BLAKLEY ELECTRICS

Nuclear Industry Focus

Distribution

Protection

Transformers

Site Lighting

Experts in **high performance** power and lighting products

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Equipment for Nuclear Sector

Blakley Electrics have supplied standard and bespoke equipment for use on a wide range of UK nuclear sites since the 1980s. We have been involved in many New Build projects and, in recent times, we have also had involvement with a number of Decommissioning projects. Some of the sites we have supplied are:

Generating Plants
Heysham, Hunterston, Sizewell, Torness and Wylfa

Fuel, Reprocessing and Storage
Springfields, Sellafield and Capenhurst

Weapons
Devonport, Aldermaston and Burghfield

Decommissioning
Dounreay, Bradwell, Dungeness and Trawsfynydd

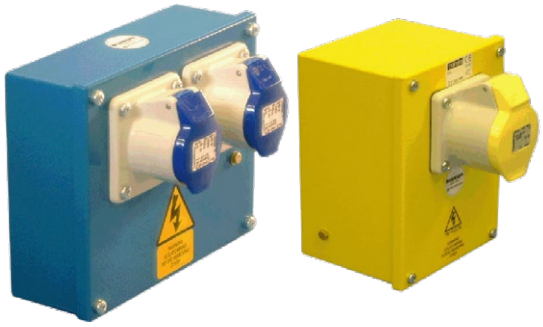
We make products for both the Construction phase of projects and for Permanent installation within new or existing plants. Many products are purpose built and comply with a range of exacting National and Customer Standards.

Products include Transformers, Distribution Equipment, RCD / Monitored Earth protection equipment and 110V Lighting systems. Outline information on these products is provided in this publication and detailed information on many products is available on our website www.blakley.co.uk.

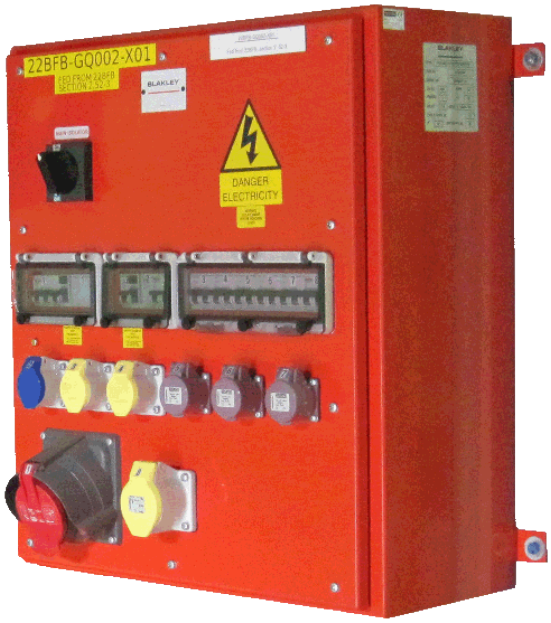
Our Service Centres at Crayford and Leeds are able to deal with enquiries for established products and we are always keen to develop new products, whether for one off projects or for wider application.

At our Harlow Engineering Centre we have a Projects Team who are keen to be involved in the early stages of a new project: to ensure we fully understand the installation requirements and to make a contribution to the product design. Our Projects Team have acquired a wealth of experience in the nuclear field, as well as in other demanding industrial sectors, such as Construction, Military and Rail, and they are keen to make a contribution.

