



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.: issue No.: Certificate history:

Status:

Date of Issue: Page 1 of 3

Applicant: **GM International S.R.L.**
Via San Fiorano 70
20124 Villasanta (MI)
Italy

Electrical Apparatus: **DIN Rail Isolator type D1****, PSD1001***
Optional accessory:

Type of Protection: **Intrinsic safety "i", Group II Zone 0 apparatus, Protection by intrinsic safety "iD"**

Marking: **[Zone 0] [Ex ia] IIC / IIB / IIA and / or [Ex ia] I and / or [Ex iaD]**

Approved for issue on behalf of the IECEx Certification Body: **Dr. R. Jockers**

Position: **Head of Certification Body**

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:

DEKRA EXAM GmbH
Dinnendahlstrasse 9
44809 Bochum
Germany

DEKRA
DEKRA EXAM GmbH



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Date of Issue: 2007-11-21

Issue No.: 0

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Manufacturer: **GM International S.R.L.**
Via San Fiorano 70
20124 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 : 2004 Edition: 4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-11 : 2006 Edition: 5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-26 : 2004 Edition: 1	Electrical apparatus for explosive gas atmospheres - Part 26: Construction, test and marking of Group II Zone 0 electrical apparatus
IEC 61241-0 : 2004 Edition: 1	Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements
IEC 61241-11 : 2005 Edition: 1	Electrical apparatus for use in the presence of combustible dusts - Part 11: Protection by intrinsic safety 'iD'

*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/ExTR07.0033/00

Quality Assessment Report:

NO/DNV/QAR07.0005/00



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

General remarks

The DIN Rail Isolator type D1**** / PSD1001* have been tested according to the European Directive 94/9/EC (ATEX). The tests were based on the European standard EN 50014:1997+A1-A2 and EN 50020:2002.

The number of the certificate is DMT 01 ATEX E 042 X including supplements No. 1 to No. 7.
The number of the test report is BVS PP 00.2010 EG including supplements No. 1 to No. 10.

The listed versions of DIN Rail Isolator type D1**** / PSD1001* have been extracted from the above ATEX certificate and were subjected to assessment according to IECEx-Scheme.

Type Code

See Annex

Description

See Annex

Ratings

See Annex

CONDITIONS OF CERTIFICATION: YES as shown below:

Special conditions for safe use (applicable if not covered by local installation rules)

1. DIN Rail Isolator D1**** / PSD1001* series shall be installed outside the hazardous area.
2. The installation of DIN Rail Isolator D1**** / PSD1001* series shall be carried out in such a way that the clearances of un-insulated conductors of intrinsically safe circuits to grounded metal parts of the enclosure are at least 3 mm, and un-insulated conductors of non-intrinsically safe circuits of other apparatus are situated at least 50 mm from terminals for external intrinsically safe circuits, or are separated from them by an insulating barrier according to clause 6.2.1 of IEC 60079-11:2006.



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General product information

Type Code

Repeater Power Supply	type	D1010*, D1010*-xxx or D1010*/B, D1010*-xxx/B
Repeater Power Supply	type	D1010*-046 or D1010*-046/B
Repeater Power Supply	type	D1012Q, D1012Q-xxx or D1012Q/B, D1012Q-xxx/B
Repeater Power Supply	type	D1014*, D1014*-xxx or D1014*/B, D1014*-xxx/B
Powered Isolating Driver	type	D1020*, D1020*-xxx or D1020*/B, D1020*-xxx/B
Powered Isolating Driver	type	D1021*, D1021*-xxx or D1021*/B, D1021*-xxx/B
Fire/Smoke Detector Interface	type	D1022*, D1022*-xxx
Switch/Proximity Repeater	type	D1030*, D1030*-xxx or D1030*/B, D1030*-xxx/B
Switch/Proximity Repeater	type	D1031*, D1031*-xxx or D1031*/B, D1031*-xxx/B
Switch/Proximity Repeater	type	D1130*, D1130*-xxx or D1130*/B, D1130*-xxx/B
Switch/Proximity Repeater	type	D1032*, D1032*-xxx or D1032*/B, D1032*-xxx/B
Switch/Proximity Repeater	type	D1033*, D1033*-xxx or D1033*/B, D1033*-xxx/B
Switch/Proximity Repeater	type	D1034*, D1034*-xxx or D1034*/B, D1034*-xxx/B
Frequency isolating repeater	type	D1035S, D1035S-xxx or D1035S/B, D1035S-xxx/B
Digital Output	type	D1040Q, D1040Q/B, D1040Q-xxx, D1040Q-xxx/B
	type	D1041Q, D1041Q/B, D1041Q-xxx, D1041Q-xxx/B
	type	D1042Q, D1042Q/B, D1042Q-xxx, D1042Q-xxx/B
	type	D1043Q, D1043Q/B, D1043Q-xxx, D1043Q-xxx/B
Digital Output	type	PSD1001, PSD1001/B, PSD1001-xxx, PSD1001-xxx/B
	type	PSD1001C, PSD1001C-xxx, PSD1001C/B, PSD1001C-xxx/B
Analogue Signal / Temperature Converter	type	D1052*, D1052*-xxx or D1052*/B, D1052*-xxx/B;
Analogue Signal / Temperature Converter	type	D1053*, D1053*-xxx or D1053*/B, D1053*-xxx/B
Analogue Signal / Temperature Converter	type	D1072*, D1072*-xxx or D1072*/B, D1072*-xxx/B
Analogue Signal / Temperature Converter	type	D1073*, D1073*-xxx or D1073*/B, D1073*-xxx/B
Frequency input converter and trip amplifier	type	D1060S, D1060S-xxx or D1060S/B, D1060S-xxx/B
Liquid Presence Detector Interface	type	D1080*, D1080*-xxx or D1080*/B, D1080*-xxx/B
Liquid Presence Detector Interface	type	D1081*, D1081*-xxx or D1081*/B, D1081*-xxx/B
Liquid Presence Detector Interface	type	D1180*, D1180*-xxx or D1180*/B, D1180*-xxx/B

In the full designation the “*” is replaced by letters marking details of construction as follows:

S	= single channel	S-xxx	= single channel
D	= dual channel	D-xxx	= dual channel
S/B	= single channel, power bus	S-xxx/B	= single channel, power bus
D/B	= dual channel, power bus	D-xxx/B	= dual channel, power bus
Q	= quad channel	Q-xxx/B	= quad channel
Q/B	= quad channel, power bus	Q-xxx/B	= quad channel, power bus

(Option 'xxx' = non Ex -relevant details of function,
Option '/B' = 'power bus' enclosure where applicable)



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Description

General

Electronic components of DIN Rail Isolators are arranged on printed-circuit-boards (PCB) packaged in plastic enclosures suitable for installation on T35 DIN Rails.

DIN Rail Isolators of D1**** / PSD1001* series provide safe galvanic separation between intrinsically safe circuits and non intrinsically safe signal circuits and power supply on the PCB up to a sum of peak values of rated voltages of 375 V.

DIN Rail Isolators of D1**** / PSD1001* series are designated for installation in the safe area.

Repeater Power Supply type D1010*, D1010*-xxx or D1010*/B, D1010*-xxx/B

Repeater Power Supply Type D1010 provide single or dual channel intrinsically safe power supply for IS apparatus and repeat a 4 - 20 mA analogue signal in non intrinsically safe circuits.

Repeater Power Supply type D1010*-046 or D1010*-046/B

Repeater Power Supply Type D1010*-046 provide single or dual channel intrinsically safe power supply for measuring transmitters and repeat a 4 - 20 mA analogue signal in non intrinsically safe circuits. Version of the Repeater Power Supply: single channel: Type D1010S-046, D1010S-046/B; dual channel: Type D1010D-046, D1010D-046/B.

