



(205) 533-0571
www.pfixcontrols.com

LSC-521
Lift Station Controller

**Quick Reference
Card Guide**



| Pin # | Description | Pin # | Description |
|-------|-------------------|-------|----------------------------------|
| 1 | Pump 1 Status | 27 | Power Supply Input - Ground |
| 2 | Pump 2 Status | 28 | Power Supply Input - +24VDC |
| 3 | Low Float | 29 | |
| 4 | High Float | 30 | |
| 5 | High-High Float | 31 | |
| 6 | Pump 1 Fault | 32 | |
| 7 | Pump 2 Fault | 33 | |
| 8 | Digital Input 8 | 34 | Programming / Communication Port |
| 9 | | 35 | |
| 10 | Pump 1 Control | 36 | |
| 11 | Pump 2 Control | 37 | |
| 12 | Digital Output 3 | 38 | |
| 13 | Digital Output 4 | 39 | |
| 14 | Digital Output 5 | 40 | |
| 15 | Digital Output 6 | 41 | |
| 16 | Float Alarm Out | 42 | |
| 17 | Flood Alarm Out | 43 | |
| 18 | | 44 | |
| 19 | +24VDC Loop Power | 45 | Remote LCD and keypad Port |
| 20 | Wet Well Level | 46 | |
| 21 | +24VDC Loop Power | 47 | |
| 22 | 4mA-20mA Input 2 | 48 | |
| 23 | +24VDC Loop Power | 49 | Analog Output 1 Ground |
| 24 | 4mA-20mA Input 3 | 50 | Analog Output 1 4mA-20mA |
| 25 | +24VDC Loop Power | 51 | Analog Output 2 Ground |
| 26 | 4mA-20mA Input 4 | 52 | Analog Output 2 4mA-20mA |

Digital Inputs:

Activate by switching to GND.
Internal pull-up to +5VDC

Digital Outputs:

+24VDC @ 250mA
Activates by switching to GND.

Analog Inputs:

4mA – 20mA @ +24VDC

Analog Outputs:

4mA – 20mA @ +24VDC

Physical Equipment:

DIN Rail Mountable
6.125" Wide, 3.375" High, 2.281" Deep

User Interface:

2 Line, 16 Character LCD with back light
4 Button User Interface

PFiX Controls®

Main Screens

Main screen under
pressure control

WET WELL 9.6 FT
MSG>PUMPS OFF

Main screen under
float control

FLOATS F₁/F₂/_/_
MSG>PUMPS OFF

Press **DOWN**

PUMP CONTROL
START? <SELECT>

Press **DOWN**

DATE 01-21-03
TIME 05:26:33

Press **DOWN**

PUMP 1 STARTS &
RUNTIME <SELECT>

Press **DOWN**

PUMP 2 STARTS &
RUNTIME <SELECT>

Press **DOWN**

Return to
Main screen

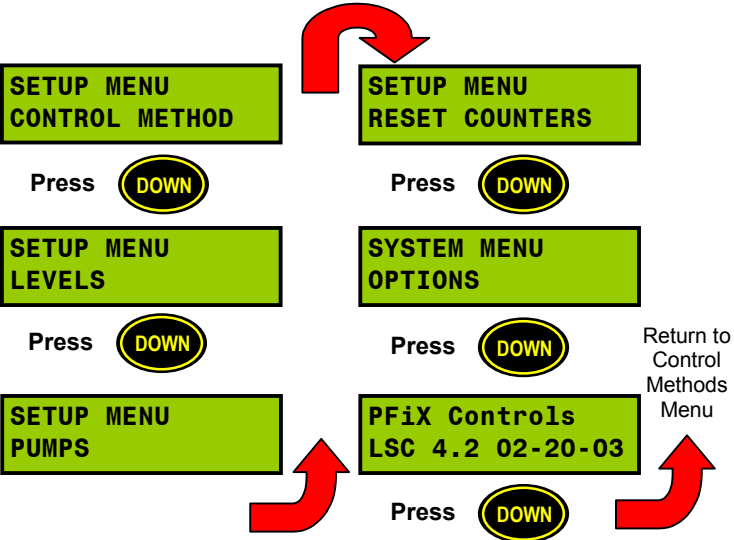
Press "Menu" from the main screen to display setup menu.

The main screen display provides either the wet well level in feet or the active float switches. **F1** represents the Low-Low Float switch, **F2** is Low Float, **F3** is High Float, and **F4** is High-High Float. It also displays any active alarm messages.

The pump control screen allows you to interrupt the automatic operation of the controller by stopping or starting a pump manually. Automatic operation resumes immediately. If you manually started a pump then the pump will run until either the "Low" float switches off or the wet well level reaches the "Pump Off" level. If you manually stopped a pump then the pump will remain off until either the "High" float switches on or the wet well level reaches the "Pump On" level.

