

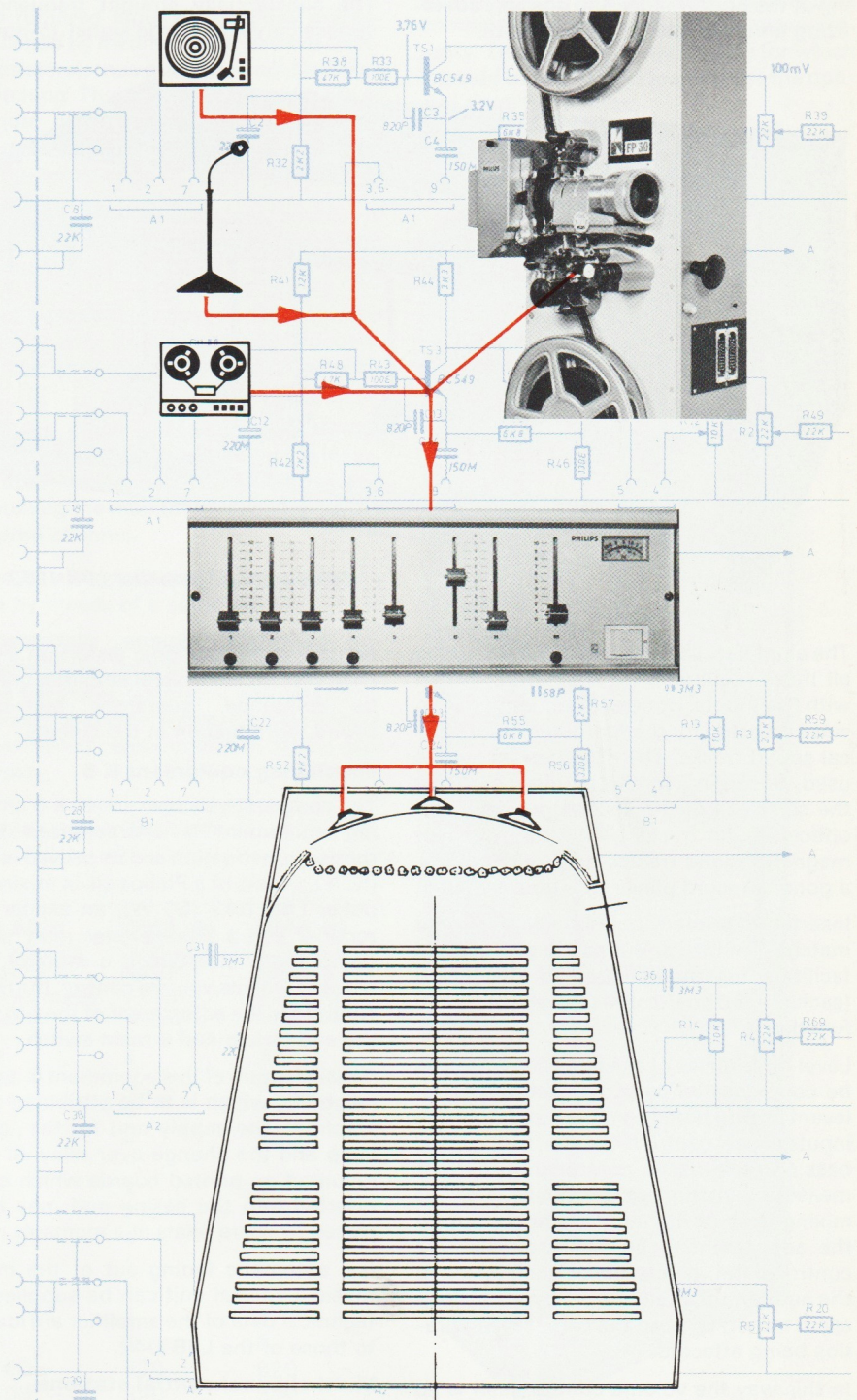


## PROJECTION EQUIPMENT

## Amplifiers

Every visitor in a cinema theatre expects rightly that all efforts have been made to ensure a good sound transmission, a good intelligibility and a faithful reproduction of music. The main component of an electro-acoustical installation that satisfies all requirements, is a high-quality amplifier that is adapted to the size and acoustical properties of the auditorium. In our amplifier programme, based on the familiar SQ 4 series of Philips amplifiers, the correct amplifier is available for every cinema theatre.

