

Hacel

Fluent in Lighting

Introduction

EVOLUTION

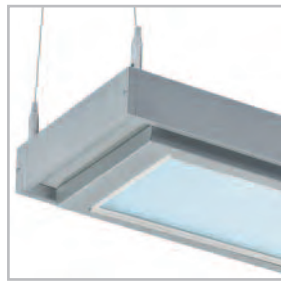
Lighting & Controls for Retail, Commercial & Architectural Environments

HACEL LIGHTING LTD.

THE SILVERLINK, WALLSEND, NEWCASTLE UPON TYNE, TYNE & WEAR, NE28 9ND

Tel: 0191 280 9911 Fax: 0191 263 1144

TEAMWORK BLUE SKY THINKING INNOVATIVE DESIGN
PRECISION ENGINEERING HONESTY COMMUNICATION
KNOWLEDGE DISTINCTIVE STYLING EFFICIENT LIGHTING
ENERGY CONSERVATION FOCUS RELAX PARTNERSHIP
PROFESSIONALISM **Right from the beginning** INTEGRITY VISION
ENTHUSIASM **Let us tell you what we stand for** CREATIVITY
RELIABILITY SERVICE FIRST & FOREMOST RECYCLING
INSPIRATION CHALLENGES DELIVERY TIMES TRUST
CLIENT EXPECTATIONS EMBRACING TECHNOLOGY
FLEXIBILITY SOLUTIONS INTERACTION AFTER SALES SUPPORT
LEADING BRAND ELECTRONICS COMMITMENT TO THE CLIENT



PRODUCT DEVELOPMENT ENGINEERING EXCELLENCE
PLANNING RESPECT QUALITY SCHEDULED DELIVERY
GREEN VALUES LONGEVITY WORKING PARTNERSHIPS
DESIGN AND MANUFACTURE IN THE UK DEDICATED STAFF
PROJECTS **We recognise and value the importance** SUPPORT
VERSATILITY **of supporting our Clients,** ECOLOGICAL
STYLE **their satisfaction is vital to our continued success** VALUE
ENERGY EFFICIENCY TECHNICAL SUPPORT RESEARCH
ENVIRONMENTAL CONSIDERATIONS IN HOUSE DESIGN
PRINCIPLES EXPERIENCE LIGHTING CONTROLS DEDICATION
CREATIVE LIGHTING DESIGN LEADING PHOTOMETRICS



Hacel
Fluent in Lighting

Hacel's UK based Design and Manufacturing facilities support major Clients throughout the world.



SALES

From provisional enquiry to order placement our dedicated and experienced Internal, External, Export and Project Sales teams provide a polite, efficient and informative service.

Retail Projects: From initiation to completion our specialist Projects team is dedicated to providing exciting lighting solutions for both singular and multi-outlet Retail developments. The team's experience enables the Client's requirements and the company's design and manufacturing abilities to be successfully co-ordinated to provide optimum customer satisfaction.

Lighting Projects and Energy Management: The ability to control lighting is an important issue whether it be for economy, efficiency or wellbeing. Our experienced Project Design Consultants and Lighting Design Engineers are responsible for creating projects (and if required feasibility studies) incorporating Hacer Energy Efficient Luminaires, Intelligent Lighting Controls and Modular Wiring Systems. These are combined to maximise the Economic, Environmental and Energy related benefits not only for the Client but for the environment as a whole.

Exports: The Export department is devoted to seeking and assisting custom throughout the world, whilst providing an efficient, informative and friendly service. The team is experienced in all aspects of Export, and is responsible for the processing of orders, quotations, samples, shipments and customs documentation. The department can also provide any technical information required on the extensive range of Hacer products.

LIGHTING DESIGN

Relux Suite and AutoCAD software is used within our experienced Lighting Design department as planning aids to create innovative and imaginative lighting schemes, tailored accurately to our Client's needs, and in line with current Lighting Guidelines and Building Regulations.

DESIGN

The Hacer Design department embraces many disciplines to ensure complete integration of all aspects of the product is understood from the 'blue sky thinking' stage through development, manufacture, distribution and installation. Design is central to our philosophy. Hacer is not simply a manufacturer with a design capability; we are a Design led company with a major manufacturing facility. Over the last fifteen years our Design Department has grown to encompass the latest in 3-D CAD/CAM modelling, rapid prototyping, engineering technology and sophisticated reflector design software.

Product Design: Research and development begins with our Design Department. Our designers are continually developing new and exciting concepts to enlarge and enhance the company's product range. Before a luminaire design has been approved, maximum consideration is given to the final quality of the product. Photometric performance, manufacturing consistency, style, ease of installation and cost are all important factors that are taken into consideration.

Engineering: Direct links between Design Department computers and CNC factory machinery is used to ensure the latest design information is automatically transferred to the manufacturing facility.

Graphics: The Company's 'in-house' philosophy is reinforced by our Graphics Department which is responsible for producing all product and promotional literature, advertising, product installation documents and web design.

Optical Device Design: Reflector design software is employed 'in-house' to ensure the highest level of photometric performance is achieved during the luminaire's design and development and this provides the necessary information required to calculate the lighting levels within a scheme.

