



Translation

(1) **EC-Type Examination Certificate**

(2) **- Directive 94/9/EC -**
Equipment and protective systems intended for use
in potentially explosive atmospheres

(3) **BVS 10 ATEX E 113 X**

(4) **Equipment:** **DIN Rail Isolators type D5****, D5****-xxx**

(5) **Manufacturer:** **GM International S.R.L.**

(6) **Address:** **20058 Villasanta (MI), Italy**

(7) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this type examination certificate.

(8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.

The examination and test results are recorded in the test and assessment report BVS PP 10.2216 EG.

(9) The Essential Health and Safety Requirements are assured by compliance with:

EN 60079-0:2009 General requirements
EN 60079-11:2007 Intrinsic safety 'i'
EN 60079-15:2005 Type of protection 'n'
EN 60079-26:2007 Equipment with equipment protection level (EPL) Ga
EN 61241-11:2006 Protection by IS
EN 50303:2000 Equipment Group I Category M1

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the appendix to this certificate.

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC.
Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment shall include the following:



I or II extended with the applicable category- and type of protection-marking; see tables in 15.1.2

DEKRA EXAM GmbH

Bochum, dated 22 September 2010

Signed: Simanski

Signed: Dr. Eickhoff

Certification body

Special services unit

(13) Appendix to

(14) **EC-Type Examination Certificate**

BVS 10 ATEX E 113 X

(15) 15.1 Subject and type

DIN Rail Isolators type series D5****, D5****-xxx comprises the following models:

Repeater Power Supply	type	D5011*, D5011*-xxx
Repeater Power Supply	type	D5014*, D5014*-xxx
Powered Isolating Driver	type	D5020*, D5020*-xxx
Switch/Proximity Detector Repeater	type	D5030*, D5030*-xxx
Switch/Proximity Detector Repeater	type	D5031*, D5031*-xxx
Switch/Proximity Detector Repeater	type	D5032*, D5032*-xxx
Switch/Proximity Interface	type	D5034*, D5034*-xxx
Digital Output Driver	type	D5048S, D5048S-xxx, D5049S, D5049S-xxx

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

S	= single channel	S-xxx	= single channel
D	= dual channel	D-xxx	= dual channel

(Option 'xxx' = non Ex -relevant details of function)

15.1.2 Allocation of different versions of the DIN Rail Isolators type series D5****, D5****-xxx to temperature class and apparatus category shall be achieved from the following table:

DIN Rail Isolator type code		Type of protection (Gas)	Type of protection (Dust)	Type of protection (Mine)
D5011*	D5011*-xxx	II 3(1) G Ex nA [ia Ga] IIC T4 Gc	II (1) D [Ex ia Da] IIIC	I (M1) [Ex ia Ma] I
D5014*	D5014*-xxx	II 3(1) G Ex nA [ia Ga] IIC T4 Gc	II (1) D [Ex ia Da] IIIC	I (M1) [Ex ia Ma] I
D5020*	D5020*-xxx	II 3(1) G Ex nA [ia Ga] IIC T4 Gc	II (1) D [Ex ia Da] IIIC	I (M1) [Ex ia Ma] I
D5030*	D5030*-xxx	II 3(1) G Ex nA nC [ia Ga] IIC T4 Gc	II (1) D [Ex ia Da] IIIC	I (M1) [Ex ia Ma] I
D5031*	D5031*-xxx	II 3(1) G Ex nA [ia Ga] IIC T4 Gc	II (1) D [Ex ia Da] IIIC	I (M1) [Ex ia Ma] I
D5032*	D5032*-xxx	II 3(1) G Ex nA nC [ia Ga] IIC T4 Gc	II (1) D [Ex ia Da] IIIC	I (M1) [Ex ia Ma] I
D5034*	D5034*-xxx	II 3(1) G Ex nA [ia Ga] IIC T4 Gc	II (1) D [Ex ia Da] IIIC	I (M1) [Ex ia Ma] I
D5048S	D5048S-xxx	II 3(1) G Ex nA [ia Ga] IIC T4 Gc	II (1) D [Ex ia Da] IIIC	I (M1) [Ex ia Ma] I
D5049S	D5049S-xxx	II 3(1) G Ex nA [ia Ga] IIC T4 Gc	II (1) D [Ex ia Da] IIIC	I (M1) [Ex ia Ma] I

15.2 Description

The DIN Rail Isolators of type series D5****, D5****-xxx are designed as electrical apparatus, suitable for applications requiring a defined SIL level (according to EN 61508) in safety related systems for high risk industries.

