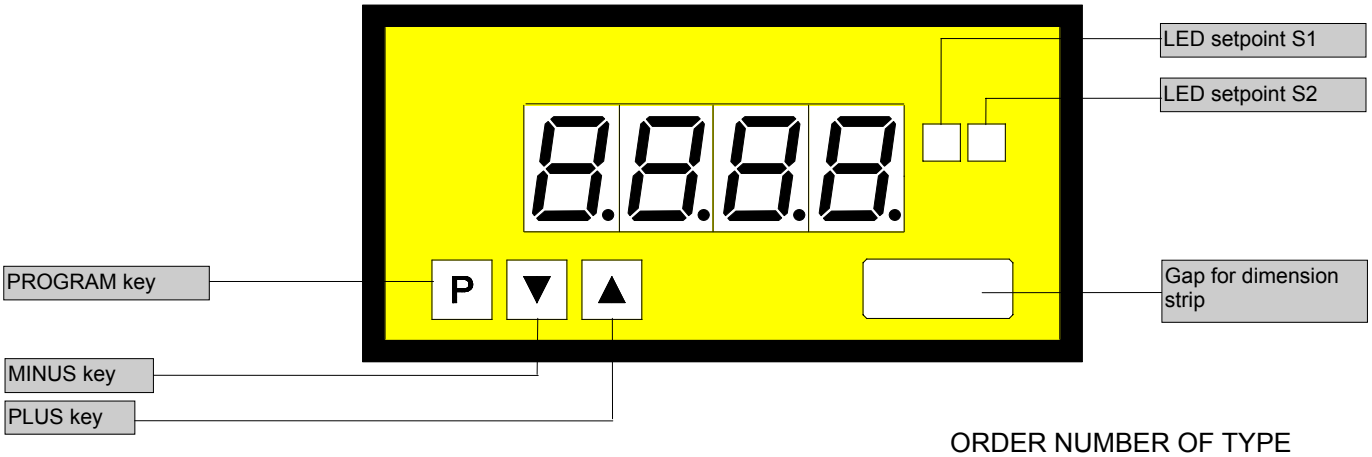
Resistance, potentiometer measurement - microprocessor based technology

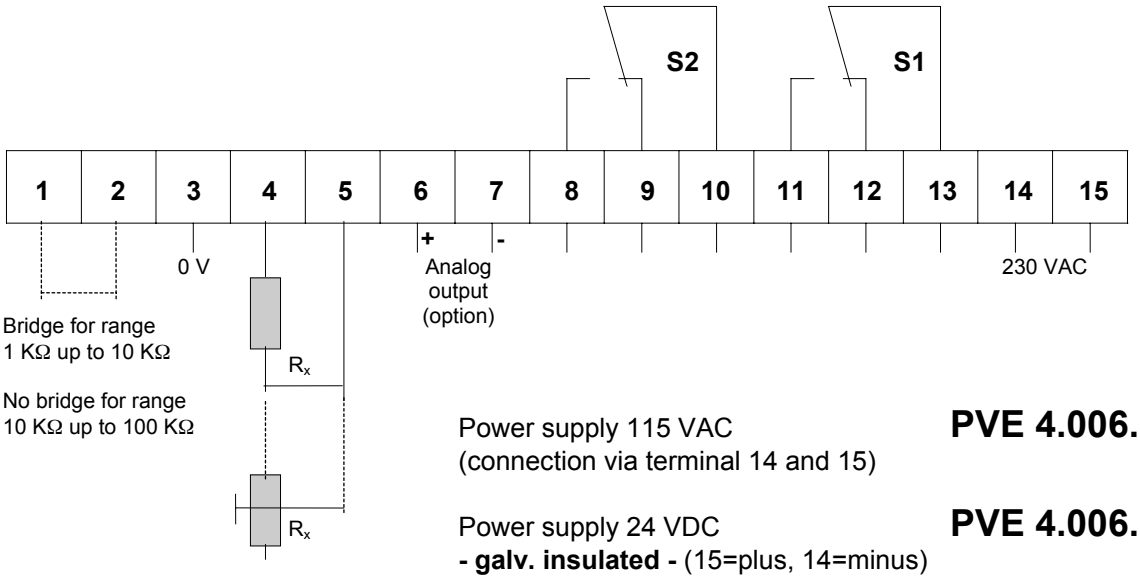
- Free scalable indication and setpoints from -999 to +9999
- Standard: 2 setpoints, min/max memory - optional analogue output
- Mounting into panels with thickness up to 50 mm

