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POWER

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885

885 INTEGRATED AMPLIFIER

SETUP

ENTER

SPEAKERS

BALANCE

MUTE

VOLUME

885 INTEGRATED POWER AMP

## Syntonzed for symmetry from head to toe

### A transistor amplifier? With a single-ended push-pull power stage?

Christmas was just around the corner when the editor came knocking: "Still got time to take on another topic? We've got a great integrated amplifier from Lindemann..." This means the holidays won't just be a time for "ora", but also "labora". But the temptation is just too much to resist! And not only does it make a melodious enhancement to my gift table, but I will also be rewarded with some creative overtime. Just before Christmas Eve, the latest unit to emerge from Norbert Lindemann's manufactory, with the model designation 885, finally arrives; in my heart of hearts I feel just like a child moments before being let loose under the Christmas tree. Admittedly a day early, and minus the gift wrapping – but this does nothing to dampen my excitement. After all, the sturdy, reinforced cardboard is pro-

tecting a technological novelty. Just like its predecessor, the 882, the 885 also makes a statement with its brilliant, glass bead peened flanks and side panels, which exude a classic elegance and timelessly haptic solidity, or that certain *je ne sais quoi* which almost seems to lend its owner a sense of possessing a piece of eternity. A "Kind of Blue" power cable, available as an optional extra, had been packed on top – its phase marked with a red dot. Furthermore, a special Syscom connector for linking the system to other devices in the 800 series, in addition to a slimline, high-gloss black remote control, also came to light.

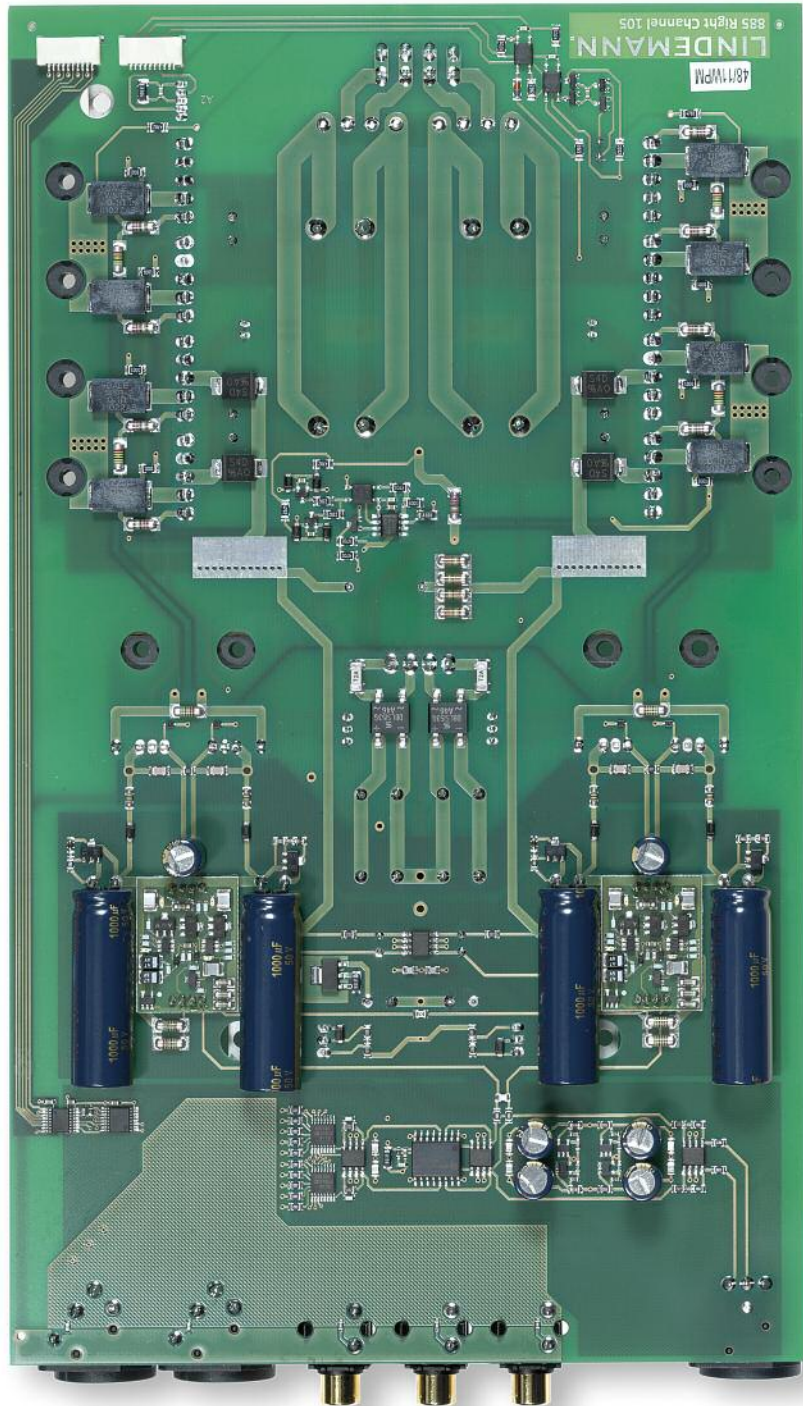
Needless to say, all devices in the Lindemann family respond to the remote control, as well as the complete configuration menu for the 885. And yet being in visual proximity to the fourfold-dimmable blue dot matrix display is more practical in this case, allowing the inputs, for example, to be determined according to the predefined designations for the types of device, or the names

