HiFiCollective 34-Way Seiden & Amtrans Attenuator

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A new addition to the HiFiCollective stepped attenuator range is a unit based on a 34-way Seiden switch and populated with a new range of Japanese resistors from Amtrans.

As with the 43-way Seiden design, this 34-way stepped attenuator is based on a shunt design where the signal is fed through a fixed series resistor and the shunt resistor, is selected from 34 values ranging from zero to infinity by means of a selector switch. The value of attenuation for each step has been chosen to provide a fine range at low volumes, getting increasingly coarser as maximum volume is approached (the effect of a 1dB change at loud volumes is much greater as it is a logarithmic scale).

Resistor packs are available in a wide variety of types and are supplied to enable 10K, 20K, 25K, 50K, 100K or 250K attenuators to be constructed.

Step	Attenuation (dB)
1	∞
2	75
3	72
4	69
5	66
6	63
7	60
8	57
9	54
10	51
11	48
12	45
13	42
14	40
15	38
16	36
17	34
18	32
19	30
20	28
21	26
22	24
23	22
24	20
25	18
26	16
27	14
28	12
29	10
30	8
31	6
32	4
33	2
34	0

Figure 1. The Attenuator Steps

The Seiden Switch

As with its big 43-way brother, the 34-way unit is equally superb. Although slightly smaller, it is still quite large. However, this is not surprising with a switch of this quality. Anyone wishing to fit this attenuator in place of the volume control in existing equipment will need to check that there is enough space to accommodate the unit. It is also held in place on the front panel by three pillars and fastened by three M3 screws, instead of the usual spindle nut.

The tension for the click stops can be adjusted by means of an adjuster on the front of the switch. This means that the switch can be set for an incredibly smooth action as you turn the volume throughout the range.

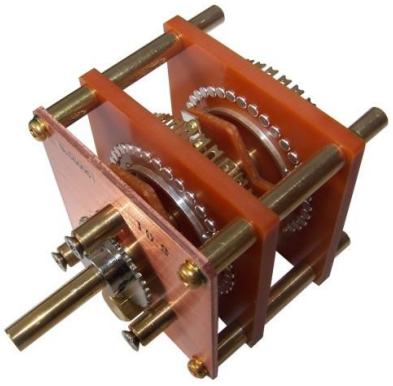

Figure 2. The 34-way Seiden Switch

The Amtrans Resistors

Since the demise of the fantastic Riken Ohm carbon film resistors back in 2005/6 with their distinctive blue body, colour code bands and gold plated copper lead-out wires there hasn`t been a serious contender to rival them. However, rumour has it that one of the designers of the Rikens has applied his knowledge to produce a new range of carbon film resistors marketed under the Amtrans brand.

Amtrans, from Japan, used to be the distributor for Riken resistors. In 2005, they bought a resistor factory, although it has not been confirmed that this was the original Riken premises. Shortly after this, they started marketing their own Amtrans AMRG carbon film resistor, which they claim is better than the Riken as they have employed new cutting edge technologies for their production.

These resistors have a 1% tolerance and are non-magnetic. They are encapsulated in a black anodized aluminium case and potted in a highly thermal conductive resin. They are fitted with gold-plated copper end caps and gold-plated oxygen free copper lead-out wires. Their characteristics are:

- Power rating: 0.75 Watt & 2 Watt
- Nominal resistance: E24 sereies, 10R and above
- Tolerance: +/- 1%
- Max working voltage: 350V (0.75W), 500V (2W)
- Operating temperature: -55 to +155 degrees C
- Ceramic base: Porcelain rod (alumina)
- Resistor film: High quality carbon film
- End caps: Cupped plated brass
- Lead wire: Gold plated oxygen free copper wire
- Potting: High thermally conductive resin
- Casing: Anodised aluminium

Listening Tests

The unit on test was supplied with the Amtrans carbon shunt resistors and series resistor. It was then tested with the series resistor replaced with a 2W tantalum and finally with a Charcroft resistor.

