

Translation

EU-Type Examination Certificate Supplement 11

Change to Directive 2014/34/EU

Equipment intended for use in potentially explosive atmospheres
Directive 2014/34/EU

EU-Type Examination Certificate Number: **DMT 01 ATEX E 042 X**

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

Manufacturer: **G.M. International S.R.L.**

Address: **Via Mameli 53/55, 20852 Villasanta (MB), Italy**

This supplementary certificate extends EC-Type Examination Certificate No. DMT 01 ATEX E 042 X to apply to products designed and constructed in accordance with the specification set out in the appendix of the said certificate but having any acceptable variations specified in the appendix to this certificate and the documents referred to therein.

DEKRA Testing and Certification GmbH, Notified Body number 0158, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential Report No. BVS PP 00.2010 EU.

Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2012 + A11:2013 **General requirements**
EN 60079-11:2012 **Intrinsic Safety "i"**
EN 60079-15:2010 **Type of protection 'n'**

If the sign "X" is placed after the certificate number, it indicates that the product is subject to the Special Conditions for Use specified in the appendix to this certificate.

This EU-Type Examination Certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

The marking of the product 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 Testing and Certification GmbH
Bochum, 2019-01-09

Signed: Jörg Koch

Certifier

Signed: Dr. Michael Wittler

Approver

13 **Appendix**

14 **EU-Type Examination Certificate**

**DMT 01 ATEX E 042 X
Supplement 11**

15 **Product description**

15.1 **Subject and type**

DIN Rail Isolator type series D10** / D11** / PSD1001* comprises of the following models:

Repeater Power Supply	type	D1010 (D1010*, D1010*-xxx, D1010*/B, D1010*-xxx/B)
Repeater Power Supply	type	D1010-046 (D1010*-046, D1010*-046/B)
Repeater Power Supply	type	D1012 (D1012Q, D1012Q-xxx, D1012Q/B, D1012Q-xxx/B)
Repeater Power Supply	type	D1014 (D1014*, D1014*-xxx, D1014*/B, D1014*-xxx/B)
Powered Isolating Driver	type	D1020 (D1020*, D1020*-xxx, D1020*/B, D1020*-xxx/B)
Fire/Smoke Detector Interface	type	D1022 (D1022*, D1022*-xxx)
Switch/Proximity Repeater	type	D1030 (D1030*, D1030*-xxx, D1030*/B, D1030*-xxx/B) D1031 (D1031*, D1031*-xxx, D1031*/B, D1031*-xxx/B) D1032 (D1032*, D1032*-xxx, D1032*/B, D1032*-xxx/B) D1033 (D1033*, D1033*-xxx, D1033*/B, D1033*-xxx/B) D1034 (D1034*, D1034*-xxx, D1034*/B, D1034*-xxx/B)
Frequency isolating repeater	type	D1035 (D1035*, D1035*-xxx, D1035*/B, D1035*-xxx/B)
Digital Output	type	D1040 (D1040Q, D1040Q-xxx, D1040Q/B, D1040Q-xxx/B) D1041 (D1041Q, D1041Q-xxx, D1041Q/B, D1041Q-xxx/B) D1042 (D1042Q, D1042Q-xxx, D1042Q/B, D1042Q-xxx/B) D1043 (D1043Q, D1043Q-xxx, D1043Q/B, D1043Q-xxx/B)
Digital Relay Output	type	D1044 (D1044*, D1044*-xxx, D1044*/B, D1044*-xxx/B)
Digital Output Loop / Bus powered	type	D1045 (D1045Y, D1045Y-xxx, D1045Y/B, D1045Y-xxx/B) D1046 (D1046Y, D1046Y-xxx, D1046Y/B, D1046Y-xxx/B)
Digital Output Driver	type	D1048 (D1048S, D1048S-xxx)
Digital Output Driver	type	D1049 (D1049S, D1049S-xxx, D1049S/B, D1049S-xxx/B)
Analogue Signal / Temperature Converter	type	D1052 (D1052*, D1052*-xxx, D1052*/B, D1052*-xxx/B) D1053 (D1053*, D1053*-xxx, D1053*/B, D1053*-xxx/B)
Analogue Signal / and trip amplifier	type	D1060 (D1060S, D1060S-xxx, D1060S/B, D1060S-xxx/B)
RS422 / RS485 Fieldbus	type	D1061-077 (D1061S-077, D1061S-077/B)
Isolating Repeater		
Vibration Transducer Interface	type	D1062 (D1062S, D1062S-xxx, D1062S/B, D1062S-xxx/B)
Load Cell / Strain Gauge		
Bridge Isolating Converter	type	D1064 (D1064S, D1064S-xxx, D1064S/B, D1064S-xxx/B)
Temperature Converter	type	D1072 (D1072*, D1072*-xxx, D1072*/B, D1072*-xxx/B) D1073 (D1073*, D1073*-xxx, D1073*/B, D1073*-xxx/B)
Liquid Presence Detector Interface	type	D1080 (D1080D, D1080D-xxx, D1080D/B, D1080D-xxx/B) D1081 (D1081D, D1081D-xxx, D1081D/B, D1081D-xxx/B)
Switch/Proximity Repeater	type	D1130 (D1130*, D1130*-xxx)
Liquid Presence Detector Interface	type	D1180 (D1180D, D1180D-xxx)
Digital Output	type	PSD1001 (PSD1001, PSD1001/B, PSD1001-xxx, PSD1001-xxx/B) PSD1001C (PSD1001C, PSD1001C/B, PSD1001C-xxx, PSD1001C-xxx/B)
Adapter	type	GMEI1000ADP

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
X	= single channel / two analogue-outputs	X-xxx	= single channel / two analogue-outputs
Q	= quad channel,	Q-xxx	= quad 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
Q/B	= quad channel, Power Bus	Q/B-xxx	= quad channel, power bus

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

15.2 Description

With this supplement the certificate is changed to Directive 2014/34/EU.

(Annotation: In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016.)

