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C T Walters (Electrical Ltd)
O&M Manual

Project Name	**Beckley Village Hall**
Project Location	**Beckley**
Main Contractor	**Kingerlee**
Handover Date	**19.12.16**

CT WALTERS
ELECTRICAL LIMITED

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1 INTRODUCTION & GUIDE

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1-1 INTRODUCTION

This manual describes all the Electrical Services Operating and Maintenance requirements relating to the Electrical Services Systems supplied, installed and commissioned to Beckley Village Hall

The manual, relating to the services installation, must be read in conjunction with other related documentation, which forms part of the overall Health and Safety File prepared by the Principal Contractor under the Construction (Design and Management) Regulations 2015 (CDM Regulations).

The health and safety files are a set of record documentation, (a suite of manuals and drawings), for the client/end used focused primarily on health and safety when dealing with maintenance, repair or construction works carried out on the premises in the future.

The file should be made available for any persons who needs to work on or operate any building related tasks.

Any future works carried out to the building or its services should be documented and recorded in the health and safety file.

References and further information:

- Construction (Design and Management) Regulations 2015

1-2 SCOPE

This Operating and Maintenance Manual has been prepared to provide guidance and recommendations to assist:

- Users of the building
- Managers of the building and services
- Employees, (both directly employed staff and contractors), who carry out maintenance, repair or new works within the building.

in the understanding, running and maintenance of the services installed.

1-3 CONTENTS

To obtain the most benefit from this manual, it must be read in conjunction with all related documents located in other related Sections of this manual as well as Health and Safety File.

In addition to the documentation directly related to the systems covered by this manual, other inter-related documentation may need to be consulted to obtain a more comprehensive understanding of not only the service or plant in question but also it's possible effect on other services and areas. These documents will be included within the suite of documents forming the Health and Safety File and include building structure and fabric information and electrical services.

Reference should be made to the Health and Safety File Contents information.

It is essential that all aspects of Health and Safety, relating to the task, are understood prior to carrying out maintenance works.

The law imposes a responsibility on the employer to ensure safety at work for all employees and much of the law regarding safety at work can be found in the Health and Safety at Work etc. Act 1974. Refer to Section 2 of this manual for further details.

The manual has been produced in sections with each section of the manual detailing the difference aspects of the operation and maintenance requirements. These sections are as follows:

Section 1	Introduction and guide (Hyperlink to Section)
Section 2	Health and Safety (Hyperlink to Section)
Section 3	General Description of the Project (Hyperlink to Section)
Section 4	Operating Procedures (Hyperlink to Section)
Section 5	Maintenance Procedures (Hyperlink to Section)
Section 6	Equipment and Supplies Schedules (Hyperlink to Section)
Section 7	Manufacturers Literature (Hyperlink to Section)
Section 8	Commissioning Data and Certification (Hyperlink to Section)
Section 9	Drawings (Hyperlink to Section)

1-4 THE MANUAL USERS

As previously stated, the manual contains all relevant information for the electrical operation and maintenance of the systems installed.

It is assumed that the users of this documentation will fall into one of the categories listed below. It is further assumed that the correct instruction and training has been provided by the Client or appointed representative to the users of this manual.

- User of the building – trained designated personnel who can operate appropriate end user controls e.g. timeclocks, lighting controls, fire alarm panels, system overrides. Additionally, they can contact appropriate personnel in the event of an emergency. It is not expected that these personnel will have access to controls that require passcodes to access control set points etc.
- Managers of the building and services – technically qualified senior personnel who have an understanding of the systems and their operation and relation to other systems. It is assumed managers know how to operate plant and systems and deal with emergency and other out of control situations. Personnel will usually have full access enabling them to alter engineering settings.
- Employees, (both directly employed staff and contractors), who carry out maintenance, repair or new works within the building. Usually qualified Building Services Maintenance Engineers with in depth knowledge of systems employed to run and maintain plant. They will usually be working under the guidance of a manager.

1-5 CONTRACTUAL & LEGAL INFORMATION

Contract Start Date:	08th August 2016
Practical Completion Date:	19th December 2016
End of Defects Liability Period:	19th December 2017

1-6 PROJECT DIRECTORY

Below is a list of those involved in the design and installation of the electrical services. A full project directory of the whole Design and Construction Team is located in the Building Health and Safety File.

Client:	Beckley and Stowood Parish council
Principal Designer	C T Walters Electrical Ltd Unit 4 Park End Works Croughton Northants NN13 5LX Tel: 01869 810047
Principal Contractor	Kingerlee Ltd Thomas House Langford Locks Kidlington Oxfordshire OX5 1HR Tel: 01865 840000
Electrical Contractor	C T Walters Electrical Ltd Unit 4 Park End Works Croughton Northants NN13 5LX Tel: 01869 810047

1-6 DOCUMENT HISTORY

1-6-1 INITIAL DOCUMENT INFORMATION

Document Origin Date:
Project and version number:
Author:

The following information should be completed whenever this document is altered or amended.

1-6-2 DISTRIBUTION LIST

- Media – P – Paper Copy E - Electronic Media

1-6-3 DOCUMENT STATUS & HISTORY

DATE	SECTION/CLAUSE	DESCRIPTION	AUTHOR

1-7 ABBREVIATIONS & ACRONYMS

A	AMPERE
A/V	AUDIO/VISUAL
AC	ALTERNATING CURRENT
ACOP	APPROVED CODE OF PRACTIVE
BE	BLACK ENAMEL
BEMS	BUILDING ENERGY MANAGEMENT SYSTEM
BS	BRITISH STANDARD
CAD	COMPUTER ASSISTED DESIGN
CATV	CABLE TELEVISION
CCTV	CLOSED CIRCUIT TELEVISION
CD	COMPACT DISK
CDM	CONSTRUCTION, DESIGN AND MANAGEMENT
CFC	CHLOROFLUOROCARBON
CIBSE	CHARTERED INSTITUTION OF BUILDING SERVICES ENGINEERS
COAX	CO-AXIAL
COSHH	CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH
DB	DECIBEL
DBA	DECIBELS – ADJUSTED
DC	DIRECT CURRENT
ELCB	EARTH LEAKAGE CIRCUIT BREAKER
GRP	GLASS REINFORCED POLYESTER
HOFR	HEAT RESISTING, OIL RESISITING AND FLAME RETARDENT
HSE	HEALTH AND SAFETY EXECUTIVE
HZ	HERTZ (CYCLES PER SECOND)
IEE	INSTITUTION OF ELECTRICAL ENGINEERS
KA	KILOAMPERE (1000A)
KVA	KILO VOLT AMPERES
KWH	KILO WATT HOURS
LED	LIGHT EMITTING DIODE
LV	LOW VOLTAGE
M	METER

MCB	MINIATURE CIRCUIT BREAKER
MCCB	MOULDED CASE CIRCUIT BREAKER
MICC	MINERAL INSULATED COPPER CABLE
NICAD	NICKEL CADMIUM (RECHARGEABLE BATTERY)
NICEIC	NATIONAL INSPECTION COUNCIL FOR ELECTRICAL INSTALLATION CONTRACTING
PF	POWER FACTOR
PFC	POWER FACTOR CORRECTION
PH	PHASE
PIR	PASSIVE INFRA RED
PVC	POLYVINYLCHLORIDE
RCBO	RESIDUAL CURRENT BREAKER
RCCB	RESIDUAL CURRENT CIRCUIT BREAKER
RCD	RESIDUAL CURRENT DEVICE
RS232	SIGNAL INPUT/OR OPUPUT SERIALLY CODED
SPN	SINGLE POLE & NEUTRAL
STP	SHIELDED TWISTED PAIR
SWA	GALVANISED STEEL WIRE ARMOUR
TPN	THREE PHASE & NEUTRAL
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTP	UNSHIELDED TWISTED PAIR (WIRE CABLE)
V	VOLT
VA	VOLT AMPERE
VIR	VULCANISED INDIAN RUBBER
W	WATT
XLPE	CROSS-LINKED POLYETHYLENE INSULATED

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2 HEALTH & SAFETY

2-1 GENERAL
2-2 THE ELECTRICITY AT WORK REGULATIONS
2-3 AUTOMATIC POLANT OPERATION
2-4 COSHH
2-5 RISK ASSESSMENTS
2-6 WORKING AT HEIGHT
2-7 REGULATORY REFORM (FIRE SAFETY) ORDER 2005
2-7-1 RESPONSIBLE PERSONS
2-8 ROAD TRANSPORT ON SITE
2-9 HAZARDOUS WASTE REGULATIONS
2-10 FURTHER LEGISLATION

2-1 GENERAL

There are provisions in connection with Health, Safety and Welfare, which are legal requirements. In addition, there are many official recommendations. For full details, reference should be made to the appropriate official publications.

The following paragraphs briefly refer to the more common requirements.

STATEMENT	ACTION/NOTES
1.	It is the **duty of every employer** to:- • Ensure, in so far as is practical, that the health, safety and welfare at work of **all his employees and all other persons** who use his premises or are affected by his undertaking. • Provide the information relevant to the above.
2.	The equipment and materials referred to in these instructions are safe and without risk to health when used and maintained in accordance with the instructions given in this manual and with the plant manufacture instructions.
3.	Is the **duty of every employee** whilst at work to: • Take reasonable care for the health and safety of himself and all other people who are affected by his actions or omissions. • Co-operate with his employer or any other person in so far as it complies with the provision of the various acts.
4.	Anyone in control of industrial or commercial premises must prevent or render inoffensive any actual or potentially harmful emissions into the atmosphere.
5.	Access to plantrooms and electrical control equipment must be limited to authorized personnel who are member of the engineering staff.
6.	All places of works must be kept as clean as possible (consistent with their use), Dirt and or refuse must not be allowed to build up. Plantrooms must be kept clean and the normal practice of storing items therein must not be permitted.
7.	Work must never be carried out under conditions where there is any risk of danger if it is reasonable practical to eliminate that risk.
8.	Safe working conditions must be provided, to give adequate protection and also safe access and egress where necessary. Proper scaffolds, guardrails, toe boards, ladders etc., must be provided and used.
9.	Where appropriate to the work, protective equipment (i.e., goggles, screens, respirators, protective clothing, safety helmets, safety belts) must be worn and or used
10.	Never lift, move or carry loads which are liable to cause personal injury.
11.	Never work on moving parts of machinery. Exercise care if working on the stationary parts of machinery which is in operation. Before doing so, ensure that the moving parts are adequately protected by suitable guards.
12.	Adequate lighting whether permanent or temporary must be provided at all times.
13.	Adequate ventilation must be provided. Special precautions must be taken in atmospheres where there is steam, smoke, asbestos, or other unhealthy or dangerous contaminants, or in a confined space.
14.	Where maintenance work is in progress a "DANGER" notice must always be attached to any "live" apparatus, calling attention to the danger of approach. A "CAUTION" notice must always be attached to plant or its associated control equipment, warning of possible damage to equipment, which may be occasioned by interference.
15.	Before working on any electrical equipment, a "permit to Work" form, signed by a responsible person, must be obtained. The equipment must be disconnected from the supply by operating the switch or starter, and the isolator (if installed). As a further precaution, remove the protective devices and lock off if possible. Any work requiring technical knowledge or experience must be undertaken only by competent persons.
16	Hand, or other small, power tools, should be suitable for, and operated from a 110 Volt electricity supply, using a portable transformer.
17.	Fire precautions must be observed. "No Smoking" notices must be displayed where necessary and must be rigidly obeyed.
18.	The means of escape from the building (as specified on the certificate issued by the Fire Authority) must be maintained and kept from obstruction at all times.
19.	Fire fighting equipment must be provided, maintained and kept readily available at all times.

STATEMENT	ACTION/NOTES
20.	First Aid boxes or cupboards of the prescribed standard and containing only First Aid requisites, must be provided in accessible positions, and kept clean and in good order. The minimum quantity of dressings etc., has been laid down according to the number of persons employed. Where this is required by the Regulations, a responsible and readily available person, trained in First Aid treatment, must be named and placed in charge of the equipment during working hours.
21.	CARE must be taken, and adequate protection provided, to prevent fire when welding or carrying out operations involving the application of heat. ARC welding demands the use of protective screens. Contact lenses must not be worn when carrying out arc welding as the 'flash' from this process may cause permanent damage to the eyes. Precautions against explosions when welding tanks or other containers which have held substances of an explosive or flammable nature must be fully observed.
22.	Fire alarms must be regularly tested and maintained in full functional order. Access to alarm and 'panic' buttons must be totally uninhibited.

2-2 THE ELECTRICITY AT WORKS REGULATIONS

The owner of the site and the user of the manual, being authorized by the owner, must be fully conversant with the Statutory Regulations laid out in the Electricity at Work Regulations, 1989, which forms part of the Health and Safety at Work etc. Act 1974.

2-3 AUTOMATIC PLANT OPERATION

WARNING

It is most important that any person using or working on the systems as described in the following sections of this manual, are made aware of the need for extreme caution as this **plant operates automatically** under the dictates of a central control system.

It is also most important that as the services run under the dictates of the system, any item of **plant may start up at any time of the day** to suit the system or over-ride requirements, therefore it is advisable prior to any operation, modification of control settings or maintenance work being carried out to any of the systems within the building, permission is obtained from an authorised user of the control system, as changeover sequences and alarms may have to be inhibited prior to the commencement of any works.

2-4 COSHH

The Control of Substances Hazardous to Health (COSHH) Regulations 2002 place duties on employers to protect employees and other persons who may be exposed to substances hazardous to health, for example: to solids, liquids or gases that may be toxic, harmful, corrosive or irritant. Safety standards, for example, exposure limits of hazardous substances in air, are separately prescribed by the HSE.

Reference must be made to the Product or Supplier data sheets and a COSHH assessment carried out prior to handling any substances involved with operating or maintenance works.

Any recommendations arising from the data sheets should be implemented and followed.

2-5 RISK ASSESSMENTS

Suitable site specific risk assessments should be carried out prior to commencing any maintenance works. The assessment must take into account potential hazards to employees and members of the public arising from the works to be carried out.

Risk Assessments are usually carried out by a competent/skilled person and follows a systematic approach detailed in a Risk Assessment documents. This documents provides details including evaluation of the potential risks and hazards together with the measures taken to minimise or eliminate them.

2-6 WORKING AT HEIGHT

The owner of the site and the user of the manual, being authorised by the owner, must be fully conversant with the Statutory Regulations laid out in the Work at Height Regulations.

Risk assessments should be made for each high level job taking in to account:

Suitable signs and barriers should be positioned directly below works to warn of overhead operations.

Edge protection needs to be in place where there is a risk of falls and a person could be injured.

2-7 REGULATORY REFORM (FIRE SAFETY) ORDER 2005

The Regulatory Reform (Fire Safety) Order 2005 replaces the existing fire legislation such as the Fire Precautions Act 1971, the amended 1997 Fire Precautions (Workplace) Regulations, and applies to all premises except private dwellings. The local fire and rescue authority will enforce the Fire Safety Order in most premises.

The exceptions are:

- Crown-occupied/owned premises where Crown fire inspectors will enforce.
- Premises within armed forces premises where the defence fire and rescue service will enforce.
- Certain specialist premises including construction sites, ships (under repair or construction) and nuclear installations, where the HSE will enforce.

Sports grounds and stands designated as needing a safety certificate by the local authority,

- where the local authority will enforce.

Fire certificates are no longer valid and are now based on Fire Risk Assessments being carried out, precautions being implemented and regularly reviewed, particularly when alterations or changes are made, to reduce or eliminate the risk.

The Fire Risk Assessment must be carried out by the responsible person(s) for the premises or area they control and must take into account ALL persons including visitors and passersby.

2-7-1RESPONSIBLE PERSONS

The responsible person is deemed to be anyone who has control of premises or anyone who has a degree of control over certain areas, for example:

- The employer for those parts of premises staff may go to.
- The managing agent or owner for shared parts of premises or shared fire safety equipment such as fire-warning systems or sprinklers.
- The occupier, self-employed people or voluntary organisations if they have any control.
- Any other person who has some control over a part of the premises.

The responsible person is ultimately liable to ensure the Regulations are complied with, even if a third party is used to review the fire safety arrangements.

2-8 ROAD TRANSPORT ON SITE

The site should be surveyed and plans put in place to avoid danger to pedestrians, contact with building and make sure no vehicles enter or block evacuation areas.

2-9 THE HAZARDOUS WASTE REGULATIONS (HWR)

The Hazardous Waste Regulations (HWR) provide an effective system of control for those wastes that are harmful to human health or the environment or are difficult to handle. They ensure that such wastes are properly managed from their production to their final destination for disposal or recovery.

The main features of the HWR are to:

Implement a definition of hazardous waste into domestic legislation;

Require producers or consignors of hazardous waste to notify (register) their premises;

Restrict mixing and to require separation of wastes where appropriate;

Provide cradle-to-grave documentation for the movement of hazardous waste;

Require consignees to keep thorough records of hazardous waste and provide the Environment Agency with quarterly disposal and recovery information.

The Environment Agency guidance note is one of a series that will explain the functions of the HWR. The purpose of this guidance is to explain the process by which premises, where hazardous waste is produced at or removed from, are notified to the Environment Agency.

2-10 FURTHER LEGISLATION

- The Health and Safety at Work etc. Act 1974
- Management of Health and Safety at Work Regulations 1999
- Workplace (Health, Safety and Welfare) Regulations 1992
- The Provision And Use Of Work Equipment Regulations 1998
- The Manual Handling Operations Regulations (as amended)
- Personal Protective Equipment Work Regulations 1992 (PPE)
- The Control of Substances Hazardous to Health (COSHH) Regulations 2002
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013
- The Construction (Design and Management) Regulations 2015
- Electricity at Work Regulations 1989
- The Regulatory Reform (Fire Safety) Order 2005
- Health and Safety (First Aid) Regulations 1981
- Employers Liability (Compulsory Insurance) Regulations 1998
- Noise at Work Regulations 2005

3

3 GENERAL DESCRIPTION OF THE PROJECT

3-1 ELECTRICAL SCOPE OF WORKS

3-1 ELECTRICAL SCOPE OF WORKS

Entire electrical installation to the new Beckley village hall.

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4 GENERAL DESCRIPTION OF THE PROJECT

4-1 INTRODUCTION
4-2 SAFETY PROCEDURES
4-3 PERMITS TO WORK
4-4 EMERGENCY PROCEDURES
4-5 MANUFACTURERS RECOMMENDATIONS

4-1 INTRODUCTION

This Section of the Manual provides routine operating information for the system installed. Nature of the installation is such that other than the initial operation of dead circuits, there are only a few tasks to perform on a regular basis.

The services to the premises will have been energized and set to work with tests carried out to ensure it's correct operation and function particularly with regard to safety systems and interlocks.

These Operating routines should only be carried out by trained and competent personnel who have an understanding of the systems being energised and its implication on other related systems.

When operating and setting equipment and systems a systematic approach must be taken. Therefore it is essential that the operative understand the system controls and settings at each stage of operation, so that they can properly react to any unexpected or unforeseen condition and take the appropriate action.

The manufacturer's manuals and literature must be consulted and referenced to ensure that routines are followed particularly if there is an unexpected loss or supply or service.

For Specialist systems detailed in the Section as a minimum the authorized user should ensure the following operation and system information is available, noted and followed:

- User Pass Codes.
- Engineer Pass Codes.
- Reporting of any faults, incidents or system alterations.
- Ensuring system is tested and maintained in compliance with the relevant legislation, Codes of Practice, Fire Authority or Insurance Company requirements.
- Record keeping of any events.
- Emergency Contact Numbers.

4-2 SAFETY PROCEDURES

The following is a brief guide to the procedures that can be generally adopted to minimize the risk to authorized personnel as well as protecting plant and equipment from damage.

WARNING – HV & LV SWITCHGEAR CARRIES VOLTAGES WHICH ARE LETHAL & MUST ONLY BE OPERATED BY AUTHORISED COMPETENT PERSONS.

Access to switch rooms and electrical distribution equipment should be restricted to authorised, trained and competent personnel who are likely to be engineering staff or qualified personnel working under the control of the engineering staff. Works in the HV Switchrooms are to be only carried out by authorised and competent persons appointed by a qualified HV engineer.

Prior to switching on a circuit, check that the equipment or outlets served to ensure equipment and switchgear are serviceable and safe to operate. If the circuit has unexpectedly stopped operating then ensure the fault-finding routines are followed. DO NOT switch or replace the protective device as not only can this endanger lives but this may cause further damage to the systems or equipment served. When switchgear, distribution boards, or any other item of plant or equipment is out of service, unserviceable or unsafe, the item in question must be electrically isolated. All fused switches, circuit protective devices etc., must be switched off and a suitable warning notice fixed in place.

There are generator backed up power supplies which have automatic changeovers in the Event of power loss, therefore every source of supply must be isolated and prior to working on equipment.

Secondary power supply systems are provided by generators, battery backup for emergency lighting, fire alarms, access control systems and intruder alarm systems, mush hall all sources of supply isolated and prior to working on equipment. Remote isolation for equipment must be locked off to prevent unauthorized or inadvertent re-energisation of power.

1. Check to ensure that switch rooms and plant areas are clean and free from obstruction.
2. Check to ensure all equipment is properly secured, equipment covers and guards are in place.
3. Check to ensure that all equipment access panels and doors are closed and secured.
4. Ensure that all tools and safety equipment are serviceable and in their proper space.
5. Check that all fire-extinguishers are in place and have been services.
6. Check that fire-extinguishing systems are serviceable.

4-3 PERMITS TO WORK

A permit to work will be required when maintenance work can only be carried out if, after carrying out a suitable risk assessment, normal safe working practices cannot be followed.

A permit to work system usually comprises of a written document which specifies the extent of the works, precautions to be taken and anticipated timescale.

The document will usually need to be signed by a suitably experienced and qualified senior member of the employer's staff.

4-4 EMERGENCY PROCEDURES

The emergency procedures are intended as a guide only, for each emergency situation that arises has to be taken in the light of its degree of severity and the conditions prevailing at the time.

Never take risks in an emergency, for a risk can turn a minor emergency into a major one. The safety of personnel must always come first.

Any temporary repairs effected or arrangements made during or after an emergency must be corrected as soon as it is practically possible.

The emergency procedures are intended as a guide only, for each emergency situation that arises has to be taken in the light of its degree of severity and the conditions prevailing at the time.

4-5 MANUFACTURERS RECOMMENDATIONS

Where the following schedules refer to specific manufacturers operation or fault finding recommendations then reference must be made to the referenced documents located within Section 7 of this manual.

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5 MAINTENANCE PROCEDURES

5-1 INTRODUCTION
5-2 MAINTENANCE MATRIX
5-3 INTRODUCTION
5-4 SPECIALIST MAINTENANCE
5-5 MONITORING OF ELECTRICAL SERVICES
5-6 PERIODIC TESTING AND INSPECTION

5-1 INTRODUCTION

It should be remembered that remotely controlled systems items of equipment may become energised without warning. It is therefore imperative to ensure that any such item of equipment is fully isolated before maintenance work is carried out.

5-2 MAINTENANCE MATRIX

MAINTENANCE / CLEANING INSTRUCTIONS									
ITEM	D	W	1M	3M	6M	12M	36M	60M+	NOTES
PERIODIC INSPECTION & TEST								X	
HV/LV TRANSFORMER						X			
STANDBY GENERATOR			X						REFER TO PMS GENERATOR MANUAL LOCATED IN SECTION 7
SWITCHBOARDS		X		X		X			
DISTRIBUTION BOARDS					X				
RCBO'S (TEST REGULARLY)									
LUMINAIRES				X		X			
EXTERNAL LIGHTING		X				X			
EMERGENCY LUMINAIRES	X		X		X		X		
BATTERY CHARGING EQUIPMENT						X			
BATTERIES				X		X			
FIRE ALARM SYSTEM		X		X		X			SEE MAINTENANCE CONTRACT
DISABLED REFUGE		X		X		X			
DISABLED CALL SYSTEM		X							FUNCTIONAL TEST
MECHANICAL MAINTENANCE				X	X	X			
TELECOMMS/DATA									AS REQUIRED
SMATV/FM SYSTEMS						X			REFER TO SPECIALIST
ACCESS CONTROL SYSTEM						X			REFER TO MAINTENANCE CONTRACT
SECURITY SYSTEMS						X			REFER TO MAINTENANCE CONTRACT AS NACOSS REQUIREMENTS

For more specific maintenance frequencies and maintenance instructions refer to Maintenance Providers maintenance information.

5-3 INTRODUCTION

The maintenance instructions comprise, generally, recommendations relating to the schedule of maintenance tasks, designed to ensure that the various maintenance procedures required for each of the individual services and systems are carried out at the correct intervals in order to maintain all plant at the maximum efficiency and minimise breakdown and interruption to services.

Maintenance is required to be carried out to comply with equipment manufacturer's warranties. The maintenance instructions within make certain recommendations with regard to the general maintenance procedures to be adopted in respect of non-specialised plant, the maintenance of specialised plant being detailed in the separate instruction manuals provided by the equipment suppliers. All required manufacturers literature is supplied with this manual.

Prior to carrying any maintenance works the operative must be trained and competent both in the equipment and systems being maintained as well as in the complexity level of work being carried out. The operative should be fully conversant with the relevant Health and Safety Legislation. Isolation means the operation of switches, the removal of fuses or links, or physical disconnection of conductors in order to make any system, or part of a system, DEAD and secured so that it cannot be inadvertently made alive. This will involve cutting off an electrical installation, a circuit or an item of equipment from every source of electrical energy.

A regular and organised programme of maintenance work, planned to cover all details of the installation within given maintenance periods, will ensure continued satisfactory operation with a minimum liability to interruptions to supply caused by equipment faults.

Careful attention must be given to securing the safety of personnel and equipment while maintenance or repair work is in progress.

Where maintenance work is in progress a DANGER notice must always be attached to any "live" apparatus to call attention to the danger of approach. A CAUTION notice must always be attached to plant or its associated control equipment warning of possible damage to equipment, which may be caused by interference.

Before any work is commenced on any item of equipment, the supply and ancillary circuits must be made "dead" and locked off.

5-4 SPECIALIST MAINTENANCE

The maintenance of specialist systems and equipment should only be carried out by the relevant specialist because of the requirements for particular knowledge and the use of special equipment and methods.

The following systems are considered to require specialist maintenance due to the nature of the systems and the specialist equipment required carry out testing and maintenance. It is generally a requirement of building insurance policies, local authority and fire authorities that approved and recognised Contractors provide the required certification.

- Fire Alarm System.
- Intruder Alarm Systems.
- Access Control Systems.
- Lightning Protection Systems.

5-5 MONITORING OF ELECTRICAL SERVICES

It is recommended that the following monitoring information is kept to assist in the formation of a bespoke maintenance programme for the building as well as energy consumption analysis.

- Power Consumption.
  - Recording of power consumption of as well as maximum demand readings.
- Batteries.
  - Record specific gravity of electrolyte in lead acid batteries as well as nickel cadmium alkaline batteries.
- Lighting.
  - Illuminance levels.
- Testing.
  - Electrical services to NICEIC recommendations.
  - Fire, Security and Safety Systems
  - Emergency Lighting
- Maintenance.
  - Dates of all systems maintenance
  - Faults, repairs and alterations
  - Dates of all systems
- Controls.
  - Details of controls, time switches etc, settings and alterations.
- Spares.
  - Details of spares and stock levels.

5-6 PERIODIC TESTING & INSPECTION

The periodic routine maintenance of the plant and equipment as recommended in the following sections should be adequate to maintain the installation in a safe and serviceable condition.

The complete installation should, however, be subject to periodic inspection and testing from the completion date on the installation and in accordance with the current edition of IEE regulations BS7671 Guidance Note 3 Inspection & Testing.

Where manufacturers recommend it and suppliers that specific items of plant should be subject to inspection overhaul on a periodic basis, arrangements should be made to ensure that such recommendations are carried out.

General Operation and Maintenance of the System

General

- Visual inspection of the installation
- Correct operation of accessories

Light Fittings

- Annual cleaning of diffusers/reflectors
- All internal and external light fittings are LED and will not require any maintenance except general cleaning of the diffusers.

Emergency Lighting

- Monthly testing of emergency lighting
- Six monthly testing of emergency lights for 1 hour
- Annually testing of emergency lights for 3 hours

Distribution Boards

- No maintenance required.
- The electrical installation should undergo periodic inspection and testing on a 5 yearly basis.

Electrical Accessories

- No maintenance required

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6 EQUIPMENT & SUPPLIERS SCHEDULES

6-1 MANUFACTURERS DETAILS
6-2 SCHEDULE OF LUMINAIRES
6-3 SCHEDULE OF CONSUMABLES FOR LUMINAIRES
6-4 SPECIALIST SYSTEM PROVIDERS

6-1 MANUFACTURERS DETAILS

Schedule of Materials

Item	Manufacturer	Cat No
Switch Gear		
(DBs, MCBs, RCBs))		
Dist board TP 12 way	MG	SEA9BN12
Disc WS TP MGI1253N	Schneider	SEA91253N
RCBO SP C 32A30MA	MG	A9D11832
RCBO SP C 20A 30MA	MG	A9D11820
RCBO SP C 10A 30MA	MG	A9D11810
MCB SP type C 63A	MG	A9F54163
MCB TP type C 32A	MG	A9F54332
RCD VIGI IC60 RCD 30MA	Schneider	A9V51263
Containment		
Conduit 25mm	Acel	AC77692
Through box 25mm	Acel	AC7906
Terminal box 25mm	Acel	AC7902
Flat Crampet	Acel	AC7991
Bend, 90Deg Inside Lid	Acel	AC777418
Tee 100x100mm ins lid	Acel	AC777453
Trunking 4x4 galv	Unitrunk	TR44
Flat Bend 4x4 galv	Unitrunk	TR44GBT90
Accessories		
Red M/C Neon Key Switch	RPP	RPE5142
Alarm Kit 1 Zone	Acel	AC5400
White socket 2 switched13A	MK Electric	K2747WHI
White conn unit fused	MK Electric	K330WHI
Socket 2g switched gry 13A	Mk Electric	K56482GRY
Socket 2g switched 13A	MK Electric	K2946ALM
Switch 1 gang 2way 10A	Mk Electric	K4871WHI
Front plate 2 module	MK Electric	K3632WHI
Blank insert 1 module	MK Electric	K4880WHI

Schedule of Materials continued

Item	Manufacturer	Cat No
Accessories		
Frame 1 gang 2 module	MK Electric	K3702
Grid switch 2 way sp 20A	MK Electric	K4892WHI
Frontplate 4 module	MK Electric	K3634WHI
Box 1gang 32mm surface	MK Electric	K2181WHI
Frontplate 6 module	MK Electric	K3636WHI
Box 6 & 8 gang flush	MK Electric	893ALM
Frame 2 gang 3 module	Mk Electric	K3703
Frame 2 gang 4 module	MK Electric	K3704
Grid switch 2 way SP Key	Mk Electric	K4898ELWHI
Fan Isolator3pn 10A	MK Electric	K4859WHI

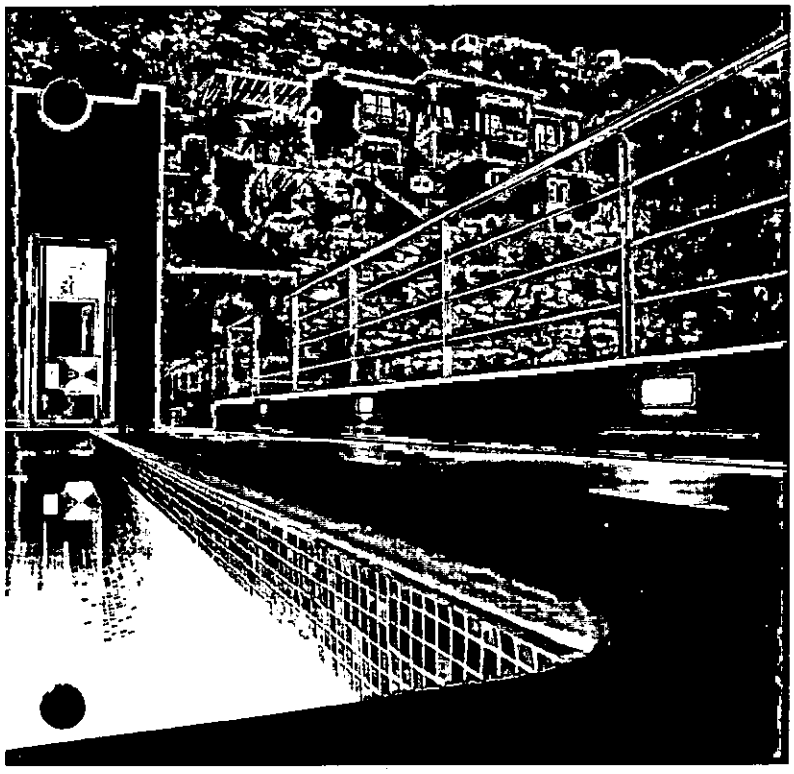
6-2 SCHEDULE OF LUMINAIRES

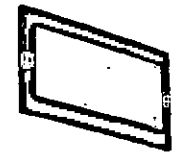
Model Name	Manufacturer	Part Number	Reference
Fixed down lighterM10	Aurora	AU-FRL801/30	
25w comfort down lighter		AU-FRL801/30EM	
Lightseal Led Ip 44	Illuma	DLED85241-WH830	
		DLED85241-WH830EM	
Micropoint 2 E/Light	Eaton	MP203H	
Inox s/steel b/light 6w	Ansell	ABLFLED/CW	
3.6W Straight mains groundlight	Collingwood	GL038NW	
21W 4000k LED Floodline	Collingwood	FL200NW	
1.5W 6000k LED B/light	Aurora	AU-STL441W	
Craft s LED7500-840 pm wb	Zumtobel	42183262	
Craft universal Bracket	Zumtobel	22169366	
Logs in up/down wall light	Logs in	151321	
Inset Wall lights dim 6w 80	Wever & Ducre	W71018414-01	
Floodlight, Twin LED PIR, IP44	ACEL	AC444586	
Recessed PIR 360Deg	Robus	RR360-01	

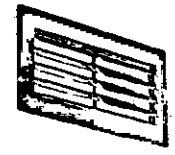
6-3 SCHEDULE OF CONSUMABLES FOR LUMINAIRES

Reference	Lamp Type

There are no consumable parts







ATIM

EXTERIOR WALL RECESSED

1.0 LED

[illegible] LED 6W | 220-240VAC | 50-60Hz
PCB 3-step | incl. PS | phase-cut dim
stainless steel | extruded glass

[illegible] +1 step [illegible] [illegible]

[illegible] [illegible]

3000K | >80 CRI | 380lm

CODE
[illegible]

OPTIONAL

CODE
leaves long [illegible]

WEYER & DUCRE [illegible]

Beckley Village Hall
Luminaire Schedule

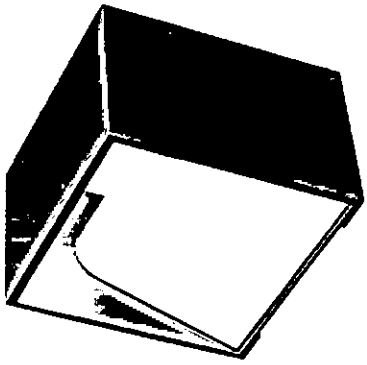
INTERNAL

Symbol	Manufacturer/Description	Fitting	Colour temp
A1	Zumtobel Wall mounted uplight	CRAFT SPM	3000K
A2	LED Inside Wall mounted up/down light	LOGS IN	3000K
B1 & B3	Aurora Recessed downlight	M10	3000K
B2	Ansell Recessed downlight	Comfort	3000K
C1	Ansell Surface mounted spotlight	Unity 0 LED	3000K
EXIT	Eterna Emergency EXIT sign	LEDEHSLS	N/A
E	Firesafe 1W LED recessed emergency downlight	ELD1	N/A

EXTERNAL

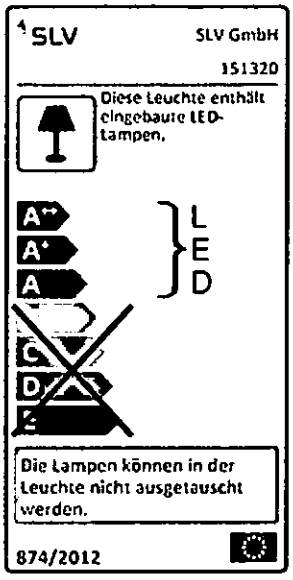
Symbol	Manufacturer/Description	Fitting	Colour temp
D1	Aurora Recessed bricklight	AU-STL441	6000K
F1	Collingwood Recessed ground light	GL050	
F2	Collingwood Recessed ground light	GL038A	
G1	Collingwood Directional spotlight	UL030	
J1	Collingwood Directional linear floodlight	FL200	

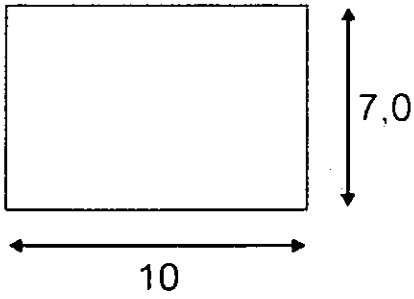
SLV



LOGS

wall light, LED, 3000K, square, black/brass, incl. LED driver

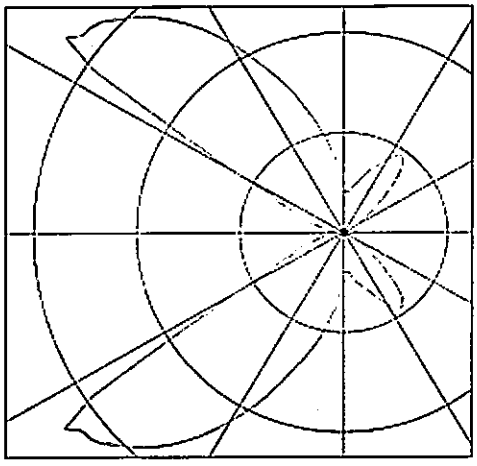




Article number	151320
Feed-in capability	No
Number of light sources	1
Lamp included	Yes
Width	10 cm
Height	7 cm
Depth	10 cm
Net weight	0.525 kg
Gross weight	0.629 kg
Voltage	230 Volts
Max. wattage	5 Watt
Protection class	I
Average lifespan	30000 Hours
Colour temperature	3000 Kelvin
Colour rendering index	80
Luminous flux	400 lm
Energy efficiency class	A+
Lamp	COB LED
Material	Aluminium
Colour	Black / Brass
Way of mounting	Surface wall mounting
Light distribution type 1	direct-indirect
Light distribution type 3	Axis-symmetric

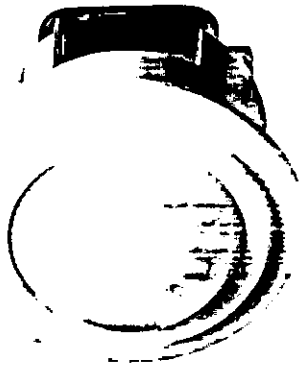
The distinctive LED UP/DOWN Wall Mounted Luminaire LOGS IN features an extremely modern, high output COB LED that gives off indirect, warm white light. Therefore, it is perfectly suited for the glare-free illumination of steps, stairways, and rooms. Thanks to the constant current driver integrated into its rosette, the luminaire can be directly connected to 230V electrical mains.