Compliance with EN 61508 is not subject to this EC-Type Examination Certificate.

DIN Rail Isolators of D5***, D5****-xxx series are designed as associated apparatus and designated for installation in the safe area or alternatively in areas requiring EPL Gc equipment.

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 D5***, D5****-xxx series provide safe galvanic separation between intrinsically safe circuits and non intrinsically safe signal circuits / non intrinsically safe power supply on the PCB up to a sum of peak values of rated voltages of 375 V.

Repeater Power Supply type D5011S, D5011S-xxx, D5011D, D5011D-xxx

Repeater Power Supply Type D5011*, D5011*-xxx provides a fully floating single or dual channel intrinsically safe DC supply for energizing conventional 2 wires 4 - 20 mA transmitters located in hazardous areas, and repeats the current in floating circuit to drive a safe area load.

Available versions of the Repeater Power Supply: single channel: type D5011S, D5011S-xxx; dual channel: type D5011D, D5011D-xxx.

Repeater Power Supply type D5014S, D5014S-xxx, D5014D, D5014D-xxx

Repeater Power Supply type D5014*, D5014*-xxx provides a fully floating single or dual channel DC supply for energizing conventional 2/3 wires 0/4-20 mA, active or passive, transmitters located in hazardous areas, and repeats the current in floating circuit to drive a safe area load.

Available versions of the Repeater Power Supply: single channel: type D5014S, D5014S-xxx; dual channel: type D5014D, D5014D-xxx.

Powered Isolating Driver type D5020S, D5020S-xxx, D5020D, D5020D-xxx

Isolating Driver Type D5020*, D5020*-xxx provides 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 from a controller located in a safe area to a load up to 700 Ω.

Available versions of the Powered Isolating Driver: single channel: type D5020S, D5020S-xxx; dual channel: type D5020D, D5020D-xxx.

Switch/Proximity Detector Repeater type D5030S, D5030S-xxx, D5030D, D5030D-xxx

The single and dual channel Switch/Proximity Detector Repeater D5030*, D5030*-xxx is a device that can be configured for a switch or proximity detector (EN 60947-5-6, NAMUR), NO or NC and for NE or ND SPST (D5030D, D5030D-xxx) or SPDT (D5030S, D5030S-xxx) relay output contact.

Each channel enables a safe area load to be controlled by a switch, or a proximity detector, located in a hazardous area.

Available versions of the Switch/Proximity Detector Repeater: single channel: type D5030S, D5030S-xxx. dual channel: type D5030D, D5030D-xxx..

Switch/Proximity Detector Repeater type D5031S, D5031S-xxx, D5031D, D5031D-xxx

The single and dual channel Switch/Proximity Detector Repeater D5031*, D5031*-xxx is a device that can be configured for a switch or proximity detector (EN60947-5-6, NAMUR).

NO or NC and for NO or NC optocoupled open collector transistor output.

Each channel enables a safe area load to be controlled by a switch, or a proximity detector, located in a hazardous area.

Available versions of the Switch/Proximity Detector Repeater: single channel: type D5031S, D5031S-xxx. dual channel: type D5031D, D5031D-xxx.

Switch/Proximity Detector Repeater type D5032S, D5032S-xxx, D5032D, D5032D-xxx

The single and dual channel Switch/Proximity Detector Repeater D5032*, D5032*-xxx is a device that can be configured for a switch or proximity detector (EN60947-5-6, NAMUR).

NO or NC and for NE or ND SPST (D5032D, D5032D-xxx) or SPDT (D5032S, D5032S-xxx) relay output contact.

Each channel enables a safe area load to be controlled by a switch, or a proximity detector, located in a hazardous area.

Available versions of the Switch/Proximity Detector Repeater: single channel: type D5032S, D5032S-xxx. dual channel: type D5032D, D5032D-xxx.

Switch/Proximity Interface type D5034S, D5034S-xxx, D5034D, D5034D-xxx

Switch/Proximity Interface types D5034*, D5034*-xxx provides single or dual channel intrinsically safe power supply for switch / proximity switch circuits and repeat the status of contacts or proximity switches in non intrinsically safe output circuits.

Available versions of the Switch/Proximity Interface: single channel: type D5034S, D5034S-xxx. dual channel: type D5034D, D5034D-xxx.

Digital Output type D5048S, D5048S-xxx, D5049S, D5049S-xxx

Digital Output Type D504*S, D504*S-xxx provides single channel intrinsically safe remote outputs to operate solenoid valves, LEDs or audible alarms driven by non intrinsically safe digital remote signals. The versions type D5048S, D5048S-xxx, type D5049S, D5049S-xxx provide different electrical parameters.