Reason for the supplement:

- change to Directive 2014/34/EU

(except for Eurocard Isolators type E10*** and DIN Rail Isolator type D1011*, D1021S*, D1025S, D1050*, D1070*)

- update of Ex-marking: “iaD” replaced by “IIIC” in parameter tables

- update of applied standards as listed in (12)

Notes:

- exclusion of Eurocard Isolators type E10*** and DIN Rail Isolator type D1011*, D1021S*, D1025S, D1050*, D1070* from conversion to Directive 2014/34/EU has no safety related reasons

- update of EN 60079-26:2007 Ed. 2 'Equipment with equipment protection level (EPL) Ga' to EN 60079-26:2015 Ed. 3 waived; all requirements applicable to associated apparatus are included in EN 60079-0 / -11 Ed. 6;

- listing of EN 50303:2000 'Equipment Group I Category M1' waived; all requirements applicable to associated apparatus are included in EN 60079-0 / -11 Ed. 6.

Description of Product

General

DIN Rail Isolators are designed as associated apparatus and designated for installation in the safe area and some models for installation 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.

All 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.

Repeater Power Supply type D1010** (D1010*, D1010*-xxx; D1010*/B, D1010*-xxx/B)

Repeater Power Supply type D1010** provide single or dual channel intrinsically safe power supply for IS apparatus and repeat a 4 - 20 mA analogue signal in non-intrinsically safe circuits; single channel: type D1010S*, dual channel: type D1010D*.

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

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

Repeater Power Supply type D1014 (D1014*, D1014*-xxx; D1014*/B, D1014*-xxx/B)**

Repeater Power Supply type D1014** provide single or dual channel intrinsically safe power supply for measuring transmitters and repeat a 4 - 20 mA analogue signal in non-intrinsically safe circuits; single channel: type D1011S* / D1014S*; dual channel: type D1011D* / D1014D*.

Repeater Power Supply type D1012Q* (D1012Q, D1012Q-xxx; D1012Q/B, D1012Q-xxx/B)

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

Powered Isolating Driver type D1020 (D1020*, D1020*-xxx; D1020*/B, D1020*-xxx/B)**

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

Fire/Smoke Detector Interface type D1022 (D1022*, D1022*-xxx)**

Fire/Smoke Detector Interface type D1022** provide single or dual channel intrinsically safe power supply for fire/smoke detectors "switched resistor mode" and repeat the analogue signal in non-intrinsically safe circuits; single channel: type D1022S*, dual channel: type D1022D*.

Switch/Proximity Repeater type D103* (D1030*, D1030*-xxx; D1030*/B, D1030*-xxx/B; D1031*, D1031*-xxx; D1031*/B, D1031*-xxx/B)**

Switch/Proximity Repeater type D1130 (D1130*, D1130*-xxx)**

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

Switch/Proximity Repeater Detectors are identical except for non-intrinsically safe output configuration:

relay-contact (types D1030**, D1130**), opto-isolator (type D1031**). Available version of the Switch/Proximity Repeater Detector: single channel: type D1*3*S*; dual channel: type D1*3*D*; quad channel: type D1*3*Q*.

Switch/Proximity Repeater type D1032 (D1032*, D1032*-xxx; D1032*/B, D1032*-xxx/B) type D1033** (D1033*, D1033*-xxx; D1033*/B, D1033*-xxx/B)**

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

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

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

Switch/Proximity Repeater type D1034 (D1034*, D1034*-xxx; D1034*/B, D1034*-xxx/B)**

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

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

Frequency isolating repeater type D1035S* (D1035S, D1035S-xxx; D1035S/B, D1035S-xxx/B)

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

Digital Output type D104*Q* (D1040Q, D1040Q/B, D1040Q-xxx; D1040Q-xxx/B; D1041Q, D1041Q/B, D1041Q-xxx, D1041Q-xxx/B; D1042Q, D1042Q/B, D1042Q-xxx, D1042Q-xxx/B; D1043Q, D1043Q/B, D1043Q-xxx, D1043Q-xxx/B)

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

Digital Output type PSD1001* (PSD1001, PSD1001/B, PSD1001-xxx, PSD1001-xxx/B)
Digital Output type PSD1001C* (PSD1001C, PSD1001C-xxx, PSD1001C/B, PSD1001C-xxx/B)
 Digital Output type PSD1001* provides four intrinsically safe power outputs to drive intrinsically safe apparatus. The four power outputs - configuration with common "+" - may be used as single outputs or interconnected in parallel.
 Digital Output type PSD1001C* provides a single intrinsically safe power output to drive intrinsically safe apparatus.
 Digital Output type PSD1001C* complies with Digital Output type PSD1001* with the exception, that the four power outputs - configuration with common "+" - are already interconnected in parallel and form one single output.

Digital Relay Output type D1044 (D1044*, D1044*/B; D1044*-xxx, D1044*-xxx/B)**
 Digital Relay Output type D1044** are designed as single or dual channel galvanic isolators providing voltage free SPDT relay contacts intended for interconnection to IS circuits. The relays are operated by input signals generated in the safe area.
 Version: single channel type D1044S*; dual channel type D1044D*.

Digital Output (Loop/Bus powered) type D1045Y* / D1046Y*
(D1045Y, D1045Y/B, D1045Y-xxx, D1045Y-xxx/B; D1046Y, D1046Y/B, D1046Y-xxx, D1046Y-xxx/B)
 Digital Output type D104*Y* provide two fully floating intrinsically safe remote outputs to operate and supply solenoid valves, LEDs or audible alarms driven by non-intrinsically safe digital remote signals. The versions type D1045Y* and D1046Y* have different output parameters.

Digital Output type D1048S* (D1048S, D1048S-xxx)
Digital Output type D1049S* (D1049S, D1049S-xxx, D1049S/B, D1049S-xxx/B)
 Digital Output Type D1048S*, D1049S* 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* / D1049S* provide different electrical parameters and/or configuration on the non-IS side.

Analogue Signal / Temperature Converter
type D1052 (D1052*, D1052*-xxx; D1052*/B, D1052*-xxx/B)**
type D1053 (D1053*, D1053*-xxx; D1053*/B, D1053*-xxx/B)**
 Analogue Signal Converter types D1052**, D1053** provide single or dual channel conversion of analogue intrinsically safe "mA" - or "V"-signals from separately powered transducers into non-intrinsically safe 0/4 - 20 mA or 0/1 - 5V analogue- or alarm-signal circuits.
 Analogue Signal Converters are identical except for non-intrinsically safe output configuration and function:
 type D1052**: analogue-output; type D1053**: relay-contacts "alarm A/B" and analogue-output;
 type D105*S*: single channel; type D105*D*: dual channel; type D105*X*: single channel / two analogue-outputs; Type D105*Y*: dual channel / double analogue-output.

