

LIGHTING

EQUIPMENT NEWS

APRIL 1993

New component business up and running

A new company, Prime Light Electrical Ltd, has recently been formed by Michael Cole. It specialises in the supply and distribution of electrical components for lighting equipment manufacturers.

The company has acquired exclusive distribution rights for the BJB product range which includes lampholders, pushwire, terminal connectors and switches.

Other products supplied by the company include cord sets and accessories suitable for commercial, industrial and decorative lighting producers.

Prime Light also acts as exclusive agent for a number of German component producers and offers UK manufacturers the opportunity to buy a wide range of products, claimed to be available at competitive ex-factory prices.

Reader Service No 150

People in brief...

● Martyn Ellis has been appointed group finance director of Whitecroft plc, the lighting, building products, medical cotton fibre and textiles company.

● Los Angeles electrical equipment manufacturer MagneTek Inc has appointed Herbert Korn as director, lighting products for Europe. He will also serve as managing director of the Lighting Products Strategic Business Unit of MagneTek May & Christie.

● Camelont, manufacturer of Rainbow Scrollers, has appointed Adrian Hicks as product manager with special responsibility for servicing and quality control.

● Barbara Trigg, previously with LEN, has set up a writing, editing and publicity services business at 119 Twyford Avenue, London W3 9QG. Her first assignment is as public relations consultant to the Institution of Lighting Engineers.

● Electrotech Control Design Services has announced the appointment of Stuart Brown as midland area sales appointment, following the appointment of Robert Dugan as southern area sales manager.

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CIBSE President attacks Government



Brian Moss takes the Government to task

Speaking at the CIBSE Annual Dinner, Brian Moss, President of the Institution attacked the Government's economic policies and the effects they have had on the construction industry. "In renouncing weeding, the Government failed it. In eschewing intervention, the Government abandoned responsibility for providing the economic climate essential for its well being. In rejecting active sponsorship, the Government took no part in ensuring the development of an industry needing to invest in new technologies and skills," he said.

"It is impossible for any industry to operate efficiently if the marketplace in which it exists is so unstable as to make planning impossible. And this, for far too long, has been the situation of the building industry in this country.

"National economies will always be subject to variation. Change is, perhaps, the only fac-

tor we can be sure of, but UK construction has been the victim of far greater change, more frequently, than probably any other single industry, and it shows. No company can function adequately, let alone prosper, if it swings alarmingly between glut and famine. Chaotic markets destroy recruitment policies, training schemes and personnel development. Research and capital investment are curtailed, often cancelled. Team building and pride in quality are all relegated to the cause of simply holding on. Our industry must prosper, not just hang on. It must generate wealth for society."

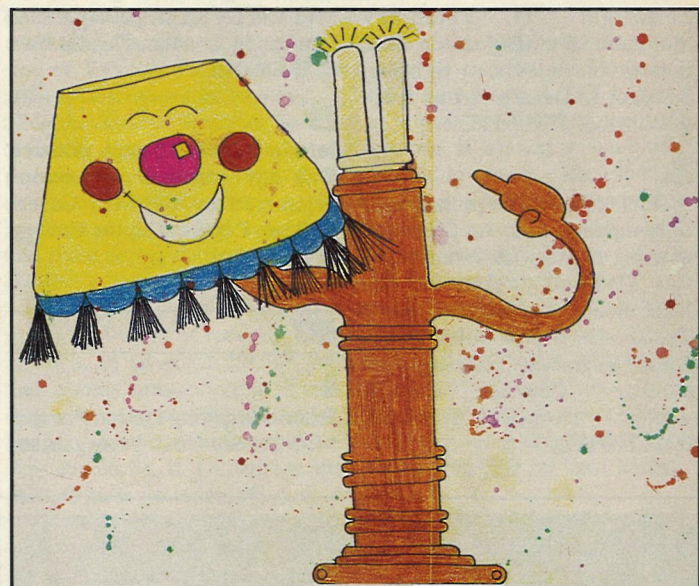
Mr Moss went on to condemn the Government's policy of Compulsory Competitive Tendering. "Buying pictures in car boot sales or using only the cheapest lawyers would be neither satisfying or good business. Bearing in mind their lifetime cost, buying

the cheapest buildings is even more absurd. CCT must be supported by the quality threshold which was originally promised, otherwise the quality of Government schemes will further deteriorate. Increasing confrontation will lead to even poorer value for the tax payer. However one looks at it, CCT is the antithesis of how we act as private individuals. It flies in the face of everyday experience."

Speaking at the same function, Tony Baldry MP, from the Department of the Environment, defended the Government's record and suggested that the recent cuts in interest rates provided a foundation for the industry to build on. He went on to say that the speed at which it recovered would depend on the ability to provide a quality product, on time and on cost. And increasingly as well as being economically competitive, that product would have to be environmentally friendly and energy efficient.

Mr Baldry went on to discuss the impact of buildings on the environment and noted that there were good economic reasons for promoting energy efficiency, as well as environmental considerations. "A building that is energy efficient and in which people can work effectively, makes a better investment than one that is not. The worst office buildings use 15 times more energy than the best; a new lighting system can halve the electricity consumption of one 10 years old - there's a very real financial incentive there."

Mr Baldry praised the Institution's work in promoting energy efficiency and commended the CIBSE Guides, Codes and Technical Memoranda.



Blue Peter seal of approval for CFLs

The popular children's programme Blue Peter is giving away over 5,000 compact fluorescent lights (CFLs) as part of an energy saving competition.

The first 2,000 lamps, donated by the Lighting Industry Federation (LIF), will go to the first 2,000 children who carry out light bulb audits in their homes. The replies to the simple home audit will be analysed by the Government's Building Research Station to help determine the domestic market penetration of CFLs.

The remaining 3,000 bulbs will be prizes in a competition to design a character - Mr or Ms CFL - to demonstrate that the

simplest way to help reduce global warming is to install one of the new bulbs at home.

The Government's Energy Efficiency Office has funded the printing and distribution of 1.5m leaflets for Blue Peter telling viewers that CFLs use a quarter of the energy a normal domestic bulb uses, and lasts eight times longer.

LIF president Andrew Osmond, GE Lighting managing director (Europe) said that it has been an uphill battle to get the concept of CFLs across and that LIF was delighted that Blue Peter had decided to help.

"Now we've got the real accolade of 1990s success - a Blue Peter seal of approval," he said.

Supermarkets and do-it-yourself shops will also be taking part in the promotion, by displaying the Blue Peter leaflets.

Helping to achieve the standard

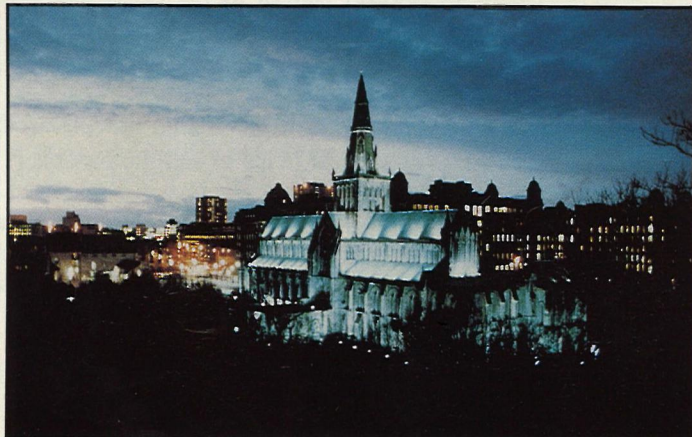
The Institution of Electrical Engineers (IEE) has produced a set of six guidance notes to help designers and installers to comply with the new British Standard 7671.

Since 1 January 1993 the standard, identical to the 16th Edition of the Wiring Regulations, has been law. Responsibility for maintaining the British Standard

will be shared between the BSI and the IEE and a new joint committee will monitor the experience of users and authorise any changes necessary.

The guidance notes cover: Inspection and Testing; Isolation and Switching; Selection and Erection of Equipment; Protection against Fire; Protection against Electric Shock and Protection against Overcurrent. An on-site guide to the 16th Edition is also available.

Reader Service No 151



Gothic highlights

Chalmers and Mitchell has supplied floodlighting for Glasgow's medieval cathedral. Lighting consultant Charles Stuart specified the Chalmers 604 range and used 150W/250W MBI sources for the roof and upper sections to emphasise the cathedral's Gothic

architecture. The lightweight aluminium fittings are tested to IP65 and are available from 70-1000W HPS/MBI and 150-1500W tungsten halogen.

Glasgow Cathedral dates back to the 12th Century. It is owned by the Crown and administered by Historic Scotland on behalf of the Secretary of State.

Reader Service No 152

LCS RACK SYSTEM

Digitally Controlled 2-wire System

Controllable High Frequency Electronic Ballasts Down to Levels of 3 & 20% of Full Light Output

Simple Installation

HELVAR

081-568 6205

QUALITY ALWAYS SHINES THROUGH

Reader Service No. 1

DIARY

APRIL

15

16th edition update. One-day professional development seminar in London, organised by the Institution of Electronics and Electrical Incorporated Engineers. Details from IEEIE, 071-836 3357.

19-21

Showlight '93. Three-day international colloquium on film, theatre and television lighting, Bradford. Details from Ruth Rossington, 0323 642639.

21

A chief engineer's expectations of lighting engineers. An afternoon meeting in Warwick arranged by the Midland region of the Institution of Lighting Engineers. The speaker will be Mike Sharpe, county engineer, Cambridgeshire County Council. Details available from Bob Simpson, 0602 320959.

21

Lighting and Life. Evening lecture in Abingdon organised by the IEEIE. Speakers will be CD Neate of Market Development Group, and R Mitchell of Philips Lighting Ltd. Details from 071-836 3357.

21

Interior Lighting Design Practice. Mid Career College organised seminar in London. Details from 0223 880016.

29

Interior lighting design practice. One-day seminar in London organised by the Mid Career College. Details from the College, 0223 880016.

MAY

6

Exterior Lighting Design Practice. Mid Career College organised

seminar in Manchester. Details from 0223 880016.

9-11

CIBSE National Conference. To be held in Manchester on the theme of 'computers in construction'. Details from the CIBSE Member Services Department, 081-675 5211.

10-12

Lightfair International. Show in San Francisco, USA, including full conference programme. Details from AMC Tradeshows, Atlanta, (404) 220-2155.

18

Open Systems for Building Management. CIBSE organised seminar on the development of open systems, in London. Details from CIBSE Member Services Department, 081-675 5211.

18-19

The Public Sector Buyers' Fair. To

be held at the Business Design Centre. Details from 051-227 4262.

20-24

Intel 93. 13th International Electrotechnics and Electronics show in Milan, Italy, including a substantial lightshow. Details from 0039-2-3264282/3/7.

26

Lighting '93. One-day conference and exhibition at Heathrow, London, organised by ERA Technology, looking at: new lighting requirements, environmental issues, control solutions and lamp solutions. The event has the support of LIF. Details from Laura Christie, 0372 374151.

26

Modern Office Lighting. IEEIE organised lecture in Bournemouth. The speaker will be C Hunt of Thorn Lighting. Details from 071-836 3357.07.

CIBSE

The Chartered Institution of Building Services Engineers

Lighting the high street

The major contribution that well designed lighting can make to profits in the high street will be recognised when the CIBSE Lighting Guide for Merchandising is realised. In another area of application, one might suggest that the lighting will help the 'little green shoots' to flourish and grow to their full commercial maturity. The Lighting Division Technical Committee currently has a very wide range of technical publications 'on the stocks', and there will be many retail operations which will hope that the one for merchandising is not long in coming.

Shopping has now become a leisure activity. In order to be successful, the seller must recognise the change that has taken place in shopping trends and must understand the physiological processes and psychological processes which apply to and affect shoppers.

The document, the CIBSE Lighting Guide for Merchandising, for simplicity and clarity, refers to 'the shop' but this should be understood by the reader to be a generic name to describe all types of establishment which sell services or products to the public or to private customers. Thus, banks, building societies, estate agents, insurance brokers, supermarkets, hypermarkets, market stalls, and so on are all covered by the broad term 'shop'.

This document is intended to be read by shop owners and those responsible for the merchandising process as well as lighting designers and shop designers.

The guidance applies to conventional shops, such as clothing and food shops, as well as establishments which are not normally thought of as 'shops', such as banks, building societies and similar 'transaction' operations. These too need to sell themselves and their services. The fact that the 'merchandise' is less tangible than in a conventional shop places even greater emphasis on the need to design the interior and, in particular, the lighting, to make the merchandising process as effective as possible.

Human behaviour and light

Lighting is the single most important factor in successful merchandising. It helps attract attention to the shop and to the goods on display in the window. It makes the shop inviting from the outside so that people will want to enter.

Once inside, if light is used properly, it will make the merchandise attractive and direct attention to the items that the retailer wishes to encourage. It can stimulate 'impulse' buying.

It can be used to create atmosphere and image. It can subconsciously direct people within the shop, improving the utilisation of the space and the time that people spend in the shop. This in turn will improve the probability of sales and hence the profitability of the shop.

Good lighting for merchandising:

- helps to sell the products
- sets the image of the establishment
- creates the right atmosphere for the selling process
- appeals to the target customer group
- provides good working conditions for those working in the shop so that, at the end of a hard day, visual fatigue is reduced
- provides good working conditions leading to fewer mistakes; tiredness or irritability, which could offend a customer, is less likely
- good interior and exterior lighting is an effective deterrent against crime

Start with marketing not products

A shop will only be successful if it can attract its target customers inside in order to shop. For this reason, a very clear understanding of the target market of the shop is essential. Without this analysis, the lighting design cannot be successful.

EMERGENCY LIGHTING

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STAFF

Staff Lighting Ltd
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NEWS

Control worth having

In most buildings the greatest energy user is the heating and cooling system. In a warehouse, however, the cost of heating the space is often minimal compared to the lighting requirements. Consequently, any financial savings through lighting control can be well worth having.

At the Dartford Securites Ltd (DSL) warehouse on the Tunnel Industrial Estate in West Thurrock, the annual energy bill was in the region of £150,000, of which 85% related to lighting costs.

The site is a regional distribution centre for Marks and Spencer, holding merchandise for 23 stores. The 23,225 m² warehouse has aisles and walkways at three levels, providing access to around 70km of shelf and rack storage.

Despite having introduced 'good housekeeping' practices to reduce electricity use, DSL found that it was difficult to maintain the motivation of staff to continue these practices. As a result, the company carried out an evaluation to assess the likely benefits of automating the switching of lights in areas that were not permanently occupied. The tests



DSL achieves huge savings with lighting control

indicated potentially impressive savings, so tenders were invited for the site.

The system chosen was a series of Chalmor IRS1 infra-red switches to control 61m (200ft) lighting runs. The system is divided into four modular sections in each aisle leading off from the centre walkway. As the warehouse staff walk along the aisles, the lights ahead are automatically switched on and then off again as they move into the next zone.

"Unlike the new build site at Long Eaton, at West Thurrock we were dealing with a complicated wiring circuit that did not lend itself to any form of control," said DSL's physical operations manager, Phil Austin. To overcome this problem, a miniature relay was incorporated into each luminaire and wired back to the IRS1 controlling the zone. This meant higher capital costs but it was considered that the savings in labour compensated for this.

During the six months that only 'good housekeeping' procedures were being employed, the site achieved savings of around 20,000 units per month. During the time that the Chalmor system was being installed this rose to a saving of 70,000 units per month. Once the system was fully operational, these savings rose to 140,000 units per month.

Reader Service No 153

Winning women

Dawn Fitt, commissioning engineer at Froude Consine, Worcester, has been named as the winner of the 1992 Young Woman Engineer of the Year Award.

The award is jointly sponsored by the Institution of Electronics and Electrical Incorporated Engineers (IEEIE) and the Caroline Haslett Memorial Trust (CHMT) and is intended to encourage

more young women to pursue a career in engineering, leading to Incorporated Engineer level.

Dawn Fitt was presented with a cheque for £500 and a silver rose bowl at a special ceremony in London recently. Runners-up Hannah Reynolds and Pamela Dean each received a cheque for £150. The Mary George Memorial Prize – an additional award given to the entrant showing particular promise as an Incorporated Engineer – was presented to Tara Knight, senior ATE engineer with Siemens Plessey Systems, Isle of Wight.

Filling specialist requirements

More commonly used for glare-free lighting in office environments, the BS900 system from Siemens has been installed in the dental practice of Denzil Austin-Little in London. "The system gives a colour-correct, even light with very little glare and the patients like the ambience it creates," said Mr Austin-Little.

The BS900 makes use of highly specular, VDT60 anodised

louvres, which were developed originally for areas where visual display workstations (VDTs) are in use, or discreet lighting is required. Another benefit claimed for the system is its high frequency control, giving flicker-free lighting, while also being silent and economical. The system can be installed in a variety of configurations.

The equipment, including the lighting, for the refurbishment of the surgery was supplied by Sident, a distributor of Siemens dental equipment.