Short cut explanation

NO = Normal Open

NC = Normal Closed

NE = Normal Energized

ND = Normal De-energized

SPST = Single-Pole Single-Throw

SPDT = Single-Pole Double-Throw

15.3 Parameters

15.3.1 Non intrinsically safe circuits

15.3.1.1 Power supply

DIN Rail Isolator version	Voltage		Power
	U _n	U _m	P _n
	DC [V]	AC [V]	[W]
D5011S, D5011S-xxx	24	250	≤ 1.35
D5011D, D5011D-xxx	24	250	≤ 2.90
D5014S, D5014S-xxx,	24	250	≤ 1.35
D5014D, D5014D-xxx	24	250	≤ 2.70
D5020S, D5020S-xxx,	24	250	≤ 1.00
D5020D, D5020D-xxx	24	250	≤ 2.00
D5030S, D5030S-xxx	24	250	≤ 0.50
D5030D, D5030D-xxx	24	250	≤ 1.00
D5031S, D5031S-xxx	24	250	≤ 0.35
D5031D, D5031D-xxx	24	250	≤ 0.70
D5032S, D5032S-xxx	24	250	≤ 0.50
D5032D, D5032D-xxx	24	250	≤ 1.00
D5034S, D5034S-xxx,	24	250	≤ 0.40
D5034D, D5034D-xxx	24	250	≤ 0.80
D5048S, D5048S-xxx	24	250	≤ 1.80
D5049S, D5049S-xxx	24	250	≤ 1.80

15.3.1.2 Input / output signal circuits

Voltage $U_m = AC\ 250\ V$

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

15.3.2.1 Repeater Power Supply D5**** / D5****-xxx

15.3.2.1.1 Repeater Power Supply type D5011*, D5011*-xxx

Device marking: Ex nA [ia Ga] IIC T4 Gc, [Ex ia Da] IIIC, [Ex ia Ma] I

Single channel parameters	Terminals		
Channel	1	7-8) ¹	
	2	9-10) ¹	
Voltage U_o	DC 25.9 V		
Current I_o	92 mA		
Power P_o	594 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	100 nF	
	IIB iaD	770 nF	
	IIA	2.63 μ F	
	I	4.02 μ F	
Max. external inductance L_o	IIC	4.2 mH	
	IIB iaD	16.8 mH	
	IIA	33.7 mH	
	I	55.2 mH	
Max. inductance / resistance ratio L_o/R_o	IIC	59.9 μ H/ Ω	
	IIB iaD	239.7 μ H/ Ω	
	IIA	479.4 μ H/ Ω	
	I	786.6 μ H/ Ω	
Characteristics	linear		
Ambient temperature range	$-40\ ^\circ\text{C} \leq T_a \leq +70\ ^\circ\text{C}$		
Remarks:			
) ¹ 2-wire circuit "T*+", "T*-" parameters of supply circuit			
N / A = not applicable			

15.3.2.1.2 Repeater Power Supply type D5014*, D5014*-xxx
 Device marking: Ex nA [ia Ga] IIC T4 Gc, [Ex ia Da] IIIC, [Ex ia Ma] I

Single channel parameters	Terminals			
	1	7-8) ¹	7-11) ³	8-11) ²
Channel	2	9-10) ¹	9-12) ³	10-12) ²
Voltage U _o		DC 25.9 V		DC +/- 1.1 V
Current I _o		92 mA		56 mA
Power P _o		594 mW		16 mW
Voltage U _i		N / A		DC 30 V
Current I _i		N / A		128 mA
Power P _i		N / A		N / A
Effective internal capacitance C _i		N / A		0 nF
Effective internal inductance L _i		N / A		0 mH
Max. external capacitance C _o	IIC	100 nF		100 μF
	IIB iaD	770 nF		1000 μF
	IIA	2.63 μF		1000 μF
	I	4.02 μF		1000 μF
Max. external inductance L _o	IIC	4.2 mH		11.5 mH
	IIB iaD	16.8 mH		46.0 mH
	IIA	33.7 mH		92.1 mH
	I	55.2 mH		151.1 mH
Max. inductance / resistance ratio L _o /R _o	IIC	59.9 μH/Ω		2327.2 μH/Ω
	IIB iaD	239.7 μH/Ω		9309.0 μH/Ω
	IIA	479.4 μH/Ω		18618.1 μH/Ω
	I	786.6 μH/Ω		30545.4 μH/Ω
Characteristics		linear		linear
Ambient temperature range		-40 °C ≤ T _a ≤ +70 °C		
Remarks:) ¹ 2-wire circuit "T*+", "T*-" parameters of supply circuit) ² 2-wire circuit "-I*+", "I*-" parameters of input circuit) ³ 3-wire circuit "T*+" "I*+", "I*-" not used N / A = not applicable				

