

**Characteristics:**

**General Description:**

The D1046 is a dual channel, actuated in alternative, DIN Rail Digital Output module enabling a Safe Area contact, logic level or drive signal, to control a device in Hazardous Area, providing 3 port isolation (input/output/supply).

Typical applications include driving 1 or 2 positions directional solenoid valves or other process control devices.

It can also be used as a controllable supply to power measuring or process control equipments in Hazardous Area.

Output channels have the capability of driving loads in Gas Group IIB/IIA.

**Function:**

2 channels I.S. actuated in alternative to operate Hazardous Area loads from contacts, logic levels or drive logics in Safe Area providing 3 port isolation (input/output/supply), loop or bus powered, as indicated in the function diagram.

**Signalling LEDs:**

Power supply indication (green), output status (yellow).

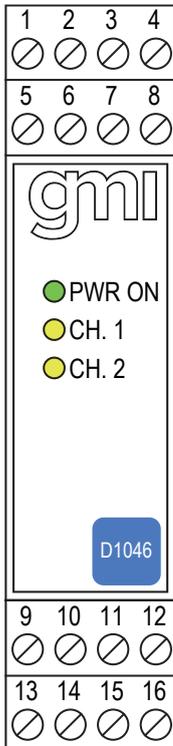
**Field Configurability:**

Loop/Bus powered operating mode by external wiring.

**EMC:**

Fully compliant with CE marking applicable requirements.

**Front Panel and Features:**



- Output to Zone 0 (Zone 20), Division 1, installation in Zone 2, Division 2.
- Voltage input with isolated commands, loop powered or bus powered.
- Suitable for driving 1 or 2 positions directional solenoid valves.
- Output short circuit proof and current limited.
- Three port isolation, Input/Output/Supply.
- EMC Compatibility to EN61000-6-2, EN61000-6-4.
- ATEX, IECEx, FM & FM-C, INMETRO, EAC-EX, UKR TR n. 898 Certifications.
- High Reliability, SMD components.
- Simplified installation using standard DIN Rail and plug-in terminal blocks.
- 250 Vrms (Um) max. voltage allowed to the instruments associated with the barrier.

**Ordering Information:**

|                     |        |
|---------------------|--------|
| Model:              | D1046Y |
| Power Bus enclosure | /B     |

**Technical Data:**

**Supply:**

24 Vdc nom (21.5 to 30 Vdc) reverse polarity protected, ripple within voltage limits  $\leq 5$  Vpp.

**Current consumption @ 24 V:** 140 mA with output energized at nominal load, 160 mA with short circuit output.

**Power dissipation:** 2.0 W with 24 V supply voltage, output energized at nominal load.

**Max. power consumption:** at 30 V supply voltage and short circuit output, 4.2 W.

**Isolation (Test Voltage):**

I.S. Out/In 1.5 KV; I.S. Out/Supply 1.5 KV; In/Supply 500 V; In/In 500 V.

**Input:**

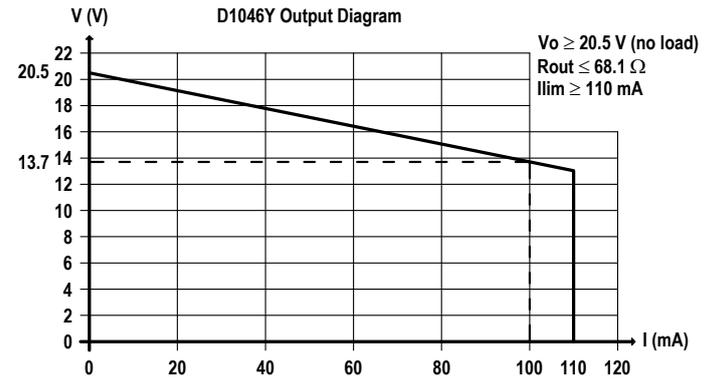
switch contact, logic level or loop powered.

**Trip voltage levels:** OFF status  $\leq 1.0$  V, ON status  $\geq 6.0$  V (maximum 30 V).

**Current consumption @ 24 V:** 3 mA ( $\approx 10$  K $\Omega$  input impedance).

**Output:**

100 mA at 13.7 V (20.5 V no load, 68.1  $\Omega$  series resistance) at terminals 13-14, 9-10.



