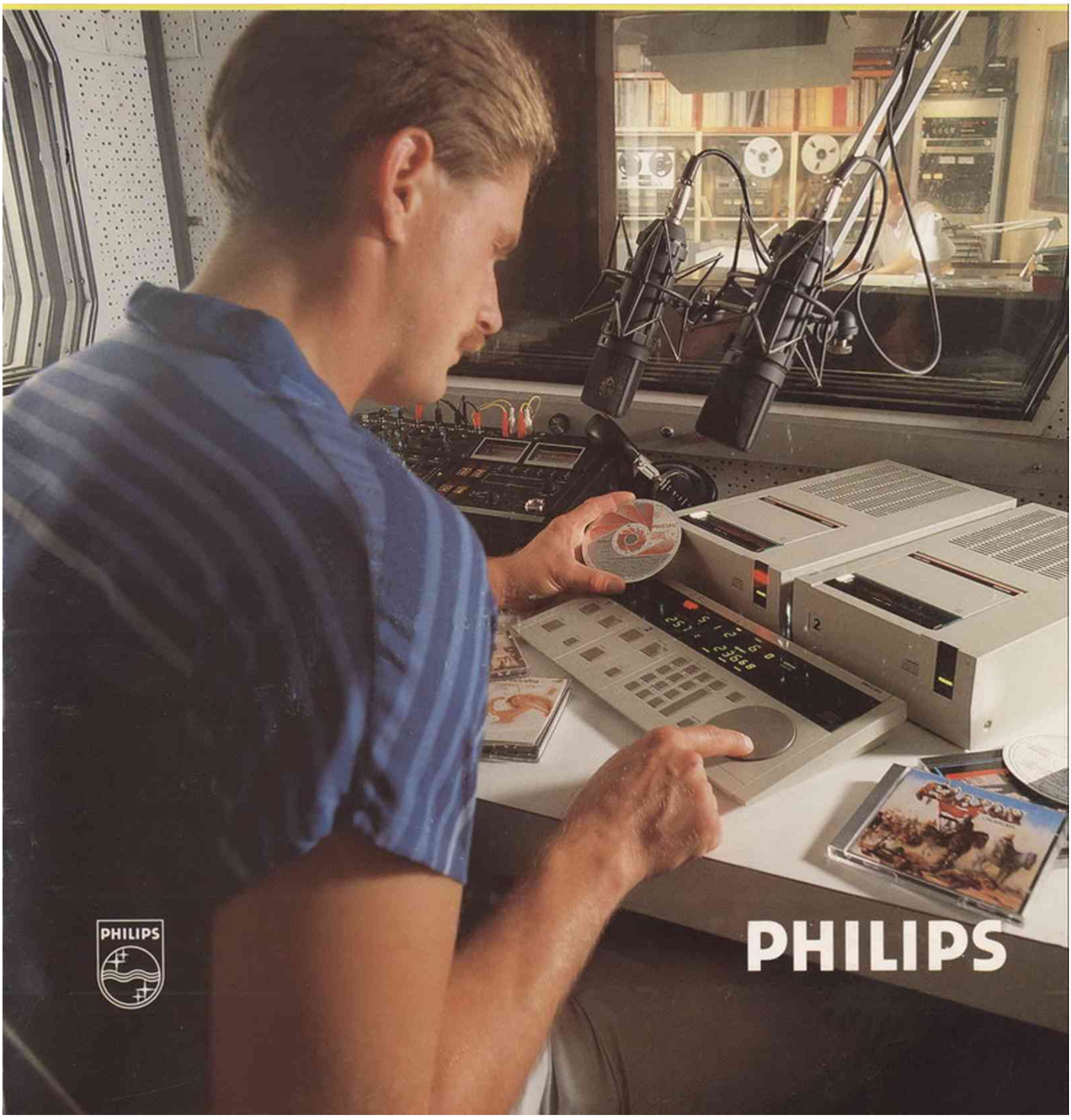
COMPACT disc DIGITAL AUDIO

LHH2000 Professional Compact Disc Player System

The precise answer for music programme makers



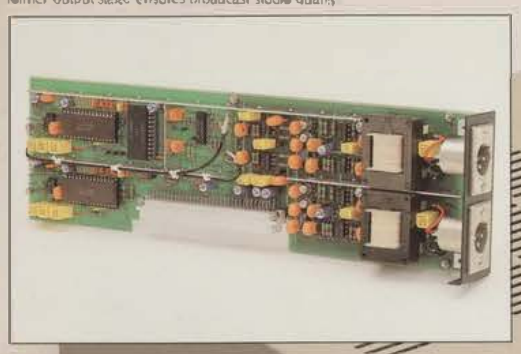
Professional CD-Player

Up to three professional CD-Players can be operated within the system. These have been designed not only to provide the high standards of performance demanded by professional organisations, but also for compactness so that they fit unobtrusively into a busy sound studio. Each CD-Player is a mere 9,5" wide – just half the width of a normal rack-mounting unit.

