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2041 Panelmeter for strain gauge sensors

- **Strain gauge sensors with 4- or 6 -wire connection**
- **Excitation voltage 10V to sensors, max 150 mA**
- **6-digit processor-based LED-display**
- **Settings via front panel keys**
- **Output 0/4..20 mA, 0..10 V**
- **Serial output RS-232 or RS-485**
- **2 - 4 alarm relays**
- **Display taring via front panel key**
- **Measuring accuracy < 0,05 % of span**
- **Power supply 85..240 VAC or 12..32 VDC/ 24 VAC**

The versatile panelmeter 2041 is designed for strain gauge sensors. Strain gauge sensors can be connected with 4 or 6 wires. The 6-wire connection removes the lead wire resistance, as bridge voltage is measured from the sensor poles, and therefore it is recommended for applications requiring very high accuracy. The panelmeter provides 10 V excitation voltage for sensors, max. four 350 ohm sensors. Options to the 2041 include output 0/4-20 mA , 0-10V, 2..4 alarms or serial output RS-485/232.
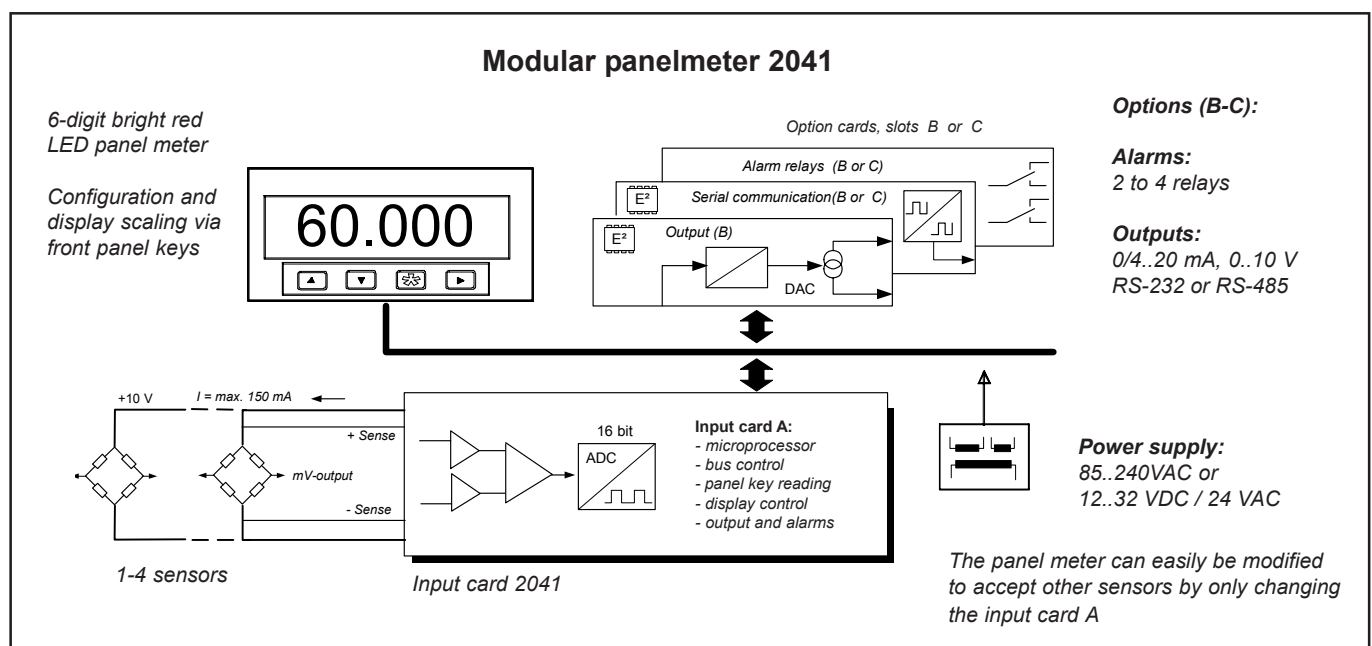
Display scaling and taring is easy via front panel keys. Scaling can be carried out in two different ways, either by applying the mV values of the bridge or using the teaching function. The teaching is done by first loading the sensors with the min. weight and then with the max. weight, after which the meter will automatically count the scaling.

In applications where the sensor loading is not in balance a separate serial connection unit of the sensors 20 SA-4 can be used to prevent the nonlinearity caused by the imbalance.

There are two power supply alternatives: one for line voltage 85..240 VAC and the other 12..32 VDC/ 24 VAC, both galvanically isolated from input and output. Analog conversion is done by a 16-bit AD-converter (resolution 1/64000) and the number of measurements is 3 per second. Separate passwords can be set for access to the configuration menu and alarms. The display can be damped with a digital filter if necessary. The number of decimals on the display is selectable. 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 2041 is also available in the field display series, model 2800-2041.