Reader Service No 154

LETTERS

Stop that waste

Dear Sir
I was both surprised and amazed to read much of the content of the writer's letter in the February issue of LEN, not least because he was one of the individual contributors to the CIBSE Lighting Guide LG6 entitled *The Outdoor Environment*. As a lightweight non-commercial tome containing 'practical data and advice purposeful and constructive in helping to achieve a good lighting solution which effectively satisfies all design aspects', this Guide has no rival. It should certainly find a place on the bookshelf of every engineer and architect who is faced with the problem of illuminating an edifice or the like.

This being so, your correspondent should have no concern that an experienced engineer might understand the implication of the first sketch of Mr Pollard's excellent article. There is a marked difference between the appearances of a building seen under varying daylight conditions and its appearance when illuminated at night (see sections 3.1.1 and 5.3 of LG6).

As an engineer who has been closely associated with the design of outdoor decorative 'floodlighting' schemes for all kinds of buildings and monuments (ancient, historic and modern), I would remind your readers of the truism that every project is treated on its merits. Consequently, apart from aesthetics, there may well be very sound reasons as to why lighting must be directed downwards instead of upwards. And such cases are most certainly not the exception, whether it is concerned with new or with old buildings.

It so happens that Mr Derek Phillips mentions one building – the Tower of London – the exterior lighting of which I was responsible for, when serving on the staff of the Department of the Environment. The White Tower was illuminated from the roof of an adjacent building because projectors mounted at ground level was not permissible. The reason for this prohibition was that the lighting equipment, if sited below, might have been damaged, maliciously or otherwise, by visitors during daytime. An acceptable

reason, bearing in mind that annual attendances at the Tower of London are around the 2 million figure. I could cite many other cases where uplighting, suitably shielded as indicated in sketch 4 of the article, was installed.

So congratulations to Nigel Pollard and the ILE Study Group on Obtrusive Light. And may well-behaved outdoor lighting designers continue to control their efforts to *passim spargere lucem, pro bono publico* in general and particular.

J.H.Harris
Lighting Consultant

Dear Sir
I write in response to Derek Phillip's letter in your February 1993 issue which in turn comments on my November '92 article entitled 'Stop That Waste'. This article centred on the ILE *Guidance Notes for the Reduction of Light Pollution*.

The writer's criticism seems to revolve around the first sketch which attempts to illustrate the suggestion to "direct light downwards and not upwards if possible".

While simplified sketches have their advantages, and those in the ILE *Guidance Notes* have been generally well received, they are

usually for general guidance rather than for a specific application. Mr Phillips has assumed the vertical surface in the first sketch to be a building. It could of course be a building with anything from one to one hundred stories, or it could equally be an advertising hoarding, a road traffic sign, a shop frontage or a security fence. I would be first to agree that in the building floodlighting, to light from above is often not only undesirable for daytime appearance reasons but totally impractical for maintenance reasons.

I am sorry if the writer is concerned that the first sketch will mislead lighting engineers. I feel sure that when they see that the first sketch is inappropriate for a particular project, then they will move on to the second sketch.

As a postscript, it is worth remembering that initially most buildings were designed to be seen in daylight and thereby lit from above. It may follow, therefore, that a well designed and carefully installed floodlighting scheme lit from above may not be quite as unacceptable as the author fears.

Nigel E Pollard
Chairman
ILE Study Group on Obtrusive Light

COMMENT

A curate's egg

At the time of writing, the budget has just been and gone, meeting with a mixed response. The reporters have been reporting, the commentators have been commenting and the pundits have been punditing and the general judgement seems to be that it is a bit of a curate's egg.

Certainly the most controversial element of the budget was the extension of VAT to cover domestic fuel, only a year after Mr Major had assured us there would be no need to extend the scope of VAT. Leaving aside the issue of increased hardship to low income families, there are definitely some positive aspects to this move. If we accept that global warming is a reality and that there is a need to reduce carbon dioxide emissions, then this is surely a step in that direction. Had it been backed by more grants for improving insulation and funding for wider education about energy conservation, then so much the better. But it would be churlish to look for a comprehensive policy on ecological matters.

One of the things this VAT on domestic fuel should do is make people look at ways of reducing electricity consumption – which means, perhaps, an approach to lighting which is a little more enlightened than simply remembering to turn lights out. Hopefully, we will see increased acceptability of compact fluorescent and other low energy lamps. And the manufacturers and purveyors of energy saving controls should be, if not rubbing their hands with glee, at least looking forward to more interest in their products.

On the down side, the same forces might lead to the use of fewer fittings, with less emphasis on providing ambience and a move to spreading as much light around as possible at the lowest possible cost. There must also be a possibility that the outdoor decorative and security markets will be affected. These products have gradually been gaining greater acceptance but one can easily see how the prospect of higher bills will make people think twice about having lights on outside their homes all night. Ideally, of course, the owners of such fittings would switch to high efficiency light sources – but then we're back to the need for education to help promote energy conservation policies.

So, good in parts the budget certainly is, but I can see another couple of fringe benefits, from a purely personal point of view. I don't have many pet hates (being such an easy-going sort of chap) but one thing that makes me positively irate is being stroboscopically illuminated as I walk along the street. I'm sure that lights with passive infra-red detectors are a great idea but surely they can be adjusted to only encompass the property they're supposed to be protecting. Such adjustment would reduce electricity consumption and minimise the disco effect at a stroke. On the other hand, people with outdoor lights which are permanently on may introduce this technology as a way of saving money, as they will have a quicker payback with higher fuel costs. In which case I may take to walking down the middle of the road.

And so to the second fringe benefit. In my experience the full pleasure of walking through parks or woodland at night can only be attained with the help of good night vision. Only then can one fully appreciate the nocturnal scurrings and flappings that accompany such a stroll. Yet in the woodland where I walk my dog at night I am often denied this small pleasure as my night vision is snatched away by a floodlight on a nearby house which lights up the surrounding area at least 200 metres beyond the garden it is supposed to be safeguarding. If the budget persuades the owner of this offending floodlight to point the damn thing just at his or her own garden and perhaps use a lower wattage lamp, then I might even stop calling Mr Lamont nasty names behind his back (no promises though).

Paul Haddlesley

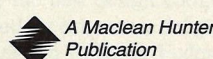
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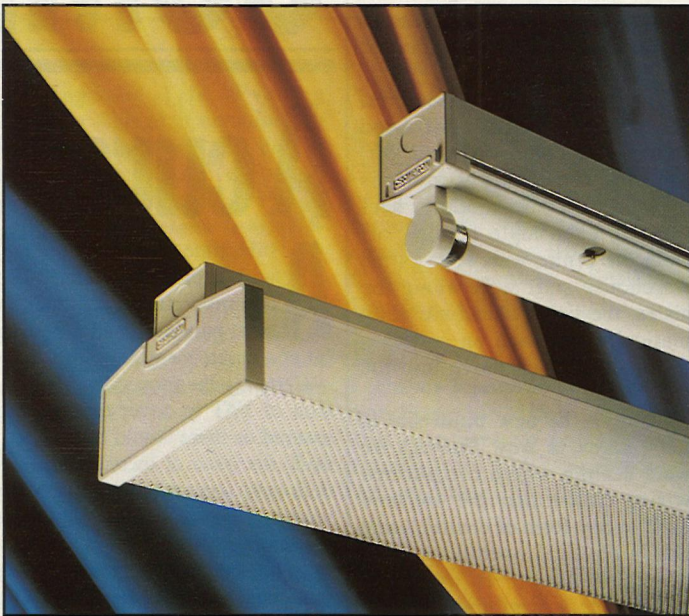
NEW PRODUCTS

Better battens

Crompton Lighting has introduced the latest in its series of Crompack batten luminaires which is said to incorporate a number of features for fast and efficient installation.

Crompack 5 has a new quarter-turn quick-release mechanism which allows the engineer quick access for maintenance, and a peg-and-hole locator which enables the units to be mounted accurately and quickly in continuous runs.

The battens also incorporate angled terminal blocks for fast wiring, and pre-wired lampholders that have a mechanical 'no-go' device to prevent accidental crossover during installation. Crompack 5 is said to take 20%



less time to install than the Crompack 4 model it replaces.

The range comprises single and twin lamp batten luminaires in standard lengths of 0.6, 1.2, 1.5,

1.8 and 2.4m with either switch or electronic start.

The range is supplied in three voltage ratings – 240, 220 and 110 – and is also offered in a

medium loss version for use where energy consumption is a major consideration, and a high frequency version.

The luminaires carry both the BSI safety mark and the recognised 'F' mark, making them safe for mounting directly on to materials of normal flammability.

The company also offers a wide range of batten options, attachments and accessories including prismatic controllers, diffusers, reflectors, louvres and wire guards.

The new Crompack 5 range is offered at the same price as the Crompack 4 range. As an added incentive, Crompton Lighting is giving away complimentary tickets for a motor racing day at Silverstone in September. In the 'Speed of Light' promotion, customers will receive one ticket for every purchase of 10 Crompack 5 battens, with prizes for the company's top-performing distributors.

Reader Service No. 200



Interior flood and spotlights


To complement the existing range of Meyer IP65 floodlights and spotlights already available, a range of high quality die-cast interior versions has been launched in the UK by sole distributor, Commercial Lighting Systems.

Available are wide-beam and asymmetric floodlights in 70 and 150W versions for use with R7's metal halide lamps. The narrow beam spotlight versions can be specified in 35, 70 or 150W for use with G12 metal halide lamps.

A full range of standard accessories is available including louvres, cowls, barn doors and colour filters. Mounting options are also available including track adaptors. **Reader Service No 201**

RAISING THE STANDARD



Crompton Lighting has raised the industry standard once more, with the introduction of Crompack 5. Offering a three year guarantee and carrying the  mark, Crompton's most successful batten luminaire now has improved design and performance.

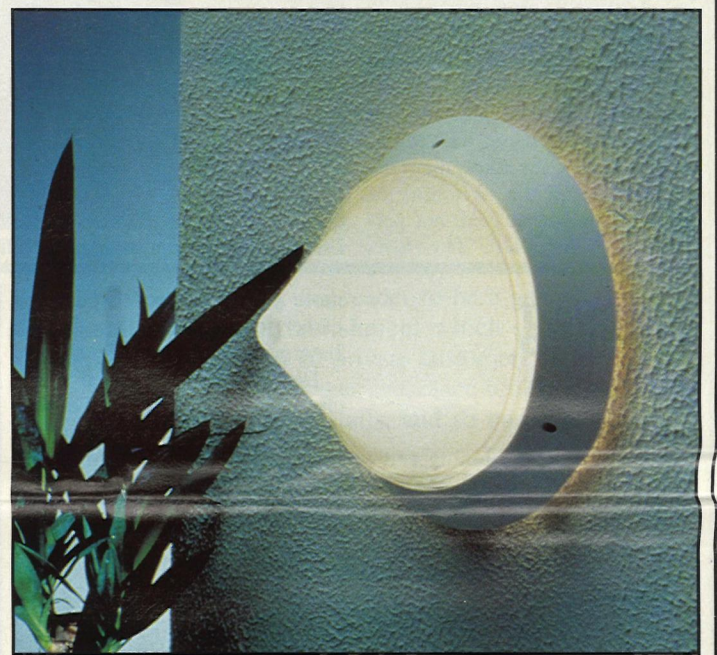
Overall aesthetics have been heightened, new profile end-plates allow for continuous mounting and a quick release cover gives reduced installation and maintenance times. Crompack 5 – raising the standard in batten technology.



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IP-rated internal and external range

Artemide's commercial division, Litech, has introduced an IP-rated collection of indoor and outdoor luminaires designed by Carlo Forcolini.

Ideally suited for such applications as parks, thoroughfares, pedestrian crossings, roofs and terraces, they are equally useful for signalling purposes as well as commercial areas. The four mod-

els in the range are Caieta, Chios, Nisiros and Symi.

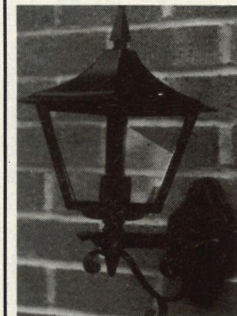
All have IP55 protection with a UV-resistant, transparent polycarbonate base. The external ring – available in white or black – is also in polycarbonate, with the diffusers in moulded painted glass and the reflector in white painted steel.

Lamps which may be accommodated (depending on the particular model) include compact fluorescents (9 and 11W), 22W ring fluorescents, 21 and 28W 2D fluorescents, and from 60 to 75W incandescents.

Reader Service No 202

NEW RANGE LAUNCHED

We have launched a new range of cast aluminium outdoor lanterns which have been phosphat coated for durability. Designed to accommodate GLS and ES lamps the fittings are extremely competitively priced and are aimed at the retail market. Available in black and white.



Emergency Lighting Update

Our unique range of emergency lighting is manufactured to BS5750 Part two. The most exciting feature of these emergency luminaires is that the glass covers are available in a wide selection of patterns which match the general lighting supplied by Arden

For a full colour Brochure Please contact:



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NEW PRODUCTS

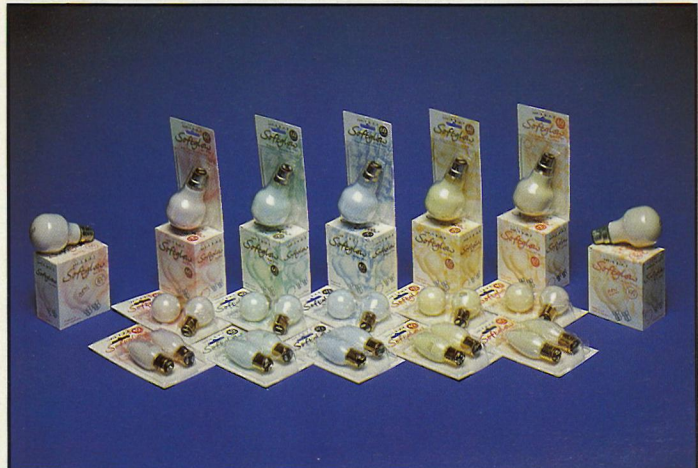
Softglow range repackaged

Mazda's Softglow range of lights has been completely repackaged to depict soft floral themes, and a T-shape bulb in Bluebell White, Rose or Apricot White replaces

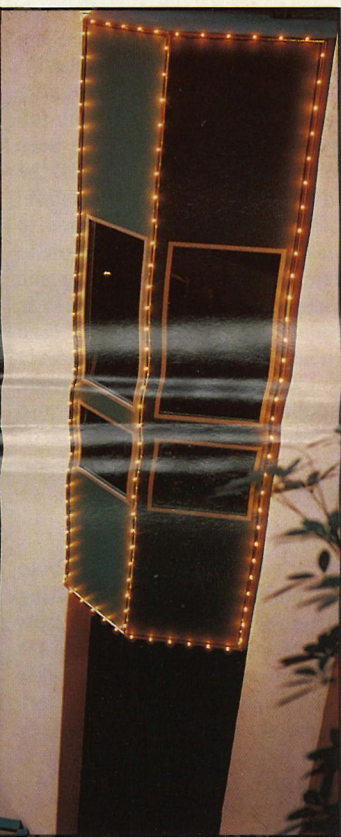
the company's standard GLS. Mazda now offers 17 different products in its Softglow collection including mini decor rounds and candles.

Prior to the changes, Mazda carried out extensive research which revealed the most popular colours and shapes.

Reader Service No. 203



Tape lighting systems



Tokistar traditional tape lighting is a new system recently launched by Light Projects, which has been designed specifically to draw attention towards the focal point or architectural feature of a building, both inside and out.

The combination of subminiature lamps on a flexible tape system creates many possible lighting effects in the commercial environment. This product may be installed to highlight the curves and lines of the structural features in restaurants, discotheques, shops and shopping malls.

Powered by a low-voltage transformer with permanently affixed sockets, the tape lighting system benefits from long lamp life and is easy to install and maintain, claims the company.

Tokistar tape lights are also wired in parallel, offering the advantages of both design continuity and flexibility. The failure of one lamp will not affect the others and for ease of handling the tapes can be cut to size on site.

To complement its wide range of design capabilities, Tokistar offers a variety of lamp spacings, brightness options, sizes and colour choices.

Reader Service No. 204



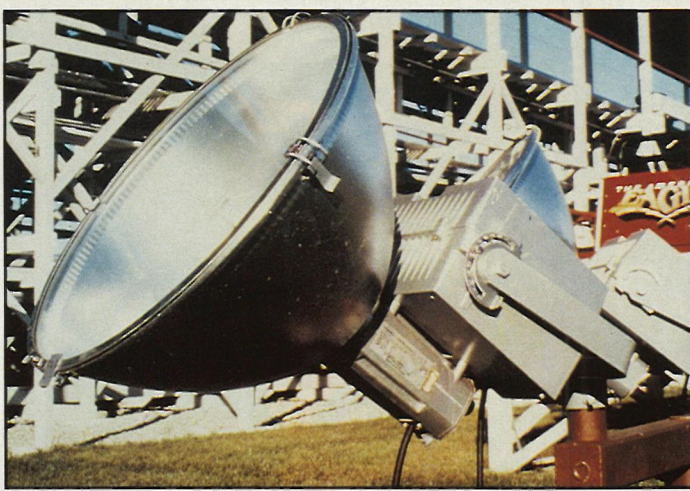
Light and panel socket

The Option-lv Light and panel socket from ORA Lighting can be quickly and securely inserted into all Option-lv tracks and sockets. It is available in a range of lengths and there is also an

articulated version. Standard finishes include black, chrome and anodised aluminium.