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

RS422 / RS485 Isolating Repeater type D1061S-077, D1061S-077/B
 The DIN-Rail RS422 / RS485 Fieldbus Isolating Repeater type D1061S-077, D1061S-077/B 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.

Vibration Transducer Interface
type D1062S* (D1062S, D1062S/B, D1062S-xxx, D1062S-xxx/B)
 Vibration Transducer Interface type D1062S* provide fully floating single channel intrinsically safe power supply for Vibration Transducers, accelerometers or two-/ three-wire analogue output sensors and repeat the sensor signals in non-intrinsically safe circuits.

Load Cell / Strain Gauge Bridge Isolating Converter

type D1064S* (D1064S, D1064S/B; D1064-xxx, D1064S-xxx/B)

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

Analogue Signal / Temperature Converter

type D1072 (D1072*, D1072*-xxx; D1072*/B, D1072*-xxx/B)**

type D1073 (D1073*, D1073*-xxx; D1073*/B, D1073*-xxx/B)**

Analogue Signal / Temperature Converter types D1072**, D1073** provide single or dual channel conversion of intrinsically safe low level DC-signals of thermocouples, resistance thermometers or transmitting potentiometers with 2-, 3-, 4-wire configuration and generate non-intrinsically safe 0/4 - 20 mA or 0/1 - 5V analogue- or alarm-signal circuits.

Analogue Signal / Temperature Converters are identical except for non-intrinsically safe output configuration and function:

type D1072**: analogue-output; type D1073**: relay-contacts "alarm A/B" and analogue-output;

type D1073S*: single channel; type D1073D*: dual channel; type D1073X*: single channel / two analogue-outputs; type D1073Y*: dual channel / double analogue-output.

Liquid Presence Detector Interface

type D1080D* (D1080D, D1080D-xxx; D1080D/B, D1080D-xxx/B)

type D1081D* (D1081D, D1081D-xxx; D1081D/B, D1081D-xxx/B)

type D1180D* (D1180D, D1180D-xxx)

Liquid Presence Detector Interfaces Types D1080D*, D1081D*, D1180D* provide dual channel intrinsically safe 3-wire sensor circuits and repeat the sensor signal in a non-intrinsically safe output relay contact (types D1080D*, D1180D*) or opto-isolated transistor output (D1081D*).

Adapter Type GMEI1000ADP

The Adapter Type GMEI1000ADP provides optionally 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.

Listing of all components used referring to older standards: not applicable.

15.3 Parameters

15.3.1 Non-intrinsically safe circuits

15.3.1.1 Power supply

DIN Rail Isolator type	Voltage		Consumption
	U_n	U_m	P_n
	DC [V]	AC [V]	[W]
D1010**	24	253	≤ 3.7
D1010*-046	24	253	≤ 3.7
D1012Q*	24	253	≤ 3.5
D1014**	12 - 24	253	≤ 3.3
D1020**	24	253	≤ 2.7
D1022**	(Loop)	253	≤ 0.8
D1030**	24	253	≤ 2.6
D1031**	12 - 24	253	≤ 1.8
D1032**, D1033**	24	253	$\leq 2.6, \leq 1.6$
D1034**	12 - 24	253	≤ 1.9
D1035S*	12 - 24	253	≤ 1.4
D1040Q*, D1041Q*, D1042Q*, D1043Q*	24	253	≤ 4.3
PSD1001*, PSD1001C*	24	253	≤ 3.8
D1044S*, D1044D*	24	253	$\leq 1.1 / 2$
D1045Y*, D1046Y*	24	253	≤ 4.3
D1048S*, D1049S*	24	253	≤ 1.80
D1052**, D1053**	12 - 24	253	$\leq 2.3, \leq 2.2$
D1060S*	12 - 24	253	≤ 2.1
D1061S-077*	24	253	≤ 2.80
D1062S*	24	253	≤ 2.6
D1064S*	24	253	≤ 3.3
D1072**, D1073**	12 - 24	253	$\leq 2.2, \leq 2.3$
D1080D*, D1081D*	24	253	$\leq 2, \leq 2.2$
	AC [V]	AC [V]	[W]
D1131**	115 -	253	≤ 2.0
D1180D*	230		≤ 2.9

15.3.1.2 Input / output signal circuits

Voltage $U_m = AC 253 V$

15.3.1.3 Adapter type GMEI1000ADP

Voltage (general) $U_m = AC 253 V$

Power supply: parameters according to the individual DIN Rail Isolator

15.3.2 Intrinsically safe circuit type of protection Ex ia IIC / IIB, IIIC / IIA, I

15.3.2.1 Repeater Power Supply type D1010 (D1010*, D1010*-xxx, D1010*/B, D1010*-xxx/B)

Device Marking

II (1)G [Ex ia Ga] IIC and

II (1)D [Ex ia Da] IIIC and

I (M1) [Ex ia Ma] I

Note: "II (1)G [Ex ia Ga] IIC" may be replaced by "II 3(1)G Ex nA [ia Ga] IIC T* Gc" or "II 3(1)G Ex ec [ia Ga] IIC T* Gc", if optional installation in EPL Gc area is subject to another ATEX certificate. T* according to specified individual temperature class.

