

TA series Site Transformers

Blakley Electrics TA series Construction Site Transformers are manufactured in accordance with BS4363:1998 and provide a 110V Reduced Low Voltage supply in accordance with BS7671 (IET Wiring Regulations, 18th Edition). Standard TA series Site Transformers are available in ratings of 5 and 10 kVA single phase or 7.5, 10 or 20 kVA three-phase, in a range of enclosure designs. Different distribution arrangements are available featuring 16A and 32A 2P+E 110V sockets and / or hard wired lighting outlets with MCB protection and the option of RCD protection. Models are also available with plug-in mains connection via an appliance inlet (a fixed plug), as are dedicated Site Lighting Transformers with integral time clock and contactors for the automatic control of lighting circuits.

The different ranges are outlined below and part numbers and other details are provided on pages 2, 3 and 4 of this data sheet.



Standard Site Transformers

Available in continuous ratings from 5kVA single-phase to 20kVA three-phase. Standard site transformers are fitted with socket outlets, with or without RCD protection. Models are available fitted with appliance inlets (fixed plugs), allowing Site Transformers to be plug-in and supplied via 230V or 400V extension leads.

Site Lighting Transformers

Dedicated Site lighting transformers are rated at 10kVA single-phase or three-phase and are fitted with hard wired lighting connection points, which prevent lighting circuits from being casually unplugged. Site Lighting transformers are also available with time clock control, allowing lights to be turned ON and OFF automatically. Circuits can be individually protected by RCD.



Power & Lighting Site Transformers

Combined Power and Lighting transformers are rated at 10kVA single or three-phase and incorporate socket outlets to supply power tools and hard wired connection points for lighting circuits, with or without RCD protection. Sockets can also be RCD protected.



Slim Line Site Transformers

As the name suggests, Slim Line transformers are designed for installation in corridors and other areas with restricted space, where the side mounted sockets lower the risk of physical damage. Slim Line transformers are continuously rated at 5kVA single-phase or 7.5kVA three-phase. They are available with sockets and / or hard wired lighting circuits, with or without RCD protection.





Standard Site Transformers

Part No.	Type	Rating	Input MCB	Distribution
S210237	TA/P/1/5/S5	5 kVA, single-phase	25A DP	4 x 16A sockets, 1 x 32A socket #
S210237E	TA/P/1/5/RCD-S5	5 kVA, single-phase	25A DP	As S210237 but with overall 100mA sensitivity RCD
S210338	TA/AI/P/1/5/S5 ###	5 kVA, single-phase	25A DP	As S210237 but with 32A 3P Appliance Inlet (plug-in)
S210338E	TA/AI/P/1/5/RCD-S5 ###	5 kVA, single-phase	25A DP	As S210338 but with overall 100mA sensitivity RCD
S210238	TA/P/1/10/S6	10 kVA, single-phase	50A DP	4 x 16A sockets, 2 x 32A sockets #
S210238E	TA/P/1/10/RCD-S6	10 kVA, single-phase	50A DP	As S210238 but with overall 100mA sensitivity RCD
S210230	TA/P/3/10/S6	10 kVA, three-phase	16A TP	4 x 16A sockets, 2 x 32A sockets ##
S210230E	TA/P/3/10/RCD-S6	10 kVA, three-phase	16A TP	As S210230 but with overall 100mA sensitivity RCD
S210339	TA/AI/P/3/10/S6 ###	10 kVA, three-phase	16A TP	As S210230 but with 32A 5P Appliance Inlet (plug-in)
S210339E	TA/AI/P/3/10/RCD-S6 ###	10 kVA, three-phase	16A TP	As S210339 but with overall 100mA sensitivity RCD
S210340	TA/AI-S1/P/3/10/S6 ###	10 kVA, three-phase	16A TP	As S210339 but with 32A 5P 400V through socket
S210340E	TA/AI-S1/P/3/10/RCD-S6 ###	10 kVA, three-phase	16A TP	As S210340 but with overall 100mA sensitivity RCD
S210122	TA/P/3/20/S12	20 kVA, three-phase	25A TP	8 x 16A sockets, 4 x 32A sockets ##
S210122E	TA/P/3/20/RCD-S12	20 kVA, three-phase	25A TP	As S210122 but with overall 300mA sensitivity RCD