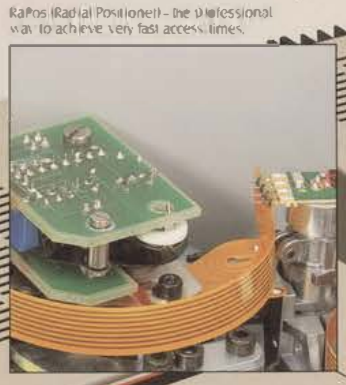
The access capabilities of the Professional CD-Players are considerably faster than those of a normal consumer unit. This is thanks to a special sensor that's built onto the focus unit of the laser optics system, which rapidly scans the disc for a desired point of access. The Professional CD-Player also features a high quality built-in digital/analogue converter. It helps ensure the highest standards of reproduction required by studios – without the need for extra amplifiers. In addition, the special built-in power supply unit handles all the needs of both CD-Player and the CD-Drive Control Unit.

As an aid to easy operation, the CD-Players are designed for top loading. This means that virtually no space is required in front of the unit when loading a disc, thereby enabling a compact configuration to be achieved. A light touch on the lid, and the door to the disc drive compartment opens hydraulically. Once the disc is placed in position and the lid closed, the turntable mechanism starts rotating automatically. On the front of the CD-Player illuminated indicators are provided which denote the status of the unit – on-line, ready, and power-on.

D/A (Digital/Analogue) converter circuit board whose transformer output stage ensures broadcast studio quality.



RaPos (Radial Positioner) – the professional way to achieve very fast access times.



CD-Drive Control Unit

The modular microprocessor based CD-Drive Control Unit is made up from one function module and up to three command modules. Each module comprises a flat keyboard with an associated illuminated display panel. The selected configuration – a single-, dual-, or triple-CD-Drive Control Unit – can be used either free-standing, or flush-mounted in a desk.

Command module – one per CD-Player – enables communication between the function module and its related drive, for setting up a programme. It also permits actual pre-checking and playing of the disc. In addition, it allows pauses to be provided. Playing the disc is simple, and can be carried out from either the command module, or using the fader switches on the control desk. The command module's LED display provides a countdown of the time to Stop Cue, plus an indication of system status – edit, ready, on-line, or on-air.

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Philips Professional CD- (or Compact Disc) Player System provides an exceptionally precise means for timing music selections during the creation of programmes using compact discs. The accuracy that the system permits offers great advantages for both the network studio, in the production of live broadcasts, and the professional sound studio making pre-recorded programmes.

The system comprises up to three professional CD-Players, connected to a microprocessor controlled, modular CD- Drive Control Unit. This latter element features a function module, to which is linked up to three command modules (one for each professional CD-Player).

Operation of the Professional CD-Player System is simple, thanks to the logical layout of the controls on the CD-Drive Control Unit's keyboard. All procedures carried out to arrive at start and stop cue times, are clearly confirmed on large anti-glare LED displays. Programming sequences are arranged so that the user is guided through the procedures, with the help of the LED displays, in a step-by-step manner. This helps make programmecreation not only exceptionally accurate, but also very straightforward.

The unusually compact dimensions of the system mean that it takes up very little valuable studio space, integrating easily and attractively into any existing lay-out.

Exceptionally fast and accurate

The Philips Professional CD-Player System offers the music presenter and the programme maker, remarkably fast access to the timecode information contained in the compact disc P and Q subcode channels ... and a clear, easy way of using it. Any point on the disc can be accessed in less than two seconds, with an accuracy of 13,3 milli-seconds (or one frame). With every second of music divided into 75 frames, each of which can be accessed, the programming accuracy of the Philips system is evident. The result is that studios can plan and prepare their compact disc based material in the knowledge that it will run precisely to time.

Function module – gives the extensive search and programming facilities that enable setting up of start and stop cues for each CD-Drive, using the straightforward module keypad, and where necessary, the search dial. All programming actions are confirmed on the illuminated display. The result is that music selections can be chosen with extreme accuracy. A shift key is also provided which permits an additional range of user selectable functions.

