The On-Site Guide
by Mark Coles

THE ON-SITE GUIDE has been rewritten to reflect the requirements of the 17th Edition of the IEE Wiring Regulations, BS 7671:2008.

The On-Site Guide is intended to enable the competent electrician to deal with small installations up to 100 A, 3-phase. It includes simple circuit calculations and provides essential information in a convenient, easy-to-use form, avoiding the need for detailed calculations.

The Guide is restricted to installations:
(i) at a supply frequency of 50 hertz
(ii) at a nominal voltage of 230 V a.c. single-phase or 230/400 V a.c. three-phase
(iii) fed through a distributor’s cut-out having a fuse or fuses to BS 1361 Type II or through fuses to BS 88-2 or BS 88-6
(iv) with a maximum value of the earth fault loop impedance outside the consumer’s installation as follows:
- TN-C-S system - 0.35 Ω
- TN-S system - 0.8 Ω
- TT system - 21 Ω excluding consumer’s earth electrode

Content
The 17th Edition introduces a number of requirements for RCDs, such as, for socket-outlet circuits in domestic and similar installations for use by non skilled people, for circuits of locations containing a bath or shower and for cables without earthed metallic covering installed in walls or partitions at a depth of less than 50 mm and not protected by earthen steel conduit or similar; amongst others.

The On-Site Guide offers guidance on meeting these requirements by showing different permutations of RCDs, RCBOs and circuit-breakers at consumer units. Two examples are given here.

Example 1 - RCBOs
The use of RCBOs, see figure 1, will minimize inconvenience in the event of a fault and is applicable to all systems. Such a consumer unit arrangement also easily allows individual circuits, such as to specifically labelled sockets or fire alarms, to be protected by a circuit-breaker without RCD protection. Such circuits will usually need to be installed in earthen metal conduit, wired with earthed metal-sheathed cables or; in some cases, installed on the surface.

Example 2 - Three-way split board with two 30 mA RCDs
The three-way division of an installation to provide ways unprotected by RCDs for; say, fire systems and for two separate 30 mA RCDs to ensure that part of the installation will remain energised in the event of a fault. Unprotected circuits will usually need to be installed in earthed metal conduit or wired with earthed metal-sheathed cables or; in some cases, installed on the surface; see figure 2.

Further information
The On-Site Guide forms part of the suite of guidance publications issued by the IET, for which, there is a rolling programme to update and publish. The On-Site Guide is available now.

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