SLV



LIGHTING CONTROLS
INTERNAL PASSIVE INFRA-RED DETECTOR

ROBUS®
QUALITY PRODUCTS BY LED GROUP



Code: RR360-01	
Diameter:	75mm
Depth:	60mm
Cut out:	62mm
Box Qty:	10
Weight:	0.14Kg
Max Watt:	1000W Resistive 500W Fluorescent
IP:	20

This high quality great looking recessed sensor has a slim profile and will contribute to the energy savings required to meet the carbon reduction targets of our buildings. Combining passive infra-red and photocell technology, it ensures the lighting comes on only when natural light alone is not enough, although the lux level setting may be set to ensure lighting and fans are activated in toilet areas. It is suitable for switching resistive or fluorescent type loads in all building types and finds applications for switching lighting in:

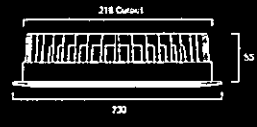
- Commercial offices
- "Back of house" areas
- Storage rooms
- Stairways
- Corridors
- Workshops
- Sheds
- Toilets
- Garages
- Kitchens
- Basements
- Apartment communal areas

FEATURES	BENEFITS
• Injection moulded ABS body	• Strong, durable and impact resistant • Less susceptible to damage
• Clear terminal cover • Integral cable clamp • Large mains terminals for 2 x 1.5mm2 conductors	• Terminations are safe and visible • Cables are clamped for safety • Enables loop-in, loop-out for supply to other sensors • Provides for 2 switch wires for switching additional fittings
• Good quality spring clips	• Ensures the sensor is pulled flush to the surface
• Passive infra-red	• Ensures the light is switched on when sensor detects movement of heat • Saves energy by ensuring lighting is switched off when the area is vacated • Less likely to false trigger compared to microwave which switches on any movement
• Photocell	• Even more energy saving by only switching the lighting on if the ambient level is not sufficient
• Off delay timer 10 sec - 16 min	• 10 second setting enables walk test to ensure the sensor is operating correctly • Short time delay used for tungsten lighting • Longer time delay for fluorescent, PL, and 2D lighting
• 10m diameter sensing when mounted at 3m high	• Provides area sensing and can be linked to other sensors for larger areas such as long corridors or offices
• 5 year guarantee	• A quality energy efficient long life product

Please Note- Information contained in this document is subject to change without prior notice.

Lightseal LED: An IP65 rated moisture and particle ingress protection downlight with an ultra thin profile, ideal for installations that require a shallow ceiling solution.

- Dimmable options available
- IP65 rated
- Tension springs allow for quick installation
- Opal lens with ultra thin profile



Description	Lightseal LED
Light Source	LED (Built in)
Lamp Type	Samsung LED
Beam	110°
Lumens	1500lm
Wattage	24W (Warm White) 22W (Neutral White)
Voltage	240V
Control Gear	Remote (Supplied)
Symbols	
Weight (kg)	1.00
Part Code[1]	DLED03241
Colour/Finish[2]	-WH
Dimmable[3]	None (No Code Required) /ELDD (DALI Dimmable) /ELDA (Analogue Dimmable)
[redacted]cy[4]	None (No Code Required) E (Emergency)
Colour Temperature[5]	/830 (3000k-Warm White) /840 (4000k-Neutral White)

- For up-to-date wattages, visit www.illuma.co.uk
- Refer to page 216 for further dimming information.
- /ELDA Analogue Dimmable Ballast 1-10/DC

Product Code = [Part Code[1]] - [Colour/Finish[2]] - [Dimmable[3]] - [Emergency[4]] - [Colour Temperature[5]]

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W: www.illuma.co.uk

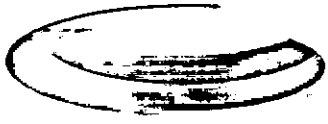
Lightseal LED IP65

product data sheet

DLED85241-WH

Part code:DLED85241-WH830

Description
LED, IP65 rated moisture and particle ingress protection.



APPLICATIONS

Ideal for humid environments such as bathrooms, showers, kitchens and exterior canopies, and also for general lighting where energy efficiency is required.

SALES FEATURES

Comprehensive range

Supplied complete with Electronic power supply.

Quality

Highly-tooled, die-cast housing. Fresnel lens: IP65, Shallow recess depth of 75mm. Suitable for direct mounting on flammable surfaces. Guaranteed for five years.

Ease of installation

Tension springs ensure positive fixing without the need for tools, and allow removal for maintenance and decoration.
Comprehensive instructions.

Lamp description

50,000 hour long life LED light source.

Illuma technical information sheet, copyright 2015

illuma

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W: www.illuma.co.uk

TECHNICAL SPECIFICATION

Technical Data

Cut out dia. (mm)	210
IP Rating	65
Weight (kgs)	1.09
Input Voltage(V)	240V
Dimming	Not suitable for dimming
Lamp Colour	830/840

MATERIALS

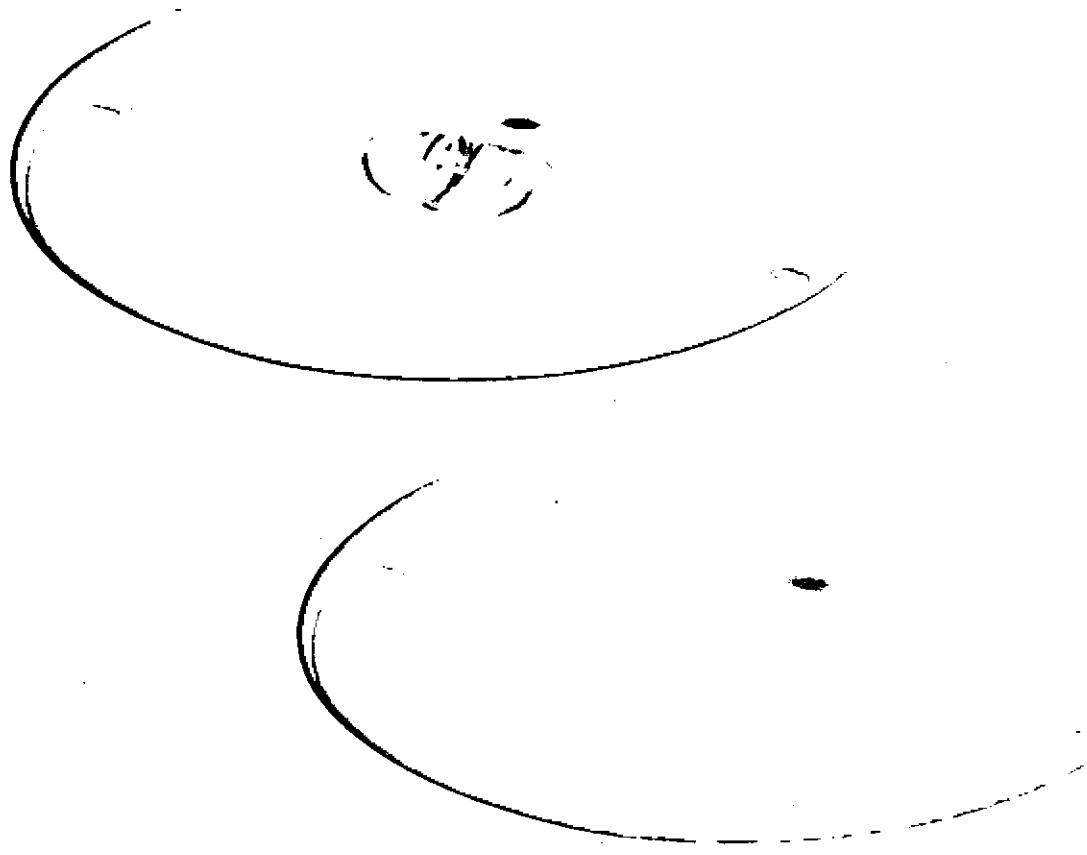
Heatsink & Trim	Die-cast Aluminium
Lens	Polycarbonate
Finish	Powder coated

LAMP DATA

Lamp Type	Lamp Cap	No.	Lamp Watts	Lamp Current	Lamp Lumens	Lamp Life
LED	N/A	1	24	0.09	2200	50000

Illuma technical information sheet, copyright 2015

Micropoint 2 Recessed



Micropoint 2 is a high specification competitively priced emergency LED luminaire. Micropoint 2 utilises the latest LED and optic technology to provide an unobtrusive, high quality, high performance luminaire for indoor use where aesthetics are of prime importance. Micropoint 2 has been designed for ease of installation, reduced power consumption and minimal maintenance, reducing the TCO (total cost of ownership) without compromising on aesthetics. The innovative optic design used in Micropoint 2 has been developed and produced by Eaton. It utilises light efficiently from the LED to provide a uniform distribution in either an escape route or for anti-panic emergency lighting in open areas. This improves the performance and reduces the electrical power consumption. Preset light levels can be adjusted in maintained mode to operate as a security light, adjustable using a touch sensitive button on the luminaire fascia.

- Versatile multi-functional use (escape and open area anti-panic)
- IP44 ingress protection (from below ceiling) ideal for bathrooms
- Low power consumption reducing cost of ownership
- Plug and socket supply for ease of installation and maintenance
- Excellent spacing reducing the quantity of fittings required
- 60,000 hour life LED for reduced maintenance
- Self-contained, slave, self-test and addressable testing options

Emergency

Micropoint 2 Recessed

Lamp and Control Gear Options

- 1 x high power 1W white LED
- Consumption (maintained) - 6.9VA/5W
- Consumption (non-maintained) - 3.6VA/2.5W

Materials

- Luminaire head - polycarbonate
- Remote gear pod - flame retardant ABS
- Battery - NiMh (self-contained version)

Installation Notes

- Flush mount
- Spring retaining clips for surface installation (install from below ceiling)
- Plug and play socket for mains supply
- Cut-out diameter 64mm
- No disassembly required during installation

Options

- Maintained luminaire can be operated in non-maintained mode
- Can be used as security light with 4 pre-set light levels
- Intellem self-test (see page 243)
- CGLine+ addressable test system (see page 237)
- EasiCheck addressable test system
- Central slave versions
- CEAG slave versions

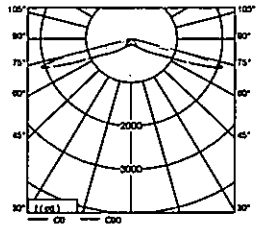
Specification

Self-contained - To specify: High performance LED self contained emergency luminaire with 1W LED to give 20m escape route, with remote gear pod capable of installation through luminaire ceiling cut-out and NiMh Battery, as per Micropoint range, part no. _____

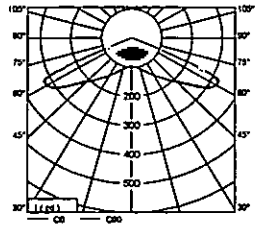
Self-test/Addressable test - To specify: High performance LED intelligent self testing/central system compatible slave emergency luminaire with 1W LED to give 20m escape route, with remote gear pod capable of installation through luminaire ceiling cut-out, as per Micropoint range, part no. _____

Photometric Data

Cat. No. MP2E3H
Escape Route

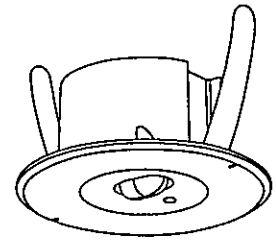


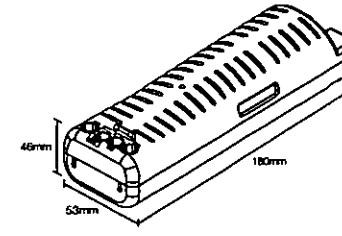
Cat. No. MP2O3H
Open Area Anti-Panic

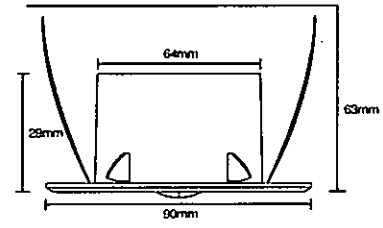


Mode	Mount height (m)	Lux level directly under				
Escape optic (Asymmetric)				Escape Route 2m wide 1 lux min		
Self contained	2.5	2.7	-	-	10.0	7.5
	2.8	2.2	-	-	10.1	8.1
	3.0	1.9	-	-	10.1	8.3
Open Area optic (Symmetric)				Open (anti-panic) area 0.5 lux min		
Self contained	2.5	1.7	5.3	10.5	10.5	5.3
	2.8	1.4	5.7	11.5	11.5	5.7
	3.0	1.2	5.9	12.2	12.2	5.9
	4.0	0.67	4.0	12.5	12.5	4.0
Open Area optic (Symmetric)				Open area 1.0 lux min		
Self contained	2.5	1.7	4.3	9.4	9.4	4.3
	2.8	1.4	3.3	9.3	9.3	3.3
	3.0	1.2	3.2	9.2	9.2	3.2

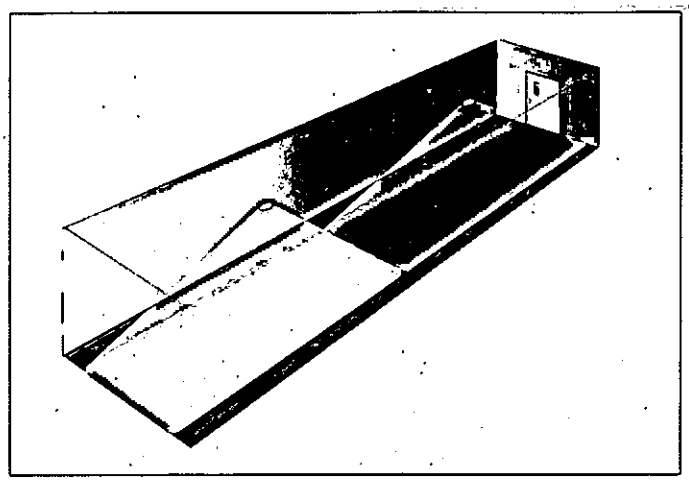
Dimensions



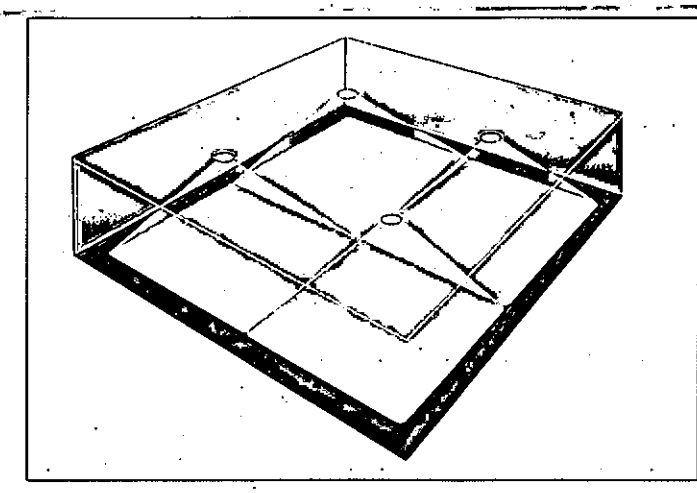




Escape Route (Asymmetric - 1 Lux)



Open Area (Symmetric - 0.5 Lux)

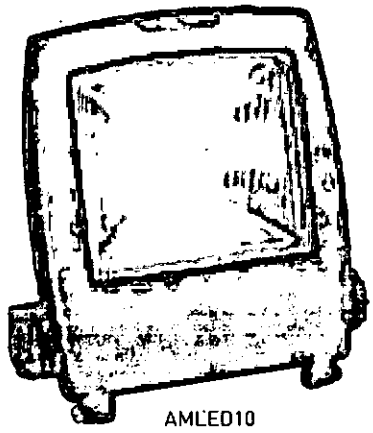


Catalogue Numbers

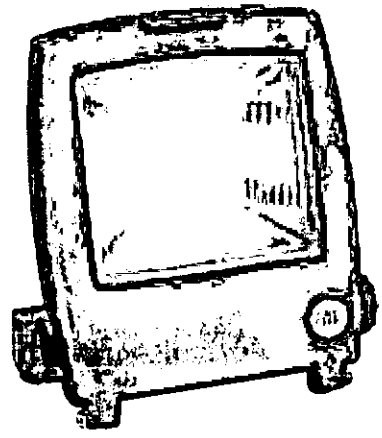
System Mode	Cat No	Weight (kg)
Maintained 3Hr Open Area	MP2O3H	0.45
Maintained 3Hr Escape Route	MP2E3H	0.45
Maintained 3Hr Open Area EasiCheck 2	MP2O3HEC2	0.45
Maintained 3Hr Escape Route EasiCheck 2	MP2E3HEC2	0.45
Maintained 3Hr Open Area Intellem self test	MP2O3HIS	0.45
Maintained 3Hr Escape Route Intellem self test	MP2E3HIS	0.45
230V Mains Slave Open Area	MP2OS230	0.25
230V Mains Slave Escape Route	MP2ES230	0.25
230V Mains Slave Open Area EasiCheck	MP2OS230EC	0.25
230V Mains Slave Escape Route EasiCheck	MP2ES230EC	0.25
230V CEAG Slave Open Area	MP2OS230CGS	0.24
230V CEAG Slave Escape Route	MP2ES230CGS	0.24
CGLine+		
Maintained 3Hr Open Area	MP2O3HCGL	0.45
Maintained 3Hr Escape Route	MP2E3HCGL	0.45

Mira LED Floodlight

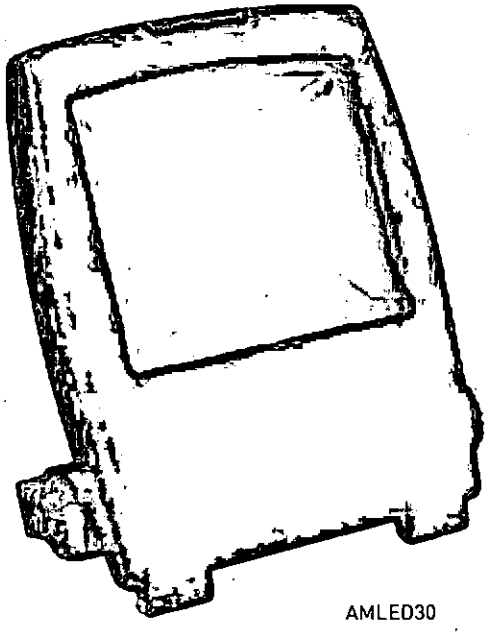
Supplied c/w Integral Driver



AMLED10



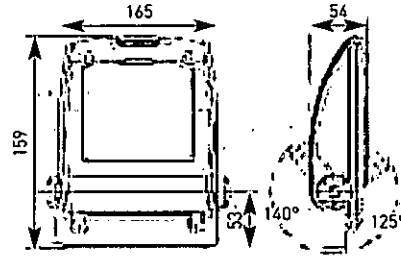
AMLED10/PIR



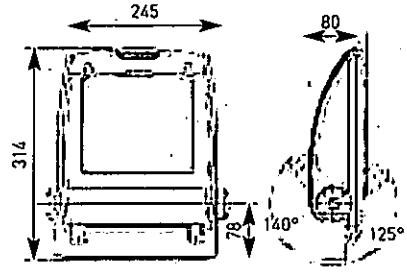
AMLED30

- Architectural slim die-cast LED floodlight
- 10W LED ideal for halogen replacement
- 30W LED comparable light output to 35W HQI
- Optically textured glass for enhanced light output
- Heat sink design provides optimum LED life
- Graphite textured paint finish
- Pre-wired with 1 metre of rubber insulated cable for ease of installation
- 40,000 hours average lifetime
- Non-dimmable

See accessories on page 324



AMLED10



AMLED30

PIR

4 or 8 metres
1,3 or 6 minutes
30-1000 LUX

LED Information

Total (Watts)	10W
	30W
Lumens 10W	700lm
Lumens 30W	2100lm
CCT	4750K
Input	240V

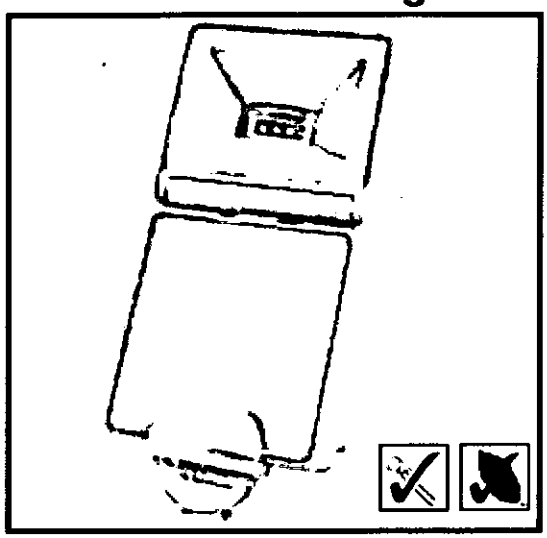
55 Lm/W

CE IP65

Code	Lamp	Description
AMLED10	LED	10W - Cool White
AMLED10/PIR	LED	10W c/w PIR - Cool White
AMLED30	LED	30W - Cool White

Acel Energy Saving Floodlights LED

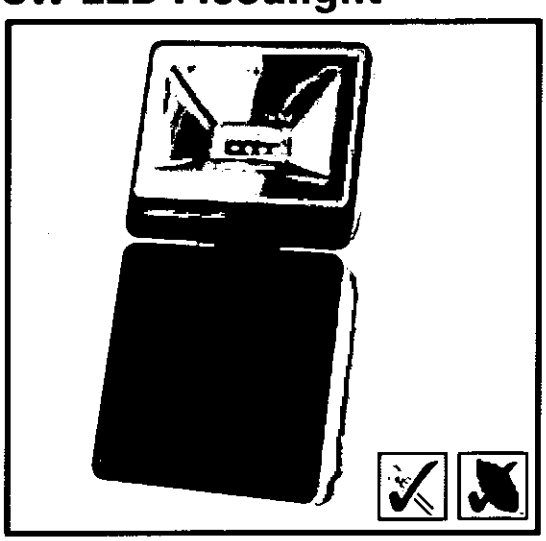
8W LED PIR Floodlight



- Powerful 8W LED energy saving PIR floodlight – equivalent to 100W incandescent lighting with less than 10% of the running costs
- Pan and tilt light aiming adjustment
- Light on times adjustment 5 seconds – 10 minutes
- Optional mode settings – dusk to dawn and test mode
- 140° PIR detector within adjustable 180° range and 10m detection range
- IP44 weatherproof rating

Part No.	Description
AC444582	LED energy saver PIR floodlight black
AC444583	LED energy saver PIR floodlight white

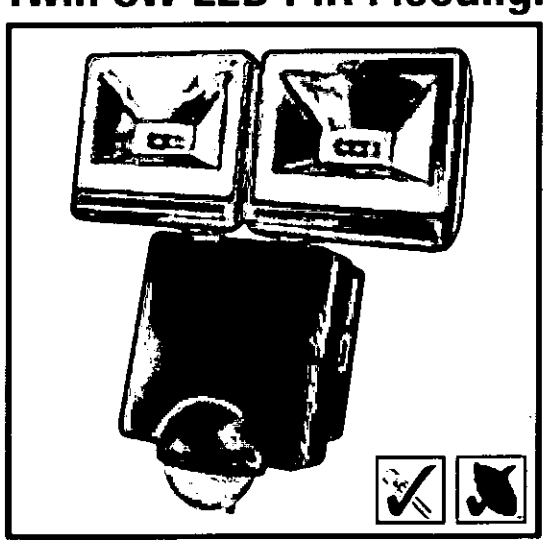
8W LED Floodlight



- Powerful 8W LED energy saving floodlight – equivalent to 100W incandescent lighting with less than 10% of the running costs
- Pan and tilt light aiming adjustment
- Instantly bright like halogen but under half the size
- Ideal for both indoor and outdoor installations

Part No.	Description
AC444580	LED energy saver floodlight black
AC444581	LED energy saver floodlight white

Twin 8W LED PIR Floodlight



- Powerful 2 x 8W LED energy saving PIR floodlight – equivalent to 200W incandescent lighting with less than 10% of the running costs
- Pan and tilt light aiming adjustment
- 140° PIR detector (pan only) within adjustable 180° range and 10m detection range
- LUX (light level) adjustment – day to night (2 to 200 LUX permanently on when at max.)
- IP44 weatherproof rating

Part No.	Description
AC444586	Twin LED energy saver PIR floodlight – black
AC444587	Twin LED energy saver PIR floodlight – white

6-4 SPECIALIST SYSTEM PROVIDERS

Contact Details:

Fire Alarm System

Oak Park Alarms
34 High Street
Winslow
Bucks
MK18 3HB

Data

Adds, Moves & Changes Ltd,
Ams South Street House
51 South Street
Isleworth
Middlesex
TW7 7AA

Fire Alarm System

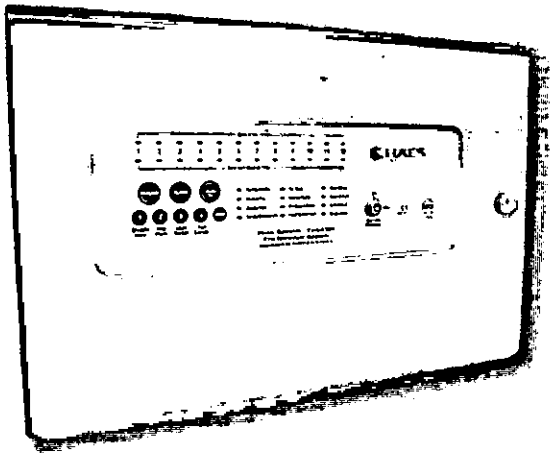
A conventional automatic fire detection system has been installed to the building under this contract.

For user instructions please refer to the manufacturers literature.

HAES

EXCEL-EN

EN54 APPROVED CONVENTIONAL CONTROL PANEL



The Excel-EN is the latest conventional fire alarm panel from Haes Systems and supersedes the acclaimed Excel range.

Improvements have been designed into the new panel based upon extensive research from customers, design consultants and installation engineers. This input has resulted in a panel that continues the Haes attributes of quality and reliability, that is easy to install, maintain, and is simple to operate for the end user.

The Excel-EN panel is available from 2 to 12 Conventional and/or Twin Wire (sav-wire) zones and is fully approved to European standards EN54-2 & 4; Fire Detection and Alarm Systems – Control & Indicating Equipment.

To assist end users the three main function buttons are colour coded; 'RESOUND' (red), 'SILENCE' (blue) and 'RESET' (green).

The Excel-EN is designed with fire alarm engineers in mind and builds on the rich programming features of the existing Excel range.

Twin Wire mode is selectable, per zone, via DIL switch. In 'Twin Wire' configuration, special detector bases and call points must be used.

All inputs and outputs are fully programmable and include options for delays to outputs and selection of dependency modes A, B or C.

A fully functional repeater panel is available via a plug in comms PCB.

Excel-EN panels support a large range of conventional detectors including, Apollo, Hochiki & Nittan.

Features at a glance

- 2 - 12 zones
- False alarm management modes
- Twin Wire selection by DIL switch
- Approved to EN54-2 & 4
- 3 year warranty
- Class change & alert, programmable inputs
- Programmable relays & outputs
- Modular expansion zone cards
- Test mode
- Key-switch or code entry for activation of controls
- Fully functional repeater panels
- Two monitored sounder circuits fitted as standard. Additional sounder circuits available on the high spec zone cards.

LOSS PREVENTION CERTIFICATION BOARD
LPCB

Approved to:
EN54-2: 1997 + A1: 2006 & EN 54-4: 1997
+ A1: 2002 + A2: 2006

Models	Description
XLEN-2	2 zone Conventional or Twin Wire
XLEN-4	4 zone Conventional or Twin Wire
XLEN-6	6 zone Conventional or Twin Wire
XLEN-8L	8 zone Conventional or Twin Wire
XLEN-8	8 zone Conventional or Twin Wire (high spec zone card fitted)
XLEN-12	12 zone Conventional or Twin Wire (1 x std & 1 x high spec zone card)

+44 (0) 1895 424505
www.haes-systems.com

Compatibility

Haes panels support an extensive range of conventional fire detectors, including Apollo, Hochiki & Nittan.

Twin Wire mode requires special, 'Sav-Wire' detector bases and polarised, 470Ω call points.

Dependency modes require a 220Ω 'Evacuate' call point for EN54 compliance.

Main Features

- 2 - 12 zones
- Twin Wire, selection by DIL switch
- Activate controls via keyswitch or code entry
- Soft tactile buttons for controls & programing
- Conventionally wired, compatible with most detectors
- Integral detector removal monitoring
- 3 Amp switch mode power supply Nom 27V DC
- 2 monitored sounder outputs
- 2 Aux C/O relays (1 x Fire) (1 x Fault). voltage free
- Class change I/P
- Alert I/P
- Fire & fault switched -ve outputs
- Additional sounder circuits, relays & switched -ve outputs available via high spec expansion zone cards
- Program delays to ouputs
- Dependency modes A, B & C
- Test mode, with or without sounders
- Disable zones, sounder O/Ps, aux O/Ps & delays
- Alarm load, 2.4A shared between all sounder outputs
- All sounder circuits are fused @ 1A with resettable fuses.

