

LIGHTS!

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PATRICIA HODGE - THE SPICE OF LIGHT

**WHAT FUTURE FOR TV LIGHTING DESIGN?
NEW ERA OPENS FOR DIMMERS**

 Strand Lighting

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NEW FACTORY IN ITALY

A purpose-built, 91,000 sq ft factory and offices has been opened at Pomezia, near Rome, for the manufacture of Quartzcolor luminaires, electronic controls and specialist lighting equipment for the TV and film market.

TOURING THE GALAXY

A 'touring' Strand Galaxy lighting control board will be setting off on an extended world tour with the Royal Opera during the 1990's. It will allow the company to take its complex lighting sequences on computer disk while London's Royal Opera House is being refurbished.

ON COURSE

A six month, full-time technical training course for budding young theatre technicians is being offered by London's Half Moon young people's theatre in Mile End. It includes practical experience on a Strand control.

LYCEUM LIGHTS

Sheffield's Lyceum Theatre, currently being refurbished is to have new lighting controls following the award of a contract to Strand Lighting for a Galaxy control desk and Permus dimmers.

STRAND AND DELIVER

A new spares delivery service has been devised by Strand Lighting for its customers, to streamline the supply of vital components.

The 'Strandspares Support Policy' runs in tandem with the new Strandspares Catalogue. Each of the hundreds of items illustrated in the catalogue falls within one of three delivery categories: ex-stock, four weeks or 16 weeks.

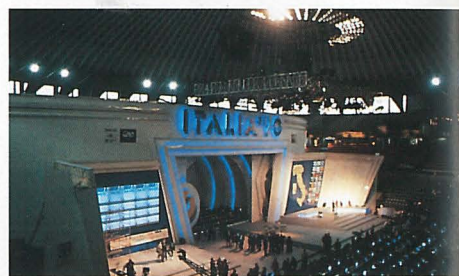
This gives positive delivery dates for each item, depending on its

NEWS IN BRIEF

LP90 DOUBLE

Orders have been received for the first Canadian Light Palette 90 control consoles — the first, from the University of Victoria in British Columbia, who wanted the most advanced console available for their Phoenix Theatre, and the second from theatre consultants Brannigan-Lorelli, who selected Strand for the Capitol Theatre in Brantford, Ontario.

ITALIA 90 KICKS OFF



The draw ceremony for the Football World Cup which was broadcast on Worldvision from Palazzo dello Sport of Rome, was produced with the use of a large quantity of Quartzcolor luminaires, including 48 5kW Pollux, 24 12.5 kW Iris, 20 5kW Arturo and many Parlights.

availability. The system has been developed following an exhaustive supply-and-demand study by Strand. It will allow customers to plan their reordering in advance, secure in the knowledge that they have a firm delivery date for the spares they need.

Ordering of the spares is made easier by using the new illustrated catalogue. A separate price list also contains code-figure delivery dates.

Copies of new catalogue/price list are available on request from Strand Lighting or from local Strand dealers.

AT ANY GIVEN TIME, LONDON'S WEST END 'THEATRELAND' IS HOME TO A HOST OF DAZZLING PRODUCTIONS FEATURING THE TOP NAMES OF THE PROFESSION. STRAND LIGHTING IS THERE WHEN...

THE LIGHTS GO UP IN LONDON

Question: What do Jerry Hall, Tom Conti, Michael Gambon, Jim Davidson and the cast of *Miss Saigon* have in common - apart from being performers?

Answer: They have all recently been 'lit' by Strand Lighting controls at theatres in the West End.

What makes the story all the more remarkable is that their performances are illuminated by Strand equipment as a matter of policy by Stoll Moss Theatres, who control several major theatres in central London — 12 of them to be precise.

Strand's continuing favour with Stoll Moss has recently resulted in a Galaxy 3 system being installed at the London Palladium, where it will be used to control lighting of, amongst other things, this year's Royal Variety performance.

LOYALTY

But it is not just loyalty and sentiment that has made Strand a favourite with Stoll Moss and its technical director, Cyril Griffiths, over the years. Much of the day-to-day responsibility for the chain of theatres (which apart from the Palladium includes such well-known venues as the Theatre Royal, Victoria Palace, Her Majesty's, the Globe, the Lyric, the Queens, the Garrick, the Royalty, the Duchess, the Apollo and the Cambridge) has now fallen on the shoulders of Cyril's assistant, Julian Rees.

He explained, 'One of the main reasons we have always gone for Strand is that we know their products are good for 20 years or more. As a commercial company, we want a product which is going to serve us for a long time and we want a good back-up service.'

'In the case of the Galaxy 3, we knew it was what we wanted for the Palladium and we were prepared to wait for Strand to develop it.'

At the moment, the Palladium is



Photo: Retna Pictures

■ **Jerry Hall** — recently under Strand lights at The Lyric Theatre in Bus Stop.

being run as a variety 'house' and has recently been temporary home to American comic Jackie Mason. 'Variety', as the name implies, means that the lighting needs can change many times during the course of a working week. A flexible lighting control system is vital.

VARIETY

Julian added, 'The nature of the Palladium means that we have a variety of spectacular musicals, Sunday concerts and a great deal of television work.'

'When we have the television people in, we can convert the Galaxy 3 into a Studio Galaxy with ease. It also has the effects panel, which is good for the Sunday concerts.'

'The fact that we have always had Strand equipment meant that we were able to couple the Galaxy to the existing dimmers.'

Stoll Moss employ their own Works Department, a mobile team who are permanently on call to go where necessary throughout the West End empire. This means that the company takes care of all its own installation work and repairs to lighting equipment.

At the Palladium itself, the lighting team comprises a chief and six staff. Before the Galaxy was installed, lighting control had been by means of a 'special' designed for the theatre by Strand Lighting. The 288 dimmers are mainly TM's 5 and 10K's installed in the 1960's ('and still working well — they are superb').

'House' stocks of luminaires include Strand Cadenzas, Cantatas, and 'possibly the largest stock of Pattern 49a's in the West End.'

As Julian Rees says: 'We have never been slow to embrace new technology but at the same time we would not consider investing in anything where the teething troubles had not been overcome. When we spend money on new equipment we want to be satisfied that it will last us a very long time to come.'

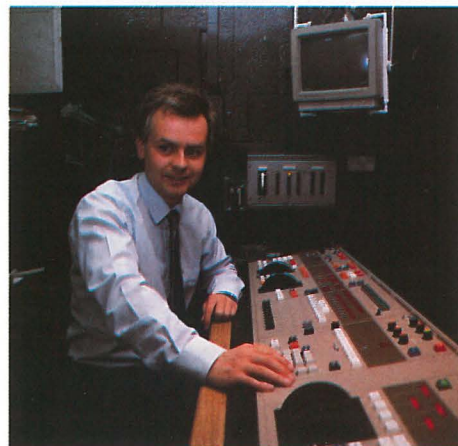


Photo: Frank Grainger

■ **Julian Rees** with the Palladium's Galaxy 3.

YORKSHIRE TELEVISION HAS FOR MANY YEARS BEEN KNOWN FOR THE CONSISTENTLY HIGH QUALITY OF ITS PROGRAMMES. HERE, LIGHTING DIRECTOR, AND FORMER STRAND ENGINEER, PETER HARDMAN PONDERES ON THE FUTURE OF HIS PROFESSION.



Photos: Yorkshire Television

■ Rollicking fun in Haggard with Keith Barron — one of the sets lit by Peter Hardman.

WILL THERE BE LIFE AFTER EMMERDALE?

The television lighting director could be a 'dying breed' in Britain, killed off by tighter budgets and changes in policy, according to one of the most respected of the breed, Yorkshire Television's Peter Hardman.

Peter has worked for Yorkshire TV, one of the most active drama, documentary and light entertainment producers, since it was formed 22 years ago. His list of credits covers many of the top-rated shows produced for independent television.

These include *Emmerdale Farm* ('we all do a stint on *Emmerdale Farm*, and take it in turns') to *Rising Damp* and the recently-shown *Haggard*. He is best known, in lighting terms, for his work on light entertainment programmes, such as *Song By Song* and *Let's Face The Music*.

He is currently working on two new runs for Cannon and Ball, a *Playhouse* series, and a new game show, *Casino*, which appears on screen this month and is being regarded as the successor to that other Yorkshire TV gameshow favourite, *3-2-1*.