Modular panelmeter 2041

6-digit bright red LED panel meter

Configuration and display scaling via front panel keys

Option cards, slots B or C

Alarm relays (B or C)

Serial communication(B or C)

Output (B)

DAC

Options (B-C):

Alarms:
2 to 4 relays

Outputs:
0/4..20 mA, 0..10 V
RS-232 or RS-485

+10 V
I = max. 150 mA
+ Sense
mV-output
- Sense

16 bit
ADC

Input card A:
- microprocessor
- bus control
- panel key reading
- display control
- output and alarms

1-4 sensors

Input card 2041

Power supply:
85..240VAC or
12..32 VDC / 24 VAC

The panel meter can easily be modified to accept other sensors by only changing the input card A

Technical specifcation:

Sensor	strain gauge, max 350Ω parallel
Sensor connection	4- or 6 -wire connection
Bridge connection	full bridge or half bridge
Bridge supply	10 VDC, max. 150 mA
Measuring range	25..50 mV
Sensitivity settings	mV/V, freely selectable
Accuracy	<0,05 % FS
Repeatability	<0,02 % of span
Temperature drift	0,0028 % /°C

Output (option):

Outputs	0..20 mA, 4..20 mA and 0..10 VDC
Output range	scaleable on the whole display range, scaling via front panel
Accuracy	0,05% of the scaled display range
Galvanic isolation	test voltage 2000 VDC
Load resistance	maximum 700Ω

Alarms (option):

Relays	2..4 alarm relays, max 230 VAC / 2A Optional cards 2000-REL2 or 2000-REL3, 4 relays (2x 2000-REL2) prevent the use of other options

Serial output (option):

Serial output	RS-232 and RS-485
	Only for measurement reading or setting of alarms
Baud rate	300, 1200, 2400, 4800, 9600 or 19200

General:

Display range	6 digits, bright red (or green) LED , digit height 14,5 mm, brightness selectable
Display scaling	on the whole range via front panel
Display taring	via front panel keys
Teaching function	applying min/max weights
Configuration	via front panel keys
Case	96 x 48 x 110 mm
Front panel protection	IP65, with a rubber gasket
Operating temp.	0..60 °C
Terminals	detachable, max. 1,5 mm²
Power supply	85..240 VAC or 12..32 VDC / 24VAC
Weight	240 g

How to order: 2041-OUT- REL2-24VDC

Type
Output OUT
Alarm card REL2
Power supply:
85..240VAC or
12..32 VDC/24VAC

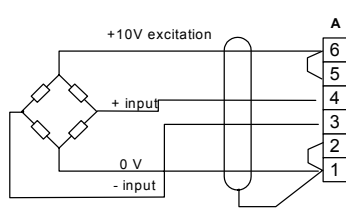**Optional cards** (2 options available at a time):
Output card	2000-OUT
Alarm card, 2 relays	2000-REL2
Alarm card, 3 relays	2000-REL3
Serial output, RS-232/485	2000-RS

(When ordering a panelmeter, the "2000" of the cards is left out.)

The panelmeter ia also available with a green LED display: please specify 2041GR in the order code.
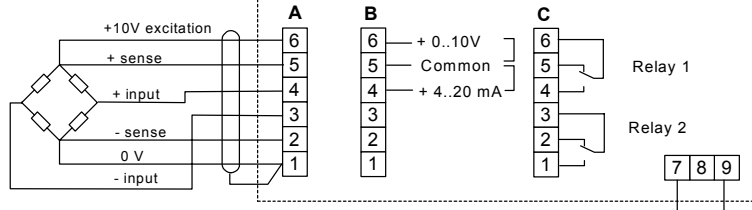
Connections

4- wire connection
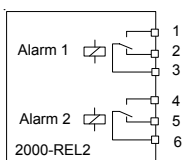

Strain gauge sensor
Max. 4 x 350 Ω (150 mA)

6-wire connection

Strain gauge sensor
Max. 4 x 350 Ω (150 mA)

+ 0..10V
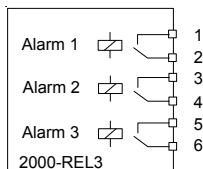Common
+ 4..20 mA

Relay 1
Relay 2

Options:
Output slot B
Alarms slot B-C
Serial output B-C

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

Option cards
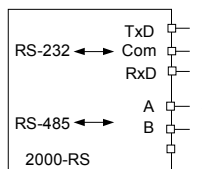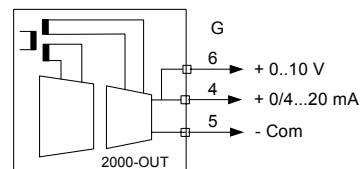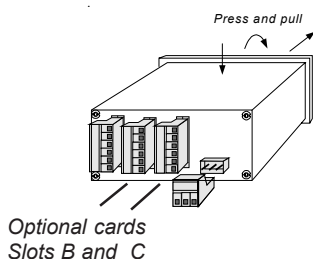

2000-REL2
2 relays
max. 230 VAC, 2 A

2000-REL3
3 relays,
max. 230 VAC, 2 A

2000-232/485
Serial output
RS-232 or RS-485
Galvanic isolation

2000-OUT
Output
0/4..20 mA/0..10V

Optional cards
Slots B and C

Dimensions:

Panel cut-out
43.5 (H) x 90.5 (W) mm

240702