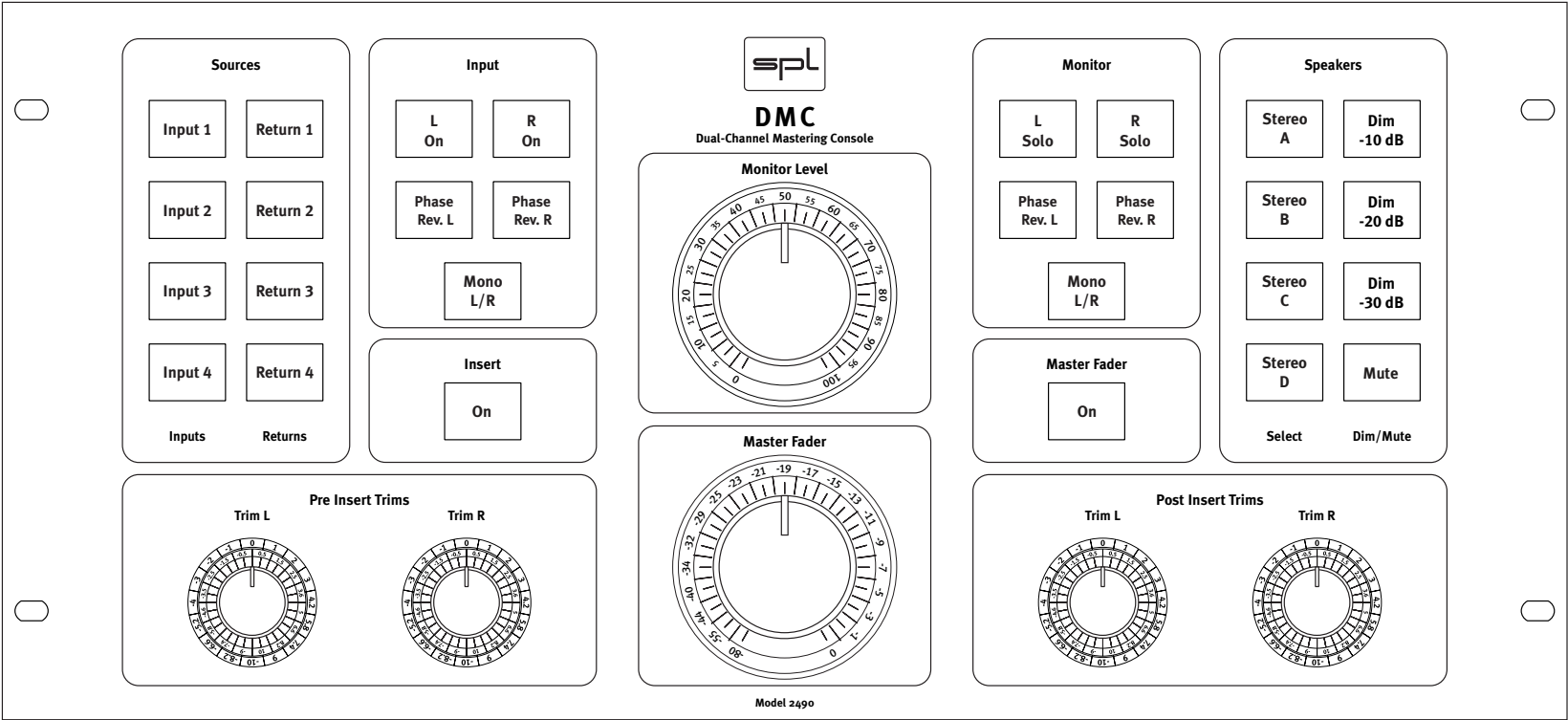


Dual-Channel Mastering Console DMC



Preliminary Manual, Version 0.1, 11/2004. Check our website for updates.

R & D: Wolfgang Neumann

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Installation/Security Advices

Before you operate your DMC, first check carefully whether the local voltage setting corresponds to the setting on the external transformer!

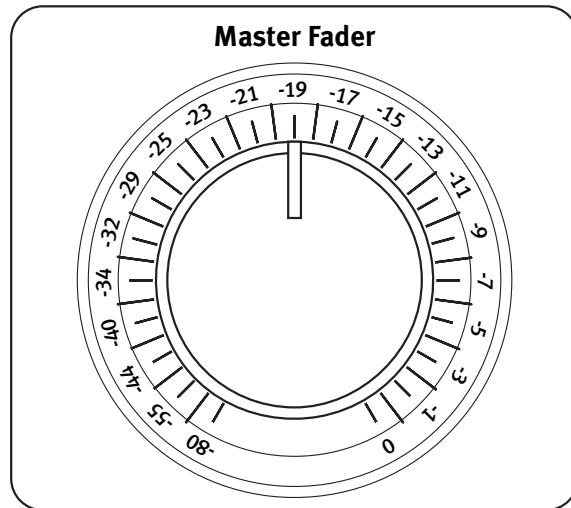
Before switching on external transformer and DMC, the DMC must be connected to the external transformer with the supplied multicore lead. Pay attention to a secure connection.

The DMC and the external transformer should be situated away from heat sources and direct sunlight. DMC and transformer need sufficient air circulation. Avoid installation in environments exposed to vibrations, dust, heat, cold, moisture or electrical and magnetic fields.

Do not install the unit in proximity to power amplifiers or digital processors. You may consider placing it near other analog gear. Such placement can prevent interference from Word Clock, MIDI, etc.

- Do not open the case. You may risk severe electric shock and may damage your equipment.
- Leave repairs and maintenance to a qualified service technician. Should foreign objects fall inside the case, contact your authorized dealer or support person.
- To avoid electric shock or fire hazards do not expose the unit to rain or dampness.
- In case of lightning unplug the power supply.
- Never force a switch or knob.
- To clean the case use a lint-free cloth. Avoid cleaning agents as they may damage the finish, use an acid-free cleaning oil instead.
- Please support the back of the unit when it is being mounted.

Fade In



The DMC dual-channel mastering console completes the range of SPL 120V mastering consoles. Housed in a 19"/5U rack mount chassis the DMC features the same unique 120 volts rails like the MMC1 and MMC2 multi-channel consoles to achieve the optimum audio performance.

The purpose of the development was the creation of mastering consoles that would be superior in audio quality to all known and foreseeable audio formats, whether analog or digital. Such consoles would provide both for an unaltered reproduction of the sonic quality of SACD and in the process, remain a safe capital investment for many years.

