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**INSTALLATION AND OPERATING INSTRUCTIONS**

**INTEGRATED PUMPING SYSTEMS  
VARIABLE SPEED CONTROLLERS**

**IPS CONTROLLER**

**5000**

Armstrong Pumping System Contrllers, IPS Controllers 5000, are completely factory-assembled, tested, and shipped to the job site as integral units ready to receive incoming power supply. These instructions describe the procedures to be followed during installation, commissioning and operation to ensure optimum performance and reliability. When contacting the factory for assistance, please provide the unit Serial Number and other pertinent data, such as IPS model no.



## IPS CONTROLLERS 5000

### INSTALLATION INSTRUCTIONS

**INCOMING SUPPLY – STAND-ALONE IPS CONTROLLERS (NO RACK)** - The incoming power supply should be brought in through the bottom of the panel adjacent to the main terminals. Note that this is the only electrical connection required at the panel.

The power supply voltage is **115V/1/60** as standard. Please refer to drawing # IPS\_5000\_FLD\_01 reference number IPS 048 for instructions to connect to IPS Controller terminal block.

**INCOMING SUPPLY – IPS SYSTEM ON RACK** – The incoming power supply to the IPS Controller is achieved through a transformer in the main enclosure of the whole IPS System rack. No power connection is required.

**NOTE: All electrical wiring should be performed by a qualified electrician in accordance with the latest edition of the National Electrical Code, local codes and regulations.**

### FIELD DEVICES INSTALLATION INSTRUCTIONS

Before attempting to start configuring the IPS Controller using the Operator Interface (HMI – touch-screen), make sure all the field installed devices such as DP sensors, flow sensors, DP switches are properly installed and wired to the IPS Controller as per wiring diagram # IPS\_5000\_FLD\_01 reference number IPS 048.

**NOTE:** Please fill in the *IPS Commissioning Check Sheet* (below) which will help you through the set-up procedure of the IPS Controller. The main information required would be the DP sensors set-point and range, the flow sensor range (if applicable) and pump design flow and head for run-out protection.

### BUILDING AUTOMATION SYSTEM (BAS) CONNECTION

The IPS Controller is provided with an RS 485 serial port to communicate serially to the BAS. The standard communication protocol is Modbus or BACnet. Refer to wiring diagram # IPS\_5000\_FLD\_01 reference number IPS 048 for wiring instructions. IPS Controller can also communicate to the BAS by hard wired option. Please refer to the IPS Controller generic terminal block drawing # IPS\_5000\_TER\_01 reference number IPS 047 for the different parameters and data points communicated to the BAS.



## IPS Commissioning Check Sheet

(Used for inputting data in the IPS Controller)

The following data should be documented prior to setting up your new IPS controller. By collecting this information and documenting it, you will not only be prepared for the setup process, but you will also have a printed record of the data that was selected. If you have chosen to have an Armstrong Certified Controls Service Technician enter the data onto the IPS Controller, they will require that the Contractor(s) sign off that the mechanical connections and electrical connections are completed prior to visiting the site to commission the controller.

Project Name: \_\_\_\_\_  
 Building Address: \_\_\_\_\_  
 Contractor Name: \_\_\_\_\_  
 Date of Installation / Commissioning: \_\_\_\_\_  
 IPS Model Number (eg. IPS Controller 5001): \_\_\_\_\_ Serial No.: \_\_\_\_\_  
 Armstrong Service Representative (if applicable): \_\_\_\_\_

### System Configuration

Number of pumps \_\_\_\_\_  
 Is there a standby pump?  Yes  No  
 Pump make, model and size \_\_\_\_\_  
 Pump(s) legend \_\_\_\_\_  
 System design point flow (with units) \_\_\_\_\_  
 System design point head (with units) \_\_\_\_\_  
 Pump selection point flow \_\_\_\_\_  
 Pump selection point head \_\_\_\_\_  
 \*Pump end of curve flow rating \_\_\_\_\_  
 \*Pump end of curve pressure rating \_\_\_\_\_  
 Differential pressure switch (flow switch)  Yes  No  
 Desired default speed (factory preset at 95%) \_\_\_\_\_  
 Minimum drive speed (factory preset at 30%) \_\_\_\_\_  
 Number of controller zones (process variables) \_\_\_\_\_

### Motor Data:

Horsepower \_\_\_\_\_  
 Speed \_\_\_\_\_  
 Voltage \_\_\_\_\_  
 FLA rating \_\_\_\_\_  
 Service factor \_\_\_\_\_  
 FL efficiency \_\_\_\_\_  
 FL slip \_\_\_\_\_  
 Power Factor \_\_\_\_\_  
 Temperature class \_\_\_\_\_

\* If not known, use pump selection point flow and head.

### Controlling Data

#### Process Variables / Controlling Zones

Zone #	1	2	3	4	5	6	7	8	9	10	11
Zone Legend											
DP sensor range											
Zone set-point											

Rate of speed change / ramp time (0 - Full Speed) 20 seconds  
 Minimum Speed (factory set 30%) \_\_\_\_\_  
 Maximum Speed (factory set 100%) \_\_\_\_\_  
 Flow sensor range \_\_\_\_\_  
 Temperature sensor type, range \_\_\_\_\_  
 High temperature high alarm set-point \_\_\_\_\_  
 Hours of operation before switching lead pump \_\_\_\_\_

Date: \_\_\_\_\_  
 Signature: \_\_\_\_\_

## OPERATOR FUNCTIONS

You are ready now to start configuring your IPS Controller using the HMI Operator Interface.