But he warns, 'Some people think the television lighting director is a dying breed, although personally I am not so sure. Certainly lighting directors in general in ITV have been quite worried about this.'

'There is quite a big shake-up going on financially and to produce programmes more efficiently we are now using cameramen to light some of the productions, rather than lighting directors. To my mind what this means is that quality may be sacrificed to bring the price of the product down.'

'This is the general thinking throughout the industry now, although my view is that there will always be lighting directors for certain productions.'

Peter began his career assisting his father in lighting amateur productions in Manchester as a boy of 12. He still maintains his links with the amateur side of the business by lending his talents as occasional lighting director for companies such as Prestwich Amateur Operatic Society.

After qualifying as an electronics

engineer and working briefly for Ferranti Computers, he joined the old Strand Electric company in Covent Garden, London, in the early 1960's, learning the ropes as a junior engineer in Fred Bentham's technical department. He remembers that this was at a time when the first SCR dimmer was being developed and the first thyristor dimmers were being installed at the BBC. The electronic memory and the magnetic drum were also in their early stages of development.

Before long, he had applied for a job as a technical assistant with ABC Television, with the intention of becoming a



■ Julian Lloyd Webber faces the music.

lighting director. As is the way with any large organisation, he found himself sent to the sound department, where he stayed until ABC closed down in 1968, when he joined Yorkshire TV.

He explained, 'The majority of lighting directors in television come from cameras. I had never particularly wanted to work on cameras. I was perfectly happy with sound. But after six years here on sound, I applied for a lighting director's job and got it.'

'When I was on sound I used to watch other lighting directors to see how they did it. As a sound man on the studio floor you are in a very good position to see how lighting directors go about their work.'

So how does a lighting designer in TV go about his work? As soon as a programme is conceived, a director and/or producer is allotted to it, along with a designer and a lighting director. The moment the designer has developed a firm idea of the overall 'look' of the show, he will involve the lighting director.

INFORMAL

Peter explained, 'Formal planning meetings are of very limited use. The most useful meetings are the informal ones where you sit over a cup of coffee and talk over your ideas and throw them backwards and forwards.'

'This is particularly true in light entertainment where the set is really a vehicle to carry the lighting. For example, in *Song By Song*, there was just one set which had to be used for 13 hour-long programmes, so the variation had to come from the lighting.'

'In a show like that it is only in the lighting director's mind that he can conceive what he is going to do.'

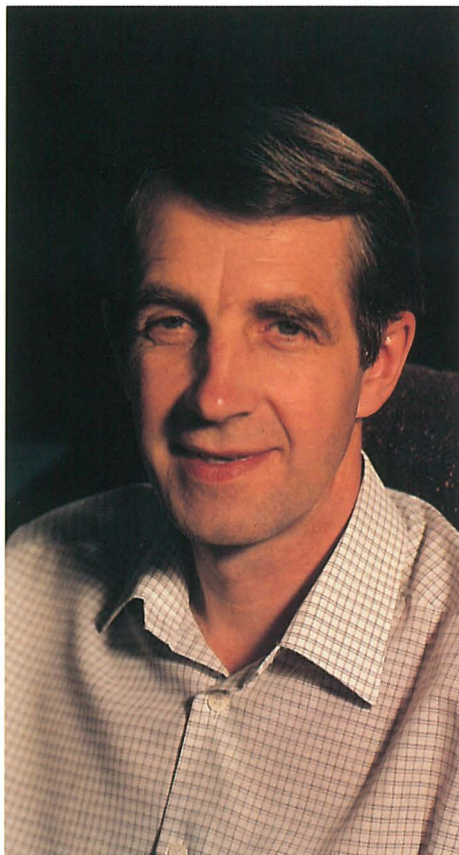
Did lighting directors, like Archimedes, receive their great inspiration while sitting in the bath?

'That happens quite a lot, actually,' he admitted, 'although there are traditional ways of lighting television. These are fine initially but one has to move on..'

'The biggest difference between lighting for the theatre and for television is that on television you are lighting for the camera rather than for the eye.'

'On a stage you will see everything all the time, whereas on television the camera is selective in what it wants you to see. That has both its advantages and its disadvantages.'

'Theatre lighting is the instrument by which the eye is drawn to a certain part of the action that the director wishes you to see. In television the director uses the camera to select the action and



■ Peter Hardman.

the lighting director has to light that particular shot.

'My philosophy about lighting is that I am there to assist the artist and the director. There are some lighting directors who tend to think that television is there to show off their lighting, although I think they are in the minority.'

SOME PEOPLE THINK THE TV LIGHTING DIRECTOR IS A DYING BREED — I AM NOT SO SURE

One of the most difficult areas of TV lighting is lighting pop shows, where stunning light changes may be totally ignored by the TV director. He will want to close in on the faces of performers, rather than concentrate on a spectacular light show.

Peter recalled: 'As far as the performers go, I can only think of one person who objected to being shot in a particular way. Now I know he doesn't like one particular profile and we get on fine.'

'The only other comment I can recall came from Millicent Martin on *Song By Song*. She was working a long way down stage and the follow-spot came in fairly steep. She commented on this and I have to say she was right in making the objection. I just put in another lamp with a 153 filter to fill in the shadows and she was happy.'

'I think it is important that you look after the artist's ego. There is no point in saying to an artist, 'that's the way it is'. You have to humour them. They are the ones who are on shot. If they aren't happy for any reason, it is going to show.'

'A lot of ladies are aware of their image on television. They will make the remark when you first meet them at rehearsals about their wrinkles. I am aware of their concern and I do try and bring the key lights in as low as I possibly can. Generally, the shallower the key light comes in, the more it helps with the looks.'

'Cameras are now so refined that the engineering considerations of the lighting are less and less. It is now possible to be far more subtle.'

'With situation comedy it used to be the case that it was just simply illuminated. But now the differences between situation comedy and drama are less and less and they are lit in a similar way.'

'The television camera can also be manipulated to give a look which the eye doesn't see. It can colour-shift, put filters in it...you can really change the look quite dramatically just by altering the camera parameters.'

'The big disadvantage of the camera is that it can't see such a great contrast range as the human eye, so you can only take your lights down to a certain level. The camera will only operate satisfactorily between an upper and lower level whereas the human eye will accept far greater ranges. You have to be much more careful in television about basic lighting levels.'



■ All Yorkshire TV's three studios are controlled by Galaxy boards. Peter said, 'We had been talking about controls here for some years. When we came to the ordering — we felt that the Galaxy was really the only one which was suitable for our needs. All the dimmers were replaced by Strand PIP dimmers.' A fourth Galaxy is used for outside broadcasts or as a Stalls control in the studio.

VARIETY IS THE SPICE OF LIGHT



When you consider just how much time actors spend beneath the glare of production lighting, it is surprising that lighting as a subject does not figure large in the drama school curriculum. For actress Patricia Hodge this is a matter of great concern.

'It really is quite extraordinary but it is not something that anybody ever tells you about. You are simply never taught it', she said.

Patricia, now one of the most highly regarded actresses of our time, trained at the London Academy of Music and Dramatic Art, where she won the Eveline Evans Award for best actress, on graduating.

She went on, 'Of course, theatre lighting is gone into as a technical exercise — I mean, we all used to take turns on the follow-spots as first year students when we were doing third year shows — but in general, there is not nearly enough emphasis laid on the importance of it'.

The lady renowned for her perfect diction was speaking in her dressing room at London's *Comedy Theatre*, where this month she will end a six month run starring in the musical *Noel and Gertie*. Her list of credits over the past 19 years is remarkable for the fact that she has evidently bridged the gaps between theatre, television, film and video with consummate ease.

Naturally along the way she has developed an interest in other aspects of stagecraft and admits she is becoming 'more and more aware' of lighting as a means of spicing-up her performance.

She explained, 'I tend to concentrate a lot on my performance and often forget to maximise whatever light is provided. It just depends on how forward the lighting director is. Some will come forward and say, 'if you hit that light there, I'm getting a nice kick in your eyes', and explains it to you. Others will not like to interfere like that and feel that it's up to you to find the light you need.

'Of course, that means that a lot of the time you may miss the subtle things they are trying to do, so it has to be a sort of two-way process. But this is, curiously, not something that an actor learns. It is not something that anybody ever tells you about and you are left to pick it up for yourself.

