Integrated tube/hybrid amplifier. Rated at 100W/8ohm
Made by: Copland, Copenhagen, Denmark
Supplied by: Absolute Sounds Ltd
Telephone: 0208 971 3909
Web: www.copland.dk; www.absolutesounds.com
Price: £3498

AUDIO FILE

hi-fi news OUTSTANDING PRODUCT

Copland CSA100

In what is looking like it might be a trend – tube hybrid integrated amplifiers – Copland joins in with a Danish beauty at a sensible price, the all-singing, all-dancing CSA100
Review: **Ken Kessler** Lab: **Paul Miller**

Three thoughts hit me as soon as I switched on the Copland CSA100 integrated amplifier. The first was that it was an all-embracing, do-everything tube/transistor hybrid like the Vinnie Rossi L2i-SE [*HFN* Jul '20], rated at a similar 100W/8ohm if at a fraction of the price, at £3498. The second was that I want it to kick off a fashion for cool, fully-loaded integrated hybrids because they are the smartest option for offering the best of the tube/solid-state worlds. The third is the realisation that I need to look deeper into hi-fi system building.

How did the systems issue pop into my head? Because – as with the Vinnie Rossi and other assorted items – I found the CSA100 forming part of an unlikely combination, one that would not simply emerge intuitively on paper, or be created by market forces as were the old Dual/NAD/KEF or Linn/Naim systems that were *de rigueur* 35 years ago. The Copland CSA100, with its FET/triode tube preamp and bipolar transistor power amp stages, so perfectly suited the 'accidental' mid-priced system in which it was reviewed (more anon) that I realised what a minefield system building remains despite reviewers, retailers, common sense or other aids.

POWER OF TEN

Think about it: if you narrowed your choices for a new system down to two possibilities for each component type, at a minimum of CD player, turntable/arm, cartridge, amp and speakers – you would be faced with ten possible combinations to audition. What the Copland CSA100 does is remove the variables of headphone amp, DAC, phono stage and, if you like matching units, CD player, because Copland's even shares the CSA100's remote [see p61].

I must reiterate – this unit considers everything, even giving you such extras as a balanced input, a separate pre-out and a tape loop, which equates to fixed and variable outputs for system expansion, and a choice of two optical, one coaxial and one USB-B digital input. The latter will hook-up to a PC or Mac or standalone 'music library' such as those in the Melco series, although wireless streaming will be served by the forthcoming optional aptX HD Bluetooth module. Analogue is handled by three line inputs (including tape) and MM phono, with an earth tag.

Let's start with what it doesn't have – an MC stage for the phono input. I used it with the usual high-gain MCs and normal MMs, and it even provided sufficient gain to accommodate EAT's Jo N°5 MC [*HFN* Dec '18] up to a point. While the analogue user is well-served, it's the digital devotee who will have a blast with this. Select a source via the remote or rotary selector and your choice will be indicated by the appropriate blue LED on the 'wheel' in the middle. Choosing 'digital' enables the DAC and lights up the LED at 3 o'clock, as well as the LEDs beneath the small toggle on the fascia's lower left corner. Other LEDs indicate lock status and DSD file types.

PURE INSTINCT

The rotary selector itself chooses between the various digital inputs, clockwise from the left being BT for the forthcoming Bluetooth module, followed by LEDs for coaxial, the two Toslink optical inputs and USB. I stuck with coaxial S/PDIF, which afforded a sound more in line with the overall character of the CSA100 via the line inputs and the phono stage.

For any seasoned hi-fi enthusiast, set-up will prove instinctive. Multi-way binding posts for the speakers, clearly-labelled inputs, an IEC mains inlet – there is nothing to adjust or worry about around the back, and one of two only minor warnings includes a circa-35sec warm-up should one anticipate instant sound. The other point to bear in mind is that the CSA100 is phase inverting, courtesy of its double-triode line/preamp [see PM's boxout, below]. If you think you, or your speakers, are fussy about absolute phase then this is another consideration to stir into the mix.

RIGHT: High voltage line stage uses a single 6922 double-triode [left] from Electro-Harmonix while the output stage comprises a pair of high current transistors from On Semiconductors [on heatsink]. Note large toroid [right] and PSU [left]

ABOVE: Attesting to its comprehensiveness, (l-r) – rotary input selector, tape monitor button, source indicator and IR 'eye', standby, volume control and headphone socket

But returning to my theme of system matching and here there's a sage lesson to be learned – at least, there was for me. This is because the CSA100 thoroughly trashed the oddball notion of 'spend 80% of the budget on the turntable and the remaining 20% on everything else'. For me, a sense of balanced disposal of one's budget has vanquished it.

> 'This is wall-to-wall sound and the CSA100 can handle it'

GO ALL THE WAY

Adherence to relative value and system building in context have thus become *causes célèbres* as far as I am concerned. With a £3500 integrated amplifier as the subject of the review system, I used a MacBook Air and a vintage Marantz DV8300 multi-format player for digital sources and the EAT B-Sharp turntable [*HFN* Jul '20] with Jo N°5 as the analogue source (£2000 combined).

