

Putting It Together: Danish Audio Connect CT100/CT101 Preamplifier

I don't know if the Dact preamp is the best solid-state example of the category on the market, but I'd like to see anything that touches it for under seven or eight grand.

Danish Audio Connect (Dact), located in Bangkok and headed by expatriate Dane, Allan Isaksen, is an electronics-parts house like the Parts Connection, Antique Sound, and a number of other outfits catering to the modifier and home constructor. Normally such a product would not be eligible for review here because TAS has always concentrated on fully assembled production components and eschewed kits. But the CT100 and its companion piece the CT101 are not, technically speaking, kits. They are fully assembled phono and line amp stages lacking only connectors, attenuators, power supplies, and a cabinet. And since battery power is the preferred mode of operation, they don't need power supplies – so there's really nothing to construct in the usual sense.

Still the unit is far from plug and play, and may engender a migraine before it's functional in your system – indeed, you may have to hire a techie to put the thing together for you. And if you do, then, it's a kit, even if by another name.

For me, fortunately, the set-up difficulties were amply offset by the performance.

Outside the Box

The CT100 is a phono stage and the CT101 is a line section with variably selectable gain of 6 or 12 dB. While they can be used independently of one another, the CT100 should be followed by the CT101 to achieve optimal performance. And it should also be used with Dact's own stepped attenuators, based on the superb Swiss Elna assembly used in many devices of this type. Both the CT100 and CT101 consist of hybrid circuits with IC buffers and discrete transistors used for the gain stages. Both occupy tightly packed circuitboards only a little larger than a standard playing card. Other than a jumper for changing gain settings, there's nothing to adjust on the CT101; the CT100 has a range of adjustments for cartridge loading and gain rivaling anything in the industry. Input resistance and capacitance are independently selectable for each channel, as is total gain.

Many phono amps offer variable capacitance loading, but few are as flexible as the CT100. Input resistance is adjustable in 22 increments from 10 ohms up to 47 k/ohms, while capacitance can be set for 100, 200, 300, and 400 picofarads. Fully 34 gain settings are allowable, and cartridges with outputs from one-tenth of a millivolt to 10 volts output level can be accommodated. Technical performance is wholly exemplary, according to the accompanying literature (I lack the specialized test equipment to verify this), which says that RIAA equalization is accurate to within five-hundredths of a percent, and signal to noise approaches 100 dB for high-output magnetic cartridges and 71 dB for the lowest output moving coils! Input overload is said to be 100 millivolts, almost ten times the maximum output of the highest efficiency cartridges available. Spec'd THD rating is 0.0001 percent, the lowest figure for any preamp on the market today.

The CT100 can be operated in fully balanced mode for both input and output and tolerates power-supply voltages as high as 50 volts positive and negative (Dact recommends 24 volts up and down). Thus momentary overload is almost inconceivable regardless how high the groove velocities on a phonograph record, provided the gain settings are correct for the cartridge.

Both the CT100 and CT101 have separate regulation for each channel and can be operated in full dual-monaural mode. The best way to achieve this is to use twin banks of lead-acid batteries, eight in all, series-connected to yield 24 volts on either voltage rail. Or you can use half that number of 24-volt batteries, but these are considerably more expensive, as are the 24-volt chargers. I used 1.2 ampere batteries, which cost \$150 for eight. If you go any bigger than about 2 amperes per battery, the weight is apt to become unmanageable and the bank won't fit in a conventional 19" case. A good trickle charger runs about \$220, so the total cost of the DC power supply is not inconsiderable – significantly more than an AC supply made with high-quality parts.

Two mono stepped attenuators are advisable and are available in the correct value from Dact. These run \$200 apiece, roughly – low-

priced for what you get. This type of volume control, known as a "ladder," employs a series of discrete resistors of varying values switched in and out of the circuit by the contacts on the rotary control. This method avoids an accumulation of noise and distortion from multiple resistors in series and increases the accuracy and repeatability of settings over a variable-resistor pot. The ladder potentiometers should be followed by the CT101 buffer for best results.

So what do we have? Two circuitboards, a pair of pots, eight batteries, and a few RCA jacks. Run a few wires and you're ready to rock, right?

Wrong. I tried to put it all together myself and ended up making over 20 solder connections and countless probes with my voltmeter to try to determine why the thing

Why Batteries?

Battery-powered preamps have never developed a following in the High End, even though a large battery power supply has zero ripple and power-line noise, maintains excellent voltage stability, cannot be modulated significantly by the signal circuit, and sounds better. But manufacturers don't build them because they are a hassle for the end user.

Manufacturers may tell you that battery supplies lack dynamics, but this is nonsense if the battery values are correct. Unlike a filter capacitor, a large capacity battery will maintain its designated rail voltage under draw. Provided the battery voltage is matched to the parameters of the circuit, the battery will fully support the circuit's dynamic swing.

Why not batteries? Well, although a battery preamp will have no hum of its own, it can pick up and amplify hum via a ground connection from an RCA interconnect cable; it may be more susceptible if the chassis lacks a safety ground and its internal ground is referenced to internal hot and not to a larger electrical system – in other words, it floats. Try grounding the chassis via a third pin connection to the wall, or buy the Humfree ground-loop eliminator from Intersonics, which should solve the problem with no deleterious sonic effects.

