

# DIGITAL PANEL METERS

programmable  $\pm 10000$  points

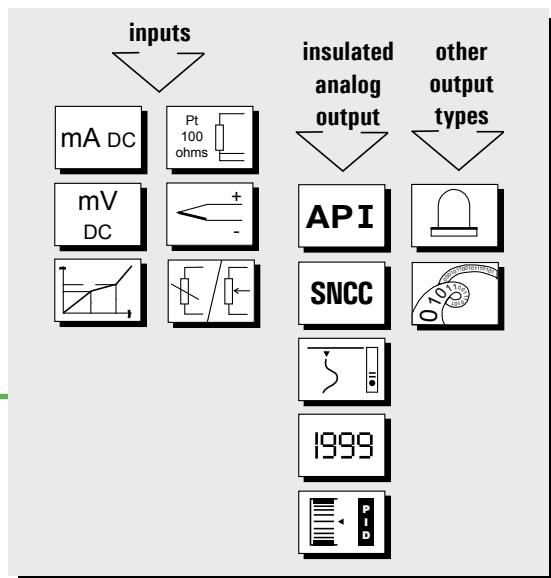


## DGN 10

Universal input:

- **DC current or voltage**  
100mV, 1V, 10V, 300V, 0/4-20mA.
- **Temperature:** thermocouple (J,K,N,S,B, W5,T,R,E,W,W3,L), PT100 $\Omega$  3 wire, NI100 $\Omega$  3 wire.
- **Potentiometer:** from 100  $\Omega$  to 10 K $\Omega$
- **Resistance:** caliber 0-400  $\Omega$ , 0-2 K $\Omega$  (8 K $\Omega$ , optional)

## FUNCTIONS



## INTRODUCTION

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

- **Display:**  
Electroluminescent red - 4 alarm messages  
 $\pm 10\,000$  points (14 mm)
- **Housing** : Self-extinguishing case of black UL 94 V0 ABS.
- **Plug-off connectors** on rear face for screwed connectings (2.5mm<sup>2</sup>, flexible or rigid)
- **Protection**: Front face: IP 65 Case/terminals: IP20
- **Standards**: Complies with standards EN 50081-2 on rejections and EN 50082-2; immunity (in industrial environment)  
EN 61000-4-2 level 3, EN 61000-4-3 level 3,  
EN 61000-4-4 level 4, EN 61000-4-6 level 3



CE marking according to the directive EMC 89-336

The friendly interface

The DGN 10 is a high-accuracy **programmable universal panel meter**, with **IP65** front face protection.

This device is equipped with a 14mm high 4 digit red display, whose brightness suits applications in industrial control rooms perfectly.