The DMC is conceived as the center of a mastering environment to provide speaker management, sources and returns connectivity, input and output trimming, pure analog 2-channel master fader and monitor level setting. As an option, the DMC can be supplemented with the SPL MasterBay to provide an automated 8 x 2 channel insert routing of external processors.

Digital audio formats have undergone continuous development and change and will continue to do so. The degree of incompatibility created by the "format war" between PCM and DSD has persuaded us to opt for a technology that is superior in dynamic range, headroom and sound quality to either or any other such format – and constitutes discrete analog technology in its most advanced implementation. Moreover additional prerequisites speak for the employment of high-performance analog technology:

The number of necessary AD/DA conversions should be reduced to a minimum. With the DMC, digital sources can be connected to a digital router, which outputs the selected source through the preferred DA converter. This ensures that the sound quality remains comparable and is not affected by converter differences.

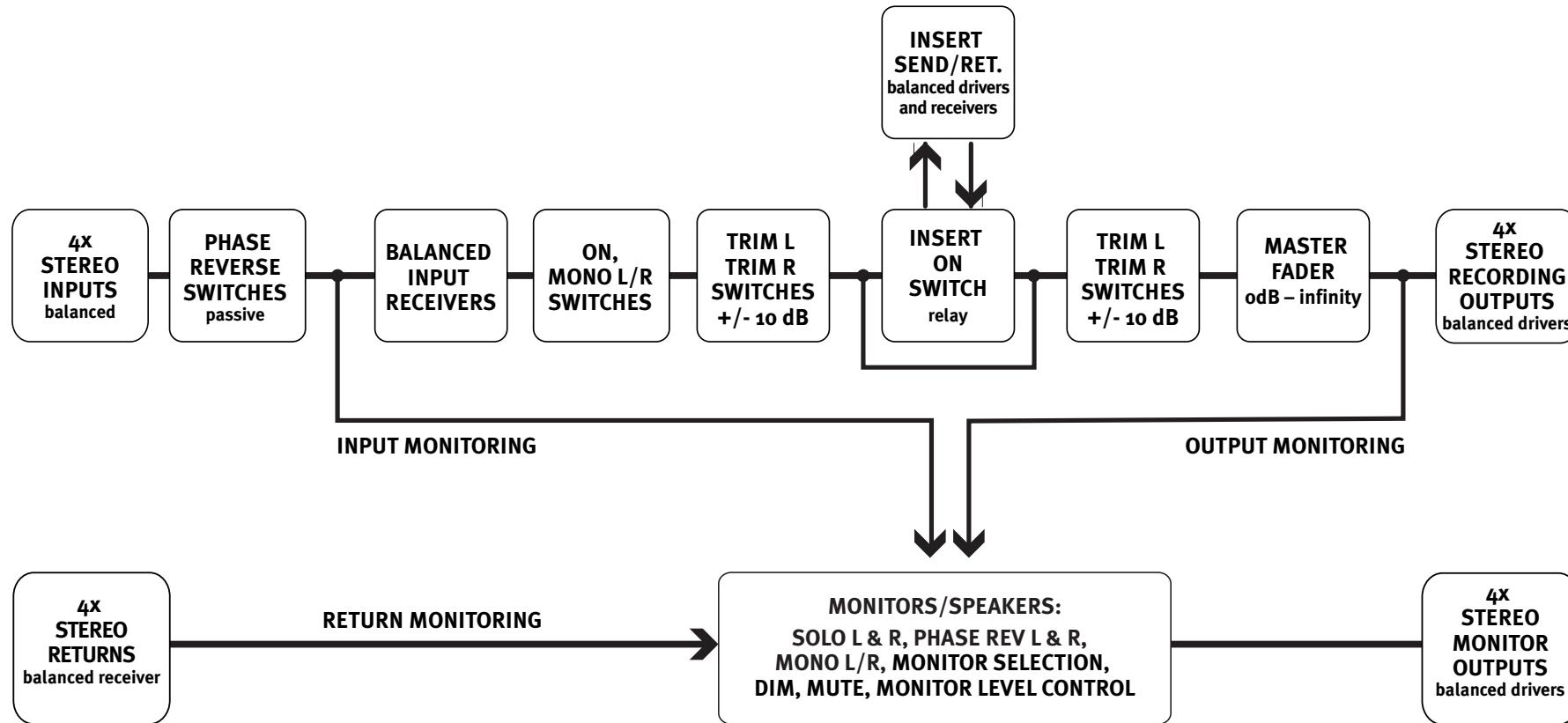
From a purely aesthetic standpoint, high quality analog outboard processing consistently proves itself superior to digital processing. The analog concept allows for problem-free integration of such analog processors.

Monitors and power amplifiers are almost exclusively analog in design. Yet another converter at this point in the chain only degrades monitoring signal paths. Furthermore DSD signals cannot be monitored on a digital monitoring that operates in PCM.

