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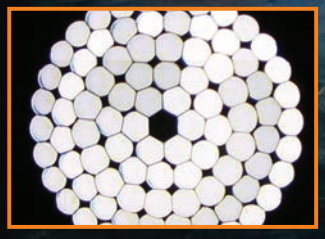

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Classic Gear: Strand MMS

Rob Halliday takes a nostalgic but instructive look back at the tools that have shaped the industry . . .

Photo: Bob Hartley

The more you read, the more you investigate, the more you ask around, the more you realise what a remarkable group of people worked in Rank Strand's control team from the late 1960s onwards. Some of their achievements we've covered here already: the National's Lightboard, the Galaxy.

But many aspects of those control systems - some of which have carried straight through into today's consoles - were actually pioneered in an earlier memory control system, called MMS, the Modular Memory System, though many assumed the name reflected the initials of Strand's chief engineer of the time as the Martin Moore System.

The real name neatly described the concept, a control system that users could configure with the modules they needed to suit their style of lighting and their budget, arranged in a physical layout to suit their control room. Strand produced a set of MMS 'flash cards' - full-size printed mock-ups of the modules - to allow users to figure out their preferred layout before ordering.

Those modules offered functionality that seems familiar now, but much was truly original then, particularly the channel control with keypad, level wheel and level display meter. Keypads had been done before, but consoles like the Thorn Q-File had arranged them in columns, like old-fashioned cash registers or adding machines. MMS followed the new tech of touch-tone phones or, since the 1-key was bottom left, of electronic calculators and computer keypads. The goals: equal access to any channel in a big rig (MMS could drive up to 480 dimmers), no need to match a level before adjusting it.
A second keypad allowed memory selection for recording and manual or timed playback. Other modules included a mimic display showing active channels, a push-button for one-touch channel selection then, later, a tape drive for show storage, the debut of Strand's auto-mod function, even a video display.

Strand didn't want the cost of the industry-standard minicomputers that other memory consoles of the period tended to be based on, and MMS was just too early for the microprocessor revolution. Instead, it used massive quantities of Strand-designed PCBs holding TTL logic to create a machine that was custom lighting machine rather than general purpose computer. The heart of the machine was 512bit MOS shift registers as working channel data storage plus Ampex core storage, all tied together by a David Bertenshaw-designed custom signal bus that allowed the separate modules to communicate with different levels of priority, so a request for cue data could briefly interrupt a channel controller. Level data was stored with 256-step accuracy to meet the demands of the burgeoning colour TV market, and data up to the output stage was carried as a multiplexed analogue signal. All those PCBs made for a power-hungry console: ultimately team-Strand wrote a computer program to calculate the power draw of each customer's system before specifying its power cabling - an early example of Computer Aided Design.

MMS carried memory control to users who couldn't previously have afforded it - 208 installations across 30 countries from 1973 to 1979 starting at the Birmingham Rep, running *A Chorus Line* at Drury Lane, winning back television studios from Q-File, even getting as far as Pyongyang in North Korea (pictured above). Strand was allegedly paid for that one in used Pound notes via the North Korean embassy in East Berlin. The team that installed that console - which one suspects might still be there - have quite some tales to tell . . .

MMS at the Strand Archive:
> //plasa.me/0onpu