Integrated 'Class A' amplifier. Rated at 25W/8ohm
Made by: Pass Laboratories Inc, California, USA
Supplied by: Select Audio, Cumbria
Telephone: 01900 601954
Web: www.passlabs.com; www.selectaudio.co.uk
Price: £7195

Pass Labs INT-25

The typically modest, functional styling of this 'entry-level' mostly-Class A integrated amplifier belies its less-than-modest capabilities, with power and sound to spare...
Review: **Mark Craven** Lab: **Paul Miller**

There's something comforting about a product with a singular focus, and Pass Labs' INT-25 fits that bill. A line-only integrated, it steers clear of the digital inputs, network functionality and onboard phono stage offered by many competitors. Instead, it presents itself simply as a conduit between your source(s) and speakers, combining a FET-based preamp and Class A power amp and nothing else. If that sounds somewhat 'basic', Pass Labs' history and the amplifier's £7200 price tag should suggest it's anything but. As does its mastery of music – but I'm getting ahead of myself...

The INT-25's stripped-down specification might put off prospective buyers seeking a one-stop-shop, but such an approach does have clear benefits. For the end user, it brings the freedom to pair the amp with a DAC, network player and phono stage of their choice, avoiding unnecessary duplication. And for designer Nelson Pass, it contributes even more to his simpler-is-better philosophy [see PM's boxout, p55].

BABY CLASS A

California-based Pass Labs has been making amplifiers since 1991, beginning with the 75W monoblock Class A Aleph 0. Its range has since expanded to include stereo and mono Class A and Class AB designs, line and phono preamps, the HPA-1 headphone amplifier, and its INT integrated series. The INT-25 here is that range's entry-level amp, and is rated at 2x25W/8ohm. It's overshadowed by more powerful (Class AB) stablemates – the £8750 INT-60 claims 2x60W, and the £11,495 INT-250 [*HFN* Nov '17] a robust 2x250W.

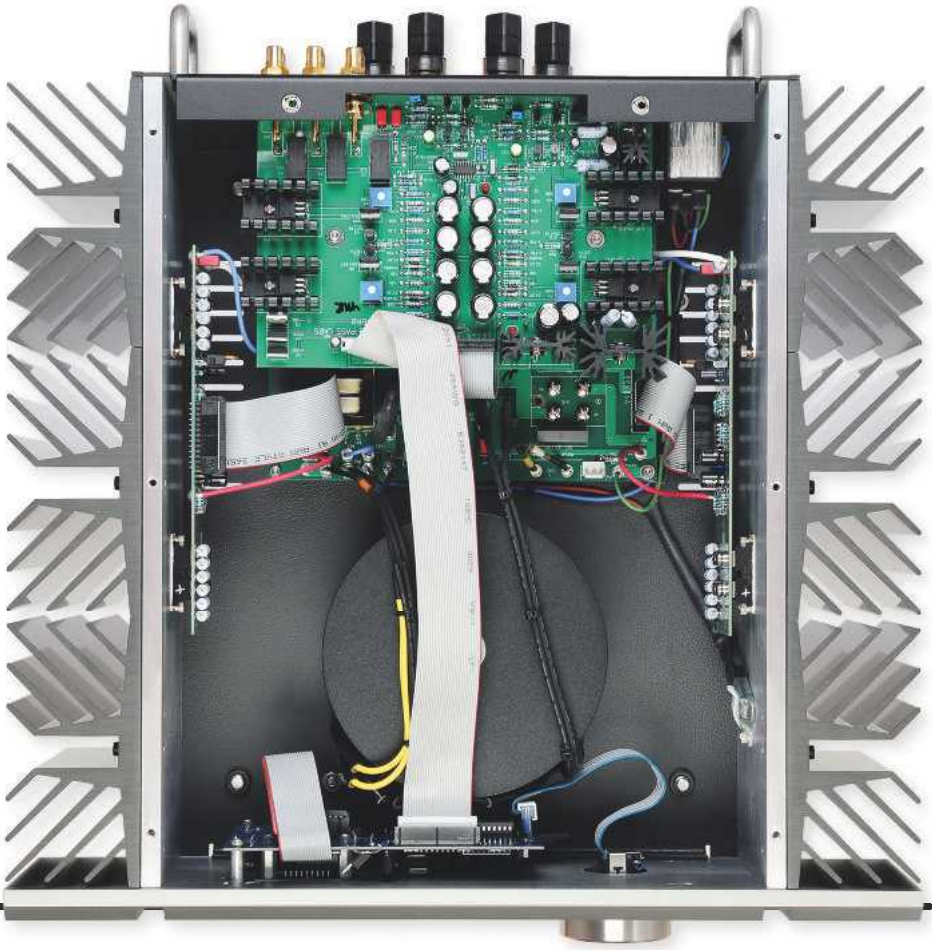
All are only available in silver yet have slightly different stylings, and while the INT-25 misses out on the circular blue-lit meter of its brethren, it remains good-looking. It sits on four circular feet and is reasonably large at 431x152x440 (whd) and heavy (22.2kg) – although compared to the INT-250 it could be considered compact and lightweight. Meanwhile, two side-mounted heatsinks add a slightly industrial feel to an otherwise quite glamorous visage, where bevelled edges on the thick brushed aluminium front-plate frame its asymmetric layout. Controls are minimal – just a 63-step volume, a trio of input selectors, and mute and power buttons. A blue LED window gives a numerical indication of volume level, and smaller LEDs illuminate the chosen input.