'With lighting you are very much in the hands of the beholder. You are asking someone else to do the judging for you. I know that some actors and actresses, as they go on, get very wised-up on it and go and follow very care-

fully and look at rushes and so on. I'm not someone who does that because yes, alright, you can see what the lighting is like but you can also see what your own performance is like, so it's not necessarily a very good thing to do.



ANOTHER OF THE PROBLEMS I HAVE IS BALANCING EXACTLY THE DEPTH OF MAKE-UP ACCORDING TO THE SENSITIVITY OF THE LIGHTING THAT IS GOING TO BE USED.

'However, it does mean that there have been times when I have been bitterly disappointed when I have seen something in the final cut where the lighting designer has failed to capture what I thought they would'.

In recent years Patricia has been associated with so many quality films, shows and plays that her fellow actors must frequently be green with envy. These have included TV productions such as *The Naked Civil Servant*; *Edward and Mrs Simpson*; *Jemima Shore Investigates*; *Hotel du Lac*; the controversial *Life and Loves of a She Devil*; *Rumpole of the Bailey* and her highly-rated show *Holding The Fort*, which ran for three series on London Weekend Television. Her films have included *The Elephant Man*; *Betrayal* in which she co-starred alongside Jeremy Irons and Ben Kingsley, and *Sunset* which starred Bruce Willis.

She said, 'Of the things I have been in, I thought that *Hotel du Lac* was very beautifully lit. Kenneth Macmillan did that and he shamelessly used reflector boards on us whenever possible. It was enormously effective.

'What he realised was that it was a tale set against a beautiful background. He knew he was going to be able to capture the beauty of the background — whether it was the Swiss hotel, a mountain or the lakes — but it was

essentially an important conversation piece...there was a lot of very subtle humour in it.

'He was lighting people at close quarters and you had to read every nuance of the line delivery in order to get a particular bent of humour. He did it spectacularly. He made sure that you didn't miss a single glint in the eye, or wrinkle on the face.

'Instead of going for moody atmospheres, which would have cut against this, he made sure that people's faces were as clear as they could possibly be. I think this was an enormous contribution to its success.'

One of Patricia's attributes has been her pale 'English Rose' complexion. But did this present any difficulties to lighting crews?

'I think with me they have thought, 'Well, that's her problem,' she said. 'Certainly one of my problems is that my colouring is much fairer than it appears to be, because I use make-up to give me definition. If I weren't to wear make-up you would see that my eyebrows and eyelashes are almost white, which would be fine for certain period things but it is no good for definition.



THE MORE SOMEONE HAS GONE FOR LIGHTING STRAIGHT INTO THE EYES, THE MORE SUCCESSFUL MY PERFORMANCE HAS BEEN IN TERMS OF RECOGNITION

'Another of the problems I have is balancing exactly the depth of make-up according to the sensitivity of the lighting that is going to be used.

'On *Betrayal*, what happened was we did camera-close because we had a good old-fashioned producer and he wanted to balance everything before we started.

'I did an ordinary level make-up and when they put it on camera they looked at it and suddenly they said, 'I'd like

to be able to see more of the inner character than that''. So then we started with virtually no make-up and built up a little bit more and a little bit more until they got exactly the right balance.'



'When you look at *Betrayal*, when we started shooting it I wore less make-up and it was actually a little too down and made me look rather too fragile. There was a level we hit, about a third of the way through filming, when it was a great deal better.'

From the performers point of view, is there any difference between television, theatre, film and video lighting?

'Yes, there is a huge difference. It is difficult to define. I do think that a lot of it is to do with whether they bother to light up the eyes. Some people have, structurally, very well-boned faces and you then don't need to see the eyes because the face has a chiselled look and will look good in all sorts of moody light and it will speak volumes.

'With somebody like me, if you get a deadness around the eyes then it is lacking an enormous amount of the expression I am putting into it. You particularly get that with top-lighting in video.

'I have honestly found that the more someone has gone for lighting straight into the eyes, with me, and using that, the more successful my performance has been in terms of recognition.'

Patricia's plans for the immediate future, after *Noel and Gertie* include taking a well-earned break with her family. But she will be back on screen soon, in the ever-popular *Rumpole* and with a cameo role in the forthcoming TV film *The Secret Life of Ian Fleming* in which she plays Fleming's mother.

CLEAN-UP VAUDEVILLE

— WITH THE HELP OF PLENTY OF DOUGH

When they say in Toronto that it took plenty of dough to restore one of Canada's most important theatre complexes, they mean just that.

For the original 1913 decor of the Wintergarden Theatre — part of Loew's Yonge Street vaudeville theatre — was a simulated 'fantasy English garden', with scenic paintings of a garden in full bloom, complete with butterflies. And since most of the paintwork was water-soluble paint, it was cleaned off using a traditional solvent: bread dough.

Altogether, 1,500 lbs of flour was used to form dough which was then applied to clean more than 20,000 square feet of paintwork.

Now, with the restoration completed and the new lighting system installed by Strand's Toronto dealer, Canadian Staging Projects, the Wintergarden and its associated Elgin Theatre have been designated National Historic sites, as a tribute to their contribution to Canadian theatre and architecture.

When they first opened in December 1913, the two formed Canada's first 'stacked' theatre complex, with the Wintergarden seven flights above the Elgin. They were successful Vaudeville houses for 14 years until the advent of

talking pictures. By the late 1970's, the theatres had become dowdy and neglected, until they were bought by the Ontario Heritage Foundation in 1981 and restoration work began.

Stage lighting for the project included a package of more than 130 Lekolites, 30 Fresnels and 11 Iris 4's in the initial luminaire package, supplemented by rentals to a total luminaire complement of 400.

Dimming is by way of 156 dimmers in a unique arrangement. To give both theatres maximum flexibility, CD80 dimmer packs are housed in two rolling racks, designed by CSP. Each rack can have as many as five packs placed in it, depending on the requirements of the production. Additional rolling racks and CD80 dimmer packs are available from CSP's rental stock.

Performance lighting is controlled by a Mini Light Palette in each theatre, with a Mantrix 2S backup.



■ The new-look interior of the 1500-seat Elgin Theatre.

IRRESISTIBLE OLDSMOBILES

According to lighting designer Craig Roeder, 'The more everything sparkles, the better the chance the merchandise will sell.' And since he is one to practice what he preaches, Craig has given full rein to his philosophy in lighting this Oldsmobile showroom in Dallas, Texas, where 'sparkle' is an understatement.

Craig's restrictions in the Henry Butts Oldsmobile showroom were that only five

separate models could be displayed at any one time. His solution was to isolate each car with a pool of light — an idea made more difficult by the fact that lights had to be clamped



onto a pitched space frame which rose up to 62 feet.

His desired effect of 1500 lux on each car was achieved using five lamps on each, ranging from 120W, PAR 64 very narrow spots, to 150-watt, 120-volt PAR 38 spots, operating on a 60-second cycle automated pre-set dimming system. In addition to illuminating the cars, light bounces off the glass, highly-polished granite and brass surfaces of the showroom.

Dimmers and controls were provided by Strand Electro Controls of Salt Lake City.

We all know about the technological revolution — it has brought us inexpensive calculators, affordable word processors, energy efficient buildings, and in our own industry, the memory lighting control desk. Until now, that technology had passed the dimmer by. Few people have thought to ask more of their dimmers than that they sit in the dark, hum quietly to themselves and bring the lights up when instructed.

But at Strand we asked ourselves what benefits could be gained if we applied sophisticated technology to dimmers: what advantages could it give you the designer, the technician, the lighting professional? The answer is presented in the following introduction to...

LIGHTS!
EXTRA

JUNE 1990. ISSUE 1.

EC90

THE FIRST MAJOR ADVANCE IN DIMMING TECHNOLOGY SINCE THE THYRISTOR

This summer will see the official launch and availability of EC90, the first ever attempt to bring the full benefits of digital technology to that old reliable workhorse — the dimmer. Why? you ask. My old dimmers work perfectly well...they make the lights go up and down, don't they? Yes, and your old turntable played your records but provided a bit of snap, crackle and pop along with the music. And your old watch kept the time — provided you didn't ask for it to be too precise. But the compact disc player has significantly improved the sound quality of music through digital recording and playback, and the quartz crystal in a watch means no winding or adjusting the time once a week.

The obvious conclusion is that digital technology could actually provide the lighting professional with a better dimmer.