**NOTE:** When a value is needed to be entered in the system using the Display Touchpad, press on the feature field to enter the value in the controller. An alphanumeric keypad will be displayed, enter the value and then press the “Enter” button to save the input value in the controller.

### 1. MAIN MENU



**This is the screen the operator sees when powering up the unit.**

1. Press “System Overview” to view active zone DP setpoint and actual DP value
2. Press “Pump Overview” to view all pumps status, speed and DP switch position for flow detection
3. Press “Zone Overview” to view all zones DP setpoints and DP actual values
4. Press “Alarm Screen” to view any alarm condition that might have occurred
5. Press “Setup Screen” for zone, pump, system design point, and speed control setup (password protected)
6. Press “Default Settings” to view zone, pump, system design point, and speed control setup (password protected)
7. Press “Remote or Local” for remote or local start/stop
8. Press “Log In” field and input your password to access “Setup Screen” and/or “Default Settings” screens (will be discussed later during setup)
9. Press “Log Out” field to remove access to the setup and/or default settings screens (will be discussed later during setup)

**Note:** The box in the top right corner will flash “A” when there is an alarm. Touching the “A” will bring you to the alarm screen.

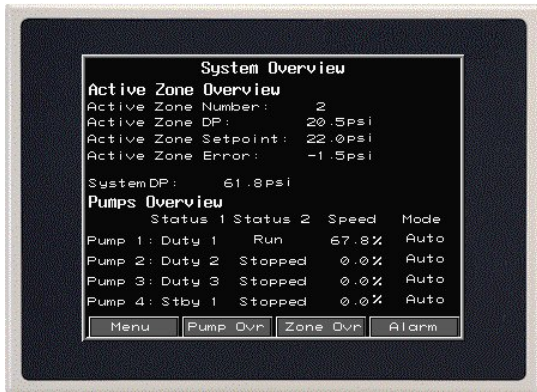
### 1.1 LOCAL / REMOTE CONTROL



**This screen is to choose between Local or Remote control**

1. Pressing “Remote/Local” button from the Main Menu will bring a popup window with a “Remote/Local” toggle switch
2. Press “Remote” for remote start/stop of IPS Controller
3. Press “Local” for local start/stop using the H-O-A of the pumps

## 2. SYSTEM OVERVIEW



This screen is for display purposes only

1. Active zone parameters are displayed
2. End-of-curve DP or Flow set-point is displayed as selected in “System Setup and Design Point” screen
3. Pumps’ status and speeds are displayed
4. Status 1 will show which pump is duty and which is standby
5. Status 2 will show which pump is running and which is stopped
6. Press the buttons below to bring up the desired screen

## 3. PUMP OVERVIEW



This screen is for display purposes only

1. Legend will display pump tag as entered in “Pump Setup Screen”
2. Mode displays pump operation mode: Hand, Off, or Auto
3. Pump status and speed will be displayed in both % value of full speed and absolute RPM
4. Flow through pumps will be verified by DP switch across each pump
5. Alarm will be displayed if no flow across pump
6. Active zone will also be displayed
7. Press “Pump 1” button to view and control pump parameters (H-O-A switch)

### 3.1 PUMP 1 CONTROL



This screen is to set lead pump and manual pump speed

1. Press “Lead” to set Pump 1 as lead pump
2. Press “Hand” then field under “Hand Speed” to set pump speed manually
3. Pump status is displayed
4. Active zone status is also displayed
5. Motor temperature will also be displayed
6. The rectangular box at the bottom right corner display when the pump is in Auto Bypass
7. Press the “Run Hrs” box to reset the hours of operation (below)

### 3.2 PUMP 1 HOURS OF OPERATION

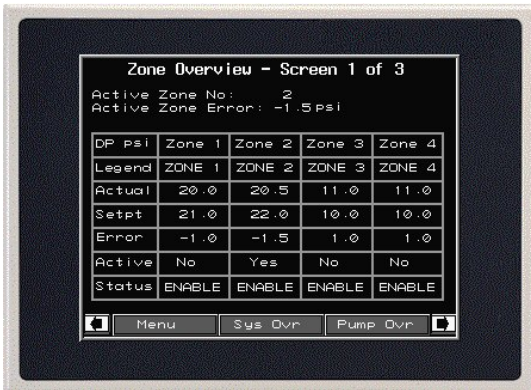


This screen is to set lead pump and manual pump speed

1. Pressing the run hours value will bring the following popup window:
2. Pressing “Yes” will reset the hours of operation to zero
3. Pressing “No” or “X” will close the popup window



## 4. ZONE OVERVIEW



This screen is for display purposes only

1. Legend will display zone name as entered in "Zone Setup Screen"
2. All zone information are displayed as well as the active zone that's controlling the pump(s) speed
3. Status of DP sensor is also displayed
4. Press the arrow field in the bottom right corner to display zones 5 – 11 (if available)

