Nokeval
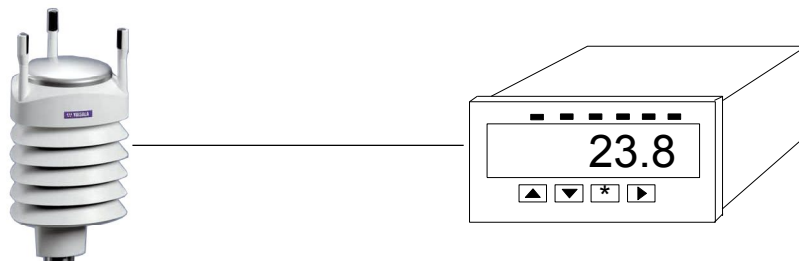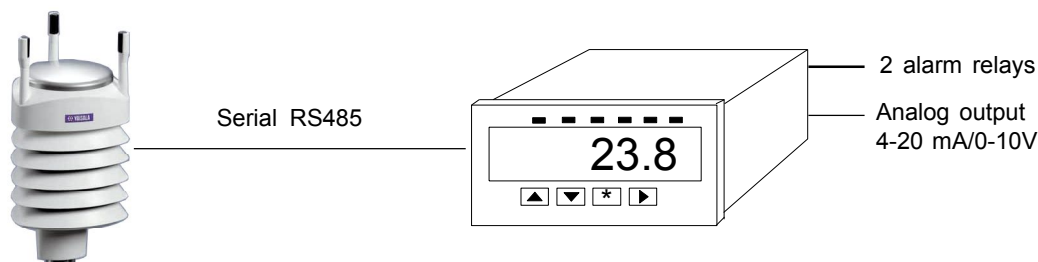
Manual

Model 2071WM for Vaisala WMT50 and WXT510 weather transmitters

Panelmeter 2071WM for Vaisala weather stations

Serial RS485

2 alarm relays

Analog output
4-20 mA/0-10V

23.8

General Description

Panel meter 2071WM and field display 2800-2071WM are designed for displaying the output signals of Vaisala Weather Transmitters WMT50 and WXT510. Weather parameters can be selected by using arrow keys on front panel. Nine channels can be used for available weather parameters, but without alarms and outputs..

Analog output:
0-20mA, 4-20 mA or 0-10V output is available for one input channel as an option. Output is freely scalable and can be set to any of the weather parameters.

Alarms:
Two alarm relays are available as an option.

Order codes

2071WM-REL2-24VDC   **Power 24 V (12..32 VDC)**
2071WM-REL2-230VAC **Power 85..240VAC**
(Type code includes display with two alarm relays)

Options:
REL2   2 alarm relay
OUT   1 Output 0-20mA/4-20 mA/0-10V

Technical specifications

Input: RS-485
Max distancies: 1000 m

Communication protocol:
                    - ASCII
                    - no CRC
                    - automatic or polled
Data   8 bits, 1 stop, no parity
Adress: 0
Baud rate: 300, 600, 1200, 2400, 4800, 9600 and 19200 bauds

Output   0-20mA, 4-20 mA or 0-10V (1 channel)
                    Max. output load 600 ohm

Alarms   2 alarm relays
                    Max. 260 VAC, 2 A

General specification:
Display   1 + 4-num. bright red LED, digit height 14.5 mm
Power   85..240 VAC
                    or 12..32 VDC/ 24VAC

Front panel protection IP65 with gasket
Case dimensions   48 x 96 x 115 mm (DIN1/8)
Ambient temp   -10..+60 °C
Weight   200 g

Front panel

Conf-LED
Unit is in configuration mode

Alarm indicators.

Channel number is not shown when only one channel is configurated.

2   23.8

Arrow-buttons(▲▼) are used to change numerical values and when moving in menu-structure.