96x48

8888



ORDER NUMBER OF TYPE
PVE 4.006.1522B



Power supply 115 VAC (connection via terminal 14 and 15) **PVE 4.006.1422B**

Power supply 24 VDC **PVE 4.006.1722B**
- galv. insulated - (15=plus, 14=minus)

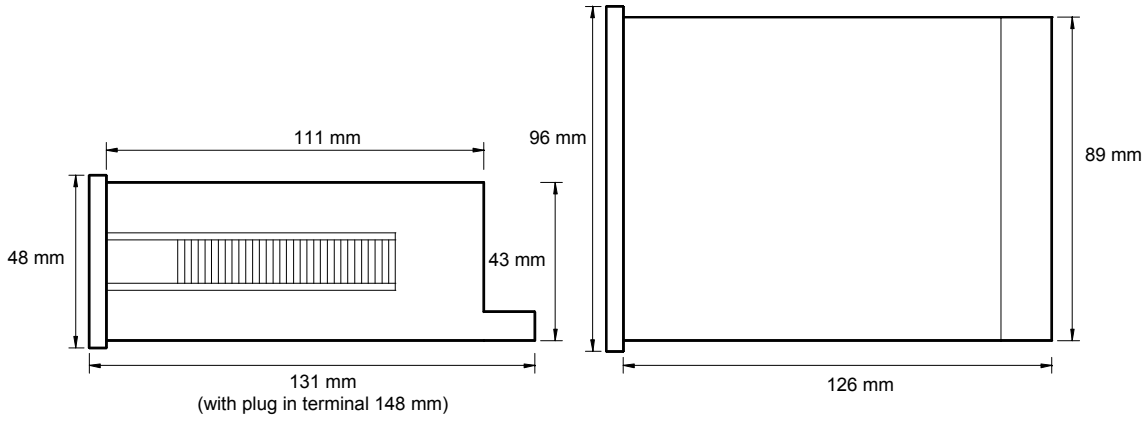
Options

- Green LED
- Protection IP54
- Protection IP65
- Plug in terminal with protection IP40
- Plug in terminal with protection IP54
- Plug in terminal with protection IP65
- Analog output 0-10 VDC (12 bit)
- Analog output 0-20 mA/load 500 Ω (12 bit)
- Analog output 4-20 mA/load 500 Ω (12 bit)
- Analog output 0-10 VDC (12 bit) *(power supply 24 VDC galvanically insulated)*
- Analog output 0-20 mA/load 500 Ω (12 bit) *(power supply 24 VDC galvanically insulated)*
- Analog output 4-20 mA/load 500 Ω (12 bit) *(power supply 24 VDC galvanically insulated)*
- Other power supplies on demand