- the correct amplifier for every cinema theatre
- high-quality reproduction of music and speech
- linear frequency response curve
- high signal-to-noise ratio, low harmonic distortion
- designed for continuous operation, high reliability
- possibility of connecting all film systems and many external sound sources
- service requiring a minimum of effort by the use of insertable printed boards
- great simplicity of operation or remote control

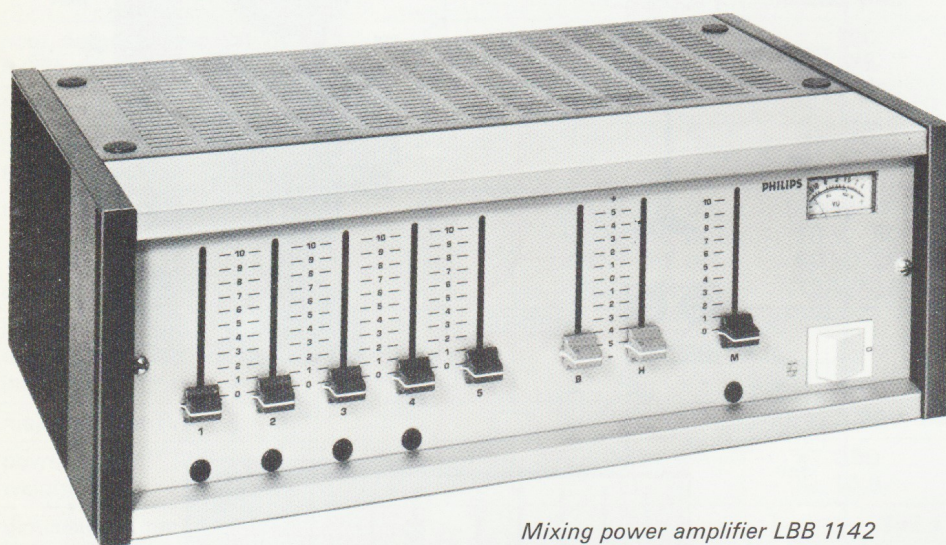


### All-in mixing amplifiers LBB 1142 (50 W) and LBB 1143 (100 W)

The basic elements of most cinema amplifying equipment are the all-in mixing amplifiers LBB 1142 and LBB 1143 of the Philips SQ 4 programme.

The FP 30 projector is supplied with one or two of these amplifiers built-in, so that they demand no extra space in the projection room and no wiring and installation operations are required.

In addition to ensuring a high-quality reproduction of the sound recorded on the film, such an amplifier offers many possibilities and advantages in the cinema theatre. By way of example, carefully chosen background music may create the right atmosphere in the entrance hall and during intervals. Strokes of a gong announce the starting of the performance and possibly advertising announcements, and so forth.



Mixing power amplifier LBB 1142

The amplifiers LBB 1142 and LBB 1143 fulfill all these requirements: they are provided with five inputs. Upon delivery input 1 is always adjusted for the reproduction of optical sound tracks. The other inputs can be used, according to the requirements, for the solar cell of the second projector, for optical sound tracks on 16 mm film, for magnetic sound tracks, for a microphone, a gong, a record player or a tape recorder.

Insertable printed boards allow correct matching of the various sound sources and facilitate the modification of the inputs (each printed board offers the choice of two functions).

Level differences of the signal sources can be compensated by pre-adjusting the relevant sliding potentiometers at four of the inputs. Tone controls for the trebles and bass notes, a master control and a built-in measuring instrument, all mounted on the mixing desk of the input channels, permit the adjustment to be perfected. Remote control of the volume can be achieved from the auditorium or elsewhere by means of a servo motor, without the preset mixing ratios being affected.

In this way the volume control itself is no longer located in the auditorium, but integrated in the amplifying installation. In the

auditorium only the control equipment, the operating keys which merely command the actual adjusting servo motor, is present. In this way the risk of phenomena such as attenuations, losses or cross-talk – which were experienced in the past notwithstanding the use of expensive microphone cable for linking the auditorium control to the distant amplifier – is eliminated.

