Installation and Operation Manual

Elite Sump

ELITE

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Safety Instructions

Read this manual carefully to learn how to safely install and operate your pump. Throughout this manual there are a number of SAFETY HAZARDS that must be read and adhered to in order to prevent possible personal injury and/or damage to the equipment.

Three keywords, “DANGER” ,“WARNING”, and “CAUTION”, are used to indicate the potential severity of the hazard, and are preceded by a SAFETY ALERT SYMBOL. Failure to follow the safety-related instructions may result in a safety hazard.

DANGER Indicates an imminently hazardous situation which, if not avoided, WILL result in serious injury or death.

WARNING Indicates a potentially hazardous situation which, if not avoided,

Could result in serious injury or death.

CAUTION Indicates a potentially hazardous situation which, if not avoided,

May result in minor or moderate injury.

THOROUGHLY REVIEW ALL INSTRUCTIONS AND WARNINGS PRIOR TO PERFORMING ANY WORK ON THIS PUMP.

Introduction:

Because panel installations are seldom identical, this manual cannot possibly provide detailed instructions and precautions for each specific application. Therefore, it is the responsibility and the duty of all personnel involved in the installation, operation and maintenance of the equipment to ensure that applications not addressed in this manual are performed only after establishing that neither operator safety nor panel integrity are compromised by the installation.

Pre-Installation Check:

Open all cartons and inspect for shipping damage. Report any damage to your supplier or shipping carrier immediately. Always verify that the panel nameplate Voltage, Phase, and HP ratings as well as Amps rating on panel match your pumps and power supply. Warranty does not cover damage caused by connecting panels to an incorrect power source (i.e., voltage and phase).

Installation:

Electrical connections are to be made by a qualified electrician in accordance with the National Electrical Code (NEC) or the Canadian Electrical Code, as well all national, state and local codes. Code questions should be directed to your local electrical inspector. Failure to follow electrical codes and OSHA safety standards may result in personal injury or equipment damage. Failure to follow manufacturer’s installation instructions may result in electrical shock, fire hazard, personal injury or death, damaged equipment, provide unsatisfactory performance, and may void the manufacturer’s warranty.

Motor must have a properly sized starter with a properly sized heater to provide overload and under voltage protection unless motor meets following two conditions: single phase and motor horsepower is 1HP or less. Motors that satisfy these two conditions have built-in thermal overload protection.

Operating personnel should be trained in the operation of the pump and any associated system.

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System Installation

Float Wiring - Panel
Wiring from the control panel to the floats should be either MTW or THHN, #14 or #16 AWG and should be installed in a separate dry metallic conduit. Do not run float wires together in a conduit with power supply wires! Connect the float wires to the control panel as follows:

- Terminal 1 & 2 - High Level Alarm Float
- Terminal 3 & 4 - Lag Pump On Float
- Terminal 5 & 6 - Lead Pump On Float
- Terminal 7 & 8 - Pump(s) Off Float

Pump High Temp Wiring (Moisture Switch)
Wire the High Temperature circuit of the pump as follows:

- Terminal 9 – Pump 1 Common
- Terminal 11 – Pump 1 High Temp
- Terminal 14 – Pump 2 Common
- Terminal 12 – Pump 2 High Temp

Moisture Switch Wiring
Wire the Seal Leak circuit of the pump as follows:

- Terminal 9 – Pump 1 Common
- Terminal 10 – Pump 1 Moisture Switch (grundfos)
- Terminal 14 – Pump 2 Common
- Terminal 13 – Pump 2 Moisture Switch (grundfos)

Auxiliary Alarm Wiring (Moisture Switch)
Connect the auxiliary alarm wires as follows:

- Terminals 15 & 16 - BAS General Alarm

Pump High Temp Wiring (Seal Probes)
Wire the High Temperature circuit of the pump as follows:

- Terminal 9 & 10 – Pump 1 High Temp
- Terminal 11 & 12 – Pump 2 High Temp

Seal Fail Wiring
Wire the Seal Leak circuit of the pump as follows:

- Terminal 15 – Pump 1 Common
- Terminal 13 – Pump 1 Seal Fail Probe
- Terminal 14 – Pump 2 Seal Fail Probe

Auxiliary Alarm Wiring (Seal Probes)
Connect the auxiliary alarm wires as follows:

- Terminals 16 & 17 - BAS General Alarm

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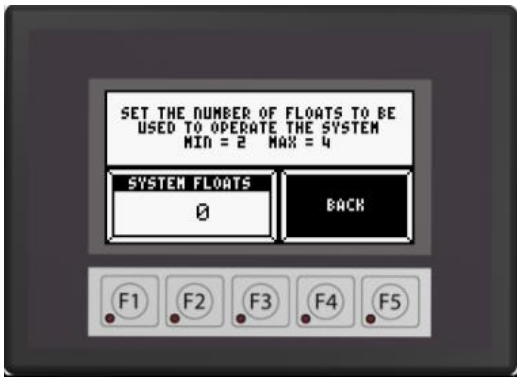
Float Selection



Four Float Operation:

The system shall be configured for (4) four tilt type, normally open float switch operation. The bottom float will provide the “Pump(s) OFF” level. The Second Float shall provide the “Lead ON” level. The Third float shall provide the “Lag ON” level. The Top float shall provide the “High Level Alarm”.

a) Automatic pump run operation. With the Lead Pump Selector in “AUTO“, after each pumping cycle the PLC shall alternate the lead pump. Should the level in the wet well rise to the actuation point of the “Lag Pump ON” Level float, the lag pump will run until the level falls below the “Pump OFF” Float.

b) ***Cycle count monitor.*** Monitors how many times the lag pump is run. After it is run (3) three times a " Lag Pump Run" Alarm will sound. It will not turn off the pump or inhibit the operation of the pumps. It is purely a status alarm to have the pit inspected in case there is a problem with the lead pump causing the lag pump to carry the load. Simply press the "Lag Pump Alarm" button to reset the alarm.

Three Float Operation:

The system shall be configured for (3) three tilt type, normally open float switch operation. The bottom float will provide the “Pump(s) OFF” level. The Second Float shall provide the “Lead ON” level. The Top float shall provide the “High Level Alarm”.

a) Automatic pump run operation. With the Lead Pump Selector in “AUTO“, after each pumping cycle the PLC shall alternate the lead pump.

Two Float Operation:

The system shall be configured for (2) two wide angle tilt type, normally open float switch operation. Wide angle floats provide both pump start and stop indication. The Lead Pump Float switch shall provideOn/Off input to the PLC for the Lead Pump call-to-run.

a) Automatic pump run operation. With the Lead Pump Selector in “AUTO“, after each pumping cycle the PLC shall alternate the lead pump.

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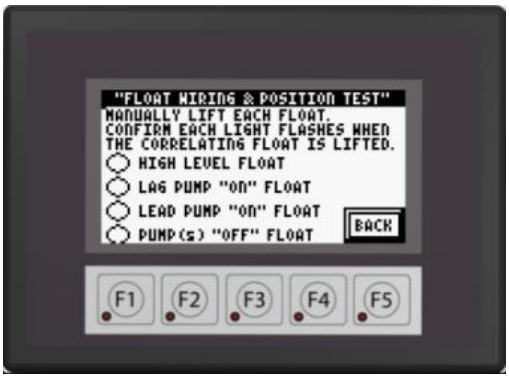
Float Switch Test

Place the “Pump Run-off-Auto” H-O-A switches in the off position. This screen will allow you to confirm the floats are wired to the correct field terminals.

