

## 2021 Panelmeter for temperature sensors and process inputs

- Thermocouples B, C, D, E, G, J, K, L, N, R, S and T  
Pt100/1000, Ni100, 0/4..20 mA, 0..5/10 V, -10..+10 V, potentiometer
- 6-digit processor-based LED display
- Sensor selection and scaling via front panel keys
- Galvanically isolated output 0/4..20 mA, 0..10V
- 2 to 4 adjustable alarm relays
- Serial output RS-485 and RS-232
- Linearity for process inputs < 0.007 % FS
- Wide power supply range 85..240 VAC or 12..32 VDC/ 24 VAC
- Front panel protection IP65



The panelmeter 2021 is designed especially for temperature sensors and for the most common process inputs. Selection of sensor type and display scaling is easy via front panel keys. As an option you can choose to have a galvanically isolated output, 2 to 4 alarm relays or the serial output RS-232/485. Alarm limits and hysteresis are freely selectable via front panel keys.

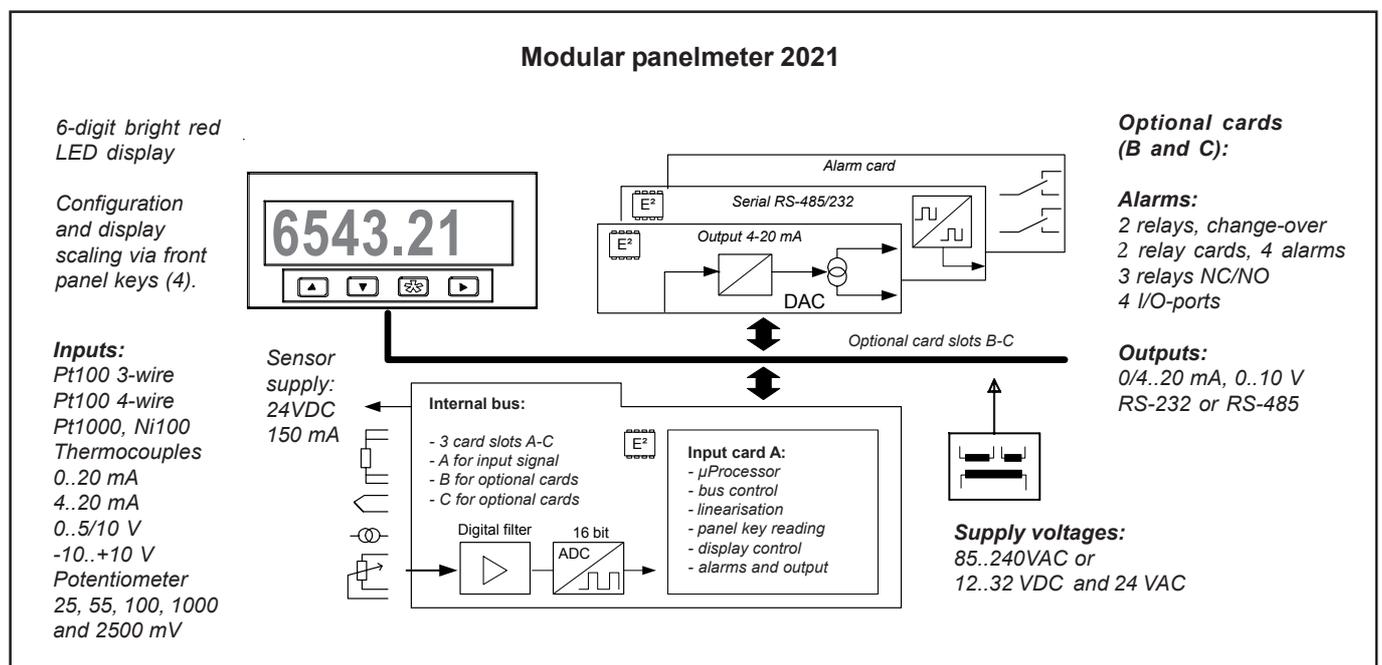
The bright red LED-display has six 15-mm-high digits. Input signal can be damped by a digital filter if necessary. The number of decimals can be selected and the brightness of the display is adjustable.

