IC Pump Station Model 1A-VFD-XXX*, Variable Speed Operation

1. Adjustments.

When the IC Pump Station (ICPS) is first "powered up" the display will show:

SUSPEND	No signal source (pressure sensor) is connected and the pump will remain off. Control will not go into safety shutoff and pump will start when signal source (pressure sensor or other device) is connected.
0-100* PSI XXX	*0-100 indicates pressure range that may be adjusted from 0-25.0 to 0-250 PSI. "XXX" is whatever pressure the sensor measures.
ADVANCE ->	*Press the "Advance" key to advance to next display.*
LOW TRIG ON XXX	The pressure that the ICPS unit will turn on the pump/Variable Frequency Drive (VFD). When the system pressure goes below this level the VFD will start "ramping up" pump motor RPM.
ADVANCE ->	*Press the "Advance" key to advance to next display.*
TARGET XXX	Pressure that the ICPS unit will attempt to maintain by increasing or decreasing pump motor RPM, or turning off the pump motor if needed
ADVANCE ->	*Press the "Advance" key to advance to next display.*

For more information: P2FlowLLC 5475 Hawley Road, The Dalles, OR 97058.
Phone: 541-296-3792. Fax: 541-296-1062. Toll Free: 1-800-760-6874. http://www.P2flow.com

LO PRES SAFE XXX	The pressure that the ICPS unit will go into safety shutoff. The system pressure must be below this pressure for 30 seconds (default) continuously in order for the safety shutoff to activate. To clear the safety shutoff condition press AUTO/OFF to turn off and press AUTO/OFF again to turn it back on. If the Low Pressure Safety feature is not desired move the setting to "00" and the safety shutoff will not activate.
ADVANCE ->	*Press the "Advance" key to advance to next display.*
HI PRES SAFE XXX	The pressure that the ICPS unit will go safety shutoff. This number can be adjusted anywhere on the scale to act exclusively as a safety override.
ADVANCE ->	*Press the "Advance" key to advance to next display.*
NOT USED	Minimum on time is not used with Variable Speed Operation
ADVANCE ->	*Press the "Advance" key to advance to next display.*
NOT USED	Minimum off time is not used with Variable Speed Operation.
ADVANCE ->	*Press the "Advance" key to advance to next display*
HOURS XXXX.X	Hour meter. How long the pump has been on. To reset to zero press "RESET/NO".
ADVANCE ->	*Press the "Advance" key to advance to next display.*
CYCLES XXXX	Cycle counter. How many times the pump/ VFD has turned off and on. To reset to zero press "RESET/NO".

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ADVANCE -> *Press the "Advance" key to advance to next display.*

START PUMP?

When in this display the pumps can be started manually. Press the "YES" - up arrow key to turn on the pump. If the pump has been turned off because of pressure the pump will turn on momentarily, then turn off.

ADVANCE -> *Press the "Advance" key to advance to next display.*

ET: 00:00:00

This is an elapsed time timer that allows the pump to start on time and shut off on elapsed time or pressure.

ADVANCE -> *Press the "Advance" key to advance to next display.*

TRIG ON HRS: XX

This is the interval that the pump "triggers on". If the number is "02" then the pump will start every two hours if the following parameter "Pump On Hours" is not Zero. Example: If the "Trig On Hrs" value is 02 and the "Pump On Hours" value is 01 Pump 1 will turn on every two hours and stay on for 1 hour unless it turns off via pressure. Minimum "Trig On Hrs" value is 02.

PUMP ON HRS: XX

When the pump turns on, this value determines how long it stays on unless it shuts off on pressure. If value is "00" the pump will turn on via pressure input only, not on elapsed time.

ADVANCE -> *Press the "Advance" key to advance to next display.*

0-100* PSI XXX

The control unit goes back to the beginning.

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2. Control Functions

"UP ARROW" increases number viewed on display. "DOWN ARROW" decreases number viewed on display. When the AUTO/OFF switch is pressed the display will say "OFF", turn off the pump and will remain off indefinitely.

3. Specifications

Temperature range: 30-120 degrees F. Power input for control unit: 12 VDC 200 mA max supplied by external "wall cube" transformer.

4. Pressure sensor

Standard pressure sensor is MSI Model 300-XXX where "XXX" indicates full scale sensor pressure range. This is a 2-wire 4-20 mA output transducer. Mount pressure sensor downstream of check valve close to bladder tank, if possible. Plug into IC Pump Station control unit using "keyed" connector. A 10-foot long cable is supplied for 2-wire pressure sensors.

5. Installation.

Install IC pump station in accordance with all applicable safety procedures including, but not limited to proper high voltage grounding of motor and VFD and pressure relief valves.

Install IC Pump Station unit out of direct sunlight and weather. Mount DIN rail (Aluminum mounting rail) on a suitable flat surface and snap IC Pump Station unit on to DIN rail. Use the ½" knockout bushings provided to prevent wire chafing on metal edges.

6. Operation

To the IC Pump Station unit connect power supply ("wall cube" transformer), pressure sensor and VFD output cable. Plug in the power supply and make adjustments. Observe pump operation to make sure it's working correctly to and re-adjust if needed.

Note: IC Pump Station display may go blank momentarily from time to time. This is normal and is a computer "housekeeping" function.

7. VFD operation/wiring

IC Pump Station VFD output model 1A-XXX/VFD is furnished with a 4-wire cable for interface with the VFD. The wire color code is as follows:

Red: V+ Voltage. Voltage output can be adjusted anywhere between 1 and 10 volts. Default is 1-5 volts for easy interface with most 4-20 mA inputs.

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Black: Ground or common connection for voltage output.

White and Green: An internal connection when the pump is supposed to be on. Although the IC Pump Station control unit will operate the VFD satisfactorily with just the voltage output it is strongly recommended that the VFD be programmed to accept an external dry contact relay (off) override using these wires to connect to an internal relay.

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