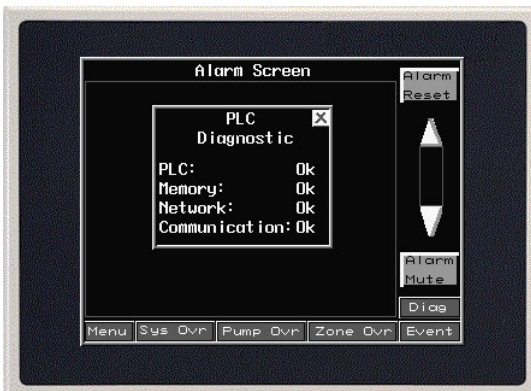
## 5. ALARM SCREEN



This screen is for display purposes only

1. All alarms will be displayed in chronological order
2. The last alarm will be at the top of the screen
3. Pressing the alarm displayed will pop up the appropriate help screen specific to the alarm event
4. Press "Reset" to reset all active alarms
5. Press "Diag" to call up the PLC diagnostic screen (described below)
6. Press "Event" to call up the alarm event screen (described below)
7. Press the "up" and "down" arrow fields to scroll for more alarms

### 5.1 PLC DIAGNOSTIC



This screen is for display purposes only

## 5.2 EVENT SCREENS

This screen is for display purposes only



1. All events will be displayed in chronological order
2. The last event will be at the top of the screen
3. The box in the top left corner will flash "A" when there is an alarm. Touching the "A" will bring you to the alarm screen
4. Pressing "Menu" will bring you to the Main Menu Screen
5. Pressing "Sys Ovr" will bring you to the System Overview Screen
6. Touching "Pump Ovr" will bring you to the Pump Overview Screen
7. Pressing "Alarm" will bring you to the Alarm Screen
8. Pressing the "Up" and "Down" arrows will navigate through all the events
9. The last 200 events are displayed with the time and date they became active
10. For example pressing "EOC Xmtr Failed" brings up the EOC DP Transmitter Failure screen (below)
11. All alarms generate an event

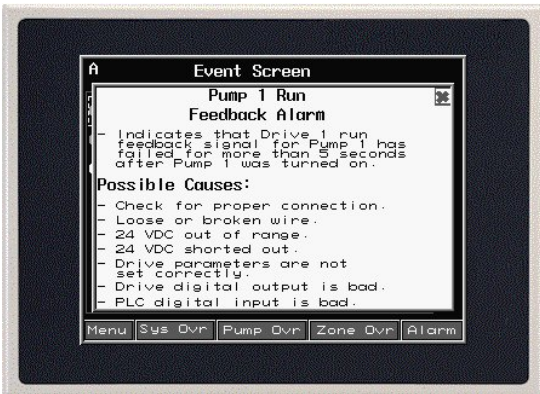
### 5.2.1 End of Curve DP Sensor Failure Event



### 5.2.2 Pump 1 Alarm Event



## 5.2.3 Pump 1 Run Feedback Alarm Event

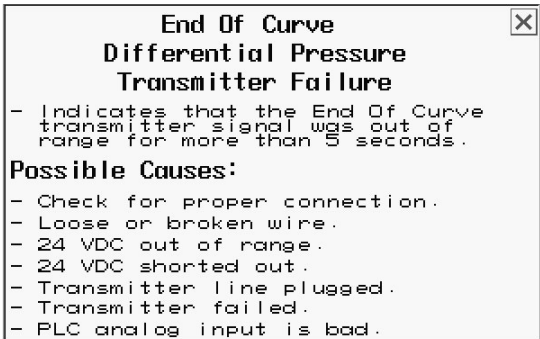


## 5.2.4 Zone 2 DP Transmitter Failure Event

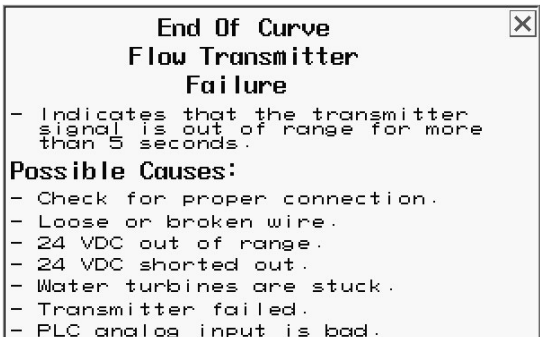


## 5.3 ALARM HELP SCREENS

### 5.3.1 End of Curve DP Sensor Failure



### 5.3.2 End of Curve Flow Sensor Failure





## 5.3.3 All Zones DP Sensor Failure

**All Zones** ✕

**Differential Pressure  
Transmitter Failure**

- Indicates that the transmitter signal for all the zones are out of range for more than 5 seconds.

**Possible Causes:**

- Check for proper connection.
- Loose or broken wire.
- 24 VDC out of range.
- 24 VDC shorted out.
- Transmitters line plugged.
- All transmitters failed.
- PLC analog inputs are bad.

## 5.3.4 Zone 1 DP Sensor Failure

**Zone 1** ✕

**Differential Pressure  
Transmitter Failure**

- Indicates that the transmitter signal for Zone 1 was out of range for more than 5 seconds.

**Possible Causes:**

- Check for proper connection.
- Loose or broken wire.
- 24 VDC out of range.
- 24 VDC shorted out.
- Transmitter line plugged.
- Transmitter failed.
- PLC analog input is bad.

## 5.3.5 Pump 1 Alarm

**Pump 1 Alarm** ✕

- Pump 1 has failed for more than 5 seconds.

**Possible Causes:**

- Lost of run feedback signal.
- Drive fault signal.
- Lost of flow signal.
- High motor temperature.

## 5.3.6 Pump 1 Run Feedback Alarm

**Pump 1 Run  
Feedback Alarm** ✕

- Indicates that Drive 1 run feedback signal for Pump 1 has failed for more than 5 seconds after Pump 1 was turned on.