Repeater Power Supply type D1012Q, D1012Q-xxx or D1012Q/B, D1012Q-xxx/B

Repeater Power Supply type D1012Q, D1012Q-xxx, D1012Q/B, D1012Q-xxx/B provide quad channel intrinsically safe power supply for measuring transmitters and repeat a 4 - 20 mA analogue signal in non intrinsically safe circuits.

Repeater Power Supply type D1014*, D1014*-xxx or D1014*/B, D1014*-xxx/B

Repeater Power Supply type D1014* provide single or dual channel intrinsically safe power supply for measuring transmitters and repeat a 4 - 20 mA analogue signal in non intrinsically safe circuits. Available versions: single channel: type D1014S, D1014S/B; dual channel: type D1014D, D1014D/B.

Powered Isolating Driver type D1020*, D1020*-xxx or D1020*/B, D1020*-xxx/B

Isolating Driver Type D1020* provide single or dual channel intrinsically safe power supply for valve positioners or I/P-converters and repeat a non intrinsically safe 4 - 20 mA analogue signal in intrinsically safe circuits. (Type D1020S, D1020S/B: single channel; Type D1020D, D1020D/B: dual channel)

Powered Isolating Driver type D1021*, D1021*-xxx or D1021*/B, D1021*-xxx/B

Isolating Driver Type D1021* provide single channel intrinsically safe power supply for valve positioners or I/P-converters and repeat a non intrinsically safe 4 - 20 mA analogue signal in the intrinsically safe circuit. Available versions: single channel only: type D1021S, D1021S/B.

Fire/Smoke Detector Interfacetype D1022*, D1022*-xxx

Fire/Smoke Detector Interface type D1022*, D1022*-xxx provide single or dual channel intrinsically safe power supply for fire/smoke detectors "switched resistor mode" and repeat the analogue signal in non intrinsically safe circuits.

Switch/Proximity Repeater type D1030*, D1030*-xxx or D1030*/B, D1030*-xxx/B type D1031*, D1031*-xxx or D1031*/B, D1031*-xxx/B type D1130*, D1130*-xxx or D1130*/B, D1130*-xxx/B

Switch/Proximity Repeater Detector types D1030*, D1031*, D1130* provide single, dual or quad channel intrinsically safe power supply for switch / proximity switch circuits and repeat the status of voltage free contacts or proximity switches in non intrinsically safe circuits.

Switch/Proximity Repeater Detectors are identical except for non intrinsically safe output configuration: relay-contact (types D1030*, D1130*), opto-isolator (type D1031*). Available version of the Switch/Proximity Repeater Detector: single channel: type D1*3*S, D1*3*S/B; dual channel: type D1*3*D, D1*3*D/B; quad channel: type D1*3*Q, D1*3*Q/B.



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**Switch/Proximity Repeater type D1032*, D1032*-xxx or D1032*/B, D1032*-xxx/B
type D1033*, D1033*-xxx or D1033*/B, D1033*-xxx/B**

Switch/Proximity Repeater Detector types D1032*, D1033* provide dual / quad channel intrinsically safe power supply for switch / proximity switch circuits and repeat the status of voltage free contacts or proximity switches in non intrinsically safe circuits.

Switch/Proximity Repeater Detectors are identical except for non intrinsically safe output configuration relay-contact (type D1032*), opto-isolator (type D1033*).

Available version of the Switch/Proximity Repeater Detector: dual channel: type D103*D, D103*D/B; quad channel: type D103*Q, D103*Q/B.

Switch/Proximity Repeater type D1034*, D1034*-xxx or D1034*/B, D1034*-xxx/B

Switch/Proximity Repeater Detector types D1034* provide single or dual channel intrinsically safe power supply for switch / proximity switch circuits and repeat the status of voltage free contacts or proximity switches in non intrinsically safe circuits.

Available versions of the Switch/Proximity Repeater Detector: single channel: type D1034S, D1034S/B. dual channel: type D1034D, D1034D/B.

Frequency isolating repeater type D1035S, D1035S-xxx or D1035S/B, D1035S-xxx/B

Frequency isolating repeater type D1035S, D1035S-xxx, D1035S/B, D1035S-xxx/B, provide single channel intrinsically safe power supply for digital sensors (i.e. contacts, proximity switches, optical couplers) and convert the obtained frequency signal into non intrinsically safe 4 - 20 mA circuits. Alternatively the input circuit can accept pulses from non powered magnetic pick up.

**Digital Output type D1040Q, D1040Q/B, D1040Q-xxx, D1040Q-xxx/B
type D1041Q, D1041Q/B, D1041Q-xxx, D1041Q-xxx/B
type D1042Q, D1042Q/B, D1042Q-xxx, D1042Q-xxx/B
type D1043Q, D1043Q/B, D1043Q-xxx, D1043Q-xxx/B**

Digital Output Type D104*Q provide up to four intrinsically safe remote outputs to operate solenoid valves, LEDs or audible alarms driven by non intrinsically safe digital remote signals. The four remote outputs - configuration with common "+" - may be used as single outputs or interconnected in parallel. The versions type D1040Q, D1041Q, D1042Q, D1043Q provide different electrical parameters.

**Digital Output type PSD1001, PSD1001/B, PSD1001-xxx, PSD1001-xxx/B
type PSD1001C, PSD1001C-xxx, PSD1001C/B, PSD1001C-xxx/B**

Digital Output Type PSD1001 provides four intrinsically safe power outputs to drive intrinsically safe apparatus. The four power outputs - configuration with common "+" - may be used as single outputs or interconnected in parallel.

Digital Output Type PSD1001C provides one intrinsically safe power output to drive intrinsically safe apparatus.

Digital Output Type PSD1001C complies with Digital Output Type PSD1001 with the exception, that the four power outputs - configuration with common "+" - are already interconnected in parallel and form one single output.

**Analogue Signal / Temperature Converter type D1052*, D1052*-xxx or D1052*/B, D1052*-xxx/B;
type D1053*, D1053*-xxx or D1053*/B, D1053*-xxx/B**

Analogue Signal Converter types D1052*, D1053* provide single or dual channel conversion of analogue intrinsically safe "mA" - or "V"-signals from separately powered transducers into non intrinsically safe 0/4 - 20 mA or 0/1 - 5V analogue- or alarm-signal circuits.

Analogue Signal Converters are identical except for non intrinsically safe output configuration and function: type D1052*: analogue-output; type D1053*: relay-contacts "alarm A/B" and analogue-output; type D105*S: single channel; type D105*D: dual channel; type D105*X: single channel / two analogue-outputs; Type D105*Y: dual channel / double analogue-output.

Available versions of the Analogue Signal Converters: single channel: type D105*S, D105*S/B. dual channel: type D105*D, D105*D/B.



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Frequency input converter and trip amplifier type D1060S, D1060S-xxx or D1060S/B, D1060S-xxx/B
Frequency input converter and trip amplifier type D1060S, D1060S-xxx, D1060S/B, D1060S-xxx/B respectively, provide single channel intrinsically safe power supply for digital sensors (i.e. contacts, proximity switches, optical couplers) and convert the obtained frequency signal into non intrinsically safe 4 - 20 mA circuits. Alternatively the input circuit can accept pulses from non powered magnetic pick up.