Single channel parameters	Terminals					
	1	14-15) ¹	14-15-16) ²	15-16) ³	14-11) ⁴	15-12) ⁵
Channel	2	10-11) ¹	10-11-12) ²	11-12) ³	-	-
Voltage U _o		DC 26.3 V	DC 26.3 V	DC +/- 1.1 V	DC 27.4 V	DC +/- 2.2 V
Current I _o		91 mA	91 mA	38 mA	91 mA	38 mA
Power P _o		597 mW	597 mW	11 mW	624 mW	21 mW
Voltage U _i		N / A	N / A	DC 30 V	N / A	DC 30 V
Current I _i		N / A	N / A	104 mA	N / A	104 mA
Power P _i		N / A	N / A	N / A	N / A	N / A
Effective internal capacitance C _i		N / A	N / A	1.05 nF	N / A	1.05 nF
Effective internal inductance L _i		N / A	N / A	0 mH	N / A	0 mH
Max. external capacitance C _o	IIC	95 nF	95 nF	100 µF	85 nF	100 µF
	IIB IIIC	738 nF	738 nF	1000 µF	675 nF	1000 µF
	IIA	2.51 µF	2.51 µF	1000 µF	2.258 µF	1000 µF
	I	3.95 µF	3.95 µF	1000 µF	3.968 µF	1000 µF
Max. external inductance L _o	IIC	4.3 mH	4.3 mH	11.3 mH	4.3 mH	11.3 mH
	IIB IIIC	17.2 mH	17.2 mH	45.3 mH	17.2 mH	45.3 mH
	IIA	34.5 mH	34.5 mH	90.7 mH	34.5 mH	90.7 mH
	I	56.6 mH	56.6 mH	148.8 mH	56.6 mH	148.8 mH
Max. inductance / resistance ratio L _o /R _o	IIC	59.6 µH/Ω	59.6 µH/Ω	3490 µH/Ω	54.7 µH/Ω	849 µH/Ω
	IIB IIIC	238.4 µH/Ω	238.4 µH/Ω	13963 µH/Ω	218.9 µH/Ω	3396 µH/Ω
	IIA	476.8 µH/Ω	476.8 µH/Ω	27927 µH/Ω	437.9 µH/Ω	6793 µH/Ω
	I	782.2 µH/Ω	782.2 µH/Ω	45820 µH/Ω	718.5 µH/Ω	11143 µH/Ω
Characteristics		linear	linear	linear	linear	linear
Ambient temperature range		-40 °C ≤ T _a ≤ +60 °C				
Remarks						
) ¹ 2-wire circuit "+TX*", "+IN*" sum of parameters						
) ² 3-wire circuit "+TX*", "+IN*", "-IN*" sum of parameters						
) ³ 2-wire circuit "-IN*", "+IN*" parameters of input circuit						
) ⁴ duplicator configuration with 15-12 shorted						
) ⁵ duplicator configuration with 16-11 shorted						
N / A = not applicable						

15.3.2.2 Repeater Power Supply type D1010-046 (D1010*-046, D1010*-046/B)

Device Marking

II (1)G [Ex ia Ga] IIC and

II (1)D [Ex ia Da] IIIC and

I (M1) [Ex ia Ma] I

Note: "II (1)G [Ex ia Ga] IIC" may be replaced by "II 3(1)G Ex nA [ia Ga] IIC T* Gc" or "II 3(1)G Ex ec [ia Ga] IIC T* Gc", if optional installation in EPL Gc area is subject to another ATEX certificate. T* according to specified individual temperature class.

Single channel parameters	Terminals					
Channel	1	14-15) ¹	14-15-16) ²	15-16) ³	14-11) ⁴	15-12) ⁵
	2	10-11) ¹	10-11-12) ²	11-12) ³	-	-
Voltage U _o		DC 26.3 V	DC 26.3 V	DC +/- 1.1 V	DC 27.4 V	DC +/- 2.2 V
Current I _o		78.2 mA	78.2 mA	28 mA	78.2 mA	28 mA
Power P _o		514 mW	514 mW	8 mW	542 mW	21 mW
Voltage U _i		N / A	N / A	DC 30 V	N / A	DC 30 V
Current I _i		N / A	N / A	104 mA	N / A	104 mA
Power P _i		N / A	N / A	N / A	N / A	N / A
Effective internal capacitance C _i		N / A	N / A	1.05 nF	N / A	1.05 nF
Effective internal inductance L _i		N / A	N / A	0 mH	N / A	0 mH
Max. external capacitance C _o	IIC	95 nF	95 nF	100 µF	85 nF	100 µF
	IIB IIIC	738 nF	738 nF	1000 µF	675 nF	1000 µF
	IIA	2.51 µF	2.51 µF	1000 µF	2.258 µF	1000 µF
	I	3.95 µF	3.95 µF	1000 µF	3.968 µF	1000 µF
Max. external inductance L _o	IIC	5.8 mH	5.8 mH	45.35 mH	5.8 mH	45.35 mH
	IIB IIIC	23.2 mH	23.2 mH	181.4 mH	23.2 mH	181.4 mH
	IIA	46.5 mH	46.5 mH	362.8 mH	46.5 mH	362.8 mH
	I	76.3 mH	76.3 mH	595.2 mH	76.3 mH	595.2 mH
Max. inductance / resistance ratio L _o /R _o	IIC	69.2 µH/Ω	69.2 µH/Ω	4654 µH/Ω	63 µH/Ω	1151 µH/Ω
	IIB IIIC	276.8 µH/Ω	276.8 µH/Ω	18618 µH/Ω	252.2 µH/Ω	4607 µH/Ω
	IIA	553.6 µH/Ω	553.6 µH/Ω	37236 µH/Ω	504.5 µH/Ω	9215 µH/Ω
	I	908.3 µH/Ω	908.3 µH/Ω	61090 µH/Ω	827.8 µH/Ω	15118 µH/Ω
Characteristics		linear	linear	linear	linear	linear
Ambient temperature range		-40 °C ≤ T _a ≤ +60 °C				
Remarks	¹ 2-wire circuit "+TX*", "+IN*" sum of parameters ² 3-wire circuit "+TX*", "+IN*", "-IN*" parameters of supply circuit ³ 2-wire circuit "-IN*", "+IN*" parameters of input circuit ⁴ duplicator configuration with 15-12 shorted ⁵ duplicator configuration with 16-11 shorted N / A = not applicable					

15.3.2.3 Repeater Power Supply type D1012 (D1012Q, D1012Q-xxx, D1012Q/B, D1012Q-xxx/B)

Device Marking

II (1)G [Ex ia Ga] IIC and

II (1)D [Ex ia Da] IIIC and

I (M1) [Ex ia Ma] I

Note: "II (1)G [Ex ia Ga] IIC" may be replaced by "II 3(1)G Ex nA [ia Ga] IIC T* Gc" or "II 3(1)G Ex ec [ia Ga] IIC T* Gc", if optional installation in EPL Gc area is subject to another ATEX certificate. T* according to specified individual temperature class