**Short circuit current:**  $\geq 110$  mA (115 mA typical)

**Response time:** 20 ms (power up in 600 ms typical in loop powered mode).

**Compatibility:**

CE mark compliant, conforms to Directive: 2014/34/EU ATEX, 2014/30/EU EMC, 2014/35/EU LVD, 2011/65/EU RoHS.

**Environmental conditions:**

**Operating:** temperature limits -20 to +60  $^{\circ}$ C,

relative humidity max 90 % non condensing, up to 35  $^{\circ}$ C.

**Storage:** temperature limits -45 to +80  $^{\circ}$ C.

**Safety Description:**



**ATEX:** II (1)G [Ex ia Ga] IIB, II (1)D [Ex ia Da] IIIC, I (M1) [Ex ia Ma] I; II 3G Ex ec IIC T4 Gc

**IECEx:** [Ex ia Ga] IIB, [Ex ia Da] IIIC, [Ex ia Ma] I; Ex ec IIC T4 Gc

**INMETRO:** [Ex ia Ga] IIB, [Ex ia Da] IIIC, [Ex ia Ma] I

Uo/Voc = 23.6 V, Io/Isc = 366 mA, Po/Po = 1600 mW at terminals 13-14, 9-10.

Um = 250 Vrms, -20  $^{\circ}$ C  $\leq$  Ta  $\leq$  60  $^{\circ}$ C.

**Approvals:**

DMT 01 ATEX E 042 X conforms to EN60079-0, EN60079-11.

IECEx BVS 07.0027X conforms to IEC60079-0, IEC60079-11.

IMQ 09 ATEX 013 X conforms to EN60079-0, EN60079-7.

IECEx IMQ 13.0111X conforms to IEC60079-0, IEC60079-7.

INMETRO DNV 13.0108 X conforms to ABNT NBR IEC60079-0, ABNT NBR IEC60079-11.

FM & FM-C No. 3024643, 3029921C, conforms to Class 3600, 3610, 3611, 3810 and

C22.2 No.142, C22.2 No.157, C22.2 No.213, E60079-0, E60079-11, E60079-15.

EA3C RU C-IT.HA67.B.00113/20 conforms to GOST 31610.0, GOST 31610.11,

GOST 31610.15.

CLJ 16.0034 X conforms to DCTY 7113, GOCT 22782.5-78, DCTY IEC 60079-15.

DNV No. TAA00002BM and KR No.MIL20769-EL001 Cert. for maritime applications.

**Mounting:**

EN/IEC60715 TH 35 DIN-Rail.

**Weight:** about 130 g.

**Connection:** by polarized plug-in disconnect screw terminal blocks to accommodate terminations up to 2.5 mm<sup>2</sup>.

**Location:** Safe Area/Non Hazardous Locations or Zone 2, Group IIC T4, Class I, Division 2, Groups A, B, C, D Temperature Code T4 and Class I, Zone 2, Group IIC, IIB, IIA T4 installation.

**Protection class:** IP 20.

**Dimensions:** Width 22.5 mm, Depth 99 mm, Height 114.5 mm.

**Parameters Table:**

| Safety Description    | Maximum External Parameters |            |            |              |
|-----------------------|-----------------------------|------------|------------|--------------|
|                       | Group Cenelec               | Co/Ca (μF) | Lo/La (mH) | Lo/Ro (μH/Ω) |
| Terminals 13-14, 9-10 |                             |            |            |              |
| Uo/Voc = 23.6 V       |                             |            |            |              |
| Io/Isc = 366 mA       | IIB                         | 0.97       | 1.06       | 66.0         |
| Po/Po = 1600 mW       | IIA                         | 3.50       | 2.12       | 132.1        |

NOTE for USA and Canada:

IIB equal to Gas Groups C, D, E, F and G

IIA equal to Gas Groups D, E, F and G

**Image:**



**Function Diagram:**

|   |  |
|---|--|
| HAZARDOUS AREA ZONE 0 (ZONE 20) GROUP IIB,<br>HAZARDOUS LOCATIONS CLASS I, DIVISION 1, GROUPS C, D,<br>CLASS II, DIVISION 1, GROUPS E, F, G, CLASS III, DIVISION 1,<br>CLASS I, ZONE 0, GROUP IIB | SAFE AREA, ZONE 2 GROUP IIC T4,<br>NON HAZARDOUS LOCATIONS, CLASS I, DIVISION 2,<br>GROUPS A, B, C, D T-Code T4, CLASS I, ZONE 2, GROUP IIC T4 |
|---|--|

