Application software libraries for booster stations

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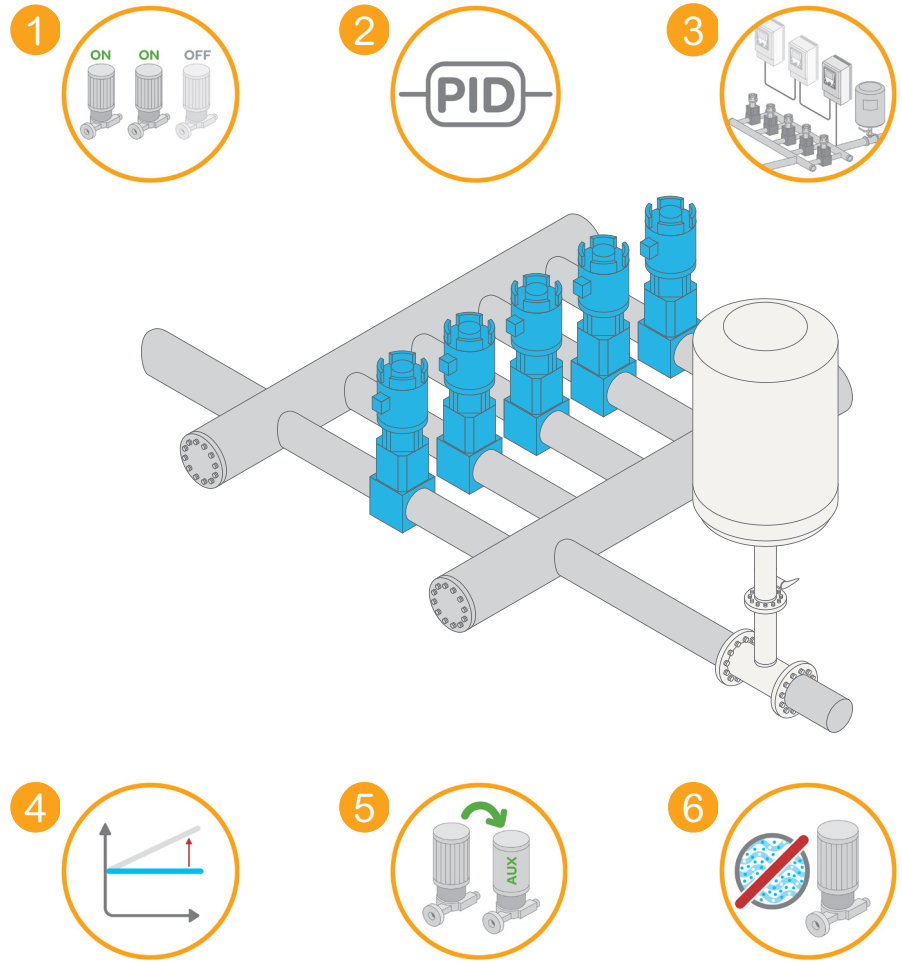
Shorten your engineering time with extensively tested application software! SoMachine™ libraries provide software functionality in the form of ready-to-use function blocks (AFBs = Application Function Blocks), which are supplied for many basic common automation tasks and machine functionalities. They can be easily configured, customized, and implemented in your machine program.

Discover the built-in intelligence with pump-specific functions for more system's energy efficiency, operational reliability, and availability:

1. Pump stage and de-stage
2. PID
3. Booster working mode
4. Friction loss compensation
5. Auxiliary pump
6. Cavitation protection