High Spec Zone Expansion Card

- 2, additional, monitored sounder outputs
- 2, additional, programmable switched -ve outputs
- 1, additional, programmable aux C/O relay

External Indications - Level 1

- Zones in Fire
- Zones in Fault, Disabled or in Test Mode
- Supply Healthy
- General Fire
- General Fault
- General Disablement
- Test Mode
- Sounder Status
- Aux Output Status
- Power Supply Fault
- Delay Status
- Repeater Fault
- System Fault
- Access Level

External Controls - Level 2

- Keyswitch or code entry 'activate controls'
- Colour coded buttons for controls and programming
- Button functions:
  - Resound
  - Silence
  - Reset
  - Disable Mode
  - Test Mode
  - Mute Buzzer
  - Test Lamps
  - Enter

Internal Controls

- PSU Voltage adjustment
- DIL switches:
  - Zonal Twin Wire mode
  - Zone interface quick set
  - Access level 3 mode

Access Level 3 Options

- View event history
- Set buzzer volume
- Clear all disablements
- Initialise factory settings
- Panel wide settings including, change keypad access code, set delay time, and set number of repeater panels
- Set zonal functions including, non latching zones, short cct fire, detector removal monitoring & silent mode
- Set panel & zones to dependancy mode
- Select sounder resound options for zones (EN54 requirement)
- Program inputs
- Program outputs
- Program repeater panels

Cabinet

- 1.2mm mild steel, lockable, 20mm knockouts
- Colour ref: Radon MW334E Interpon powdercoat
- Back box = 450mmW x 300mmH x 85mmD
- Lid = 460mmW x 310mmH x 25mm (Return)
- Max battery size = 2 x 7.0Ah, 12v, SLA

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UB8 2JP
United Kingdom

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Email: enquiries@haes-systems.co.uk
Web: www.haes-systems.com

Company Registration No. 1146067 UK

Assessed to ISO 9001
LPCB Ref. No. 810

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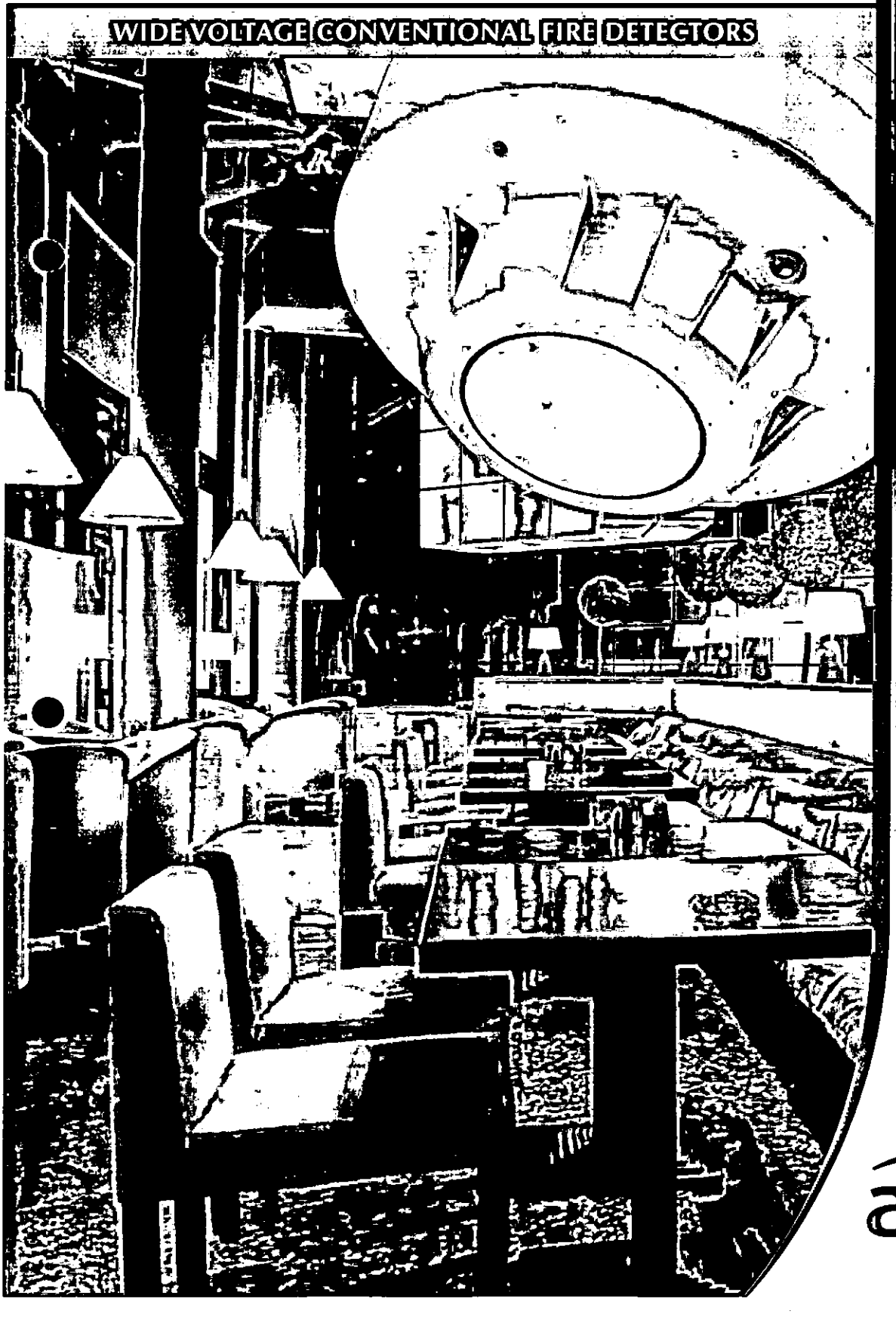
Data Sheet DS0024 Issue 4.0

series 65®

9-33V

WIDE VOLTAGE CONVENTIONAL FIRE DETECTORS



- Wide operating voltage
- Advanced electronic technology
- Flashing LED option
- Magnetic test switch option
- Can be used on security systems
- Proven detection performance
- Designed to meet approvals worldwide
- Range of bases available

apollo

WORLD CLASS FIRE SOLUTIONS

PP2053/2013/Issue 7

series 65®

9-33V

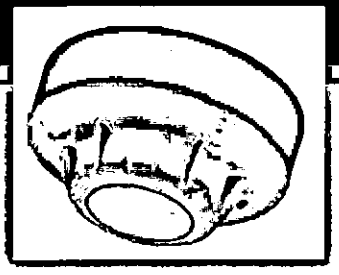
Series 65 incorporates well-proven sensing technologies, together with advances in materials and electronics technology, including an IC based on that used in XP95 analogue addressable detectors.

Having a wide operating voltage of 9-33V, the Series 65 detectors can be integrated into security systems, when used with a relay base.

The Series 65 wide voltage range consists of ionisation, integrating ionisation and optical smoke detectors, 4 grades of heat detector and a range of bases.

Each type of detector is available in three versions:

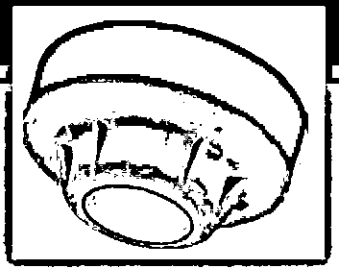
- **a standard version**
- **a version with an LED which flashes continuously in quiescent mode**
- **and one with both a flashing LED and a magnet-operated test switch (reed relay).**



Series 65 Ionisation Smoke Detector

The Series 65 Ionisation Smoke Detector uses a low activity radioactive foil to detect fire by irradiating the air in the smoke chamber and causing a current flow. If smoke enters the chamber, the current flow is reduced leading to an alarm.

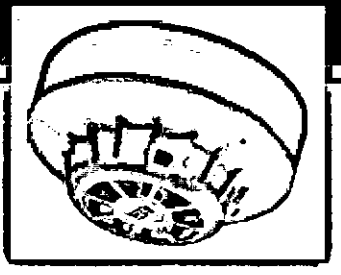
Part numbers:
55000-217 Standard version
55000-216 Flashing LED
55000-215 Flashing LED and magnetic test switch



Series 65 Optical Smoke Detector

The Series 65 Optical Smoke Detector incorporates a pulsing LED located within the housing of the detector. The external detector moulding is identical to that of the ionisation detector but has an indicator LED which is clear in quiescent state but produces a red light in alarm.

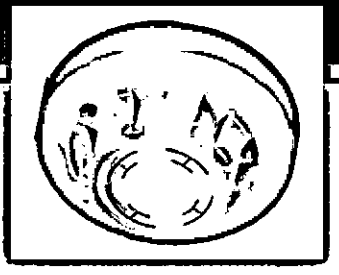
Part Numbers:
55000-317 Standard version
55000-316 Flashing LED
55000-315 Flashing LED and magnetic test switch



Series 65 Heat Detector

The Series 65 Heat Detector monitors temperature by using a dual thermistor network which provides a voltage output proportional to the air temperature. There are 12 heat detectors in the Series 65 range designed to suit a variety of operating conditions. For a full list of available detectors and part numbers visit www.apollo-fire.co.uk/series65heat

Part Numbers:
55000-122 - A1R standard
55000-127 - BR standard
55000-132 - CR standard
55000-137 - CS standard



Series 65 Integrating Ionisation Smoke Detector

Ionisation detectors use a low activity radioactive foil to detect fires by irradiating the air in the smoke chamber and causing a current flow. If smoke enters the chamber, the current flow is reduced leading to an alarm. Circuitry in the Integrating Ionisation Smoke detector protects against transient levels of smoke above the normal threshold for up to 20 seconds.

Part Numbers:
55000-220 Standard version
55000-219 Flashing LED
55000-218 Flashing LED and magnetic test switch

Series 65 Bases

The bases have been designed to enable detectors to be plugged in without any need for force - particularly useful when fitting to suspended ceilings. All Series 65 bases are lockable.

Series 65 relay bases are primarily intended for use with control units using 4-wire detector supply and alarm initiating circuits. Where local codes allow, they may also be used in 2 and 4-wire circuits to provide volt-free control signals to an auxiliary system such as an automatic door closer. They are not suitable for use in systems where it is specified or required that operation of the auxiliary system shall be fail-safe and must not be used with any other type of detector.

There are a range of bases available in the Series 65 range for more information visit www.apollo-fire.co.uk/series65

Series 65 has been tested and approved to the following standards:

EN54-7 – optical and ionisation smoke detectors

EN54-5 – heat detectors

CE 0832

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INVESTOR IN PEOPLE

A HALMA COMPANY

Assessed to ISO 9001:2008 LPCB Cert No. 010

Certificate No. 010 See www.RedBookLive.com

Assessed to ISO 14001:2004 Certificate number EMS 010

apollo WORLD CLASS FIRE SOLUTIONS

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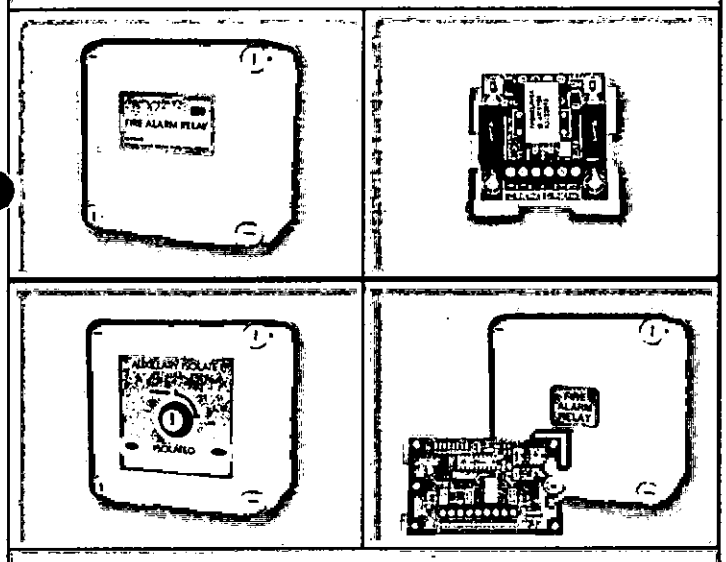
Web: www.apollo-fire.co.uk

HAES SYSTEMS

Relays & Switches



A range of 24v changeover relay switches, suitable for fire alarm use.

The range includes:

- 5 and 10 amp rated relays housed in an IP55 ABS enclosure with an 'activated' LED indicator.
- Relay cards, supplied with nylon self adhesive feet for easy installation.
- Timer/pulsing circuit relay, card or boxed
- Boxed aux relay with isolate keyswitch, indicator lamps and integral buzzer.

All relays are fused, polarised and suppressed

Features at a glance

- All relays, suppressed and polarised
- 24v coils, suitable for fire alarm use
- Individually fused outputs
- Suitable for mains switching (except timer relay, max 50vdc)
- Boxed relays in IP55 rated enclosure
- LED 'activated' indication
- Double pole relays (except 10A relay cards)
- Relay cards with nylon self adhesive mounting pillars
- Timer relay 0-255 minutes or pulsing on/ off 0-16 seconds

Models	Description
REBOX24-5	24vdc 5 Amp D/P Boxed Relay
REBOX24-10	24vdc 10 Amp D/P Boxed Relay
RECARD24-5	24vdc 5 Amp D/P Relay Card
RECARD24-10	24vdc 10 Amp S/P Relay Card
REBOX-ISOL	24vdc 5 Amp Boxed Relay With Isolate Keyswitch
REBOX-TIMER	Timer/Pulsing Boxed Relay
RECARD-TIMER	Timer/Pulsing Relay Card

01895 424505
www.haes-systems.co.uk

Applications / Limitations

Suitable for any 24vdc fire alarm system that requires an auxilliary changeover relay switch

Boxed Relays

- 5 & 10 amp contacts, rated at up to 240vac
- 24vdc coils, polarised and suppressed
- Double pole volt free changeover
- Individually fused outputs
- IP55 ABS enclosure, 115mm x 115mm x 60mm
- 'Activated' LED indicator

5 Amp Relay Card

- Contacts rated at up to 240vac
- 24vdc coils, polarised and suppressed
- Double pole volt free changeover
- Individually fused outputs
- Nylon self adhesive mounting pillars
- 'Activated' LED indicator

10 Amp Relay Card

- Contacts rated at up to 240vac
- 24vdc coil, polarised and suppressed
- Single pole volt free changeover
- Nylon self adhesive mounting pillars

Aux Relay With Isolate Keyswitch

- 5 amp contacts, rated at up to 240vac
- 24vdc coils, polarised and suppressed
- Double pole volt free changeover
- Individually fused outputs
- IP55 ABS enclosure, 115mm x 115mm x 60mm
- 'Isolated' LED indicator & integral buzzer
- Requires permanent 28v supply
- Relay triggered by -ve input

Time Delay/Pulsing Relays

- 1 amp contacts rated at up to 50vdc
- 24vdc coils, polarised and suppressed
- Double pole volt free changeover
- Individually fused outputs
- Available in IP55 enclosure, 115mm x 115mm x 60mm
- Available as card only with Nylon self adhesive mounting pillars
- Time delay 0-255 seconds in 1 second increments or 0-255 minutes in 1 minute increments
- Pulsing mode - OFF period 0-16 seconds in 1 second increments, ON period 0-16 seconds in 1 second increments
- Hold off input. Both time delay and pulsing circuits can be halted (countdown resumes upon release)

HAES SYSTEMS

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Columbia House
Packet Boat Lane
Cowley Peachey
Uxbridge
UB8 2JP
United Kingdom

Tel: +44 (0) 1895 422066
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Company Registration No. 1146067 UK

LPCB — UKAS 007

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LPCB Ref. No. 810

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Data Sheet DS0007 Issue 2.0

39214-212/Issue 1

apollo
FIRE DETECTORS LIMITED

Sav-Wire 2 Base Installation Guide

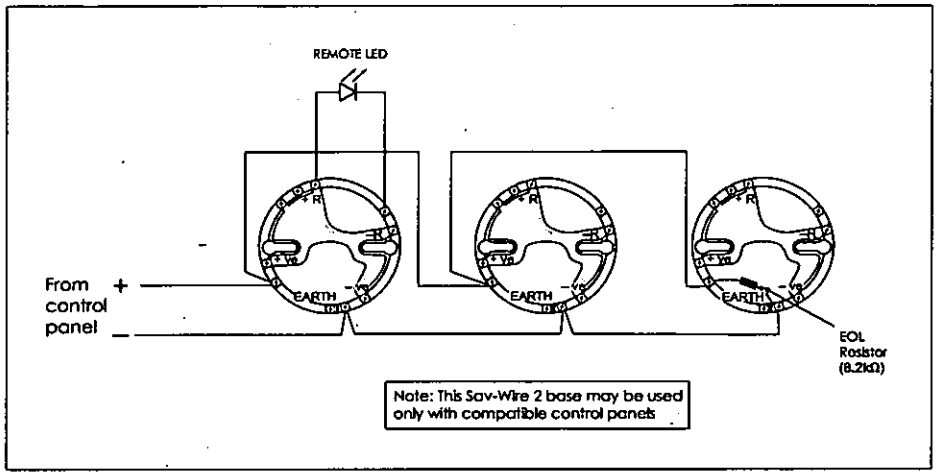
General
The Sav-Wire 2 base, part no 45681-206, is a mounting base for Series 60 and Series 65 smoke and heat detectors and may be used *only* in association with a Sav-Wire-compatible fire control panel. The use of any other control panel will render the fire detection system inoperable.

Detectors, call points and sounders are connected to the control panel by one pair of wires. In the event of an alarm, polarity is reversed in order to activate the sounders without affecting the status of the detectors.

Sav-Wire 2 bases incorporate a circuit which detects the removal of a detector head. If a detector is removed from the base the control panel will give a fault signal.

Installation and Wiring
The base is installed in exactly the same way as a standard base. Screened cables should be used. Install in accordance with BS5839 Part 1.

It is essential to observe polarity when wiring a Sav-Wire 2 base. See wiring diagram overleaf.



Sav-Wire base wiring diagram

Locking the detector
The detector head should be locked into the base, particularly if it is installed at a height less than 3m above the floor level. The reason for locking is to deny unauthorised persons access to the base terminals in order to prevent base malfunction.

Lock the detector with a hexagonal driver, Apollo part no 29600-095.

Commissioning and Maintenance
Fit all detector heads before switching on power. Commission in accordance with BS5839 Part 1.

Routine maintenance should be carried out to BS5839 Part 1.

Apollo Fire Detectors Ltd, 36 Brookside Road, Havant, Hants, PO9 1JR, England
Tel +44 (0)23 9249 2412 Fax +44 (0)23 9249 2754
Email: techsales@apollo-fire.co.uk Website:www.apollo-fire.co.uk

Data

A series of Cat 6 data outlets were installed under this contract, all of which run back to a new data cabinet located in the store room.

7

7 MANUFACTURERS LITERATURE

UNITRUNK

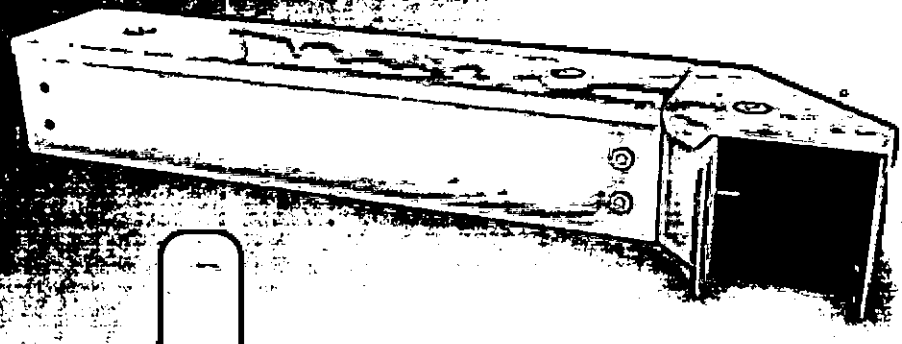
Total Cable Management Solutions

01

STANDARD TRUNKING SYSTEMS

Unitrunk Cable Trunking is a complete range of trunking and fittings manufactured to standards as described in BS EN 50085-1:2005 and is manufactured throughout in best quality hot dipped galvanised sheet steel to BS EN 10346:2009 giving maximum protection from corrosion. Standard Cable Trunking is manufactured and stocked in 3 metre lengths (other lengths available on request please refer to our code guide at the back of this section).

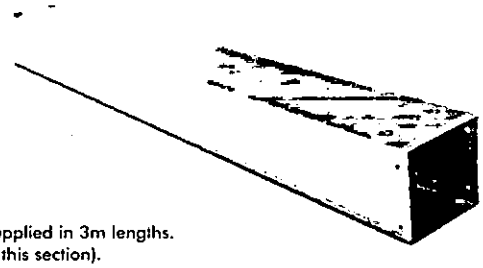
- The Trunking has machine formed inturned, strengthening flanges.
- The lid incorporates a quick action metal locking device operated by a slotted stud. The slot indicates the position of the locking bar.
- Each length of Standard Trunking is supplied complete with a Trunking Coupling, Screws and Nuts.
- Fittings are manufactured from galvanised sheet steel to match the Trunking.
- Bends, Elbows, Tees and Intersection Boxes are complete with integral couplings.
- Special fittings such as Off Sets, Risers, Unequal Tees and Bends can be made to order.
- All dimensions relate to the inside measurement.



PLEASE NOTE:
As it is our policy to improve the design of Unitrunk products, goods supplied may vary in detail from those described or illustrated in this catalogue.

Standard Trunking

Ref.TK22 50mm x 50mm
Ref.TK33 75mm x 75mm
Ref.TK42 100mm x 50mm
Ref.TK44 100mm x 100mm
Ref.TK66 150mm x 150mm

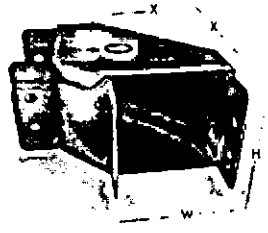


Unitrunk standard trunking is manufactured from pre-galvanised steel and is supplied in 3m lengths. Other sizes and finishes are available on request (See code guide at the end of this section).

Gusset Bend Top Lid

Ref.GTB

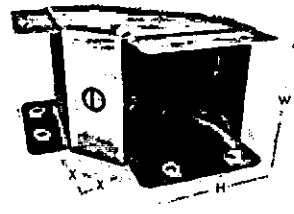
Code	W	H	X
22	50	50	86
33	75	75	115
42	100	50	137
44	100	100	137
66	150	150	190



Gusset Bend Inside Lid

Ref.GIB

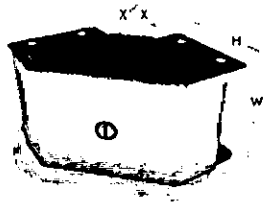
Code	W	H	X
22	50	50	30
33	75	75	30
42	100	50	30
44	100	100	30
66	150	150	45



Gusset Bend Outside Lid

Ref.GOB

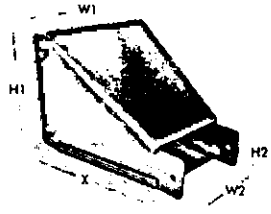
Code	W	H	X
22	50	50	30
33	75	75	30
42	100	50	30
44	100	100	30
66	150	150	45



Reducer

Ref.RE

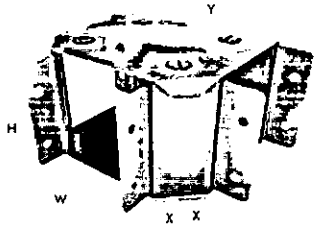
Code	W1	H1	W2	H2	X
33-22	75	75	50	50	150
42-22	100	50	50	50	150
44-33	100	100	75	75	150
66-44	150	150	100	100	150



Gusset Tee Top Lid

Ref.GTT

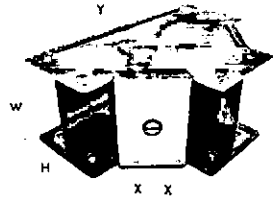
Code	W	H	X	Y
22	50	50	30	120
33	75	75	30	145
42	100	50	30	165
44	100	100	30	170
66	150	150	30	220



Gusset Tee Inside Lid

Ref.GIT

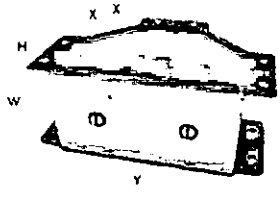
Code	W	H	X	Y
22	50	50	50	150
33	75	75	50	175
42	100	50	50	150
44	100	100	50	200
66	150	150	50	250



Gusset Tee Outside Lid

Ref.GOT

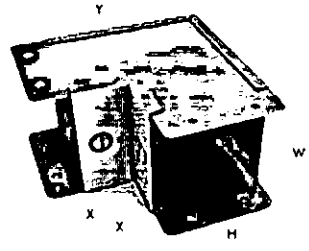
Code	W	H	X	Y
22	50	50	50	150
33	75	75	50	175
42	100	50	50	150
44	100	100	50	200
66	150	150	50	250



Sharp Elbow Inside Lid

Ref.SIE

Code	W	H	X	Y
22	50	50	40	100
33	75	75	40	125
42	100	50	40	95
44	100	100	40	150
66	150	150	40	200



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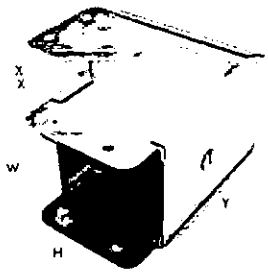
Sharp Elbow Outside Lid

Ref.SOE

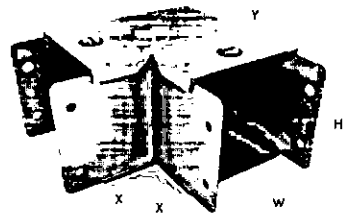
Code	W	H	X	Y
22	50	50	50	100
33	75	75	50	130
42	100	50	50	100
44	100	100	50	155
66	150	150	50	205



Sharp Elbow Top Lid

Ref.STE

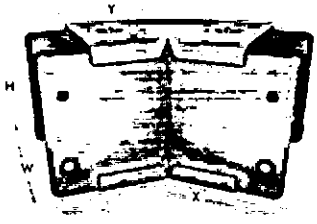
Code	W	H	X	Y
22	50	50	50	100
33	75	75	50	125
42	100	50	50	155
44	100	100	50	155
66	150	150	50	205



45° Elbow Top Lid

Ref.TE

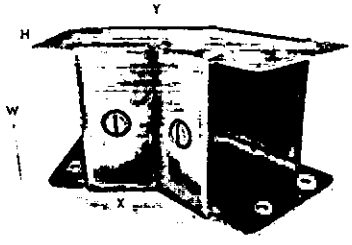
Code	W	H	X	Y
22	50	50	50	70
33	75	75	50	80
42	100	50	50	90
44	100	100	50	90
66	150	150	50	110



45° Elbow Inside Lid

Ref.IE

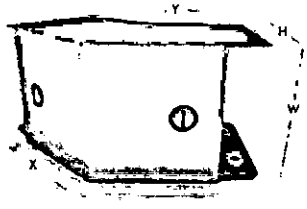
Code	W	H	X	Y
22	50	50	50	70
33	75	75	50	80
42	100	50	50	70
44	100	100	50	90
66	150	150	50	110



45° Elbow Outside Lid

Ref.OE

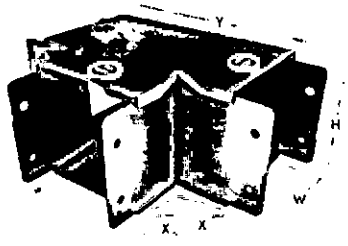
Code	W	H	X	Y
22	50	50	70	50
33	75	75	80	50
42	100	50	70	50
44	100	100	90	50
66	150	150	110	50



Sharp Tee Top Lid

Ref.STT

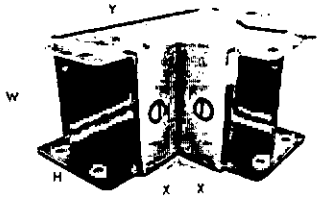
Code	W	H	X	Y
22	50	50	50	150
33	75	75	50	175
42	100	50	50	200
44	100	100	50	200
66	150	150	50	250



Sharp Tee Inside Lid

Ref.SIT

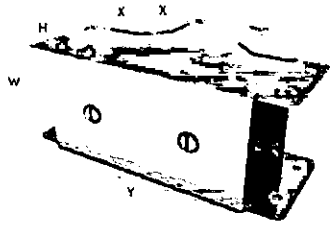
Code	W	H	X	Y
22	50	50	50	150
33	75	75	50	175
42	100	50	50	150
44	100	100	50	200
66	150	150	50	250



Sharp Tee Outside Lid

Ref.SOT

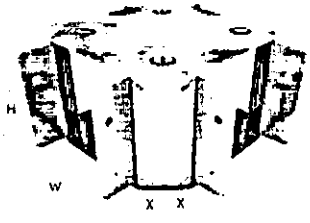
Code	W	H	X	Y
22	50	50	50	150
33	75	75	50	175
42	100	50	50	150
44	100	100	50	200
66	150	150	50	250



Intersection Box

Ref.ITB

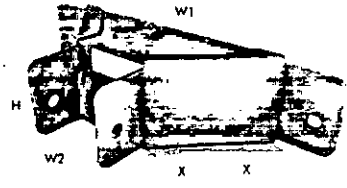
Code	W	H	X
22	50	50	30
33	75	75	30
42	100	50	30
44	100	100	30
66	150	150	50



Flared Flange

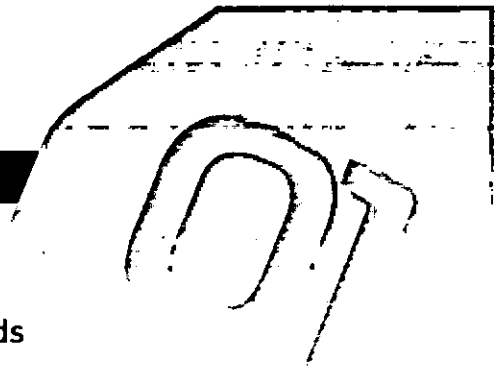
Ref.FF

Code	W1	W2	H	X
22	145	50	50	50
33	175	75	75	50
42	200	100	50	50
44	200	100	100	50
66	250	150	150	50



Product Finishing Key (See page 19)

PG SS PC



Adjustable Bends (Vertical)

Special

(See reference page 119 for details)

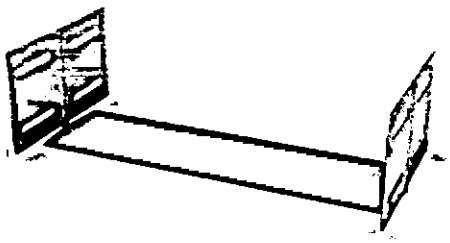
Adjustable Bends (Horizontal)

Special

(See reference page 119 for details)

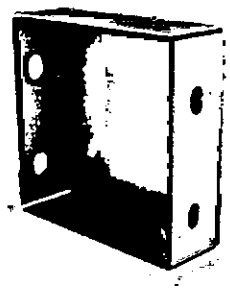
Adjustable Lengths Coupler 0-15° Angle

Ref.TAC



Blank End

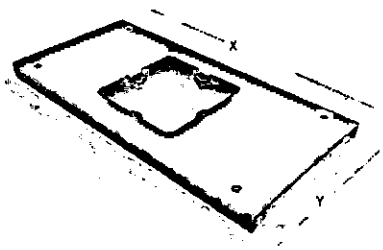
Ref. BE22 50mm x 50mm
Ref. BE33 75mm x 75mm
Ref. BE42 100mm x 50mm
Ref. BE44 100mm x 100mm
Ref. BE66 150mm x 150mm



Socket Outlet Single

Ref.STL1

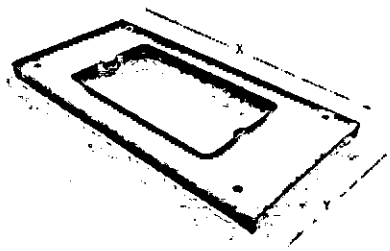
Code	X	Y
4	230	110
6	230	160



Socket Outlet Double

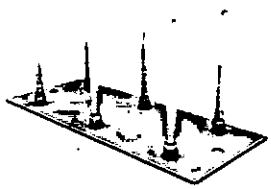
Ref.STL2

Code	X	Y
4	230	110
6	230	160



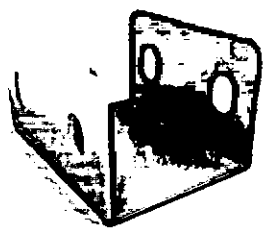
Cable Support

Ref. CS22 50mm x 50mm
Ref. CS33 75mm x 75mm
Ref. CS42 100mm x 50mm
Ref. CS44 100mm x 100mm
Ref. CS66 150mm x 150mm



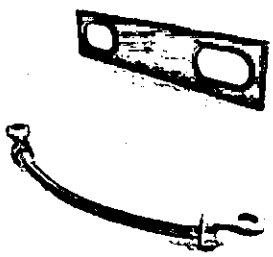
Trunking Coupling

Ref. TC22 50mm x 50mm
Ref. TC33 75mm x 75mm
Ref. TC42 100mm x 50mm
Ref. TC44 100mm x 100mm
Ref. TC66 150mm x 150mm



Earth Link

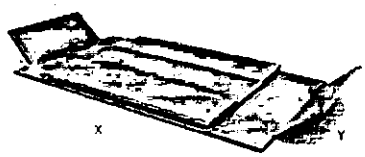
Ref.CES (Plain Copper)
Ref. TCES (Tinned Copper)
Ref. EBS100 (M6 Braid)



Fire Barrier Clip

Ref.FB

Code	X	Y
22	100	41
33	100	60
44	100	85
66	100	137



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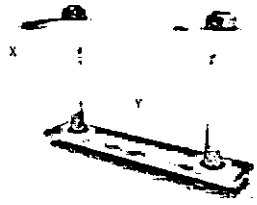
Beam Clamp A

Ref.BCA22 50mm x 50mm

Code	X	Y
22	90	60



Window Beam Clamp

Ref.WBC22 50mm x 50mm

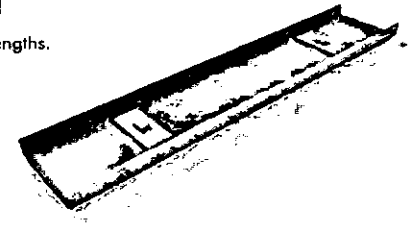
Code	X	Y
22	103	90

C/W M10 x 40 CPB (Bolt).

Galvanised Steel Lid

Ref. GSL2 50mm

Supplied in 3 metre lengths.



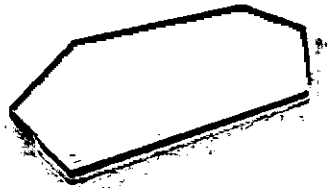
Dividing Fillets

Ref.DF2 50mm
Ref.DF3 75mm
Ref.DF4 100mm
Ref.DF6 150mm

Supplied in 3 metre lengths.

Metal Retaining Strap

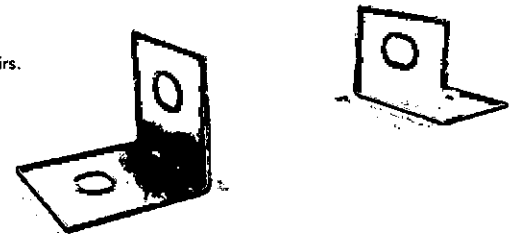
Ref. CR2 50mm (Width)
Ref. CR3 75mm (Width)
Ref. CR4 100mm (Width)
Ref. CR6 150mm (Width)



Flanged Coupling

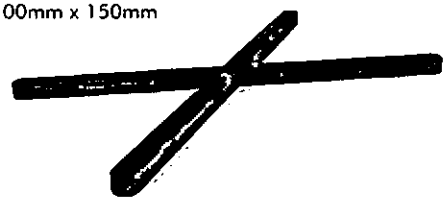
Ref.FC

Sold in Pairs.



