

Surging ahead...

17th Edition Amendment 1 - Section 534

A level of ambiguity often inherent within international standards can create problems for a specifier or installer. However; amendment 1 - Section 534, provides clarity to an often misunderstood concept of surge protection, focusing on selection, application and installation of surge protection devices, to minimise surge/transient overvoltages. Section 534 is applicable when the need for surge protection is identified within BS EN 62305 series or Section 443. Also, devices should be tested and applied in accordance to BS EN 61643 series.

Selection: Surge Protection Devices (SPDs) are split into three categories

- *Type 1* - designed to handle higher energy surges and are tested to a larger waveform (10/350 μ s). They are often referred to as lightning current SPD intending to protect the structure and ultimately people.
- *Type 2* - protect equipment against overvoltages and are tested to a smaller waveform (8/20 μ s)
- *Type 3* - protect against overvoltages but often used for sensitive equipment.

Application: The guidelines suggest a co-ordinated approach to ensure that both structure and equipment are protected unless an SPD has been tested to exhibit both Type 1 and Type 2 characteristics.

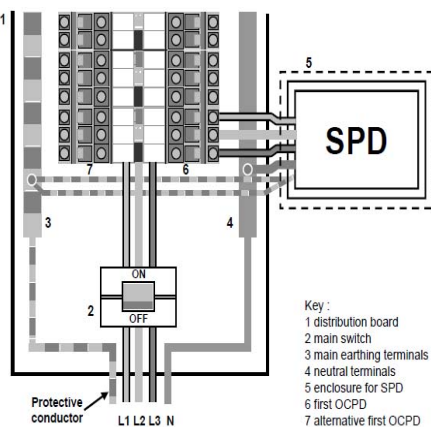
Section 534 identifies typical applications and location of SPDs as followed.

- Type 1 for use at the main switchboard.
- Type 2 for use in sub-distribution boards.
- Type 3 for use at equipment level.

Transients can exist between any two conductors and 534 outlines the different modes of protection but states that full mode SPDs are most effective.

- Common mode - protection between line and protective conductor
- Differential mode - protection between line conductors

Installation: Surge Protection should be installed in parallel to avoid any loss of supply and as such should be provided with status indication. Indication should be clearly visible or auxiliary contacts provided to remotely flag alarms or indicators. SPDs should be protected against over currents and short circuit faults by a dedicated OCPD. A typical installation is illustrated within 534 as below.



Additive voltage drop is inherent when installing SPDs in parallel and therefore 534 sets the requirements of cable lengths, recommending there are kept to minimum and no greater than 1m.

Co-ordination between surge protection devices and RCDs is also tackled suggesting RCDs are fitted with a transient suppression filter and installed downstream of SPD to avoid nuisance tripping. Alternatively, if an SPD must be fitted on the loadside of an RCD, an RCD with time delay should be selected.

Greg Beager,
DS Loose Gear Product Manager



Loadmaster End of an Era

Loadmaster miniature circuit breakers have been protecting people and equipment since the early 1950's. After the migration to the current range of Loadlimiter 63 distribution board systems during the late 1980's demand has steadily declined.

It is therefore with great regret that TE Connectivity announces that the range of Dorman Smith Loadmaster miniature circuit breakers, switch disconnectors and accessories will be removed from production as from January 2012. After this period, availability will depend on current stocks.

For information on availability or local stockists please contact the customer service team on 0870 870 7500.



For more information please refer to an example of surge protection on www.dormansmithswichgear.com or call 0870 870 7500 to find out more on how Dorman Smith Surge Protection Devices can help you comply.

Amtech and Heavacomp Partnerships matters

Committed to making design specifications as simple as possible, existing business partnerships with both Bently Heavacomp and Amtech have been renewed and continue to support an extensive number of users.

In line with the renewal, technical data for TE Connectivity's range of Dorman Smith circuit protection devices has been fully updated within both electrical design packages.

To find out more visit www.bentley.com and www.amtech.co.uk

Project Wins

Dorman Smith Modis 12 modular switchboard measuring 2.2m high by 4m wide has been supplied by Greenville Electrical for Frylite located in Strabane, Northern Ireland.

The 400A switchboard encapsulates the build flexibility of the Modis 12 modular switchboard system. Utilising, standard MCCB panel boards and distribution boards it was possible to satisfy the clients power distribution requirements within one switchboard. Stacked with new Integra Ci range of digital metering systems the building is fully L2 compliant.



Grouped Separation and Other Forms

Just recently a new document from Beama landed upon my desk. This was the new "Guide to Forms of Separation" for LV Switchgear and Controlgear Assemblies to BS EN 61439-2. The new standard was adopted by the British Standards earlier this year. This updated guide sets out to clarify some of the myths and ambiguities of the older 60439 guide.

The first thing you notice is the emphasis is not so much on how but more why. It talks of different levels of protection to personnel working on a particular circuit or device. It recommends some forms only being suitable for adjustment of devices or withdrawing fuses by a competent persons and other forms of separation where the outgoing cables can be worked on while adjacent compartments are live, around the one being worked.

It also mentions who is responsible and clearly states that "where live working is being contemplated it is the responsibility of the Duty Holder to risk assess the situation and make a judgment on that particular situation". This would indicate that there is more emphasis on the designers understanding the usage a LV switchboard would expect in its life and that the manufacturer is not responsible for selecting the type of construction used or its ability to be worked upon. Within the guide Regulation 14 of the Electricity at Work Act is highlighted and must be respected.

Regulation 14

"No person shall be engaged in any work activity on or near any live conductor (other than one suitably covered with insulating material so as to prevent danger) that danger may arise unless:-

- a. it is unreasonable in all the circumstances for it to be dead; and
- b. it is reasonable in all the circumstances for him to be at work on or near it while it is live; and
- c. suitable precautions (including where necessary the provision of suitable protective equipment) are taken to prevent injury".

This latest version of the guide also adds to the 14 types of construction by adding another sub division of 'type' with the choice of 'Compartmentalised' or 'Grouped':

- Compartmentalised is referring to devices that have a solid or ridged barrier or partition separating them from other devices or busbars.
- Grouped is when the integral housing of the device (this would generally be a MCCB) is used as the partition or barrier.

This adds 4 new variants to the 14 variants from the original guide, giving a total of 18.

The main impact will be on wall mounted panel board systems. Where forms 1-3 are requested the guide clearly shows the construction of all these having a common neutral termination bar mounted in the same area as the busbars or devices. The guide notes that "BS 7671 (UK wiring regulations) state that the neutral shall be considered to have the same voltage as Earth. It should be connected at all times in a TN-S or TN-C-S systems. However; a competent person must complete a risk assessment and appropriate test to confirm this before any work is carried out on the system.

This document has set out to clarify some of the muddy water left behind from the original guide. In fairness it has come a long way to achieving this but it will be interesting to see how this is used in practice with all the commercial and technical pressures on specifiers, contractors and manufactures.

The image shows a Form 3b Type 2 grouped arrangement. This is considered suitable for adjustment of settings and to carry out limited maintenance in the functional units whilst adjacent circuits are live. The Dorman Smith Loadbank 125A – 250A MCCB panel board range fulfil the requirements of Form 3b Type 2.

If you wish to read the Beama document it is available as a .pdf down load from:-
www.beama.org.uk/en/publications/

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