Energy Efficiency

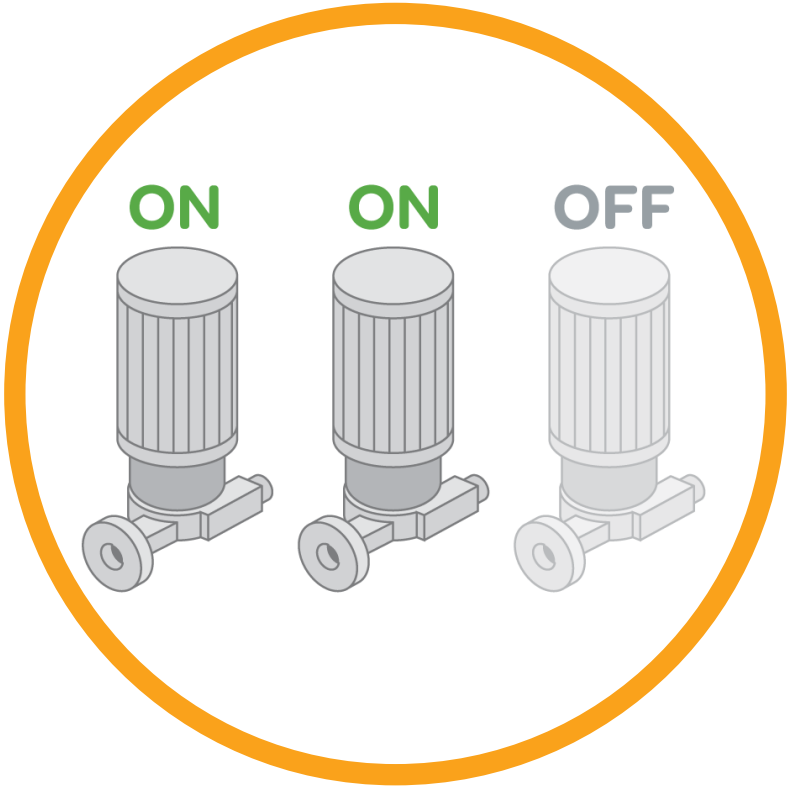


Optimize booster system operation by switching pumps

The pump stage and de-stage function switch is a combination of fixed and variable speed pumps used to maintain a constant pressure in a booster system.

Benefits

- Maintains the required pressure by performing switching between the pumps available in the system.
- Makes the system energy efficient by making the operational combination of pumps in such a way that the pumps operated by drives are given priority.
- Ensures a smooth operation by checking the availability of the pumps and, if a faulted pump is detected, changing over to next available pump.



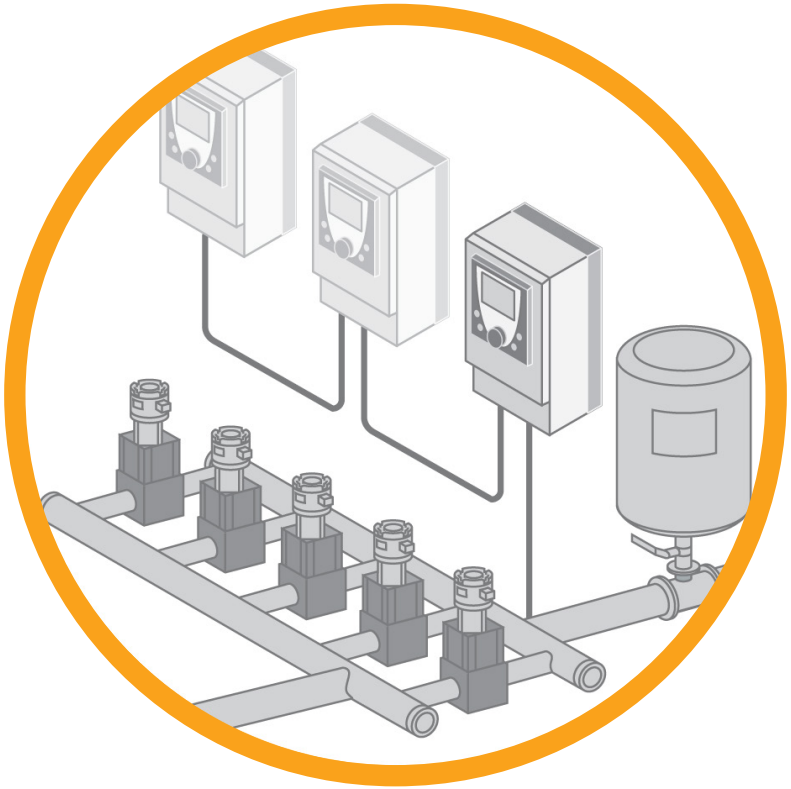
Pump stage and de-stage

Operate the system in an optimized method

The booster working mode function allows the OEM to select the best working mode for the booster system in multi drive or single drive with multi or single lead.

Benefits

- Multi drive function provides the best energy-efficient systems along with the highest level of pump protection. Easy-to-maintain systems. Modular and adaptable. Better ROI and extended life of pump. Each pump is connected to an individual drive.
- Single drive, multi lead function provides a cost-optimized solution using contractors to manage multiple pumps with a single drive. Pump selection is made by operating hours or predefined priority.
- Single drive, single lead function provides just enough of a cost solution with just enough pump protection and limited energy efficiency. One pump is connected to the only drive in the system.



