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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	D5011S(D), D5014S(D), D5020S(D), D5030S(D), D5031S(D), D5032S(D), D5034S(D), D5048S, D5049S
Type of protection	Intrinsic safety, increased safety, type of protection n
Group, Temperature Class and EPL	IIA, IIB, IIC, IIIC, T4, Ga
The equipment shall be marked with the following	See attachment 1 and 2
Ratings	See attachment 2
Special condition for safe use	See attachment 3
Certificate number	CML 22JPN1585X
Term of validity	From 28-10-2022 to 27-10-2025 

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: 28-10-2022

Signature of chief examiner:



Attachment 1: Marking

Ex ec [ia Ga] IIC T4 Gc
Ex ec nC [ia Ga] IIC T4 Gc
[Ex ia Da] IIIC

Attachment 2: Ratings

DIN Rail Isolator version	Voltage		Pn [W]
	Un [V]	Um AC[V]	
	DC 24	250	
D5011S, D5011S-xxx		≤1.35	
D5011D, D5011D-xxx		≤2.9	
D5014S, D5014S-xxx		≤1.35	
D5014D, D5014D-xxx		≤2.7	
D5020S, D5020S-xxx		≤1.00	
D5020D, D5020D-xxx		≤2.00	
D5030S, D5030S-xxx		≤0.50	
D5030D, D5030D-xxx		≤1.00	
D5031S, D5031S-xxx		≤0.35	
D5031D, D5031D-xxx		≤0.70	
D5032S, D5032S-xxx		≤0.50	
D5032D, D5032D-xxx		≤1.00	
D5034S, D5034S-xxx		≤0.40	
D5034D, D5034D-xxx		≤0.80	
D5048S, D5048S-xxx		≤1.80	
D5049S, D5049S-xxx		≤1.80	

Repeater Power Supply type D501**, D501**-xxx

Repeater Power Supply type D5011*, D5011*-xxx

Device marking: Ex ec [ia Ga] IIC T4 Gc, [Ex ia Da] IIIC, [Ex ia]

Single channel parameters	Terminals	
Channel	1	7-8) ¹
	2	9-10) ¹
Voltage U _o	DC 25.9 V	
Current I _o	92 mA	
Power P _o	594 mW	
Voltage U _i	N/A	
Current I _i	N/A	
Power P _i	N/A	
Effective internal capacitance C _i	N/A	
Effective internal inductance L _i	N/A	
Max. external capacitance C _o	IIC	100 nF
	IIB/IIIC	770 μF



Max. external inductance L_o	IIA	2.63 F
	IIC	4.2 mH
	IIB/IIIC	16.8 mH
Max. inductance / resistance ratio L_o/R_o	IIC	59.9 $\mu\text{H}/\Omega$
	IIB/IIIC	239.7 $\mu\text{H}/\Omega$
	IIA	479.4 $\mu\text{H}/\Omega$
Characteristics		Linear
Remarks:)1 2-wire circuit "T*+", "T*-" parameters of supply circuit		

Repeater Power Supply type D5014*, D5014*-xxx Device marking:

Ex ec [ia Ga] IIC T4 Gc, [Ex ia Da] IIIC, [Ex ia]

Single channel parameters	Terminals			
Channel	1	7-8) ₁	7-11) ₃	8-11) ₂
	2	9-10) ₁	9-12) ₃	10-12) ₂
Voltage U_o		DC 25.9 V	-	DC +/-1.1 V
Current I_o		92 mA	-	56 mA
Power P_o		594 mW	-	16 mW
Voltage U_i		N/A	-	DC 30 V
Current I_i		N/A	-	128 mA
Power P_i		N/A	-	N/A
Effective internal capacitance C_i		N/A	-	0 nF
Effective internal inductance L_i		N/A	-	0 mH
Max. external capacitance C_o	IIC	100 nF	-	100 μF
	IIB/IIIC	770 μF	-	1000 μF
	IIA	2.63 F	-	1000 μF
Max. external inductance L_o	IIC	4.2 mH	-	11.5 mH
	IIB/IIIC	16.8 mH	-	46.0 mH
	IIA	33.7 mH	-	92.1 mH
Max. inductance / resistance ratio L_o/R_o	IIC	59.9 $\mu\text{H}/\Omega$	-	2327.2 $\mu\text{H}/\Omega$
	IIB/IIIC	239.7 $\mu\text{H}/\Omega$	-	9309.0 $\mu\text{H}/\Omega$
	IIA	479.4 $\mu\text{H}/\Omega$	-	18618.1 $\mu\text{H}/\Omega$
Characteristics		Linear	-	Linear
Remarks:)1 2-wire circuit "T*+", "T*-" parameters of supply circuit)2 2-wire circuit "-I*+", "I*-" parameters of input circuit)3 3-wire circuit "T*+" "I*+", "I*-" not used				

Powered Isolating Driver type D5020*, D5020*-xxx

Device marking: Ex ec [ia Ga] IIC T4 Gc, [Ex ia Da] IIIC, [Ex ia]

Single channel parameters	Terminals	
Channel	1	7-8) ¹
	2	9-10) ¹
Voltage U_o	DC 25.9 V	
Current I_o	93 mA	



Power P_o	595 mW	
Voltage U_i	N/A	
Current I_i	N/A	
Power P_i	N/A	
Effective internal capacitance C_i	N/A	
Effective internal inductance L_i	N/A	
Max. external capacitance C_o	IIC	100 nF
	IIB/IIIC	770 μ F
	IIA	2.63 F
Max. external inductance L_o	IIC	4.1 mH
	IIB/IIIC	16.7 mH
	IIA	33.5 mH
Max. inductance / resistance ratio L_o/R_o	IIC	59.7 μ H/ Ω
	IIB/IIIC	239.0 μ H/ Ω
	IIA	478.1 μ H/ Ω
Characteristics	Linear	
Remarks:)1 2-wire circuit "O*+", "O*-" parameters of supply circuit	

