Installation and Operation Manual

Elite Booster

832.912.7500
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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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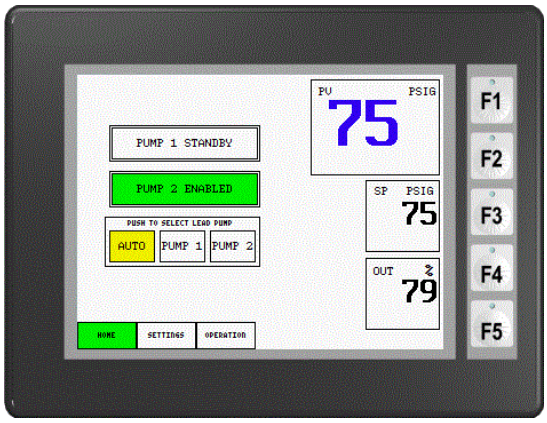
System Set-up Instructions

SYSTEM OPERATION

The controller will provide PID pressure control based on feedback from a pressure sensor installed in the common system header. The controller will regulate pressure by controlling the pump motor speed using panel mounted variable frequency drives (VFD). The lead pump will be automatically alternated and the a lag pump will be signaled to run when the lead pump is at capacity or is not functional.

Home Screen



The controller Home Screen provides the System Pressure (PV), System Pressure Setpoint (SP), Output Percentage (OUT) and Pump Run Status.

Lead Pump Selection

The lead pump selection is made by pressing the button on the display.

AUTO Pumps will be alternated automatically by the controller after each fill cycle
PUMP 1 Pump 1 will operate as the lead with no alternation.
PUMP 2 Pump 2 will operate as the lead with no alternation

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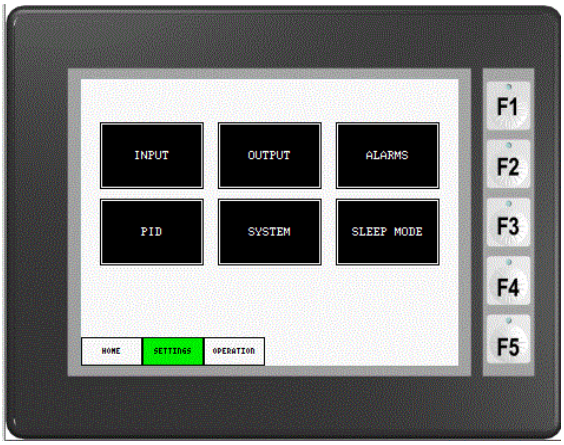
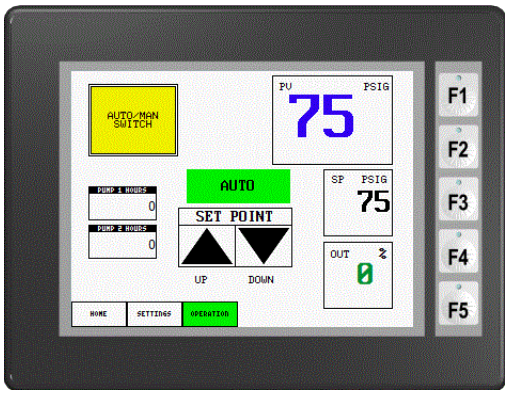
Settings Menu Screen

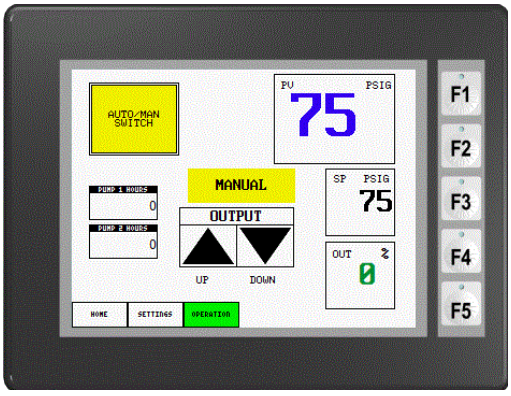


The Setting Screen allows access to system adjustment screens

Input	Pressure Sensor 4-20mA Scale Setting
Output	Minimum and Maximum Pump Speed Settings
Alarms	System Alarm Setpoints
PID	PID Loop Tuning Settings
System	Lag Pump Setpoints and Alternation settings
Sleep Mode	Sleep Function Setpoints

Operation Screen





The Operating Screen is used to set the controller for Auto/Manual Operation and System Setpoints. Pressing the Auto/Manual switch provides a bump less transfer between Auto & Manual system operation.

AUTO/MANUAL SWITCH

AUTO	The SET POINT Up/Down arrows are used adjust the system setpoint. The controller modulates the output to match the system setpoint
MANUAL	The OUTPUT Up/Down arrows are used to manually adjust the pump speed output.