There are two power supply alternatives: one for line voltage 85..240 VAC and the other 12..32 VDC or 24 VAC, galvanically isolated from input and output. The panelmeter provides a voltage supply of 24 VDC, 150 mA to the sensors.

Analog conversion is done by a 16-bit AD-converter (1/64000) and the number of measurements is 15 per second. Separate passwords can be set for access to the configuration menu and alarms. Front panel protection rating is IP65.

The panelmeter series 2000 is very flexible and easy to modify by changing input cards for different kinds of sensors, such as temperature sensors, pulse sensors, serial inputs etc. The modification does not require any calibration. The optional cards are the same for all the instruments in this product family. Each panelmeter type has its own datasheet.

Separate field enclosures can be supplied for 1 to 3 panelmeters. The 2021 is also available in the field display series, model 2800-2021.



# Technical specifications:

**Process inputs:** 0/4..20 mA, 0..5/10 V, -10..+10 V  
 Display scaling on the whole display range  
 Input resistance current input 50 Ω, voltage input >1 MΩ  
 Accuracy 0.02% FS  
 Linearity 0.007% FS  
 Supply for transmitter 24 VDC, max. 150 mA  
**RTD-sensors:** Pt100 3- and 4-wire, (Pt1000, Ni100)  
 Measuring range -200..+700°C (Pt100)  
 Measuring current 0.3 mA  
 Accuracy 0.05 % FS  
 Linearity error < 0.07 °C (-200..+700°C)  
**Thermocouples:** types specified below  
 Accuracy 0.1 % FS  
 Cold junction error 0.05 °C/°C  
 Line resistance effect < 10kΩ, no effect

Type	Range	Linearisation error:
E	-100.... 900°C	<0.2°C -50.... 900°C
J	-150.... 900°C	<0.2°C -50... 900°C
K	-150.... 1350°C	<0.4°C -40... 1300°C
L	-100.... 900°C	<0.4°C -50... 900°C
T	-150... 400°C	<0.2°C -150... 400°C
N	0.... 1300°C	<0.2°C 0.... 1300°C
R	0.... 1700°C	<0.3°C 400.... 1700°C (<1°C < 300°C)
S	0.... 1700°C	<0.3°C 300.... 1700°C (<1°C < 300°C)
C (W5)	0.... 2200°C	<0.3°C 400.... 2200°C (<0.4°C < 400°C)
D (W3)	0.... 2200°C	<0.3°C 500.... 2200°C (<1°C < 500°C)
B	400... 1700°C	<0.3°C 400.... 1700°C
G (W)	1000... 2200°C	<0.4°C 1000... 1700°C (<3°C >1700°C)

**mV-inputs:** 25, 55, 100, 1000 and 2500 mV  
 max. value scaleable  
 Accuracy 0,01 % FS; 0,02 % < 100 mV  
 Input resistance < 10 kΩ, no effect  
**Potentiometer input:** 0..8 kΩ, 2-wire connection

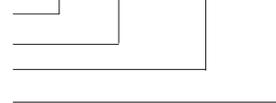
**Output (option):** 0/4..20 mA, max. load 700 Ω or 0..10 V, linearity 0.03 % FS, output freely scaleable  
**Alarms (option):** 2, 3 or 4 alarms, relays max. 240 V, 2 A selectable hysteresis 0..100%; automatic or manual reset; reversible function available for relays and signal lights;  
 4 I/O-ports, max. 60 VDC, 100 mA  
**Serial output (option):** RS-232 and RS-485  
 serial output only for measurement reading

