

DECLARATION OF COMPLIANCE

For the use of Penny & Giles JC6000 products fitted with potentiometers in hazardous atmospheres

This declaration applies to JC6000-GEN product codes containing potentiometer sensing and outputs only. JC6000 products with Hall Effect sensing and/or CANbus outputs have not been assessed and are therefore not covered by this declaration.

In compliance with the requirements of the ATEX 94/9/EC (100a) and ATEX 1999/92/EC (137) Directives, which became mandatory on 1st July 2003, Penny & Giles JC6000 series potentiometer products have been assessed against the relevant parts of the following standards:

1. The Penny & Giles JC6000 series potentiometer products are potentiometers with no additional electronics and as such are classed as 'simple apparatus' according to the definition in paragraph 3.5.4 of BS EN 60079-14:2008

BS EN 60079-14:2008 paragraph 3.5.4 – Simple apparatus

Electrical component or combination of components of simple construction with well-defined electrical parameters which is compatible with the intrinsic safety or energy-limited safety of the circuit in which it is used

Note: 'Simple apparatus' is not certified, but may be used as part of an intrinsically safe circuit providing it is used with a suitable interface of associated apparatus (e.g. a safety barrier)

2. The Penny & Giles JC6000 series potentiometer products are classed as 'simple apparatus' against the definition in paragraph 3.1.5 of BS EN 60079-11:2012 and also comply with the requirements for 'simple apparatus' defined in paragraph 5.7 of BS EN 60079-11:2012.
 - a. The products do not achieve safety by the inclusion of current and/or voltage limiting devices (note: the JC6000 has maximum specified levels for voltage and current and these must be taken into account by the customer/system designer when designing the intrinsically safe circuit and safety barrier);
 - b. The products do not contain any means of increasing the available voltage or current;
 - c. Penny & Giles have carried out tests to ensure that the insulation between any of the externally available connections of the products, and any externally accessible metal component of the body of the product will withstand 707Vdc without breakdown;
 - d. The products have external accessible plastic components. When these products are used in explosive atmospheres, precautions must be applied to ensure that they are not rubbed, placed in the path of a fast moving dust flow or subjected to any other conditions that may lead to the build-up of a static charge.

The metal components of the JC6000 product are made from an aluminium alloy with less than 10% in total of aluminium, magnesium, titanium and zirconium and less than 7.5% magnesium, titanium and zirconium. Care should be taken to ensure that the equipment will not be subjected to impact, friction or any other condition which could lead to the production of sparks

- e. Provided power dissipation in the product is limited to no more than 1W, then the products will satisfy the T6 temperature classification of Group II apparatus at an ambient temperature 40°C. Penny & Giles can assist where use outside of these limitations is required.

Where JC6000 potentiometer products are to be located where Category 1G and M1 equipment is normally required, it is the responsibility of the system design authority to ensure that the apparatus shall also comply with the additional requirements of EN50284 or EN50303 as applicable. Penny & Giles will assist with the provision of further information should this be required.

BS EN 60079-11:2012 paragraph 3.1.5 – Simple apparatus

Electrical component or combination of components of simple construction with well-defined electrical parameters and which is compatible with the intrinsic safety of the circuit in which it is used

BS EN60079-11:2012 paragraph 5.7 – Simple apparatus

The following shall be considered to be simple apparatus:

- a) Passive components, for example switches, junction boxes, resistors and simple semiconductor devices;
- b) Sources of stored energy consisting of single components in simple circuits with well-defined parameters, for example capacitors or inductors, whose values shall be considered when determining the overall safety of the system;
- c) Sources of generated energy, for example thermocouples and photocells, which do not generate more than 1.5V, 100mA and 25mW.

Simple apparatus shall conform to all relevant requirements of this standard with the exception of Clause 12. The manufacturer or intrinsically safe system designer shall demonstrate compliance with this clause, including material data sheets and test reports, if applicable.

The following aspects shall always be considered:

- Simple apparatus shall not achieve safety by the inclusion of voltage and/or current-limiting and/or suppression devices;
- Simple apparatus shall not contain any means of increasing the available voltage or current, for example DC-DC converters;
- Where it is necessary that the simple apparatus maintains the integrity of the isolation from earth of the intrinsically safe circuit, it shall be capable of withstanding the test voltage to earth in accordance with 6.3.13. Its terminals shall conform to 6.2.1

- Non-metallic enclosures and enclosures containing light metals when located in the explosive atmosphere shall conform to the electrostatic charges on external non-metallic materials requirements and metallic enclosures and parts of enclosures requirements of IEC60079-0;
- When simple apparatus is located in the explosive atmosphere, the maximum surface temperature shall be assessed. When used in an intrinsically safe circuit within their normal rating and at a maximum ambient temperature of 40°C, switches, plugs, sockets and terminals will have a maximum surface temperature of less than 85°C, so they can be allocated a T6 temperature classification for Group II applications and are also suitable for Group I and Group III applications. For other types of simple apparatus the maximum temperature shall be assessed in accordance with 5.6 of this standard.

Where simple apparatus forms part of an apparatus containing other electrical circuits, the whole shall be assessed according to the requirements of this standard

Where 'simple apparatus' forms part of an apparatus containing other electric circuits, then the combination of apparatus shall be considered as a whole.

It is the customer/system designer's responsibility to ensure that the simple apparatus is correctly installed, taking into account the JC6000 specification, and that the intrinsically safe circuits and safety barriers used are compliant with the applicable BS EN standards.

'Simple apparatus' is required to be clearly identified when it is installed and it is the responsibility of the system design authority to obtain, where necessary, certification of any system in which the JC6000 potentiometer products may be used. The requirements specified in 2) above may require special conditions of installation or use to be detailed in the system certificate.

Signed S . F . TEDSTONE

Title Engineering Manager

Date 18/07/2014

Signed D . ALEXANDER

Title Quality Manager

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