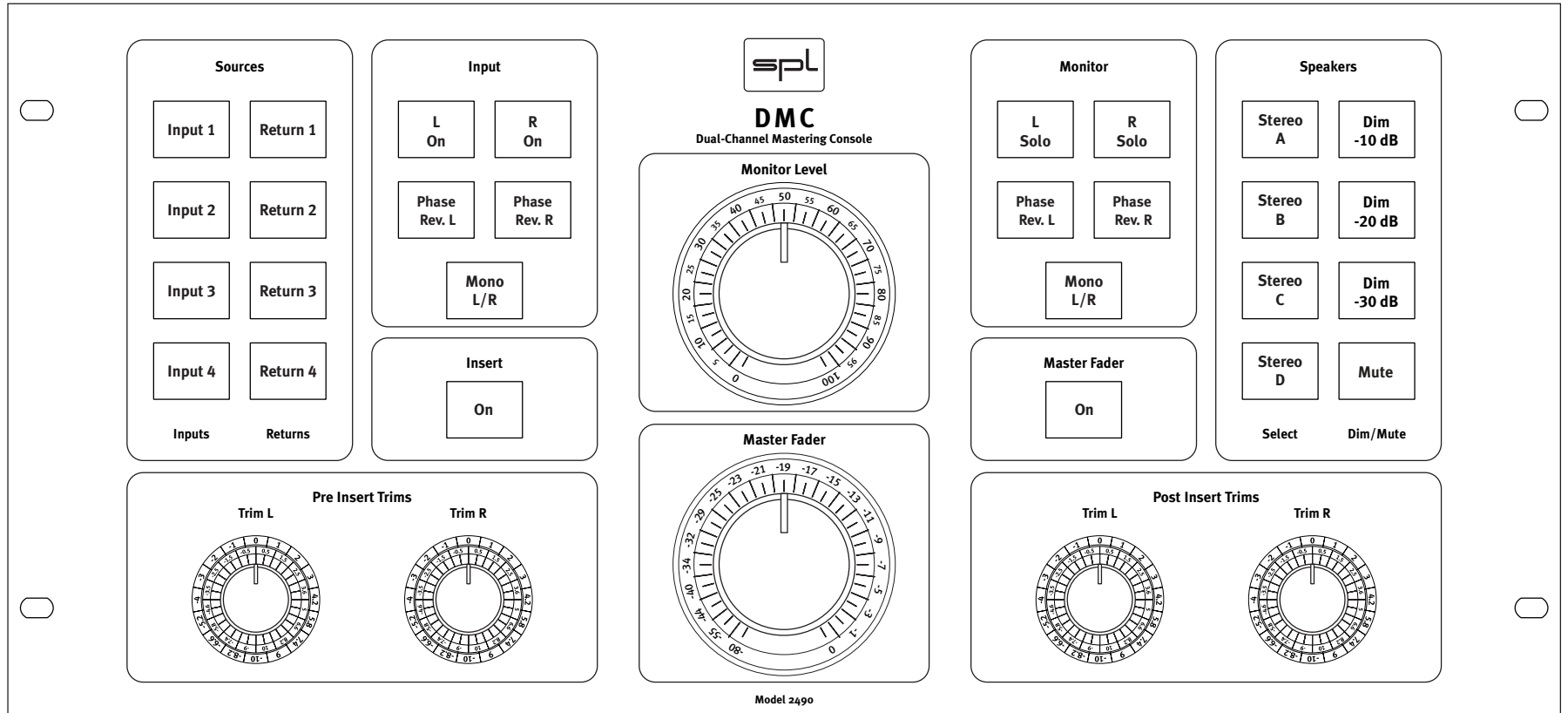
Technology

SPL's new SUPRA operation amplifiers are used throughout the DMC's design. They perform at an industry benchmark 120 volts and were developed during a four-year period during which SPL searched for a new generation of superior discrete analog op amps. The SUPRA op amp achieves a signal-to-noise ratio of 116dB with a headroom of 34dB. The dynamic range amounts to 150dB with a frequency bandwidth of 200kHz.

With such specifications, the DMC rides comfortably beyond the requirements of either the current maximum 24 bit and 192kHz PCM format or 1 bit and 256 fs DSD format. It is simply not realistic to expect at any foreseeable future date a digital technology environment in which the DMC could become a "bottle neck".



Control Surface



Sources

The Sources section provides for the selection of four stereo inputs and four returns. The inputs are fed to the mastering path, the returns are fed to the monitoring section.

The Source section is subdivided into two parts. At the left are the input selectors, which are fed to the mastering path. Here the DMC can accept four stereo inputs. The returns consist of selection options for returns from recorders, DAW, audio players, and so on.

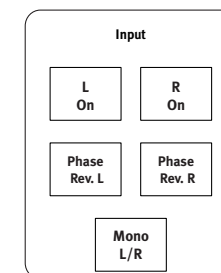
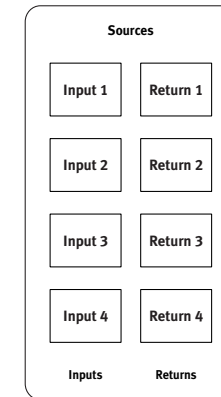
All Input buttons allow for switching between the input monitoring mode and the output monitoring mode. Press once, the input button is permanently illuminated. The output signal after the Master Fader is monitored. Press again, the Input button flashes. The input signal after the input Phase Reverse switches is monitored. This way, you can easily compare what comes in and what goes out of the console.

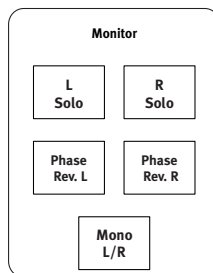
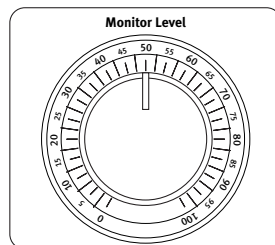
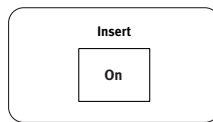
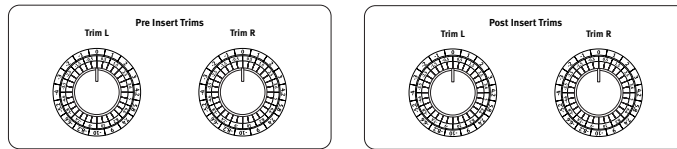
IMPORTANT: Selecting the return monitoring mode overrules input and output monitoring modes.

NOTE: All DMC buttons allow for individual labelling.

Input

An input selected in the Source section is routed to the Input section. The signal passes passive L/R Phase Reverse switches, balanced input receivers and active L/R On as well as Mono L/R switches.





Pre and Post Insert Trims

Sophisticated rotary trim switches with 32 steps are used for precise gaining from -10dB to +10dB for each Pre Insert L/R as well as Post Insert L/R channel. These switches route the signal through one precision resistor at any position only, keeping thermal noise and tolerance at an unrivalled minimum.

Insert

The DMC offers a switchable Insert point between the Pre Insert Trims and the Post Insert Trims. External processing equipment can be inserted here into the signal path.

Monitor Section

Besides the central high-end Monitor Level control the DMC's monitor section features L/R Solo switches as well as L/R Phase Reverse and L/R Mono switches.

Three signal paths can be monitored: input, output and return. Selecting an input in the Source section will route the output signal of the DMC to the selected speakers. Depressing the Input button again (status LED flashes) will route the input signal to the speakers. Thereby an easy comparison between input and output is achieved.

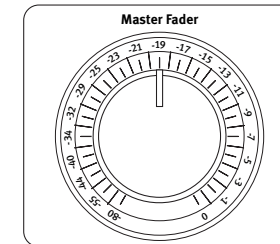
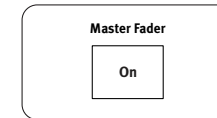
IMPORTANT: Selecting the return monitoring mode overrules input and output monitoring modes.

Master Fader

This fader features the same level control potentiometer as in the Monitor Level section for dynamic mastering purposes and fine tuning the overall level from +10 dB to -80 dB. The range can also be customized to operate from 0 dB to -80 dB.

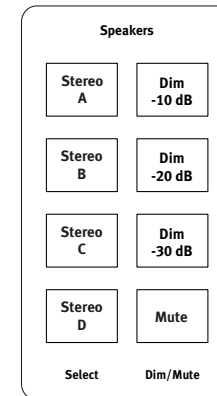
With this control's extremely fine level settings, the engineer can attain every ounce of recording headroom. The result, thanks to these controls of practically infinite resolution, is an unparalleled excellence in dynamic mastering.