MANUFACTURE

For over thirty years Hacer have manufactured in the UK. Our purpose built factory manufactures over 6000 different types of components for use in Hacer products. Computerised and automated machinery, precision die castings, injection mouldings and aluminium extrusions ensure consistent high quality and cost effective production is achieved throughout each stage of manufacture.

Assembly: A skilled and experienced workforce contributes greatly to ensure our products designs are correctly adhered to. Only components from brand leaders and with European Test House approvals are used throughout the product ranges to ensure the maximum level of performance, efficiency and reliability is achieved. The high standard of internal wiring reflects the care and consideration taken at each stage of assembly. Quality control is of paramount importance and all products are individually tested prior to despatch, batch testing is never employed.

Finishing: Automated 'in-house' powder coating systems offering a wide range of colour options provide a quality finish to our products. Corporate coloured luminaires can be manufactured to a specific BS or RAL finish.

DELIVERY

At Hacer we pride ourselves on the delivery dates we achieve across all our product ranges. Manufacturing, assembly and finishing departments operate continuously 24 hours a day to ensure prompt and reliable delivery dates are achieved.

TECHNICAL

The experienced staff within the department offer specialised technical advice on all aspects relating to presales, post-order and installation enquiries. Production and luminaire testing to EN60598 and photometric testing are also the responsibility of the department.

CUSTOMER SERVICE

Our dedicated and professional Customer Services Department is available to answer any post-order queries Clients may have and will assist by coordinating information from the relevant departments. Customer Services also liaise with an independent national specialist service organisation (UK only) to investigate and assist with any queries that may arise with Hacer products after installation.

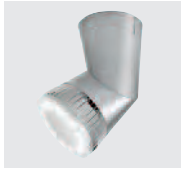


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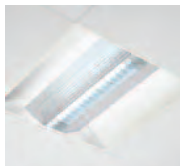
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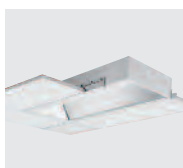
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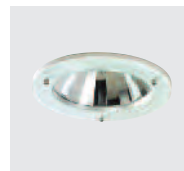
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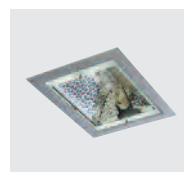
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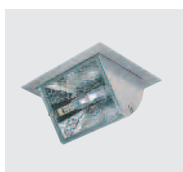
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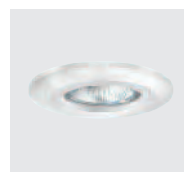
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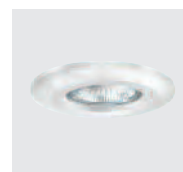
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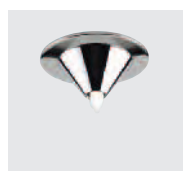
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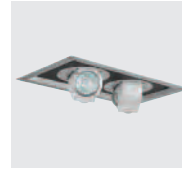
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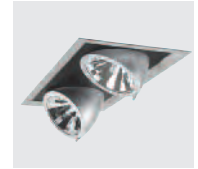
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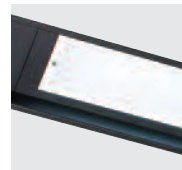
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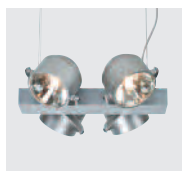
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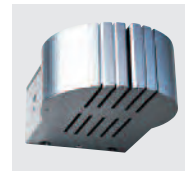
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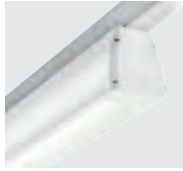


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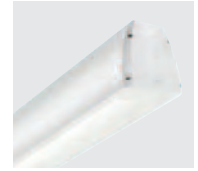
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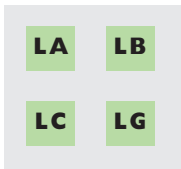


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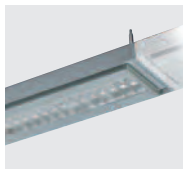


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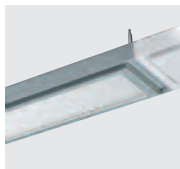
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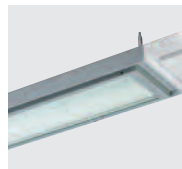
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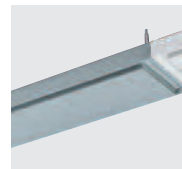
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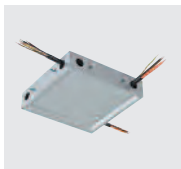
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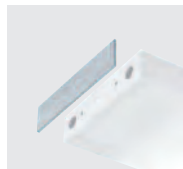
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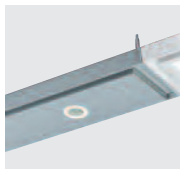
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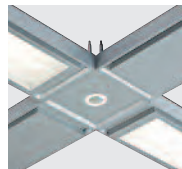
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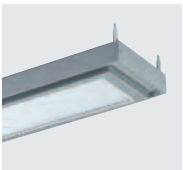


