



Galaxy 3

by Tony Brown

Bristol saw the launch of the latest version of the Strand U.K. top professional system.

Here is the story, by the man who led the design team, of our bid to retain the European crown in lighting control.

A Modest Blast on Our Own Trumpet

Half of all the lighting memory systems installed in the world, and no less than eighty per cent of those in the U.K. are Strand.

There is no magic in this. Our systems come closest to what the theatre and the studio actually want, rather than to what a design engineer thinks they ought to want. This is simply because we have been talking to system users for a long time. And people can afford Strand boards because, with the market share we enjoy, economies of scale come to the fore.

But please accept that we do not recline on our laurels. We are very well aware that there are a number of serious competitors whose challenge we are now facing. There are also a few frivolous fellows who pop up now and then. But torturer's tongs will not persuade me to say into which category I put any particular competitor.

Back to the Future - or how the past leads to the present.



First let us see how Galaxy came about. In the early seventies Strand pioneered the concept of a modular memory system. This enabled us to batch manufacture standard parts, and it allowed the user to customise his system to a very considerable degree at a reasonable cost. This was a great technical and commercial success. (Ed. I well remember our terrific excitement when we learned that the BBC had chosen MMS for TC5 and Cardiff. One of my best ever days with the old firm.)

For the customer to whom money was not a basic priority we offered an integrated computer based control - Lightboard. A legend in its day - but at some cost!

By the late seventies the technology of MMS was ageing and inflexible. Some attempts were made to get Lightboard down in cost, but none were very successful. So we decided to go for a complete new generation of top end controls.

Shaking the Tree

We asked around among our customers, we shook the trees of microprocessor suppliers and in 1978 we began on the Great Quest. Please bear in mind that we had a reputation to maintain, going back to the Grand Master boards of the twenties and forward to the success of MMS. So we had to be right. R. & D. on memory systems is far too costly to allow for blind alleys or wrong paths.

So - How to Change and be Really Better.



First of all as Devils Advocate, here are a few Galaxy 2 items that could be improved.

To begin with, it can only control 768 channels driving the same number of dimmers. Sufficient for most people, but, especially in television, thousand channel studios are beginning to be called for. (Ed. Note. I remember being very impressed by the three thousand light 'Solid Gold' Paramount studio in Hollywood a couple of years ago.)

The Romans Went Home.

Fifty years ago Strand realised that changing the colour of light was an important part of the lighting picture. In the same way that the English forgot about central heating for 1700 years after the Romans departed, Strand's memory controls have ignored colour changers for many years.

One to One Good - but one to maybe more - better.

I yield to no-one in my personal conviction that one dimmer per channel is infinitely better than the forced constraint of a control with less channels than dimmers, which compels the patching of two or more dimmers to one channel.

But having said that, there are times when patching several dimmers (with proportioned levels) to a single control channel is desirable. Look no further than the control of, say, four blue circuits at the top of a cyclorama. Galaxy 2 had no proportional patch system.

Automated Lighting is here - and is unstoppable.

The last few years has seen a rush, not least by Strand, into motorised luminaires.

Sometimes to save labour, and thus cost, sometimes for the visual effect of moving light.

And there are other areas where our experience has led us to see that improvements could be made.

Now the Answer - Galaxy 3.



First of all, let me emphasize that this is a completely new system, with new processing and architecture.

Four man years of extra software went in to Galaxy 3 and the weaknesses I touched on - and many others I didn't, have been overcome.

But we have kept faith with Galaxy customers - we have maintained a high

degree of compatibility so existing systems can be upgraded.

Two Fixed Points

We were determined our new system would draw on the MMS principle of modularity, both for the advantages of console layout and of modular service exchange.

And we determined on the direct-action, latest-takes-precedence of Lightboard. Otherwise, the paper was completely clean.

Summer - Berlin 1980

This was the place and time of the launch of Galaxy. To date our most successful system by far.

The Galaxy development programme has really been continuous since that memorable summer.

We added infra red designers (riggers) control, a comprehensive independent memory back up that was virtually a complete control in itself, a special TV version with studio playback and special TV software, geographic selection and mimics and an advanced theatre playback which could faithfully reproduce the operators manual actions night after night after night.

More recently the most elaborate programmed effects have been added.

Invisible Mending

Actually, this effects package was developed originally for Gemini, but we were able to weave it so carefully into Galaxy that I believe not a single unsightly seam shows.

Staying in Front.



