



Translation

EC-Type Examination Certificate

(1)

(2)

- Directive 94/9/EC -

**Equipment and protective systems intended for use
in potentially explosive atmospheres**

(3)

DMT 01 ATEX E 042 X

(4)

Equipment: Eurocard / DIN Rail Isolators E10 / D10** series**

(5)

Manufacturer: GM International S.R.L.

(6)

Address: I - 20058 Villasanta (MI)

(7)

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

(8)

The certification body of Deutsche Montan Technologie 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 00.22010 EG and the supplements 1 to 3.

(9)

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

EN 50014:1997+A1-A2 General requirements

EN 50020:1994 Intrinsic safety 'i'

EN 50284:1999 Category 1G

(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 schedule 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:



II (1) G [EEx ia] IIC / IIB / IIA

I M2 [EEx ia] I

Deutsche Montan Technologie GmbH

Essen, dated 15.03.2001

Signed:

DMT-Certification body

Signed:

Head of special services unit

(13) Appendix to

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

DMT 01 ATEX E 042 X

(15) 15.1 Subject and type

The Eurocard / DIN Rail Isolators E10** / D10** series comprises the subsequent devices:

Repeater Power Supply	Type E1010*, E1011*, E1012*, E1013*, E1014*, E1019*
	Type D1010*
Powered Isolating Driver	Type E1020*, E1021*
	Type D1020*, D1021S
Switch/Proximity Repeater	Type E1030*, E1031*, E1032*, E1038*, E1039*
	Type D1030*, D1031*
Analogue Signal / Temperature Converter	Type E1058*, E1059*, E1070*, E1078*, E1079*
	Type D1050*, D1052*, D1053*, D1070*, D1072*, D1073*
Repeater Power Supply + Powered Isolating Driver	Type D1025S
Digital Output	Type D1040Q, D1041Q, D1042Q, D1043Q
Digital Output	Type PSD1001

(In the full designation the “*” is replaced by a letter marking details of construction as follows:
S = single channel; D = dual channel; Q = quad channel; X = single channel / two analogue-outputs;
Y = dual channel / dual analogue-output)

15.2 Description

The Eurocard / DIN Rail Isolators of E10** / D10** series are associated apparatus providing single or multi-channel intrinsically safe power supply for electrical apparatus and/or transmission of data signals between non intrinsically safe and intrinsically safe circuits.

Electronic components of Eurocard Isolators of E10** series are arranged on a printed-circuit-board (PCB) designed as plug in Standard Eurocard for 19” rack mounting.

Electronic components of DIN Rail Isolators of D10** series are arranged on printed-circuit-boards (PCB) packaged in a plastic enclosure suitable for installation on DIN Rails.

Terminals for the intrinsically safe supply and signal circuits and for the non intrinsically safe circuits are interconnected to terminals placed at the front side of the enclosure.

The Eurocard / DIN Rail Isolators of E10** / D10** series provide safe galvanic separation between intrinsically safe supply and signal 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.

The Eurocard / DIN Rail Isolators of E10** / D10** series is designated for installation in the safe area and is suitable to provide intrinsically safe power supply for equipment installed in areas requiring category 1G, 1/2G, 2G or M1, M2 apparatus.

15.3 Parameters

15.1 Non intrinsically safe circuits

15.1.1 Power supply

Eurocard / DIN Rail Isolator Type	Voltage		Power consumption P_n
	U_n	U_m	
E1010*, E1011*, E1012*, E1013*, E1014*, E1019*, D1010*, D1020*, D1021S	DC 24 V (20 - 30 V)	AC 250 V	2.9 W
E1020*, E1021*, E1070*	DC 24 V (20 - 30 V)	AC 250 V	2 W
E1030*, E1031*, E1032*, E1038*, E1039*, D1030*, D1031*	DC 24 V (20 - 30 V)	AC 250 V	1.9 W
D1025S	DC 24 V (20 - 30 V)	AC 250 V	3.1 W
D104*Q, PSD1001	DC 24 V (20 - 30 V)	AC 250 V	3 W
D1050*, D1052*, D1053*, E1058*, E1059*, D1070*, D1072*, D1073*, E1078*, E1079*	DC 24 V (20 - 30 V)	AC 250 V	1.8 W

15.1.2 Input / output signal circuits

Voltage U_m = AC 250 V

15.2 Intrinsically safe circuits (Eurocard /DIN Rail Isolators)

15.2.1 Types E101**, E102**, E103**

Single channel parameters		Eurocard Isolator Type		
		E1010*, E1011*, E1012*, E1013*, E1014*, E1019*	E1020*, E1021*	E1030*, E1031*, E1032*
Voltage U_o		DC 22,63 V*)	DC 21,53 V	DC 9,58 V
Current I_o		92,96 mA *)	89,17 mA	9,7 mA
Power P_o		600 mW *)	576 mW	23,2 mW
max. external capacitance C_o	IIC	148 nF	174 nF	3,6 μ F
	IIB	1,06 μ F	1,19 μ F	26 μ F
	IIA	3,83 μ F	4,44 μ F	210 μ F
max. external inductance L_o	IIC	4,2 mH	4,47 mH	330 mH
	IIB	15 mH	18 mH	1,42 H
	IIA	33 mH	35 mH	2,84 H
max. external capacitance C_o and inductance L_o (combined installation)	IIC	57,5 nF	64,7 nF	400 nF
		1,15 mH	1,25 mH	30 mH
	IIB	134,8 nF	150 nF	759,5 nF
		1,15 mH	1,25 mH	30 mH
	IIA	212,4 nF	235,7 nF	1,19 μ F
		1,15 mH	1,25 mH	30 mH
max. inductance/resistance ratio L_o/R_o	IIC	61,7 μ H/ Ω	61,7 μ H/ Ω	1,53 mH/ Ω
	IIB	246,9 μ H/ Ω	246,9 μ H/ Ω	6,12 mH/ Ω
	IIA	493,8 μ H/ Ω	493,8 μ H/ Ω	12,24 mH/ Ω
Characteristics		trapezoidal	trapezoidal	Linear
Current limiting resistor		$\geq 289.8 \Omega$	$\geq 289.8 \Omega$	--

*) 3-wire circuit "+", "signal", "GND" sum of parameters

15.2.2 Eurocard Isolator Types E1010*, E1011*, E1012*, E1013*, E1014*, E1019* used as 2-wire input "signal", "GND"

Single channel parameters

2-wire connection	(-IN --> +IN)
Voltage	$U_o = 1.1 \text{ V}$
Current	$I_o = 44.63 \text{ mA}$
Power	$P_o = 13 \text{ mW}$
Characteristics	linear
max. internal capacitance	$C_i = 1.05 \text{ nF}$
max. internal inductance	negligible

15.2.3 Types D101**, D103**, E107**

Single channel parameters		DIN Rail / Eurocard Isolator Type		
		D1010*	D1030*, D1031*, E1038*, E1039*	E1070*
Voltage U_o		DC 26,94 V *)	DC 10,86 V	DC 12,1 V
Current I_o		92,96 mA *)	14,63 mA	4,6 mA
Power P_o		625 mW *)	39,7 mW	13,8 mW
max. external capacitance C_o	IIC	89 nF	2,05 μF	1,37 μF
	IIB	705 nF	14,4 μF	8,7 μF
	IIA	2,32 μF	63 μF	34 μF
max. external inductance L_o	IIC	4,2 mH	165 mH	1,68 H
	IIB	15 mH	661 mH	6,72 H
	IIA	33 mH	1,32 H	13,44 H
max. external capacitance C_o and inductance L_o (combined installation)	IIC	40,1 nF	252,5 nF	205 nF
		1,15 mH	30 mH	472 mH
	IIB	96 nF	589,1 nF	478 nF
		1,15 mH	30 mH	472 mH
	IIA	158,8 nF	925,8 nF	751 nF
		1,15 mH	30 mH	472 mH
max. inductance/resistance ratio L_o/R_o	IIC	56,5 $\mu\text{H}/\Omega$	0,89 mH/ Ω	2,55 mH/ Ω
	IIB	226,1 $\mu\text{H}/\Omega$	3,58 mH/ Ω	10,23 mH/ Ω
	IIA	452,3 $\mu\text{H}/\Omega$	7,16 mH/ Ω	20,45 mH/ Ω
Characteristics		linear	linear	linear
Current limiting resistor		--	--	--

*) 3-wire circuit "+", "signal", "GND" sum of parameters

15.2.4 DIN Rail Isolator Type D1010* used as 2-wire input "signal", "GND"

Single channel parameters

2-wire connection	(-IN --> +IN)
Voltage	$U_o = 1.1 \text{ V}$
Current	$I_o = 44.63 \text{ mA}$
Power	$P_o = 13 \text{ mW}$
Characteristics	linear
max. internal capacitance	$C_i = 1.05 \text{ nF}$
max. internal inductance	negligible