Recent projects include the Body Shop, which has installed the lights at its new headquarters in Littlehampton, and Penguin Books, which chose Option-lv for its stand at the Frankfurt Book Fair.

Reader Service No.205



Lighting sports stadia

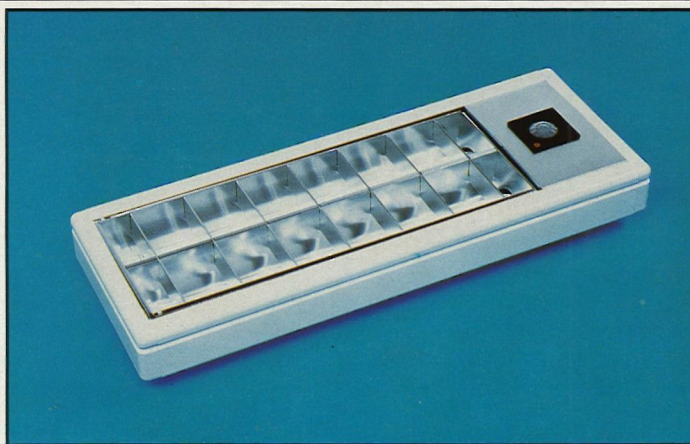
Designed to meet the needs of large area sports lighting, the Hubbell Sportsliter is available in both a general purpose and heavy duty series for 1000W, 1500W and 2000W lamps, and offers a choice of computer-designed parabolic reflectors for wide, medium or narrow angle distribution.

The robust body is die-cast alu-

minium with thermal shock and impact-resistant clear glass, fully sealed against the weather. It has a heavy gauge steel trunnion for mounting. Easy access is provided for relamping with quick and accurate re-aiming.

Hubbell can also provide customers with a comprehensive lighting design service.

Reader Service No.206



Intelligent fitting with low-brightness louvre

Thorn's Andante Sensa for offices and commercial interiors is a rectangular fluorescent light fitting (270 x 700mm) which comes with a low brightness louvre.

It has two 40W CFLs operating off high frequency electronic gear and is available for ceiling-mounting or as a suspended up and downlighter.

This completely self-contained intelligent light fitting incorporates the electronic controls originally developed by Thorn for the first intelligent light fitting; the 600mm² Sensa. It is the first of a number of ranges using the technology which the company will

be launching during 1993.

Andante Sensa's integral passive infra-red detector and photocell enables it to adjust its light output according to daylight levels and the presence of people. There is no need for connection to any other control system, whether it be a central computer or simple on/off switch. This means that installation costs in new buildings are reduced and there is no need for time-consuming commissioning trials. Andante Sensa is also suitable for refurbishments where an upgrade to the latest technology is now simple.

In addition, because Andante Sensa avoids wasted light - either in unoccupied offices or where there is already enough natural light - average energy savings of about 65% can easily be made, claims Thorn.

Reader Service No 207

In brief...

● **Nichicon (Europe)** offers the VS series of electrolytic capacitors for working voltages up to 50V. Only 9mm long, the series operates over the temperature range -40 to +85°C with a load life of 16000 hours at 55°C.

Reader Service No 208

● **Micromark** has launched an expanded range of commercial light fittings at prices which have been reduced by up to 30%. The range comprises low voltage and mains downlighters, low voltage spotlights, recessed eyeballs, track and spots, emergency lighting, fluorescent battens, lay-in modules, external fittings, bulkheads, floodlights and security lights.

Reader Service No 209

● **Nulectrohm**s has added two light level and two temperature and relative humidity transmitters to its range of 4-20mA signal transmitters. Both types are suitable for wall or conduit mounting. Light level transmitters 105L and 106L have photo diode sensors

and ranges of 10-1000 or 10-2000 lux. **Reader Service No 210**

● **Tridonic** has introduced a method of dimming HID lamps following the increasing trend towards HID for industrial and commercial applications as an alternative to fluorescent lamps. The range of power switches reduces light output to 30 to 50%, resulting in substantial energy savings. Two systems are currently available for use with SON and MBF; the first specifically for new installations and the other for retrofitting or modifying existing designs.

Reader Service No 211

● **International Light Inc** is to introduce a hand-held radiometer photometer, the IL1400A, that features a range of new detector probes which automatically program the instrument for their specific application. It is a portable instrument that features 'smart' detector probes which enable the user to perform many applications by simply plugging in a new probe.

Reader Service No 212

LIF LINE

Blue Peter runs up a flag for energy saving lighting

When you get 84,933 children interested in an item you manufacture it does tend to concentrate your own interest too. That was the number of entries young viewers of Blue Peter have just sent the BBC in a competition to design a character to promote energy saving compact fluorescent lamps (CFL) - in one of the most remarkable pieces of promotion in which the lighting industry has ever been involved.

The competition finished on March 11 when the final prize winner's name was announced - and placed on the side of a No 38 Double Decker London Transport bus specially brought into the studio. The bus will travel daily to the Ideal Home Exhibition at Olympia. The announcement was the culmination to a series of seven major items on the twice-weekly (Monday and Thursday) Blue Peter programme plus repeats in the Sunday morning omnibus edition.

The event started on February 11 timed to perfection for the half term holiday. By the time it was complete no less than 125 Royal Mail postbags had been delivered to the BBC's Television Centre.

To give the background, the Lighting Industry Federation has toiled hard for several years seeking to get across both to commerce and the domestic markets that while the initial cost of the CFL is around £13, it lasts much longer and uses so much less energy that it cannot be compared to the incandescent bulbs of which the UK gets through 160 million a year.

But it was uphill work and though research showed growing awareness of the energy saving opportunities, the industry's sales graph for CFLs only identified a modest annual sale to the domestic market of half a million - still bumping along the bottom.

Then came the opportunity to co-operate with one of the most successful children's TV programmes in the world - Blue Peter is watched each time it is on the air by about six million, a figure which includes many adults. It is a programme which keeps faith with its audience and does not talk down to them. And it is very keen on green environmental issues and trying to arouse awareness.

When the chance came to get the Blue Peter show discussing the energy saving properties of CFLs, in the Federation we were giving 100% concentration!

First, the three manufacturers - Philips, Osram and GE agreed to donate 5,000 CFL's as prizes - the first 2,000 of which were earmarked as prizes for the initial returns received in a Lightbulb Survey the viewers were asked to carry out in their own homes. The cost of printing and designing these survey forms was funded by the Energy Efficiency Office of the Department of the Environment and it is now having the returns analysed.

Through the Lighting Industry Federation we also agreed to fund the cost of the prizes in the parallel design competition, like mountain bikes, new look roller skates and rechargeable Walkman radios. The remainder of the CFLs donated were used as runner up prizes.

Blue Peter then set about explaining in simple, easy-to-grasp terms the CFL energy saving properties and the final implications. It was a joy to behold!

As was the sight of John Major, John Smith and the Speaker, Betty Boothroyd, helping John Leslie, one of the Blue Peter presenters, change over to CFL bulbs in the House of Commons offices. Even more exciting of course was the way in which major stockists like Tesco, Sainsbury, BHS and Woolworths readily agreed to distribute the survey forms and quickly make room on their shelves to order in new supplies.

It warmed the heart of an old marketing man.

But so did being the Lighting Industry Federation's judge to find the prize winning character in Blue Peter competition, and joining with the Energy Minister, Lord Strathclyde, cartoonist Oscar Grillo and the three Blue Peter presenters to select the final prize winners.

The scrupulous honesty with which Blue Peter carried out the judging - a process which lasted two hours - was impressive.

For our industry of course the proof will be in the pudding - how many more bulbs will we eventually see going out of the stores and into homes and offices. The anecdotal evidence is good and I am extremely optimistic but of course that needs to be translated into solid sales.

What is certain, is that the lighting industry has made a major breakthrough in awareness of the contribution our new technology can make to the very natural concern on global warming. And the retailers are aware of an industry which can make an impact.

So we have an attractive symbol designed by 11 year old Alessandra Muto of Northolt with major potential to draw customer attention to finding energy saving bulbs in the big chain stores.

The competition attracted one of the highest ever returns in a Blue Peter competition and it was the best design competition entry for two years. Editor Lewis Bronze, and his team were delighted.

For our part the Lighting Industry Federation, once again, worked together as a superb team having identified a mutual objective of benefit to us all.

Advances in lamp technology are resulting in lamps of greater efficiency and longer lives. Ted Page looks at the latest developments taking place with the ubiquitous fluorescent tube.

Life in the tube

It was in the mid 30's that American physicist, Arthur H Compton developed the first fluorescent lamp which brought about such sweeping changes to the quality of working conditions within commercial and industrial interiors. It was a radical step forward, bringing with it greater levels of light and at the same time consuming less power making its running costs very attractive. The invention of the fluorescent lamp was undoubtedly a major energy saving breakthrough for lighting and introduced a second benefit of long

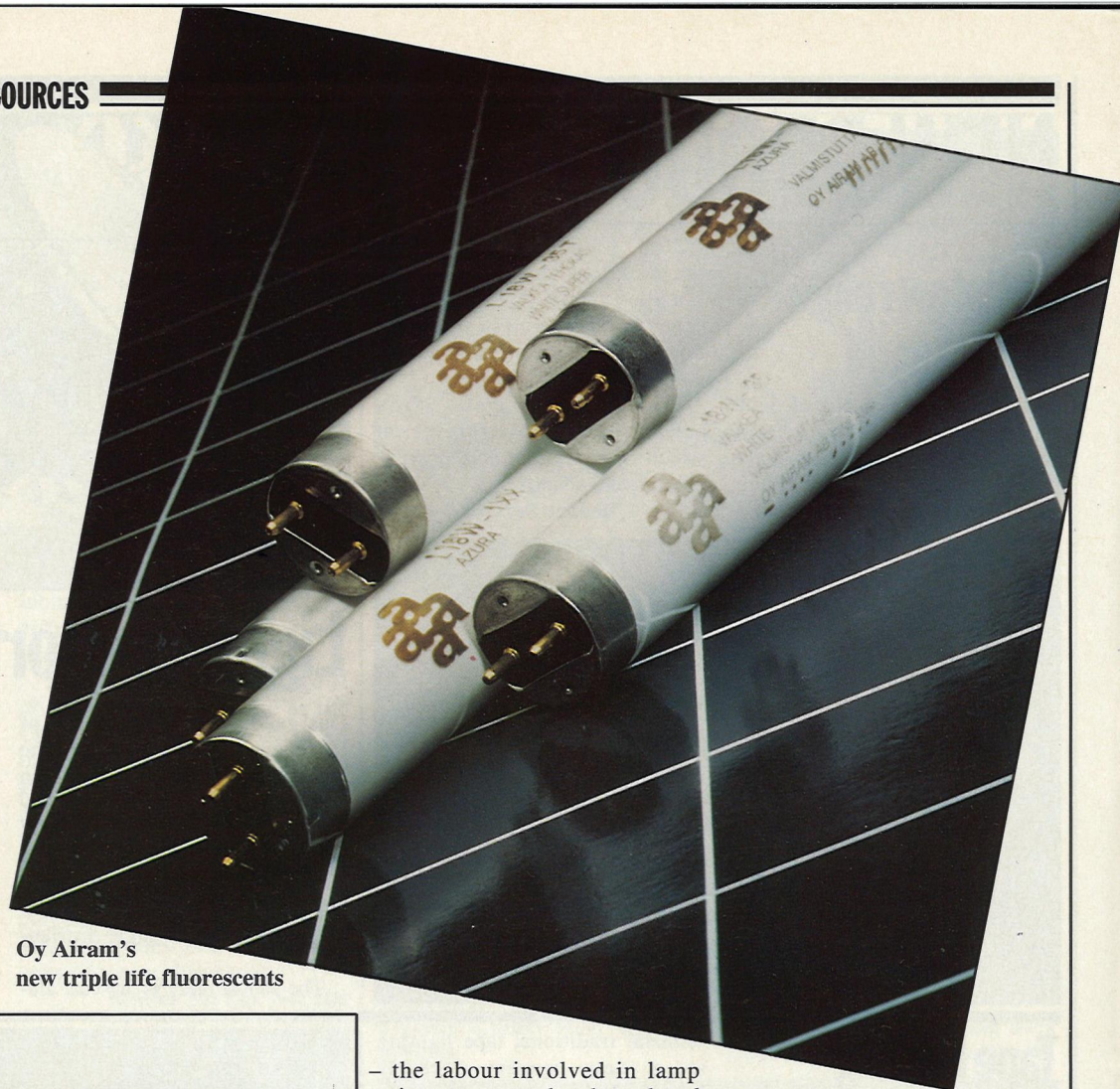
lamp life.

Although the basic construction of the fluorescent tube has remained largely unchanged, over the years there has been much development, particularly with phosphors and gas fillings to give enhanced light output and improved colour rendering. Electronic starters and control gear have brought about quicker starting and flicker free operation of the tubes and the latest high frequency electronic ballasts are making reductions of some 10% in energy consumption.

The aspect which has changed

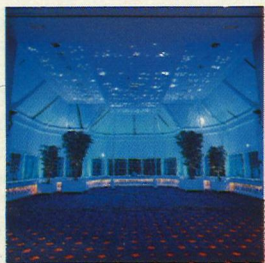
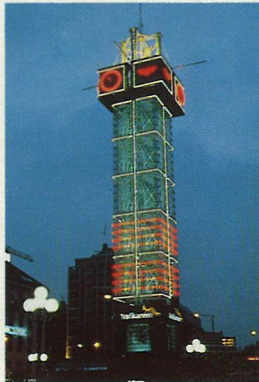
very little over the years is the life of the fluorescent lamp, although traditionally by comparison with other lamp types they have exhibited proven longevity, with typical lives of 8 to 10,000 hours. However, the latest developments by Oy Airam in Finland show that fluorescent tube life can be increased vastly without sacrificing lumen output or colour performance.

Two particular Oy Airam fluorescent tube ranges are worthy of note, demonstrating that double and even triple the life of normal fluorescent tubes is now possible



Oy Airam's new triple life fluorescents

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– the labour involved in lamp maintenance can thus be reduced dramatically.

With an average life of up to 26,000 hours – three times the life of normal fluorescent lamps, the Formula 35 Oy Airam fluorescent tubes can reduce the cost of lamp maintenance programmes by 65% as lamp changes are confined to once a year instead of every three years.

There are three lamps types available in the Formula 35 range from Finland and these are the 35X white deluxe, the 35T white super and the 35 white economy.

The deluxe lamp has a colour rendering index (CRI) of 85 and a colour temperature of 3,500 K. This is a continuous spectrum lamp with low glare and is particularly suitable for use in applications such as schools, hospitals, offices, banks and day care centres.

For general lighting in many industrial and institutional establishments, the 35T white super provides the answer. It is a tri-phosphor coated lamp, with a CRI of 85, ideal for department stores, manufacturing and sports facilities.

Many commercial and industrial situations such as car parks, sub-ways, railway stations and airports do not demand particularly high colour rendering, yet are often difficult and costly to keep well maintained. This is where the 35 white economy comes into its own. A CRI of 55 combined with high average life average makes the 35 white economy a value for money specification. The chart shown alongside illustrates the extended life of the Formula 35 family as well as only 28% lumen depreciation over their rated lives on a standard 3 hour switching cycle.

Long life

The Finnish company has shown too, that even where high colour performance is the primary concern, fluorescent lamps can be manufactured with twice the conventional life. The Azura full spectrum daylight lamps, with a colour temperature of 6,500 K and a colour rendering index of 98, are able to simulate daylight conditions very closely within an interior environment. At the same time, they have a life of up to 19,500 – more than double the life of ordinary fluorescent tubes. The high quality of light output produced by these tubes is most appropriate for commercial, retail and office interiors where full spectrum light is required.

Accurate comparison and

matching of colours in fashion shops for instance, and by printers, designers and car repair shops, is an appropriate application for these fluorescent tubes.

The Finns have also found a valuable spin-off benefit with full spectrum lamps. They have been found to counter some of the adverse effects of Seasonal Affective Disorder (SAD) and to make a positive contribution to people's general well being and consequent efficiency at work. In Finland, the tubes have been used extensively to help alleviate SAD symptoms by *simulating daylight* indoors, and the lamps have also proved effective in the diagnosis and treatment of a number of ailments such as jaundice.

