Emergency

EGRESS BLADE EXIT SIGN
PAGE 246

EGRESS WEATHERPROOF BULKHEAD
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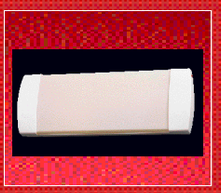
EGRESS DOUBLE SIDED EXIT SIGN
PAGE 247

EMX EMERGENCY LIGHTING
PAGE 251

EGRESS WALL MOUNTED EXIT SIGN
PAGE 248

LIGHTMASTER LM20/LM120
CROSS REFERENCE
GO TO PAGE 253
IN THE LIGHTING MANAGEMENT SECTION FOR PRODUCT DETAILS



EGRESS EMERGENCY BULKHEAD
PAGE 249

Egress

EGRESS BLADE EXIT SIGN

SPECIFICATION

- Elegant rolled anodised aluminium casings.
- Suitable for ceiling or wall mounting; a cantilever bracket for projected wall mounting or a right angle bracket for rigid wall mounting are available to special order.
- Available in white, brass or chrome finish.
- Flame retardant acrylic legend panel.
- Double sided versions available.
- Mains only versions for general signage.
- Maintained, Non-Maintained and Slave versions.
- Utilises 8W fluorescent lamps as standard or 13W to special order.
- Electronic starter on maintained version.
- BESA box mounting facility in suspension /termination box.
- Sign panels now to European Safety Signs Directive, 92/58/EEC.

ORDER CODES

Emergency Unit	
BES/NM/3/1128/#	1 × 8W T5
BES/MA/3/1128/#	1 × 8W T5
BES/MAINS/1128/#	1 × 8W T5

Legend panels *please order separately:~*	
BES/LEER1	Right
BES/LEEL2	Left
BES/LEED3	Down

Double sided Legend panels *add suffix after order code:~*	
/DS	Double sided Legend panel

OPTIONS

Colour *replace # with:~*

Brass	**Chrome**	**White**

Slave *replace /3/ with:~*

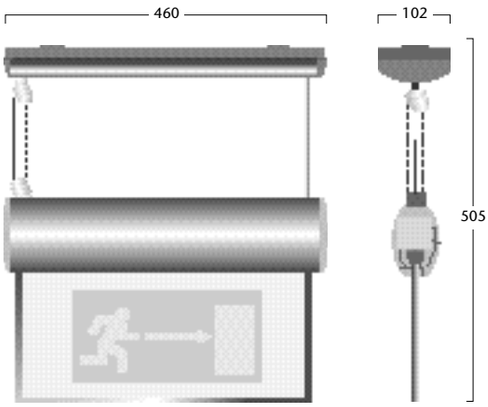
/SL system voltage/ e.g. /SL110V/

Also available in 24, 50 and 110V AC/DC non-maintained, maintained and mains versions for central battery systems.

Accessories *please order separately:~*	
BES/ASB	Angled wall bracket
BES/CWB	Cantilever wall bracket

EMERGENCY

These luminaires can be supplied with automatic emergency test facility as detailed on page 253 Lighting Management LM20 and LM120



NOTE

Legends are to be ordered separately using the order codes on this page only

Double sided panels will have matching legends as standard

Customised legend panels or double sided panels with mixed legends are available to special order

lamps 330

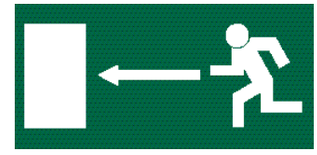
control 253

FEATURES

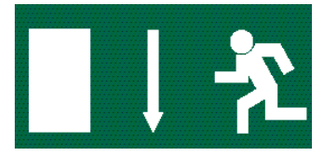
	BES/NM/3/1128/#	BES/MA/3/1128/#	BES/MAINS/1128/#
Mode	Non-maintained	Maintained	Mains only (signage)
Duration	3 Hours	3 Hours	N/A
Normal lamp output	N/A	480 lm	480 lm
Emergency lamp output	180 lm	180 lm	N/A
Input voltage	220/240V 50Hz *(other voltages available see order codes above)*		
Rating	8VA	20VA	16VA
Battery type	High Temperature Nickel - Cadmium 3.6V 4AH		N/A
Recharge time	24 Hours	24 Hours	N/A

Legend panels

BES/LEER 1



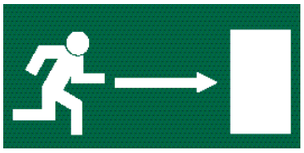
BES/LEEL 2



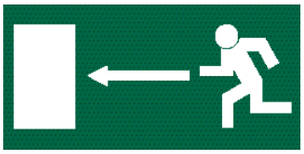
BES/LEED 3

Egress

Legend panels double-sided



DSE/LEER 1



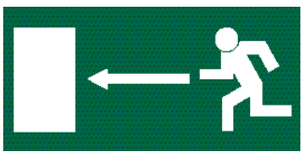
DSE/LEEL 2

DSE/LEED 3

DSE/OPAL/DS Plain opal panel for self adhesive legend kit

Self adhesive options

EBU/LEER 1



EBU/LEEL 2

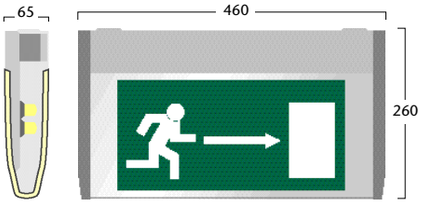
EBU/LEED 3

WBU/LKEE (self adhesive kit)

EGRESS DOUBLE SIDED EXIT SIGN

SPECIFICATION

- Ultra slim profile, double sided design suitable for ceiling mounting only.
- Flame retardant ABS end caps with painted extruded aluminium side rails.
- Available in white, gold or chrome finish.
- Flame retardant opal polycarbonate diffuser.
- Maintained, Non-Maintained, Sustained and Slave versions.
- Utilises 8W fluorescent lamps as standard or 13W to special order.
- Electronic starter on maintained and sustained version.
- BESA box mounting facility.
- Sign panels now to European Safety Signs Directive, 92/58/EEC.



ORDER CODES

Emergency Unit	
DSE/NM/3/1128/#	1 × 8W T5
DSE/MA/3/1128/#	1 × 8W T5
DSE/SU/3/2128/#	2 × 8W T5

Legend panels *please order separately:~*	
DSE/LEER1	Right
DSE/LEEL2	Left
DSE/LEED3	Down

Self adhesive Legend panel *please order separately:~*	
EBU/LEER1	Right
EBU/LEEL2	Left
EBU/LEED3	Down
WBU/LKEE	Selection kit

Double sided opal panels for self adhesive Legend kit
add suffix after DSE/:~

OPAL/DS	Double sided opal panels

OPTIONS

Colour *replace # with:~*

Gold **Chrome** **White**

Slave *replace /3/ with:~*

/SL system voltage/ e.g. /SL110V/

Also available in 24, 50 and 110V AC/DC non-maintained, maintained and sustained versions for central battery systems.

