

OPERATING MANUAL

PRESSURE SWITCH

PA-22 PS

PROGRAMMER

dV-22 PP

PROGRAMMING SOFTWARE

Console



KELLER

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Programmer dV-22 PP

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Software “Pressure switch console”

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Electrical connection M12

Pressure connection



Connector pin assignment M12

Pin 1: +VCC (8...40 V DC)

Pin 2: Switch output 2

Pin 3: GND

Pin 4: Switch output 1

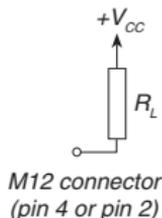
Pin 5: Analog output

The switch outputs are configured in the factory as PNP or NPN. They can be configured independently: hysteresis / window function, normally open / normally closed, time delay (0...5 seconds).

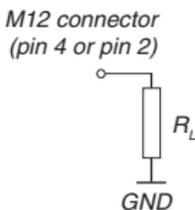
If a meter is connected to the analog output, it must have an internal resistance of at least 30 k Ω . The pressure switches are already configured at the factory. The configuration can be changed with the programmer. The time delay can only be changed with a PC / laptop (console).

Connection diagram

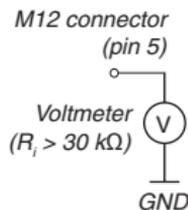
NPN switch output with external load



PNP switch output with external load



Analog output



The configuration of the pressure switch can be changed with the programmer.



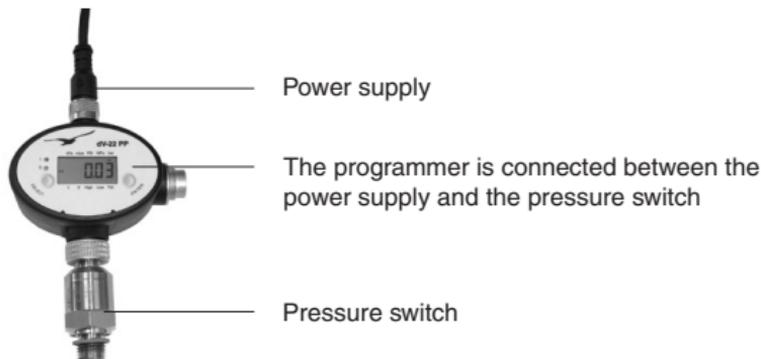
- | | |
|---------------------|--|
| 1) M-12 plug | Power supply connection (8...40 V DC) |
| 2) 5-pole connector | Connection to PC / laptop with a converter (K-107 / K-104B) |
| 3) M-12 socket | Connection of the pressure switch |
| 4) LED | Indicates the status of the switches (switch 1 and switch 2) |
| 5) LCD | Main display |
| 6) Keys | SELECT and ENTER |

Programming

The connected pressure switch can be programmed either with the programmer alone or with a PC / laptop (with interconnected programming device).

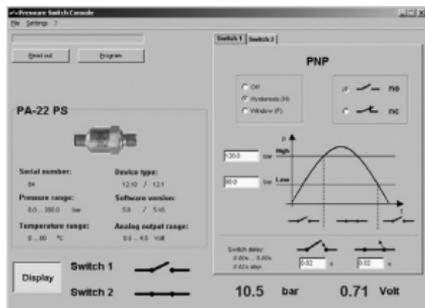
Programming with the programmer

The programmer requires a power supply (see “Connections”). It is operated with the two keys (see “Menu Navigation”).



Programming with a PC / laptop

If an RS485 converter from KELLER (K-107 / K-104 B) is connected to the programmer, programming can be carried out with a PC / laptop using the “Console” software. In this case, the power supply for the programmer comes directly via the converter.



Software (Console) for comfortable programming with a PC / laptop

Power supply connection M12 plug



The pin assignment of the programmer is the same as the pressure switch:

- Pin 1 : +Vcc (8...40VDC)
- Pin 2 : Switch output 2
- Pin 3 : GND
- Pin 4 : Switch output 1
- Pin 5 : Analog output

All the outputs are connected to the pressure switch:

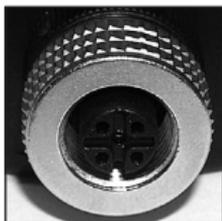
- The switch outputs can be used, however they are inactive (open) in programming mode
- The analog output is connected directly to the pressure switch

Converter connector plug



The connector plug is used for communication with a PC / laptop. The RS485 converter from KELLER (K-107 / K-104B) can be connected here.

