

**Characteristics:**
**General Description:**

The D1045 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 both in Gas Groups IIC and IIB/IIA with different safety parameters.

**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, output channel driving capability by external wiring.

**EMC:**

Fully compliant with CE marking applicable requirements.

**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:** 90 mA with output energized at nominal load, 110 mA with short circuit output.

**Power dissipation:** 1.4 W with 24 V supply voltage, output energized at nominal load.

**Max. power consumption:** at 30 V supply voltage and short circuit output, 2.9 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:**

voltage free 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:**

70 mA at 11.3 V (17.0 V no load, 81.4  $\Omega$  series resistance) at terminals 13-14, 9-10 (Out A).

70 mA at 12.2 V (17.0 V no load, 68.6  $\Omega$  series resistance) at terminals 15-16, 11-12 (Out B).

**Short circuit current:**  $\geq 85$  mA (90 mA typical)

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

**Compatibility:**

**CE** CE mark compliant, conforms to 94/9/EC Atex Directive and to 2004/108/CE EMC Directive.

**Environmental conditions:**

**Operating:** temperature limits -20 to +60 °C,

relative humidity max 90 % non condensing, up to 35 °C.

**Storage:** temperature limits -45 to +80 °C.

**Safety Description:**


II (1) G [Ex ia] IIC, II (1) D [Ex iaD], I (M2) [Ex ia] I, II 3G Ex nA II T4, [Zone 0] [Ex ia] IIC, [Ex ia] I, [Ex iaD] associated electrical apparatus. Uo/Voc = 18.9 V, Io/Isc = 249 mA, Po/Po = 1173 mW at terminals 13-14, 9-10 (Out A). Uo/Voc = 18.9 V, Io/Isc = 307 mA, Po/Po = 1286 mW at terminals 15-16, 11-12 (Out B). Um = 250 Vrms, -20 °C  $\leq$  Ta  $\leq$  60 °C.

**Approvals:**

DMT 01 ATEX E 042 X conforms to EN60079-0, EN60079-11, EN60079-26, EN61241-0, EN61241-11, IECEx BVS 07.0027X conforms to IEC60079-0, IEC60079-11, IEC60079-26, IEC61241-0, IEC61241-11, IMQ 09 ATEX 013 X conforms to EN60079-0, EN60079-15, 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.

**Mounting:**

T35 DIN Rail according to EN50022.

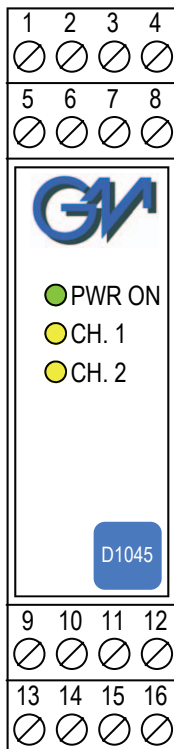
**Weight:** about 130 g.

**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.

**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 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:	D1045Y
Power Bus enclosure	/B

**Parameters Table:**

Safety Description	Maximum External Parameters			
	Group Cenelec	Co/Ca (μF)	Lo/La (mH)	Lo/Ro (μH/Ω)
Terminals 13-14, 9-10			Out A	
Uo/Voc = 18.9 V	IIC	0.26	0.58	30.3
Io/Isc = 249 mA	IIB	1.60	2.31	121.2
Po/Po = 1173 mW	IIA	6.39	4.62	242.5
Terminals 15-16, 11-12			Out B	
Uo/Voc = 18.9 V	IIC	0.26	0.38	24.5
Io/Isc = 307 mA	IIB	1.60	1.52	98.3
Po/Po = 1286 mW	IIA	6.39	3.03	196.6

NOTE for USA and Canada:

IIC equal to Gas Groups A, B, C, D, E, F and G

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

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

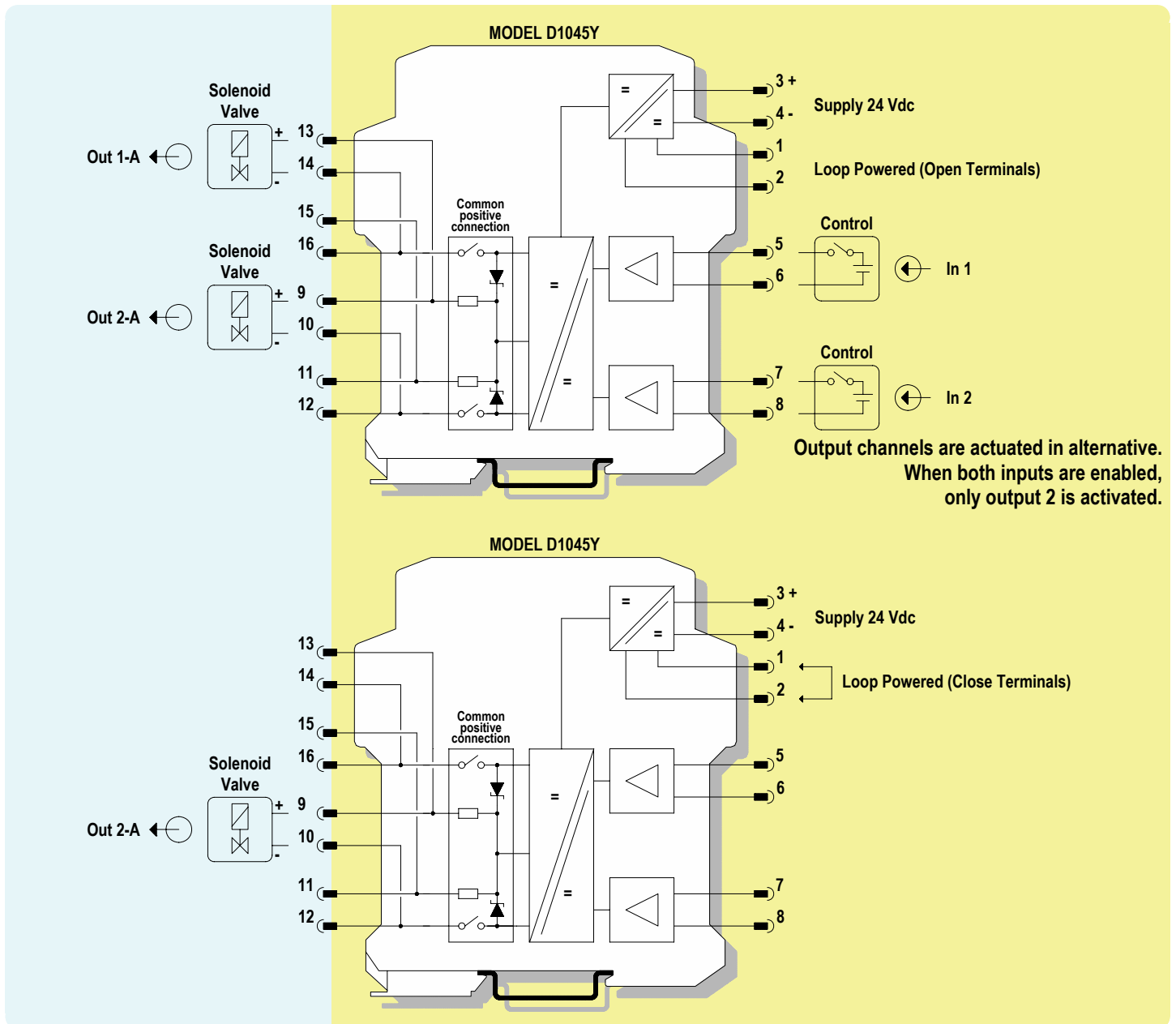
**Image:**



**Function Diagram:**

HAZARDOUS AREA ZONE 0 (ZONE 20) GROUP IIC,  
HAZARDOUS LOCATIONS CLASS I, DIVISION 1, GROUPS A, B, C, D,  
CLASS II, DIVISION 1, GROUPS E, F, G, CLASS III, DIVISION 1,  
CLASS I, ZONE 0, GROUP IIC