The Master Fader can be taken out of the signal path with the Master Fader On switch.

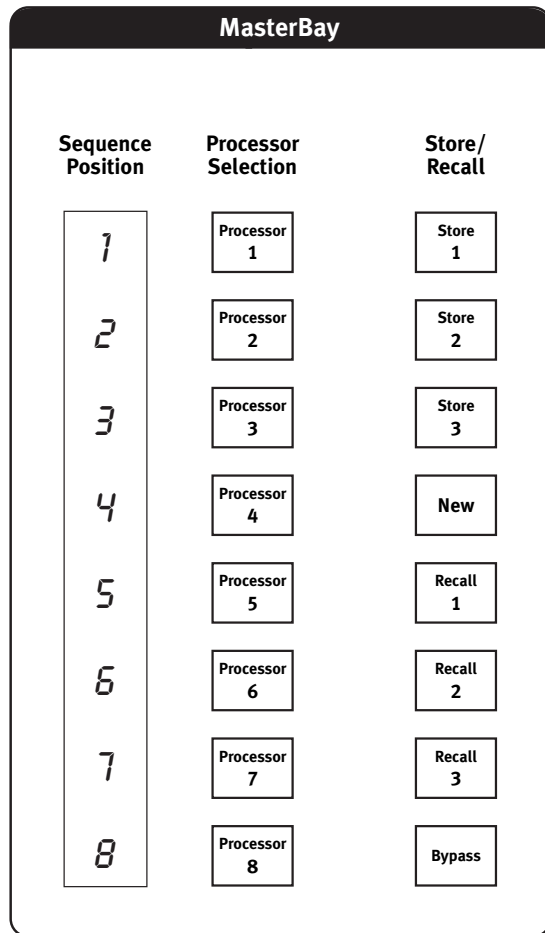


Speakers

The Speakers section allows for connection of four stereo speaker sets. Three different Dim levels (-10dB, -20dB and -30dB) and Mute can be selected by the push of a button.



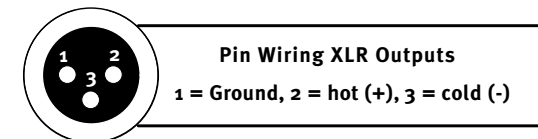
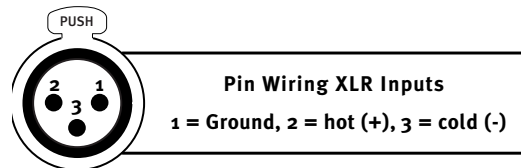
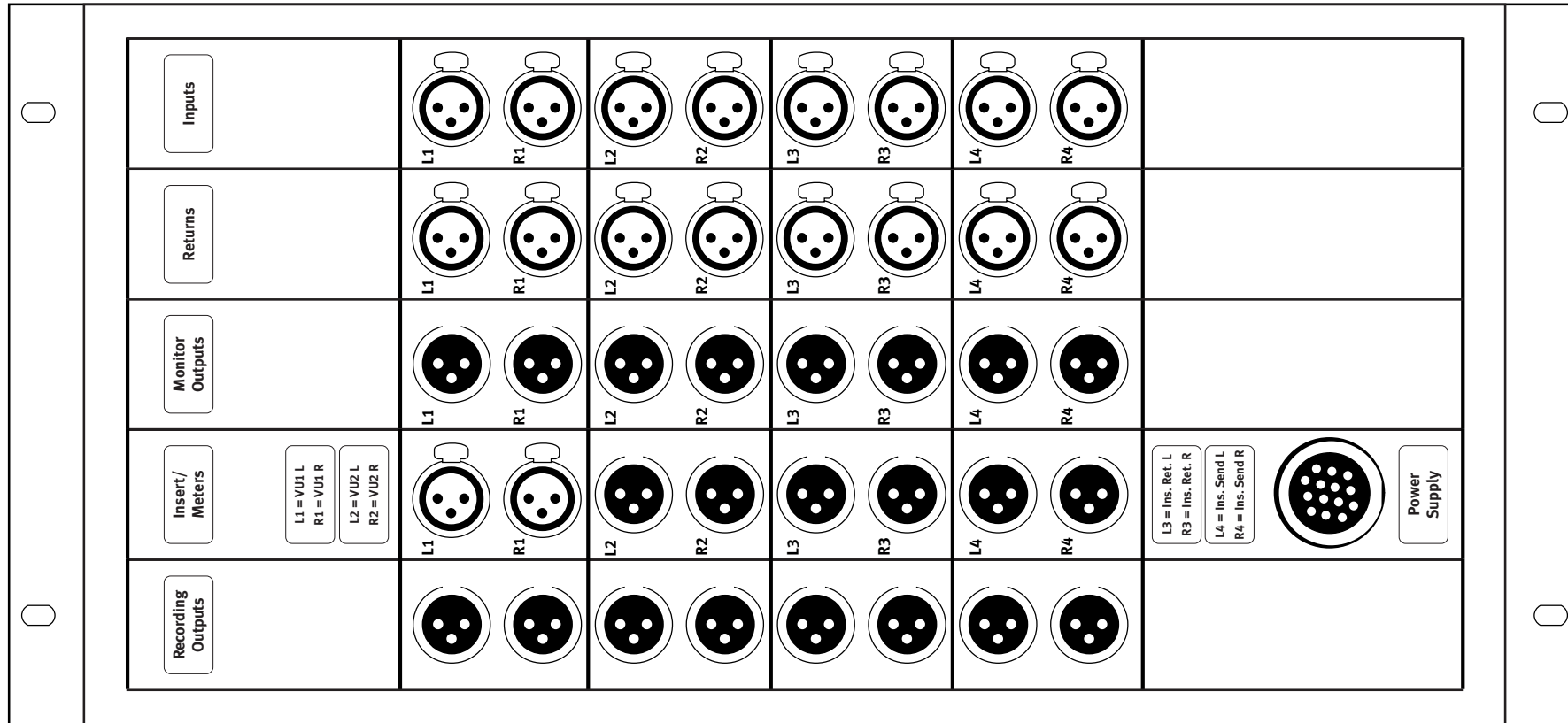
Option: Master Bay



