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 ITA 07.0018X	Issue No: 1	Certificate history:
			Issue No. 1 (2009-04-20)
Status:	**Current**	Page 1 of 4	Issue No. 0 (2008-07-07)
Date of Issue:	**2009-04-20**		
Applicant:	**AMPCONTROL CSM Pty Ltd** 7 Billbrooke Close, Cameron Park, NSW, 2285 **Australia**		
Electrical Apparatus:	**Integrated Protection Relay IS System Type IPD**		
Optional accessory:			
Type of Protection:	**Ex ia**		
Marking:	[Ex ia] I IECEx ITA 07.0018X 0C Ex ia I -20C IECEx ITA 07.0018X		

Approved for issue on behalf of the IECEx Certification Body: D Gray

Position: Certificatiion Authority

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:

International Testing and Certification Services Pty. Ltd
4 - 6 Second Street
Bowden SA 5007
Australia

ITACS®

IECEx Certificate of Conformity

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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 : 2000 Edition:3.1	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/ITA/ExTR08.0015/00 AU/ITA/ExTR08.0015/01

Quality Assessment Report:

AU/TSA/QAR06.0007/02

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The IPD System comprises of the following items of equipment which are to be located in a non-hazardous area;

1. Integrated Protection Relay Type IPD.
2. CCMA or CCMD interface module
3. IKD Interface
4. IPSI-D module
5. RTU-D module
6. EFLO Test Module 11KV

Connected to the non-hazardous area equipment listed above are the following equipment which may be located in a hazardous area;

1. RDM-D Module
2. IKD Keypad

Refer to the attachment to this IECEx Certificate of Conformity, available for download, at the end of this On-Line IECEx Certificate of Conformity, for full product details. If viewing a copy this certificate in paper form, refer to the the IECEx website www.iecex.com for full product description details.

CONDITIONS OF CERTIFICATION: YES as shown below:

Refer to the attachment to this IECEx Certificate of Conformity, available for download, at the end of this On-Line IECEx Certificate of Conformity for full details of Conditions of Safe Use that MUST be met in order for this to remain valid. If viewing a copy this certificate in paper form, refer to the the IECEx website www.iecex.com to download the certificate attachment.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Issue 1 of this Certificate covers the folowing changes:

The addition of the 'EFLO Test Module 11kV' allows the IPD to be used on 11kV systems.

The module provides the interface between the 11kV System & the IPD relay. It consists of three epoxy encapsulated high voltage resistors, two specified pwbs, and one unspecified pwb assembly, all enclosed in a stainless steel and aluminum enclosure. Connections to the 11kV system are via integral flying leads, Plug terminals are used for connections to the IPD Relay. An interface port is also provided to allow a measurement signal from a separate (non certified) insulation test module to be selectively channeled through to the IPD relay.

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Annex:

IECEx_ITA_07_0018X-1_Attachment_090418.pdf

This Attachment forms an Integral Part of the IECEx Certificate and all pages MUST be presented and read whenever the IECEx ITA 07.0018X Issue 1 Certificate is presented.

Equipment Description

Items 1 + 2 Below apply to both the original Issue of the Certificate IECEx ITA 07.0018X Issue 0 and IECEx ITA 07.0018X Issue 1

1. Associated Intrinsically Safe Apparatus:

The Integrated Protection Relay Type IPD comprises 5 printed wiring boards (PWBs) upon which electronic components are mounted, including a lithium manganese dioxide battery. The pwbs are enclosed within a metallic enclosure fitted with plugs and sockets for connections of external circuits. The apparatus is designed to restrict the transfer of energy from the non-hazardous area to the hazardous area by limitation of the voltage and current to intrinsically safe levels with the application of 2 faults applied. External connections are made via terminal blocks mounted on the rear of the apparatus.

The CCMA modules comprise of a single printed wiring board upon which are mounted resistors and zener diodes. The modules are designed to restrict the transfer of energy from the non-hazardous area to the hazardous area by limitation of the voltage and current to intrinsically safe levels with the application of 2 faults applied. The modules come in three different versions namely, the 110V, the 415V and the 1000V. External connections are made via screw connections located on the top of the apparatus.

