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 BVS 09.0049X issue No.:0	Certificate history:
Status:	Current	
Date of Issue:	2009-09-14	Page 1 of 4

Applicant:

GM International S.R.L.
Via San Fiorano 70
20058 Villasanta (MI)
Italy

Electrical Apparatus:

Multiplexer System type D2000M type Power Supply - Gateway type D2050M-*, 32-channel Digital Input Front-End type D2030M-***, 16-channel Analogue Input Front End type D2010M-***, 16-channel Analogue Input Expander type D2011M-***

Optional accessory:

Type of Protection:

intrinsic safety "i", Intrinsically safe systems, equipment protection level (EPL) Ga, Fieldbus intrinsically safe concept (FISCO)

Marking:

[Ex ia Ga] IIC (power supply type D2050M-*)**
Ex ia [ia Ga] IIC T4 Gb (field devices type: D2030M-* / D2010M-*** / D2011M-***)**

Approved for issue on behalf of the IECEx Certification Body: H.-Ch. Simanski

Position: Head of Certification Body

Signature: (for printed version)

Date: 14.09.2009

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:

DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany

DEKRA EXAM GmbH

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Date of Issue: **2009-09-14** Issue No.: **0**

Manufacturer: **GM International S.R.L.**
Via San Fiorano 70
20058 Villasanta (MI)
Italy

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 : 2007-10 Edition: 5	Explosive atmospheres - Part 0:Equipment - General requirements
IEC 60079-11 : 2006 Edition: 5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-25 : 2003 Edition: 1	Electrical apparatus for explosive gas atmospheres – Part 25 Intrinsically safe systems
IEC 60079-26 : 2006 Edition: 2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga
IEC 60079-27 : 2008 Edition: 2.0	Explosive atmospheres - Part 27: Fieldbus intrinsically safe concept (FISCO)

*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:

DE/BVS/ExTR09.0045/00

Quality Assessment Report:
NO/DNV/QAR07.0005/01

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Schedule

EQUIPMENT:
Equipment and systems covered by this certificate are as follows:

Ratings

See Annex

Description of the intrinsically safe system

Multiplexer System type D2000M

The multiplexer system comprises a power supply and several field devices as listed below:

Power Supply

Number	designation / function	type
1	Power Supply - Gateway	D2050M-***

Field Devices (total number of devices 4)

Number	designation / function	type
up to 4	32 channel Digital Input Front End	D2030M-***
up to 4	16 channel Analogue Input Front End each optionally combined with up to 3	D2010M-***
	16 channel Analogue Input Expander	D2011M-***

In the full designation the "*" are replaced by numbers / letters indicating details of function not relevant to Ex.

CONDITIONS OF CERTIFICATION: YES as shown below:

1 Power Supply - Gateway type D2050M-***
1.1 Installation in the safe area.
1.1.1 Wiring shall satisfy the conditions of clause 6.3.11 and clause 7.6.e of IEC 60079-11:2006.
1.1.2 Clearances of uninsulated conductors of intrinsically safe circuits to grounded metal parts of the enclosure shall be at least 3 mm, and to uninsulated conductors of non-intrinsically safe circuits of other apparatus shall comply with the values given in table 5 IEC 60079-11:2006 as a minimum.
1.1.3 Terminals or connectors for the intrinsically safe fieldbus supply and signal circuits shall be arranged according to clause 6.2.1 or 6.2.2 of IEC 60079-11:2006 respectively.
1.2 Installation in the hazardous area requiring EPL Gb.
1.2.1 The Power Supply - Gateway type D2050M-*** shall be mounted in an enclosure providing a suitable type of explosion protection.
1.2.2 Mounting in an enclosure providing a suitable type of explosion protection shall be submitted to separate assessment and/or certification procedure.
2 Intrinsically safe apparatus type D2030M-*** / D2010M-*** / D2011M-***
The backplane of the field devices type D2030M-*** / D2010M-*** / D2011M-*** shall be protected against electrostatic charge by means of suitable installation on DIN rails.
3 Wiring
For interconnection cable between Power Supply - Gateway type D2050M-*** and Field Devices type D2030M-*** and/or type D2010M-*** the cable-parameters in section 3 apply.

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EQUIPMENT(continued):

Description of the apparatus

Power Supply - Gateway type D2050M-*** provide dual channel two wire intrinsically safe power supply for fieldbus apparatus and bi-directional transmission of Fieldbus data signals between non intrinsically safe and intrinsically safe Fieldbus circuits.

Electronic components of the power supply are arranged on a printed-circuit-board (PCB) packaged in the bottom part of a plastic enclosure suitable for installation on T35 DIN Rails. The PCBs are protected by means of a metallic cover.

Terminals for the intrinsically safe Fieldbus supply and signal circuits and for the non-intrinsically safe circuits are arranged on the front side of the enclosure.