Site Lighting Transformers

Part No.	Type	Rating	Input MCB	Distribution
S210259	TA/P/1/10/C6-16	10 kVA, single-phase	50A DP	6 x 16A DP MCBs with lighting glands (3C)
S210302	TA/P/1/10/C6-10/RCCB	10 kVA, single-phase	50A DP	As S210259 + RCD protection of 10A lighting MCBs
S210260	TA/P/3/10/C6-16	10 kVA, three-phase	16A TP	6 x 16A DP MCBs with lighting glands (3C)
S210303	TA/P/3/10/C6-10/RCCB	10 kVA, three-phase	16A TP	As S210260 + RCD protection of 10A lighting MCBs
S210078	TA/P/3/10/C6-16/TC/4C	10 kVA, three-phase	16A TP	6 x 16A DP MCBs with lighting glands, time clock control (4C)
S210305	TA/P/3/10/C6-10/RCCB/TC/4C	10 kVA, three-phase	16A TP	As S210078 + RCD protection of 10A lighting MCBs



Power & Lighting Site Transformers

Part No.	Type	Rating	Input MCB	Distribution
S210214	TA/P/1/10/S6/C2-16	10 kVA, single-phase	50A DP	As S210238 + 2 x 16A DP MCBs with lighting glands (3C)
S210306	TA/P/1/10/S6/C2-10/RCCB	10 kVA, single-phase	50A DP	As S210214 + RCD protection of 10A lighting MCBs
S210306E	TA/P/1/10/RCD-S6/C2-10/RCCB	10 kVA, single-phase	50A DP	As S210306 with overall 100mA RCD protection of sockets
S210231	TA/P/3/10/S6/C2-16	10 kVA, three-phase	16A TP	As S210230 + 2 x 16A DP MCBs with lighting gland (3C)
S210307	TA/P/3/10/S6/C2-10/RCCB	10 kVA, three-phase	16A TP	As S210231 + RCD protection of 10A lighting MCBs
S210307E	TA/P/3/10/RCD-S6/RCHO2	10 kVA, three-phase	16A TP	As S210307 with overall 100mA RCD protection of sockets



Slim Line Site Transformers

Part No.	Type	Rating	Input MCB	Distribution
S210341	TA-SL/P/1/5/S5	5 kVA, single-phase	25A DP	4 x 16A sockets, 1 x 32A Socket #
S210341E	TA-SL/P/1/5/RCD-S5	5 kVA, single-phase	25A DP	As S210341 but with overall 100mA sensitivity RCD
S210342	TA-SL/P/1/5/S3/C2-10	5 kVA, single-phase	25A DP	2 x 16A and 1 x 32A socket, 2 x 10A lighting MCBs (3C) #
S210343	TA-SL/P/1/5/S3/C2-10/RCCB	5 kVA, single-phase	25A DP	As S210342 plus 1 x RCCB per lighting MCB #
S210343E	TA-SL/P/1/5/RCD-S3/C2-10/RCCB	5 kVA, single-phase	25A DP	As S210343 but with 100mA RCD protecting sockets
S210344	TA-SL/P/1/5/C6-10	5 kVA, single-phase	25A DP	6 x 10A DP MCBs with lighting glands (3C)
S210345	TA-SL/P/1/5/RCBO6-10	5 kVA, single-phase	25A DP	6 x 10A DP RCBOs with lighting glands (3C)
S210354	TA-SL/P/3/7.5/S6	7.5 kVA, three-phase	10A TP	4 x 16A sockets, 2 x 32A Sockets ##
S210354E	TA-SL/P/3/7.5/RCD-S6	7.5 kVA, three-phase	10A TP	As S210354 but with overall 100mA sensitivity RCD
S210355	TA-SL/P/3/7.5/S6/C2-10	7.5 kVA, three-phase	10A TP	As S210354 + 2 x 10A MCBs with lighting glands (3C) ##
S210356	TA-SL/P/3/7.5/S6/C2-10/RCCB	7.5 kVA, three-phase	10A TP	As S210355 plus 1 x RCCB per lighting MCB (3C)
S210356E	TA-SL/P/3/7.5/RCD-S6/C2-10/RCCB	7.5 kVA, three-phase	10A TP	As S210356 but with 100mA RCD protecting sockets
S210357	TA-SL/P/3/7.5/C8-10	7.5 kVA, three-phase	10A TP	8 x 10A DP MCBs with lighting glands (3C)
S210358	TA-SL/P/3/7.5/RCBO8-10	7.5 kVA, three-phase	10A TP	8 x 10A DP RCBOs with lighting glands (3C)