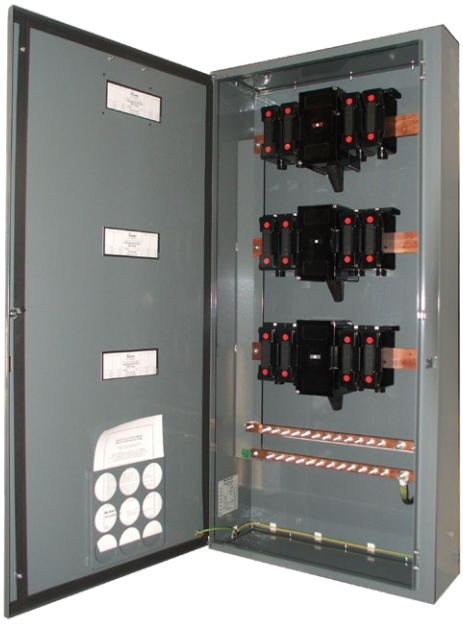
Distribution



SMB series Socket Assemblies,
16A & 32A, 110V & 230V



Power Cluster Assemblies with 400V,
230V, 110V and 24V distribution



Distribution Fuse Boards with Red Spot
or Safeclip Fuse Banks

Blakley Electrics designs and manufactures a wide range of Low Voltage (230V & 400V) and Reduced Low Voltage (110V) distribution equipment for permanent applications within nuclear plants.

Our distribution products are generally designed for arduous environments, which can be indoors or outside. The specification for most indoor distribution products usually incorporates a “twist”, which prevents the use of standard or off the shelf products.

Socket Assemblies

We have a standard range of metal bodied, single and twin, 16A or 32A, 110V or 230V, surface mounting socket outlets, with the facility to terminate conductors ranging from 4mm2 to 35mm2 cross section, with loop-in / loop out options. Sockets are manufactured to BS EN 60309-2 and, as standard, are splashproof to IP44. Versions incorporating IP67 sockets are also available, as are versions with overcurrent and RCD protection.

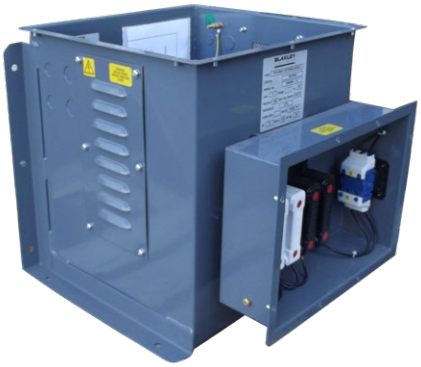
Power Cluster Assemblies

These assemblies are multi-voltage socket outlet panels, which incorporate all switchgear, transformers and protection devices within the one enclosure. There are a number of advantages arising from the adoption of Power Clusters: the assembly only requires a single supply cable, which can greatly reduce cabling costs; it is a factory built assembly which ensures a consistent standard and minimises on site installation time; RLV and SELV supplies originate from within the Power Cluster, which reduces problems associated with volts drop and disconnection times. Whilst we have a range of standard Power Clusters most are made to order and incorporate the exact configuration required. Mobile versions can also be supplied.

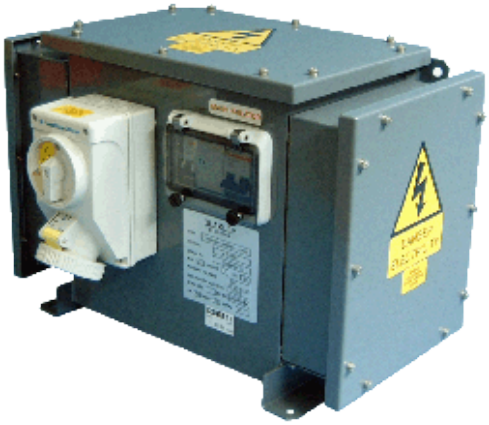
Distribution Boards

We have made a range of HRC fuse based distribution boards for nuclear installations. They can incorporate the traditional Red Spot bolted style of fuse carrier or the more modern Safeclip style. Main isolators can be incorporated and enclosures can have an ingress protection of up to IP55. Enclosures are key lockable and typically configured for bottom entry and top exit via removable gland plates. For outdoor applications, versions can be supplied with a projecting canopy and bottom cable entry / exit. Enclosures are protected by a high quality, durable paint finish but for permanent outdoor applications we recommend either an uprated finish or enclosures can be fabricated from stainless steel. We can also provide frames to make distribution boards free-standing. MCB based distribution boards can also be supplied.