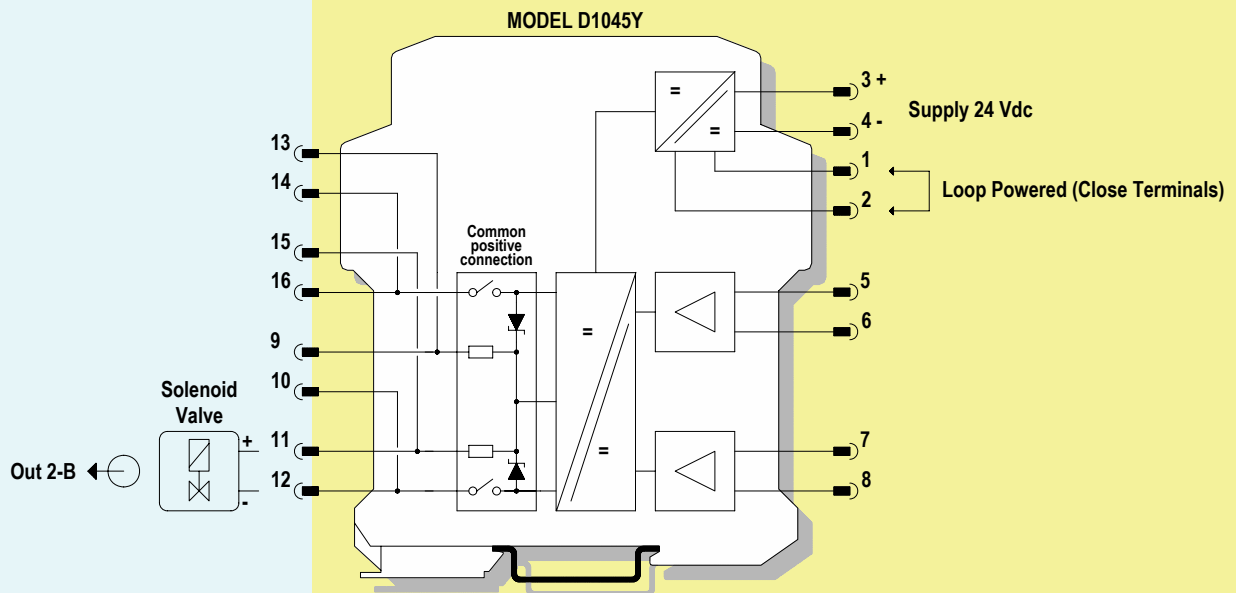
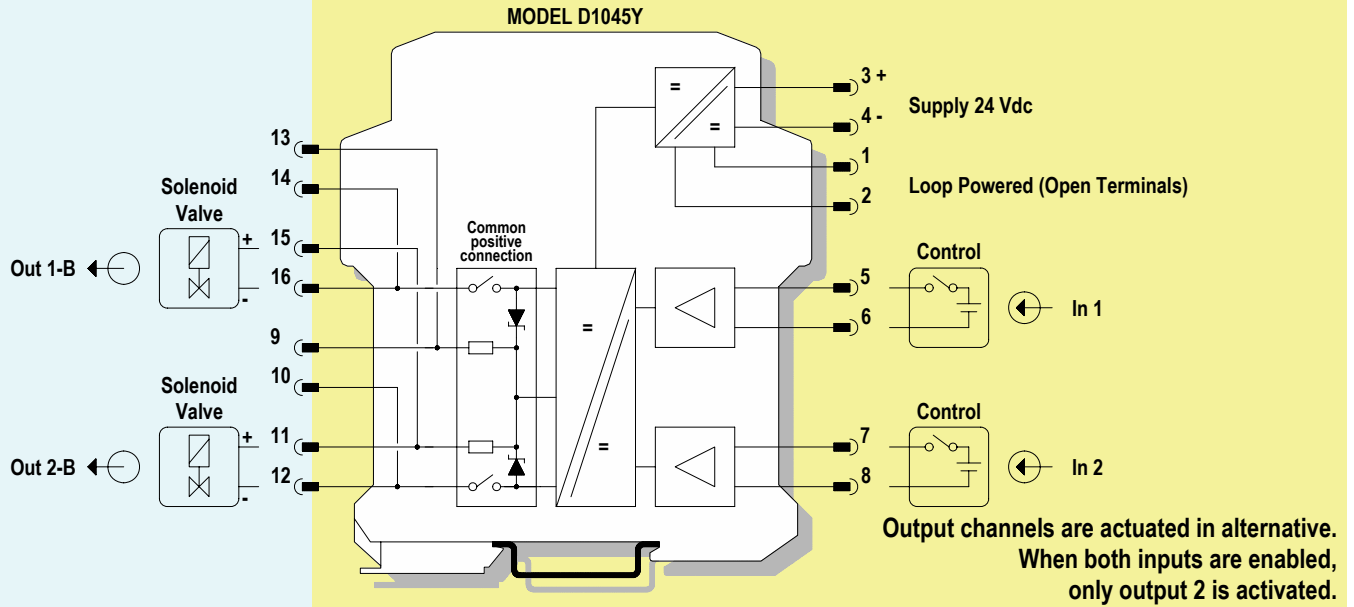
SAFE AREA, ZONE 2 GROUP IIC T4,  
NON HAZARDOUS LOCATIONS, CLASS I, DIVISION 2,  
GROUPS A, B, C, D T-Code T4, CLASS I, ZONE 2, GROUP IIC T4