The CCMD Interface modules comprise up to 4 printed wiring boards upon which are mounted resistors, zener diodes and other electronic components. The modules are designed to restrict the transfer of energy from the non-hazardous area to the hazardous area by limitation of the voltage and current to intrinsically safe levels with the application of 2 faults applied. The modules come in three different versions namely, the 415V, the 1000V and the 3.3kV. External connections are made via screw connections or integral cables.

The IKD Interface module comprises of a single printed wiring board upon which electronic components are mounted. The pwb is partially enclosed within a steel or stainless steel enclosure fitted with four terminal blocks for connections of external circuits. The apparatus is designed to restrict the transfer of energy from the non-hazardous area to the hazardous area by limitation of the voltage and current to intrinsically safe levels with the application of 2 faults applied. External connections are made via terminal blocks mounted on the apparatus.

The IPSI-D module comprises of a single printed wiring board upon which electronic components are mounted. The pwb is enclosed within a plastic enclosure fitted with terminal blocks for connections of external circuits. The modules are designed to prevent the transfer of energy from the non-hazardous area to the hazardous via galvanically isolating opto couplers with the application of 2 faults applied.

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The RTU-D module comprises of a single printed wiring board upon which electronic components are mounted. The pwb is enclosed within a steel enclosure fitted with a terminal blocks mounted on the top of the enclosure for connections of external circuits.

The Integrated Protection Relay Type IPD, CCMA, CCMD, IKD Interface, IPSI-D and RTU-D modules must be located either in a non-hazardous area or within a suitably certified Group I flameproof enclosure.

2 Hazardous Area Intrinsically Safe Apparatus

The RDM-D module comprises of a single printed wiring board upon which electronic components are mounted. The pwb is partially enclosed within an enclosure made from a steel fascia and a plastic box fitted with a terminal block mounted on the rear wall of the enclosure for connections of external circuits. The front of the enclosure is fitted with 5 membrane switches with 8 indicating Light Emitting Diodes (LED's) and a Liquid Crystal Display (LCD).

The IKD Keypad comprises of a single printed wiring board upon which electronic components are mounted. The pwb is enclosed within plastic enclosure fitted with a terminal block mounted on the rear wall of the enclosure for connections of external circuits. The front of the enclosure is fitted with 8 membrane switches with indicating 8 Light Emitting Diodes (LED's)

Equipment Description, Item 3 below applies only to Certificate IECEx ITA 07.0018X Issue 1 and constitutes a change to the original Issue 0.

3. Change introduced by Issue 1 of the Certificate

The addition of the 'EFLO Test Module 11kV' allows the IPD to be used on 11kV systems. Refer to Equipment Description on Certificate IECEx ITA 07.0018X Issue 1 for details.

Conditions of Certification

The following conditions listed under A and B Groups apply to certificate IECEx ITA 07.0018X Issue 0 and IECEx ITA 07.0018X Issue 1:

This Attachment forms an Integral Part of the IECEx Certificate and all pages MUST be presented and read whenever the IECEx ITA 07.0018X Issue 1 Certificate is presented.

A. Conditions of manufacture

1. The apparatus must be manufactured in accordance with the certified drawings.

B. Conditions of safe use

1.0 Input and Out Parameters not to be exceeded according to 1.1 and 1.2 below:

1.1 The following parameters are not exceeded for product covered by IECEx ITA 07.018X Issue 0

Input Parameters (IECEx ITA 07.0018X Issue 0)

Apparatus	Terminals	U_m (V)
Integrated Protection Relay Type IPD	1,2, & 15 to 56	132 V
IKD Interface	J2, J4	132 V
IKD Interface	Pilot	5 A.
IPSI-D	DNIP+, DNIP	250 V
CCMA 110 V	A, B, C	132 V
CCMA 415 V	A, B, C	415 V
CCMA 1000 V	A, B, C	1000 V
CCMD 415 V,	Va, Vb, Vc	415 V
CCMD 1kV	Va, Vb, Vc	1000 V
CCMD 3.3kV	Va, Vb, Vc	3300 V

