DYNAMIC PRECISION

USERS GUIDE

D/A-CONVERTER

DPDAC 8.0

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UNPACKING

Please read the User Guide carefully before attempting to use this apparatus. The User Guide comprises general and specific information on adaptations/adjustments to give you the best possible performance of the apparatus. Please store the packing materials for later use.
When the apparatus is unpacked, please check that it has not been exposed to any damage and that the package contains the following items:

1 pc. Dynamic Precision DPDAC 8.0.
1 pc. External power supplies for DPDAC 8.0.
1 pc. Mains cord for the external power supply.
1 pc. Users guide for DPDAC 8.0

Note: Please reports immediately any damage, defects or shortcomings to your dealer.

GENERAL INFORMATION

We congratulate you on your choice of a Dynamic Precision DPDAC 8.0.
The technical solutions are all based upon the best digital converters available, and the company's unique electronic designs to achieve the best possible reproduction of musical signals.
The digital signal from the CD-drive is converted by a high quality D/A-converter comprising an 8x interpolation and a 64x over-sampled Delta-Sigma modulator.
A special jitter attenuator / VCXO is designed to achieve the best possible sound quality. This, combined with a phase linear analogue filter contributes to years of maximum musical enjoyment.
To reduce the noise impact from the mains, DPDAC 8.0 is equipped with an external power supply. This power supply is designed to have a low output impedance and high energy to ensure a stable and dynamic sound reproduction.
Analogue outputs are of the balanced type and also DC-coupled to ensure a maximum pulse response and low noise.

All the digital inputs are transformer-coupled (according to EBU professional standard and requirement) to avoid ground loops when connected to a CD-drive.

DPDAC 8.0 can be continuously powered without any reduction of the component's lifetime.

CAUTION: READ THIS BEFORE OPERATING Dynamic Precision DPDAC 8.0.

1. Do not open the power supply cabinet as this might result in damage to the set, or electrical shock .
2. To prevent lightning damage, pull out the power cord during an electrical storm.
3. When removing the power plug from the wall outlet, always pull directly on the plug, never pull the cord itself.
4. Do not use force when operating the switches.
5. When moving the unit, be sure to first pull out the power plug and remove cords connected to other equipment.
6. Do not attempt to clean the unit with chemical solvent as this might damage the finish. Use a clean dry cloth.
7. Be sure to read the «Troubleshooting» section for advice on common operating errors before concluding that your unit is faulty.
8. Keep this manual in a safe place for future reference.

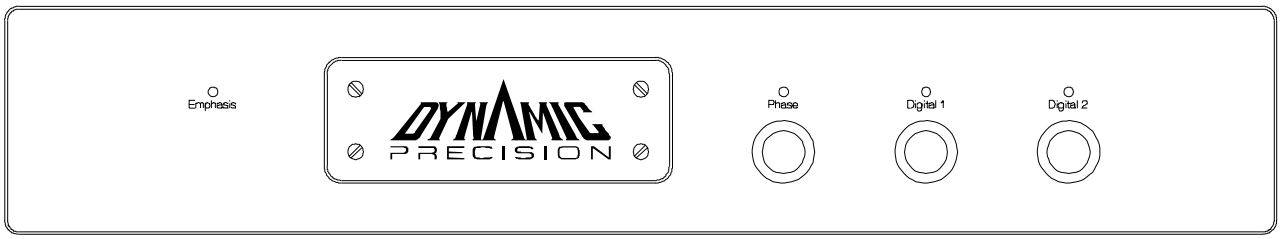


Figure 1. DPDAC 8.0 front panel

SWITCHES

Digital 1: Selects the RCA 75Ω input jack (marked Coax 1 on the back panel).

Digital 2: Selects either the BNC 75Ω input (marked Coax 2 on the back panel) or the XLR 110Ω input (marked Balanced 2 on the back panel). To select the correct input impedance, a unit internal strap has to be repositioned. This is described in section **ADJUSTMENTS AND OPTIMALIZATIONS,** PAGE 11.

Phase: Revert the signal phase by 180°.

INDICATORS

Emphasis: This indicator is lit when playing a pre-emphasised CD, which is an increase of the treble level. *When this indicator is lit, the audio inputs marked Standard have to be used to achieve the correct treble level.*

Digital 1: Indicates that input Coax 1 is selected.