Transformers

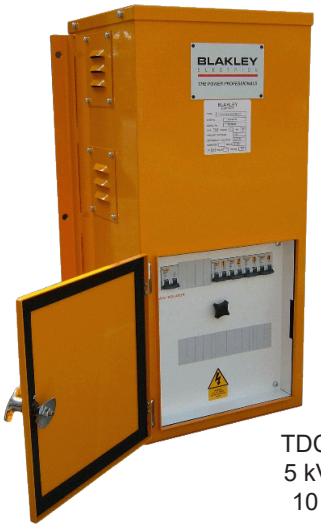


TH series, 5 kVA, to Sellafield Limited Engineering Specification ES_1_2223_2



TH series transformer, 1 kVA rating with terminal boxes and a switched & interlocked socket

SP series transformer, 2 kVA rating, with 2 x 16A 110V sockets, 1 x 24V socket and 2 x 13A 230V sockets, RCD protected.



TDC series transformer, 5 kVA rating, fitted with 10 no. 16A DP MCBs.

Blakley Electrics design and manufacture a wide range of power transformers from 100VA to 250kVA rating, from 12V to 3300V. Our transformers are generally double wound, enclosed in steel or insulated enclosures, equipped with switchgear and distribution equipment as required. We stock a wide range of standard transformers and are happy to design and build custom transformers to order.

Power and Instrumentation

To provide Reduced Low Voltage 110V supplies for power tools and Isolated 110V supplies for control and instrumentation, we make a range of power transformers from 2kVA to 10kVA, housed in robust sheet steel enclosures to IP31, incorporating integral mains isolators and fuse protection. The isolator and fusegear are located in a separate housing fitted to the front of the main enclosure, to reduce the impact of heat on these thermally sensitive components. Transformers can have 400V “2 wire” or 230V SP&N primary windings and secondary windings can be centre-tapped to earth (55.0.55) or one leg earthed (0.110). Transformers comply with BS EN 61558 parts 1, 4 and 23 (as applicable) and meet the principle requirements of Sellafield Limited Engineering Specification ES_1_2223_2 for Low Voltage Transformers. General arrangement drawings for the standard range are available on our website.

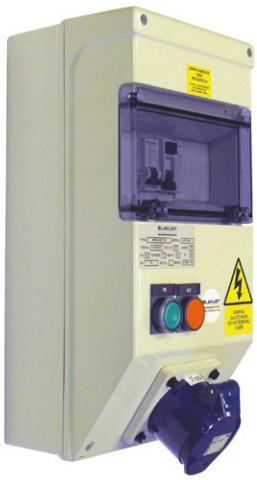
Transformers with Integral Sockets

For plant rooms, workshops and many other locations, we can supply transformers fitted with 16A or 32A 110V socket outlets. Sockets can be interlocked and protection can be by MCB, fuses and / or RCD. Enclosures are usually of steel construction but GRP enclosures can also be supplied. In locations where there is a requirement for SELV supplies, we can provide transformers with 24V output sockets. If there is a requirement for 110V and 24V sockets in the same location, we can supply a transformer with a secondary and tertiary winding feeding 110V and 24V sockets.

Transformer Distribution Cubicle

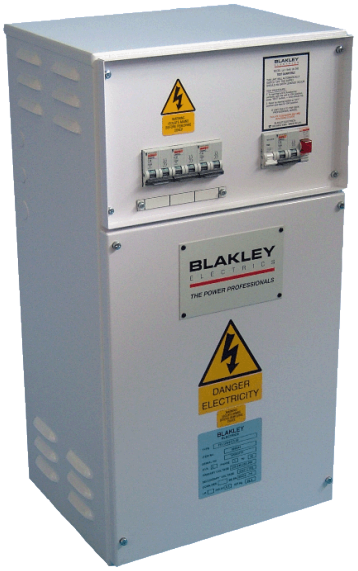
The TDC series combines a transformer and double-pole MCB or HRC fuse distribution arrangement. Stocked items include a 2 kVA model fitted with 4 no. 16A DP MCBs and a 5 kVA model fitted with 10 no. 16A DP MCBs. Other ratings and arrangements are available to order, including the incorporation of RCD protection, which can provide supplementary Basic protection and ensure the 5 second Fault disconnection time is met.