Depression

SAD, a disorder linked directly to the amount of light travelling through the optic nerve, now affects some 10,000 people in the UK alone, and these people through gloomy weather and lack of sunshine, suffer at the very least lethargy and depression, if not more serious illness. Tests have been conducted in the United States which give evidence that in the educational environment, such full spectrum lamps provide increased attention span to students as well as enhanced resistance to fatigue.

Life, colour and efficiency are probably the three most important criteria to look for in lamp technology and new lamp design.

Whilst new ground is being broken all the time with metal halide, high pressure sodium, and tungsten halogen technology, with so much of world industry and commerce lit by fluorescent tube, 100% and 200% life increased without sacrificing performance must rate as one of the major contributions to the environment in the 90's.

The lamps last longer so users spend much less on lamp replacement and lamp maintenance programmes. Less frequent lamp replacement means less disposal of toxic substances and industry needs to produce fewer fluorescent lamps so achieving major conservation of world energy resources. In the light of all these issues, it surely cannot be long before extended life fluorescent lamps become the lighting industry norm.

Reader Service No 213

*Ted Page is managing director of The Greenstock Lamp Company

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20 - 24 June 1994

NEC Birmingham UK

The big event of the year takes place this month in Germany. Once again the big names in European lighting will congregate at the Hannover Messe from 21 to 28 April.

The fair has traditionally been the launchpad for a number of new products and this year is no exception. Many companies have chosen to keep quiet about their latest innovations, preferring to leave any announcements until the doors open on the 21st. But not all.

Anglepoise will be relaunching the original Anglepoise lamp at the show in its 60th anniversary year. It will appear as a limited edition model complete with all its original features. The company will also be showing its range of task and ambient lighting products. Models of particular interest, bearing in mind the new EC legal requirements governing VDU workstations, will be the 82T and 433T task lamps.

Track systems

Dutch company **Atomis** will be exhibiting its flexible Suburb Low Voltage Track System which can accommodate combinations of spots and flood lights. The company will also introduce a new decorative low voltage system for shops and offices, and show the Torp, Electron, Planum and Staticon ranges of lamps for homes and offices.

Brendel Leuchten will show ranges of indoor light fittings suitable for domestic and commercial use. Many of the products on display are said to be especially suitable for use in hotels, and banking and insurance offices.

Chalmers & Mitchell Ltd will exhibit both its Chalmit and Alumex product ranges. The

LEN casts an eye over some of the products on offer at Hannover Messe

Hannover highlights

Chalmit Hazardous Area range of fittings is said to be the largest range of Zone 1 and Zone 2 floodlights and wellglasses available in Europe. All fittings are certified by BASEEFA to EN standards where relevant. Also on show will be the new Chalmit range of stainless steel HPS and TH floodlights for use in hostile environments, Alumex ranges of commercial fluorescents, Chalmit street lanterns – including the new IP65 Group B, and a range of Victorian reproduction luminaires.

Concord Lighting will show the Control Spot range, which has just been given the prestigious 1993 German IF (Industrie Forum) design award by an international jury. Control spot is a modern kit of spotlights and projectors for mains and low voltage. A wide range of lamp types and accessories, high quality die cast construction and integral safety features is said to make the range versatile and reliable. The range includes two projectors; a low voltage tungsten halogen projector and a 100W white SON projector, both with specialist attachments such as framing heads,

gobo holders and lens options.

Creed Light Engineering will display new ranges of uplighters and uplighter/downlighters. These are said to utilise the latest technological advances to create luminaires truly suited to VDT and office environments whilst meeting both UK and European legislative requirements. A wide range of options are available to cater for both aesthetic considerations and mounting arrangements.

Also on display will be a selection of customised luminaires illustrating the company's ability for full integration of luminaires to acoustic, thermodynamic, electrical and mechanical service requirements.

New luminaires

Crompton Lighting will be unveiling two new ranges of luminaires designed to meet the requirements of Categories 2 and 3 as defined in the CIBSE Lighting Guide No. 3 (LG3). The Modulux range of LG3 recessed luminaires are suitable for applications where 300mm or 600mm ceiling modules are used. Chevin LG3 luminaires provide low cost, low glare lighting, particularly

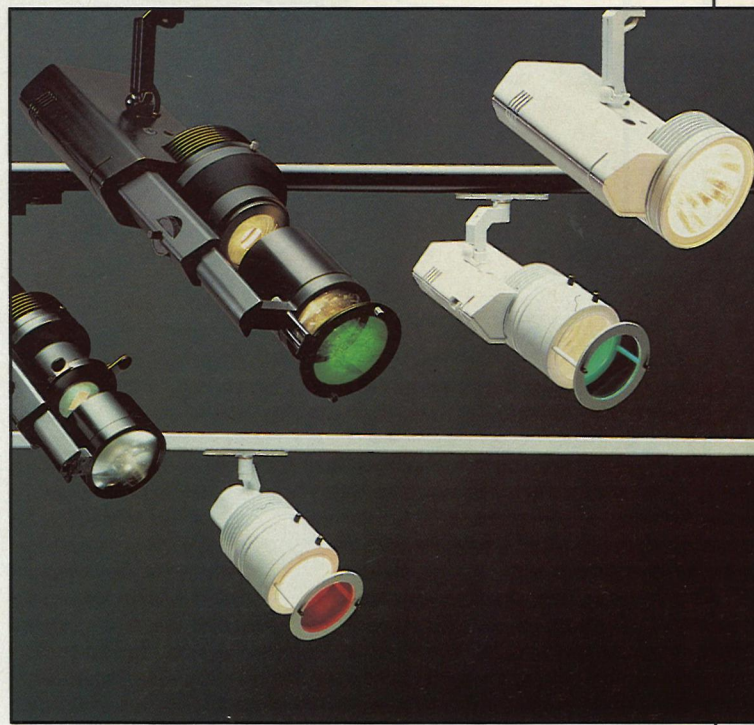
suited to the refurbishment market. Also on show will be the new Crompack 5 luminaire and the recently launched Reactalux lighting control system.

Edison Halo will show a full range of commercial low energy (13W to 26W compact fluorescent) and HID (metal halide and white SON) downlights. Also, the latest End Lit Fibre Optic system will be shown. As with all fibre optics, the heat and electricity are all contained within the light box so the light fittings can be positioned anywhere without bringing all the associated problems of power, heat and inability to replace dichroic lamps. The company will launch its Fibre Optic Glow Sculptures as well as its new mini showcase which is a joint venture with another leading fibre optic company.

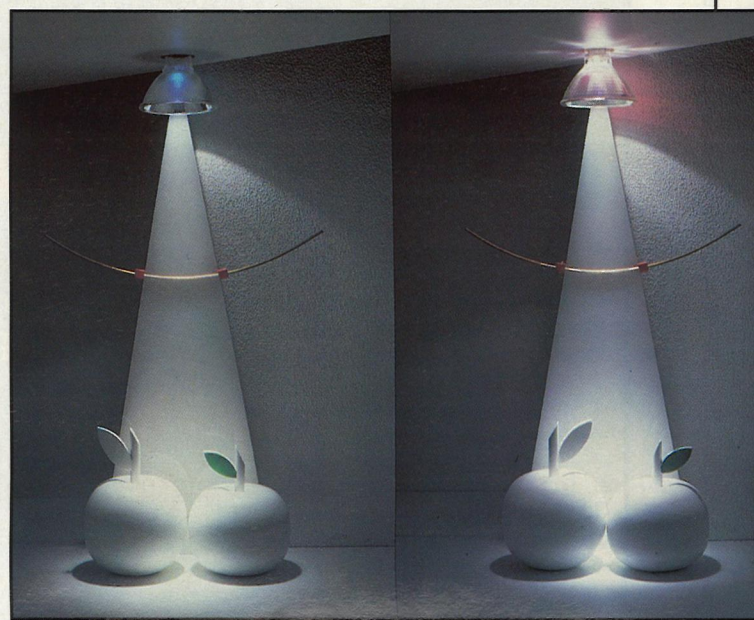
Also on show will be a new range of low voltage diecast downlights and track fittings, new spotlights, the Lumistrut structural and lighting system and product literature.

Erco Lighting Ltd will highlight Avalon – a light structure with elliptical cross section designed to complete the range of existing Erco light structures with a new profile. Also on display will be new spotlight and floodlight luminaires, Castor and Compar, for use with minirail low voltage track – which is also new. The company will also introduce Liteman – an electronic one-room control system designed for installations such as individual offices or living areas.

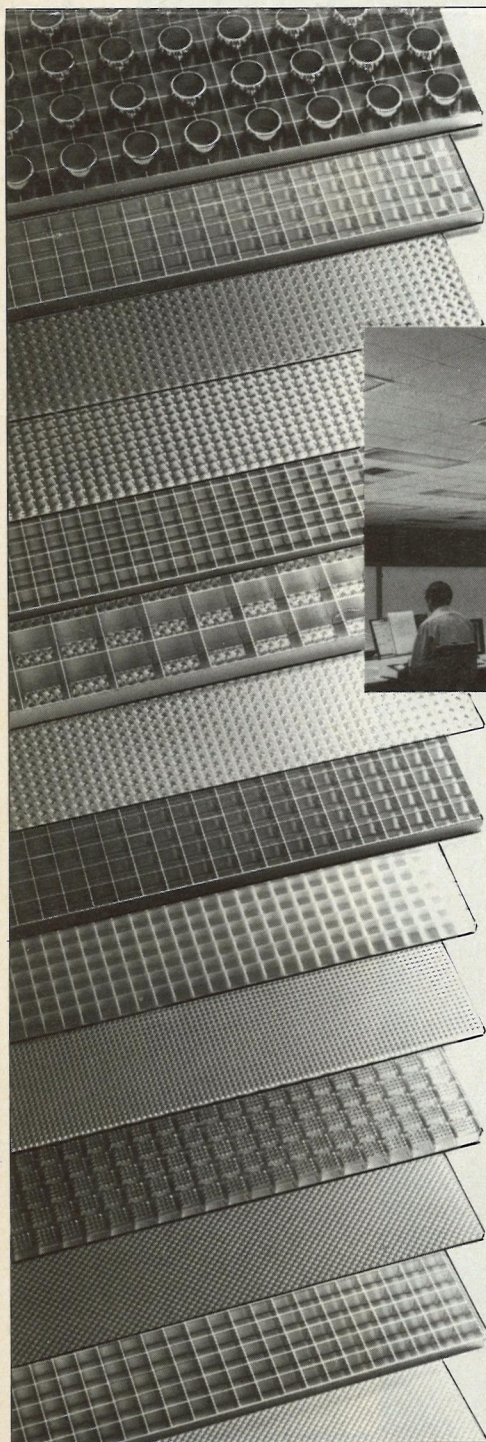
Fitzgerald Lighting will be showing a range of low brightness louvres for use in VDT



IF design award winner – Control Spots from Concord Lighting



GE Lighting's MR16 Halogen display lamps with ConstantColor



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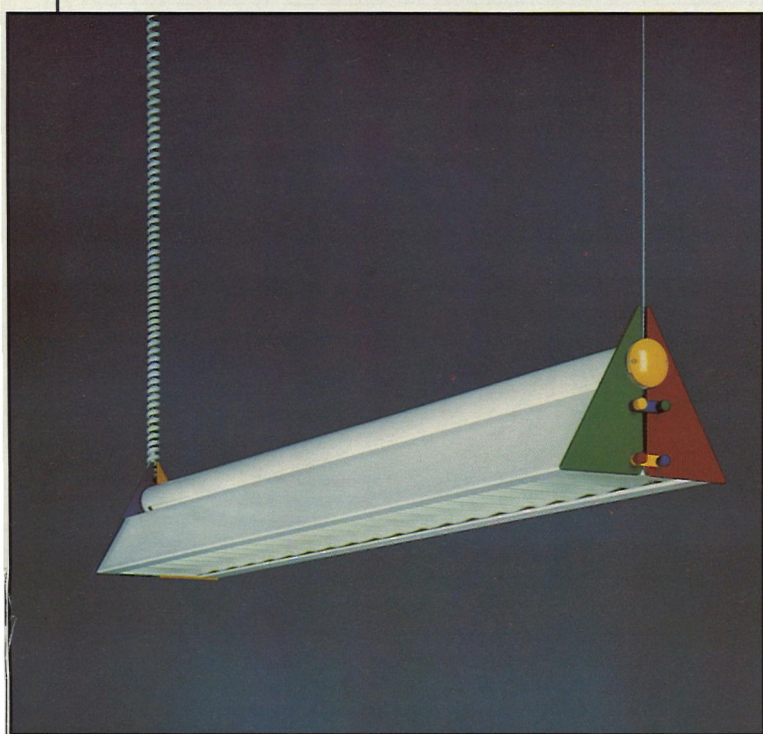
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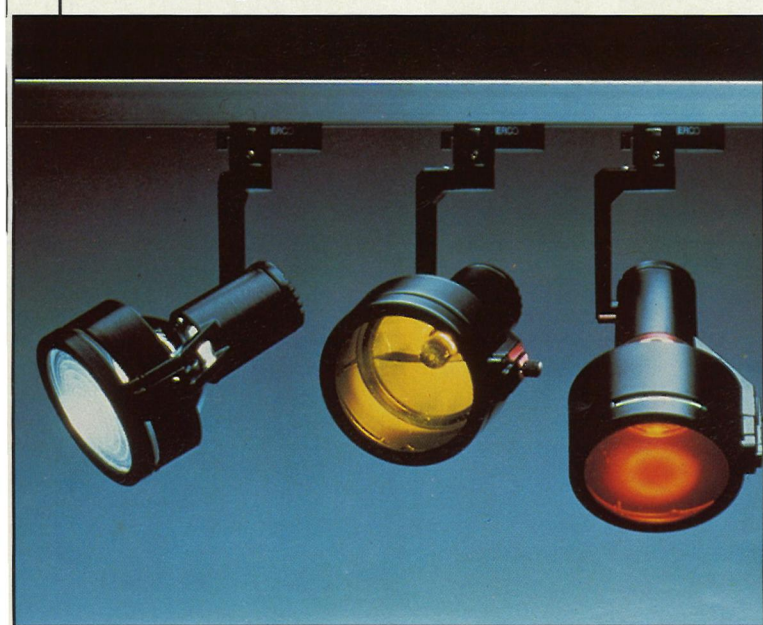
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Kotzolt's Triangoli luminaire



Compar luminaires with UV filters from Erco Lighting

areas. Also on display will be the range of recessed and surface mounted luminaires, now expanded to include the Gridpack and new Premier with louvre, and the new Enterprise louvre for use with the deluxe Lightpack range. In addition, a new high performance high-bay reflector and an explosion proof luminaire will be shown.

GE Lighting will promote its ConstantColor dichroic MR 16 lamp which is said to have a rated life of 5,000 hours on 50 watts. It employs thin film technology to apply thin layers of rare metals which reflect or transmit light at various wavelengths. Also on show will be its range of Halogen IR lamps which also use this technology, giving the same light output while using 37% less energy. The 75W HIR PAR 38 lamp is said to produce the same light as a 120W PAR.

The company will also exhibit its low maintenance compact fluorescents which are said to offer energy savings of up to 80% over standard GLS lamps. The 23W version of GE's new compact fluorescent Biax T lamp, for instance, has the same output as two 60W GLS lamps.

On show for the first time in Europe on the **Iluma** stand will be Lightseal Horizontal PL Downlights – a range of 2 x 7W or 2 x 9W compact fluorescent downlights for bathrooms and showers. A choice of reflector attachments are available including a clear or opaque showerproof lens rated at IP65. Also on show will be 12V Project Downlights – low voltage downlights which incorporate a one touch lamp release mechanism and other features claimed to be normally associated with high specification products.

In addition the company will display 12V Marktrack Packs which have integral 150VA elec-

tronic transformers, Highspot HQ1 Spotlights, supplied with neon power supply indicator and UV absorbent safety glass, and single ended metal halide and white SON downlights.

Knobel will be highlighting SensoSwitch – a newly developed automatic lighting switch for interior lighting. Its in-built microprocessor control is claimed to combine accurate daylight sensing and presence detection for high comfort and maximum energy savings. Advantages claimed for SensoSwitch are: optimum lighting conditions whenever they are needed; up to 50% energy savings due to switching governed by daylight occupancy; no manual switching needed and self learning and adaptation to local lighting conditions.

The company will also be showing the new generation of Knobel Dimtronic high frequency electronic ballasts and wire-wound laminated transformers for low voltage halogen lamps.

Emergency lighting

Kotzolt Lighting will show the Vela, Corona, Apus and Triangoli ranges of luminaires, which, when combined with the company's high performance louvres, are suitable for VDU workstation installations. Also on display will be the new Argolux emergency and signal luminaire which can be wall or ceiling mounted. In addition, new dust proof and water tight control gear built to protection class IP65 will also be shown.

The **Lighting Industry Federation (LIF)** will be providing a support service for exhibitors which will include having an interpreter into German at the equal disposal of the exhibitors; a fast food service and eating area also for exhibitor's use; the display of membership lists of the LIF and Lighting Association;

and a fax and telephone service for exhibitor's use.

