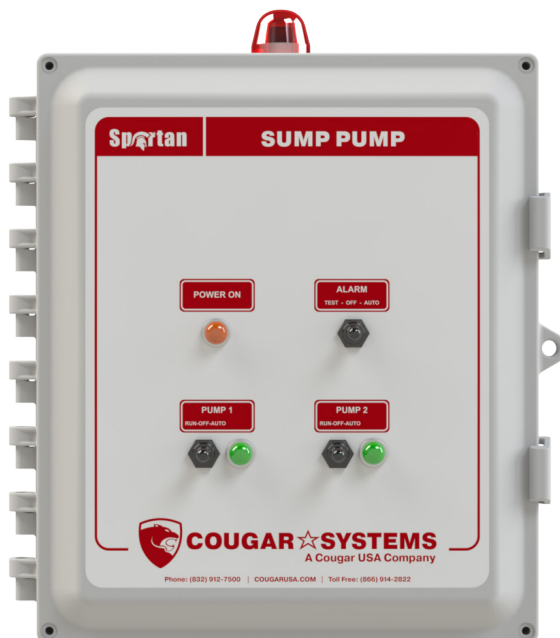




Installation and Operation Manual

Spartan Sump



Spartan



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 as 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.



Sequence of Operations

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".

Automatic pump run operation

With the alternating relay in "Alternate", after each pumping cycle the alternating relay 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. Should the level in the wet well rise to the actuation point of the High Level Alarm float, the following will occur:

- A. General Alarm Red LED Beacon will illuminate
- B. Alarm Buzzer will sound
- C. General Alarm Auxiliary contact for the BAS will close

The alarm buzzer can be silence by placing the Alarm Buzzer 3-position switch in the "OFF", center, position; however, 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 high level alarm float resets.

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 "Pump ON" level. The third float shall provide the "High Level Alarm" level.

Automatic pump run operation

Should the level in the wet well rise to the actuation point of the Pump On float and the Pump "Run-Off-Auto" 3-position switch is in "AUTO", the pump will continue to run until the level recedes below the Pump Off float. Should the level in the wet well rise to the actuation point of the High Level Alarm float, the following occur:

- A. General Alarm Red LED Beacon will illuminate
- B. Alarm Buzzer will sound
- C. General Alarm Auxiliary contact for the BAS will close

The alarm buzzer can be silence by placing the Alarm Buzzer 3-position switch in the "OFF", center, position; however, the alarm beacon will remain on and the auxiliary alarm contact will remain closed until the level in the wet well recedes below the high level alarm float.

Manual pump run/stop operation

Run function: The pump can be manually run by placing the Pump "Run-Off-Auto" 3-position switch in the "Run" position. Regardless of any alarms or float position, the pump will continuously run. Stop function: The pump can be manually stopped by placing the Pump "Run-Off-Auto" 3-position switch in the "OFF" position. Regardless of any alarms or float position, the pump will not run.

(continued on next page) **3**

**Two Float Operation**

The system shall be configured for two wide angle tilt type float switch operation. The Lead Pump Float switch shall provide On/Off for the Lead Pump call-to-run. With the Lead Pump Selector in "AUTO", after each pumping cycle the controller shall alternate the lead pump. Should the level in the wet well rise to the actuation point of the Lag Pump/High Level Alarm wide angle float, the following will occur:

- A. Both Pumps will be called to start
- B. General Alarm Red LED Beacon will illuminate
- C. Alarm Buzzer will sound
- D. General Alarm Auxiliary contact for the BAS will close

The alarm buzzer can be silenced by placing the Alarm Buzzer 3-position switch in the "OFF", center position; however, 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 high level alarm float resets.

High Temperature

The High Temp alarm utilizes a contact, normally closed, to confirm if there is a temperature condition. During a high temp event, the following will occur:

- A. The Affected pump will be disabled
- B. The unaffected pump will be made the Lead Pump

The affected pump(s) will remain disabled until the high temperature condition clears.

Motor Controls

Options

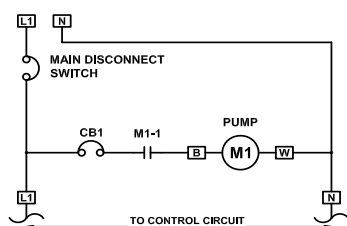


Figure 1

1. Standard Motor Controls Incoming Power Service of 115/120vac - 1 phase. Simplex and Duplex setup (Figure 1). Adder Options Available.