Protection

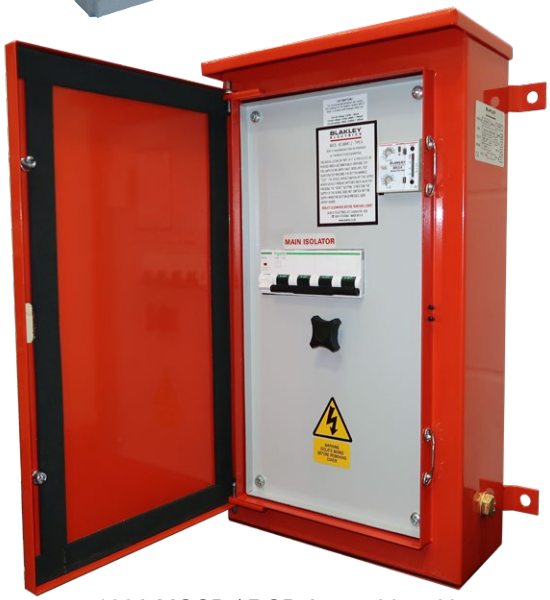


MCB/RCD/ME protected socket, 32A, 400V to Specification AESS (E) / 89500

Socket outlet, 63A 400V TP&N with RCD, Switched & Interlocked



Safe Supply Unit, 10 kVA rating, with 1.25mA sensitivity RCD



100A MCCB / RCD Assembly, with variable time and current RCD

Blakley Electrics Protection equipment incorporates Residual Current Devices and Earth Continuity Monitors to protect people and property from the harmful effects of electricity.

Dependent on the specification and application, RCD Assemblies either incorporate our electronic Residual Current Sensors and work in combination with overcurrent MCBs and MCCBs or they utilise standard 30mA RCDs. All Monitored Earth assemblies incorporate our ECM series of Earth Continuity Monitor. Detailed information is available on Residual Current Sensors and Earth Continuity Monitors.

Protected Sockets

We produce a wide range of protected sockets, which can incorporate a variety of protective devices. RCD protection is virtually always incorporated and this can take the form of a standard 30mA RCCB or a Residual Current Sensor of 10, 20 or 30mA sensitivity. For the protection of higher current sockets (63A and above) variable RCD protection can be incorporated. The addition of Monitored Earth protection helps to ensure that portable equipment is effectively earthed and it also provides an electrical interlock for all connectors in the circuit. It should be noted that Monitored Earth protection requires an additional pilot core in the supply cable and connectors all require pilot pins.

We stock a standard range of protected sockets from 16A to 63A rating and build to order more sophisticated socket assemblies incorporating RCD, Monitored Earth, Overcurrent, Short-circuit and Under Volt protection, in current ratings of up to 400A. Assemblies can be supplied in steel or insulated enclosures, dependent on the overall specification.

Safe Supply Units

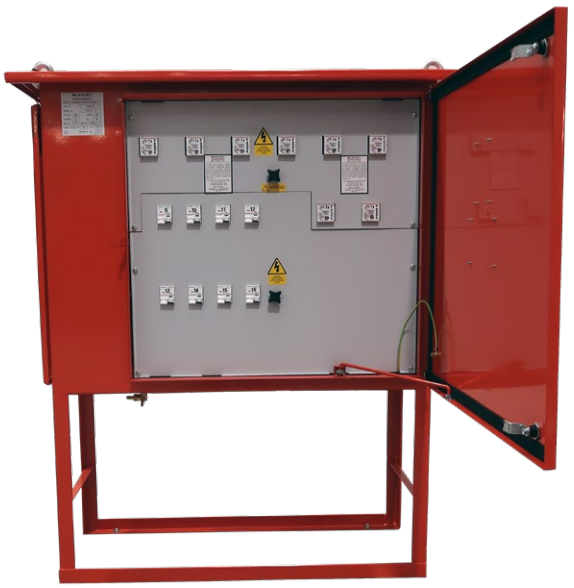
Safe Supply Units provide an exceptional level of protection for users of 230V equipment and are used in laboratories and other areas of high electrical hazard. They combine a 1:1 ratio transformer with a centre-tapped, restricted earth secondary and an extra high sensitivity RCD with a rated tripping current of 1.25mA or 5mA. Versions with step-down transformers are also available.