Star-key (★) accepts selected function (enter).
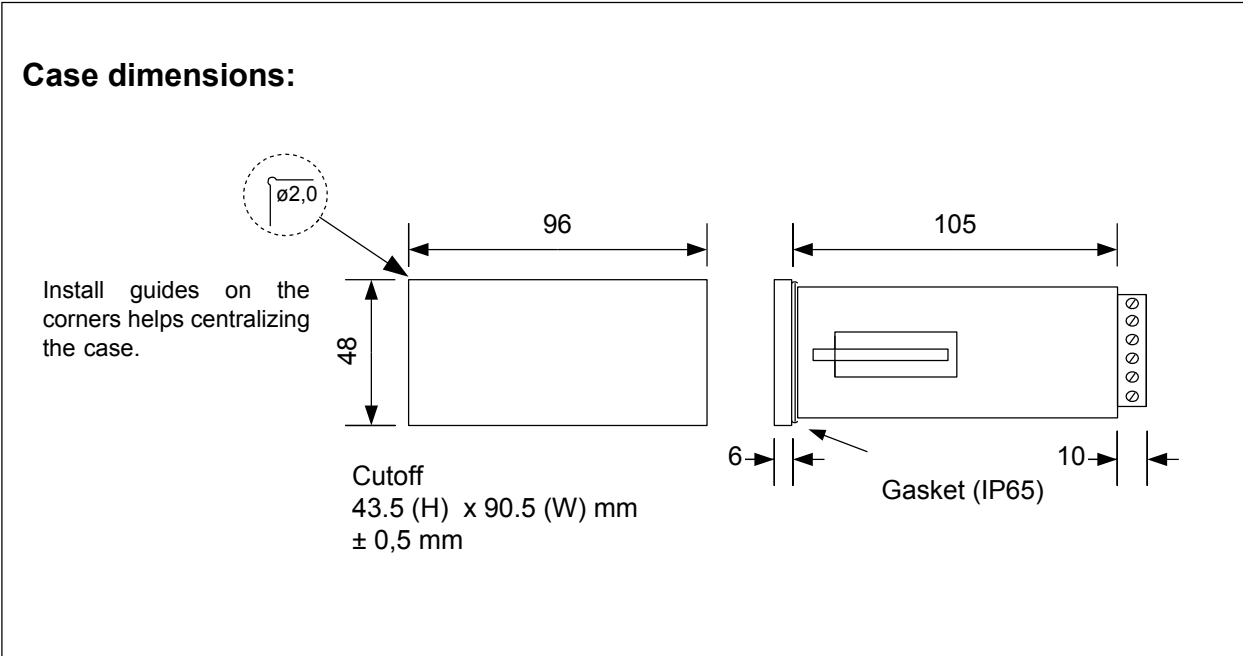
Moving into selected menu title.
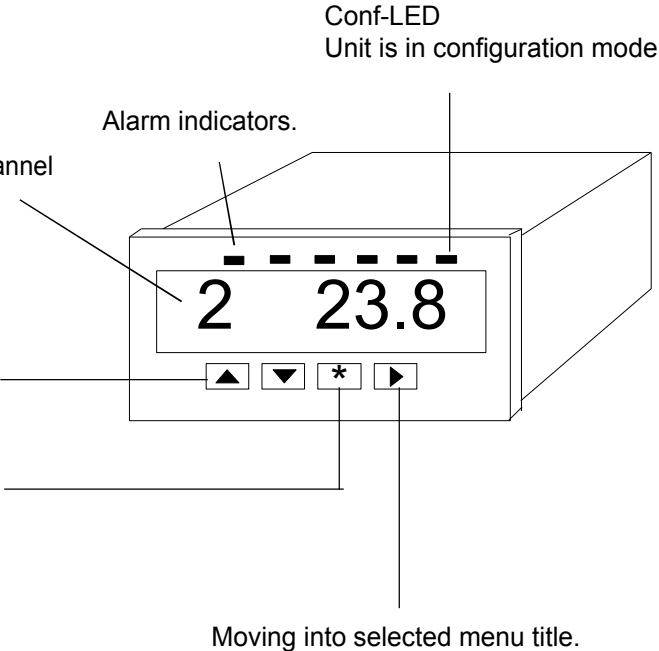
Configuration stage