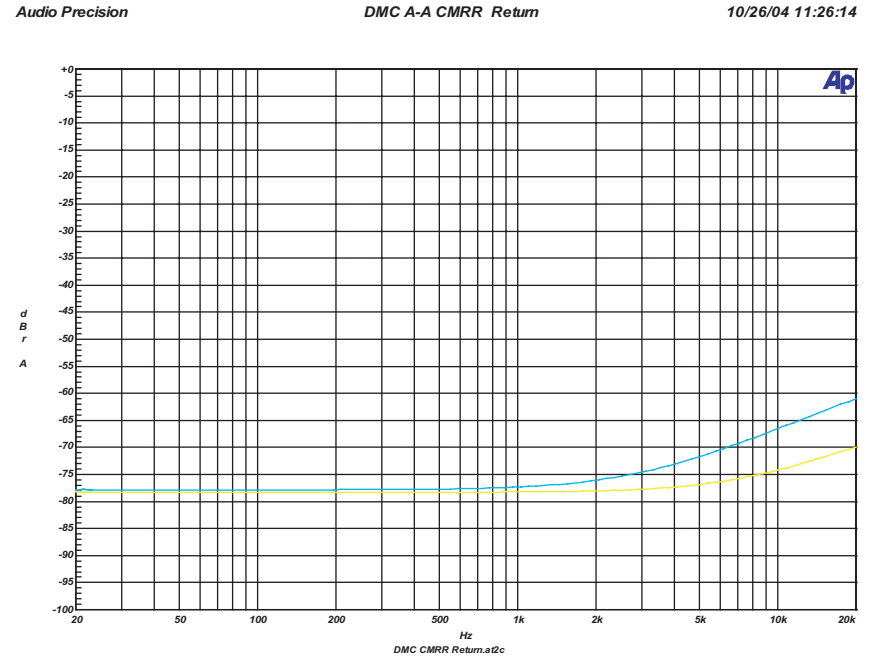
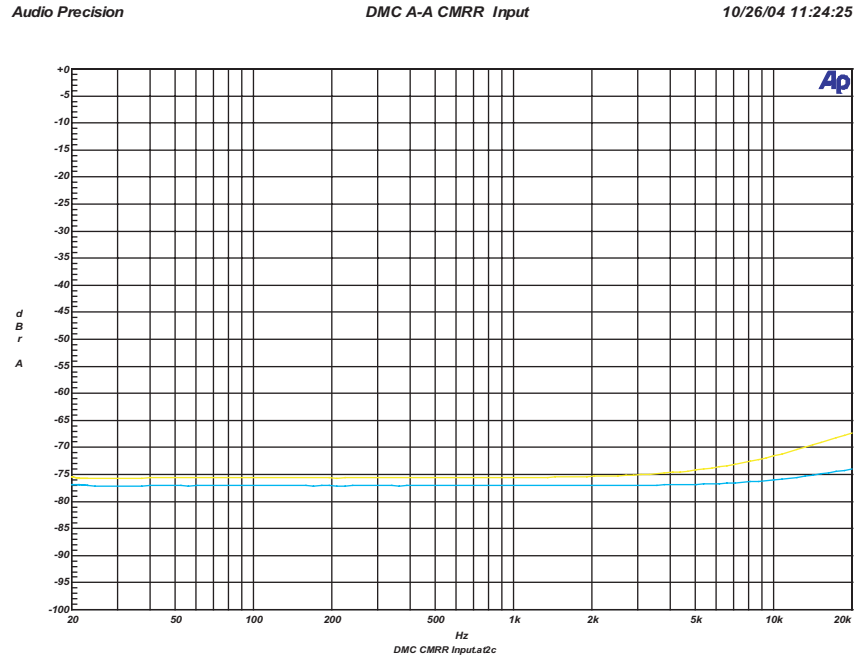
The DMC can optionally be complemented with an insert box called MasterBay. The MasterBay consists of a 4U insert box and a remote control panel. Up to eight, 2-channel processors can be connected to the insert box, which is operated by the MasterBay remote panel.

With the unique MasterBay the engineer can specify up to four routings, called "sequences", which can be stored and re-called. The remote panel provides a button for each of the eight external processors. Depressing these in sequence switches among choices in processor signal flow. Beside each button is a seven segment LED-display indicating the current position of the processor in the sequence.

The mastering engineer can use this feature to compare between sequences in a varying order or to compare the same type of processors—such as in the case of an equalizer from Manufacturer A and one of Manufacturer B. Three memory banks are available which allow an active signal flow sequence to be compared instantly at a button push with three others (for a total of four). If the optional MasterBay is connected, the DMC's Insert On switch activates the MasterBay or switches it to a hard-bypass.

