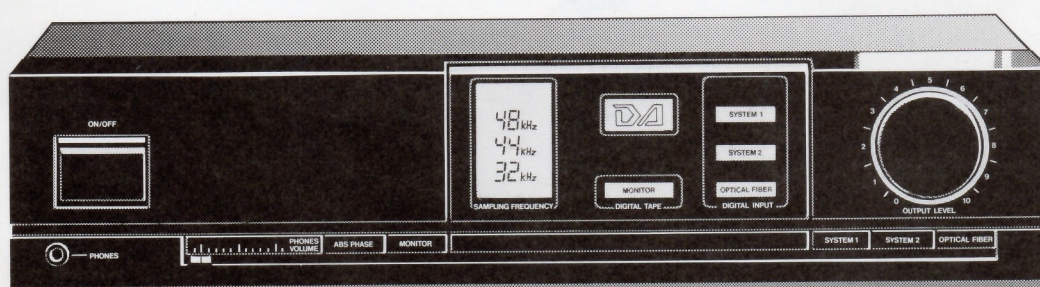




CONSUMER ELECTRONICS

PHILIPS



DAC 960

(GB)

Digital Analog Converter

(F)

Convertisseur Numérique Analogique

(D)

Digital-Analog-Converter

(NL)

Digitaal Analooq Converter

(E)

Conversor Digital Analógico

(I)

Convertitore Digitale Analogo

(S)

Digital/Analog-Omvandlare

English

INTRODUCTION

This Digital Analog Converter represents a new step forward in digital audio technology.

Several new possibilities will now be at your disposal which may not have been before, such as direct reproduction of the pure CD audio signal without intervention of tone and balance controls, equalizing and/or filters. This can be achieved because this converter can be connected directly to a power amplifier.

The digital signal is no longer converted in the Compact Disc player, but passed on to the Digital Analog Converter as it is. Also now the possibility exists to connect a Compact Disc player by optical means, which will improve sound reproduction considerably, as loss of signal and interference are eliminated completely.

Furthermore this converter offers the opportunity for connection of a digital recorder (DAT-recorder) and a satellite tuner; with these features it is prepared for the future.

In these instructions you will find everything you need to know about installing and operating your Digital Analog Converter. Read through the text carefully and you will quickly become familiar with all the facilities offered by this new technique.

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INSTALLATION

Unpacking

The following accessories are supplied with this Digital Analog Converter:

- a power supply lead;
- a signal output cable for connection to the amplifier;
- a signal cable for connection to the digital output of the Compact Disc player;
- two optical cables for connection to the optical output of the Compact Disc player.

Make sure that you take all these accessories out of the box. Remove all packaging materials from the converter and the accessories.

Checking the power supply setting

The type plate, at the back of your Digital Analog Converter, tells you the supply voltage for which the converter is set.

Before the equipment is connected to the mains, check whether the operating voltage shown on your unit is the same as the local mains voltage.

If your mains supply voltage is different, get your dealer or our Service Organisation to change the voltage setting for you.

English

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At the back of the converter you will find the connection sockets. Except for OPTICAL and BALANCED all these sockets are gold-plated so that the contact resistance between the sockets and the connecting cables is kept as small as possible. In order to maintain the high-grade quality of these connections, we recommend that the connecting cables supplied with the converter are used as they also have gold-plated plugs.

a OPTICAL: for connection to the optical output socket of a Compact Disc player or another digital source, such as a DAT (Digital Audio Tape) recorder, by means of one of the provided optical cables.

If your Compact Disc player has a round optical output socket, you must use the optical cable with a round connector plug at one end and a square one on the other.

If your Compact Disc player has a square optical output socket, you must use the optical cable with a square connector plug on both ends.

On the square connector plugs you will find protection caps, which you will have to remove first. In the OPTICAL input socket a plastic dummy plug has been inserted for protection. This must be taken out before connecting (fig. 2).

Note: Keep the caps mentioned above for later. They will have to be refitted for protection when disconnecting the cable.

The same goes for the dummy plug, which serves to keep the input socket free from dust when there is no connector plug inserted, e.g. when transporting the converter.