**Possible Causes:**

- Check for proper connection.
- Loose or broken wire.
- 24 VDC out of range.
- 24 VDC shorted out.
- Drive parameters are not set correctly.
- Drive digital output is bad.
- PLC digital input is bad.

## 5.3.7 Drive 1 Fault Alarm

**Drive 1 Fault Alarm** ✕

- Indicates that Drive 1 for the corresponding Pump 1 has failed due to the detection of a fault by the drive internal diagnostic.
- Use the drive's local display panel to find out the fault code (number).

**Possible Causes:**

- Use the drive instruction manual to find the description, cause and possible remedy to the fault number displayed.
- Reset the fault with the drive's local display panel.

## 5.3.8 Pump 1 No Flow Alarm

**Pump 1 No Flow Alarm** ✕

- The differential pressure switch for Pump 1 indicated no flow more than 30 seconds after Pump 1 was turned on.

**Possible Causes:**

- Check for proper connection.
- Loose or broken wire.
- 24 VAC out of range or shorted.
- DP switch not set properly.
- DP switch failed.
- PLC digital input is bad.
- Impeller frozen, loose or blocked.

## 5.3.9 Motor 1 High Temperature Alarm

**Motor 1 High Temperature Alarm** ✕

- Indicates that Motor 1 for the corresponding Pump 1 has reached it's high temperature limit for more than 5 seconds.
- The alarm will clear when the temperature goes down 10 degrees below the high alarm limit.

**Possible Causes:**

- Worn or bad bearings.
- Locked rotor.
- Check that the high alarm limit is set properly.

## 5.3.10 Motor 1 Temperature Sensor Failure

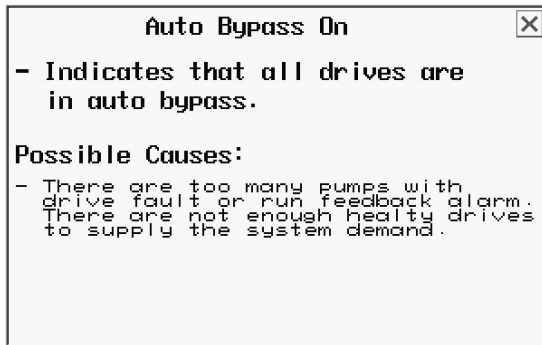
**Motor 1 Temperature Transmitter Failure** ✕

- Indicates that the temperature transmitter signal for Motor 1 is out of range for more than 5 seconds.

**Possible Causes:**

- Loose or broken wire.
- Temperature element failed.
- PLC analog input is bad.
- Check for proper connection.

## 5.3.11 Auto Bypass ON



## 6. SYSTEM SETUP SCREENS

### 6.1 LOGIN TO SETUP SCREENS



This screen is to log in to setup screens

1. In order to access the setup screens you need to log in using the four-digit setup screen password that you were given
2. From the main menu, press on “Log In” and enter the password
3. After entering the password, press on “Setup Screen” Button to start the process of setting up the controller with the parameters required

### 6.2 SETUP SCREEN



This screen will lead you through the entire setup procedure required by the operator

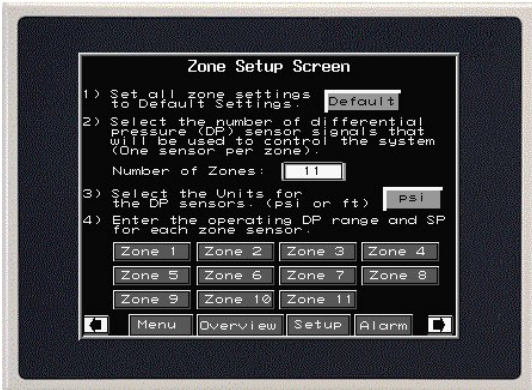
1. Number of zones, zone DP set-point and range as well as units of measure will be setup using the “Zone Setup Screen”
2. Duty and Standby pumps setup is done in “Pump Setup Screen”
3. End-of curve parameters (DP or Flow) will be setup in the “System Setup and Design Point” screen
4. Speed control setup is done in “Speed Control Setup” screen
5. Press “Start Setup” to go to “Zone Setup Screen”
6. Press “Default Settings” to use factory settings for all system setup parameters (below)

### 6.3 SYSTEM SETTINGS



This screen will restore system default settings by pressing “Yes”

## 6.4 ZONE SETUP SCREEN



This is the screen where you setup the 1st set of parameters in the controller

1. Enter the number of zones in the field next to “Number of Zones” (described below)
2. Select units of measure of the zone DP sensor (ft or psi)
3. Press the “Zone #” button to setup DP set-point, DP range, zone legend and to activate the zone
4. Press “Default” to use factory settings for all zone setup parameters (below)

### 6.4.1 Number of Zones Data



This is the screen where you enter total number of zones in system

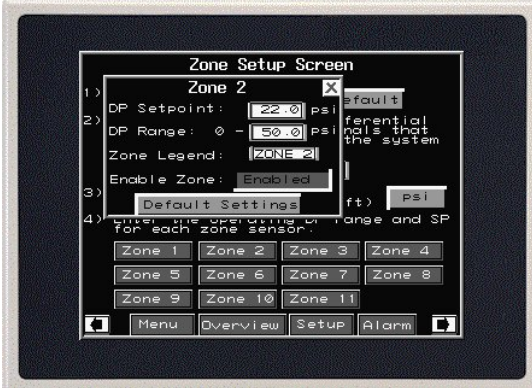
1. Press the field next to “Number of Zones”
2. A window with numeric keypad will popup
3. Enter total number of zones in system and hit enter