With none of the *du jour* mod-con features, the amplifier's back panel is naturally uncluttered [see p57]. Sat between two metal handles are just chunky loudspeaker binding posts for spade, banana plug or bare-wire connection, and a trio of line-level RCA inputs.

SIMPLY DOES IT

This purity of design carries through to the INT-25's internal architecture. The preamp is a simplified single-ended version of the balanced JFET circuit used in the costlier INT-60 while the Class A FET power amp – a very elegant two-transistor configuration – is culled from Pass Labs' XA-25 model.

Incidentally, if that 2x25W seems rather parsimonious, especially for owners of insensitive speakers, then do not despair because that conservative spec. only denotes the amp's Class A reach, determined by its standing bias current. In practice, and ably assisted by a very substantial power supply, it'll deliver a lot



RIGHT: An Avel Lindberg toroid feeds linear PSUs for the single-ended preamp stage [top] and Pass Lab's favoured current feedback power amp based on a single pair of industrial (40A) IXYS FETs per channel [on heatsinks, left/right]

more as the INT-25 ventures out into Class AB [see PM's Lab Report, p57].

Set-up is as straightforward as it gets, although be aware this warm-running amplifier needs sufficient ventilation – Pass Labs recommends a minimum of 6in clearance. There's a remote control as minimalist at the amp itself, with small-scale buttons lost amid a desert of brushed metal. Note this is the same handset used across the company's better-specified designs, so it offers controls for features – including balance and pass through – that are redundant here. But you can use the remote to dim the LED display if desired.

'Sweet strings faced off against a deep, surging bass'

VELVET UNDERGROUND

Pass Labs' claim that this amp 'breathes new life into the music' is, of course, what hi-fi brands say about even the most prosaic of products, but here it really doesn't feel like hyperbole. The INT-25 is an effortless, unfatiguing listen, but there's no feeling of details being glossed over or thrown away in favour of reassuring warmth. The sound is succinct and clean, resolving musical minutiae with finesse. Just as importantly, this notionally 25W amp behaves like something beefier, powering through percussion and bouncing along with the most robust of basslines. There's a rich, velvet quality to its low-end that's as appetising as its upper-band acrobatics and tonal nuance. In short, it's rather special.

Take Moby's 'God Moving Over The Face Of The Waters' [*Everything Is Wrong*; Tidal MQA] – a sweeping synthetic piece used to close Michael Mann's epic crime drama *Heat*. With the INT-25 in charge, this track swelled from my three-way floorstanders, creating a soundstage that combined light and dark as sweet-sounding strings faced off against deep, surging bass. There's nothing particularly inventive about Moby's mix, yet through this amp it still managed to sound layered and involving.