Plastic Cable Retaining Strap

Ref. CR2/3 50mm x 75mm
Ref. CR4/6 100mm x 150mm



Hanger Bracket

Ref.HBL

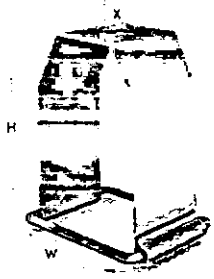
Code	H	W	X
22	85	55	10
33	135	85	10
44	165	115	10
66	245	165	10

Other sizes available on request.

Hanger Bracket (with Swing Bar)

Ref.HBL22 50mm x 50mm

Code	W	H	X
22	55	85	10



Product Finishing Key (See page 19)

PG SS PC

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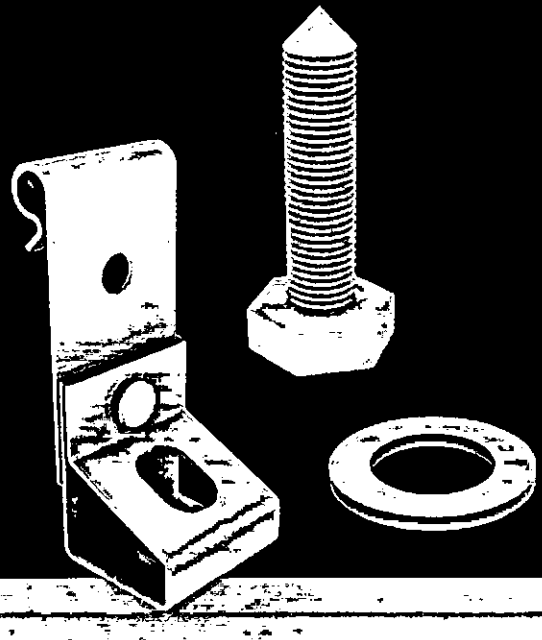
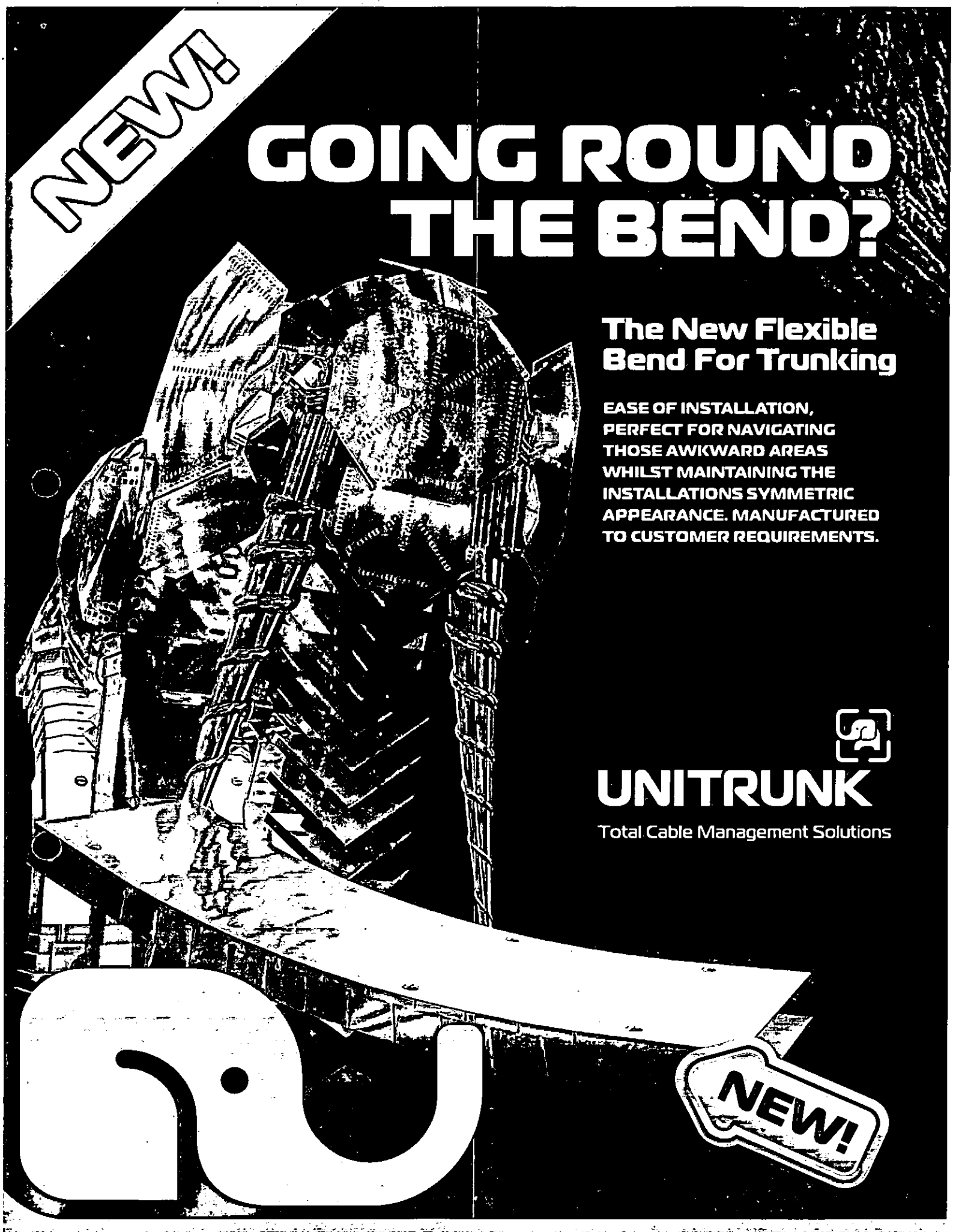
UNITRUNK

Total Cable Management Solutions

DON'T FORGET THE NUTS & BOLTS OF IT...

REMEMBER TO CHECK
SECTION 12, ACCESSORIES & SUPPORTS SEE PAGE 124





SEE PAGE 123 FOR DETAILS

CODE GUIDE

STEP 1 : CHOOSE PRODUCT FINISH

PRE-GALVANISED | STAINLESS STEEL | POWDER COATED

STEP 2 : CHOOSE PRODUCT

CODE	PRODUCT NAME
TK	Trunking (3m lengths)
LT	Lighting Trunking (3/3.5/4.5/6m lengths)
GSL	Galvanised (Width Only)
TC	Trunking Coupling
DF	Dividing Fillet (loose) (Height Only)
GTB	Gusset Bend (Top Lid)
GIB	Gusset Bend (Inside Lid)
GOB	Gusset Bend (Outside Lid)
STE	Sharp Elbow (Top Lid)
SIE	Sharp Elbow (Inside Lid)
SOE	Sharp Elbow (OutsideLid)
GTT	Gusset Tee (Top lid)
GIT	Gusset Tee (Inside Lid)
GOT	Gusset Tee (Outside Lid)
STT	Sharp Tee (Top Lid)
SIT	Sharp Tee (Inside Lid)
SOT	Sharp Tee (Outside Lid)
ITB	Intersection Box
TE	45' Elbow (Top Lid)
IE	450 Elbow (Inside Lid)
OE	45° Elbow (Outside Lid)
RE	Reducer
FF	Flared Flange
BE	Blank End
FB	Fire Barrier Clip
LCS	Lid Clips (Strap and Stud)
FC	Flanged Coupling
CS	Cable Support
CES	Earth Link (Copper) x 10
TCES	Earth Link (Tinned Copper) x 10
CR	Cable Retainer Strap x 10
STL1	Socket Outlet (Single)
STL2	Socket Outlet (Double)
PES	PVC Edging Strip - per metre

STEP 3: CHOOSE SIZE / STEP 4: COMPARTMENTS

NO OF COMPARTMENTS POSSIBLE

WIDTH	HEIGHT	SIZE CODE	X2	X3	X4
50	50	22	✓		
75	50	32	✓		
75	75	33	✓		
100	50	42	✓	✓	
100	75	43	✓	✓	
100	100	44	✓	✓	
150	50	62	✓	✓	✓
150	75	63	✓	✓	✓
150	100	64	✓	✓	✓
150	150	66	✓	✓	✓
200	50	82	✓	✓	✓
200	75	83	✓	✓	✓
200	100	84	✓	✓	✓
200	150	86	✓	✓	✓
200	200	88	✓	✓	✓
225	50	92	✓	✓	✓
225	75	93	✓	✓	✓
225	100	94	✓	✓	✓
225	150	96	✓	✓	✓
225	225	99	✓	✓	✓
300	50	12X2	✓	✓	✓
300	75	12X3	✓	✓	✓
300	100	12X4	✓	✓	✓
300	150	12X6	✓	✓	✓
300	200	12X8	✓	✓	✓
300	225	12X9	✓	✓	✓
300	300	12X12	✓	✓	✓

STEP 5: GAUGE

Gauges conform to latest specifications. For specialist requirements a range of gauges are available on request.

Need something special or can't find what you're looking for?

If you need specialist or bespoke products or you can't find the product specification you need, just call one of our regional offices or visit our website.

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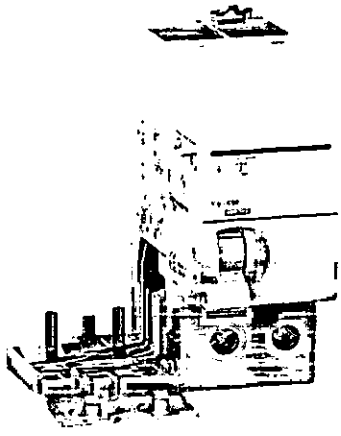
email **bespoke@unitrunk.co.uk**

Product data sheet
Characteristics

A9V51263
Vigi iC60 - earth leakage add-on block - 2P - 63A - 30mA - A type



Main

Commercial Status	Commercialised
Product or component type	Earth leakage add-on block
Device short name	Vigi iC60
Poles description	2P
[In] rated current	63 A
Network type	AC
Network frequency	50/60 Hz
[Ue] rated operational voltage	230/415 V AC 50/60 Hz conforming to IEC 61009-1 230/400 V AC 50/60 Hz conforming to EN 61009-1
Earth-leakage sensitivity	30 mA
Earth-leakage protection time delay	Instantaneous
Earth-leakage protection class	Class A
9 mm pitches	4

Complementary

Device location in system	Outgoer
Overvoltage protection	Without
Residual current tripping technology	Voltage independent
[Ui] rated insulation voltage	500 V AC 50/60 Hz conforming to IEC 60947-2
[Uimp] rated impulse withstand voltage	6 kV conforming to IEC 60947-2
Local signalling	Trip indicator
Mounting mode	Clip-on
Mounting support	DIN rail
Electrical connection to mcb	By screws
Comb busbar distribution block compatibility	Bottom: YES
Height	91 mm
Width	72 mm
Depth	73.5 mm
Product weight	0.165 kg
Colour	White
Connections - terminals	Tunnel type terminal downside 1 cable(s) 1...25 mm² flexible with cable end Tunnel type terminal downside 1 cable(s) 1...25 mm² flexible without cable end Tunnel type terminal downside 1 cable(s) 1...35 mm² rigid without cable end
Wire stripping length	14 mm (bottom)
Tightening torque	3.5 N.m (bottom)
Product compatibility	Single terminal

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein.
This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications.
It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof.
Neither Schneider Electric Industries SAS nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein.

Environment

Standards	EN 61009-1 IEC 61009-1
IP degree of protection	IP20
Pollution degree	3 conforming to IEC 60947-2
Electromagnetic compatibility	8/20 µs impulse withstand 250 A conforming to IEC 61009-1
Ambient air temperature for operation	-25...60 °C
Ambient air temperature for storage	-40...85 °C

Offer Sustainability

Sustainable offer status	Green Premium product
RoHS	Compliant - since 1001 - Schneider Electric declaration of conformity
REACh	Reference not containing SVHC above the threshold
Product environmental profile	Available Download Product Environmental
Product end of life instructions	Need no specific recycling operations

Connection Units, Boxes & Plates

M213SSUN/FM

RPE5142

RPE5147

M21GBOXM

M22BPM

M21G2MPM

13A Connection Units

Description	Cat. No.	H (mm)	W (mm)	D (mm)
Unswitched	M213SUM	86	86	47
Unswitched c/w flex outlet	M213SU/FM	86	86	47
Switched fused	M213SSUM	86	86	47
Switched fused c/w neon	M213SSUNM	86	86	47
Switched fused c/w flex outlet	M213SSU/FM	86	86	47
Switched fused c/w neon & flex outlet	M213SSUN/FM	86	86	47

3A Connection Units

Description	Cat. No.	H (mm)	W (mm)	D (mm)
Key switched fused connection unit	M23KSSUNM	86	86	47
Unswitched fused connection unit red	M2RSUMFA	86	86	47
Key switched fused connection unit red	RPE5142	86	86	47

Fire Alarm Isolating Switches

Description	Cat. No.	H (mm)	W (mm)	D (mm)
DP rotary key switch	RPE5148	86	86	47
DP rotary key switch, neon fused	RPE5147	86	146	47

1 Gang Back Boxes & Blanks

Description	Cat. No.	H (mm)	W (mm)	D (mm)
1 Gang back box	M21GBOXM	86	86	47
1 Gang cover plate	M21BPM	86	86	47
1 Gang back box*	M21GBOXM/NKO	86	86	47

* - No knockouts.

2 Gang Back Boxes & Blanks

Description	Cat. No.	H (mm)	W (mm)	D (mm)
2 Gang back box	M22GBOXM	86	146	47
2 Gang cover plate	M22BPM	86	146	47
2 Gang back box*	M22GBOXM/NKO	86	146	47

* - No knockouts.

Modular Plates

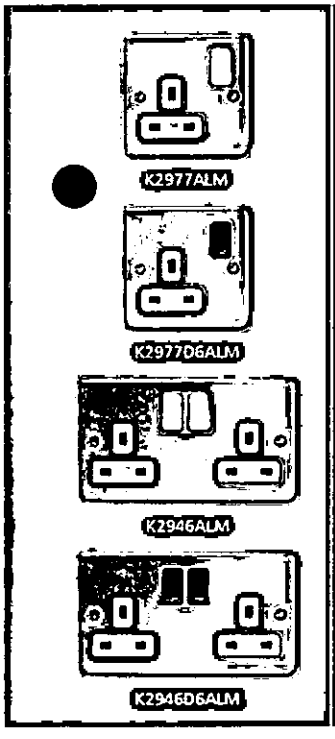
Description	Cat. No.	H (mm)	W (mm)	D (mm)
1 Gang 1 module easyclip unit	M21G1MPM	86	86	47
1 Gang 2 module easyclip unit	M21G2MPM	86	86	47
2 Gang 4 module easyclip unit	M22G4MPM	86	146	47

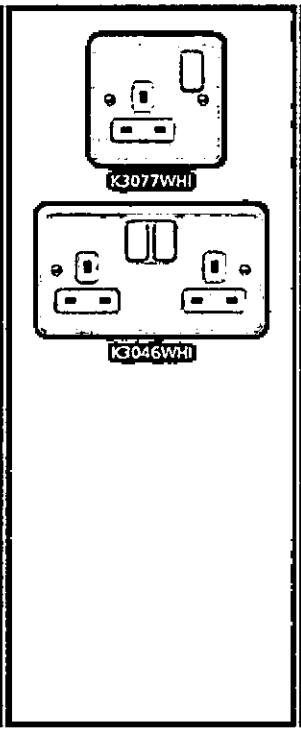
Metalclad Plus™

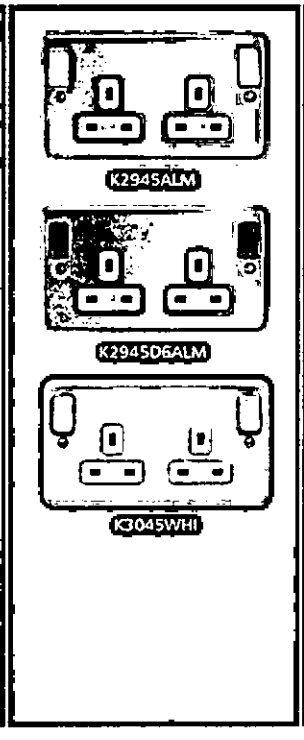
MK by Honeywell

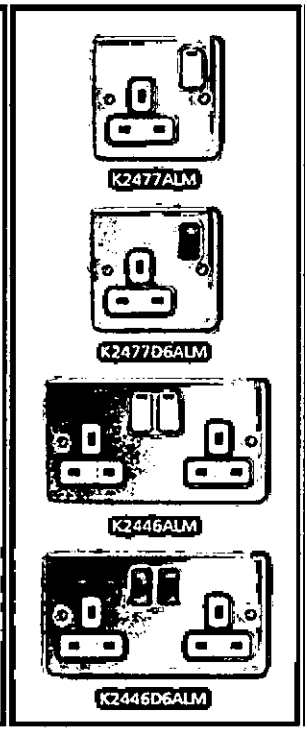
Switchsocket Outlets

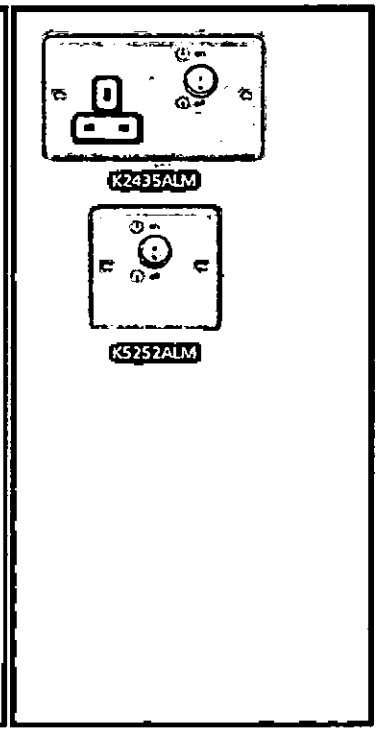
13 AMP SURFACE		WITH OUTBOARD ROCKERS 13 AMP SURFACE	WITH NEONS 13 AMP SURFACE	13 AMP SOCKET 20 AMP SWITCH KEY OPERATED











K2977ALM 5
1 GANG DP WITH DUAL EARTH TERMINALS

K2977D5ALM 1
1 GANG DP WITH DUAL EARTH TERMINALS WITHOUT BOX

K2977D6ALM 1
1 GANG DP WITH RED ROCKER AND DUAL EARTH TERMINALS

K2946ALM 5
2 GANG DP

K2946D5ALM 1
2 GANG DP WITHOUT BOX

K2946D6ALM 1
2 GANG DP WITH RED ROCKERS

Earth terminal fitted in boxes.
DIMENSIONS:
1 gang: 86 × 86 × 51mm
2 gang: 86 × 146 × 51mm
TERMINAL CAPACITY
[illegible]
KNOCKOUTS:
1 gang: 6 × 20mm
Two in one side and one in each of the other three sides. One in base
2 gang: 8 × 20mm
Three in top two in bottom sides and one in each end. One in base
SPARE BOXES
1 gang: K8294ALM* K8994ALM
2 gang: K830ALM* K897ALM
(*without side knockouts)
All boxes have a base knockout.
Boxes: BS 5733: 2010
Socket: BS 1363 Pt.2: 1995

K3077WHI 10
1 GANG DP WITHOUT BOX

K3046WHI 5
2 GANG DP WITHOUT BOX

High integrity earthing
One gang switchsockets, two gang outboard switchsockets and two gang unswitched sockets are fitted with two earth terminals to provide [illegible] installations requiring a high integrity protective conductor [illegible] BS 7671: 2008

Double pole switching
All switchsockets have double pole switching (neutral makes first, breaks last).

K2945ALM 5
2 GANG DP WITH OUTBOARD ROCKERS AND DUAL EARTH TERMINALS

K2945D5ALM 1
2 GANG DP WITH OUTBOARD ROCKERS AND DUAL EARTH TERMINALS WITHOUT BOX

K2945D6ALM 1
2 GANG DP WITH RED OUTBOARD ROCKERS AND DUAL EARTH TERMINALS

K3045WHI 5
2 GANG DP WITHOUT BOX WITH OUTBOARD ROCKERS AND DUAL EARTH TERMINALS

K2477ALM 5
1 GANG DP WITH NEON AND DUAL EARTH TERMINALS

K2477D6ALM 1
1 GANG DP WITH NEON, RED ROCKER AND DUAL EARTH TERMINALS

K2446ALM 5
2 GANG DP WITH NEONS

K2446D6ALM 1
2 GANG DP WITH NEONS AND RED ROCKERS

K2435ALM 5
DP KEY OPERATED SOCKET

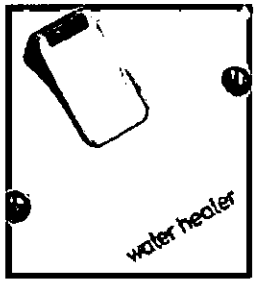
K5252ALM 5
20AX DP KEY OPERATED SWITCH

Earth terminal fitted in boxes
DIMENSIONS:
1 gang: 86 × 86 × 51mm
2 gang: 86 × 146 × 51mm
TERMINAL CAPACITY
1 × 6 mm stranded (max)
KNOCKOUTS:
1 gang: 6 × 20mm.
Two in one side and one in each of the other three sides. One in base
2 gang: 8 × 20mm.
Three in top two in bottom sides and one in each end. One in base
SPARE BOXES
1 gang: K8294ALM* K8994ALM
2 gang: K830ALM* K897ALM
(*without side knockouts) All boxes have a base knockout.
Boxes: BS 5733: 2010
Socket: BS 1363 Pt.2: 1995
Switch: BS EN 60669-1: 1999

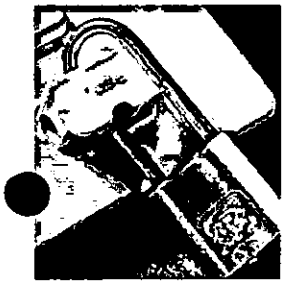
ALL UNITS ARE SUPPLIED WITH BACKBOXES (EXCEPT WHI AND D5 PRODUCTS)

Features and Benefits

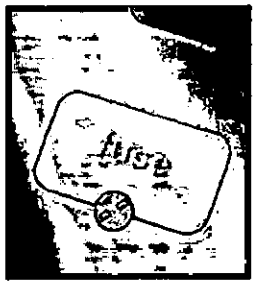
A screwless cord grip automatically clamps and securely holds the cable in connection units with base and front flex outlets



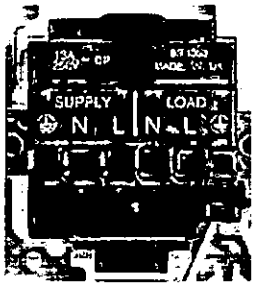
Switched units are double pole with neutral pole contacts 'making' before and 'breaking' after live contacts. Rockers with built-in indicators are available



When servicing or repairing appliances, fuse carriers remain attached to the frontplate when opened and can be padlocked for safety



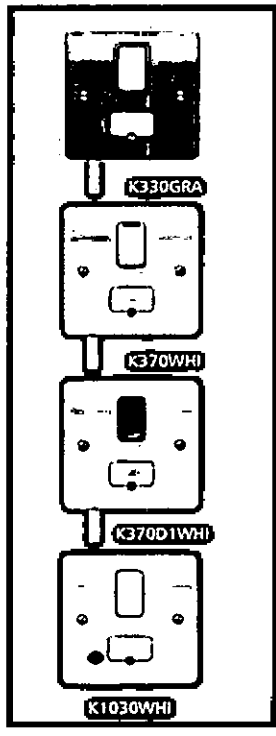
An optional tamperproof screw on fuse carriers is particularly useful for appliances in public areas

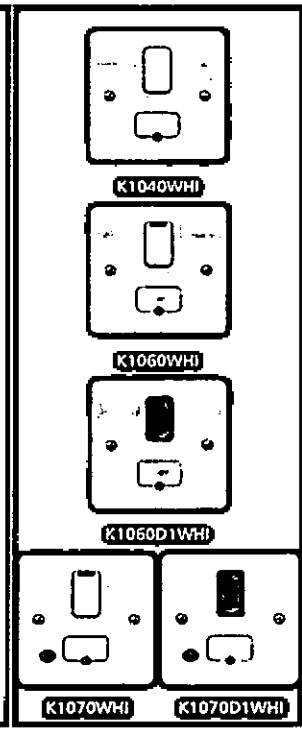


In line terminals, backed out captive terminal screws and clear marking make wiring up easy

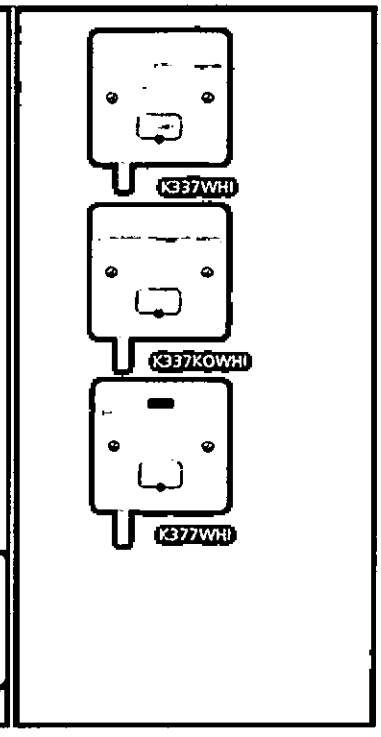
Connection Units

SWITCHED FLUSH





UNSWITCHED FLUSH



K330WHI 10
K330GRA 10
DP WITH FLEX OUTLET IN BASE AND THICK FRONTPLATE
K370WHI 10
K370GRA 10
DP WITH NEON, FLEX OUTLET IN BASE AND THICK FRONTPLATE
K370D1WHI 10
DP WITH NEON, FLEX OUTLET IN BASE, THICK FRONTPLATE AND RED ROCKER
K1030WHI 10
DP WITH FRONT FLEX OUTLET

MOUNTING BOXES
K1030, K1040, K1060 and K1070
FLUSH: 86621C (35mm)
SURFACE: K2031WH

K330 and K370
FLUSH: 86621C (35mm)
SURFACE: K2140WH

All units are fitted with a 13A fuse-link to BS 1362. See page 206 for spare fuse-links

The fuse carrier can be locked in the open position by removing the fuse and using K2000 fuse carrier padlock.

K1040WHI 10
DP
K1040KOWHI 10
DP WITH TAMPERPROOF SCREW
K1060WHI 10
DP WITH NEON
K1060D1WHI 10
DP WITH NEON AND RED ROCKER
K1070WHI 10
DP WITH FRONT FLEX OUTLET AND NEON
K1070D1WHI 10
DP WITH FRONT FLEX OUTLET, NEON AND RED ROCKER
K2000 1
PADLOCK (FOR FUSE CARRIER)

K1030 and K1070 front flex outlet product cannot be mounted directly onto a 35mm flush box. K2131WHI A mounting frame K2134WHI is required between the product and the box

Base entry frontplates are 12.5mm deep

DIMENSIONS: 86 x 86mm

FIXING CENTRES: 60.3mm

BS 1363 Pt 4: 1995

K337WHI 10
WITH FLEX OUTLET IN BASE AND THICK FRONTPLATE
K337KOWHI 10
WITH FLEX OUTLET IN BASE, THICK FRONTPLATE AND TAMPERPROOF SCREW FOR FUSE CARRIER
K377WHI 10
WITH FLEX OUTLET IN BASE, NEON AND THICK FRONTPLATE

MOUNTING BOXES.
FLUSH: 86621C (35mm)
SURFACE: K2140WHI

All units are fitted with a 13A fuse-link to BS 1362. See page 206 for spare fuse-links

Base entry frontplates are 12.5mm deep

The fuse carrier can be locked in the open position by removing the fuse and using K2000 fuse carrier padlock.

DIMENSIONS: 86 x 86mm

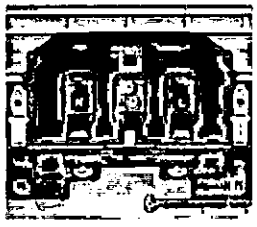
FIXING CENTRES: 60.3mm

BS 1363 Pt 4: 1995

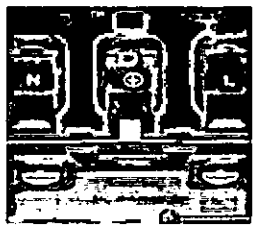
Logic Plus™

Specification Notes

The 3 pin operated safety shutter makes Logic Plus™ sockets the safest available



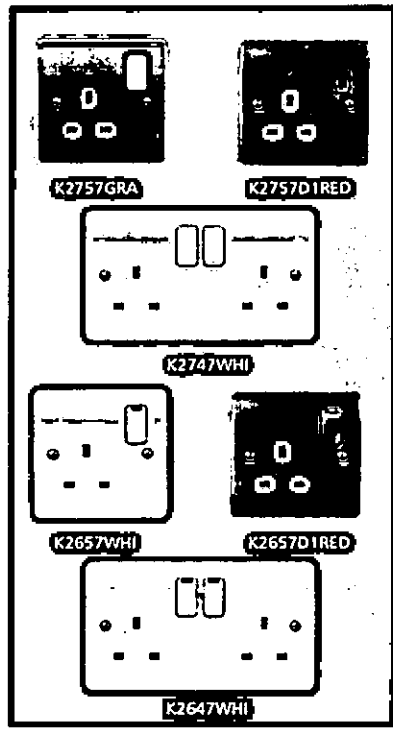
Many sockets are fitted with two earth terminals to provide high integrity earthing

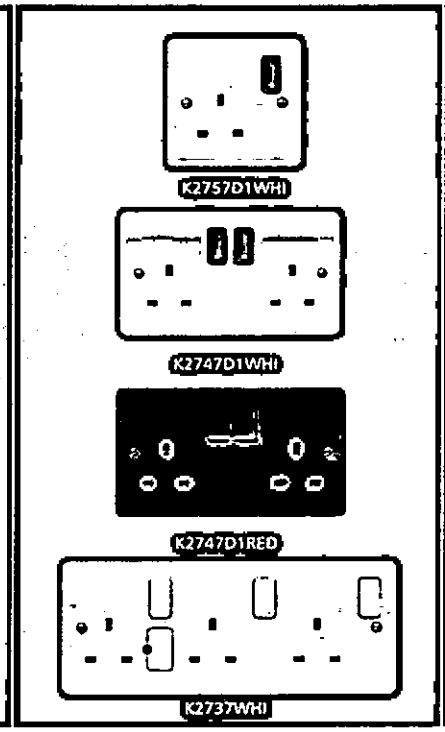


Terminals are grouped in-line with terminal screws backed out ready for easy wiring. Clear marking on dark background makes the terminals easily identifiable

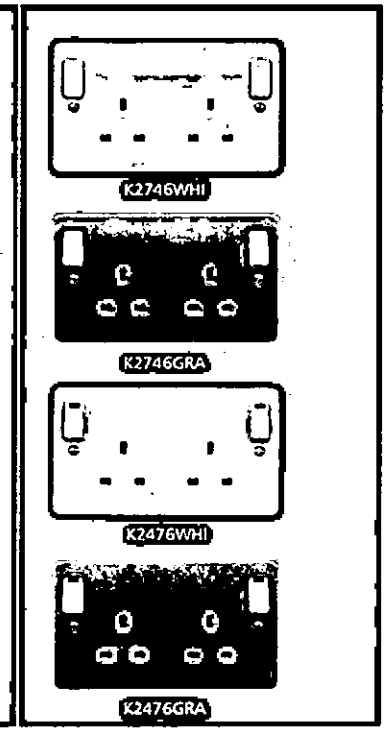
Switchsocket Outlets

13 AMP FLUSH





WITH OUTBOARD ROCKERS 13 AMP FLUSH



K2757WHI 10
K2757GRA 10
1 GANG DP
WITH DUAL EARTH TERMINALS

K2757D1RED 5
1 GANG DP
WITH RED FRONTPLATE, RED ROCKER AND DUAL EARTH TERMINALS

K2747WHI 50
2 GANG DP

K2657WHI 10
K2657GRA 10
1 GANG DP WITH NEON AND DUAL EARTH TERMINALS

K2657D1RED 5
1 GANG DP
WITH RED FRONTPLATE, RED ROCKER, NEON AND DUAL EARTH TERMINALS

K2647WHI 5
2 GANG DP WITH NEONS

MOUNTING BOXES:
FLUSH 25mm
1 GANG: 86ZK
2 GANG: 86ZK

FLUSH 35mm
(for extra wiring space)
1 GANG: 866ZK
2 GANG: 866ZK
3 GANG: K863

SURFACE
1 GANG: K2140WHI
2 GANG: K2142WHI

[illegible]
DIMENSIONS
1 GANG: 86 × 86mm
2 GANG: 86 × 146mm
3 GANG: 86 × 206mm
FIXING CENTRES
1 GANG: 50.3mm
2 GANG: 120.6mm
3 GANG: 180.9mm
BS 1363 Pt 2: 1995

K2757D1WHI 10
1 GANG DP
WITH RED ROCKER AND DUAL EARTH TERMINALS

K2757D2WHI 10
1 GANG DP
WITH GREEN ROCKER AND DUAL EARTH TERMINALS

K2747D1WHI 5
2 GANG DP
WITH RED ROCKERS

K2747D1RED 5
2 GANG DP
WITH RED FRONTPLATE AND RED ROCKERS

K2737WHI 5
3 GANG DP
WITH DUAL EARTH TERMINALS

High integrity earthing
K2757, K2657 and K2737 are fitted with two earth terminals to provide a double earth facility for use when installations require a high integrity protective connection as specified within BS 7671: 2008.