Every time we introduced a major new facility we threw in a fistful of smaller upgrades and software enhancements to make sure we kept ahead. This means that very, very little of the circuitry of the final Galaxy 2 would be found in the earliest systems.

250 Up.

Two hundred and fifty systems had been sold.

The order book was full.

The costs were reasonable.

So it was obviously time to start all over again. Almost any good and successful company you can think of replaces its products at the top, not after a decline has set in.

Did Ford have any problem selling Cortinas when they introduced the Sierra? I think not. Jaguar's waiting list was as long for the XJ6 as ever when they launched the Sovereign.

Quite a different industry, I know, but I am making the point that we like to replace products when they are at their peak - after all, as you will read elsewhere, Harmony

has not done too badly for five years, and yet here is Cantata.

Some Galaxy 3 Features.

Control of 999 channels driving up to 1536 dimmers.

Colour change control. 'Colour cues' are integrated with 'level cues' for simple playback.

A new motorised luminaire control panel has been designed.

We have doubled the number of preset masters. We have improved display legibility.

Galaxy 3 can monitor intelligent dimmers. With 'smart PIP' dimmers the system can check for blown lamps or dimmer problems. Any faults are displayed and also entered on an automatic fault log for future treatment.

Memory back up and disc system are new, using two 3 1/2" disc drives.

The alpha numeric keyboard has been replaced with a new slimline standard PC type keyboard.

A new console, incorporating cable management and adjustable rake, means that it is now possible to split panels between two - or even three - control pods.

We have a new channel control, with:

■ SOLO - selected channel remains 'on' alone while remainder dim out.

■ IDENT - any channel requiring special attention can be flagged on the V.D.U.

■ SHIFT - has gone! We know you didn't like it, so we have substituted separate pushes for various types of record function.

■ INHIBIT, TIMES 1.5, BUMP. (plus a spare for future expansion). These extra buttons act rather like the mode select keys on the Group Masters panel and modify the action of the ten memory transfer keys. The BUMP mode means that the memory transfer keys flash the designated sub master to full.

■ MOTION CONTROL - definitely for the connoisseur!

Galaxy 3 offers very sophisticated controls for setting the position of each light, initially, or manually overriding at any subsequent time.

Once recorded, the position cues form part of the plotted show and happen automatically whenever the memory is presented by the playback panel.

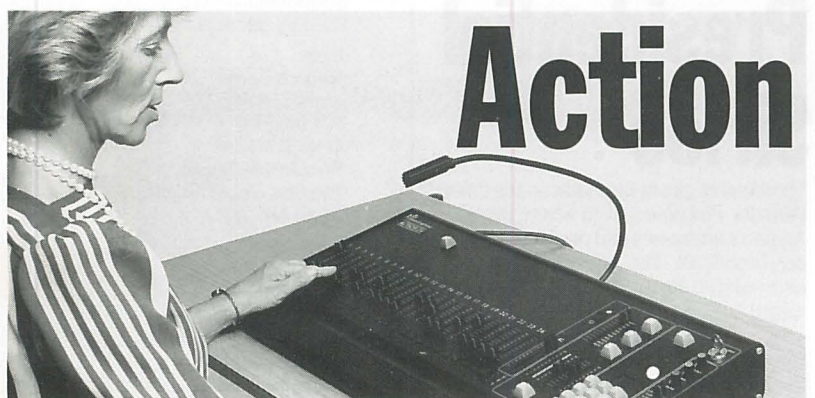
A motorised light may have many functions - pan, tilt, focus, colour, barn door, iris -

The Galaxy 3 Motion panel has four wheels allowing four functions for any motorised light to be balanced simultaneously or even four different luminaires to be moved together.

System accuracy is one part in a thousand. The panel displays luminaire positions and permits blind plotting.

So there it is - Galaxy 3.

I hope I have told you enough to whet the appetite. But as with all such systems they must be seen and played with to be fully appreciated. The photo from the Editorial Pentax shows our Brentford demonstrator - and very soon many other systems will be in the field and in agents showrooms in many countries. ■



A new small - and distinctly affordable - memory system to be sold Worldwide

One of the most welcomed products at our recent Bristol fandango was the introduction of Action, the first really low cost memory system from a major manufacturer. This, of course, means world wide service, spares, back up and availability as part of the deal.

Time was when an amateur, school or small professional system was stark to say the least. Many readers will remember the Junior 8, four shared dimmers, eight circuits, and portable only in the sense that a cast iron mangle is portable.

