Designing innovative solutions

Merchant of the month

BCD Audio
Accrone Ltd
by John Andrews

Trying to define in a few words what BCD Audio does is not an easy task. Founder and sole owner Mike Law describes BCD's product range as "everything on the schematic diagram that isn't in the audio mixer – but we do also make mixers!. Not standard mixers in production line quantities," he added, "but if a customer wants something that doesn't exist, we'll design and build it".

The company was founded in 1987 as Acrone Ltd. to develop software and hardware for the broadcast audio industry. Acrone quickly established a high reputation for the design of digitally-controlled analogue equipment, providing OEM designs for several major console manufacturers and building custom units for the BBC and other U.K. broadcasters.

In 1991 the trading name BCD Audio was adopted (from Broadcast Custom Design) and later that year BCD was commissioned by BBC Radio News to design a microphone amplifier with automatic level control for use by contributors in unattended studios. The result was the ALT-1 Auto Level Taker, a unique concept which is still in production with over 1,000 units in service with broadcast companies from Sweden to Spain. The ALT-1 was the beginning of BCD Audio's "Black Box" range, which has grown to include the ITB-1 and ITB-2 digital format converters, the DTG-1 digital tone generator and the SRC-1 sample rate converter, all packaged in standard 'belt-pack' size extruded boxes and using external D.C. power.

Also in 1991 BCD introduced its Eurocard System, a range of audio processing, routeing and control cards based on the 3U Eurocard standard. The cards can be fitted in either 1U or 3U card frames and the Eurocard System quickly became an important element of BCD's increasing contribution to the custom audio market. The first card to be designed was a four input, four output system which uses optional internal links to provide conversion between balanced and unbalanced circuits and from stereo to mono, and simple fixed-level mixing in mono or stereo. Still in current use, this design has been joined by a wide range of additional cards providing every conceivable requirement from distribution amplifiers with remotely-controlled variable gain to headphone amplifiers and solid-state or relay switching.

BCD's first all-digital product was the MIDA system, developed in 1994 to fulfil a requirement for a multi-channel digital stage-box system with remotely-controlled microphone amplifiers, and several systems were supplied to accompany digital broadcast consoles for a Middle East contract by a Japanese company. The digital technology developed during this project would bear more fruit some years later, but at the time most of BCD's customers were asking for analogue products, so MIDA was set aside. A common theme amongst systems companies quoting for installing mixers in broadcast studios was the need for monitoring and talkback facilities additional to those provided by the mixer manufacturers, due mainly to the wide variety of requirements for such facilities. BCD Audio's Ring Main and Outside Source (RMOS) system was the result.

The BCD Audio RMOS Express system uses a high-speed RS485 network to interconnect up to 63 remote control panels with a central rack unit housing up to 32 audio routeing, switching, mixing and processing cards. Each control panel can have up to 64 illuminated pushbuttons, alphanumeric LED or LCD displays and up to 16 rotary controls, and the system can be used to construct highly sophisticated, customised remote controlled audio routers and mixers for applications such as ring main monitoring, talkback and outside source selection for radio and small television stations. RMOS Express installations include BBC TV, BSkyB, BBC Millbank and other London locations which Mike Law says mysteriously are "covered by the Official Secrets Act", and the system continues to win new customers.

(Continued on page 2)

"For local infrastructures such as a radio station or a single building requiring monitoring and conferencing facilities, RMOS beats an Ethernet installation hands down – it's about a quarter of the cost" claims Mike, "as you only need a 4-core cable for the RS485 bus and the power to all the panels." The system can also be controlled from a PC via RS232 and BCD's software is compatible with the BBC/ProBel BNCS protocol, used in the RMOS installation for the BBC's DTT facilities. Impressive proof of BCD's expertise in this area is the company's own Windows RMOS control interface running on Windows 98 or NT.

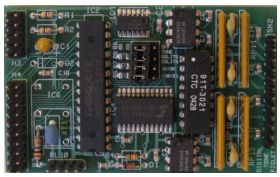
The PCB designs for both the MIDA and RMOS systems followed the same format as BCD's original Eurocard System, and as digital audio increased in importance, BCD introduced the Installer System, which incorporates all the original analogue and digital control Eurocards together with an increasing range of digital audio cards. As the name suggests, Installer is aimed at providing systems companies with those vital analogue, digital and format conversion interfaces which are often overlooked at the contract specification stage. As digital versions of the original cards were designed, BCD used the technique of sub-boards plugged into connectors on the main Eurocard, known to many designers as "piggy-back" boards, and christened "Piglets" by BCD. With three Piglets per card and up to 16 Eurocards in a 3U rack, complex systems can be assembled in very compact form.

Roughly half of BCD Audio's turnover comes from the sale of standard products, via the Canford catalogue, through an increasing number of overseas distributors and directly to customers ranging from individuals to BSkyB and the BBC. The other half is generated by sales to UK systems companies, as TSL's Martin Dyster explains. "It's invaluable in Systems, particulary in Broadcast Audio to be able to say 'yes we can do that' when your customer comes up with the most off the wall request for some bizarre piece of gadgetry that his/her CAR, Gallery, MCR or whatever else, cannot possibly function without. When you come out of that meeting with a fag packet sketch of something that looks a little like a lawnmower with faders, a serial port, some GPI's and a large red flashing light on top, you phone Mike Law. You try and describe what you've just promised to build in 3 weeks flat, and Mike says "I've just built one of them for Kazubikstan TV's morning show" ..... "The board is a modified standard product with a flange wobbulator welded on top, we made a spare set of metalwork just in case anyone else wanted one" ..... He delivers it to you in 2 weeks 6 days 23 hours ..... You're customer is delighted, "Can I have a blue light instead of the red, the PA's allergic to red "? No problem, Mike's got one of them too."

"It's good to know that there are still a few eccentrics around who'll build that 'modified standard product' for you. When TSL's vast arsenal of standard boards don't fit the bill, Mike always seems to have one that will, or can modify one until 'it will'. He's always enthusiastic and happy to help and as far as I can remember has never turned down a request. Moreover, it's the back up, after sales service, that is so important, which BCD are
so good at. Mike will usually find time to visit site personally when there are problems rather than leave you waiting for a Courier to turn up with a board and no instructions."

Andrew Riley's Oxford Sound Company is another very satisfied systems customer. "We needed a tape changeover system for the BBC Bush House IBM contract, with 80 units in six different versions, and Mike's proposal was brilliant – he used a programmable logic chip to make a single design perform in six different ways, something I'd never have thought of," said Andrew. "BCD's willingness to think laterally always results in a very elegant solution, and they're a company we enjoy working with, they're not just another supplier".

The company's reputation for designing innovative solutions has secured it a loyal customer base for both standard and custom products. "The company has always been totally customer driven" says Mike Law. "We don't set out to design something and then go out to sell it" he declares – though he admits that he enjoys the challenge of designing, and is always on the look-out for new projects. Sometimes a requirement arises because production of a useful component is discontinued due to the small size of the professional audio market, for example the chip which derives digital audio word clock from a video signal. "I know we could buy someone else's 1U rack unit to do it" says Mike "but it's much better if it's a BCD product" – and another Piglet is born!



BCD Audio

Telephone: +44 (0) 1753 579524
Facsimile: +44 (0) 1753 577981
E-mail: sales@bcd-audio.co.uk

www..bcd-audio.co.uk