K2737
13A fuse protects all three outlets

K2746WHI 10
K2746GRA 10
2 GANG DP
WITH OUTBOARD ROCKERS AND DUAL EARTH TERMINALS

K2746CEWHI 10
2 GANG DP
WITH OUTBOARD ROCKERS AND 'CLEAN EARTH' FACILITY

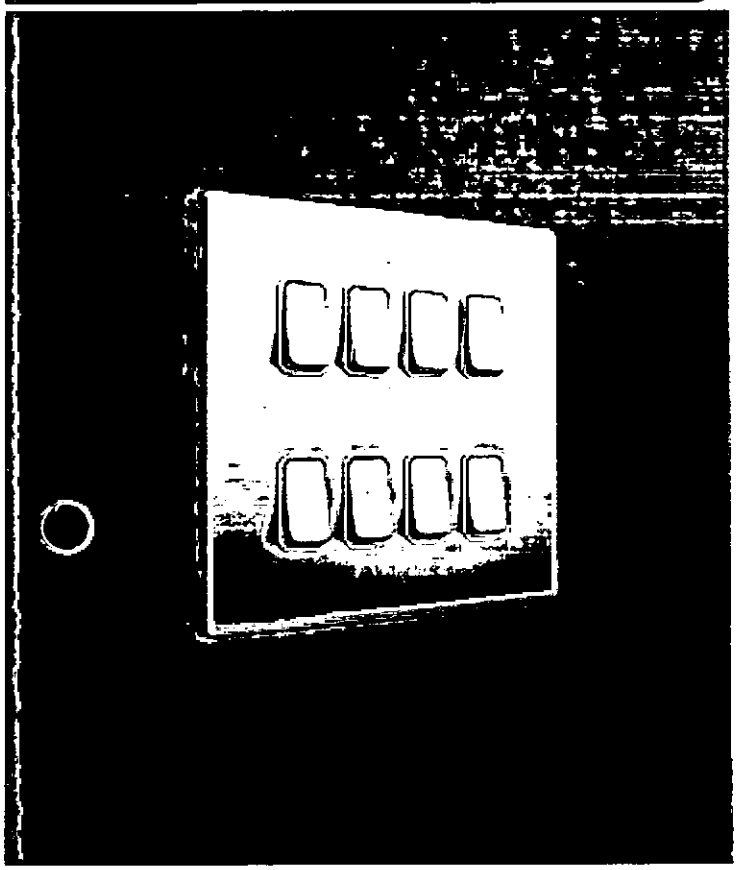
K2476WHI 10
K2476GRA 10
2 GANG DP
WITH OUTBOARD ROCKERS DUAL EARTH AND NEONS

K2476CEWHI 10
2 GANG DP
WITH OUTBOARD ROCKERS, NEONS AND 'CLEAN EARTH' FACILITY

K2746CE [illegible]
'Clean earth' connection
DIMENSIONS
86 × 146mm
FIXING CENTRES
170.6mm
BS 1363 Pt 2: 1995

technical hotline +44 (0)1268 563720

modular | wiring devices



range introduction

Grid Plus is a modular switching and monitoring system in a choice of attractive finishes to match complementary accessory ranges.

The comprehensive range of modules includes switches, indicators, dimmers, secret key switches, printed switches and buzzer units – making it the ideal system for commercial and public building applications.

Easy to fit and change, Grid Plus modules simply clip into place from the front of the mounting frame.

features and benefits

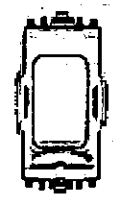
Vast range
Comprehensive range of grid and plate modules from a single manufacturer making the range flexible and suitable for more installations.

Ease of installation
Grid modules 'clip fit' to the frame without any requirement for special tools. They can be moved, removed or replaced whilst the frame is fitted to the box making installation or replacement speedy and simple.

Durability
Grid frames are made from pre-galvanised steel to provide extra high corrosion resistance preventing tarnishing. Ensures longevity of product.

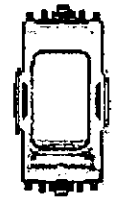
Safety
Grid frames earth terminal capacity exceeds current standards for total safety assurance. All products are 100% tested before delivery for confidence of a 'fit and forget' installation. 20 year guarantee.

Grid Plus

	Blank Inserts	Switch Modules 10 Amp			
	1 MODULE BLANK INSERT	10 AMP SP ONE WAY	10 AMP DP ONE WAY	10 AMP SP TWO WAY	10 AMP SP TWO-WAY RETRACTIVE SWITCH
					
FINISHES					
WHITE	**K4880WHI** 10	**K4881WHI** 10	**K4981WHI** 10	**K4882WHI** 10	**K4885WHI** 10
BLACK	**K4880BLK** 10	**K4881BLK** 10	**K4981BLK** 10	**K4882BLK** 10	**K4885BLK** 10
GRAPHITE	**K4880GRA** 10	**K4881GRA** 10		**K4882GRA** 10	
	These switches do NOT have to be derated when used with fluorescent or inductive loads. BS EN 60669-1: 1999	These switches do NOT have to be derated when used with fluorescent or inductive loads. BS EN 60669-1. 1999	These switches do NOT have to be derated when used with fluorescent or inductive loads. BS EN 60669-1: 1999	Note: Push switches are not designed for flourescent loads. BS EN 60669-1: 1999	

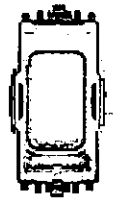
Grid modules with a selection of other finishes are also available. See pages 91 and 127.

Switch Modules 20 Amp

10 AMP SP TWO-WAY RED RETRACTIVE SWITCH	10 AMP SP TWO-WAY RETRACTIVE SWITCH MARKED WITH BELL SYMBOL	10 AMP SP TWO-WAY RETRACTIVE SWITCH MARKED 'PRESS'	10 AMP SP TWO WAY CENTRE OFF RETRACTIVE SWITCH	20 AMP SP ONE-WAY
				
K4885RED 1	K4885BWHI 1	K4885PWHI 10	K4900WHI 10	K4891WHI 10
K4885REDB 1	K4885BBLK 1	K4885PBLK 1	K4900BLK 10	K4891BLK 10
				K4891GRA 10
Note: Push switches are not designed for flourescent loads. BS EN 60669-1: 1999	Note: Push switches are not designed for fluorescent loads. BS EN 60669-1: 1999	Note. Push switches are not designed for fluorescent loads. BS EN 60669-1: 1999	Note: Push switches are not designed for fluorescent loads. BS EN 60669-1: 1999	These switches do NOT have to be derated when used with fluorescent or inductive loads. BS EN 60669-1: 1999

B suffix on the list number denotes black inserts

Switch Modules
20 Amp

FINISHES	20 AMP DP ONE-WAY PUSH TO MAKE	20 AMP DP ONE-WAY RED ROCKER PUSH TO MAKE	20 AMP DP ONE-WAY PUSH TO BREAK RETRACTIVE	20 AMP DP ONE-WAY RED ROCKER PUSH TO BREAK RETRACTIVE	20 AMP SP TWO WAY
					
WHITE	K4910WHI 10	K4910RED 10	K4915WHI 10	K4915RED 10	K4892WHI 10
BLACK	K4910BLK 10	K4910REDB 1	K4915BLK 10	K4915REDB 1	K4892BLK 10
GRAPHITE					
	These switches do NOT have to be derated when used with fluorescent or inductive loads. BS EN 60669-1: 1999	These switches do NOT have to be derated when used with fluorescent or inductive loads. Note: Push switches are not designed for fluorescent loads. BS EN 60669-1: 1999	Note: Push switches are not designed for fluorescent loads. BS EN 60669-1: 1999	Note: Push switches are not designed for fluorescent loads. BS EN 60669-1: 1999	These switches do NOT have to be derated when used with fluorescent or inductive loads. BS EN 60669-1: 1999

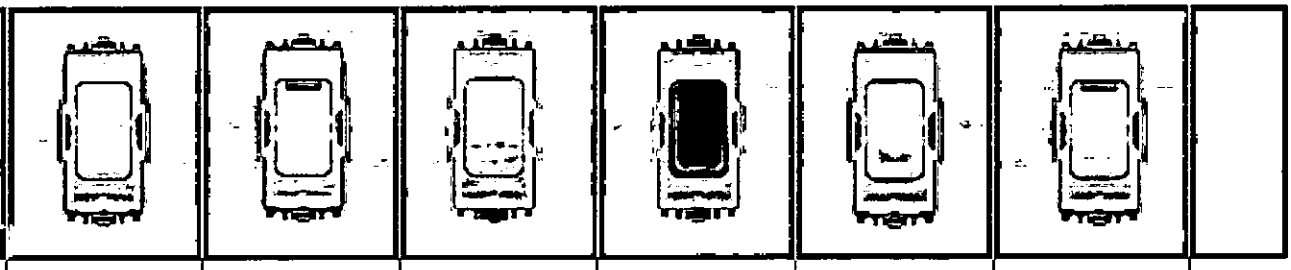
B suffix on the list number denotes black inserts

20 AMP SP TWO-WAY RED ROCKER	20 AMP SP TWO-WAY SWITCH WITH INTEGRAL NEON LOCATOR	20 AMP SP TWO-WAY AND CENTRE OFF LATCHING	20 AMP SP RED ROCKER TWO-WAY AND CENTRE OFF LATCHING	20 AMP INTERMEDIATE	20 AMP INTERMEDIATE RED ROCKER
K4892RED 10	K4892LWHI 10	K4899WHI 10	K4899RED 10	K4893WHI 10	K4893RED 10
K4892REDB 10	K4892LBLK 1	K4899BLK 10		K4893BLK 10	K4893REDB 10
These switches do NOT have to be derated when used with fluorescent or inductive loads. BS EN 60669-1: 1999	These switches do NOT have to be derated when used with fluorescent or inductive loads. BS EN 60669-1. 1999	These switches do NOT have to be derated when used with fluorescent or inductive loads BS EN 60669-1: 1999	These switches do NOT have to be derated when used with fluorescent or inductive loads. BS EN 60669-1: 1999	These switches do NOT have to be derated when used with fluorescent or inductive loads. BS EN 60669-1. 1999	These switches do NOT have to be derated when used with fluorescent or inductive loads. BS EN 60669-1. 1999

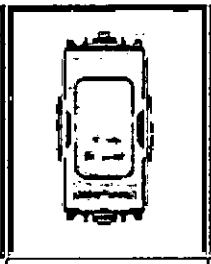
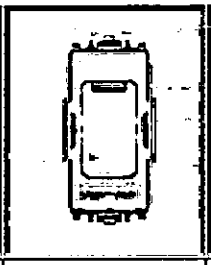
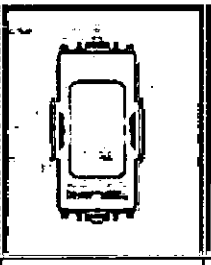
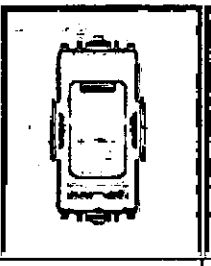
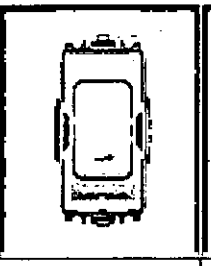
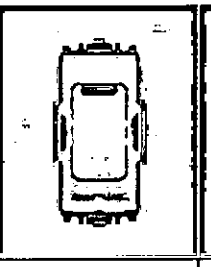
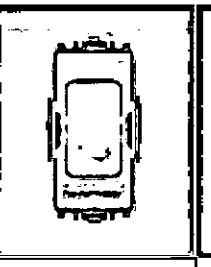
B suffix on the list number denotes black inserts

Switch Modules
20 Amp

Printed Modules
with and
without Neon

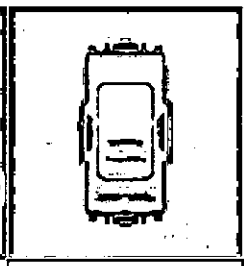
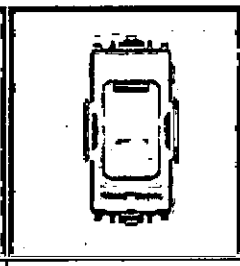
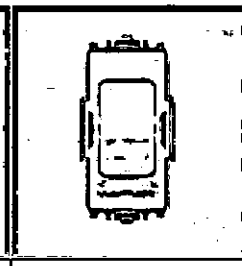
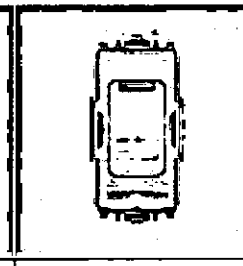
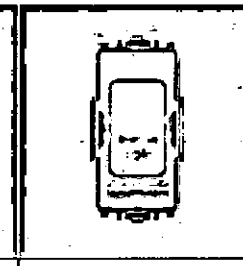
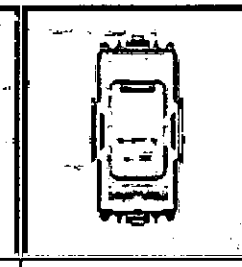


FINISHES	20 AMP DP ONE-WAY	20 AMP DP ONE-WAY NEON	20 AMP DP ONE-WAY WITH WINDOW	20 AMP DP ONE-WAY RED ROCKER	20 AMP DP ONE-WAY BOILER	20 AMP DP ONE-WAY BOILER NEON
WHITE	K4896WHI 10	K4896NWHI 1	K4896WWHI 10	K4896RED 10	K4896BRWHI 1	K4896NBRWHI 1
BLACK	K4896BLK 10	K4896NBLK 1	K4896WBLK 10		K4896BRBLK 1	K4896NBRBLK 1
	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999

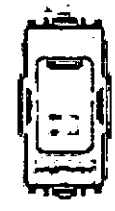
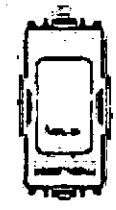
20 AMP DP ONE-WAY DISHWASHER	20 AMP DP ONE-WAY DISHWASHER NEON	20 AMP DP ONE-WAY COOKER HOOD	20 AMP DP ONE-WAY COOKER HOOD NEON	20 AMP DP ONE-WAY FAN	20 AMP DP ONE-WAY FAN NEON	20 AMP DP ONE-WAY FRIDGE
						
K4896DWWHI 1	K4896NDWWHI 1	K4896CHWHI 1	K4896NCHWHI 1	K4896FNWHI 1	K4896NFNWHI 1	K4896FGWHI 1
K4896DWBLK 1	K4896NDWBLK 1	K4896CHBLK 1	K4896NCHBLK 1	K4896FNBLK 1	K4896NFNBLK 1	K4896FGBLK 1
BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999

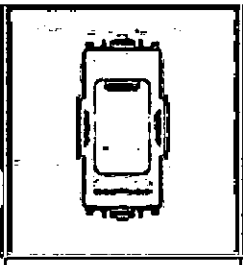
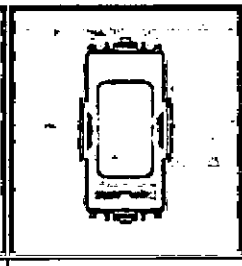
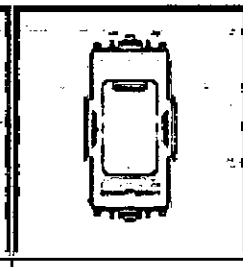
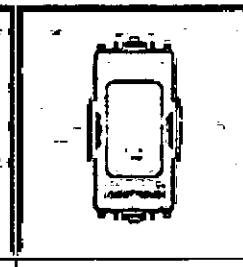
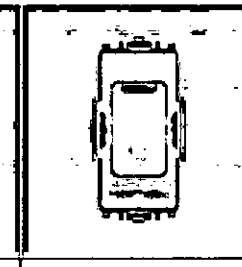
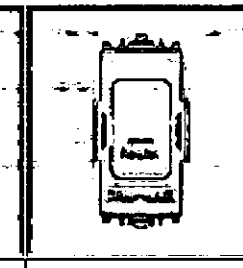
Printed Modules with and without Neon

FINISHES	20 AMP DP ONE-WAY FRIDGE NEON	20 AMP DP ONE-WAY FREEZER	20 AMP DP ONE-WAY FREEZER NEON	20 AMP DP ONE-WAY FRIDGE FREEZER	20 AMP DP ONE-WAY FRIDGE FREEZER NEON
WHITE	K4896NFGWHI 1	K4896FZWHI 1	K4896NFZWHI 1	K4896FFWHI 1	K4896NFFWHI 1
BLACK	K4896NFGBLK 1	K4896FZBLK 1	K4896NFZBLK 1	K4896FFBLK 1	K4896NFFBLK 1
	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999

20 AMP DP ONE-WAY WASTE DISPOSAL	20 AMP DP ONE-WAY WASTE DISPOSAL NEON	20 AMP DP ONE-WAY WASHING MACHINE	20 AMP DP ONE-WAY WASHING MACHINE NEON	20 AMP DP ONE-WAY TUMBLE DRYER	20 AMP DP ONE-WAY TUMBLE DRYER NEON
					
K4896WDWHI 1	K4896NWDWHI 1	K4896WMWHI 1	K4896NWMWHI 1	K4896TDWHI 1	K4896NTDWHI 1
K4896WDBLK 1	K4896NWDBLK 1	K4896WMBLK 1	K4896NWMBLK 1	K4896TDBLK 1	K4896NTDBLK 1
BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999

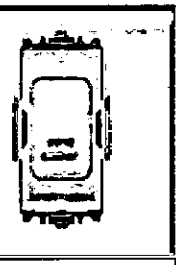
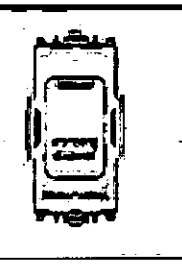
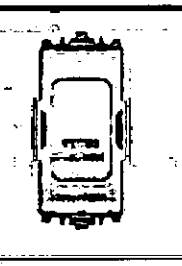
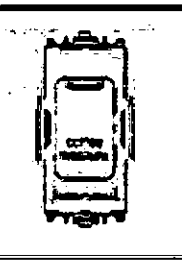
Printed Modules with and without Neon

FINISHES	20 AMP DP ONE-WAY WASHER DRYER	20 AMP DP ONE-WAY WASHER DRYER NEON	20 AMP DP ONE-WAY MICROWAVE	20 AMP DP ONE-WAY MICROWAVE NEON	20 AMP DP ONE-WAY HEATER
					
WHITE	K4896WDRWHI 1	K4896NWDRWHI 1	K4896MWWHI 1	K4896NMWWHI 1	K4896HRWHI 1
BLACK	K4896WDRBLK 1	K4896NWDRBLK 1	K4896MWBLK 1	K4896NMWBLK 1	K4896HRBLK 1
	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999

20 AMP DP ONE-WAY HEATER NEON	20 AMP DP ONE-WAY OVEN	20 AMP DP ONE-WAY OVEN NEON	20 AMP DP ONE-WAY HOB	20 AMP DP ONE-WAY HOB NEON	20 AMP DP ONE-WAY IMMERSION HEATER
					
K4896NHRWHI 1	K4896OVWHI 1	K4896NOVWHI 1	K4896HBWHI 1	K4896NHBWHI 1	K4896IHWHI 1
K4896NHRBLK 1	K4896OVBLK 1	K4896NOVBLK 1	K4896HBBLK 1	K4896NHBBLK 1	K4896IHBLK 1
BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999

Printed Modules with and without Neon

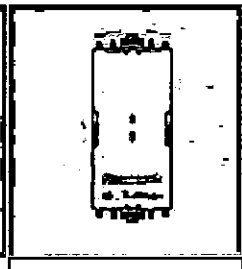
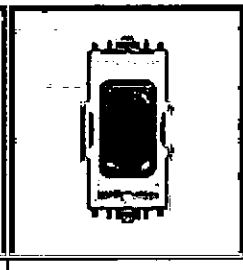
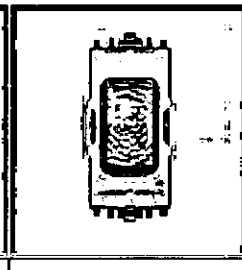
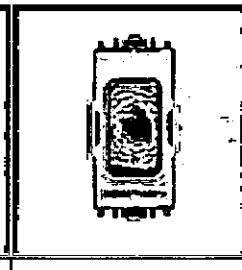
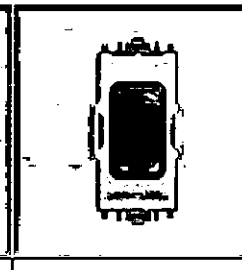
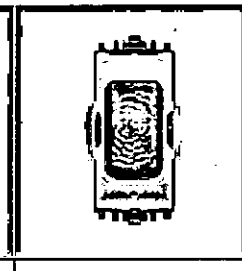
	20 AMP DP ONE-WAY IMMERSION HEATER NEON	20 AMP DP ONE-WAY PLINTH HEATER	20 AMP DP ONE-WAY PLINTH HEATER NEON	20 AMP DP ONE-WAY WORKTOP LIGHTING	20 AMP DP ONE-WAY WORKTOP LIGHTING NEON
FINISHES					
WHITE	**K4896NIHWHI** 1	**K4896PHWHI** 1	**K4896NPHWHI** 1	**K4896WLWHI** 1	**K4896NWLWHI** 1
BLACK		**K4896PHBLK** 1	**K4896NPHBLK** 1	**K4896WLBLK** 1	**K4896NWLBLK** 1
	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999

20 AMP DP ONE-WAY WINE COOLER	20 AMP DP ONE-WAY WINE COOLER NEON	20 AMP DP ONE-WAY WARMING DRAWER	20 AMP DP ONE-WAY WARMING DRAWER NEON	20 AMP DP ONE-WAY COFFEE MACHINE	20 AMP DP ONE-WAY COFFEE MACHINE NEON
					
K4896WCWHI 1	K4896NWCWHI 1	K4896WDAWHI 1	K4896NWDAWHI 1	K4896CMWHI 1	K4896NCMWHI 1
K4896WCBLK 1	K4896NWCBLK 1	K4896WDABLK 1	K4896NWDABLK 1	K4896CMBLK 1	K4896NCMBLK 1
BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999	BS EN 60669-1: 1999

Secret Key Switch Modules

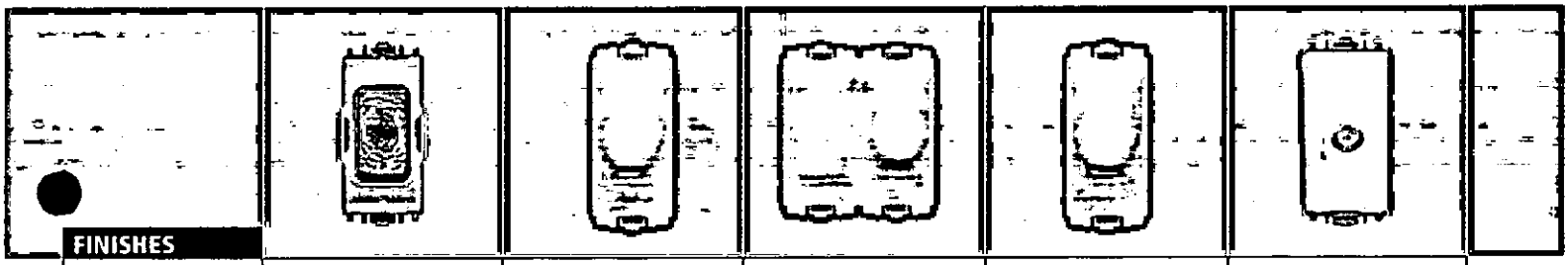
	20 AMP INTERMEDIATE SECRET KEY SWITCH	20 AMP SP TWO-WAY SECRET KEY SWITCH	20 AMP SP TWO-WAY SECRET KEY SWITCH MARKED 'EMG LTG TEST'	20 AMP DP ONE-WAY SECRET KEY SWITCH	20 AMP DP EMERGENCY LIGHTING
FINISHES					
WHITE	**K4894WHI** 10	**K4898WHI** 10	**K4898ELWHI** 10	**K4917WHI** 10	**K4917ELWHI** 10
BLACK	**K4894BLK** 1	**K4898BLK** 1	**K4898ELBLK** 1	**K4917BLK** 1	
	BS EN 60669-1: 1999 Key (3405ZIC) is supplied.	BS EN 60669-1: 1999 Key (3405ZIC) is supplied.	BS EN 60669-1: 1999 Key (3405ZIC) is supplied.	BS EN 60669-1: 1999 Key (3405ZIC) is supplied.	BS EN 60669-1: 1999 Key (3405ZIC) is supplied.

Indicator
Unit Modules

20 AMP SP TWO-WAY SECRET KEY SWITCH (BIASED ONE WAY)	200-250V NEON	200-250V NEON	200-250V FLUORESCENT	21-36V FILAMENT	21-36V FILAMENT
					
K4918WHI 10	K4889RED 10	K4889AMB 10	K4889GRN 10	K4836RED 10	K4836AMB 10
K4918BLK 10	K4889REDB 1				
BS EN 60669-1: 1999 Key (34052IC) is supplied	BS 5733: 2010	BS 5733: 2010	BS 5733: 2010	BS 5733: 2010	BS 5733: 2010

B suffix on the list number denotes black inserts

	Indicator Unit Modules	Dimmer Switch Modules			Accessory Modules
		TUNGSTEN FILAMENT AND LOW VOLTAGE LIGHTING			
	21-36V FILAMENT	40W/VA-220W/ 180VA MAX 230V A.C., 50HZ ONE MODULE	60W/VA-400W/ 320VA MAX 230V A.C., 50HZ TWO MODULE	0-10V/1-10V FLUORESCENT CONTROLLER ONE MODULE	SINGLE TV CO-AXIAL OUTLET NON-ISOLATED



FINISHES									
WHITE	K4836GRN	10	K4501WHILV	1	K4500WHILV	1	K4499WHI	1	K4520WHI	10
BLACK			K4501BLKLV	1	K4500BLKLV	1	K4499BLK	1	K4520BLK	1

BS 5733: 2010

These dimmers employ the latest microcontroller based circuitry to provide electronic soft start and overload protection.

Suitable for use with good quality electronic or wire wound transformers. Can also be used with good quality mains voltage halogen lamps incorporating GU10 bases. Please check with lamp manufacturer to determine suitability

K4501WHI/BLK Max. No. of low voltage T/F's – 3

K4500WHI/BLK Max. No. of low voltage T/F's – 5

Not suitable for fluorescent loads.

All dimmers have push on – push off, 2 way switches, integral with rotary control.

Note: Refer to technical section for derating.

Conform to BS EN 60669-2-1 and BS EN 55015

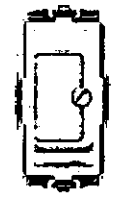
MK Fluorescent Grid Dimmers are low voltage controllers for connection to 1-10V controllable ballasts.

For direct connection to TV or FM aerial co-axial downlead. NOT to be used in same enclosure as mains exceeding 50V.

BS 3041: 1977

IEC 169-2: 1965

BS 5733: 2010 where applicable.

SINGLE TV CO-AXIAL OUTLET ISOLATED	BUZZER UNIT 200-250V	BUZZER UNIT 21-36V	16A CORD OUTLET	13A FUSE UNIT	13A FUSE UNIT WITH TAMPERPROOF SCREW
					
K4521WHI 10	K4000WHI 10	K4001WHI 10	K4886WHI 10	K4890WHI 10	K4890KOWHI 10
K4521BLK 1			K4886BLK 1	K4890BLK 1	K4890KOBLK 1
For direct connection to TV or FM aerial co-axial downlead. NOT to be used in same enclosure as mains exceeding 50V. BS 3041: 1977 IEC 169-2: 1965 BS 5733: 2010 where applicable	Sound output level Av 61 db @ 15 feet. BS 5733: 2010	Sound output level Av 61 db @ 15 feet. BS 5733: 2010	Complete with 3 pairs of terminals. The supply terminals are suitable for up to 2 x 2.5mm² or 1 x 4mm² solid conductors. The load terminals are suitable for one 1.5mm² flexible cord. A cord grip is also fitted.	Fuse carrier comes with 13A cartridge fuse link to BS 1362.	Fuse carrier comes with 13A cartridge fuse link to BS 1362.

SELECTION CHART

	1	2	3	4	6
COVER PLATES					
LOGIC PLUS	K3631WHI/GRA 10	K3632WHI/GRA 10	K3633WHI/GRA 10	K3634WHI/GRA 10	K3636WHI/GRA 1
METALCLAD PLUS	K3491ALM 10	K3492ALM 10	K3493ALM 5	K3494ALM 5	K3496ALM 1
ALBANY PLUS See Albany Plus Pg 173	K3431 1	K3432 1	K3433 1	K3434 1	K3436 1
EDGE See Edge Pg 124	K14331 1	K14332 1	K14333 1	K14334 1	K14346 1
ASPECT See Aspect Pg 90	K24331 1	K24332 1	K24333 1	K24334 1	K24346 1
ALLOY See Alloy Pg 152	K5331 1	K5332 1	K5333 1	K5334 1	
BOXES					
LOGIC PLUS flush	891ALM 10 2 x 20mm knockouts	891ALM 10 2 x 20mm knockouts	892ALM 5 4 x 20, 4 x 25mm knockouts	892ALM 5 4 x 20, 4 x 25mm knockouts	893ALM 5 4 x 20, 4 x 25mm knockouts
	821ALM 10 without knockouts	821ALM 10 without knockouts	822ALM 5 without knockouts	822ALM 5 without knockouts	823ALM 5 without knockouts
LOGIC PLUS surface metal	K2213ALM 5 5 x 20mm knockouts	K2213ALM 5 5 x 20mm knockouts	K2214ALM 5 7 x 20mm knockouts	K2214ALM 5 7 x 20mm knockouts	
	K2211ALM 5 without knockouts	K2211ALM 5 without knockouts	K2212ALM 5 without knockouts	K2212ALM 5 without knockouts	
LOGIC PLUS surface moulded	K2140WHI 10 with knockouts	K2140WHI 10 with knockouts	K2142WHI 5 with knockouts	K2142WHI 5 with knockouts	
LOGIC PLUS surface pvc	K2181WHI 10 with knockouts	K2181WHI 10 with knockouts	K2183WHI 5 with knockouts	K2183WHI 5 with knockouts	
METALCLAD PLUS & ALBANY PLUS surface	K8891ALM 10 5 x 20mm knockouts	K8891ALM 10 5 x 20mm knockouts	K8892ALM 5 7 x 20mm knockouts	K8892ALM 5 7 x 20mm knockouts	K8893ALM 5 4 x 20mm, 4 x 25mm knockouts
	K8821ALM 10 without knockouts	K8821ALM 10 without knockouts	K8822ALM 5 without knockouts	K8822ALM 5 without knockouts	K8823ALM 5 without knockouts
	K8901ALM 10 deep box 5 x 20mm knockouts	K8901ALM 10 deep box 5 x 20mm knockouts	K8902ALM 10 deep box 4 x 20mm, 4 x 25mm knockouts	K8902ALM 10 deep box 4 x 20mm, 4 x 25mm knockouts	
ALBANY PLUS ASPECT & EDGE	891ALM 10 2 x 20mm knockouts	891ALM 10 2 x 20mm knockouts	892ALM 5 4 x 20, 4 x 25mm knockouts	892ALM 5 4 x 20, 4 x 25mm knockouts	893ALM 5 4 x 20, 4 x 25mm knockouts
flush	821ALM 10 without knockouts	821ALM 10 without knockouts	822ALM 5 without knockouts	822ALM 5 without knockouts	823ALM 5 without knockouts
GRIDS					
Edge/Insignia & Aspect cover plates include an integral grid	K3701 10	K3702 10	K3703 10	K3704 10	K3703 X 2 10

8	9	12	18	24	Architrave
K3638WHI/GRA 1		K3639WHI 1			
K3498ALM 1	K3499ALM 1	K3502ALM 1	K3508ALM 1	K3514ALM 1	
K3438 1	K3439 1	K3442 1	K3448 1	K3454 1	K3401 1
K14348 1	K14349 1	K14352 1	K14358 1	K14354 1	K14401 1
K24348 1					
893ALM 5 4 x 20, 4 x 25mm knockouts		895ALM 1 5 x 20, 5 x 25mm knockouts			
823ALM 5 without knockouts		825ALM 1 without knockouts			
K8893ALM 5 4 x 20mm, 4 x 25mm knockouts	K8895ALM 1 5 x 20mm, 5 x 25mm knockouts	K8895ALM 1 5 x 20mm, 5 x 25mm knockouts	K8898ALM 1 5 x 20mm, 5 x 25mm knockouts	K8900ALM 1 6 x 20mm, 6 x 25mm knockouts	
K8823ALM 5 without knockouts	K8825ALM 1 without knockouts	K8825ALM 1 without knockouts	K8826ALM 1 without knockouts	K8827ALM 1 without knockouts	
893ALM 5 4 x 20, 4 x 25mm knockouts	895ALM 1 5 x 20, 5 x 25mm knockouts	895ALM 1 5 x 20, 5 x 25mm knockouts	898ALM 1 6 x 32mm knockouts	900ALM 1 6 x 32mm knockouts	3895ZIC 5 3 x 20mm knockouts (for flush mounting only)
823ALM 5 without knockouts	825ALM 1 without knockouts	825ALM 1 without knockouts			3891ZIC 5 1 gang Architrave Boxes for EDGE
K3704 X 2 10	K3703 X 3 10	K3704 X 3 10	K3706 X 3 10	K3706 X 4 10	K3708ZIC 10

Switchsocket Outlets, Timer Socket Outlets, and Key Operated Socket Outlets

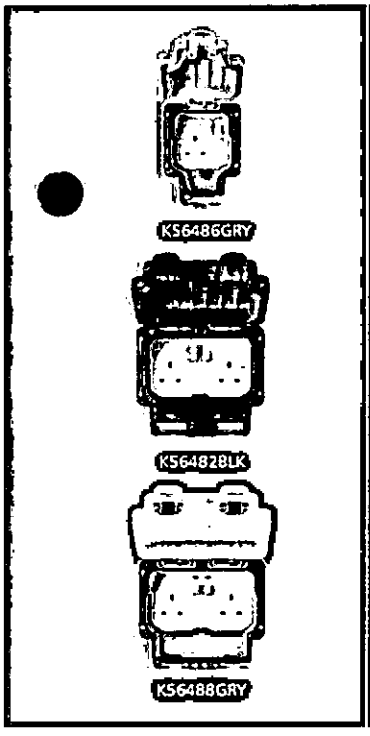
Socket Outlets

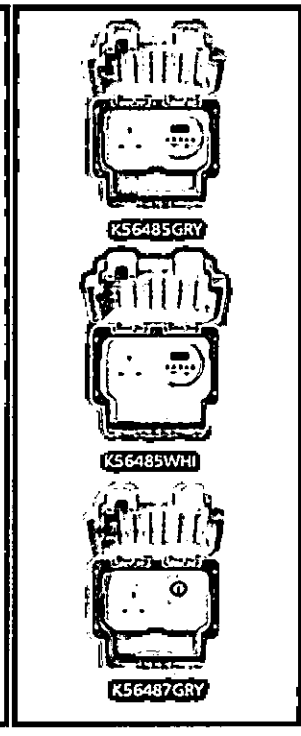
13 AMP
IP66

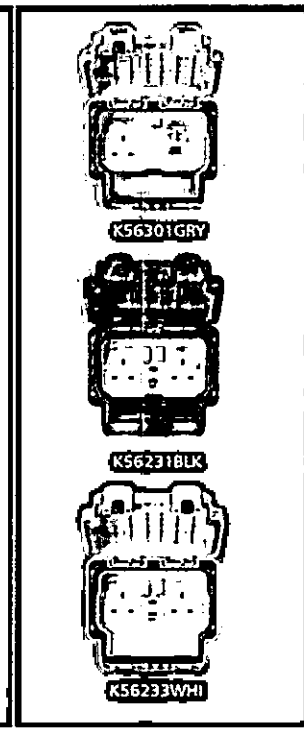
RCD PROTECTED
13 AMP
IP66

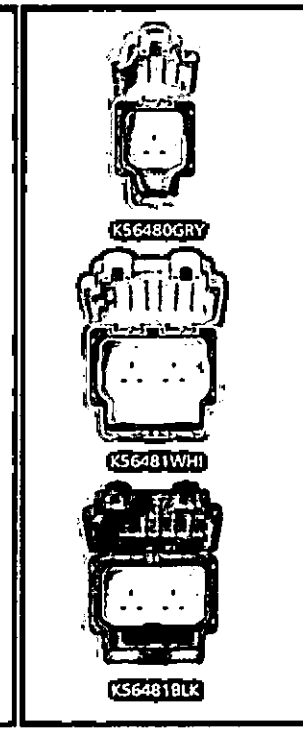
13 AMP
IP66

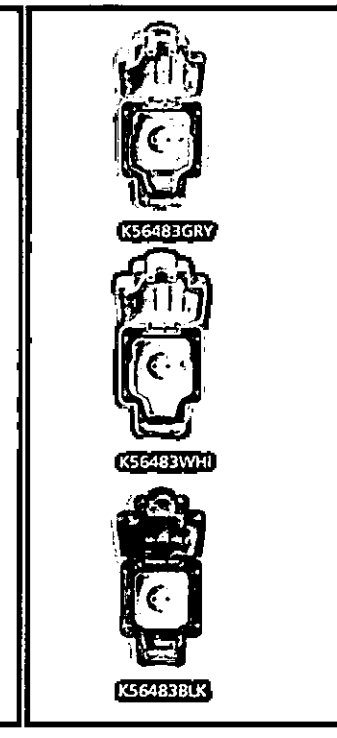
16 AMP
IP66











K56486GRY 1
K56486WHI 1
K56486BLK 1
13A DP
1 GANG
SWITCHED

K56482GRY 1
K56482WHI 1
K56482BLK 1
13A DP
2 GANG
SWITCHED

K56488GRY 1
K56488WHI 1
K56488BLK 1
13A DP SWITCHED
2 GANG
NEON
CLEAR COVER

Fixing holes are for No.8 woodscrews (not supplied)

K56486 has 2 x 20mm cable entries 1 on top, bottom and left hand side and supplied with earth terminals in the back box

2 gang back box has 5 cable entries, 2 on top and 1 on the R on other 3 sides Supplied with earth terminals in back box

DIMENSIONS
1 gang: 157 x 110 x 89mm
2 gang: 157 x 175 x 89mm

BS 1363 Pt 2: 1995

IP66 BS EN 60529: 1992

K56485GRY 1
K56485WHI 1
K56485BLK 1
13A SP
1 GANG
WITH ELECTRONIC TIMER MODULE

K56487GRY 1
K56487WHI 1
K56487BLK 1
13A 1 GANG DP
KEY OPERATED SOCKET

Timer Module meets the requirements of EN 60730-1 and EN 60730-2-7 [illegible]

K56301GRY 1
K56301WHI 1
K56301BLK 1
1 GANG DP
30 mA RATED TRIPPING CURRENT
ACTIVE CONTROL CIRCUIT

K56231GRY 1
K56231WHI 1
K56231BLK 1
2 GANG SP
30 mA RATED TRIPPING CURRENT
ACTIVE CONTROL CIRCUIT

K56233GRY 1
K56233WHI 1
K56233BLK 1
2 GANG SP
30 mA RATED TRIPPING CURRENT
PASSIVE CONTROL CIRCUIT

RCD protection [illegible]

Fixing holes are for No.8 woodscrews (not supplied)

Supplied with earth terminals in the back box. The Sent socket has 5 entries. Suitable for supply voltage of 240V a.c. 50Hz

Standard Shutters.

