Gradient mixer requirements

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# Solenoid

## 3/2 valve

The following valve (with 12 V) has been ordered from Reichelt

<https://www.rct-online.de/de/haehne-und-ventile/magnetventile/3/2-wege-mini-magnetventil-aus-ptfe>

# Opening and closing through a programmable microprocessor with free software

Arduino Uno or larger; other microprocessor if freeware is available

# Software

Arduino or appropriate for other microprocessor model

# Requirements on gradient

The following diagram shown the components of the gradient



The following things should be programmable (preferentially, once the basic program is on the microprocessor, through input with the touchscreen):

Composition of solvent at the beginning (point A)

Time (point B) for which the composition is kept constant

Composition (point C) of the solvent when the gradient starts

Time and composition (point D) when the gradient ends (linear gradient)

Composition (point E) of the rinsing solution

Time (point F) of the rinsing solution

Switch back to composition of point A (point G)

Time for which this composition is kept (point H)

The status of the program should be visible through the output on the touchscreen:

Percentage of B

Time which the program is running

Total time of the complete program

„End of program“ when point H has been reached

The program should allow to switch off a 230V equipment (pump) at point H, preferentially through a radio-controlled socket or similar, so that no manipulation on the 230 V equipment is needed. The touchscreen should indicate whether the pump has been switched off

The program code should include all the instructions as comments (no handbook should be needed).

# Example in the literature

<https://www.bc-robotics.com/tutorials/controlling-a-solenoid-valve-with-arduino/>

# List of hardware needed