DK-Audio MSD600 series

However golden the ears may be, the eyes have a part to play in audio monitoring. Hearing is necessarily subjective and prone to deception. A more objective analysis is essential. ROB JAMES looks at meters that will assist your hearing.

DECIDING WHAT TO MEASURE and how to measure it is a controversial subject. In Europe the Peak Programme Meter has been the mainstay, in the USA, the Volume Unit or VU meter reigned supreme. Whether as a physical pointer on a scale or as a bargraph, both these meters have their place but in the complex world we inhabit today, with digital audio and multichannel surround formats, a single metering technique does not provide enough information, or sufficient accuracy, to cover all circumstances. The challenge is to provide timely and useful information appropriate to the task in a compact display. For some purposes an analogue display is useful, for others, decimal precision with a numeric readout may be more appropriate. But ideally there should be several simultaneous representations of the same information in different formats.

DK-Audio's Master Stereo Display (MSD) series combines a number of audio metering and other functions into one, compact unit. Multiple metering techniques can be employed thanks to the use of a screen. The range runs from simple monochromatic stereo displays, the MSD100-series, up to the flagship MSD600-series with LCD colour displays, level metering, multichannel PPMs, phasemeter, audio vector oscilloscope, Jelly-Fish surround sound monitoring, Leq(m) loudness, and 1/3-octave and FFT spectrum analysers.
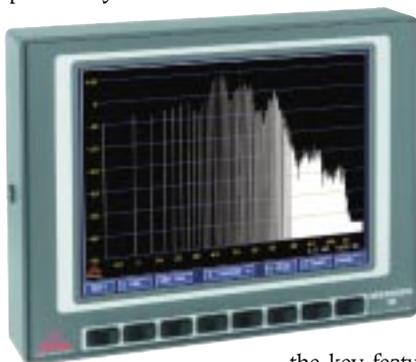
All the MSD600 series units have true VGA displays and may be connected to an external monitor. At the top of the range is the modular MSD600M. This has been joined by two MSD600C versions, the MSD600C-5.1 with six digital 96kHz input channels for surround applications and the MSD600C-III with two analogue and four digital AES-EBU input and output channels. This unit is particularly suited to editing suites and continuity areas since it can also function as an A-D, D-A convertor, sample rate convertor and signal generator independently of the display. Although there is a cost advantage with these models, the MSD600M offers considerably greater scope and future proofing. For example, SDI (Serial Digital Interface) modules are now available in four (24-bit) and eight (16-bit) channel versions together with two new AES-EBU modules with four and eight channel options. Up to 32 digital input channels are possible or eight analogue plus eight digital. Upgrading from LCRS surround to 5.1 is simply accomplished by adding another input module.

Simply listing all the features of these units would occupy this entire article so here are the highlights. A matrix enables any input to be routed to any output or to the metering functions. The digital input modules are equipped with sample rate convertors so there is no necessity to synchronise to an external source.
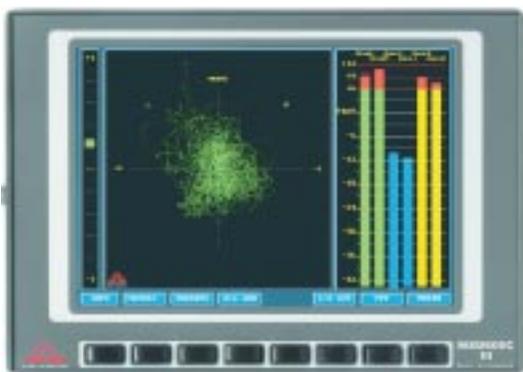
The units are hugely customisable. Navigating through the many menus is aided by soft-keys corresponding to the physical keys below the screen. Eleven presets store user set-ups. Each preset stores input matrix configuration, meter scaling, oscilloscope mode, colours, and so on. DK-Scale PC software allows users to select (from a wide range of international types), design or modify PPM scales to suit the application.

For surround work, the key feature of the MSD600 is the 'Jelly-Fish' display. The Jelly-Fish figure represents the surround channels in a vector format. It can be used to monitor all standard surround sound formats up to 7.1. Also provided is a pseudo surround sound decoding mode for stereo signals.

The surround format is automatically detected. The MSD selects an appropriate 'back-ground' scaling for the Jelly-Fish display. Any phase problems are indicated by the image turning red in the relevant vector. The width of the red spot gives an indication of the degree of phase error. Routing any two signals to the separate Phase Correlation Meter will show the

exact phase relationship between them.

Broadcasters and the cinema industry have long sought a reliable means of measuring loudness in addition to average and peak levels.

A new standard is being promoted as an answer to the desire for uniform subjective sound levels. The Leq(m) loudness function is used to measure this. The Leq(m) value is the true average (CCIR-468 weighted) of the audio power level of any signal passing through the meter.

The Leq(m) is displayed on a special loudness 'PPM' bar, and in a numerical display. The value is shown in dBs down to 0.1dB. The Trip indicator changes to a flashing red colour to indicate when the signal exceeds the predefined maximum level. A logging function enables overs, mutes, etc. to be viewed and printed out against internal or external time-code.

Apart from level metering, these units also offer signal generation, white and pink noise generation, third octave spectrum and FFT analysis.

Setting up the vast number of parameters can be confusing at first. However, in day to day operation most people will simply use the presets.

The MSD600 series manages the difficult trick of providing 'at a glance' information about level and phase of multichannel signals together with the 0.1dB precision needed for checking alignment. The use of colour is particularly helpful and the customisation available should help people with degrees of colour blindness to find a combination that works for them. A variety of mounting options caters for freestanding operation, rack mounting or building into a console.

Already a convert to the vectorscope, I found the Jelly-Fish to be an intuitive way of looking at a surround field and spotting potential problems which might otherwise have gone unnoticed. The accurate bargraphs make meticulous alignment easy. With the MSD600, DK is offering greater confidence in the technical quality of your recordings. Until you have experienced the security of proper metering you probably won't appreciate what you are missing. ■

PROS	Jelly-Fish display of surround information; Leq(m) measurement; versatility; compact package
CONS	Set-up can be confusing; cost, especially options

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