Terminal ID	U_i (V)	I_i (mA)	P_i (mW)	C_i (µF)	L_i (µH)
RDM-D	18	60	700	8	Negligible
IKD Keypad	16	100	700	10	Negligible
IPSI-D	18	78.3	352	Negligible	Negligible
RTU-D	20.4	144	737	3	Negligible

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Output Parameters (IECEx ITA 07.0018X Issue 0)

	U_o (V)	I_o (mA)	P_o (mW)	C_o[1] (µF)	L_o[2] (mH)	L/R (µH/Ω)
IPD +Vsc, RDI, TXD, & 0V	18	78.3	352	9	76	1325
IPD +Vdm, Data, & 0V	18	60	267	9	129	1749
IPD FIO & 0V	18	19.35	87.1	9	1246	5359
IPD Pilot & Earth	20.4	144	737	6.74	22.5	417
CCMA (110V) A, B, C	19.62*	11	54	7.8	3,000	1,000
CCMA (415V) A, B, C	19.62*	3	13	7.8	3,000	1,000
CCMA (1000V) A, B, C	19.62*	2	6	7.8	3,000	1,000
CCMD (415V) Va, Vb, Vc	19.62*	< 0.01	< 0.01	7.8	3,000	1,000
CCMD (1kV) Va, Vb, Vc	19.62*	< 0.01	< 0.01	7.8	3,000	1,000
CCMD (3.3kV) Va, Vb, Vc	19.62*	< 0.01	< 0.01	7.8	3,000	1,000
IKD Interface A, B, C, EFT, +Vkp, Data, Earth	7.14	0.75	1.35	1,000	1,000	6,000
IKD Interface +Vkp, Data, Earth	15.78	53	176	13.9	166	1700
IKD Interface Pilot, Earth	0	0	0	0	0	N/A
IPSI-D module	0	0	0	0	0	N/A
RTU-D module	0	0	0	N/A	N/A	N/A

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1.2 The following parameters are not exceeded for product covered by IECEx ITA 07.018X Issue 1

Input Parameters (IECEx ITA 07.0018X Issue 1)

Apparatus	Connection	U_m (V)
EFLO Test Module 11kV	Integral cables Va, Vb, Vc	13200 V max phase to phase 7,622 V max phase to earth
EFLO Test Module 11kV	Terminals 1 to 4	250 V
EFLO Test Module 11kV	Terminals 5 to 8	The connections to these terminals must be directly connected to the IPD Relay module terminals 3,4,5

Output Parameters (IECEx ITA 07.0018X Issue 1)

	U_o (V)	I_o (mA)	P_o (mW)	C_o[1] (µF)	L_o[2] (mH)	L/R (µH/Ω)
EFLO Test Module 11kV Va, Vb, Vc	19.62*	< 0.01	< 0.01	7.8	3,000	1,000

The following apply to the above Tables for both 1.1 and 1.2 above

* Maximum output voltage determined by IPD Relay module.
Note: The above load parameters apply where:

a. The external circuit contains no combined lumped inductance Li and capacitance Ci greater than 1% of the above values. or
b. The inductance and capacitance are distributed as in a cable. or
c. The external circuit contains only lumped inductance or only lumped capacitance in combination with a cable.

In all other situations, e.g. the external circuit contains combined lumped inductance and capacitance, up to 50% of each of the inductance and capacitance values is allowed.

2. The IKD Interface must be infallibly connected to the main system earth via at least one of the earthed mounting bolts on the chassis.

3. The Integrated Protection Relay Type IPD must be infallibly connected to the main system earth via the earth terminals provided (J2, J7 and J12).

4. The pilot circuit connections of the IPD Integrated Protection Relay and the IKD Interface module must not be connected to a power source where the nominal pilot to earth fault current may exceed 5A r.m.s unless protected by a fuse. The fuse must be suitable for the system voltage, having a breaking capacity not less than 1,500 A and have a maximum rating of 3A.

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5. The following modules are to be mounted such that the connection facilities have a minimum ingress protection level of not less than IP20;
    a. Integrated Protection Relay Type IPD
    b. CCMA and CCMD
    c. RDM-D
    d. IKD Keypad
    e. RTU-D module
    f.. IPSI-D
    g. IKD Interface
    h. EFLO Test Module 11KV

6. The RDM-D module shall be installed such that the exposed area of the front membrane is less than 100cm^2.

7. The IPD module contains a single non-rechargeable non user replaceable cell. This must be taken in to account when the apparatus is installed within a flameproof (Ex d) enclosure.