EMERGENCY

These luminaires can be supplied with automatic emergency test facility as detailed on page 253 Lighting Management LM20 and LM120

FEATURES

	DSE/NM/3/1128/#	DSE/MA/3/1128/#	DSE/SU/3/2128/#
Mode	Non-maintained	Maintained	Sustained
Duration	3 Hours	3 Hours	3 Hours
Normal lamp output	N/A	480 lm	480 lm
Emergency lamp output	180 lm	180 lm	180 lm
Input voltage	220/240V 50Hz *(other voltages available see order codes above)*		
Rating	8VA	20VA	20VA
Battery type	High Temperature Nickel - Cadmium 3.6V 4AH		
Recharge time	24 Hours	24 Hours	N/A

NOTE

Legends are to be ordered separately using the order codes on this page only

Double sided panels will have matching legends as standard

Customised legend panels or double sided panels with mixed legends are available to special order

lamps 330

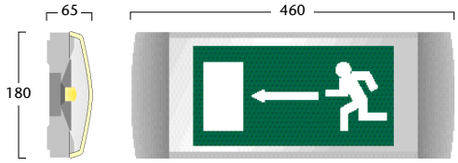
control 253

Egress

EGRESS EMERGENCY BULKHEAD

SPECIFICATION

- Ultra low profile design suitable for wall or ceiling mounting.
- Flame retardant ABS end caps with painted extruded aluminium side rails.
- Stove enamelled, zintec sheet steel wall/ gear plate.
- Available in white, gold or chrome finish.
- Internal reflector for uniform light distribution.
- Flame retardant opal polycarbonate diffuser.
- Can be used as an ultra slim/ exit sign with self adhesive legend kit.
- Maintained, Non-Maintained and Slave versions.
- Utilises 8W fluorescent lamps as standard or 13W to special order.
- Electronic starter on maintained version.
- BESA box mounting facility.
- Sign panels now to European Safety Signs. Directive, 92/58/EEC



ORDER CODES

Emergency Unit	
EBU/NM/3/1128/#	1 × 8W T5
EBU/MA/3/1128/#	1 × 8W T5

Legend panels *please order separately:~*	
WES/LEER1	Right
WES/LEEL2	Left
WES/LEED3	Down

Self adhesive Legend panel *please order separately:~*	
EBU/LEER1	Right
EBU/LEEL2	Left
EBU/LEED3	Down
WBU/LKEE	Selection kit

OPTIONS

Colour *replace # with:~*

Gold	Chrome	White

Slave *replace /3/ with:~*

/SL system voltage/ e.g. /SL110V/

Also available in 24, 50 and 110V AC/DC non-maintained and maintained versions for central battery systems.

EMERGENCY

These luminaires can be supplied with automatic emergency test facility as detailed on page 253 Lighting Management LM20 and LM120

NOTE

Legends are to be ordered separately using the order codes on this page only

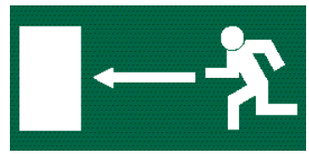
Customised legend panels or double sided panels with mixed legends are available to special order

FEATURES

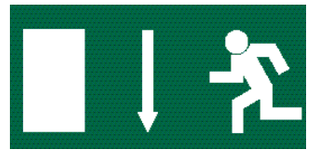
	EBU/NM/3/1128/#	EBU/MA/3/1128/#
Mode	Non-maintained	Maintained
Duration	3 Hours	3 Hours
Normal lamp output	–	480 lm
Emergency lamp output	180 lm	180 lm
Input voltage	220/240V 50Hz *(other voltages available see order codes above)*	
Rating	8VA	20VA
Battery type	High Temperature Nickel - Cadmium 3.6V 4AH	
Recharge time	24 Hours	24 Hours

Legend Panels

WES/LEER 1

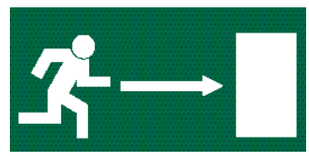


WES/LEEL 2

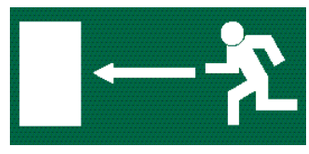


WES/LEED 3

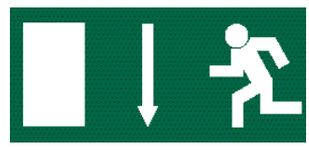
Self adhesive options



EBU/LEER 1



EBU/LEEL 2



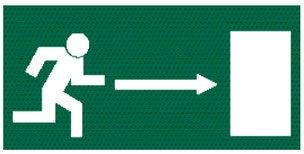
EBU/LEED 3

WBU/LKEE (self adhesive kit)

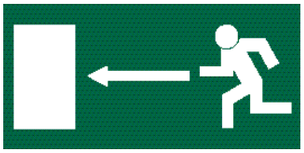
Egress

EGRESS WALL MOUNTED EXIT SIGN

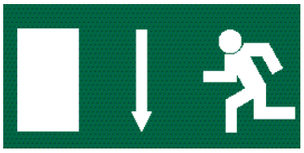
Legend panels



WES/LEER 1



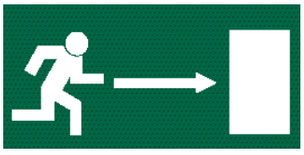
WES/LEEL 2



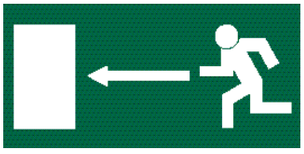
WES/LEED 3

WES/OPAL Plain opal panel for self adhesive legend kit

Self adhesive options



EBU/LEER 1



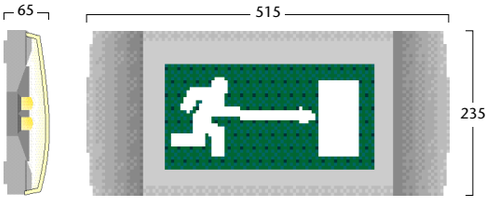
EBU/LEEL 2

EBU/LEED 3

WBULKEE (self adhesive kit)

SPECIFICATION

- Ultra low profile design suitable for wall or ceiling mounting.
- Flame retardant ABS end caps with painted extruded aluminium side rails.
- Stove enamelled, zintec sheet steel wall/gear plate.
- Available in white, gold or chrome finish.
- Internal reflector for uniform light distribution.
- Flame retardant opal polycarbonate diffuser.
- Maintained, Non-Maintained, Sustained and Slave versions.
- Utilises 8W fluorescent lamps as standard or 13W to special order.
- Electronic starter on maintained and sustained version.
- BESA box mounting facility.
- Sign panels now to European Safety Signs Directive, 92/58/EEC.



ORDER CODES

Emergency Unit	
WES/NM/3/1128/#	1 × 8W T5
WES/MA/3/1128/#	1 × 8W T5
WES/SU/3/2128/#	2 × 8W T5

Legend panels *please order separately:~*	
WES/LEER1	Right
WES/LEEL2	Left
WES/LEED3	Down

Self adhesive Legend panel *please order separately:~*	
EBU/LEER1	Right
EBU/LEEL2	Left
EBU/LEED3	Down
WBU/LKEE	Selection kit

Plain opal panel for self adhesive Legend kit	
WSE/OPAL	Plain opal panels

OPTIONS

Colour *replace # with:~*

Gold	**Chrome**	**White**

Slave *replace /3/ with:~*

/SL system voltage/ e.g. /SL110V/

Also available in 24, 50 and 110V AC/DC non-maintained, maintained and sustained versions for central battery systems.

EMERGENCY

These luminaires can be supplied with automatic emergency test facility as detailed on page 253 Lighting Management LM20 and LM120

FEATURES

	WES/NM/3/1128/#	WES/MA/3/1128/#	WES/SU/3/2128/#
Mode	Non-maintained	Maintained	Sustained
Duration	3 Hours	3 Hours	3 Hours
Normal lamp output	–	480 lm	480 lm
Emergency lamp output	180 lm	180 lm	180 lm
Input voltage	220/240V 50Hz *(other voltages available see order codes above)*		
Rating	8VA	20VA	20VA
Battery type	High Temperature Nickel - Cadmium 3.6V 4AH		
Recharge time	24 Hours	24 Hours	N/A

NOTE

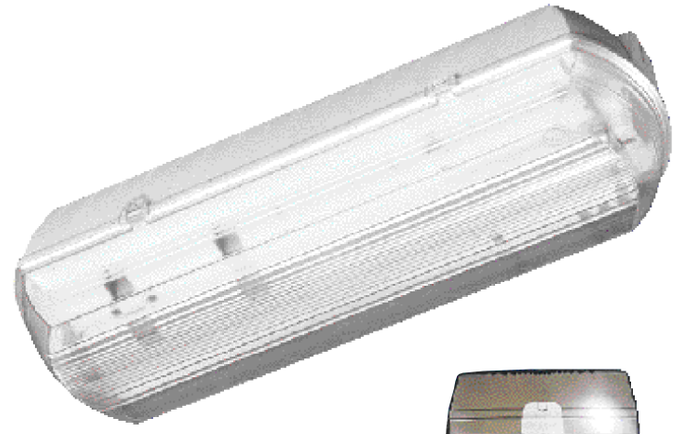
Legends are to be ordered separately using the order codes on this page only

Customised legend panels are available to special order

lamps 330

control 253

Egress



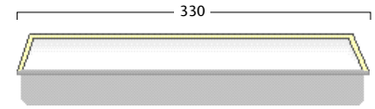
EGRESS WEATHERPROOF EMERGENCY OPAL BULKHEAD

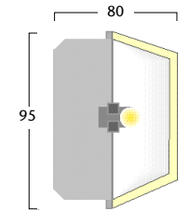
EGRESS WEATHERPROOF EMERGENCY PRISMATIC BULKHEAD

SPECIFICATION

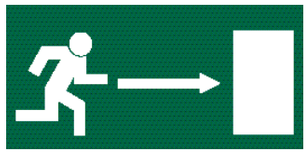
- Wall or ceiling mounted. (Flange and bracket kit available for semi-recessing).
- Flame retardant polycarbonate diffuser with neoprene sealing gasket.
- Sign panels now to European Safety Signs Directive, 92/58/EEC.
- Utilises 8W fluorescent lamps.
- Self-extinguishing, flame retardant base.
- Stove enamelled, zintec sheet steel geartray.
- Available in black or white to order.
- Maintained, Non-Maintained, sustained and Slave versions.
- Electronic starter on maintained and sustained version.