### 6.4.2 All Zones Settings as Default



This screen will restore all zones default settings by pressing “Yes”

### 6.4.3 Zone 2 (Typical)



This is the screen that you see when you press “Zone 2” from the “Zone Setup Screen”

1. Press on the field next to DP set-point to enter the zone set-point
2. Similarly enter the zone DP range
3. Press on the “Zone Legend” field to enter the name of the zone (described below)
4. Press “Enable” to include this zone in the scan/compare program for control



5. Press “Default Settings” to use factory settings for the zone setup parameters (below)
6. Press X to close and return to “Zone Setup Screen”
7. Press the right arrow to move on to “Pump Setup Screen”

## 6.4.4 Zone 2 Data Settings



This is the screen where you enter Zone 2 data

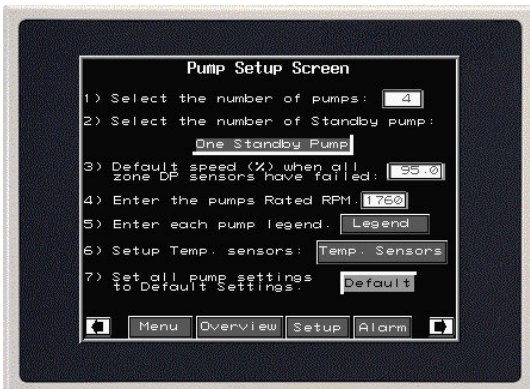
1. Pressing on the field next to “Zone Legend” will popup a window with alpha-numeric keypad
2. Enter the zone legend and press enter

## 6.4.5 Zone 2 Settings as Default



This screen will restore zone 2 default settings by pressing “Yes”

## 6.5 PUMP SETUP SCREEN

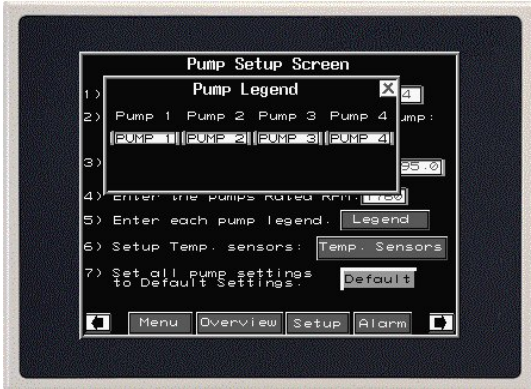


This is the screen where you setup the 2nd set of parameters in the controller

1. Enter the number of pumps in the field next to “Number of Pumps”
2. Select if there is a standby pump or not by pressing the button which toggles between “No Standby Pump” and “One Standby Pump”
3. Enter the default speed in % that the pump will run at when all DP sensors fail
4. Enter the absolute value of pump rated speed in RPM
5. Press on the “Legend” field to enter the pump tag name (shown below)
6. Press on the “Disabled” button to toggle between disabled and enabled Auto Bypass
7. Pressing the “Temp. Sensors” button will bring a popup window to set the motor temperature sensor option
8. Press “Default” to use factory settings for the pump setup parameters (below)
9. Press the right arrow to move on to “System Setup and Design Point”



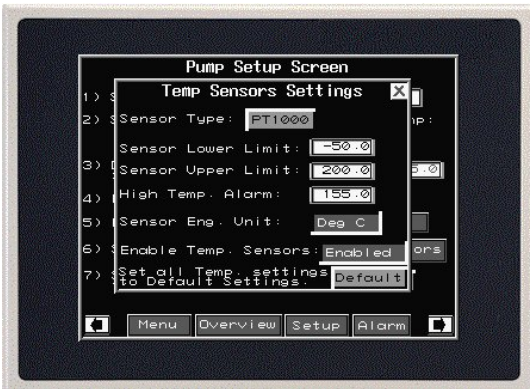
## 6.5.1 Pump Legend



This screen will allow you to tag all pumps

1. Pressing on the “Legend” button will bring up the pump legend window
2. Pressing on pump 1 will bring up an alpha-numeric keypad
3. Enter the pump tag and press enter

## 6.5.2 Temperature Sensors Settings



This screen will allow you to setup the temperature sensors parameters

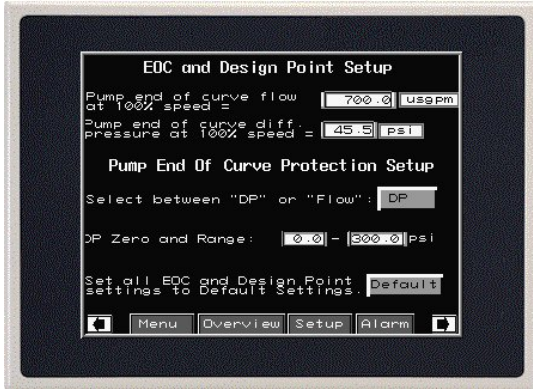
1. The “Temp Sensors Settings” popup screen will set the temperature sensors for all motors (pumps) with the same settings
2. The “Sensor Type” can be toggled between “PT1000” and “NTC”.
3. You can enter the “Sensor Lower Limit” by pressing the rectangle beside the description. The default value is 0
4. You can enter the “Sensor Upper Limit” by pressing the rectangle beside the description. The default value is 0
5. You can enter the “High Temp. Alarm” by pressing the rectangle beside the description. The default value is 0
6. The “Sensor Eng. Unit” can be toggled between “Deg F” and “Deg C”. The default is Deg F
7. You can enable or disable all temperature sensors by pressing the toggle switch beside the “Enable Temp. Sensors”
8. Pressing the “X” will close the popup window