Twenty years on and from the day the first memory systems were revealed to an astonished world their price has shown a steepness of decline only matched by the steepness of the rise in the number of facilities incorporated.

As you will see, Action is certainly not short of useful qualities. Price? Ah, for this nice surprise you must contact your Strand Representative or Dealer who will also be able to arrange for you to try the system for yourself. ■

Action Summary

- 24 Channels controlling 24 dimmers.
- 99 Memories.
- Channel 'Flash' or 'Bump' buttons, each with an integral LED.
- Split dipless cross fader.
- Fade Time Controller.
- Digital key pad with LED display window.
- 9 Special Effects, including chase, cycle, random, flicker, sound to light and 'base beat'.
- Special effects speed control.
- Record lock keyswitch.
- System diagnostics.
- Multiplex output.
- Goose neck operators light (optional).

The Action desk is all metal, finished in matt black with light blue signing. The front rail extrusion is shaped to act as a carrying handle.

The whole desk is meant to tour so we made it strong. Regrettably the Strand tradition of offering control systems in either Bankers Mahogany or Methodist Oak were ruled out as too ambitious at this level.

A few More Morsels of information to tempt you.

Control of the dimmers by Action is multiplexed, so all 24 need only a screened pair to send them about their business or two twisted pairs for the North American version!

We offer two versions of Action, one for 220/240v. 50Hz. and one for 100/120v. 60Hz.

The 'Flash' (U.K.) or 'Bump' (U.S.) buttons fulfill a variety of tasks. A three position toggle switch arranges for them to flash to 'full', to 'off' or to be inactive, while the tiny red LED set into each button serves as a mimic to identify active channels in a cue for modification. They also tell the operator which channels are involved in a running effect.

A master fader masters, while the keypad has nothing to do with keys but is that array of numbered buttons found on every calculator. An extra button allows an easy retreat or advance one digit at a time. There is a two digit display window to show the memory or effect number selected. The display also shows if any selected memory number has been recorded.

So we provide a 'Modify' push. Pressing this displays channels that are active in the cue under consideration by illuminating the LEDs in the channel flash/bump buttons. Pressing the button selects that channel for modification, its current level being displayed on the A/B fader bargraph. You then raise or lower the offending channel by the Bump Select Switch and record the time. Effects can be changed the same way.

Timed fades - from two seconds to five minutes - are available and can be adjusted at any point - i.e. if the scene is playing very fast that evening then as with all Strand boards, the operator is the final decision maker.

A 'Sequence' push is provided. If pushed while recording, then memory cue numbers are automatically allocated in sequence. When in playback mode, 'Sequence' will automatically load the next memory into the dark preset as each crossfade is completed. Thus your lighting cue is automatically always 'waiting in the wings'.

Peace of mind should be ensured by the fact that not only does Action hold its memories for at least seven days if someone turns off the mains, but, should the central processor go missing - a very unlikely event - you can still run the show on the 24 manual faders using the cue sheet you made after the lighting rehearsal.

As a further confidence booster, Action has a self diagnostic facility. The operator, using numeric codes, can select nine tests and even, should a complete check up be required, 'All Tests' can be selected. If anything is amiss the LED window displays a number code that tells where the trouble lies.

All operators deserve a status symbol -

and this we have provided in the form of a key whose use stops the unthinking or mischievous from wiping all that carefully designed lighting. After all, it was late, and the bar sometimes calls after a fraught rehearsal and, yes, you will write it all tomorrow. Then your key is indeed a comfort.

For the technically minded . .

Action uses a single M68B09 micro-processor with a 3MHz clock rate, similar to many other Strand memory controls. Cues and effects are held in 8K bytes of CMOS ram which is battery maintained by rechargeable NiCad cells.

The software (or firmware to be strictly accurate) is written in 6809 assembler and held in a single UV Erasable PROM.

Action is the first truly international memory control from Strand. Its specification was defined by R & D and Marketing people in London and Los Angeles. Software, Electronic and Mechanical Design was carried out on both sides of the Atlantic, and Action will eventually be manufactured in several of Strand's factories. Action will be available to Strand customers worldwide!

Push to record. When you have composed your lighting a single push on the button records your lighting in all its subtlety under the cue number displayed. The most discreet of 'bleeps' confirms that all is recorded. Writing down channel information can be done at leisure after the rehearsal if required.

Do you ever change your mind? Who doesn't? ■