INTRODUCTION
This amplifier represents a new step forwards in digital sound technology. Because this amplifier incorporates a Digital/Analog converter, it offers a number of facilities which until now have not been available.

The combination of Digital/Analog converter with a high-specification amplifier makes it possible for you to play digital signals from, for example, a Compact Disc, DAT or digital radio transmissions without external interference, such as from electromagnetic waves (radio and TV transmissions), the mains supply and/or other electrical equipment. The fact that the digital signals enter the amplifier directly eliminates any sort of external interference and in addition to this guarantees absolutely top-quality sound.

The Digital/Analog converter automatically switches to the correct sampling frequency, such as for a digital transmitter (32kHz), Compact Disc player (44kHz) and DAT (48kHz). The optical input for the Compact Disc player on this amplifier gives a considerable improvement in playback because interference and signal loss are completely eliminated. You are advised to read this operating manual through carefully and you will then quickly become familiar with the facilities this amplifier has to offer.

INSTALLATION
When positioning the amplifier you should bear the following points in mind:

• Do not expose the amplifier to rain or moisture, as this can damage it.
• When in operation every amplifier produces a certain amount of heat, which must be able to dissipate freely. For this reason, do not cover any ventilation openings and ensure that there is sufficient space for ventilation behind, above and around the amplifier.
• Avoid placing the amplifier in direct sunlight or close to a heat source, as this will only create extra heat.
• If your local mains voltage is not the same as that stated on the type plate on the rear of the unit, contact your dealer.

CONNECTIONS
When connecting units to the amplifier the following points must be taken into account:

• Ensure that the amplifier is not switched on.
• Make the connections one by one.
• Check that every connection made is correct and press the plugs firmly into the sockets.
• Always connect sockets or plugs which are white or marked 'L' or 'LEFT' with similarly marked terminal sockets or plugs. Do the same for sockets or plugs which are red or marked 'R' or 'RIGHT'.
• Always connect the 'OUT' outputs of a recorder with the 'PLAY' sockets of the amplifier and the 'IN' inputs of the recorder with the 'REC' sockets of the amplifier.

A) 'DIGITAL CD COAX' coaxial socket
   For connecting the digital output of a Compact Disc player using a coaxial cable.

B) 'OPT/COAX' selection switch
   Depending on the digital connection system used when using a CD player, the switch must be in the 'OPT' or 'COAX' position.
OPERATING ELEMENTS AND THEIR FUNCTION

Figure 2
1. 'ON/OFF' switch
   Once the 'ON/OFF' switch has been pressed, it will take approximately 7 seconds before the amplifier is fully switched on. This can be heard by the clicking of the loudspeaker relays.
2. '48 kHz', '44 kHz', '32 kHz' frequency indicators
   For indicating the sampling frequency of the selected digital signal source. The amplifier automatically switches to the correct sampling frequency and the corresponding indicator then lights up.
3. 'VOLUME' control
   Inside the amplifier there are four volume controls, the reason for this being to improve the signal/noise ratio at low volume levels.
4. 'PHONES' terminal socket for stereo headphones
   For connecting stereo headphones with an impedance of 8-10kΩ. By releasing the 'SPEAKERS' switches, it is possible to listen separately through the headphones.
5. 'SPEAKERS' A and B switches
   For switching on and off the loudspeakers, which are connected to the corresponding loudspeaker connections.
6. 'REC SELECTOR' recorder selection switch
   For transferring the signal from the signal source to be recorded to the terminal sockets. 'TAPE 1 REC' or 'DAT/TAPE 2 REC'.
   If no recording is being made, this switch should preferably be in the 'OFF' position.
7. 'LOUDNESS' correction switch
   For indicating the sampling frequency of the selected digital signal source. The corresponding indicator will light up.
8. 'DIGITAL' analog/digital switch with indicator
   This should preferably be set at a lower position to prevent damage to the loudspeakers.

OPERATION

Use with the signal source selection switch
1. Ensure that the 'VOLUME' control is not on maximum.

This should preferably be set at a lower position to prevent damage to the loudspeakers.

2. Switch on the amplifier using the 'ON/OFF' switch.
   The lighting around the volume control and above the 'ON/OFF' switch lights up.

3. Switch on the loudspeakers using the 'SPEAKERS' switch.

When button 'A' is pressed: for loudspeakers connected to the loudspeaker connections, 'system A', see figure 3.

When button 'B' is pressed: for loudspeakers connected to the loudspeaker connections, 'system B', see figure 4.