Technical data

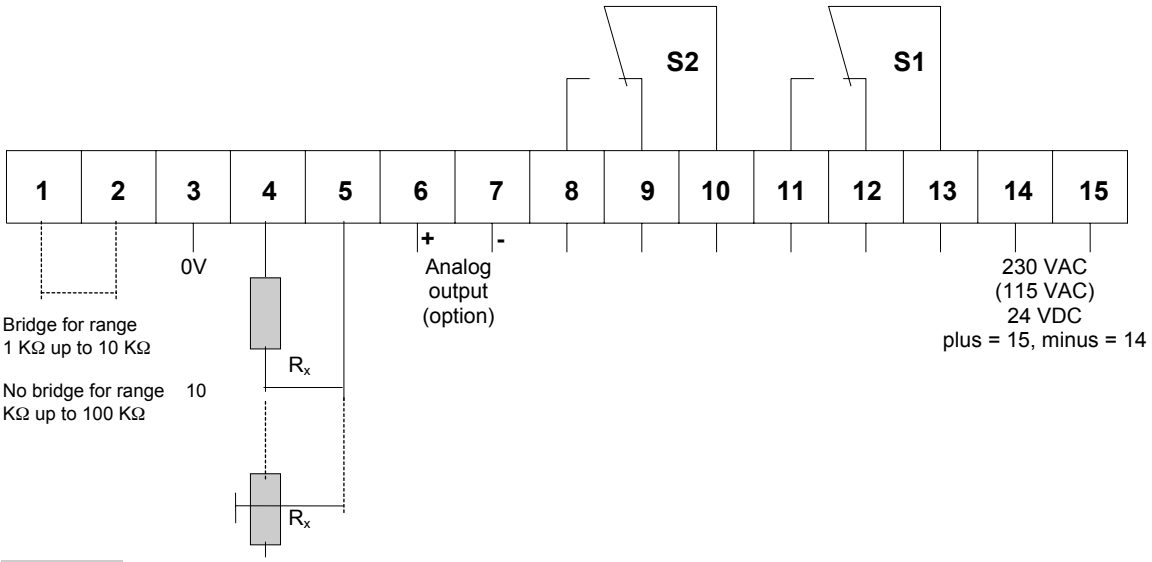
Dimensions	Housing	96 x 48 x 134 mm, including screw terminal
	Assembly cut out	$92.0^{+0.8}$ x $45.0^{+0.6}$ mm
	Fastening	special quick plastic clamp proper to fix in wall thickness up to 50 mm
	Housing material	PC/ABS-plastic blend, colour black, UL94V-0
	Protective system	at the front IP40 connection IP00
	Weight	approx. 0.450 kg
	Connection	At the rear side via screw terminal up to 2.5 mm^2
Input	Measuring range	1 KΩ - 10 KΩ 10 KΩ - 100 KΩ All ranges selectable via connection terminal
Output	Relay output	charge 230 VAC/5 A – 30 VDC/2 A, with ohm resistive burden
	Switching cycles	$0.5 * 10^5$ at max. contact rating $5 * 10^6$ mechanically
		Separation appropriate to DIN EN 50178/ Specification appropriate to DIN EN60255
	Analogue output	0-10 VDC (12 bit) 0-20 mA (12 bit) - load 500 Ohm 4-20 mA (12 bit) - load 500 Ohm } **The analogue output is galvanic insulated from the measuring input!**
Accuracy	Resolution	-999 up to +9999
	Nonlinearity	+/-0.2 % of measuring value, +/- 1 digit
	Temp. drift	100 ppm/K
	Measuring principle	voltage/frequency converter
Power unit	Supply voltage	230/115 VAC +/- 10 % (50-60 Hz), 24 VDC +/-10 % galvanic insulated
	Power consumption	approx. 5 VA
Indication	Display	LED with 7 segments, 14 mm high, red 4-digit = indication 9999
	Overflow	indication of 4 transversal bars
	Indication time	from 0.1 up to 10.0 seconds adjustable
Ambient conditions	Working temperature	0 up to + 60 °C
	Storing temperature	-20 up to + 80 °C

Housing:



CE-sign
For unlimited use of the instrument within the directives for electromagnetic compatibility 89/336/EC analogue input wires have to be used with shielded cable and cable's shield connected to earth ground at one end only.

Connection diagram, programming, remarks



Setting

1. Connect the instrument according to the wiring diagram.
2. After power on, the instrument runs into a lamp test and returns back to the standard mode.
3. Connect the desired resistance value to the measuring input.
4. Pressing the **P-**key enters the program mode with indication of "**P1**" on the display.
5. Pressing the **P**-key and ▲-key simultaneously steps through the different program numbers.
6. Pressing ▲ or ▼ -key shows the current values.
7. To change values use ▼- or ▲-key.
8. Memorizing of the values under program number **1** and **2** by pressing Plus- and ▼-key simultaneously. Four transversal bars are indicating memorization.
9. Otherwise the remaining values will be memorized automatically 7 seconds after the last touch of key with leaving program mode.

Additional key-functions in standard mode for indication of min/max values.

Simultaneously pressing of ▼ and ▲ key deletes and actualizes min/max-memory.
▲ key enters max-memory.
▼ key enters min-memory.

Instructions

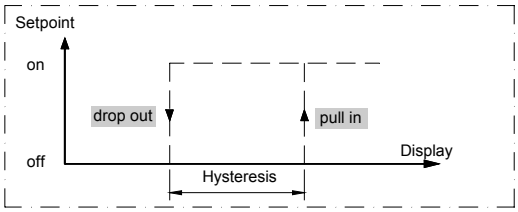
After power on the instrument with his inbuilt microcontroller starts with an initialprogram activating lamp test and reachout of memorized parameters in an EEPROM. In case of loosing parameters or any defects in hardware the system generates an error message "HELP". This function prevents damage from peripherials and human life, totally reset is required. After a new power on, the system remains in lamp test while pressing **P**-key. Then the unit storages the default parameters and is ready for new programming.

