YASKAWA

The Drive for Quality™

iQpump™

The Intelligent Pump Controller

HP Range

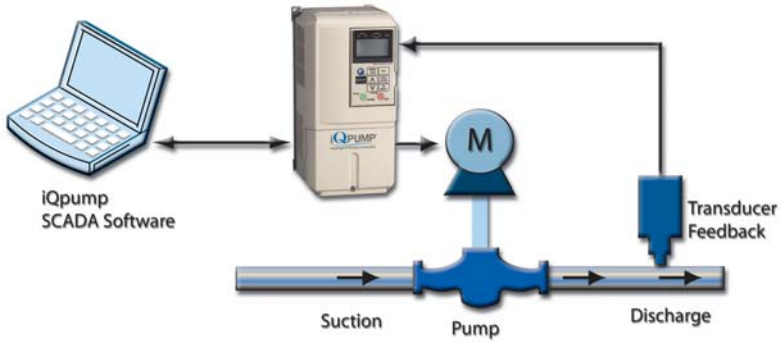
5 - 150 HP @ 208/230 VAC

5 - 500 HP @ 480 VAC

iQpump is UL approved for both *single* and *three* phase AC voltage input.

iQpump Concept

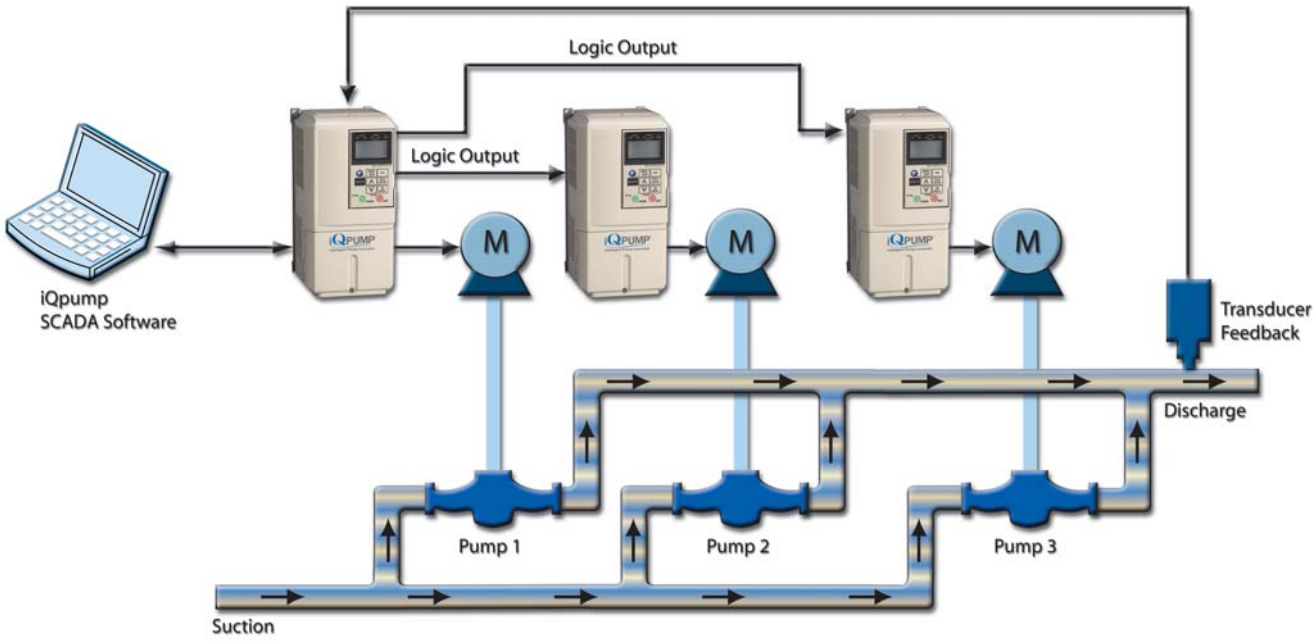
The iQpump controller was designed with the pump service operators and pump system owners in mind. iQpump offers ease of setup and comprehensive pump and motor protection features. The integrated pump specific software and set up parameters, allow the operator to setup specific control values for a wide range of applications. The iQpump controller will automatically adjust pump operating conditions, as the process variables change while still maintaining optimum pump performance and protection. iQpump can also replace phase converters when converting from a single phase to a three phase pump motor.