**Analogue Signal / Temperature Converter type D1072*, D1072*-xxx or D1072*/B, D1072*-xxx/B
type D1073*, D1073*-xxx or D1073*/B, D1073*-xxx/B**
Temperature Converter types D1072*, D1073* provide single or dual channel conversion of intrinsically safe low level DC-signals of thermocouples, resistance thermometers or transmitting potentiometers with 2-, 3-, 4-wire configuration and generate non intrinsically safe 0/4 - 20 mA or 0/1 - 5V analogue- or alarm-signal circuits.
Temperature Converters are identical except for non intrinsically safe output configuration and function: type D1072*: analogue-output; type D1073*: relay-contacts "alarm A/B" and analogue-output; type D107*S: single channel; type D107*D: dual channel; type D107*X; single channel / two analogue-outputs; type D107*Y: dual channel / double analogue-output.
Available versions of the Analogue Signal / Temperature Converter: single channel: type D107*S, D107*S/B. dual channel: type D107*D, D107*D/B.

**Liquid Presence Detector Interface type D1080*, D1080*-xxx or D1080*/B, D1080*-xxx/B
type D1081*, D1081*-xxx or D1081*/B, D1081*-xxx/B
type D1180*, D1180*-xxx or D1180*/B, D1180*-xxx/B**
Liquid Presence Detector Interfaces Types D1080*, D1081*, D1180* provide dual channel intrinsically safe 3-wire sensor circuits and repeat the sensor signal in a non-intrinsically safe output relay contact (types D1080*, D1180*) or opto-isolated transistor output (D1081*).
Available versions of the Liquid Presence Detector Interfaces: dual channel: type D108*D, D108*D/B.



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Ratings:

1 Non intrinsically safe circuits

1.1 Power supply

DIN Rail Isolator version	Voltage		Power
	U _n DC [V]	U _m AC [V]	P _n [W]
D1010*	24	250	≤ 3.7
D1010*-046	24	250	≤ 3.7
D1012*	24	250	≤ 3.5
D1014*	12 - 24	250	≤ 3.3
D1020*	24	250	≤ 2.7
D1021*	24	250	≤ 2.3
D1022*	(Loop)	250	≤ 0.8
D1030 *	24	250	≤ 2.6
D1031*	12 - 24	250	≤ 1.8
D1032*, D1033*	24	250	≤ 2.6, ≤ 1.6
D1034*	12 - 24	250	≤ 1.9
D1035*	12 - 24	250	≤ 1.4
D1040* -41* -42* -43*	24	250	≤ 4.3
D1052*, D1053*	12 - 24	250	≤ 2.3, ≤ 2.2
D1060*	12 - 24	250	≤ 2.1
D1072*, D1073*	12 - 24	250	≤ 2.2, ≤ 2.3
D1080*, D1081*	24	250	≤ 2, ≤ 2.2
PSD1001, PSD1001C	24	250	≤ 3.8
	AC [V]	AC [V]	[W]
D1130*	115 -	250	≤ 2.0
D1180*	230		≤ 2.9

1.2 Input / output signal circuits

Voltage U_m = AC 250 V



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2 Intrinsically safe circuits level of protection Ex ia IIC / IIB / IIA / I
2.1 Repeater Power Supply D1****

2.1.1 Repeater Power Supply type D1010*, D1010*-xxx or D1010*/B, D1010*-xxx/B

Single channel parameters	Terminals			
Channel	1	14-15) ¹	14-16) ²	15-16) ³
	2	10-11) ¹	10-12) ²	11-12) ³
Voltage U _o		DC 26.3 V	DC 25.2 V	DC +/- 1.1 V
Current I _o		91 mA	79 mA	38 mA
Power P _o		597 mW	497 mW	11 mW
Voltage U _i		N / A	N / A	DC 30 V
Current I _i		N / A	N / A	104 mA
Power P _i		N / A	N / A	N / A
Effective internal capacitance C _i		N / A	N / A	1.05 nF
Effective internal inductance L _i		N / A	N / A	0 mH
Max. external capacitance C _o	IIC	95 nF	107 nF	100 µF
	IIB iaD	738 nF	820 nF	1000 µF
	IIA	2.51 µF	2.9 µF	1000 µF
	I	3.95 µF	4.15 µF	1000 µF
Max. external inductance L _o	IIC	4.3 mH	5.7 mH	11.3 mH
	IIB iaD	17.2 mH	22.8 mH	45.3 mH
	IIA	34.5 mH	45.7 mH	90.7 mH
	I	56.6 mH	74.9 mH	148.8 mH
Max. inductance / resistance ratio L _o /R _o	IIC	59.6 µH/Ω	71.5 µH/Ω	3490 µH/Ω
	IIB iaD	238.4 µH/Ω	286.2 µH/Ω	13963 µH/Ω
	IIA	476.8 µH/Ω	572.5 µH/Ω	27927 µH/Ω
	I	782.2 µH/Ω	939.2 µH/Ω	45.82 mH/Ω
Characteristics		linear	linear	linear
Ambient temperature range		-40 °C ≤ T _a ≤ +60 °C		
Remarks	¹ 3-wire circuit "+TX*" "-IN*", "+IN*" sum of parameters ² 2-wire circuit "+TX*", "+IN*" parameters of supply circuit ³ 2-wire circuit "-IN*", "+IN*" parameters of input circuit N / A = not applicable			



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2.1.2 Repeater Power Supply D1010*-046, D1010*-046/B

Single channel parameters	Terminals			
Channel	1	14-15) ¹	14-16) ²	15-16) ³
	2	10-11) ¹	10-12) ²	11-12) ³
Voltage U _o		DC 26.3 V	DC 25.2 V	DC +/- 1.1 V
Current I _o		78.2 mA	69 mA	28 mA
Power P _o		514 mW	434 mW	8 mW
Voltage U _i		N / A	N / A	DC 30 V
Current I _i		N / A	N / A	104 mA
Power P _i		N / A	N / A	N / A
Effective internal capacitance C _i		N / A	N / A	1.05 nF
Effective internal inductance L _i		N / A	N / A	0 mH
Max. external capacitance C _o	IIC	95 nF	107 nF	100 µF
	IIB iaD	738 nF	820 nF	1000 µF
	IIA	2.51 µF	2.9 µF	1000 µF
	I	3.95 µF	4.15 µF	1000 µF
Max. external inductance L _o	IIC	5.8 mH	7.46 mH	45.35 mH
	IIB iaD	23.2 mH	29.8 mH	181.4 mH
	IIA	46.5 mH	59.7 mH	362.8 mH
	I	76.3 mH	97.9 mH	595.2 mH
Max. inductance / resistance ratio L _o /R _o	IIC	69.2 µH/Ω	82.0 µH/Ω	4654 µH/Ω
	IIB iaD	276.8 µH/Ω	328.1 µH/Ω	18618 µH/Ω
	IIA	553.6 µH/Ω	656.2 µH/Ω	37236 µH/Ω
	I	908.3 µH/Ω	1.07 mH/Ω	61.09 mH/Ω
Characteristics		linear	linear	linear
Ambient temperature range		-40 °C ≤ T _a ≤ +60 °C		
Remarks				
) ¹ 3-wire circuit "+TX*" "-IN*", "+IN*" sum of parameters				
) ² 2-wire circuit "+TX*", "+IN*" parameters of supply circuit				
) ³ 2-wire circuit "-IN*", "+IN*" parameters of input circuit				
N / A = not applicable				



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2.1.3 Repeater Power Supply type D1012Q, D1012Q-xxx, D1012Q/B, D1012Q-xxx/B