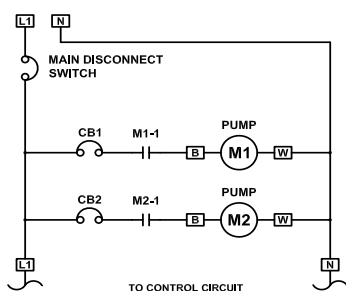


Figure 2

1. Standard Motor Controls Incoming Power Service of 200/240vac - 1 phase. Simplex and Duplex setup (Figure 2). Adder Options Available.

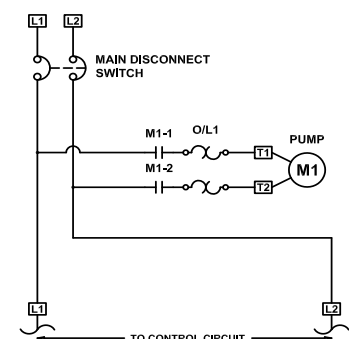
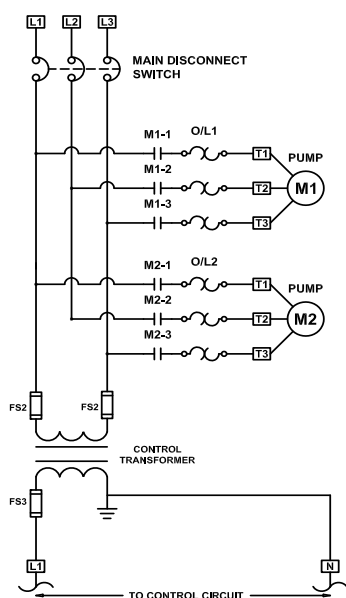


Figure 3

1. Standard Motor Controls Incoming Power Service of 200/240/480vac - 3 phase. Simplex and Duplex setup (Figure 2). Adder Options Available.

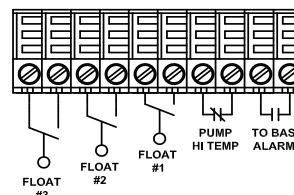
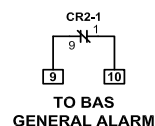
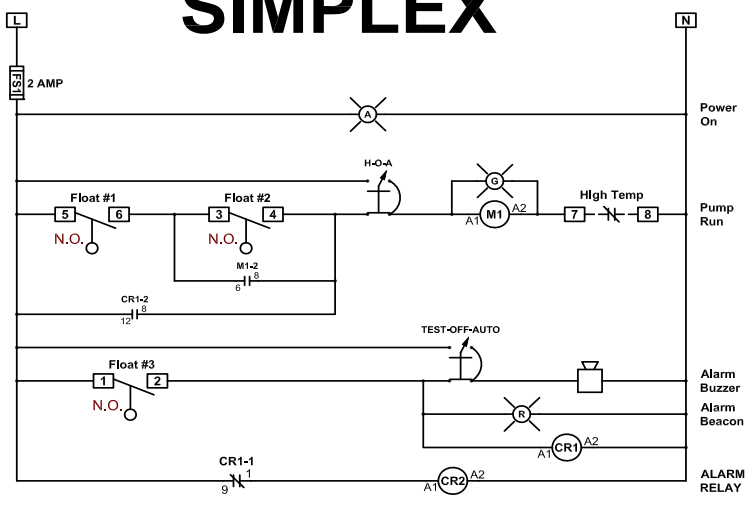


- Dual Power Feed
- Transfer Switch (Emergency Power)
- Triplex (3 pump setup)
- Auto Reversing Pumps (Elite Series only)
- Variable Frequency Drives (mounted inside cabinet)

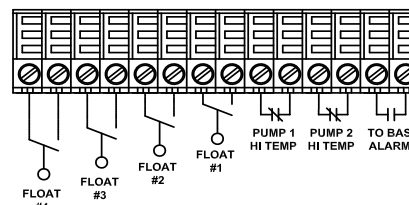
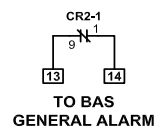
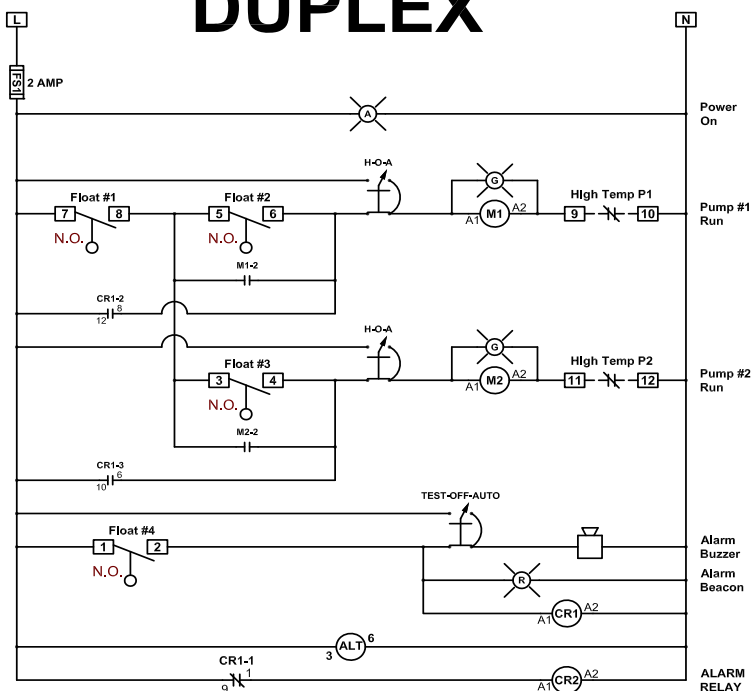


