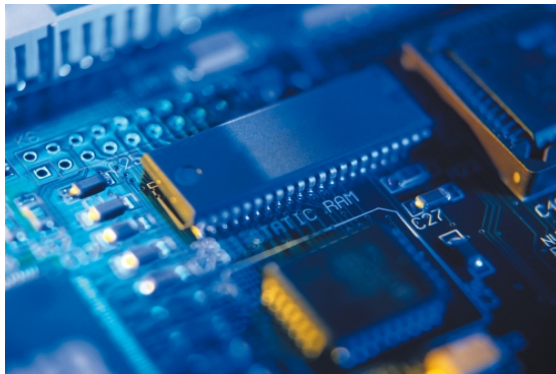




METHOD OF PROTECTION INTRINSIC SAFETY Ex ia

EN IEC 60079-11 (some parts of EN IEC 60079-0 also apply)

This protection concept is used to assess and test electronic circuits that are low power devices. There are limitations on voltage, current, capacitance and inductance such that the available energy at a sparking device is below the minimum ignition energy of the potentially explosive atmosphere.



Requirements Applicable to all Products

The principles of the intrinsically safe protection concept are:

- No hot surfaces above temperature class.
- Component fault assessment is conducted to determine worst case failure mode.
- Limits of maximum capacitance and inductance (capacitance and inductance exceeding maximum limits may be protected by a resistor to limit discharge energy).
- Increased creepage (distance over insulation surface) between live parts and to earth potential where short circuit is considered incensive.

- Increased clearance distance (through air) between live parts and to earth potential where short circuit is considered incensive.
- Fuses, zener diodes and resistors may be used in combination to render a circuit, or part of a circuit, safe.

Method

A detailed examination of the circuit is conducted to establish the means by which compliance is to be achieved. Problems with the circuit are discussed with the client and following corrective action, samples are provided for testing and examination.

In some cases testing in explosive mixtures to verify compliance may be conducted.

Small components that may reach a temperature under fault conditions that are higher than the temperature class may also be permitted subject to testing in an explosive mixture.

Unless competent in intrinsic safety design methods, it is recommended that clients contact CSA Group at the earliest opportunity so that technical support can be provided throughout the design cycle of the product.

More Information

For more information, or to discuss a particular project with CSA Group, please contact us.

FORM 9252 Issue 2