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 IIIC	1.2 μ F
	IIA	4.5 μ F
	I	6.0 μ F
Max. external inductance L_o	IIC	4.2 mH
	IIB IIIC	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 IIIC	287.0 μ H/ Ω
	IIA	574.0 μ H/ Ω
	I	941.7 μ H/ Ω
Characteristics	linear	
Ambient temperature range	$-40\text{ }^\circ\text{C} \leq T_a \leq +60\text{ }^\circ\text{C}$	
Remarks	all channels interconnected galvanically; common "+" N / A = not applicable	

15.3.2.4 Repeater Power Supply type D1014 (D1014*, D1014*-xxx, D1014*/B, D1014*-xxx/B)

Device Marking

II (1)G [Ex ia Ga] IIC and

II (1)D [Ex ia Da] IIIC and

I (M1) [Ex ia Ma] I

Note: "II (1)G [Ex ia Ga] IIC" may be replaced by "II 3(1)G Ex nA [ia Ga] IIC T* Gc" or "II 3(1)G Ex ec [ia Ga] IIC T* Gc", if optional installation in EPL Gc area is subject to another ATEX certificate. T* according to specified individual temperature class

Single channel parameters	Terminals	
Channel	1 / 2	14-15 / 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 IIIC	0.82 μ F
	IIA	2.9 μ F
	I	4.15 μ F
Max. external inductance L_o	IIC	4.2 mH
	IIB IIIC	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 IIIC	242.9 μ H/ Ω
	IIA	485.8 μ H/ Ω
	I	797.1 μ H/ Ω
Characteristics	linear	
Ambient temperature range	$-40\text{ }^\circ\text{C} \leq T_a \leq +60\text{ }^\circ\text{C}$	
Remarks:	N / A = not applicable	

15.3.2.5 Powered Isolating Driver type D1020 (D1020*, D1020*-xxx, D1020*/B, D1020*-xxx/B)

Device Marking

II (1)G [Ex ia Ga] IIC and

II (1)D [Ex ia Da] IIIC and

I (M1) [Ex ia Ma] I

Note: "II (1)G [Ex ia Ga] IIC" may be replaced by "II 3(1)G Ex nA [ia Ga] IIC T* Gc" or "II 3(1)G Ex ec [ia Ga] IIC T* Gc", if optional installation in EPL Gc area is subject to another ATEX certificate. T* according to specified individual temperature class

Single channel parameters	Terminals	
Channel	1 / 2	14-15 / 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 IIIC	819 nF
	IIA	2.899 μ F
	I	4.15 μ F
Max. external inductance L_o	IIC	4.69 mH
	IIB IIIC	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 IIIC	259.6 μ H/ Ω
	IIA	519.3 μ H/ Ω
	I	851.9 μ H/ Ω
Characteristics	linear	
Ambient temperature range	$-40\text{ }^\circ\text{C} \leq T_a \leq +60\text{ }^\circ\text{C}$	
Remarks	N / A = not applicable	

15.3.2.6 Fire/Smoke Detector Interface type D1022 (D1022*, D1022*-xxx)

Device Marking

II (1)G [Ex ia Ga] IIC and

II (1)D [Ex ia Da] IIIC and

I (M1) [Ex ia Ma] I

Note: "II (1)G [Ex ia Ga] IIC" may be replaced by "II 3(1)G Ex nA [ia Ga] IIC T* Gc" or "II 3(1)G Ex ec [ia Ga] IIC T* Gc", if optional installation in EPL Gc area is subject to another ATEX certificate. T* according to specified individual temperature class

Single channel parameters	Terminals	
Channel	1 / 2	13-14 / 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 IIIC	820 nF
	IIA	2.9 μ F
	I	4.15 μ F
Max. external inductance L_o	IIC	4.2 mH
	IIB IIIC	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 IIIC	244.9 μ H/ Ω
	IIA	489.8 μ H/ Ω
	I	803.7 μ H/ Ω
Characteristics	linear	
Ambient temperature range	$-40\text{ }^\circ\text{C} \leq T_a \leq +60\text{ }^\circ\text{C}$	
Remarks	N / A = not applicable	

- 15.3.2.7 Switch/Proximity Repeater type D1030 (D1030*, D1030*-xxx, D1030*/B, D1030*-xxx/B)
 D1031 (D1031*, D1031*-xxx, D1031*/B, D1031*-xxx/B)
 D1032 (D1032*, D1032*-xxx, D1032*/B, D1032*-xxx/B)
 D1033 (D1033*, D1033*-xxx, D1033*/B, D1033*-xxx/B)
 D1034 (D1034*, D1034*-xxx, D1034*/B, D1034*-xxx/B)
 type D1130 (D1130*, D1130*-xxx)

Device Marking

II (1)G [Ex ia Ga] IIC and

II (1)D [Ex ia Da] IIIC and

I (M1) [Ex ia Ma] I

Note: "II (1)G [Ex ia Ga] IIC" may be replaced by "II 3(1)G Ex nA [ia Ga] IIC T* Gc" or "II 3(1)G Ex ec [ia Ga] IIC T* Gc", if optional installation in EPL Gc area is subject to another ATEX certificate. T* according to specified individual temperature class

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

15.3.2.8 Frequency isolating repeater type D1035 (D1035*, D1035*-xxx, D1035*/B, D1035*-xxx/B)
 Frequency input converter and trip amplifier
 type D1060 (D1060S, D1060S-xxx, D1060S/B, D1060S-xxx/B)

Device Marking

II (1)G [Ex ia Ga] IIC and
 II (1)D [Ex ia Da] IIIC and
 I (M1) [Ex ia Ma] I

Note: "II (1)G [Ex ia Ga] IIC" may be replaced by "II 3(1)G Ex nA [ia Ga] IIC T* Gc" or
 "II 3(1)G Ex ec [ia Ga] IIC T* Gc", if optional installation in EPL Gc area is subject to another
 ATEX certificate. T* according to specified individual temperature class

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 IIIC	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 IIIC	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 IIIC	48.1 mH/ Ω	2402 μ H/ Ω	2378 μ H/ Ω	3840 μ H/ Ω
	IIA	96.2 mH/ Ω	4804 μ H/ Ω	4757 μ H/ Ω	7681 μ H/ Ω
	I	157.9 mH/ Ω	7882 μ H/ Ω	7804 μ H/ Ω	12.60 mH/ Ω
Characteristics	linear	linear	linear	linear	
Ambient temperature range	-40 °C \leq T _a \leq +60 °C				
Remark:	N / A = not applicable				

