

# DIGITAL PANEL METER - BIG FORMAT

programmable  $\pm 10000$  points



## DGN-G4

The DGN-G4 is a highly accurate **programmable digital panel meter**.

Each instrument is equipped with a four 57mm high red 4 digits display, whose brightness suits applications in industrial control rooms perfectly.

It allows the display, the control and the transmission of data from any measurable magnitudes.

► **Universal power supply:**

20 to 270VAC and 20 to 300VDC

► **Universal input:**

- direct current: 0/4 - 20 mA
- direct voltage: 100mV, 1V, 10V, 300V
- thermocouple: J, K, N, S, B, W5, T, R, E, W, W3, L
- sensor: Pt 100  $\Omega$  3 wire, Ni 100  $\Omega$  3 wire
- potentiometer: from 100  $\Omega$  to 10 K $\Omega$
- resistance: caliber 0-400  $\Omega$ , 0-2 K $\Omega$  (0-8 K $\Omega$ , optional)

► **Combinable with various option types:**  
(specify on order)

**Insulated analog output:**

- Active current output, or voltage output..
- Programmable scale ratio with enlarging effect.
- Return value in case of sensor rupture and/or self-diagnosis error.

**Output 2 or 4 relays:**

- Mode setpoint or window.
- Recording of the alarms.
- Time delay and hysteresis adjustable on each setpoint.
- Alarm messages.

**Insulated digital output:**

RS485 3 wire, protocole MODBUS JBUS.

**Logic inputs:**

- 2 insulated logic inputs with programmable functions:
- display hold, moving of the decimal point,
- function tare, 0 reset of the min. and max.



PANEL METER

## EXTERNAL FEATURES

Easy programming on front face via a 4-key keyboard.

• **Display:**

Electroluminescent red - 4 alarm messages  
 $\pm 10\,000$  points (57 mm)

• **Housing:** Self-extinguishing case of black UL 94 V1 Noryl reinforced with glass fiber.

• **Connectors** plug-off connectors on rear face for screwed connectings (2.5mm<sup>2</sup>, flexible or rigid)

• **Protection:** Housing/terminals: IP20

• **Standards:** Disturbance immunity according to the standard IEC 61000-6-2

(IEC 61000-4-2 level 3, IEC 61000-4-3 level 3,  
IEC 61000-4-4 level 4, IEC 61000-4-6 level 3)

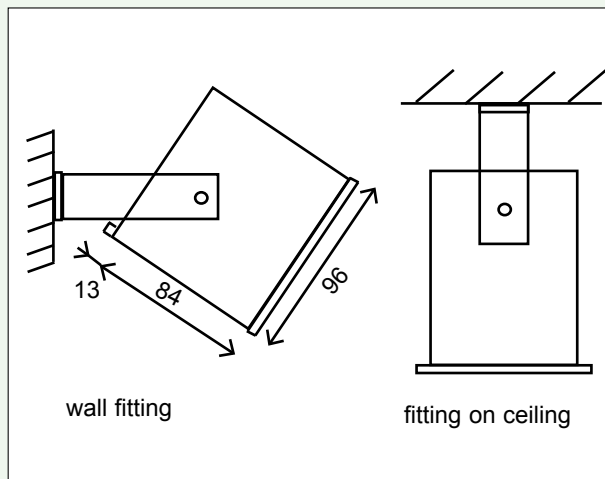
CE marking according to IEC 61000-6-4,  
IEC 61000-6-2 (industrial environment)



The friendly interface

## Dimensions

Case: 96 x 288 x 95 mm (with terminals)



Panel mounting possible (cut out 92 x 282 mm)

## Types of inputs

### DC current or voltage

100mV, 1V, 10V, 300V, 20mA.

- Accuracy: 0.1 % of the full scale at +25 °C
- Thermic drift < 150 ppm/°C
- Measurable scale overstepping from -10% to +10%
- Permanent overload: ±100 mA for caliber 20 mA  
±1V for caliber 100 mV  
±50V for calibers 1V, 10V  
±600V for caliber 300V
- Programmable scale factor
- Enlarging effect
- Special linearisation on 20 points
- Supply for 2 or 3-wire sensor  
24 V<sub>DC</sub> (±15%) -25 mA protected from short-circuits  
(Nonlinearity max. 0.3% of the MR in 3-wire sensor)