15.3.2.2 Powered Isolating Driver D5**** / D5****-xxx

15.3.2.2.1 Powered Isolating Driver type D5020*, D5020*-xxx
 Device marking: Ex nA [ia Ga] IIC T4 Gc, [Ex ia Da] IIIC, [Ex ia Ma] I

Single channel parameters	Terminals		
Channel	1	7-8) ¹	
	2	9-10) ¹	
Voltage U _o	DC 25.9 V		
Current I _o	93 mA		
Power P _o	595 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	100 nF	
	IIB iaD	770 nF	
	IIA	2.63 μF	
	I	4.02 μF	
Max. external inductance L _o	IIC	4.1 mH	
	IIB iaD	16.7 mH	
	IIA	33.5 mH	
	I	54.9 mH	
Max. inductance / resistance ratio L _o /R _o	IIC	59.7 μH/Ω	
	IIB iaD	239.0 μH/Ω	
	IIA	478.1 μH/Ω	
	I	784.5 μH/Ω	
Characteristics	linear		
Ambient temperature range	-40 °C ≤ T _a ≤ +70 °C		
Remarks:			
) ¹ 2-wire circuit "O*+", "O*-" parameters of supply circuit			
N / A = not applicable			

15.3.2.3 Switch/Proximity Detector Repeater / Switch/Proximity Interface D5**** / D5****-xxx

15.3.2.3.1 Switch/Proximity Detector Repeater type D5030*, D5030*-xxx
Device marking: Ex nA nC [ia Ga] IIC T4 Gc, [Ex ia Da] IIIC, [Ex ia Ma] I

15.3.2.3.2 Switch/Proximity Detector Repeater type D5031*, D5031*-xxx
Device marking: Ex nA [ia Ga] IIC T4 Gc, [Ex ia Da] IIIC, [Ex ia Ma] I

15.3.2.3.3 Switch/Proximity Detector Repeater type D5032*, D5032*-xxx
Device marking: Ex nA nC [ia Ga] IIC T4 Gc, [Ex ia Da] IIIC, [Ex ia Ma] I

Single channel parameters	Device	D5030*	D5031*	D5032*
	Terminals			
Channel	1	7-8) ¹	7-8) ¹	7-8)1
	2	9-10) ¹	9-10) ¹	9-10)1
Voltage U _o		DC10.5 V	DC10.5 V	DC10.5 V
Current I _o		22 mA	22 mA	22 mA
Power P _o		56 mW	56 mW	56 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		1.1 nF	1.1 nF	1.1 nF
Effective internal inductance L _i		N / A	N / A	N / A
Max. external capacitance C _o	IIC	2.41 μF	2.41 μF	2.41 μF
	IIB iaD	16.8 nF	16.8 nF	16.8 nF
	IIA	75 μF	75 μF	75 μF
	I	66 μF	66 μF	66 μF
Max. external inductance L _o	IIC	78.3 mH	78.3 mH	78.3 mH
	IIB iaD	313.4 mH	313.4 mH	313.4 mH
	IIA	626.9 mH	626.9 mH	626.9 mH
	I	1028.6 mH	1028.6 mH	1028.6 mH
Max. inductance / resistance ratio L _o /R _o	IIC	635.9 μH/Ω	635.9 μH/Ω	635.9 μH/Ω
	IIB iaD	2543.9 μH/Ω	2543.9 μH/Ω	2543.9 μH/Ω
	IIA	5087.9 μH/Ω	5087.9 μH/Ω	5087.9 μH/Ω
	I	8347.4 μH/Ω	8347.4 μH/Ω	8347.4 μH/Ω
Characteristics		linear	linear	linear
Ambient temperature range		-40 °C ≤ T _a ≤ +70 °C		
Remarks:				
) ¹ 2-wire circuit "I*+", "I*-" parameters of supply circuit				
N / A = not applicable				

15.3.2.3.4 Switch/Proximity Interface type D5034*, D5034*-xxx
 Device marking: Ex nA [ia Ga] IIC T4 Gc, [Ex ia Da] IIIC, [Ex ia Ma] I

