**Characteristics:**

**General Description:**
The D104* series are quad channel DIN Rail Digital Output Modules 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 signalling LED's, visual or audible alarms to alert a plant operator or driving a solenoid valve or other process control devices. It can also be used as a controllable supply to power measuring or process control equipment in Hazardous Area.

Output channels can be paralleled if more power is required; 2 or 3 channels in parallel (depending on the model) are still suitable for Gas Group II C.

Four basic models meet a large number of applications: it is possible to obtain 16 different combinations of safety parameters and driving currents.

**Function:**
4 channels I.S. actuated independently or in parallel 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.

**Signalling LEDs:**
Power supply indication (green), outputs status (yellow).

**Field Configurability:**
Contact / logic levels inputs, loop powered operating mode, configurable by external wiring.

**EMC:**
Compliance to EN61000-6-2, EN61000-6-4.

250 Vrms (Um) max. voltage allowed to the terminal.

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

**Short circuit current:**
≤ 15 mA per channel for D1041Q (15 mA typical).

**Power dissipation:**
4.0 W (2.4 W type D1041Q).

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

**Technical Data:**

**Supply:**
24 Vdc nom (21.5 to 30 Vdc) reverse polarity protected, ripple within voltage limits ≤ 5 Vpp.

**Current consumption @ 24 V:**
130 mA with four channels energized at nominal load, 150 mA with short circuit output (90 mA type D1041Q).

**Power dissipation:**
2.3 W (1.9 W type D1041Q) with 24 V supply voltage and four channels energized at nominal load.

**Max. power consumption:**
at 30 V supply voltage and short circuit output, 4.0 W (2.4 W type D1041Q).

**Isolation (Test Voltage):**
I.S. Out/In 1.5 kV; I.S. Out/Supply 1.5 kV; In/Supply 500 V.

**Input:**
switch contact, logic level common positive or common negative or loop powered.

**Trip voltage levels:**
OFF state ≤ 1.0 V, ON status ≥ 6.0 V (maximum 30 V).

**Current consumption @ 24 V:**
3 mA (≈ 10 KΩ input impedance).

**Output:**

D1040Q: 22 mA at 13.2 V per channel (20.5 V no load, 334mA series resistance).

D1041Q: 10 mA for LED driving per channel (20.5 V no load, 484Ω series resistance).

D1042Q: 22 mA at 14.5 V per channel (20.5 V no load, 273Ω series resistance).

D1043Q: 22 mA at 9.8 V per channel (20.5 V no load, 484Ω series resistance).

**SIL 3 - SIL 2 Digital Output Loop / Bus Powered DIN-Rail Models D1040Q, D1041Q, D1042Q, D1043Q**

**Ordering Information:**

| Model: D104*Q | 22 mA at 13.2 V (per channel) | 0 |
| 10 mA for LED driving (per channel) | 1 |
| 22 mA at 14.5 V (per channel) | 2 |
| 22 mA at 9.8 V (per channel) | 3 |

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

**Location:**
Safe Area/Non Hazardous Locations or Zone 2, Group IIC T4.

**Protection class:**
IP 20.

**www.gmintsrl.com**
### Parameters Table:

#### D1040Q

<table>
<thead>
<tr>
<th>Safety Description</th>
<th>Maximum External Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Cenelec</td>
<td>Co/Ca (µF)</td>
</tr>
<tr>
<td>D1040Q</td>
<td>Terminals 13-14, 15-16</td>
</tr>
<tr>
<td>9-10, 11-12</td>
<td></td>
</tr>
<tr>
<td>Uo/Voc = 23.6 V</td>
<td>IIC</td>
</tr>
<tr>
<td>Io/Isc = 72 mA</td>
<td>IIB</td>
</tr>
<tr>
<td>Po/Po = 424 mW</td>
<td>IIA</td>
</tr>
<tr>
<td>Uo/Voc = 23.6 V</td>
<td>IIC</td>
</tr>
<tr>
<td>Io/Isc = 144 mA</td>
<td>IIB</td>
</tr>
<tr>
<td>Po/Po = 847 mW</td>
<td>IIA</td>
</tr>
<tr>
<td>Uo/Voc = 23.6 V</td>
<td>IIC</td>
</tr>
<tr>
<td>Io/Isc = 216 mA</td>
<td>IIB</td>
</tr>
<tr>
<td>Po/Po = 1271 mW</td>
<td>IIA</td>
</tr>
</tbody>
</table>

