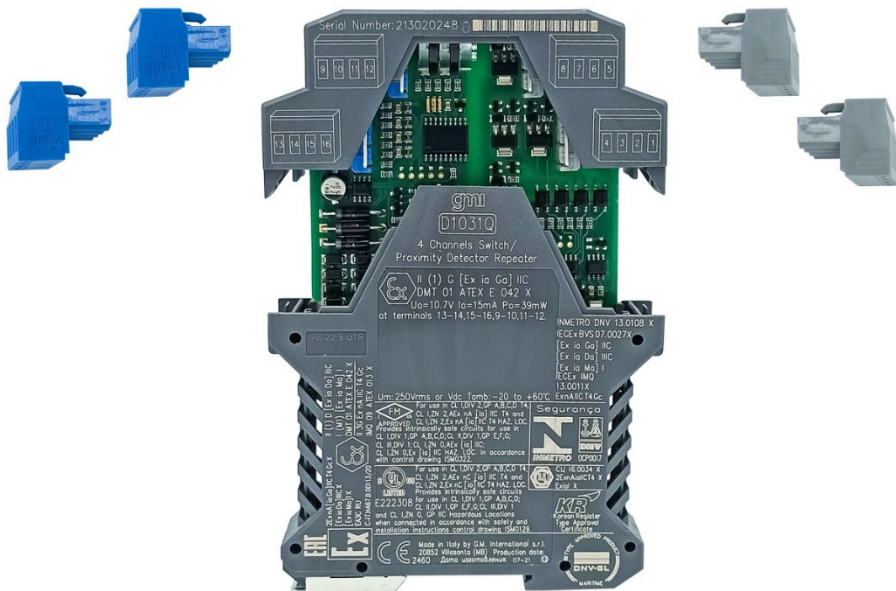




CCC Safety Instruction Manual

D1000 series



Note: This manual contains only safety instructions.

For the complete installation and user manuals, data sheets and certificates, supplier code of conduct, code of ethics, terms and conditions of sale and warranty please refer to www.gmiinternational.com.

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1 Installation information

1.1 General

D1000 series are apparatus installed into standard EN/IEC60715 TH 35 DIN-Rail located in Safe Area or Zone 2 within the specified operating temperature limits (for complete details please refer to table 1). They can be mounted with any orientation over the entire ambient temperature range.

The end user is responsible to ensure that the operating temperature of the module is not exceeded in the end use application.

Units must be protected against dirt, dust, extreme mechanical (e.g. vibration, impact and shock) and thermal stress, and casual contacts.

Electrical connections are accommodated by polarized removable screw terminal blocks which can be plugged in/out into a powered unit without suffering or causing any damage. Connect only one individual conductor per each clamping point, use conductors up to 2.5 mm² and a torque value of 0.5-0.6 Nm. The wiring cables have to be proportionate in base to the current and the length of the cable.

D1000 series must be installed, operated and maintained only by qualified personnel, in accordance to the relevant national/international installation standards (e.g. EN/IEC 60079-14 Explosive atmospheres - Part 14: Electrical installations design, selection and erection), following the established installation rules.

According to EN/IEC61010, D1000 power supplies must be connected to SELV or SELV-E supplies.

All circuits connected to D1000 must comply with the overvoltage category II (or better) according to EN/IEC 60664-1.

Failure to properly installation or use of the equipment may risk to damage the unit or severe personal injury.

For those models having a relay output: connect relay contacts checking the load rating to be within the contact maximum rating. To prevent relay contacts from damaging, connect an external protection (fuse or similar), chosen according to the relay breaking capacity diagram from installation instructions (for complete details please refer to table 2, if present).

For those models having a transistor output: connect transistor contacts checking the load rating to be within the contact maximum rating (for complete details please refer to table 2, if present).

For those models having contacts rated more than 50 Vac or 75 Vdc: de-energize main power source (turn off power supply voltage) and disconnect plug-in terminal blocks before opening the enclosure to avoid electrical shock when connected to live hazardous potential.

Storage: if the unit is not installed directly on a system (parts for spare or expansion with long storage periods), it must be conveniently stocked. Stocking area characteristics must comply with the following parameters: temperature -45 to +80°C; humidity 0 to 95%.

Vibration: no prolonged vibration should be perceivable in the stocking area to avoid loosening of parts or fatigue ruptures of components terminals.

Pollution: presence of pollutant or corrosive gases or vapours must be avoided to prevent corrosion of conductors and degradation of insulating surfaces.

For complete instruction manual, datasheet and certifications please refer to our website

www.gminternational.com.