Lucent Lighting will be showing the Licrea range of products which it exclusively distributes in the UK. Point-intro is the new collection of downlighters included in this range. It has a totally enclosed housing which meets all European safety standards, making it particularly suitable for installation in open cell ceiling systems where light leak is undesirable.

The range is available with a choice of either low cost capsule or dichroic lamp. The capsule lamp version can be supplied with either spot or flood reflectors. There is a wide selection of accessories available including decorative glasses, spillings and the unusual 'peak'.

Menvier will exhibit its extensive range of fire detection and emergency lighting equipment. The stand will feature several new items, including the high frequency ballast unit. Also on show will be the new analogue fire alarm panel and the Series 700 smoke and heat detectors.

NEI Victor will be launching

its new Norstar range of flame-proof (Type D) pendant and floodlight luminaires. Replacing the Titan Type 39L Wellglass luminaire, the Norstar is suitable for either pendant or floodlighting applications through the use of a unique internal reflector system. This allows a variety of floodlight patterns to be created in narrow, medium or wide beam.

Orbik Electronics will display its ranges of emergency lighting control gear for fluorescent and low voltage systems. Also on show will be its ranges of electronic and standard low voltage transformers and its new ranges of electronic starter switches and electronic ballasts.

Dimming units

R Hamilton & Co Ltd will show on its stand Litestat Mercury Systems – a range of sturdy, hard fired remote dimming units suitable for handling higher loadings. The systems can be off-the-shelf remote packs to run a few lights, or specially designed and built multi-gang rack or boxed systems to run hundreds. They are claimed to be able to handle diffi-

cult loads and extend lamp life. Other benefits include savings in energy consumption, power electronics remotely located from the control, extra low voltage at the control giving cool, silent and safe operation, and each circuit is MCB protected. The company will also show the Micro Alarm system.

Tridonic will be exhibiting a new range of PCA electronic ballasts, which can be dimmed down to 1% of light output. The PCA monitors and controls lamp power rather than lamp voltage alone, giving constant output throughout lamp life.

The PCIS is a new electronic ballast making its debut at Hannover, which is designed for use with 150W, double ended metal halide and SON lamps. Also on show will be a new range of transformers which feature a soft start for longer lamp life, and ranges of ignitors, power switches, transformers and ballasts.

Zumtobel Lighting will have a number of new products and ideas on display. The main focus will be on the RCE/RCA, a com-

Flying visit to Hannover

Anyone who has not yet booked flights and accommodation for the Hannover Messe can take advantage of special deals offered by Kuoni Travel. Flight prices start at £144 return and accommodation at £46 per night. The company is also organising a one-day 'flying visit' to the show on Thursday 22nd of April costing £230 and including flights, transfers, entrance ticket and car parking. For more information call Kuoni on 071 499

plete range of luminaires designed to accommodate Zumtobel's Mellow Light System within a variety of ceiling types. In addition, the company will be launching its new FZ moisture-proof luminaires, said to be attractively priced and easy to install. Also on display will be new software for computer aided lighting planning which will offer the user the convenience of the Windows interface.

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TRILUX



LEN takes a look at some of the new products which were displayed at Lightshow '93

Lightshow re-visited

It's estimated that at least 15,000 people visited Lightshow '93 in February and those who were there for the whole time have probably just got their legs (and livers in the case of certain journalists) back into shape. Most exhibitors were very pleased with the facilities afforded them by Earls Court 2, though there was the usual discontent about the monopoly situation enjoyed by the hall's operators. Ironically, another source of problems was the lighting – with some exhibitors wanting good levels of illumination while others felt this detracted from their own display. Unfortunately, the zoning of the lighting system did not offer the flexibility to cater for everybody and some stands appeared decidedly gloomy.

Many people felt that they received a high quality of visitor and this was true of the 'professional' lighting companies as well as the decorative exhibitors. Comments made to LEN were borne out by the feedback received in other quarters.

"The overwhelming feedback from exhibitors is that they enjoyed a first class show. The vast majority of companies who came to the show expecting to write business did much better than they dared forecast," said Peter Hunt, President of the Lighting Association.

This view was shared by Andrew Osmond, President of the Lighting Industry Federation. "The European Lightshow '93 has proved once and for all that an exhibition such as ours – run by the industry for the industry – works. Equally important, visitors said time and time again that they fully endorsed the concept of one show where the very best and very latest in lighting, in all its forms, could all be seen under one roof."

Excellence awards

Five new lighting products, three from the professional sector and two from the decorative sector, were awarded Excellence Awards during the course of the show. In the professional sector Reggiani won an award for its Supertechne range of IP40 and IP43 rated recessed luminaires, Strand Lighting for its Premiere programmable lighting control system and Victor Lighting for its Norstar luminaires. All of these products are mentioned in more detail later in this review. The two decorative winners were Starlite Chandeliers for its Parabola chandelier and Florence (UK) for an Art Nouveau vase in sculptured relief.

There were also two awards for stand design, and clarity of product presentation and overall stand appearance were the main criteria employed by the judges. The winners were Abacus Municipal and Foxglove Ceramics.

On its award-winning stand, Abacus Municipal was exhibiting a large part of its luminaire range, including floodlight, amenity and roadway lanterns. Also on the stand was a demonstration of the AM570 floodlight's new hot restrike facility which allows the lamp to restrike while hot. This avoids the need to wait for the lamp to cool down.

Abacus has also launched the AM490 series of luminaires for large open areas. These models have been designed in accordance with the requirements of the 'Dark Skies 2000' campaign for limited urban sky glow. This is achieved by incorporating optics which provide a controlled light distribution with less than 2% of output being upward.

Also addressing the need for less sky glow is the AM526B

floodlight which uses the AM926 cowl accessory to allow the asymmetrical beam of the floodlight to cover a large area with an effective flat glass orientation.

Reader Service No 214 Chelton-Smith, exhibiting on the Jeremy & Co stand, was enthusiastically promoting a prototype lightweight collapsible lampshade. It is as easy to put up as an umbrella and collapses to fit into a 1.5 inch deep box, thereby saving storage space for lampshade retailers.

Reader Service No. 215 Exhibiting at Lightshow for the first time, Chloride Bardic introduced its new automatic Addressable Lighting System. This enables the full range of tests to be carried out on individual emergency luminaires automatically, with faulty units instantly reported for repair or replacement.

Chloride Bardic also used the show to display a selection from its Architech range of brass finish emergency lighting, which can be operated from a central battery or mains power source. Sharing this display was the company's Excel and Elite series of brass finish exit signs, which offer a range of pictogram legends. One of the highlights of this range is the double sided XL2 which can dispense with the need to install two individual signs.

Reader Service No 216 Tucked away on the Cryselco stand was the Novolux range of light diffuser panels manufactured by Ins-u-clear Ltd, products which meet fire standard BS746 Part 7 Class 1. The whole topic of fire standards and diffusers has been the subject of controversy in the pages of LEN (see Jan Lif Line and March letters), this diffuser is said to meet all the required fire standards and provide a high level of illumination with an even spread of light and no glare.

Reader Service No. 217 Electronic switch manufacturer Danlers introduced new time lag switches which can be used in an existing 2-way circuit. To install, only one of the 2-way switches has to be replaced, without altering the wiring, and the 2-way switches remaining can also make the time lag operate.

Reader Service No. 218 Electronsonic used the show to promote its Imagine range of architectural lighting controls, first launched in September of last year. The software-based controls are said to give 'startling' scene setting performance. The controls comply with EMC regulations.

Reader Service No. 219 Elstead Lighting has introduced a range of outdoor lanterns with passive infra-red sensors (PIR) and two new ranges of simple iron lighting. These latter ranges, the Carisbrooke and the Chartwell, are available in a choice of five colours, and in single and double wall light format with three, five and six light matching chandeliers.

Reader Service No 220 Featured on the Existalite stand was the company's Flex-Lite dedicated light box for functional or decorative lighting via optical fibres. The company was also showing a conversion, described as unique to itself, where a conventional HID downlighter is modified to illuminate optical fibres without affecting the photometric output of the downlight

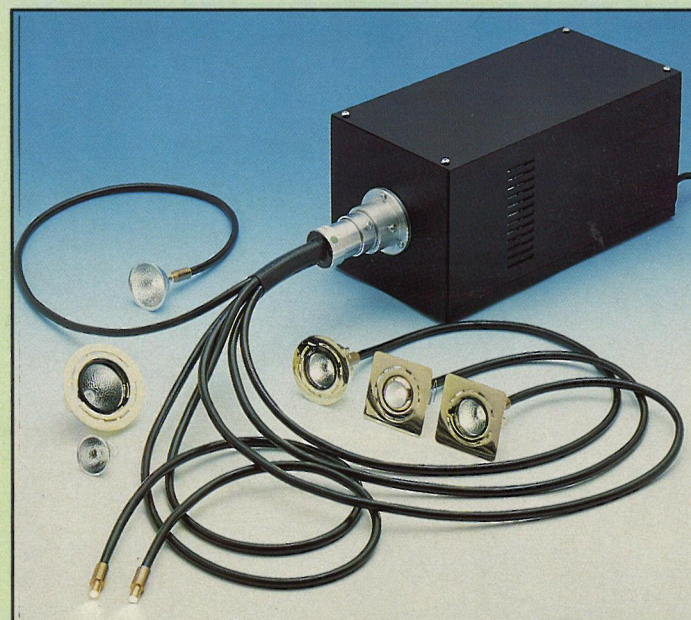
luminaire itself.

Escape route lighting

Also on show was the Guide-Lite range of low mounted escape route lighting systems, including the new LED version aimed at hazardous area markets. Visitors to the stand could also see the 'Art' decorative luminaires which have recently been added to the HyLite range of combined mains and maintained emergency lighting luminaires. These are available with modern diffuser designs and offer functional and emergency lighting from either two 18W PL lamps or a 28W or 38W 2D lamp. **Reader Service No 221**

The GE Lighting stand was dominated by the company's Mazda brand products, with new additions to the Softglow and Low Energy ranges. There were also a number of GE brand products on show, including the Precise ConstantColor MR16. This features a new coating which is said to produce a consistent colour quality for up to 5000 hours with no discolouration at the edge of the beam or reflector and no lumen loss due to coating degradation.

Visitors to the stand could also see a fibre optic lighting display using the company's Light Engine, which is said to provide an 80% energy saving over stan-



Existalite's Flex-Lite dedicated light box

dard metal halide lamps.

Reader Service No 222 One of the most eye-catching

stands at the show was that of Gibson Lighting. A black and yellow colour scheme formed the

There is always more

...more choice, for example, with the LUMILUX range, OSRAM's brand name for triphosphor fluorescent tubes.

Triphosphor technology has brought fluorescent lighting into the 90's. Compared to conventional halophosphate tubes they give higher light output, improved lumen maintenance (and therefore longer useful life), and very good colour rendering (Ra 85). Where colour rendering is of prime importance, the LUMILUX DE LUXE range, with excellent colour rendering, is available.

By using different combinations of triphosphor fluorescent coatings, LUMILUX provides an extensive range of five colour appearances.

For the widest range, colour rendering and economy, look no further than LUMILUX.



BIOLUX - beating the SAD syndrome

Seasonal Affective Disorder, known as SAD, can cause depression during the winter season when there is less daylight.

By installing BIOLUX in offices, schools, department stores and similar places, an atmosphere can be created which will considerably reduce SAD symptoms.

BIOLUX fluorescent tubes were among the first

fluorescent tubes to accurately recapture natural sunlight thanks to a small additional component of UV light.

They have excellent colour rendering and have LUMILUX performance in terms of energy consumption and lamp life.

Make the workplace friendlier with BIOLUX.

ReaderService No.20

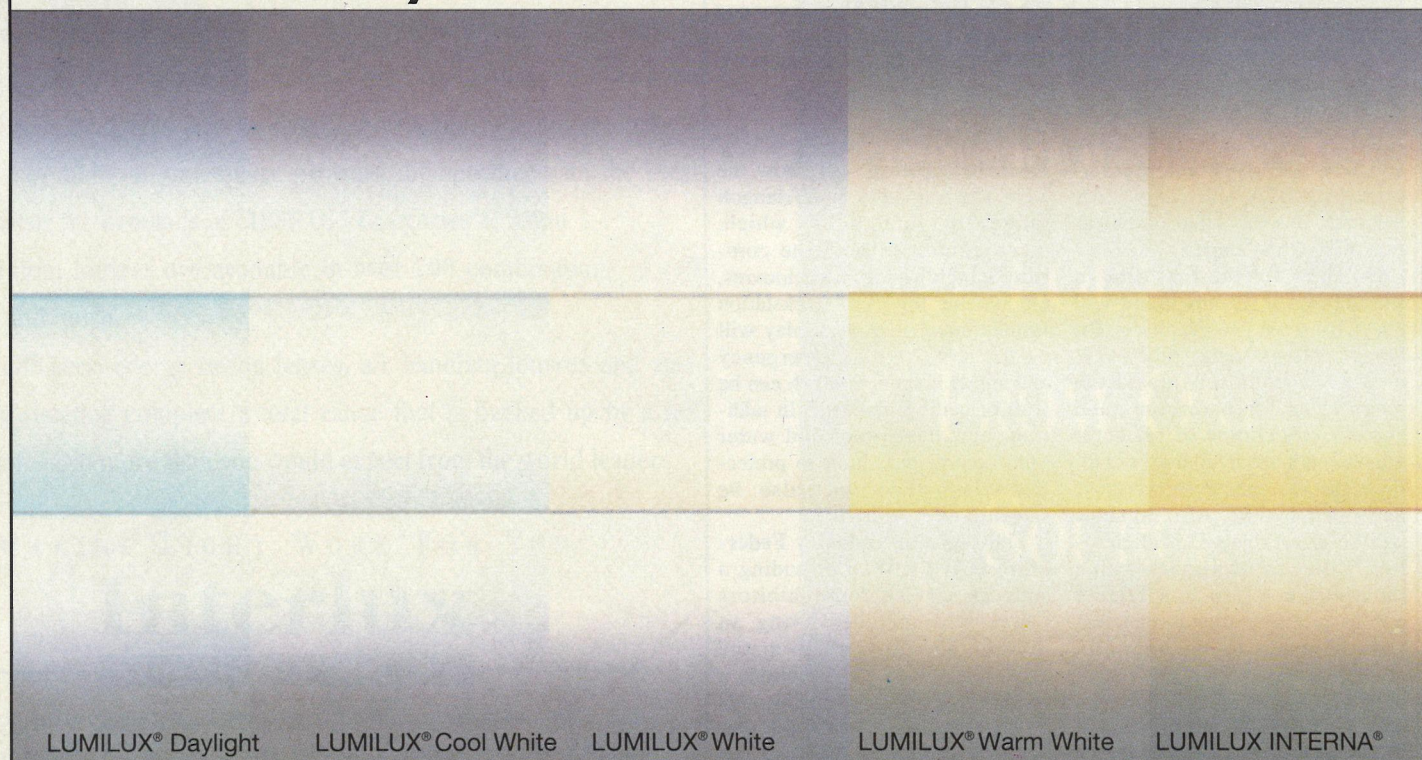


FLUORA for healthy growth

FLUORA tubes are the ideal solution wherever plants do not receive enough natural daylight. By stressing the blue and red parts of the light spectrum, they not only show flora in offices, aquaria, shopping arcades and greenhouses in their best light, but actually promote the process of photosynthesis.

ReaderService No.21

LIGHT CAN BE WHITE, WHITE, WHITE OR WHITE:



LUMILUX® Daylight

LUMILUX® Cool White

LUMILUX® White

LUMILUX® Warm White

LUMILUX INTERNA®

backdrop for a display of lanterns, crystal and picture lights, table lamps and shades. The company was promoting in particular a range of reflective panel glass chandeliers and matching wall lights, new ceiling fans with complementary light kits, and the Classic Collection range of mix-and-match lamp bases and shades.

Reader Service No. 223

The **Herholdt Spa** stand attracted plenty of visitors interested in the company's 1-10v dimmable low voltage lighting transformer. A newly developed component of the Smart Electric Line (SEL), the unit is claimed to allow the infinite lighting intensity variation of low voltage lights. When used in conjunction with the main components of SEL it allows an infinite number of low voltage lights on the same circuit, which is a first – the company believes.

"It's totally innovative – you won't find this anywhere else,"

said Michael Blowman, Herholdt's UK general sales manager. The stand also featured the best cup of coffee (Italian) to be had in the whole show!