Single channel parameters	Terminals	
Channel	1	13-14
	2	15-16
	3	9-10
	4	11-12
Voltage U_o	DC 21.5 V	
Current I_o	93 mA	
Power P_o	496 mW	
Voltage U_i	N / A	
Current I_i	N / A	
Power P_i	N / A	
Effective internal capacitance C_i	N / A	
Effective internal inductance L_i	N / A	
Max. external capacitance C_o	IIC	176 nF
	IIB iaD	1.2 μ F
	IIA	4.5 μ F
	I	6.0 μ F
Max. external inductance L_o	IIC	4.2 mH
	IIB iaD	16.4 mH
	IIA	32.8 mH
	I	53.8 mH
Max. inductance / resistance ratio L_o/R_o	IIC	71.7 μ H/ Ω
	IIB iaD	287.0 μ H/ Ω
	IIA	574.0 μ H/ Ω
	I	941.7 μ H/ Ω
Characteristics	linear	
Ambient temperature range	$-40\text{ }^\circ\text{C} \leq T_a \leq +60\text{ }^\circ\text{C}$	
Remarks	all channels interconnected galvanically; common "+" N / A = not applicable	



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2.1.4 Repeater Power Supply D1014*, D1014*-xxx, D1014*/B, D1014*-xxx/B

Single channel parameters	Terminals	
Channel	1	14-15
	2	10-11
Voltage U_o	DC 25.2 V	
Current I_o	93 mA	
Power P_o	585 mW	
Voltage U_i	N / A	
Current I_i	N / A	
Power P_i	N / A	
Effective internal capacitance C_i	N / A	
Effective internal inductance L_i	N / A	
Max. external capacitance C_o	IIC	106 nF
	IIB iaD	0.82 μ F
	IIA	2.9 μ F
	I	4.15 μ F
Max. external inductance L_o	IIC	4.2 mH
	IIB iaD	16.4 mH
	IIA	33 mH
	I	54.0 mH
Max. inductance / resistance ratio L_o/R_o	IIC	60.73 μ H/ Ω
	IIB iaD	242.9 μ H/ Ω
	IIA	485.8 μ H/ Ω
	I	797.1 μ H/ Ω
Characteristics	linear	
Ambient temperature range	$-40\text{ }^\circ\text{C} \leq T_a \leq +60\text{ }^\circ\text{C}$	
Remarks	N / A = not applicable	



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2.2 Powered Isolating Drivers

2.2.1 Powered Isolating Driver type D1020*, D1020*-xxx, D1020*/B, D1020*-xxx/B

Single channel parameters	Terminals	
Channel	1	14-15
	2	10-11
Voltage U_o	DC 25.2 V	
Current I_o	87 mA	
Power P_o	548 mW	
Voltage U_i	N / A	
Current $I_{i j}$	N / A	
Power P_i	N / A	
Effective internal capacitance C_i	N / A	
Effective internal inductance L_i	N / A	
Max. external capacitance C_o	IIC	106 nF
	IIB iaD	819 nF
	IIA	2.899 μ F
	I	4.15 μ F
Max. external inductance L_o	IIC	4.69 mH
	IIB iaD	18.7 mH
	IIA	37.5 mH
	I	61.5 mH
Max. inductance / resistance ratio L_o/R_o	IIC	64.9 μ H/ Ω
	IIB iaD	259.6 μ H/ Ω
	IIA	519.3 μ H/ Ω
	I	851.9 μ H/ Ω
Characteristics	linear	
Ambient temperature range	$-40\text{ }^\circ\text{C} \leq T_a \leq +60\text{ }^\circ\text{C}$	
Remarks	N / A = not applicable	



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2.2 Powered Isolating Drivers

2.2.2 Powered Isolating Driver type D1021*, D1021*-xxx, D1021*/B, D1021*-xxx/B

Single channel parameters	Terminals	
Channel	1	14-15
	2	N / A
Voltage U_o	DC 25.2 V	
Current I_o	87 mA	
Power P_o	548 mW	
Voltage U_i	N / A	
Current I_i	N / A	
Power P_i	N / A	
Effective internal capacitance C_i	1.05 nF	
Effective internal inductance L_i	N / A	
Max. external capacitance C_o	IIC	106 nF
	IIB iaD	819 nF
	IIA	2.899 μ F
	I	4.15 μ F
Max. external inductance L_o	IIC	4.69 mH
	IIB iaD	18.7 mH
	IIA	37.5 mH
	I	61.5 mH
Max. inductance / resistance ratio L_o/R_o	IIC	64.9 μ H/ Ω
	IIB iaD	259.6 μ H/ Ω
	IIA	519.3 μ H/ Ω
	I	851.9 μ H/ Ω
Characteristics	linear	
Ambient temperature range	$-40\text{ }^\circ\text{C} \leq T_a \leq +60\text{ }^\circ\text{C}$	
Remarks	N / A = not applicable	



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2.3 Fire/Smoke Detector Interface type D1022*, D1022*-xxx

Single channel parameters	Terminals	
Channel	1	13-14
	2	15-16
Voltage U_o	DC 25.2 V	
Current I_o	93 mA	
Power P_o	581 mW	
Voltage U_i	N / A	
Current I_i	N / A	
Power P_i	N / A	
Effective internal capacitance C_i	N / A	
Effective internal inductance L_i	N / A	
Max. external capacitance C_o	IIC	107 nF
	IIB iaD	820 nF
	IIA	2.9 μ F
	I	4.15 μ F
Max. external inductance L_o	IIC	4.2 mH
	IIB iaD	16.4 mH
	IIA	32.8 mH
	I	53.8 mH
Max. inductance / resistance ratio L_o/R_o	IIC	61.2 μ H/ Ω
	IIB iaD	244.9 μ H/ Ω
	IIA	489.8 μ H/ Ω
	I	803.7 μ H/ Ω
Characteristics	linear	
Ambient temperature range	$-40\text{ }^\circ\text{C} \leq T_a \leq +60\text{ }^\circ\text{C}$	
Remarks	N / A = not applicable	

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2.4 Switch/Proximity Repeater

- 2.4.1 Switch/Proximity Repeater types** D1030*, D1030*-xxx, D1030*/B, D1030*-xxx/B
D1031*, D1031*-xxx, D1031*/B, D1031*-xxx/B
D1130*, D1130*-xxx, D1130*/B, D1130*-xxx/B
- 2.4.2 Switch/Proximity Repeater types** D1032*, D1032*-xxx, D1032*/B, D1032*-xxx/B
D1033*, D1033*-xxx, D1033*/B, D1033*-xxx/B
- 2.4.3 Switch/Proximity Repeater type** D1034*, D1034*-xxx, D1034*/B, D1034*-xxx/B

Single channel parameters	DIN Rail Isolator Type			
	D1030*, D1130*	D1031*	D1032*, D1033*	D1034*
Terminals	13-14 15-16	13-14 15-16 9-10 11-12	13-14 15-16 9-10 11-12	14-15 10-11
Voltage U_o	DC 10.7 V		DC 9.6 V	DC 9.6 V
Current I_o	15 mA		10 mA	11 mA
Power P_o	39 mW		24 mW	25 mW
Max. external capacitance C_o	IIC	2.23 μ F	3.6 μ F	3.6 μ F
	IIB iaD	15.6 μ F	26 μ F	26 μ F
	IIA	69 μ F	210 μ F	210 μ F
	I	60 μ F	99 μ F	99 μ F
Max. external inductance L_o	IIC	172 mH	379 mH	336 mH
	IIB iaD	689 mH	1.517 H	1.345 H
	IIA	1.379 H	3.035 H	2.69 H
	I	2.263 H	4.980 H	4.42 H
Max. inductance/resistance ratio L_o/R_o	IIC	0.93 mH/ Ω	1.53 mH/ Ω	1.45 mH/ Ω
	IIB iaD	3.72 mH/ Ω	6.15 mH/ Ω	5.79 mH/ Ω
	IIA	7.44 mH/ Ω	12.31 mH/ Ω	11.59 mH/ Ω
	I	12.20 mH/ Ω	20.20 mH/ Ω	19.02 mH/ Ω
Characteristics	linear		linear	linear
Ambient temperature range	$-40\text{ }^\circ\text{C} \leq T_a \leq +60\text{ }^\circ\text{C}$			