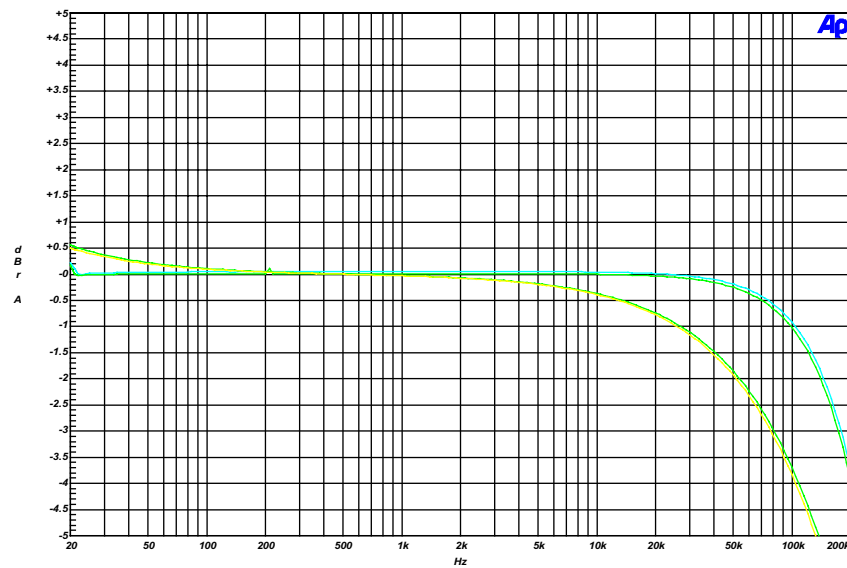


Measurements: CMRR Input, CMRR Return



Measurements: Frequency Responses Input/Speaker Out, Input/Insert Send

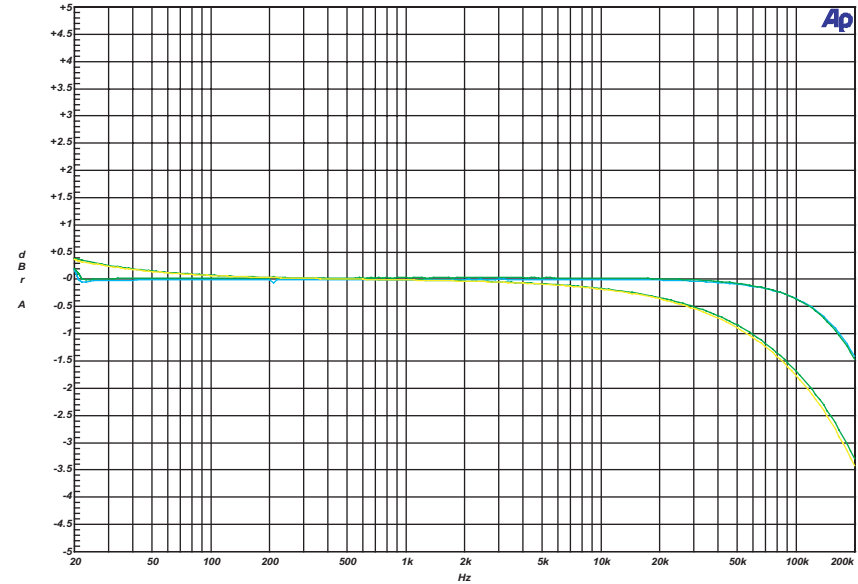
Audio Precision DMC Freqenz Response Input - Speaker Out 10/26/04 09:38:30



Frequency Response from 20k to 20 Hz. F4 first to set 0 dB at 1kHz. The 2 Ch Ampl Function Reading meter BW is set to <10 Hz >500kHz so the bandwidth is the same as the Level meter. Optimize for detail.

A-A FREQ RESP+PHASE Input - Speaker Out.a2c

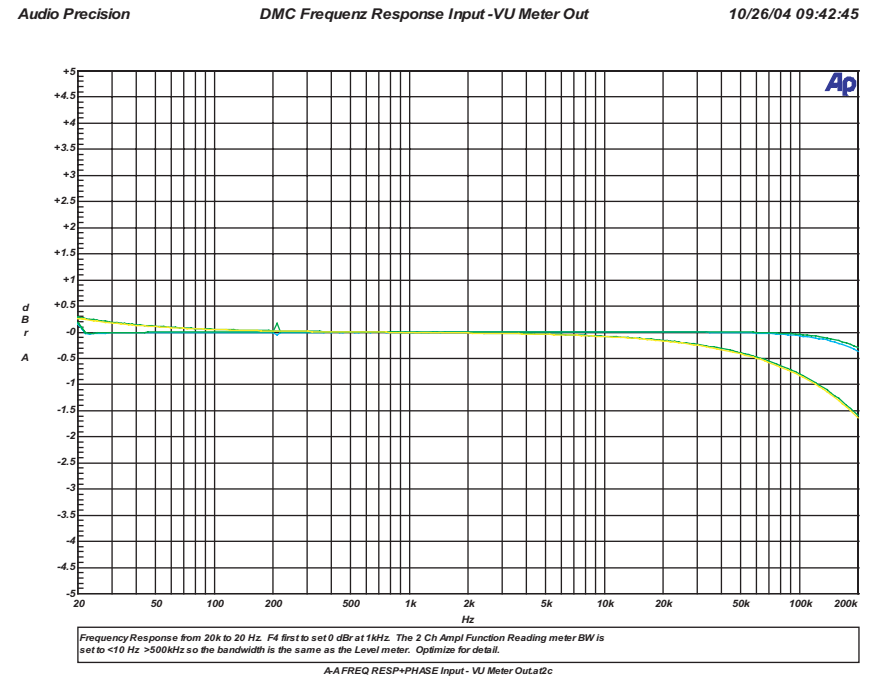
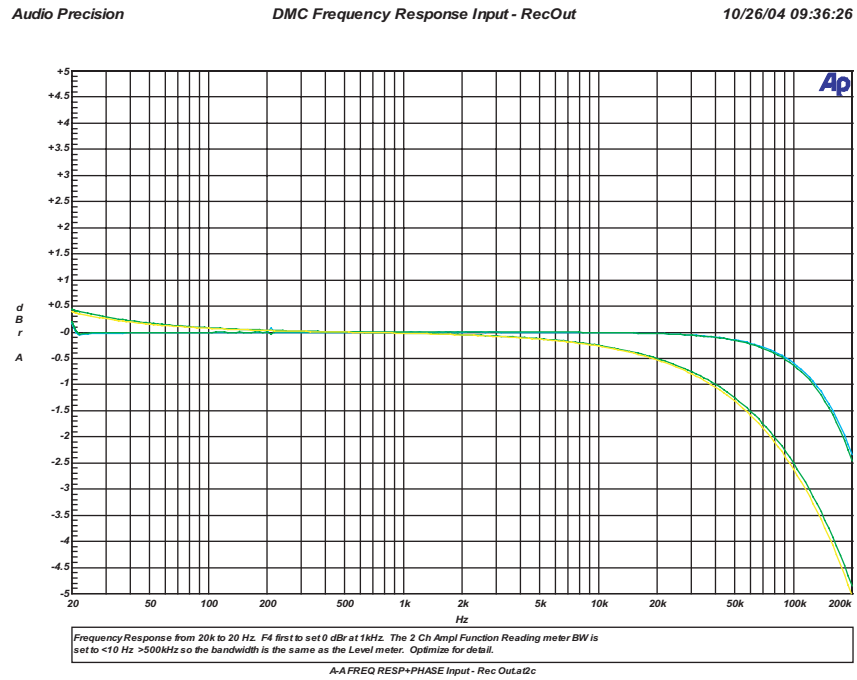
Audio Precision DMC Freqenz Response Input - Insert Send 10/26/04 09:40:40



Frequency Response from 20k to 20 Hz. F4 first to set 0 dB at 1kHz. The 2 Ch Ampl Function Reading meter BW is set to <10 Hz >500kHz so the bandwidth is the same as the Level meter. Optimize for detail.

