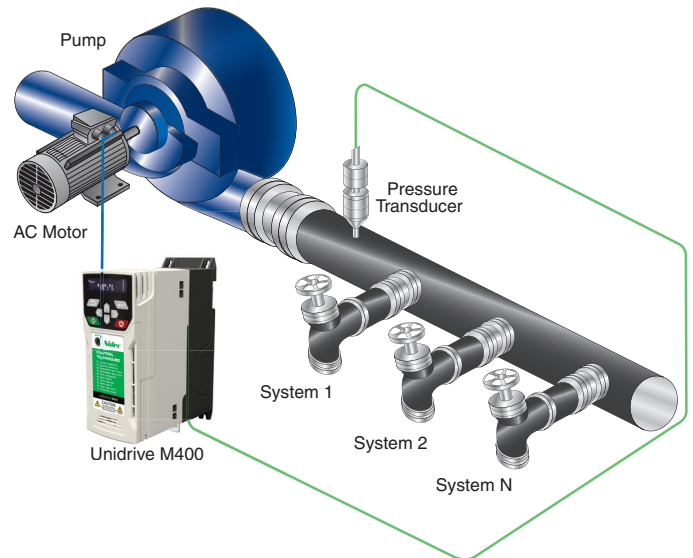


Simplex Pumping

Application Overview

In order to supply constant pressure control and realize maximum energy savings, variable frequency drives (VFD) have become a standard in the water pumping industry. Rather than constantly running the motor at full speed and restricting flow through valving, a VFD control system can monitor the pipe pressure and run the motor only as needed.

Additionally, an intelligent VFD can provide useful diagnostic and detection information that will reduce down time and save costs in all water pumping applications from agricultural irrigation to residential and commercial building supply.



Application Requirements

Pump Control Performance

- Constant pressure control is needed to ensure the pump supplies the demand without overpressuring the pipe
- To ensure maximum energy savings the system needs to shut off "sleep" when demand is low, and turn on "wake" when demand resumes
- The system should be flexible and able to be controlled locally via a keypad or remotely through wired terminals and optional communication connectivity
- Diagnostics for dry well, no flow detection, over pressure, transducer loss, and more are needed to prevent downtime
- The capability to be operated at a fixed speed as well as constant pressure. This is important for maintenance purposes in the event of a transducer loss

Control Techniques' Solutions

The AC Drive with Built-in Pump Functionality

- Constant Pressure PID made
- No Flow Detection
- Dry Well Detection
- Transducer Loss Detection
- Sleep / Wake and stop/stop delay
- Pipe Fill Start Mode
- Keypad and Terminal Control
- Automatic Fault Reset
- Multiple Pressure Set-point selection
- Pressure Transducer and/or Switch Feedback

Simplex Pumping Solutions

Control Techniques' Performance Advantages

Control

- No external PLC required. The controller and program are a built-in function of the VFD.
- Automatic and manual modes that allow constant pressure control or fixed speed. The active mode can be selected from the drive keypad or from digital inputs (selector switches).
- Two different control modes that select the type of feedback and start/stop operation. Choose from:
 - Pressure Transducer only
 - Pressure Transducer and Flow Switch
- Transducer scaling for interface flexibility
- Dynamic V/Hz Energy Savings made
- Smooth S-ramp speed variation
- Optional communication for common fieldbuses and Ethernet

Diagnostics

- Many pumping specific diagnostic features that may be enabled or disabled depending on your requirements. The user also has the option of making a detected situation an alarm (indicator only) or a fault (stop the system)
- Up to three programmable outputs to indicate the status of the system. These outputs can easily be set to register any alarm or fault
- Automatic resetting of faults in an option with up to 5 reset attempts
- Built-in energy metering

Wide Power Range

- Wide horsepower range - 0.33 HP to 200 HP
- Power ratings - 115 V, 208 - 240 V, 380 - 980 V, 575 V, 690 V

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Unidrive M400