Speakers for the main assessment were Falcon Acoustics LS3/5As (circa £2400) [*HFN* Dec '18], along with the KEF LS50 [*HFN* Jul '12] as a variable. Headphone listening included the astounding Audeze LCD-1 headphones (£369) [*HFN* Mar '20] and Master & Dynamic's MH40 (£229). These partnering products adhere to the relative value of the CSA100, as I do not see someone with a system at this price point running headphones with a retail price higher than, say, that of the loudspeakers or amplifier.

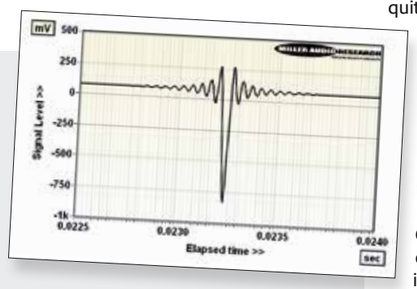
Opening with a raucous rocker, as past experience has shown Copland products err toward the 'nice', I turned to Raspberries' sublime power pop epic, 'Go All The Way', the opener of their debut album, via CD from the box *Raspberries Classic Album Set* [Caroline CAROLR021CD]. This is one of those 'kitchen sink' releases with so much going on that it could cause a migraine in the meek, the mix so poor an attempt at emulating Phil Spector that it sounds like mono most of the time – until the atmospherics hit you.

What the CSA100 achieved wasn't quite a miracle, but it made the harshness less intrusive and was a boon for hearing the superlative harmonies. For such an astounding milestone in pop, this 1972 release is a truly dire recording, bordering on the sadistic, and it needs all the help it can get if you want to appreciate it outside of the AM radio, 2in speaker playback for which it must have been intended. The CSA100 cut through the mire without compromising the sheer majesty that inexplicably survives the mix.

'LIGHT BULB' MOMENT

Turning to the last CD in the box, you get to hear why Raspberries' harmonies are up there with The Hollies' vocals. 'Overnight Sensation (Hit Record)' makes you wish that the same care had been applied to their first album – and they share the same producer! Whatever, this track sparkles through the CSA100, and that is what all power ballads should do. But whether listening to the opener of their first album or their last, the grandeur of their oeuvre is undeniable. This is wall-to-wall sound ⇨

A QUESTION OF PHASE



The audibility, or otherwise, of 'absolute phase' remains a subject of debate among audiophiles [see Opinion, *HFN* May '17, and p97] but the ability to invert the phase – more correctly the *polarity* – of the audio signal has also long been included as a facility on many an outboard DAC, for example. Polarity defines the direction of travel of a signal so, when inverted, positive-going becomes negative-going, and the leading edge of a transient causes a speaker cone to move inwards rather than outwards.

This is perfectly illustrated by a digital impulse processed through the CSA100 [see inset Graph] where the analogue output signal is negative- rather than positive-going. (Note that the pre/post ripples are a function of the DAC's linear-phase digital filter and occur whether absolute phase is maintained or inverted.) So compression of the air in front of a driver cone becomes rarefaction in this simple example and, provided you have a standard pair of passive speakers, you can experiment for yourself by connecting red to black and black to red at the back of the cabinets. Can you hear any difference? In Copland's case, absolute phase is flipped in the tube stage (both channels are routed through a single double-triode here) and this inversion carries through to the speaker terminals and the preamp output. Incidentally, the tape loop retains absolute phase... PM

ABOVE: MM phono is joined by a tape loop, three line ins (two on RCAs, balanced on XLRs), a preamp out and single sets of 4mm speaker terminals. Digital inputs include coaxial, two optical and USB. Note hole for forthcoming Wi-Fi/BT streaming adapter

and the CSA100 can handle it, even through small monitors.

Worrying about my disdain for the sound of 'Go All The Way,' and wanting to test the phono stage, I put on *Raspberries' Best* [Mobile Fidelity MOFI 1-032], wondering if what has to be the finest pressing of a Raspberries LP would prove any better. Nope: it was the same insulting pile of sonic guano, emphasised by the other tracks exhibiting sonic worth diametrically opposed for sheer clarity. This proved a 'light bulb' moment because I was able to switch from LP to CD to determine the nature of the CSA100, and sure enough, the DAC section had a similar sonic signature to the phono stage's.

FEEL THE FORCE

Clearly, whoever voiced this at Copland used the same criteria for digital and analogue, and this will be greatly appreciated by fastidious users of both, especially those who are critical of one format or the other. Funnily enough, I found the digital playback just as enticing as the analogue, with surprises galore when I listened to Earth Wind & Fire's *Spirit/That's The Way Of The World* [Vocalion CDSML 8574].

This mid-1970s, world-class funk-disco was recorded with punch, power and detail, and I was even captivated by the synth-y opening to 'Biyo', a sound-effects moment for which there is no 'real' reference. When 'Shining Star' hit, a familiar track to anyone who was sentient 45 years ago, I started to appreciate why so may listeners – not necessarily indecisive – turn to hybrid amplifiers. It had all the kick, crispness and force associated with hefty solid-state amplification, while the presence of a lone valve (and this might be a stretch, or a display of my bias, to some of you) kept the treble from turning edgy.

