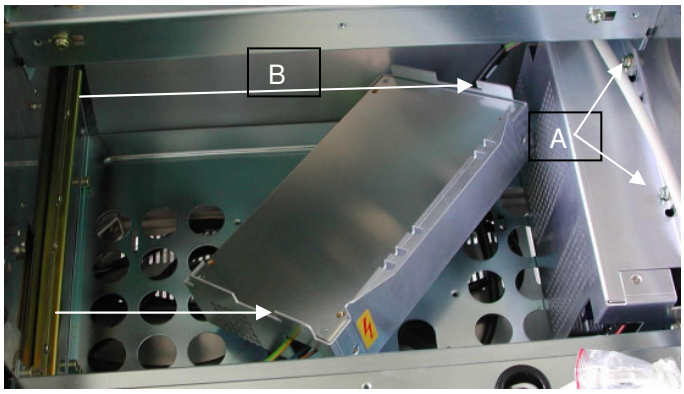
2. Press on lock bar and swing lower part of supply away from rail. The supply can then be lifted away from mounting rail.



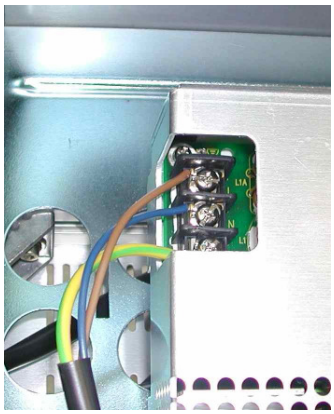
3. For mounting a supply, put it onto rail and firmly press lower part against rail until lock mechanism clicks in.

## Power Supply 89.20.2017

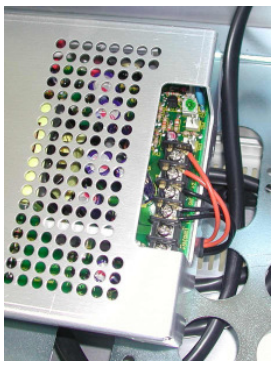
The 89.20.2014 Supply has been replaced with the 2017 version.




2017 supplies are unmounted by removing 2 screws (A) and lifting the supply from the mounting rail (B).



disconnect primary ....

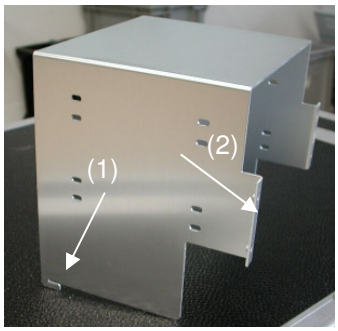


..... and secondary cable for replacing a power supply.

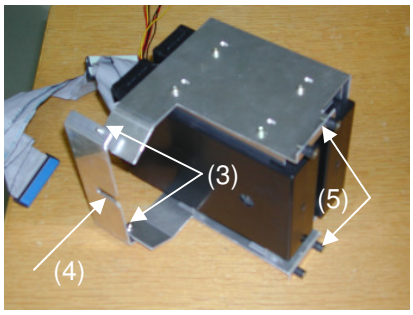
Spares are either available as single supply modules (89.20.2017) or with the mounting frame (89.20.2017-V) which is comptible to the previous 2014 model (to be mounted on rail mechanism)

## Hard Disk / CD Writer

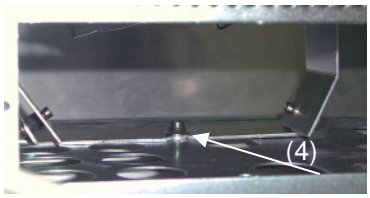
The 2 redundant hard disks are installed in separate SilentDrive enclosures and mounted in a common frame below one of the fader bays. There are 2 versions of the frame, the newer one has an additional suspension for improved noise suppression.
The CD writer is located below the hard disks and attached to the frontpanel.




Frame A is locked to the bottom frame with a mounting lug (1) and attached to the front panel with 4 screws (2)




Frame B with additional suspension (3) is secured to the bottom frame with a mounting screw (4) and attached to the front panel with 4 screws (5)



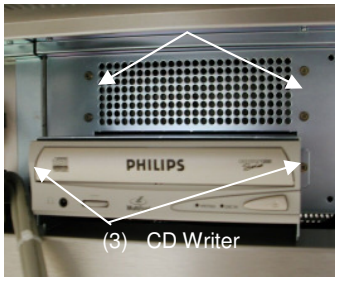

For deinstalling the hard disk frame type B, the CD writer needs to be removed first.

## Replacing the CD Writer

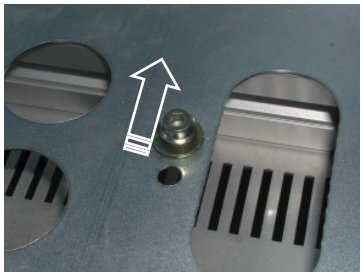
The CD Writer is located below the hard drives and attached to the frontpanel with 2 screws (3, see below). It can be replaced by removing these, disconnecting IDE and power cable at the writer's rear side (it might be necessary to remove HD frame for that purpose) and pulling it out to the front.

## Replacing a Hard Disk

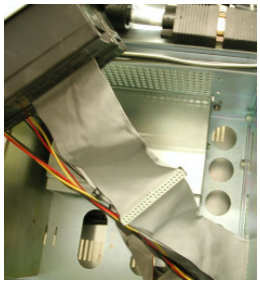
For replacing a disk proceed as decribed below in steps 1-4.




1. Switch off desk and unscrew the 4 front screw. You can then shift the frame back and lift it up



In case of frame type B, remove the CD writer first for loosening the bottom screw which holds the frame in place.