Four Float System:

1. Lift the High Level Pump Float Switch and the display should flash “High Level Float.” Drop the float to see it stop flashing on the touch-screen display.
2. Lift the Lag Pump Float Switch and the display should flash "Lag Float". Drop the float to see it stop flashing on the touch-screen display.
3. Lift the Lead Pump Float Switch and the display should flash "Lead Float." Drop the float to see it stop flashing on the touch-screen display.
4. Lift the Pump Off Float Switch and the display should flash "Pump Off Float." Drop the float to see it stop flashing on the touch-screen display.



Three Float System:

1. Lift the High Level Pump Float Switch and the display should flash “High Level Float.” Drop the float to see it stop flashing on the touch-screen display.
2. Lift the Lead Pump Float Switch and the display should flash "Lead FLoat." Drop the float to see it stop flashing on the touch-screen display.
3. Lift the Pump OFF Float Switch and the display should flash "Pump OFF Float." Drop the float to see it stop flashing on the touch-screen display.

Two Float System:

1. Lift the High Level Pump Float Switch and the display should flash “High Level Float.” Drop the float to see it stop flashing on the touch-screen display.
2. Lift the Lead Pump Float Switch and the display should flash “Lead Float.” Drop the float to see it stop flashing on the touch-screen display.

System Alarms

High Level Alarm:

The alarm buzzer can be silence by pushing the silence button on the touch-screen display; however, both pumps will run, the alarm beacon will remain on and the auxiliary alarm contact will remain closed until the level in the wet well pumps down and the lag pump/ high level alarm float resets. Should the level in the wet well rise to the actuation point of the High Level Alarm float, the following will occur:

A. Both Pumps will be started.
B. General Alarm Red LED Beacon will illuminate
C. Alarm Buzzer will sound
D. Toushcreen will flash "High Level Alarm"
E. General Alarm Auxiliary contact for the BAS will close
F. Alarm silence button will appear on the screen and flash

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Seal Failure Alarm, option "S":

The Seal Fail Relay utilizes moisture sensing probes. The pumps will continue to run regardless of the Seal Failure alarm. The alarm beacon will remain on and the general alarm contact will remain closed until the seal failure condition has been corrected. During an alarm condition the following will occur:

A. General alarm Red LED Beacon
B. Touchscreen will flash "Seal Fail Pump #1" or "Seal Fail Pump #2"
C. General Alarm Auxiliary contact for the BAS will close

Moisture Switch Alarm, option "M":

The Moisture Switch alarm utilizes a contact, normally closed, to confirm if there is a moisture present. The alarm buzzer can be silence by pressing the silence button on the touchscreen; however, the alarm beacon will remain on, and the general alarm contact will remain closed until the Moisture Alarm condition clears. During an alarm condition the following will occur:

A. General Alarm Red LED Beacon will illuminate
B. Alarm Buzzer will sound
C. Touchscreen will flash "Pump #1 Moisture Alarm" or "Pump #2 Moisture Alarm"
D. General Alarm Auxiliary contact for the BAS will close
E. Alarm silence button will appear on the screen and flash

High Temperature Alarm, option "H":

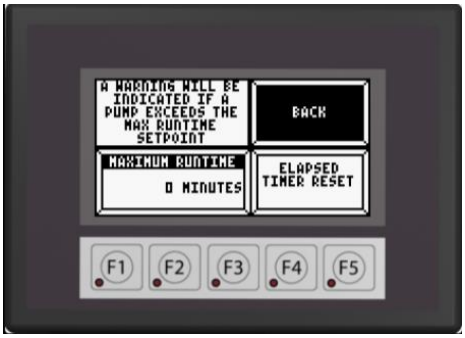
The High temp alarm utilizes a contact, normally closed, to confirm if there is a high temperature condition. The alarm buzzer can be silenced by pressing the silencing button on the touchscreen; however, the alarm beacon will remain on, the affected pump(s) will remain disabled and the general alarm contact will remain closed until the high temperature condition clears. During an alarm the following will occur:

A. Affected pump will be disabled
B. The unaffected pump will be made the Lead Pump
C. General alarm Red LED Beacon will illuminate
D. Alarm Buzzer will sound
E. Touchscreen will flash "High Temp Pump #1" or "High Temp Pump #2"
F. General Alarm Auxiliary contact for the BAS will close
G. Alarm silence button will appear on the touchscreen and flash

Maximum Run Time:

The affected pump(s) will continue to run; however; the alarm beacon will remain on, and the general alarm contact will remain closed until the alarm has been manually reset. The following will occur:

A. General Alarm Red LED Beacon will illuminate
B. Touchscreen will flash "Maximum Run Time Pump #1" or "Maximum Run Time Pump #2"
C. General Alarm Auxiliary contact for the BAS will close



Potential causes of an extended alarm condition are:

A. Bad or hung up float switch
B. High inflow situation (continue to allow the pump to run and confirm the high flow upset)
C. Restriction in discharge piping
D. Pump not properly coupled to discharge auto-coupling
E. Pump air locked

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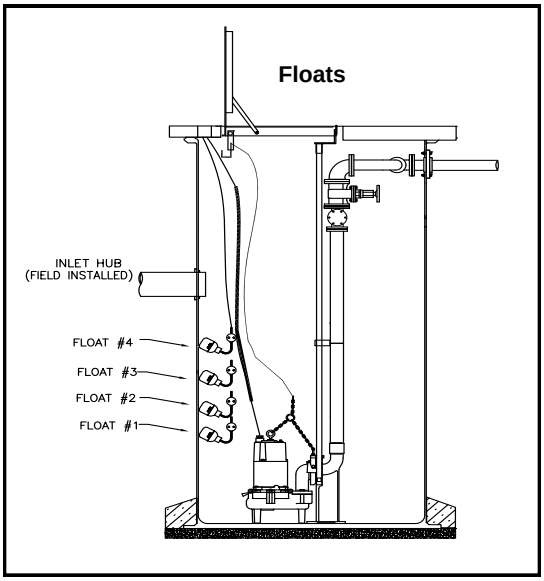
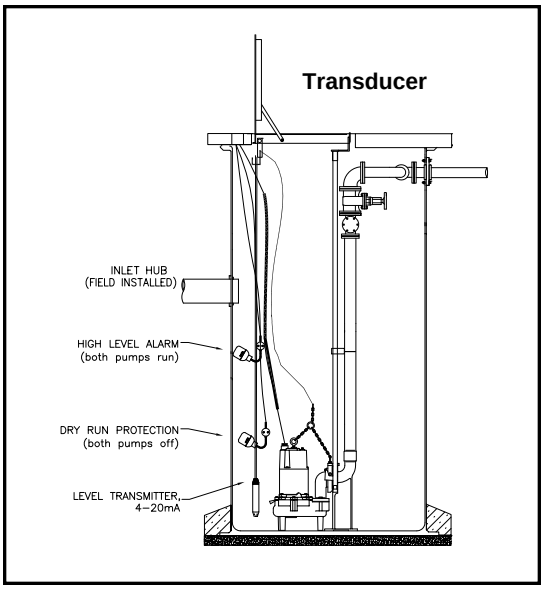
Level Sensing Options

Wet Well level sensing options. Standard duplex (2 pumps) operation will be a 4-Float configuration. Standard simplex (1 pump) operation will be a 3-Float configuration. *see Sequence of Operation for float configurations*.

A. (F) Floats N.O. narrow angle tilt
B. (A) Analog submersible transmitter (Elite Series)
C. (E) Conductivity Electrodes S.S.
D. (GC) Gold Contacts Floats N.O. narrow angle tilt (Intrinsically Safe Only)



Standard Analog configuration will consist of (1) submersible transdducer and (2) Floats as back-up operation should the transducer fail.



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Field Penetration

*** URGENT ***
ANY FIELD PENETRATIONS IN LOCATIONS OTHER THEN FACTORY AUTHORIZED AREAS WILL ***VOID MANUFACTURERS WARRANTY*** OF ALL INTERNAL COMPONENTS.