The output transformer of the amplifier permits loudspeaker matchings of 100 V, 70 V, 50 V or directly 4 ohms (with the 50 W amplifier) or 2 ohms respectively (with the 100 W amplifier). The equipment is protected against the consequences of mismatching or short-circuiting the output terminals. After the overload has been removed, the output voltage is automatically restored.

The substantially straight frequency response curve, the large signal-to-noise ra-

tio, the small harmonic distortion and the ease with which several amplifier units can be combined, guarantee high-quality sound reproduction in the cinema.

### Amplifying equipment K 5

The comparatively low-priced K 5 amplifying equipment is characterized by its rugged construction and its proved reliability. It consists of a Philips all-in mixing amplifier LBB 1142 (50 W), an exciter lamp rectifier and a change-over relay printed board (both insertable), a monitor loudspeaker with its volume control, the remote control for the adjustment of the volume in the auditorium and a main switch.

A main feature of this equipment is its great reliability, which is to be attributed to the amplifier, the supply unit for the exciter lamp and the change-over relay all being mounted on printed boards which can be inserted into the casing and may be replaced by spare prints at a moments notice.

For automatic fading-out of the interval music a special unit can be supplied. The technical data of the amplifier are identical to those of the LBB 1142.

### Multi-channel central stations

Extensive and very large cinema theatres, in particular those in which – apart from



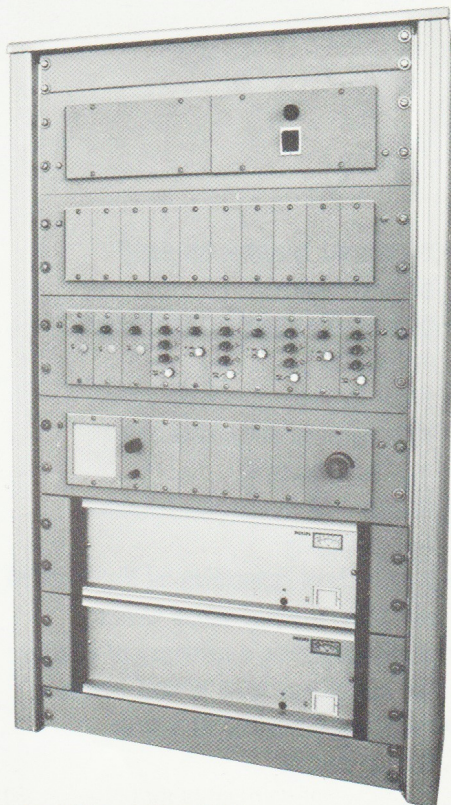
Amplifying equipment K 5

optical sound tracks – magnetical sound tracks or Dolby films and/or stereo magnetic sound (four-channel magnetic film or 70 mm films with six-channel magnetic tracks) are to be reproduced, impose particular demands on the amplifying equipment. These can be met by an installation chosen from our programme of central amplifier stations.

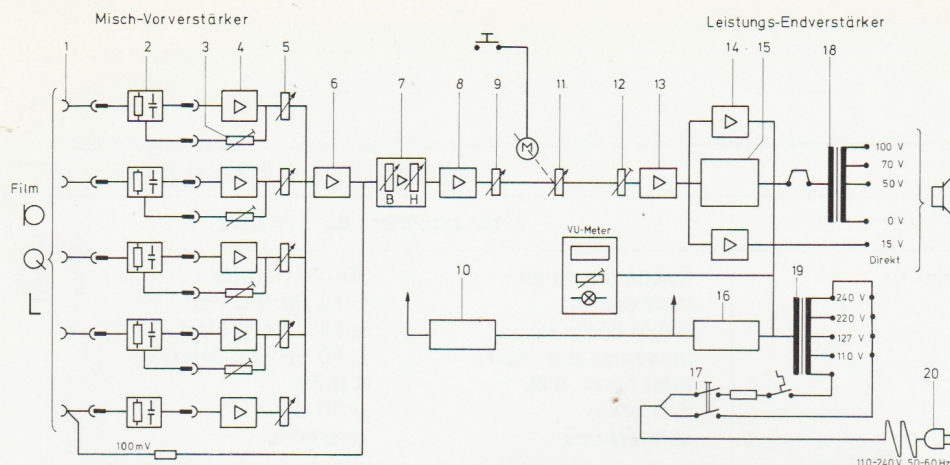
According to the specific requirements, such amplifier centrals are composed of high-quality units, thus permitting the realization of a multitude of amplifying installations with constant HiFi properties. The stations may consist of two-channel installations, or Dolby amplifiers, or four-channel and six-channel installations with or without Dolby devices.