DIMENSIONS: 157 x 175 x 89mm

BS 7288: 1990

IP66 BS EN 60529: 1992

K56480GRY 1
K56480WHI 1
K56480BLK 1
13A 1 GANG
UNSWITCHED

K56481GRY 1
K56481WHI 1
K56481BLK 1
13A 2 GANG
UNSWITCHED

Fixing holes are for No.8 woodscrews (not supplied)

K56480 has 4 x 20mm cable entries 1 on top, bottom and each side and is supplied with earth terminals in the back box

BS 1363 Pt2: 1995

IP66 BS EN 60529: 1992

K56481 has 5 cable entries 2 on top and 1 on R side on other 3 sides. Supplied with earth terminals in back box

DIMENSIONS
1 gang: 157 x 110 x 89mm
2 gang: 157 x 175 x 89mm

BS 1363 Pt.2: 1995

IP66 BS EN 60529: 1992

K56483GRY 1
K56483WHI 1
K56483BLK 1
16A
1 GANG
2P+E
UNSWITCHED

*NON SP

Fixing holes are for No.8 woodscrews (not supplied)

K56483 is for use with plugs having right angled cable entry

DIMENSIONS
157 x 110 x 89mm

IEC60884-1: 2006

IP66 BS EN 60529: 1992

Masterseal enclosures are manufactured from polycarbonate. This provides an extremely high level of impact resistance. However some chemicals and synthetic oils can harm polycarbonate.

Refer to Technical Hotline for assistance
+44 (0) 1268 563720

iC60H RCBO
10, 30 and 100 mA

IEC 61009-1,
IEC 61009-2-2,
BS EN 61009-1
AS/NZS 61009.1

■ The single-phase iC60H RCBO's self-contained residual current device carries out complete protection of final circuits:
□ protection against short-circuits and cable overloads
□ protection of persons against electric shock by direct contact (10, 30 mA sensitivities),
□ protection of persons against electric shock by indirect contact (100 mA sensitivity),
□ protection of equipment against fires set by leakage currents (100 mA sensitivity).
■ The neutral is not interrupted when the device is tripped. Hence iC60H RCBO can be used on most circuits, except for the ones operating under TT or IT earthing systems.

Alternating current (AC) 50/60 Hz

Breaking capacity (Icn) according to IEC 61009-1

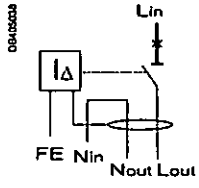
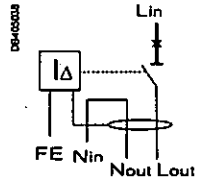
		Voltage (Ue)	
Ph/N		110 V	240 V
Rating (In)	6 to 45 A	10000 A	10000 A

Accessory

Padlocking device
■ Used to lock the toggle in the "open" or "closed" position by 4 mm diameter padlock (not supplied).

Catalogue numbers

iC60H RCBO 10000

1P+N				A			Width in 9-mm modules
B curve	Voltage rating (V)		Sensitivity (IΔn)	10 mA	30 mA	100 mA	
	240	Rating (In)	6 A	-	A9D31806	-	2
			10 A	-	A9D31810	-	
			16 A	-	A9D31816	-	
			20 A	-	A9D31820	-	
			25 A	-	A9D31825	-	
			32 A	-	A9D31832	-	
			40 A	-	A9D31840	-	
			45 A	-	A9D31845	-	
C curve	Voltage rating (V)		Sensitivity (IΔn)	10 mA	30 mA	100 mA	
	110	Rating (In)	10 A	-	A9D19810	-	2
			16 A	-	A9D19816	-	
			20 A	-	A9D19820	-	
			25 A	-	A9D19825	-	
			32 A	-	A9D19832	-	
	240	Rating (In)	6 A	A9D10806	A9D11806	A9D12806	
			10 A	A9D10810	A9D11810	A9D12810	
			16 A	A9D10816	A9D11816	A9D12816	
			20 A	A9D10820	A9D11820	A9D12820	
			25 A	A9D10825	A9D11825	A9D12825	
			32 A	A9D10832	A9D11832	A9D12832	
			40 A	A9D10840	A9D11840	A9D12840	
			45 A	A9D10845	A9D11845	A9D12845	
Operating frequency				50...60 Hz			

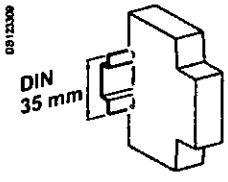
Accessory

Type	
Padlocking device (bag of 10 pieces)	A9A27049

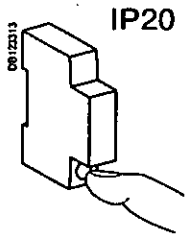
iC60 RCBO
10, 30 and 100 mA

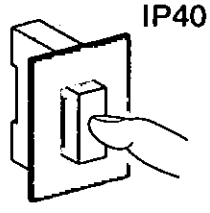
Technical data

Main characteristics		iC60H RCBO
Insulation voltage (Ui)		
Rated impulse withstand voltage (Uimp)		
Rated residual operating current (IΔn)		10, 30, 100 mA
Thermal tripping	Reference temperature	
Temperature derating		
Limitation class		
Surge current withstand (8/20 µs) without tripping		
Rated nominal breaking capacity (Icn)		10,000 A
Phase/earth rated residual breaking and making capacity (IΔm)		7,500 A
Additional characteristics		
Degree of protection	Device only	
	Device in modular enclosure	
Endurance (O-C)	Electrical	
	Mechanical	
Operating temperature		
Storage temperature		
Tropicalization		



Clip on DIN rail 35 mm.



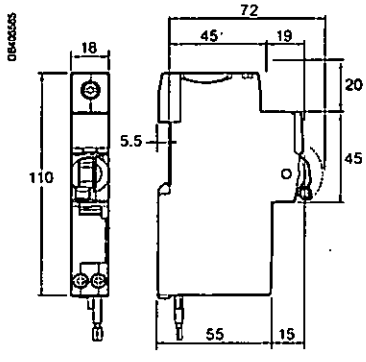


Indifferent position of installation.

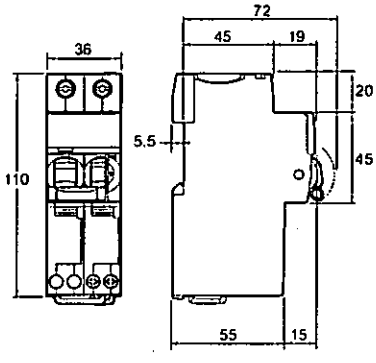
Weight (g)

iC60 RCBO	
iC60N RCBO	205
iC60H RCBO	205
iC60H2 RCBO	332

Dimensions (mm)



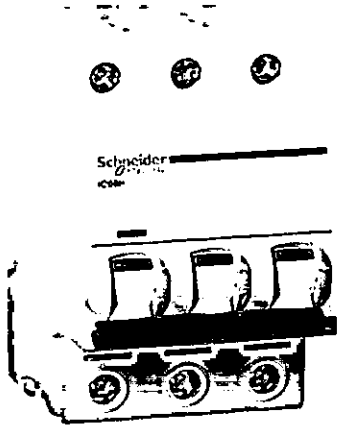
iC60N RCBO, iC60H RCBO



iC60H2 RCBO

Product data sheet
Characteristics

A9F54332
Acti9 iC60H 3P 32A C Miniature Circuit breaker



Main

Commercial Status	Commercialised
Range of product	Acti 9
Product name	Disbo iC60
Product or component type	Circuit breaker
Device short name	IC60H
Poles description	3P
Number of protected poles	3
[In] rated current	32 A
Network type	AC
Trip unit technology	Thermal-magnetic
Curve code	C
Breaking capacity	10000 A Icn conforming to EN/IEC 60898-1 - 415 V AC 50/60 Hz 20 kA Icu conforming to EN/IEC 60947-2 - 100...133 V DC 10 kA Icu conforming to EN/IEC 60947-2 - 440 V AC 50/60 Hz 15 kA Icu conforming to EN/IEC 60947-2 - 380...415 V AC 50/60 Hz 30 kA Icu conforming to EN/IEC 60947-2 - 220...240 V AC 50/60 Hz 42 kA Icu conforming to EN/IEC 60947-2 - 12...133 V AC 50/60 Hz
Utilisation category	Category A conforming to EN/IEC 60947-2

Complementary

Network frequency	50/60 Hz
[Ue] rated operational voltage	440 V AC 50/60 Hz
Magnetic tripping limit	8 x In +/- 20 %
[Ics] rated service breaking capacity	10000 A 100 % x Icu conforming to EN/IEC 60898-1 - 415 V AC 50/60 Hz 20 kA 100 % x Icu conforming to EN/IEC 60947-2 - 100...133 V DC 5 kA 50 % x Icu conforming to EN/IEC 60947-2 - 440 V AC 50/60 Hz 7.5 kA 50 % x Icu conforming to EN/IEC 60947-2 - 380...415 V AC 50/60 Hz 15 kA 50 % x Icu conforming to EN/IEC 60947-2 - 220...240 V AC 50/60 Hz 21 kA 50 % x Icu conforming to EN/IEC 60947-2 - 12...133 V AC 50/60 Hz
Limitation class	3 conforming to EN/IEC 60947-2
[Ui] rated insulation voltage	500 V AC 50/60 Hz conforming to EN/IEC 60947-2
[Uimp] rated impulse withstand voltage	6 kV conforming to EN/IEC 60947-2
Contact position indicator	Yes
Control type	Toggle
Local signalling	Trip indicator
Mounting mode	Clip-on
Mounting support	Rail
9 mm pitches	6
Height	85 mm
Width	54 mm
Depth	78.5 mm
Product weight	0.375 kg
Colour	White
Mechanical durability	20000 cycles
Electrical durability	10000 cycles

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein.
This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications.
It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof.
Neither Schneider Electric Industries SAS nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein.

Provision for padlocking	Padlockable
Connections - terminals	Single terminal, top or bottom flexible wire(s) 1...25 mm² max Single terminal, top or bottom rigid wire(s) 1...35 mm² max
Wire stripping length	14 mm top or bottom
Tightening torque	3.5 N.m top or bottom
Earth-leakage protection	Separate block

Environment

Standards	EN/IEC 60947-2 EN/IEC 60898-1
IP degree of protection	IP20 conforming to IEC 60529
Pollution degree	3 conforming to EN/IEC 60947-2
Tropicalisation	2 conforming to IEC 60068-1
Relative humidity	95 % (55 °C)
Ambient air temperature for operation	-35...70 °C
Ambient air temperature for storage	-40...85 °C

Offer Sustainability

Sustainable offer status	Not Green Premium product
RoHS	Compliant - since 1310 - Schneider Electric declaration of conformity
REACh	Reference not containing SVHC above the threshold

Product data sheet
Characteristics

A9F54163
Acti9 iC60H 1P 63A C Miniature Circuit breaker

Main

Commercial Status	Commercialised
Range of product	Acti 9
Product name	Disbo iC60
Product or component type	Circuit breaker
Device short name	IC60H
Poles description	1P
Number of protected poles	1
[In] rated current	63 A
Network type	AC
Trip unit technology	Thermal-magnetic
Curve code	C
Breaking capacity	10000 A Icn conforming to EN/IEC 60898-1 - 240 V AC 50/60 Hz 15 kA Icu conforming to EN/IEC 60947-2 - 220...240 V AC 50/60 Hz 30 kA Icu conforming to EN/IEC 60947-2 - 100...133 V AC 50/60 Hz 42 kA Icu conforming to EN/IEC 60947-2 - 10...60 V AC 50/60 Hz 10 kA Icu conforming to EN/IEC 60947-2 - 72 V DC 20 kA Icu conforming to EN/IEC 60947-2 - 12...48 V DC
Utilisation category	Category A conforming to EN/IEC 60947-2

Complementary

Network frequency	50/60 Hz
[Ue] rated operational voltage	240 V AC 50/60 Hz
Magnetic tripping limit	8 x In +/- 20 %
[Ics] rated service breaking capacity	10000 A 100 % x Icu conforming to EN/IEC 60898-1 - 240 V AC 50/60 Hz 7.5 kA 50 % x Icu conforming to EN/IEC 60947-2 - 220...240 V AC 50/60 Hz 15 kA 50 % x Icu conforming to EN/IEC 60947-2 - 100...133 V AC 50/60 Hz 21 kA 50 % x Icu conforming to EN/IEC 60947-2 - 10...60 V AC 50/60 Hz 10 kA 100 % x Icu conforming to EN/IEC 60947-2 - 72 V DC 20 kA 100 % x Icu conforming to EN/IEC 60947-2 - 12...48 V DC
Limitation class	3 conforming to EN/IEC 60947-2
[Ui] rated insulation voltage	500 V AC 50/60 Hz conforming to EN/IEC 60947-2
[Uimp] rated impulse withstand voltage	6 kV conforming to EN/IEC 60947-2
Contact position indicator	Yes
Control type	Toggle
Local signalling	Trip indicator
Mounting mode	Clip-on
Mounting support	Rail
9 mm pitches	2
Height	85 mm
Width	18 mm
Depth	78.5 mm
Product weight	0.125 kg
Colour	White
Mechanical durability	20000 cycles
Electrical durability	10000 cycles

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein.
This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications.
It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof.
Neither Schneider Electric Industries SAS nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein.

Provision for padlocking	Padlockable
Connections - terminals	Single terminal, top or bottom flexible wire(s) 1...25 mm² max Single terminal, top or bottom rigid wire(s) 1...35 mm² max
Wire stripping length	14 mm top or bottom
Tightening torque	3.5 N.m top or bottom
Earth-leakage protection	Separate block

Environment

Standards	EN/IEC 60947-2 EN/IEC 60898-1
IP degree of protection	IP20 conforming to IEC 60529
Pollution degree	3 conforming to EN/IEC 60947-2
Tropicalisation	2 conforming to IEC 60068-1
Relative humidity	95 % (55 °C)
Ambient air temperature for operation	-35...70 °C
Ambient air temperature for storage	-40...85 °C

Offer Sustainability

Sustainable offer status	Not Green Premium product
RoHS	Compliant - since 1310 - Schneider Electric declaration of conformity
REACh	Reference not containing SVHC above the threshold

Acel Steel Cable Trunking & Accessories

Tees

Part No.	Description
Top Lids	
AC777450	50 x 50mm tee top lid
AC777451	75 x 75mm tee top lid
AC777452	100 x 50mm tee top lid
AC777453	100 x 100mm tee top lid
AC777454	150 x 150mm tee top lid

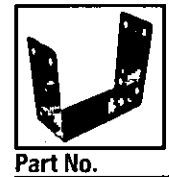
Hangers

Part No.	Description
AC777406	50 x 50mm c/w 10mm hole
AC777407	75 x 75mm c/w 10mm hole
AC777408	100 x 100mm c/w 10mm hole
AC777409	150 x 150mm c/w 10mm hole

Stop Ends

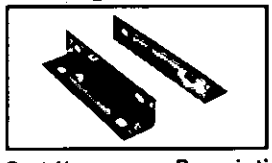
Part No.	Description
AC777470	50 x 50mm blank end
AC777471	75 x 75mm blank end
AC777473	100 x 100mm blank end
AC777474	150 x 150mm blank end

Sleeve Couplings



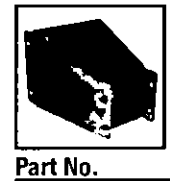
Part No.	Description
AC777475	50mm coupler
AC777476	75mm coupler
AC777478	100mm coupler
AC777479	150mm coupler

Flange Couplings



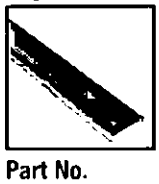
Part No.	Description
AC777480	50mm flange coupler
AC777481	75mm flange coupler
AC777482	100mm flange coupler
AC777483	150mm flange coupler

Reducers



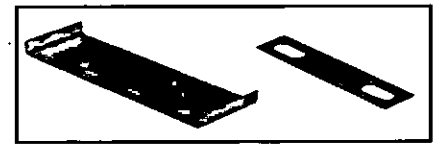
Part No.	Description
AC777484	75 x 50mm reducer
AC777485	100 x 50mm reducer
AC777486	100 x 75mm reducer
AC777487	150 x 100mm reducer

Spare Lids



Part No.	Description
AC777490	50mm x 3mtr spare lid
AC777491	75mm x 3mtr spare lid
AC777492	100mm x 3mtr spare lid
AC777493	150mm x 3mtr spare lid

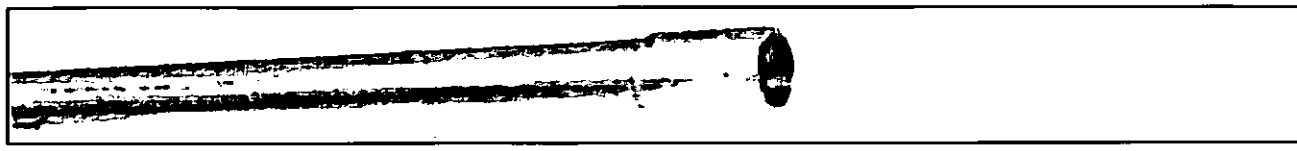
Accessories



Part No.	Description
AC777494	50 x 50mm cable retainer
AC777496	100 x 100mm cable retainer
AC777489	Earth links - tinned copper
AC777498	Trunking connector fixings
AC777499	Trunking metal turnbuckles

Acel Round Steel Conduit, Fittings & Accessories

Galvanised Round Steel Conduit

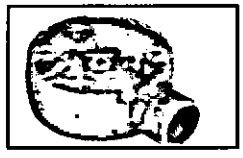


Class 4 Steel Conduit

- Heavy gauge steel conduit
- Hot dipped galvanised
- Supplied in 3.0 or 3.75 metre lengths
- Complete with one coupler and threaded both ends
- Meets BS 4568 heavy protection specification

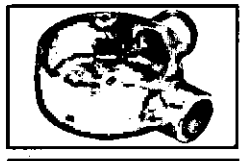
Part No.	Description
AC77698	Galv 20mm, 3.0mtr length
AC77699	Galv 25mm, 3.0mtr length
AC77690	Galv 20mm, 3.75mtr length
AC77692	Galv 25mm, 3.75mtr length
AC77694	Galv 32mm, 3.75mtr length

Galvanised Conduit Fittings



Part No.	Size (mm)
Terminal Boxes	
AC7900	20mm
AC7902	25mm

Through Boxes	
AC7904	20mm
AC7906	25mm



Angle Boxes	
AC7908	20mm
AC7910	25mm

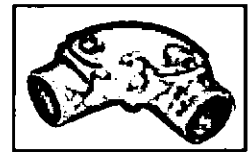
Tee Boxes	
AC7912	20mm
AC7914	25mm

Intersection Boxes	
AC7916	20mm
AC7918	25mm

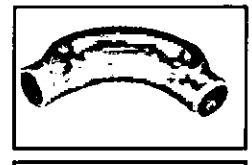
U Boxes	
AC7920	20mm
AC7922	25mm

Part No.	Size (mm)
Y Boxes	
AC7924	20mm
AC7926	25mm

Back Outlet Boxes	
AC7928	20mm



Inspection Elbows	
AC7930	20mm
AC7932	25mm

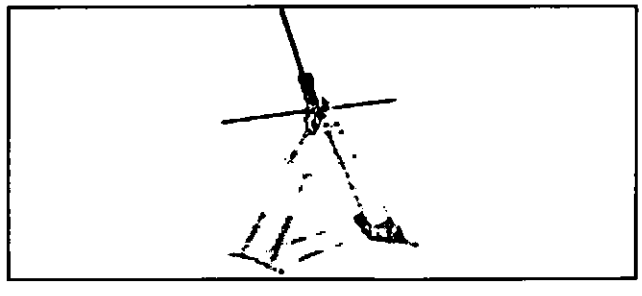


Inspection Bends	
AC7934	20mm
AC7936	25mm

Inspection Tees	
AC7938	20mm
AC7940	25mm

Due to the volatility of raw material prices it may be necessary to increase / decrease the price of Acel round steel conduit, fittings and accessories during the life of this catalogue. If in doubt please refer to your local branch at time of ordering.

Conduit Pipe Bender



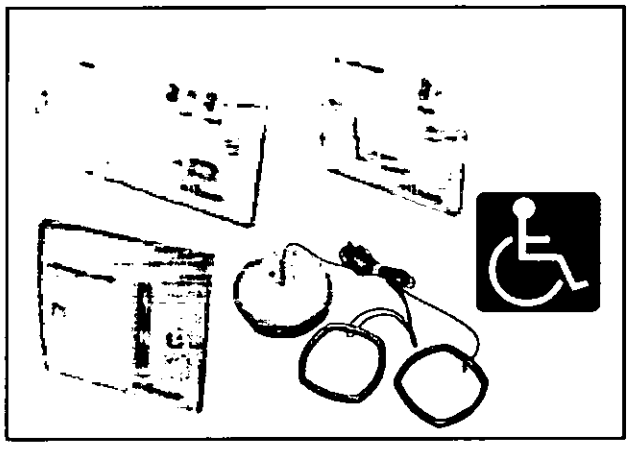
- Conduit bending machine complete with 20mm and 25mm formers
- Bends electrical conduit to BS 4568 Part 1
- Size 20mm and 25mm

Part No.	Description
AC7394	Conduit pipe bender c/w 20 & 25mm formers

Acel

- A range of slimline Emergency Assist product kits specifically designed for simple installation (2 wire connection from control panel to kit.components) in areas where an emergency call for assistance may be required. Kits and accessories are available in *White Plastic* and *Stainless Steel* with optional battery back up versions.
- Emergency Assist products comply with BS EN 60065:2002. They can be used to help comply with BS 8300, Care Standards Act, the Disability Discrimination Act and the English Tourism Council's National Accessibility scheme.

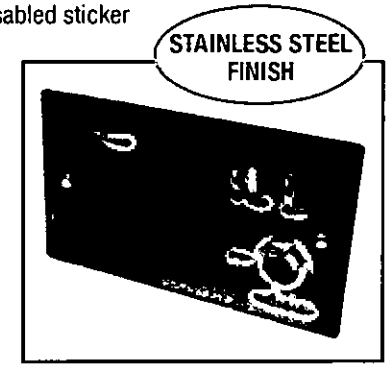
Emergency Assist Alarm Kits



See Below & Opposite For Each Components' Specification

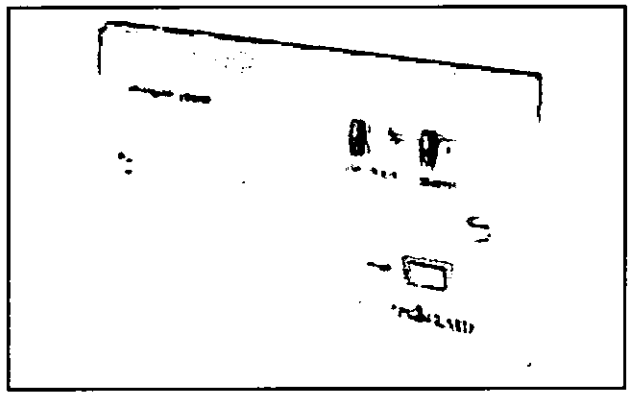
Kit Contents

- Single zone control panel with audible and visual alert
- Reset button - single gang
- Emergency pull cord (2.5mtr) used to activate the alarm
- Over door alert with high visibility flashing light and a high dB intermittent alarm
- Self adhesive blue disabled sticker

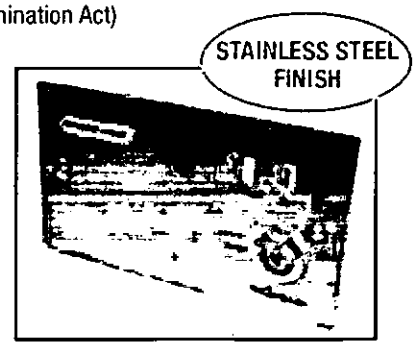


Part No.	Description
AC5400	Single zone alarm system kit - white
AC5401	Single zone alarm system kit - stainless steel
AC5402	Single zone alarm system kit c/w battery back up - white
AC5403	Single zone alarm system kit c/w battery back up - stainless steel

Single Zone Control Panels



- Single zone control panel with audible and visual alert, reset button, standby LED (on Mains operation) and automatic fault detection that warns of a wiring problem
- Single zone kits ideal for WC's and rooms in the home, shop conversions and small businesses
- Continuous high dB control panel and reset button alarm
- Control panel fits standard BS flush 2 gang or surface mounted boxes
- Complies with BS EN 60335-1
- Designed to meet requirements of the DDA (Disability Discrimination Act)

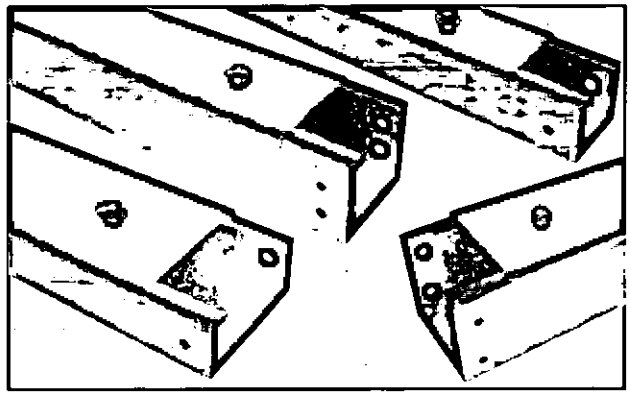


Part No.	Description
AC5410	Single zone control panel - white
AC5411	Single zone control panel - stainless steel
AC5412	Single zone control panel c/w battery back up - white
AC5413	Single zone control panel c/w battery back up - stainless steel

- Typical Areas For Installation

Acel Steel Cable Trunking & Accessories

Galvanised Steel Single Compartment Cable Trunking



- Designed to comply with BS EN 50085-1:2006
- Manufactured from pre-galvanised steel to BS EN 10346:2009
- Trunking supplied in 3 metre lengths complete with lid & internal coupler - lid has quick turn buckle type fixing
- CE

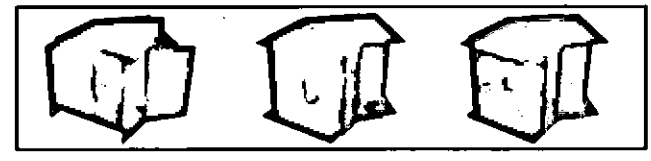
Part No.	Description
AC777400	50 x 50mm, 3mtr length
AC777401	75 x 75mm, 3mtr length
AC777402	100 x 50mm, 3mtr length
AC777403	100 x 100mm, 3mtr length
AC777404	150 x 150mm, 3mtr length

Galvanised Steel Single Compartment Cable Trunking Accessories

90⁰ Bends (Gussetted)

Part No.	Description
Top Lids	
AC777410	50 x 50mm 90⁰ bend top lid
AC777411	75 x 75mm 90⁰ bend top lid
AC777412	100 x 50mm 90⁰ bend top lid
AC777413	100 x 100mm 90⁰ bend top lid
AC777414	150 x 150mm 90⁰ bend top lid
Inside Lids	
AC777415	50 x 50mm 90⁰ bend inside lid
AC777416	75 x 75mm 90⁰ bend inside lid
AC777417	100 x 50mm 90⁰ bend inside lid
AC777418	100 x 100mm 90⁰ bend inside lid
AC777419	150 x 150mm 90⁰ bend inside lid
Outside Lids	
AC777420	50 x 50mm 90⁰ bend outside lid
AC777421	75 x 75mm 90⁰ bend outside lid
AC777422	100 x 50mm 90⁰ bend outside lid
AC777423	100 x 100mm 90⁰ bend outside lid
AC777424	150 x 150mm 90⁰ bend outside lid

45⁰ Bends



Part No.	Description
Top Lids	
AC777430	50 x 50mm 45⁰ bend top lid
AC777431	75 x 75mm 45⁰ bend top lid
AC777432	100 x 50mm 45⁰ bend top lid
AC777433	100 x 100mm 45⁰ bend top lid
AC777434	150 x 150mm 45⁰ bend top lid
Inside Lids	
AC777435	50 x 50mm 45⁰ bend inside lid
AC777436	75 x 75mm 45⁰ bend inside lid
AC777437	100 x 50mm 45⁰ bend inside lid
AC777438	100 x 100mm 45⁰ bend inside lid
AC777439	150 x 150mm 45⁰ bend inside lid
Outside Lids	
AC777440	50 x 50mm 45⁰ bend outside lid
AC777441	75 x 75mm 45⁰ bend outside lid
AC777442	100 x 50mm 45⁰ bend outside lid
AC777443	100 x 100mm 45⁰ bend outside lid
AC777444	150 x 150mm 45⁰ bend outside lid

Due to the volatility of raw material prices it may be necessary to increase / decrease the price of Acel cable management products during the life of this catalogue. If in doubt please refer to your local branch at time of ordering.

Acel
...making life simple!

8

8 COMMISSIONING DATA & CERTIFICATES

Certificates

Schedule of Certificates

Certificate Title	Certificate Number
Electrical Installation Certificate	ICN4/0324668
Emergency Lighting Certificate	ECN4/0317200
Fire Alarm Certificate	IM1661

NICEIC APPROVED CONTRACTOR

Contractor's Reference Number

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ELECTRICAL INSTALLATION CERTIFICATE

Issued in accordance with British Standard 7671 - Requirements for Electrical Installations by an Approved Contractor or Conforming Body enrolled with NICEIC, Warwick House, Houghton Hall Park, Houghton Regis, Dunstable, LU5 5ZX

Original (To the person ordering the work)

PART P NUMBER: N/A

DETAILS OF THE CLIENT

Client / Address: Kingerlee, Thomas House, Langford Locks, Kidlington, OXON, OX5 1HR Postcode: OX5 1HR

DETAILS OF THE INSTALLATION

Address: Beckley Village Hall, Woodperry Road, Beckley, Oxford Postcode: OX3 9UZ

The installation is: New ✔ An addition An alteration

Extent of the installation covered by this certificate: New village hall electrical installation

DESIGN

Details of permitted exceptions appended: N/A Risk assessment appended: N/A No. of pages

I/We, being the person(s) responsible for the design of the electrical installation (as indicated by my/our signature(s) below), particulars of which are described above, having exercised reasonable skill and care when carrying out the design, hereby CERTIFY that the design work for which I/we have been responsible is, to the best of my/our knowledge and belief, in accordance with BS 7671 amended to (date) except for the departures, if any, detailed as follows:

Details of departures from BS 7671, as amended (Regulations 120.3,133.5):

The extent of liabilty of the signatory/signatories is limited to the work described above as the subject of this certificate.
For the **DESIGN** of the installation:

** (Where there is divided responsibility for the design)

Signature	Nil	Date	13.12.16	Name (CAPITALS) N.GRANT	Designer 1
Signature		Date		Name (CAPITALS) M.WEBB **	Designer 2

CONSTRUCTION

I, being the person responsible for the construction of the electrical installation (as indicated by my signature below), particulars of which are described above, having exercised reasonable skill and care when carrying out the construction, hereby CERTIFY that the construction work for which I have been responsible is to the best of my knowledge and belief, in accordance with BS 7671, amended to (date) except for the departures, if any, detailed as follows:

Details of departures from BS 7671, as amended (Regulations 120.3,133.5):

The extent of liabilty of the signatory is limited to the work described above as the subject of this certificate.
For the **CONSTRUCTION** of the installation:

Signature Date Name (CAPITALS) M.WEBB Constructor

INSPECTION AND TESTING

I, being the person responsible for the inspection and testing of the electrical installation (as indicated by my signature below), particulars of which are described above, having exercised reasonable skill and care when carrying out the inspection and testing, hereby CERTIFY that the work for which I have been responsible is to the best of my knowledge and belief, in accordance with BS 7671, amended to (date) except for the departures, if any, detailed as follows:

Details of departures from BS 7671, as amended (Regulations 120.3,133.5):

The extent of liabilty of the signatory/signatories is limited to the work described above as the subject of this certificate.
For the **INSPECTION AND TESTING** of the installation:

Signature D. Rackstraw Date 10/12/2016 Signature Date 12/12/2016

Name (CAPITALS) D RACKSTRAW Inspector Name (CAPITALS) C COOK Qualified Supervisor†

DESIGN, CONSTRUCTION, INSPECTION AND TESTING *

* This box to be completed only where the design, construction, inspection and testing have been the responsibility of one person.