Digital 2: Indicates that either Balanced 2 or Coax 1 is selected. These can be simultaneously connected to different CD-drives. Check for proper impedance setting, see section **ADJUSTMENTS AND OPTIMALIZATIONS,** PAGE 11.

Phase: When this indicator is lit the signal is in correct phase, which means no phase inversion from input to output. When turned off, the signal is inverted 180°.

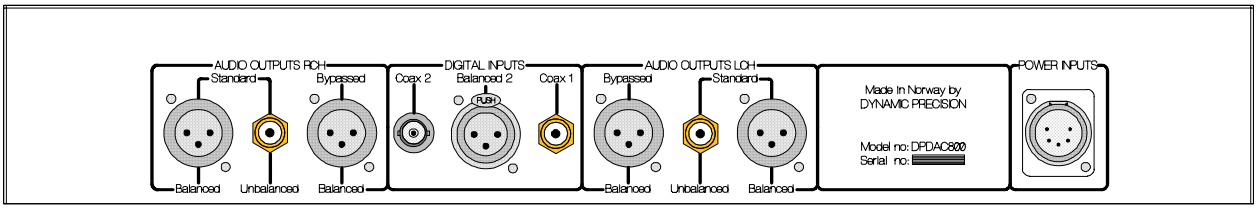


Figure 2. DPDAC 8.0 back panel

CONNECTIONS

Note: Please connect all signal cables prior to turning on the power supply.

DIGITAL INPUTS

Coax 1:	CD-drive signal input, S/PDIF 75Ω unbalanced, RCA-jack.
Coax 2:	CD-drive signal input, S/PDIF 75Ω unbalanced BNC female.
Balanced 2:	CD-drive signal input, AES/EBU 110Ω balanced XLR.

AUDIO OUTPUTS RCH

Standard:

Balanced:	Right channel balanced output signal using XLR male connectors.
Unbalanced:	Right channel unbalanced output signal using RCA female connectors.

Bypassed: Right channel balanced output signal using XLR male connectors. This output bypasses the de-emphasis circuit.

AUDIO OUTPUTS LCH

Standard:

Balanced:	Left channel balanced output signal using XLR male connectors.
Unbalanced:	Left channel unbalanced output signal using RCA female connectors.

Bypassed: Left channel balanced output signal using XLR male connectors. This output bypasses the de-emphasis circuit.

POWER INPUTS Connectors for the external power supply. Do not use other power supplies than the one supplied with the DPDAC 8.0.

DIGITAL CABLES

Dependent upon the selected input and CD-drive, three different types of cables can be used with to DPDAC 8.0. Digital cables can have the audible impact equivalent to analogue cables in the analogue domain. Therefore, it is of great importance for digital cables that the electrical parameters correspond to those frequencies and levels.
Typical signal levels and frequencies found on CD-drive outputs:

COAX:	0,5V_{p-p} / 75Ω
AES/EBU:	4 V_{p-p} / 110Ω
Cable bandwidth:	1,5 - 7 MHz
Signal coding:	BI-phase

Please observe that audible changes, perceived as an audible improvement when replacing cables, in fact may be a distortion of the original signal.

A very important parameter in digital signal transmission is the BER (Bit Error Rate). Bit errors may occur as a violation of the signal code from the CD-drive due to noise or reflections in the cable. Such noise and/or reflections may be a result of incorrect impedance matching, incorrect type of cable and/or incorrect impedance for the connectors. If such errors cause a single bit to be added or subtracted the overall result is incorrect compared to the original signal. Addition or subtraction of bits during the re-sampling process is called quantizing distortion.

Some of the CD-drives generate jitter (phase fluctuations) in the digital signal. In DPDAC 8.0 this is corrected by a VCXO, which in a practical sense, operates as a jitter attenuator. Normally it is impossible to correct an erroneous signal from a CD-drive, unless it is jitter. Because of these observations the conclusion is to use a CD-drive with high quality equivalent to the DPDAC 8.0.

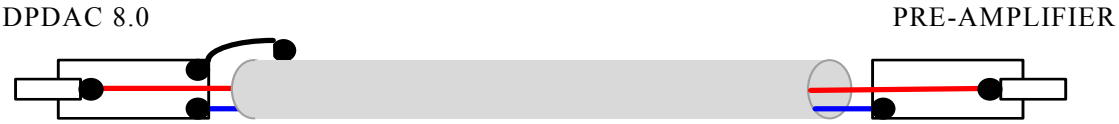
To avoid changes in the digital signal which result from randomly selected cables, please use Dynamic Precision digital cables. These can be supplied in lengths of 50 cm and 100 cm.