Controls Diagram

SIMPLEX



DUPLEX





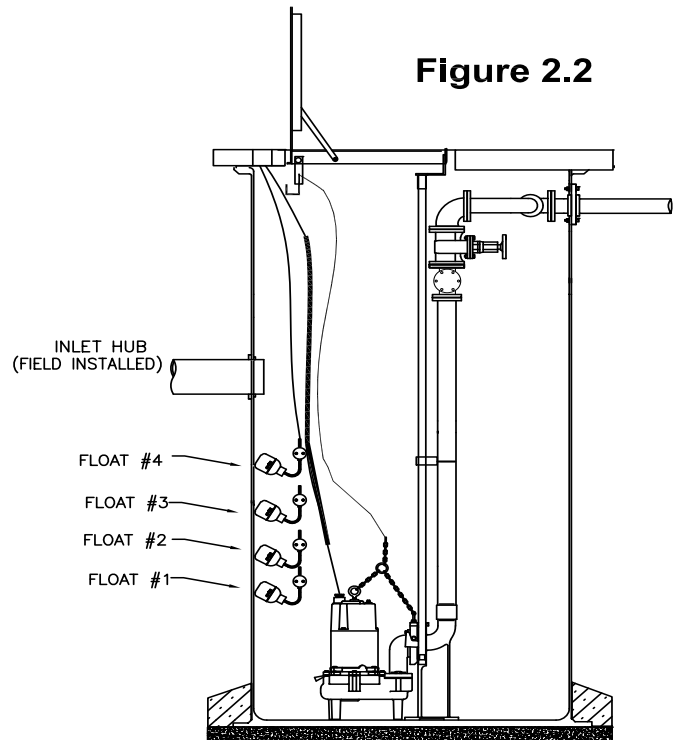
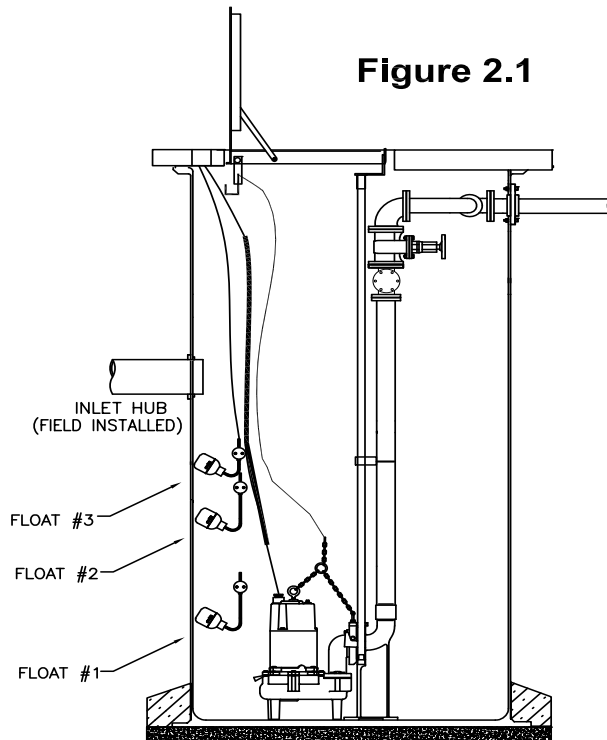
Float Details

Options

Detail Float configuration. Standard Duplex (2 pumps) operation will be a 4-Float operation. Standard Simplex (1 pump) operation will be a 3-Float operation.