EC90 also expands the meaning of the phrase, 'integrated lighting system'. Bi-directional communication operating between EC90 and Galaxy means the two together provide far greater benefits than either operating individually.

FIRST, A BETTER DIMMER

Digital processing in the control desk



Strand Lighting

has been on offer for several years now. More recently, digital protocols have provided communication between the control and dimmers.

Some of the benefits of the application of digital technology to these first two areas have been flexibility, reduced installation costs and simpler control of large numbers of channels. By extending the principles of digital technology into the heart of the dimmer, the firing circuit, we can apply these improvements to new areas. Some of the basic improvements to performance you can expect from the dimmer are as follows:

Speed of Response

Because digital circuitry in the dimmer permits faster response than analogue, luminaires controlled by EC90 dimmers can react more quickly to commands. Chases can run faster, Instant-On really is, and Bump-to-Full actually does.

Stability

The crystal controlled firing circuit in EC90 ensures that dimmers will not drift over time or with temperature variation. There are no potentiometers to trim or adjust. The output curve of the dimmer will remain constant throughout its life without maintenance.

Precision

The output of each dimmer will precisely match that of its neighbour during fades, and will return to exactly the level set on the control console with no variation from channel to channel. High resolution data processing ensures that fades are smoother, with no perceptible stepping even with low wattage lamps at low intensity.

Flexibility

Microprocessor control at the dimmer also provides a number of side benefits. These include:

- Automatic sensing of input protocol: EC90 will accept DMX512, AMX192, D54 and the new bi-directional SMX protocol without need for adjustment or customisation. Also included are up to 48 +10V analogue inputs per rack to accommodate auxiliaries.

- A selection of output curves: Each dimmer can be selected to operate according to Square Law, S Curve, Linear, or Fluorescent output curves, or as a Non Dim. Alternatively, custom fade profiles can be created and held in the dimmer rack to allow new dimmers to match the output of existing dimmers.

- Maximum output: A maximum output voltage can be selected for any dimmer or group of dimmers: useful for those wishing to use 120V lamps. And the selected dimmer law will be scaled appropriately over the chosen operating voltage.

- Backup States: Up to 32 lighting presets may be recorded and stored in the Dimmer Rack. A selection of these pre-recorded lighting states can be recalled from a wall mounted station to be used as worklights, houselights or safety lights, without the control console being turned on.

- Electronic Patching: To simplify circuit to dimmer numbering, combine circuits for control or augment the control desk's soft patch, EC90 offers a patch table in the Dimmer Rack.

THREE IN ONE

The needs, and the budgets, of the professional broadcast studio differ significantly from those of a small repertory theatre, while the lighting practices of France vary from those of Australia. To accommodate these differing requirements, EC90 is available in three levels of capability and cost. EC90HD, MD and MDplus all provide digital firing and the above programmable features, but offers the following distinctions:

- EC90HD (High Density): Economical, hard-wired dimmers in 10 and 25 amp ratings; a single rack can contain up to 144 dimmers.

- EC90MD (Modular): Interchangeable plug-in dimmers in ratings of 16, 32 and 50 amps. Up to 72 dimmers in a rack

- EC90MDplus: Physically the same as the MD, but the most advanced dimmer available today.

All three levels of EC90 utilise the same rack assembly containing power distribution, circuit protection and contracting area. The racks are sturdy steel construction and provide ample space for top or bottom fed mains and load wiring. Front access only is required, allowing racks to be mounted back to back or against a wall, minimising the required floor space. Each EC90 Dimmer Rack can contain a mix of the HD, MD and MDplus dimmers in all current ratings so each dimming system can be configured to meet the exact needs of the installation.

All types of EC90 provide local indication via LEDs of system status including overtemperature, communications status, control input and output. More detailed information is provided by means of a small lap-top personal



computer with custom software designed for communicating with the EC90 processors. This same PC is the means by which the dimmer curve is selected and the soft patch is assigned. Once various choices are made, the system status can be saved to floppy disc or printed out for future reference.

An integral 16-character LCD and keypad provide access to most functions of the system including selection of dimmer curve, recording of backup states and system diagnostics. The Modular versions also offer some important programmable features.

Response Speed:

Each dimmer may be selected to operate at Normal, Fast, or Slow Response Speed.

Rapid response, can create greater inrush current which could significantly affect lamp life. On small wattage lamps used in a chase effect, this is unimportant. In the case of a 10K studio lumin-

aire however, slower response can actually achieve longer lamp life and corresponding economies.

Action on Mux Fail:

Unexpected loss of control signal as a result of control desk failure or disconnection could result in calamity during a live performance.

EC90 Modular systems are capable of sensing loss of multiplex signal and permit the user to program an automatic fade to any of the 32 back-up states stored in the Dimmer Rack.

Dual Input:

Modular systems can also accept two multiplex control signals. Each dimmer may then be programmed to respond to either/or both Mux control signals, an analogue input or all three on a highest-takes-precedence basis.

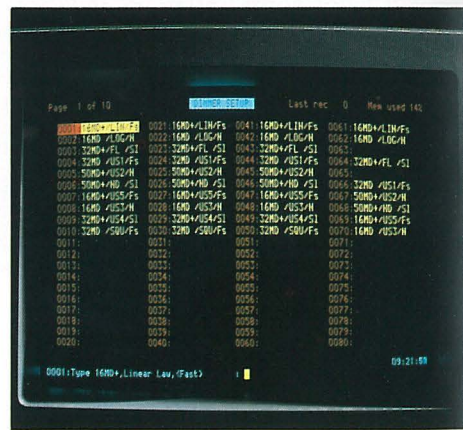
Typical situations in which this flexibility is desirable include:

- Two separate studios, each with their own control system which are occasionally joined into one production studio with a single control.

- A control desk and independent backup each addressing the dimmers simultaneously.

- A house control desk and touring control desk working in parallel.

- Houselights controlled by both house and stage control system.



Display on the monitor.

EC90MDplus & GALAXY = SYSTEM INTEGRATION

EC90HD and MD each offer a variety of positive benefits to the user, regardless of the control system driving the dimmers. But it is with Galaxy 3 that the full potential of EC90 is achieved.

A lone operator sitting at a Galaxy in the lighting control room receives full reporting of dimmer status and any fault conditions occurring either at the dimmer rack or at the lighting circuit. For the first time, the lighting operator knows at a glance whether loss of the keylight is due to a tripped circuit

breaker, blown lamp or dimmer failure, and can prepare for its correction.

Also from the Galaxy, the operator can query the operational status of connected dimmers: their capacity, the assigned dimmer law, operating speed and the type of control input, as well as the current and voltage being drawn by a given lighting state. Backup states, dimmer response and action on multiplex signal failure may be set by the

Galaxy for storage at the Dimmer.

Finally, EC90*plus* provides a feature so unique that Strand has been granted a patent on its design. An explanation of this patented innovation appears under *Load Cable Compensation*.

A WORD ABOUT SAFETY

With a name like EC90, it is apparent that Strand is aware of the European Community harmonisation of codes

that has begun and is likely to complete during the decade of the 90's. Great care has been taken during the design and development of this new product to ensure its compliance with the strictest electrical standards. As part of this effort, the decision was taken to use high temperature, self-extinguishing engineering plastics with their electrically safe, non-conductive characteristics. To eliminate any concern

INTERVIEW WITH THE DESIGNER

MARK AYTON, R&D EC90 PROJECT LEADER, EXPLAINS THE ESOTERIC NATURE OF DIGITAL DIMMING

What is meant by a digital dimmer?

A lot of people have the impression that a digital dimmer is any dimmer that accepts a digital multiplex protocol such as DMX512. In fact, conventional analogue dimmers can have a digital input driving them without providing any of the benefits of a true digital dimmer.

In the case of EC90, 'digital dimmer' means that channel output levels remain digital values from the input all the way to the thyristor output. For each dimmer, lighting level, speed of response, dimmer law and line compensation are all produced by digital calculation. This gives far greater precision and consistency than an analogue dimmer could ever achieve.

Why is that?

In a conventional analogue dimmer, the timing of thyristor firing which in turn produces the desired level from the lamp, is controlled by a ramp generator. This is a circuit composed of a variety of components, all of which are subject to broad manufacturing tolerances and will inevitably drift over time. That is why you find analogue dimmers will have adjustment potentiometers, to reset the trim of this ramp circuit.

