



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 12.0026U Issue No: 0 Certificate history:
Issue No. 0 (2014-07-28)

Status: **Current** Page 1 of 4

Date of Issue: **2014-07-28**

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

Electrical Apparatus: **8230-AI-IS 8-Channel IS Analogue Input Module**
Optional accessory:

Type of Protection: **Intrinsic Safety**

Marking:
[Ex ia Ga] IIC
[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):

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/ExTR12.0031/00](#)

Quality Assessment Report:

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



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The 8230-AI-IS, 8-Channel IS Analogue 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 eight galvanically isolated and independent intrinsically safe circuits by the limitation of voltage and current. 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 three printed circuit boards mounted within a moulded plastic enclosure. Each module has eight separate channels which are all referenced to a common electrical connection but shall be considered as separate intrinsically safe circuits. Each channel is designed to provide a three wire intrinsically safe circuit for equipment which may be situated within a hazardous area. The module provides data from the field devices to safe area apparatus on the railbus data lines.

The safe area connections of the 8230-AI-IS, 8-Channel Analogue 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 8623-FT-IS, IS Field Terminal, 16 Channel DI.

See the additional sheet for Schedule of Limitations

CONDITIONS OF CERTIFICATION: NO



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EQUIPMENT (continued):

Schedule of Limitations

1. Each 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 in-appropriate 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 12.0026U Annex.pdf](#)

8230-AI-IS, 8-Channel IS Analogue Input Module

Input Parameters

CON 2 Pins 1, 3-5, 10-12, 15 and 16

$U_m = 18V$ (from the PSU)

The maximum prospective current must be limited to 85A.

CON 2 Pins 13, 14, 17-22 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 to 8 on Connectors CON5 and CON6 (Each Channel)

All channels use 0V_A run as a separate wire, as a common connection for each channel.

| Channel | VOUT* | VIN_* |
|---------|------------------|-----------------|
| 1 | Con 5, pin 7c | Con 6, pin 7c |
| 2 | Con 5, pin 7a | Con 6, pin 7a |
| 3 | Con 5, pin 5c | Con 6, pin 5c |
| 4 | Con 5, pin 5a | Con 6, pin 5a |
| 5 | Con 5, pin 3c | Con 6, pin 3c |
| 6 | Con 5, pin 3a | Con 6, pin 3a |
| 7 | Con 5, pin 1c | Con 6, pin 1c |
| 8 | Con 5, pin 1a | Con 6, pin 1a |
| 0V_A | Con 5, pin 2 a/c | Con 6, pin 2a/c |
| 0V_A | Con 5, pin 6a/c | Con 6, pin 6a/c |

$$\begin{array}{llll} U_o \leq 15.75V & I_o \leq 20mA & P_o \leq 0.315W & \text{(Non-linear Output)} \\ C_i = 0 & L_i = 0 & & \end{array}$$

The field outputs share a common reference for all the channels but are galvanically isolated from the PSU and Railbus Isolator supplies and the Railbus data signals.

An external, intrinsically safe, resistively-limited source of 28V, 300Ω, 93mA can be connected to Channels 1 to 8 Output Terminals VIN_* w.r.t. 0V_A (CON6). When the source is connected to the terminals, the capacitance and either the inductance or inductance to resistance ratio (L/R) of the load connected to the terminals must not exceed the values detailed in the certificate of the intrinsically safe source.

Load Parameters

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

| GROUP | CAPACITANCE (μ F) | INDUCTANCE (mH) | OR | L/R RATIO (μ H/ohm) |
|-------|---------------------------|--------------------|----|-----------------------------|
| IIC | 0.47 | 87.5 | | 334 |
| IIB* | 2.88 | 328 | | 952 |
| IIA | 11.6 | 633 | | 952 |

*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 L_i of the external circuit (excluding the cable) is <1% of the L_o value or
 - the total C_i of the external circuit (excluding the cable) is <1% of the C_o 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 L_i of the external circuit (excluding the cable) is \geq 1% of the L_o value or
 - the total C_i of the external circuit (excluding the cable) is \geq 1% of the C_o value.

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