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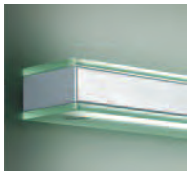
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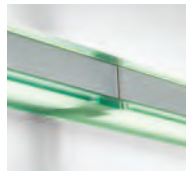
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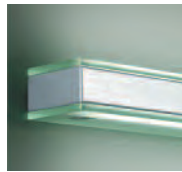
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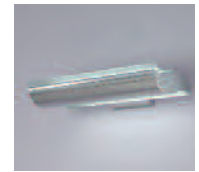
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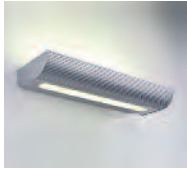
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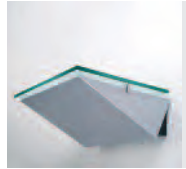
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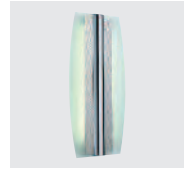
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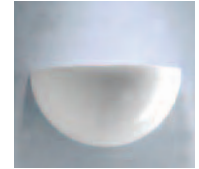
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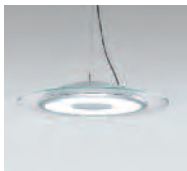
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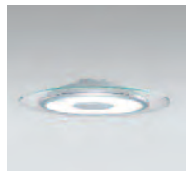
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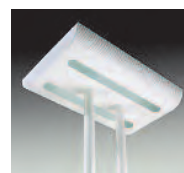
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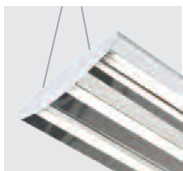


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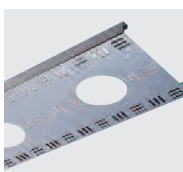


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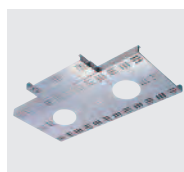
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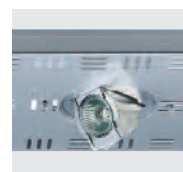
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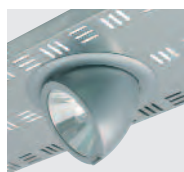
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Arill Modules
p362-363



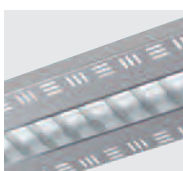
Focus Modules
p364-365



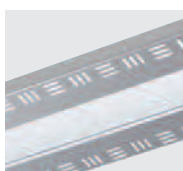
Evolva Modules
p366



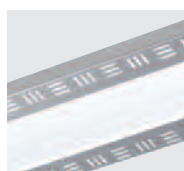
Meridios Modules
p366



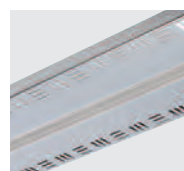
Teev Louvre Modules
p367



Teev Daylight Modules
p367



Teev Etched Modules
p367



Track Modules
p368



Tigo/Tallis Uplighters
p369

Interconnection Wiring System p373



Power Connector
p374-375



Extension Connector
p374-375



Luminaire Connector
p374-375

Introduction to Lighting Controls

Hacel have been committed to utilising energy efficient light sources, components, controls and new technologies in our product ranges for over thirty years. We are acutely aware of the current global changes affecting us all and realise that the industry as a whole must embrace the latest technologies available to improve the performance of luminaires, the wellbeing of personnel and the energy and environmental efficiency of lighting projects. Lighting Controls play a strategic role in the operation of the modern environment ensuring that the visual performance of lighting is appropriate to the needs of the client and/or individual, whilst simultaneously conserving energy. Hacel manufacture a wide range of energy efficient luminaires which can be interlinked with Lighting Controls via a simple network.

Why

Controlling lighting and dimming fluorescent lighting in particular can significantly reduce power consumption which can be monitored to check conformation against an energy design plan. Integrated intelligent reporting can forward system conditions to PCs, mobile telephones and pagers. Improved lighting environments promote wellbeing and improve productivity of the individual or team.

Where

Most premises can benefit from Lighting Controls and the energy savings they achieve. Even if lighting does not have the highest electrical consumption within the premises Hacel's Lighting Controls can be integrated with external devices such as audio/visual equipment, air conditioning systems, window blinds, CCTV and other ancillary equipment to achieve energy savings.

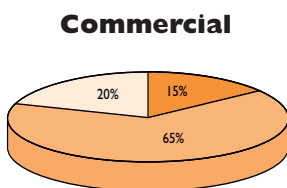
When

In situations when specific illumination parameters need to be adhered to, Lighting Controls can maintain the desired level by automated dimming of luminaires. To reduce the misuse of lighting, Hacel's Controls can automatically switch off or dim luminaires if daylight linked or no presence is detected after a desired period of time. When imaginative and diverse lighting scenes are required Lighting Controls can be used to create and recall these scenes to provide mood, ambience and accent transformations.