- BESA box mounting facility.
- Self-extinguishing, flame retardant base and geartray.
- Wall or ceiling mounted. (Flange and bracket kit available for semi-recessing).
- Available in white only.
- Maintained and Non-Maintained versions.



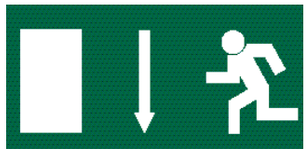


Self adhesive options



EBU/LEER 1

EBU/LEEL 2



EBU/LEED 3

WBU/LKEE (self adhesive kit)

ORDER CODES

Emergency unit	
WBU/NM/3/1128/#	1 × 8W T5
WBU/MA/3/1128/#	1 × 8W T5
WBU/SU/3/2128/#	2 × 8W T5
WPB/NM/3/1128/#	1 × 8W T5
WPB/MA/3/1128/#	1 × 8W T5

Self adhesive Legend panel	*please order separately:~*
EBU/LEER1	Right
EBU/LEEL2	Left
EBU/LEED3	Down
WBU/LKEE	Selection Kit

EMERGENCY

These luminaires can be supplied with automatic emergency test facility as detailed on page 253 Lighting Management LM20 and LM120

OPTIONS

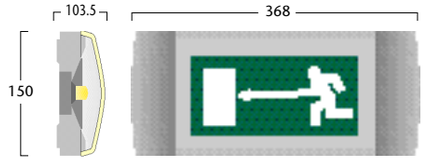
Colour *replace # with:~*

Black (WBU only) **White**

Slave *replace /3/ with:~*

/SL system voltage/ e.g. /SL110V/

Also available in 24, 50 and 110V AC/DC non-maintained, maintained and sustained versions for central battery systems.



FEATURES

	WBU/NM/3/1128/#	WBU/MA/3/1128/#	WBU/SU/3/2128/#	WPB/NM/3/1128/#	WPB/MA/3/1128/#
Mode	Non-maintained	Maintained	Sustained	Non-maintained	Maintained
Duration	3 Hours	3 Hours	3 Hours	3 Hours	3 Hours
Normal lamp output	–	480 lm	480 lm	-	480 lm
Emergency lamp output	180 lm	180 lm	180 lm	180 lm	180 lm
Input voltage	220/240V 50Hz *(other voltages available see order codes above)*				
Rating	8VA	20VA	20VA	8VA	20VA
Battery type	High Temperature Nickel - Cadmium 3.6V 4AH				
Recharge time	24 Hours	24 Hours	N/A	24 Hours	24 Hours

Lamps 330

Control 253

NOTE

Legends are to be ordered separately using the order codes on this page only

Customised legend panels are available to special order

EMX

EMX EXIT SIGN

SPECIFICATION

- Slimline design for wall mounting.
- Stove enamelled zintec sheet steel construction.
- Finished in white.
- Opal self extinguishing polycarbonate legend panel.
- Maintained and non-maintained versions.
- BESA box mounting facility and 20mm cable knockouts on rear and at each end of unit.
- Screen printed legends to European Safety Signs Directive 92/58/EEC, which came into force 24th June 1994 replacing BS 5499 Part 1 (1990).
- Charge monitoring LED.
- 1 × 12" 8W Lamp included.

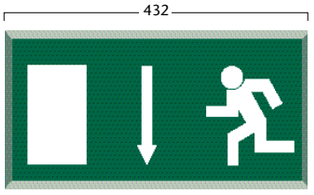
ORDER CODES

White painted Steel Exit Sign including lamp		
EMX/NM3/B	Non maintained	1 × 8W
EMX/M3/B	Maintained	1 × 8W

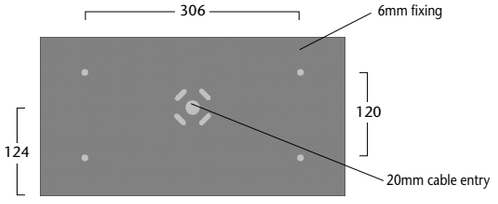
Legend Panels *please order separately:~*	
EMX/LPEX/ES01	Left
EMX/LPEX/ES02	Down
EMX/LPEX/ES03	Right

OPTIONS

Lamps *please order separately:~*	
LAMP/12"	8W

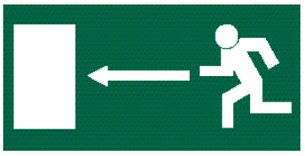


Front view



Back view

Longitudinal view



EMX/LPEX/ES01

EMX/LPEX/ES02

EMX/LPEX/ES03

NOTE

Legends are to be ordered separately using the order codes on this page only

FEATURES

	EMX/NM3/B	EMX/M3/B
Mode	Non-maintained	Maintained
Duration	3 Hours	3 Hours
Normal lamp output	–	480 lm
Emergency lamp output	180 lm	180 lm
Input voltage	220/240V 50Hz	220/240V 50Hz
Rating	8VA	20VA
Battery type	High Temperature Nickel - Cadmium 3.6V 4AH	
Recharge time	24 Hours	24 Hours
Charge monitor	Red LED	Red LED
Cable entr y	BESA in rear – 20mm knockouts both ends	
Environment	0-25˚c IP42 indoor	
Weight Kg	3.4	3.7

Lighting is the single most important factor affecting the peformance of staff in the work place. The ability to provide the right lighting for all tasks and individual needs can only be achieved by using an appropriate lighting management system.

Purchasing lights without controls is very much like having a car without brakes, accelerator, steering wheel or dashboad.

Lighting Management

COMFORT

A lighting management system ensures that light levels can be readily matched to personal needs. This leads to staff having a greater feeling of well being and comfort with the result that they are more productive and less likely to suffer headaches or eye strain.

SAVINGS

There are several ways in which lighting management can generate real savings in time and cost. From the design and installation process right through to the day to day running of an occupied building. During typical installations a remarkable 70% saving in labour time has been achieved. Electricity consumption can be reduced by as much as 75%. Less time on site means less risk; lower running costs means more profit.

MERCHANDISING

Creating the right atmosphere to sell your products is largely achieved by getting the lighting right. Controls will permit the fine tuning of your current concept as well as giving you the opportunity to economically introduce changes as your image alters.

COMPLIANCE

These are all compelling reasons to include a lighting management system in the lighting installation but there are more. In the UK, meeting recent legislative requirements such as EC Directive 90/270 (concerning lighting and Visual Display Screens) and the Building Regulations: Approved Document L (concerning energy efficient lighting) is a further powerful argument. Finally, BS5266 requires the regular testing of emergency lighting ~ a need that will become more imperative with the introduction of European Standards.

In summary, a lighting management system brings added comfort, increased productivity lower costs, higher profits, and compliance. Quite a combination.

PARTNERSHIP

In developing a range of lighting control and management products Whitecroft Lighting have distilled the experience, innovation and accumulated lighting knowledge from Moorlite, Hitech and Simplex. The products have been realised for Whitecroft Lighting by ECS Lighting Controls Limited, who have added their highly regarded network controls skills and support services to the whole package.