High Current RCD Assemblies

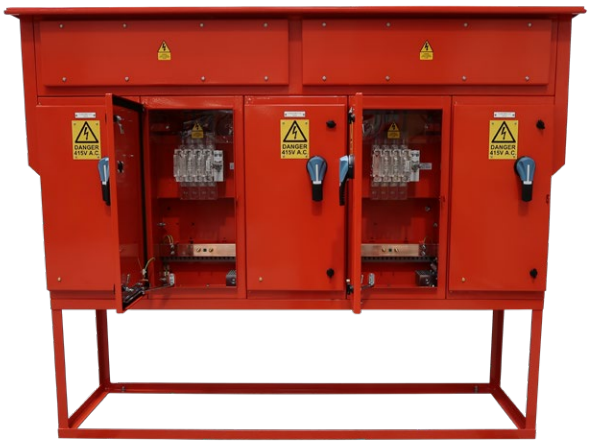
These assemblies are used in a variety of applications ranging from the protection of temporary supplies for construction works to ensuring fault disconnection times in locations that have a high earth fault loop impedance.

Our high current RCD assemblies cover the current range from 100A to 2000A and incorporate MCCBs fitted with a shunt-trip or Under Volt Release, working in conjunction with a variable RCD with adjustable sensitivity and time delay. Enclosures can be made from steel or GRP and are generally wall mounting. Free-standing enclosures can also be provided when required.

Equipment for Construction Site Installations



250A Sub-Mains Distribution Unit based on Sellafield Limited Engineering Specification ES_1_2263_2 Issue 4



400A Mains Distribution Unit based on Sellafield Limited Engineering Specification ES_1_2263_2 Issue 4

Site Transformer, 10 kVA, Three-phase

Flori-67/4P Plug-in 110V Lighting

Blakley Electrics has unrivalled experience in the design and manufacture of distribution equipment and lighting systems for construction sites. Our range extends from 400V Mains Distribution Assemblies rated up to 3200 amps, through to sub-Mains Distribution Assemblies, Site Transformers, 110V Distribution Assemblies and plug-in 110V Temporary Lighting systems.

Mains Distribution

Mains voltage distribution assemblies are manufactured in accordance with BS EN 60439-4 and extensive type testing has been carried out including: ASTA certification of bus bar systems; Certification of Lifting Arrangements; Corrosion resistance; Shock and Vibration; Ingress Protection. The result is a well proven range of products that is ideally suited to UK installations, where the use of steel wire armoured mains cables places particular emphasis on the ground clearance to gland plates, termination room within assemblies and overall robustness. Assemblies can incorporate a wide array of switchgear, fusegear and protection devices.

For Sellafield installations we produce 250A and 400A 400V site distribution assemblies that meet the requirements of Sellafield Engineering Specifications ES_1_2263_2 Issue 4.

For more information on our Mains Distribution Assemblies please go to the Distribution section of our website.

Site Transformers

Site transformers provide a Reduced Low Voltage 110V supply and are manufactured in accordance with BS4363. They are typically rated at 10kVA three-phase, fitted with 16A and 32A 3P sockets and incorporate MCB protection. Other configurations can be supplied, including dedicated site lighting transformers and models incorporating RCD protection. For more information on Site Transformers, please go to the Transformer section of our website.

Site Lighting

Our range of site lighting generally operates at 110V and includes wide area metal halide floodlights, fluorescent luminaires and portable task lights. To minimise on-site installation time, floodlights and fluorescent luminaires can be pre-wired with our Flori-67 6A plug-in connectors, which is available in 3 pin and 4 pin configurations. The 4 pin system is required if it is intended to turn off lights “out of hours” including those with integral battery back up. The 4 pin connector provides an unswitched supply for the emergency module, thus avoiding damage to tubes and batteries through repetitive discharging. It is recommended that 3 pin lighting circuits, incorporating emergency luminaires, should be permanently energised. For more information on our temporary lighting products, please go to the Site Lighting section of our website.

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3. Crayford
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