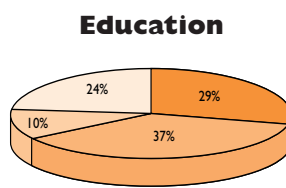
How

Hacel's Lighting Controls simplify the procedure of identifying and specifying project related controls by using the most advanced technology available today. We have an extensive range of both energy efficient luminaires and lighting controls which complement one another and are suited to projects from small retail outlets to large commercial premises. Our dedicated Project Design Consultants (proj@hacel.co.uk) can advise on the most appropriate system taking into consideration the wellbeing, economic, environmental and energy related requirements of the Client.

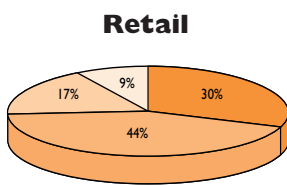
The charts shown below demonstrate average electrical consumption for typical premises within various sectors. Data gathered from the Carbon Trust website.



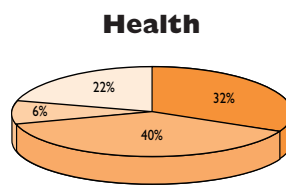
Lighting 15%
HVAC 65%
Other Electrical 20%



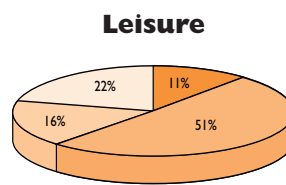
Lighting 29%
HVAC 37%
Catering 10%
Other Electrical 24%



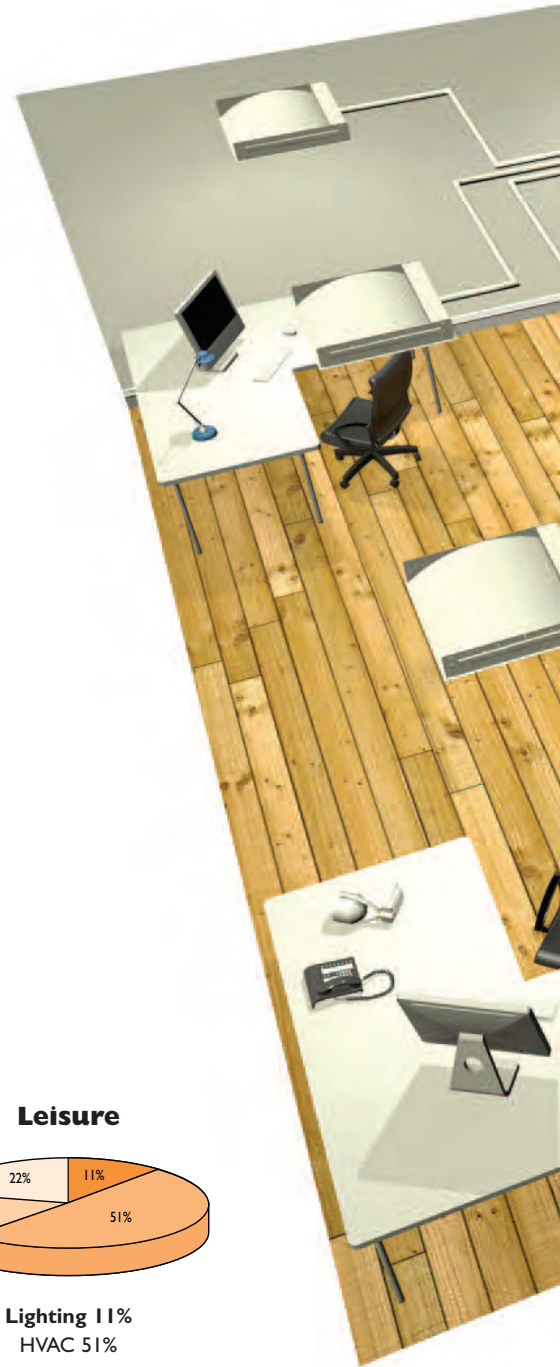
Lighting 30%
HVAC 44%
Catering 17%
Other Electrical 9%



Lighting 32%
HVAC 40%
Lifts 6%
Other Electrical 22%



Lighting 11%
HVAC 51%
Pumps 16%
Other Electrical 22%



Basic Installations

The example below demonstrates a basic Lighting Controls scenario. This system is ideally suited to buildings which have a fixed floor layout, i.e. no moveable partitions. A wide choice of Hacer luminaires can be linked as shown, via Luminaire Connectors (C), to a Lighting Control Module (A) which has ten outputs (maximum 10A total) and three separate channels for flexibility. The Control Module can also be connected to three Ceiling Mounted Sensors (B) which provide presence/absence detection and daylight linking to harvest natural light for maximum energy efficiency. Sensors are available in two types; Passive Infrared with a range of up to 7m and Microwave with a range of up to 30m for larger areas. Three switch outputs enable wall mounted Latching or Retractive Switches to be incorporated in to the system to allow manual control of each individual channel or all channels collectively. This type of system can be configured with Hacer luminaires with Non Dimming, Emergency, Digital, DALI and 1-10V Dimming control gear and requires minimal commissioning.