Simplex System Overview

Easy Installation and Set up

1. Wire iQpump Control
2. Connect pipe to pump
3. Set Pressure (PSI) Reference
4. Calibrate Feedback Level (PSI)
5. Start iQpump control



Triplex System Overview

- Automatically starts and stops Lead/Lag pumps on demand.
- Automatically turns off pump when demand is reduced.
- Motor starters or soft starters can be used for pump 2 and pump 3 in place of iQpump controller.

Benefits

iQpump can be used to replace existing mechanical pump systems using Throttling Valves, Bypass Valves or other means of control to improve regulation and save energy. iQpump was designed to control these typical pumping applications that require systems to regulate Constant Pressure, Constant Flow, or Variable Flow/Pressure.

Improved Process Control

By matching pump output flow or pressure directly to the process requirements, small variations in the process can be corrected more rapidly by an iQpump than by other control forms.

Improved System Reliability

Any reduction in speed achieved by using an iQpump has major benefits in reducing pump wear, particularly in bearings and seals.

Reduce Total System Cost

The iQpump controller lowers system cost by eliminating sensors, jockey pumps, restriction valves as well as reducing cable and tank sizing.

Energy Savings

Savings of 20 to 50% can be achieved, depending on application, by adjusting pump speed to match a lower flow/pressure, iQpump will reduce the demand for energy.

Ease of Installation and Set Up

iQpump uses pump terminology on all setup parameters and monitors. Also included is a “Pump Quick Setup” menu.

Eliminate Complex Control Panels

By installing iQpump, many of the electro mechanical controls can be eliminated. This will reduce the maintenance that these panels require.

Reduce Mechanical Stress and Damage to Pumps

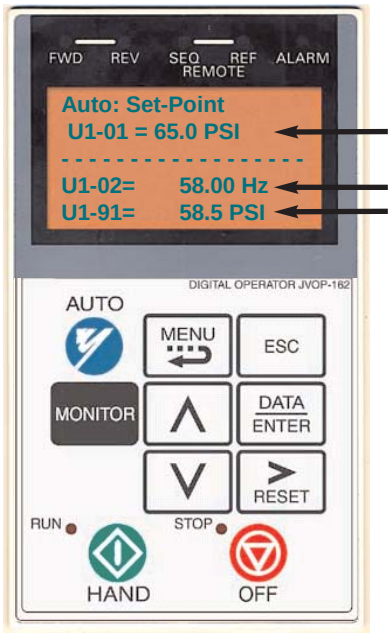
The iQpump controller has soft-start and soft-stop capabilities. Pressure surges and water hammer are eliminated.

Cooler Running Pump Motor

Soft start eliminates inrush current, dramatically increasing winding insulation life.

Pump Specific Operator Keypad

Onboard LCD English read out reduces field start up and trouble shooting time, with intuitive pump related terminology. Programmable pump process set points are adjusted using “True Engineering Units” (PSI, GPM, Flow, etc.). The iQpump provides real time alarms, status and operating conditions in an easy to read format.



Pressure Setpoint

Motor Frequency

Transducer Feedback

Hand-Off-Auto

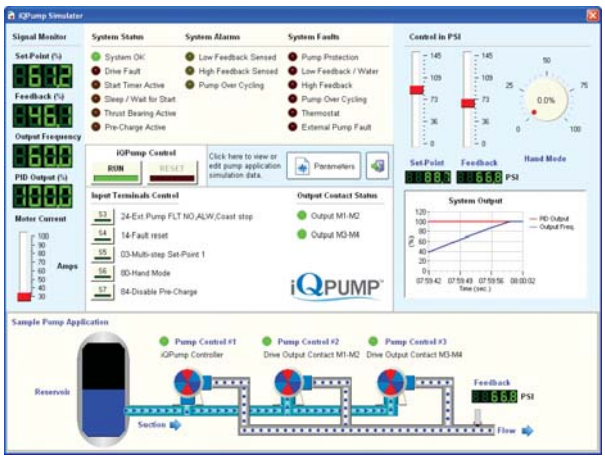
Selectable by digital input or controller keypad.

Typical Operator Keypad Messages

SCADA Software

SCADA software can be used to program, startup and diagnose the iQpump Controller

The iQpump controller PC SCADA package, allows the user to perform such functions as programming, system trending, status readout and monitoring of pump system performance. The software also offers an easy to use pump system setup wizard and a built-in online PI tuner for performance tuning of the pump system. The PC SCADA software can be downloaded for free at http://iQpump.yaskawa.com.



Pump Simulator

Simulate drive parameters using the pump application simulator.