ABOVE: Custom heatsinks are a little sharp but are not for show as the INT-25 gets 'comfortably warm' in use. No-nonsense volume, input select and display also indicate it's 'built for business'

DEFT AT DYNAMICS

This was just an *amuse-bouche*. A greater appreciation of the amp's musical quality and soundstaging came from Johannes Pramsohler and Ensemble Diderot's Audax recording of Montanari Violin Concertos [ADX13704; 96kHz/24-bit FLAC]. Right from the start of No 6(i) the INT-25 exhibited a seductive liveliness, which helped emphasise the piece's overt jollity ⇨

ON THE THRESHOLD

Designer Nelson Pass, known affectionately as 'Papa' within the online/DIY audio community [see *www.passdiy.com*], has been innovating for over 45 years. 'I see myself as primarily a circuit topologist', he says. 'I like very simple topologies, so the simpler you can make an amplifier, the more likely there is to be good correspondence between the sonic performance and what you measure on a bench.' Over the years, Nelson's designs have typically utilised FET power devices and featured the minimum number (but no fewer) components, implemented with the absolute minimum corrective feedback.

However, before Nelson had developed his 'Super-Symmetry' circuit, used in some high-power Pass Labs amps [*HFN* Apr '10] and, by way of contrast, his very low-power single-ended Class A 'First Watt' [*HFN* May '12], he had already caught the audiophile's eye, and ears, with 'Stasis' – the core technology of Threshold Electronics, founded in 1974. The S500 and monoblock S1000 Stasis power amps [pictured right] were the flagships of the range – imported into the UK by Absolute Sounds in the early '80s before Krell's Class A behemoths distracted our attention. Replacing Nelson's earlier 'Dynamic Bias' designs, the Stasis amps employed a limited-gain stage operating with as near constant-voltage/constant-current conditions as possible. This defined the linearity – the low distortion – of the amplifier while a current-mirror bootstrap did the 'work' driving the loudspeaker load. They sounded... fabulous! PM

ABOVE: As simple as it gets – just three single-ended line inputs on RCAs and substantial 4mm speaker cable binding posts. The handles are largely decorative!

and had violin and harpsichord notes dancing from my speakers. I wouldn't really describe it as an up-and-at-'em performance, for this integrated is too even-handed to ever be considered rowdy. Yet nor is it frustratingly polite. The dynamic peaks and troughs of Pramsohler's playing demand an amp with a deft touch and transient ability – and, via the INT-25, that's what they got.

NATURAL GROOVE

I like to think that really great hi-fi experiences have a 'wow' moment. My 'wow' moment with Pass Labs' integrated came from a replay of 'Albert's Shuffle', the 1968 blues instrumental from Al Kooper and Mike Bloomfield [Tidal 44.1kHz/16-bit]. This superb recording dovetailed with the INT-25's abundant expression and sheer believability, leaving me imagining myself sat in a smoke-filled backroom bar, tapping my foot while watching virtuosos at work.

The track starts with a walking blues bassline, brushed hi-hats and a vibrato-filled guitar solo. The tone of the latter was startling, Kooper's picked notes given a piercing leading edge followed by textured highs. Then came the wider instrumentation, including Hammond organ, ondioline, horn and tenor sax. Each had its own distinct sound, was afforded its own space and was staged with precision amid a pleasingly deep soundstage. Best of all it came across as a gang of musicians having a thoroughly good time, locked into a natural groove.

LEFT: Not all buttons on Pass Labs' system remote are in use for the INT-25 – just '1, 2, 3' for input selection, up/down volume, mute and power on

The scale this 'smaller' Pass Labs amp can engineer from a range of recordings is exceptional. Pantera's 'Domination' [*Cowboys From Hell*; Atco Records 7567-91372-2] gained a stature that its reverb-heavy mix had always suggested, yet I'd never previously heard or fully enjoyed. The pounding kick drums that signal its coda hit hard and sounded huge. Heading further down the dark and dirty rabbit hole, I ended up at Dillinja's drum 'n' bass track 'Hard Noize' [Tidal 44.1kHz/16-bit] where the INT-25 again enjoyed the challenge. It gripped my speakers' woofers with authority, finding the sub-bass beneath the bass.

Regards power, the INT-25 had the subjective grunt to never sound like it was straining with my floorstanders. Swapping them for some Q Acoustics standmounts, and ignoring the price difference between amp and speakers, it made the compact cabinets sound substantially bigger than they are. The amp's character – energetic but not aggressive, musical and deliciously detailed – still shone through, so it's hard to imagine it not forming a formidable partnership with anything but the most needy of loudspeakers.

