BLAKLEY ELECTRICS

CASE STUDY
DATA SHEET

New Generation of RCD Protected Combination Socket with Switch Fuse, 63A

When the UK's fleet of Advanced Gas-Cooled (AGR) Nuclear Power Stations was built in the 1970s and 1980s, high specification maintenance sockets were installed around each plant. Due to the need for completely reliable protection, coupled with the high prospective short circuit levels within the installations, the socket assemblies incorporated integral switch fuses rather than MCBs or MCCBs. In addition to the incorporation of HRC fuse and RCD protection, the specification of the maintenance sockets also took into account a number of other factors to ensure the safety of operatives working in potentially hazardous, high profile locations.

After 30 to 40 years of service, the original sockets are coming to the end of their service life and spare parts are no longer available. As some of the AGR plants are likely to be generating power into the 2030s, a new generation of maintenance socket is required, which meets the essential safety requirements of the original assemblies but also takes into account the lessons learnt from using the original assemblies over an extended period.

The new assemblies are housed in purpose built, heavy duty enclosures providing ingress protection to IP55. Enclosures incorporate a padlockable, side hinged door to the main switch fuse compartment. The assemblies are served by SWA cables entering from above or below. The incoming cable terminates directly on to a 100A 4P switch fuse to BS EN 60947-3, which is fitted with 63A HRC fuse links to BS88. The switch fuse actuator is interlocked with the compartment door, ensuring access is only possible when the switch is in the OFF position. The incoming cables are shrouded to IP2X.

Earth leakage protection is provided by a Blakley ELS series, 30mA sensitivity, modular residual current device which works in conjunction with a 63A TP contactor. The combination of MRCD and contactor provides RCD protection in accordance with BS EN 60947-2 Annex M.

The MRCD / contactor combination feeds a metal clad, interlocked, 400V Prisinter socket to BS EN 60309-2, rated at 63A, 3P+N+E. The interlocked socket prevents insertion or withdrawal of the plug on load. In addition, the use of a contactor as part of the RCD protection arrangement, allows the assembly to be switched ON, OFF and tested via external push switches i.e. there is no need for operators to open any doors or covers for routine operation.

As well as designing bespoke maintenance socket assemblies, Blakley Electrics also produces a comprehensive range of socket outlets incorporating RCD and overcurrent protection, with or without mechanical interlock. We also offer versions with Monitored Earth protection, which ensure portable, mains voltage equipment is always effectively earthed. If you would like to discuss standard or bespoke combination sockets, please contact the Blakley Projects Team who will be pleased to assist.

A7292575 - Maintenance Socket, 63A, 400V, with integral fuse and RCD protection

A7292575 with door open and bolt-on front cover and socket removed

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