

Constellation Centaur II Stereo

Available in both monoblock and stereo chassis, the Centaur II has been a mainstay of the Constellation range for over six years. It's clearly not broken, so why change it?

Review: **Andrew Everard** Lab: **Paul Miller**

While some brands maintain a steady rotation – evolution – of their products, others, including Constellation Audio, hit on the jackpot early and feel little inclination to change a winning formula. So while we've already tested the £73,500 Centaur II 500 power amp [HFN Dec '19] we missed out on the £53,998 Constellation Centaur II Stereo. Until now...

The Centaur II Stereo remains the most affordable amp in the Californian company's Performance Centaur lineup, which also includes the Centaur II Mono power amp, available at the same price per mono chassis. It's all part of Constellation's modular approach to amplifier design: take the same basic chassis and juggle with the proprietary N-type amp modules and power supplies [see PM's boxout, p67] and you have a whole range of options. It has done this not with a full-time, in-house engineering operation, but by calling on what it describes as 'a "dream team" of world-renowned engineers and designers' [see HFN Jul '13].

NO LIGHTWEIGHT

As Constellation puts it, 'Instead of forcing our engineers outside their areas of expertise when new technologies come along, we seek out designers who have already mastered those technologies. Our team approach also prevents us from being mired in any one engineer's pet technology'. Both the Centaur II Stereo and Mono models deliver well in excess of their claimed 250W/8ohm [see PM's Lab Report, p69], just as the Centaur II 500 busts through its rated 500W/8ohm ceiling.

This may be the basic model in the current Performance Centaur lineup, but in no respect is it a lightweight. At around 46.7kg it's deep into 'two-person lift' territory, and the job's made somewhat

RIGHT: FETs throughout – Constellation's J-FET voltage gain stage [screened, far right] feeds the eight pairs of N-channel MOSFET power devices in each channel's balanced power amp configuration [on heatsinks, top and bottom]

trickier by the lack of anything to get a purchase on while shifting it. The company counsels against using the wide front panel switch as a place to grip, instead suggesting it's lifted by getting one's hands underneath. The feet are wide but shallow, and the gap beneath is minimal, so you'll also need protective gloves before squeezing your fingers under the edges of those well-ventilated side cheeks.

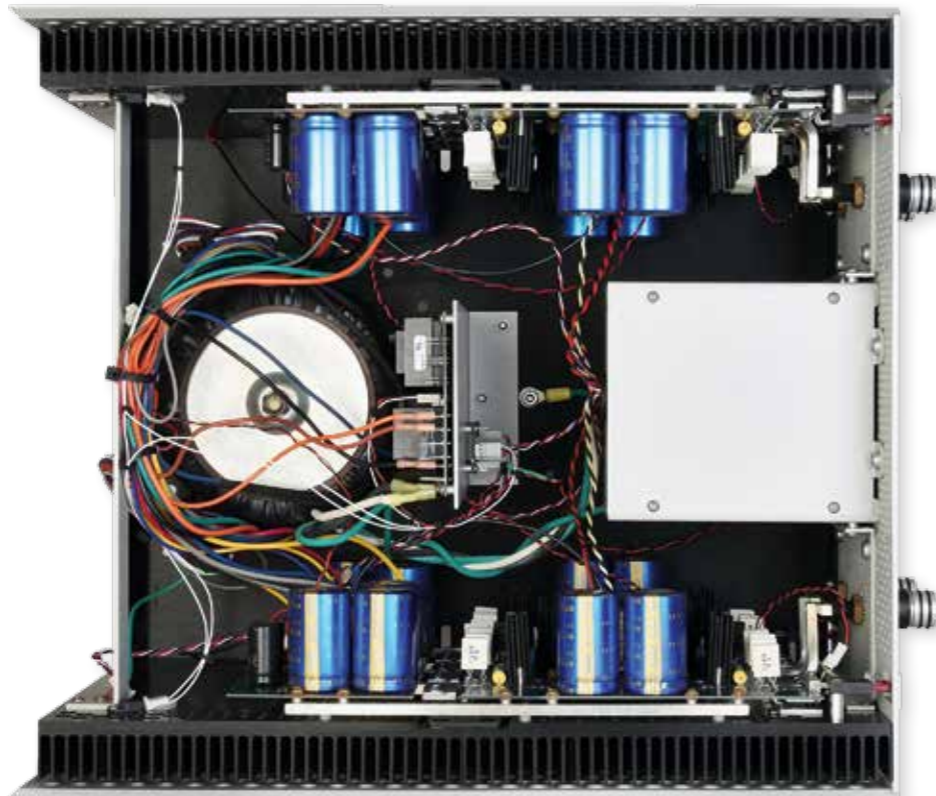
Custom speaker cable connections are included at the rear of the dimpled casework [see p69]. Large screw-down inserts will clamp both cables and spade lugs in place or, if removed altogether, reveal 4mm sockets hidden within that will accommodate banana-terminated cables. For those who prefer to bi-wire their speakers, you'll need to connect both