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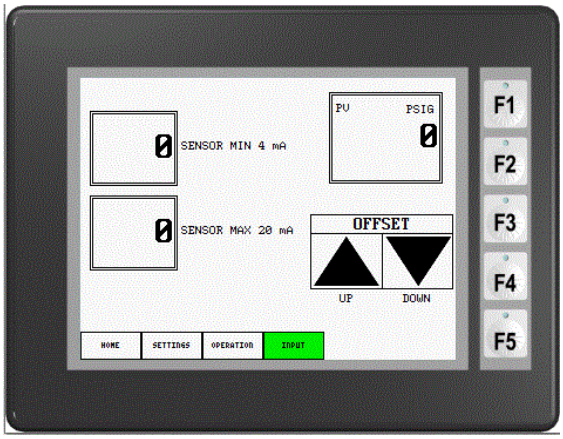
Input Screen



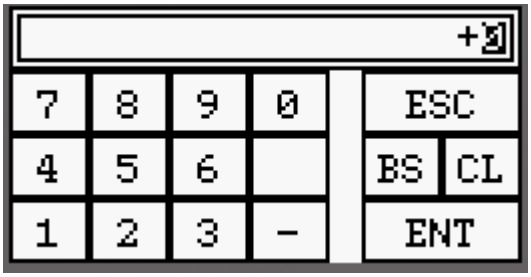
The Input Screen is used to set the pressure sensor Min/Max range.

SENSOR MIN This in the pressure in PSIG that the pressure sensor will send 4mA to the controller. This value is typically zero on most sensors.

SENSOR MAX This in the pressure in PSIG that the pressure sensor will send 20 mA to the controller. This value is 100% of the sensor scale.

OFFSET The Up/Down arrows are used to adjust the display as necessary to match the actual system pressure gauges.

To adjust settings press the sensor button to access a data entry box.



Enter the desired set point and press **ENT** to save the setting. The new setting will be displayed on the button.

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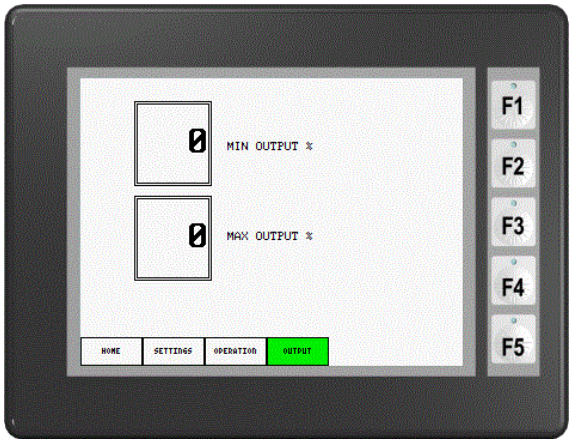
Output Screen

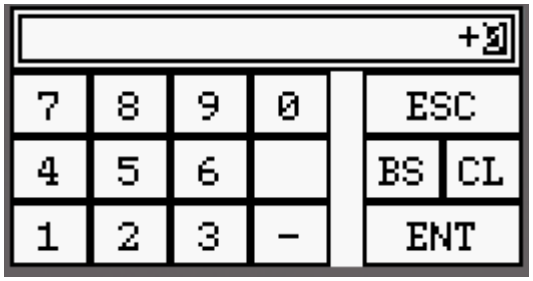


The Output Screen is used to set the maximum and minimum speed the pump will run.

MIN OUTPUT % This setting is set to the pump dead head speed when the system pressure is equal to the set point. This speed that the drive ramps to before the PID control takes over the pump speed.

MAX OUTPUT % This setting is the maximum speed the pump will be allowed to run. The normal setting is 100%.

To adjust settings press the sensor button to access a data entry box.



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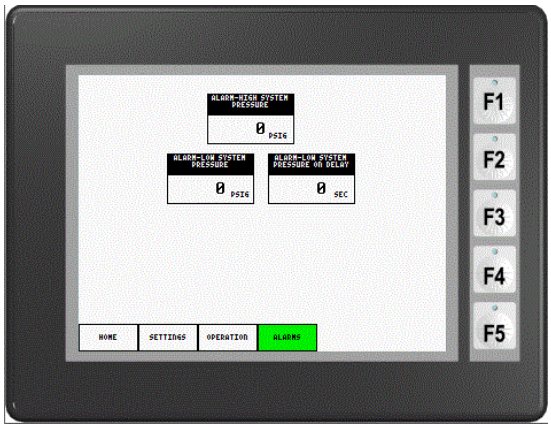
Alarm Screen

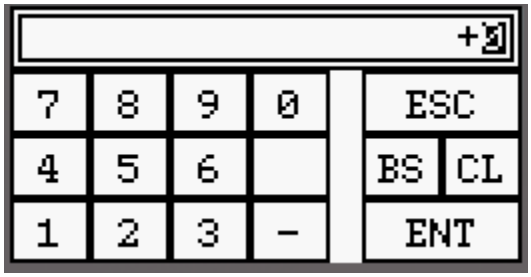


HIGH SYSTEM ALARM — When the system pressure is above the setpoint the HIGH SYSTEM ALARM will be active.