Details of permitted exceptions appended: N/A Risk assessment appended: N/A No. of pages

I, being the person responsible for the design, construction, inspection and testing of the electrical installation (as indicated by my signature below), particulars of which are described above, having exercised reasonable skill and care when carrying out the design, construction, inspection and testing, hereby CERTIFY that the work for which I have been responsible is to the best of my knowledge and belief, in accordance with BS 7671, amended to (date) except for the departures, if any, detailed as follows:

Details of departures from BS 7671, as amended (Regulations 120.3,133.5):

The extent of liabilty of the signatory is limited to the work described above as the subject of this certificate.
For the **DESIGN**, the **CONSTRUCTION** and the **INSPECTION AND TESTING** of the installation:

Reviewed by

Signature Date Signature Date

Name (CAPITALS) Name (CAPITALS) Qualified Supervisor††

† *Where the inspection and testing have been carried out by an Approved Contractor, the inspection and testing results are to be reviewed by the registered Qualified Supervisor.*

†† *Where the design, the construction, and the inspection and testing have been the responsibilty of one person, the inspection and testing results are to be reviewed by the registered Qualified Supervisor.*

Please see the 'Notes for Recipients'

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NICEIC APPROVED CONTRACTOR

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Original (To the person ordering the work)

PARTICULARS OF THE ORGANISATION(S) RESPONSIBLE FOR THE ELECTRICAL INSTALLATION

DESIGN (1)

Organisation † C.T.Walters (electrical)Ltd

Address: Unit 4, Park End Works, Croughton, Northants

Postcode: NN13 5LX

NICEIC Enrolment No (where appropriate): 016707

Branch number: (if applicable)

DESIGN (2)

Organisation †

Address:

Postcode:

NICEIC Enrolment No (where appropriate)

Branch number: (if applicable)

† CONSTRUCTION

Organisation C.T.Walters (electrical)Ltd

Address: Unit 4, Park End Works, Croughton, Northants

Postcode: NN13 5LX

NICEIC Enrolment No (Essential Infomation): 016707

Branch number: (if applicable)

INSPECTION AND TESTING

Organisation † C.T.Walters (electrical)Ltd

Address: Unit 4, Park End Works, Croughton, Northants

Postcode: NN13 5LX

NICEIC Enrolment No (where appropriate): 016707

Branch number: (if applicable)

SUPPLY CHARACTERISTICS AND EARTHING ARRANGEMENTS

Tick boxes and enter details, as appropriate

✣ System Type(s): TN-S ☐; TN-C-S ☑; TN-C ☐; TT ☐; IT ☐

✣ Number and Type of Live Conductors: a.c. ☑; d.c. ☐; 1-phase (2 wire) ☐; 1-phase (3 wire) ☐; 2-pole ☐; 2-phase (3 wire) ☐; 3-pole ☐; 3-phase (3 wire) ☐; 3-phase (4 wire) ☑; other ☐; Other

Nature of Supply Parameters

Nominal Voltage(s): U(1)	400	V
U_0 (1)	230	V
Nominal frequency, f(1)	50	Hz
Prospective fault current, I_{pf} (2)(3)	1.78	kA
External earth fault loop impendance, Z_E (2)(3)	0.25	Ω
Number of sources	1	

Notes: (1) by enquiry (2) by enquiry or by measurement (3) where more than one supply, record the higher or highest values

✣ Characteristics of Primary Supply Overcurrent Protective Device(s)

BS(EN)	BS 1361 Fuse HBC Domesti
Type	2
Rated current	100 A
Short-circuit capacity	33 kA
Confirmation of supply polarity	☑

PARTICULARS OF INSTALLATION AT THE ORIGIN

✣ Means of Earthing

Distributor's facility: ☑

Installation earth electrode: Type: (eg rod(s),tape etc)

Electrode resistance, R_A: (Ω)

Details of Installation Earth Electrode (where applicable)

Location:

Method of measurement:

✣ Main Switch/Switch-Fuse/Circuit-Breaker/RCD

Type: BS(EN)	BS EN 60947-3	Voltage rating	400	V
No of Poles	3	Rated current, I_n	125	A
Supply conductors material	Copper	RCD operating current, $I_{\Delta n}$*		mA
Supply conductors csa	25 mm²	RCD operating time (at $I_{\Delta n}$)*		ms
		Rated delay*		ms

(applicable only where an RCD is suitable and is used as a main circuit-breaker)

Maximum Demand (Load): 80 Amps

Protective measures against electric shock: ADS

Earthing and Protective Bonding Conductors

Earthing conductor		Main protective bonding conductors		Bonding of extraneous-conductive-parts (✓)			
Conductor material	Copper	Conductor material	Copper	Water installation pipes	☑	Lightning protection	
Conductor csa	16 mm²	Conductor csa	10 mm²	Oil installation pipes		Structural steel	
Continuity/ connection verified	☑	Continuity/ connection verified	☑	Gas installation pipes	☑	Other	

COMMENTS ON EXISTING INSTALLATION

In the case of an alteration or additions see Section 633

Note: Enter 'NONE' or, where appropriate, the page number(s) of addional page(s) of comments on the existing installation.

NEXT INSPECTION **

§ Interval in terms of years, months or weeks, as appropriate

I/We the designer(s), RECOMMEND that this installation is further inspected and tested after an interval of not more than § 5 years

** *The proposed date for the next inspection should take into consideration the frequency and quality of maintenance that the installation can reasonably be expected to receive during its intended life, and the period should be agreed between the designer, installer and other relevant parties.*

† *Where the Approved Contractor responsible for the construction of the electrical installation has also been responsible for the design and the inspection and testing of that installation, the 'Particulars of the Organisation(s) responsible for the Electrical Installation' may be recorded only in the section entitled 'CONSTRUCTION'*

✣ *Where a number of sources are available to supply the installation, and where the data given for the primary source may differ from other sources, a separate sheet must be provided which identifies the relevant information relating to each additional source.*

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Please see the 'Notes for Recipients'

NICEIC APPROVED CONTRACTOR

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Original (To the person ordering the work)

SCHEDULE OF ITEMS INSPECTED

† See note below

1.0 CONDITION OF ELECTRICAL INTAKE EQUIPMENT

(the Distributor should be notified of any unsatisfactory equipment)

1.1	Service cable	✔
1.2	Service head	✔
1.3	Distributor's earthing arrangement	✔
1.4	Meter tails - Distributor/Consumer	✔
1.5	Metering equipment	✔
1.6	Isolator	N/A

2.0 PARALLEL OR SWITCHED ALTERNATIVE SOURCES OF SUPPLY

2.1	Presence of adequate arrangements where generator to operate as a switched alternative	
	a) Dedicated earthing arrangement independent of that of the public supply	N/A
2.2	Presence of adequate arrangements where generator to operate in parallel with public supply system	
	a) Correct connection of generator in parallel	N/A
	b) Compatibility of characteristics of means of generation	N/A
	c) Means to provide automatic disconnection of generator in the event of loss of public supply system or voltage or frequency deviation beyond declared values	N/A
	d) Means to prevent connection of generator in the event of loss of public supply system or voltage or frequency deviation beyond declared values	N/A
	e) Means to isolate generator from the public supply system	N/A
2.3	Presence of alternative/additional supply warning notices at:	
	a) The origin	N/A
	b) The meter position, if remote from origin	N/A
	c) The consumer unit/distribution board to which the alternative/additional sources are connected	N/A
	d) All points of isolation of ALL sources of supply	N/A

3.0 AUTOMATIC DISCONNECTION OF SUPPLY

3.1	Presence and adequacy of protective earthing/ bonding arrangements as follows:	
	a) Distributor's earthing arrangement or installation earth electrode arrangement	✔
	b) Earthing conductor and connections	✔
	c) Main protective bonding conductors and connections	✔
	d) Earthing/bonding labels at all appropriate locations	✔
3.2	Accessibility of:	
	a) Earthing conductor connections	✔
	b) All protective bonding connections	✔
3.3	FELV - requirements satisfied	N/A
3.4	Reduced low voltage - requirements satisfied	N/A

4.0 BASIC PROTECTION

4.1	Presence and adequacy of protective measures to provide basic protection	
	a) Insulation of live parts	✔
	b) Barriers or enclosures	✔
	c) Obstacles**	N/A
	d) Placing out of reach**	✔

5.0 ADDITIONAL PROTECTION

5.1	The presence and effectiveness of additional protection methods used, as follows:	
	a) RCDs not exceeding 30 mA operating current	✔
	b) Supplementary bonding	✔

6.0 OTHER METHODS OF PROTECTION

(insert location in box provided)

The presence and effectiveness of other methods of protection against electric shock where used, as follows:

		LOCATION	
6.1	Basic and fault protection		
	a) SELV		✔
	b) PELV		N/A
	c) Double insulation/Reinforced insulation		✔
	d) Electrical separation for one item of equipment		✔
6.2	Fault protection		
	a) Non-conducting location/Earth-free local equipotential bonding**		✔
	b) Electrical separation for more than one item of equipment**		N/A

7.0 DISTRIBUTION EQUIPMENT

7.1	Adequacy of working space/accessibility	✔
7.2	Security of fixing	✔
7.3	Insulation of live parts not damaged during erection	✔
7.4	Adequacy / security of barriers	✔
7.5	Suitability of enclosures for IP and fire ratings	✔
7.6	Enclosures not damaged during installation	✔
7.7	Presence and effectiveness of obstacles	✔
7.8	Presence of main switch(es), linked where required	✔
7.9	Operation of main switch(es) (functional check)	✔
7.10	Operation of circuit-breakers and RCDs to prove functionality	✔
7.11	RCD(s) provided for fault protection, where specified	✔
7.12	RCD(s) provided for protection against fire	✔
7.13	RCD(s) provided for additional protection, where specified	✔
7.14	Confirmation overvoltage protection (SPDs) provided where specified	✔
7.15	Confirmation of indication that SPD is functional	✔
7.16	Presence of RCD quarterly test notice at or near the origin	✔
7.17	Presence of diagrams, charts or schedules at or near each distribution board, where required	✔
7.18	Presence of non-standard (mixed) cable colour warning notice at or near the appropriate distribution board, where required	N/A
7.19	Presence of next inspection recommendation label	✔
7.20	Presence of other required labelling	N/A
7.21	Selection of protective device(s) and base(s); correct type and rating	✔
7.22	Single-pole protective devices in line conductor only	✔
7.23	Protection against mechanical damage where cables enter equipment	✔
7.24	Protection against electromagnetic effects where cables enter ferromagnetic enclosures	N/A
7.25	Confirmation that ALL conductor connections, including connections to busbars are correctly located in terminals and are tight and secure	✔

8.0 CIRCUITS

8.1	Identification of conductors	✔
8.2	Cables correctly supported throughout their length	✔
8.3	Examination of cables for signs of mechanical damage during installation	✔
8.4	Examination of insulation of live parts, not damaged during erection	✔

** *For use in controlled supervised/conditions only*

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SCHEDULE OF ITEMS INSPECTED

† See note below

8.5	Non-sheathed cables protected by enclosure in conduit, ducting or trunking	✔
8.6	Suitability of containment systems (including flexible conduit)	✔
8.7	Correct temperature rating of cable insulation	✔
8.8	Adequacy of cables for current-carrying capacity with regard to the type and nature of installation	✔
8.9	Adequacy of protective devices: type and rated current for fault protection	✔
8.10	Presence and adequacy of circuit protective conductors	✔
8.11	Coordination between conductors and overload protective devices	✔
8.12	Wiring systems and cable installation methods / practices appropriate to the type and nature of installation and external influences	✔
8.13	Cables installed under floors, above ceilings, in walls / partitions, adequately protected against damage	
	* installed in prescribed zones	✔
	* incorporating earthed armour or sheath, or installed within earthed wiring system, or otherwise protected against mechanical damage by nails, screws and the like	✔
8.14	Provision of additional protection by RCDs having rated residual operating current ($I_{\Delta n}$) not exceeding 30 mA	
	a) for mobile equipment with a current rating not exceeding 32 A for use outdoors	✔
	b) For all socket-outlets of rating 20 A or less, unless exempt	✔
	c) For cables installed in walls/partitions at a depth of less than 50 mm	✔
	d) For cables installed in walls/partitions containing metal parts regardless of depth	✔
8.15	Provision of fire barriers, sealing arrangements so as to minimize the spread of fire	✔
8.16	Band II cables segregated/separated from Band I cables	✔
8.17	Cables segregated/separated from non-electrical services	✔
8.18	Termination of cables at enclosures	
	a) Connections under no undue strain	✔
	b) No basic insulation of a conductor visible outside enclosure	✔
	c) Connections of live conductors adequately enclosed	✔
	d) Adequately connected at point of entry to enclosure (glands, bushes etc.)	✔
8.19	Suitability of circuit accessories for external influences	✔
8.20	Circuit accessories not damaged during erection	✔
8.21	Single-pole devices for switching in line conductor only	✔
8.22	Adequacy of connections, including cpcs, within accessories and at fixed and stationary equipment	✔

9.0 ISOLATION AND SWITCHING

9.1	Isolators	
	a) Presence and location of appropriate devices	✔
	b) Capable of being secured in the OFF position	✔
	c) Correct operation verified (functional check)	✔
	d) The installation, circuit or part thereof that will be isolated is clearly identified by location and/or durable marking	✔
	e) Warning label posted in situations where live parts cannot be isolated by the operation of a single device	✔
9.2	Switching off for mechanical maintenance	
	a) Presence of appropriate devices	✔
	b) Acceptable location (state if local or remote) Local	✔
	c) Capable of being secured in the OFF position	N/A
	d) Correct operation verified (functional check)	✔
	e) The circuit or part thereof to be disconnected clearly identified by location and/or durable marking	✔
9.3	Emergency switching/stopping	
	a) Presence of appropriate devices	N/A
	b) Readily accessible for operation where danger might occur	N/A
	c) Correct operation verified (functional check)	N/A
	d) The installation, circuit or part thereof to be disconnected, clearly identified by location and/or durable marking	N/A
9.4	Functional switching	
	a) Presence of appropriate devices	✔
	b) Correct operation verified (functional check)	✔

10.0 CURRENT-USING EQUIPMENT (PERMANENTLY CONNECTED)

10.1	Suitability of equipment in terms of IP and fire ratings	✔
10.2	Enclosure not damaged/deteriorated during installation so as to impair safety	✔
10.3	Suitability for the environment and external influences	✔
10.4	Security of fixing	✔
10.5	Cable entry holes in ceilings above luminaires, sized or sealed so as to restrict the spread of fire	✔
10.6	Recessed luminaires (downlighters)	
	a) Correct type of lamps fitted	✔
	b) Installed to minimise build-up of heat	✔
10.7	Provision of undervoltage protection, where specified	N/A
10.8	Provision of overload protection, where specified	N/A
10.9	Adequacy of working space/accessibility to equipment	N/A

11.0 SPECIAL INSTALLATIONS OR LOCATIONS

List below any Special Installations or Locations which are part of the installation to be verified, and confirm that the additional requirements given in the respective section of Part 7 are fulfilled.

12.0 OTHER

† *All boxes must be completed. '✔' indicates that an inspection was carried out and that the result was satisfactory. 'N/A' indicates that an inspection was not applicable to the particular installation.*

* *Where the electrical work to which this certificate relates includes the installation of a fire alarm system and/or an emergency lighting system (or a part of such systems), this electrical safety certificate should be accompanied by the particular certificate(s) for the system(s).*

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NICEIC APPROVED CONTRACTOR

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SCHEDULE OF CIRCUIT DETAILS FOR THE INSTALLATION

Original (To the person ordering the work)

CIRCUIT DETAILS

TO BE COMPLETED IN EVERY CASE

Location of distribution board: mains cupboard storage room

Distribution board designation: DB01

TO BE COMPLETED ONLY IF THE DISTRIBUTION BOARD IS NOT CONNECTED DIRECTLY TO THE ORIGIN OF THE INSTALLATION*

Supply to distribution board is from: No of phases: Nominal voltage: V

Overcurrent protective device for the distribution circuit: Associated RCD (if any): BS(EN)

Type: BS(EN) Rating: A RCD No of poles: $I_{\Delta n}$ mA

Circuit number and line	Circuit designation	Type of wiring (see code below)	Reference method ↑	Number of points served	Circuit conductors: csa Live (mm²)	Circuit conductors: csa cpc (mm²)	Max. disconnection time permitted by BS 7671 (s)	Overcurrent protective devices BS (EN)	Overcurrent protective devices Type	Overcurrent protective devices Rating (A)	Overcurrent protective devices Short-circuit capacity (kA)	RCD Operating current, $I_{\Delta n}$ (mA)	Maximum Zs permitted by BS 7671 (Ω)
1L1	changing room ring main	A	Method 1	5	2.5	1.5	0.4	61009 RCD/RCBO	C	32	10	30	0.68
1L2	entrance ring main	A	Method 1		2.5	1.5	0.4	61009 RCD/RCBO	C	32	10	30	0.68
1L3	kitchen ring main	A	Method 1	8	2.5	1.5	0.4	61009 RCD/RCBO	C	32	10	30	0.68
2L1	kitchen island ring main	A	Method 1	7	2.5	1.5	0.4	61009 RCD/RCBO	C	32	10	30	0.68
2L2	main hall ring	A	Method 1	16	2.5	1.5	0.4	61009 RCD/RCBO	C	32	10	30	0.68
2L3	stage lighting rig	A	Method 1	1	6.0	6 0	0.4	61009 RCD/RCBO	C	32	10	30	0.68
3L1													
3L2													
3L3													
4L1	lights entrance	A	Method 1	21	1.5	1.0	0.4	61009 RCD/RCBO	B	10	10	30	4.37
4L2	lights kitchen	A	Method 1	9	1.5	1.0	0.4	61009 RCD/RCBO	B	10	10	30	4.37
4L3	storage room lts	A	Method 1	6	2.5	1.5	0.4	61009 RCD/RCBO	B	6	10	30	7.28
5L1	main hall lights	A	Method 1	14	1.5	1.0	0.4	61009 RCD/RCBO	B	10	10	30	4.37
5L2	changing room lights	A	Method 1	31	1.5	1.0	0.4	61009 RCD/RCBO	B	10	10	30	4.37
5L3													
6L1													
6L2													
6L3													
7L1	kitchen cooker	A	Method 1	1	6.0	6.0	0.4	60898 MCB	C	32	10		0.68
7L2	kitchen cooker	A	Method 1	1	6.0	6.0	0.4	60898 MCB	C	32	10		0.68
7L3	kitchen cooker	A	Method 1	1	6.0	6.0	0.4	60898 MCB	C	32	10		0.68
8L1	hot water cylinder	A	Method 1	1	2.5	1.5	0.4	61009 RCD/RCBO	C	20	10	30	1.09
8L2	sink water heater kitchen	A	Method 1	1	2.5	1.5	0.4	61009 RCD/RCBO	C	20	10	30	1.09
8L3	disabled alarm	A	Method 1	1	2.5	1.5	0.4	61009 RCD/RCBO	C	20	10	30	1.09
9L1	hand dryer disabled	A	Method 1	1	2.5	1.5	0.4	61009 RCD/RCBO	C	20	10	30	1.09
9L2	heating system	A	Method 1	1	2.5	1.5	0.4	61009 RCD/RCBO	C	20	10	30	1.09
9L3	female hand dryer	A	Method 1	1	2.5	1.5	0.4	61009 RCD/RCBO	B	20	10	30	2.19
10L1	male hand dryer	A	Method 1	1	2.5	1.5	0.4	61009 RCD/RCBO	B	20	10	30	2.19

↑ See Table 4A2 of Appendix 4 of BS 7671

CODES FOR TYPE OF WIRING

A	B	C	D	E	F	G	H	O (Other - please state)
Thermoplastic insulated/ sheathed cables	Thermoplastic cables in metallic conduit	Thermoplastic cables in non-metallic conduit	Thermoplastic cables in metallic trunking	Thermoplastic cables in non-metallic trunking	Thermoplastic /SWA cables	Thermosetting /SWA cables	Mineral-insulated cables	

** In such cases, details of the distribution (sub-main) circuit(s), together with the test results for the circuit(s), must also be provided, on continuation schedules.*

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NICEIC APPROVED CONTRACTOR

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SCHEDULE OF TEST RESULTS FOR THE INSTALLATION

Original (To the person ordering the work)

TEST RESULTS

TO BE COMPLETED ONLY IF THE DISTRIBUTION BOARD IS NOT CONNECTED DIRECTLY TO THE ORIGIN OF THE INSTALLATION

Characteristics at this distribution board

Yes — Confirmation of supply polarity

* See note below

Z_s * — Ω — Operating times of associated RCD (if any) — At $I_{\Delta n}$ — ms

I_{pf} * — kA — At $5I_{\Delta n}$ — ms

Phase sequence confirmed (where appropriate)

Test instruments (serial numbers) used:

Earth fault loop impedance — RCD

Insulation resistance — Multi-function 1002396101238553

Continuity — Other

Circuit number and line	Circuit impedances (Ω) Ring final circuits only (measured end to end) r_1 (Line)	r_n (Neutral)	r_2 (cpc)	All circuits (At least one column to be completed) $R_1 + R_2$	R_2	Insulation resistance Line/Line † (MΩ)	Line/Neutral † (MΩ)	Line/Earth † (MΩ)	Neutral/Earth (MΩ)	Polarity (✓)	Maximum measured earth fault loop impedance, Z_s (Ω)	RCD operating times at $I_{\Delta n}$ (ms)	at $5I_{\Delta n}$ (if applicable) (ms)	Test button operation (✓)
1L1	0.57	0.57	0.52	0.68			200	200	200	✓	0.72	36.2	17.1	✓
1L2	0.55	0.58	0.55	0.35			200	200	200	✓	0.58	38.7	28.8	✓
1L3	0.41	0.36	0.34	0.23			200	200	200	✓	0.40	38.5	16.7	✓
2L1	0.30	0.31	0.28	0.20			200	200	200	✓	0.44	38.7	18.8	✓
2L2				0.55			200	200	200	✓	0.80	38.7	28.7	✓
2L3				0.13			200	200	200	✓	0.38	37.8	15.3	✓
3L1														
3L2														
3L3														
4L1				1.40			200	200	200	✓	1.69	36.3	21.6	
4L2				1.36			200	200	200	✓	1.56	38.5	28.7	✓
4L3				0.37			200	200	200	✓	0.56	32.1	16.9	✓
5L1				0.38			200	200	200	✓	0.56	35.7	18.3	✓
5L2				1.43			200	200	200	✓	1.62	34.9	18.4	✓
5L3														
6L1														
6L2														
6L3														
7L1				0.10			200	200	200	✓	0.35			
7L2				0.10			200	200	200	✓	0.35			
7L3				0.10			200	200	200	✓	0.35			
8L1				0.50			200	200	200	✓	0.65	38.3	18.3	✓
8L2				0.50			200	200	200	✓	0.63	38.6	16.3	✓
8L3				1.02			200	200	200	✓	1.23	35.2	16.8	✓
9L1				0.73			200	200	200	✓	0.97	36.3	17.9	✓
9L2				0.30			200	200	200	✓	0.53	39.6	18.9	✓
9L3				0.60			200	200	200	✓	0.85	31.3	19.3	✓
10L1				1.13			200	200	200	✓	1.35	36.7	16.4	✓

* Note: *Where the installation can be supplied by more than one source, such as a primary source (eg public supply) and a secondary source (eg standby generator), the higher or highest values must be recorded.*

TESTED BY

Signature: D. Rackstraw — Position: Electrician

Name: (CAPITALS) D RACKSTRAW — Date of testing: 10/12/2016

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SCHEDULE OF CIRCUIT DETAILS FOR THE INSTALLATION

Original (To the person ordering the work)

CIRCUIT DETAILS

TO BE COMPLETED IN EVERY CASE		TO BE COMPLETED ONLY IF THE DISTRIBUTION BOARD IS NOT CONNECTED DIRECTLY TO THE ORIGIN OF THE INSTALLATION*					
Location of distribution board:	mains cupboard storage room	Supply to distribution board is from:			No of phases:	Nominal voltage:	V
		Overcurrent protective device for the distribution circuit:			Associated RCD (if any): BS(EN)		
Distribution board designation:	DB01	Type: BS(EN)	Rating:	A	RCD No of poles:	$I_{\Delta n}$	mA

Circuit number and line	Circuit designation	Type of wiring (see code below)	Reference method ↑	Number of points served	Circuit conductors: csa Live (mm²)	Circuit conductors: csa cpc (mm²)	Max. disconnection time permitted by BS 7671 (s)	Overcurrent protective devices BS (EN)	Overcurrent protective devices Type	Overcurrent protective devices Rating (A)	Overcurrent protective devices Short-circuit capacity (kA)	RCD Operating current, $I_{\Delta n}$ (mA)	Maximum Z_s permitted by BS 7671 (Ω)
10L2													
10L3													
11L1													
11L2													
11L3													
12L1	irrigation system	A	B*	1	2.5	1.5	0.4	60898 MCB	C	16	10		1.37
12L2	fire alarm	0	Method 1	1	2.5	1.5	0.4	60898 MCB	C	10	10		2.19
12L3	socket below board	A	B	1	2.5	1.5	0.4	61009 RCD/RCBO	C	20	10	30	1.09

↑ See Table 4A2 of Appendix 4 of BS 7671

CODES FOR TYPE OF WIRING								
A	B	C	D	E	F	G	H	O (Other - please state)
Thermoplastic insulated/ sheathed cables	Thermoplastic cables in metallic conduit	Thermoplastic cables in non-metallic conduit	Thermoplastic cables in metallic trunking	Thermoplastic cables in non-metallic trunking	Thermoplastic /SWA cables	Thermosetting /SWA cables	Mineral-insulated cables	

** In such cases, details of the distribution (sub-main) circuit(s), together with the test results for the circuit(s), must also be provided, on continuation schedules.*

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SCHEDULE OF TEST RESULTS FOR THE INSTALLATION

Original (To the person ordering the work)

TEST RESULTS

TO BE COMPLETED ONLY IF THE DISTRIBUTION BOARD IS NOT CONNECTED DIRECTLY TO THE ORIGIN OF THE INSTALLATION

Characteristics at this distribution board

Yes — Confirmation of supply polarity

* See note below

Z_s * Ω — Operating times of associated RCD (if any): At $I_{\Delta n}$ ms

I_{pf} * kA — At $5I_{\Delta n}$ ms

Phase sequence confirmed (where appropriate)

Test instruments (serial numbers) used:

Earth fault loop impedance — RCD

Insulation resistance — Multi-function 1002396101238553

Continuity — Other

Circuit number and line	Circuit impedances (Ω) Ring final circuits only (measured end to end) r_1 (Line)	r_n (Neutral)	r_2 (cpc)	All circuits (At least one column to be completed) $R_1 + R_2$	R_2	Insulation resistance Line/Line † (MΩ)	Line/Neutral † (MΩ)	Line/Earth † (MΩ)	Neutral/Earth (MΩ)	Polarity (✓)	Maximum measured earth fault loop impedance, Z_s (Ω)	RCD operating times at $I_{\Delta n}$ (ms)	at $5I_{\Delta n}$ (if applicable) (ms)	Test button operation (✓)
10L2														
10L3														
11L1														
11L2														
11L3														
12L1				0.08			200	200	200	✓	0.26			
12L2				0.22			200	200	200	✓	0.47			
12L3				0.07			200	200	200	✓	0.25	31.3	16.3	✓

* Note: *Where the installation can be supplied by more than one source, such as a primary source (eg public supply) and a secondary source (eg standby generator), the higher or highest values must be recorded.*

TESTED BY

Signature: D. Rackstraw — Position: Electrician

Name: (CAPITALS) D RACKSTRAW — Date of testing: 10/12/2016

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See previous page for Schedule of Circuit Details

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ECN4/0317200

FORM 1

EMERGENCY LIGHTING COMPLETION CERTIFICATE

For new installations

Issued by an Approved Contractor enrolled with NICEIC, Warwick House, Houghton Hall Park, Houghton Regis, Dunstable LU5 5ZX.

Original (To the person ordering the work)

A1 DETAILS OF THE CLIENT

Client/ Address: Kingerlee, Thomas House, Langford Locks, Kidlington, OXON, OX5 1HR

Postcode OX5 1HR

PURPOSE OF CERTIFICATE

The installation is

New ✓

An addition

An alteration

B1 DETAILS OF THE EMERGENCY LIGHTING INSTALLATION

Address: Beckley village hall, Woodperry road, Beckley — Postcode OX3 9UZ

Extent of the installation covered by this certificate: new village hall installation

C1 DETAILS OF THE APPROVED CONTRACTOR RESPONSIBLE FOR ISSUING THE CERTIFICATE

Trading Title: C.T Walters (electrical)Ltd

Address: Unit 4, Park End Works, Croughton, BRACKLEY, Northants — Postcode NN13 5LX

NICEIC Enrolment No (Essential infomation): 016707

Branch Number (if applicable):

D1 DECLARATION OF CONFORMITY

*Delete as appropriate

In consequence of acceptance of the declarations on Forms 2,3 and 4 I/We* hereby declare that the emergency escape lighting installation, as described above conforms, to the best of my/our* knowledge and belief to the appropriate recommendations and requirements given in BS 5266-1: 2011 Emergency lighting Part 1: Code of practice for the emergency escape lighting of premises, BS EN 1838: 2013 Lighting applications - Emergency lighting and BS EN 50172: 2004 Emergency escape lighting systems, as set out in the declared outcomes on Forms 2, 3 and 4, except as stated in section E1.

To be signed by either: a) The Responsible Person / Competent Person (England and Wales); b) The The Employer or Other Persons (Scotland) or c) The Employer or Nominated Employee Northern Ireland

Signature: D. Rackstraw — Date: 12/12/2016 — Name (Capitals): D RACKSTRAW

E1 DETAILS OF DEVIATIONS FROM THE CODE OF PRACTICE (BS 5266-1: 2011)

Deviations MUST be sanctioned by the designer referred to in section F2 of Form 2 and agreed by the person in section D1

Declaration (insert design, installation or verification role)	Clause No	Details of deviation (if necessary record additional deviations on a seperate referenced sheet)

F1 VALIDITY REVIEW AND ESSENTIAL RELATED REFERENCE DOCUMENTS

This certificate in not valid unless accompanied by current versions of the following

i) Signed declarations(s) Forms 2,3 and 4 ii) Photometric design data (see note 3) iii) Log book

The Approved Contractor issuing this certificate MUST sign to verify that i),ii) and iii) above have been completed and are issued with this certficate and that all essential related reference documents have been recorded below.

Electrical Installation Certificate No. or Minor Electrical Installation Works Certificate No. (see Note 1) and/or Emergency Lighting Periodic Inspection and Test Certificate (see Note 2): ICN4/0324668

Design Schedule No(s):

Other documents if any (please state):

Signature: D. Rackstraw — Date: 12/12/2016 — Name (CAPITALS): D RACKSTRAW

Signature: [signature] — Date: 13/12/2016 — Name (CAPITALS): C COOK — Qualified Supervisor

G1 NEXT INSPECTION

*Delete as appropriate

I/We*, the designer, RECOMMEND that this installation is further inspected and tested after an interval of not more than 1 year

Notes:
1. *The electrical safety aspects of the emergency lighting installation must also be certified in accordance with BS 7671 Requirements for Electrical Installations by issuing an Electrical Installation Certificate or, where appropriate, a Minor Electrical Installation Works Certificate.*
2. *Where this certificate relates to a major alteration or addition, it should be accompanied by an Emergency Lighting Periodic Inspection and Testing Certificate for the entire emergency lighting installation.*
3. *This can be in any of the following formats (in all cases appropriate de-rating factors must be used), and identified to meet worst case requirements:*
   a) *Authenticated spacing data such as ICEL 1001 registered tables; b) calculations as detailed in CIBSE / SLL Guide LG12;*
   b) *appropriate computer print of results.*

Please see the 'Notes for Recipient' on the reverse of this page.