So now Whitecroft Lighting is a single source for virtually your entire lighting installation ~ harnessing innovation, quality, aesthetics and technology to produce a truly competitive, complete package.

ECS

LIGHTMASTER 20
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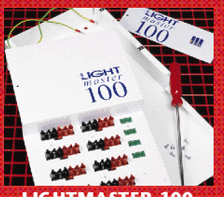
LIGHTMASTER 120
PAGE 257



LIGHTMASTER 100
PAGE 258

WIREMASTER
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COMMAND
PAGE 260

LIGHT*master*
~ the range ~

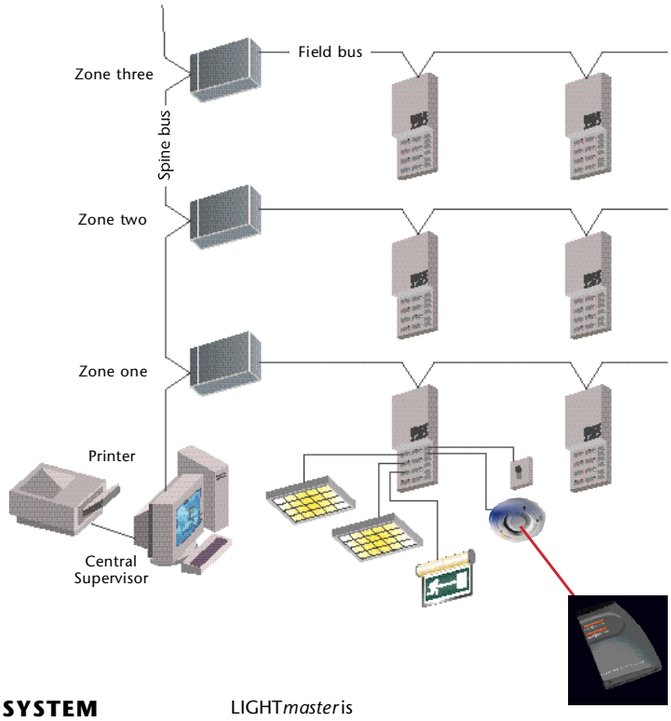
One of the most advanced lighting management systems available anywhere, LIGHTmaster has a graphical user interface that is the envy of the industry.

LIGHT*master* sets new standards in reliability, ease of design, and use; all highly important to designer, installer and end-user. With building use changing regularly, often within months, the expense of reconfiguration is now important to every building operator. The system is specifically designed to facilitate any changes required in the lighting installation through the powerful software suite LIGHT*manager*.

TESTING

Now a comprehensive emergency escape lighting test and management module has been developed: LIGHT*master* 20 is the 'stand alone' version and LIGHT*master* 120 the fully integrated emergency testing and lighting control solution.

Together with this software a range of innovative addressable inverter/charger units have been developed for use in both converted and purpose built, self contained emergency luminaires.



SYSTEM ARCHITECTURE

LIGHT*master* components build into a simple, yet highly flexible networked lighting management and monitoring system. Standard family elements can be tailored to meet the technical and budgetary needs of each project.

Lighting Control and Addressable Emergency Modules are linked together by a data bus, in logical groups of up to 100 units. Typically an individual local network may serve a single floor of a multi-storey building. These networks are then linked to an Area Controller which is in turn connected to the Central Supervisor.

LIGHT*master* is completely unrestricted by the physical wiring connections made on site. Any input can be used to influence any output. Total flexibility without rewiring ~ in a word **'softwiring'.** This facility is particularly useful when fitting out for tenants is required or when periodic alterations are made to partition walls.

THE LIGHT*master* RANGE	
Lightmaster 20	A 'stand alone' emergency and escape lighting automatic testing system.
Lightmaster 100	A fully addressable, computer based, lighting control system.
Lightmaster 120	Integrated lighting control and automatic testing to give a comprehensive lighting management system.

SOFTWARE

LIGHT*manager* is a further evolution of the most powerful, dedicated, lighting management software available.

Monitoring facilities range from simple status indication through to sophisticated event and run time logging. LIGHT*manager* can also help facilitate planned maintenance programmes. The added emergency escape lighting test facility even issues work instruction sheets when it discovers a fault; and identifies exactly where it lies.

Building plans and lighting layouts are imported initially from AutoCAD, or other industry standard packages. These files then become the foundation of the lighting control system's supervisory software.

Simply the most reliable lighting management software available, developed by people who understand both lighting and controls ~ ECS Lighting Controls Limited, who have been working on processor based, networked lighting systems since 1982.

CUSTOMER SERVICES & SUPPORT

Whitecroft Lighting recognise the need to provide full support for life safety systems. Whether seeking advice at the design stage or requesting after sales service, we have an appropriate response to suit your needs. Contact our sales office and we will put you in touch with the right person.

The cost of managing a lighting installation must not exceed the benefits and cost savings it offers. Our Service Division has been set up to meet the needs of Facilities Managers for planned maintenance to get the best out of lighting installations. Regardless of system type our aim is to provide a personal service that will ensure your entire lighting installation is a true asset to your organisation.

~ testing emergency & escape lighting systems ~

Emergency lighting is an essential safety system in buildings today; the occupants must be assured that it is fully operational at all times. This assurance can only be provided if the system is regularly tested and serviced.

STANDARDS

The extent of existing and draft standards defining the requirements to provide effective emergency lighting are an indication of the importance of these vital safety systems. *(Guidance on the provision of emergency lighting is included in the Emergency Section of this publication.)*

It is clear that the standards are seeking increasing levels of illumination which requires the installation of greater numbers of emergency luminaires and exit signs. The standards also require these systems to be tested along with the maintenance of accurate records of the installation, its performance, its servicing and any alterations. The more emergency fittings there are the more labour intensive and time consuming these responsibilities will become.

LEGAL OBLIGATIONS

The records to be kept include:

- full 'as fitted' installation drawings
- a detailed log containing at least,
  - ~ date of commissioning
  - ~ details of every test performed, including date
  - ~ service dates with brief details
  - ~ defect reports and remedial action
  - ~ dates and details of alterations
- annual test certificates

The standard permits these records to be maintained and produced by an automatic testing device.

REGULAR TESTING

The minimum level is defined as:

Monthly: *Carry out a full functional test on all emergency luminaires, exit signs and escape lighting. This test must be long enough for the correct operation of the lamps to be verified and must not exceed 25% of the rated battery duration. On completion of the test there is required to be confirmation at each point that the mains has been correctly restored. In addition any fault conditions must be indicated.*

Annually: *As an extension of the monthly test the emergency lights must remain ON for the full duration of the rated battery life. Indications at the end of the test are as those required monthly*

As an example of the expected requirements to test an emergency lighting installation this information has been summarised from the draft European Standard: prEN 50172 covering Emergency escape lighting systems.

The testing required by BS5266 is essentially the same although an additional six monthly partial duration test is requested. Both standards emphasise the need for these tests to be carried out at a time of minimum risk ~ i.e. when the building is not occupied.

THE COST OF TESTING

Carrying out the record keeping, and regular testing, by traditional means is clearly going to be a substantial and potentially costly task.

Quantifying the cost of testing is not easy but a typical, conservative estimate follows.

EXAMPLE COSTING

A business property containing some 200 self contained, 3 hour duration emergency escape lights which are located in fifteen zones each containing one test keyswitch.

Conducting tests to prEN 50172 using two staff, each costing £20.00 per hour to employ:

Monthly tests take both staff 45 minutes per location. Each monthly test therefore costs £450.00

Annual test (carried out when the building is unoccupied) takes both staff twelve hours to cover the building at premium 'time and half' rates. This test is carried out in phases and requires them to return to each location to check the 3 hour duration has been achieved; then they must reset all keyswitches and return to each fitting to check the 'charge healthy' indicators and log all results etc. Each annual test therefore costs £720.00

The result is that this routine testing ~ without any remedial work ~ costs the building operator at least £5,670.00 every year.

