RCD Protection for Site Transformers

Reduced Low Voltage 110V supplies for larger sites are usually derived from Site Transformers, typically rated from 5kVA to 20kVA. Although these transformers form part of a temporary installation, the installation still has to comply with relevant sections of BS7671, the IET Wiring Regulations 18th Edition.

Regulation 411.8.1.3 requires line to earth faults on 110V circuits to be cleared within 5 seconds, which can only be achieved with MCB protection if the fault occurs in close proximity to the transformer (how close is dependent on many factors but typically within a maximum 10 to 20 metres). In order to achieve a 5 second disconnection time on longer circuits, particularly on hard wired circuits, suitable RCD protection needs to be incorporated on the secondary of the transformer.

We offer a full range of Site Transformers with RCD protection (see data sheet TRDS001). The general design philosophy is outlined below:

Hard Wired Lighting Circuits - Individual 30mA MCB/RCCB or RCBO

Socket Circuits - A single 300mA sensitivity device protecting all sockets via double-pole overcurrent MCBs. We fit DP RCCBs to single-phase transformers and 4P RCCBs to three-phase transformers.

Converting Existing TAs

It is possible for customers to retrofit RCD protection to existing site transformers. The simplest method is to replace every Schneider MCB with one of the RCBOs listed below (the existing comb bus bar can be used). Although this is an easy conversion, it is not always the most cost effective. Retrofitting RCCBs to group protect sockets is much more cost effective but available space behind the hinged dolly cover is often the limiting factor. The layout of devices on the DIN rail is also a factor (particularly if trying to convert S210231).

Each “conversion” will require some level of investigation but the following devices should prove useful.

Part Number	Description	Function
S190413	RCBO, 2P, 30mA, 10A, Type “C”, 110V (36mm width)	Replaces an individual DP Schneider MCB fitted to any site transformer
S190371	RCBO, 2P, 30mA, 16A, Type “C”, 110V (36mm width)	Replaces an individual DP Schneider MCB fitted to any site transformer
S190302	RCBO, 2P, 30mA, 32A, Type “C”, 110V (36mm width)	Replaces an individual DP Schneider MCB fitted to any site transformer
A1220382	RCCB, 2P, 63A, 300mA, 110V (36mm width)	One RCCB to group protect all sockets on a single-phase site transformer rated up to 5kVA
A1220384	RCCB, 2P, 100A, 300mA, 110V (36mm width)	One RCCB to group protect all sockets on a single-phase 10kVA site transformer
A1220391	RCCB, 4P, 63A, 300mA, 110V (72mm width)	One RCCB to group protect all sockets on the output of a three-phase site transformer rated up to 10kVA
A1220392	RCCB, 4P, 125A, 300mA, 110V (72mm width)	One RCCB to group protect all sockets on the output of a three-phase site transformer rated up to 20kVA

Please note

Standard RCCBs and RCBOs are not suitable for use on 110V supplies, specific 110V versions need to be fitted (as above). Standard RCBOs are not suitable for Reduced Low Voltage supplies because overcurrent protection is required in both poles i.e. a DP device. Standard RCBOs either have a single-pole switch and a solid neutral or they are have a double-pole switch but only have overcurrent protection in one pole. The above RCBOs incorporate DP switching and overcurrent protection in both poles.

Some older Blakley site transformers were not fitted with Schneider MCBs. The above RCBOs can still be fitted, providing all outgoing MCBs in the unit are changed to RCBOs (but not individual MCBs).