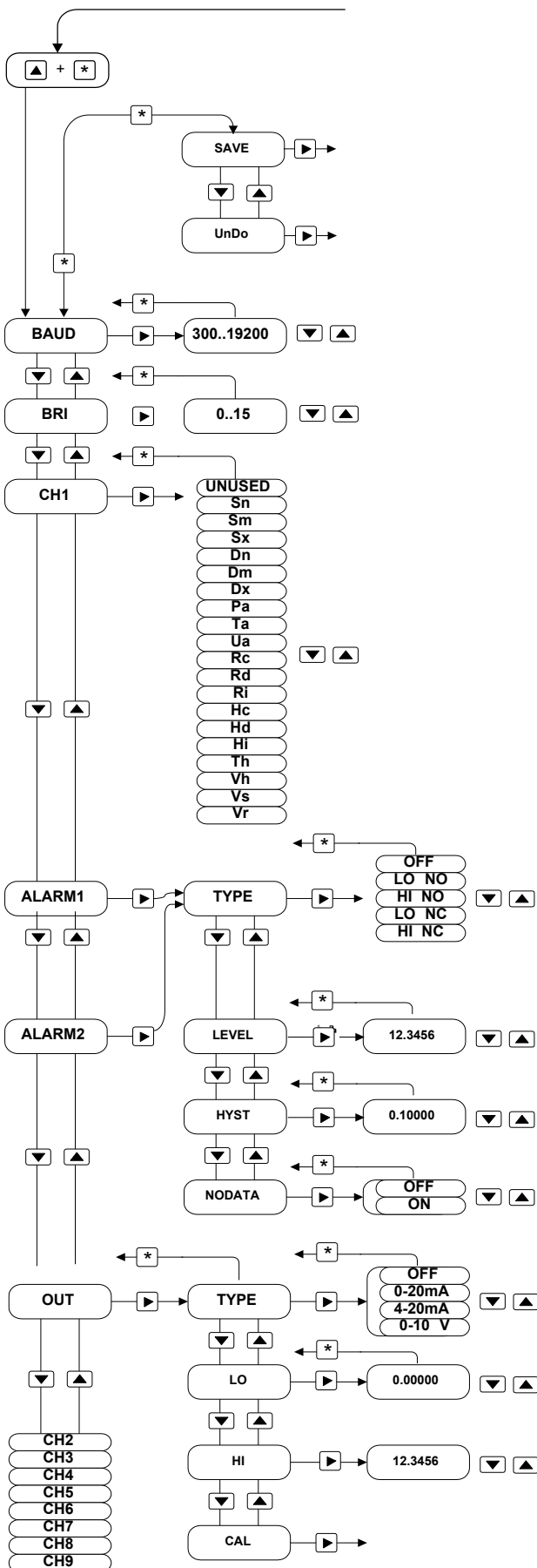Configuration can be started by pressing and holding ★- and ▲-keys simultaneously for 2 seconds. Specified instructions on pages 5 Configuration.

Resetting configuration parameters

Some times it is necessary to return indicator parameters to factory defaults. Resetting can be done by pressing and holding ▼- and ▶-keys simultaneously for 2 seconds when connecting supply voltage. Prosedure will reset all settings to factory defaults.

Case dimensions:

ø2,0

Install guides on the corners helps centralizing the case.

96

48

105

Cutoff
43.5 (H) x 90.5 (W) mm
± 0,5 mm

6

Gasket (IP65)

10

Configuration

Beginning:
Configuration can be started by pressing and holding
★- and ▲-keys simultaneously for 2 seconds. Arrow
keys ▲▼ moves up and down in main menu. Desired
function is selected with ➤-key. Save mode can be
selected directly by pushing ★-key in main menu.

Save	Accept changes and exit from configuration mode
Undo	changes and exit from configuration mode
Baud:	Baud rate selection: 300, 600, 1200, 2400, 4800, 9600, 19200
Bri:	Display brightness 0..15, brightest 15.
CH1:	Weather parameter selection:

Sn	Wind speed minimum
Sm	Wind speed average
Sx	Wind speed maximum
Dn	Wind direction minimum
Dm	Wind direction average
Dx	Wind direction maximum
Pa	Air pressure
Ta	Air temperature
Ua	Relative humidity
Rc	Rain accumulation
Rd	Rain duration
Ri	Rain intensity
Hc	Hail accumulation
Hd	Hail duration
Hi	Hail intensity
Th	Heating temperature
Vh	Heating voltage
Vs	Supply voltage
Vr	3.5 V ref. voltage