There is now a lower cost alternative. Whitecroft Lighting can provide a comprehensive emergency lighting test and monitoring system from their innovative LIGHT*master* range. (see LM20 & LM120: pages 256 and 257)

LIGHT*master* 20

STAND ALONE EMERGENCY LIGHTING TESTING AND MANAGEMENT

LIGHTmaster 20 is designed to provide the most thorough and convenient method to verify the correct operation of emergency lighting and exit signs, as well as to clearly identify the type and location of any faults.

Applications of this 'stand alone' system are expected to be largely in public buildings ~ shopping malls, airports, museums, galleries and places of entertainment. In fact any building where the public have access and safety is paramount.

BEST PRACTICE

The features and facilities provided by LIGHTmaster 20 are designed to achieve 'best practice', which in turn exceeds all current and draft BS and EN standards. As further requirements are identified the LIGHTmanager software can be simply updated.

/LM20AEM

Along with the Whitecroft Lighting emergency luminaires, LIGHT*master* 20 has three system components which are linked together as illustrated.

ORDER CODES	
LM20PC	The Central Supervisor, based on a standard Personal Computer running MS Windows™95. This unit contains the special system interface card and the LIGHT*manager* 20 Software. The Central Supervisor does not need to be switched on for the system to be operational.
LM20AC	The Area Controller which sub-divides the system into logical 'windows' related to the layout of the building. Each Area Controller allows the connection of a colour printer to produce hard copy reports and work instructions. A system may contain one or many Area Controllers.
/LM20AEM	The heart of the system ~ the Addressable Emergency Modules are built into the Inverter/Battery Charger Units. Each emergency fitting needs to be equipped with one of these units which are supplied exclusively with Whitecroft Lighting fittings.

OPTIONS

This facility can be incorporated into any Whitecroft Lighting luminaire capable of taking standard emergency lighting.

To specify please replace the EM suffix with ATEM.

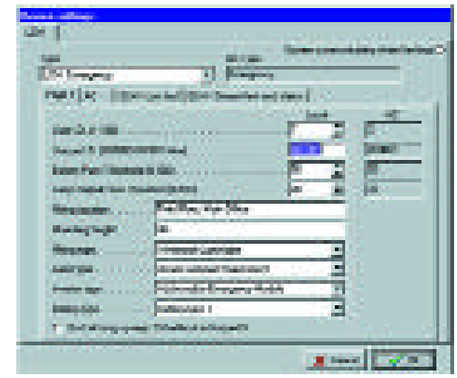
TAKING THE WORRY OUT OF COMPLIANCE

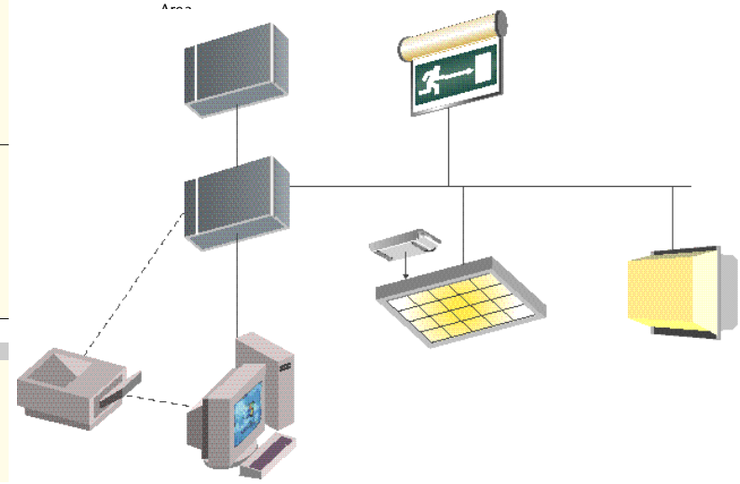
Running a building today is a complex, time consuming task involving considerable responsibilities towards the health & safety of its occupants. As previously illustrated, just complying with emergency lighting test standards can be costly without the right tools. LIGHT*master* 20 virtually looks after the emergency lighting on its own, regularly generating condition reports and precisely targeted instructions for corrective works.

The system even has a record of the mounting height of each fitting so when repairs are required staff know exactly which ladder to take!

The system can be easily programmed to perform tests automatically on set days, at selected times and for any desired period. Or a test can be immediately initiated by the user via the Central Supervisor.

LIGHT*master* 20 ~ quite the simplest, most cost effective, way to look after your emergency lighting. No need to walk around the building looking at each of your emergency fittings ~ just look at the computer screen or colour print out



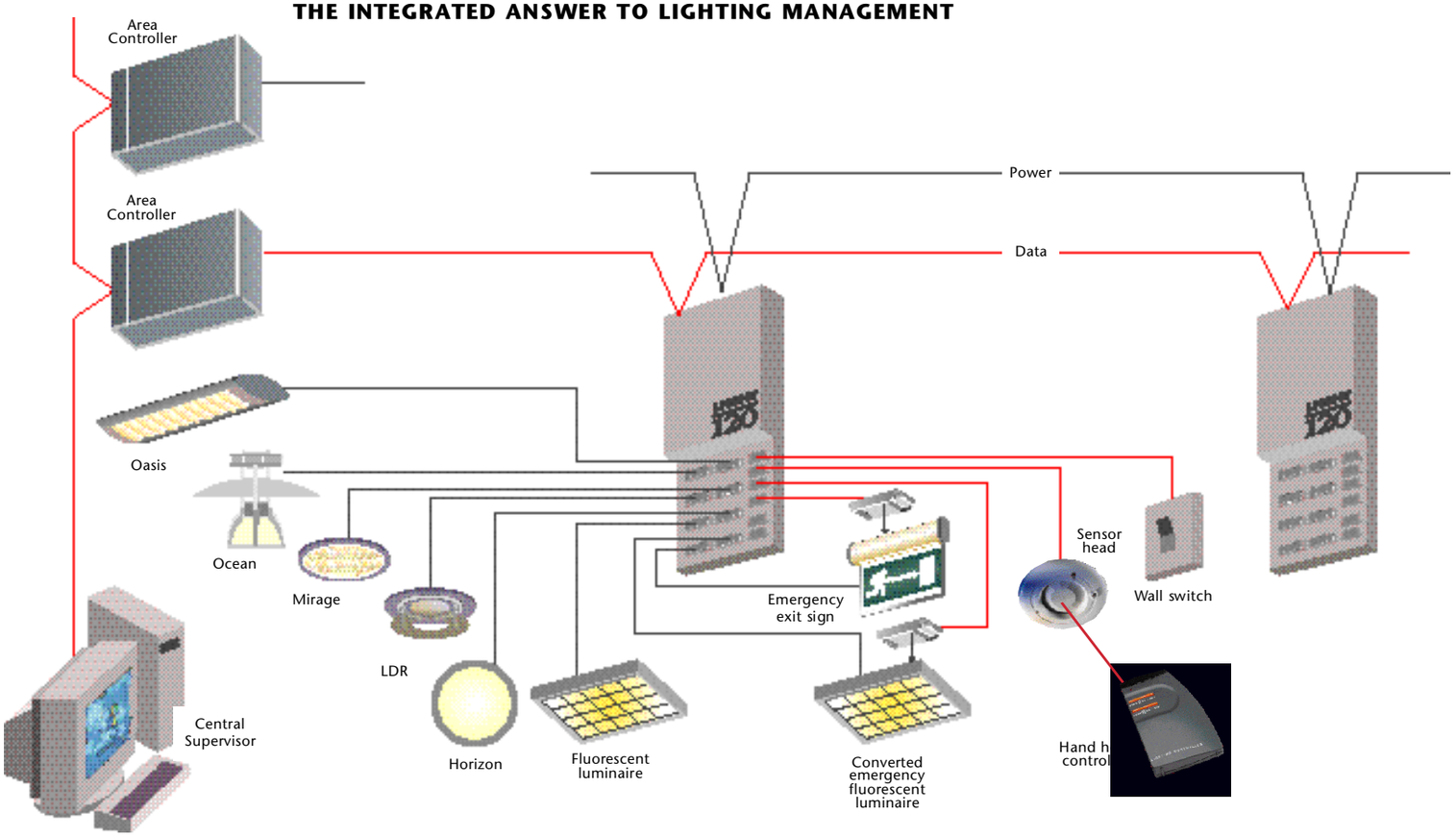


FEATURES	BENEFITS
Fully automatic centralised testing	Labour saving facility provides assurance of compliance and best practice.
Software runs under MS Windows™ 95.	Familiar 'look and feel' lets the user work intuitively and rapidly get to grips with the application.
LIGHT*master* 20 uses the CAD generated building plans.	The location of all emergency lighting fittings and exit signs clearly shown.
Distributed intelligence network.	No need to keep the System PC 'on line' continuously.
LIGHT*master* 20 database contains full details of all emergency fittings.	Full service information available at your fingertips; the system can generate Work Instructions identifying the location, the fault, equipment required and the supplier.
Emergency Lighting Test module generates detailed reports and Work Instructions.	Helps to meet your obligations to demonstrate the health of your Emergency Lighting and alert you to any faults.
Dual LED indicators at every emergency fitting.	Clearly indicates health and status of individual units.