15.2.5 Types D1050*, D1052*, D1053*, E1058*, E1059, D1070*, D1072*, D1073*, E1078*, E1079*, D1020*, D1025S

Single channel parameters		DIN Rail / Eurocard Isolator Type		
		D1050*, D1052*, D1053*, E1058*, E1059*, D1070*, D1072*, D1073*, E1078*, E1079*	D1020*, D1021S, D1025S *)	D1025S **)
Voltage U_o		DC 10,75 V	DC 25,84 V	DC 26,94 V
Current I_o		8,63 mA	89,17 mA	92,96 mA
Power P_o		23,2 mW	576 mW	626 mW
max. external capacitance C_o	IIC	2,14 μ F	99 nF	89 nF
	IIB	15 μ F	769 nF	705 nF
	IIA	66 μ F	2,63 μ F	2,32 μ F
max. external inductance L_o	IIC	477 mH	4,47 mH	4,2 mH
	IIB	1909 mH	17,8 mH	15 mH
	IIA	3819 mH	35,7 mH	33 mH
max. external capacitance C_o and inductance L_o (combined installation)	IIC	259 nF	45,2 nF	40,1 nF
		134 mH	1,15 mH	1,15 mH
	IIB	605 nF	105,1 nF	96 nF
		134 mH	1,15 mH	1,15 mH
	IIA	951 nF	165 nF	158,8 nF
		134 mH	1,15 mH	1,15 mH
max. inductance resistance ratio L_o/R_o	IIC	1,53 mH/ Ω	61,7 μ H/ Ω	56,5 μ H/ Ω
	IIB	6,13 mH/ Ω	246,9 μ H/ Ω	226,1 μ H/ Ω
	IIA	12,26 mH/ Ω	493,8 μ H/ Ω	452,3 μ H/ Ω
Characteristics		linear	linear	linear
Current limiting resistor		--	--	--

*) D1025S analogue output channel

**) D1025S analogue input channel: 3-wire circuit "TX1". "-IN1". "+IN1" sum of parameters

15.2.6 DIN Rail Isolator Types D1025S used as 2-wire input "signal", "GND"

Single channel parameters

2-wire connection

Voltage

Current

Power

Characteristics

max. internal capacitance

max. internal inductance

(-IN --> +IN)

U_o = 1.1 V

I_o = 44.63 mA

P_o = 13 mW

linear

C_i = 1.05 nF
negligible

15.2.7 Types D104*Q and Type PSD1001 (single-channel)

Single channel parameters		DIN Rail Isolator Type		
		D1040Q. D1041Q	D1042Q. PSD1001	D1043Q
Voltage U_o		DC 24,2 V	DC 24,2 V	DC 24,2 V
Current I_o		74,08 mA	90,7 mA	54,4 mA
Power P_o		448 mW	548,7 mW	329 mW
max. external capacitance C_o	IIC	122 nF	122 nF	122 nF
	IIB	910 nF	910 nF	910 nF
	IIA	3,27 μ F	3,27 μ F	3,27 μ F
max. external inductance L_o	IIC	6,4 mH	4,3 mH	12 mH
	IIB	25,9 mH	17,2 mH	48 mH
	IIA	51,8 mH	34,5 mH	96,1 mH
max. external capacitance C_o and inductance L_o (combined installation)	IIC	58,9 nF	54,29 nF	63,2 nF
		1 mH	1 mH	1 mH
	IIB	127,2 nF	122,5 nF	131,5 nF
		1 mH	1 mH	1 mH
	IIA	195,5 nF	190,8 nF	199,8 nF
		1 mH	1 mH	1 mH
max. inductance/resistance ratio L_o/R_o	IIC	79,3 μ H/ Ω	64,7 μ H/ Ω	108 μ H/ Ω
	IIB	318 μ H/ Ω	259 μ H/ Ω	432 μ H/ Ω
	IIA	634,7 μ H/ Ω	518 μ H/ Ω	864 μ H/ Ω
Characteristics		linear	linear	linear
Current limiting resistor		--	--	--

15.2.8 Types D1040Q, D1041Q (multi-channel)

Parameters when channels are interconnected in parallel		DIN Rail Isolator Type		
		D1040Q, D1041Q		
Number of channels		2	3 *)	4 *)
Voltage U_o		DC 24.2 V		
Current I_o		148,16 mA	222,24 mA	296,32 mA
Power P_o		896,4 mW	1346 mW	1793 mW
max. external capacitance C_o	IIC	122 nF	--	--
	IIB	910 nF	910 nF	910 nF
	IIA	3,27 μ F	3,27 μ F	3,27 μ F
max. external inductance L_o	IIC	1,61 mH	--	--
	IIB	6,4 mH	2,8 mH	1,61 mH
	IIA	12,9 mH	5,7 mH	3,2 mH
max. external capacitance C_o and inductance L_o (combined installation)	IIC	26,1 nF 0,5 mH	--	--
	IIB	99,1 nF 1 mH	52,2 nF 1 mH	61,6 nF 0,5 mH
	IIB	99,1 nF 1 mH	52,2 nF 1 mH	61,6 nF 0,5 mH
	IIA	167,4 nF 1 mH	120,5 nF 1 mH	55 nF 1 mH
	IIA	167,4 nF 1 mH	120,5 nF 1 mH	55 nF 1 mH
max. inductance/resistance ratio L_o/R_o	IIC	39,6 μ H/ Ω	--	--
	IIB	158,6 μ H/ Ω	105,8 μ H/ Ω	79,3 μ H/ Ω
	IIA	317,3 μ H/ Ω	211,5 μ H/ Ω	158,6 μ H/ Ω
Characteristics		linear	linear	linear
Current limiting resistor		--	--	--

*) not permitted for Group IIC

15.2.9 Type D1042Q and PSD1001 (multi-channel)

Parameters when channels are interconnected in parallel		DIN Rail Isolator Type		
		D1042Q, PSD1001		
Number of channels		2 *)	3 *)	4 *)
Voltage U_o		DC 24.2 V		
Current I_o		181,4 mA	272,1 mA	362,8 mA
Power P_o		1097,5 mW	1646,2 mW	2194,9 mW
max. external capacitance C_o	IIC	--	--	--
	IIB	910 nF	910 nF	910 nF
	IIA	3,27 μ F	3,27 μ F	3,27 μ F
max. external inductance L_o	IIC	--	--	--
	IIB	4,32 mH	1,92 mH	1,08 mH
	IIA	8,64 mH	3,84 mH	2,16 mH
max. external capacitance C_o and inductance L_o (combined installation)	IIC	--	--	--
	IIB	80,4 nF	73,3 nF	24,2 nF
		1 mH	0,5 mH	0,5 mH
	IIA	148,7 nF	146,7 nF	92,9 nF
		1 mH	0,5 mH	0,5 mH
	IIC	--	--	--
max. inductance/resistance ratio L_o/R_o	IIB	129,5 μ H/ Ω	86,4 μ H/ Ω	64,7 μ H/ Ω
	IIA	259 μ H/ Ω	172,7 μ H/ Ω	129,4 μ H/ Ω
Characteristics		linear	linear	linear
Current limiting resistor		--	--	--

*) not permitted for Group IIC

15.2.10 Type D1043Q (multi-channel)

Parameters when channels are interconnected in parallel		DIN Rail Isolator Type		
		D1043Q		
Number of channels		2	3	4 *)
Voltage U_o		DC 24.2 V		
Current I_o		108.8 mA	163.2 mA	217.6 mA
Power P_o		658.2 mW	987.4 mW	1316.5 mW
max. external capacitance C_o	IIC	122 nF	122 nF	--
	IIB	910 nF	910 nF	910 nF
	IIA	3.27 μ F	3.27 μ F	3.27 μ F
max. external inductance L_o	IIC	3.0 mH	1.33 mH	--
	IIB	12 mH	5.33 mH	3.0 mH
	IIA	24 mH	10.6 mH	6 mH
max. external capacitance C_o and inductance L_o (combined installation)	IIC	58.1 nF	45.5 nF	--
		0.5 mH	0.5 mH	
	IIB	116.3 nF	91.1 nF	96.1 nF
		1 mH	1 mH	0.5 mH
	IIA	184.6 nF	159.4 nF	124 nF
		1 mH	1 mH	1 mH
max. inductance/resistance ratio L_o/R_o	IIC	54 μ H/ Ω	36 μ H/ Ω	--
	IIB	216 μ H/ Ω	144 μ H/ Ω	108 μ H/ Ω
	IIA	432.1 μ H/ Ω	288 μ H/ Ω	216 μ H/ Ω
Characteristics		linear	linear	linear
Current limiting resistor		--	--	--

*) not permitted for Group IIC

15.3 Ambient temperature range for Eurocard / DIN Rail Isolators E10** / D10** series: $-20^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$

(16) Test and assessment report

BVS PP 00.2010 EG as of 03.02.2000, including 1st supplement of 17.05.2000, 2nd supplement of 02.08.2000 and 3rd supplement of 15.03.2001

(17) Special conditions for safe use

17.1 Eurocard Isolators E10** series

17.1.1 Eurocard Isolators E10** series shall be installed outside the hazardous area and shall be mounted - including terminals - in an enclosure which guarantees as a minimum degree of protection IP 20 according to EN 60529.

17.1.2 Internal wiring shall satisfy the conditions of section 6.4.11 and section 7.6.e of EN 50020:1994

17.1.3 Terminals or connectors for intrinsically safe circuits shall be arranged according to section 6.3.1 or 6.3.2 of EN 50020:1994 respectively.