1.2 Installation for intrinsically safe associated apparatus application

D1000 series must be connected to equipment with a maximum limit for power supply U_m of 250 Vrms or Vdc. Not to be connected to control equipment that uses or generates more than 250 Vrms or Vdc with respect to earth ground.

Intrinsically safe conductors must be identified and segregated from non I.S. and wired in accordance to the relevant national/international installation standards (e.g. EN/IEC 60079-14 Explosive atmospheres - Part 14: Electrical installations design, selection and erection), make sure that conductors are well isolated from each other and do not produce any unintentional connection.

Warning: substitution of components may impair intrinsic safety.

In the system safety analysis, always check that field device maximum allowable voltage, current and power are not exceeded by the safety parameters of the D1000 series associated apparatus connected to it. Check also that added connecting cable and field device capacitance and inductance do not exceed the limits given in the associated apparatus parameters for the effective gas group (Co, Lo, Lo/Ro).

Associated apparatus		Field device
Uo	≤	Ui
Io	≤	Ii
Po	≤	Pi
Co	≥	Ci + Ccable
Lo	≥	Li + Lcable
Lo/Ro	≥	Li/Ri and Lcable/Rcable

When used with separate powered intrinsically safe devices, check also that maximum allowable voltage, current and power of the D1000 series associated apparatus are not exceeded by the safety parameters of the field device.

Associated apparatus		Field device
Ui	≥	Uo
Ii	≥	Io
Pi	≥	Po
Ci + Ccable	≤	Co
Li + Lcable	≤	Lo

See parameters indicated in “Intrinsically safe parameters” section.

For installations in which both the Ci and Li of the field device exceed 1% of the Co and Lo parameters of the associated apparatus (excluding the cable), then 50% of Co and Lo parameters are applicable and shall not be exceeded (50% of the Co and Lo become the limits which must include the cable such that Ci device + C cable ≤ 50% of Co and Li device + L cable ≤ 50% of Lo). The reduced capacitance of the external circuit (including cable) shall not be greater than 1 µF for Groups I, IIA, IIB, IIIC and 600 nF for Group IIC. If the cable parameters are unknown, the following value may be used: Capacitance 200 pF per meter (60 pF per foot), inductance 1 µH per meter (0.20 µH per foot).

1.3 Inspection, maintenance and repair

The unit cannot be repaired by the end user and must be returned to the manufacturer or his authorized representative.
If enclosure needs to be cleaned use only a cloth lightly moistened by a mixture of detergent in water.

2 Certification data

2.1 Table 1: Certificates and operating temperature

Model family	Certificate n.	Standards	Markings	Operating temperature
D1060	2023322316005683	GB/T 3836.1 GB/T 3836.4	[Ex ia Ga] IIC [Ex ia Da] IIIC	-20 ÷ 60 °C

2.2 Table 2: Contacts ratings

Model family	Contacts type	Contacts function	Contacts ratings
D1060	Transistor	Out	100 mA at 35 Vdc (≤ 1.5 V voltage drop)

3 Intrinsically safe parameters

D1060 series

		Co [µF]	Lo [mH]	Lo/Ro [µH/Ω]
Term. 13-16: Uo=10.9 V; Io=1.1 mA; Po=3 mW Ui=30 V; Ci=1.05 nF; Li=0 µH Characteristic: linear	IIC	2.05	29000	12000
	IIB	14.4	117000	48100
	IIA	63	235000	96200
	I	0	0	0
	IIIC	14.4	117000	48100

		Co [uF]	Lo [mH]	Lo/Ro [uH/Ω]
Term. 14-16: Uo=10.9 V; Io=22 mA; Po=60 mW Characteristic: linear	IIC	2.05	75	600
	IIB	14.4	303	2402
	IIA	63	607	4804
	I	0	0	0
	IIIC	14.4	303	2402
Term. 15-16: Uo=10.9 V; Io=23 mA; Po=60 mW Characteristic: linear	IIC	2.05	72	594
	IIB	14.4	290	2378
	IIA	63	580	4757
	I	0	0	0
	IIIC	14.4	290	2378
Term. 14-15: Uo=15.5 V; Io=13 mA; Po=48 mW Characteristic: linear	IIC	0.508	235	585
	IIB	3.11	941	2342
	IIA	12.5	1883	4685
	I	0	0	0
	IIIC	3.11	941	2342

Isolation in accordance with EN/IEC 60079-11 clause 6.3.13 is provided between non-intrinsically safe circuits and intrinsically safe circuits.

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Via G. Mameli, 53/55
I-20851 Villasanta (MB) - Italy