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2.5 Frequency isolating repeater / input converter and trip amplifier

- 2.5.1 Frequency isolating repeater types D1035S, D1035S-xxx, D1035S/B, D1035S-xxx/B**
2.5.2 Frequency input converter and trip amplifier types D1060S, D1060S-xxx, D1060S/B, D1060S-xxx/B

Single channel parameters		input connection for different sensor type			
Terminals		13-16	14-16	15-16	14-15
Voltage U_o		DC 10.9 V	DC 10.9 V	DC 10.9 V	DC 12.1 V
Current I_o		1.1 mA	22 mA	23 mA	13 mA
Power P_o		3 mW	60 mW	60 mW	38 mW
Voltage U_i		DC 30 V	N / A	N / A	N / A
Current I_i		N / A	N / A	N / A	N / A
Power $P_{i i}$		N / A	N / A	N / A	N / A
Effective internal capacitance C_i		0 nF	N / A	N / A	N / A
Effective internal inductance L_i		0 mH	N / A	N / A	N / A
Max. external capacitance C_o	IIC	2.05 μ F	2.05 μ F	2.05 μ F	1.37 μ F
	IIB iaD	14.40 μ F	14.40 μ F	14.40 μ F	8.7 μ F
	IIA	63.00 μ F	63.00 μ F	63.00 μ F	34.0 μ F
	I	55 μ F	55 μ F	55 μ F	34.0 μ F
Max. external inductance L_o	IIC	31000 mH	75 mH	75 mH	255 mH
	IIB iaD	124000 mH	303 mH	303 mH	1023 mH
	IIA	248000 mH	607 mH	607 mH	2046 mH
	I	406875 mH	995.8 mH	995.8 mH	3356 mH
Max. inductance / resistance ratio L_o/R_o	IIC	12.0 mH/ Ω	600 μ H/ Ω	594 μ H/ Ω	960 μ H/ Ω
	IIB iaD	48.1 mH/ Ω	2402 μ H/ Ω	2378 μ H/ Ω	3840 μ H/ Ω
	IIA	96.2 mH/ Ω	4804 μ H/ Ω	4757 μ H/ Ω	7681 μ H/ Ω
	I	157.9 mH/ Ω	7882 μ H/ Ω	7804 μ H/ Ω	12.60 mH/ Ω
Characteristics		linear	linear	linear	linear
Ambient temperature range		-40 °C \leq T _a \leq +60 °C			
Remarks		N / A = not applicable			

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2.6 Digital output

- 2.6.1 (single channel application)**
- 2.6.1.1 Types D104*Q*, D104*Q/B, D104*Q*-xxx, D104*Q-xxx/B**
- 2.6.1.2 Types PSD1001, PSD1001/B, PSD1001-xxx, PSD1001-xxx/B**
- 2.6.2.3 Types PSD1001C, PSD1001C-xxx, PSD1001C/B, PSD1001C**

Single channel parameters		DIN Rail Isolator type			
		D1040Q	D1042Q PSD1001	D1041Q D1043Q	PSD1001C) ¹
Voltage U _o		DC 23.6 V	DC 23.6 V	DC 23.6 V	DC 23.6 V
Current I _o		72 mA	88.2 mA	49.6 mA	352.8 mA
Power P _o		424 mW	519 mW	292 mW	1674 mW) ²
Voltage U _i		N / A	N / A	N / A	N / A
Current I _i		N / A	N / A	N / A	N / A
Power P _i		N / A	N / A	N / A	N / A
Effective internal capacitance C _i		N / A	N / A	N / A	N / A
Effective internal inductance L _i		N / A	N / A	N / A	N / A
Max. external capacitance C _o	IIC	130 nF	130 nF	130 nF	N / A
	IIB iaD	970 nF	970 nF	970 nF	970 nF
	IIA	3.50 μF	3.50 μF	3.50 μF	3.50 μF
	I	4.95 μF	4.95 μF	4.95 μF	4.95 μF
Max. external inductance L _o	IIC	6.85 mH	4.57 mH	14.26 mH	N / A
	IIB iaD	27.4 mH	18.28 mH	57.06 mH	1.14 mH
	IIA	54.8 mH	36.56 mH	114 mH	2.28 mH
	I	90.0 mH	59.9 mH	187 mH	3.74 mH
Max. inductance / resistance ratio L _o /R _o	IIC	83.9 μH/Ω	68.6 μH/Ω	121.9 μH/Ω	N / A
	IIB iaD	335.9 μH/Ω	274.4 μH/Ω	487.6 μH/Ω	68.6 μH/Ω
	IIA	671.9 μH/Ω	548.9 μH/Ω	975.3 μH/Ω	137.2 μH/Ω
	I	1102 μH/Ω	900.5 μH/Ω	1600 μH/Ω	225 μH/Ω
Characteristics		linear	linear	linear	linear
Ambient temperature range		-40 °C ≤ T _a ≤ +60 °C			
Remarks all channels interconnected galvanically; common "+") ¹ Parameters not permitted for Group IIC) ² 2016 mW = 4 x 519 mW not available due to details of construction N / A = not applicable					

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- 2.6.2 (double channel application)
- 2.6.2.1 Types D104*Q*, D104*Q/B, D104*Q*-xxx, D104*Q-xxx/B
- 2.6.2.2 Types PSD1001, PSD1001/B, PSD1001-xxx, PSD1001-xxx/B

Parameters when two channels are interconnected in parallel		DIN Rail Isolator type		
		D1040Q	D1042Q PSD1001	D1041Q D1043Q
Voltage U_o		DC 23.6 V	DC 23.6 V	DC 23.6 V
Current I_o		144.0 mA	176.4 mA	99.2 mA
Power P_o		847 mW	1038 mW	584 mW
Voltage U_i		N / A	N / A	N / A
Current I_i		N / A	N / A	N / A
Power P_i		N / A	N / A	N / A
Effective internal capacitance C_i		N / A	N / A	N / A
Effective internal inductance L_i		N / A	N / A	N / A
Max. external capacitance C_o	IIC	130 nF	130 nF	130 nF
	IIB iaD	970 nF	970 nF	970 nF
	IIA	3.50 μ F	3.50 μ F	3.50 μ F
	I	4.95 μ F	4.95 μ F	4.95 μ F
Max. external inductance L_o	IIC	1.71 mH	1.14 mH	3.61 mH
	IIB iaD	6.85 mH	4.57 mH	14.45 mH
	IIA	13.71 mH	9.14 mH	28.9 mH
	I	22.48 mH	14.9 mH	47.4 mH
Max. inductance / resistance ratio L_o/R_o	IIC	41.9 μ H/ Ω	34.3 μ H/ Ω	60.9 μ H/ Ω
	IIB iaD	167.9 μ H/ Ω	137.2 μ H/ Ω	243.8 μ H/ Ω
	IIA	335.9 μ H/ Ω	274.4 μ H/ Ω	487.6 μ H/ Ω
	I	551.2 μ H/ Ω	450.2 μ H/ Ω	800.0 μ H/ Ω
Characteristics		linear	linear	linear
Ambient temperature range		-40 °C \leq T _a \leq +60 °C		
Remarks				
<p>all channels interconnected galvanically; common "+"</p> <p>PSD1001*C not listed; single channel version only</p> <p>N / A = not applicable</p>				