17.2 DIN Rail Isolators D10** series

17.2.1 DIN Rail Isolator D10** series shall be installed outside the hazardous area.

- 17.2.2 The installation of DIN Rail Insulator D10** series 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 6.3.1 of EN 50020.
- 17.3 For Group I application interconnection of Eurocard / DIN Rail Isolators D10** / E10** with other electrical apparatus to an intrinsically safe electrical system shall be assessed in a System Certificate.

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.

45307 Essen, 15.03.2001
BVS-Scha/Ar A 20010103

Deutsche Montan Technologie GmbH


DMT-Certification body
Head of special services unit



Translation



1st Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate DMT 01 ATEX E 042 X

Equipment: Eurocard / DIN Rail Isolators E10** / D10** series
Manufacturer: GM International S.R.L.
Address: I - 20058 Villasanta (MI)

Description

The Eurocard / DIN Rail Isolators E10** / D10** series can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report

Eurocard / DIN Rail Isolator E10** / D10** series are extended optionally by the following versions:

Switch/Proximity Repeater Types D1032*, D1033*

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

D = dual channel; Q = quad channel)

The electronic circuitries of the following versions of DIN Rail Isolators D10** series are subject to optional change:

Repeater Power Supply	Type D1010*
Powered Isolating Driver	Type D1020*, D1021S
Switch/Proximity Repeater	Type D1030*, D1031*
Analogue Signal / Temperature Converter	Type D1050*, D1052*, D1053*, D1070*, D1072*, D1073*
Repeater Power Supply + Powered Isolating Driver	Type D1025S
Digital Output	Type D1040Q, D1041Q, D1042Q, D1043Q
Digital Output	Type PSD1001

The variations of electronic circuitries do not affect safety parameters.

The marking of Eurocard / DIN Rail Isolators E10** / D10** - previous versions as well as new versions - according to Council Directive 94/9/EG may be enhanced optionally with the letter "D" for applications where electrical apparatus certified for use in the presence of combustible dust are interconnected.

Parameters

1. non intrinsically safe circuits

1.1 power supply

DIN Rail Isolator Type	Voltage		Power consumption P_n
	U_n	U_m	
D1032*, D1033*	DC 24 V (20 - 30 V)	AC 250 V	1,9 W

1.2 input / output signal circuits

Voltage U_m = AC 250 V

2. Intrinsically safe circuits (DIN Rail Isolators) type of protection EEx ia IIC / IIB / IIA

Single channel parameters		Eurocard Isolator Type	
		D1032*, D1033*	
Voltage U_o		DC 9,58	V
Current I_o		9,7	mA
Power P_o		23,2	mW
max. external capacitance C_o	IIC	3,6	μF
	IIB	26	μF
	IIA	210	μF
max. external inductance L_o	IIC	330	mH
	IIB	1,42	H
	IIA	2,84	H
max. external capacitance C_o and inductance L_o (combined installation)	IIC	400	nF
		30	mH
	IIB	759,5	nF
		30	mH
	IIA	1,19	μF
		30	mH
max. inductance/resistance ratio L_o/R_o	IIC	1,53	mH/ Ω
	IIB	6,12	mH/ Ω
	IIA	12,24	mH/ Ω
Characteristics		Linear	

3. Ambient temperature range $-20^{\circ}C \leq T_a \leq +60^{\circ}C$



Test and assessment report

BVS PP 00.2010 EG as of 23.04.2002

Special conditions for safe use

Special conditions mentioned in (17) DMT 01 ATEX E 042 X also apply to the new versions of Eurocard / DIN Rail Isolators D10** / E10** series.

Deutsche Montan Technologie GmbH

Essen, dated 23. April 2002

Jockers

DMT-Certification body

Eickhoff

Head of special services unit

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.

45307 Essen, 23.04.2002

BVS-Scha/Mi A 20010636

Deutsche Montan Technologie GmbH

DMT-Certification body

Head of special services unit



Translation



2nd Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate DMT 01 ATEX E 042 X

Equipment: Eurocard / DIN Rail Isolators type E10** / D10** series
Manufacturer: GM International S.R.L.
Address: I - 20058 Villasanta (MI)

Description

The Eurocard / DIN Rail Isolators E10** / D10** series can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report.

Eurocard / DIN Rail Isolator E10** / D10** series are extended optionally by the following versions:

Repeater Power Supply Type E1015*
Powered Isolating Driver Type E1022*,
Switch/Proximity Repeater Type E1033*

(In the full designation the “*” is replaced by a letter marking details of construction as follows:
S = single channel, D = dual channel; Q = quad channel)

Parameters

1. Non intrinsically safe circuits
- 1.1 Power supply

Eurocard Isolator Type	Voltage		Power consumption P_n
	U_n	U_m	
E1015*	DC 24 V (20 - 30 V)	AC 250 V	2,9 W
E1022*	DC 24 V (20 - 30 V)	AC 250 V	3,6 W
E1033*	DC 24 V (20 - 30 V)	AC 250 V	2,2 W

- 1.2 Input / output signal circuits

Voltage U_m = AC 250 V

2. Intrinsically safe circuits

2.1 type of protection EEx ia IIC / IIB / IIA

Single channel parameters		Eurocard Isolator Type		
		E1010*, E1011*, E1012*, E1013*, E1014*, E1015*, E1019*	E1020*, E1021*, E1022*	E1038*, E1039*, E1033*
Voltage U_o		DC 22.63 V*)	DC 21.53 V	DC 10.86 V
Current I_o		92.96 mA *)	89.17 mA	14.63 mA
Power P_o		600 mW *)	576 mW	39.7 mW
max. external capacitance C_o	IIC	148 nF	174 nF	2.05 μ F
	IIB	1.06 μ F	1.19 μ F	14.4 μ F
	IIA	3.83 μ F	4.44 μ F	63 μ F
max. external inductance L_o	IIC	4.2 mH	4.47 mH	165 mH
	IIB	15 mH	18 mH	661 mH
	IIA	33 mH	35 mH	1.32 H
max. external capacitance C_o and inductance L_o (combined installation)	IIC	57.5 nF	64.7 nF	252.5 nF
		1.15 mH	1.25 mH	30 mH
	IIB	134.8 nF	150 nF	589.1 nF
		1.15 mH	1.25 mH	30 mH
	IIA	212.4 nF	235.7 nF	925.8 nF
		1.15 mH	1.25 mH	30 mH
max. inductance/resistance ratio L_o/R_o	IIC	61.7 μ H/ Ω	61.7 μ H/ Ω	0.89 mH/ Ω
	IIB	246.9 μ H/ Ω	246.9 μ H/ Ω	3.58 mH/ Ω
	IIA	493.8 μ H/ Ω	493.8 μ H/ Ω	7.16 mH/ Ω
Characteristics		trapezoidal	trapezoidal	linear
Current limiting resistor		$\geq 289,8 \Omega$	$\geq 289,8 \Omega$	--

*) 3-wire circuit "+", "signal", "GND" sum of parameters

2.2 Eurocard Isolator Type E1010*, E1011*, E1012*, E1013*, E1014*, E1015* E1019* used as 2-wire input "signal", "GND"

Single channel parameters

2-wire connection

Voltage

Current

Power

Characteristics

max. internal capacitance

max. internal inductance

(-IN --> +IN)

U_o = 1.1 V

I_o = 44.63 mA

P_o = 13 mW

linear

C_i = 1.05 nF
negligible

Ambient temperature range $-20^\circ\text{C} \leq T_a \leq +60^\circ\text{C}$

Test and assessment report

BVS PP 00.2010 EG as of 16.05.2002

Special conditions for safe use

1. Special conditions mentioned in DMT 01 ATEX E 042 X also apply to the new versions of Eurocard Isolators E10** series.
2. For Group I application interconnection of Eurocard / DIN Rail Isolators D10** / E10** with other electrical apparatus to an intrinsically safe electrical system shall be assessed separately.

Deutsche Montan Technologie GmbH

Essen, dated 16.May 2002

Jockers

DMT-Certification body

Eickhoff

Head of special services unit

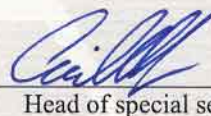
We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

45307 Essen, 16.05.2002
BVS-Scha/Mi A 20020217

Deutsche Montan Technologie GmbH



DMT-Certification body



Head of special services unit



Translation



3rd Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate DMT 01 ATEX E 042 X

Equipment: Eurocard / DIN Rail Isolators type E10** / D10** / D11** series
Manufacturer: GM International S.R.L.
Address: I - 20058 Villasanta (MI)

Description

The Eurocard / DIN Rail Isolators type E10** / D10** / D11** series can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report.