4. Switch on the required signal source and prepare this for playback.

5. On the amplifier, press the selection switch appropriate for the signal source. The corresponding indicator will light up.

6. If you are using a digital signal source, press 'DIGITAL' switch.

7. Slowly adjust the volume level using 'VOLUME' control.

   - If you hear nothing and no indicator lights up:
     - The amplifier is not switched on.
     - The amplifier is not connected to the mains supply.
     - There is no power at the mains.

   - If you hear nothing but an indicator does light up:
     - Check that the loudspeakers are properly connected.
     - Check that the selected sound source is working properly.
     - Check that the loudspeakers are switched on.
     - Check selection switch.
     - Check that the volume control is set high enough.
     - Check that the wires are connected.
     - There is no power at the mains.

If sound comes from one side only:
- Check the earthing of the record player.
- Check that the volume control is set high enough.
- Ensure that the connection cables to the record player are as far away as possible from the mains cables (hum) or TV circuits (buzz).
- The amplifier may hum as a result of feedback from the loudspeakers to the record player. This may occur particularly at high volume levels.

In such a case, change the position of the loudspeakers.

Use with the signal source direct switch

For direct playback from a signal source selected using the signal source selection switch.

If you use this switch, the signal from the connected signal source will be channelled directly via the volume control and 'Tone Defeat', with a flat curve, to the final amplifier and the sound will be amplified.

If the amplifier hums, buzzes or howls during record playback:
- Check that the position of the balance control is correct.
- Check that the volume control is set high enough.
- Ensure that the connection cables to the record player are as far away as possible from the mains cables (hum) or TV circuits (buzz).
- The amplifier may hum as a result of feedback from the loudspeakers to the record player. This may occur particularly at high volume levels.

In such a case, change the position of the loudspeakers.

Playback
1. Switch on the amplifier using 'ON/OFF'.
2. Switch on the loudspeakers using 'SPEAKERS'.
3. Switch on the required signal source and prepare this for playback.
4. If you are using a digital signal source, press 'DIGITAL' switch.

   - The corresponding indicator will light up.
5. On the amplifier press 'SOURCE DIRECT' switch.
Use with a DAT and/or recorder

Playback
Playback from a DAT or recorder connected to the terminal sockets 1 and 2, or 1 and 3 or 4 and 5 takes place just as from any other sound source, as indicated in steps 4 to 7, under the heading ‘Use with the signal source selection switch’.

Recording
A recording can be made in two ways:
- With the ‘REC SELECTOR’ recorder selection switch 6 in the ‘source’ position. The same signal will be produced at the terminal sockets 6 and 7 as can be heard through the loudspeakers and/or headphones.
- With the ‘REC SELECTOR’ recorder selection switch 6 in the ‘CD’ or ‘TUNER’ position. The same signal will then be produced at the terminal sockets 6 and 7 as corresponds to the selected ‘REC SELECTOR’ position (on condition that the signal source is operative).

Listening to a different signal source whilst making a recording
If you make a recording with the ‘REC SELECTOR’ recorder selection switch 6 in the ‘CD’ or ‘TUNER’ position, it is possible to listen to a different signal source.

If you wish to do so, press on the amplifier the selection switch 6 and the ‘SOURCE DIRECT’ indicator lights up.

Note:
- If the ‘SOURCE DIRECT’ switch 6 is pressed:
  - the ‘SOURCE DIRECT’ indicator lights up.
  - the ‘BASS/TREBLE’ controls 7 are switched off.
- With a ‘SOURCE DIRECT’ switch which is pressed in should be released after you have finished, by pressing the switch once more. The indicator will then go out.

GENERAL INFORMATION

Loudspeaker connection
Loudspeakers must be connected in pairs to the ‘SPEAKERS’ loudspeaker connections 6 (impedance 4 to 16 ohms, if only system A or system B is used or loudspeakers with an impedance of 8 to 16 ohms if system A and system B are used).

In order to do this, the wires of the loudspeaker cables, which should preferably have a minimum diameter of 11/2 mm², must be prepared by removing the insulation (+5 mm.) and twisting the core wires. If necessary, remove the loudspeaker plugs to do this. If you prefer not to do this, use suitable adaptor cables. One of the two wires of a loudspeaker cable or adaptor cable is marked throughout with a special marking. This may be a colour, stripe, rib or other indication.

Bear this distinction in mind!