LIGHT *master* 20

LIGHT*master*120

THE INTEGRATED ANSWER TO LIGHTING MANAGEMENT



LIGHTmaster 120 is Whitecroft Lighting's complete answer to lighting management. This networked control and monitoring system is specifically designed to make Whitecroft Lighting schemes more economical to install and own.

Not only is LIGHTmaster 120 able to cope with most of Whitecroft Lighting's self-contained and converted emergency fixtures, but it also offers quite the simplest, most reliable testing and monitoring system for the emergency lighting. A combination that is currently unique in the market place.

LM120 PROVIDES

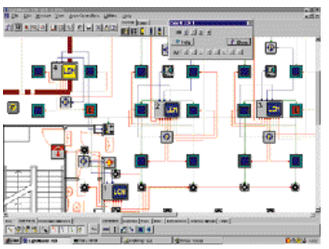
- The most user friendly and intuitive graphical user interface for lighting management available today. All realised in the widely accepted and understood MS Windows™ 95 format.
- Rapid modular installation.
- A full range of central and local control facilities.
- Lamp life monitoring.
- Integrated emergency lighting test.
- Dimming.
- Scene setting.

OPTIONS

This facility can be incorporated into any Whitecroft Lighting luminaire capable of taking standard emergency lighting.
To specify please replace the EM suffix with ATEM.

ORDER CODES

LM120PC	Central Controller and Supervisor based on a standard PC. Loaded with LIGHT*manager*120 software and system interface card installed.
LM120AC	Area Controller; used to sub divide the system into logical 'windows' that reflect the building layout.
LM120LCM8x4P	Lighting Control Module; 8 output, 4 input fully pluggable unit in folded steel enclosure.
LM120LCM4x4HW	Lighting Control Module; 4 output, 4 input, hard wired unit in steel adaptable enclosure.
/LM120AEM	Addressable Emergency Module; built into the Inverter / Charger within the Emergency Luminaire.
	** Additional products available - please contact our sales department.*



FEATURES	BENEFITS
All the features and benefits of LIGHT *master* 20 and 100 plus...	
Common Central and Area Controllers for both controls and emergency lighting test system	Dramatic cost savings when compared to the installation of two separate, dedicated systems.
Bus connection point at each Lighting Control Module	Simple, low cost installation of Addressable Emergency Modules.

LIGHT *master* 120

LIGHT*master*100

ADVANCED NETWORKED LIGHTING CONTROLS

In addition to the system components, Whitecroft Lighting can supply a range of Local Control Devices *(System inputs)*. Products include Light Sensors, Presence Detectors, Infra Red Receivers, either as individual units or in any combination.

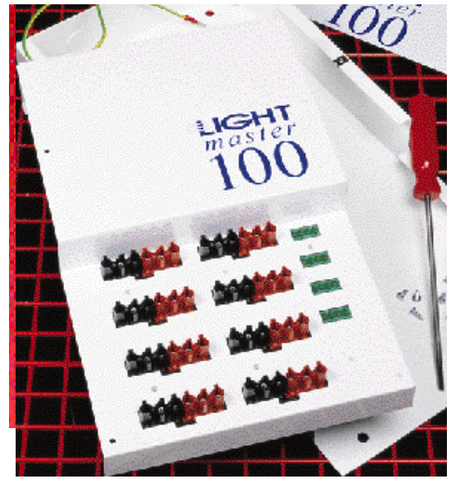
These devices are connected to the Lighting Control Modules enabling the system to manage the lighting according to the current environmental conditions and user demands. System inputs are the sensors, switches and signals that link a LIGHT*master*100 system to the outside world.

Infra Red Receiver in Combined Sensor

FUTURE NEEDS

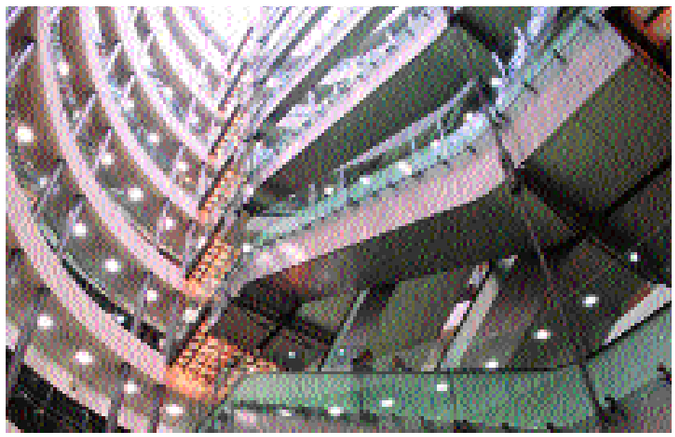
An essential feature of our design philosophy has been the recognition that LIGHT*master*100 will need to be linked to other building control and monitoring systems. The most frequent connection is to *(and from)* the Building Management System. Other logical links can be made to the Security, Fire Alarm, Access, CCTV systems and scene setting equipment. The interface may range from an exchange of volt free contacts, through open protocol gateways to interactive software.

LM100LCM8x4P



LIGHTmaster 100 is a fully addressable, lighting control and installation system designed for major commercial, retail, and public buildings. LIGHTmaster 100 provides all the features expected in a fully addressable lighting control system. Each of the features helps to realise the lighting control benefits expected by designers, installers and users today.

ORDER CODES	
LM100PC	Central Controller and Supervisor based on a standard PC. Loaded with LIGHT*manager*100 software and system interface card installed.
LM100AC	Area Controller; used to sub divide the system into manageable sections that reflect the building layout.
LM100LCM8x4P	Lighting Control Module; 8 output, 4 input fully pluggable unit in folded steel enclosure. Control bus extension facility.
LM100LCM4x4HW	Lighting Control Module; 4 output, 4 input, screw terminal unit in steel adaptable enclosure.
	** Additional products available ~ please contact our sales department.*



FEATURES	BENEFITS
All system inputs and outputs are individually addressed and identified.	Total flexibility during the design, construction and life of the building.
Inputs accept both analogue and digital signals.	Wall switches, infra-red controls, light sensors, presence detectors, and scene setting are all accommodated. In addition user control can be via the telephone or PC network.
Echelon LonWork compatible.	ECS was the first lighting control company to exploit this innovative technology. LIGHT*master*100 now includes the ability to import and export information to other Lonmarked devices. ECS's unique experience means you can have full confidence in LIGHT*master*100; it is ECS's second generation Echelon linked system ~ and ECS is a Lonmark Partner.
Wide choice of Lighting Control Modules.	Makes the system even simpler to apply precisely to suit your application.
LIGHT*manager* 100 - the modular software.	A truly future proof solution; LIGHT*manager*100 has been designed from the outset to accommodate future upgrades and additions.

LIGHT *master* 100

WIREmaster®

THE ROUTE TO LOW COST INSTALLATION

LABOUR COSTS REDUCED DRAMATICALLY

By reducing the materials that need to be handled on site WIRE*master* has shown that overall labour time savings of up to 70% can be achieved compared to conventional methods.

COMMON WIRING TO ESSENTIAL AND NON~ESSENTIAL LIGHTING

Some versions of WIRE*master* can be used to differentiate between designated 'essential' and 'non-essential' lighting eliminating duplicate wiring where standby generators are installed. Further significant material and labour savings are the immediate result.