Eurocard / DIN Rail Isolator type E10** / D10** / D11** series are extended optionally by the following new or updated versions:

Repeater Power Supply	Type D1010*
Switch/Proximity Repeater	Types D1030*, D1031*, D1130* E1033*, E1038*, E1039*
Frequency Input Converter and Trip Amplifier	Type D1060S
Liquid Presence Detector Interface	Types D1080D, D1081D, D1180D

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:

EN 50014:1997+A1-A2	General requirements
EN 50020:1994	Intrinsic safety 'i'
EN 50284:1999	Equipment Group II Category 1G

Parameters

1.1 Non intrinsically safe circuits

1.1.1 Power supply

Eurocard / DIN Rail Isolator Type	Voltage		Power consumption P_n
	U_n	U_m	
D1010*	DC 24 V (20 - 30 V)	AC 250 V	2.9 W
D1030*, D1031*, E1033*, E1038*, E1039*	DC 24 V (20 - 30 V)	AC 250 V	2.2 W
D1130*	AC 115 V / 230 V	AC 250 V	2.8 W
D1060S	DC 24 V (20 - 30 V)	AC 250 V	2.2 W
D1080D, D1081D	DC 24 V (20 - 30 V)	AC 250 V	2.6 W
D1180D	AC 115 V / 230 V	AC 250 V	2.9 W

1.1.2 Input / output signal circuits

Voltage $U_m = AC\ 250\ V$

1.2 Intrinsically safe circuits (DIN Rail / Eurocard Isolators) type of protection EEx ia IIC / IIB / IIA

1.2.1 Types D1010*; D1030*, D1130*, D1031*, E1033*, E1038*, E1039*; D1080D, D1081D, D1180D

Single channel parameters		DIN Rail / Eurocard Isolator Type			
		D 1010*	D1030*, D1130* D1031* E1033* E1038* E1039*	D1080D, D1081D, D1180D	
				Terminals	
				VCC - GND	IN+ - GND (VCC - IN-)
Voltage U_o		DC 26.94 V *)	DC 10.86 V	DC 15.75 V	DC 15.75 V
Current I_o		92.96 mA *)	14.63 mA	108.68 mA	12.78 mA (11.44 mA)
Power P_o		625 mW *)	39.7 mW	427.9 mW	50.32 mW (45 mW)
Max. external capacitance C_o	IIC	89 nF	2.05 μF	478 nF	478 nF
	IIB	705 nF	14.4 μF	2.88 μF	2.88 μF
	IIA	2.32 μF	63 μF	11.6 μF	11.6 μF
Max. external inductance L_o	IIC	4.2 mH	165 mH	3.01 mH	217.6 mH
	IIB	15 mH	661 mH	12.04 mH	870.7 mH
	IIA	33 mH	1.32 H	24.08 mH	1741 mH
Max. external capacitance C_o and inductance L_o (combined installation)	IIC	40.1 nF	252.5 nF	113.6 nF	157.9 nF
		1.15 mH	30 mH	1 mH	5 mH
	IIB	96 nF	589.1 nF	274.8 nF	319.2 nF
		1.15 mH	30 mH	1 mH	5 mH
	IIA	158.8 nF	925.8 nF	436.1 nF	480.4 nF
		1.15 mH	30 mH	1 mH	5 mH
Max. inductance/ resistance ratio L_o/R_o	IIC	56.5 $\mu H/\Omega$	0.89 mH/ Ω	83 $\mu H/\Omega$	0.706 mH/ Ω
	IIB	226.1 $\mu H/\Omega$	3.58 mH/ Ω	337 $\mu H/\Omega$	2.92 mH/ Ω
	IIA	452.3 $\mu H/\Omega$	7.16 mH/ Ω	664 $\mu H/\Omega$	5.65 mH/ Ω
Characteristics		linear	linear	linear	linear
Current limiting resistor		--	--	--	--

*) 3-wire circuit "+", "signal", "GND" sum of parameters.

2.2.2 DIN Rail Isolator Type D1010* used as 2-wire input "signal", "GND"

Single channel parameters

2-wire connection

Voltage

Current

Power

Characteristics

Max. internal capacitance

Max. internal inductance

-IN --> +IN

U_o 1.1 V

I_o 44.63 mA

P_o 13 mW

linear

C_i 1.05 nF

L_i negligible

4.2.2 Type D1060S

Parameters	DIN Rail Isolator Type				
	D1060S				
	Terminals				
		IN1 - IN4	IN2 - IN4	IN3 - IN4	IN2 - IN3
Voltage U_o		DC 10.56 V	DC 10.56 V	DC 10.56 V	DC 11.56 V
Current I_o		1.07 mA	21.42 mA	21.64 mA	11.79 mA
Power P_o		2.85 mW	57 mW	57.62 mW	34 mW
Max. external capacitance C_o	IIC	2.32 μ F	2.32 μ F	2.32 μ F	1.59 μ F
	IIB	16.2 μ F	16.2 μ F	16.2 μ F	10.8 μ F
	IIA	72 μ F	72 μ F	72 μ F	43 μ F
Max. external inductance L_o	IIC	31 H	77.49 mH	75.92 mH	255.78 mH
	IIB	124 H	309.9 mH	303.7 mH	1023 mH
	IIA	248 H	619.9 mH	607.4 mH	2046 mH
Max. external capacitance C_o and inductance L_o (combined installation)	IIC	357.6 nF	317.5 nF	316.7 nF	268.1 nF
		100 mH	10 mH	10 mH	30 mH
	IIB	716.3 nF	676.2 nF	675.4 nF	567.4 nF
		100 mH	10 mH	10 mH	30 mH
	IIA	1.07 μ F	1.03 μ F	1.03 μ F	866.7 nF
		100 mH	10 mH	10 mH	30 mH
Max. inductance/resistance ratio L_o/R_o	IIC	12.6 mH/ Ω	628.7 μ H/ Ω	622.3 μ H/ Ω	512 μ H/ Ω
	IIB	50.4 mH/ Ω	2.51 mH/ Ω	2.48 mH/ Ω	2.04 mH/ Ω
	IIA	100.8 mH/ Ω	5.03 mH/ Ω	4.97 mH/ Ω	4.09 mH/ Ω
Characteristics		linear	linear	linear	linear
Current limiting resistor		--	--	--	--

Test and assessment report

BVS PP 00.2010 EG as of 21.02.2003

Special conditions for safe use

1. Special conditions mentioned in DMT 01 ATEX E 042 X also apply to the new versions of Eurocard / DIN Rail Isolators type E10** / D10** / D11** series.
2. For Group I application interconnection of Eurocard / DIN Rail Isolators type E10** / D10** / D11** series with other electrical apparatus to an intrinsically safe electrical system shall be assessed separately.

Deutsche Montan Technologie GmbH

Essen, dated 21. February 2003

signed: Jockers

DMT-Certification body

signed: Eickhoff

Head of special services unit

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.

45307 Essen, 21.02.2003
BVS-Scha/Mi A 20020731

Deutsche Montan Technologie GmbH


DMT-Certification body
Head of special services unit



Translation



4th Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate DMT 01 ATEX E 042 X

Equipment: Eurocard DIN Rail Trenner type E10** / D10** / D11**
Manufacturer: GM International S.R.L.
Address: I - 20058 Villasanta (MI)

Description

The Eurocard / DIN Rail Isolators type E10** / D 10** / D11** series can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report.

Eurocard / DIN Rail Isolator E10** / D10** / D11** series are extended optionally by the following new or updated versions:

Repeater Power Supply	Type D1011*, D1014*
	Type E1015*-013
Switch/Proximity Repeater	Type D1034*
Adapter	Type GMEI1000ADP

(In the full designation the “**” is replaced by a letter marking details of construction as follows:
S = single channel, D = dual channel; Q = quad channel)

The electronic circuitry of the following version of DIN Rail Isolators D10** series is subject to optional change:
Powered Isolating Driver Type D1020*

The variations of electronic circuitries do not affect safety parameters.

The Adapter Type GMEI1000ADP optionally provides mechanical conversion of DIN Rail Isolators D10** series to 21-pin DIN 41617 connector.

The Adapter consists of a plastics enclosure adaptable to DIN Rail Isolator enclosures, a printed circuit board fitted with connectors and the wiring between the printed circuit board and the terminals of the individually adapted DIN Rail Isolator. Electrical parameters of the adapted DIN Rail Isolator remain unchanged.

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:

EN 50014:1997+A1-A2	General requirements
EN 50020:2002	Intrinsic safety ‘i’
EN 50284:1999	Equipment Group II Category 1G

Parameters

1.1 Non intrinsically safe circuits

1.1.1 Power supply

Eurocard / DIN Rail Isolator Type	Voltage		Power consumption P_n
	U_n	U_m	
D1011*, D1014*	DC 12 V - 24 V (9 V - 30 V)	AC 250 V	3,2 W
E1015*-013	DC 24 V (20 - 30 V)	AC 250 V	3,4 W
D1034*	DC 12 V - 24 V (9 V - 30 V)	AC 250 V	1,4 W

1.1.2 Input / output signal circuits

Voltage U_m = AC 250 V

1.2 Intrinsically safe circuits (DIN Rail / Eurocard Isolators) type of protection EEx ia IIC / IIB / IIA

1.2.1 Types E1015*-013, D1011*, D1014*; D1034*

Single channel parameters		DIN Rail / Eurocard Isolator Type		
		E1015*-013	D1011*, D1014*	D1034*
Voltage U_o		DC 26,94 V *)	DC 25,2 V	DC 9,56 V
Current I_o		92,96 mA *)	92,93 mA	10,28 mA
Power P_o		625 mW *)	585 mW	24,6 mW
Max. external capacitance C_o	IIC	89 nF	102 nF	3,6 μ F
	IIB	705 nF	0,82 μ F	26 μ F
	IIA	2,32 μ F	2,9 μ F	210 μ F
Max. external inductance L_o	IIC	4,2 mH	4,2 mH	336 mH
	IIB	15 mH	15 mH	1,345 H
	IIA	33 mH	33 mH	2,69 H
Max. external capacitance C_o and inductance L_o (combined installation)	IIC	40,1 nF	46,3 nF	402,9 nF
		1,15 mH	1,15 mH	30 mH
	IIB	96 nF	109,3 nF	840,6 nF
		1,15 mH	1,15 mH	30 mH
	IIA	158,8 nF	172,3 nF	1,278 μ F
		1,15 mH	1,15 mH	30 mH
Max. inductance/ resistance ratio L_o/R_o	IIC	56,5 μ H/ Ω	60,73 μ H/ Ω	1,49 mH/ Ω
	IIB	226,1 μ H/ Ω	242,9 μ H/ Ω	5,79 mH/ Ω
	IIA	452,3 μ H/ Ω	485,8 μ H/ Ω	11,58 mH/ Ω
Characteristics		linear	linear	linear

*) 3-wire circuit "+", "signal", "GND" sum of parameters.

