

Precision Pumping for "Control Freaks"

Ultimate in plug-n-play pump control

By: Chris Pasquali, CEO Factory Direct Pipeline Products, Inc.



Control Freak™ Hydra-Cell Pump Controller

Finally, there is a PLC based pump control available for those of us that are "control freaks"; yes, that is what Wanner Engineering calls their customized pump controller!

While it is commonplace to use variable frequency drives to control pump flow based upon manually adjusting the motor frequency or via an external discrete signal, such controls are not pump specific; they are not linked to the pumps specific flow rate and pressure algorithm.



The Control Freak™ contains Hydra-Cell pump specific algorithms related to pump performance to increase accuracy of pump control and making it easier to control Hydra-Cell pumps in ingenious ways.

The Control Freak™:

1. Simplifies programming and use
2. Enables operation based upon pump specific flow and pressure algorithms
3. Provides pre-programmed functions and user features related to metering applications

While the default, preprogrammed functions are common to metering systems, many applications benefit from process controlled pumping.

DESIGN

A 7" color touch screen PLC within a NEMA 4X enclosure, which interfaces with an Allen-Bradley PowerFlex 4M AC or equivalent

variable frequency drive via DIN rail mounted I/O modules.

There are four 4-20mA or 0-10 Vdc analog inputs, four 24 Vdc opto-isolated discrete inputs and four relay outputs rated at ½ A.

The Control Freak™ has an emergency stop button and can be password protected with a PIN to discourage unauthorized programming.

FEATURES

The primary feature is how easy it is to control your Hydra-Cell pump by flow rate or discharge pressure.

FLOW CONTROL

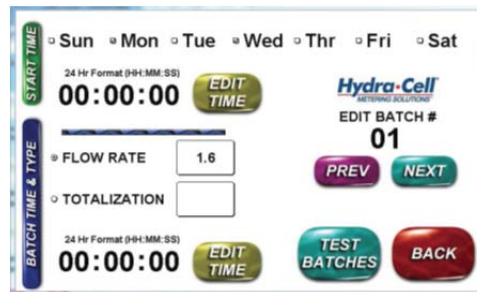
The simplest control includes inputting the desired flow rate and letting it run continuously or specifying a time until the pump stops automatically.

Inputting the flow rate is very intuitive and it does not need to be a flow rate, you can input the total volume to output and the timeframe you wish it to happen within and leave the flow rate calculation to the Control Freak™.

Two totalizers are included, one is like the odometer for your car displaying the lifetime output and the other is resettable like a trip odometer.

The totalizer function enables inputting the desired volume and either flow rate or run time to determine when the pump should automatically shut down.

You can store as many as ten day and time specific batches.



The Control Freak™ can operate up to six Hydra-Cell metering pumps simultaneously, although the real time operating data can only be displayed one pump at a time.

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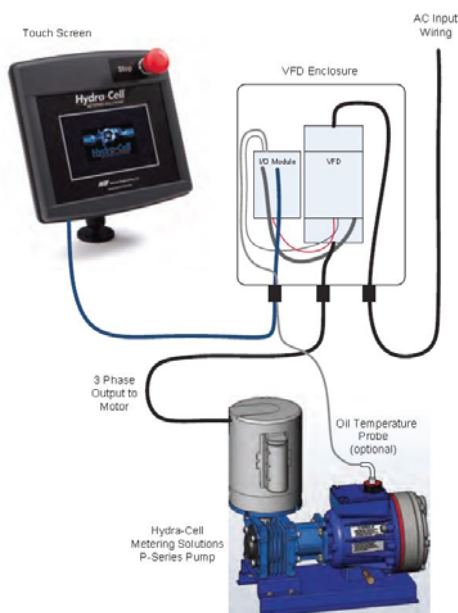
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CUSTOMIZE PERFORMANCE

All metering pumps have manufacturing tolerances affecting their flow rate at a given RPM and process characteristics also affect the pump output, thus calibration for precise metering applications is required.

The Control Freak™ has a nifty calibration feature; you can select an RPM and time period to operate the pump from a calibration cylinder. Once complete, input the volume pumped as reflected by the calibration cylinder into the Control Freak™ and you now have a process specific calibration based upon the properties of your fluid and system. Perform calibration when the process fluid changes and after pump maintenance.

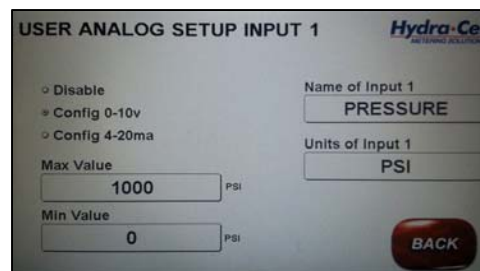
Typical System



PROCESS CONTROL

While the Control Freak™ can be synchronized with a flow meter, its calibration feature may enable you to eliminate the need for one. Our sealless metering pumps, having an accuracy of $\pm 1\%$ combined with their linearity and repeatability of $\pm 3\%$, assures precise flow control after calibration.

You can incorporate a pressure transducer to the analog input of the Control Freak™ to control the flow rate in support of the desired system pressure. This provides an energy savings for centralized pumping systems having several use points.



Using a centralized pressure washing system as an example, the pump speed would ramp up and down in accordance with the number of spray wands in use; typically such systems operate at full flow and pressure continuously, relying on a pressure-regulating valve to bypass the unused portion of the system flow rate and thus is not energy efficient.

While you should still have a mechanical pressure-relieving device as part of your system, you would not need to rely on it to control the pressure, thus reducing orifice wear of the pressure regulating valves and effects of fluid recirculation.

Isothermal applications can incorporate a thermocouple to control the pumps output based upon your process temperature if the thermocouple's signal is converted to a 0-10Vdc or 4-20mA for input to the Control Freak™.

Our company, Factory Direct Pipeline Products Inc., helps solve difficult pumping applications. We are not just a "part number distributor" of many pumps; rather for the past 28 years, we have specialized in the application of Wanner Engineering's sealless pumps. We assist customers by learning about their specific application and provide them with a detailed proposal for a pump system and accessories to achieve their pumping objective.

Visit us online at:

<http://www.innovativepumps.com>

and let us assist you with your application!

Chris Pasquali has been trained by Wanner Engineering Inc, having provided sales and engineering support since 1991.