In EC90, thyristor firing is timed by a quartz crystal in combination with a microprocessor. This is a far more accurate method of timing than using analogue components. Because

quartz crystals are stable over both time and temperature, EC90 will never require adjustment.

That isn't to say that there are no adjustments available with EC90. Users can change quite a few things if they wish. The microprocessor provides a lot of flexibility in that respect.

Why did you decide to use microprocessors in EC90?

Our reasons were the same as those that have lead almost all other advancing industries to make use of microprocessors. With today's electronics, a microprocessor can perform



any control function much better, with far greater flexibility than was possible before.

Take cameras for example; look how they have advanced in the past few years, and not just for the dedicated user. Microprocessors in the simple point-and-shoot camera, controlling shutter speed and aperture, have vastly improved the quality of picture the average user can get, without any understanding of how it all works.

The same benefits have been brought to dimming with EC90. For the dedicated user, there is enormous flexibility for setting the dimmers to meet changing requirements. For others, EC90 will simply improve the quality of their stage or studio lighting.

Aren't microprocessors too delicate for such a hostile environment?

We have taken great care to design the electronics to be immune to the electrical noise generated by the dimmers. We have also carried out a lot of testing to ensure we are confident in the design. Modern microprocessors are much more rugged than they used to be and more importantly, we have a much clearer understanding of electrical noise problems and how to avoid them than was the case a few years ago. In any case, every microprocessor is protected by a watchdog circuit, which will automatically restart the processor should it be upset by spurious noise.

Out of interest, the microprocessor we have designed into EC90 is used by several car companies as an engine management controller. Whilst it is certainly true that a dimmer rack is not a very friendly environment for electronic circuits, it is not as hostile as under the bonnet of a car.

Both applications are probably equally demanding in terms of reliability though. To protect the user, setup data is protected by several backup systems. The data is stored on two different boards in the rack, and for further safety, the setup can be saved to floppy disk.

So EC90 is unique?

Yes. Digital dimmers have been attempted in the past but the major problem was visible stepping on the output because an eight bit processor only divides the wave form up into 256 increments. EC90 performs all of its calculations with a sixteen bit microprocessor, and the output is timed with a twelve bit counter. This gives up to 4000 increments in light level between off and full on. The result is the elimination of any visible stepping during fades. EC90 has been in development for over two years. Our goal has been to create the most advanced dimmer in the world.

regarding the use of plastics in a high temperature environment, the design of the cooling system for EC90 is far in excess of worst case conditions in a high temperature environment.

Two large tangential fans, each acting as back-up for the other, are provided in each rack. Even should both fans fail, the rack is still capable of running for a minimum of 30 minutes before entering an overheat condition. In such extreme conditions, each EC90 dimmer module contains overheat sensors which will shut down operation of the dimmer before dangerous temperatures are reached.

An additional benefit of the design

and use of plastics is the absolute integrity and inherent safety of a rack

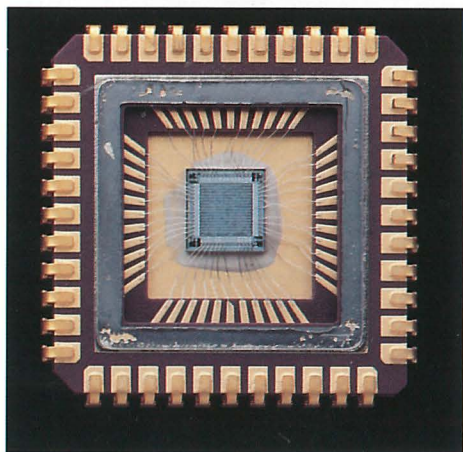


even with modules removed.

The unique nature of EC90 and the new technical ground it breaks may all seem a bit imposing and perhaps a bit 'over the top'. Rest assured that no one need use *all* of the many features offered by EC90. Indeed the Strand engineer may well install the system and it will happily sit in the dark, humming to itself making the lights go up and down indefinitely without further thought. But, with today's demanding production schedules, limited manpower and efficiency requirements, not to mention the simple desire for a better dimmer, EC90 may be an answer you hadn't thought of.

LOAD CABLE COMPENSATION

Electrical consultants familiar with the problems of studio design are aware that where dimmers are situated long distances from the luminaires, voltage loss caused by resistance in the cable connecting the two can be significant. As tungsten filament lamps are sensitive to changes in voltage at or near full output, a 3% drop in voltage will cause a 10% drop in light output. This drop in output can result in a temperature shift from 3200°K to 3160°K, sufficient to be perceived by colour cameras.



To reduce cable resistance and resulting voltage drop, load cables between dimmer and luminaire are frequently over-sized. As a result, the cable itself is more expensive and installation more costly. To give an extreme example, if a 2Kw circuit was run in 1.5mm² cable over 100 metres, the voltage drop would be 19 volts. To reduce the drop to a more acceptable 5 volts, the cable would have to be increased to 6mm².

Various solutions are currently implemented to reduce this problem: attempts are made to site the dimmers

closer to the loads in perhaps a number of different areas, which can be both inconvenient and costly. Another common solution is to use an elevated input supply to increase the maximum output level of the dimmer. This will only be correct for a given load rating. Lower loads can be overloaded by the dimmer, thereby shortening the lamp life.

The Innovation:

The patented solution provided by EC90MD*plus* uses a unique method to compensate for the cable loss for all loads, without the danger of over-volting. The microprocessor measures current and voltage being supplied to the load, and knowing the value for cable resistance, calculates the amount by which to increase the output to counteract the voltage loss in the cable. This calculation is performed many times a second to ensure correct compensation even when a fade is running.

The real benefit is that the lamp is driven with the full supply range, with the dimmer curve scaled to fit. The measurements of current and voltage are both made in the dimmer module, with no requirement for extra sense wires to be run to the load.

Cable resistance for each load is stored in the dimmer rack. These can be entered by the user, from the known cable length and type, or measured by the fitting of a test load and instructing EC90 to perform an auto-calibration.

The benefit of the dimmer automatically compensating for known voltage drop in the cable is the ability to use smaller section cables than would be possible in a normal installation. And of particular importance to broadcast production, lamps will operate at their correct colour temperature.

Implementation:

A high speed microprocessor is used to perform all the calculations necessary to service groups of up to 12 dimmers. Since thyristor dimmers use phase control, each dimmer's compensation needs to be recalculated at least every 8.3mS. The processor is used in conjunction with an Application Specific Integrated Circuit which digitally controls the firing time required for each dimmer and receives back information on the output current and voltage. Mains voltage is measured centrally.

The function of the microprocessor is to calculate the firing time for a particular requested output voltage. This is then corrected for the measured mains input voltage and by the current and voltage data fed back from each dimmer. The output voltage measured takes into account the losses in the thyristor and filter networks. The output current is used to determine the compensating extra output voltage needed to overcome load cable voltage drop.

LIGHTS!

For further information please contact:

Marketing Department
Strand Lighting Limited
Grant Way, Syon Lane, Isleworth
Middlesex TW7 5QD, England
Telephone: 081-560 3171
or contact your nearest
Strand dealer

STRAND'S TALE OF THE 'ONE THOUSAND AND ONE' LIGHTS IN MARRAKESH

An exciting International Congress centre intended to put the Moroccan city of Marrakesh on the map as the convention venue of the 90's, will provide a showcase for Strand Lighting capabilities.

The 'One Thousand and One' Congress Centre is being hailed as the greatest international business complex in North Africa and construction was completed by a workforce of 4000 within a record 18 months.

Built as a private venue, but with the full support of King Hassan II, the centre includes the 1700-seat Vizir's Hall — a conference hall constructed with



theatre wings, boxes, orchestra pit for operas, concerts or films projected onto an 18-metre wide screen.

The smaller Ambassador's Hall seats 450 people, while 12 other rooms can cater for groups ranging in size from 30 to 280 people. In addition, a Royal Hall provides banqueting and reception facilities for between 1500 and 2800 people.

Lighting controls in the conference centre are by way of a Gemini 2 board,

a Taskmaster, one Action 48 and one Action 24, plus 240 dimmers. More than 350 luminaires include Preludes, Cantatas, Cadenzas, Punchlites and Nocturnes.

In addition, the lighting configuration includes 25 5kW Pollux, 25 Iris 2's, 12 Parscrollers and one Autoscroll, with eight Parscan 2's and 12 1000W Beamfires.