You can now connect the round or square connector plug to the optical output socket of your Compact Disc player; the square connector plug goes into the OPTICAL input socket of the converter. Push the square connector plugs firmly until a click is heard.

Warning: Do not bend or kink the optical cable.

b SYSTEM 1 and SYSTEM 2: to these input sockets one or two Compact Disc players or any other digital sound source can be connected via its digital output socket.

c DIGITAL TAPE: these connection sockets can be used for connection of a DAT recorder. Connect the IN socket to the digital output socket of the DAT recorder and the OUT socket to its digital input socket.

Warning: Never connect this OUT socket to a non-digital input socket of an amplifier, like AUX, CD, TAPE, PHONO etc. This can cause damage to the amplifier and the speakers.

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Siting the Digital Analog Converter

This converter can equally well be sited free-standing as in an audio rack, or it can be stacked with other components. Never place the converter in persistent direct sunlight or near any heat source. Avoid also humidity and keep it free from dust.

a. Free-standing - If siting the converter in a cupboard or a wall unit, always allow a minimum free space of 3 cm above it so as not to interfere with the cooling of the converter.

b. In an audio-rack - In an audio-rack the converter can be sited in any desired position.

c. Stacked - In a stack of your own selected equipment, site the converter for preference between the Compact Disc player and the pre-amplifier or integrated amplifier or another component. Under no circumstances stand the converter directly upon a high-power amplifier, because such an amplifier gives off a substantial amount of heat.

Warning - Do not place audio or video cassettes on the converter because of the effects of the magnetic fields produced by the converter transformers.

Connections (Fig. 1)

At the back of the converter you will find the connection sockets. Except for OPTICAL and BALANCED all these sockets are gold-plated so that the contact resistance between the sockets and the connecting cables is kept as small as possible. In order to maintain the high-grade quality of these connections, we recommend that the connecting cables supplied with the converter are used as they also have gold-plated plugs.

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Warning - Never connect this OUT socket to a non-digital input socket of an amplifier, like AUX, CD, TAPE, PHONO etc. This can cause damage to the amplifier and the speakers.

d BALANCED: to these output sockets stereo equipment with balanced XLR plugs can be connected.

e FIXED: these output sockets you can connect to the input socket of your pre-amplifier or integrated amplifier. They produce a constant signal, as opposed to the VARIABLE outputs.

f VARIABLE: these outputs produce a variable signal, that can be raised or lowered with the OUTPUT LEVEL control.

It is possible to connect them directly to a power amp or to the power stage of an integrated amplifier; the signal will be passed on to the amplifier without intervention of tone controls etc.

When you connect this output socket to your pre-amplifier or integrated amplifier you can adjust the signal of the converter to the level of other sound sources connected to the amplifier without changing the volume level on your (pre-)amplifier.

Connection to the amplifier - Insert one red plug in the socket R (right channel) and the corresponding black or white plug into the socket L (left channel). Insert both other plugs into the corresponding sockets of the CD or AUX input on your (pre-)amplifier. If these sockets are already in use, you can also use the TUNER or TAPE IN connection, but *never* the PHONO input! The latter is not suitable for this.

g Connection for the mains lead.

U.K. only: If the mains lead is not fitted with a mains plug, refer to 'Fitting a mains plug' under 'ADDITIONAL INFORMATION'.

Note - At the back you will also find the FUSE holder (**h**), containing a fuse which continuously protects the converter against overload. A faulty fuse should be replaced with one of the same type and value.

OPERATION (Fig. 3)

Your Digital Analog Converter is now ready for use. Before attempting to operate it, however, it is advisable to familiarize yourself with the functions of its keys and display as described briefly below. The names used here for the controls will be used throughout the text.

1 ON/OFF key: for switching the converter on and off.

2 ON/OFF indication: will light or go out according to whether the converter is switched on or off.

3 SAMPLING FREQUENCY indication: shows the sampling frequency of the chosen sound source. The converter will automatically adjust itself to the right sampling frequency.