1.2.2 DIN Rail Isolator Type E1015*-013 used as 2-wire input "signal", "GND"

Single channel parameters

2-wire connection

Voltage

Current

Power

Characteristics

Max. internal capacitance

Max. internal inductance

-IN --> +IN

U_o 1.1 V

I_o 44.63 mA

P_o 13 mW

linear

C_i 1.05 nF

L_i negligible

1.2.3 Adapter Type GMEI1000ADP

1.2.3.1 Non intrinsically safe circuits

Voltage (general) U_m = AC 250 V

Power supply

Parameters according to the individual DIN Rail Isolator

1.2.3.2 Intrinsically safe circuits

Voltage U_o / U_i = DC 30 V

Parameters according to the individual DIN Rail Isolator

additional effective capacitance and inductance: negligible

1.3 Ambient temperature range: $-20^{\circ}\text{C} \leq T_a \leq +60^{\circ}\text{C}$

Test and assessment report

BVS PP 00.2010 EG as of 13.11.2003

Special conditions for safe use

Special conditions mentioned in DMT 01 ATEX E 042 X also apply to the new versions of Eurocard / DIN Rail Isolators type E10** / D10** / D11** series.

Deutsche Montan Technologie GmbH

Bochum, dated 13. November 2003

signed: Jockers

Certification body

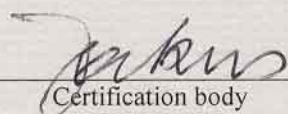
signed: Eickhoff

Special services unit

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, 13.11.2003
BVS-Scha/Mi A 20030554

Deutsche Montan Technologie GmbH



Certification body



Special services unit



5th Supplement

to the EC-Type Examination Certificate
DMT 01 ATEX E 042 X

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Dinnendahlstrasse 9 44809 Bochum Germany Phone +49 201 172-3947 Fax +49 201 172-3948
(until 31.05.2003: Deutsche Montan Technologie GmbH Am Technologiepark 1 45307 Essen)

1.2 Intrinsically safe circuits type of protection EEx ia IIC / IIB / IIA

Single channel parameters	DIN Rail Isolator type	
	D1010*-046	
Voltage U_o	DC 26,3 V *)	
Current I_o	78,2 mA *)	
Power P_o	514 mW *)	
Max. external capacitance C_o	IIC	89 nF
	IIB	705 nF
	IIA	2,32 μ F
Max. external inductance L_o	IIC	5,8 mH
	IIB	23,2 mH
	IIA	46,5 mH
Max. external capacitance C_o and inductance L_o (combined installation)	IIC	46,6 nF 1,15 mH
	IIB	105,4 nF 1,15 mH
	IIA	163,3 nF 1,15 mH
Max. inductance/resistance ratio L_o/R_o	IIC	69,2 μ H/ Ω
	IIB	276,8 μ H/ Ω
	IIA	553,6 μ H/ Ω
Characteristics	linear	

*) 3-wire circuit "+" "signal", "GND" sum of parameters

DIN Rail Isolator Type D1010*-046 used as 2-wire input "signal", "GND"

Single channel parameters

2-wire connection

Voltage

Current

Power

Characteristics

Max. internal capacitance

Max. internal inductance L_i

-IN --> +IN

U_o 1,1 V

I_o 44,63 mA

P_o 13 mW

linear

C_i 1,05 nF

negligible

1.3 Ambient temperature range

$-20^\circ \text{C} \leq T_a \leq 60^\circ \text{C}$

Test and assessment report

BVS PP 00.2010 EG as of 12.05.2004

Special conditions for safe use

Special conditions mentioned in clause 17.2 of DMT 01 ATEX E 042 X also apply to the new version DIN Rail Isolator type D1010*-046.

EXAM BBG Prüf- und Zertifizier GmbH

Bochum, dated 12. May 2004

Signed: Dr. Jockers

Certification body

Signed: Dr. Eickhoff

Special services unit

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, 12.05.2004
BVS-Scha/Mi A 20040264

EXAM BBG Prüf- und Zertifizier GmbH



Certification body



Special services unit



Translation

6th Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate DMT 01 ATEX E 042 X

Equipment: DIN Rail Isolator type PSD1001C

Manufacturer: GM International S.R.L.

Address: 20058 Villasanta (MI), Italy

Description

The Eurocard / DIN Rail Isolators type series E10** / D 10** / D 11** / *D10* can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report.

Eurocard / DIN Rail Isolator type series E10** / D10** / D 11** / *D10* are extended optionally by the following new version:

Digital output Type PSD1001C

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:

EN 50014:1997+A1-A2	General requirements
EN 50020:2002	Intrinsic safety 'i'
EN 50284:1999	Equipment Group II Category 1G
EN 50281-1-1:1998	Dust explosion protection

The marking of the equipment shall include the following:



**II (1) G D [EEx ia] IIA / IIB
I M2 [EEx ia] I**

Parameters

1.1 Non intrinsically safe circuits

1.1.1 Power supply

DIN Rail Isolator Type	Voltage		Power consumption P_n
	U_n	U_m	
PSD1001C	DC 24 V (20 - 30 V)	AC 250 V	3.8 W

1.2 Input / output signal circuits

Voltage U_m = AC 250 V

2. Intrinsically safe circuit type of protection EEx ia IIB / IIA

Parameters		DIN Rail Isolator Type	
		PSD1001C	
Voltage U_o		DC 24.2 V	
Current I_o		362.8 mA	
Power P_o (maximum of permanently available power)		1724 mW	
max. external capacitance C_o	IIB	910 nF	
	IIA	3.27 μ F	
max. external inductance L_o	IIB	1.08 mH	
	IIA	2.16 mH	
max. external capacitance C_o and inductance L_o (combined installation)	IIB	24.2 nF 0.5 mH	
	IIA	92.5 nF 0.5 mH	
max. inductance/resistance ratio L_o/R_o	IIB	64.82 μ H/ Ω	
	IIA	129.63 μ H/ Ω	
Characteristics		Linear	

3. Ambient temperature range $-20\text{ }^{\circ}\text{C} \leq T_a \leq 60\text{ }^{\circ}\text{C}$

Test and assessment report

BVS PP 00.2010 EG as of 01.02.2006

Special conditions for safe use

Special conditions mentioned in clause 17.2 of DMT 01 ATEX E 042 X also apply to the new version DIN Rail Isolator type PSD1001C.

EXAM BBG Prüf- und Zertifizier GmbH

Bochum, dated 01. February 2006

Signed: Dr. Jockers

Signed: Dr. Eickhoff

Certification body

Special services unit

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, 01.02.2006
BVS-Scha/Mi A 20050046

EXAM BBG Prüf- und Zertifizier GmbH



Certification body



Special services unit



7th Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate DMT 01 ATEX E 042 X

Equipment: Eurocard / DIN Rail Isolators type series E10** / D10** / D11** / PSD1001*
Manufacturer: GM International S.R.L.
Address: 20058 Villasanta (MI), Italy

Description

The Eurocard / DIN Rail Isolators type series E10** / D10** / D11** / PSD1001* can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report

Eurocard / DIN Rail Isolators of type series E10** / D10** / D11** / PSD1001* are extended optionally by the following new version:

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
Powered Isolating Driver	type	D1020*, D1020*-xxx or D1020*/B, D1020*-xxx/B
Fire/Smoke Detector Interface	type	D1022*, D1022*-xxx
Frequency isolating repeater	type	D1035S, D1035S-xxx or D1035S/B, D1035S-xxx/B
Digital Output	types	D1040Q, D1041Q, D1042Q, D1043Q, D104*Q-xxx or D1040Q/B, D1041Q/B, D1042Q/B, D1043Q/B, D104*Q-xxx/B
Digital Output	type	PSD1001, PSD1001-xxx, PSD1001C, PSD1001C-xxx or PSD1001/B, PSD1001-xxx/B, PSD1001C/B, PSD1001C-xxx/B
Frequency input converter and trip amplifier	type	D1060S, D1060S-xxx or D1060S/B, D1060S-xxx/B

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

S = single channel, D = dual channel; “xxx” = non Ex -relevant details of function,

/B = “power bus” enclosure, where applicable).