sets of cables to the single pair of terminals provided for each channel.

The Centaur II Stereo's *inputs* are more versatile with XLR and unbalanced RCA connections and a choice of high or low gain. The latter are designated 'Balanced' and 'Direct', respectively (although in practice both XLR inputs are balanced); the lower gain 'Direct' connection is intended for use with Constellation's own Virgo, Altair or Inspiration 1.0 preamps.

This connection, says the company, "forms the Constellation Direct – an audio interface that is, in essence, perfectly balanced. The positive- and negative-going halves of the signal will exhibit near-zero difference except for their polarity". Again, as PM notes in his boxout [p67], the Direct position's lower gain is

'Brian May's celebrated Red Special was unleashed'



LEFT: Pressing the bar on its left side initiates a series of self-diagnosis checks. Once ready, the LED switches from orange to flashing green, to blue. The cabinet's dimpled finish is both superb and resilient but the limited height of the rubber feet makes it difficult to achieve a handhold

achieved by removing an input J-FET stage [pictured, below] from the signal path.

Selection between input modes is via a rear-panel toggle, Constellation making it clear that using the unbalanced RCA inputs is a matter of 'only if you really must', and that balanced connections are preferred. An additional switch on the rear enables or disables the front-panel mute button, while there are also connections for 12V trigger control, or custom installation integration via an RS232 port or USB-B.

With all the connections in place, firing up the Centaur II Stereo is a matter of flipping the master power switch at the rear, at which point an orange LED will

show on the front-panel control bar. Press and hold this fascia bar for around three seconds and the LED will flash green for a minute or so while the amp warms up, then turn a solid blue. Tap the bar and the amp mutes, with a flashing blue tell-tale, while another three-second press will shut it down into standby, after a minute or so of flashing orange in cool-down mode.

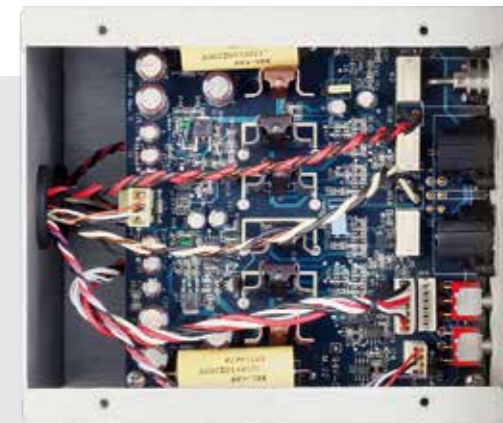
EASY DOES IT

And that's about it: there's nothing tweaky or fiddly about the Centaur II, but rather an innate feeling of fuss-free operation and just getting on with the job

QUASI-COMPLEMENTARY

All Constellation amplifiers share a novel circuit 'concept' – a 125W/8ohm power module employing N-type MOSFETs in a single-ended configuration. Constellation's balanced/bridged topology sees one set of modules handling the negative-going portion of the audio signal, the other the positive, both with their own power supply. Constellation posits that these N-type FETs deliver better symmetry than 'matched' N- and P-type devices might achieve in a conventional complementary circuit. Inside the Centaur II Stereo there are two pairs of these 125W modules per channel, delivering rather more than the rated 2x250W/8ohm [see Lab Report, p69], and driven either directly or via a balanced J-FET input stage [see inset shot].