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- 2.6.3 (triple channel application)**
- 2.6.3.1 Types D104*Q*, D104*Q/B, D104*Q*-xxx, D104*Q-xxx/B**
- 2.6.3.2 Types PSD1001, PSD1001/B, PSD1001-xxx, PSD1001-xxx/B**

Parameters when three channels are interconnected in parallel		DIN Rail Isolator type		
		D1040Q) ¹	D1042Q, PSD1001) ¹	D1041Q, D1043Q
Voltage U _o		DC 23.6 V	DC 23.6 V	DC 23.6 V
Current I _o		216.0 mA	264.6 mA	148.8 mA
Power P _o		1271 mW	1556 mW	875 mW
Voltage U _i		N / A	N / A	N / A
Current I _i		N / A	N / A	N / A
Power P _i		N / A	N / A	N / A
Effective internal capacitance C _i		N / A	N / A	N / A
Effective internal inductance L _i		N / A	N / A	N / A
Max. external capacitance C _o	IIC	N / A	N / A	130 nF
	IIB iaD	970 nF	970 nF	970 nF
	IIA	3.50 μF	3.50 μF	3.50 μF
	I	4.95 μF	4.95 μF	4.95 μF
Max. external inductance L _o	IIC	N / A	N / A	1.6 mH
	IIB iaD	3 mH	2 mH	6.42 mH
	IIA	6.09 mH	4.05 mH	12.84 mH
	I	9.9 mH	6.64 mH	21.1 mH
Max. inductance / resistance ratio L _o /R _o	IIC	N / A	N / A	40.6 μH/Ω
	IIB iaD	111.9 μH/Ω	91.4 μH/Ω	162.5 μH/Ω
	IIA	223.9 μH/Ω	182.9 μH/Ω	325.0 μH/Ω
	I	367.3 μH/Ω	300 μH/Ω	533.2 μH/Ω
Characteristics		linear	linear	linear
Ambient temperature range		-40 °C ≤ T _a ≤ +60 °C		
Remarks				
all channels interconnected galvanically; common "+") ¹ Parameters not permitted for Group IIC N / A = not applicable				

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- 2.6.4 (quad channel application)**
2.6.4.1 Types D104*Q*, D104*Q/B, D104*Q*-xxx, D104*Q-xxx/B
2.6.4.2 Types PSD1001, PSD1001/B, PSD1001-xxx, PSD1001-xxx/B

Parameters when four channels are interconnected in parallel		DIN Rail Isolator type		
		D1040Q) ¹	D1042Q PSD1001) ¹	D1041Q D1043Q) ¹
Voltage U _o		DC 23.6 V	DC 23.6 V	DC 23.6 V
Current I _o		288.0 mA	352.8 mA	198.4 mA
Power P _o		1674 mW) ³	1674 mW) ²	1167 mW
Voltage U _i		N / A	N / A	N / A
Current I _i		N / A	N / A	N / A
Power P _i		N / A	N / A	N / A
Effective internal capacitance C _i		N / A	N / A	N / A
Effective internal inductance L _i		N / A	N / A	N / A
Max. external capacitance C _o	IIC	N / A	N / A	N / A
	IIB iaD	970 nF	970 nF	970 nF
	IIA	3.50 μF	3.50 μF	3.50 μF
	I	4.95 μF	4.95 μF	4.95 μF
Max. external inductance L _o	IIC	N / A	N / A	N / A
	IIB iaD	1.71 mH	1.14 mH	3.61 mH
	IIA	3.42 mH	2.28 mH	7.22 mH
	I	5.31 mH	3.74 mH	11.84 mH
Max. inductance / resistance ratio L _o /R _o	IIC	N / A	N / A	N / A
	IIB iaD	83.9 μH/Ω	68.6 μH/Ω	121.9 μH/Ω
	IIA	167.9 μH/Ω	137.2 μH/Ω	243.8 μH/Ω
	I	275.4 μH/Ω	225 μH/Ω	399.9 μH/Ω
Characteristics		linear	linear	linear
Ambient temperature range		-40 °C ≤ T _a ≤ +60 °C		
Remarks				
<p>all channels interconnected galvanically; common "+"</p> <p>)¹ Parameters not permitted for Group IIC</p> <p>)² 2016 mW = 4 x 519 mW not available due to details of construction</p> <p>)³ 1696 mW = 4 x 424 mW not available due to details of construction</p> <p>PSD1001*C not listed; single channel version only</p> <p>N / A = not applicable</p>				



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2.7 Analogue Signal Converters / Temperature Converter

- 2.7.1 Types D1052*, D1052*-xxx, D1052*/B, D1052*-xxx/B;
- 2.7.2 Types D1053*, D1053*-xxx, D1053*/B, D1053*-xxx/B
- 2.7.3 Types D1072*, D1072*-xxx, D1072*/B, D1072*-xxx/B
- 2.7.4 Types D1073*, D1073*-xxx, D1073*/B, D1073*-xxx/B

Single channel parameters	DIN Rail Isolator Type	
	D1052*. D1053*	D1072*. D1073*
Terminals	14-15-16 10-11-12	13-14-15-16 9-10-11-12
Voltage U_o	DC 10.8 V	DC 10.8 V
Current I_o	4 mA	9 mA
Power L_o	11 mW	24 mW
Voltage U_i	30 V	18 V
Current I_i	N / A	N / A
Power L_i	N / A	N / A
Effective internal capacitance C_i	4.5 nF	6 nF
Effective internal inductance L_i	0 mH	0 mH
Max. external capacitance C_o	IIC	2.14 μ F
	IIB iaD	15 μ F
	IIA	66 μ F
	I	58 μ F
Max. external inductance L_o	IIC	2541 mH
	IIB iaD	10167 mH
	IIA	20335 mH
	I	33362 mH
Max. inductance resistance ration L_o/R_o	IIC	3.52 mH/ Ω
	IIB iaD	14.09 mH/ Ω
	IIA	28.18 mH/ Ω
	I	46.22 mH/ Ω
Characteristics	linear	linear
Ambient temperature range	-40 °C \leq T_a \leq +60 °C	

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- 2.8 Liquid Presence Detector Interface**
- 2.8.1 Types D1080*, D1080*-xxx, D1080*/B, D1080*-xxx/B**
- 2.8.2 Types D1081*, D1081*-xxx, D1081*/B, D1081*-xxx/B**
- 2.8.3 Types D1180*, D1180*-xxx, D1180*/B, D1180*-xxx/B**

Single channel parameters		DIN Rail Isolator Type		
		D1080*, D1081*, D1180*		
Terminals	VCC-GND	IN+ - GND	VCC - IN-	
	13-16	14-16	13-15	
	9-12	10-12	9-11	
Voltage U_o	DC 15.8 V	DC 15.8 V	DC 15.8 V	
Current I_o	109 mA	13 mA	12 mA	
Power P_o	428 mW	51 mW	48 mW	
Max. external capacitance C_o	IIC	478 nF	478 nF	478 nF
	IIB iaD	2.88 μ F	2.88 μ F	2.88 μ F
	IIA	11.6 μ F	11.6 μ F	11.6 μ F
	I	13.6 μ F	13.6 μ F	13.6 μ F
Max. external inductance L_o	IIC	3.01 mH	217.6 mH	217.6 mH
	IIB iaD	12.04 mH	870.7 mH	870.7 mH
	IIA	24.08 mH	1741 mH	1741 mH
	I	39.27.mH	2857 mH	3240 mH
Max. inductance/ resistance ratio L_o/R_o	IIC	83 μ H/ Ω	706 μ H/ Ω	706 μ H/ Ω
	IIB iaD	332 μ H/ Ω	2.82 mH/ Ω	2.92 mH/ Ω
	IIA	664 μ H/ Ω	5.65 mH/ Ω	5.65 mH/ Ω
	I	1090 μ H/ Ω	9.27 mH/ Ω	9.27 mH/ Ω
Characteristics		linear	linear	linear
Ambient temperature range		-40 °C \leq T _a \leq +60 °C		