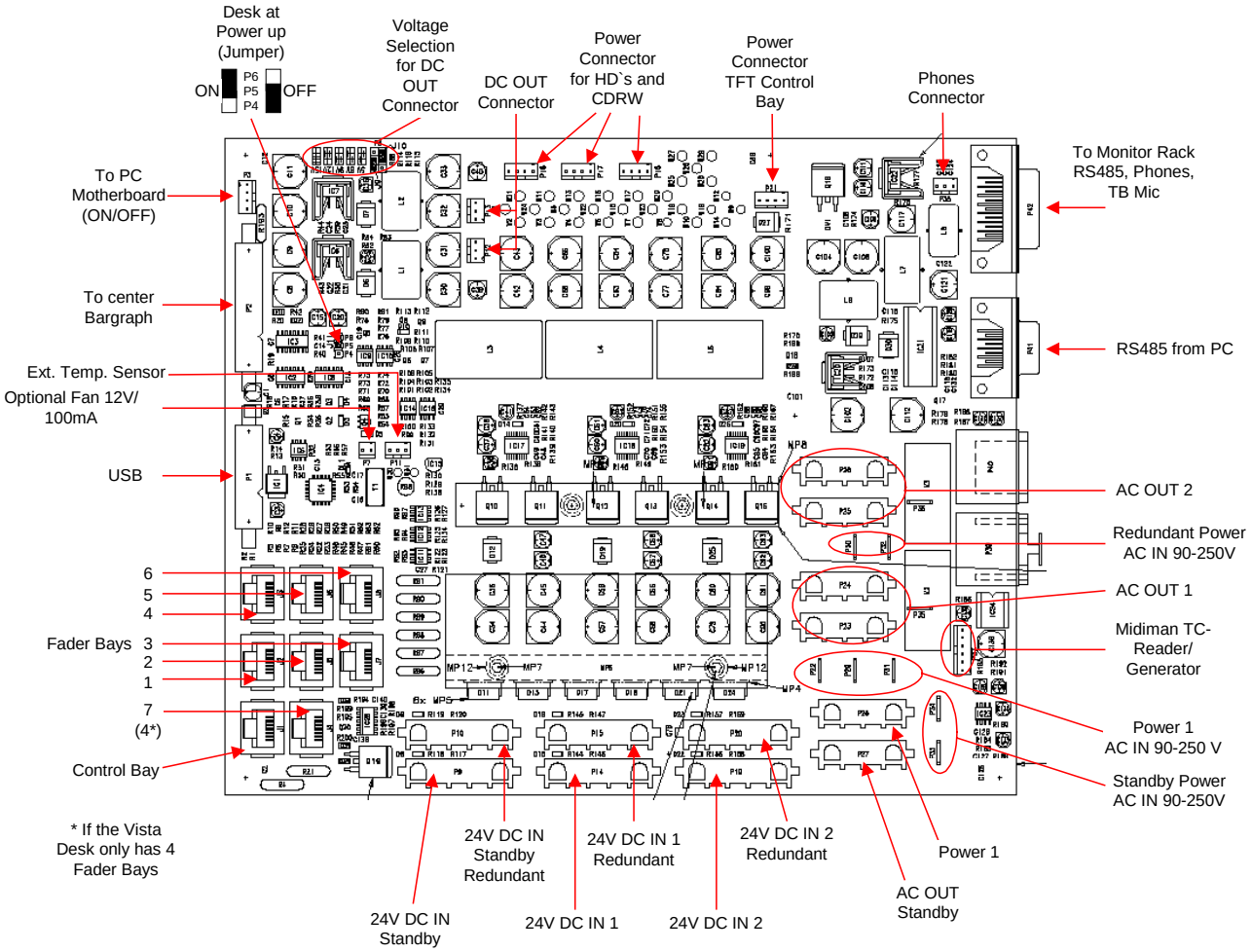


2. Disconnect IDE cables at mother-board and supply cable at distribution board. Carefully take cables back and remove frame with disk enclosures.

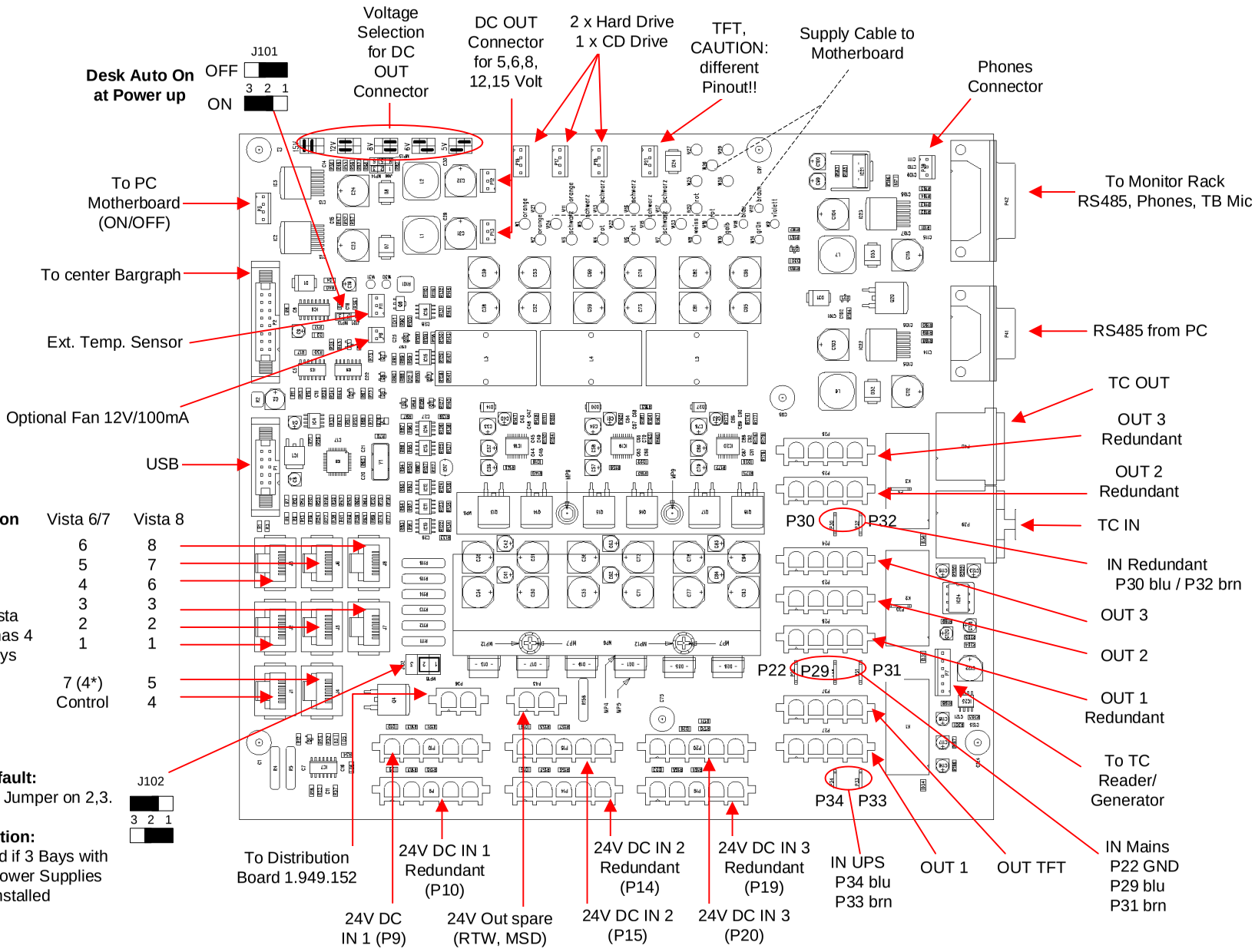
3 Refer to the SilentDrive Instructions for detailed information about hard disk replacement.