Alarm 1 & 2: (from CH1)

|	
Type:	Off = Alarm off
	Lo No = Low limit alarm, normal open relay
	Hi No = Hi limit alarm, normal open relay
	Lo Nc = Low limit alarm, normal close relay
	Hi Nc = Hi limit alarm, normal close relay
Level:	Alarm level
Hyst:	Alarm hysteresis.
Nodata:	Alarm CH1 if data is not available
Out:	Analog output settings (CH1).
Type:	Output type selection.
Lo:	Low end of scaling (4mA/=0V).
Hi:	High end of scaling (20 mA/10V)
Cal:	Calibration menu (factory settings).
CH2..CH9:	Display channels without alarms and outputs

Output 0/4..20 mA (option)

Meter may be provided with isolated output, ranges 0/4..20 mA or 0..10 V, which are programmable.
You can mount output card to slot B or C (default B). Calibration information is saved to card and no calibration is needed in configuration. You need not select card in programming because meter recognizes the mounted card.

Programming: select slot B in main menu. Press ➤ key. Display shows 4-20. See below description.

Main menu
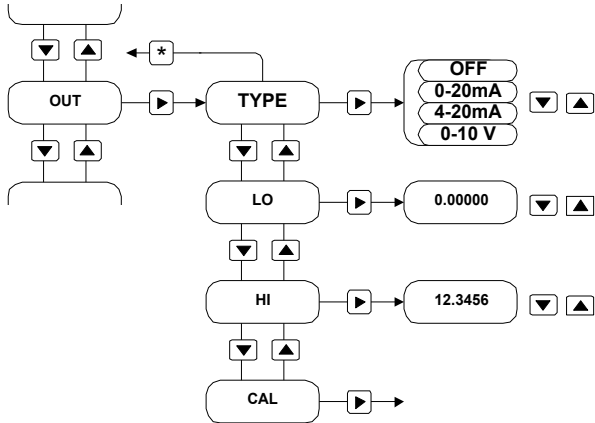
Select 0-20 mA, 4-20 mA or 0-10 V.
Output function can be disabled without removing the output card.

Select low edn of output scaling

Select high end of output scaling

Output connections

(option)