- **Simplex**
 - 3-Floats
 - 2-Floats
- **Duplex**
 - 4-Floats
 - 3-Floats
 - 2-Floats

- **Analog Transducer (Elite Only)**
- **Conductivity S.S. Electrodes**
- **Gold Contacts "GC" Mechanical Floats (Intrinsically Safe Only)**

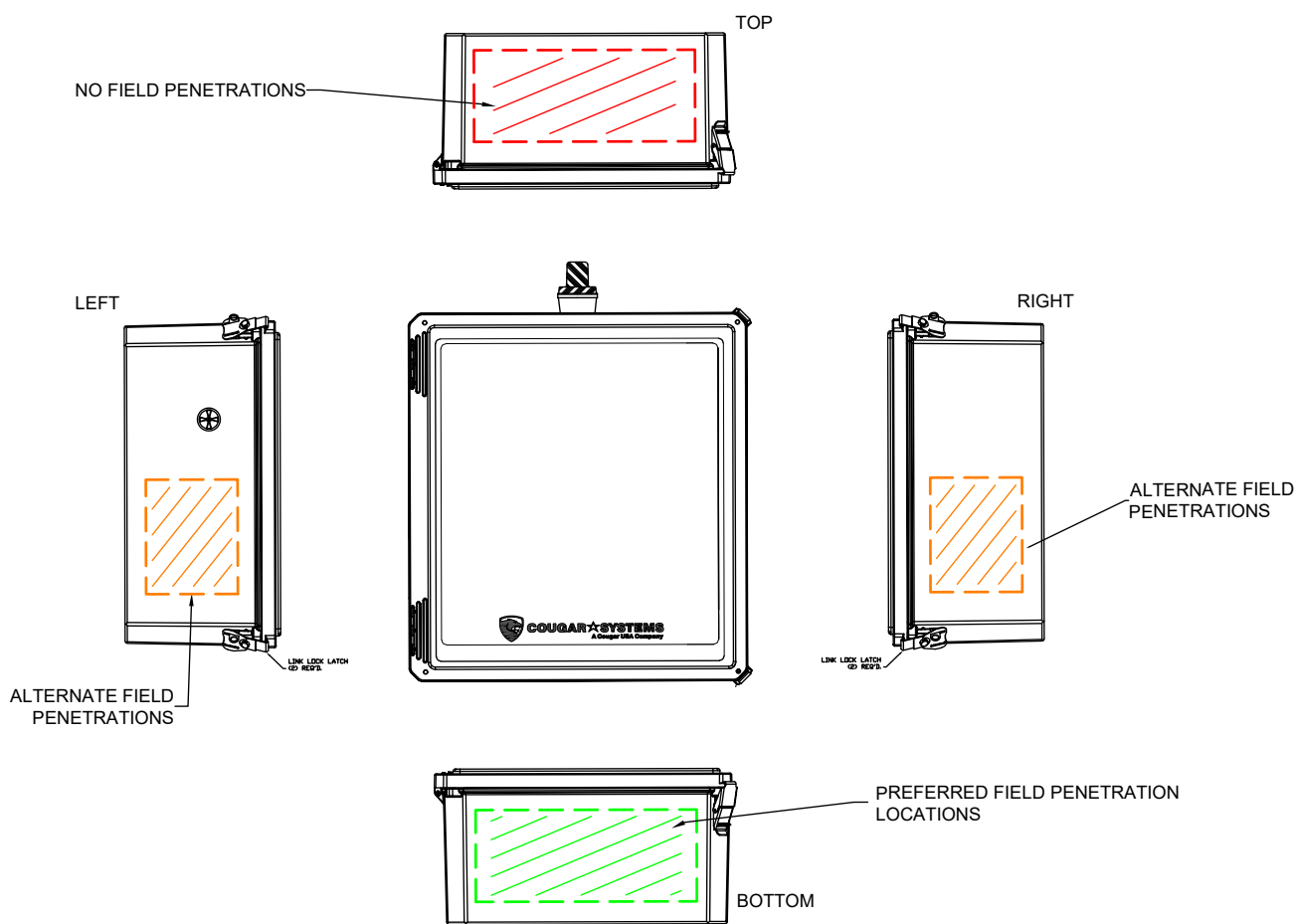




Field Penetration

*** URGENT ***

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



Mounting Dimensions

SIMPLEX/DUPLEX STANDARD - 16x14x08

A	B	C	D	E	F	G
19.47	18.88	17.41	15.41	11.63	18.03	9.86

SIMPLEX/DUPLEX INTRINSICALLY SAFE - 18x16x10

A	B	C	D	E	F	G
21.45	20.88	19.41	17.41	13.63	20.03	11.86

* Selecting multiple options will upsize enclosure.

