Nokeval

Yrittäjäkatu 12
FIN-37100 Nokia

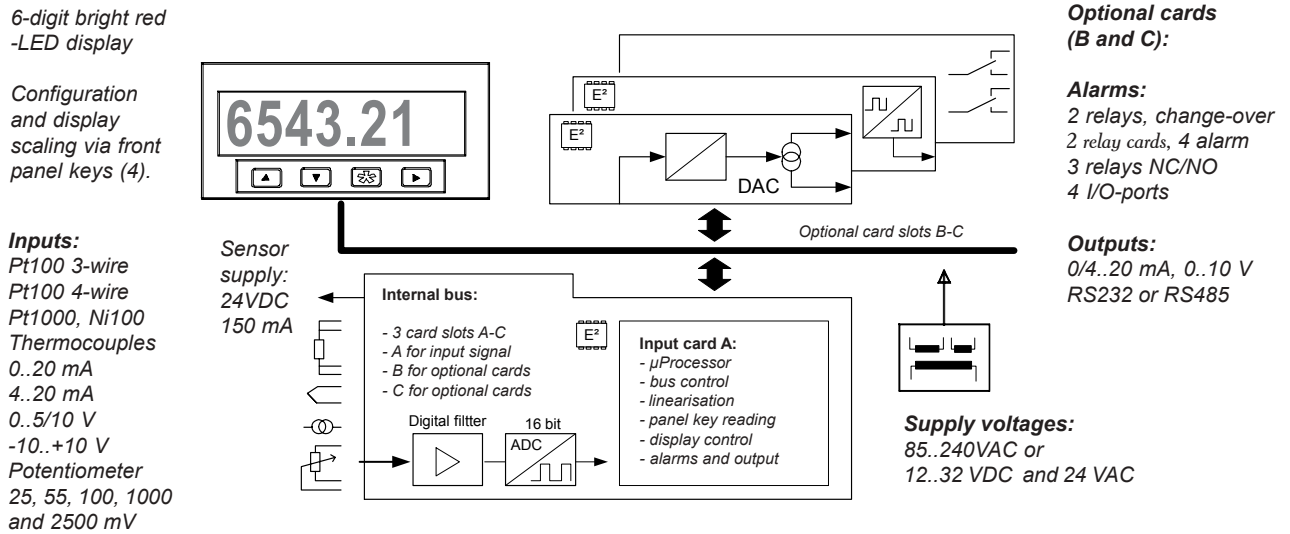
Tel. +358-(0)3-342 4800
Fax. +358-(0)3-342 2066

Modular panelmeter 2021 for temperature and process sensors

- **6-digit processor based display**
- **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, potentiom.**
- **Sensor selection and scaling by front panel keys**
- **Min/Max memory**
- **Galvanically isolated output 0/4..20 mA, 0..10V**
- **2..4 adjustable alarm relays**
- **Serial output RS-485 and RS-232**
- **Linearity for process inputs < 0.01% FS**
- **Power sully 85..240 VAC or 12..32 VDC/24VAC**
- **Front panel protection IP65**

Panel meter 2021 is designed specially for temperature sensors and for common process inputs. 2021 base card has three card slots: One (slot A) for measuring card and two (slots B, C) for output and alarm cards.
Unit 2021 can be fitted with several interchangeable option cards mounted into slots B and C. If e.g. four alarms are needed, user may select two separate 2-relay alarm cards (2000-REL2) or one card with four logic I/O-ports (2000-I/O4) and leave the third slot C for e.g. output card (2000-OUT). Extension card installation doesn't require any kind of recalibration, changes take affect after activating them in configuration mode. Input card can also be easily changed, e.g. for pulse sensors (model type changes to 2051) or for strain gage sensors (2041) etc. When input card is changed it changes also unit type, each type has own brochure. Supply voltage can be selected from two versions: one for mains voltage 85..240VAC and the other for 12..32 VDC or 24 VAC, both are galvanically isolated from input and output. Unit has 24 VDC / 150 mA voltage supply for sensors.
Analog conversion is 16 bit, resolution 64000, 15 measurings/second. Display update speed can be selected 3..15 times per second. Environments where interference may occur or measuring range is narrow 2021 display can be filtered digitally (like RC-filter). Continuous autocalibration ensures long term calibration stability. Separate access codes for alarms and configuration stage. Min / Max values are indicated via front panel LEDs (red). Adjustable display brightness, frontpanel protection IP65.