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:

EN 50014:1997+A1-A2	General requirements
EN 50020:2002	Intrinsic safety ‘i’
EN 50284:1999	Equipment Group II Category 1G
EN 50281-1-1:1998	Dust explosion protection

The marking of the equipment shall include the following:



II (1) G D [EEx ia] IIA / IIB / IIC
I (M2) [EEx ia] I

Parameters

1 Non intrinsically safe circuits

1.1 Power supply

DIN Rail Isolator Type	Voltage		Power consumption P_n
	U_n	U_m	
D1010*, D1010*-xxx	DC 24 V (20 - 30 V)	AC 250 V	3.7 W / 2 W
D1010*-046	DC 24 V (20 - 30 V)	AC 250 V	3.7 W / 2 W
D1012Q, D1012Q-xxx	DC 24 V (20 - 30 V)	AC 250 V	3.5 W
D1020*, D1020*-xxx	DC 24 V (20 - 30 V)	AC 250 V	2.7 W / 1.5 W
D1022*, D1022*-xxx	Loop powered	AC 250 V	0.8 W / 0.4 W
D1035*, D1035*-xxx	DC 12 - 24 V (10 - 30 V)	AC 250 V	1.4 W
D104*Q, D104*Q-xxx	DC 24 V (21,5 - 30 V)	AC 250 V	≤ 4.3 W 2.6 W D1041Q
PSD1001**	DC 24 V (21,5 - 30 V)	AC 250 V	3.8 W
D1060*, D1060*-xxx	DC 12 - 24 V (10 - 30 V)	AC 250 V	2.1 W

1.2 Input / output signal circuits

Voltage U_m = AC 250 V

2 Intrinsically safe circuits of protection EEx ia IIC / IIB / IIA

2.1 Repeater Power Supply type D1010*, D1010*-xxx

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	738 nF	820 nF	1000 μF
	IIA	2.508 μF	2.9 μF	1000 μF
Max. external inductance L _o	IIC	4.3 mH	5.7 mH	11.3 mH
	IIB	17.2 mH	22.8 mH	45.3 mH
	IIA	34.5 mH	45.7 mH	90.7 mH
Max. inductance / resistance ratio L _o /R _o	IIC	59.6 μH/Ω	71.5 μH/Ω	3490 μH/Ω
	IIB	238.4 μH/Ω	286.2 μH/Ω	13963 μH/Ω
	IIA	476.8 μH/Ω	572.5 μH/Ω	27927 μH/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				

2.2 Repeater Power Supply type D1010*-046

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		79 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	738 nF	820 nF	1000 μF
	IIA	2.508 μF	2.9 μF	1000 μF
Max. external inductance L _o	IIC	5.8 mH	7.46 mH	45.35 mH
	IIB	23.2 mH	29.8 mH	181.4 mH
	IIA	46.5 mH	59.7 mH	362.8 mH
Max. inductance / resistance ratio L _o /R _o	IIC	69.2 μH/Ω	82.0 μH/Ω	4654 μH/Ω
	IIB	276.8 μH/Ω	328.1 μH/Ω	18618 μH/Ω
	IIA	553.6 μH/Ω	656.2 μH/Ω	37236 μH/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				

2.3 Repeater Power Supply type D1012Q, D1012Q-xxx

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	1.2 μ F
	IIA	4.5 μ F
Max. external inductance L_o	IIC	4.2 mH
	IIB	16.4 mH
	IIA	32.8 mH
Max. inductance / resistance ratio L_o/R_o	IIC	71.7 μ H/ Ω
	IIB	287.0 μ H/ Ω
	IIA	574.0 μ H/ Ω
Characteristics		linear
Ambient temperature range		-40 °C $\leq T_a \leq$ +60 °C
Remarks		all channels interconnected galvanically; common "+" N / A = not applicable

2.4 Powered Isolating Driver type D1020*, D1020*-xxx

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		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	819 nF
	IIA	2.899 μ F
Max. external inductance L_o	IIC	4.69 mH
	IIB	18.7 mH
	IIA	37.5 mH
Max. inductance / resistance ratio L_o/R_o	IIC	64.9 μ H/ Ω
	IIB	259.6 μ H/ Ω
	IIA	519.3 μ H/ Ω
Characteristics		linear
Ambient temperature range		-40 °C $\leq T_a \leq$ +60 °C
Remarks		N / A = not applicable

2.5 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	820 nF
	IIA	2.9 μ F
Max. external inductance L_o	IIC	4.2 mH
	IIB	16.4 mH
	IIA	32.8 mH
Max. inductance / resistance ratio L_o/R_o	IIC	61.2 μ H/ Ω
	IIB	244.9 μ H/ Ω
	IIA	489.8 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	

 2.6 Frequency isolating repeater type D1035S, D1035S-xxx
 Frequency input converter and trip amplifier type D1060S, D1060S-xxx

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	1.37 μ F
	IIB	14.40 μ F	14.40 μ F	8.7 μ F
	IIA	63.00 μ F	63.00 μ F	34.00 μ F
Max. external inductance L_o	IIC	31000 mH	75 mH	255 mH
	IIB	124000 mH	303 mH	1023 mH
	IIA	248000 mH	607 mH	2046 mH
Max. inductance / resistance ratio L_o/R_o	IIC	12.0 mH/ Ω	600 μ H/ Ω	594 μ H/ Ω
	IIB	48.1 mH/ Ω	2402 μ H/ Ω	2378 μ H/ Ω
	IIA	96.2 mH/ Ω	4804 μ H/ Ω	4757 μ H/ Ω
Characteristics	linear	linear	linear	linear
Ambient temperature range	$-40\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$			
Remarks	N / A = not applicable			

2.7 Digital output types D104*Q*, D104*Q*-xxx and PSD1001**, PSD1001**-xxx

4.2.7 a) Single channel

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	970 nF	970 nF	970 nF	970 nF
	IIA	3.50 μF	3.50 μF	3.50 μF	3.50 μF
Max. external inductance L _o	IIC	6.85 mH	4.57 mH	14.26 mH	N / A
	IIB	27.4 mH	18.28 mH	57.06 mH	1.14 mH
	IIA	54.8 mH	36.56 mH	114 mH	2.28 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	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
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					

2.7 b) Double channel

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	970 nF	970 nF	970 nF
	IIA	3.50 μF	3.50 μF	3.50 μF
Max. external inductance L _o	IIC	1.71 mH	1.14 mH	3.61 mH
	IIB	6.85 mH	4.57 mH	14.45 mH
	IIA	13.71 mH	9.14 mH	28.9 mH
Max. inductance / resistance ratio L _o /R _o	IIC	41.9 μH/Ω	34.3 μH/Ω	60.9 μH/Ω
	IIB	167.9 μH/Ω	137.2 μH/Ω	243.8 μH/Ω
	IIA	335.9 μH/Ω	274.4 μH/Ω	487.6 μH/Ω
Characteristics		linear	linear	linear
Ambient temperature range		-40 °C ≤ T _a ≤ +60 °C		
Remarks				
all channels interconnected galvanically; common "+"				
PSD1001*C not listed; single channel version only				
N / A = not applicable				

2.7 c) Triple channel

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 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	970 nF	970 nF	970 nF
	IIA	3.50 μF	3.50 μF	3.50 μF
Max. external inductance L _o	IIC	N / A	N / A	1.6 mH
	IIB	3 mH	2 mH	6.42 mH
	IIA	6.09 mH	4.05 mH	12.84 mH
Max. inductance / resistance ratio L _o /R _o	IIC	N / A	N / A	40.6 μH/Ω
	IIB	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
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				

2.7 d) Quad channel

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	970 nF	970 nF	970 nF
	IIA	3.50 μF	3.50 μF	3.50 μF
Max. external inductance L _o	IIC	N / A	N / A	N / A
	IIB	1.71 mH	1.14 mH	3.61 mH
	IIA	3.42 mH	2.28 mH	7.22 mH
Max. inductance / resistance ratio L _o /R _o	IIC	N / A	N / A	N / A
	IIB	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
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				
) ² 2016 mW = 4 x 519 mW not available due to details of construction				
) ³ 1696 mW = 4 x 424 mW not available due to details of construction				
PSD1001*C not listed; single channel version only				
N / A = not applicable				

Special conditions for safe use

Special conditions mentioned in the 1st supplement to BVS PP 00.2010 EG also apply to the new version of the DIN Rail Isolators.

Test and assessment report

BVS PP 00.2010 EG as of 15.02.2007

EXAM BBG Prüf- und Zertifizier GmbH

Bochum, dated 15. February 2007

Signed: Dr. Jockers

Certification body

Signed: Dr. Wittler

Special services unit

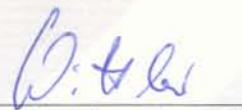
We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

44809 Bochum, 15.02.2007
BVS-Scha/Mi A 20060183

EXAM BBG Prüf- und Zertifizier GmbH



Certification body



Special services unit



8th Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate DMT 01 ATEX E 042 X

Equipment: Eurocard / DIN Rail Isolator type E10** / D10** / D11** / PSD1001*
Manufacturer: GM International S.R.L.
Address: 20058 Villasanta (MI), Italy

Description

The Eurocard / DIN Rail Isolators type series E10** / D10** / D11** / PSD1001* can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report.