4. Re-install frame with disks and reattach IDE and supply cables.

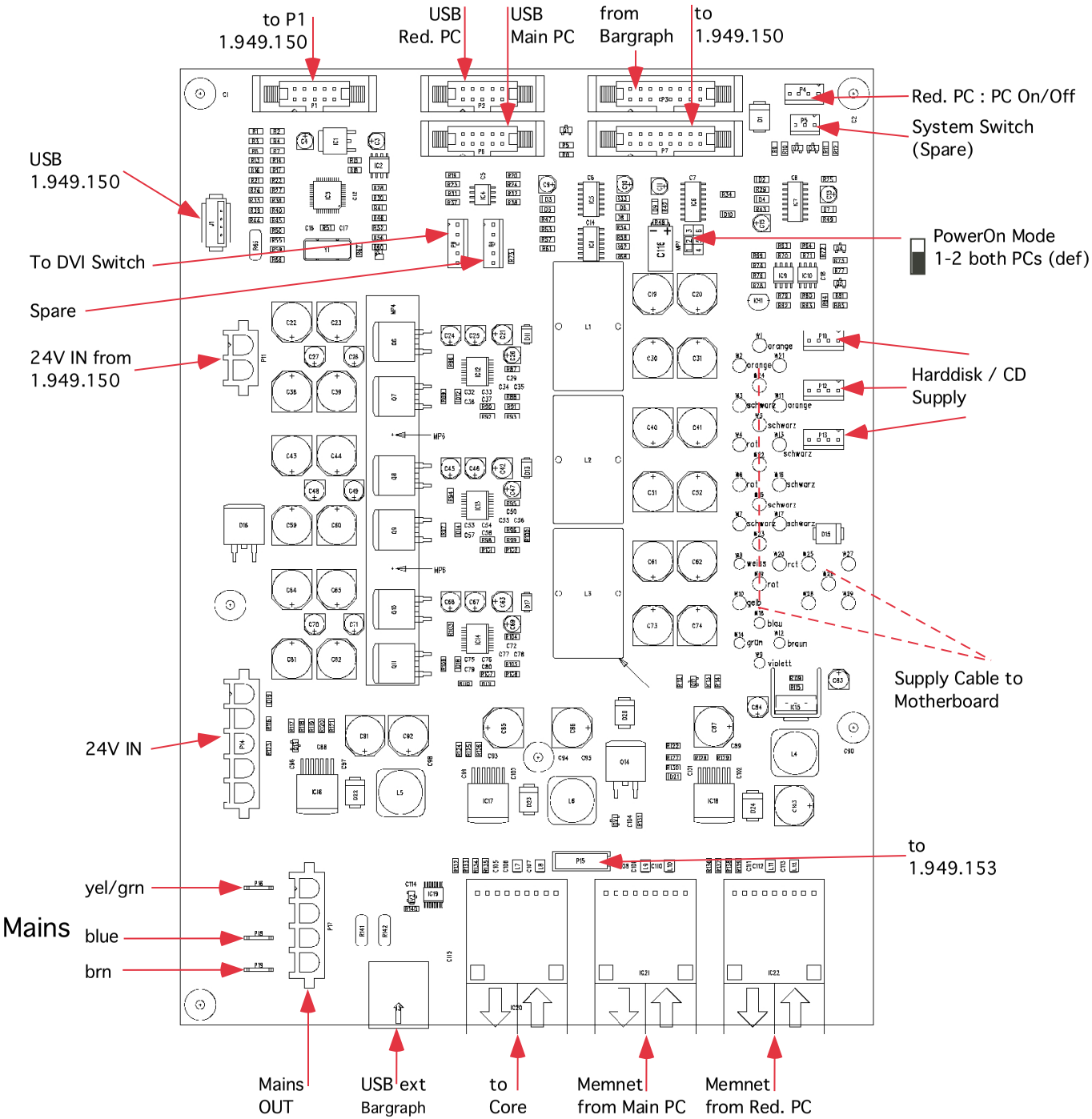
## Distribution Board 1.949.150.00



# Vista Distribution Board Connections
# 1.949.150.81



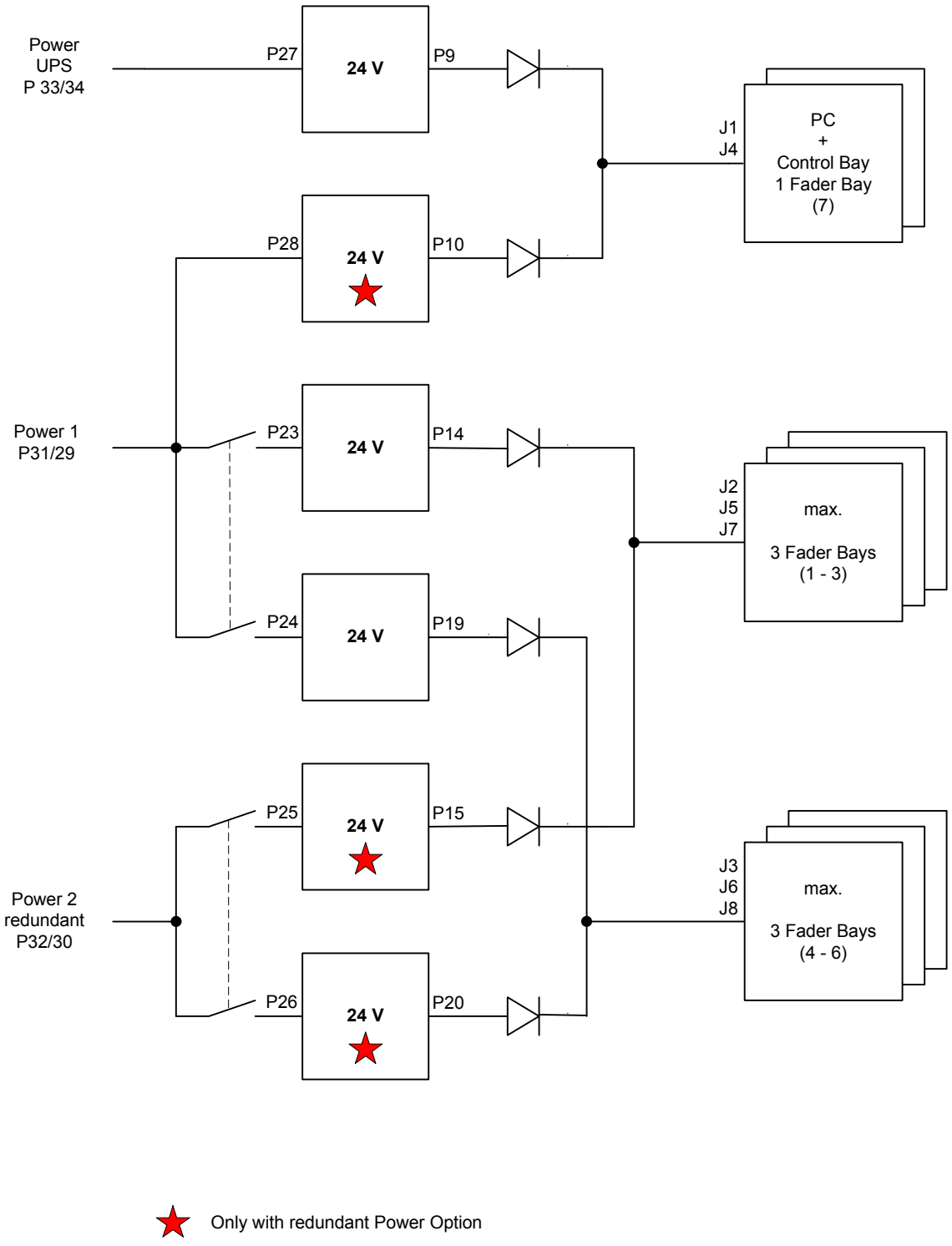

gr 14.12.2005




1.949.152
Vista 8 Redundant Distribution Board

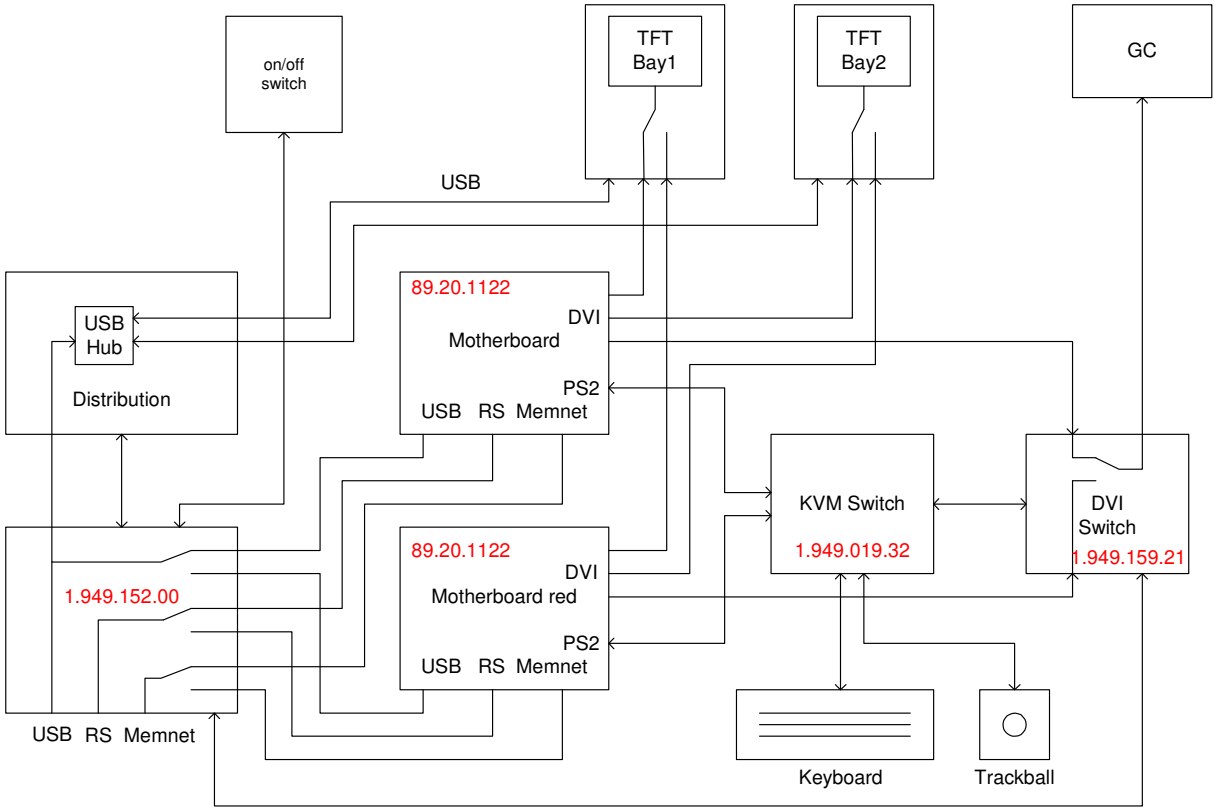
Connections 11/2005 GR/KS

# Power Supply Configuration  Vista 6/7



# 5. Redundant PC (Vista 8)

A second redundant PC System is available as option.




11. 1. 05 ML

Wiring Diagram red. Control System Vista

Emergency switching is done with the corresponding key on the desk surface (near to power switches). A "soft switching" (only keyboard / trackball / video) for control purposes is achieved with the key combination "SHFT -" and "SHFT +".