A - Lighting Control Module



B - Ceiling Mounted Sensor



C - Luminaire Connector

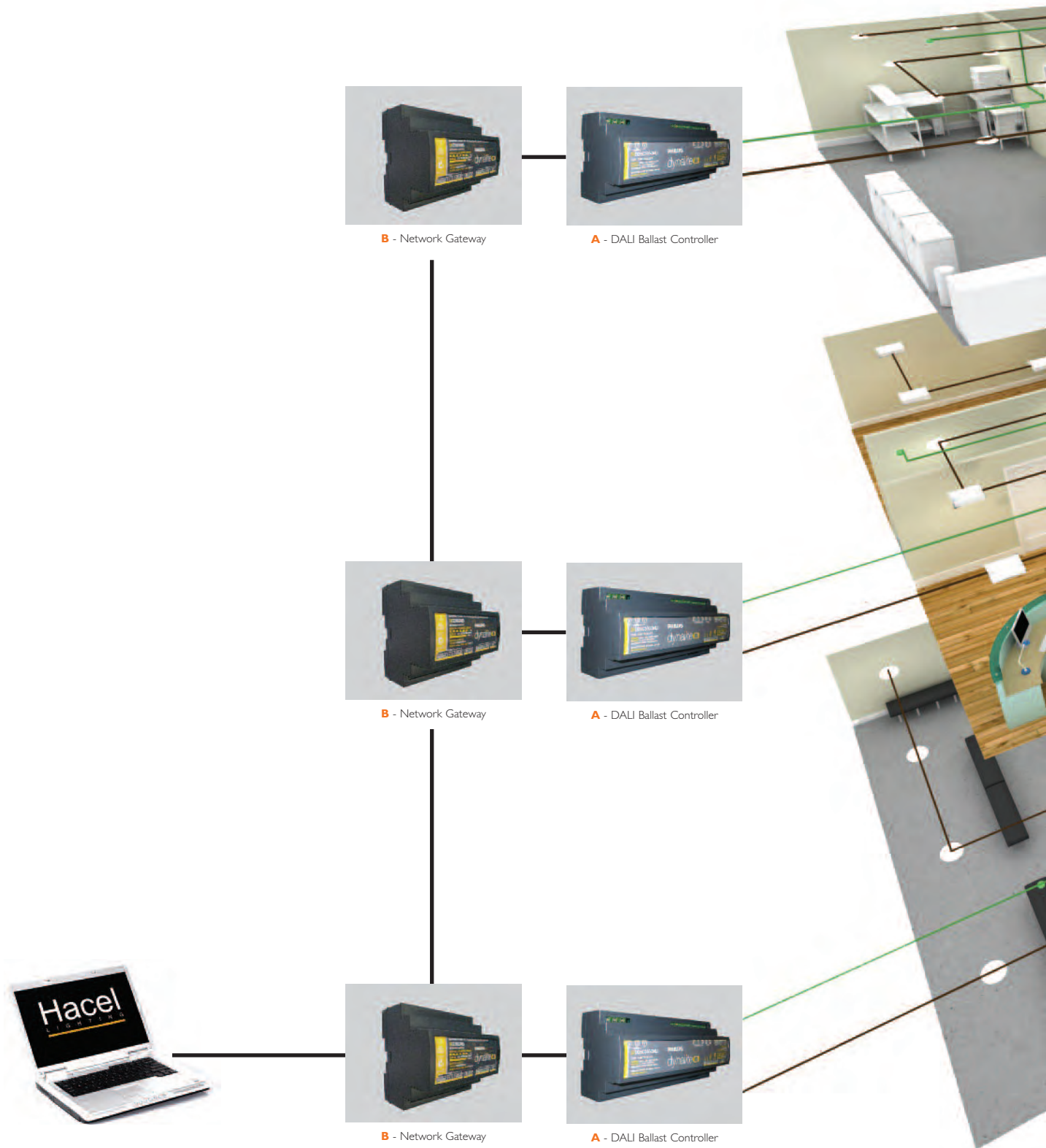


Key features:

- Ideally suited to Educational, Public and Commercial premises.
- Compatible with a wide choice of Hacer luminaires.
- Luminaire Connectors offer simple installation.
- Minimal commissioning and programming.
- Three channels allow system flexibility.
- Presence/absence and daylight linking provide energy saving capabilities.
- Manual override via three switch outputs.
- Contact our Project Design Consultants for further information - proj@hacer.co.uk.

Commercial and Public Sector Establishments

Establishments in the Health, Leisure, Retail, Commercial and Education sectors are associated with high electrical consumption. Installing lighting controls can have a dramatic effect on reducing and conserving energy and the wellbeing and productivity of individuals or teams. Controls which harvest natural daylight and use presence detection can be used to considerably reduce lighting demands in large open plan office areas particularly when parts of those areas are not constantly occupied. Corridors and service areas, where maximum lighting levels may only be needed infrequently, can be fitted with controls which use presence detection thereby only supplying illumination when actually required. Areas such as hospital wards, boardrooms, meeting rooms, lecture rooms and other illuminated zones can have multiple lighting scenes saved to be recalled on demand. During the hours of darkness lighting levels can be dimmed to predetermined levels to best suit the needs of occupants, night time workers, maintenance and security staff. Security lighting can be linked with external devices such as CCTV and other monitoring equipment to maintain the integrity of the premises even when unoccupied.