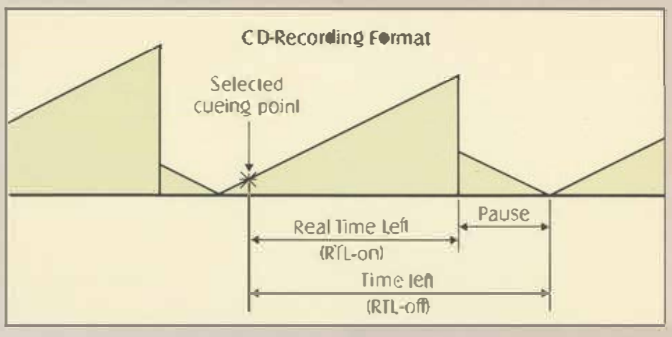
Extensive features and facilities

Easy-to-operate keyboard

The logically laid out keyboard of the CD-Drive Control Unit makes programme creation fast and easy. Commands are entered using the fingertip touch keys, and confirmed by the large easy-to-read displays. The programming capabilities of the system are extensive. They cover virtually anything, from enabling the simple playing of a complete disc, a single track, or an index, to different time-selected sections.

Using the function module, music selections can be prepared to start and stop, wherever the programme maker wishes. This can be in the middle of a track at a point of emphasis, in the pause between tracks, or at any point in succeeding tracks. The selected piece of music is shown on the display in the form of a Cue to Cue time. And when the chosen section from a disc is being played, an automatic countdown display on the command module gives the operator an indication of the time left on that particular piece. This is shown as a Time to Stop Cue. Once relevant cueing data has been noted, it can be used time and time again, always with the same precise accuracy.

A further advantage to the programme maker is a pause facility. This enables music to be interrupted for announcements etc., and then restarted at the exact spot which it had reached before the pause – either using the key on the command module, or a fader.



Timing accuracy

As with many normal LP's, the duration of each track on a compact disc is given from its beginning, to the beginning of the succeeding track. In other words, the pause between tracks is included. But that's of little help to the operator, as it's essential to know the precise music time.

With the Philips Professional CD-Player System, this is possible thanks to the RTL (or Real Time Left) mode. This means that when the mode is selected on the keyboard, the actual time remaining to the end of a particular track (without the pause) is displayed. Not the time to the beginning of the next piece of music.

Test function helps cueing

Cueing accuracy is assisted by using the Test Time function on the CD-Drive Control Unit's keyboard. This enables pre-checking of start and stop cues by playing the first or last couple of seconds of a selected piece so that precise cueing points can be found. The test time can be easily extended or reduced using the Shift Test Time function.

Search dial for rapid access and precise cueing

Any point – accurate to one frame – on a compact disc, can be rapidly accessed using the search dial. In the normal mode, one turn of the dial corresponds to one second of music. Quicker access is also possible using the dial in conjunction with Fast 1 or Fast 2 keys. In these modes, a single turn of the dial represents 30 seconds and 4 minutes of music respectively. The two fast modes are primarily intended to provide a rapid approximation of the place for cueing. After this has been carried out, the normal mode is re-selected to establish the precise cueing point.

Movement of the dial when monitoring to locate a cueing point, can be either forwards or backwards, and once the dial is stationary the particular piece of music whose frames are being scanned will be continuously repeated. The corresponding position in minutes/seconds/frames of that section is displayed for reference.

Special auto mode

An automatic mode can be chosen in multi-configurations which enables the playing of one pre-programmed CD-Drive after another. In addition, whilst one CD-Drive is playing, the discs on the other CD-Players can also be re-programmed with other selections.

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The search for perfection

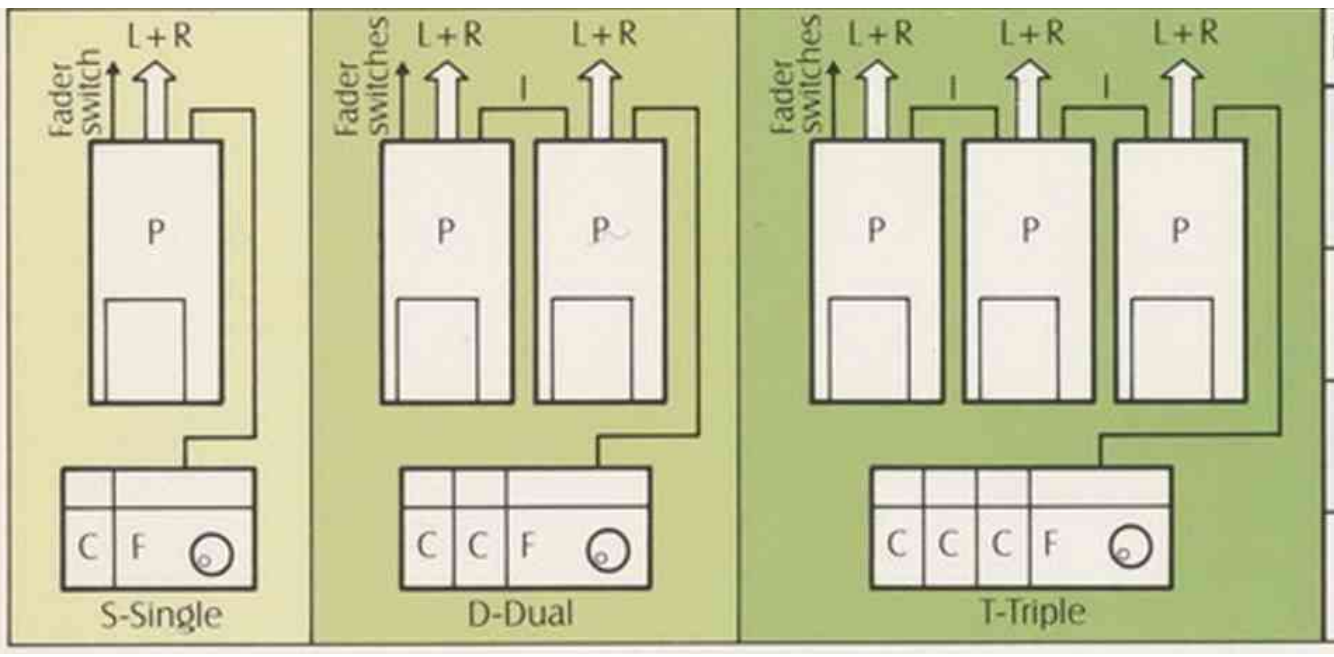
The Professional CD-Player System is a logical addition to Philips' already extensive contribution to the new era of the compact disc. As a pioneer of the concept. Philips is continually striving for the ultimate in equipment that enables this revolutonary new sound technology to be utilised to the optimum.

