

THE IDEA OF MATCHING MUSICAL NOTES TO LIGHTING IS NOT NEW. IN THIS SPECIAL FEATURE WE SEE HOW THE CONCEPT HAS BEEN REFINED OVER THE YEARS. BUT FIRST WE TAKE A LOOK AT THE VERY LATEST STRAND TECHNOLOGY.

MUSIC, LIGHTS, ACTION

The latest abbreviation to enter the lighting designer's dictionary of cryptic terms has arrived by a circuitous route from the sound business. MIDI is becoming the buzz-word of lighting designers, technicians and operators, and with the announcement of Strand's MX lighting control in September, MIDI is set to enthral, enthuse or just confuse even more lighting people all over the world.

So, what is it? Something to do with musical instruments, surely, as anything with the title of Musical Instrument Digital Interface should be. But what has that got to do with a lighting rig, a control desk, a straight play, when the nearest musical instrument is an upright piano in the rehearsal room?

MIDI has been not so much a 'thing' more a way of life for musicians since about 1984. It is a communications protocol (a code by which equipment can transmit and receive messages) which enables electronic instruments to be connected together and controlled from either a central timing computer, or linked directly to each other.

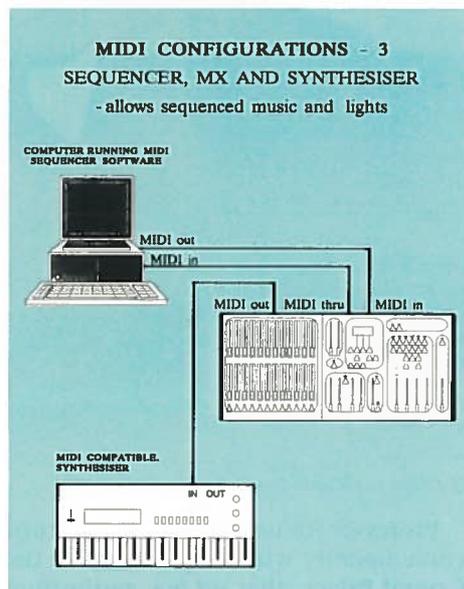
The protocol describes specific messages that are transmitted to say a particular musical note has been hit, or released, or to say that a switch or keyboard control has been altered. If several instruments are linked together (synthesizer, electric piano, drum machine etc). the protocol enables these messages to be addressed to each instrument individually so that a 'master' instrument can control the others directly.

It is possible for a single musician to 'play' many keyboards, each with a different voice and tone, by playing one keyboard only and using the MIDI linking system to play the other instruments at the same time.

Now put a computer in the system which can record all the key depressions and volume changes as a sequence of instructions whilst the music

is played, and the MIDI system expands to the point where the computer (or, sequencer as it is known) can reproduce the effect with typically computerised precision. This is not intended to replace the human element of live music, but simply to augment the sound as played live by the musicians.

Enter the lighting controls. The data flying back and forth along the MIDI link (a very friendly 5-pin male DIN plug on each end of a twin-screened data cable), is not a million miles away from the information needed by a lighting control to function. For keyboard notes read faders; for switches read push buttons; for instrument addresses read control desks... and there it is — a compatible system.



Well, not quite. Although the MIDI protocol defines each musical note as a code (middle C is 3C in HEX if anyone's interested), and although an International MIDI Association (IMA) and MIDI Manufacturers' Association (MMA) exist, regrettably there is no commonality in MIDI lighting codes from different control desks. Strand, as a member of MMA, is involved in discussions to create a standard for defining control functions, but for now, each manufacturer makes his own decisions of what means which.

For the present, we have a system which enables the MIDI link to do just about everything except talk between MIDI-equipped lighting desks of different manufacturers. This is but a small limitation in comparison with the power of MIDI for lighting.

Systems have been developed which use the output of a sequencer to control dimmers directly. This has many uses in the special effects market, but the limitation of 128 dimmed levels (MIDI has an 8-bit protocol, 7 bits of which are available as 'levels', whereas Strand's MX control calculates to 32 bits, rationalised to 8 bits or 256 levels), and the relative complexity of programming the sequencer will limit the effectiveness of this system.

The use of MIDI in lighting control has grown into remote fade execution, the synchronized control of bump buttons, control of effects and automated, repetitive audio-visual controls.

This is where the MX comes in. Strand's latest manual/memory control desk has caused something of a stir with its new approach to lighting control. The simplified 2-preset manual desk concept has been enhanced with the latest microprocessor memory control to give not one but *four* overlapping and interactive control systems.

Whilst the two preset manual system is used to give the 'hands-on' feel to the lighting, there are dedicated memory submasters alongside to add previously recorded scenes. This leaves the memory section to supply some timed crossfades, with the special effects package completing the picture with up to six running effects at the same time.

For the high-tech band on the road. MX links in to the music sequencer in the same way as another synthesizer. When the sequencer is switched to run, it can reproduce the backing sounds and rhythms whilst the lighting designer uses MX to create effects.

Cross fades, builds, flashes, snap cues can all be performed and memorized with split-second accuracy in the sequencer. Switch the MX from MIDI 'out' to MIDI 'in', and when the sequencer is re-started, the lights will follow the music as precisely as when it was performed live.

MIDI control is not reserved just for the live bands. For the less energetic performances in theatres and on tour, MX's MIDI link can be used to join desks together so that one 'master' desk can control many more MX desks (each one controlling up to 48 channels and 512 dimmers using either one of the two software-controlled proportional patches), or to link MX into other non-musical forms of MIDI, like SMPTE time code for example.