Connection
1. Ensure that the amplifier is switched off!
2. Determine which group of terminals you will use (e.g. A).
3. Select the loudspeaker to be connected (e.g. the left, ‘L’). This will then determine which two wires are to be connected to which two terminals.
4. Insert the marked wire into the red terminal, the non-marked wire into the black terminal (see Figs. 5a, 5b and 5c).
5. Tighten the loudspeaker terminal firmly to limit the contact resistance between the terminal and the wire as far as possible.
6. In exactly the same way, connect the wires of the other loudspeaker (in this case the right, ‘R’) with the two other terminals (in this case A), i.e. the marked wire in the red terminal, the non-marked wire in the black terminal. If you do not do this, the loudspeakers will not work ‘in phase’. The stereo reproduction will then not be correct.
7. If connecting a second pair of loudspeakers, connect these in exactly the same way to the remaining terminals (in this case the B terminal).
8. Ensure that the volume control is not on MAX and only then should you switch on the amplifier.

Positioning the loudspeakers
In order to obtain as good a stereo effect as possible, take some time when positioning your loudspeakers. Because every room has its own limitations, the best positioning can only be obtained by experimenting.

The following rules should be borne in mind:
- Looking from the listener’s position, place the loudspeaker connected to the ‘L’ terminal on the left. Place the loudspeaker connected to the ‘R’ terminals on the right.
- Try to keep the distance between the two loudspeakers equal to that between each of the loudspeakers and the listener’s position.
- Bass reproduction is amplified by placing the loudspeakers on the floor or in a corner.
- Treble reproduction is adversely affected by placing the loudspeakers behind objects (furniture, sunblinds, curtains, etc.).
- Try to keep the arrangement and the positioning height as symmetrical as possible.

Maintenance
The amplifier can be cleaned on the outside using a damp cloth (not wet!). Use only water to dampen the cloth.

Note:
- If the ‘SOURCE DIRECT’ switch 6 is pressed:
  - the ‘SOURCE DIRECT’ indicator lights up.
  - the ‘BASS/TREBLE’ controls 7 are switched off.
- A ‘SOURCE DIRECT’ switch which is pressed in should be released after you have finished, by pressing the switch once more. The indicator will then go out.
TECHNICAL DATA
(Subject to alteration)

- Power output acc. to FTC
  at 8 ohm load
  (20-20,000Hz, D <0.03%): 75 W continuous sine wave
  at 4 ohm load
  (20-20,000Hz, D <0.05%): 90 W continuous sine wave

- Power output acc. to IEC
  at 8 ohm load
  (63-12,500Hz, D <0.3%): 80 W continuous sine wave

- Power output acc. to DIN
  (1 kHz, D <0.7%)
  at 8 ohm load: 85 W continuous sine wave
  at 4 ohm load: 115 W continuous sine wave
  at 2 ohm load: 140 W continuous sine wave

- IHF music power
  at 8 ohm load: 95 W
  at 4 ohm load: 140 W
  at 2 ohm load: 160 W

- Harmonic distortion (1 kHz): 0.01%
- Intermodulation distortion: 0.03%

- Power bandwidth (-3 dB): 10-30,000 Hz
- Frequency response: 20-20,000 Hz ~ 0.5 dB
- S/N ratio: 90 dB (weighted)
- Channel separation (1 kHz): 70 dB

- Damping factor at 8 ohms: 80

- Input sensitivity:
  - Phono MC: 0.25 mV/150 ohm
  - Phono MM: 2.5 mV/47 kohm
  - Compact Disc: 150 mV/20kohm
  - Tuner: 150 mV/20 kohm
  - Aux 1: 150 mV/20 kohm
  - Aux 2: 150 mV/20 kohm
  - Tape 1: 150 mV/20 kohm
  - DAT/Tape 2: 150 mV/20 kohm
  - Compact Disc optical: 1 x Toslink
  - Compact Disc: 0.5 V p-p/75 Ohm
  - DBS/Aux.: 0.5 V p-p/75 Ohm
  - DAT/Play/Rec: 0.5 V p-p/75 Ohm

- Outputs:
  - DAT/Tape: 150 mV/550 ohm
  - 2 x 2 loudspeakers: 4-8 ohm
  - Headphones: 8-1000 ohm

- Tone control:
  - bass: + 8 dB to - 8 dB at 100 Hz
  - treble: + 8 dB to - 8 dB at 10 kHz

- Loudness: +6 dB at 100 Hz, +4 dB at 10 kHz

- Balance control: 0-co dB

- Power consumption: 330 W

This product complies with the radio interference requirements as laid down in EC (European Community) regulations.

Important note for users in U.K.:

The U.K.-version is not fitted with a mains plug.
When fitting a mains plug to the mains lead proceed as follows: The wires in the mains lead are colour-coded according to the following code:

- 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.