4 DIGITAL TAPE MONITOR indication: will light when the MONITOR key is pressed.

5 DIGITAL INPUT indication: shows which digital sound source you have chosen with the SYSTEM 1/2 and OPTICAL FIBER keys.

6 OUTPUT LEVEL control: with this you can set the level of the signal produced by the VARIABLE output sockets.

7 PHONES socket: for the connection of a headphone for listening without using an amplifier. See also: 'Listening with a Headphone' under 'ADDITIONAL INFORMATION'.

8 PHONES VOLUME control: for adjusting the volume when listening with a headphone.

9 ABS (Absolute) PHASE key: by pressing this key you can invert the phase of the outgoing signal; any audible phase inversion which may have arisen in the signal path will thus be corrected. This applies only to the VARIABLE and PHONES output sockets, not to the BALANCED and FIXED outputs.

10 MONITOR key: by pressing this key you will obtain the reproduced sound of the connected DAT recorder.

11 Keys SYSTEM 1, SYSTEM 2 and OPTICAL FIBER: with these keys you can determine which sound source, connected to the corresponding input socket, will pass on its signal.

Switching on and off (ON/OFF)

Switching on - You switch the converter on by pressing the ON/OFF key. The ON/OFF indication, the D/A symbol and the ring around the OUTPUT LEVEL control will light.

Switching off - When you press ON/OFF again, the converter is switched off. All lights will extinguish.

Note - It is advisable to switch off the converter before switching off the connected sound sources, otherwise a noise may be audible through the loudspeakers.

Listening to a Compact Disc

Press the key SYSTEM 1, SYSTEM 2 or OPTICAL FIBER, depending upon which input socket your Compact Disc player has been connected to; above DIGITAL INPUT the corresponding indication will light. Above SAMPLING FREQUENCY the indication '44 kHz' can be read.

If the converter has been connected to the pre-amplifier or integrated amplifier via its FIXED output sockets, sound reproduction can be controlled on the amplifier.

If however the converter has been connected via the VARIABLE output sockets to the (pre-)amplifier, or directly to the power amplifier or the power stage of an integrated amplifier, then the signal produced by the converter has to be adjusted with the OUTPUT LEVEL control.

Listening to a DAT

If the DAT recorder has been connected to the DIGITAL TAPE input socket, press the MONITOR key. The indication DIGITAL TAPE MONITOR will light together with one of the indications above SAMPLING FREQUENCY.

If the DAT recorder has been connected via the OPTICAL input socket, then press the OPTICAL FIBER key. The corresponding indication will also light above DIGITAL INPUT, as well as one of the indications above SAMPLING FREQUENCY.

Warning - When recording with the DAT recorder via the converter, leave the MONITOR key in the 'off' position.

ADDITIONAL INFORMATION

Listening with a headphone (PHONES)

With a headphone connected to the PHONES socket, you can listen without having to use an amplifier.

The headphone must have a 6.3 mm jack plug and an impedance between 8 and 1000 ohms.

You adjust the sound level with the PHONES VOLUME control.

Cleaning the converter

You can clean the cabinet, when necessary, with a chamois leather slightly moistened with water. Do not use cleaning agents containing alcohol, spirits, ammonia or abrasives.

IMPORTANT - Fitting a mains plug (U.K. only)

The wires in the mains lead are coloured:

Blue - Neutral Brown - Live

As these colours may not correspond with the colour markings identifying the terminals in your plug proceed as follows:

The Brown wire must be connected to the terminal which is marked with the letter L or coloured Red.

The Blue wire must be connected to the terminal which is marked with the letter N or coloured Black.

Note - This apparatus must be protected by a 3 amp fuse if a 13 amp plug is used, or, if any other type of plug is used, by a 5 amp fuse either in the plug or adapter, or at the distribution board. If in doubt consult a qualified electrician.

