BLAKLEY ELECTRICS

Education
Industry Focus

Distribution

Protection

Transformers

Site Lighting

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

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Equipment for Educational Establishments

Blakley Electrics have supplied specialist electrical equipment to the Education sector since the 1970s. In the early years our main points of contact were with the Architects' Departments of Local Authorities but since the onset of the many structural and funding reforms that began in the 1990s, our contacts have become more project based, working with Consulting Engineers or direct with individual educational establishments.

The products we have supplied to Education have generally been biased towards electrical safety, particularly in laboratories and craft workshops. However, we have also supplied equipment for more general applications, such as maintenance outlets in plant rooms, external feeder pillars for playing fields and socket assemblies for stage lighting.

Laboratories

The two main products we produce for laboratories are Safe Supply Units (SSUs) and Variable Laboratory Supply Units (VLSUs). SSUs provide an exceptionally high level of electric shock protection to children in science laboratories, where they have access to mains voltage electricity, water and gas. VLSUs provide a separated extra low voltage output (AC and / or DC), which can be adjusted from 0 to 20V. Suitable SELV bench sockets can also be supplied.

Craft Workshops

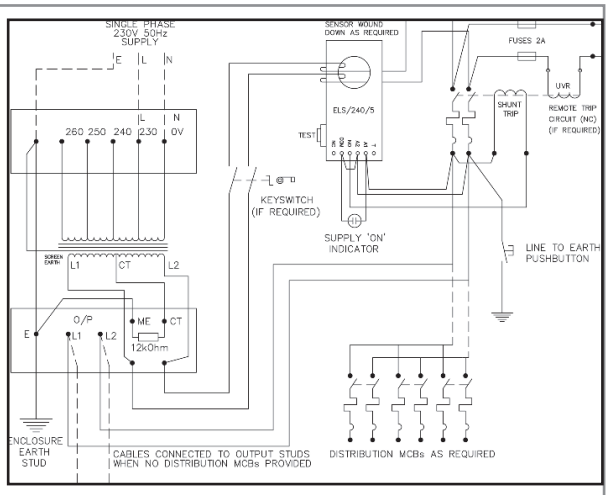
We provide a range of transformers and socket assemblies to provide power at 110V, 230V and 400V. These can be installed in institutions providing a wide range of vocational training including Construction, Vehicle Maintenance, General Engineering, Welding, etc.

General Purpose

Education establishments can undertake a wide range of activities where there can often be a requirement for our standard range of Transformer, Protection and Distribution assemblies, for indoor and outdoor applications. In addition, we are able to produce non-standard assemblies to meet more specialist requirements.

In this publication you will find an overview of the products we produce for the Education sector. Detailed information on our standard products can be found on our website and our Project Team, based at our Harlow Engineering Centre, would be pleased to discuss any special requirements.

Safe Supply Units



Schematic diagram, Safe Supply Units

WELU series, 2 and 3kVA rating

FELU series,
5,8 and 10 kVA rating

CELU series,
3 and 5 kVA rating

Safe Supply Units (SSUs) are composite protection assemblies designed for installation in school science laboratories, where the close proximity of children, water and mains voltage electricity creates an extremely hazardous environment requiring the highest level of protection against electric shock.

SSUs provide a threefold level of protection:

(i) RCD sensitivity of 1.25 mA or 5 mA
(ii) Shock current restricted to 10 mA
(iii) Reduced line to earth shock voltage of 115V

The high level of protection provided by SSUs is achieved by combining a 1:1 ratio, double wound transformer fitted with an extra high sensitivity RCD to the output. The secondary winding of the transformer is centre-tapped and bonded to earth via a 12 k.ohms current limiting resistor. The complete assemblies are presented in a range of enclosures to accommodate different power and distribution arrangements.

SSUs are designed for use in an education environment and incorporate a number of features to suit this application.

- Enclosures are of robust construction to ensure longevity and to minimise vibration and noise.
- Enclosures are ventilated to assist with cooling and fine mesh is fitted behind the louvres to prevent the insertion of litter and other debris.
- Floor standing enclosures incorporate fixing holes to enable them to be secured to walls.
- The transformer winding incorporates primary tappings to enable the output voltage to be adjusted in low load applications (the open circuit voltage can exceed full load voltage by up to 5%).

Options

SSUs can incorporate a range of options including:

- Remote trip facility for use with “normally closed” emergency stop buttons in accordance with BS7671, Regulation 537.4.2.3.
- Key switch controlled outputs, to enable the load to be isolated when the laboratory is unsupervised.
- Hinged protective covers over MCBs, test buttons, etc.

Detailed information is included on product data sheet ref. PDS030 and a FAQ sheet for SSUs ref. TDS09 is also available, which can be downloaded from the Resources Hub section of our website: www.blakley.co.uk.

Transformers

TLW series wall mounting transformer with 110V and 24V sockets

SP series assembly with 230V mains sockets and integral transformer feeding 110V sockets

ITU series all insulated enclosure c/w a 1:1 ratio, 230V mains isolation transformer

TDC series combining a transformer and double pole MCB distribution

Blakley Electrics specialise in the design of enclosed assemblies incorporating transformer windings and associated distribution and circuit protection devices. For education applications, we commonly incorporate transformer windings with the following output voltages:

- 24V Separated Extra Low Voltage (SELV), to supply equipment used in confined locations and other electrically hazardous areas
- 110V Reduced Low Voltage (RLV), to supply 16A and 32A sockets in training workshops or plant rooms
- 230V Earth Free, supplying single socket outlets in areas undertaking the servicing of live electronic equipment (supplied from a 1:1 mains isolation transformer)

We have a range of standard assemblies covering popular configurations and we manufacture non-standard assemblies to order. Standard products include:

TDC series of transformer distribution cubicles, combining 2, 5 and 10 kVA, 110V transformers with integral DP MCB distribution arrangements (refer to product data sheet ref. TRDS010).