EMERGENCY LIGHTING

All the Lighting Connection Units provide an unswitched supply for self-contained emergency luminaires. In addition these units may be specified with a mains failure simulation relay that can facilitate the basic testing of emergency luminaires.

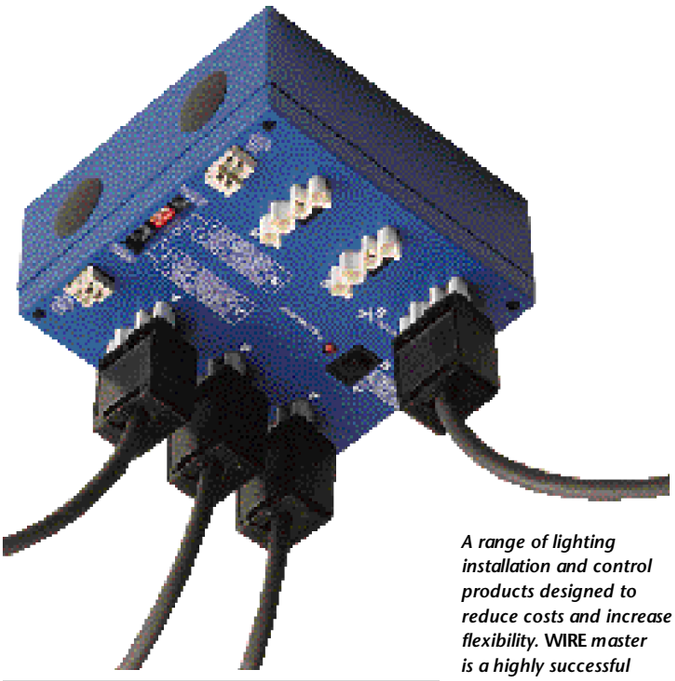
REMOTE CONTROL

Adding an Area Control Unit and a plain cable signal bus to a WIRE*master* installation opens up a number of remote and automatic control options. The simply programmed Area Control Unit allows the connection of manual controls, a Building Management System or dedicated lighting controller. The WIRE*master* Area Control Unit can easily link your lighting to your security system so that as you lock up the lights are automatically set to the pilot level or even turned OFF completely.

LOCAL CONTROL

All WIRE*master* Lighting Connection Units can be switched locally using a conventional **on/off** rocker switch. In most versions the switch input is at Extra Low Voltage (ELV) and these units will also accept the connection of various presence detectors and multi function heads which add light sensing and infra red override.

Basic Lighting Connection Units can be successfully used with luminaires equipped with Command products. (See page 260 for product details.)



A range of lighting installation and control products designed to reduce costs and increase flexibility. ***WIRE*** *master is a highly successful product range that is widely used in office and retail developments to speed up installation.*

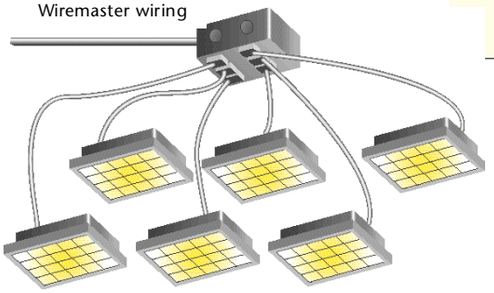
The ***WIRE*** *master range includes a number of different Lighting Connection Units from basic multiple socket outlets to addressable versions with powerful control features. All are simple to install and set to work; and the lighting installation has a built-in flexibility that readily allows it to be altered to suit layout changes. All Whitecroft Lighting luminaires may be specified with flying leads and connectors that plug straight into the* ***WIRE*** *master Lighting Connection Units.*

ORDER CODES	
WM80LCU/M	Basic Lighting Connection Unit with six Wieland ST18/4 luminaire socket outlets and facility to permit two local switch circuits.
WM80LCU/A	Lighting Connection Unit with two, independent, addressable relays, six Wieland ST18/4 luminaire socket outlets and two ELV switch inputs.
WM80LCU/ACL	Lighting Connection Unit with two, independent, addressable relays, six Wieland ST18/4 luminaire socket outlets, two ELV switch inputs and corridor link facility.
WM80ACU	Area Control Unit, a programmable signal generator with 8 independent inputs and 16 control channels plus inhibit facility to define 'essential/non-essential' lighting.
WM80CC	Central Controller, this unit is set up using through connection to a Personal Computer running LightWizard software. A Central Controller can operate up to 16 Area Control Units, each with their own 16 control channels. Automatic control functions are based on both time of day and daylight conditions.

** Additional products available*
~ please contact our sales department.

Conduit wiring

Wiremaster wiring



WIRE master

Command

Whitecroft Lighting's highly successful 'intelligent luminaire' is now available with a wider choice of luminaire and control options. Command can now be used with control gear that dims to a 3% minimum level. In addition a full range of HF ballasts ar e available for T8 and TC-L linear and compact fluorescent lamps.

But development has gone beyond this wider choice to extend Command's ability into more applications and different control options.

INVISIBLE OPERATION

Command is automatically activated when a person enters a space, but the real beauty of Command is that when the space is vacated, rather than just switching off the lights it gradually lowers the lighting level so that there are no sudden changes in illumination.

INDIVIDUAL CONTROL

Although Command offers all the benefits of fully automated lighting control, it also includes individual choice. Command encourages people working in today's office environment to take complete control over their own lighting to suit their individual needs.

MAINTAINED LIGHTING LEVELS

Command automatically maintains the desired light level, as well as taking account of daylight. It also compensates for the age of the luminaire and lamps, avoiding the need for overlighting early in an installation's life.

EASE OF INSTALLATION

Command could not be easier to install, set and operate. Most Whitecroft luminaires can be factory fitted with the selected Command components. The quadrant shaped 'eye' is integrated into the louvre and incorporates a passive infra red detector which automatically recognises the presence of people, and a photocell to automatically adjust the light output.

Finally, why not use the basic WIRE*master* Lighting Connection Unit to further speed your installation.

INDEPENDENCE

The key to Command is the optional hand held controller. Press 'off and dim' or 'on and brighten' to set precise levels of lighting that will be memorised and adhered to every time the space is occupied.

FLEXIBILITY

Since there are no switch wires, any change in the way the office is planned is automatically matched by Command without re-wiring. And with each individual luminaire easily set to anyone's preferred lighting level staffing changes are also accommodated.

WIDER CHOICE

The Command Lite is a compact light sensor that clips onto either the lamp or louvre. Setting is simply done by selecting the appropriate DIL switch.

Command Master, Slave and Base versions are equipped with plug and socket connections to speed installation.

ORDER CODES

	Add suffix:~
/COM2	Intelligent 'quadrant' eye and control unit, installed in an individual luminaire. Full function unit with PIR occupancy detector, light sensor and infra red receiver.
/COM2M	Intelligent 'quadrant' eye and control unit, installed in a master luminaire with 5 core cable link to up to three satellite luminaires. Full function unit with PIR occupancy detector, light sensor and infra red receiver.
/COM2S	Satellite luminaire equipped with 5 pin socket to accept output from master luminaire.
/COM2L	Command Lite; a compact, economical, light sensor that automatically adjusts the luminaire output to one of three set levels; high ~ 600 lux, medium ~ 500 lux, and low 350 lux. The unit also compensates for daylight.
/COM2B	Command Base; a 'stand alone' ceiling mounted PIR occupancy sensor providing automatic presence detection. Suitable for use with any HF equipped luminaire.

COST SAVINGS

Electricity
Command's presence detector switches out lights when people forget, saving up to 35% in energy costs. Command's light sensor reduces the luminaire output when daylight is available. This can save a further 30% in energy costs and extend lamp life.

Installation
Because Command eliminates the need for switch wiring, substantial savings in labour and materials can be made particularly when using Command in refurbishment projects in existing installations.

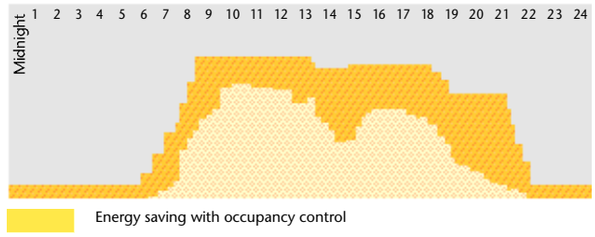
Maintenance
The nature of maintained light levels means that no unnecessary energy is expended overlighting areas. This, in turn, extends lamp life, with the result that less office maintenance time is required to change lamps.