- 15.3.2.9 Digital output type D1040 (D1040Q, D1040Q-xxx, D1040Q/B, D1040Q-xxx/B)
 D1041 (D1041Q, D1041Q-xxx, D1041Q/B, D1041Q-xxx/B)
 D1042 (D1042Q, D1042Q-xxx, D1042Q/B, D1042Q-xxx/B)
 D1043 (D1043Q, D1043Q-xxx, D1043Q/B, D1043Q-xxx/B)
 type PSD1001 (PSD1001, PSD1001/B, PSD1001-xxx, PSD1001-xxx/B)
 type PSD1001C (PSD1001C, PSD1001C/B, PSD1001C-xxx, PSD1001C-xxx/B)

Device Marking

II (1)G [Ex ia Ga] IIC and

II (1)D [Ex ia Da] IIIC and

I (M1) [Ex ia Ma] I

Note: "II (1)G [Ex ia Ga] IIC" may be replaced by "II 3(1)G Ex nA [ia Ga] IIC T* Gc" or "II 3(1)G Ex ec [ia Ga] IIC T* Gc", if optional installation in EPL Gc area is subject to another ATEX certificate. T* according to specified individual temperature class

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 IIIC	970 nF	970 nF	970 nF	970 nF
	IIA	3.50 μ F	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	4.95 μ F
Max. external inductance L_o	IIC	6.85 mH	4.57 mH	14.26 mH	N / A
	IIB IIIC	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 μ H/ Ω	68.6 μ H/ Ω	121.9 μ H/ Ω	N / A
	IIB IIIC	335.9 μ H/ Ω	274.4 μ H/ Ω	487.6 μ H/ Ω	68.6 μ H/ Ω
	IIA	671.9 μ H/ Ω	548.9 μ H/ Ω	975.3 μ H/ Ω	137.2 μ H/ Ω
	I	1102 μ H/ Ω	900.5 μ H/ Ω	1600 μ H/ Ω	225 μ H/ Ω
Characteristics		linear	linear	linear	linear
Ambient temperature range		-40 °C \leq T _a \leq +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					

15.3.2.10 Digital output type D1040 (D1040Q, D1040Q-xxx, D1040Q/B, D1040Q-xxx/B)
 D1041 (D1041Q, D1041Q-xxx, D1041Q/B, D1041Q-xxx/B)
 D1042 (D1042Q, D1042Q-xxx, D1042Q/B, D1042Q-xxx/B)
 D1043 (D1043Q, D1043Q-xxx, D1043Q/B, D1043Q-xxx/B)
 type PSD1001 (PSD1001, PSD1001/B, PSD1001-xxx, PSD1001-xxx/B)
 type PSD1001C (PSD1001C, PSD1001C/B, PSD1001C-xxx, PSD1001C-xxx/B)

Device Marking

II (1)G [Ex ia Ga] IIC and

II (1)D [Ex ia Da] IIIC and

I (M1) [Ex ia Ma] I

Note: "II (1)G [Ex ia Ga] IIC" may be replaced by "II 3(1)G Ex nA [ia Ga] IIC T* Gc" or "II 3(1)G Ex ec [ia Ga] IIC T* Gc", if optional installation in EPL Gc area is subject to another ATEX certificate. T* according to specified individual temperature class

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
	IIB IIIC	970 nF	970 nF
	IIA	3.50 μ F	3.50 μ F
	I	4.95 μ F	4.95 μ F
Max. external inductance L_o	IIC	1.71 mH	1.14 mH
	IIB IIIC	6.85 mH	4.57 mH
	IIA	13.71 mH	9.14 mH
	I	22.48 mH	14.9 mH
Max. inductance / resistance ratio L_o/R_o	IIC	41.9 μ H/ Ω	34.3 μ H/ Ω
	IIB IIIC	167.9 μ H/ Ω	137.2 μ H/ Ω
	IIA	335.9 μ H/ Ω	274.4 μ H/ Ω
	I	551.2 μ H/ Ω	450.2 μ H/ Ω
Characteristics	linear	linear	linear
Ambient temperature range	-40 °C $\leq T_a \leq$ +60 °C		
Remarks	all channels interconnected galvanically; common "+" PSD1001*C not listed; single channel version only N / A = not applicable		

- 15.3.2.11 Digital output type D1040 (D1040Q, D1040Q-xxx, D1040Q/B, D1040Q-xxx/B)
 D1041 (D1041Q, D1041Q-xxx, D1041Q/B, D1041Q-xxx/B)
 D1042 (D1042Q, D1042Q-xxx, D1042Q/B, D1042Q-xxx/B)
 D1043 (D1043Q, D1043Q-xxx, D1043Q/B, D1043Q-xxx/B)
 type PSD1001 (PSD1001, PSD1001/B, PSD1001-xxx, PSD1001-xxx/B)
 type PSD1001C (PSD1001C, PSD1001C/B, PSD1001C-xxx, PSD1001C-xxx/)

Device Marking

II (1)G [Ex ia Ga] IIC and

II (1)D [Ex ia Da] IIIC and

I (M1) [Ex ia Ma] I

Note: "II (1)G [Ex ia Ga] IIC" may be replaced by "II 3(1)G Ex nA [ia Ga] IIC T* Gc" or "II 3(1)G Ex ec [ia Ga] IIC T* Gc", if optional installation in EPL Gc area is subject to another ATEX certificate. T* according to specified individual temperature class