TLW series of transformers fitted with 16A socket outlets at 110V and 24V (refer to product data sheet ref. TRDS014).

SP series of distribution assemblies incorporating RCD protected 230V mains sockets (13A or 16A) plus 110V and 24V sockets supplied from integral transformers (refer to product data sheet ref. DDS008).

In addition to the standard products shown on the above referenced data sheets, please refer to data sheets reference TRDS014, TRDS015, TRDS016 and TRDS018, which outline the range of non-standard transformers we produce. If you wish to discuss the specification of transformers for a specific project or application, please contact our Customer Service Centres.

For installations such as industrial training centres, Power Cluster Assemblies can be supplied which incorporate 400V sockets, in addition to 230V, 110V and 24V sockets. Please refer to product data sheet ref. DDS001.

RCD Protection

ELE series of sensor based RCD assembly providing overcurrent protection at 32A and 5mA sensitivity RCD protection.

ARC series of RCD protected socket rated at 32A, 2P+E, 230V, IP44 with 30mA sensitivity RCD protection.

Blakley RCDs can be used in many applications within the Education sector. We offer two broad styles of RCD protection assembly.

Sensor Based

Our sensor based assemblies generally protect ring main or radial circuits. They incorporate our core balance earth leakage sensors and are used when there is a requirement for an RCD with an extra high sensitivity (as sensitive as 5mA) or when a low sensitivity is required (as low as 300A). They can also be used for high current applications with variable sensitivity and time delay. Sensor based assemblies provide overcurrent protection and can also incorporate emergency stop circuitry, under voltage protection, key switch control and a variety of indicator lights to show supply and tripped status.

Protected Sockets

Our Safelink series of RCD protected sockets incorporate conventional 2P and 4P 30mA RCCBs. These assemblies are available in current ratings from 16A to 125A, with 3, 4 or 5 pins, at 230V or 400V. Interlocked versions are available. These socket assemblies can be used to supply a wide range of mains voltage appliances, indoors or outside.

Flush Mounted Bench Socket

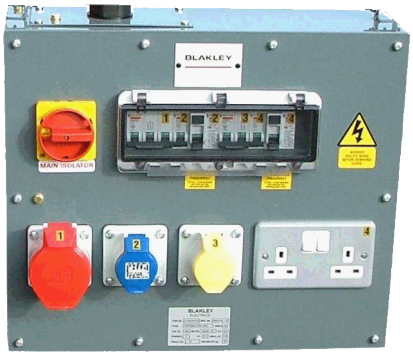
Variable Laboratory Power Supply

Variable Laboratory Power Supplies

Variable Laboratory Supply Units are a source of extra low voltage AC and DC power, to supply experiments in school science laboratories. Standard assemblies incorporate two hard wired outputs: one AC and one DC. Selection of the output is by a two position rotary switch fitted to the front of the assembly. Both outputs are separated from earth (SELV) and can be adjusted in a range from 0 to 20V, via a 500VA variable transformer adjustable from the front of the assembly. Each output has an associated analogue voltmeter and ammeter. The outputs are intended to supply terminal blocks or sockets on laboratory benches.

The supply into each assembly is controlled and protected by an MCB. The AC and DC outputs are separately fused. The standard DC output is unsmoothed (100% ripple) and a smoothed DC output (5% ripple) can be provided if specified at time of inquiry.

Bench sockets can also be provided, fitted with a variety of screw or spring type terminals.



Multi-voltage Power Cluster assembly for an engineering training facility, with integral transformer and switchgear

Equipped pillar to control external supplies in car parks, sports grounds, etc.

Power Post with power and data outlets

Special multi-way power supply switchboard for an electronics training workshop

In addition to the specialist equipment detailed elsewhere in this publication, we also provide a variety of other products for the Education sector.

Outdoor Distribution

We supply a range of equipped and unequipped distribution pillars. Equipped pillars are commonly used to provide external supplies in sports fields and car parks, whilst unequipped pillars can be used to house specialist equipment, which has to be located in outdoor locations.

We offer a range of standard pillar enclosures, which are of heavy duty construction, incorporate a marine ply backboard, have a hot dip galvanized finish and are supplied with a root. Standard enclosures can be equipped with a range of switchgear and control gear. Pillar enclosures of non-standard dimensions or with special paint finishes can be made to order and supplied equipped or non-equipped.

Details of our standard pillars can be found on our website, as can an on-line questionnaire for non-standard pillars.

Workshop Supplies

Engineering or Craft workshops can require 400V, 230V, 110V and 24V supplies for welding sets, power tools, soldering irons, inspection handlamps, etc. Blakley Power Clusters are composite assemblies incorporating all switchgear, transformers and socket outlets. They are factory built and tested and simplify on site installation.

Details of our standard Power Cluster range can be found on our website.

Power Posts

Power Posts are an ideal means of providing power and data outlets in open plan areas. They are a final connection point and do not usually incorporate switchgear or transformers, which are typically located elsewhere. Power Posts are made to order and our Projects Team would be pleased to discuss specific requirements.

Switchboards

We design and manufacture switchboards and distribution assemblies for basic power distribution or to provide supplies for specialist applications, whether AC or DC. Switchboards are made to order and our Projects Team are available to discuss specific requirements.

We also supply a range of heavy duty, IP55 distribution boards for installation in outdoor or exposed locations, details of which can be found on our website.

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