The latter adds a further +14dB gain to the amplifier, bringing the total to +26dB, and while it may seem counterintuitive, the subjective performance of the Centaur II Stereo is often preferable with this extra stage in tow. Why? The partnering preamp will necessarily run at lower gain and the J-FET stage may arguably provide better balanced 'signal conditioning' before the audio signal hits those N-channel modules. There are measurable differences too – distortion is 0.007-0.027% in Balanced mode but increases to 0.01-0.05% in Direct Mode (all 20Hz-20kHz at 10W/8ohm). On the other hand there's a huge improvement in A-wtd S/N from 87.1dB (Balanced) to 99.1dB (Direct) simply as a function of bypassing the J-FET input stage. Which will you prefer? PM



at hand. It's something the HFN team has experienced at length while using other Centaur amplifiers in PM's listening room, where they're employed as a reference fed from a dCS Vivaldi One APEX player/DAC, which also acts as the system preamp.

As those Constellation Audio models have proved over time, they fully live up to the instruction manual's claim that 'the Centaur II produces sufficient voltage and current to drive practically any loudspeaker made, regardless of the speaker's impedance, sensitivity or power rating'. Indeed, it's likely your speakers will

give up the fight long before this amplifier runs out of ability to drive loud and clean. And while the Centaur II Stereo is very much the junior model in the range, the prodigious power PM notes in his Lab Report [p69] means it will deliver all that most users will ever need. Even

better, this performance comes from a (relatively) compact design – well, at least by comparison with some more obviously massive super-amplifiers.

In other words, this is very much a 'rational choice' amplifier, as it has proved with a range of speakers over the last few months – including DALI's KORE [HFN Dec '22] and the Audiovector R 8 Arreté floorstanders reviewed this issue [p46].

Arguably the Centaur II's key quality is its absence of a 'sound'. It refrains from

CONSTELLATION CENTAUR II



ABOVE: There are two balanced (XLR) inputs per channel – one high gain, the other ‘Direct’ lower gain [see boxout, p67] – and one single-ended (RCA) input, selected by a small toggle switch. The beefy speaker cable terminals are best suited to spades

imposing any of its own character on the music, making it simple to hear what the speakers are doing and letting the music breathe. Does that make it soulless? No, because all the spirit and drama of what’s being played shines through.

IRON FIST, VELVET GLOVE

With one of my favourite test-pieces, the Kansas City Symphony/ Michael Stern recording of Britten’s ‘Young Person’s Guide...’ [Britten’s Orchestra; Reference Recordings RR-120SACD], the Centaur II easily conveyed the tonalities of each section of the ensemble. There were delicate touches of woodwind and riotously blaring brass, and the closing fugue climaxed as the Purcell theme re-emerged triumphantly. It’s a subtle yet marvellous sound, sufficient to have the listener sitting in silence as the last note fades.

Effortlessly dramatic, yet so good at the ‘iron fist in a velvet glove’ thing, the Centaur II is at home with the gentle jazz of the Espen Eriksen Trio’s *In The Mountains* [Rune Grammofon RCD2227]. The measured playing of piano, drums and bass were perfectly offset by the breathy tonality of Andy Sheppard’s sax, each instrument given real weight and definition.

With the good-time boogie of Status Quo’s 2022 re-recording of ‘Caroline’ [Quo’ing In – The Best Of The Noughties; Ear Music/Edel 0218192EMU], the amp delivered just the right kind of ‘turn it up to 11’ joyous power. Meanwhile, the acoustic version of another track, ‘Down Down’, took on a real rockabilly feel as the Centaur II powered it out from the speakers. Audiophile music? Why bother when you can have this much fun!

The same goes with the lavish remastered set of Queen’s *The Miracle* [EMI 00602508911330]. Bob Ludwig’s overhaul of the album sounds magnificent, from the drive of ‘Breakthrough’ to the funk of ‘The Invisible Man’, and via Constellation’s amp, Roger Taylor’s drums sounded punchy, big and rich, John Deacon’s bass bubbled away, and Brian May’s celebrated Red Special was unleashed in shards of screaming solo. As I realised having sat through most of the boxset, this is no analytical amplifier, even though it has served that purpose well – it’s also a complete blast when you just want to kick back and play some favourite music.