AUDIO CABLES

Balanced cables
The audio inputs are equipped with XLR-terminals and RCA-jacks (phono). Balanced cables should be used for the overall system if a balanced pre-amplifier is used. The benefit of a totally balanced system is that any noise superimposed on the signal paths will be cancelled on the input. On the other hand, when using an unbalanced system there is no control of the noise in the system. This may cause high level of out-band, high frequency signals to be applied on the input terminals. Such high frequency signals could causes the amplifier to be loaded by high output currents which may increase the inter-modulation and result in an audible reduction of the overall sound quality.

Unbalanced cables
The DPDAC 8.0 is also equipped with unbalanced outputs to be used with unbalanced pre-amplifiers. Unbalanced cables shall preferably comprise two inner conductors and the shield. The shield shall only be terminated to the ground plane at the transmitting end of the cable, which are the output jacks at DPDAC 8.0. This unbalanced output is designed to cancel any noise. From a noise perspective, this output is similar to the balanced one, but in an unbalanced control amplifier and the appurtenant cabling, noise could still cause audible problems.

Authorised dealers of Dynamic Precision's products can help and advice you how to choose the proper cables to be used.



Unbalanced RCA jack - RCA jack cable, shield not terminated at the receiving side

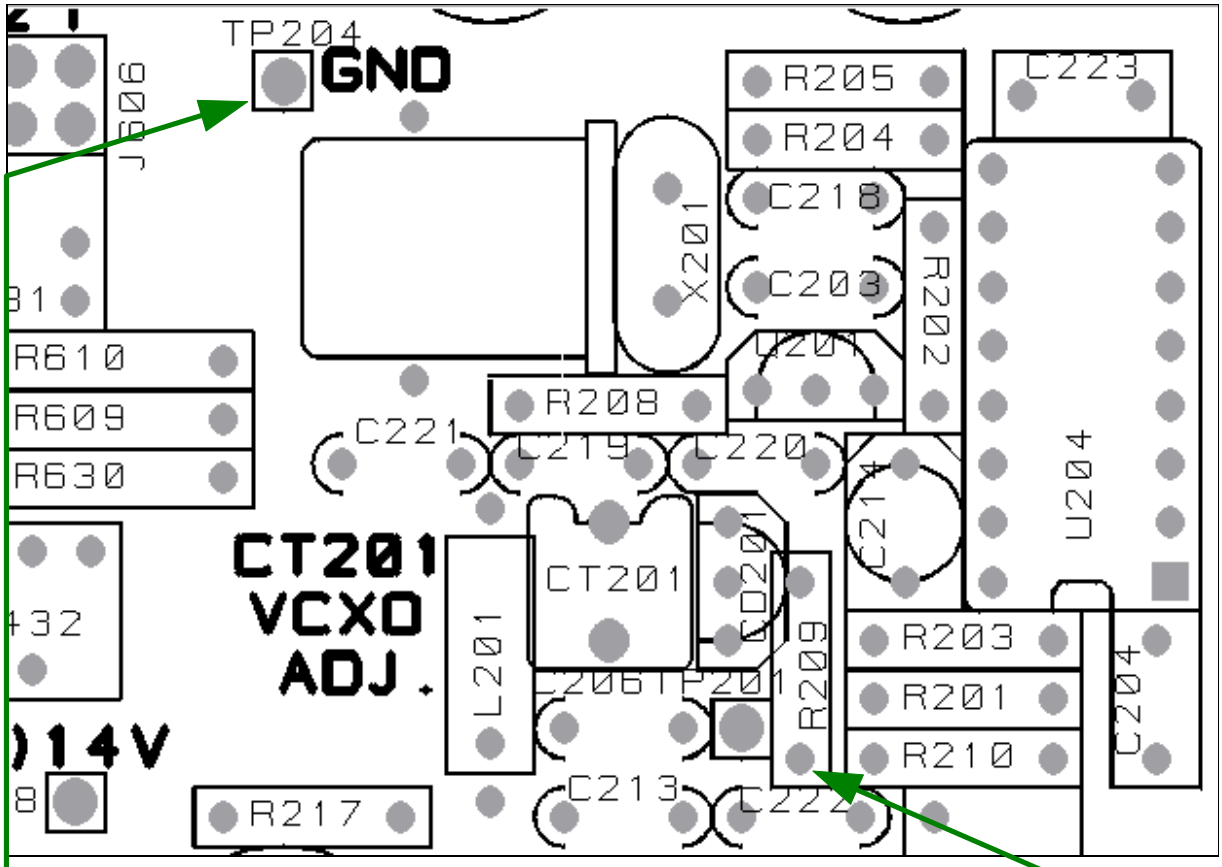
Balanced cable XLR-XLR

ADJUSTMENTS AND OPTIMALIZATIONS

ADJUSTING THE VCXO

Adjustment of the VCXO is only necessary if the CD-drive is not working properly with the D/A-converter, or problems caused by bit errors are anticipated.

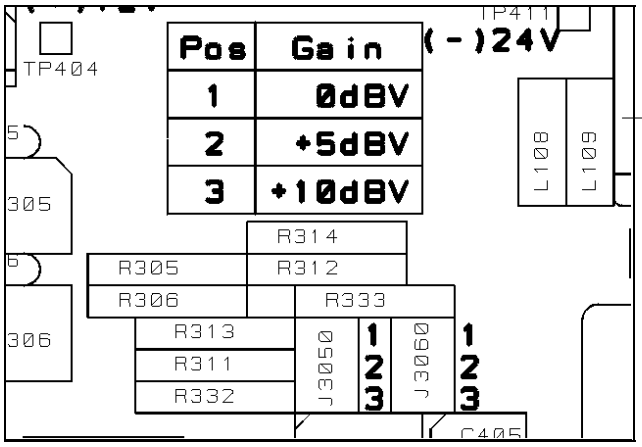
1. Connect the CD-drive to the suitable digital input.
2. Check that the digital selector on the front panel is in the correct position (Digital 1=Coax 1 and Digital 2=Balanced 2 or Coax 2).
3. Use a digital voltmeter to carry out the adjustment as shown in the drawing. The drawing also shows the test-points and the adjustable capacitor (CT201).



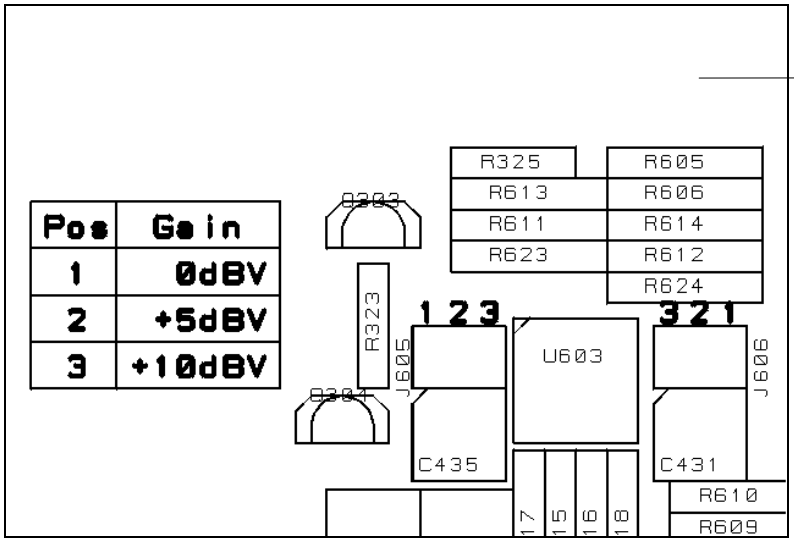
Adjust CT201 to a reading of 2.5 VDC on the voltmeter. Connect the voltmeter as indicated by the arrows (GND to minus on the voltmeter).

GAIN- SETTING

The DPDAC 8.0 is factory pre-set to position 3 (+10dBV) to fit the Dynamic Precision Balanced Passive Controller BPC 7.0.
Position 1 (0dBV) should be used for active control amplifiers. The reason for this is to reduce inter-modulation or mirroring of high frequency noise to the audible frequency range.