The unit you have bought provides several different voltages and current inputs as well as optional analog output and relay contacts. In order to achieve the maximum value indication of 9999, the following minimum input resistance values are required at the various measuring inputs:

Measuring input	10 KΩ	100 KΩ
R min	5 KΩ	50 KΩ
R max	11 KΩ	110 KΩ

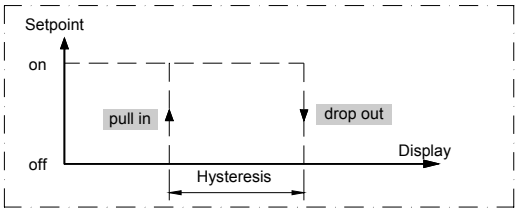
The following diagrams are showing the switching operation of PVE4 relay contacts. The hysteresis is free programmable.
There are two kinds of operation:

Example: operation current



Operation current means that the relay will be pulled in if reaching the adjusted setpoint.

Example: quiescent current



Quiescent current means that the relay will be dropped out if reaching the adjusted setpoint.

Program table, example for programming

Subject to technical alteration – status 03/2006 - PVE461GB

Program table 1

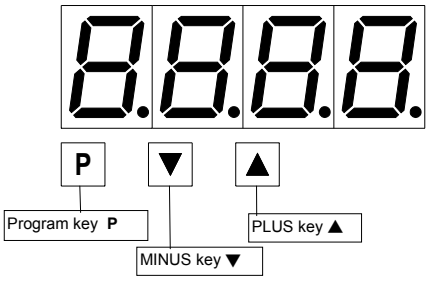
Program-Number (PN)	Function	Remark	Display	Basic parameter after reset
1	Input of the desired indication value	Feed measured magnitude (acknowledged by pressing key **P** and ▼) e.g. 10 KΩ measuring input = final value 3500	-999 to +9999	2000
2	Input of offset for indication value	Feed measured magnitude (acknowledged by pressing key **P** and ▼) e.g. 0 Ω measuring input = initial value 0	-999 to +9999	0
3	Setting of decimal point	Press ▲ until desired decimal point is shown		no decimal point
4	Input of display time	Display time = measuring time Method of measurement integrating	0.1 to 10.0 seconds	1.0
5	Input of final value for analog output	Option	-999 to +9999	2000
6	Input of offset for analog output	Option	-999 to +9999	0

Program table 2 (setpoints)

S1	S2	Function	Display	basic parameter after reset
PN	PN			
61	66	Setpoint	-999 to +9999	500 / 1500
62	67	Hysteresis	0 to +9999	1
63	68	Quiescent current	0	0
		Operating current	1	-

Example for programming

Measuring input: 1 KΩ - 10 KΩ
Measuring resistan: 0 Ω - 10 KΩ
Display: 0,0 - 300,0
Display refresh. time: 2.0 seconds
Setpoints: S1 ==> 60.0 and quiescent current
relay pull in = 58.0 ==> hysteresis 2.0
S2 ==> 150.0 and operation current
relay drop out = 80.0 ==> hysteresis 70.0
Analoga output: 0 V output ==> display 0.0 ==> resistance 0 Ω
10 V output ==> display 300.0 ==> resistance 10 KΩ



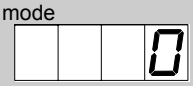
The basic adjustments concerning to the following program example are the ground parameters after a total reset occuring through a power on with pressing **P**-key (see previous page).

Program advices:
Pressing the **P**-key enters **always** the program mode with program number 1. The "**P1**" begins to blink in change with the current value after 3 seconds. After further 4 seconds the system leaves the program mode and goes to the standard mode. In program mode pressing ▼ or ▲-key selects the current values which are free scalable with both the keys. In program number 1 and 2 the memorization will be executed by pressing **P** and ▼ simultaneously - four transversal bars indicate the storage. All the other parameters will be memorized automatically after leaving program mode.

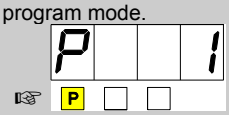
Programming.
Switch power on!

Lamp test

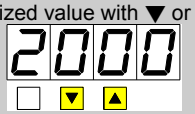
Standard mode



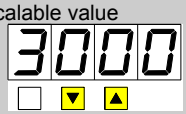
Connect resistance 10 KΩ.
Enter program mode.



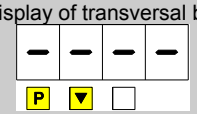
To memorized value with ▼ or ▲.



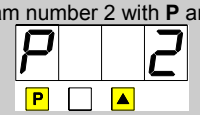
Set free scalable value



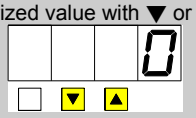
Memorize value with **P** and ▼. Take over by display of transversal bars.



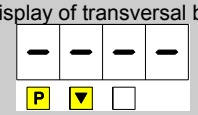
To program number 2 with **P** and ▲



Connect resistance 0 Ω.
To memorized value with ▼ or ▲.