Status and Fault History

- Show pump system status
- Set-point gauge
- Digital output monitoring
- Fault history
- Feedback gauge
- Digital input monitoring
- Active fault

PI Tuner and Signal Monitor

- Monitor up to four signals
- Real-time PI tuning
- Adjustable time-base
- Five types of meters
- PI trending
- Save/Load monitor setup

Trending

- Trend up to six signals
- Trend analog signals
- Triggering
- Date-stamp
- Playback option
- Trend storage
- Trend digital inputs
- Real-time clock
- Custom scaling

Pump Parameter Setup

- Edit pump parameters
- Save/Load pump setup
- Search parameter function
- Transmit group, page or single parameter
- Read, write and compare parameter sets
- Modified parameters
- Parameter overview
- Upload Parameters

Pump Setup Wizard

Used to program and troubleshoot from your PC.
Nine easy steps to be up and running.

Software Features

The iQpump integrated pump specific software allows the operator to quickly set up specific control values for a wide range of applications. The controller then automatically adjusts pump operation as the system variables change while still maintaining optimum pump performance and protection.

Programmable Set Point & Scaling
12 different plain text engineering units are available, including PSI and GPM.

Control Pressure, Start Level & Start Time
Flexibility to start the pump at different feedback levels our use the integrated timer to eliminate cycling.

Sleep Mode Minimum Flow Protection
Protects and shuts down the pump at low speeds or in low flow conditions.

No Flow Detection
Separate from Sleep Mode, this detects changes in motor RPM relative to sudden changes in pressure or flow; protecting against broken pipe, excessive well drawdown or run-dry conditions.

Pre-Charge Control
This programmable feature eliminates water hammer and extends system life by gradually filling a pipe line before normal full pressure and flow operation. Motor speed can be controlled with a system timer, level or pressure control device to indicate when normal operation may begin.

Thrust Bearing Control
Protects the bearings of submersible motors by ensuring start up speeds and times meet manufacturer's recommendations.

Automatic System Restart
Programmable timers allow the iQpump to automatically restart the system in Auto Mode for faults relating to brown out's, no power, power spikes, and dry well.

Friction Loss Compensation
Automatically adjusts to overcome increased friction loss due to increased flows.

Low & High Pressure Feedback Detection
iQpump continuously monitors the system feedback device to provide a warning alarm or fault based on programmed level.

Multi-Pump Operations
iQpump systems can be set up to automatically control two or more pumps to meet specific demands.

Multiplex Automatic Stabilization
iQpump automatically balances multi-pump systems to stabilize performance and reduce cycling.

Pump Fault and Alarms
iQpump provides a comprehensive set of pump related alarms and faults. Faults are displayed on the keypad in clear text to eliminate confusion.
- Over Cycling
- No Flow
- Loss of Prime
- Transducer Loss
- Over Torque
- Low & High Pressure Feedback detection
- Pump Over Cycling
- Dry Well

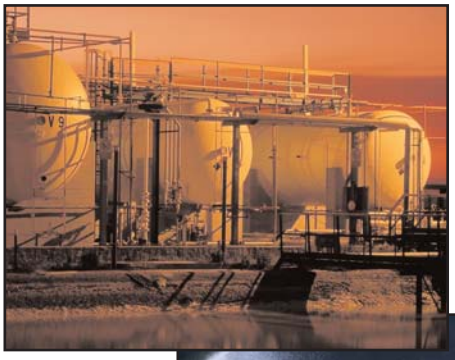
Motor Protection
iQpump protects the motor by monitoring
- Output Phase Loss
- Ground Fault
- Motor Overload
- Motor Over Temperature

Broken Shaft

iQpump Drive Protection
- Over Voltage
- Input Phase Loss
- Under Voltage
- Phase Imbalance
- Short Circuit

Transducer Loss Protection
iQpump monitors the feedback device voltage or current levels to determine if the transducer has failed.

Applications



Typical Applications

Sludge Pumps
Settling Ponds
Metering Pumps
Fluid Storage Tanks
Booster Pump Systems
Submersible Deep Wells
Commercial & Residential Irrigation

Configured Packages
(Built to UL508A Standards)

- NEMA 1 (UL Type 1)
- NEMA 12 FVFF
- NEMA 3R (UL Type 3R)

Serial Communications Options

- Ethernet/IP
- DeviceNet
- Profibus DP
- Modbus Plus
- Modbus TCP/IP

Engineered Options

- Circuit Breaker
- Input Line Reactor
- Output Line Reactor
- Output dV/dt Filter
- Fused Disconnect
- VFD Bypass
- EMI/RFI Filter
- Space Heater
- Surge Arrestor
- Single Phase AC Input Filter

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For Product Information visit http://iQpump.yaskawa.com

YEA Document Number: BL.iQp.01
03/01/07