LOW SYSTEM ALARM — When the pressure falls below this set point the LOW SYSTEM ALARM will be active.

LOW SYSTEM ALARM DELAY — The LOW SYSTEM ALARM on is delayed by the timer setting in seconds.

To adjust settings press the sensor button to access a data entry box.



Enter the desired set point and press **ENT** to save the setting. The new setting will be displayed on the button.

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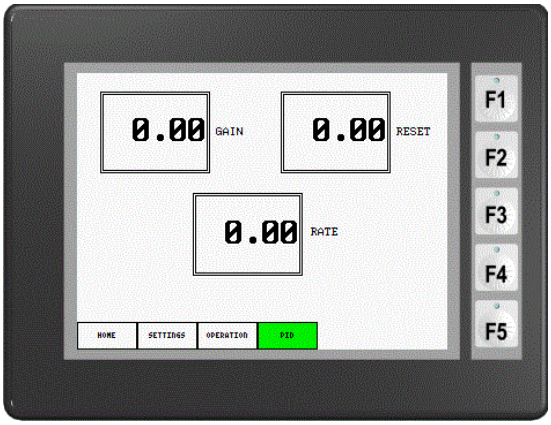
PID Screen

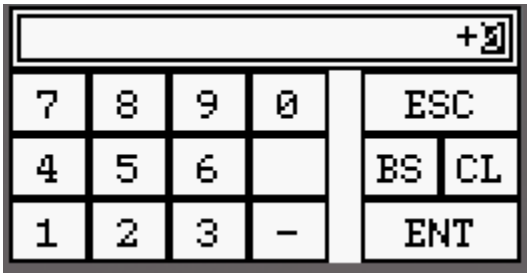


GAIN This setting adjusts the amount of change in output percentage based on a deveation of the system pressure above or below the System Pressure Setpoint. The scale is 0-100 on this setting. The typical swetting for this application is 2-5.

RESET This setting adjusts the amount of time pulse to drive the system pressure back to the setpoint. The setting is in seconds. The typical setting for this application .5 sec – 3 sec.

RATE This setting is not used for pressure control and should be set to 0.00

To adjust settings press the sensor button to access a data entry box.



Enter the desired set point and press **ENT** to save the setting. The new setting will be displayed on the button.

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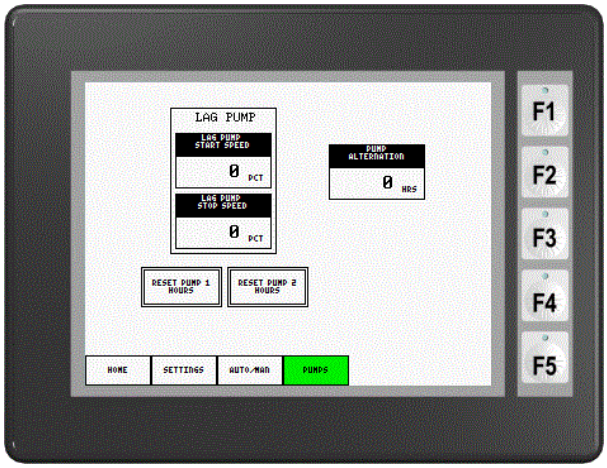
System Setting Screen

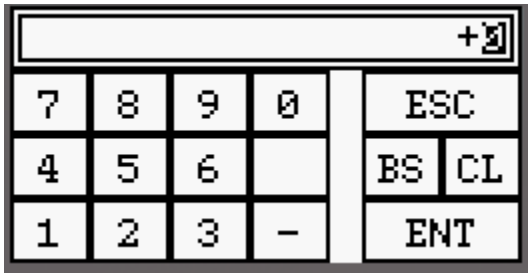


LAG PUMP START SPEED — When the lead pump speed % is greater than this setpoint the lag pump will start.

LAG PUMP START DELAY — When the lead pump speed % is greater than this setpoint the lag pump will start after this time delay setting.

LAG PUMP STOP — The Lag Pump will stop when the output speed drops below this setpoint.

To adjust settings press the button to access a data entry box.



Enter the desired set point and press **ENT** to save the setting. The new setting will be displayed on the button.

