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In addition to its well-known Noise Eliminating Speaker and DSP module for retro-fitting inside a transceiver, British manufacturer bhi also produces an in-line module to allow you to benefit from the same audio digital signal processing facilities on your own favourite loudspeaker and without having to modify your transceiver in any way.

bhi Noise Eliminating In-line Module and Switch Box

I reviewed the NES10 Noise Eliminating Speaker from bhi in the December 2002 issue of *RadCom*, finding it an excellent, easy-to-use plug-in accessory that can significantly improve your receiver's audio performance and readability. In this, the DSP-based electronics are built into a mobile-sized speaker, the noise reduction level being set in eight steps using small DIP switches at the rear of the speaker case. A little later, bhi came up with a module which could be fitted wholly within a transceiver itself, with a single-button control to switch the noise reduction in and out and vary its level in four steps. I reviewed the FT-817-fitted version of this module in the December 2003 issue of *RadCom*.

Time marches on, and the audio-based DSP noise reduction algorithm used by bhi in their products has proven itself to be extremely efficient: it's now used by hundreds and probably thousands of amateurs and professionals world-wide. As well as offering noise reduction to make noisy signals readable, the system includes an automatic audio notch which can also reduce audio heterodynes down to virtual inaudibility.

Many amateurs, myself included, like to use a dedicated or 'tailored' speaker for receive use, sometimes with high / low pass filtering built in. bhi now also has an 'In-Line Module' available, the NEIM1031, which can be used between your receiver and an external speaker. This provides all the DSP filtering facilities of the built-in electronics in the NES10 Noise Eliminating Speaker, with the added facilities of front panel input and output audio level controls, DSP filter level, plus switched line (fixed level) and audio (high level) input selections. Phono sockets are provided for line input and output, with 3.5mm jack sockets for speaker-level input and output.

Supplied with the unit are a screened audio lead terminated with 3.5mm jack plugs and a DC power lead. The unit requires a 12 - 24V DC supply. The NEIM1031 measures 165H x 82W x 33Dmm and is supplied as standard with its fascia controls printed in 'vertical' mode as shown in the accompanying photograph. Four small stick-on feet are also provided for desktop use. Options include a 'horizontal' fascia at £2.95, as well as an AC wall plug-in power supply and a stand.

ON THE AIR

I found the in-line module replicated the excellent on-air results found in the past. It usefully has eight noise filtering levels, selected by a small front panel rotary switch. At first I found this a little fiddly in use. A larger switch knob, similar in size to the audio level controls would have been better in my opinion, but it didn't take long to get used to it. Setting up the levels was very easy as green and red LEDs gave an indication of the correct input level, and I simply used the 'Output Level' knob as an overall volume control. [bhi says that since the review sample was provided it has added filter levels on both the vertical and horizontal labels, making it easier to see what level of noise cancellation has been selected - *Ed.*]

A useful 'extra' was a small, separate line output level control just above the main output level knob. Using this I easily matched it to the input line on my PC's sound card as well as via a *RigBlaster* multimode unit, thus giving me a dual benefit; DSP filtering on both 'listening' audio as well as line-output audio for data decoding. A headphone output socket is also fitted, this usefully disconnecting the output speaker audio but not the output line audio when headphones are connected.

1042 SWITCH BOX

As well as using the DSP unit with a single transceiver set-up, bhi also provided on loan their 1042 Switch Box. This has the facility of letting the user choose up to six audio sources; three 'loaded' inputs each with an 8Ω internal resistive load (to replicate an attached speaker), and three 'unloaded' (ie straight through) inputs, with a single output which typically connects to the in-line module or the NES-10 speaker system. The switch box is supplied with two screened audio leads each terminated with a 3.5mm jack plug at each end, further audio leads with either two 3.5mm jack plugs (ie speaker audio) or phono plug to 3.5mm jack (ie line audio) are available as options.

It's a small desk-top size, measuring 104W x 74D x 35Hmm. OK, this switch box isn't anything unique, instead it's one of those things of which you say, "Why hasn't anyone thought of this before?" It certainly saved me a lot of plugging and unplugging, as well as reaching behind my various receivers each time I wanted to switch between them! To be quite honest I'd probably have got my soldering iron and hand-drill out and made up something like this if it wasn't commercially available. My conclusion: what a good idea, and a very useful add-on to the DSP filter system!