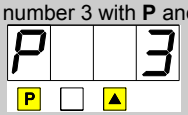


Memorize value with **P** and ▼. Take over by display of transversal bars.

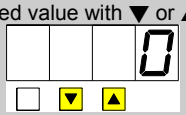


Example for programming

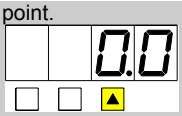
To program number 3 with **P** and ▲.



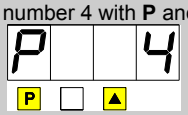
To memorized value with ▼ or ▲.



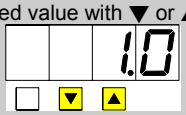
Set decimal point.



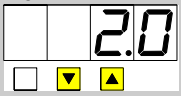
To program number 4 with **P** and ▲.



To memorized value with ▼ or ▲.

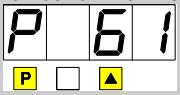


Set display time.

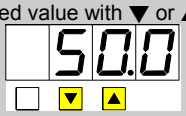


The following programming steps are neccessary for the setpoint programming of S1 and S2 only.

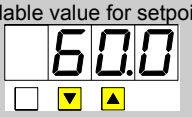
To program number 61 with **P** and ▲.



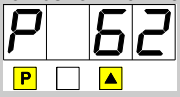
To memorized value with ▼ or ▲.



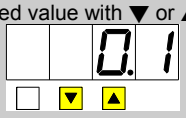
Set free scalable value for setpoint S1.



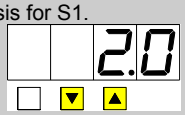
To program number 62 with **P** and ▲.



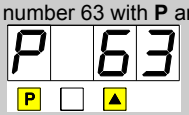
To memorized value with ▼ or ▲.



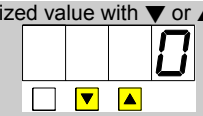
Set hysteresis for S1.



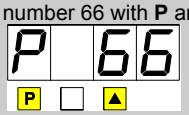
To program number 63 with **P** and ▲.



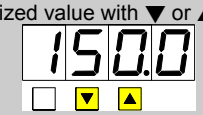
To memorized value with ▼ or ▲.



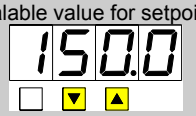
To program number 66 with **P** and ▲.



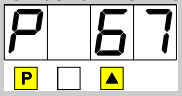
To memorized value with ▼ or ▲.



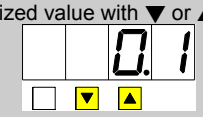
Set free scalable value for setpoint S2.



To program number 67 with **P** and ▲.

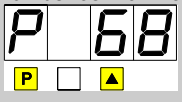


To memorized value with ▼ or ▲.

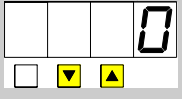


Set hysteresis for S2.

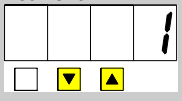
To program number 68 with **P** and ▲.



To memorized value with ▼ or ▲.



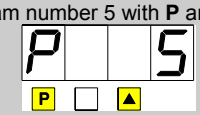
Set operation current.



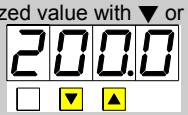
Programming finished.
All programmed values are memorized after 7 seconds. Jumps back into standard mode automatically.

The program numbers 5 and 6 are available with option analogue output only.

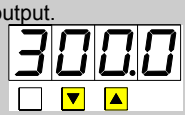
To program number 5 with **P** and ▲.



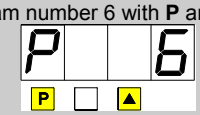
To memorized value with ▼ or ▲.



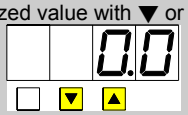
Set free scalable final indication value for analogue output.



To program number 6 with **P** and ▲.

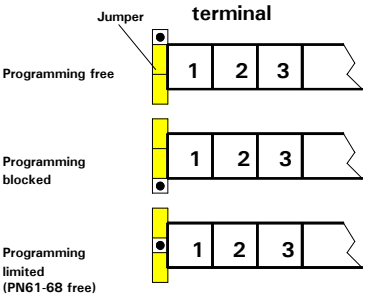


To memorized value with ▼ or ▲.



Programming finished.
All programmed values are memorized after 7 seconds. Jumps back into standard mode automatically.

Setting possibilities of the jumper field on the rear side.



Subject to technical alteration
status 03/2006 - PVE461GB