Passive 2-wire output 4-20 mA

0-10V

Card slot B

0-20 mA
4-20 mA

Card slot B

4-20 mA

+24 V

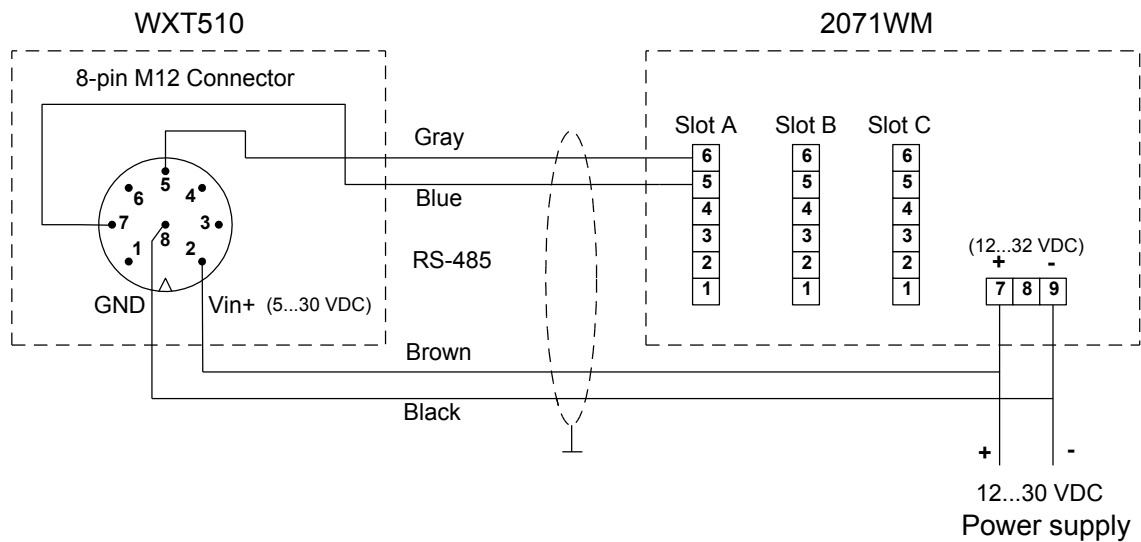Card slot B

Terminal Connections
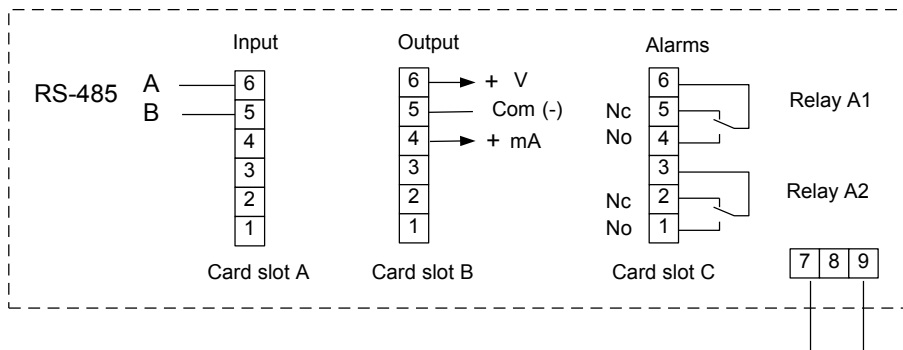
Card slots B and C are for optional cards.

Only one of the serial connectors can be used at a time.

Power supply (no polarity)
12..32 VDC, 24VAC,
(green connector)

Option:
85..240 VAC (grey connector)

Connections to Vaisala WXT510 and WMT50

Vaisala weather transmitters can be set two modes, automatic ASCII or polled ASCII mode.
If Poll ASCII mode is selected the display 2071WM fecthes measuring data by using next commands:
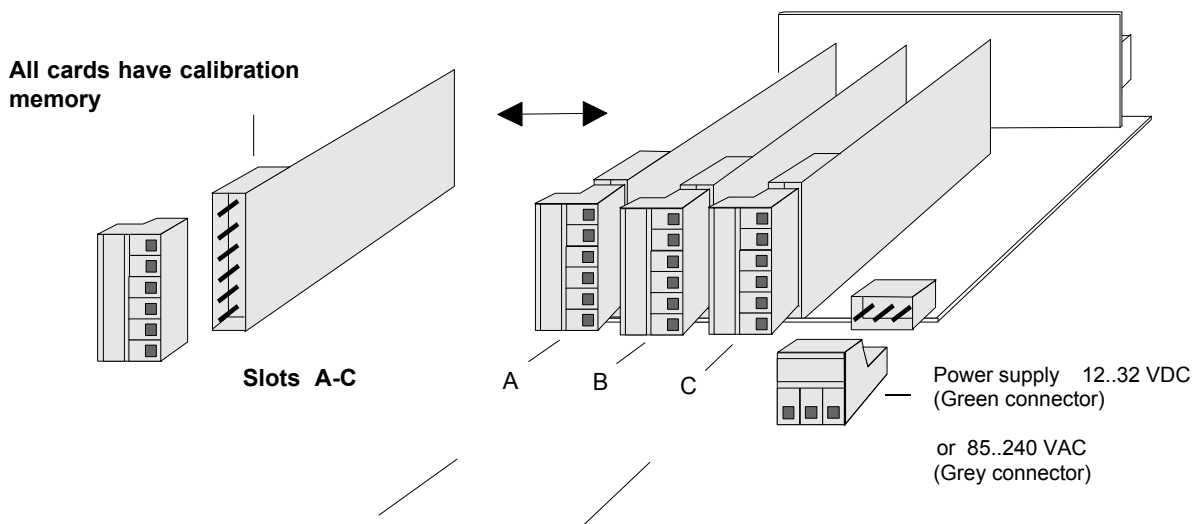
- aR1 (Wind) about 5 s

- aR2 (Air temperature, humidity and pressure) about 60 s.

- aR3 (Rain) n. 13s.

- aR5 (Heating voltage, supply voltage) about 16s.