Enclosure Dimensions and Weight

5 kVA single-phase:	512H x 442W x 444D mm;	Weight 59kg.
10 kVA single-phase:	512H x 442W x 444D mm;	Weight 82kg.
10 kVA three-phase:	590H x 542W x 527D mm;	Weight 89kg.
20 kVA three-phase:	680H x 708W x 610D mm;	Weight 190kg.
5 kVA Slim Line:	575H x 450W x 285D mm;	Weight 49kg.
7.5kVA Slim Line:	670H x 600W x 285D mm;	Weight 85kg.

Key

= 2 x 16A sockets protected by 1 x 16A DP MCB.

= Each 16A socket protected by 1 x 16A DP MCB.

= A cowl is available (S120318), which provides physical protection to the appliance inlet. Cows can be factory fitted or customer fitted.

Overcurrent Protection

Input MCBs are Type "D" and output MCBs are Type "C", to BS EN 60898.

16A sockets in single phase site transformers are protected in pairs (2 x 16A sockets protected by 1 x 16A DP MCB) and 16A sockets in three-phase site transformers are protected by individual 16A DP MCBs.

All 32A sockets are individually protected by 32A DP MCBs.

Lighting circuits without RCD are protected by 10A or 16A DP MCB, as detailed above.

RCD Protection

RCCBs are to BS EN 61008 and are suitable for 110V operation.

Sockets are group protected by a single 100mA* RCCB. Single-phase transformers are fitted with a DP 100mA RCCB and three-phase transformers with a 4P 100mA RCCB.

Hard wired lighting circuits are individually protected by 10A DP MCB and 30mA RCCB (or 10A DP 110V RCBO).

*Prior to 2024, RCCBs with a 300mA sensitivity were fitted as standard (and not 100mA). In the first few months of 2024 (the transition period) transformers may be fitted with 300mA or 100mA RCCBs.

Compliance

Please refer to Tech Data Sheet TDS19 for detailed information on designing 110V Reduced Low Voltage circuits that meet the 5 second line to earth disconnection time requirement of the IET Wiring Regulations, 18th Edition, (BS7671, Regulation 411.8.3) and also protection from the effects of line to line faults on long 110V circuits (BS 7671 Regulation 434.5.2 refers).

Site Transformers, General Specification

Enclosures

TA series enclosures are non-vented and provide ingress protection to IP44. They are manufactured from 1.5mm mild steel and are of seam welded construction. Enclosures are phosphate pre-treated prior to polyester powder coating, shade Traffic Yellow. MCBs are protected by a steel, hinged cover with quick release fastener. Lifting handles have been Type Tested at a Safe Working Load of 300kgs each (two handles per transformer up to 10kVA and four handles per transformer at 20 kVA).