Eurocard / DIN Rail Isolators of type series E10** / D10** / D11** / PSD1001* are extended optionally by the following new version:

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		
Bridge Isolating Converter	type	D1064* (D1064S, D1064S/B, D1064-xxx, D1064S-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
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)

The Essential Health and Safety Requirements of the modified equipment as well as of the previous D10** / D11** / PSD1001* equipment are assured by compliance with:

EN 60079-0:2006 General requirements
EN 60079-11:2007 Intrinsic safety 'i'
EN 60079-26:2004 Equipment Group II Category 1G
EN 61241-0:2006 General requirements
EN 61241-11:2006 Protection by IS

The marking of the equipment shall include the following:


II (1) G [Ex ia] IIA / IIB / IIC
I (M2) [Ex ia] I
II (1) D [Ex iaD]

1 Non intrinsically safe circuits (new models; previous models: no change)

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 (new models)

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	

2.2 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		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	N / A
	IIB iaD	1.60 μF	1.60 μF	970 nF	N / A
	IIA	6.39 μF	6.39 μF	3.5 μF	N / A
	I	8.1 μF	8.1 μF	4.95 μF	N / A
Max. external inductance L _o	IIC	0.58 mH	0.38 mH	N / A	N / A
	IIB iaD	2.31 mH	1.52 mH	1.06 mH	N / A
	IIA	4.62 mH	3.03 mH	2.12 mH	N / A
	I	7.58 mH	4.98 mH	3.48 mH	N / A
Max. inductance / resistance ratio L _o /R _o	IIC	30.3 μH/Ω	25.3 μH/Ω	N / A	N / A
	IIB iaD	121.2 μH/Ω	101.4 μH/Ω	66.0 μH/Ω	N / A
	IIA	242.5 μH/Ω	202.9 μH/Ω	132.1 μH/Ω	N / A
	I	398.1 μH/Ω	332.9 μH/Ω	218.8 μH/Ω	N / A
Characteristics		linear	linear	linear	N / A
Ambient temperature range		-40 °C ≤ T _a ≤ +60 °C			
Remarks:					
channel 1 and channel 2 are interconnected N / A = not applicable					

2.3 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	100 μ F) ¹
	IIB iaD	705 nF	770 nF	1000 μ F) ¹
	IIA	2.33 μ F	2.63 μ F	1000 μ F) ¹
	I	3.75 μ F	4.02 μ F	1000 μ F) ¹
Max. external inductance L_o	IIC	4.4 mH	4.4 mH	1000 mH) ¹
	IIB iaD	17.9 mH	17.9 mH	1000 mH) ¹
	IIA	35.8 mH	35.8 mH	1000 mH) ¹
	I	58.7 mH	58.7 mH	1000 mH) ¹
Max. inductance / resistance ratio L_o/R_o	IIC	56.8 μ H/ Ω	61.7 μ H/ Ω	11 x 10 ⁶ μ H/ Ω) ¹
	IIB iaD	227.3 μ H/ Ω	247.1 μ H/ Ω	46 x 10 ⁶ μ H/ Ω) ¹
	IIA	459.7 μ H/ Ω	494.3 μ H/ Ω	93 x 10 ⁶ μ H/ Ω) ¹
	I	746.1 μ H/ Ω	811.0 μ H/ Ω	152 x 10 ⁶ μ H/ Ω) ¹
Characteristics		linear	linear	linear
Ambient temperature range		-40 °C $\leq T_a \leq$ +60 °C		
Remarks:				
• 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:				
- 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 terminal block of the unit (the wiring is not in the hazardous area)				
• N / A = not applicable				

2.4 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	$39 \mu F)^1$
	IIB	$996 \mu F)^1$
	iaD	
	IIA	$996 \mu F)^1$
Max. external inductance L_o	I	$996 \mu F)^1$
	IIC	0.93 mH
	IIB	3.71 mH
	iaD	
Max. inductance / resistance ratio L_o/R_o	IIA	7.42 mH
	I	12.17 mH
	IIC	N / A
	IIB	$247.0 \mu H/\Omega$
Characteristics	iaD	
	IIA	$494.1 \mu H/\Omega$
Ambient temperature range	I	$810.6 \mu H/\Omega$
Remarks:	trapezoidal	
-40 °C ≤ T _a ≤ +60 °C		
Remarks:		
• 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		

3 Intrinsically safe circuits level of protection Ex ia IIC / IIB / IIA / I (previous models)

3.1 Repeater Power Supply D1****

3.1.1 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 μH/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				

3.1.2 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 μH/Ω	61.09 μH/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				

3.1.3 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 °C $\leq T_a \leq$ +60 °C
Remarks: all channels interconnected galvanically; common "+" N / A = not applicable		

3.1.4 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	$-40\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$	
Remark:	N / A = not applicable	

3.2 Powered Isolating Drivers

3.2.1 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 $I_{i i}$		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	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 °C $\leq T_a \leq$ +60 °C
Remark: N / A = not applicable		

3.2 Powered Isolating Drivers

3.2.2 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 $I_{i i}$		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 °C $\leq T_a \leq$ +60 °C
Remark:	N / A = not applicable	

3.3 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 °C $\leq T_a \leq$ +60 °C
Remark: N / A = not applicable		

3.4 Switch/Proximity Repeater

3.4.1 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

3.4.2 Switch/Proximity Repeater types D1032*, D1032*-xxx, D1032*/B, D1032*-xxx/B
D1033*, D1033*-xxx, D1033*/B, D1033*-xxx/B

3.4.3 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 m A
Power P _o		39 mW		24 mW	25 mW
Max. external capacitance C _o	IIC	2.23 μF		3.6 μF	3.6 μF
	IIB iaD	15.6 μF		26 μF	26 μF
	IIA	69 μF		210 μ F	210 μ F
	I	60 μF		99 μF	99 μF
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 °C ≤ T _a ≤ +60 °C			

3.5 Frequency isolating repeater / input converter and trip amplifier

3.5.1 Frequency isolating repeater types D1035S, D1035S-xxx, D1035S/B, D1035S-xxx/B

3.5.2 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		$-40\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$			
Remark:		N / A = not applicable			

- 3.6 Digital output
- 3.6.1 (single channel application)
- 3.6.1.1 Types D104*Q*, D104*Q/B, D104*Q*-xxx, D104*Q-xxx/B
- 3.6.1.2 Types PSD1001, PSD1001/B, PSD1001-xxx, PSD1001-xxx/B
- 3.6.2.3 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					

- 3.6.2 (double channel application)
- 3.6.2.1 Types D104*Q*, D104*Q/B, D104*Q*-xxx, D104*Q-xxx/B
- 3.6.2.2 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		$-40\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$		
Remarks:				
all channels interconnected galvanically; common "+"				
PSD1001*C not listed; single channel version only				
N / A = not applicable				

3.6.3 (triple channel application)

3.6.3.1 Types D104*Q*, D104*Q/B, D104*Q*-xxx, D104*Q-xxx/B

3.6.3.2 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 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				
PSD1001*C not listed; single channel version only				
N / A = not applicable				

3.6.4 (quad channel application)

3.6.4.1 Types D104*Q*, D104*Q/B, D104*Q*-xxx, D104*Q-xxx/B

3.6.4.2 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:				
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				
) ³ 1696 mW = 4 x 424 mW not available due to details of construction				
PSD1001*C not listed; single channel version only				
N / A = not applicable				

3.7 Analogue Signal Converters / Temperature Converter

- 3.7.1 Types D1052*, D1052*-xxx, D1052*/B, D1052*-xxx/B;
 3.7.2 Types D1053*, D1053*-xxx, D1053*/B, D1053*-xxx/B
 3.7.3 Types D1072*, D1072*-xxx, D1072*/B, D1072*-xxx/B
 3.7.4 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	2.14 μ F
	IIB iaD	15 μ F	15 μ F
	IIA	66 μ F	66 μ F
	I	58 μ F	58 μ F
Max. external inductance L_o	IIC	2541 mH	477 mH
	IIB iaD	10167 mH	1909 mH
	IIA	20335 mH	3819 mH
	I	33362 mH	6151 mH
Max. inductance resistance ration L_o/R_o	IIC	3.52 mH/ Ω	1.51 mH/ Ω
	IIB iaD	14.09 mH/ Ω	6.05 mH/ Ω
	IIA	28.18 mH/ Ω	12.1 mH/ Ω
	I	46.22 mH/ Ω	19.85 mH/ Ω
Characteristics		linear	linear
Ambient temperature range		$-40\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$	

3.8 Liquid Presence Detector Interface

3.8.1 Types D1080*, D1080*-xxx, D1080*/B, D1080*-xxx/B

3.8.2 Types D1081*, D1081*-xxx, D1081*/B, D1081*-xxx/B

3.8.3 Types D1180*, D1180*-xxx, D1180*/B, D1180*-xxx/B

Single channel parameters		DIN Rail Isolator Type		
		D1080*, D1081*, D1180*		
Terminals		VCC-GND 13-16 9-12	IN+ - GND 14-16 10-12	VCC - IN- 13-15 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		$-40\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$		

Special conditions for safe use

1. Eurocard Insulator E10** series

No change

2 DIN Rail Insulator D10** / D11** / PSD1001* series

2.1 DIN Rail Insulator D10** / D11** / PSD1001* series shall be installed outside the hazardous area.

2.2 The installation of DIN Rail Insulator D10** / D11** / PSD1001* series 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 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.

