

# Level Feedback Control for two Pumps



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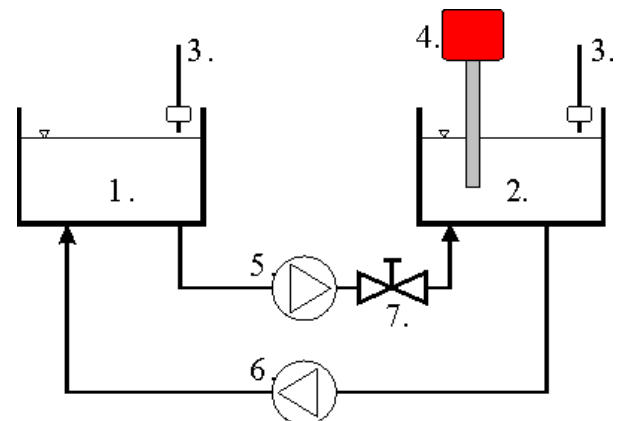
- analogue level sensor with 4..20 mA output
- two digital high level sensors for emergency cut-out
- deactivating of the regulated pump at low rotation
- operation panel IP 54 with main switch
- full safeguarding of the connected pumps
- regulation of the pumps by means of phase angle control (230 V) resp. frequency control (400 V)
- automatic re-start after low level alarm

## Technical Data:

	type 230 Volt**
type of level sensor	analogue sensor triggered by means of the air pressure
output level sensor	4...20 mA
length of immersion tube*	1 m
dimensions of panel L×W×D	400 × 300 × 200 mm
installed power of the pumps	each max. 1 kW
type of control	phase angle control
safety class	IP 54

\* other lengths possible

\*\* control for three-phase current with arbitrary power consumption on request



1. tank 1 e.g. aquarium; 2. tank 2 e.g. filter tank; 3. level switch for high level alarm; 4. analogue level sensor; 5. pump (not regulated); 6. pump (regulated), 7. ball valve

## Function of the control:

Sometimes it is not possible to create the circulation of a life support system (LSS) with one pump and the force of gravitation for the back-flow. If you need two pumps for building the circulation between aquarium – LSS and LSS – aquarium it is impossible to regulated each water flow by hand. One pump must be connected to an active level feedback control. Depending on the water level of one tank the rotation of the pump is regulated with an phase angel control (1 phase) or frequency control (2 phases).

The AquaCare level feedback control measures the water level of one tank and regulates the flowing-off pump continuously. You only must guarantee that the other pump has a little bit lower water flow (e.g. by throttling the flow with a ball valve). If the water level is rising the control

increases the rotation of the pump that more water is pumped out. If the water level sinks the pump begins to run with a lower rotation. To prevent the motor of the pump burning out the control shuts down the pump at too low rotation. If the regulated pump is shut down the control automatically tries to start the system again. A second safety step is the connection of two level switches. If one water level (filter tank or aquarium) is rising over the maximum level (e.g. failing of one pump) the AquaCare level feedback control shuts down the whole system. After relieving the fault you must re-start the system manually. Refill units (mechanically or electronically driven) must be installed inside of the non-regulated tank.