



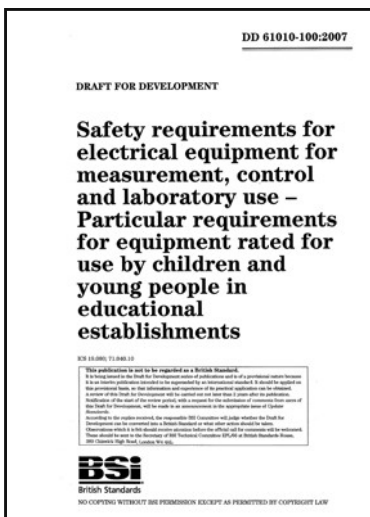
**Figure 1:**  
RCD cutout as typically found on a distribution board

## RCDs now needed in homes and schools under new regulations

The IEE Wiring Regulations have been changed: the new regulations [1] came into force on 1 July 2008. One of the main changes for schools and homes is additional protection for socket-outlets with residual current devices (RCDs) - additional in the sense that the RCD supplements the normal fault-condition protection provided by fuses and other overcurrent trips.

Indeed all wiring to a.c. socket-outlets that are for use by ordinary persons and are intended for general use should be protected by RCDs (Fig. 1).

There are exceptions. If disconnection from the mains supply presents a danger or difficulty then the socket-outlet supplying that equipment need and possibly should not be protected with an RCD. This might apply to fume cupboards, other types of local exhaust ventilation (LEV), refrigerators holding flammable or microbiological substances and freezers. Excepted socket-outlets should be appropriately marked (such as "Freezer only"). However, as the dangers from disconnection may not be great, it may not be reasonably practicable to except them.



**Figure 2:** Standard for school electrical products

We are pleased to find that the need for RCD protection on socket outlets has become generally recognised. As we wrote in the last issue of the *Bulletin* we risk assessed socket-outlets in 1995, from which we saw the need for labs to have RCDs [2].

The changed regulations mean presumably that all new schools and renovations will have RCDs protecting every socket-outlet. But as for some of the rest of you, no doubt you will have to whistle.

## Product-safety standard for schools

SSERC makes wide use of standards. They help us decide whether a hot object is safe to handle, a bright lamp can be looked at, or a live wire is touchable. Standards come from the British Standards Institution (BSI). Most of them originate from international groups on which BSI is represented. BSI then adopt the standard for use in the UK.

While some of the general safety standards apply to all age groups, most of the standards on laboratory equipment relate to use by adults, not children.

For want of a suitable standard to which to design school laboratory equipment, in 1993 the British Educational Suppliers Association (BESA) with the guidance of SSERC and CLEAPSS agreed that member companies should design electrical equipment to BS EN 61010-1 *Safety requirements for electrical equipment for measurement, control and laboratory use*. The title sets out its scope. It was fairly suitable for our purposes, but not entirely so in that it relates to the adult work-place and does not include power supplies. So SSERC, CLEAPSS and BESA put in some extra conditions such as reducing aperture sizes from 4 to 1 mm and applying it to all electrical lab apparatus including power supplies.

Now we are pleased to report that BSI have published a draft standard (Fig. 2) being a safety specification for electrical products for use by children in schools [3]. Being derived from BE EN 61010-1, it sets additional conditions on fusing, the accessibility of dangerous parts, surface temperatures, water resistance and the emission of UV and laser radiation.

The scope covers use by children and young people in school under supervision. There are stricter temperature limits for products that might be used by children under 13. Laser sources can be used by children provided the child is aged 11 or over and the laser product is Class 1 or Class 2. This opens the way for SSERC to ask the Scottish Government to relax its current guidance that use of lasers by pupils is only for S3 and above.



Products designed to the standard shall be marked with a special symbol (Fig. 3) showing the age-range for which the product has been rated.

**Figure 3:** Symbol for a product rated for use by children at least 11 years old

### References

- [1] BS 7671:2008 *Requirements for Electrical Installations, IEE Wiring Regulations, Seventeenth Edition.*
- [2] RCD protection, Bulletin 185, SSERC 1995
- [3] DD 61010-100:2007 *Draft for development: Safety requirements for electrical equipment for measurement, control and laboratory use - Particular requirements for equipment rated for use by children and young people in educational establishments.*