



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 BAS 12.0027U Issue No: 0 Certificate history:
Issue No. 0 (2014-08-05)

Status: **Current** Page 1 of 4

Date of Issue: **2014-08-05**

Applicant: **GE Intelligent Platforms**
2500 Austin Drive
Charlottesville
Virginia 22911
United States of America

Electrical Apparatus: **8223-PI-IS 2-Channel Pulse Input Module**
Optional accessory:

Type of Protection: **Intrinsic Safety**

Marking: **[Ex ia Ga] IIC (-40°C ≤ Ta ≤ +70°C)**
[Ex ia Da] IIIC (-40°C ≤ Ta ≤ +70°C)

*Approved for issue on behalf of the IECEx
Certification Body:*

R S Sinclair

Position:

General 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](http://www.iecex.com).

Certificate issued by:

SGS Baseefa Limited
Rockhead Business Park
Staden Lane
Buxton
Derbyshire
SK17 9RZ
United Kingdom





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Manufacturer: **GE Intelligent Platforms**
2500 Austin Drive
Charlottesville
Virginia 22911
United States of America

Additional Manufacturing
location(s):

Ingenion Design Ltd
Kym Road
Bicton Industrial Park
Kimbolton
Cambridgeshire
PE18 0LW
United Kingdom

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 : 2011 Explosive atmospheres - Part 0: General requirements
Edition:6.0
IEC 60079-11 : 2011 Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition:6.0

*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:

[GB/BAS/ExTR12.0032/00](#)

Quality Assessment Report:

[GB/BAS/QAR10.0021/03](#) [GB/FME/QAR11.0010/03](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The 8223-PI-IS, 2-Channel Pulse Input Module is designed to restrict the transfer of energy, from an input supply voltage of 18V, provided with galvanic isolation and voltage clamping with triplicated crowbar protection e.g. the 8920-PS-DC, I.S. System Power Supply, to two galvanically isolated, multi pin, independent intrinsically safe circuits, by the limitation of voltage and current. Any low energy let through transients from the power supply are not considered to affect component ratings or segregation and are limited by the module output circuits. Either the triplicated crowbar / zener diode circuits for the 24VPS* or duplicated, infallible zener diode combinations for the other resistively limited circuits. The two OP* circuits are optically isolated open collector circuits.

Digital data is passed between the Hazardous Area and the Safe Area equipment, via power blocking circuitry within the module, to a data interface unit such as the 8922-RB-IS, Railbus Isolator.

The module consists of electronic components on two printed circuit boards mounted within a moulded plastic enclosure. Each module has a number of multi pin circuits forming two channels which are referenced to a common electrical connection, but any circuit connection within each channel will be considered as a separate intrinsically safe circuit. Each pulse channel is designed to provide an intrinsically safe power source, (24VPS*); a current and voltage input, (IIP* & VIP*); a digital input (DIGIP, for Channel 1 only); a NAMUR* input and an optically isolated open collector circuit (OP*+/-) for connection to transmitters which may be situated within a hazardous area.

The safe area connections of the 8223-PI-IS, 2-Channel Pulse Input Module are made via a certified module carrier such as an 8720-CA-04 4-Module carrier or an 8729-CA-08 8-Module carrier and the hazardous area connections are made via certified IS field terminals such as the 8621-FT-IS Standard Field Terminals or the 8622-FT-IS Loop Disconnect Field Terminals.

See the additional sheet for Schedule of Limitations

CONDITIONS OF CERTIFICATION: NO



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EQUIPMENT (continued):

Schedule of Limitations

1) Each group of circuits, forming an output channel, shall be considered as a separate intrinsically safe circuit which must be segregated from all other circuits in accordance with the requirements of Table 5 of IEC 60079-11: 2011 Ed 6.

2) This module must be mounted with suitable connection facilities such that the output connectors are provided with a degree of protection of at least IP20.

3) Plugs and sockets for external connections must be designed such that incorrect connections or interchangeability with inappropriate field connections is prevented.

4) This module must be segregated from any other Non-IS or IS circuits, in accordance with the requirements of Table 5 of IEC 60079-11: 2011 Ed 6.

See Annex for electrical parameters

Annex:

[IECEX BAS 12.0027U Annex.pdf](#)

8223-PI-IS, 2-Channel Pulse Input Module

Input Parameters

CON 2 Pins 1, 3-5 and 10-12.

$U_m = 18V$ (from the PSU)

The maximum prospective current must be limited to 85A.

CON 2 Pins 13-22 and 31, 33 & 34.