Panelmeter 2000 construction

The 2000 series panelmeters are modular and easy to assemble. According to customers wishes. The basic construction consists of mother board with tree slots, A, B and C. Slot A determines meter type and provides always input signal. Slot B and C are interchangeable. As factory delivery input signal is always installed into slot A , mA output into slot B and alarms into slot C. In case of f.ex 4 alarms and relay card with 2 change-over contact (2 + 2 relays) are used, you must place second relay card into slot B. If you accept only closing or opening relay contacts, you need only one relay card with 4 relays placed into slot C. The slot B is now usable for other optional outputs.

You can have different types of meters by only changing the input card in slot A. Data sheet of each type of meter dictates the possible combinations. Recalibration of card is not needed; only scaling and other settings must be set by front panel keys.

All cards have calibration memory

Slots A-C

A   B   C

Power supply   12..32 VDC
(Green connector)

or 85..240 VAC
(Grey connector)

Change of meter type:
Input card is placed always to slot A. By changing input card you can get an other type of meter. You can change meter with pulse input to meter with current input, thermocouple, strain gage etc.

Additional slots:
Additional cards provide output 4..20 mA, alarms, serial interface, BCD output etc. Meter data sheet dictates possible combinations. grey connectors allow line voltage 110..240 VAC (relay contacts).

Power supply:
There are two different mother boards power supply 85..240VAC and 12..32 VDC. mother board accepts 24 VAC. Connectors are colour coded.
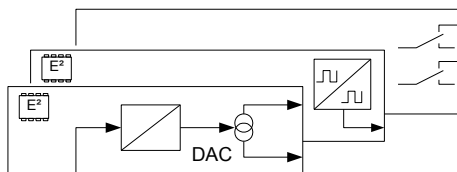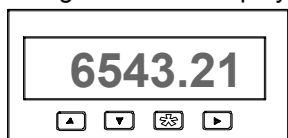
Removing meter from case:

Loose connectors. Loose front panel and draw meter out from front. You may remove mother board from rear by opening four screws in corners of case
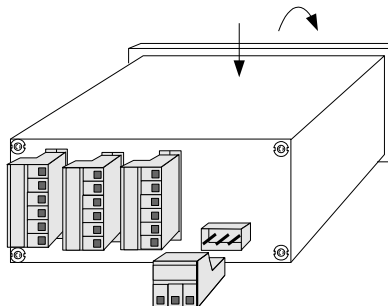
Press gently case behind front panel and draw frame outwards gripping upper part of frame.

Modular indicator serie 2000

5 digit (2011) or 6-digit
bright red LED display

6543.21

**Option cards
(slots B and C):**

Alarms cards:
2 relay card, 4 alarm types,
   change over contacts
3 relay card, closing contacts
4 I/O-ports

Sensor supply:
24VDC,
150 mA

2021

2011

ADC

uP

DAC

Model 2011:
2 relays change over contacts
(also with remote reset)

Output cards (not for 2011):
0/4..20 mA, 0..10 V
RS232 or RS485

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

Process inputs (model 2011):
0..20 mA**,** 4..20 mA
0..1V/5/10 V
Potentiometer 100Ω-10kΩ

Input card contains:
- microprocessor
- bus control
- keys control
- display control

Indicator 2011 can have limited part of 2000 series functions. Model 2021 contains also process inputs but it can also measure RTD-sensors and thermocouples. 2021 has more accurate and faster A/D-converter (16 bit 1/64 000).

2000 series input and option cards:

2011-IN	Process input		**2000-BASE**	Base card with power supply
2021-MU	Multi input		**2000-REL2**	Alarm card, NO/NC
2031-IR	Infrared sensor input		**2000-REL3**	Alarm card, Closing contacts
2041-SG	Strain gage measurement		**2000-OUT**	Output card, U and I
2051-PU	Scaleable frequency indicator		**2000-RS**	Serial output RS232 or RS485
2061-CO	Counter input (max 5 kHz)		**2000-I/O**	4 pcs input /output ports
2071-RS	Serial input RS232 / RS485			(60 V / 100 mA)
2081-BCD	BCD-input (1-5 digits)			

Nokeval Oy