Further advantages are:

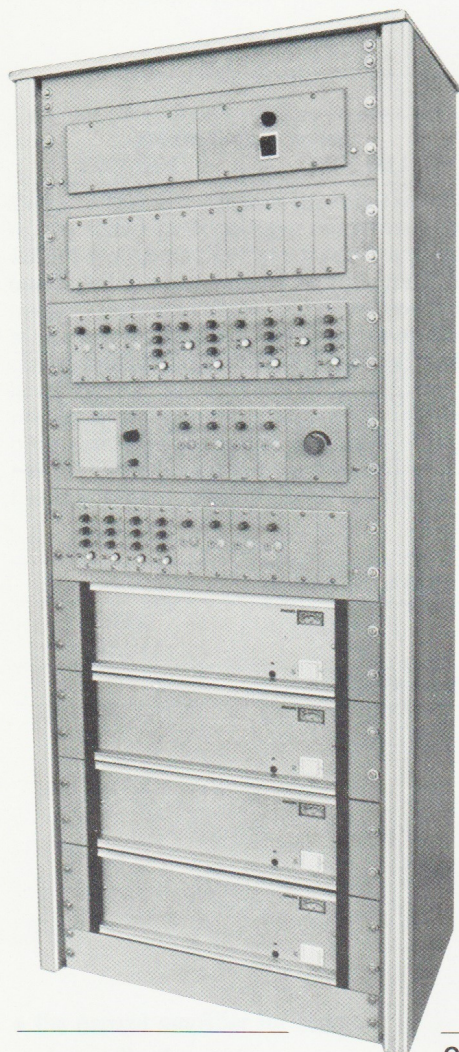
- The stations are composed of modules of the Philips SM 4 series and SQ 4 power amplifiers designed for being mounted in racks.



Amplifier station 020



1. Input plugs
2. Input p. c. boards
3. Volume pre-adjustment
4. Preamplifier
5. Volume control
6. Mixing stage
7. Bass/treble control
8. Common amplifier
9. Master volume control
10. Stabilizer
11. Motorized volume control
12. Master pre-set volume control
13. Driver
14. Power amplifier
15. Overload protection
16. Rectifier
17. Mains switch and fuses
18. Output transformer
19. Mains transformer
20. Mains connection