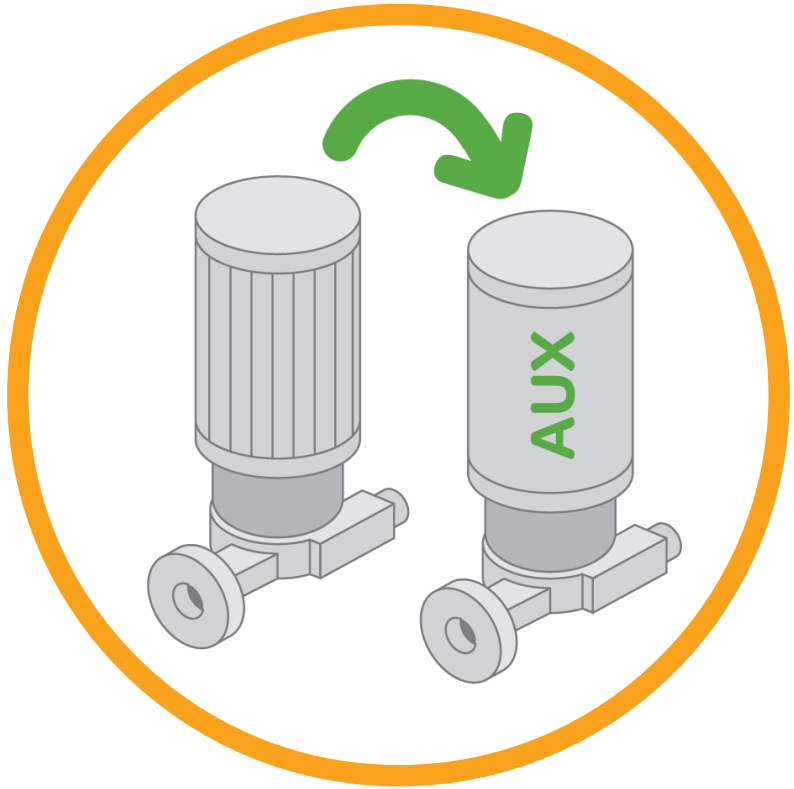
Booster working mode

Operating auxiliary-speed pumps in a booster system

The function is controlling the auxiliary pump to maintain the water pressure during sleep mode (no flow/very low flow).

Benefits

- Detect conditions where an auxiliary pump needs to be operated.
- Ensure optimized pump efficiency by switching auxiliary pump to maintain pressure in the system.
- Increase the energy efficiency of the system by operating smaller pumps to maintain lower flow.



Auxiliary pump

Monitor and protect the pump against cavitations

This function avoids the operation of the pump in a cavitation situation by stopping the pump.

Benefits

- Longer operating life of the pump by ensuring that the pump is not operating in cavitation.
- Generates alarms in case of detection of cavitation in the system.
- With the adaption of the setpoints, this function ensures that the pumps are operating in an optimized state.

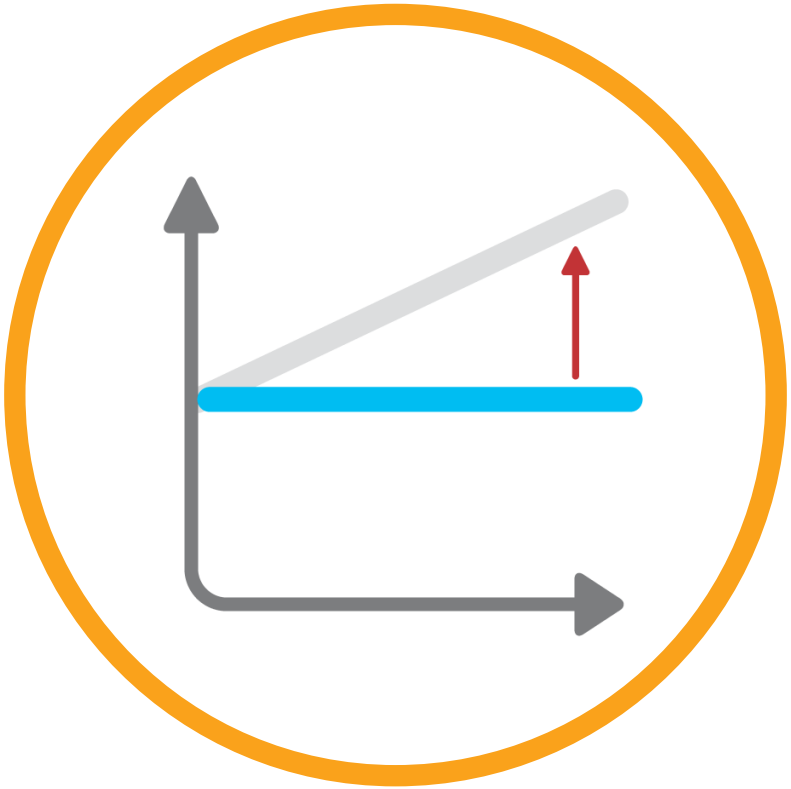
Cavitation protection

Ensure a linear pressure in the booster system

This function compensates the friction lost by adapting the pressure setpoint according to the number of running pumps or the flow value (optional) in the discharge side.

Benefits

- Energy saving by adapting the pressure setpoint according to the system curve of the pipe application.
- Easy and flexible adaptation of the system curve based on your individual application.
- With the adaption of the pressure setpoints this function ensures that the pumps are operating in an optimized state.



Friction loss compensation

Maintain a constant pressure by adapting setpoints

The PID function adjusts the setpoint of the variable speed drives to maintain a constant pressure in a booster system on the basis of pressure value and optional flow value.

Benefits

- Maintains the required pressure by adjusting the setpoint of the frequency of the variable speed drive.
- Ensures a smooth operation by maintaining the setpoints curve to avoid damping.

PID

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