## 6. Core

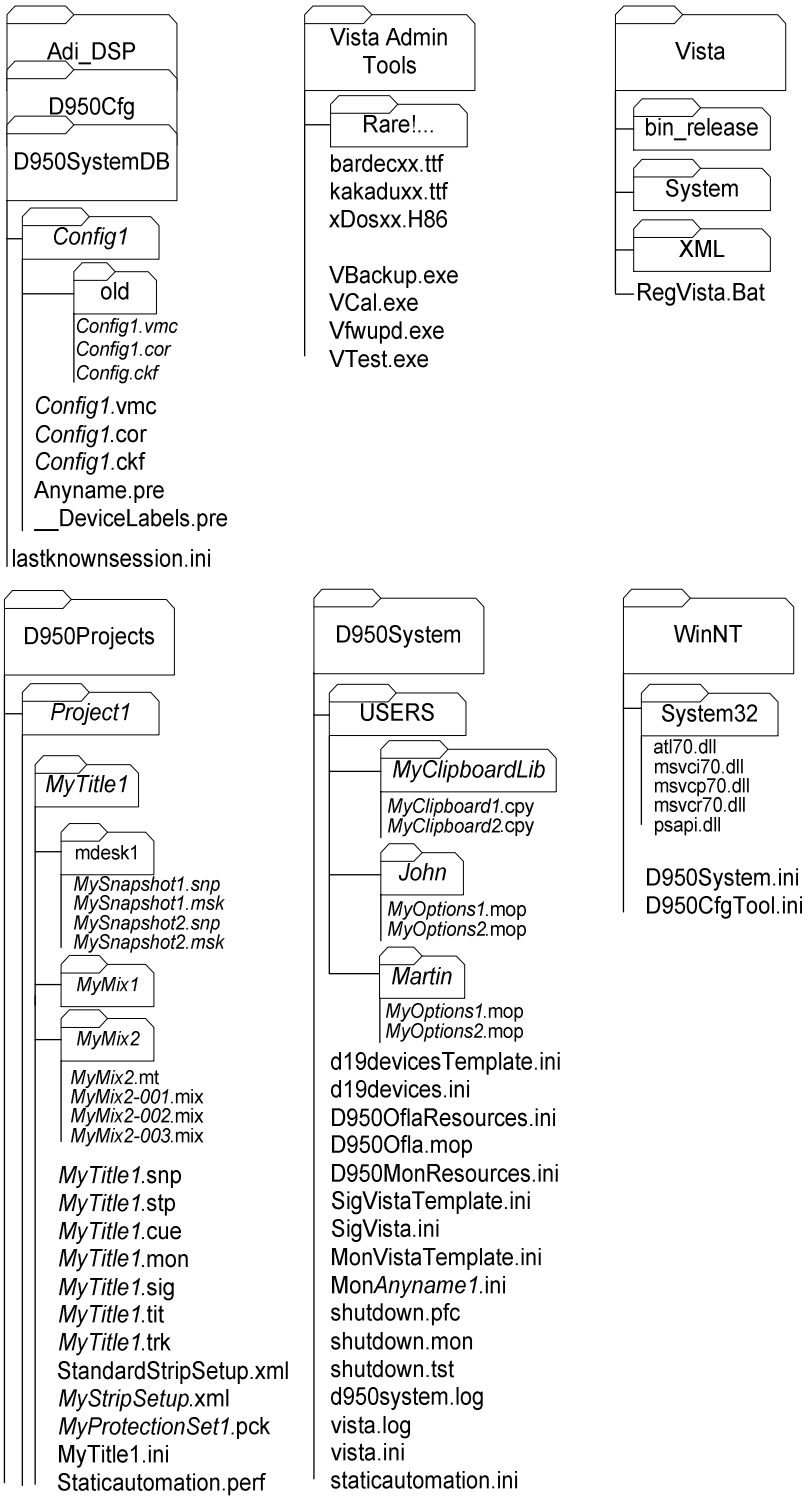
| | |
|---|---|
| 1.950.605.26 | PEAES Board |
| 1.950.606.22 | PE21 Board |
| 1.950.610.26 | PE Board |
| 1.950.616.20 | MADI Board |
| 1.950.621.20 | Memnet Board |

## 7. Monitoring

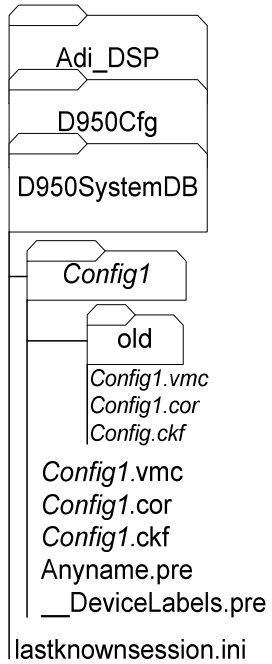
| | |
|---|---|
| 1.917.410.24 | Monitor Group Selector |
| 1.917.420.22 | Talkback Selector |
| 1.917.425.22 | Signal Input Board |
| 1.917.426.22 | Signal Output Board |
| 1.917.431.20 | Headphone Amplifier Board |
| 1.949.688.00 | DA Board Monitoring |

# 8. Vista File Structure

In here you will find a short description of the Vista file structure. Besides others, you will find the following files and folders on your harrdisk C:

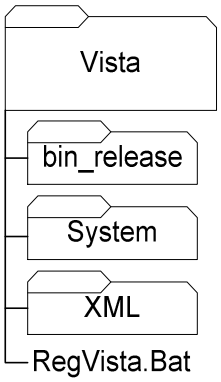


## Configurations



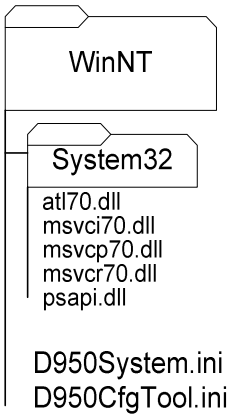

| | |
|---|---|
| Adi_DSP: | No user access. Contains files in order to generate new configurations |
| D950Cfg: | Contains configuration editor and all its files. Includes a logfile. |
| D950SystemDB: | Contains all configurations. |
| Config1 | This directory represents a configuration (named e.g. “Config1”), using a number of DSP cards to make a predefined console working. Two of the included files are needed in order to run the configuration on a real console: *.vmc and *.cor |
| Config1.vmc | This file describes the structure of the console and all its parameters |
| Config1.cor | This file contains the DSP code for the core. |
| Config1.ckf | This is a text file, which can be opened e.g. with the windows “notepad” application. It conains information, which parts of the console are actually running on which DSP card. |
| Anyname.pre | This is a preset file, which stores the same information as a snapshot file. The difference is that this file is only accessible for reading for the normal user and that it exists per configuration (therefore is available across all titles belonging to one configuration). The system administrator has the access rights for creating, deleting or modiying a preset file. |
| __DeviceLabels.pre | This is preset file with a reserved name. It has the format of a standard preset file and contains basically the same information. If the option “Use Device Labels” is switched on, this file gets read – with its patch USER labels interpreted as DEVICE LABELS. This happens whenever a title is opened. This means: When opening a title with the device label option activated the USER label of this file will overwrite the INHERITED labels (device labels) of the opened title. |
| Lastknownsession.ini | Stores information about last used configuration and title when closing the application software. |

## Vista




| | |
|---|---|
| Bin_release: | No User Access! |
| System: | No User Access! Contains main application software and additional necessary files. |
| Xml: | No User Access! |
| RegVista.bat | run this file whenever one or more files have been replaced in the Vista directory! It registers all dll files within the system registry database. |

## WinNT



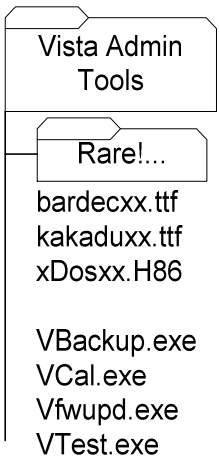

All listed .dll files must be in the „System32“ directory.

D950System.ini main .ini file. Stores:

- hardware configuratin (which components are present and which RS422 port is used for what)
- system administrator password
- maximum mix file size
- 9Pin settings:
  - Whether ADR commands should be done by the machine controller internally or whether the console does it (risk of not being too accurate)
  - Whether the machine should stop looping after recording with autorecord once.
  - Whether to send no record commands at all, Edit on/off or “crash record”
  - Whether it is allowed to cross time 0:00:00:00 when locating and working with offsets.

D950CfgTool.ini No user access!

## Vista Admin Tools




Rare! For bays with VGA interfaces only!!! :
This directory contains two versions of Vcal.exe file, which are necessary, if the console is equipped with analog VGA screens. (Very early consoles and some remote bays.)

Bardecxx.ttf Downloadable firmware file (reserved name, xx specifies version number)

Kakaduxx.ttf Downloadable firmware file (reserved name, xx specifies version number)

xDosxx.H86 Downloadable firmware file (reserved name, xx specifies version number)

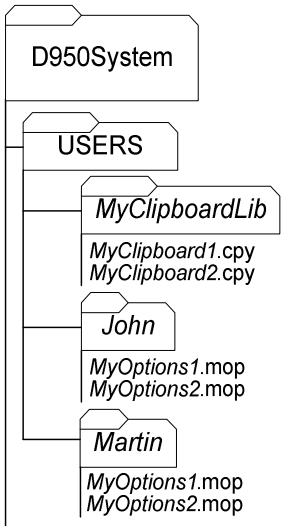
Vbackup.exe Backup script in order to make an image of the whole harddisk onto CDR

Vcal.exe Tool to adjust LED and TFT brightness.

Vfwupd.exe Tool downloading firmware into Vista desk. Checks for newest version of Bardecxx.ttf, Kakaduxx.ttf, xDosxx.H86 in the same directory, verifies currently loaded firmware and manages download.

VTest.exe Tool to check functionality of Vista desk hardware as well as calibrate faders and/or joysticks.

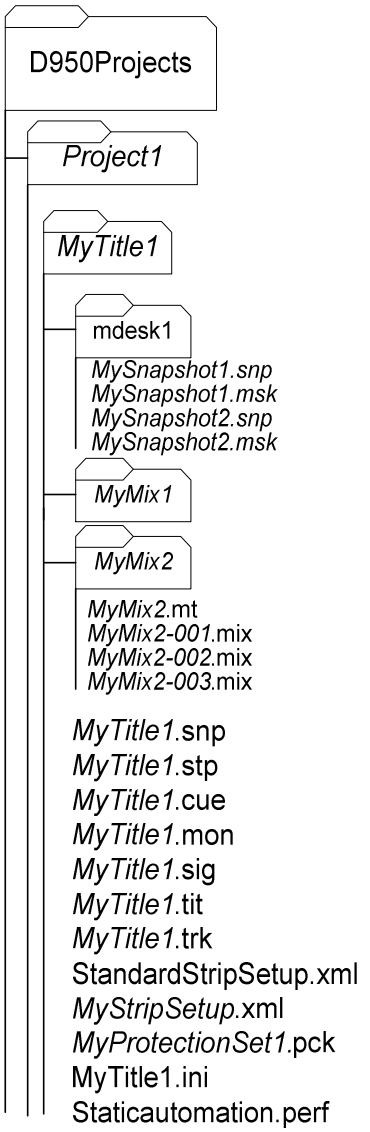
## D950System




| | |
|---|---|
| USERS: | Contains various subdirectories. Each directory represents one user and his option files and maybe his individual clipboard libraries. |
| MyClipboardLib | Contains multiple sets of clipboard settings for copying into channels. This directory may also be located within the directory of an individual user, depending on where the operator decided to store the library. |
| MyClipboard1.cpy | clipboard file storing clipboard data. The following data or combinations of them may be contained within one file: EQ, Filters, Dynamics, Pan, Delay or even a complete channel |
| John: | Contains various mix option files and can also contain clipboard libraries. |
| MyOptions1.mop | Mix option file, containing a set of mix options. |
| D19devicesTemplate.ini | template file for D19devices.ini file |
| D19devices.ini | contains definitions of studer microphone preamplifiers connected to a specific installation |
| D950OflaResources.ini | No User Access! |
| D950Ofla.mop | Contains current mix options. If deleted, factory default options will be applied! |
| D950MonResources.ini | No User Access! |
| SigVistaTemplaet.ini | template file for SigVista.ini file |
| SigVista.ini | signalling file, contains definitions of GPI/O, DIM logic and remote controllable TALK and MUTE keys. |
| MonVistaTemplate.ini | template file for MonAnyname1.ini |
| MonAnyname1.ini | monitoring file, defining CR monitoring format, Studio A/B, Digital Insert, software popup extension for source selectors as well as the definition of the source selectors and their sources. DIM level is also specified in this file. There can be various versions of this file. Each title remembers which file was loaded when it was closed last. |
| Shutdown.pfc | stores last preferences such as positions of windows, position of toolbar etc. This file also stores the names (!) of interface subclasses! Included are also: TC offsets and reader settings, setting of “Auto Select” in General Patch targets, device label option settings and (on D950 only) setting of GC multidesk group if present. This file may exist multiple times with user names and the ending .pfc. Since Shutdown.pfc gets overwritten everytime the application is quit, it is wise to keep a version of it with user preferences under a special name. |
| Shutdown.mon | stores the last settings of the monitoring when shutting down application software. |
| Shutdown.tst | stores last timecode related settings when shutting down application software |
| D950system.log | stores a log file with various information for studer service & support. |
| Vista.log | stores a log filewith various Vista related |