Installation was by Strand Lighting SA, of France.

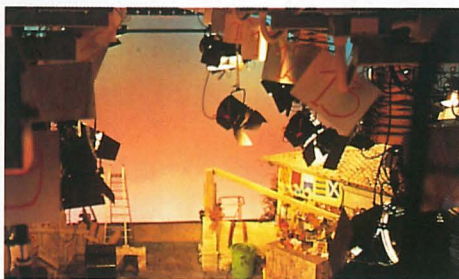
TV STUDIO IN BOLOGNA IS OPERATED BY FIVE MONKS

The Antoniano TV Studio in Bologna was created in 1965 to produce for RAI the 'Zecchino d'Oro', which is the most popular Italian children's musical competition on television.

Among all the TV studios managed throughout the world by clergy, it is the one that produces the largest number of programmes — a total of over 1200 working hours a year, 60 of which are included in the yearly programming for the networks of Italian State TV.

LAYMAN

The Studio, which reached its maximum activity between 1988-89, since last October has been directed by a layman, Fabrizio Tagliaferri, who up until then worked for SBP of Rome, one



of the most important Italian post-production companies.

The dimensions of the Studio are 20x20 metres at floor level with a height of 9 metres. Seven metres above floor level, 225 metres of 4-pole internal wired bars have been installed.

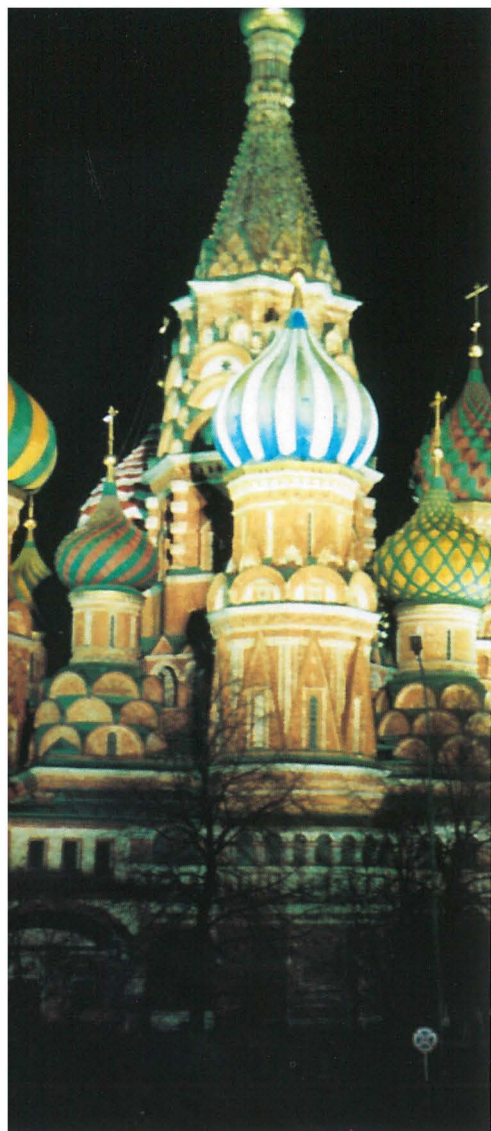
All of the luminaires attached to these bars are produced by Strand Lighting of Rome and are branded QuartzColor.

The electrical installation includes a board with an automatic safety switch connected to a power generator, 5 24x5kW Permus dimmer racks, 6x10kW P.I.P. rack, all by Strand Lighting. Production stands at more than 1200 hours per year.

The luminaires are controlled by a Tempus M24 console with FX panel and rigged on 40 specially developed pantographs with unique safety features.

The sale and the installation of the equipment was by Roberto Melis and Arcadio Di Staso of 3T.

The cyclorama is an enormous circle attached to the perimeter wall of the studio. One entire wall of the cyclorama can be slid back to allow 230 visitors to watch the show.



■ Moscow — St Basils' Cathedral by night.

THE IRON CURTAIN ALSO RISES FOR STRAND

With the attention of the world in recent months having focussed on the raising of the Iron Curtain, Strand Lighting engineers have themselves been in the spotlight with three major theatre and television projects in Russia and Bulgaria.

At Varna, on Bulgaria's Black Sea coast, the famous Opera House reached the end of a six year refurbishment programme which also included refitting of lighting rigs.

Service engineer Antony Bridges had the enviable task of spending two weeks in the popular holiday resort last August and commissioning a Gemini 2, following installation of a range of Strand luminaires, including Cantatas and Cadenzas.

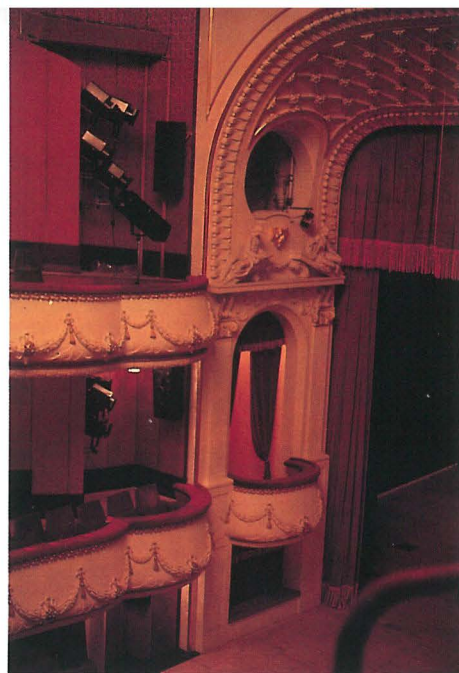
Inclusion of infra-red controls for the Gemini 2, as part of the project, has made Varna one of the most up-to-date entertainment complexes in Eastern Europe.

FRIENDLY

He also instructed the resident lighting staff at the opera house in the use of the Gemini 2, a task made easier by the fact that a word-perfect interpreter was on hand and that the naturally friendly Bulgarian people were all keen to demonstrate their command of English whenever possible.

But he explained, 'There are very noticeable cultural differences. For example, the Bulgarian people do not understand the word "unemployment" because they cannot grasp the concept of there being more people than there are jobs. That just doesn't happen in their country.

'Also, food is more widely available in



■ Varna Opera House — interior.

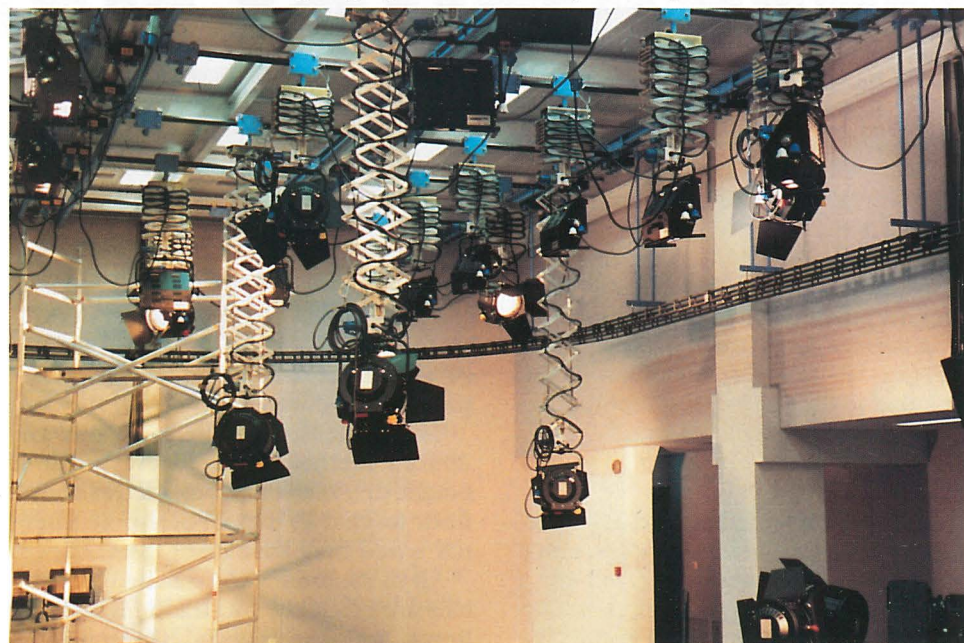
Bulgaria, so that Russians who go there on holiday feel almost as if they are going to the prosperous West.'

In marked contrast to Bulgaria, a later six-day stint in Moscow was conducted at the worst possible time of year — in November, when the weather was both wet and grey.