Control techniques

GETTING THE MOST OUT OF DIMMING HF BALLASTS

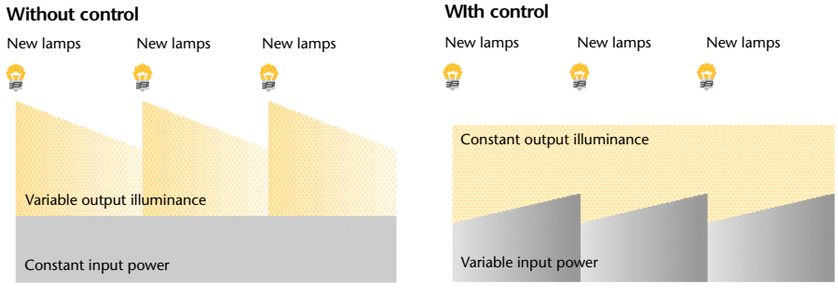
OCCUPANCY DETECTION

When a person walks into a room, their movement triggers the switch and turns on the light. And when Command detects that there has been no movement within its field for a set period of time, it gradually lowers the level of light, so as not to disturb other people close by. Finally Command switches off the light completely.



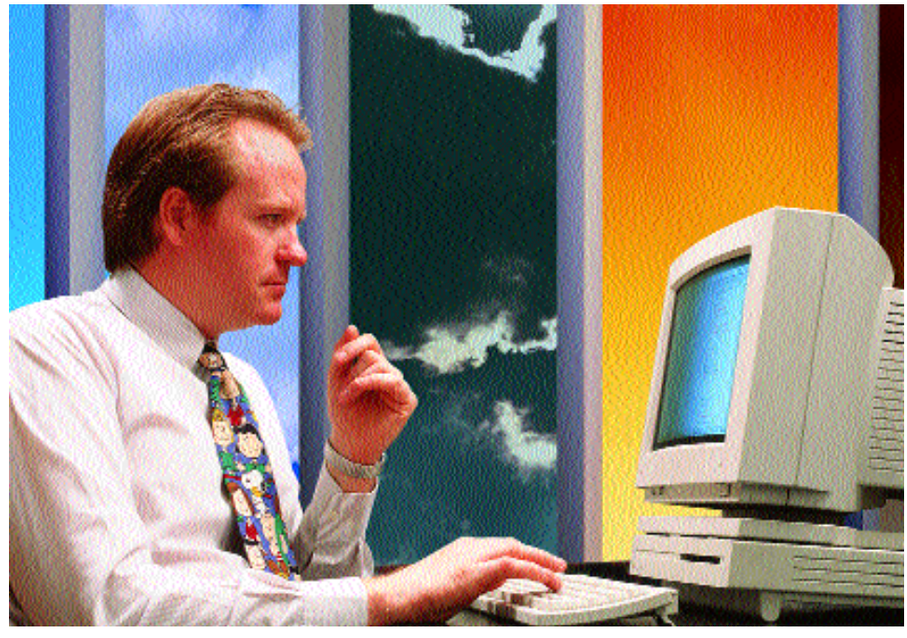
LUMINAIRE LIFE CYCLE COMPENSATION

Ordinary lighting systems use the same amount of power throughout the life of the lamp and luminaire. This means that new fittings are discernably brighter than old ones. A controlled luminance level can be maintained throughout the life of the lamp. The power is reduced when the lamps are new to maintain the correct lighting level, and automatically increased to compensate as the lamp ages.



AUTOMATIC ADJUSTMENT TO DAYLIGHT

There is an extra dimension to the quality of the working environment that has an effect on the levels of light ~ mother nature. If the sun is pouring through a window, there is less need for artificial light. By the same token, if the sky darkens and the heavens open, there is going to be a greater need for lighting. Lighting management systems can automatically take daylight levels into account and adjust the artificial lighting accordingly.



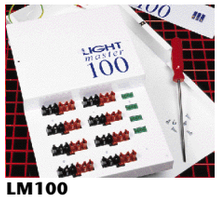
Product selector

The table is intended to give the designer an indication of the possible applications together with an idea of the control facilities available.

APPLICATION	KEY REQUIREMENTS	SOLUTION				
		Command	*Wiremaster*	*LM20*	*LM100*	*LM120*
OFFICE DEVELOPMENTS						
CORE AREAS	1. Lighting to be maintained during all occupied periods for safety and security.		†		✓	✓
	2. Centralised control and monitoring available to building manager.				✓	✓
	3. Emergency lighting test and monitoring.		†	✓	†	✓
OPEN PLAN OFFICE AREAS	1. Highly flexible installation to allow rapid, low cost, alterations to suit changing needs.	✓	✓		✓	✓
	2. Provision of local overrides to comply with The Building Regulations 1991: Approved Document L.	✓	✓		✓	✓
	3. Management of interior illumination to maintain comfort, including daylight linked operation.	✓	†		✓	✓
	4. Emergency lighting test and monitoring.		†	✓	†	✓
PRIVATE OFFICES	*As Open Plan above plus*					
	1. Allow user to select lighting level to suit individual tasks.	†	†		✓	✓
	2. Emergency lighting test and monitoring.		†	✓	†	✓
CONFERENCE ROOMS	1. Provide facility to alter lighting mood and level.				✓	✓
INDUSTRIAL/MIXED DEVELOPMENTS						
OFFICE AREAS	*As for Office Developments above*					
OPERATIONS AREAS	1. Match lighting to activity levels. Ensure only active production lines are fully lit.		†		✓	✓
	2. Control and monitor lighting costs.				✓	✓
	3. Provide reduced lighting facility for maintenance and cleaning periods.		✓		✓	✓
	4. Emergency lighting test and monitoring.		†	✓	†	✓
WAREHOUSE	1. Manage lighting according to shift patterns and occupancy levels.		†		✓	✓
	2. Adjust lighting levels according to available daylight.		†	✓	✓	✓
	3. Emergency lighting test and monitoring.		†	✓	†	✓
RETAIL DEVELOPMENTS						
MALLS	1. Lighting to be maintained during all occupied periods for safety and security.		†		✓	✓
	2. Centralised control and monitoring available to building manager.				✓	✓
	3. Emergency lighting test and monitoring.		†	✓	✓	✓
	4. Operational flexibility to suit seasonal shopping patterns		✓		✓	✓
	5. Alter lighting to assist special promotions.				✓	✓
	6. Reduce lighting levels during maintenance periods.		✓		✓	✓
	7. Match lighting "scenes" to external conditions.				✓	✓
SALES FLOORS	As above and with increased flexibility to allow layout changes etc. Also increased emphasis on ability to highlight and promote specific displays.		✓	✓	✓	✓
PUBLIC BUILDINGS						
MUSEUMS & GALLERIES	1. Scene setting.				✓	✓
	2. Monitor and manage the lighting to limit the amount of light falling on critical exhibits.				✓	✓
	3. Integrate artificial and natural lighting.				✓	✓
	4. Promote specific displays with dynamic or selective lighting.				✓	✓
	5. Emergency lighting test and monitoring.			✓		✓
EDUCATION BUILDINGS	1. Match lighting in use to activity and occupancy levels.				✓	✓
	2. Provide convenient user controls to allow lighting to be set to match presentation needs.				✓	✓
	3. Emergency lighting test and monitoring.			✓		✓
HOSPITALS	1. In clinical, 24 hour, areas (e.g. wards) take full advantage of daylight and provide simple changeover to night lighting.				✓	✓
	2. Manage overall lighting scheme to ensure optimum energy consumption.				✓	✓
	3. Link to safety systems to provide adequate escape lighting in an emergency.				✓	✓
	4. Emergency lighting test and monitoring.			✓		
TRANSPORT	1. Lighting to be maintained during all occupied periods for safety and security.		†		✓	✓
	2. Emergency lighting test and monitoring.			✓		✓

LM20

LM120



LM100

WIREMASTER

COMMAND

KEY	
Optional	†
Standard	✓