Disco was always characterised by a tech-y feel, maybe even exaggerated sonic properties, but the CSA100 delivered the shake-your-booty excitement without ever resorting to aggression. It's an area where Copland has always excelled and which it hasn't abandoned, its hybrid sounding as ear-friendly as its all-valve designs. I hope I am getting across to you all that this amp seems incapable of causing listener fatigue.

As a farewell to the CSA100, I put on *Howard Tate* [Analogue Productions APO 009], a live mini-LP that Chad Kassem's crew produced a decade ago, featuring my all-time favourite R&B singer. With a crack band and a guitarist whose notes soared, the ageing singer brushed away the years to deliver heartfelt renditions of a couple of his classics and gems like B B King's 'Sweet Sixteen'. The intimacy was tangible, the space enveloping. The CSA100 did all of which it was asked.

LEFT: Copland's rubber-edged RC-102A remote caters for its CD player and, for the CSA100, offers standby, volume plus input selection

HI-FI NEWS VERDICT

Maybe I'm getting soft in my dotage but I prefer to think it's the hardware getting better: I utterly loved the Copland CSA100, the review system playing Cupid. I listened for hours on end, flitting from source to source, even over-indulging in headphones. The 'why' is simple: the CSA100's sound is so 'more-ish' you won't want to leave it alone. The value and the plethora of features are mere bonuses.

Sound Quality: 86%

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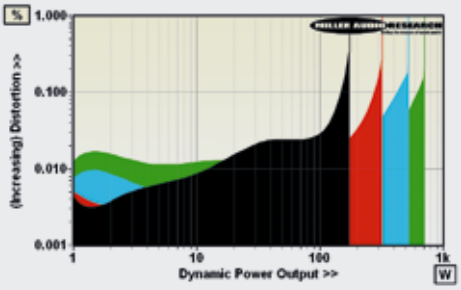
LAB REPORT

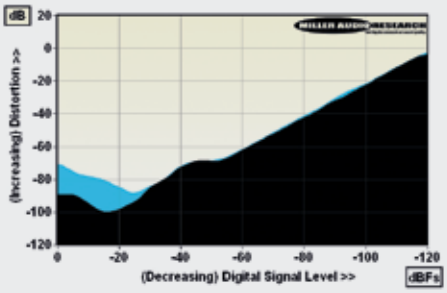
COPLAND CSA100

Courtesy of Copland's substantial PSU [see inside pic, p58] the CSA100's power output readily exceeds its rated 100W/8ohm and 180W/4ohm specification at 2x125W and 2x193W, respectively, and supports bursts up to 174W, 320W, 527W and 715W into 8, 4, 2 and 1ohm under dynamic conditions at <1% THD [see Graph 1, below]. Distortion is rather vaguely spec'd at '0.04%' although, in practice, it is impressively flat with frequency while the largely 2nd harmonic increases uniformly with power output from 0.003%/1W, 0.01%/10W and 0.035% at the rated 100W (all into 8ohm). Overall gain of the tube and transistor stages amounts to a sensibly moderate +38.6dB (balanced input) but the A-wtd S/N ratio is slightly below average at 79.7dB. This is a subjectively pleasing white noise rather than hum or buzz, however. Also via the analogue inputs, the CSA100's response is very flat and extended, though there is some 'movement' in HF extension depending on volume position. Best case, the CSA100's ±1dB limits are <1Hz to 100kHz.

Measured via the tape loop (the preamp output leaves the power amp in-circuit), a 0dBFs digital input yields a 2.2V output, the ESS9018S-based DAC stage offering a 105.5dB A-wtd S/N ratio and minimum 0.0013% THD over the top 10dB of its dynamic range [see Graph 2]. Jitter is suppressed to an impressive ~20psec via all sample rates while the 82dB rejection of alias images, pre/post ringing on transients [see Graph, p59], and the frequency response(s) are all linked to the DAC's default linear phase digital filter. The responses reach out to –0.1dB/20kHz, –0.7dB/45kHz and –2.3dB/90kHz with 48kHz, 96kHz and 192kHz digital files, respectively. **PM**



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max. current is 26.7A



ABOVE: Distortion versus 24-bit digital signal level over a 120dB range (1kHz, black; 20kHz, blue)

HI-FI NEWS SPECIFICATIONS

Continuous power (<1% THD, 8/4ohm)	125W / 193W
Dynamic power (<1% THD, 8/4/2/1ohm)	174W / 320W / 527W / 715W
Output imp. (20Hz–20kHz, Tape/Amp)	195ohm / 0.029-0.048ohm
Freq. resp. (20Hz–20kHz/100kHz)	+0.00 to –0.11dB/–1.05dB
Digital jitter (USB / S/PDIF)	18psec / 20psec
A-wtd S/N ratio (DAC/Amp)	105.5dB (0dBFs) / 79.7dB (0dBW)
Distortion (DAC, 0dBFs/Amp, 0dBW)	0.0014–0.055% / 0.0095–0.011%
Power consumption (idle/rated o/p)	38W / 425W (2W standby)
Dimensions (WHD, each unit)	435x135x370mm / 14kg