Reader Service No. 224

Catalogue launch pad

JSB Electrical used the show as a launch pad for its new Emergency Lighting Catalogue. It features photographs, descriptions and dimensions for ranges of self-contained emergency luminaires, exit signs and the Prestige Collections. It also contains advice on emergency lighting legislation and design and installation criteria. The photometric data section ensures that correct lighting levels can be incorporated into the design. **Reader Service No. 225** The full range of OCAB light fittings was on display on the **La Conch** stand, including a choice of surface, recessed and semi-recessed downlights in both vertical and horizontal versions. Verti-

cal mounted models are available with a compact fluorescent source in power options from a single 5W tube up to a double 26W. Horizontal models range from a single 7W up to a double 18W tube. Metal halide and MBF light sources are also available. OCAB has also introduced a low voltage track system, Microline, which features either fixed or flexible rod fittings of varying lengths.

Reader Service No. 226

Lightshow was the venue for the official launch of **Lighting Systems UK**, a division of Phosco Ltd. This company has been established to assemble and manufacture, under licence to GE in North America, a complete range of discharge light fittings for use within the UK. The product range includes industrial products, floodlighting equipment and area lighting and is supported by a lighting design service using the company's CAD facilities.

Reader Service No. 227

Lighting design

A major part of **Lumiance's** presentation was formed by **Luminaid**, the company's lighting design package. Also on display was the low voltage Primo system which has the flexibility to allow a wide range of accent effects to be achieved attractively and cost effectively. Primo is available with a range of lamp options, head types and stem lengths and can now be used with Primopower track and Primotronic to enable the whole system to be used on track.

Another new product was the **Insaver 210** recessed fitting for use in commercial applications which require both high quality and higher lighting intensities. It can be used with a choice of nine separate lamp types and five different light sources, including compact fluorescent, mains voltage halogen and metal halide.

Reader Service No. 228

Mayelectro, the emergency lighting division of Gent Ltd, used the show to launch its new Challenger and Prestige ranges. Challenger luminaires incorporate, as standard, an interface unit which enables them to be tested from a central point, while Prestige luminaires have advanced interface units allowing continual monitoring and testing using either the PT2001 or PT2010 test controllers.

The Challenger range includes 11 models with 50 specification variants, ranging from decorative models such as Crystalite through to Watertight, a surface mounted luminaire specially designed for demanding environments. The Prestige range includes both twinspots and mini-packs.

Also new on the stand was **Teletest**, designed to automatically test emergency lighting fittings and able to interface to all Mayelectro-manufactured luminaires. **Reader Service No. 229**

Menvier was exhibiting Autotest, a self-testing and condition monitoring system designed for use with luminaires incorporating Convalite conversion kits and/or Testcheck condition monitors. **Reader Service No. 230**

Micromark was featuring its expanded range of decorative lighting products, along with outdoor, security and commercial fittings. These included the new 2 metre triple-opal globe post lantern, the Westminster three light pendant, the Biarritz square wall lantern and the Marie Therese range of chandeliers and wall brackets. Also on display was a range of commercial fittings, with low voltage downlighters, mains downlighters, recessed eyeballs, track and spot fittings, emergency lights, fluorescent batters, lay-in modules, low bay luminaires, outdoor fittings, bulkheads and floodlights and security lighting.

Reader Service No. 231

Osram used the show to launch its new range, **Luminaire Extraordinaire**, which concentrates on developments in tungsten halogen and compact fluorescent technology. The new range is said to combine these technological developments with stylish luminaires to, "provide interior and lighting designers with a fascinating range of lighting styles and effects."

The company also introduced three new models to its range of electronic control gear. The **HF 118D** is a dimmable ballast for linear fluorescent lamps and is now available for 18W lamps, in addition to the existing 36W and 58W versions. The **QT/DE Twin** is a twin lamp electronic ballast for compact fluorescent lamps from 9W to 26W. The **QT/TR** is a pre-heat transformer for use with the Quicktronic QT ballasts and is said to give manufacturers the possibility of producing more cost-effective 3 and 4 lamp 18W luminaires.

Reader Service No. 232

A number of new products were displayed on the **Philips** stand. These included the **PL Electronic/T** range of retrofit compact fluorescent lamps, said to give a 20mm length reduction compared to competitive products. The new lamp range is designed to complement the current Philips PLCE lamps and will have the same light output, lamp life (8000 hours) and energy savings (up to 80%). Visitors to the Philips stand could also see a smaller SL lamp, which is now 10mm slimmer and 12% lighter than its predecessor. Retailing at £5.99, the SL is available in 9W, 13W, 18W and 25W sizes and includes prismatic and comfort versions.

Philips is also offering a new set of mirrors for its 1200mm x

300mm fittings. The new patented mirror design is said to offer one of the most efficient systems available in the UK and meets the needs of both LG3 Categories 2 and 3. The secret behind the mirrors lies in the use of 'V' blades at the closed top with mini-mirrors to redirect the light. This has the effect of improving the overall efficiency of the light distribution, so that in most cases fewer luminaires will be required.

Reader Service No. 233

Reggiani launched its Supertechne range of IP40 and IP43 rated recessed luminaires. Using high performance, low energy light sources, the fittings have a range of attachments which give them a high level of flexibility.

Described as unique, a cast aluminium ventilated flange allows air through to the lampholder and is designed to cool itself, so lowering the temperature of the ceiling contact point. This arrangement is said to extend the fields of application and prolong lamp life. **Reader Service No. 234**

Large area lighting

On show for the first time was **Powerbay**, the new luminaire from **Siemens** for large area lighting. It is available with a range of attachments to meet various requirements and is supplied with a high-efficiency SON lamp. This, combined with a specially designed reflector is said to give a particularly high light output. The luminaire's wide light distribution also means that fewer points are needed.

Reader Service No. 235

Strand Lighting announced the introduction of a new digital dimming system, **LD90**, designed for a variety of entertainment and architectural applications. The system offers a high degree of flexibility which is achieved through a 'building block' approach to rack design. A convection cooled, wall or floor mounting, cabinet contains up to three 'power blocks' of dimming modules. Each of these is available with either 8 x 2.5kW or 4 x 5kW dimmers, each with a variety of MCB configurations.

Reader Service No. 236

Products on the **Thorn Lighting** stand included the **Quattro T** Line range of fluorescent fittings, said to combine high performance with excellent appearance. Dedicated to use in exposed grid ceilings, only the 10mm louvre flanges are visible below the ceiling. The fittings are available in 300mm, 600mm or 1200mm widths, with twin, three or four way lamp configurations.

Also on show was the **Andante** Sensa fluorescent fitting which incorporates a passive infra-red detector and photocell.

Reader Service No. 237

The **Norstar** range of flameproof pendant and floodlight luminaires was the main feature of the **Victor** stand. Designed to replace the Titan type 39L Wellglass luminaire, the Norstar is suitable for either pendant or floodlight applications through the use of a unique internal reflector system. This allows a variety of floodlight patterns to be created in a narrow, medium or wide beam. The fitting can be used with a variety of sources, including 150-400W SON, 250-400W MBI and 250-400W MBF.

Reader Service No. 238

On show from the **West Midlands Lighting Centre** was **LightKit**, which allows installation of light fittings without removing existing ceiling roses. Pendant fittings can be installed using the same fixing points and by simply reconnecting the flex of the fitting back into the existing ceiling rose.

Reader Service No. 239

with OSRAM...



High frequency electronic control gear

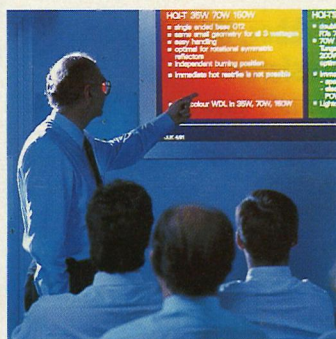
For LUMILUX and other T8 fluorescent tubes, OSRAM has developed QUICKTRONIC DE LUXE and QUICKTRONIC ECONOMIC, a complete ready-to-use electronic control gear unit.

QUICKTRONIC are not only extremely economical, giving energy savings of up to 36%, they also increase the

serviceable life by as much as 50%. They have flicker-free start and operation, and, used with LUMILUX, are the optimum lighting package for light quality and economy.

QUICKTRONIC ECG also bring advantages of greater comfort, economy and reliability to OSRAM DULUX L, S/E and D/E compact fluorescent tubes.

ReaderService No.22

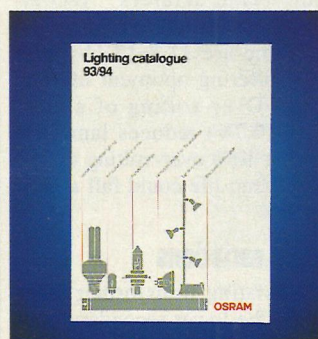


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ReaderService No.23



The new OSRAM Lighting catalogue

OSRAM have launched the definitive reference work for the industry on light sources and electronic control gear. For your copy please circle the reply number.

ReaderService No.24

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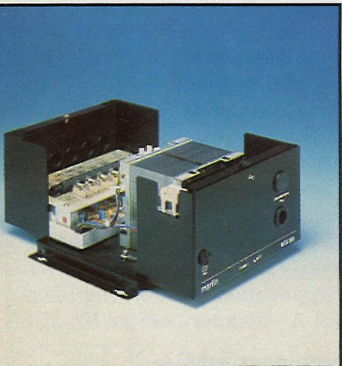
TECHNOLOGY BROUGHT TO LIGHT

OSRAM

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The dawning of intelligence

An intelligent self-regulating transformer is said to overcome many of the problems associated with transformers



Low voltage (or more accurately SELV) lighting systems have had a chequered history in the last 10 to 15 years. Specified increasingly in a wide range of locations for the dramatic lighting effects that SELV systems offer, their problematic nature has been considerably downplayed – or even

Marlin's Blackbox automatically regulates the secondary voltage

ignored – with the result that clients and specifiers have often been disappointed. Some of these systems' disadvantages – relatively poor efficacy and high heat output for example – are intrinsic to incandescent lamps in general. But equally, many others relate specifically to transformer and installation design of SELV systems.

The biggest problem, without doubt, has been shortened lamp-life and unexpectedly high lamp failure. The main reason is that tungsten halogen lamps have a low tolerance to over-volting – lamp manufacturers' recommended parameters for a nominal 12V lamp are 11.4-12.1V, with 11.8V offering optimum life and colour. Over-volting of a mere 6% (or 0.7V) reduces lamp-life by 50%; 10% over-volting (1.2V) means lamp-life could fall a massive 75%.

Supply variations

With existing transformer technology, the lower secondary voltage is proportional to primary mains voltage – which is fine where voltage is constant. However on Britain's national grid, nominal 240V mains supply voltage is allowed to vary from 226V to 254V. These upper end limits can, in practice, be further magnified in commercial locations, where powerful appliances – air-conditioning, elevators, HID light-sources and so on – constantly cut in and out, causing considerable fluctuations in local voltages. The effects of all this on SELV lighting have been disastrous – long-term over-volting and frequent higher voltage 'spikes', all of which substantially reduce rated lamp-life.

Loss of lamp life

A further problem with the conventional wire-wound Cu/Fe transformer is that output is affected by its load. For example, if a transformer is supplying five 50W lamps on a track and one fails, the transformer will be 'underloaded' and will supply a higher voltage to the remaining four lamps. The next weakest lamp filament will rapidly fail as a result, and the process will be repeated – the well known 'domino' effect so often experienced in SELV lighting installations. The other associated problem with SELV lighting is the critical relation between voltage and cable length/diameter. This isn't a problem when the transformer is housed close to the lamps, but design restrictions often require the concealment of remote transformers well away from luminaires.

To prevent voltage drop, long lengths of more expensive, high capacity cable are required, which increases installation costs considerably.

Conversely, incorrect voltage/amperage calculations (or deliberate attempts to cut costs) have often led to the specification of inadequate cross-section cables. This threatens not just incorrect volting, but also increased resis-



Blackbox is said to guarantee the integrity of low voltage applications.

Blackbox, the intelligent transformer

Marlin's answer was an intelligent, self-regulating transformer, which would automatically readjust its secondary voltage to 11.8V, regardless of either mains supply variations or shifts in load. So three years ago, in collaboration with a specialist electronic design consultancy, Marlin set about developing the Blackbox, which was recently launched on the market.

Blackbox comprises two components: a conventional 300VA wire-wound Cu/Fe transformer, selected for its inherent robustness and reliability; plus an electronic sensing circuit, linking the transformer to the lighting-track or luminaire terminals. Based on an advanced version of electronic dimming technology, the sensing circuit constantly monitors the voltage at the point of distribution and ramps the output voltage from the transformer up or down accordingly. In this way, voltage is always maintained within 0.1V of its 11.8V optimum level.

Because Blackbox has a 'soft start' mode with a 0.5-1.0 second ramp-up, primary current surge at switch on – with its associated life-shortening shock to the lamp filament – is avoided. As primary supply variations are evened out, nuisance tripping of MCBs and fuses due to spurious power surges are eliminated.

The Blackbox sensor will also detect short-circuits and shut down instantly; overloads will also cause the lamps to cut off and then ramp up gently. Power is restored automatically when either fault is rectified.

Cutting Cable Cost

One of the most dramatic implications of Blackbox on installation and its associated costs is the ability to use longer runs of smaller diameter cable. The sensor monitors voltage at the closest luminaire and provided that the other luminaires are within published tolerance distances, voltage drop due to cable resistance is automatically compensated.

The result is that runs of cable of a given diameter can be up to five times longer from transformer to lamp than with conventional transformers so that transformers to be sited in more accessible locations – allowing greater freedom for designers and making maintenance easier. For

example a 2.75m maximum run of 1.0mm² cable from a transformer to a 50W lamp can be increased to 13.5m, using Marlin's new invention; a run of 28.5m of 10.0mm² cable to a similar lamp could be extended to 137m, if required, with substantial savings in installation costs over wider cross-section cables.

Applications

"Clients and specifiers are concerned with the downmarket image given by failed lamps within low voltage installations and also their associated replacement and maintenance costs," says Mike Jankowski, Marlin's Design Director.

"Marlin designed Blackbox to bring out the best in SELV systems and it has already been taken up by major institutions such as National Westminster Bank, Loughborough University, Derby Museum and installed in "Quaglino's", Sir Terence Conran's new restaurant; it is also being increasingly specified by leading consulting engineers.

"Blackbox is particularly suitable for retail, display and leisure areas, in fact any low voltage application concerned with achieving optimum lamp life and maintaining the visual integrity of the space."

Reader Service No 240

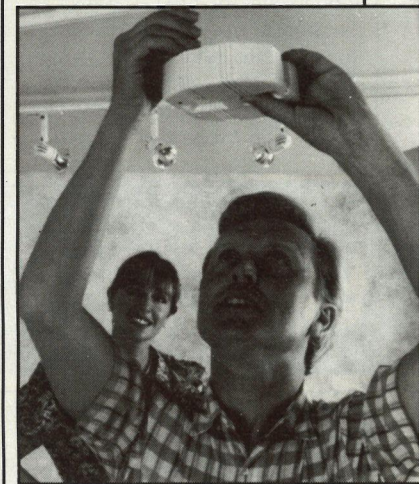
In-built transformation

Powerlite has introduced a compact transformer which fits directly onto the track of its range of Microlux low voltage track lighting system.

The company has designed the transformer to be of minimal weight and aesthetically compatible with the design features of the light fittings. It is also small enough to fit onto the track to allow the supply to be taken from the nearest local source.

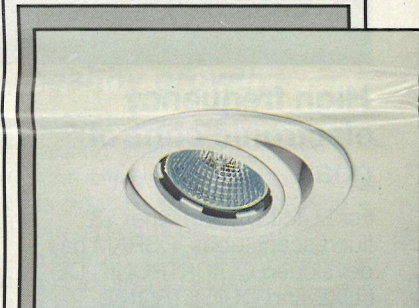
The installer is therefore said to be provided with maximum flexibility in the choice of siting positions.

The Microlux range of 12 volt



tungsten halogen lighting is available in track, downlighter or eyeball form and is suitable for enhancing showroom, shop window and display facades where colour rendering is of prime importance.

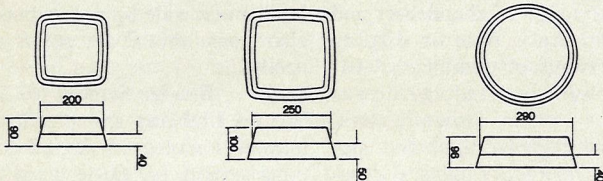
Reader Service No. 241



Linolite has launched its Minilite range of low voltage downlights for display applications. They are supplied with Sylvania Professional Deluxe lamps for a high light output. **Reader Service No 242**

ACRILUX

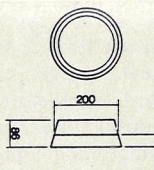
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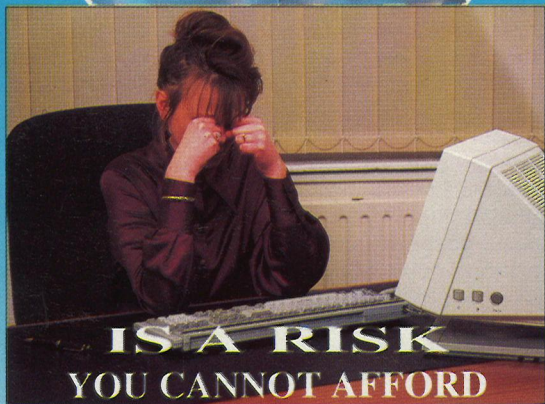
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Reader Service No. 9

BAD LIGHTING



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As from 1st January 1993 companies must comply with the new EC legislation on lighting for VDU work stations.