**Function Diagram:**

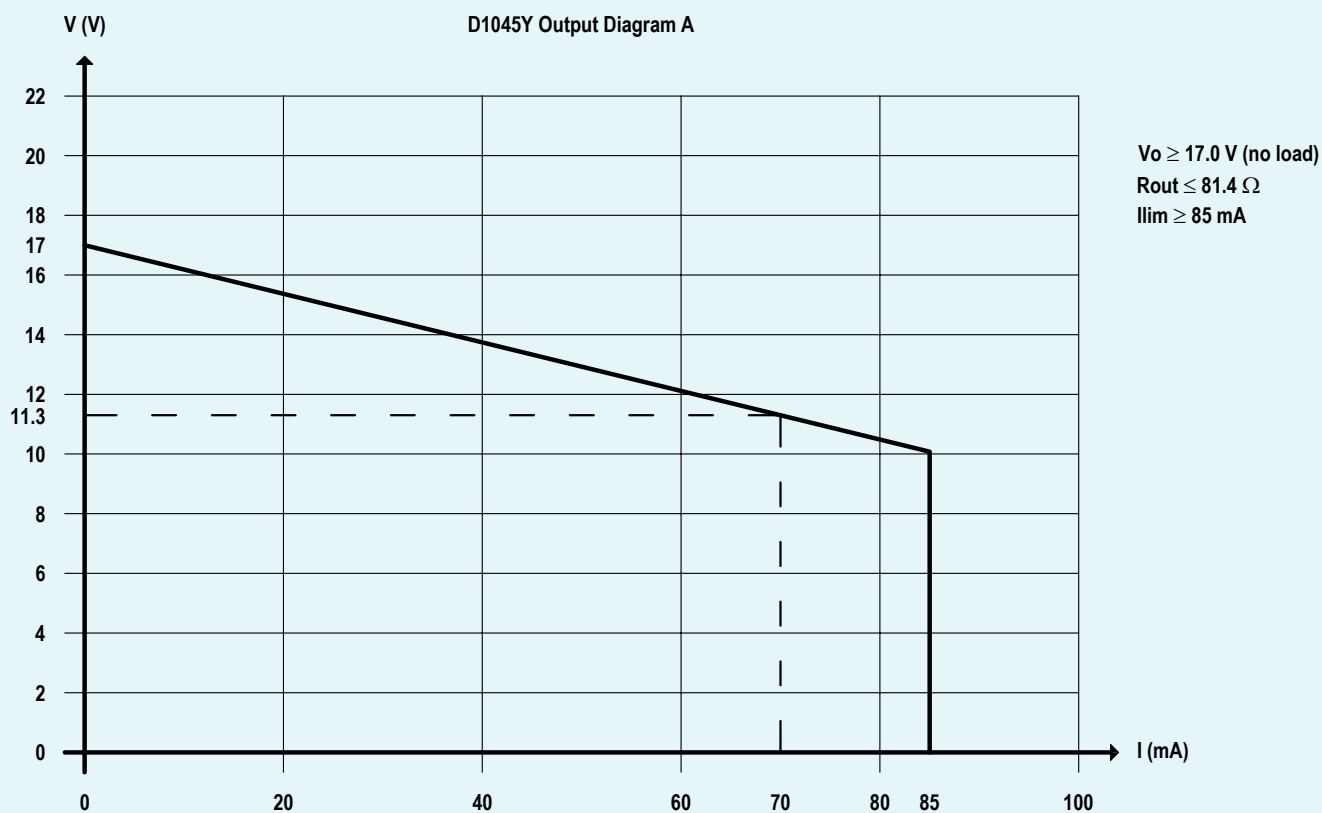
HAZARDOUS AREA ZONE 0 (ZONE 20) GROUP IIC,  
HAZARDOUS LOCATIONS CLASS I, DIVISION 1, GROUPS A, B, C, D,  
CLASS II, DIVISION 1, GROUPS E, F, G, CLASS III, DIVISION 1,  
CLASS I, ZONE 0, GROUP IIC

SAFE AREA, ZONE 2 GROUP IIC T4,  
NON HAZARDOUS LOCATIONS, CLASS I, DIVISION 2,  
GROUPS A, B, C, D T-Code T4, CLASS I, ZONE 2, GROUP IIC T4



# Output Diagram:

## D1045Y OUTPUT DIAGRAM OUT A



## D1045Y OUTPUT DIAGRAM OUT B