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 07.0027X issue No.:1

Status: Current

Certificate history:
Issue No. 1 (2008-8-25)
Issue No. 0 (2007-11-21)

Date of Issue: 2008-08-25 Page 1 of 5

Applicant: **GM International S.R.L.**
Via San Fiorano 70
20124 Villasanta (MI)
Italy

Electrical Apparatus: **DIN Rail Isolator type D1****, PSD1001***
Optional accessory:

Type of Protection: **Intrinsic safety "i", Group II Zone 0 apparatus, Protection by intrinsic safety "iD"**

Marking: **[Zone 0] [Ex ia] IIC / IIB / IIA and / or [Ex ia] I and / or [Ex iaD]**


Approved for issue on behalf of the IECEx
Certification Body:

Dr. R. Jockers

Position:

Head of Certification Body

Signature:
(for printed version)


25.08.2008

Date:

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44809 Bochum
Germany

 **DEKRA**
DEKRA EXAM GmbH



IECEX Certificate of Conformity

Certificate No.: IECEx BVS 07.0027X

Date of Issue: 2008-08-25

Issue No.: 1

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Manufacturer: **GM International S.R.L.**
Via San Fiorano 70
20124 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 : 2004 Edition: 4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-11 : 2006 Edition: 5	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
IEC 60079-26 : 2004 Edition: 1	Electrical apparatus for explosive gas atmospheres - Part 26: Construction, test and marking of Group II Zone 0 electrical apparatus
IEC 61241-0 : 2004 Edition: 1	Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements
IEC 61241-11 : 2005 Edition: 1	Electrical apparatus for use in the presence of combustible dusts - Part 11: Protection by intrinsic safety 'iD'

*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/ExTR07.0033/00
DE/BVS/ExTR07.0033/01

Quality Assessment Report:

NO/DNV/QAR07.0005/00



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The Type Code, Description and Ratings of issue 0 are still valid but are supplemented as followed:

Type Code

Digital Relay Output	type D1044* (D1044S, D1044S/B, D1044D, D1044D/B, D1044*-xxx, D1044*-xxx/B)
Digital Output Loop/Bus powered	type D1045* (D1045Y, D1045Y/B, D1045Y-xxx, D1045Y-xxx/B) type D1046* (D1046Y, D1046Y/B, D1046Y-xxx, D1046Y-xxx/B)
Vibration Transducer Interface	type D1062* (D1062S, D1062S/B, D1062S-xxx, D1062S-xxx/B)
Load Cell / Strain Gauge	type D1064* (D1064S, D1064S/B, D1064S-xxx, D1064S-xxx/B)
Bridge Isolating Converter	

In the full designation the "*" is replaced by letters marking details of construction as follows:

S	= single channel	S-xxx	= single channel
D	= dual channel	D-xxx	= dual channel
Y	= double channel,	Y-xxx	= double channel,
S/B	= single channel, power bus	S-xxx/B	= single channel, power bus
D/B	= dual channel, power bus	D-xxx/B	= dual channel, power bus
Y/B	= double channel, power bus	Y-xxx/B	= double channel, power bus

(Option 'xxx' = non Ex -relevant details of function,
Option '/B' = 'power bus' enclosure where applicable)

CONDITIONS OF CERTIFICATION: YES as shown below:

Special conditions for safe use (applicable if not covered by local installation rules) for issue 0 and 1

1. DIN Rail Insulator D1**** / PSD1001* series shall be installed outside the hazardous area.
2. The installation of DIN Rail Insulator D1**** / PSD1001* series shall be carried out in such a way that the clearances of un-insulated conductors of intrinsically safe circuits to grounded metal parts of the enclosure are at least 3 mm, and un-insulated conductors of non-intrinsically safe circuits of other apparatus are situated at least 50 mm from terminals for external intrinsically safe circuits, or are separated from them by an insulating barrier according to clause 6.2.1 of IEC 60079-11:2006.



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EQUIPMENT(continued):

Description

General

Electronic components of DIN Rail Isolators are arranged on printed-circuit-boards (PCB) packaged in plastic enclosures suitable for installation on T35 DIN Rails.

DIN Rail Isolators of D1**** series provide safe galvanic separation between intrinsically safe circuits and non intrinsically safe signal circuits and power supply on the PCB up to a sum of peak values of rated voltages of 375 V. DIN Rail Isolators of D1**** series are designated for installation in the safe area.

Digital Relay Output type D1044S, D1044S/B, D1044D, D1044D/B, D1044*-xxx, D1044*-xxx/B

Digital Relay Output type D1044* are designed as single or dual channel galvanic isolators providing voltage free SPDT relay contacts intended for interconnection to IS circuits. The relays are operated by input signals generated in the safe area.

Digital Output Loop/Bus powered type D1045Y, D1045Y/B, D1045Y-xxx, D1045Y-xxx/B

Digital Output Loop/Bus powered type D1046Y, D1046Y/B, D1046Y-xxx, D1046Y-xxx/B

Digital Output Type D104*Y* provide two fully floating intrinsically safe remote outputs to operate and supply solenoid valves, LEDs or audible alarms driven by non intrinsically safe digital remote signals. The versions type D1045Y* and D1046Y* have different output parameters.

Vibration Transducer Interface type D1062S, D1062S/B, D1062S-xxx, D1062S-xxx/B

Vibration Transducer Interface type D1062* provide fully floating single channel intrinsically safe power supply for Vibration Transducers, accelerometers or two-/ three-wire analogue output sensors and repeat the sensor signals in non intrinsically safe circuits.

Load Cell / Strain Gauge Bridge Isolating Converter type

D1064S, D1064S/B, D1064*-xxx, D1064S-xxx/B

Load Cell / Strain Gauge Bridge Isolating Converter type D1064* provide fully floating single channel intrinsically safe power supply for strain gauge and convert remote signals to a non intrinsically safe 0/4-20 mA or 0/1-5 V or 0/2-10 V analogue signal circuit and to a non intrinsically safe RS485 communication circuit.