This example shows a typical commercial premises tenanted by a large organisation. DALI luminaires are connected via Hacer's Modular Wiring System to a DALI Ballast Controller (A) with three outputs, each capable of supporting sixty four channels (192 in total) which provides seamless and cost effective luminaire control. Low profile Ceiling Mounted Sensors (C) with a range of 5m combine motion detection, infra red remote control and daylight linking in one device. Aesthetically pleasing User Control Panels (D) with LED indicators supply both tactile and visual feedback and are located around each floor to allow manual override of the preprogrammed settings. Each Controller is linked to a Network Gateway (B) providing a high speed backbone to the entire lighting system and third party devices. The network can then be connected to a PC running Lighting Solutions Software which is Microsoft Windows® based and runs on most modern operating platforms. The software provides a user friendly master control and reporting program allowing the management of both small and large networks. Utilising actual site plans as floor layouts allows ease of navigation, whilst smart icons reflect the state of each device in real time. The software can be used to program and recall scenes, provide system status information such as lamp burn times and failures and automate maintenance tasks such as emergency lighting tests. The system also allows for the remote monitoring of singular or multiple site locations.



C - Ceiling Mounted Sensors



D - User Control Panel

Key features:

- Ideally suited to Health, Leisure, Educational, Public and Commercial premises.
- Compatible with a wide choice of Hacer luminaires.
- Hacer's Modular Wiring System offers simple installation.
- Sixty four channel flexibility.
- Presence/absence, daylight linking and remote control provide superior energy saving capabilities.
- Intelligent User Control Panels provide feedback and manual override.
- Diagnostic reporting from each Ballast Controller.
- Lighting Solutions Software provides full system status and automated tasks and failure reports.
- Contact our Project Design Consultants for further information - proj@hacer.co.uk.



A Working Example - Monkseaton High School

- ▲ Hacer's Lighting Projects Department designed the lighting scheme and lighting controls solution to meet the Client's brief. Consequently, Hacer DALI luminaires and Lighting Controls were specified and installed throughout the school. The Linaj Wall Lights and Linear Light3 Modules utilised in the open corridors and classrooms are controlled by sensors with presence detection and daylight linking to harvest the natural light from the filters in the domed roof.
- ▼ Linear Light3 Modules used in the enclosed classrooms and laboratories have integral presence detection and daylight linking and additional, multiple predefined schemes have been allocated which can be recalled via intelligent User Control Panels with a manual override facility.

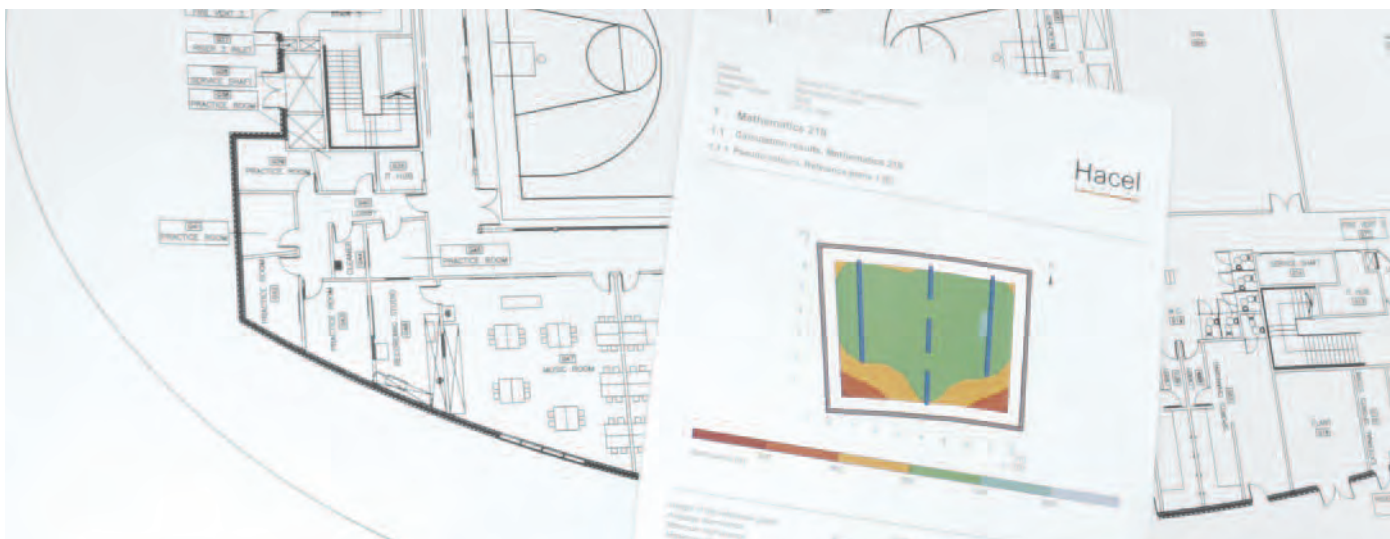




▲ Opulus Pendant luminaires in the bistro style refectory have been programmed to be permanently illuminated during opening hours, but have a manual override facility via an intelligent User Control Panel.

▼ Lighting in the stairwells is provided by Ascension Wall Lights which are scheduled to be permanently illuminated during school opening times. The lighting is also controlled by absence and presence detection thereby dimming to 10% after a predetermined time, but returning to full brightness when movement is detected.