Power Supply - Gateway type D2050M-*** provide safe galvanic separation between intrinsically safe Fieldbus supply and signal circuits and non intrinsically safe Fieldbus signal circuits and power supply on the PCB up to a sum of peak values of rated voltages of 375 V.

The Power Supply - Gateway type D2050M-*** is designated for installation in the safe area or optionally in the hazardous area (EPL Gb), mounted in an enclosure providing a suitable type of explosion protection.

The 32-Channel Digital Input type D2030M-***, the 16-Channel Analogue Input type D2010M-*** or the 16- Channel Analogue Input Expander type D2011M-*** consist of a plastic enclosure suitable for installation on DIN Rails providing electronic components mounted on printed-circuit-boards (PCB).

Terminals for the intrinsically safe circuits (supply + communication and measuring circuits) are arranged on the front side of the enclosure.

Control- and display facilities (LEDs and configuration jumpers) are arranged on the front panel.

Different IS circuits are galvanically separated from each other or interconnected according to the following table:

Apparatus	galvanic separation between		
	supply + communication line 1 and line 2	measuring circuits and supply + communication	measuring circuits from each other
D2030M-***	yes	yes	no
D2010M-***	yes	yes	no
D2011M-***	yes)*	yes	no
)* interconnected to D2010M-***; D2011M-*** supplied by D2010M-***			

Annexe: BVS_09_0049X_GM International_Annex.pdf

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Annex

Ratings:

1 Power supply-Gateway Type D2050M-***

1.1 Non intrinsically safe circuits

Parameters		Power supply	input / output signal circuits
Voltage	U_n	DC 24 V (20 - 30 V)	
	U_m	AC 250 V	AC 250 V
Power consumption	P_n	8.5 W	
Terminals		M4	M2, M3, J3, J4

1.2 Intrinsically safe supply- and fieldbus circuits level of protection Ex ia IIC

Parameters	Line 1	Line 2
Voltage U_o	DC 15 V	DC 15 V
Current I_o	210 mA	210 mA
Supply current at 15 V	116 mA	116 mA
Power P_o	1736 mW	1736 mW
Current limiting resistor	163 Ω	163 Ω
Characteristics	trapezoidal	
maximum cable length	see 3	see 3
Terminals	M1A	M1B

2 Intrinsically safe field devices

2.1 Power Supply

Parameters	D2010M-***, D2010M-*** + D2011M-***, D2030M-***	
	Line 1	Line 2
Voltage U_i	DC 15 V	DC 15 V
Current I_i	215 mA	215 mA
Power P_i	1755 mW	1755 mW
Terminals	M10A	M10B
Terminator	1.2 µF + 100 Ω	1.2 µF + 100 Ω
Terminals	M9A	M9B

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2.2 Measuring circuits

Parameters	D2010M-*** + D2011M-***		D2030M-***	
	Channel 1 - 64)[1]		Channel 1- 32	
Voltage U_o	DC 10,7 V		DC 10,7 V	
Current I_o	7 mA		14 mA	
Power P_o	19 mW		38 mW	
max. external capacitance C_o	IIC	2.23 µF	IIC	2.23 µF
	IIB	15.6 µF	IIB	15.6 µF
	IIA	69 µF	IIA	69 µF
max. external inductance L_o	IIC	725 mH	IIC	181 mH
	IIB	2902 mH	IIB	725 mH
	IIA	5804 mH	IIA	1451 mH
max. inductance / resistance ratio L_o/R_o	IIC	1.888 mH/Ω	IIC	946.5 µH/Ω
	IIB	7.552 mH/Ω	IIB	3.786 mH/Ω
	IIA	15.105 mH/Ω	IIA	7.572 mH/Ω
Characteristics	linear			
Terminals	M1 to M8		M1 to M8	

)[1] channel 1 - 16 D2010M-*** stand alone;
channel 17 - 32 first D2011M-*** expander;
channel 33 - 48 second D2011M-*** expander;
channel 49 - 64 third D2011M-*** expander

3 Maximum cable length

For interconnection cable between Power Supply - Gateway type D2050M-*** and Field Devices type D2030M-*** and/or type D2010M-*** the following parameters apply:

- resistance per unit length 15 Ω/km ≤ R' ≤ 150 Ω/km
- inductance per unit length 0.4 mH/km ≤ L' ≤ 1 mH//km
- capacitance per unit length (including screen) 45 nF/km ≤ C' ≤ 200 nF/km

- $C' = C'_{wire/wire} + 0,5 \times C'_{wire/screen}$ fieldbus-circuit insulated
- $C' = C'_{wire/wire} + C'_{wire/screen}$ screen connected to the output of the fieldbus power supply

- maximum length of each spur cable: 60 m (Group IIC / IIB)

- maximum permissible cable length including length of all spur cables is 1000 m (Group IIC) or 5000 m (Group IIB) respectively.