A-A FREQ RESP+PHASE Input - Insert Send.a2c

Measurements: Frequency Responses Input/Rec. Out, Input/VU Meter Out

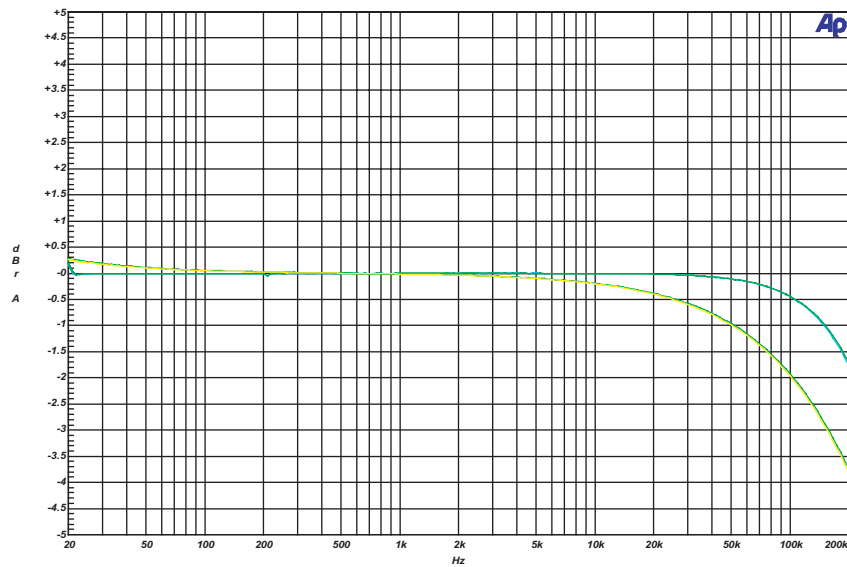


Measurements: Frequency Response Return/Speaker Out, THD&N Input/Rec. Out

Audio Precision

DMC Frequency Response Ret - Speaker Out

10/26/04 09:45:12



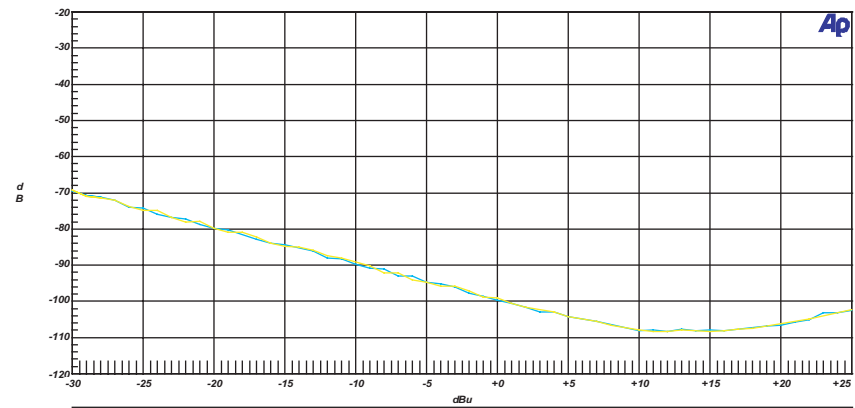
Frequency Response from 20k to 20 Hz. F4 first to set 0 dB at 1kHz. The 2 Ch Ampl Function Reading meter BW is set to <10 Hz >500kHz so the bandwidth is the same as the Level meter. Optimize for detail.

AA FREQ RESP+PHASE Return - Speaker Out.a2c

Audio Precision

DMC THD+N vers AMPL Input - Rec Out

10/26/04 11:22:04

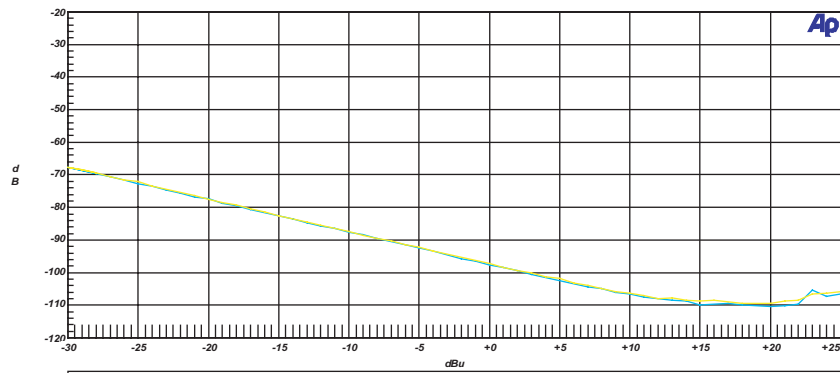


The Analog Analyser Function meter is in THD+N ratio mode. At low levels the noise floor accounts for the high percentage readings. As the signal level goes up the curve continues to fall if the DUT is noise limited or flattens out (usually with variation) if the DUT is distortion limited. An abrupt upward kink at high levels indicates the onset of clipping.

AA THD+N VS AMPL Input - Rec Out.a2c

Measurements: THD&N Input/Speaker Monitor Out, THD&N Input/VU Meter Out

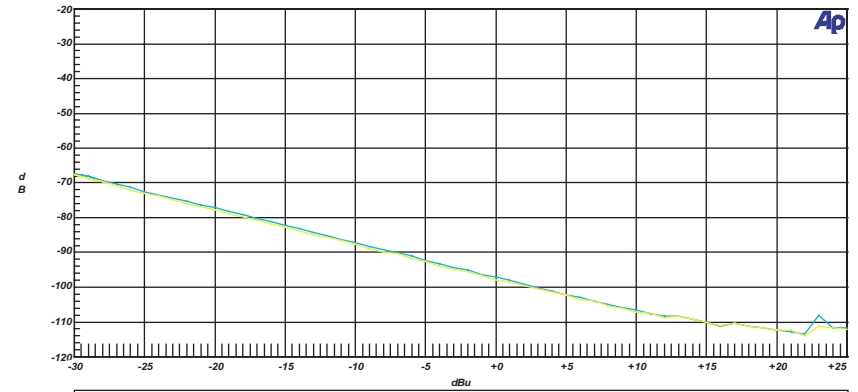
Audio Precision DMC THD+N vers AMPL Input - Speaker Monitor Out 10/26/04 09:27:13



The Analog Analyzer Function meter is in THD+N ratio mode. At low levels the noise floor accounts for the high percentage readings. As the signal level goes up the curve continues to fall if the DUT is noise limited or flattens out (usually with variation) if the DUT is distortion limited. An abrupt upward kink at high levels indicates the onset of clipping.

A-A THD+N VS AMPL Input - Speaker Mon Out.at2c

Audio Precision DMC THD+N vers AMPL Input - VU Meter Out 10/26/04 09:28:33



The Analog Analyzer Function meter is in THD+N ratio mode. At low levels the noise floor accounts for the high percentage readings. As the signal level goes up the curve continues to fall if the DUT is noise limited or flattens out (usually with variation) if the DUT is distortion limited. An abrupt upward kink at high levels indicates the onset of clipping.

