





Type Examination Certificate

for Electrical Equipment used in Potentially Explosive Atmosphere

Issued by Eurofins E&E CML Limited, Newport Business Park, New Port Road, Ellesmere Port CH65 4LZ, UK	
Applicant	GM International S.r.l. Via Mameli, 53-55, 20852 Villasanta (MB), Italy
Manufacturer name	GM International S.r.l. Via Mameli, 53-55, 20852 Villasanta (MB), Italy
Product name	Intrinsically Safe Isolation Barrier
Type/model code	D1****
Type of protection	Intrinsic safety
Group, Temperature Class and EPL	IIC, IIIC, Ga, Da
The equipment shall be marked with the following	[Ex ia Ga] IIC [Ex ia Da] IIIC
Ratings	-40°C to +60°C See attachment 1
Special condition for safe use	See attachment 2
Certificate number	CML 20JPN2316X
Term of validity	From 11-03-2021 to 10-03-2024 
	From 11-03-2024 to 10-03-2027 

This is to certify that the equipment specified above complies with the requirements stipulated in Ordinance on Examination of Machines and Other Equipment of the Ministry of Health, Labour and Welfare, Japan.

Issue date: 11-03-2024

Signature of chief examiner:

Attachment 1: Rating
Power supply

DIN Rail Isolator version	Voltage		Power [W]
	U _n DC [V]	U _m AC [V]	
D1045*	24	250	≤4.3
D1012*	24	250	≤ 3.5
D1014*	12 - 24	250	≤ 3.3
D1060*	12 - 24	250	≤ 2.1
D1080*, D1081*	24	250	≤ 2, ≤ 2.2
D1180*	115	250	≤ 2.9

Input / output signal circuits

Voltage U_m = AC 250 V

Intrinsically safe circuits level of protection Ex ia IIC / IIB / IIA
Repeater Power Supply D1****
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 μF
	IIA	4.5 μF
Max. external inductance L _o	IIC	4.2 mH
	IIB iaD	16.4 mH
	IIA	32.8 mH
Max. inductance / resistance ratio L _o /R _o	IIC	71.7 μH/ Ω
	IIB iaD	287.0 μH/ Ω
	IIA	574.0 μH/ Ω
Characteristics	linear	
Ambient temperature range	-40 °C ≤ T _a ≤ +60 °C	
Remarks	all channels interconnected galvanically; common "+" N / A = not applicable	



Digital Output Loop/Bus powered type D1045Y, D1045Y/B, D1045-xxx, D1045-xxx/B

Parameters		Digital Output Loop/Bus powered type	
Channel		1	2
Terminals		13-14 or 9-10	15-16 or 11-12
Voltage U_o		DC 18.9V	DC18.9V
Current I_o		249mA	307mA
Power P_o		1173mW	1286mW
Voltage U_i		N / A	N/A
Current I_i		N / A	N/A
Power P_i		N / A	N/A
Effective internal capacitance C_i		N / A	N/A
Effective internal inductance L_i		N / A	N/A
Max. external capacitance C_o	IIC	262nF	262nF
	IIB iaD	1.60 μ F	1.60 μ F
	IIA	6.39 μ F	6.39 μ F
Max. external inductance L_o	IIC	0.58 mH	0.38mH
	IIB iaD	2.31 mH	1.52mH
	IIA	4.62 mH	3.03mH
Max. inductance / resistance ratio L_o/R_o	IIC	30.3 μ H/ Ω	25.3 μ H/ Ω
	IIB iaD	121.2 μ H/ Ω	101.4 μ H/ Ω
	IIA	242.5 μ H/ Ω	202.9 μ H/ Ω
Characteristics		linear	linear
Ambient temperature range		-40 °C $\leq T_a \leq$ 60 °C	
Remarks: Channel 1 and channel 2 are interconnected N / A = not applicable			



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
Max. external inductance L_o	IIC	4.2 mH
	IIB iaD	16.4 mH
	IIA	33 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
Characteristics		linear
Ambient temperature range		-40 °C \leq Ta \leq +60 °C
Remarks N / A = not applicable		



Frequency isolating repeater / input converter and trip amplifier
Frequency input converter and trip amplifier types D1060S, D1060S-xxx,
D1060S/B, D1060S-xxx/B

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

**Liquid Presence Detector Interface****Types D1080*, D1080*-xxx, D1080*/B, D1080*-xxx/B****Types D1081*, D1081*-xxx, D1081*/B, D1081*-xxx/B****Types D1180*, D1180*-xxx, D1180*/B, D1180*-xxx/B**

Single channel parameters		DIN Rail Isolator Type		
		D1080*, D1081*, D1180*		
Terminals		VCC-GND 13-16	IN+ - GND 14-16	VCC - IN- 13-15
		9-12	10-12	9-11
Voltage U _o		DC 15.8 V	DC 15.8 V	DC 15.8 V
Current I _o		109 mA	13 mA	12 mA
Power P _o		428 mW	51 mW	48 mW
Max. external capacitance Co	IIC	478 nF	478 nF	478 nF
	IIB iaD	2.88 μF	2.88 μF	2.88 μF
	IIA	11.6 μF	11.6 μF	11.6 μF
Max. external inductance Lo	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
Max. inductance/ resistance ratio Lo/Ro	IIC	83 μH/Ω	706 μH/Ω	706 μH/Ω
	IIB iaD	332 μH/Ω	2.82 mH/Ω	2.92 mH/Ω
	IIA	664 μH/Ω	5.65 mH/Ω	5.65 mH/Ω
Characteristics		linear	linear	linear
Ambient temperature range		-40 °C ≤ T _a ≤ +60 °C		

Attachment 2: Special condition for safe use

- Group II application:
The equipment 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 appropriately approved EPL Gc enclosure which provides a minimum of IP54 protection.
- Group III application:
The equipment shall be installed outside the hazardous area or alternatively in an appropriately approved EPL Dc enclosure.
- The installation of the equipment 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 a solid insulating barrier.