IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx TSA 07.0023X	Issue No: 0	Certificate history: Issue No. 0 (2007-11-29)
Status:	**Current**	Page 1 of 3	
Date of Issue:	**2007-11-29**		
Applicant:	**Ampcontrol CSM Pty Ltd** 7 Billbrooke Close Cameron Park NSW 2285 **Australia**		
Electrical Apparatus:	**Intrinsically Safe Relay Type IRB**		
Optional accessory:			
Type of Protection:	**[Ex ia]**		
Marking:	Ampcontrol Intrinsically Safe Relay Type IRB [Ex ia] I IECEx TSA 07.0023X S.No. :		

Approved for issue on behalf of the IECEx Certification Body: Ujen Singh

Position: Quality and Certification Manager

Signature:
(for printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

TestSafe Australia
919 Londonderry Road
Londonderry NSW 2753
Australia

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Manufacturer: **Ampcontrol CSM Pty Ltd**
7 Billbrooke Close
Cameron Park NSW 2285
Australia

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2004 Edition:4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-11 : 1999 Edition:4	Electrical apparatus for explosive gas atmospheres - Part 11: Intrinsic safety 'i'

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

AU/TSA/ExTR07.0018/00

Quality Assessment Report:

AU/TSA/QAR06.0007/00

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The Intrinsically Safe Relay Type IRB is designed to switch non-intrinsically safe circuit from an intrinsically safe gas monitoring system. The I.S. relay is to be located within a safe area whilst the I.S. gas monitoring system is normally located in the hazardous area. In this arrangement the safe area is usually the flameproof enclosure.

The I.S relay has been constructed using a high voltage switching reed switch, with the contacts being protected by a fuse (1.6 A) and three surge arrestors. This switch is typically connected between phase and earth in underground mining application, with the maximum current (Im) limited to 5A by use of a series resistor or inductor between the star point and earth of the supply transformer. The coil used to operate the reed switch is wound on a bobbin, with adequate insulating thickness, to provide infallible isolation from the reed switch located in the centre of the bobbin. A bridge rectifier is connected across the intrinsically safe input to prevent back EMF from the relay coil invading the intrinsic safety of the circuit from which the coil is powered.

The I.S. relay consists of two completely encapsulated boards: (i) Intrinsically safe input board contains the intrinsically safe components consisting of a current limiting resistor and a bridge rectifier. (ii) Non-intrinsically safe output board contains a fuse, three surge arrestors and has provision for mounting the relay assembly. The above assembly is placed in a DIN rail mounted enclosure with the intrinsically safe terminals located on one side of the enclosure, while the non-intrinsically safe switching output contact terminals are located on the other side.

The I.S. relay is designed to suit application with up to 1.1 kV systems.

CONDITIONS OF CERTIFICATION: YES as shown below:

Please refer to Annexe of the certificate.

Annex:

Annexe for IECEx TSA 07.0023X.pdf

IECEx Certificate of Conformity Annexe

Annexe for Certificate No.:	IECEx TSA 07.0023X	Issue No.:	0

Drawing list pertaining to Issue 0 of this Certificate:

Document No.	Sheets	Document Title	Issue	Date (yyyy/mm/dd)
IRB-Z-003	1	IS Relay Schematic Diagram	4	2003/09/23
IRB-Z-004	1	PCB Material	2	2003/04/29
IRB-Z-005	1	IS Relay Box Assembly	3	2003/06/18
IRB-Z-006	1	IS Relay 12VDC Reed Relay	2	2003/04/29
IRB-Z-007	1	IS Relay Case Labelling	5	2007/10/23
IRB-Z-008	1	IRB Intrinsically Safe Relay - PCB Parts List	1	2003/06/18

Conditions of Certification pertaining to Issue 0 of this Certificate:

1. It is a condition of safe use that the following parameters shall be taken into account during installation:

Parameters	Intrinsically Safe Terminals	Non-intrinsically Safe Terminals
Ui	16.5 V	
C_i	0 µF	
L_i	0 µH	
U_m		1100 Vrms
I_m		20 A
P_m		500 VA

In underground mining application, the maximum current (I_m) is limited to 5A by use of a series resistor or inductor between the star point and earth of the supply transformer.

2. It is a condition of safe use that the apparatus shall be installed in a host enclosure which would be adequate to provide the live terminals a minimum ingress protection of IP54 for Group I. The host enclosure would also prevent electrostatic hazard due to the plastic enclosure of the apparatus.

3. It is a condition of safe use that the circuits connected to the two different sets of terminals must be adequately segregated from each other.

4. It is a condition of manufacture that routine high voltage test in accordance with Clause 6.4 of IEC 60079-11:1999 at 3200 V shall be carried out between the output and the input terminals, for a period of greater than 1 minute. The equipment must not exhibit any disruptive discharges i.e. flashovers or insulation punctures during the test. (Adequate protection must be taken to safeguard personnel during this test).

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