8. The IPD Module contains significant amount of capacitance that may be considered as becoming charged to the supply voltage (U_m = 132 V) under fault conditions. When the IPD module is installed within a suitably certified flameproof enclosure the enclosure is to be durably marked with the text "**Warning – Do not open when an explosive atmosphere may be present"**

9. The High voltage connections of the CCMD Modules are NOT Intrinsically Safe while terminals RL 4 and 110Vcom are energized.

10. The High voltage connections of the EFLO Test Module 11kV are NOT Intrinsically Safe while terminals 1 to 4 are energized.

11. The EFLO Test Module 11kV must be infallibly connected to the main system earth via the dedicated connection.

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DRAWINGS. The following list of drawings apply to Both Issues 0 and 1 of this Certificate.

IECEx ITA 07.0018X Issue 0 : Table 1 Drawing list associated with ExTR**: AU/ITA/ExTR08.0015/00**

Table 1			
Document No.	**Document Title**	**Issue**	**Date (yyyy/mm/dd)**
IPD-Z-009	IPD Integrated Protection Relay Typical IS System Diagram	2	2007/12/06
IPD-Z-037	IPD Parallel Feeder Configuration General Arrangement	0	2007/02/20
IPD-Z-001 Sheets 1 to 6	IPD Analogue Board PCB Artwork	5	2005/09/27
IPD-Z-002 Sheet 1	IPD Analog Board Main	6	2007/11/23
IPD-Z-002 Sheet 2	IPD Analog Board Earth Leakage & CCM Inputs	6	2007/11/23
IPD-Z-002 Sheet 3	IPD Analog Board Comms and Fan Interlock	6	2007/11/23
IPD-Z-002 Sheet 4	IPD Analog Board Earth Continuity Pilot	6	2007/11/23
IPD-Z-004 Sheets 1 to 5	IPD Processor Board PCB Artwork	3	2005/08/05
IPD-Z-005 Sheet 1	IPD Processor Board Schematic Diagram Main	2	2007/11/23
IPD-Z-005 Sheet 2	IPD Processor Board Schematic Diagram Inputs	2	2007/11/23
IPD-Z-005 Sheet 3	IPD Processor Board Schematic Diagram CPU	2	2007/11/23
IPD-Z-005 Sheet 4	IPD Processor Board Schematic Diagram ADC	2	2007/11/23
IPD-Z-005 Sheet 5	IPD Processor Board Schematic Diagram Battery, RTC, RAM	2	2007/11/23
IPD-Z-007	IPD Integrated Protection Relay Fascia Plate Marking Details	0	2007/12/12
IPD-Z-030	IPD Integrated Protection Relay Enclosure Details PCB Mounted Detail and Clearance	0	2007/04/11
IPD-Z-031	IPD Power Board Schematic Diagram	1	2006/12/18
IPD-Z-032	IPD Relay Board Schematic Diagram	0	2006/10/13
IPD-Z-033	IPD Top Level Schematic Diagram	2	2007/11/23
IPD-Z-034	IPD IPD BASE IS CIRCUIT PROTECTIVE	1	2008/05/21