Switch/Proximity Detector Repeater type D503**, D503**-xxx

Switch/Proximity Detector Repeater type D5030*, D5030*-xxx

Device marking: Ex ec nC [ia Ga] IIC T4 Gc, [Ex ia Da] IIIC, [Ex ia]

Switch/Proximity Detector Repeater type D5031*, D5031*-xxx

Device marking: Ex ec [ia Ga] IIC T4 Gc, [Ex ia Da] IIIC, [Ex ia]

Switch/Proximity Detector Repeater type D5032*, D5032*-xxx

Device marking: Ex ec nC [ia Ga] IIC T4 Gc, [Ex ia Da] IIIC, [Ex ia]

Single channel parameters	Terminals			
Channel	1	7-8)1	7-11)3	8-11)2
	2	9-10)1	9-12)3	10-12)2
Voltage U_o	DC 10.5 V		DC10.5V	DC10.5V
Current I_o	22 mA		22 mA	22 mA
Power P_o	56 mW		56 mW	56 mW
Voltage U_i	N/A		N/A	N/A
Current I_i	N/A		N/A	N/A
Power P_i	N/A		N/A	N/A
Effective internal capacitance C_i	1.1 nF		1.1 nF	1.1 nF
Effective internal inductance L_i	N/A		N/A	N/A
Max. external capacitance C_o	IIC	2.41 μ F	2.41 μ F	2.41 μ F
	IIB/IIIC	16.8 μ F	16.8 μ F	16.8 μ F
	IIA	75 μ F	75 μ F	75 μ F
Max. external inductance L_o	IIC	78.3 mH	78.3 mH	78.3 mH
	IIB/IIIC	313.4 mH	313.4 mH	313.4 mH
	IIA	626.9 mH	626.9 mH	626.9 mH
Max. inductance / resistance ratio L_o/R_o	IIC	635.9 μ H/ Ω	635.9 μ H/ Ω	635.9 μ H/ Ω
	IIB/IIIC	2543.9 μ H/ Ω	2543.9 μ H/ Ω	2543.9 μ H/ Ω
	IIA	5087.9 μ H/ Ω	5087.9 μ H/ Ω	5087.9 μ H/ Ω
Characteristics	Linear		Linear	Linear



Remarks:

-)₁ 2-wire circuit "T*+", "T*-" parameters of supply circuit
-)₂ 2-wire circuit "-I*+", "I*-" parameters of input circuit
-)₃ 3-wire circuit "T*+", "I*+", "I*-" not used

Switch/Proximity Interface type D5034*, D5034*-xxx

Device marking: Ex ec [ia Ga] IIC T4 Gc, [Ex ia Da] IIIC, [Ex ia]

Single channel parameters	Terminals	
Channel	1	7-8) ¹
	2	9-10) ¹
Voltage U _o	DC10.5 V	
Current I _o	15 mA	
Power P _o	39 mW	
Voltage U _i	N/A	
Current I _i	N/A	
Power P _i	N/A	
Effective internal capacitance C _i	N/A	
Effective internal inductance L _i	N/A	
Max. external capacitance C _o	IIC	2.41 μF
	IIB/IIIC	16.8 μF
	IIA	75 μF
Max. external inductance L _o	IIC	163.2 mH
	IIB/IIIC	652.8 mH
	IIA	1305.6 mH
Max. inductance / resistance ratio L _o /R _o	IIC	918.2 μH/Ω
	IIB/IIIC	3672.9 μH/Ω
	IIA	7345.8 μH/Ω
Characteristics	Linear	
Remarks:		
)1 2-wire circuit "T*+", "T*-" parameters of supply circuit		

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

Digital Output Driver type D5048S, D5048S-xxx

Device marking: Ex ec [ia Ga] IIC T4 Gc, [Ex ia Da] IIIC, [Ex ia]

Digital Output Driver type D5049S, D5049S-xxx

Device marking: Ex ec [ia Ga] IIC T4Gc, [Ex ia Da] IIIC, [Ex ia]

Single channel parameters	Terminals			
Channel	1	7-10) ₁	8-10) ₃	9-10) ₂
	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 μ F	860 μ F	860 μ F
	IIA	3.05 μ F	3.05 μ F	3.05 μ F
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	24.6 mH	33.58 mH
Max. inductance / resistance ratio L_o/R_o	IIC	39.2 μ H/ Ω	53.3 μ H/ Ω	62.3 μ H/ Ω
	IIB/IIIC	156.8 μ H/ Ω	213.5 μ H/ Ω	249.4 μ H/ Ω
	IIA	313.6 μ H/ Ω	427.0 μ H/ Ω	498.9 μ H/ Ω
Characteristics		Linear	Linear	Linear
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				

Attachment 3: Special conditions for safe use

- i. DIN Rail Isolators of type series D5****, D5****-xxx shall be installed:
 - outside the hazardous area, or
 - in case of alternative installation in areas requiring EPL Gc equipment:
The equipment shall only be used in an area of at least pollution degree 2

and

The equipment shall be installed in an enclosure that provides a minimum ingress protection of IP 54 and be suitable for the explosive atmosphere.

- ii. The installation of DIN Rail Isolators of type series D5****, D5****-xxx 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 with an appropriate insulation barrier.
- iii. Group III application:
DIN Rail Isolators of type series D5****, D5****-xxx shall be installed outside the hazardous area or alternatively in an enclosure suitable for explosive dust atmospheres.