Modular panelmeter 2021



Technical specifications:

Process inputs:	0/4..20 mA, 0..5/10 V, -10..+10 V
Display scaling	On whole display range
Input resistance	current input 50 Ω, voltage input >1 MΩ
Accuracy	0.01% FS
Linearity	0.005% FS
Sensor supply	24 VDC, max. 150 mA
RTD-sensors:	P100 3- and 4-wire, (Pt1000, Ni100)
Measuring range	-200..700°C (Pt100)
Measuring current	0.3 mA
Accuracy	0.05 % FS
Linearity error	< 0.03°C (-200..700°C)
Thermocouples:	Types specified below
Accuracy	0.1 % FS
Cold junction error	0.05°C /°C
Line resitance effect	<10kΩ, no effect

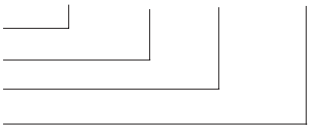
Type Range Linearisation error:

Type	Range and linearity	Linearity for limited range
E	-100.....900°C ±0.3°C	
J	-150.....900°C ±1°C	-50.....900°C ±0.3°C
K	-150....1300°C ±0.5°C	
L	-100.....900°C ±0.5°C	
T	-150.....400°C ±0.2°C	
N	0.....1300°C ±0.2°C	
R	0.....1700°C ±1°C	400....1700°C ±0.4°C
S	0.....1700°C ±1°C	300....1700°C ±0.3°C
C (W5)	0.....2200°C ±0.4°C	400....2200°C ±0.2°C
D (W3)	0.....2200°C ±1°C	500....2200°C ±0.3°C
B	400....1700°C ±0.3°C	
G (W)	1000....2200°C ±3°C	1000...1700°C ±0.5°C

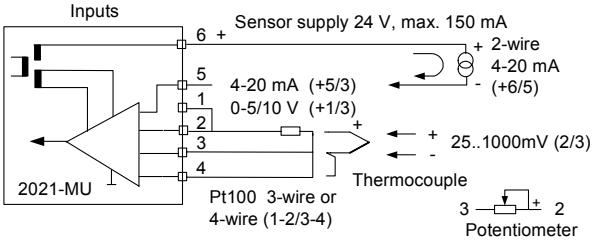
mV-inputs:	25, 55, 100, 1000 and 2500 mV Selectable scaling multiplier for max.value
Accuracy	0.01% FS, 0.02% < 100 mV
Input resistance	<10 kΩ, no effect
Potentiometer:	range 100..1 kΩ, connection 2-wire
Output:	0/4..20 mA , max. load 700 Ω 0..10V , linearity 0.02 % FS Output freely scaleable
Alarms:	2, 3 or 4 alarms, relays max. 240 V, 2 A selectable hysteresis 0..100%, automatic or manual reset 4 I/O-ports, max. 60 VDC, 100 mA
Serialoutput:	RS-232 and RS-485 (multi drop) Serialoutput only for measurement reading Baud rate and address (RS-485) selectable
General	
Input filter	Digital, freely selectable
A/D-converter	16 bit (64 000), unipolar or bipolar
Temperature effect	0.001°C/°C voltage inputs
Front panel indicators	Alarms 1..4, min. and max. value
Display	6-digit bright red LED, height 14.5 mm,
Power	85..240 VAC or 12..32 VDC/ 24VAC
Front panel protection	IP65 (rubber gasket)

Model **2021-OUT-REL2-24VDC**

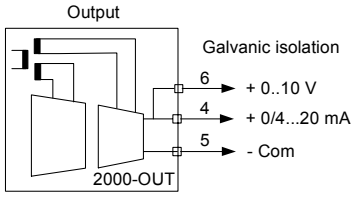
Input card
Output (mA,V)
2000-REL2 , REL3 or I/O
Power supply
12..32 VDC, 24VAC
or 85..240 VAC



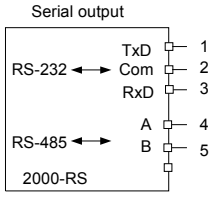
Input and output cards



Output cards for slot B (or C)

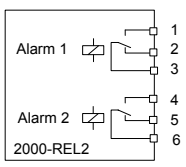


2000-OUT

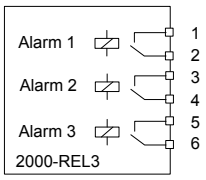


2000-232/485

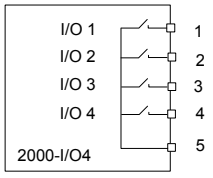
Alarm cards for slot C (or B)



2000-REL2
- *2 relays*
- *Change over contacts max. 230 VAC/ 2 A*

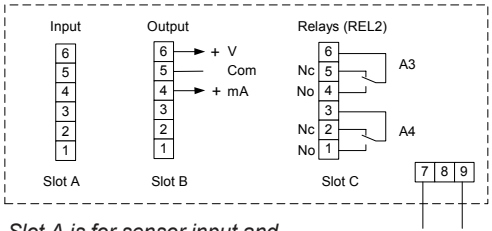


2000-REL3
- *3 relays*
- *Change over contacts*
- *max. 230 VAC, 2 A*



2000-I/O4
- *4 I/O-ports*
- *60 V, 100 mA*
- *Selectable direction*
- *Common ground*

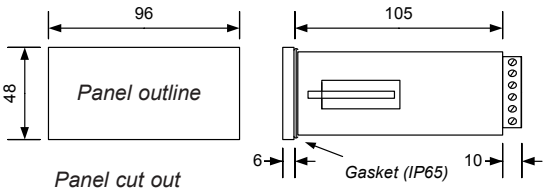
2021 typical combination



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:



Panel cut out
43.5 (K) x 90.5 (L) mm

Changing cards is fast and simple without any tools

Push down and pull