MBM now manufacture louvres to comply with the EC directive/CIBSE LG3 categories 2 and 3.

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Reader Service No. 10
Page 12



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Reader Service No. 11

Patrick Grady, technical director of Nuvotem Teo, looks at the challenges and opportunities created by the development of low voltage and metal halide technology

Lighting transformed

The growing requirement for 'designer' accent and display lighting in shops, offices, hotels and homes has driven the lighting industry forward on both the technical and commercial fronts.

The development of low-voltage and metal halide technology in recent years has provided the industry with one of its most exciting and challenging opportunities to create equipment which will make possible the design of subtle, attractive and effective lighting schemes.

While these changes have provided new options for architects and interior designers they have brought technological challenges to the lighting equipment manufacturer. The application of specially designed toroidal and electronic transformers to help to meet these challenges is explained in this article.

The problem of how to design more compact light fittings and then source the smaller components required to fit into them had to be overcome. One technical problem, that of finding a power transformer small enough in size yet big enough in performance for low voltage equipment has been solved by leading toroidal transformer manufacturer Nuvotem. The 'in house' manufacturer of cores from the highest grades of steel in conjunction with vast experience and expertise in core winding techniques enables the company to offer an infinitely variable choice of diameter to height ratios. For example a 50VA toroid can be built with either a 60mm diameter or a height of 20mm. As long as the cross sectional area of the toroidal core is held constant the diameter and height can be infinitely varied to meet the designer's requirements with the only restrictions being the practical limitation of the winding and insulating machinery, i.e. a minimum centre hole must be maintained to permit the insertion of machinery.

Load and Lamp Life

Low voltage tungsten halogen lamps are very voltage sensitive and a slight change on voltage can cause a significant change in lamp life. The transformer specified for a particular application must have an output suited to the load requirement – for example a 60VA transformer is used with three 20W lamps, whereas three 35W-lamps require a unit of 105VA.

Under or overloading the transformer will effect lamp life. Lamp manufacturers recommend a nominal voltage of 11.8V and point out that lamp life is enhanced when the operating voltage is kept slightly below 12V. A 5% lower voltage will increase lamp life to 190% while only decreasing light intensity by 7%. Nuvotem low voltage lighting transformers provide an output voltage of 11.8V to the lamp(s) at nominal input voltage and loading. The guaranteed maximum production variance of +1% ensures that the maximum voltage reaching the lamp(s) will never exceed 12V at nominal input. (See fig 1)

An underload will result in too high a voltage across the lamp(s) in a system. Typically a 5% over-

voltage will cut lamp life by 50% and it is therefore essential to undertake prompt replacement of failed lamps in single transformer multi-lamp installations. Overloading the transformer causes it to run at an abnormally high temperature resulting in output under-voltage which in turn caused the filament to oxidise. This degrades light quality and reduces lamp life.

Efficiency

Energy conservation is an important consideration. Since heat loss represents lost energy, cool operation is essential. Generating a nominal 0.4W of heat per square inch surface area, the average typical temperature rise of a toroidal transformer at full load is in the region of only 50°. Toroids thus operate significantly cooler than conventional transformers and are able to offer efficiencies exceeding 90%. Hence the torodial transformer is efficient in energy consumption, directing the power to create increased light output and not heat.

The toroid might well have been planned with low voltage appliances in mind with its centre hole mounting, low centre of gravity and capability for encapsulation into light fittings, combining to allow easy mounting.

Much confusion exists over the safe use of toroidal transformers in a lighting system which incorporates a dimmer. This is due to the prevalence of poor quality toroids or resistive type dimmers. The toroidal transformer as an inductive component must only be used with an inductive type dimmer. Inductive dimmers are currently widely available and competitively priced.

Due to the higher currents in the output side of a low voltage transformer the resistance of the leads must be considered. Current flowing in the output windings may be 15-20 times greater than the input current. A variance in output voltage of 5% causes a reduction of 15% in the luminous flux and therefore the output connecting cables should have a thick cross-section to minimise voltage drop across the cable resistance. All low voltage connections must consequently employ reliable, high quality and secure joints.

Iron power toroids are ideal in applications such as light dimmers or motor controls, where radio frequency interference generated by semiconductors like thyristors needs to be suppressed.

Nuvotem has developed a range of RFI suppression chokes consisting of single-layer windings offering excellent noise characteristics and available with current ratings up to 20A. Additionally available is a range of chokes specifically intended for light dimming applications up to 500W, and meeting BS800 suppression limits.

The control of quality to meet the stringent requirements of many low voltage lighting applications cannot be overstressed. The Cenelec Certification Agreement (CCA) procedure to Euro Norm EN 60742, which covers safety isolating transformers for general use is now the accepted European standard. EN 60742 is the European successor to IEC 742, the national German VDE

0551 and the British BS 3535 standards.

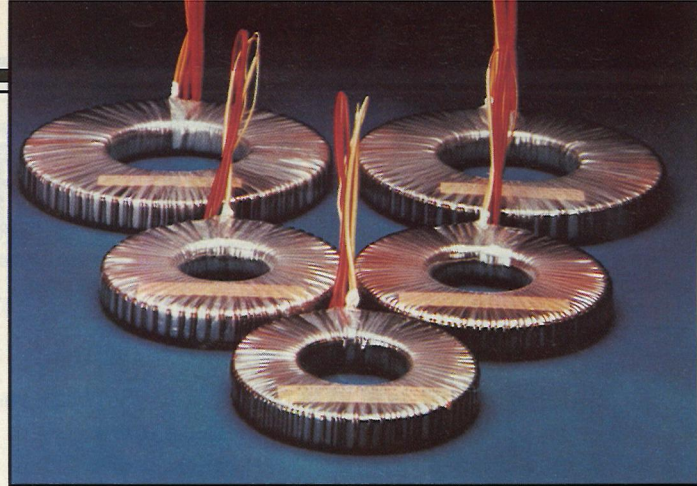
During 1992 Nuvotem gained this international approval, a fact that is exceptional since the products concerned are both toroidal and non-inherently short circuit proof. The company is consequently one of the first toroid manufacturers in the world to provide an objective solution to the ever increasing industry demand for genuine verifiable reliability and safety standards. The company is now in a position to supply approved CCA certified transformers, a substantial improvement over the arbitrary "conforms to" statement which is the best most manufacturers are

able to offer. The approved product range includes 50W to 300W power ratings with specific voltages for low voltage lighting applications.

Other customer-specific transformers for different applications can be added within reasonable time limits. The CCA scheme implies that approvals granted by specific CENELEC member must be accepted by all other CENELEC countries without full repeat testing to local standards. Nuvotem received the CCA from CEBEC the national Belgian Certification Body after certification tests carried out by the C.L.E.(Central Laboratory for Electricity, the National Belgian Test House).

The granting of this European certificate coincides with the equally successful conclusion of the Underwriters Laboratory (USA) test to the UL 506 standard. The UL certificate covers the complete existing and future Nuvotem product range and allows display of the 'UL recognised' logo on all product labels.

An alternative solution is the use of high efficiency electronic



transformers developed for low voltage lighting applications.

Typical of the Nuvotem product range is the HaloQ FSL60, a 60VA transformer which provides an 11.7V RMS output at a frequency of 30 kHz, modulated at 100Hz, from 230/240V nominal 50Hz mains inputs, making it ideally suited to driving low voltage halogen lamps of 20, 35, 50 or 60W.

These low loss transformers offer an efficiency exceeding 90% and an average temperature rise of only 30°C at full load. They fully comply with CIPSR 14, BS 800 and EN55011 RFI/EMI shielding standards.

Torodial transformers from Nuvotem.

Incorporation of a primary fuse, thermal cut-out and overload protection enables transformers to sustain a continuous output short circuit, thus ensuring ultra-safe operation. A current limiting (soft start) facility is also provided. Designed to fit standard 40mm lighting fitting apertures, these transformers typically employ integral low voltage output flying leads configured axially to allow convenient (feed through) from mains input to the output lamp terminals.

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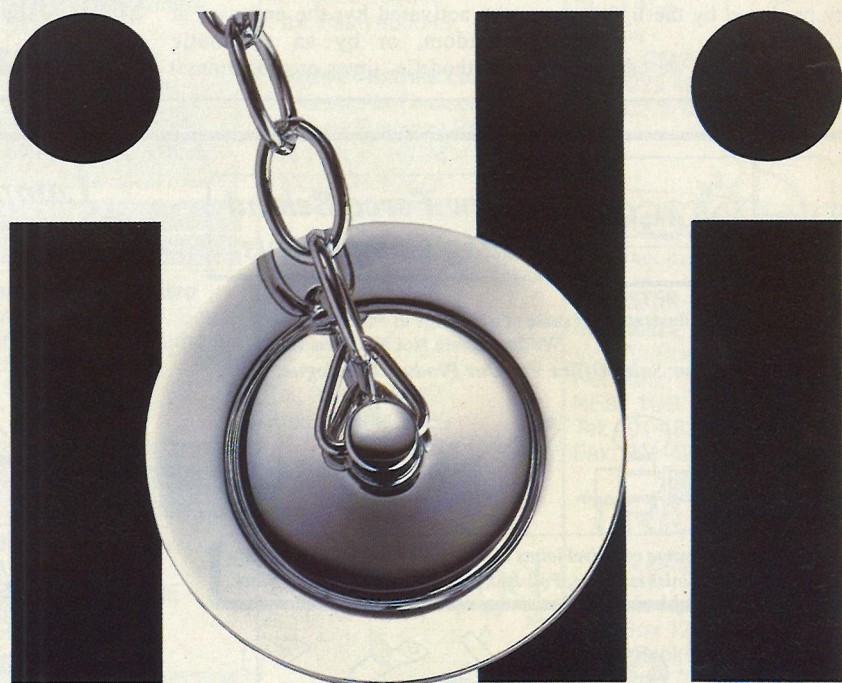
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**Reader Service No. 12
Page 13**

The SMART way to save energy

*Michael Blowman explains a new development in control technology

With ever increasing obligations being placed on designers, consultants, installers and end users to incorporate intelligent lighting control systems in non domestic installations, the need for practical, innovative and cost effective control systems has never been greater.

With EEC directives linked to health & safety in the workplace (computer work), CIBSE codes of practice and proposed legislation to be incorporated into Building Regulations; lighting controls are now firmly in the spotlight.

Whilst progress has been made in increasing the efficiency of light sources and in providing luminaires and/or reflective surfaces with increased lumen output this is still only a small part of the efficiency and energy saving that the environment demands.

Until now technology has been slow in reacting to the real needs of the lighting industry due to the limitations imposed on it by the lack of suitable control gear and control systems.

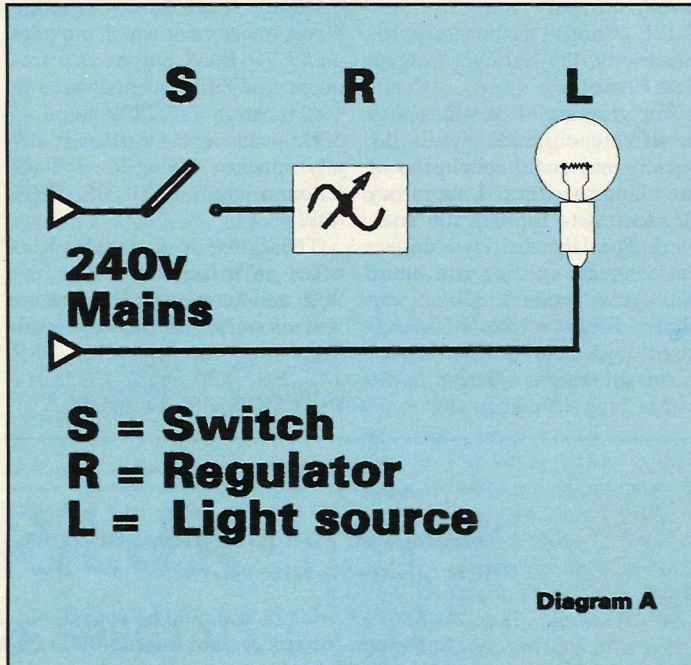
Control principles

In order to illustrate the principles used in all systems of lighting control reference should be made to Diagram A which schematically represents a typical lighting circuit.

The switch (S) is the element which carries out the desired function (command); in this case the switching on or off of the light source.

The regulator (R) represents the controller or dimmer which varies the electrical power transmitted to the light source (L) thus creating a variation of the intensity produced by the light source (L).

In Diagram B we can see that



Schematic of a typical lighting circuit

the two elements of command and control are shown as S (Switch) and R (Regulator). These however are not always present together which means that if we remove the element of command (S) (See Diagram C) the regulator (R) can only assume a command function if the dimmer is at the 100% level of light intensity. i.e. switch ON dictates the light source is at 100% after which dimming can occur.

Far more frequently the situation shown in Diagram D is what is seen, where the control of the light source is merely a function of the Switch (S) i.e. all-nothing ON-OFF.

The Command function is linked to the actuators which in compatibility with the electrical circuit allow the lighting circuit to be activated by; the end user at random, or by an automatic method (ie. timer or programme)

or by a more sophisticated piece of computer software, or human presence detector or even any other event which necessitates the switch on or off the lighting circuit.

The Control function however is governed by the equipment which will produce the change in electrical power to the light

Manufacturers of light sources have made substantial progress in finding solutions which give energy savings

source. Such equipment programmes or predefines this regulation of the electrical power assuming the maximum intensity is defined as 100%.

This type of equipment can only be potentiometers, where the desired percentage of light intensity is selected manually from one and only one location, or light sensors (photocells) such that there is a variation of light intensity either according to the presence of natural ambient light or a request for an increase in light output from light sources that have become dirty or old in age.

Limitations

All of the above systems for lighting control have severe limitations as in each case the mains supply to the particular light source must be activated at mains voltage by both the Command function and the Control function.

In such a way the amount of cabling for even fairly simple lighting schemes becomes prohibitive, the amount of generated heat in the actuators necessitates very large cabinets (to allow air flow and hence cooling), the noise or humming can often be unwelcome, and more importantly the possibilities for actual saving become limited.

A common answer from the industry has been to propose microprocessor and computer controls within these technological limitations which naturally have proved to be both, costly in hardware and installation, and requiring great levels of expertise for both their implementation and

daily use.

In fact the very sophisticated nature of such systems has meant that the end user is locked into a strait jacket. Should any changes to the systems be desired, repair to any malfunction or indeed update; then the end user is obliged to subscribe to costly annual maintenance, call out fees or both.

These limitations have severely restricted the extend to which energy saving in lighting has been seriously considered by organisations and companies when the financial implications of high capital investment, inflexibility and extended payback periods have generally consigned any proposal to the boardroom dustbin.

Manufacturers of light sources have made substantial progress in attempting to find solutions which give energy savings. Let us consider some of these relatively modern solutions.

The retrofit PL lamp

With its integral electronic ballast it has certain benefits in that a higher output can be achieved at a lower consumption. However, these lamps can only be regarded as a temporary solution in that they cannot be controlled nor indeed, due to their low power factor, do they achieve the energy savings often claimed. In addition their high capital cost – whilst ultimately giving a payback, albeit over a very long period – creates a purchasing resistance from the consumer.

Electronic ballasts

The arrival of the electronic ballast for linear fluorescent tubes will undoubtedly create the basis for real energy savings in commercial applications as a reduction of approximately 25% energy consumption compared to conventional ballasts is achieved merely by its use. It's successor, the high frequency dimmable ballast, gives even better energy saving possibilities as it is able to be controlled via a 1-10v signal so that the addition of a photocell in the control circuit can be used to vary the artificial light purely by a comparative measurement of the available ambient natural light.

Whilst this represents progress the limitation remains that the controller still requires the mains supply, which goes to the light source, to be wired back through itself and/or a mains switch. Hence the cabling installation can become complicated and costly. In addition differing light sources cannot be installed on the same circuit.

Low voltage lighting

Whilst these forms of light source have achieved popularity, particularly with designers and shop fitters they have suffered from the restriction that due to the limita-

Control can be achieved with a switch(s) and/or regulator (R), or with Smart Electric Line 9SEL).

tions of transformers there is a limit as to the number that can be controlled on the same circuit. This has invariably meant that any perceived energy savings have been limited due to part of the energy being dissipated in heat rises in the transformers and by the increased costs of installation.

Switch off to save energy?

Savings of sorts can obviously be achieved by switching off luminaires or reducing the numbers of luminaires in a room.