| | |
|---|---|
| | information for studer service & support |
| Vista.ini | hold information, which are specific to that desk, independent of titles etc. This file must not be edited manually. All information is stored by the application software (setup menus).<br>Stored information:<br>- Duration for detection of momentary key activation<br>- Timeout for operations with multiple steps (e.g. copy/paste)<br>- Jog and shuttle sensitivity<br>- Headroom of meters. (Where does the headroom indication start.)<br>- Peak hold state with threshold setting<br>- Overload hold state<br>- State of use of monitoring keys as PEC/DIR switching |
| StaticAutomation.ini | stores global static automation options.<br>Stored information:<br>- Crossfade switch position (beginning, during, afer crossfade)<br>- Default snapshot mask<br>- Trim mode active |

## D950Projects




| | |
|---|---|
| mdesk1: | directory contains all snapshots of a specific title. |
| MySnapshot1.snp | stores all audio settings of a desk |
| MySnapshot1.snp.msk | stores a mask, dedicated to the snapshot, making the snapshot a “partial” snapshot. It also contains snapshot crossfade time of the corresponding snapshot. |
| MyMix2: | a mix directory contains one file with the ending “.mt”, which stored the structure of the mix tree, and many mix pass files. Each mix pass file contains ALL mix data up to that specific pass. It is therefore possible to use one .mix file and playback a whole mix. |
| MyTitle1.snp | stores a snapshot when leaving the title upon shudown or title change |
| MyTitle1.stp | historical file, no function |
| MyTitle1.cue | stores all cue points (timecode markers) which are generated in that tile |
| MyTitle1.mon | stores last monitoring settings when leaving this title upon title change or shutdown of system. |
| MyTitle1.sig | stores specific GPIO settings such as faderstart and redlight definition of that specific title. (Definitions are done the the GC application.) |
| MyTitle1.tit | Stores title memo text and which monitoring file will be loaded when opening this title. |
| MyTitle1.trk | no function (historical file) |
| StandardStripSetup.xml | stores strip setup. Standard name, if no other is given. |
| MyStripSetup.xml | stores strip setup with user defined name. The reference, which strip setup file was used with that specific title is stored in the title.ini file. |
| MyProtectionSet1.pck | Object picker file. When doing any set of objects with the object picker (e.g. for protecting certain objects from being dynamically automated), this set can be stored under any name with the ending “.pck”. |
| MyTitle1.ini | stores all kind of information regarding this title:<br>- last active mix tree<br>- last active strip setup<br>- monitor meter assignments<br>- whether red LED should indicate clipping or “entering headroom”<br>- whether strip setup window shows interited labels<br>- definition of channels which are save from muting when hitting “solo in place”<br>- selected label type on second line of desk label display when leaving this title.<br>- Selected mode PFL/SOLO/SIP when leaving this title. |
| Staticautomation.perf | stores current performance mask and protected patch points |

# CHAPTER 10

# 10 TROUBLESHOOTING & MAINTENANCE

## 10.1 What can go Wrong?

**Please note:** According to Mr. Murphy's law, anything that can go wrong will do so. ;-)

## 10.2 Local Diagnostic Tools

**Surveyor:** For more information on the Surveyor functions contained in the GC application, please refer to chapters 5.8 and 5.5.4.5

## 10.3 DSP Rack

The D950 Core system consists of:
- A backplane (1.950.650.00)
- A ”MEMNET” communication card (1.950.620.20) used to communicate with the PC.
- One or more ”MADI” interface cards (1.950.615.21) to interface MADI devices.
- One or more ”PEAES” cards (1.950.605.20) to interface AES/EBU I/Os and for audio processing.
- One or more ”PE” cards (1.950.610.20) to do audio processing without AES/EBU I/Os.

The slightly more expensive PEAES card can replace the PE card in all respects.
Each card has several LEDs on its front panel. Some of the LEDs are the same on all the cards, some have special meanings for each card.

### 10.3.1 Configuration Meets Core – FailSafe and Hot Plug-In Concepts

Distributing Configurations is the art to combine hardware (Core) and software (Configuration). A Configuration is divided into Tasks. These Tasks represent the DSP code used by one Card.
The system will distribute the Tasks to the Core Cards:
- At startup;
- When changing the Session Configuration;
- In case of a Card failure.

The Core has four different types of cards. Therefore we also have four different types of Tasks:

| Card Type | Description |
|---|---|
| **MEMNET** | handles the communication between the PC and the Core |
| **PEAES** | has 6 SHARC DSPs and 8 AES/EBU interfaces |
| **PE** | has 6 SHARC DSPs (no audio interfaces) |
| **MADI** | has 2 SHARC DSPs and 2 MADI interfaces |

**MemNet Task** The core has only one MemNet Card. The MemNet Task is added automatically to the Configuration. It cannot be configured.

**PEAES Tasks** PEAES Tasks consist of a DSP processing part and an AES/EBU interfacing part. PEAES Tasks can run on both PE and PEAES cards. If a PEAES Task is distributed to a PE card, all the DSP functions will work except the AES interfacing. Each PEAES Task has a unique Card number which can be set with the Session Configuration Tool if desired (otherwise, it starts with 00).
The PEAES Task will be distributed to the PEAES Card with the corresponding Card number. In case the Core offers no PEAES card with that number., the Task will be distributed to any available PEAES or PE card. If the intended PAES Card is added to the Core later, the task will be switched to this card automatically.

**PE Tasks** PE Tasks consist only of a DSP processing part. PE Tasks can run on both PE and PEAES cards. The Card number of all PE Tasks is internally set to zero (which has no effect). If there is no PE Card available, the PE Task will be distributed to the next available PEAES Card.

**MADI Tasks** MADI tasks can only run on MADI Cards. The Card number of the Task must correspond to the Card number of the Card. Each MADI Task has a unique Card number, which can be set with the Session Configuration Tool if desired (otherwise, it starts with 00).

**Fail Safe**

The Fail Safe principle allows automatic switchover of Tasks in case of a Card failure. In other words, if a Card fails, another Card can take over under the following conditions:
If a card hosting a task fails, the task will be redistributed applying the rules above;
There must be a free Card in the system, conforming to the rules above.

**Examples:** The core houses 7 PEAES Cards. The currently loaded Session Configuration requires only 3 PEAES Tasks and 3 PE Tasks, leaving one PEAES Card idle. We usually say there is one redundant card. There are 24 AES/EBU inputs and 24 AES/EBU Outputs configured.

*Case 1:* The sixth PEAES Card with a PE Task fails.
The seventh PEAES Card automatically takes over the full PE Task;
All DSP Channel functions are working.

**Þ** All System functions restored!

*Case 2:* The second PEAES Card with the Card number 01 fails.
The seventh PEAES Card automatically takes over the full PEAES Task;
All DSP Channel functions are working;
The 8 AES/EBU Inputs and Outputs of the original card (connected to the slot where Card 01 is) do not work.