Strand's Moscow project, working for electronics giant Ampex, was to instal and commission lighting for a new television studio, A P Novosti. Once again, in addition to setting up a Gemini 2, with PIP dimmers, part of Antony's task was to train local staff in its use.

He said, 'When you are using an interpreter while teaching a technical subject, you are bound to lose something in the translation. We overcame the problem by going through the whole process in easy stages, allowing the Russian operators to try their hand as they went

■ A P Novosti — a studio lighting rig. Control is now by means of a Gemini 2.





■ The imposing Ivan Vazov Theatre in Sofia. This is Bulgaria's National Theatre.

along, until they felt confident.'

In line with the pledge to Strand customers of having a service engineer 'on the spot' as promptly as possible, Antony managed to fit in two other calls during his stay, to the M'hat and the Mali theatres, both bordering Red Square, where he made pre-installation checks for Galaxy boards.



■ Varna Opera House.

And sightseeing? 'It was solid work from eight in the morning until six in the evening, so there was no time to see the sights,' Antony explained.

Meanwhile, in Sofia, service engineer Andy Syposz was installing a new Galaxy 3 in Bulgaria's National Theatre, the Ivan Vazov Theatre, as part of a massive refurbishment programme.

The director of the theatre originally approached Strand representatives at an exhibition in Germany, having already seen a Galaxy elsewhere and having obtained glowing reports from his engineers.

A team led by Strand's Steve Futers

visited Sofia to give a technical presentation. Agreement was reached and Andy Syposz supervised installation of the Galaxy and a special demux cabinet to allow interface with the theatre's existing dimmers.

He said, 'The local people were very helpful. I speak Polish and German, which they understood, and many people there speak English, so the installation was supervised in three languages.'

The Ivan Vazov theatre is due to reopen soon, when it may be used to demonstrate the Galaxy to directors of other theatres in the region.

● Elsewhere in Eastern Europe, a Galaxy 3 has also just been sold to the Tylovo Theatre in Prague.



■ Varna's control room.

AND BELA IS GOT

In scenes reminiscent of a spy thriller, internationally-respected Hungarian theatrical designer Bela Gotz was air-lifted from behind the Iron Curtain to make a surprise appearance at a conference in Holland. And the success of the mission was due entirely to delicate undercover negotiations carried out by a team led by Strand Lighting's marketing manager, Camilla Aitchison.

The unusual challenge was taken up by the Company's marketing department only days before an international conference in Hilversum, sponsored by the International Illumination Committee of the UK, and the Netherlands Broadcasting Corporation (NOB).

Bela Gotz (49), who works for Hungary's Madach Theatre and whose set designs have been staged throughout Europe, had been invited to the conference as principal guest.

But travel restrictions imposed on him meant that he was unable to bring currency out of Hungary, so could not pay hotel and travel bills. This also meant he was unable to obtain a travel visa.

Enter Strand Lighting. Camilla Aitchison explained, 'We decided that we would pay Bela Gotz's expenses just to get him to Hilversum, so I telephoned the Madach Theatre direct, to try to speak to them.'

'I don't speak Hungarian but I expected they would be able to speak German. Once I had explained what I wanted they said they would phone back.'

Gotz was persuaded to take Strand 'on trust'. He managed to scrape together sufficient money for his air-fare, on the promise that he would be paid a lump sum in US dollars once he reached the West.

DIM AND DISTANT PAST...

Since the Ancients scheduled their productions at Dawn or Sunset to maximise visual impact, control of the intensity of light has been one of the most important factors in lighting design — if not **the** most important factor.

THE HISTORY

Earliest dimmers took the form of shades or dousers used to cover a light source whose intensity could not be varied. Gas lighting introduced the ability to control the intensity of the light source itself and brought with it the concepts of remote control and energy saving we now take for granted.

Theatre technicians are expert at stealing concepts and ideas from science and industry and adapting them

...THE STORY OF DIMMER TECHNOLOGY

to enhance their work. Electric lighting was avidly purloined, combined with a variable resistor (comprising two electrodes in an earthenware bucket, filled with an undefined saline solution) and stage lighting had its first electric dimmer.

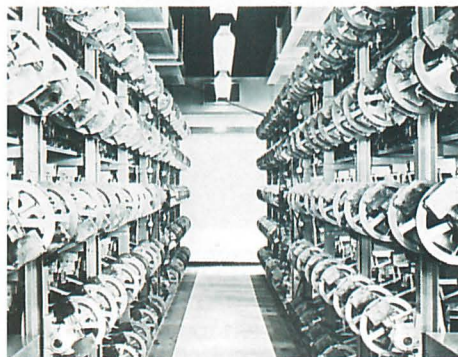
As the world's electrical industry developed, saline dimmers gave way to wire-wound resistors, but the principle remained the same: limiting the current flowing through the lamp by increasing the value of a resistor connected in series with it.

There were several problems with this technology: Heat dissipated in the resistors caused ageing, and remote control required complex mechanics and a plethora of moving parts. However the major constraint was that resistance dimmers had to be matched to the power of the lamp being dimmed.

TRANSFORMERS

Transformers offered the possibility of supplying the lamp with a lower voltage to dim it. A transformer with many tapings on its secondary winding allowed the voltage applied to the lamp to be varied.

Heat losses in the transformer dimmer were much lower than the resistance dimmer and the need to match dimmers to lamp power was greatly reduced. The first transformer dimmers in the UK were installed at Glyndebourne in 1934. However prohibitive costs prevented transformer dimmers becoming commonplace until the 1950's.



■ The electro-mechanical dimmer banks installed at Wembley during the 1950's.

THYRISTORS ARRIVE

The era of voltage control was short lived following the demonstration of the Thyatron Dimmer by George Izenour, in the USA, during the late 1940's. The thyatron was a glass thermionic valve

which, once triggered, allowed current to flow (in one direction) until the voltage across the device fell to zero. Even when the voltage was restored the thyatron would not conduct until the triggering signal was applied again.

Clearly by synchronising the triggering signal with the mains supply a thyatron could be triggered part way through the mains cycle and would continue to pass current for the remainder of that half cycle. By varying the time delay from the start of the mains cycle to the triggering signal the energy supplied to the lamp could be controlled.

As the thyatron conducts only in one direction two devices were connected in parallel 'facing' in opposite directions to give control during both halves of the mains cycle. This is the principle of phase control used in all dimmers today by the thyatron's silicon successor, the thyristor.

Thyristor dimmers are more efficient than their predecessors, typically dissipating less than two percent of the total power of the circuit at full load. Their output is independent of the size of the connected load; their control interface is amenable to remote siting of

a lighting desk and they are reliable. Above all else they are inexpensive, allowing hundreds of dimmers to be installed in a theatre or TV studio.

'It is a sobering thought that if the cost of dimmers had risen in line with inflation one 10 Amp dimmer would now cost over £2000, whilst a 96 channel control desk would cost about £100,000.'

It is easy to see why phase control dimmers eclipsed their predecessors during the 1960's and 1970's, however even these dimmers present technical challenges to their designers. The fast switch-on speeds of thyristors responsible for the dimmer's high efficiency, also give rise to electromagnetic interference which, if unchecked, would be picked-up by other equipment.

Most thyristor dimmers in use today have an analogue control circuit. Such analogue circuits are subject to component tolerance variations which may be compensated for by adjustment potentiometers. Even so there will be slight variances between individual dimmers and possible fluctuations with temperature change or as components age.

TODAY

In the same way that compact discs have eliminated the analogue vagaries associated with magnetic tapes or vinyl records, so digital control circuits can overcome the shortfalls of the analogue dimmer.

In future, control consoles will issue instructions to digital dimmers which will hold outputs steady despite component or environmental variances. These things are made possible by the tumbling price of micro-processor technology.



■ Strand's Triac ACT 3 dimmer pack developed in the 1980's.

Good dimmer performance, however, is not the only benefit to spring from microprocessors. Since 1987 Strand's PIP dimmers combined with a Galaxy control console have had the optional ability to monitor and report the status of each dimmer and its load.

THE LIGHTS IN THE HARBOUR

A new addition to the skyline of one of the world's most famous harbours is the sweeping outline of Hong Kong Cultural Centre, where Strand Lighting has completed one of its most prestigious installations.

