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 12.0018U	Issue No: 0	Certificate history: Issue No. 0 (2013-08-29)
Status:	**Current**	Page 1 of 4	
Date of Issue:	**2013-08-29**		
Applicant:	**GE Intelligent Platforms** 2500 Austin Drive Charlottesville Virginia 22911 **United States of America**		
Electrical Apparatus:	**8220-DI IS 16-Channel IS DI & 8220-DI-IS 8-Channel IS DI Switch / Proximity Detector**		
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.

Certificate issued by:

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

IECEx Certificate of Conformity

Certificate No:	IECEx BAS 12.0018U	Issue No: 0
Date of Issue:	**2013-08-29**	Page 2 of 4
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 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by 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:

GB/BAS/ExTR12.0023/00

Quality Assessment Report:

GB/FME/QAR11.0010/03

IECEx Certificate of Conformity

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The 8220-DI-IS, 16-Channel IS DI, Switch / Proximity Detector 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 sixteen galvanically isolated and independent intrinsically safe circuits, by the limitation of voltage and current.

The module consists of electronic components on two printed circuit boards mounted within a moulded plastic enclosure. Each module has sixteen separate channels which are all referenced to a common electrical connection but will be considered as separate intrinsically safe circuits. Each channel is designed to receive inputs from simple apparatus which may be situated within a hazardous area and to pass these signals to the safe area on the rail bus data lines. The sixteen channels are separated into two groups of eight with a common return within each group.

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. Each data line, address line, and the safe area supply to the opto-couplers connecting the modules to the Railbus Isolator is provided with a single blocking diode. These provide protection against the thermal effects of excessive power under normal operating conditions on the railbus data lines which interconnect the modules.

An alternative version of the 8220-DI-IS, 16-Channel IS DI, Switch / Proximity Detector is the 8220-DI-IS, 8-Channel IS DI, Switch / Proximity Detector. This is identical in all respects to the 16 channel version but for operational reasons uses only 8 channels. The hazardous area connections are made via certified IS field terminals such as the 8624-FT-IS Field Terminals 8 Channel DI.

See the additional sheet below for the Module’s Schedule of Limitations

CONDITIONS OF CERTIFICATION: NO

IECEx Certificate of Conformity

Certificate No:	IECEx BAS 12.0018U	Issue No: 0
Date of Issue:	**2013-08-29**	Page 4 of 4

EQUIPMENT (continued):

Schedule of Limitations

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

See Annex for electrical parameters.

Annex:

IECEx BAS 12.0018UAnnex.pdf

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

8220-DI-IS, 16-Channel IS DI, Switch / Proximity Detector Module and the 8220-DI-IS, 8-Channel IS DI, Switch / Proximity Detector 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 optocoupled 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 16 on Connectors CON5 and CON6 (Each Channel) – 8220-DI-IS 16 Channel Variant
Channels 1 to 8 on Connector CON5 (Each Channel) on 8220-DI-IS 8-Channel Variant

Channel	Output pins (+)	Output pins (–)	Channel	Output pins (+)	Output pins (–)
1	CON5, pin 7C	CON5, pin 6A & CON5, pin 6C	9	CON6, pin 7C	CON6, pin 6A & CON6, pin 6C
2	CON5, pin 7A		10	CON6, pin 7A	
3	CON5, pin 5C		11	CON6, pin 5C	
4	CON5, pin 5A		12	CON6, pin 5A	
5	CON5, pin 3C	CON5, pin 2A & CON5, pin 2C	13	CON6, pin 3C	CON6, pin 2A & CON6, pin 2C
6	CON5, pin 3A		14	CON6, pin 3A	
7	CON5, pin1C		15	CON6, pin 1C	
8	CON5, pin1A		16	CON6, pin 1A	

U_o = 10.5V C_i = 0
I_o = 14mA L_i = 0
P_o = 0.04W

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.

Load Parameters

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

GROUP	CAPACITANCE (µF)	INDUCTANCE (mH)	OR	L/R RATIO (µH/ohm)
IIC	2.41	175		983
IIB*	16.8	680		1333
IIA	75	1000		1333

*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.