



# Testing of Surge Protection Devices (SPD's)

## Did you know an incandescent lamp has a Ballotini fuse in it?

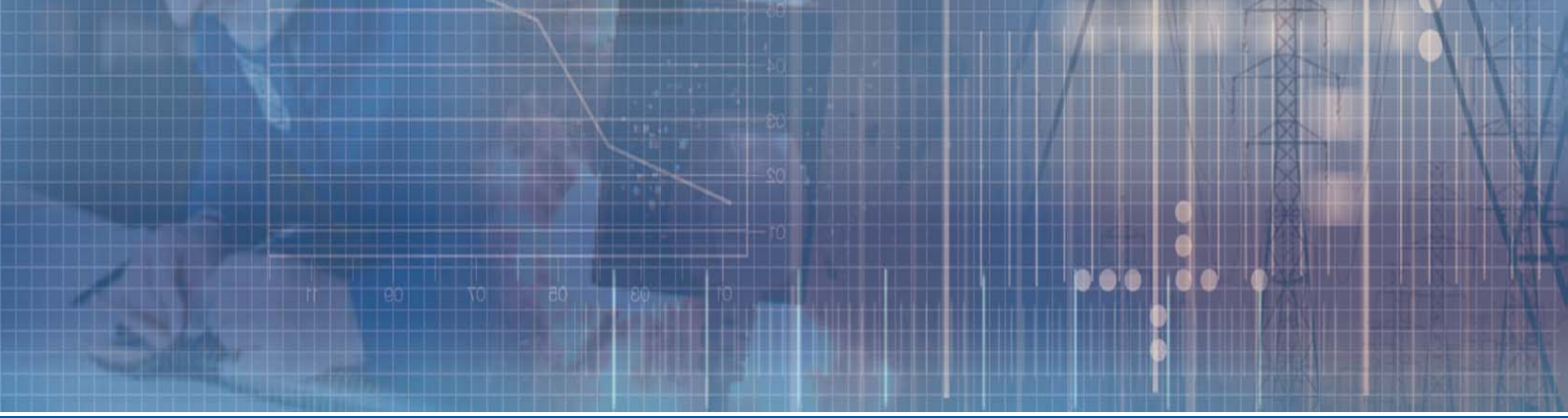
The Ballotini fuse is formed around the leg of the tungsten filament; it is encapsulated in a glass bead inside the end cap of the lamp.

Lamps with no fuse or fuses may cause nuisance tripping to occur to circuit breakers and in some cases the glass of the lamp may shatter or explode.

ERA offer a test on lamps that will simulate a lamp blowing by rupturing the filament of the bulb with a high voltage impulse or by firing a 500W YAG laser at the filament whilst illuminated which causes the filament to rupture whilst carrying current. The arc energy that results will blow the Ballotini fuse if the lamp contains one.

The test is performed in a cabinet with a see through cover so any visible results may be recorded with our digital camcorder for future review.

This type of test is ideal for detecting quality of build in lamps of this type as well as Halogen lamps and ERA already performs check testing on a regular basis for lamp manufacturers.



Although products incorporating SPD's are being sold there is no documentation supporting the SPD part of the product.

Standards are in existence for the surge protection devices and manufacturers should have their products tested against them to comply with current legislation.

SPD's incorporated into electrical wiring accessories can now be tested at ERA's electrical protection devices laboratory.

The pulse shapes available are 8/20 $\mu$ s short-circuit at up to 4kA and 1.2/50 $\mu$ s open-circuit 200V to 8.0kV. The high voltage impulses are positive or negative and a sequence of ever increasing voltage pulses is possible. It is also possible to modulate the pulse onto line-to-neutral or line-to-line supplies e.g. 240V ~ or 415V ~.

If your organisation is interested in any of the above, or something similar in nature, please contact us at the electrical testing laboratory UKAS 0512.

## ERA Technology Ltd

ERA Technology works at the leading edge of many advanced technologies. The business was founded in 1920 and today provides specialist, high value-added, technology-based services including design and development, testing, assessment and expert advice.

ERA's services reduce technical and commercial risk, improve the operational performance of engineering infrastructure assets, and enhance the competitiveness of products and systems.

For further information, please visit: [www.era.co.uk](http://www.era.co.uk).

ERA Technology Ltd is a part of Cobham plc.

### ERA Technology Ltd

Cleeve Road  
Leatherhead  
Surrey KT22 7SA  
UK

Tel: +44 (0)1372 367007

Fax: +44 (0)1372 367009

E-mail: [info@era.co.uk](mailto:info@era.co.uk)

Web: [www.era.co.uk](http://www.era.co.uk)



Ref: ECS 12.02.08

FM1303