HI-FI NEWS VERDICT

If your test for an integrated amp is one that sounds extremely musical without lacking muscle, then the INT-25 passes – if you'll excuse the pun – with flying colours. That a product at this price should ooze no-nonsense build quality, if not style, is almost a given. But sublime sound? Here, yes. So Pass Labs' spec. may hint at a back-to-basics approach, but when the basics are this good, who needs the extra frills?

Sound Quality: 88%

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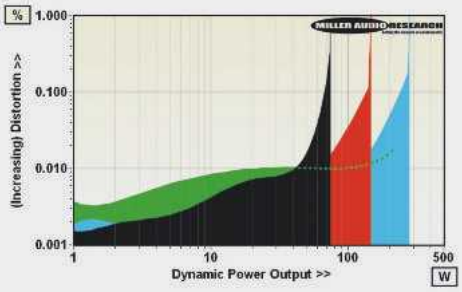
LAB REPORT

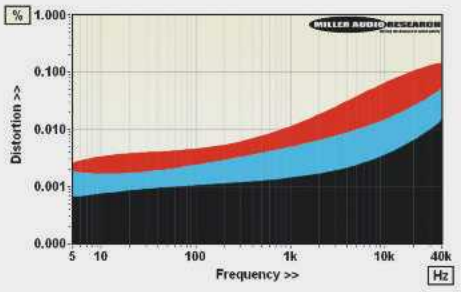
PASS LABS INT-25

In common with Pass Lab's previous-generation INT-30A amplifier [*HFN* Dec '10], this latest 'entry-level' integrated vastly exceeds its rated output power, the 25W specification bested to the tune of 2x65W/8ohm and 2x120W/4ohm, and with headroom to accommodate 75W, 147W and 281W into 8, 4 and 2ohm loads up to 1% THD under dynamic conditions. The 16A current limit is reflected in its maximum 255W/1ohm delivery [Graph 1, below]. In practice the 25W specification better reflects the envelope of its claimed Class A operation – and with an idle power draw of 180W and ambient heatsink temperature of 45°C this is not unrealistic. Nevertheless, and in common with earlier Pass Labs' amps, the INT-25's bass/mid distortion trend increases gently with power output from 0.001%/1W to 0.004%/10W and up to 0.009% at the rated 25W, subsequently increasing to 0.01%/30W, 0.016%/40W, 0.03%/50W and 0.05%/60W (all re. 1kHz). Versus frequency there's a gentle increase in THD with proportionally higher distortion at higher outputs [Graph 2] – a hallmark of Nelson Pass's complementary, current feedback power amp that employs just one pair of 500V/40A industrial FETs.

The 63-step volume control operates in accurate 1dB steps (there is an error of just ±0.15dB over the last 5dB of its range) while the A-wtd S/N ratio is a generous 90dB (re. 0dBW). There's some slight variation in response with volume position (not level) but at the full, and sensibly low, +25.5dB gain the INT-25 reaches out from a near-DC bass extension to –0.10dB/20kHz and –1.25dB/100kHz into 8ohm. Output impedance is a moderate 0.01ohm but this is flat from 5Hz-10kHz, increasing gently thereafter to 0.015ohm/20kHz and 0.08ohm/100kHz. **PM**



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max. current is 16.0A



ABOVE: Distortion versus extended freq. at 1W/8ohm (black), 10W/8ohm (blue) and 30W/8ohm (red)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	68W / 120W
Dynamic power (<1% THD, 8/4/2/1ohm)	75W / 147W / 281W / 255W
Output imp. (20Hz–20kHz/100kHz)	0.010–0.015ohm / 0.081ohm
Freq. resp. (20Hz–20kHz/100kHz)	+0.0dB to –0.10dB/–1.25dB
Input sensitivity (for 0dBW/25W)	151mV / 770mV
A-wtd S/N ratio (re. 0dBW/25W)	89.6dB / 103.5dB
Distortion (20Hz-20kHz, 10W/8ohm)	0.0017–0.025%
Power consumption (Idle/Rated o/p)	180W / 298W (2W standby)
Dimensions (WHD) / **Weight**	432x153x454mm / 22.2kg