## 6.5.3 All Pumps Settings as Default



This screen will restore all pumps default settings by pressing “Yes”

## 6.6 SYSTEM SETUP and DESIGN POINT



This is the screen where you setup the 3rd set of parameters in the controller

1. Enter the design pump end-of-curve flow in either USgpm or L/s
2. Enter the value of DP corresponding to the design pump end-of-curve flow
3. Select if run-out protection by DP or flow sensor by pressing the button which toggles between "DP" and "Flow"
4. Enter DP or Flow sensor range
5. Press "Default" to use factory settings for end of curve protection parameters
6. Press the right arrow to move on to "Speed Control Setup" screen

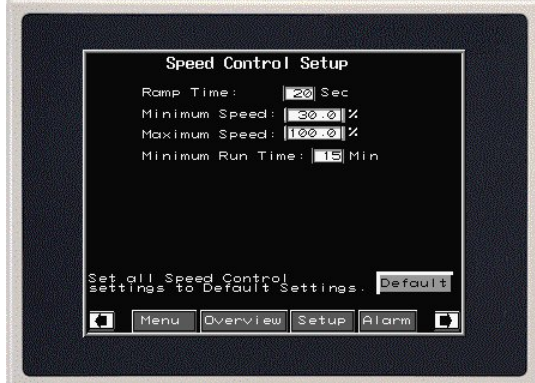
### 6.6.1 End Of Curve Settings



This screen will restore EOC default settings

1. Pressing "Yes" will set the end of curve settings to the "Default Settings"
2. Pressing "No" or "X" will close the popup window

### 6.6.2 Speed Control Setup



This is the screen where you setup the 4th set of parameters in the controller

1. Enter the Ramp Time in seconds (minimum period of time the speed ramps from 0% to 100% and vice versa and default is 180 sec)
2. Enter the Minimum and Maximum speed in %
3. Enter the Minimum Run Time in minutes (minimum period of time the pump runs before it is shut down and default is 15 min)
4. Press "Default" button to set the speed parameters to default settings (below)

### 6.6.3 Speed Control Settings



This screen will restore speed control default settings

1. Pressing "Yes" will set the speed settings to the "Default Settings"
2. Pressing "No" or "X" will close the popup window



## 6.7 Clock Setup Screen



This screen will display PLC and Touchscreen time and date

1. Pressing “Set Time and Date” will bring the “Clock Settings” popup window (described below)
2. You can set the “Hour of operation before switching lead pump” by pressing the field below the description
3. The default is 168 Hrs (described below)

### 6.7.1 Clock Settings



This screen will enable you to setup the clock settings using the “Copy” button

1. From the Clock Setup Screen press “Set Time and Date”
2. You enter the time and date you want to set the PLC clock at by pressing the fields below “HH : MM” and “MM/DD/YY”
3. Pressing the button “SET” will set the PLC time and date according to the value entered
4. Pressing the “X” will close the popup window
5. From the Clock Setup Screen press “Set Time and Date”
6. Pressing the button “Copy” will bring up the PLC time and date according to the value entered previously
7. Do the changes to the “HH : MM” and “MM/DD/YY”
8. Pressing the button “SET” will set the PLC time and date according to the value entered
9. Pressing the “X” will close the popup window

### 6.7.3 Auto Alternation Hours of Operation



This screen shows you the numeric popup window when you press the “HH : MM” and “MM/DD/YY” fields

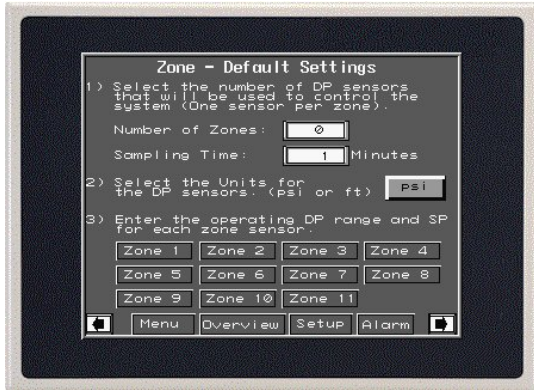
## 7.0 DEFAULT SETTINGS



This screen is to log in to default settings screen

1. In order to access the default settings screens you need to log in using the four-digit setup screen password that you were given
2. From the main menu, press on “Log In” and enter the password
3. After entering the password, press on “Default Settings” Button to start the process of setting up the controller with the default parameters

## 7.1 Zone – Default Settings



This screen will enable you to set the zone default settings

1. You can enter the “Number of Zones” by pressing the field beside the description. The default value is 0
2. The IPS 5001 has a limit of 5 zones, the IPS 5002 has a limit of 8 zones and the IPS 5003 has a limit of 11 zones
3. The Zone Setup Screen for the IPS 5001, 5002 and 5003 shows only 5, 8 and 11 zones respectively
4. You can select engineering units by pressing the toggle button “psi/ft”. The default is “psi”
5. Pressing the appropriate zone button will bring a Zone Pop-up Screen to set the respective zone settings
6. Pressing “Menu” will bring you to the Main Menu Screen
7. Pressing “Overview” will bring you to the System Overview Screen
8. Pressing “Setup” will bring you to the Main Setup Screen
9. Pressing “Alarm” will bring you to the Alarm Screen
10. Pressing the right and left arrows will let you navigate between the Default Settings screens