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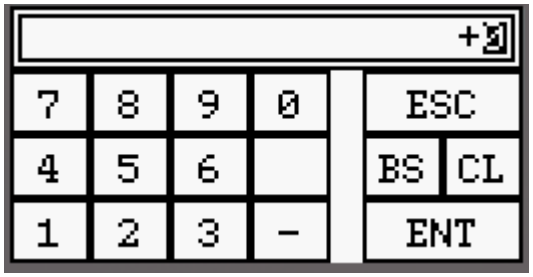
System Sleep Mode

PUMP DEADHEAD SPEED — set to the pump motor speed percentage when the pumps have no flow and the system pressure is equal to the system setpoint.

PUMP DEADHEAD TIMER — timer setting will start the pump sleep mode when the pumps speed is equal to or less then then the pump demand speed setting and the system pressure is satisfied. Longer timer settings will reduce the pump sleep frequency.

PUMP WAKE-UP — set to the system pressure that the pump will restart when in sleep mode.

To adjust settings press the button to access a data entry box.



Enter the desired set point and press **ENT** to save the setting. The new setting will be displayed on the button.

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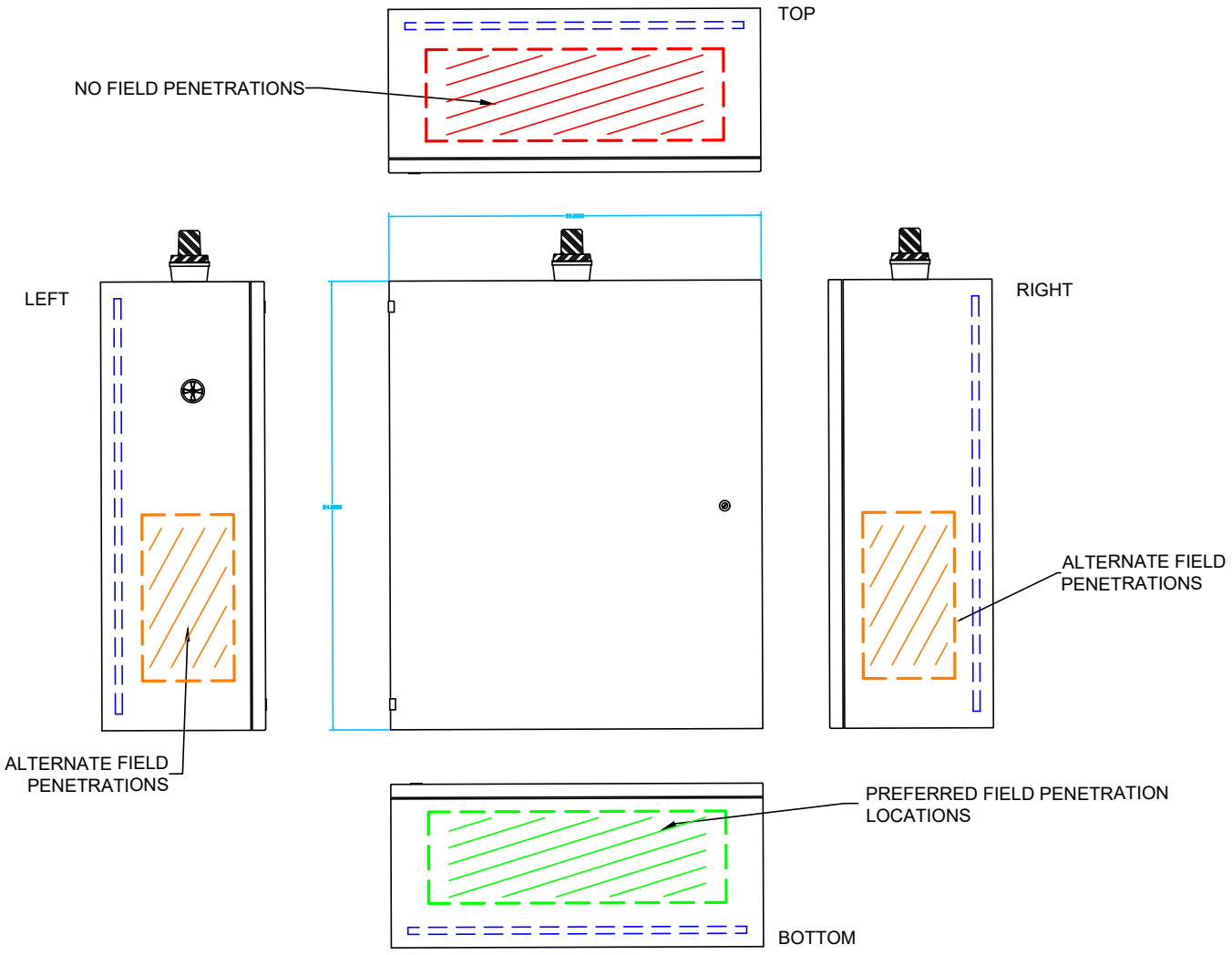
System Alarms

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



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