### Temperature

#### Thermocouples:

|         |              |               |
|---------|--------------|---------------|
| Type J  | min. -160 °C | max. +1200 °C |
| Type K  | min. -270 °C | max. +1370 °C |
| Type N  | min. +0 °C   | max. +1300 °C |
| Type S  | min. -50 °C  | max. +1770 °C |
| Type B  | min. +200 °C | max. +1820 °C |
| Type W5 | min. +0 °C   | max. +2300 °C |
| Type T  | min. -270 °C | max. +410 °C  |
| Type R  | min. -50 °C  | max. +1770 °C |
| Type E  | min. -120 °C | max. +1000 °C |
| Type W  | min. 1000 °C | max. +2300 °C |
| Type W3 | min. 0 °C    | max. +2480 °C |
| Type L  | min. -150 °C | max. +910 °C  |

- Accuracy: 0.1% of the full scale at +25°C, or 30µV typical (60µV max.)
- Thermic drift < 150ppm/°C (except CJC)  
CJC efficiency: < 0.03°C/°C ± 0.5°C from -5°C to +55°C

#### Sensors:

|          |             |              |
|----------|-------------|--------------|
| Pt 100 Ω | min -200 °C | max. +850 °C |
| Ni 100 Ω | min -60 °C  | max. +260 °C |

- Influence of the line resistance in 3-wire measurement within the grade for 0<RI<25Ω
- Max. measured current: 250 µA
- Accuracy: 0.1% of the full scale at +25°C
- Thermic drift < 150ppm/°C

### Potentiometer and resistance

**Resistive sensors:** calibers 0-400 Ω and 0-2 kΩ (0-8 kΩ optional)

- Accuracy: 0.1% for calibers 0-400 Ω and 0-8 kΩ and 0.5% for the caliber 0-2 kΩ (of the full scale at +25°C)
- Thermic drift < 150ppm/°C

**Potentiometers:** from 100 Ω to 10 kΩ

- Accuracy: 0.1% of the full scale at +25°C
- Thermic drift < 150ppm/°C

## Types of options

### Analog output: 2 types on choice

**A1: Active current output** 0/4-20mA

**A3: Voltage output** 0-10V

- Accuracy: 0.1 % in relation to the display (at +25°C)
- Residual ripple ≤ 0,2%
- Admissible load  $0\Omega < L_r < 600\Omega$  (current)  
 $L_r > 500k\Omega$  (voltage)
- Programmable scale ratio with enlarging effect
- Response time: 40 ms

option A1, A3

### Relay output:

**R : 2 independently programmable setpoint relays**

**R4 : 4 independently programmable setpoint relays**

- Hysteresis independently programmable from 0 to 100% of the setpoint in the display unit
- Time delay independently programmable from 0 to 25 s in 0.1s. increments
- NO-NC contact 8 A - 250 V on resistive load

option R, R4

### Digital output:

**RS485 3 wire, protocole MODBUS JBUS**

option N

### Logic inputs:

**TOR: 2 insulated logic inputs**

- Display hold
- Moving of the decimal point
- Tare
- min., max. 0 reset

option tor

### ◆ Power supply

20 to 270VAC 50/60/400Hz, and 20 to 300V<sub>DC</sub>

Power draw: 8 W max. 12 VA max.

### ◆ Galvanic partition

2.5KVEFF 50Hz 1MN, BETWEEN SUPPLY, INPUT,

ANALOG OUTPUT, RELAY OUTPUTS, DIGITAL OUTPUT, LOGIC INPUTS

### ◆ Features

- Sampling time: 100ms
- Input impedance  $\geq 1\text{ M}\Omega$  for the voltage inputs  
Max. drop 0.9 V for the current input
- Rejection rate:  
Common mode: 130 dB      Serial mode: 40 dB 50/60 Hz
- Zero drift compensation and self-calibration

### ◆ Programmable integration indice

Allows stabilising the display in case of unsteady input.

### ◆ Detection of the line or sensor rupture

- Can be detected on inputs mV, TC, Pt 100, Ni 100, resistance (0-400  $\Omega$ ) and current (4-20 mA).
- Return value programmable on the analog output in case of sensor rupture.
- Detection of the sensor rupture programmable on the 4 relays.
- Possibility to disconnect the sensor rupture.

### ◆ Self-diagnosis:

- Permanently watches any drifts which may occur on the components. Serves to warn the user before they may provoke false measures.
- Self-diagnosis error detection programmable on the 4 relays.
- Return value programmable on the analog output in case of self-diagnosis error.

### ◆ Measurable scale overrange

Visualised on the display by a blinking measure.

### ◆ Linearisations

- Linear input
- Special linearisation on 20 points (in X and in Y)  
(voltage, current, potentiometer or resistance inputs)

### ◆ Scale shifting (slope and offset)

Programmable on all inputs.