of other models bearing the Lindemann name. There are five inputs altogether; two of them are configured as balanced XLR line-level inputs, while three are RCA ones. And yet nothing is as its appearance would suggest. The complete circuit design of the new Lindemann 885 is fully balanced. Unbalanced signals are also getting balanced immediately after passing the RCA inputs. This necessitates the use of a double amplifier branch for the in-phase and phase-inverted signal current for every channel. The intention was to make a significantly larger dynamic scope possible than would be the case with an unbalanced configured circuit. To realize this, Norbert Lindemann opted for FDAs (fully differential amplifiers), a balanced version of an operational amplifier. They allow the complete signal path to be assembled without any ground reference whatsoever; any interference which may occur can no longer impair the signal.

Switching between the different input modes is carried out using an FET source selector – this was entrusted with the task instead of a relay for acoustic reasons; a "floating" H-pad volume attenuator, as used in studio technology, has also been integrated. For a moment, I am happy to put the remote control to one side, because the haptic motion of the source and volume control is a source of endless pleasure. As if of their own accord, my fingertips reach to grasp an ergonomically matching recess, molded in the shape of a groove. Turning the solid hand



## integrated amplifier Lindemann 885



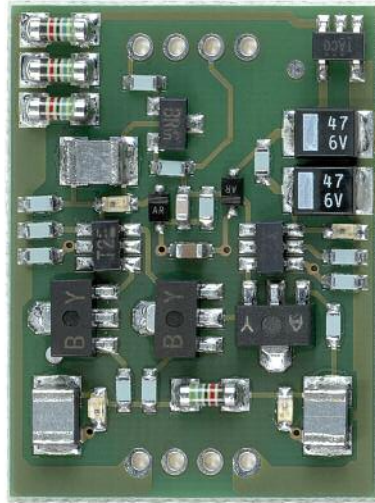
Compact design, short signal paths: the main circuit board of the integrated amplifier

wheel feels satisfying and exquisitely precise. The volume can be raised or lowered in increments of one decibel, a delicate response, which can be also rendered in the display as a numerical value if this option is preferred. High-efficiency loudspeakers in particular will reap the benefits of this extremely subtle adjustment. Only after the volume control has absolved made four full rotations on its own axis will it have covered all volumes from the displayed "min" (-99 dB) right through to its maximum level (0 dB). Even the very gentlest of music recordings can be successfully rendered free from any channel deviations at all, with a pinpoint accuracy, so to speak, which benefits the transparency and plasticity enormously.

Just like its predecessor, the 885 was designed with a dual-mono configuration, meaning it features two amplifiers which operate completely autonomously, both housed in a compartment of their own within the unit. All control wires and sensors feature galvanic isolation, having been designed as optocouplers and iCouplers to eliminate any reciprocal interference and crosstalk. And so the very best prerequisites for a stable and particularly precise spatial playback are satisfied. Two toroidal core transformers, generously dimensioned at 500 watts each, fast rectifier diodes and long-life capacitors with a specific capacity of 62,000 microfarads per channel attend to the power supply, which is therefore amply dimensioned. Eight ultra linear thermal track transistors in each power stage section consequently provide generous power reserves, even capable of coaxing a

confident performance out of low-efficiency loudspeakers. Each transistor chip is installed in close contact with a diode, which permanently monitors its inner temperature and regulates the quiescent current without any delay. Because the transistor chip can consistently attend to its task in the optimum working range, no crossover distortion will occur even after sudden power bursts.

In terms of the innovations in amplifier technology mentioned earlier in this article, some concentration is now required: for the first time, the 885 employs a single-ended push-pull circuitry, the type which is, in fact, usually found in tube amplifiers, in a fully balanced, current feedback amplifier. At this point, I prefer to allow the developer, Norbert Lindemann, to do the explaining: "The real highlight of this device is the power stage circuit, which makes do with the shortest possible,



The "centerpiece" – the SEPP circuitry is based on SMD technology

but highly effective, signal path. The output buffers are configured as so-called H bridges with thermal track transistors. It is therefore not simply two output stages which are bridged,



The upper side of the main circuit board also houses the end transistors

but rather two H structures – which form two cells operating in parallel – which power the loudspeakers. This configuration also performs very well in linear circuits, due to low inductive losses and therefore higher bandwidths and an audibly better-sounding treble. The actual voltage amplifier circuit (error amp) is configured around one single input transistor. This transistor features 'single-ended' operation, almost making it a triode, and controls two current-controlled cascoded current mirrors. Because this current mirror has been implemented both as an N channel and a P channel, it produces an almost perfect push-pull voltage amplifier stage, which then drives the output stage. We call this configuration SEPP (single-ended push-pull voltage amp)."