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

**Combinable with various option types:**  
(to be specified on order)

### Insulated analog output:

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

### Relay output: 2 relays:

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



PANEL METER



CA  
IN/40

# TECHNICAL FEATURES AT 23°C

|                 | OPTION TYPES                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | INPUT TYPES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |              |               |               |              |               |               |            |               |               |             |               |               |              |               |                |            |               |               |              |              |               |             |               |               |              |               |               |              |               |                |           |               |               |              |              |                 |             |              |                 |            |              |
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| option A1, A3   | <b>Analog output: 2 types on choice</b><br>A1 : 0/4-20mA active current output<br>A3 : 0-10V voltage output<br><br><ul style="list-style-type: none"><li>Accuracy 0.1 % in relation to the display (at +25°C)</li><li>Residual ripple ≤ 0.2%</li><li>Admissible load <math>0\Omega &lt; L_r &lt; 600\ \Omega</math> (current)<br/><math>L_r &gt; 500\ \text{k}\Omega</math> (voltage)</li><li>Programmable scale ratio with enlarging effect</li><li>Response time: 40ms</li></ul> | <b>DC current or voltage</b><br><br><b>Unidirectionnal</b> 100mV, 1V, 10V, 300V, 20mA.<br><br><ul style="list-style-type: none"><li>Accuracy: 0.05 % of the full scale at +25 °C</li><li>Thermic drift &lt; 150 ppm/°C</li><li>Measurable scale overstepping from -10% to +10%</li><li>Programmable scale factor</li><li>Enlarging effect</li><li>Special linearisation on 20 points</li><li>Supply for 2 or 3-wire sensor 24Vdc (±15%) 25mA, protected from short-circuits</li></ul>      | <b>Temperature</b><br><b>Thermocouples:</b><br><table><tr><td><b>Type J</b></td><td>min. -160 °C</td><td>max. +1200 °C</td></tr><tr><td><b>Type K</b></td><td>min. -270 °C</td><td>max. +1370 °C</td></tr><tr><td><b>Type N</b></td><td>min. +0 °C</td><td>max. +1300 °C</td></tr><tr><td><b>Type S</b></td><td>min. -50 °C</td><td>max. +1770 °C</td></tr><tr><td><b>Type B</b></td><td>min. +200 °C</td><td>max. +1820 °C</td></tr><tr><td><b>Type W5</b></td><td>min. +0 °C</td><td>max. +2300 °C</td></tr><tr><td><b>Type T</b></td><td>min. -270 °C</td><td>max. +410 °C</td></tr><tr><td><b>Type R</b></td><td>min. -50 °C</td><td>max. +1770 °C</td></tr><tr><td><b>Type E</b></td><td>min. -120 °C</td><td>max. +1000 °C</td></tr><tr><td><b>Type W</b></td><td>min. 1000 °C</td><td>max. +2300 °C</td></tr><tr><td><b>Type W3</b></td><td>min. 0 °C</td><td>max. +2480 °C</td></tr><tr><td><b>Type L</b></td><td>min. -150 °C</td><td>max. +910 °C</td></tr></table> <ul style="list-style-type: none"><li>Accuracy: 0.1% of the full scale at +25°C, or 30µV typical (60µV max.)</li><li>Thermic drift &lt;150ppm/°C (except CJC)<br/>CJC efficiency: &lt; 0.03°C/°C ± 0.5°C from -5°C to +55°C</li></ul><br><b>Sensors :</b><br><table><tr><td><b>Pt 100 Ω</b></td><td>min -200 °C</td><td>max. +850 °C</td></tr><tr><td><b>Ni 100 Ω</b></td><td>min -60 °C</td><td>max. +260 °C</td></tr></table> <ul style="list-style-type: none"><li>Influence of the line resistance in 3-wire measurement included in the grade for 0&lt;RI&lt;25Ω</li><li>Max. measured current: 250 µA</li><li>Accuracy: 0.1% of the full scale at +25°C</li><li>Thermic drift &lt; 150ppm/°C.</li></ul> | <b>Type J</b> | min. -160 °C | max. +1200 °C | <b>Type K</b> | min. -270 °C | max. +1370 °C | <b>Type N</b> | min. +0 °C | max. +1300 °C | <b>Type S</b> | min. -50 °C | max. +1770 °C | <b>Type B</b> | min. +200 °C | max. +1820 °C | <b>Type W5</b> | min. +0 °C | max. +2300 °C | <b>Type T</b> | min. -270 °C | max. +410 °C | <b>Type R</b> | min. -50 °C | max. +1770 °C | <b>Type E</b> | min. -120 °C | max. +1000 °C | <b>Type W</b> | min. 1000 °C | max. +2300 °C | <b>Type W3</b> | min. 0 °C | max. +2480 °C | <b>Type L</b> | min. -150 °C | max. +910 °C | <b>Pt 100 Ω</b> | min -200 °C | max. +850 °C | <b>Ni 100 Ω</b> | min -60 °C | max. +260 °C |
|                 | <b>Type J</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | min. -160 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | max. +1200 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |               |              |               |               |              |               |               |            |               |               |             |               |               |              |               |                |            |               |               |              |              |               |             |               |               |              |               |               |              |               |                |           |               |               |              |              |                 |             |              |                 |            |              |
| <b>Type K</b>   | min. -270 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | max. +1370 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |              |               |               |              |               |               |            |               |               |             |               |               |              |               |                |            |               |               |              |              |               |             |               |               |              |               |               |              |               |                |           |               |               |              |              |                 |             |              |                 |            |              |
| <b>Type N</b>   | min. +0 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | max. +1300 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |              |               |               |              |               |               |            |               |               |             |               |               |              |               |                |            |               |               |              |              |               |             |               |               |              |               |               |              |               |                |           |               |               |              |              |                 |             |              |                 |            |              |
| <b>Type S</b>   | min. -50 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | max. +1770 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |              |               |               |              |               |               |            |               |               |             |               |               |              |               |                |            |               |               |              |              |               |             |               |               |              |               |               |              |               |                |           |               |               |              |              |                 |             |              |                 |            |              |
| <b>Type B</b>   | min. +200 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | max. +1820 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |              |               |               |              |               |               |            |               |               |             |               |               |              |               |                |            |               |               |              |              |               |             |               |               |              |               |               |              |               |                |           |               |               |              |              |                 |             |              |                 |            |              |
| <b>Type W5</b>  | min. +0 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | max. +2300 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |              |               |               |              |               |               |            |               |               |             |               |               |              |               |                |            |               |               |              |              |               |             |               |               |              |               |               |              |               |                |           |               |               |              |              |                 |             |              |                 |            |              |