### 7.1.1 Zone 1 – Default Settings



This screen will enable you to set zone 1 default settings

1. Pressing the “X” at the top right corner will close the zone pup-up screen
2. You can Enable or Disable the zone by pressing the toggle button beside the description. The zone needs to be enabled in order to enter the zone setpoint, range, and legend
3. You can enter the Zone “DP Setpoint” by pressing the field beside the description. The default value is 0
4. You can enter the Zone “DP Range” by pressing the field beside the description. The default value is 0
5. You can enter the “Zone Legend” by pressing the field beside the description. This will bring the following popup window (below)

### 7.1.2 Zone 1 – Default Settings (cont’d)

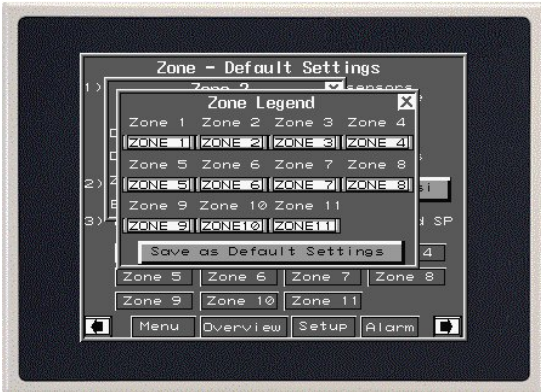


This is the screen where you enter Zone 1 data

1. Pressing on the field next to “Zone Legend” will popup a window with numeric keypad
2. Enter the zone DP setpoint and range and then press enter
3. Similarly enter the zone legend and press enter (shown below)
4. Zone signals can be enabled or disabled by pressing the toggle button next to “Enable Zone”



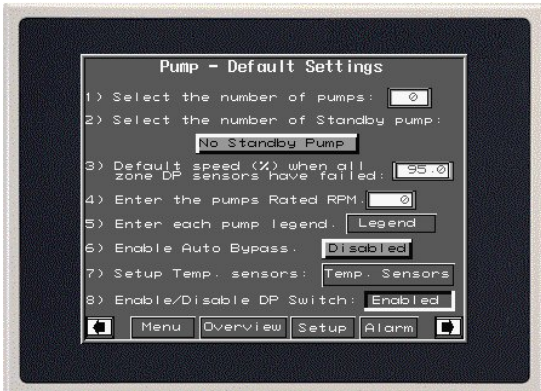
## 7.2.1 Zone Legend



This is the screen where you can enter zone legend

1. The legend can have a maximum of 6 characters. The default is blank
2. Enter the zone legend by pressing the rectangle under the appropriate zone number
3. For the IPS 5001 and 5002 there is only 5 and 8 zone legend respectively
4. Pressing “Save as Default Settings” will save all legends as default legend
5. Pressing the “X” at the top right corner will close the Zone Legend screen

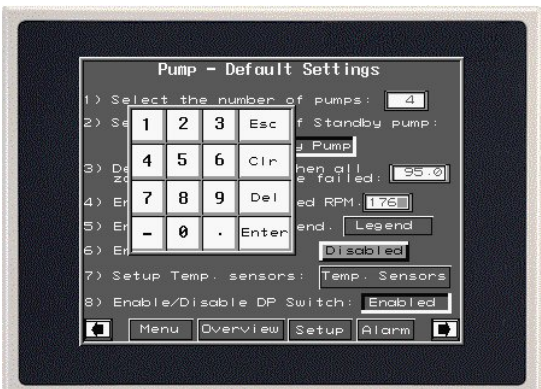
## 7.3 PUMP – DEFAULT SETTINGS



This is the screen where pump default settings are stored

1. You can enter the “Number of Pumps” by pressing the field beside the description. The default value is 0
2. Pressing “No Standby Pump” will toggle between “One” and “No” standby pump. The default is “No Standby Pump”
3. You can enter the “Default Speed” for the event when all DP transmitters have failed by pressing the field beside the description. The default value is 95%
4. You can enter the “Pump rated RPM” by pressing the field beside the description. The default value is 0
5. Pressing “Legend” will call up a popup screen to enter all pump legends (below)
6. Pressing the button beside “Enable Auto Bypass” will toggle between “Disabled” and “Enabled” the auto bypass options. The default is disabled
7. Pressing the “Temp. Sensors” button will bring a popup window to set the motor temperature sensor option (below)
8. Pressing “Menu” will bring you to the Main Menu Screen
9. Pressing “Overview” will bring you to the System Overview Screen
10. Pressing “Setup” will bring you to the Main Setup Screen
11. Pressing “Alarm” will bring you to the Alarm Screen
12. Pressing the right and left arrows will let you navigate between the setup screens

### 7.3.1 Pump Rated RPM

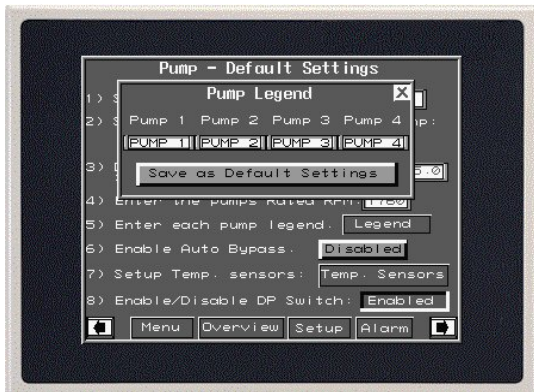


This screen shows how to enter numeric data in the pump default settings screen

Similar to all numeric entered data, a numeric keypad will popup to allow you to enter the pump RPM



