

Technical Labs

New microprocessor system brings sophisticated memory lighting control to small user

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A new development by Rank Strand Ltd., the Tempus M24, has for the first time brought a powerful memory lighting control system within the financial reach of the small professional or even amateur user of between 24 and 60 channels. Previously such users would have had little choice but to select a 2 or 3 preset manual system or a very simple memory system offering little better facilities. Now further application of the all-pervading microprocessor (this system in fact has two) has changed this.

The secret of the new system's success lies, however, not in just using the latest in microprocessors but in adapting and simplifying the facilities of its big brother Galaxy, so as to reduce cost and aid unskilled operation without re-



ducing flexibility. To this end the principles of latest-takes-precedence control and multiple processional fades have allowed up to 6 separately timed fades (up and down) to occur simultaneously plus one manual fade, yet still allow a crossfade to a totally new state at a touch of one button. Recognising that the operator is frequently part time (doing sound, S.M or even the bar!) considerable optional automation has also been built in, allowing whole chains of cues to be effected automatically. The system can in addition be integrated in with your existing new manual desks allowing rehearsal and recording from the faders.

Operationally the controls split, predictably, into channel control and memory control, sharing a common numeric keyboard. Channels can be freely selected and combined (+, -, "thru") for



control on a fader wheel. The concept of a Preset store has been removed for simplicity and memories can be combined direct on the keyboard (+, -) before fading, with the prefix deciding fade type between crossfade, move-fade and dim-fade. Again, for simplicity, long travel time faders give a single range of 0 secs to 10 mins plus infinity for up and down. In addition manual or recorded time fades can be achieved.

Automation is provided for by Sequence, Recorded fade time and type and Link facilities which, when used together with a special mode, Auto-Sequence, allow pre-programmed chases or chains of Cues to be executed automatically. Even when the playback section is busy as above generating an effect, a further memory fade can still be performed manually on the fader wheel in "Cue" mode.

Full system status and channel level information is available on a separate VDU or standard UHF monochrome T.V. and data density

is optimised at 64 characters x 24 lines to maintain good legibility on domestic quality equipment. Further, to maintain a low-cost system, a standard library store facility is offered onto normal audio cassette recorders. This facility, well established in the hobby computer market, allows reading and recording of individual or ranges of memories.

Data integrity is enhanced by a Check mode which verifies the tape against the memory, and also by the fact that two copies of each memory are always recorded together with check digits. If the first copy is corrupted (e.g. by a tape drop-out) then the second copy is automatically used instead. Up to 30% tape speed variation can be accommodated by the phase-locked-loop data receiver and separator, though a reasonable "music" quality cassette recorder and tape is recommended.

Important new ground is broken in the method of connection to the dimmers. Here a 2-core screened multiplexed output is used for the

first time in Europe and, now freed from multicore dimmer lines, allows greatly improved portability of the system. The multiplex signal can be run up to 1km in length and connects to external 24 channel demultiplexers near existing manual or dimmer systems, or to new multiplex compatible dimmer racks being ordered at the same time. Back-up and further facilities are provided by the M24FX unit which comprises an 8 group electronic pin patch with chase, flash and 3 frequency sound-to-light effects assignable to the masters.

The processing load in the M24 is split between a 68B09 performing fade calculations and main processing and a 6803 handling all panel controls and display interfacing. The program is contained in 24K of EPROM and all data in 16K of battery maintained CMOS RAM. The latter gives a useful advantage in that the lighting state at power off is preserved and re-instated at power on; a real benefit in a temporary installation where power may be unexpectedly interrupted.

A final feature which many will hail is the inclusion of a complete suite of self-test software, testing the front panel, main processing electronics, VDU etc. All tests are operator accessible, and can be carried out at any time to give a thorough check-out of the system. The main tests are run automatically at each power up with the expected result displayed, "Self Test O.K.", signalling a quantum jump in the resources now available to the small lighting user.



We use the light pencil method of P.C.B. design.