| <b>Type T</b>   | min. -270 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | max. +410 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |              |               |               |              |               |               |            |               |               |             |               |               |              |               |                |            |               |               |              |              |               |             |               |               |              |               |               |              |               |                |           |               |               |              |              |                 |             |              |                 |            |              |
| <b>Type R</b>   | min. -50 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | max. +1770 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |              |               |               |              |               |               |            |               |               |             |               |               |              |               |                |            |               |               |              |              |               |             |               |               |              |               |               |              |               |                |           |               |               |              |              |                 |             |              |                 |            |              |
| <b>Type E</b>   | min. -120 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | max. +1000 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |              |               |               |              |               |               |            |               |               |             |               |               |              |               |                |            |               |               |              |              |               |             |               |               |              |               |               |              |               |                |           |               |               |              |              |                 |             |              |                 |            |              |
| <b>Type W</b>   | min. 1000 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | max. +2300 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |              |               |               |              |               |               |            |               |               |             |               |               |              |               |                |            |               |               |              |              |               |             |               |               |              |               |               |              |               |                |           |               |               |              |              |                 |             |              |                 |            |              |
| <b>Type W3</b>  | min. 0 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | max. +2480 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |              |               |               |              |               |               |            |               |               |             |               |               |              |               |                |            |               |               |              |              |               |             |               |               |              |               |               |              |               |                |           |               |               |              |              |                 |             |              |                 |            |              |
| <b>Type L</b>   | min. -150 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | max. +910 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |              |               |               |              |               |               |            |               |               |             |               |               |              |               |                |            |               |               |              |              |               |             |               |               |              |               |               |              |               |                |           |               |               |              |              |                 |             |              |                 |            |              |
| <b>Pt 100 Ω</b> | min -200 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | max. +850 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |              |               |               |              |               |               |            |               |               |             |               |               |              |               |                |            |               |               |              |              |               |             |               |               |              |               |               |              |               |                |           |               |               |              |              |                 |             |              |                 |            |              |
| <b>Ni 100 Ω</b> | min -60 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | max. +260 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |              |               |               |              |               |               |            |               |               |             |               |               |              |               |                |            |               |               |              |              |               |             |               |               |              |               |               |              |               |                |           |               |               |              |              |                 |             |              |                 |            |              |
| option R        | <b>Relay output:</b><br><b>R : 2 independently programmable setpoint relays</b><br><br><ul style="list-style-type: none"><li>Hysteresis independently programmable from 0 to 100% of the setpoint in the display unit</li><li>Time delay independently programmable from 0 to 25 s, in 0.1s increments.</li><li>NO/NC contact 8 A - 250 V on resistive load</li></ul>                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |              |               |               |              |               |               |            |               |               |             |               |               |              |               |                |            |               |               |              |              |               |             |               |               |              |               |               |              |               |                |           |               |               |              |              |                 |             |              |                 |            |              |
|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Potentiometer and resistance</b><br><b>Resistive sensors:</b> calibers 0-400 Ω and 0-2 kΩ (0-8 kΩ optional) <ul style="list-style-type: none"><li>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)</li><li>Thermic drift &lt; 150ppm/°C</li></ul> <b>Potentiometers :</b> from 100 Ω to 10 kΩ <ul style="list-style-type: none"><li>Accuracy: 0.1% of the full scale at +25°C</li><li>Thermic drift &lt; 150ppm/°C</li></ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |               |              |               |               |              |               |               |            |               |               |             |               |               |              |               |                |            |               |               |              |              |               |             |               |               |              |               |               |              |               |                |           |               |               |              |              |                 |             |              |                 |            |              |