However, this can hardly be described as progress, as were this the case, a return to candle-power could then be argued to be a perfect solution. When considering any proposal for energy saving in lighting, there should also exist a desire to improve the quality of comfort level for the end user, which means an improvement in the quality of light. In the same way that increased output and efficiency is achieved by providing adequate temperature levels for the working environment; then it is reasonable to assume that the same applies to lighting.

Unfortunately, for too long, the expenditure proposed by consultants (and accepted by clients) in providing comfort levels in heating, ventilating and airconditioning in the workplace has been to the detriment of lighting comfort.

Perhaps this has been due in part to the fact that technology has not provided the answers to the problems of lighting comfort and control.

High frequency electronic ballasts for fluorescent lighting providing flicker free light will go some way to correcting this situation.

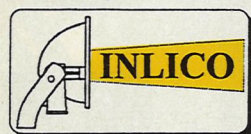
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Smart Electric Line (SEL) represents a quantum leap in control technology and for the first time provides the means to create an infinitely flexible, easily installed energy saving lighting control system, without the need for extensive and costly wiring, bulky control gear, nor indeed high level skill requirements for commissioning or operation.

Diagram E shows that SEL provides the action of command and control for lighting intensity from zero to 100%.

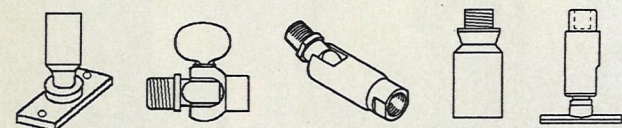
A unique and patented feature is the total separation of the controls side of the system from the mains supply to the luminaires using opto electronics for the command signal transfer.

continued on page 19

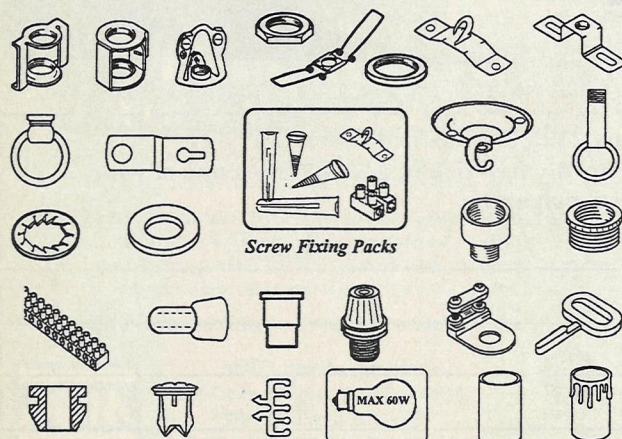


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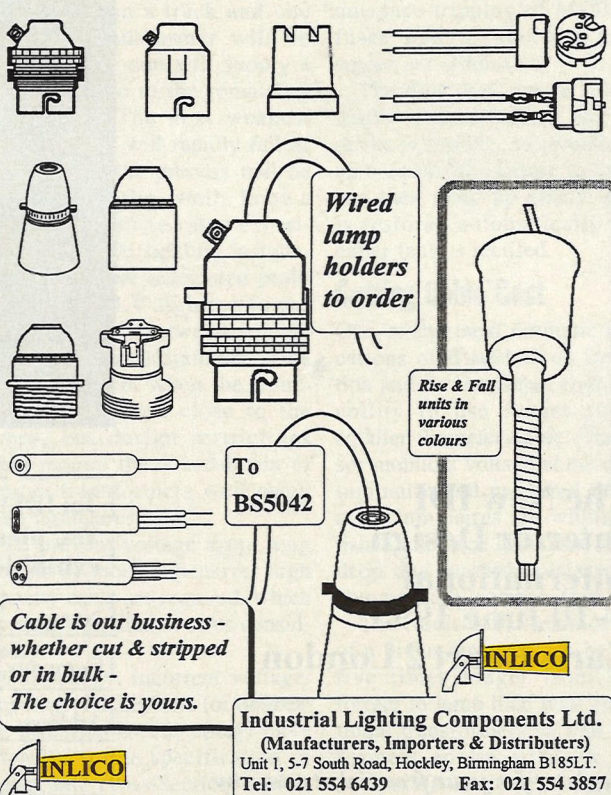
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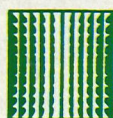


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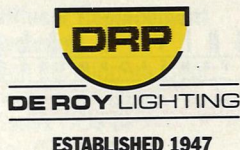
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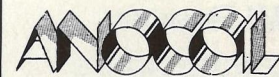
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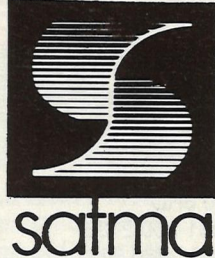
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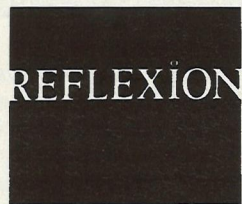


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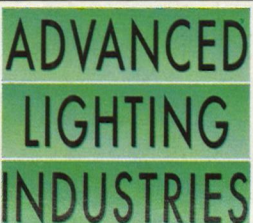
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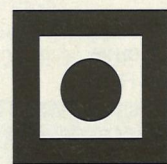
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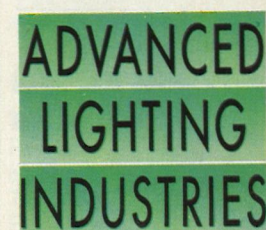
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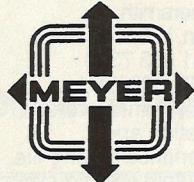
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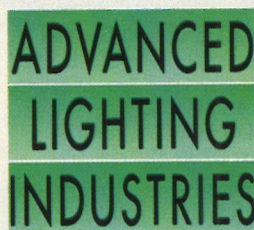
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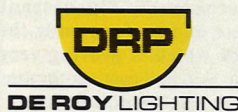
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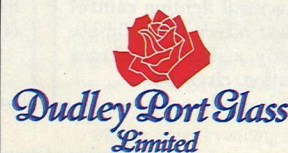


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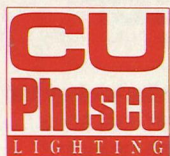


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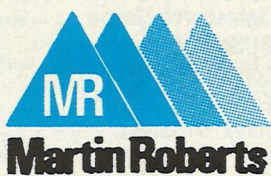
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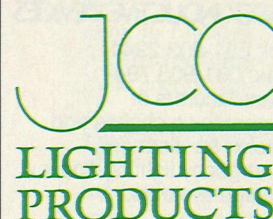
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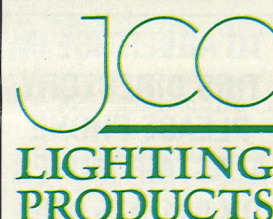


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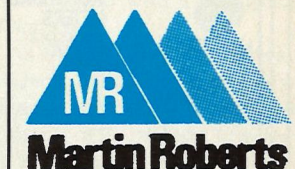
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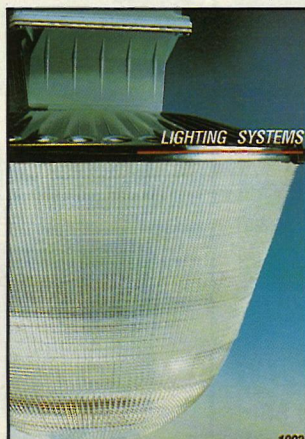
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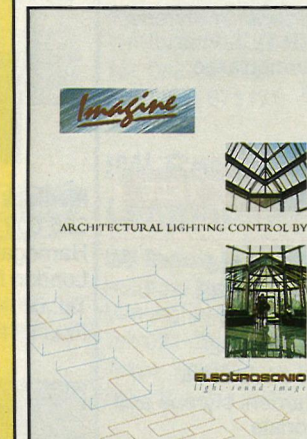
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The UK's leading specialist company in landscape lighting has recently launched a new division aimed specifically at the residential garden lighting market. Pooling the skills of freelance garden lighting designers and recommended installers. Opportunities still exist for freelance lighting professionals, who could make garden lighting their speciality, to join the network of garden lighting advisers to complete the company's national coverage, including London. Exclusive areas, excellent support and training, and significant income opportunities are available to candidates able to fulfil this unusual role.

Please reply with CV and summary of current activities to:
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continued from page 14

This method not only eliminates extensive wiring but allows infinite switching capacity, as many command and control locations as desired, and the use of many difference light sources all on the same circuit.

● Every reduction in Lighting intensity gives a corresponding reduction in electrical energy consumption.

● No noise emission from the dimming elements.

● No heat emission problems from the dimming elements (unlike other dimming systems).

● Virtually no minimum load requirements.

● Fully complies with current and proposed legislation on RFI.

● Infinitely variable (no steps) light intensity control over the whole range.

The system is composed of Din Rail modular elements, making installation relatively simple. The heart of the system is provided by the Master module. This unit whose intelligence level of operation and control is selectable and of course easily changed can 'command' any number of Slave modules.

There is no physical connection required between the Master and Slave modules and provided they are positioned on the same Din Rail the transfer of information is complete.

This means that the 'active elements' (ie. switches, photocells, infra red human presence detectors, potentiometers, remote infra red controllers etc) are connected to the Master via low voltage cable (2 wire bell wire.) Each switch (momentary contact retractable type) becomes a dimmer and ON/OFF switch in it's own right and because it is wired in low voltage (12v) cable is not only safe but also low cost in installation.

● Any 1-10v dimmable electronic ballast can be used for fluorescent lighting control in SEL.

● No limit on the power to be controlled on a circuit - additional Slave units are paralleled as required.

● Simple upgrading or changing of the system without any further changes or work on the luminaires thanks to the Dip switch settings on the Master module.

● Automatic protection against overload or short circuit.

● 1-10v low voltage transformer allows infinite lighting intensity control of an infinite number of fittings on the same circuit.

The system is equally at home with both new or existing lighting schemes and can provide scene setting and energy saving solutions from the simplest to total computer control, with the same basic components - very cost effectively.

This means that where ambient natural light is available energy savings of 50% and more can be achieved. In the case of linear flu-

orescent fittings with an initial 25% energy saving built in, the use of SEL where ambient natural light is available means 50% or more of the remaining 75% (ie. savings in excess of 60%!).

This then begins to achieve the rapid payback periods the financial controllers seek when considering the initial capital expenditure.

In addition the speed of installation (hence reduced installation time and cost), plus a doubling, tripling and even quadrupling of relamping periods added to comparatively low cost components means the envisaged capital costs for considering the installation of a lighting control system are also reduced.

The lighting designer has now less technological restrictions to take into account when preparing a lighting scheme. Should she/he feel that a mix of light sources would create the effect she/he is seeking she/he is now free to follow that path without increasing the schemes cost or time for installation.

The future

As manufacturers develop further 1-10v variable ballasts or transformers then the scope of SEL will increase and allow the control of an ever increasing type and number of light sources.

As the Master module is also equipped with a Superbus circuit (both electrical and optical), the SEL system can be integrated to external elements (Computer or Building Bus). This is performed via a Superbus interface and allows the SEL system to remain open and compatible with other control and energy utilisation systems.

Logically with such a flexible control system the possibilities of providing not only the desired lighting for the work space but also of the surrounding area (with perhaps totally different requirements) is now totally feasible.

In addition the different spectral quality of light can now be used to create the psychological comfort of warm (reddish light) in winter and cool (bluer light) in summer merely by a controlled mix of light sources.

Highlighting areas within retail environments with total flexibility with higher intensities when the stimulation of sales is required is now simplicity itself and does not require the customer to pack the ceiling space with a multiplicity of sources.

As SEL is not just a series of products but a continually developing system other future developments will include interfaces for HQI luminaires, street and stadium lighting and ultimately interfaces for motors in order to integrate the control of heating, ventilating and airconditioning.

Reader Service No. 244

* Michael Blowman is UK general sales manager of Herholdt, manufacturer of SEL.



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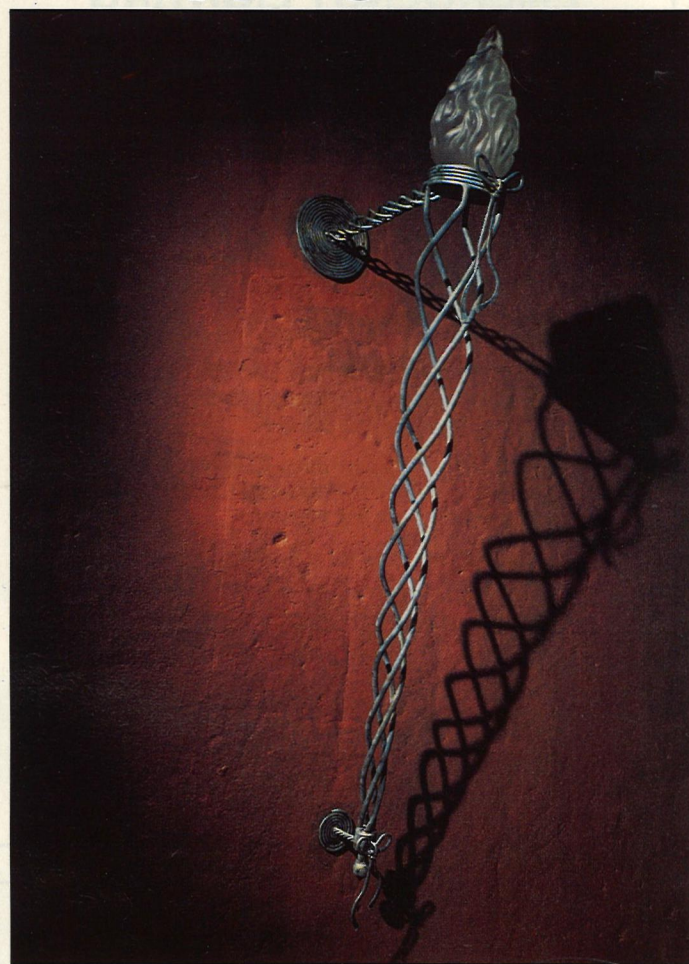


Torches for shopping mall

The new Friar's Place shopping mall in Aylesbury will be making use of an unusual variation on 'street' lighting in key public areas. The outsize torches, manufactured by La Conch, are some three metres in height and comprise an ornate twisted ironwork torch with decorative collar and bow detail to hold a flambeau glass shade.

Produced at La Conch's foundry, each torch is supported by strong ironwork spirals welded to circular coiled backplates at the collar and base and the fitting is completed by a special verdigris finish. As with all bespoke lighting, La Conch produced a full-size prototype for approval before final manufacture.

Reader Service No 245



Furniture show a success for lighting

The new Lighting '93 event, which was run alongside The Furniture Show at Birmingham's NEC in January, was confirmed as a success by decorative lighting companies taking part.

Philip Ireland, sales director at Endon Lighting said: "The stand was very busy with many quality leads over the four days. Most furniture retailers have expressed an interest in stocking lighting products as a natural add-on to traditional lines."

Lawrence Fox of Steeplestone

found that: "The show has exceeded all my expectations, I've taken orders and made good contacts. I'm extremely pleased with the way things have gone."

The overall visitor attendance to The Furniture Show and Lighting '93 was 19,800, an increase of 21% on last year.

Stephen Richards, the show's managing director said: "The feedback we have received both during and since the show indicates clearly that decorative lighting has an integral part to play alongside furniture. We can now concentrate on developing and expanding this event for '94 to provide a one-stop buying shop for retailers of both furniture and lighting."

Reader Service No. 246

EC voltage change

From 1995 the UK will reduce its low voltage public electricity supply systems (which includes domestic) to a nominal 230 volts to harmonise with other European Community countries.

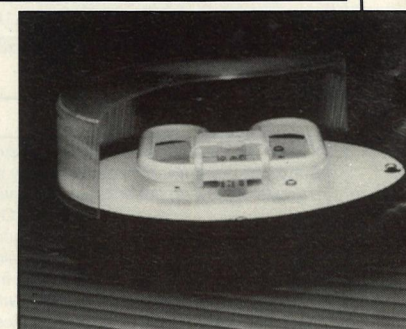
This will mean a reduction from a nominal 240 volts for England, Scotland and Wales, no change for Northern Ireland, and a increase from 220 volts for the rest of the Community. Existing domestic appliances will operate at the new voltage without adjustment.

Safe fittings

The British Standard Kite Mark has been awarded to the Powerlite's Decorlux range of fittings which are designed for indoor and semi-exposed amenity lighting schemes.

The range offers a wide choice of configuration in terms of function and style. They can be used with GLS lamps in instances where there are capital cost restraints, or with low energy 2D fluorescent lamps to give long life and minimal energy costs.

Styles offered include square and round fittings with clear or



prismatic polycarbonate diffusers and black or white bases. The range is available from leading electrical wholesalers and distributors throughout the UK.

Reader Service No. 247

LANDMARKS IN LIGHTING

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LEN / 4 / 93

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IN YOUR NEXT ISSUE

In the next issue of LEN our main feature will be looking at Emergency Lighting, with news on standards, techniques and prod-

ucts. As usual, we'll also be bringing you a range of other articles, along with the regular news and product sections.