**Þ** System functions partially restored!

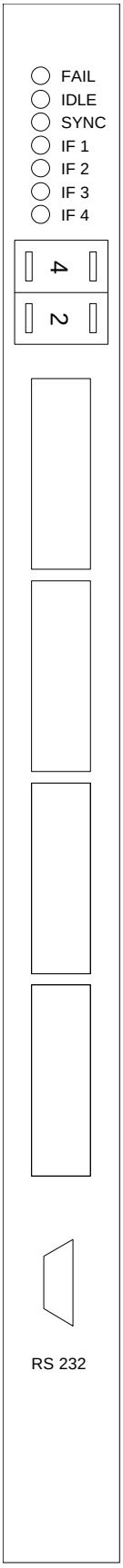
**Hot Plug-In**

For case 2 above, several remedies can be taken:
If there is a spare AES/EBU Card on stock, the faulty PEAES Card can be hot-unplugged and replaced by the new one, which can be hot-plugged. To restore the original functionality after a card change, the new one must have the correct Card number (01 according to the example above). The spare card will take over the original PEAES Task, restoring the full system functionality.
Simply plugging the AES/EBU cables into the right connectors corresponding to the slot where the seventh card is will restore full system functionality.
In all cases above, all the other Cards function properly, so that a Card failure has only very limited consequences.

Another solution is to use the seventh card as a spare AES/EBU Card. In this case, because the seventh card currently is in operation, the core must be switched off before unplugging the seventh card. Now you can power on the DSP rack again. The faulty PEAES Card can be unplugged and replaced by the seventh card. To restore the original functionality after a card change, the new one must have the correct Card number (01 according to the example above). The spare card will take over the original PEAES Task, restoring the full system functionality.

## 10.3.2 Looking at the LEDs

### 10.3.2.1 LEDs of the MEMNET card, 1st Generation 1.950.615.20




**FAIL** The red FAIL LED on a working card normally should be off. It is on whenever the card fails or it is reset either manually or by the system.

**IDLE** The green IDLE LED has a special meaning on the MEMNET card. Its flashing rate depends on how much communication is going on. The busier the system communication is, the higher is the flashing rate. No flashing could mean that the PC system is not working, or that the MEMNET flash EPROM is being erased.

**SYNC** The green SYNC LED turns on whenever a valid AES/EBU SYNC input signal is fed to the MEMNET SYNC input, and the system has locked to the external clock. When the LED is off the core operates from its internal 48 kHz clock source.

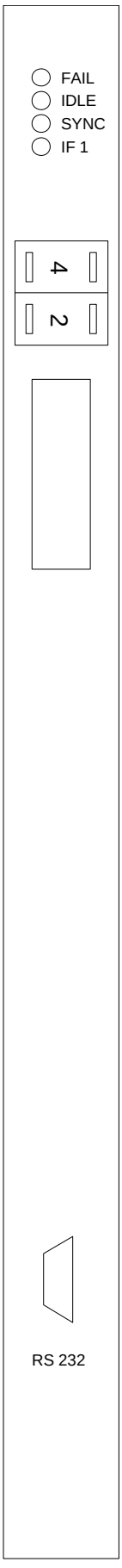
**IF 1...4** Only the first of the four green IF LEDs is used on a MEMNET card. When it is on, the optical-fibre link to the PC is valid. When it is off, either the core or the PC is shut down, or the optical link is broken. The IF 2...4 LEDs are not used.

**Card number** The card number has no real meaning on a MEMNET card during normal operation and should simply be set to a non-zero value. *When the card is reset while this number is zero, the flash EPROM memory will be erased. This can be useful when the core system must be forced to reload a configuration for whatever reason.*

**Connectors** The first interface (SC connector) is used to connect the core to the Control PC. When the connection is done properly, the IF1 LED will be green.
*The three remaining SC connectors are not used.*

**RS 232** *This serial interface is used only for card testing during manufacturing. Do not connect anything during normal operation!*

## 10.3.2.2 LEDs of the MEMNET card, 2nd Generation 1.950.620.20




**FAIL** The red FAIL LED on a working card normally should be off. It is on whenever the card fails or it is reset either manually or by the system.

**IDLE** The green IDLE LED has a special meaning on the MEMNET card. Its flashing rate depends on how much communication is going on. The busier the system communication is, the higher is the flashing rate. No flashing could mean that the PC system is not working, or that the MEMNET flash EPROM is being erased.

**SYNC** The green SYNC LED turns on whenever a valid AES/EBU SYNC input signal is fed to the MEMNET SYNC input, and the system has locked to the external clock. When the LED is off the core operates from its internal 48 kHz clock source.

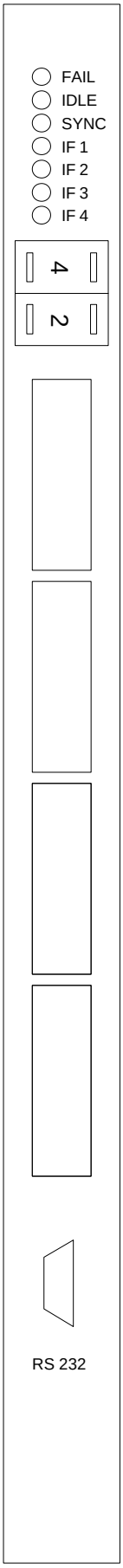
**IF 1** When the IF 1 LED is on, the optical-fibre link to the PC is valid. When it is off, either the core or the PC is shut down, or the optical link is broken.

**Card number** The card number has no real meaning on a MEMNET card during normal operation and should simply be set to a non-zero value. *When the card is reset while this number is zero, the flash EPROM memory will be erased. This can be useful when the core system must be forced to reload a configuration for whatever reason.*

**Connectors** The interface (SC connector) is used to connect the core to the Control PC. When the connection is done properly, the IF1 LED will be green.

**RS 232** *This serial interface is used only for card testing during manufacturing. Do not connect anything during normal operation!*

### 10.3.2.3 LEDs of the MADI Card 1.950.615.21




**FAIL** The red FAIL LED on a working card normally should be off. It is on whenever the card fails or it is reset either manually or by the system.

**IDLE** The green IDLE LED is on whenever a card is not used for the current configuration. It is off when the card is processing audio.

**Important:** *Never remove a card with both the IDLE and the FAIL LEDs off. This card is actively used to process audio data; the result of removing the card is unpredictable.*

**SYNC** The green SYNC LED has no meaning on a MADI card and is always off.

**IF 1...4** The four IF LEDs are on whenever the corresponding interface input signal below is valid. When it is off, either the transmitting device is off, TX and RX are mismatched, or the cable is broken.

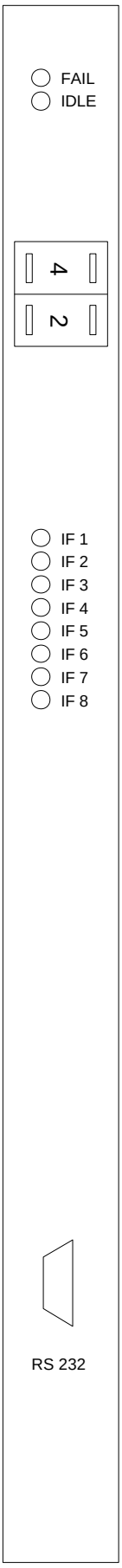
**Card number** The card number corresponds to the MADI interface in your configuration. Be careful to match this number to the corresponding interface number. The numbers start with “00” on the first card for the first two MADI interfaces and are continued as “01”, “02”, and so on for subsequent groups of two MADI interfaces each. A sufficient number of MADI cards must be present in the DSP rack, and they must be numbered properly.