Parameters

See Annex



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

Changes for issue 1

DIN Rail Isolator type D1**** / PSD1001* was extended optionally with the following new models subjected to assessment according to IECEx-Scheme:

Digital Relay Output type D1044*

Digital Output Loop/Bus powered type D1045*, type D1046*

Vibration Transducer Interface type D1062*

Load Cell / Strain Gauge Bridge Isolating Converter type D1064*



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Ratings:

1 Non intrinsically safe circuits

1.1 Power supply

DIN Rail Isolator version	Voltage		Power
	U_n	U_m	P_n
	DC [V]	AC [V]	[W]
D1044S* / D1044D*	24	250	$\leq 1.1 / 2$
D1045*, D1046*	24	250	≤ 4.3
D1062*	24	250	≤ 2.6
D1064*	24	250	≤ 3.3

1.2 Input / output signal circuits

Voltage $U_m =$ AC 250 V

2 Intrinsically safe circuits level of protection Ex ia IIC / IIB / IIA / I

2.1 Digital Relay Output type D1044S, D1044S/B, D1044D, D1044D/B, D1044*-xxx, D1044*-xxx/B

Single relay contact parameters	Terminals	
Channel	1	13/14-15-16
	2	9/10-11-12
Voltage U_o	0 V or equal to the connected IS circuit	
Current I_o	0 mA or equal to the connected IS circuit	
Power P_o	equal to the connected IS circuit	
Voltage U_i	AC or DC 60 V	
Current I_i	AC or DC 2 A	
Power P_i	N / A	
Effective internal capacitance C_i	0 nF	
Effective internal inductance L_i	0 mH	
Max. external capacitance C_o	I, IIC, iaD	equal to C_o of the connected IS circuit
Max. external inductance L_o	I, IIC, iaD	equal to L_o of the connected IS circuit
Max. inductance / resistance ratio L_o/R_o	I, IIC; iaD	equal to L_o/R_o of the connected IS circuit
Characteristics	equal to the connected IS circuit	
Ambient temperature range	$-40\text{ °C} \leq T_a \leq +60\text{ °C}$	
Remark:	N / A = not applicable	



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2.1.2 Digital Output Loop/Bus powered type D1045Y, D1045Y/B, D1045Y-xxx, D1045Y-xxx/B
type D1046Y, D1046Y/B, D1046Y-xxx, D1046Y-xxx/B

Parameters	Digital Output Loop/Bus powered type			
	D1045*		D1046*	
Channel	1	2	1	2
Terminals	13-14 or 9-10	15-16 or 11-12	13-14 or 9-10	N / A
Voltage U_o	DC 18.9 V	DC 18.9 V	DC 23.6 V	N / A
Current I_o	249 mA	307 mA	366 mA	N / A
Power P_o	1173 mW	1286 mW	1600 mW	N / A
Voltage U_i	N / A	N / A	N / A	N / A
Current I_i	N / A	N / A	N / A	N / A
Power $P_{i i}$	N / A	N / A	N / A	N / A
Effective internal capacitance C_i	N / A	N / A	N / A	N / A
Effective internal inductance L_i	N / A	N / A	N / A	N / A
Max. external capacitance C_o	IIC	262 nF	262 nF	N / A
	IIB iaD	1.60 μ F	1.60 μ F	970 nF
	IIA	6.39 μ F	6.39 μ F	3.5 μ F
	I	8.1 μ F	8.1 μ F	4.95 μ F
Max. external inductance L_o	IIC	0.58 mH	0.38 mH	N / A
	IIB iaD	2.31 mH	1.52 mH	1.06 mH
	IIA	4.62 mH	3.03 mH	2.12 mH
	I	7.58 mH	4.98 mH	3.48 mH
Max. inductance / resistance ratio L_o/R_o	IIC	30.3 μ H/ Ω	25.3 μ H/ Ω	N / A
	IIB iaD	121.2 μ H/ Ω	101.4 μ H/ Ω	66.0 μ H/ Ω
	IIA	242.5 μ H/ Ω	202.9 μ H/ Ω	132.1 μ H/ Ω
	I	398.1 μ H/ Ω	332.9 μ H/ Ω	218.8 μ H/ Ω
Characteristics	linear	linear	linear	N / A
Ambient temperature range	-40 °C $\leq T_a \leq$ +60 °C			
Remarks: channel 1 and channel 2 are interconnected N / A = not applicable				



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2.1.3 Vibration Transducer Interface type D1062S, D1062S/B, D1062S-xxx, D1062S-xxx/B

Parameters	input connection for different sensor types		
Terminals	15-16 with terminals 13-14 connected	14-16	15-16 with 3 wires isolated sensor
Voltage U_o	DC 27 V	DC 25.9 V	DC 1.1 V
Current I_o	90 mA	90 mA	0.012 mA
Power P_o	576 mW	576 mW	0.004 mW
Voltage U_i	N / A	N / A	AC / DC 30 V
Current I_i	N / A	N / A	N / A
Power $P_{i,i}$	N / A	N / A	N / A
Effective internal capacitance C_i	N / A	N / A	0 nF
Effective internal inductance L_i	N / A	N / A	1.5 μ H
Max. external capacitance C_o	IIC	90 nF	100 nF
	IIB iaD	705 nF	770 nF
	IIA	2.33 μ F	2.63 μ F
	I	3.75 μ F	4.02 μ F
Max. external inductance L_o	IIC	4.4 mH	4.4 mH
	IIB iaD	17.9 mH	17.9 mH
	IIA	35.8 mH	35.8 mH
	I	58.7 mH	58.7 mH
Max. inductance / resistance ratio L_o/R_o	IIC	56.8 μ H/ Ω	61.7 μ H/ Ω
	IIB iaD	227.3 μ H/ Ω	247.1 μ H/ Ω
	IIA	459.7 μ H/ Ω	494.3 μ H/ Ω
	I	746.1 μ H/ Ω	811.0 μ H/ Ω
Characteristics	linear	linear	linear
Ambient temperature range	-40 °C \leq T _a \leq +60 °C		
Remarks:			
<ul style="list-style-type: none"> • ¹ the listed C_o, L_o, L_o/R_o parameters may be altered / replaced by parameters of the interconnected external AC / DC source or internal source (3-wire sensor or 2-wire sensor with terminals 9-14 connected) • constant current mode configuration terminals 10/11/12/13 (IN2, IN3, IN4) are considered as being interconnected to terminal 14 • wiring conditions: <ul style="list-style-type: none"> - 3-wire sensor connected to terminals 14-15-16, - 2-wire AC sensor connected to terminals 15-16, interconnection between terminals 9 and 14 required - 2-wire constant current mode sensor connected to terminals 15-16, interconnection between terminals 10/11/12/13 and terminal 14 required for configuration of constant current value 			
NOTE:			
wiring for configuration of operation mode is done at the terminal block of the unit (the wiring is not in the hazardous area)			
• N / A = not applicable			



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2.1.4 Load Cell / Strain Gauge Bridge Isolating Converter
type D1064S, D1064S/B, D1064*-xxx, D1064S-xxx/B

Parameters	6-wire circuit, single channel	
Terminals	9-10 (EX+, SN+), 11-12 (SN-, EX-), 13-14 (IN+, IN-)	
Voltage U_o	DC 5.9 V	
Current I_o	196 mA	
Power P_o	576 mW	
Voltage U_i	N / A	
Current I_i	N / A	
Power P_i	N / A	
Effective internal capacitance C_i	N / A	
Effective internal inductance L_i	N / A	
Max. external capacitance C_o	IIC	39 μF) ¹
	IIB iaD	996 μF) ¹
	IIA	996 μF) ¹
	I	996 μF) ¹
Max. external inductance L_o	IIC	0.93 mH
	IIB iaD	3.71 mH
	IIA	7.42 mH
	I	12.17 mH
Max. inductance / resistance ratio L_o/R_o	IIC	N / A
	IIB iaD	247.0 $\mu\text{H}/\Omega$
	IIA	494.1 $\mu\text{H}/\Omega$
	I	810.6 $\mu\text{H}/\Omega$
Characteristics	trapezoidal	
Ambient temperature range	$-40\text{ }^\circ\text{C} \leq T_a \leq +60\text{ }^\circ\text{C}$	
Remarks	<ul style="list-style-type: none"> • parameters apply to any terminal versus terminal 12 (EX-) as well as to all terminals in parallel versus terminal 12 (EX-) or any other possible combination •)¹ internal capacitance C_i taken into account • N / A = not applicable 	