Pressure switch connection M12 socket



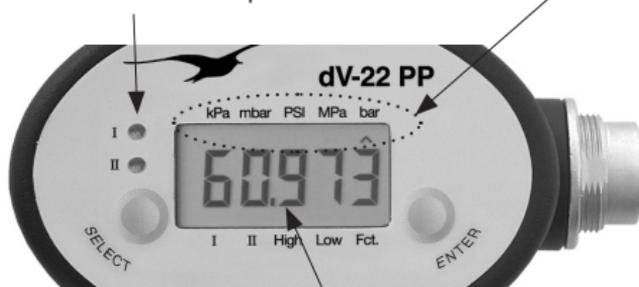
The pressure switch is connected to the M12 socket. If necessary, an M12 extension cable (5-pole) can be used between the programmer and the pressure switch.

Display

In normal mode the programmer displays the actual pressure value of the pressure switch (only for pressure switches with an analog output), and the status of the switch outputs with LEDs.

LEDs for the indication of the status of the switch outputs

Pressure measuring units



Pressure value

Menu Navigation

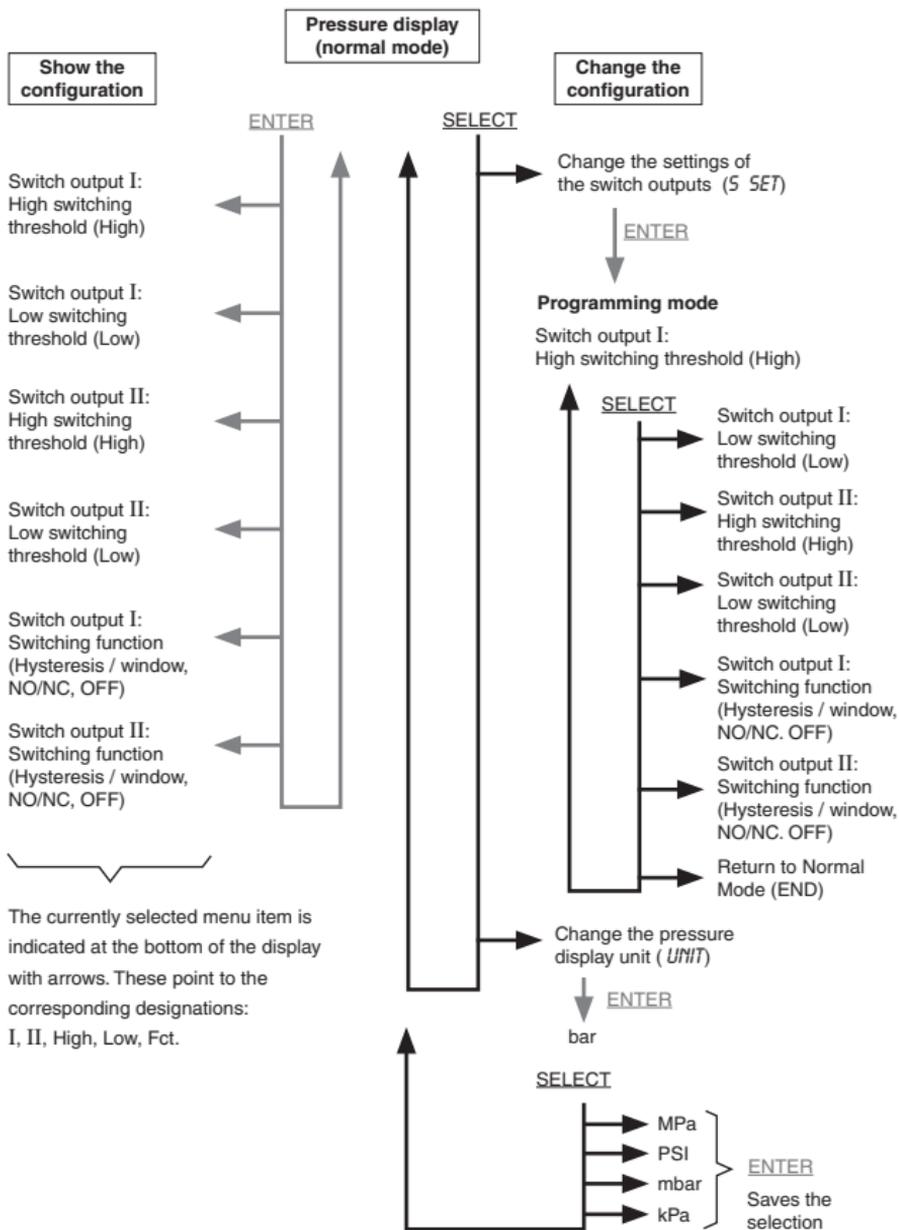
Navigation in the display menu is made with the two keys SELECT and ENTER.

