# IC PUMP STATION

## IC Pump Station Model 2A-VFD-XXX*, Variable Speed Operation with additional on-off output.

Single pressure point.

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.* |

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| | |
|---|---|
| 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. This function turns off both Pump1 and Pump 2 |
| *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. This function turns off both pump 1 and pump 2. |
| *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". |
| 2LOW PRES ON XXX | Pressure that Pump 1 will turn on the pump (after delays). When the system pressure goes below this setting the pump will turn on. |

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2MIN ON TIME XXX

Minimum on time in seconds. When the pump turns on it will stay on for at least this amount of time.

**Note:** Display will switch back and forth from "Low Pres On" to "Min On Time" every five (5) seconds. If the other display is desired simply wait for it to change. Display will not change while it is being adjusted.

*ADVANCE ->*

*Press the "Advance" key to advance to next display.*

2HI PRES OFF XXX

Pressure that pump 1 will turn off (after delays). When the system pressure goes above this setting the pump will turn off.

2MIN OF TIME XXX

Minimum off time in seconds. When the pump turns off it will stay off for at least this amount of time.

**Note:** Display will switch back and forth from "Low Pres On" to "Min On Time" every five (5) seconds. If the other display is desired simply wait for it to change. Display will not change while it is being adjusted.

2HOURS 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.*

2CYCLES XXXX

Cycle counter. How many times the pump/ VFD has turned off and on. To reset to zero press "RESET/NO".

*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

The "XXX" in the model number indicates full scale sensor pressure range. IC Pump Station can use most any 2-wire 4-20 mA output transducer on the market today. Mount pressure sensor downstream of check valve and 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:

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Red: V+ Voltage. Voltage output can be adjusted anywhere between 0 and 5 volts. Default is 1-5 volts for easy interface with most 4-20 mA inputs.

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 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.

Note: The default setting for the IC Pump Station is a 1-5 volt output through a 250 Ohm resistor located within the VFD. Some VFD's have resistor values other than 250 ohms. If that is the case please contact IC Pump Station for directions on re-setting a configuration parameter.

**Pump 2 relay.**

For pump 2 a relay is provided. For high-voltage interface (up to 250 volts AC) mount relay in a grounded metal box. Wiring schematic is printed on the relay.