As with previous tests, this attenuator was installed in a GlassHouse passive pre-amp chassis. As the Seiden switch is quite large, you will need to check there is adequate clearance behind the front panel to accommodate the attenuator if the unit is to be fitted into your existing preamplifier.

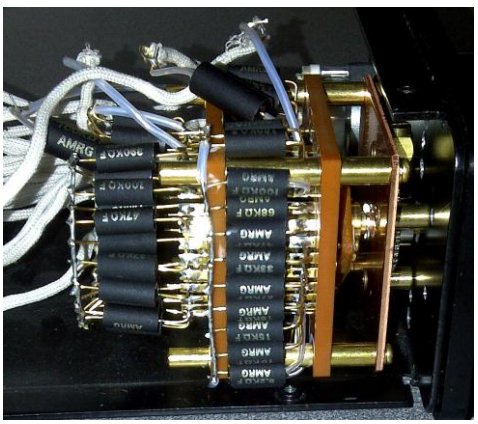

Figure 3. Amtrans Attenuator in Pre-amp

First to test was the all Amtrans version. This time, I focussed on my record deck as the source and, in addition to my old favourites of Stravinsky's 'The Firebird Suite' (The Atlanta Symphony Orchestra - Telarc digital recording DG-10039) and 'Prokofiev Piano Concerto No 1' (from a Decca boxed set 15BB 218-220, The LSO with Vladimir Ashkenazy & Andre Previn), I also auditioned the three LP set of Laurent Garnier's 'Tales of a Kleptomaniac' (Pias Recordings PIASR 160 TLP) as a 'test' recording of techno/dance music.

The first thing I noticed was the top end performance of the Amtrans. They have a surprisingly bright presentation that is not at all what one would expect from carbon films. Carbon films are often characterised by their smooth and easy nature. In contrast, the Amtrans gave a very sweet sounding, clear and precise sound that demanded your attention. The music came across as clear and transparent, regardless of the complexities of the composition. The piano of the Prokofiev sparkled with a delightfully tuneful Ashkenazy touch.

At the other end of the music spectrum, my half-speed mastered audiophile recording by Mobile Fidelity Sound of Pink Floyd's legendary 'Dark Side of the Moon' (MFSL 1-017) was very revealing. 'Money' came across as clear, detailed and open. On Side 2 of the first record of 'Tales of a Kleptomaniac' there is an amazing techno bass line, but with some acoustic saxophone, trumpet, trombone and guitar mixed in for good measure. Breathtaking!

The bass was incredibly tight and while my woofers were massaging my kneecaps with the bass, the top end was coming through crystal clear! There was no tendency for the top end to be swamped by the bass – it was all there – power and detail faithfully reproduced.

I have to say at this point that I still marvel at the operation of the Seiden switch. In operation, there was a flowing transition between steps and the switch simply floated across the range, making it feel much more like a potentiometer as the volume was changed across the range – a real joy to use!

I then replaced the series resistor with the 2W tantalums. These gave a slightly more muted presentation in the top end and some people may prefer this taming of the brightness of an 'all Amtrans' attenuator.

However, the final test with the Charcrofts was very interesting. I have to say that, to my ears, they complemented the Amtrans very well, by offering an equally clear and bright presentation but adding a superbly accurate image placement. As I have said before, these resistors are not cheap, but if you can afford them, they certainly justify their price tag but giving that extra dimension of refinement when compared to an all-Amtrans unit.

So, to conclude, I would put the Charcrofts series and Amtrans shunt resistor configuration as the winning combination for me, closely followed by the all-Amtrans design. That is not to say that the 2W tantalums sounded poor, but offered a different balance that may well suit someone who is looking for a more relaxed presentation.

The final words must be for the Amtrans resistors, however. They are literally the best carbon films I have auditioned and, given their reasonable cost, an ‘all Amtrans’ design is the best alternative to the hybrid approach of using Charcrofts for the series resistor.

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