The centre has been built on a 5.2 hectare site at Tsimshatsui in Kowloon, and rubs shoulders with the earlier phases of the development — a space museum and planetarium — and a later phase, the Museum of Art, which is due to open later this year.

Largest in stage size of the three halls is the 1750-seat Grand Theatre, which has been designed to cater for both Western and Chinese operas and musicals on a spectacular scale. In addition to the main stage, the Grand — also known as the Lyric Theatre — also opens up with both side and rear stages.

Lighting control is by means of a 450-way Galaxy 3, with 496 STM dimmers, and an impressive array of Prelude, Cadenza and Cantata luminaires, with assorted floods, spots and colour changers.

Claim for the largest seating capacity, at 2100, goes to the oval-shaped concert hall, which contains the world's largest pipe organ (8000 pipes!), and which will be the new home of the



Hong Kong Philharmonic. Lighting control is a 120-channel Galaxy, coupled with 144 STM dimmers and more than 100 luminaires — mainly Cantata and Cadenzas. The third hall is the centre's Studio Theatre, with seating for up to 538, depending on the stage and seating configuration. A further 120-way Galaxy controls a variety of more than 160 Strand luminaires.

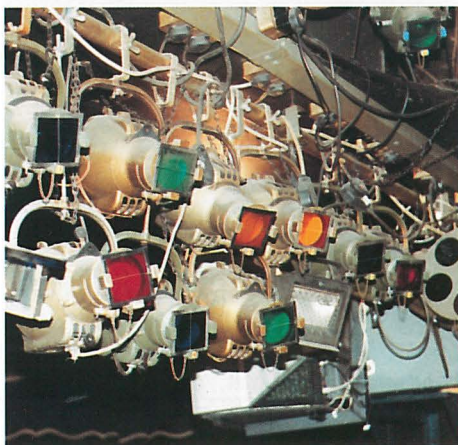
Design of the Centre was by Jose Lei Meng-can, chief architect of Hong Kong's Public Works Department, who considers that the project was his 'commission of a lifetime'. Theatre consultant was John Wyckham.

SOHO UNCOVERED

An educational study visit to examine the lighting system at the world famous Raymond Revue Bar in Soho, London, produced some revealing pictures — and not just of the lighting!

To the surprise of the nude performers and staff, members of the Association of British Theatre Technicians were there just to photograph the light installation, which turned out to be more than 125 1952-vintage Patt 23's and 123's — the forerunners of the current Minim 23.

The Patt models were originally produced by Strand in its old days as the Strand Electric and Engineering Co Ltd, when they were the first diecast lanterns to be made. The Company took a risk on producing 500 lanterns —



considered to be 'a very large batch' in those days. By the time production ceased in the early 1980's, more than 250,000 had been produced.

NAOMI IS AIRLIFTED

Lighting student Naomi Chung was airlifted from the Academy for the Performing Arts in Hong Kong to Britain to fulfil her ambition — to work alongside the lighting designer John B. Reid. And it was all thanks to Strand Lighting.

Naomi, who is in her fourth year at the Academy, won a scholarship to help pay her expenses in Britain, for an opportunity of working with the Dance Advance Company (and subsequently John B. Reid) but it did not cover the cost of her flight. However, after being put in the picture, Strand Lighting Asia managing director Phil O'Donnell, came to the rescue — and provided the funds.



■ *Naomi gets to meet her man — lighting designer John B. Reid — and the chance of working with him, thanks to Strand Lighting.*

John Williams, head of the Lighting course at the Academy, said 'We had used funds earlier in the year for a group student visit to European theatres so we had to look for outside help.'

NEW PRODUCTS

STUNNING EFFECTS FOR THE ARCHITECTURAL LIGHTING ENGINEER

Architectural luminaires form an integral part of the interior environment, so Strand have launched products employing efficient modern light sources which reflect the high quality design standards such spaces demand.

The techniques and effects employed in a theatrical situation can now be achieved in such diverse applications as hotels; restaurants; churches; museums; atria; conference and leisure centres; hospitals, and financial establishments.

Minispot sees the welcome return of an earlier Strand concept, now completely redesigned to utilise the current technology of 12V (MR16) dichroic lamps. These low voltage tungsten-halogen lamps enable a tightly controlled beam of white light to be projected. Minispot is a miniature range which can be used to stunning effect in a wide range of display or general lighting applications.

The most basic open version is formed from a 65mm cross section extrusion and used with a choice of lamp designations resulting in a soft edged narrow (10°), medium (21°) or wide (36°) beam. A Barndoor and Profile Minispot complete the range with the Profile introducing the greatest facilities for the creative architectural designer.

The Minispot Profile comprises a pair of exposed biconvex lenses, which can provide variable beam focus between 30° and 50°. The gate assembly has four framing shutters for beam shaping. A special holder placed immediately in front of the gate carries miniature designer patterns (gobos). These are now available in most of the styles available in the theatre, or can be produced to custom requirements.

And finally colour. Due to the relatively low beam temperature of the dichroic reflector lamps, small discs of colour can be used or alternatively, pure colours can be transmitted by using discs of dichroic filter material.

LIGHT PALETTE WINS OSCARS



The latest in Strand's popular Palette range, the Light Palette 90, was launched recently. And thanks to the outstanding track record of the range, Light Palette 90, was immediately selected to run the lighting at this year's Academy Awards presentation in the United States.

Light Palettes have been used extensively over the past 11 years. The latest model has been produced following

wide-ranging research amongst board operators, designers and consultants. It is currently in use on the Broadway production of *Aspects of Love*.

Light Palette 90 is able to produce 128 independently-timed events with an elaborate effects package. By adding plug-in processors and memory storage space, the system is capable of controlling a total of 4032 dimmers on 4032 channels.



■ Profile Minispot with gobos.

A novel approach to downlighting has been achieved with the Strand Darklight. Using an MR16 lamp, the recessed darklight provides strong downward lighting; creating pools of light for mood or dramatic effect which is virtually glare free.

A combination of Minispots and Darklights can provide a new basis for architectural design with precisely directed lighting.

DEAR OLD PALS

Our PALS lighting system has taken a top award for technical excellence at Britain's premier exhibition for the electrical products industry.

PALS (Precision Automated Lighting Systems) was designed primarily for theatres, TV studios and concert halls. It was chosen from hundreds of contenders by an independent panel of judges at the Electrex 90 exhibition in Birmingham, for an 'Award of Merit for Technical Excellence' in the illumination class. PALS made its West End debut in Andrew Lloyd Webber's musical *Aspects of Love*.

SPECIAL OFFERS

ONLY TO 'LIGHTS' READERS

The Strand Minicube spotlight — the latest development in low voltage tungsten halogen lighting — can be yours, complete with lamp and ceiling plate, for only £19.00 (plus VAT and p&p).

Despite consuming just 20 watts, this compact 35mm diameter dichroic lamp emits a concentrated beam of intense white light.

IMPORTANT

Low voltage lighting requires a suitable 12-volt supply. An appropriate trans-

former, for up to two Minicubes, can be ordered from Strand.

**Offer applies to the United Kingdom only. Please allow up to 28 days for delivery. Offer closes October 31st, 1990.*

To order see separate insert card in this magazine.



'LIGHTS!' SWEATSHIRT

Stand out from the rest of the production crowd with this special offer sweatshirt, available only to *Lights!* readers at just £9.99 each (plus £1.80 p&p).

The one size (easy-fit 'Large') fleecy-lined polyester/cotton garment, styled in the USA, is suitable for men or women. Ideal for work or play, the 'Lighting Crew Red' colour, plus the tastefully highlighted 'Lights!' name will make you easily identifiable in theatre, studio, on location — in fact, anywhere.

To order, simply fill in the coupon, cut out and send, with a cheque or postal order for £11.80 to cover the cost of the sweatshirt plus postage and packing, to: Sweatshirt Offer, Strand



Lighting Limited, Grant Way (off Syon Lane), Isleworth, Middlesex, TW7 5QD. Offer applies to Europe only. Please allow 28 days for delivery.

To: Sweatshirt Offer
Strand Lighting Limited
Grant Way (off Syon Lane)
Isleworth
Middlesex TW7 5QD

Please send me.....'Lights!' sweatshirt @ £9.90 each, plus £1.90 each to cover post and packing. Available to European readers only.

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Cheque/P.O. No..... (Block letters please)

Name: _____

Address: _____

Postcode _____

Telephone No: _____

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