### D1042Q

<table>
<thead>
<tr>
<th>Safety Description</th>
<th>Maximum External Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Cenelec</td>
<td>Co/Ca (µF)</td>
</tr>
<tr>
<td>D1042Q</td>
<td>Terminals 13-14, 15-16</td>
</tr>
<tr>
<td>9-10, 11-12</td>
<td></td>
</tr>
<tr>
<td>Uo/Voc = 23.6 V</td>
<td>IIC</td>
</tr>
<tr>
<td>Io/Isc = 88.2 mA</td>
<td>IIB</td>
</tr>
<tr>
<td>Po/Po = 519 mW</td>
<td>IIA</td>
</tr>
<tr>
<td>Uo/Voc = 23.6 V</td>
<td>IIC</td>
</tr>
<tr>
<td>Io/Isc = 176.4 mA</td>
<td>IIB</td>
</tr>
<tr>
<td>Po/Po = 1038 mW</td>
<td>IIA</td>
</tr>
</tbody>
</table>

### D1041Q

<table>
<thead>
<tr>
<th>Safety Description</th>
<th>Maximum External Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Cenelec</td>
<td>Co/Ca (µF)</td>
</tr>
<tr>
<td>D1043Q</td>
<td>Terminals 13-14, 15-16</td>
</tr>
<tr>
<td>9-10, 11-12</td>
<td></td>
</tr>
<tr>
<td>Uo/Voc = 23.6 V</td>
<td>IIC</td>
</tr>
<tr>
<td>Io/Isc = 49.6 mA</td>
<td>IIB</td>
</tr>
<tr>
<td>Po/Po = 292 mW</td>
<td>IIA</td>
</tr>
<tr>
<td>Uo/Voc = 23.6 V</td>
<td>IIC</td>
</tr>
<tr>
<td>Io/Isc = 99.2 mA</td>
<td>IIB</td>
</tr>
<tr>
<td>Po/Po = 584 mW</td>
<td>IIA</td>
</tr>
<tr>
<td>Uo/Voc = 23.6 V</td>
<td>IIC</td>
</tr>
<tr>
<td>Io/Isc = 148.8 mA</td>
<td>IIB</td>
</tr>
<tr>
<td>Po/Po = 875 mW</td>
<td>IIA</td>
</tr>
</tbody>
</table>

### D1044Q

<table>
<thead>
<tr>
<th>Safety Description</th>
<th>Maximum External Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Cenelec</td>
<td>Co/Ca (µF)</td>
</tr>
<tr>
<td>D1044Q</td>
<td>Terminals 13-14, 15-16</td>
</tr>
<tr>
<td>9-10, 11-12</td>
<td></td>
</tr>
<tr>
<td>Uo/Voc = 23.6 V</td>
<td>IIC</td>
</tr>
<tr>
<td>Io/Isc = 198.4 mA</td>
<td>IIB</td>
</tr>
<tr>
<td>Po/Po = 1167 mW</td>
<td>IIA</td>
</tr>
</tbody>
</table>

### Notes 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
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

MODEL D104*Q

Bus powered, Common negative control input

Loop powered, all output channels ON
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

MODEL D104*Q

- Supply 24 Vdc
- Control
- Common positive connection
- Solenoid Valve
- Out 1
- Out 2
- In 1
- In 2

Bus powered,
Common negative (or common positive) control input,
2 Output channels (2 ch. + 2 ch. parallel)

MODEL D104*Q

- Supply 24 Vdc
- Control
- Common positive connection
- Solenoid Valve
- Out 1
- Out 2
- In 1
- In 2

Bus powered,
Common negative (or common positive) control input,
1 + 1 Output channels (1 ch. single + 3 ch. parallel)

MODEL D104*Q

- Supply 24 Vdc
- Control
- Common positive connection
- Solenoid Valve
- Out 1
- Out 2
- In 1

Bus powered,
Common negative (or common positive) control input,
1 Output channel (4 ch. parallel)

Powered output system
D1040Q OUTPUT DIAGRAM

Vo ≥ 20.5 V (no load)
Rout ≤ 334.0 Ω (1 Ch.)
Rout ≤ 167.0 Ω (2 Ch.)
Rout ≤ 111.4 Ω (3 Ch.)
Rout ≤ 83.5 Ω (4 Ch.)
I_{lim} ≥ 24 mA (per channel)

D1041Q OUTPUT DIAGRAM

Vo ≥ 20.5 V (no load)
Rout ≤ 484.0 Ω (1 Ch.)
I_{lim} typ. 15 mA
Vo ≥ 20.5 V (no load)
Rout ≤ 273.0 Ω (1 Ch.)
Rout ≤ 136.5 Ω (2 Ch.)
Rout ≤ 91.0 Ω (3 Ch.)
Rout ≤ 68.3 Ω (4 Ch.)
Ilm ≥ 24 mA (per channel)

Vo ≥ 20.5 V (no load)
Rout ≤ 484.0 Ω (1 Ch.)
Rout ≤ 242.0 Ω (2 Ch.)
Rout ≤ 161.4 Ω (3 Ch.)
Rout ≤ 121.0 Ω (4 Ch.)
Ilm ≥ 24 mA (per channel)