Functions of the keys

SELECT: Navigate forwards within the menu

ENTER: Select the menu item

Menu structure



Programming mode

Programming mode (see the menu structure) allows the switching thresholds and switching functions to be set.

Switching thresholds

The switching threshold to be changed is selected with SELECT (see the menu structure). The currently selected menu item is indicated at the bottom of the display: I, II, Low, High, Fct. The arrows point to the corresponding designations. E.g.: if the arrows point to I and High --> the high switching threshold of switch output 1 can be changed. This value is then released for change by pressing ENTER (flashing arrow). The value is decreased with SELECT and increased with ENTER. If no button is pressed for about 5 seconds, the programming device saves the value displayed to the pressure switch (the arrows stop flashing). The other switching thresholds can be changed in the same way.

Switching functions

Various functions can be configured for the switch outputs.

Hysteresis (H): When the high switching threshold is exceeded, the output closes. It only opens again when the value goes below the low switching threshold. This therefore prevents e.g. a connected relay from fluttering. Application example: 2-point controller.

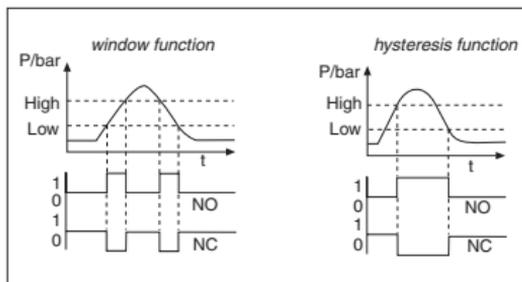
Window (F): The switch output is closed between the low and high switching thresholds. Outside this range it is open. Application example: Alarm when the pressure is outside a defined range.

Normally Open (no): The switch contact is normally open.

Normally Closed (nc): The switch contact is normally closed (inverse of NO)

Off (OFF): The switch contact is always open

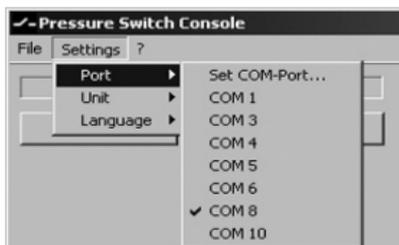
To change the corresponding switching function, press ENTER repeatedly until the required function is selected. Press SELECT to go to the next menu item and this saves the switching function to the pressure switch.



If the programmer is connected to a PC / laptop via a converter (K-107 / K-104 B), the entire configuration of the pressure switch can easily be made with the “Pressure Switch Console” program.

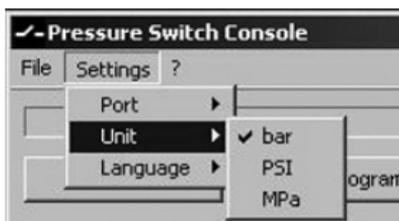
Setting the serial port

The serial connection that is used to connect the programmer to the PC / laptop must be entered under Edit / Port. If no COM numbers are listed, the connection must be set with „Set COMPort“.



Selection of the pressure measuring unit

The pressure units bar, PSI or MPa can be selected.



Read-out and programming of the pressure switch

By pressing “Read out”, the data of the pressure switch, which is connected to the programmer, is read. The configurations (switching thresholds, switching functions, switching time delays) can now be changed for the switch outputs 1 and 2.

Press “Program” to load the changed values back to the pressure switch. Due to the reduced resolution of the pressure switch, the pressure values displayed may change slightly. The nearest value is set.

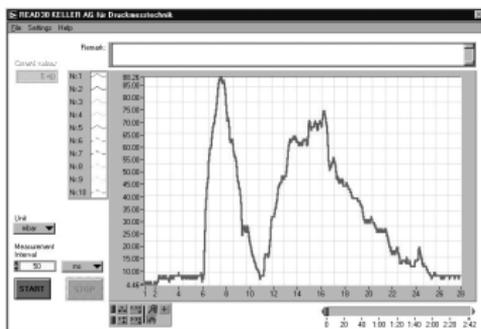
When programming is complete, the pressure switch can be disconnected and used: the configuration remains stored.

Any number of pressure switches can be configured with the same programmer.

Display of the pressure values and switch statuses

With the console, the actual pressure value and the statuses of the switch outputs can be displayed continuously. Press “Display” to show these values. However, the actual pressure value can only be displayed if the pressure switch has an analog output.

In addition, a pressure trend curve can be displayed with the KELLER “Read30” software.



Declaration of Conformity
(will follow shortly)