Parameters when three channels are interconnected in parallel	DIN Rail Isolator type		
	D1040Q*) ¹	D1042Q* PSD1001*) ¹	D1041Q* D1043Q*
Voltage U _o	DC 23.6 V	DC 23.6 V	DC 23.6 V
Current I _o	216.0 mA	264.6 mA	148.8 mA
Power P _o	1271 mW	1556 mW	875 mW
Voltage U _i	N / A	N / A	N / A
Current I _i	N / A	N / A	N / A
Power P _i	N / A	N / A	N / A
Effective internal capacitance C _i	N / A	N / A	N / A
Effective internal inductance L _i	N / A	N / A	N / A
Max. external capacitance C _o	IIC	N / A	130 nF
	IIB / IIIC	970 nF	970 nF
	IIA	3.50 µF	3.50 µF
	I	4.95 µF	4.95 µF
Max. external inductance L _o	IIC	N / A	1.6 mH
	IIB / IIIC	3 mH	2 mH
	IIA	6.09 mH	4.05 mH
	I	9.9 mH	6.64 mH
Max. inductance / resistance ratio L _o /R _o	IIC	N / A	40.6 µH/Ω
	IIB / IIIC	111.9 µH/Ω	91.4 µH/Ω
	IIA	223.9 µH/Ω	182.9 µH/Ω
	I	367.3 µH/Ω	300 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		

15.3.2.12 Digital output type D1040 (D1040Q, D1040Q-xxx, D1040Q/B, D1040Q-xxx/B)
 D1041 (D1041Q, D1041Q-xxx, D1041Q/B, D1041Q-xxx/B)
 D1042 (D1042Q, D1042Q-xxx, D1042Q/B, D1042Q-xxx/B)
 D1043 (D1043Q, D1043Q-xxx, D1043Q/B, D1043Q-xxx/B)
 type PSD1001 (PSD1001, PSD1001/B, PSD1001-xxx, PSD1001-xxx/B)
 type PSD1001C (PSD1001C, PSD1001C/B, PSD1001C-xxx, PSD1001C-xxx/)

Device Marking

II (1)G [Ex ia Ga] IIC and

II (1)D [Ex ia Da] IIIC and

I (M1) [Ex ia Ma] I

Note: "II (1)G [Ex ia Ga] IIC" may be replaced by "II 3(1)G Ex nA [ia Ga] IIC T* Gc" or "II 3(1)G Ex ec [ia Ga] IIC T* Gc", if optional installation in EPL Gc area is subject to another ATEX certificate. T* according to specified individual temperature class

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 IIIC	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 IIIC	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 IIIC	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				
N / A = not applicable				

15.3.2.13 Digital Relay Output type D1044 (D1044*, D1044*-xxx, D1044*/B, D1044*-xxx/B)

Device Marking

II (1)G [Ex ia Ga] IIC and

II (1)D [Ex ia Da] IIIC and

I (M1) [Ex ia Ma] I

Note: "II (1)G [Ex ia Ga] IIC" may be replaced by "II 3(1)G Ex nA [ia Ga] IIC T* Gc" or "II 3(1)G Ex ec [ia Ga] IIC T* Gc", if optional installation in EPL Gc area is subject to another ATEX certificate. T* according to specified individual temperature class

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_{i1}	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, IIIC	equal to C_o of the connected IS circuit
Max. external inductance L_o	I, IIC, IIIC	equal to L_o of the connected IS circuit
Max. inductance / resistance ratio L_o/R_o	I, IIC, IIIC	equal to L_o/R_o of the connected IS circuit
Characteristics	equal to the connected IS circuit	
Ambient temperature range	$-40\text{ }^{\circ}\text{C} \leq T_a \leq +60\text{ }^{\circ}\text{C}$	
Remark:	N/A = not applicable	

15.3.2.14 Digital Output Loop/Bus powered type D1045 (D1045Y, D1045Y-xxx, D1045Y/B, D1045Y-xxx/B)
type D1046 (D1046Y, D1046Y-xxx, D1046Y/B, D1046Y-xxx/B)

Device Marking

II (1)G [Ex ia Ga] IIC and

II (1)D [Ex ia Da] IIIC and

I (M1) [Ex ia Ma] I

Note: "II (1)G [Ex ia Ga] IIC" may be replaced by "II 3(1)G Ex nA [ia Ga] IIC T* Gc" or
"II 3(1)G Ex ec [ia Ga] IIC T* Gc", if optional installation in EPL Gc area is subject to another
ATEX certificate. T* according to specified individual temperature class

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

15.3.2.15 Digital Output Driver type D1048 (D1048S, D1048S-xxx)
type D1049 (D1049S, D1049S-xxx, D1049S/B, D1049S-xxx/B)

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

Single channel parameters	Terminals			
	1	13-16) ¹	14-16) ²	15-16) ³
Channel	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 IIIC	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 IIIC	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 IIIC	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:	<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> <p>N / A = not applicable</p>			

15.3.2.16 Analogue Signal Converters / Temperature Converter

type D1052 (D1052*, D1052*-xxx, D1052*/B, D1052*-xxx/B);
 type D1053 (D1053*, D1053*-xxx, D1053*/B, D1053*-xxx/B)
 type D1072 (D1072*, D1072*-xxx, D1072*/B, D1072*-xxx/B)
 type D1073 (D1073*, D1073*-xxx, D1073*/B, D1073*-xxx/B)

Device Marking

II (1)G [Ex ia Ga] IIC and

II (1)D [Ex ia Da] IIIC and

I (M1) [Ex ia Ma] I

Note: "II (1)G [Ex ia Ga] IIC" may be replaced by "II 3(1)G Ex nA [ia Ga] IIC T* Gc" or "II 3(1)G Ex ec [ia Ga] IIC T* Gc", if optional installation in EPL Gc area is subject to another ATEX certificate. T* according to specified individual temperature class

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 P_o	11 mW	24 mW
Voltage U_i	30 V	18 V
Current I_i	N / A	N / A
Power P_i	N / A	N / A
Effective internal capacitance C_i	4.5 nF	6 nF
Effective internal inductance L_i	0 mH	0 mH
Max. external capacitance C_o	IIC	2.14 μ F
	IIB IIIC	15 μ F
	IIA	66 μ F
	I	58 μ F
Max. external inductance L_o	IIC	2541 mH
	IIB IIIC	10167 mH
	IIA	20335 mH
	I	33362 mH
Max. inductance / resistance ratio L_o/R_o	IIC	3.52 mH/ Ω
	IIB IIIC	14.09 mH/ Ω
	IIA	28.18 mH/ Ω
	I	46.22 mH/ Ω
Characteristics	linear	linear
Ambient temperature range	$-40\text{ }^\circ\text{C} \leq T_a \leq +60\text{ }^\circ\text{C}$	