Does that sound like the ideal amp? I reckon so: not only can it do all the clever hi-fi stuff, it also always remains a consistently enjoyable listen. Even when running hard it stays physically cool and sounds like it’s well within its capabilities. Or to put it another way, the Centaur II is always ready to give even more should you want it! ☺

HI-FI NEWS VERDICT

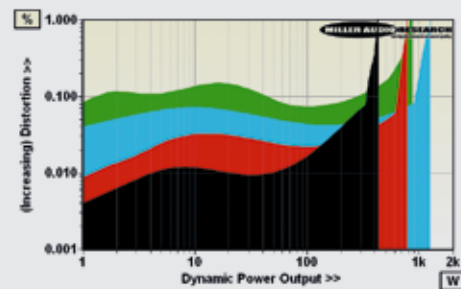
All the amplifier you could ever want? With its assured yet often breathtaking sound, clean lines and massive speaker-driving ability, the Centaur II Stereo is as close to ideal as most of us are ever going to get. It has power to challenge the pricier Centaur II 500 model, is entirely fuss-free in use, and always has more in reserve to meet the demands of your speakers or over-enthusiastic listening levels. Magnificent!

Sound Quality: 90%

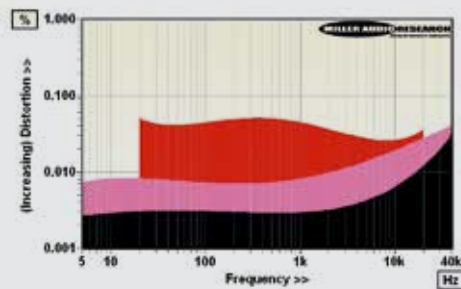


Taken at face value, the ‘250W’ Centaur II Stereo should be half the amplifier that the Centaur II 500 [HFN Dec ’19] represents but, in practice, the ‘little brother’ punches very close to its slightly newer sibling. Let’s compare the figures: the ‘500W’ Centaur II 500 delivers 2x585W/8ohm and 2x930W/4ohm, boosted under dynamic conditions to 685W, 1.25kW and 1.69kW into 8, 4 and 2ohm but ‘limited’ to 880W (or 29.7A) into 1ohm. The original Centaur power amp [HFN Jul ’13] offered 2x510W/8ohm and 2x825W/4ohm with 570W, 1.06kW, 1.93kW and a full 3.01kW (54.9A) into 8, 4, 2 and 1ohm under dynamic conditions. The Centaur II Stereo smashes its 250W rating with 2x400W/8ohm and 2x675W/4ohm, increasing to 425W, 780W, 1.26kW and 856W (29.3A) into 8, 4, 2 and 1ohm under dynamic conditions [see Graph 1, below]. So, in practice, the Centaur II loses nothing to the Centaur II 500 in its ability to drive the lowest impedance loads.

The novel N-type power amp circuit is sufficiently stable into any likely speaker load that no Zobel, or other filter network, is fitted to the output. Output impedance is a very uniform 0.032ohm (20Hz-5kHz) increasing gently thereafter to 0.041ohm/20kHz while the response is super-flat and extended (± 0.5 dB from sub-1ohm to >100kHz). Stereo separation is an excellent 115dB (1kHz) to 88dB (20kHz) and the OdBW-rated A-wtd S/N is 87.1dB (Balanced) and 99.1dB (Direct) where the gain(s) are +26dB and +12dB, respectively [see boxout, p67 for more]. The enriched bias keeps distortion below ~0.01% up to around 70W/8ohm after which it increases to 0.015%/100W, 0.05%/200W and 0.085% at the rated 250W (all 1kHz/8ohm). PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max. current is 29.3A



ABOVE: Distortion versus frequency versus power output (1W/8ohm, black; 10W, pink; 100W, red)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	400W / 675W
Dynamic power (<1% THD, 8/4/2/1ohm)	425W / 780W / 1.26kW / 856W
Output imp. (20Hz-20kHz/100kHz)	0.031-0.040ohm / 0.12ohm
Freq. resp. (20Hz-20kHz/100kHz)	+0.00dB to -0.04dB/-0.30dB
Input sensitivity (for OdBW/250W)	1414mV / 2290mV (Balanced)
A-wtd S/N ratio (re. OdBW/250W)	87.1dB / 111.0dB (Balanced)
Distortion (20Hz-20kHz, 10W/8ohm)	0.007-0.027% (Balanced)
Power consumption (Idle/Rated o/p)	140W / 945W (4W standby)
Dimensions (WHD) / Weight	432x280x508mm / 44.5kg