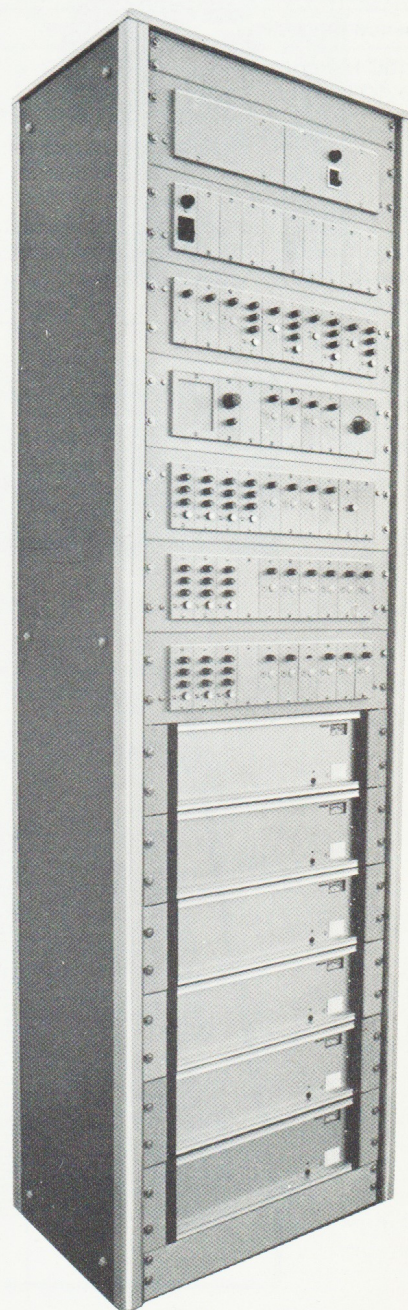


- The printed board technique and the fast locking clips greatly facilitate installing and service operations.
- The required input connections are established by means of LDR devices (photoresistors), thus guaranteeing click-free switching. This includes the possibility of remote control, presetting of the programme or automatic control governed by the proceeding of the programme.
- Matching to the several signal sources is achieved by simply inserting adequate printed circuit boards.
- The frequency response can be adjusted continuously by the mutually independent controls of the four filter preamplifiers.
- The level of the input and output signals can be supervised by watching the incorporated measuring instruments and switching the monitor loudspeaker to the desired channel.
- Remote volume control from the auditorium by means of a servo motor.
- Substantially straight frequency response curve, high signal-to-noise ratio, little harmonic distortion and simplicity of combining the various modules ensure an excellent reproduction of music and speech.

◀ Amplifier station OMA 40

The most usual combinations are tabulated below:

	O 20	K 50/4	OMA 40	OMA 60
	2-channel optical	2-channel optical & Dolby stereo optical	2-channel optical & 4-channel magnetic	2-channel optical & 6-channel magnetic
pre-ampl. for solar cells	2	2	2	3
non-sync. pre-amplifiers	3	3	3	3
pre-ampl. for magn. tracks	—	—	8	max. 20
filter ampl. with tone contr.	5	5	9	14
Dolby electronic device CP 50	—	1	—	—
12 kHz unit	—	—	1	1
control unit with monitor sp.	1	1	1	1
switching-off unit	1	1	1	1
relay unit	1	1	1	1
supply unit	1	1	1-2	2
servo-driven volume control	1	1	1	1
power amplifier	2	4	4	6
width in mm	520	560	520	520
depth in mm	340	500	340	340
overall high of combin. in mm	916	1456	1330-1500	1860-2000



Amplifier station OMA 60

## Technical data

<i>pre-amplifier LBB 1151/01</i>		<i>Filter amplifier LBB 1151/02</i>	
frequency range:	20–20 000 Hz	frequency range:	30–20 000 Hz
total harm. distortion:	< 0,3%	bass control:	± 14 dB (60 Hz)
supply voltage:	24–32 V	treble control:	± 14 dB (10 kHz)
current drain:	25–350 mA	presence-abs. filter:	± 10 dB (2,5 kHz)
connections:	insertable	total harm. dist.:	< 0,3%
		S/N ratio:	> 80 dB
		connections:	insertable

	<i>mixer-preamplifiers</i>		<i>power output stages</i>	
	LBB 1142	LBB 1143	LBB 1102	LBB 1103
nom. output power (W)	50	100	50	100
music peak power (W)	70	145	70	145
frequency range (Hz)	20–20 000			
bass (60 Hz) contr.	± 14 dB			
treble (10 kHz) c.	± 14 dB			
transformer output	100 V/200 $\Omega$ 70 V/100 $\Omega$ 50 V/ 50 $\Omega$ 15 V/ 4 $\Omega$	100 V/100 $\Omega$ 70 V/ 50 $\Omega$ 50 V/ 25 $\Omega$ 15 V/ 2 $\Omega$	100 V/200 $\Omega$ 70 V/100 $\Omega$ 50 V/ 50 $\Omega$ 15 V/ 4 $\Omega$	100 V/100 $\Omega$ 70 V/ 50 $\Omega$ 50 V/ 25 $\Omega$ 15 V/ 2 $\Omega$
direct output				
S/N ratio	> 60 dB		> 85 dB	
total harm. dist. *	< 0,5 %		< 0,5 %	
intermodul.**	< 2,5 %		< 2,5 %	
mains voltage (V)	110, 127, 220, 240 V ± 10%, 50–60 Hz			
power drain *** (VA)	125	250	125	250
weight (kg)	11	12,5	11	12,5
dimensions (mm)	392 x 250 x 133			

\* at 1 kHz, nom. output power \*\* IEC 268-3 \*\*\* at nom. load