15.3.2.17 RS422 / RS485 Fieldbus Isolating Repeater type D1061-077 (D1061S-077, D1061S-077/B)

Device Marking

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

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 μ F	
	IIB IIIC	1000 μ F	
	IIA	1000 μ F	
	I	1000 μ F	
Max. external inductance L_o	IIC	4.1 mH	
	IIB IIIC	16.7 mH	
	IIA	33.4 mH	
	I	54.9 mH	
Max. inductance / resistance ratio L_o/R_o	IIC	422.7 μ H/ Ω	
	IIB IIIC	1690.9 μ H/ Ω	
	IIA	3381.9 μ H/ Ω	
	I	5548.4 μ H/ Ω	
Characteristics	linear		
Ambient temperature range	$-40\text{ }^\circ\text{C} \leq T_a \leq +60\text{ }^\circ\text{C}$		
Remarks:			
) ¹ 2-wire RS485 IN/OUT circuit or TxD of the RS422 4-wire circuit			
) ² RxD of the RS422 4-wire circuit			
Terminals 9-10: shield connection facilities			
N / A = not applicable			

15.3.2.18 Vibration Transducer Interface type D1062 (D1062S, D1062S-xxx, D1062S/B, D1062S-xxx/B)

Device Marking

II (1)G [Ex ia Ga] IIC and

II (1)D [Ex ia Da] IIIC and

I (M1) [Ex ia Ma] I

Note: "II (1)G [Ex ia Ga] IIC" may be replaced by "II 3(1)G Ex nA [ia Ga] IIC T* Gc" or "II 3(1)G Ex ec [ia Ga] IIC T* Gc", if optional installation in EPL Gc area is subject to another ATEX certificate. T* according to specified individual temperature class.

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

15.3.2.19 Load Cell / Strain Gauge Bridge Isolating Converter

type D1064 (D1064S, D1064S-xxx, D1064S/B, D1064S-xxx/B)

Device Marking

II (1) G [Ex ia Ga] IIC and

II (1) D [Ex ia Da] IIIC and

I (M1) [Ex ia Ma] I

Note: "II (1)G [Ex ia Ga] IIC" may be replaced by "II 3(1)G Ex nA [ia Ga] IIC T* Gc" or "II 3(1)G Ex ec [ia Ga] IIC T* Gc", if optional installation in EPL Gc area is subject to another ATEX certificate. T* according to specified individual temperature class

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	$39 \mu\text{F})^1$
	IIB IIIC	$996 \mu\text{F})^1$
	IIA	$996 \mu\text{F})^1$
	I	$996 \mu\text{F})^1$
Max. external inductance L_o	IIC	0.93 mH
	IIB IIIC	3.71 mH
	IIA	7.42 mH
	I	12.17 mH
Max. inductance / resistance ratio L_o/R_o	IIC	N / A
	IIB IIIC	$247.0 \mu\text{H}/\Omega$
	IIA	$494.1 \mu\text{H}/\Omega$
	I	$810.6 \mu\text{H}/\Omega$
Characteristics	trapezoidal	
Ambient temperature range	$-40^\circ\text{C} \leq T_a \leq +60^\circ\text{C}$	
Remarks	<ul style="list-style-type: none"> • parameters apply to any terminal versus terminal 12 (EX-) as well as to all terminals in parallel versus terminal 12 (EX-) or any other possible combination • ¹⁾ internal capacitance C_i taken into account • N / A = not applicable 	

15.3.2.20 Liquid Presence Detector Interface

type D1080 (D1080D, D1080D-xxx, D1080D/B, D1080D-xxx/B);
 type D1081 (D1081D, D1081D-xxx, D1081D/B, D1081D-xxx/B)
 type D1180 (D1180D, D1180D-xxx)

Device Marking

II (1)G [Ex ia Ga] IIC and
 II (1)D [Ex ia Da] IIIC and
 I (M1) [Ex ia Ma] I

Note: "II (1)G [Ex ia Ga] IIC" may be replaced by "II 3(1)G Ex nA [ia Ga] IIC T* Gc" or "II 3(1)G Ex ec [ia Ga] IIC T* Gc", if optional installation in EPL Gc area is subject to another ATEX certificate. T* according to specified individual temperature class

Single channel parameters	DIN Rail Isolator Type		
	D1080*, D1081*, D1180*		
Terminals	VCC-GND 13-16 9-12	IN+ - GND 14-16 10-12	IN+ - GND 14-16 10-12
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
	IIB IIIC	2.88 μ F	2.88 μ F
	IIA	11.6 μ F	11.6 μ F
	I	13.6 μ F	13.6 μ F
Max. external inductance L_o	IIC	3.01 mH	217.6 mH
	IIB IIIC	12.04 mH	870.7 mH
	IIA	24.08 mH	1741 mH
	I	39.27 mH	2857 mH
Max. inductance / resistance ratio L_o/R_o	IIC	83 μ H/ Ω	706 μ H/ Ω
	IIB IIIC	332 μ H/ Ω	2.82 mH/ Ω
	IIA	664 μ H/ Ω	5.65 mH/ Ω
	I	1090 μ H/ Ω	9.27 mH/ Ω
Characteristics	linear	linear	linear
Ambient temperature range	$-40\text{ }^\circ\text{C} \leq T_a \leq +60\text{ }^\circ\text{C}$		

15.3.2.21 Adapter type GMEI1000ADP

Voltage $U_o / U_i = \text{DC } 30\text{ V}$

Parameters: according to the individual DIN Rail Isolator
 additional effective capacitance and inductance: negligible

16 Report Number

BVS PP 00.2010 EU, as of 09.01.2019

17 Special Conditions for 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
- 17.4.1 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.
- 17.4.2 The optional installation in EPL Gc area of DIN Rail Isolators of type series D10** / D11** / PSD1001* listed above, which do not provide Ex-marking 'II 3 (1) G Ex nA [ia Ga] IIC T* Gc' or 'II 3(1)G Ex ec [ia Ga] IIC T* Gc', may be subject to other certificates.
- 18 **Essential Health and Safety Requirements**
The Essential Health and Safety Requirements are covered by the standards listed under item 9.
- 19 **Drawings and Documents**
Drawings and documents are listed in the confidential report.

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 Testing and Certification GmbH
Bochum, 2019-01-09
BVS-Scha/Ar A20160863



Certifier



Approver