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Table 1			
Document No.	**Document Title**	**Issue**	**Date (yyyy/mm/dd)**
	BARRIERS		
IPD-Z-011	IPD RDM-D Enclosure & Marking Details	3	2007/11/26
IPD-Z-012	IPD RDM-D Schematic Diagram	2	2006/12/14
IPD-Z-013	IPD RDM-D Marking Details	3	2007/11/26
IPD-Z-017	IPD IPSI-D Schematic Diagram	6	2008/06/30
IPD-Z-018 Sheets 1 to 3	IPSI-D PCB Artwork	5	2008/07/03
IPD-Z-019	IPD IPSI-D Enclosure and Marking Details	5	2008/05/12
IPD-Z-022	IPD CCMD 3.3kV Dimension & Marking Details	4	2008/06/18
IPD-Z-024	IPD CCMD 3.3kV Construction Details	2	2007/02/27
IPD-Z-025 Sheets 1 to 3	CCMD 1 kV & 415 V PCB Artwork	3	2005/10/14
IPD-Z-026 Sheets 1 to 3	CCMD 3.3 kV PCB Artwork	4	2005/10/14
IPD-Z-029	IPD CCMD 3.3kV Schematic Diagram	2	2007/02/26
IKD-Z-001	IKD IKD Interface Schematic Diagram	6	2008/06/17
IKD-Z-002 Sheets 1 to 4	IKD Interface Artwork	3	2005/08/08
IKD-Z-003	IKD IKD Interface Enclosure & Marking Details	3	2007/11/27
IKD-Z-004	IKD IKD Keypad Enclosure Details	1	2006/12/13
IKD-Z-005	IKD IKD Keypad Schematid Diagram	1	2006/12/13
IKD-Z-006	IKD IKD Keypad Marking Details	3	2007/11/27
IPD-Z-014 Sheet 1	IPD RTU-D Schematic Processor and Line Interface	3	2007/11/26
IPD-Z-014 Sheet 2	IPD RTU-D Schematic Inputs and ADC	3	2007/11/26
IPD-Z-015 Sheets 1 to 5	RTU-D Artwork	1	2005/10/12
IPD-Z-016	IPD RTU-D Enclosure Details	2	2006/12/04
IPD-Z-020	IPD CCMD 415 V Dimension & Marking Details	4	2008/06/17
IPD-Z-021	IPD CCMD 1 kV Dimension & Marking Details	4	2008/06/17
IPD-Z-023	IPD CCMD 1 kV & 415 V Construction Details	3	2007/11/28
IPD-Z-027	IPD CCMD 415 V Schematic Diagram	2	2007/02/26

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Table 1			
Document No.	**Document Title**	**Issue**	**Date (yyyy/mm/dd)**
IPD-Z-028	IPD CCMD 1 kV Schematic Diagram	2	2007/02/26
CCMA-Z-001	CABLE CONNECTION MODULE, TYPE A, 1000V ARTWORK	0	2004/05/18
CCMA-Z-002	CABLE CONNECTION MODULE, TYPE A, 1000V CONTRUCTION DETAILS	0	2004/05/18
CCMA-Z-003	CABLE CONNECTION MODULE, TYPE A, 1 kV DIMENSIONS AND MARKING	2	2007/12/12
CCMA-Z-004	CABLE CONNECTION MODULE, TYPE A, 415V ARTWORK	0	2004/05/18
CCMA-Z-005	CABLE CONNECTION MODULE, TYPE A, 415V CONTRUCTION DETAILS	0	2004/05/18
CCMA-Z-006	CABLE CONNECTION MODULE, TYPE A, 415V DIMENSIONS AND MARKING	2	2007/12/12
CCMA-Z-007	CABLE CONNECTION MODULE, TYPE A, 110V ARTWORK	0	2004/05/18
CCMA-Z-008	CABLE CONNECTION MODULE, TYPE A, 110V CONTRUCTION DETAILS	0	2004/05/18
CCMA-Z-009	CABLE CONNECTION MODULE, TYPE A, 110V DIMENSIONS AND MARKING	2	2007/12/12

IECEx ITA 07.0018X Issue 1 : Table 2 Drawing list associated with ExTR: **AU/ITA/ExTR08.0015/01**

Table 2			
Title:	**Drawing No.:**	**Rev.**	**Date:**
IPD Integrated Protection Relay Typical IS System Diagram	IPD-Z-009	3	2009/03/09
IPD 11kV EFLO Module Mechanical Certification Detail	IPD-Z-035 Sheets 1-2	0	2009/03/09
IPD 11kV EFLO Module Schematic	IPD-Z-036	2	2009/03/09
IPD 11kV EFLO PCB Artwork	IPD-Z-037 Sheets 1 to 4	0	2009/03/09
IPD 11kV HV Resistor PCB Artwork	IPD-Z-038 Sheets 1 to 3	1	2009/03/09
IPD 11kV Relay Marking Details	IPD-Z-040	1	2009/03/09