### ◆ Adjusting of the brightness

Adjusting of the digits brightness programmable on 4 levels depending on the location of the instrument (outside, control room...)

### ◆ Quick reading on the display

- of the value of the setpoints,
- of the input signal electrical value,
- of the min. and max. values.

### ◆ Function simulation

- Possibility to simulate the analog output (mode generator).
- Possibility to simulate the measure: allows validating the configuration of the analog output and the relay outputs in the installation.

### ◆ Access code

An access code adjustable from 0000 to 9999 serves to protect the meter and its setpoints from unauthorized programming, and to lock the access to some functions. The code is 0000 on factory exit.

|   |   |   |   |                                                         |
|---|---|---|---|---------------------------------------------------------|
| x | x | x | x |                                                         |
|   |   |   |   | 0 to 5 Access to the scale shifting                     |
|   |   |   |   | 6 to 9 No access                                        |
|   |   |   |   | 0 to 5 Access to the measure and output simulations     |
|   |   |   |   | 6 to 9 No access                                        |
|   |   |   |   | 0 to 5 Access to the function "tare" (except t° inputs) |
|   |   |   |   | 6 to 9 No access                                        |
|   |   |   |   | 0 to 5 Access to the quick entering of alarm setpoints  |
|   |   |   |   | 6 to 9 No access                                        |

### ◆ Environment

- Protection case/terminals: IP 20.
- Operating temperature: -5 to 55°C.
- Storage temperature: -30°C to +80°C.
- Relative dampness: 80% annual average.
- Plug-off connectors for screwed connections  
(2.5 mm<sup>2</sup> cable, flexible or rigid).
- Case of self-extinguishing NORYL reinforced with UL 94 V1 glass fiber.
- Weight: 840g

## CODING

### ◆ Type: **DGN-G4**

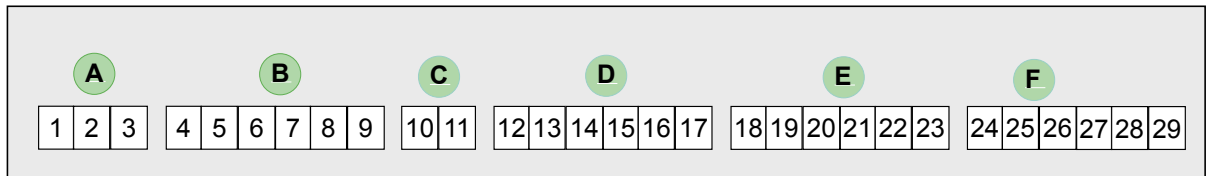
◆ Input option:  
**tor** : logic inputs

◆ Output options:  
**A** : Analog (A1, or A3: specify)  
**R** : 2 or 4 relays (R or R4)  
**N** : digital

Order example:

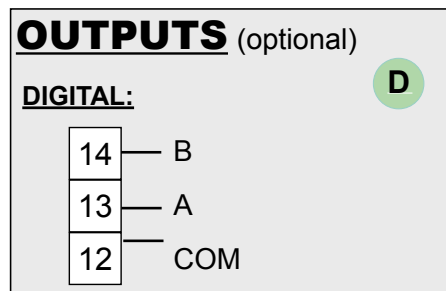
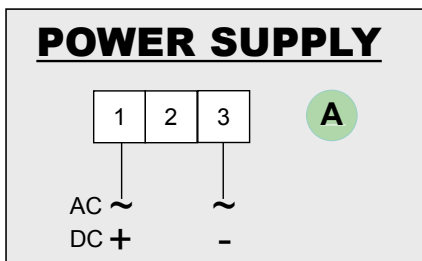
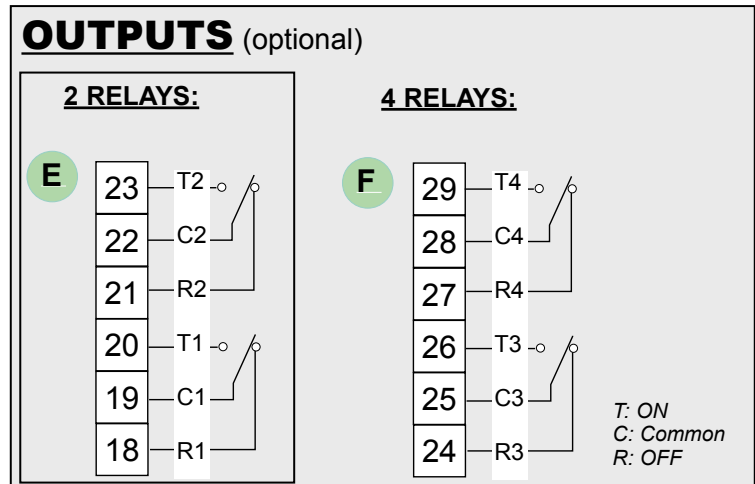
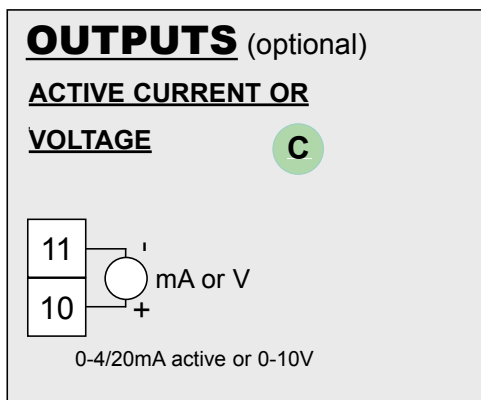
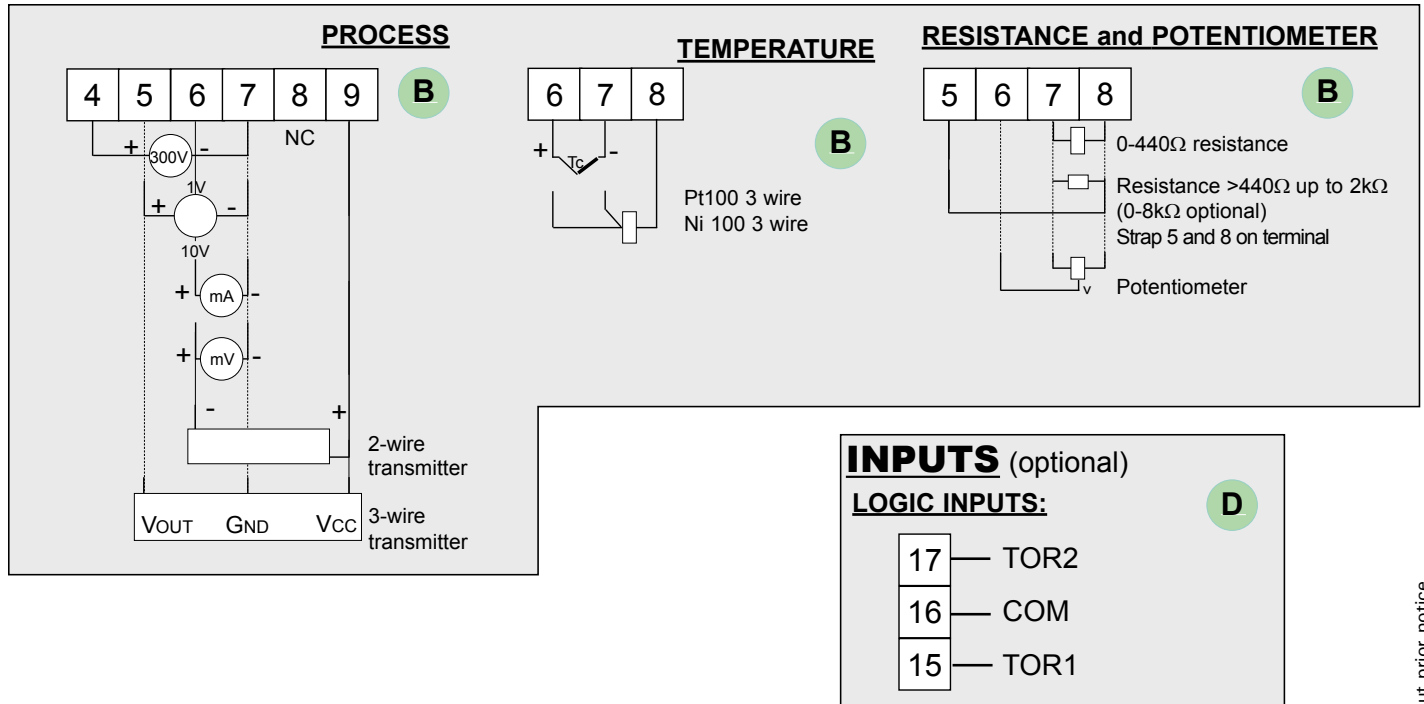
For a panel meter with 1 active current analog output and 2 relays, request the reference:

**DGN-G4 A1R**



Location of the terminals (view of case rear side)

## INPUTS



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