$U_m = 18V$ (from the RBI)

The maximum input power must be limited to 2.5W.

All of the data lines between the module and the Railbus Isolator are diode blocked and/or opto-isolated to prevent power transfer from the module back onto the data lines.

Both the PSU and the Railbus Isolator supplies and the Railbus data signals are referenced to a common point within the Railbus Isolator to ensure that the galvanically isolated supplies are not additive.

Output Parameters

Channels 1 and 2 (CON5 & CON6) Connection Pins

Circuit	Output pins (+)	Output pins (-)	Circuit	Output pins (+)	Output pins (-)
COMMON		Con 5, pin 5a Con 6, pin 5a & 7a	COMMON		Con 5, pin 5a Con 6, pin 5a & 7a
24VPS1	Con 5, pin 3c	COMMON	24VPS2	Con 5, pin 3a	COMMON
IIP1	Con 5, pin 7c	COMMON	IIP2	Con 5, pin 1c	COMMON
VIP1	Con 5, pin 7a	COMMON	VIP2	Con 5, pin 1a	COMMON
NAMURIP1	Con 5, pin 5c	COMMON	NAMURIP2	Con 6, pin 7c	COMMON
DIGIP	Con 6, pin 5c	COMMON			
OP1	Con 6, pin 3c	Con 6 pin 3a	OP2	Con 6, pin 1c	Con 6, pin 1a

Channels 1 and 2 Input / Output Parameters

Circuit	U_o (V)	I_o (mA)	P_o (mW)	U_i (V)	I_i (mA)	P_i (mW)	C_i	L_i (μH)
All Circuits Combined within 1 Ch.	28.5V	93.2mA Or 169mA at 3.14V	639mW					
24VPS* With either VIP* or IIP* As a 2-Wire or 3-Wire circuit	28.5V	93.2mA Or 169mA at 3.14V	639mW				0	10 μH
24VPS*	27.4V	93.2mA	639mW	Output only			0	10 μH
IIP*	$\pm 1.1V$	53mA	15mW	1.1V	50mA	-----	0	5 μH
VIP* } NAMURIP* } DIGIP } OP*	9.6V	25mA	57mW	18.2V	-----	333mW	0	0
	0	0	0	30V	-----	333mW		

The field outputs share a common rail between the four channels but are galvanically isolated from the PSU and Railbus Isolator supplies and the Railbus data signals.

Load Parameters

The capacitance and either the inductance or the inductance to resistance ratio (Lo / Ro) of the load connected to the output terminals must not exceed the following values:

Circuit	GROUP IIC			GROUP IIB*			GROUP IIA		
	Co (μF)	Lo (mH)	OR Lo/Ro μH/Ω	Co (μF)	Lo (mH)	OR Lo/Ro μH/Ω	Co (μF)	Lo (mH)	OR Lo/Ro μH/Ω
All Circuits Combined within 1 Ch.	0.078μF	1.28mH	15μH/Ω	0.627μF	3.86mH	56μH/Ω	2.05μF	10.29mH	119μH/Ω
24VPS* With either VIP* or IIP* As a 2-Wire or 3-Wire circuit	0.078μF	1.28mH	41μH/Ω	0.627μF	3.86mH	152μH/Ω	2.05μF	10.29mH	321μH/Ω
24VPS* IIP*	0.087μF	4.2mH	56μH/Ω	0.667μF	17.37mH	211μH/Ω	2.26μF	35.29mH	445μH/Ω
VIP* } NAMURIP* } DIGIP }	1000μF	13.1mH	2436μH/Ω	1000μF	49.77mH	8931μH/Ω	1000μF	105mH	18140μH/Ω
OP*	3.6μF	56.6mH	191μH/Ω	26μF	208mH	744μH/Ω	210μF	419mH	868μH/Ω
	Parameters determined by Source			Parameters determined by Source			Parameters determined by Source		

*Group IIB parameters also applicable for associated apparatus [Ex ia Da] IIIC

Notes

- 1) The Load Parameters shown apply when either of the two conditions below are met:-
 - the total Li of the external circuit (excluding the cable) is <1% of the Lo value or
 - the total Ci of the external circuit (excluding the cable) is <1% of the Co value.
- 2) The Load Parameters must be reduced to 50% of the values shown when both of the two conditions below are met:-
 - the total Li of the external circuit (excluding the cable) is ≥1% of the Lo value or
 - the total Ci of the external circuit (excluding the cable) is ≥1% of the Co value.

The reduced capacitance of the external circuit including the cable shall not be greater than 1μF for Groups IIB, IIA & I and 600nF for Group IIC.