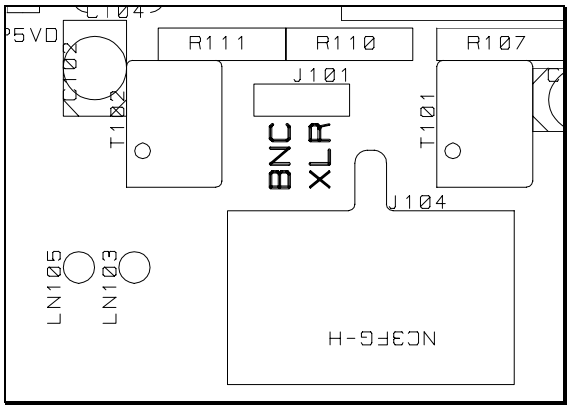


This figure shows a section of the printed circuit board including a table and straps illustrating how to pre-set the gain for the left channel.



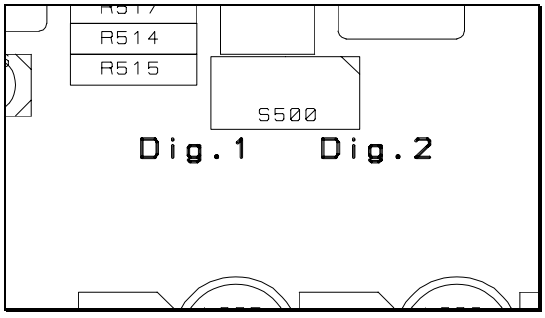
This figure shows a section of the printed circuit board including a table and straps illustrating how to pre-set the gain for the right channel.

IMPEDANCE MATCHING FOR COAX 2 AND BALANCED 2



The strap section shown above is «DIGITAL INPUTS». Select between Coax 2 BNC or Balanced 2 XLR.

Power-on automatic selection of Digital 1 or Digital 2



The toggle switch marked DIG.1 and DIG.2 controls which digital input is automatically selected when powering on the unit. Please choose the position corresponding to the preferred input.

TROUBLESHOOTING

SYMPTOM	POSSIBLE CAUSE	POSSIBLE SOLUTION
No indicators lit in the power supply or DPDAC 8.0.	Lack of power and/or mains cord not connected.	Turn on the power supply, or check the mains cord.
No sound.	Incorrect digital input selected.	Check that the selected input corresponds to the front panel switch settings.
Sound seems distorted.	DPDAC 8.0 is not adjusted to that particular CD-drive.	Adjust according to the Users Guide, page 9.
Sound seems distorted.	The CD-drive has not been used for a while.	Turn off DPDAC 8.0 for approximately 1 minute, and then turn it on again (resetting).
Too high treble level for some CD recordings, and the Emphasis LED is lit.	The Bypassed-output is being used, and the CD is recorded with an increased treble level.	Move the output cables to the outputs marked Standard.

TECHNICAL SPECIFICATIONS

DPDAC 8.0

D/A CONVERTER SYSTEM:	18-bit stereo Delta-Sigma 8x interpolation, 64x over-sampling

TECHNICAL SPECIFICATIONS

SIGNAL TO NOISE RATIO:	≥ 110 dB
DISTORTION, THD+NOISE (16Hz-20kHz):	< 0.0008%
DYNAMIC RANGE:	≥ 105 dB
FREQUENCY RESPONSE:	DC-20kHz < ± 0.01 dB
CHANNEL SEPARATION (16Hz-20kHz):	> 105 dB
DIGITAL INPUTS:	AES/EBU 110Ω and S/PDIF 75Ω
AUDIO OUTPUTS (balanced XLR and unbalanced RCA):	0 dBV, +5 dBV and +10 dBV (internal setting)
DIMENSIONS (WxHxD) in mm:	445x85x275
WEIGHT (kg)	3.5

EXTERNAL POWER SUPPLY:

MAINS VOLTAGE:	230V 250V AC
POWER CONSUMPTION:	Max. 30 W
DIMENSIONS (WxHxD) in mm, external power supply:	227x85x275
WEIGHT (kg), external power supply:	3

***Dynamic Precision* reserves the rights to change or alter the specifications and/or the technical solutions without prior notice.**

WARRANTY

DURING THE WARRANTY PERIOD

The warranty and purchasers/vendors contractual obligations are in accordance with the *Sale of Goods Act*.

All warranties shall be void if any carelessness, misuse and/or unacceptable handling of the apparatus or any other conditions, which may be ascribed to the negligence of the purchaser of this product.

If a claim is raised concerning the operation of this product, please return it to the authorised dealer accompanied by a copy of the original purchase receipt and a brief description of the fault symptoms. The purchaser is requested to leave their telephone number and/or address in the event the manufacturer needs further information to resolve the problem to the purchaser's satisfaction.

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