Lighting Schemes

Hacel are committed to guiding Clients, via their brief, towards an efficient and appealing lighting scheme, which will serve their needs and provide wellbeing and both environmental and financial benefits. Our highly experienced Lighting Design Department utilises Relux Suite and AutoCAD software as planning aids to create innovative and imaginative lighting schemes, tailored accurately to our Client's needs, and in line with current Lighting Guidelines and Building Regulations. Lighting schemes can be produced as a simple floor plan or as a fully rendered 3D presentation, an example of which is shown below.

The Relux Suite program, with a comprehensive Hacel luminaire database incorporating photometric data, product details and colour images is available free of charge to Clients who wish to produce their own lighting schemes. Please contact our Lighting Design Department (lightdesign@hacel.co.uk) for full details. Latest software updates are available from the Relux website.

RELUX[®] member



Rendered 3D image of classroom at Monkseaton High School, actual classroom shown top left.



The Design



is in the Detail

Design is central to our philosophy. Hacel is not simply a manufacturer with a design capability; we are a Design led company with a major manufacturing facility.

Environmental Benefits of Energy Efficient Lighting

Hacel Lighting recognise and respond to growing international environmental concerns and legislation which have made the use of energy efficient lighting systems essential. Hacel are committed to guiding Clients, via their brief, towards an efficient lighting scheme, which will serve their needs and wellbeing by providing both environmental and financial benefits.

Building Regulations Approved Document L (Conservation of fuel and Power)

This document, outlining practical guidance to designers and builders on compliance with the requirements of the Building Regulations in respect of energy conservation, is now subdivided into four documents. L1A and L1B are concerned with dwellings whilst L2A and L2B with buildings other than dwellings such as schools, hospitals, offices and factories.

For lighting purposes the document gives guidance on lighting efficacy in specific building types and specifies the minimum efficacies for such buildings. Hacel design lighting schemes taking the guidelines of this document into account and certification for qualifying schemes can be produced if required. Please contact your Hacel Sales Executive for further information.

WEEE Directive

The WEEE Directive (Waste Electrical and Electronic Equipment) was adopted into UK legislation and implemented on the 1st July 2007 with the aim of reducing the amount of WEEE being disposed of into landfill sites. All European manufacturers must be registered with an accredited Producer Compliance Scheme (PCS). Hacel Lighting are fully aware of current global issues and are totally committed to environmental schemes of this nature, consequently we are registered with Northern Compliance Ltd. whose PCS number is WEE/UP3438PR/SCH. Northern Compliance can be contacted by telephone on 0845 257 7024 or via the internet at www.weeeco.com.

The Enhanced Capital Allowance Scheme (ECA)

The Enhanced Capital Allowance (ECA) scheme is a key part of the UK Government's programme to manage climate change by encouraging businesses to reduce carbon emissions by providing incentives to invest in energy efficient technologies. Hacel have a range of luminaires that meet the criteria required to claim ECA. Claims are made in the same way as other capital allowances. The inland Revenue's guidance on the ECA scheme can be found on their website at www.eca.gov.uk, however, we would also suggest that claimants contact their Accountant or Taxation Advisor for further information.

Energy Efficiency Financing

Carbon Trust Implementation Services and Siemens Financial Services have combined forces, and together are offering financing options to all types of organisations, who have been trading for more than 36 months and are seeking to reduce their own energy use. New, more efficient equipment should lower energy bills and with financing payments calculated so that they can be offset by anticipated energy savings, the financing option is designed to pay for itself.



The scheme is available to all kinds of businesses and organisations. Financing from Siemens Financial Services can be arranged for amounts as little as £1,000 upwards, assuming your proposed Energy Efficiency Financing project passes the energy saving assessment by Carbon Trust Implementation Services. Hacel cannot be held responsible for any future changes to the scheme. This publication includes products that may qualify for Energy Efficiency Financing, please visit the Carbon Trust's website for further information.

DAYLIGHT

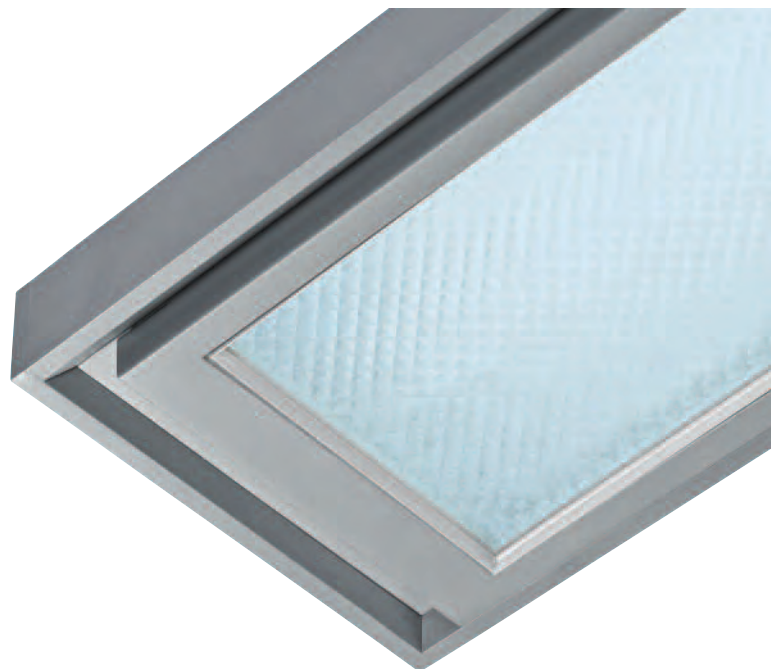
It is of paramount importance that in any illuminated environment the wellbeing and the subsequent effect this may have on the performance of the personnel exposed to it is fully understood and considered.