This form is based on the model in Annex F of BS 5266: Part 1: 2011
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ECN4/0317200

FORM 2

EMERGENCY LIGHTING DESIGN - DECLARATION OF CONFORMITY

For new installations

Original (To the person ordering the work)

A2 DETAILS OF THE CLIENT

Client/ Address: Kingerlee, Thomas House, Langford Locks, Kidlington, OXON, OX5 1HR

Postcode OX5 1HR

PURPOSE OF DECLARATION

The installation is

New ✔

An addition

An alteration

B2 DETAILS OF THE EMERGENCY LIGHTING INSTALLATION

Address: Beckley village hall, Woodperry road, Beckley — Postcode OX3 9UZ

Extent of the installation covered by this declaration: new village hall installation

C2 DETAILS OF THE ORGANISATION RESPONSIBLE FOR THE DESIGN OF THE EMERGENCY LIGHTING INSTALLATION

Organisation: C.T Walters (electrical)Ltd

Address: Unit 4
Park End Works
Croughton
BRACKLEY — Postcode NN13 5LX

D2 DESIGN CONFORMITY DECLARATION

Clause: No.	Recommendations Items assessed for compliance	Declared outcome
4.2	D1 - Accurate plans available showing escape routes, fire alarm control panel, call points and fire extinguishers	✔
5.4	D2 - Fire safety signs in accordance with BS EN 5499-4 and other safety signs in accordance with BS ISO 7010, clearly visible and adequately illuminated	N/A
6.7	D3 - The luminaires conform to BS EN 60598-2-22	✔
6.6	D4 - Luminaires located at following positions:	
	a) At each exit door intended to be used in an emergency	✔
	b) Near stairs so each tread receives direct light, and any other level change	N/A
	c) Near mandatory emergency exits and safety signs	✔
	d) At each change of direction and at intersections of corridors	✔
	e) Outside and near to each final exit	✔
	f) Near each first aid post	N/A
	g) Near fire fighting equipment and call points (NOTE: Near means within 2m horizontally	✔
6.3	D5 - Illumination from at least two luminaires provided in each compartment of an escape route and open area	✔
	D6 - Additional emergency lighting provided where needed to illuminate:	
6.6.3	a) Lift cars	N/A
6.6.4	b) Moving stairways and walkways	N/A
6.6.5	c) Toilet facilities larger than 8 m² floor area or without borrowed light, and those for disabled use	N/A
6.6.6	d) Motor generator, control and plant-rooms	N/A
6.6.7	e) Covered car parks	N/A
9.1	D7 - Design duration adequate for the application	N/A
10.6 10.7 Clause 11	D8 - Operation and maintenance instructions and a suitable log book produced for retention and used by the building occupier	N/A
5.1.1;5.1.2	D9 - Adequate illumination is provided for safe movement on escape routes (1 lux minimum on the centre line) and in open areas (0.5 lux minimum)	N/A

E2 DETAILS OF DEVIATIONS FROM THE CODE OF PRACTICE (BS 5266-1: 2011)*

* *Deviations MUST be sanctioned by the designer referred to in section F2 and agreed by the person in section D1 of Form 1*

Clause No	Details of deviation (if necessary record additional deviations on a seperate referenced sheet)(see note 2)

F2 DESIGN

** delete as appropriate

I/We** hereby declare that the emergency lighting installation, as described above, has been DESIGNED (see note 1) by me/us** and, to the best of my/our** knowledge and belief, the design complies with the relevant recommendations given in BS 5266 Emergency Lighting Part 1 : 2011 Code of practice for emergency escape lighting of premises, BS EN 1838: 2013 Lighting applications - Emergency lighting, and BS EN 50172:2004 Emergency escape lighting systems.

Signature: D. Rackstraw — Date: 12/12/2016 — Name (CAPITALS): D RACKSTRAW

Notes: *'✔' Indicates that an item was assessed and the declared outcome was satisfactory.*
'x' Indicates that an item was assessed and a deviation was identified.
'N/A' Indicates that the assessment of an item was not applicable to the particular installation.

Please see the 'Notes for Recipient' on the reverse of this page.

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NICEIC APPROVED CONTRACTOR

This certificate is not valid if the serial number has been defaced or altered and unless accompanied by Forms 1, 2 and 4

ECN4/0317200

FORM 3

EMERGENCY LIGHTING INSTALLATION - DECLARATION OF CONFORMITY

For new installations

Issued by an Approved Contractor enrolled with NICEIC, Warwick House, Houghton Hall Park, Houghton Regis, Dunstable LU5 5ZX.

Original (To the person ordering the work)

A3 DETAILS OF THE CLIENT

Client/ Address: Kingerlee, Thomas House, Langford Locks, Kidlington, OXON, OX5 1HR

Postcode OX5 1HR

PURPOSE OF DECLARATION

The installation is

New ✔

An addition

An alteration

B3 DETAILS OF THE EMERGENCY LIGHTING INSTALLATION

Address: Beckley village hall, Woodperry road, Beckley — Postcode OX3 9UZ

Extent of the installation covered by this declaration: new village hall installation

C3 DETAILS OF THE APPROVED CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF THE EMERGENCY LIGHTING INSTALLATION

Trading Title: C.T Walters (electrical)Ltd

Address:
Unit 4
Park End Works
Croughton
BRACKLEY
Northants
Postcode NN13 5LX

NICEIC Enrolment No (Essential infomation): 016707

Branch Number (if applicable):

D3 INSTALLATION CONFORMITY DECLARATION

** if 'No', record the deviation in Section E3.*

Clause: No.	Recommendations Items assessed for compliance	Declared outcome
Clause 5	IN1 - The system installed conforms to the agreed design	✔
6.1	IN2 - All non-maintained luminaires fed or controlled by the final circuit supply of the local normal main lighting	✔
6.4	IN3 - Luminaires mounted at least 2m above the floor	✔
6.4	IN4 - Luminaires mounted at a suitable height to avoid being located in smoke reservoirs or other likely area of smoke accumulation	✔
5.4	IN5 - Fire safety signs in accordance with BS 5499-4 and other safety signs in accordance with BS ISO 710, clearly visible and adequately illuminated	N/A
8.2	IN6 - Cables of a centrally supplied system adequately resist the effects of fire	N/A
8.2.7	IN7 - Conductors of the emergency lighting installation are adequately sized	✔
8.3.5	IN8 - Output voltage range of the central power system is compatible with the supply voltage range of the luminaries, taking into account supply cable voltage drop	✔
8.2.12	IN9 - All plugs and sockets protected against unauthorised use	✔
8.3.3	IN10 - A sufficient number of suitably located test facilities are provided	✔
Clause 11	IN11 - The equipment manufacturers' installation and verification procedures satisfactorily completed	✔
Clause 8	IN12 - Fixed wiring of the emergency lighting installation has been installed in accordance with BS 7671: 2008 (as amended)	N/A

E3 DETAILS OF DEVIATIONS FROM THE CODE OF PRACTICE (BS 5266-1: 2011)*

* Deviations MUST be sanctioned by the designer referred to in section F2 and agreed by the person in section D1 of Form 1

Clause No	Details of deviation (if necessary record additional deviations on a seperate referenced sheet)(see note 2)

F3 INSTALLATION

I/We** hereby declare that the emergency lighting installation, as described above, has been INSTALLED by me/us** and, to the best of my/our** knowledge and belief, the design complies with the relevant recommendations given in BS 5266 Emergency Lighting Part 1 : 2011 Code of practice for emergency lighting escape lighting of premises, BS EN 1838: 2013 Lighting applications - Emergency lighting, and BS EN 50172:2004 Emergency escape lighting systems.

** delete as appropriate

Signature: D. Rackstraw — Date: 12/12/2016

Name (CAPITALS): D RACKSTRAW

Signature: [signature] — Date: 13/12/2016

Name (CAPITALS): C COOK — Qualified supivisor

Notes: *'✔' Indicates that an item was assessed and the declared outcome was satisfactory.*
'x' Indicates that an item was assessed and a deviation was identified.
'N/A' Indicates that the assessment of an item was not applicable to the particular installation.

Please see the 'Notes for Recipient' on the reverse of this page.

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ECN4/0317200

FORM 4

EMERGENCY LIGHTING VERIFICATION - DECLARATION OF CONFORMITY

For new installations

Original (To the person ordering the work)

A4 DETAILS OF THE CLIENT

Client/ Address: Kingerlee, Thomas House, Langford Locks, Kidlington, OXON, OX5 1HR

Postcode OX5 1HR

B4 DETAILS OF THE EMERGENCY LIGHTING INSTALLATION

Address: Beckley village hall, Woodperry road, Beckley — Postcode OX3 9UZ

Extent of the installation covered by this declaration: new village hall installation

PURPOSE OF DECLARATION

The installation is

New ✓

An addition

An alteration

C4 DETAILS OF THE ORGANISATION RESPONSIBLE FOR THE VERIFICATION OF THE EMERGENCY LIGHTING INSTALLATION

Organisation: C.T Walters (electrical)Ltd

Address: Unit 4
Park End Works
Croughton — Postcode NN13 5LX

D4 VERIFICATION CONFORMITY DECLARATION

Where a declared outcome is identified by an '✗', the details of the deviation must be accurately recorded in Section F4 and ntered on the completion certificate (Form 1)

Clause: No.	Recommendations Items assessed for compliance	Declared outcome
4.2	V1 - Plans available and correct	✓
8.3.3	V2 - System has a suitable test facility for the application	✓
5.4	V3 - All escape route safety signs and fire fighting equipment location signs, and other safety signs indentified from risk assessment, visible with the normal lighting extinguished	N/A
Clause 5	V4 - Luminaires correctly positioned and oriented as shown on the plans	✓
6.7;	V5 - Luminaires conform to BS EN 60598-2-22	✓
Annex C	V6 - Luminaires have appropriate category of protection against ingress of moisture or foreign bodies for their location as specified in the installation design	✓
12.3	V7 - Luminaires tested and found to operate for their full rated duration	✓
	V8 - Adequate illumination is provided under test conditions, for safe movement on escape routes (1 lux minimum on the centre line) and in open areas (0.5 lux minimum) *NOTE: This can be checked by visual inspection and checking that the illumination from the luminaires is not obscured and that minimum design spacings have been met*	✓
	V9 - After test, the charging indicators operate correctly	✓
8.2	V10 - Cables of a centrally supplied system adequately resist the effects of fire	N/A
8.2.6	V11 - Emergency circuits correctly segregated from other supplies	✓
10.6; 10.7 Clause 11	V12 - Operation and maintenance instructions together with a suitable log book showing a satisfactory verification test provided for retention and use by the building occupier	✓
12.3	V13 - The emergency lighting system operates correctly when tested	✓

E4 TEST INSTRUMENTS USED

Where verification requirement V8 is carried out by measurement, details of instruments MUST be recorded

Instrument 1(Light meter) Model _____ Serial No. _____ Instrument 2(if any) Model _____ Serial No _____

F4 DETAILS OF DEVIATIONS FROM THE CODE OF PRACTICE (BS 5266-1: 2011)*

* *Deviations MUST be sanctioned by the designer referred to in section F2 and agreed by the person in section D1 of Form 1*

Clause No	Details of deviation (if necessary record additional deviations on a seperate referenced sheet)(see note 2)

G4 VERIFICATION

I/We** hereby declare that the emergency escape lighting installation, as described above, has been VERIFIED (see note 1) by me/us** and, to the best of my/our** knowledge and belief, the design complies with the relevant recommendations given in BS 5266 Emergency Lighting Part 1 : 2011 Code of practice for emergency lighting, BS EN 1838: 2013 Lighting applications - Emergency lighting, and BS EN 50172:2004 Emergency escape lighting systems.

** delete as appropriate

Signature D Rackstraw — Date 12/12/2016 — Name (CAPITALS) D RACKSTRAW

Notes: *'✓' Indicates that an item was assessed and the declared outcome was satisfactory.*
'x' Indicates that an item was assessed and a deviation was identified.
'N/A' Indicates that the assessment of an item was not applicable to the particular installation.

Please see the 'Notes for Recipient' on the reverse of this page.

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THE OAKPARK GROUP
34 HIGH STREET
WINSLOW
BUCKINGHAMSHIRE
MK18 3HB
Tel: 01296 713010
Fax: 01296 712090
Email: enquiries@oakparkalarms.com
enquiries@oakparkenergy.com

Commissioning Certificate.

Certificate of commissioning No. IM1661 for the fire alarm system at:

Address: **Beckley Village Hall. Woodperry Road Beckley Oxfordshire OX3 9UZ.**

I/we being the competent person(s) responsible (as indicated by my/our signatures below) for the commissioning of the fire alarm system, particulars of which are set out below, CERTIFY that the said work for which I/we have been responsible complies to the best of my/our knowledge and belief with the recommendations of Clause 39 of BS 5839-1:2013, except for the variations, if any, stated in this certificate.

Name (in block letters): **MR IAN MEAD** Position: **FIRE DIVISION MANAGER**

Signature: *Ian Mead* Date: **13th December 2016**

For and on behalf of: **OAKPARK ALARMS AND SECURITY SERVICES LTD**

The system has been designed to meet the requirements of category **L3** as detailed in BS5839-1-Clause 5.

The extent of liability of the signatory is limited to the systems described below.
Extent of system covered by this certificate

THE NEW SYSTEM INSTALLED THROUGHOUT THE PROPERTY.

Variations from the recommendations of Clause 39 of BS 5839-1:2013 (see BS 5839-1:2013, Clause 7):

NONE

- ✓ All equipment operates correctly
- ✓ Installation work is, as far as can reasonably be ascertained, of an acceptable standard
- ✓ The entire system has been inspected and tested in accordance with the recommendations of (39.2c) of BS 5839-1:2013
- ✓ The system performs as required by the specification prepared by IAN MEAD a copy of which I/we have been given
- ✓ Taking into account the guidance contained in Section 3 of BS 5839-1:2013, I/we have not identified any obvious potential for an unacceptable rate of false alarms
- ✓ The documentation described in Clause 40 of BS 5839-1:2013 has been provided to the user

The following work should be completed before/after (delete as applicable) the system becomes operational:

New system is AUDIBLE only system. Can be connected to monitoring station in future if required.

The following potential causes of false alarms should be considered at the time of next service visit:

No potential problems identified at this stage.

Before the system becomes operational, it should be soak tested in accordance with the recommendations of 35.2.6 of BS 5839-1:2013 for a period of: **one week** (Enter a period of either one week, such period as required by the specification, or such period as recommended by the signatory to this certificate, whichever is the greatest, or delete if not applicable).

9

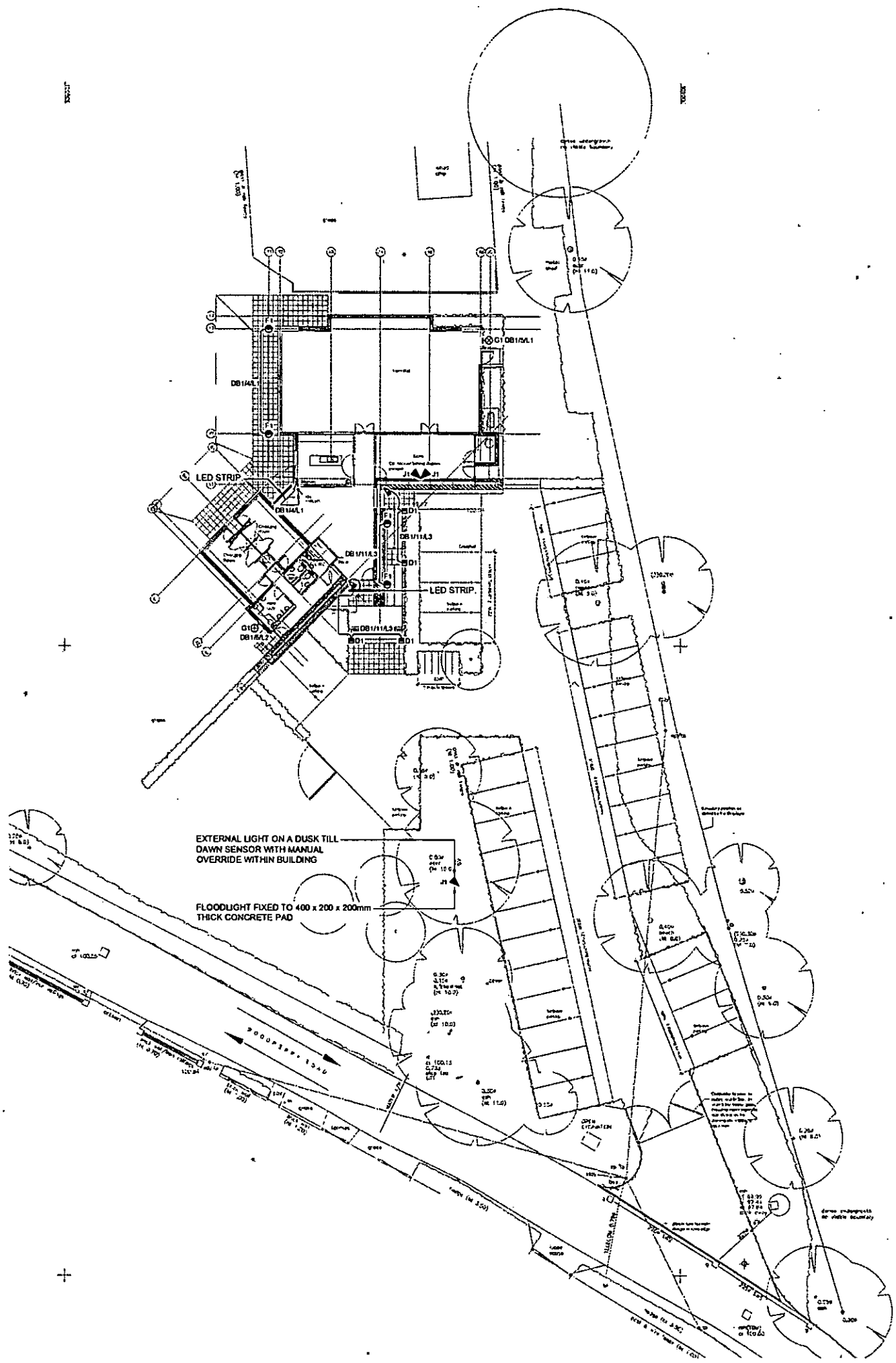
9 DRAWINGS

Schedule of Record Drawings

Drawing Title	Drawing Number
External Lighting Layout	OW12494-E01
Internal Lighting Layout	OW12494-E02
Small Power & Data Layout	OW12494-E03
Fire Alarm Layout	OW12494-E04

SCHEDULE OF LUMINAIRES

SYMBOL	MANUFACTURER/DESCRIPTION	FITTING	COLOUR TEMP
B2	ILLUMA LIGHTING REF DLED85241-WH830	LIGHTSEAL IP44	1x LED 24W
B2E	ILLUMA LIGHTING REF DLED85241-WH830 EM	LIGHTSEAL IP44	1x LED 24W
D1	WEVER & DUCRE ATM BRICK 7W W710184-0	-	-
F1	COLLINGWOOD RECESSED GROUND LIGHT	GL036A	
G1	10W LED FLOODLIGHT C/W INTEGRAL PIR REF AMLED10PIR	-	-
J1	COLLINGWOOD DIRECTIONAL LINEAR FLOODLIGHT	FL200	-



REV	DESCRIPTION	DATE

AS BUILT

C T Walters Electrical Ltd

www.ctwalterselectrical.co.uk
01869 - 810 047 / 01869 - 810 395

CLIENT: KINGERLEE

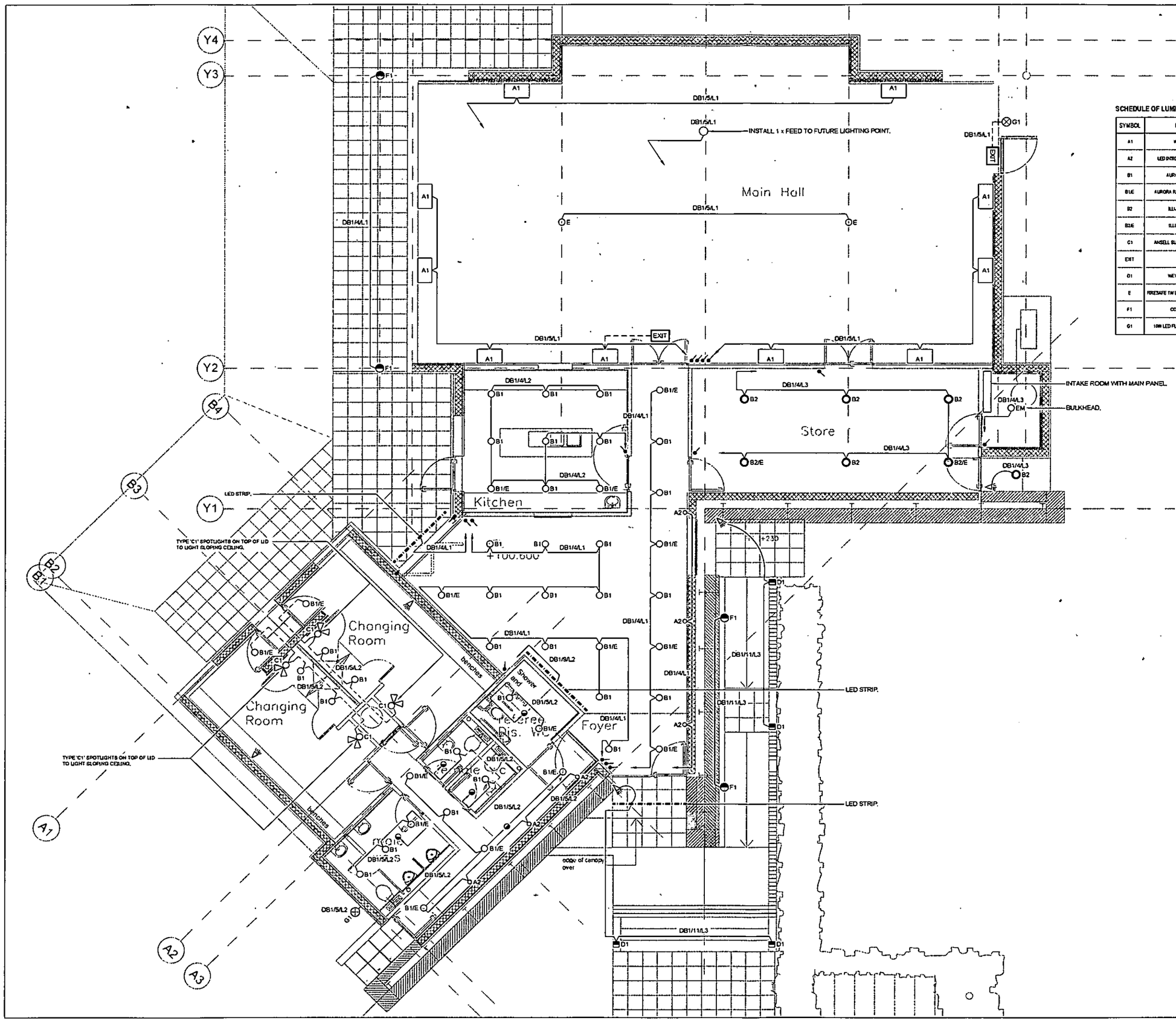
SITE : NEW VILLAGE HALL, BECKLEY, OXON

DRAWING TITLE: EXTERNAL LIGHTING LAYOUT

DATE: JANUARY 2017 | DRAWN: Mark Sykes

SCALE: 1:200 | @ A1

DRAWING No: OW12494-E01 | REV : AB



SCHEDULE OF LUMINAIRES

SYMBOL	MANUFACTURER/DESCRIPTION	FITTING	COLOUR TEMP
A1	WHITECROFT LIGHTING REF FLTW455IH	FLIGHT	4xFSD 5.5W
A2	LED INSIDE WALL MOUNTED UP/DOWNLIGHT REF 151121	LOGS IN	300lm, 5W LED
B1	AURORA RECESSED DOWNLIGHT AU-FRLB81L09	DOWNLIGHT - SOLA M10 DOB	1 x LED
B1/E	AURORA RECESSED DOWNLIGHT REF AU-FRLB01/30 EM	DOWNLIGHT - SOLA M10 DOB	1 x LED
B2	ILLUMA LIGHTING REF DLED052241-WH830	LIGHTSEAL IP44	1x LED 24W
B2/E	ILLUMA LIGHTING REF DLED052241-WH830 EM	LIGHTSEAL IP44	1x LED 24W
C1	ANSELL SURFACE MOUNTED SPOTLIGHT REF AULED35L0W	UNITY 0 TRACKSPOT	1 x CREE CXA1304 4000K 350mA
EXIT	ETERNA EMERGENCY EXIT SIGN	LEDEXIT5	N/A
D1	WEVER & DUCRE ATM BRICK 2W W71918440	-	-
E	FIRESAFE 1W LED RECESSED EMERGENCY DOWNLIGHT REF EDL1	ELD1	N/A
F1	COLLINGWOOD RECESSED GROUND LIGHT	GL633A	
G1	10W LED FLOODLIGHT C/W INTEGRAL PIR REF AULED12PIR	-	-

LIGHTING LEGEND

T/S	TIME SWITCH CONTROLLED.
SW	CUPBOARD DOOR MICRO-SWITCH TO CONTROL CUPBOARD LIGHTING.
	PIR CONTROLLED.
	RECESSED MOUNTED CIRCULAR PIR.
	15/20A 1 GANG 1 WAY LIGHTING SWITCH. G - DENOTES NUMBER OF GANGS.

REV	DESCRIPTION	DATE
	AS BUILT	

C T Walters Electrical Ltd

www.ctwalterselectrical.co.uk
01869 - 810 047 / 01869 - 810 395

CLIENT: KINGERLEE

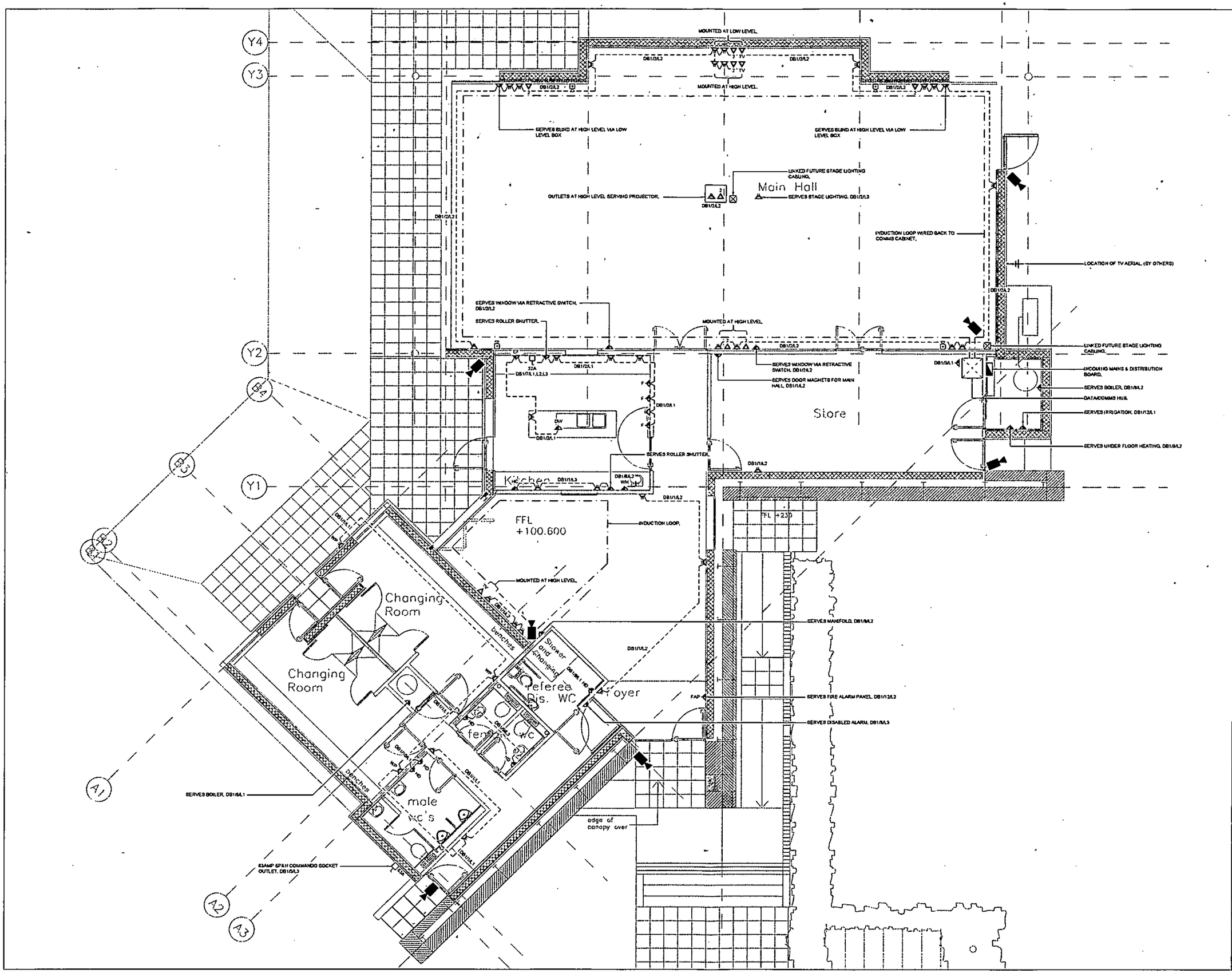
SITE: NEW VILLAGE HALL, BECKLEY, OXON

DRAWING TITLE: GROUND FLOOR LIGHTING & EMERGENCY LIGHTING LAYOUT

DATE: JANUARY 2017 | DRAWN: Mark Sykes

SCALE: 1:50 @ A1

DRAWING No: OW12494-E02 | REV: AB



SMALL POWER & COMMUNICATIONS LEGEND	
	TWO GANG 13AMP SWITCHED SOCKET OUTLET. WP - DENOTES WATERPROOF.
	13AMP SWITCHED CONNECTION UNIT. FAP - DENOTES SERVING FIRE ALARM PANEL. HD - DENOTES SERVING HAND DRIER. EF - DENOTES SERVING EXTRACT FAN. OV - DENOTES SERVING OVEN. F - DENOTES SERVING FRIDGE. WH - DENOTES SERVING WATER HEATER. HC - DENOTES SERVING HOT CUPBOARD. O - DENOTES SERVING OUCOKER HOT TAP. DW - DENOTES SERVING DISHWASHER.
	RJ45 VOICE/DATA OUTLET. No - DENOTES NUMBER OF OUTLETS.
32A	32 AMP DOUBLE POLE SWITCH.
	LOCAL DISTRIBUTION BOARD.
	SINGLE POLE & NEUTRAL ISOLATOR. (SIZE AS INDICATED).
	WALL MOUNTED SPEAKER OUTLET AT HIGH LEVEL. (SPECIALIST TO CONFIRM LOCATIONS)

ACCESS CONTROL/SECURITY LEGEND	
	EXTERNAL CCTV CAMERA. (WIRING ONLY FOR THIS CONTRACT)

MISCELLANEOUS LEGEND	
- - -	INDUCTION LOOP.

REV	DESCRIPTION	DATE
	AS BUILT	

C T Walters Electrical Ltd

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01869 - 810 047 / 01869 - 810 395

CLIENT: KINGERLEE

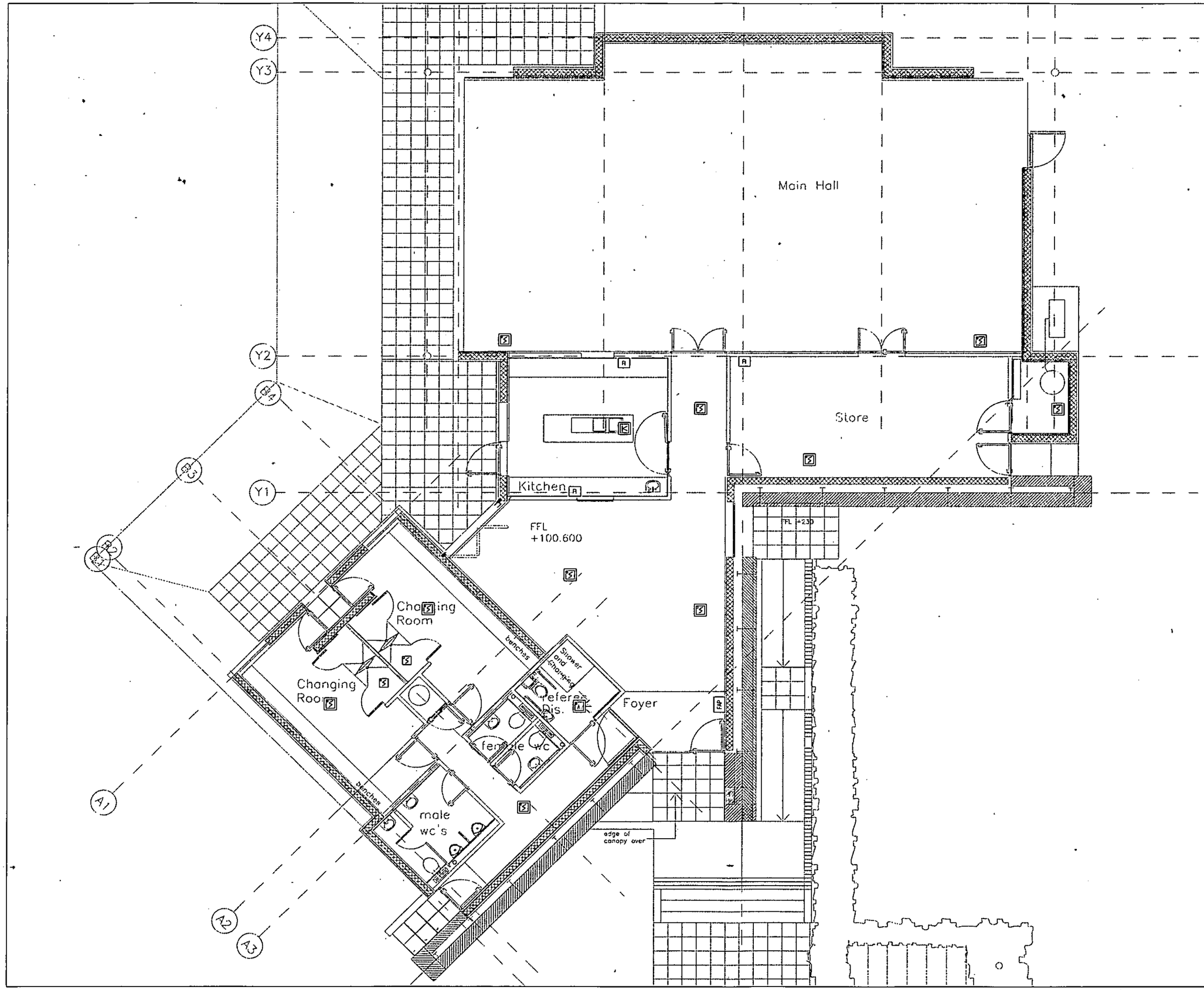
SITE: NEW VILLAGE HALL, BECKLEY, OXON

DRAWING TITLE: GROUND FLOOR SMALL POWER & DATA LAYOUT

DATE: JANUARY 2017 | DRAWN: Mark Sykes

SCALE: 1:50 @ A1

DRAWING No: OW12494-E03 | REV: AB



FIRE ALARM LEGEND	
K	HEAT DETECTOR.
K	COMBINED HEAT DETECTOR/SOUNDER.
S	SMOKE DETECTOR.
S	COMBINED SMOKE DETECTOR/SOUNDER.
	COMBINED SOUNDER/BEACON.
P	FIRE ALARM CALL POINT, MANUAL.
	SOUNDER.
FAP	FIRE ALARM PANEL.
A	FIRE ALARM INTERFACE UNIT.

REV	DESCRIPTION	DATE

AS BUILT

C T Walters Electrical Ltd

www.ctwalterselectrical.co.uk
01869 - 810 047 / 01869 - 810 395

CLIENT: KINGERLEE

SITE : NEW VILLAGE HALL, BECKLEY, OXON

DRAWING TITLE: GROUND FLOOR FIRE ALARM LAYOUT

DATE: JANUARY 2017 | DRAWN: Mark Sykes

SCALE: 1:50 @ A1

DRAWING No: OW12494-E04 | REV : AB