Technical data

Typical audio performance

- Number of channels: 2, stereo
- Frequency range FIXED and VARIABLE: 2-20,000 Hz
- Frequency range BALANCED: 20-20,000 Hz
- Amplitude linearity: ± 0.01 dB (20-20,000 Hz)
- Phase linearity: $\pm 0.2^\circ$ (20-20,000 Hz)
- Dynamic range: > 96 dB (20-20,000 Hz)
- Signal-to-noise ratio: > 102 dB (20-20,000 Hz)
- Channel separation: > 101 dB (1 kHz)
- Total harmonic distortion: $< 0.0015\%$ (1 kHz)
- D/A conversion: quadruple oversampling (176.4 kHz) with digital filter and two 16-bit D/A converters
- Error correction system: Cross Interleaved Reed Solomon Code (CIRC)

Inputs

- System 1, 1 $\times$ cinch: 0.5 V/75 ohms
- System 2, 1 $\times$ cinch: 0.5 V/75 ohms
- Optical, 1 $\times$ Toslink: from -15 to -23 dB m
- Digital tape in, 1 $\times$ cinch: 0.5 V/75 ohms

Outputs

- Fixed, 2 $\times$ cinch: 2 V_{rms} / 100 ohms
- Variable, 2 $\times$ cinch: 4 V_{rms} / 100 ohms
- Balanced, 2 $\times$ XLR: 2 V_{rms} / 600 ohms
- Impedance PHONES socket: 8-1000 ohms
- Digital tape out, 1 $\times$ cinch: 0.5 V/75 ohms

Power supply

- Mains voltage: 220 V AC (for U.K.: 240 V AC)
- Mains frequency: 50 and 60 Hz
- Power consumption: 35 W
- Safety requirements: IEC

Cabinet, general

- Material/finish: metal and polystyrene with decorative trim
- Dimensions (w $\times$ h $\times$ d): 420 $\times$ 100 $\times$ 360 mm
- Weight: 9 kg approx.

The right is reserved to change data if necessary

This Digital Analog Converter complies with radio interference requirements as laid down in EEC regulations.

FAULTS AND THEIR LIKELY CAUSES

Although the greatest care has been taken in the manufacture of this Digital Analog Converter, the possibility remains that faults could appear during use or that the converter fails to function to your complete satisfaction.

The cause, however, will certainly not always be found in the converter itself. External factors, and the fact that it takes time to become accustomed to this new product, can also play a role. To save you unnecessary calls on your dealer or our Service Organization, we have compiled a list of possible faults and their causes. To even mention some of these causes, such as those to do with the mains supply, may perhaps seem excessive. Our experience shows, however, that they are easily overlooked as sources of trouble. If, by using this list, you do not succeed in solving the problem, stop your investigation. Disconnect the mains plug and contact your dealer.

Under no circumstances should you open up the converter; this will invalidate all rights under the guarantee!

1. After pressing ON/OFF, that indication, the D/A symbol in the display and the ring around OUTPUT LEVEL do not light.

- The key was not pressed in far enough.
- One of the plugs of the mains lead is not connected or is not making contact.
- There is no supply at the mains socket. Plug in another electrical appliance and check if that works.
- The fuse is faulty. Replace it with a fuse of the same type and value.

2. The converter has been switched on, the various indications are lit, but you hear no sound.

- You have not yet made the correct choice by means of the sound source selector keys SYSTEM 1, SYSTEM 2 and OPTICAL FIBER.
- Check when listening to a DAT whether the MONITOR key has been pressed; the DIGITAL TAPE MONITOR indication has to be lit.
- The headphone jack has not been plugged in or the PHONES VOLUME control is still set to the extreme left.
- If the converter has been connected via the VARIABLE outputs, check whether the OUTPUT LEVEL control is still set to the extreme left.
- The sound source is not connected properly or or not at all or has not been switched on. Consequently the relevant indication does not light.
- The sound source is not working properly.
- The converter has not been connected properly to the amplifier or not at all.

3. The sound is poor or distorted or you can hear only one channel.

- The converter is not connected to the CD, AUX, TUNER or TAPE IN input of the (pre-)amplifier but to the PHONO input. The latter is not suitable for this.
- One of the plugs of the connection cable is not or not properly connected.
- The headphone jack is not properly plugged in.
- The sound source is not working properly.
- The (pre-)amplifier or the (active) loudspeakers connected to it are not working properly. Check with another sound source to see if this is the case.

4. The sound drops out for a moment.

- Static electricity may influence operation of the converter. After a moment the sound will return.
- The interruption may also be due to switching a home appliance or light on or off.