The Professional CD-Player System represents what is perhaps today's finest tool for the professional studio that creates its music programmes using timecode channel information. With Philips, however, technology does not stop at today, we are also looking at tomorrow. So to anticipate likely trends in compact disc development we have also built into the CD-Player a connector via which, as the technology comes available, the system will be able to handle R to W channel information.

I his will for example, permit the display of accompanying graphics.

For further information on Philips compact disc products and systems for the professional world, or for data on the Philips technique on the actual mastering of the discs, please contact the address below.

Typical system configurations



Ref.	Type No.	Description	S	D	T
F	LHH 2051	Function module (incl. instruction manual)	1x	1x	1x
C	LHH 2052	Command module	1x	2x	3x
P	LHH 2001	Professional CD-Player	1x	2x	3x
I	LHH 2063	Interconnection cable	–	1x	2x

Product summary

Professional CD-Player
Configuration:
table top model
Number of channels:
2
Optical stylus:
Semi-conductor laser
Frequency range:
20 Hz-20 kHz ±0,5 dB
Total harmonic distortion:
less than 0,01% (20 Hz-20 kHz)
Wow and flutter:
below measurable limits
Dynamic range:
more than 90 dB
Crosstalk damping:
80 dB (1 kHz-20 kHz)
Channel separation:
more than 80 dB (1 kHz-20 kHz)
Error correction:
CIRC (Cross Interleave Reed Solomon Code)
Outputs; connectors:
Line out via 2 Cannon XLR 3-pin
Impedance:
less than 40 ohms
Level:
6 dBm in 600/300 ohm balanced floating
Headroom:
6 dB
Phase shift between R and L
at 20 kHz, less than 10°
Access time:
less than 2 sec.
Audio rise time:
within 0,3 sec.
Dimensions (wxhxd):
219x99x450 mm
Weight:
7,3 kg

CD-Drive Control Unit
Configuration:
table top or desk mounting; modular design for single, dual-, and triple-installations
Command module:
for individual pre-checking and play-off; modes-play, stop (pause), repeat, ready, on-air (at fader start)
Function module:
for searching and determining cue points with access to track and index numbers; time in minutes/seconds/frames via keys and dial
Key selectable functions:
auto-on; auto-off; RTL-on; RTL-off; test time; dial repeat time; dial fast 1; dial fast 2
Dial (bi-directional use):
scan mode-4 min./rev; fast search 30 sec./rev; precise search 1 sec./rev; with time selectable repeat function; search accuracy ±1 frame
RTL (Real Time Left) display
(lime to Stop Cue):
accuracy 2 frames
Dimensions (wxhxd);
-Function module keyboard:
200x52x190 mm
-Command module keyboard:
80x52x190 mm
-Side support (each):
15 mm wide
Weight;
- Function module keyboard:
0,95 kg
-Command module keyboard:
0,3 kg

General
Power supply:
110,130, 220, and 240 V or 120 V, 50/60 Hz
Power consumption:
approx. 30 W per combined player and keyboard
Computer bus:
optionally available

Philips Export-B.V.
Electro Acoustics Division
Product Group Optical Disc Mastering
Building DBD, P.O. Box 218
5600 MD EINDHOVEN
The Netherlands,
Tel.:040-723715
040-722882
Telex: 35000PHTC NL/NLXEVEL

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