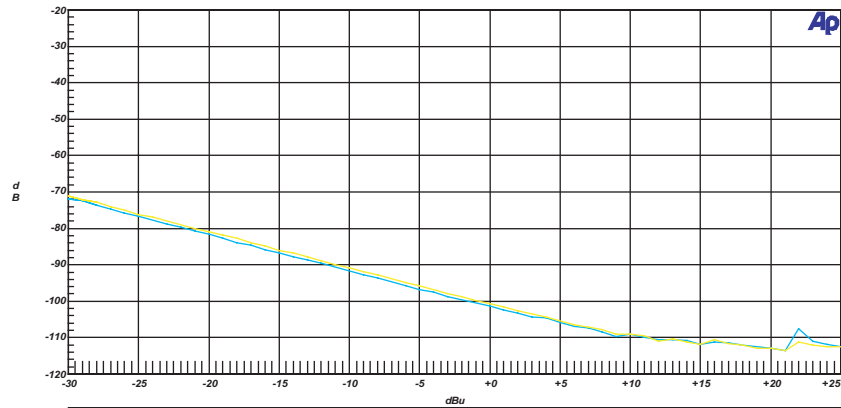
A-A THD+N VS AMPL Input - VU Meter Out.at2c

Measurements: THD&N Input/Insert Send, Return/Speaker Monitor Out

Audio Precision

DMC THD+N vers AMPL Input - Insert Send

10/26/04 09:25:26

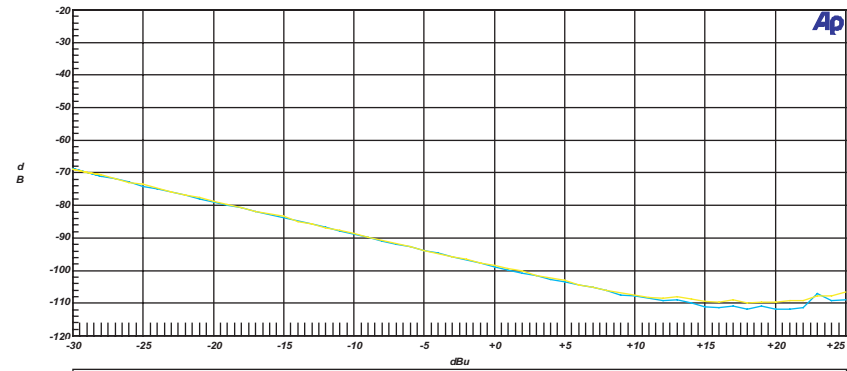


The Analog Analyzer Function meter is in THD+N ratio mode. At low levels the noise floor accounts for the high percentage readings. As the signal level goes up the curve continues to fall if the DUT is noise limited or flattens out (usually with variation) if the DUT is distortion limited. An abrupt upward kink at high levels indicates the onset of clipping.
A-A THD+N VS AMPL Input - Insert Send.at2c

Audio Precision

DMC THD+N vers AMPL Return - Speaker Monitor Out

10/26/04 09:46:37



The Analog Analyzer Function meter is in THD+N ratio mode. At low levels the noise floor accounts for the high percentage readings. As the signal level goes up the curve continues to fall if the DUT is noise limited or flattens out (usually with variation) if the DUT is distortion limited. An abrupt upward kink at high levels indicates the onset of clipping.
A-A THD+N VS AMPL Return - Speaker Mon Out.at2c

Specifications

| | |
|---|---|
| Dynamic Range | >130 dB |
| Max. input level <i>(Audio Precision generator limit +30 dBu)</i> | >30 dBu |
| Noise (A-weighted) | |
| Recording Out: | -102 dBu |
| Monitor Out: | -99,5 dBu |
| Send: | -103 dBu |
| VU/Audio: | -104 dBu |
| Crosstalk | |
| Recording Out: | -90 dBu |
| Monitor Out: | -75 dBu |
| Send: | -90 dBu |
| VU/Audio: | -100 dBu |
| Return/Monitor Out: | -75 dBu |
| Input impedance (balanced): <i>(Welwyn precision resistors, transformerless)</i> | 20 kOhm |
| Output impedance (balanced): <i>(CMR trimmers, transformerless)</i> | < 75 Ohm |
| Dimensions | |
| Front panel | 19 inch/5U |
| Housing (H x W x D) | 22 x 44 x 51 cm 8.8 x 17.6 x 20.4 inch |
| Weight | 19.5 kg/42.9 lbs |

Power Supply

For optimal audio quality and dramatically reduced inductive disturbance/interference, the DMC's power supply is divided into two parts. The external part houses a toroidal transformer, the linear power supply is built into the DMC housing.

Input voltage: 110-120V/60Hz or 220-240V/50Hz

Noise: > -100 dBu (@ +/- 60 V)

Dimensions ext. transformer: Width: 15 cm (5 9/10 inch)
Depth: 24,5 cm (24 1/2 inch)
Height: 7 cm (2 3/4 inch)

Weight ext. transformer: 4,2 kg (9,24 lbs)

Warranty

SPL electronics GmbH (hereafter called SPL) products are warranted only in the country where purchased, through the authorized SPL distributor in that country, against defects in material or workmanship. The specific period of this limited warranty shall be that which is described to the original retail purchaser by the authorized SPL dealer or distributor at the time of purchase.

SPL does not, however, warrant its products against any and all defects:

- 1) arising out of materials or workmanship not provided or furnished by SPL, or
- 2) resulting from abnormal use of the product or use in violation of instructions, or
- 3) in products repaired or serviced by other than authorized SPL repair facilities, or
- 4) in products with removed or defaced serial numbers, or
- 5) in components or parts or products expressly warranted by another manufacturer.

SPL agrees, through the applicable authorized distributor, to repair or replace defects covered by this limited warranty with parts or products of original or improved design, at its option in each respect, if the defective product is shipped prior to the end of the warranty period to the designated authorized SPL warranty repair facility in the country where purchased, or to the SPL factory in Germany, in the original packaging or a replacement supplied by SPL, with all transportation costs and full insurance paid each way by the purchaser or owner.

All remedies and the measure of damages are limited to the above services. It is possible that economic loss or injury to person or property may result from the failure of the product; however, even if SPL has been advised of this possibility, this limited warranty does not cover any such consequential or incidental damages. Some states or countries do not allow the limitations or exclusion of incidental or consequential damages, so the above limitation may not apply to you.

Any and all warranties, express or implied, arising by law, course of dealing, course of performance, usage of trade, or otherwise, including but not limited to implied warranties of merchantability and fitness for particular, are limited to a period of 1 (one) year from either the date of manufacture. Some states or countries do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state, country to country.

SPL electronics GmbH, 41372 Niederkruechten, Germany