ATEX and how this applies to power supplies

The ATEX 95 equipment Directive 94/9/EC, which became mandatory in July 2003, covers a wide range of equipment and protection systems for use where a potentially explosive atmosphere may be present.

This white paper is intended for electronics engineers and designers working with power systems for the industrial environment, and explains ATEX and how it applies to power supplies.

References

www.uk.tdk-lambda.com/drf

www.uk.tdk-lambda.com/din

ATEX and how this applies to power supplies

Rob Hutton, product introduction manager, TDK-Lambda UK

The acronym ATEX, derived from the French phrase "ATmosphere EXplosible", was initially introduced in the European Union to facilitate the free movement of goods and services of equipment used in hazardous environments. The resulting ATEX Directive removed the need to test and document a product for each EU country by harmonising the way different hazardous explosive environments are classified across all industries.

The ATEX 95 equipment Directive 94/9/EC, which became mandatory in July 2003, covers a wide range of equipment and protection systems for use where a potentially explosive atmosphere may be present.

Power supplies are used extensively to provide regulated voltages to drive motors, relays and power electronic controls. As power supplies produce heat and contain high voltages or currents that can cause sparks, it is advisable to select a product that conforms to this Directive for use in explosive environments.

For power supplies, compliance is determined through the application of one or more of the EN 60079 group of standards for Explosive atmospheres. With coated printed circuit boards TDK-Lambda's DRF HL series DIN rail mount power supplies comply with the requirements of EN60079- 0: Equipment – Part 0: General requirements and EN 60079-15: Explosive atmospheres – Part 15: Equipment protection by type of protection 'n', which is then referenced by the manufacturer on the Declaration of Conformity to apply the CE mark.

CE

As the Declaration of Conformity is self-declared, an external test house is commonly used to prepare a test report and certificate. Those documents will specify the Ex marking on the product and, if an "X" follows the certificate number, any conditions for safe use.

For TDK-Lambda's DRF120-24-1/HL DIN rail mount power supply, the certificate states the ratings (ambient temperature, input and output voltage and current), that they are intended for use in hazardous systems in Zone 2, gas group IIC, and should be mounted in an enclosure with a degree of ingress protection to at least IP54. The Ex marking of the product is as follows:

The Ex mark means it's been tested by a notified body

II is the equipment group (gas surface industries)

3G is the equipment category (zone 2)

Ex is the Explosion protection

nA is protection type (non-sparking)(prevention)

nC is the protection type (non-sparking)(containment)

IIC is the gas group

T4 is the temperature class (hottest surface or part)

Gc is the Equipment Protection Level (Gas)

As well as being ATEX (and IEC Ex) certified, the DRF HL Series complies with class B conducted and radiated emissions and has UL/EN 60950-1 safety certifications. All models meet EN61000-4-2, -3, -4, -5, -6, -8, -11 (immunity) and EN61000-3-2 (harmonic correction) standards, backed by a five-year warranty.

For more information and to access our world-leading power supply experience and comprehensive product range, please visit:

www.uk.tdk-lambda.com/drf

www.uk.tdk-lambda.com/din

You may also contact the author with any questions or comments at:

powersolutions@uk.tdk-lambda.com

TDK-Lambda UK Ltd
Kingsley Avenue
Ilfracombe
Devon EX34 8ES UK
+44 (0)1271 856600
powersolutions@uk.tdk-lambda.com
www.uk.tdk-lambda.com

Ref: 05/16 LA3150