Research over the last two decades has led to a better understanding of this relationship and also suggests that white light is beneficial to working environments especially in the Commercial sector. As such it is now recognised that a deficiency of white light disrupts the natural sleep/wake cycle which is vital to our wellbeing.

A number of Hacer luminaires feature the Virtual Daylight® Lens which when used with Colour 865 (6500K) T5 lamps are designed to recreate the appearance of natural daylight improving the lighting environment for the occupants. Hacer luminaires utilising the Virtual Daylight® Lens provide visual comfort, low glare and a uniformity of light that combines well with a high apparent brightness. Luminaire design also benefits with a crisp, clean appearance which encourages the creation of vibrant lighting schemes whilst being sympathetic to the latest screen technologies. Daylight luminaires are eminently suited to Commercial, Retail, Educational and Medical environments, especially if limited or no natural daylight is available.

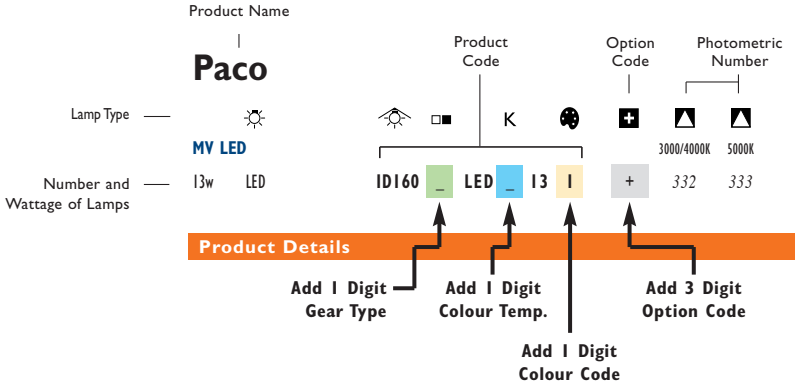
Hacer Daylight Luminaires

- Scenaric p78-81
- Skylink Fascia p158-159
- Linear Light4 Link Module p223
- Linear Light4 Solo Module p240-241
- Linear Light3 Link Module p254-255
- Linear Light3 Solo Module p270
- Network Module p367



Technical Key

Product Codes Explained



Symbols

- 12V
- Voltage & frequency
- Class I / II / III
- Ingress protection
- Impact energy rating
- Suitable for flammable surface
- Plug & socket connections
- Unfused terminal block
- Fused terminal block
- Integral fuse
- Knockout size
- Tilt
- Rotation / pan
- Cut out
- Fixing centres
- Uplighting** / Downlighting
- Uplighting / **Downlighting**
- Pressed metal construction
- Extruded aluminium construction
- Spun construction
- Die cast construction
- Injection moulding
- Minimum distance from lamp
- Decorative glass feature
- Safety glass
- Foot switch
- Supplied complete with plug
- Maximum weight kg
- Operating temperature of fascia
- Tamper proof screws
- Maximum evenly distributed load kg

Control Gear

- A** No control gear 230V/Integral LED driver
- B** Wire wound
- D** High frequency
- E** Emergency
- Z** Self Test Emergency
- F** Digital dimming
- G** Digital dimming + Emergency
- V** Digital dimming + Self Test Emergency
- H** Analogue (1-10V) dimming
- I** Analogue (1-10V) dimming + Emergency
- W** Analogue (1-10V) dimming + Self Test Emergency
- J** Switch dimming
- K** Switch dimming + Emergency
- Y** Switch dimming + Self Test Emergency
- S** DALI dimming
- T** DALI dimming + Emergency
- U** DALI dimming + Self Test Emergency
- C** DALI dimming + DALI Emergency
- L** Electronic transformer
- M** Electronic dimmable transformer
- N** Electronic dimmable transformer + Emergency
- P** No control gear - 240/12V transformer required
- Q** Electronic discharge ballast
- X** Non electrical component

Colour Temp.

- K**
- 3** Warm White (3000K)
- 4** Neutral White (4000K)
- 5** Cool White (5000K)

Colours

- I** White
- 2** -
- 3** Black
- 4** Polished Chrome
- 5** -
- 6** Graphite
- 7** White/Graphite
- 8** Graphite/Black
- 9** Black/Graphite
- 0** Stainless Steel

Contacts

TEL: 0191 280 9911

Sales Dial: **Ext. 1**
sales@hacel.co.uk

Technical Dial: **Ext. 4**
technical@hacel.co.uk