The negative feedback loop on the 885 is a moderate one at 30 decibels; due to the fact that it is balanced, the output remains floating. The distortion level is an outstanding 100 decibels, remaining at 90 decibels even when the level control is at full load. Incidentally, implementing a drastic reduction in the number of components proved possible, and while the new integrated houses comparatively few of them, they are very high-quality and rigorously selected ones. This makes the centerpiece, the SEPP circuit, only around two thumb-widths wide; most of the space is occupied by the two transformers, along with the innumerable compact capacitors – which enable the very fast recharging processes – as well as the cooling elements. The manufacturer's website features a quote from Albert Einstein: "Everything should be made as simple as



The Lindemann's layered construction. The cooling element phalanx is right at the top

possible, but no simpler". This might sound quite self-confident, and yet the 885 certainly embodies a standard which can be clearly distinguished from simplicity in terms of innovation, technology, craftsmanship and price. Nevertheless, the considerable effort put into development serves a noble cause: the

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### Also playing along:

**CD player:** Lector CDP 0.6 Tube **Pre-amplifier:** Radford SC 26 **Power amplifier:** Micromega Stereo Amp **Integrated amplifier:** Lector ZAX-60, Unison Simply Two LAE **Loudspeakers:** Klipsch Cornwall III, Zu-Audio Omen, Dynaudio 1.3 Contour **Cable:** Straight Wire, Atlas **Accessories:** Phonorack and diverse absorbers from Sound Mechanics, acoustic tuning by Fast Audio **Power strip:** Audiocom, Ensemble Power Point

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sound. Or put differently: the cleanest possible, most neutral and fastest amplification of what is proffered by a source.

Everyone is sure to have heard the statement "Amplifiers do not sound good when they are designed "correctly" at some time or another. Theoretically, this might be correct and generally welcome, however electronics are known to best express their capabilities once they have been interconnected. It is therefore time to take a closer listen to this elegant amplifier. In contrast to a number of other powerhouses, the elegantly clad Lindemann does not wait long after being switched on to show its full potential. Maybe half an hour – or considerably less when music is played – is how long it takes until all operating components are obviously thermally stable.

The experience awaiting the listener will soon have him forgetting all the dull theory about sound and non-sound. The music, in all its multifaceted complexity, is rendered with exemplary transparency, purity and distinctive sophistication. Nothing sounds analytical, and there is a complete absence of seemingly technocratic sobriety toward the treble, which some of its semiconductor colleagues tend to transport to the loudspeaker membranes. The 885 nimbly explores the signal right down to its most filigree ramification, without seeming to dissect it. I inadvertently think of the aphorism attributed to Heraclitus, which describes the theory of the simplicity of things: panta rhei – everything flows. The one is the many. But the usual flux of music is not a gently flowing stream – when dynamic wa-



The connector panel reveals the double-mono configuration

ves start surging upwards, the most intense pulses burst forth from the depths of silence like a shot, while the integrated amplifier always retains its unshakeable stability and its lissome acoustic characteristics. There are certain to be devices which render the bass spectrum with more punch, but the 885 does not thrust itself into the foreground. It imparts natural proportions to its bass playback, thereby harmonizing it with the synergetic and perfectly-balanced overall impression. It meticulously devotes itself to naturally illuminating every last corner of the soundscape, and is capable of revealing details from seemingly long-familiar recordings on a three-dimensional stage, details which

apparently had escaped my notice all this time.

The 885 is indeed one of those exceedingly rare components which can seduce you into venturing on a real voyage of discovery through an supposedly familiar music collection, at the same convincingly exploiting the full potential which analog amplifier technology can achieve – something which Norbert Lindemann calls, with a twinkle in his eye, "postmodern development".

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### Lindemann 885 integrated amplifier

**Output:** 2 x 135 watts / 8 ohm, 2 x 250 watts / 4 ohm **Inputs:** 3 x line section, asymmetric (RCA), 2 symmetric (XLR) **Outputs:** 1 x symmetric (XLR) **Input impedance:** 20 kohm **Input sensitivity:** 500 mV (symm. for 30 volts at the output) **Special**

**features:** Single-ended push-pull power stage, fully balanced dual-mono configuration **Dimensions (W/H/D):** 44/14/36 cm **Weight:** 20 kg **Guarantee period:** 5 years

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