**Example:** If the current Session Configuration requires four MADI interfaces, there must be two MADI cards numbered “00” and “01” in the DSP rack, in order for the system to work properly.

**Connectors** This first interface (SC connector) is used to connect the *main MADI A* signal to the core. When the connection is done properly, the *IF1 LED* will light green. TX1 is the main output of MADI A, RX1 is the main input of MADI A.
The second interface (SC connector) is used to connect the *main MADI B* signal to the core. When the connection is done properly, the *IF3 LED* will light green. TX2 is the main output of MADI B, RX2 is the main input of MADI B.
The third/fourth interface (SC connector) are used to connect a *redundant MADI A/MADI B* signal to the core. When the connection is done properly, the *IF2/IF4 LED* will light green. TX3/4 is a through output of the active input processed in the system. The input can be main MADI A/B or redundant MADI A/B, depending on which connection is valid. If both connections are valid, the first connection to become valid will be used. RX3/4 is used as an extra redundant MADI A/B input. When the main MADI A/B input is not valid, the system automatically switches to this input when a valid signal is available. Switching is done within one audio sample. The lost audio sample is zeroed. When the main MADI A/B input becomes valid again, the system will not switch back until the redundant MADI A/B connection fails.

**RS 232** *This serial interface is used only for card testing during manufacturing. Do not connect anything during normal operation!*

## 10.3.2.4 LEDs of the PEAES Card 1.950.605.20




**FAIL** The red FAIL LED on a working card normally should be off. It is on whenever the card fails or it is reset either manually or by the system.

**IDLE** The green IDLE LED is on whenever a card is not used for the current configuration. It is off when the card is processing. IDLE should be on for redundant and not used cards. It should be off for used cards.

**Important:** *Never remove a card with both the IDLE and the FAIL LEDs off. This card is actively used to process audio data; the result of removing the card is unpredictable.*

**Card number** The card number corresponds to the AES/EBU interface number in your configuration. Be careful to match this number to the corresponding interface number. The numbers start with "00" for the first eight AES/EBU interfaces (D 1 to D 8 in the patch) and are continued as "01", "02", and so on for subsequent groups of eight AES/EBU interfaces each. A sufficient number of PEAES cards must be present in the DSP rack, and they must be numbered properly.

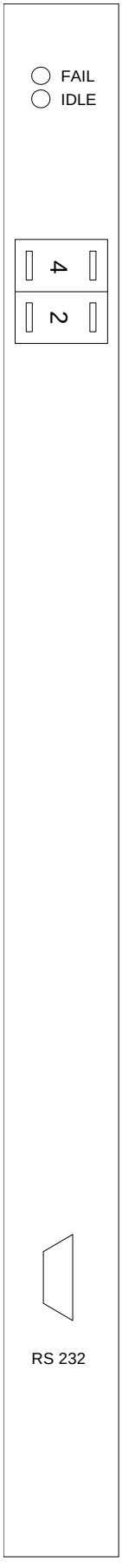
The card must be plugged into the slot where the AES/EBU I/O connections are done to the AES/EBU connectors on the rear side of the DSP frame.

**Example:** If the current Session Configuration requires 32 AES/EBU interfaces, there must be at least four PEAES cards numbered "00", "01", "02", and "03" in the DSP rack, in order for the system to work properly.

**IF1...8** These green interface LEDs light whenever a valid AES/EBU signal is connected to the card. Whenever these LEDs are off the corresponding AES/EBU channels are muted.

**RS 232** *This serial interface is used only for card testing during manufacturing. Do not connect anything during normal operation!*

## 10.3.2.5 LEDs of the PE Card 1.950.610.20




**FAIL** The red FAIL LED on a working card normally should be off. It is on whenever the card fails or it is reset either manually or by the system.

**IDLE** The green IDLE LED is on whenever a card is not used for the current configuration. It is off when the card is processing. IDLE should be on for redundant and not used cards. It should be off for used cards.

**Important:** *Never remove a card with both the IDLE and the FAIL LEDs off. This card is actively used to process audio data; the result of removing the card is unpredictable.*

**Card number** The card number has no real meaning for PE cards. Make sure that no card numbers which are configured for PEAES cards are used.

**RS 232** *This serial interface is used only for card testing during manufacturing. Do not connect anything during normal operation!*

# 10.4 Regular Maintenance

## 10.4.1 Air Filters

### 10.4.1.1 Removing and Installing the Supply Unit (1.950.601.00) in the Rack

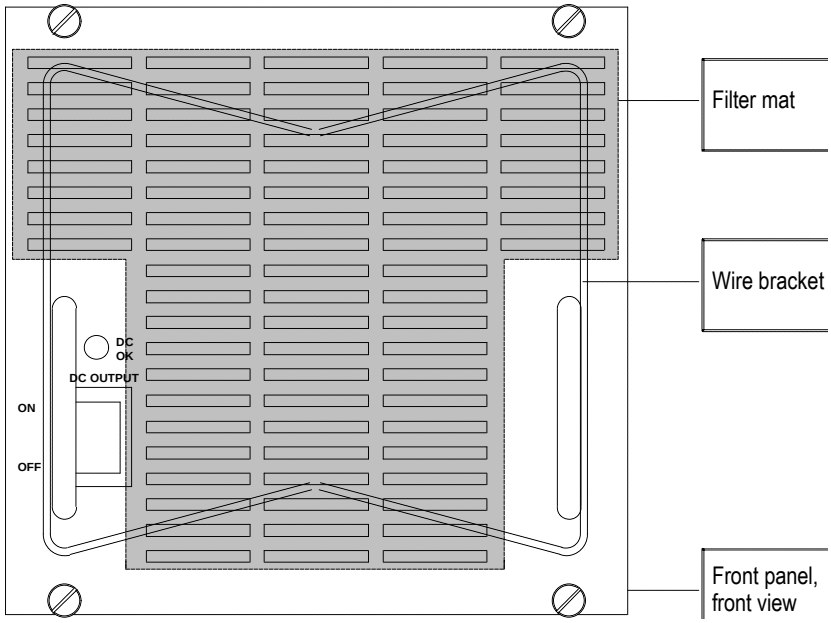
**Removing:**

- Before you start set the DC OUTPUT switch to OFF, also switch the mains supply off preferably.
- Loosen the four knurled screws at the front panel; pull out the supply unit towards the front.

**Installation:**

- Carefully insert the supply unit into the rack.
- *Never apply sheer force* if the connector contacts do not find their way easily; check the path to the female contact points inside the rack, it might be blocked by a foreign object.
- Retighten the four knurled screws at the front panel.

### 10.4.1.2 Changing the Air Filter Mat




- Remove the supply unit as described above.
- Place the supply unit onto your working surface in a way that the front panel is directed towards you.
- The wire bracket which fixes the filter mat is hooked into four recesses; first unhook at the upper right, then at the upper left.
- Now the filter mat can be pulled out in upward direction.
- For inserting the new filter mat tilt the supply unit to the left. Carefully lift the lower part of the wire bracket by a small amount with an appropriate tool (e.g. screwdriver); slide the new filter mat in under the bracket. Make sure that all the air vents are covered by the filter mat and readjust it, if necessary.
- Bring the supply unit in an upright position again and hook the wire bracket first at the left, then at the right-hand side.
- Recheck that all the vents are covered by the filter mat.
- Reinstall the supply unit as described above.