**General:**  
 Display 6-digit bright red (or green) LED, digit height 14.5 mm, brightness selectable digital, freely adjustable  
 Input filter A/D-converter 16 bits (1/64 000), unipolar or bipolar  
 Temperature effect 0.0004 %/°C with voltage inputs  
 Operating temperature -10..+60 °C  
 Terminals removable, wire 2,5 mm<sup>2</sup>  
 Front panel signal lights alarms 1..4, min. and max. value  
 Front panel protection IP65 with a rubber gasket  
 Power supply 85..240 VAC or 12..32 VDC/ 24VAC  
 Weight 240 g

## How to order:

Type  
 Output card  
 Relay card 2000-REL2  
 Power supply 12..32VDC, 24VAC or 85..240 VAC

## 2021-OUT-REL2-24VDC

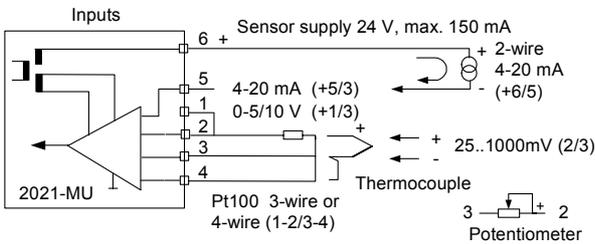


## Optional cards (2 options possible at a time):

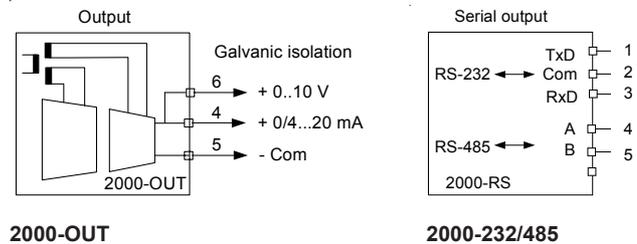
Output card 2000-OUT  
 Alarm card, 2 relays 2000-REL2  
 Alarm card, 3 relays 2000-REL3  
 I/O card (4 I/O lines) 2000-I/O  
 Serial output card RS-232/485 2000-RS

(When ordering a panelmeter, the "2000" of the cards is left out)  
 The panelmeter is also available with a green LED display: please specify 2021GR in the order code.

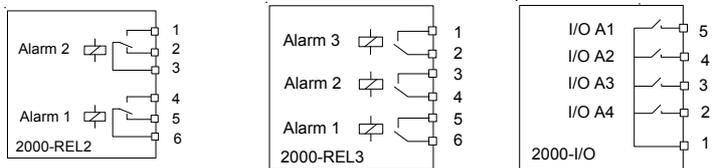
## Input and output cards



## Output cards for slot B (or C)



## Alarm cards for slot C (or B)



### 2000-REL2

- 2 relays
- Change over contacts max. 230 VAC/ 2 A

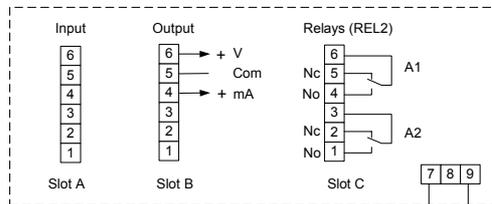
### 2000-REL3

- 3 relays
- Change over contacts • max. 230 VAC, 2 A

### 2000-I/O4

- 4 I/O-ports
- 60 V, 100 mA
- Selectable direction
- Common ground

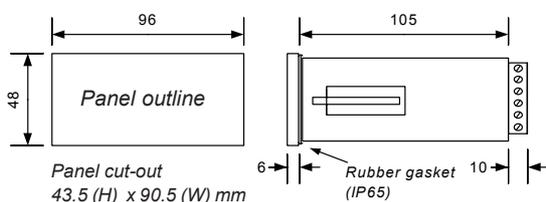
## 2021 typical combination



Slot A is for sensor input and slots B and C for optional cards.

Power supply 85..240 VAC or 12..32 VDC / 24 VAC (no polarity)

## Case dimensions:



Changing cards is fast and simple without any tools