## Universal power supply:

20...270 VAC                      50/60/400 Hz  
 20...300 Vdc

**Power draw:** 3 W max. 5.5 VA max.

## **Features**

- Sampling time: 100ms
- Input impedance  $\geq 1 \text{ M}\Omega$  for the voltage inputs  
Drop 0.9 V max. for the current input
- Zero drift compensation and self-calibration
- Insulation: Input / power supply: 2.5 kV eff. 50Hz-1min  
Input/output: 2.5 kV eff. 50Hz-1min
- Rejection rate :  
common mode 130dB, serial mode 40dB 50/60Hz

## **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 2 relays.
- Possibility to disconnect the sensor rupture.

## **Self-diagnosis:**

- Permanently watches any drifts of its components.  
Serves to warn the user before they may provoke erroneous  
measures.
- Self-diagnosis error detection programmable on the 2 relays.
- Return value programmable on the analog output in case of  
self-diagnosis error.

## **Input scale overstepping**

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.

## **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**

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

## **Brightness adjusting**

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

## **Access code**

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

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

## **Environment**

- IP65 front face protection.
- Operating temperature: -5 to 55°C.
- Storage temperature: -30°C to +80°C.
- Relative dampness: 80% annual average.
- Connection by plug-off screwed terminals  
(for 2.5 mm<sup>2</sup> cable, flexible or rigid).
- Self-extinguishing case of black UL 94 VO ABS.
- Weight: 150g (with packaging).

# CODING

**Type** : DGN 10

## **Output options:**

**A** : Analog (A1 or A3 : specify)  
**R** : 2 relays

Simultaneously combinable options

## **Order examples:**

For a meter with 1 analog output and 2 relays, request  
reference:

**DGN 10 - A1R**

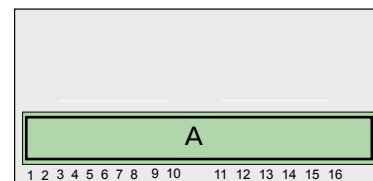
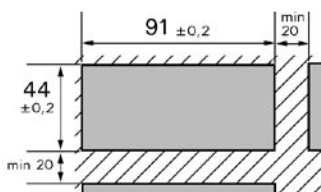
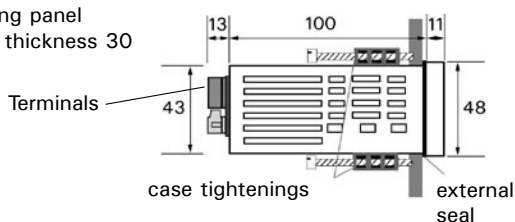
# WIRING / DIMENSIONS

**Case dimensions:** 96 x 48 x 124 mm (with terminals)

**Mounting:** on panel; cut out  
44 x 91 mm

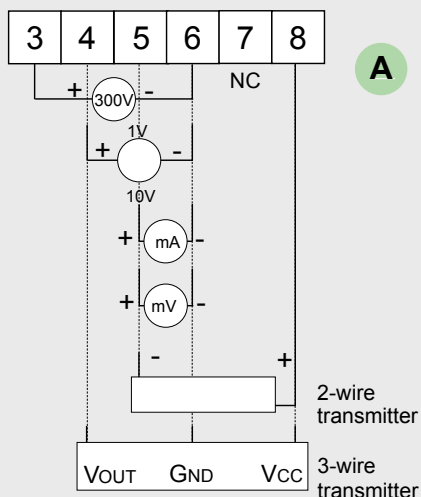
Location of the terminals

Holding panel  
Max. thickness 30

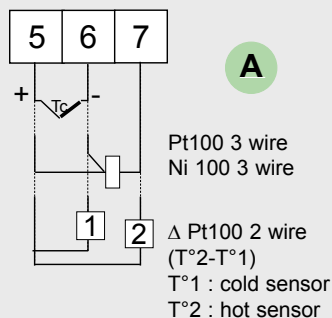


## INPUTS

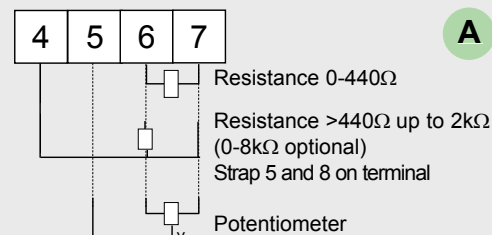
### PROCESS



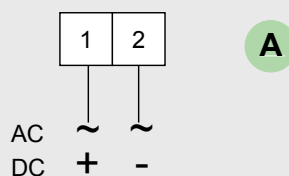
### TEMPERATURE



### RESISTANCE AND POTENTIOMETER

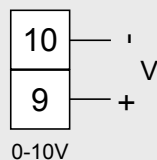


## SUPPLY

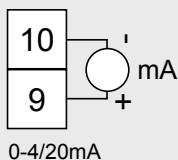


## OUTPUTS (options)

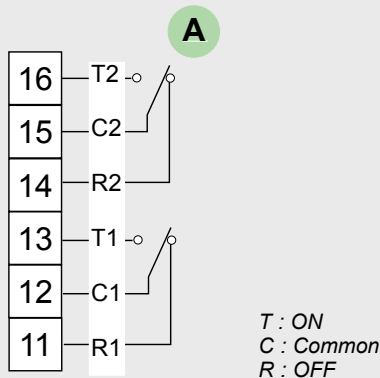
### VOLTAGE



### CURRENT



## 2 RELAYS :



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