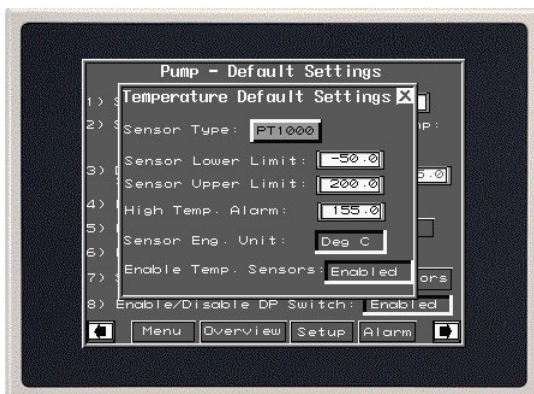
## 7.3.2 Pump Legend



This is the screen where pump default legend settings are stored

1. The legend can have a maximum of 6 characters. The default is blank
2. Enter the pump legend by pressing the field under the appropriate pump number
3. Pressing “Save as Default Settings” will save all legends as default legend
4. Pressing the “X” at the top right corner will close the Pump Legend screen

## 7.4 TEMPERATURE DEFAULT SETTINGS



This is the screen where temperature default settings are stored

1. The “Temperature Default Settings” popup screen will set the temperature sensors for all motors (pumps) with the same settings
2. The “Sensor Type” can be toggled between “PT1000” and “NTC”. The default is PT1000
3. You can enter the “Sensor Lower Limit” by pressing the field beside the description. The default value is 0
4. You can enter the “Sensor Upper Limit” by pressing the field beside the description. The default value is 0
5. You can enter the “High Temp. Alarm” by pressing the field beside the description. The default value is 0
6. The “Sensor Eng. Unit” can be toggled between “Deg F” and “Deg C”. The default is Deg F
7. You can enable or disable all temperature sensors by pressing the toggle switch beside the “Enable Temp. Sensors:”. The default is “Disabled”
8. Pressing the “X” will close the popup window

## 7.5 PUMP END OF CURVE PROTECTION DEFAULT SETTINGS



This is the screen where pump end of curve protection default settings are stored

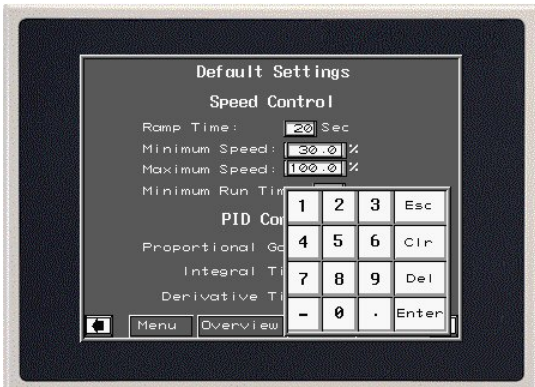
1. If EOC is required, then you should Enable this feature
2. You can enter the “End of Curve Flow” by pressing the field beside the description. The default value is 0
3. Pressing the End of Curve Flow Unit will toggle between the different types of units. The default is “usgpm”
4. You can enter the “End of Curve DP” by pressing the field beside the description. The default value is 0
5. Pressing the End of Curve DP Unit will toggle between the different types of units. The default is “psi”
6. You can select between “DP” or “Flow” for end of curve protection by pressing the field beside the description. The default is “DP”
7. You can enter the End of Curve “Zero” and “Range” by pressing the field beside the description. The default value is 0 for both
8. “DP Zero and Range:” or “Flow Zero and Range” will be displayed depending on the type of “end of curve” selection
9. The appropriate end of curve units will be displayed depending on the system settings

10. Pressing “Menu” will bring you to the Main Menu Screen
11. Pressing “Overview” will bring you to the System Overview Screen
12. Pressing “Setup” will bring you to the Main Setup Screen
13. Pressing “Alarm” will bring you to the Alarm Screen
14. Pressing the right and left arrows will let you navigate between the default settings screens

## 7.6 SPEED CONTROL – DEFAULT SETTINGS



### 7.6.1 Speed Control – Default Settings



**This is the screen where pump speed control default settings are stored**

1. You can enter the Speed “Ramp Time” by pressing the field beside the description. This is the minimum period of time the speed ramp from 0% to 100% or 100% to 0%. The default is 20 sec
2. You can enter the “Minimum Speed” by pressing the field beside the description. The default value is 30%
3. You can enter the “Maximum Speed” by pressing the field beside the description. The default value is 100%
4. You can enter the “Minimum Run Time” by pressing the field beside the description. The default value is 15 minutes
5. You can enter the PID “Proportional Gain” by pressing the field beside the description. The default value is 4000
6. You can enter the PID “Integral Time” by pressing the field beside the description. The default value is 10 second
7. Pressing “Menu” will bring you to the Main Menu Screen
8. Pressing “Overview” will bring you to the System Overview Screen
9. Pressing “Setup” will bring you to the Main Setup Screen
10. Pressing “Alarm” will bring you to the Alarm Screen
11. Pressing the right and left arrows will let you navigate between the setup screens

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