

Product note

Intelligent pump control software for ABB industrial drives



Parallel AC drives and pumps provide system redundancy at pressure boosting station.

Intelligent pump control delivers all functions commonly needed by pump users

Intelligent pump control (IPC) is an optional software for ABB industrial drives, which cover a power range from 0.55 to 5600 kW. Incorporating all functions commonly required at pumping facilities, it eliminates the need for an external PLC and can help to save energy, reduce downtime, and prevent pump jamming and pipeline blocking. It is easy-to-use software developed by ABB to meet the needs of water and waste utilities, industrial plants and other pump users.

IPC includes six pump control functions - two of which are patent pending. The software also incorporates ABB's adaptive programming utility, enabling users to customize drives for specific applications.

Multipump control

Multipump control is intended for applications where several pumps are operated together and the required flow rate is

variable. Each pump is controlled by its own drive, with one being speed adjusted and the rest run at constant speed. This results in smooth control with no pressure peaks. Fail-safe operation can be achieved by implementing the control connections in a star configuration, which also provides instant system recovery capability. This control function includes a conventional PFC function and direct follower control, which is often used in testing new installations.

Level control

Level control is typically used to control the filling or emptying of waste water storage tanks. A special feature of the software seeks to prevent sediment build-up on the tank walls by randomly varying the surface level within a range preset by the user. Fast-ramp starting creates a flush effect to keep pipelines clear, and the pump is operated at a favorable point in its efficiency curve to minimize energy consumption. Level control can be used with a single pump, or 2-3 pumps and AC drives parallel.

Anti-jam

The anti-jam function enables the drive to perform preventive maintenance on the pump. When the function is triggered, the pump is run at high speed and either reversed or stopped in a number of user-defined cleaning cycles. This helps to prevent congestion through the build-up of particles and avoids rusting in “sleeping” pumps. The trigger parameters are set by the user, with three different options available (high current, run-on time and external input). Safety parameters can be set to limit mechanical stress.

Flow calculation

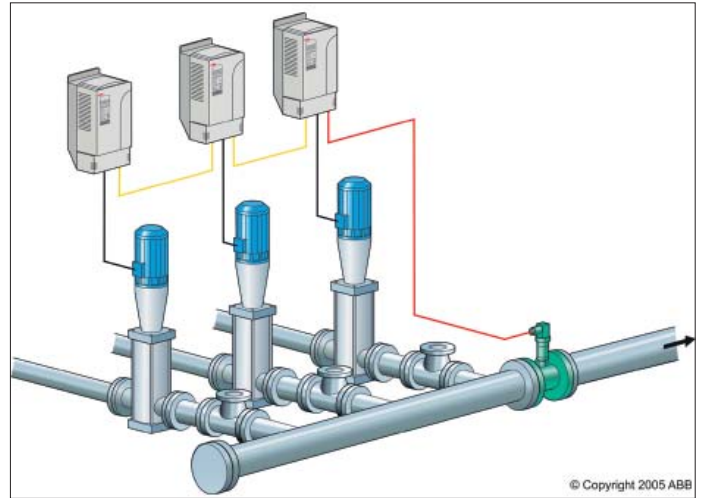
Flow calculation can be used in a single-pump installation to make the drive into a flow meter, substituting the need for a flow meter in applications where the flow data is not required for invoicing purposes. Sensorless flow measurement is possible, or pressure transmitters can be used to supply the necessary measurement data.

Pump priority control

Pump priority control balances the operating time of all the pumps in the system over the long term. This facilitates maintenance planning, and can boost energy efficiency by operating pumps closer to their best efficiency point. In a system where the consumption rate is greater during the day, for instance, the drive can be programmed to operate higher capacity pumps during daytime and smaller units at night.

Sleep boost

The sleep boost function runs the pump to boost the pressure or water level prior to shutdown. This extends the pump’s sleep time and therefore saves energy. It also avoids unnecessary starting and stopping, and helps to flush the pipelines.



System loop with ABB industrial drives connected in a ring configuration to control three parallel pumps.

For more information please contact your local ABB representative or visit:

www.abb.com/drives

www.abb.com/drivespartners

© Copyright 2012 ABB. All rights reserved. Specifications subject to change without notice.