Single channel parameters	Terminals		
Channel	1	7-8) ¹	
	2	9-10) ¹	
Voltage U _o	DC10.5 V		
Current I _o	15 mA		
Power P _o	39 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	2.41 μF	
	IIB iaD	16.8 nF	
	IIA	75 μF	
	I	66 μF	
Max. external inductance L _o	IIC	163.2 mH	
	iaD	652.8 mH	
		1305.6 mH	
	I	2142.0 mH	
Max. inductance / resistance ratio L _o /R _o	IIC	918.2 μH/Ω	
	IIB iaD	3672.9 μH/Ω	
	IIA	7345.8 μH/Ω	
	I	12051.8 μH/Ω	
Characteristics	linear		
Ambient temperature range	-40 °C ≤ T _a ≤ +70 °C		
Remarks:) ¹ 2-wire circuit "T*+", "T*-" parameters of supply circuit N / A = not applicable			

15.3.2.4 Digital Output Driver D5**** / D5****-xxx

15.3.2.4.1 Digital Output Driver type D5048S, D5048S-xxx

Device marking: Ex nA [ia Ga] IIC T4 Gc, [Ex ia Da] IIIC, [Ex ia Ma] I

15.3.2.4.2 Digital Output Driver type D5049S, D5049S-xxx

Device marking: Ex nA [ia Ga] IIC T4 Gc, [Ex ia Da] IIIC, [Ex ia Ma] I

Single channel parameters	Terminals			
Channel	1	7-10) ¹	8-10) ²	9-10) ³
	2	N / A	N / A	N / A
Voltage U _o		DC 24.8 V	DC 24.8 V	DC 24.8 V
Current I _o		147 mA	108 mA	93 mA
Power P _o		907 mW	667 mW	571 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	113 nF	113 nF	113 nF
	IIB iaD	860 nF	860 nF	860 nF
	IIA	3.05 µF	3.05 µF	3.05 µF
	I	4.35 µF	4.35 µF	4.35 µF
Max. external inductance L _o	IIC	1.65 mH	3.07 mH	4.19 mH
	IIB iaD	6.63 mH	12.30 mH	16.79 mH
	IIA	13.27 mH	24.60 mH	33.58 mH
	I	21.78 mH	40.36 mH	55.09 mH
Max. inductance / resistance ratio L _o /R _o	IIC	39.2 µH/Ω	53.3 µH/Ω	62.3 µH/Ω
	IIB iaD	156.8 µH/Ω	213.5 µH/Ω	249.4 µH/Ω
	IIA	313.6 µH/Ω	427.0 µH/Ω	498.9 µH/Ω
	I	514.6 µH/Ω	700.6 µH/Ω	818.5 µH/Ω
Characteristics		linear	linear	linear
Ambient temperature range		-40 °C ≤ T _a ≤ +70 °C		
Remarks:				
<p>)¹ 2-wire circuit 'Out A' "O1+", "O-" parameters of supply circuit)² 2-wire circuit 'Out B' "O2+", "O-" parameters of supply circuit)³ 2-wire circuit 'Out C' "O3+", "O-" parameters of supply circuit "O-" = common ground for "O*+" 'Out A / B / C' are used exclusive or only</p>				
N / A = not applicable				

(16) Test and assessment report

BVS PP 10.2216 EG as of 22.09.2010

(17) Special conditions for safe use

17.1 Group I application

DIN Rail Isolators of type series D5****, D5****-xxx shall be installed outside the hazardous area or alternatively in an enclosure providing a suitable type of protection according to separate certification.

For Group I application interconnection of DIN Rail Isolators of type series D5****, D5****-xxx with other electrical apparatus to an intrinsically safe electrical system shall be assessed in a System Certificate if required in local installation rules.

17.2 Group II application:

DIN Rail Isolators of type series D5****, D5****-xxx shall be installed:

- outside the hazardous area, or
- shall be mounted inside an enclosure, which is in accordance with EN 60079-15 in case of alternative installation in areas requiring EPL Gc equipment.

17.3 Group III application:

DIN Rail Isolators of type series D5****, D5****-xxx shall be installed outside the hazardous area.

17.4 General

The installation of DIN Rail Isolators of type series D5****, D5****-xxx shall be carried out in such a way that the clearances of uninsulated conductors of intrinsically safe circuits to grounded metal parts of the enclosure are at least 3 mm, and uninsulated 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 EN 60079-11:2007.

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

44809 Bochum, 22.09.2010
BVS-Scha/Her A 20100877

DEKRA EXAM GmbH



Certification body



Special services unit