Windings

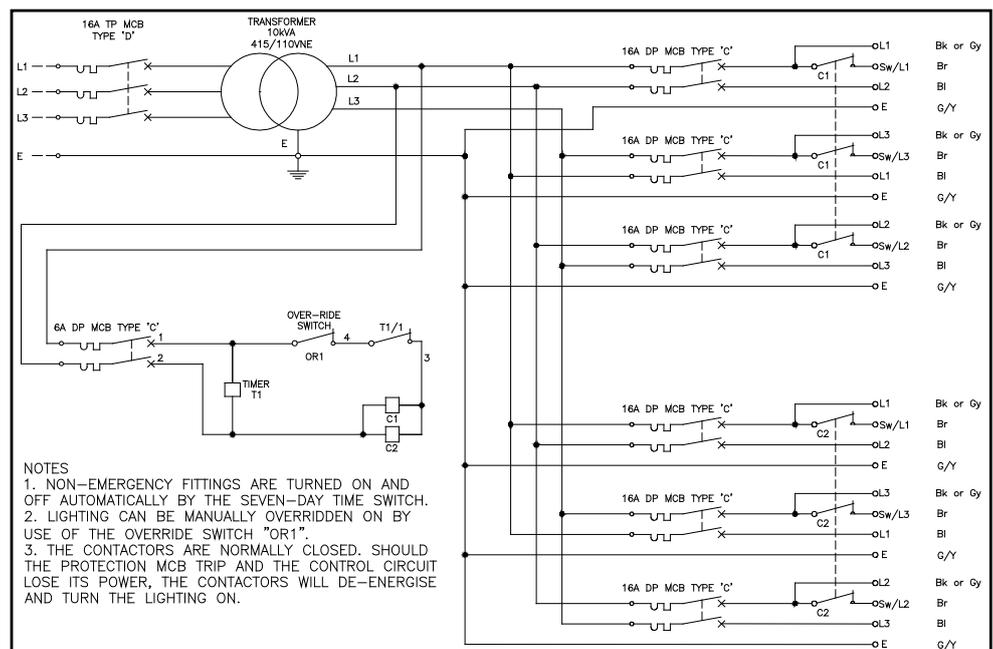
Transformers are continuously rated and in accordance with BS EN 61558 Parts 1, 2-4 and 2-23. Standard ratings are 5 or 10 kVA single-phase and 7.5, 10 or 20 kVA three-phase. Single-phase transformers have a voltage ratio of 230:110CTE and three-phase transformers have a voltage ratio of 400:110NE, Delta/Star. Tappings can be incorporated into the primary winding to ensure the secondary is 110V even if the supply voltage is not exactly 230V or 400V. A high supply voltage can also affect inrush current levels.

Time Clock Control

Lighting transformers are available with integral time clock and contactors. They are configured for supplying 4 core lighting circuits (such as our Flori-67/4P plug-in lighting system), enabling all circuits to incorporate a mix of Emergency and non-Emergency fittings. All circuits are controlled by the time clock and contactors. The time clock can be set to Open and Close the contactors at different times each day. As standard, a manual ON OFF switch is fitted alongside the MCBs, which can be used to over-ride the time clock. As an extra, a key operated over-ride switch can be incorporated. For maximum savings the contactor controlled "switched" supply feeds the LED arrays in every light, whilst the battery pack within emergency lights are fed from the Unswitched supply. If there is a requirement to leave some emergency lights ON to address security or safety concerns, the array circuit of individual fittings can be fed from the Unswitched supply.

Configuration of a Site Lighting transformer with time clock control (part no. S210078)

It is recommended that outgoing ways incorporate RCD protection (see below), which is a standard product (part no. S210305). Lighting circuits with RCD protection are protected against overcurrent by 10A DP MCBs. Other ratings are available.



- NOTES
1. NON-EMERGENCY FITTINGS ARE TURNED ON AND OFF AUTOMATICALLY BY THE SEVEN-DAY TIME SWITCH.
 2. LIGHTING CAN BE MANUALLY OVERRIDDEN ON BY USE OF THE OVERRIDE SWITCH "OR1".
 3. THE CONTACTORS ARE NORMALLY CLOSED. SHOULD THE PROTECTION MCB TRIP AND THE CONTROL CIRCUIT LOSE ITS POWER, THE CONTACTORS WILL DE-ENERGISE AND TURN THE LIGHTING ON.

RCD Option

Although TA series site transformers provide a Reduced Low Voltage (RLV) supply, which is deemed to be safe for normal construction site applications, individual 30mA RCDs are offered as an option to protect hard wired lighting circuits and a single 100mA RCD is offered to group protect sockets.

RCD protection is offered in order to meet the 5 second disconnection time required for fault protection, per BS7671 Regulation 411.8.3. Although the low phase to earth voltage reduces the effect of electric shock (55V to earth for single-phase transformers and 63.5V for three-phase transformers) it limits the ability of MCBs to clear earth faults with conventionally sized load conductors, unless the fault occurs in close proximity to the transformer (typically a maximum distance of 10 to 20 metres). Adding RCD protection addresses this concern and avoids the need to increase conductor sizes in order to reduce the earth fault loop impedance.

Tech Data Sheet TDS19 provides detailed guidance on ensuring 110V circuits comply with BS7671 the IET 18th Edition Wiring Regulations. Tech Data Sheet TDS10 provides general background to RLV systems.