— DS

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wouldn't work. I finally sent it back to Dact with an aluminum case and a bunch of batteries. My letter read: "If you want it reviewed, put it together."

Mr. Isaksen agreed to do so. But months passed before the unit reappeared at my door, accompanied by a note in which Isaksen complained that he experienced no end of difficulty in assembling his own product, something he'd never attempted before!

It shouldn't be this difficult. If the Dact subcomponents were packaged with a custom-designed wiring harness and proper connectors, the whole thing could be snapped together by anyone in a matter of five minutes. But it's not that way, and most prospective purchasers will have to pay a bench technician a couple of hundred bucks to have it assembled and tested.

Making the Connection

So why would you do this? Well, I own three phono sections: an old Stax SR-14; an older Sumiko; and a Boulder L3AE. The latter is far superior to the first two, though it lacks flexibility, and the Dact is superior to it. The L3AE, available on special order, is about \$3,700, while the Dact assemblage under review costs approximately \$2,000. These facts say a great deal for its design integrity.

The battery-powered Dact is incredibly quiet electrically, distressingly so in certain instances. Surface noise on LPs that usually goes unnoticed here intrudes with an indelicate rasp. Similarly, tape hiss assumes unprecedented prominence. On the other hand, so do the minutest details of the performance, down to the demi-quaver. The Dact never lets you forget you're listening to a vinyl record, but it never lets you forget you're listening to a musical event, either.

On Laurindo Almeida, *Virtuoso Guitar* [Crystal Clear CCS 8001], the dynamics of the cello and the decay of the guitar came through with a clarity I'd never heard before; so did the subdued percussion. A similar epiphany

awaited me when I tried *This One's for Blanton*, a great recording of Ellington and Ray Brown originally from Pablo in the Seventies, reissued by Acoustic Sounds [PI 015]. The record sounds great on any competent system, but the realism of the closely miked piano is astounding with the Dact.

Another audio obstacle course the Dact negotiated with aplomb is *Shake It Down* [Stomp Off, S.O.S 1109], with Eli Newberger playing a bit of piano and a lot of tuba and Jimmy Mazzy on tenor banjo and vocals. The tuba, normally an oafish instrument, becomes impassioned – even lyrical – in Newberger's hands. Until I played this record through the Dact, I never realized what he was doing with his instrument, the tone colors he was eliciting, the convulsive explosions of air he was producing to simulate the walking bass of the big fiddle. And remarkably, the large voltage swings represented by these low-frequency surges do not disturb the delicate tinkle of the banjo or Mazzy's plaintive, growling voice.

The Dact utterly lacks the usual solid-state blemishes: grain; hardness in the treble; an overall fatiguing quality. I normally prefer tube phono stages for their sweetness and musicality, but I don't know of one I'd substitute for this. The Dact doesn't sound like a tube circuit – but then, it doesn't sound like much of anything. Other than conveying an incredible sense of transparency, wide dynamics, and ultra-low noise, it doesn't seem to impart a signature of its own – and isn't that what we're after?

Used purely as a line stage, the Dact, then effectively the CT101 by itself, is almost undetectable in the signal chain. I tried it with the Accuphase 75V CD player, which has its own volume control and lets you make bypass comparisons with the preamp taken in and out of the signal chain. I was hard put to tell a difference when level was matched. Obviously, the phono stage with its much higher gain is going to engender more distortions and there, of course, a straight-wire com-

parison isn't possible because significant gain is required to drive the RIAA network, but instrumental sounds seemed more realistic across a broad range of recordings.

I used two very different cartridges, the Win MC-10 and the Decca Jubilee. The Dact gave excellent results with both, but worked especially well with Decca, which, owing to its idiosyncratic loading requirements and exceptionally high output, is a poor match for most phono sections.

I am now modifying the unit by completely covering the chassis with magnetic and electrostatic shielding and installing eight Bybee filters at the inputs and outputs and at the battery terminals. But even without this, the Dact is wonderful. If you're still into vinyl, this may be the least expensive way to get near-state-of-the-art performance.

Incidentally, Dact's distributor, Aloha Audio, is considering marketing a fully assembled version.

DAN SWEENEY

DISTRIBUTOR INFORMATION

Aloha Audio
1814 Algaruba Street
Honolulu, Hawaii 96826
Phone: (808) 941-6550
Source: Distributor loan
Price: \$2,000 as assembled for review

ASSOCIATED EQUIPMENT

Accuphase 75V CD player; Sota Millennia turntable; Mission Mechanic and Graham pick-up arms; Decca Jubilee and Win MC-10 cartridges; Boulder L3AE preamp; Wolcott Audio Presence monoblocks; Twin Tower hybrid integrated amp; Conrad Johnson MF 5600 amplifier; German Physiks Unicorn full range speakers; Elac 2 Pi Plus omni ribbon tweeters; German Physiks stereo subwoofer; Tube Trap and Art Diffuser room treatment; Richard Gray power conditioners; Harmonic Technologies cabling