

Application Bulletin

Of interest to: General analytical chemistry, solenoid, valve, module, block

P 1

Liquid handling with the solenoid valve module

Summary



The solenoid valve module (3/2 valve) can be used for many different tasks. Mainly it is used to switch between different flow directions. For example the distribution of only one reagent to two different titration cells. It can be used as well as a kind of unidirectional restrictor valve. If needed it is opened and liquid can flow through. If closed the back-flow is interrupted and a proper separation is achieved.



The solenoid valve module is an optional part for ProcessLab. The whole module block has sufficient space for four valves. The valve module comes with already one preinstalled. If needed additional valves can be added.

Key facts/features

- Max. 4 valves per module block, 1 valve already included
- Fully integrated as valve in *tiamo* for ProcessLab
- To control a valve one digital output is needed (a terminal provides 4 digital outputs)

Part numbers/ordering

- 6.7206.210; ProcessLab solenoid valve module incl. 1 valve
- 6.7206.220; Solenoid valve PEEK/FFKM
- 6.7202.200; ProcessLab Digital output 4 DO 24V DC
- 6.1808.090; M8/M6 adaptor (included, only spare part)

Technical data/maintenance (the valve itself)

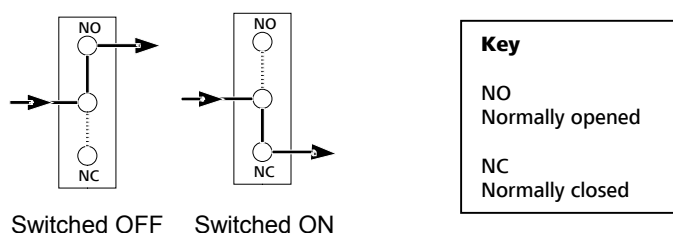
- Made of PEEK/FFKM, resistant against most common chemicals
- Not resistant again halogenated hydrocarbons, HF, > 30% H₂SO₄ and > 40% HNO₃
- Pressure range 0 – 2 bar, only used for liquid handling within ProcessLab
- Voltage/Power consumption 24 VDC/5W (from ProcessLab I/O controller)
- Hermetically tight, no contact of media and electromechanical part
- Direct acting
- Temperature range from 0-70 °C
- Maintenance and disassembling only by qualified personnel

Applications

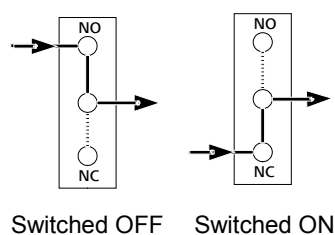
There are several ways to use a valve, the common ones are explained below.

- Sample or reagent distribution (1 input/2 outputs OR 2 inputs and 1 output)

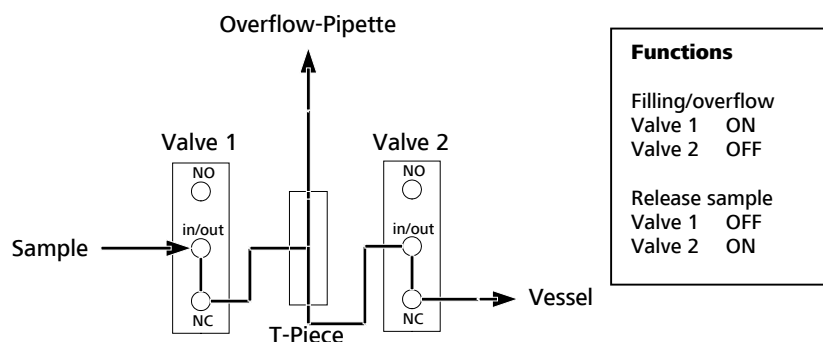
1 Input/2 outputs



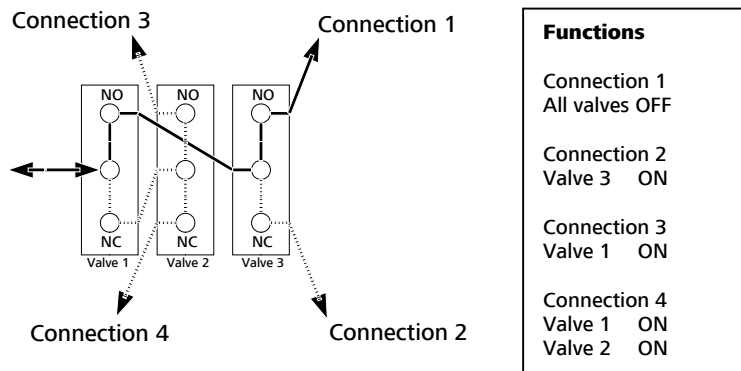
2 Inputs/1 output



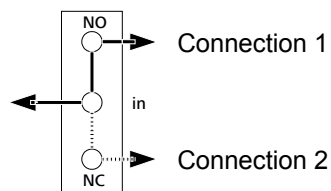
- Sampling with overflow pipette, 2 valves needed



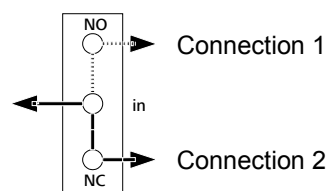
- Splitting or combining a liquid stream



- Use like a unidirectional restrictor valve by simply switching it permanently ON or OFF



Switched OFF – connection 2 closed



Switched ON – connection 2 opened

Detailed views



The solenoid valve module

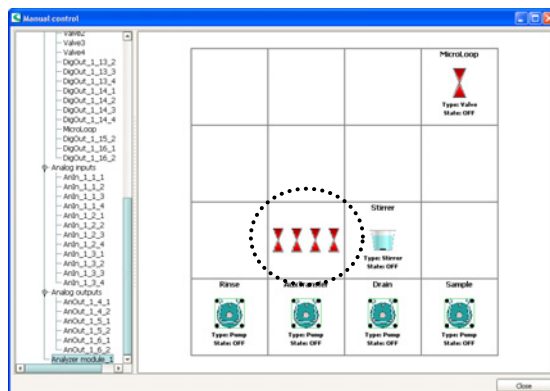


The solenoid valve

Integration in *tiamo*

A solenoid valve will appear as a valve in *tiamo*. Switched off means the first and second connectors are opened. When switched on the second and third one are opened.

One valve needs one digital output, a completed module needs a whole digital output terminal.



Fully equipped solenoid valve module as it appears in *tiamo*

Restrictions

- Do not use this valve for liquids which contain solid particles or materials to avoid crystallization in the valve.
- Not dedicated for highly viscous fluids