Test and assessment report
BVS PP 00.2010 EG as of 01.09.2008

DEKRA EXAM GmbH

Bochum dated 01. September 2008

Signed: Dr. Jockers

Certification body

Signed: Dr. Eickhoff

Special services unit

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, 01. September 2008
BVS- Scha / Her A 20080152

DEKRA EXAM GmbH



Certification body



Special services unit



9th Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate DMT 01 ATEX E 042 X

Equipment: DIN Rail Isolator type series D10** / D11** / PSD1001*
Manufacturer: GM International S.R.L.
Address: 20058 Villasanta (MI), Italy

Description

The DIN Rail Isolators type series D10** / D11** / PSD1001* can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report.

DIN Rail Isolators of type series D10** / D11** / PSD1001* are extended optionally by the following new version:

Digital Output Driver	type	D1048S, D1048S-xxx
Digital Output Driver	type	D1049S, D1049S-xxx, D1049S/B, D1049S-xxx/B

RS422 / RS485 Fieldbus Isolating Repeater	type	D1061S-077, D1061S-077/B
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S = single channel S-xxx = single channel
(Option 'xxx' = non Ex -relevant details of function,
Option 'B' = 'power bus' enclosure where applicable)

Digital Output type D1048S, D1048S-xxx, type D1049S, D1049S-xxx, D1049S/B, D1049S-xxx/B

The Digital Output Type D104*S*, D104*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 D1048S, D1048S-xxx, type D1049S*, D1049S-xxx* provide different electrical parameters on the non-IS side.

RS422 / RS485 Fieldbus Isolating Repeater type D1061S-077, D1061S-077/B

The DIN-Rail RS422 / RS485 Fieldbus Isolating Repeater type D1061S-077* provides single channel separation of intrinsically safe RS422 (4-wire) / RS485 (2-wire) equipment located in a hazardous area from a RS232 / RS422 / RS485 controller located in a safe area.

The new models of DIN Rail Isolators 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.

The new models of DIN Rail Isolators 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.

The Essential Health and Safety Requirements of the modified equipment as well as of the previous D10** / D11** / PSD1001* equipment are assured by compliance with:

EN 60079-0:2009 General requirements
 EN 60079-11:2007 Intrinsic safety 'i'
 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
 and in addition:
 EN 60079-15:2005 Type of protection 'n' only referring to the new models listed above.

The marking of the equipment shall include the following:

	II 3 (1) G Ex nA [ia Ga] IIC T4 Gc	(new models only)
	II (1) G [Ex ia Ga] IIC	(previous models only)
	I (M1) [Ex ia Ma] I	(previous and new models)
	II (1) D [Ex ia Da] IIIC	(previous and new models)

Parameters

- 1 Previous D10** / D11** / PSD1001* equipment as of supplement no. 1 to no. 8 to DMT 01 ATEX E 042 X
 No change
- 2 New D10** equipment
- 2.1 Power supply (non IS)

DIN Rail Isolator type	Voltage		Power consumption
	U _n	U _m	P _n
	DC [V]	AC [V]	[W]
D1048S, D1048S-xxx	24	250	≤ 1.80
D1049S*, D1049S-xxx*	24	250	≤ 1.80
D1061S-077, D1061S-077/B	24	250	≤ 2.80

- 2.2 Input / output signal circuits (non IS)
 Voltage U_m = AC 250 V

2.3 Intrinsically safe circuits type of protection Ex ia IIC / IIB / IIA, I

2.3.1 Digital Output Driver type D1048S, D1048S-xxx

Digital Output Driver type D1049S, D1049S-xxx, D1049S/B, D1049S-xxx/B

Single channel parameters	Terminals			
Channel	1	13-16) ¹	14-16) ²	15-16) 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			
Ambient temperature range	-40 °C ≤ T _a ≤ +60 °C			
Remarks:				
) 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				
N / A = not applicable				

2.3.2 RS422 / RS485 Fieldbus Isolating Repeater type D1061S-077, D1061S-077/B

Single channel parameters		Terminals	
Channel	1	13-14) ¹	15-16) ²
	2	N / A	N / A
Voltage U _o		DC 3.7 V	
Current I _o		93 mA	
Power P _o		85 mW	
Voltage U _i		DC 30 V	
Current I _i		136 mA	
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 μF	
	IIB iaD	1000 μF	
	IIA	1000 μF	
	I	1000 μF	
Max. external inductance L _o	IIC	4.1 mH	
	IIB iaD	16.7 mH	
	IIA	33.4 mH	
	I	54.9 mH	
Max. inductance / resistance ratio L _o /R _o	IIC	422.7 μH/Ω	
	IIB iaD	1690.9 μH/Ω	
	IIA	3381.9 μH/Ω	
	I	5548.4 μH/Ω	
Characteristics		linear	
Ambient temperature range		-40 °C ≤ T _a ≤ +60 °C	
Remarks:			
) ¹ 2-wire RS485 IN/OUT circuit or Tx/D of the RS422 4-wire circuit			
) ² Rx/D of the RS422 4-wire circuit			
terminals 9-10: shield connection facilities			
N / A = not applicable			

Special conditions for safe use

1 Group I application

DIN Rail Isolators of type series D10** / D11** / PSD1001* 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 D10** / D11** / PSD1001* with other electrical apparatus to an intrinsically safe electrical system shall be assessed in a System Certificate, if required in local installation rules..

2 Group II application:

DIN Rail Isolators of type series D10** / D11** / PSD1001* shall be installed:

- outside the hazardous area, or

(applies to models D1048S, D1048S-xxx, D1049S*, D1049S-xxx*, D1061S-077, D1061S-077/B only)

- 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.

3 Group III application:

DIN Rail Isolators of type series D10** / D11** / PSD1001* shall be installed outside the hazardous area.

4 General

The installation of DIN Rail Isolators of type series D10** / D11** / PSD1001* 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 EN 60079-11:2007.

Test and assessment report

BVS PP 00.2010 EG as of 06.10.2010

DEKRA EXAM GmbH

Bochum, dated 06 October 2010

Signed: Hans Christian Simanski

Certification body

Signed: Dr. Franz Eickhoff

Special services unit

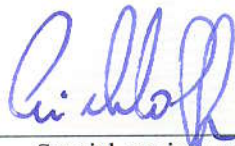
We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

44809 Bochum, 06.10.2010
BVS-Scha/Her A 20100817

DEKRA EXAM GmbH



Certification body



Special services unit

Translation

(1) 10. Supplement to the EC-Type Examination Certificate

- (2) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC Supplement accordant with Annex III number 6

(3) No. of EC-Type Examination Certificate: **DMT 01 ATEX E 042 X**

(4) Equipment: **DIN Rail Isolator type D10** / D11** / PSD1001***

(5) Manufacturer: **G.M. International S.R.L.**

(6) Address: **Via San Fiorano 70, 20852 Villasanta (MB), Italy**

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

- (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 00.2010 EG.

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

EN 60079-0:2012 General requirements
EN 60079-11:2012 Intrinsic safety "i"
EN 60079-15:2010 Type of protection 'n'
EN 60079-26:2007 Equipment with equipment protection level (EPL) Ga
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 supplement to the 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:

II 3 (1) G Ex nA [ia Ga] IIC T4 Gc
 **II (1) G [Ex ia Ga] IIC**
I (M1) [Ex ia Ma] I
II (1) D [Ex ia Da] IIIC

DEKRA EXAM GmbH
Bochum, dated 2013-09-06

Signed: Simanski

Certification body

Signed: Dr. Wittler

Special services unit

- (13) Appendix to
- (14) **10. Supplement to the EC-Type Examination Certificate
DMT 01 ATEX E 042 X**

(15) 15.1 Subject and type

DIN Rail Isolators type D10** / D11** / PSD1001*

Type Code: no extension

15.2 Description

The DIN Rail Isolators can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report.

The status of applied standards has been subjected to update.

Allocation of Ex marking listed in (12) to DIN Rail Isolator models: no change.

15.3 Parameters

Parameters specified in previous supplements and basic certificate remain valid without change. L_o, C_o and L_o/R_o parameters specified for Group IIB in previous supplements and basic certificate apply in addition for Group IIIC.

(16) Test and assessment report

BVS PP 00.2010 EG as of 2013-09-06

(17) Special conditions for safe use

17.1 Group I application

DIN Rail Isolators of type series D10** / D11** / PSD1001* 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 D10** / D11** / PSD1001* 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 (Gas):

DIN Rail Isolators of type series D10** / D11** / PSD1001* shall be installed:

- outside the hazardous area,

or

(applies to models D1048S, D1048S-xxx, D1049S*, D1049S-xxx*, D1061S-077, D1061S-077/B only)

- 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 II application (Dust):

DIN Rail Isolators of type series D10** / D11** / PSD1001* shall be installed outside the hazardous area or alternatively in an enclosure providing a suitable type of protection according to separate certification.

17.4 General

The installation of DIN Rail Isolators of type series D10** / D11** / PSD1001* 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 EN 60079-11:2012.

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.

DEKRA EXAM GmbH
44809 Bochum, 2013-09-06
BVS-Scha/Ma A20130032



Certification body



Special services unit