The next three screens display the pump starts and runtime for each pump. The starts and runtime values are stored in memory such that they retain their counts even when power is off.

PFIx Controls® Setup Menu



Pressing "Select" at any of these menus displays the corresponding sub-menu.
Press "Menu" to return to the main screen.

The "Control method" menu determines the lift station input sensor, either float switches or pressure transducer. It also provides settings for flood and float alarm delays.

The "Levels" menu, used only with the pressure transducer method, provides selection of the maximum wet well level, the "Pump off" level, and the "Pump on" level.

The "Pumps" menu provides selection of the number of pumps, pump alternation, "Pump off" delay, "Pump on" delay, and "Pump fail" delay.

The "Reset Counters" menu allows the resetting of individual pump's starts and runtime. **Use caution: this zeros the pump starts and pump runtime.**

The "Options" menu allows setting of the "Back light off" delay.

The "PFIx Controls" screen simply displays the software version and date.

**CONTROL METHOD
PRESSURE**

Press 

**FLOOD ALARM
DELAY 5 SECS**

Press 

**FLOAT ALARM
DELAY 15 SECS**

Press 

Return to
Control
Methods
Menu



Press "Select" at any of these menus to activate data-entry mode.
Press "Menu" to return to the control method menu.

The "Control method" menu determines the lift station input sensor, either float switches or a pressure transmitter. When using floats, digital inputs one through four provide the physical connections to Low-Low, Low, High, and High-High float switches. When using a pressure transmitter, analog input one provides the physical connection to a submersible pressure transducer or a pressure transducer connected to a bubbler tube pressurization system. The "Levels" menu provides selection of the "Lead on", "Lag on", and "Pump off" levels. Also in a pressure system, digital inputs one and four provide the physical connections to Low-Low and High-High float switches.

The "Flood alarm" menu allows the setting of a delay, in seconds, between the time the "High-High" float switch activates and the controller sets the "Flood alarm" digital output, (i.e. Digital Output 8).

The "Float alarm" menu allows the setting of a delay, in seconds, between the time a float switch appears to be working incorrectly and the time the controller sets the "Float alarm" digital output, (i.e. Digital Output 7).

PFiX Controls®

Levels Menu

**MAX. WET WELL
LEVEL 40 FT**

Press **DOWN**

**PUMP OFF LEVEL
2.0 FT**

Press **DOWN**

**LEAD ON LEVEL
10.0 FT**

Press **DOWN**

**LAG ON LEVEL
20.0 FT**

Press **DOWN**

**HIGH WELL LEVEL
25.0 FT**

Press **DOWN**

Return to
Maximum
Wet Well
Menu

Press "Select" at any of these menus to activate data-entry mode.
Press "Menu" to return to the levels menu.

The "Max. wet well" menu allows setting of the maximum depth of the wet well. When scaling the pressure transmitter's reading, this value provides the upper range limit. In other words, the maximum pressure transmitter's reading would indicate forty feet. Ignore this setting when using float switches.

The "Pump off level" menu allows setting the wet well level at which the running pumps should switch off. This value is scaled to the maximum wet well level.

The "Lead on level" menu allows setting the wet well level at which the lead pump should be switched on. This value is scaled to the maximum wet well level.

The "Lag on level" menu allows setting the wet well level at which the lag pump should be switched on. This value is scaled to the maximum wet well level.

PFIX Controls®

Pumps Menu

PUMP OFF DELAY
10 SECS

Press **DOWN**

LEAD ON DELAY
10 SECS

Press **DOWN**

LAG ON DELAY
10 SECS

Press **DOWN**

PUMP FAIL DELAY
10 SECS

Press **DOWN**

Return to
Number of
Pumps
Menu

Press "Select" at any of these menus to activate data-entry mode.
Press "Menu" to return to the pumps menu.

The "Pump off delay" menu setting delays the pump being switched off after pump-off determination.

The "Lead on delay" menu setting delays the pump being switched on after pump-on determination.

The "Lag on delay" menu setting delays the pump being switched on after pump-on determination.

The "Pump fail delay" setting determines a pump failure. When a pump switches on, the wet well level should begin to drop shortly after pump-on determine.

PFIx Controls®

Reset Counters Menu

RESETS STARTS &
RUNTIME TO ZERO

Press 

RESET PUMP 1
COUNTERS NO

Press 

RESET PUMP 2
COUNTERS NO

Press 

Return to
Reset
Counters
Menu



Press "Select" at any of these menus to activate data-entry mode.
Press "Menu" to return to the reset counters menu.

The "Reset Counters" menu should not be used if you wish to retain your pump's starts and runtimes.

Use with caution!

Using these menus will set the pump's starts to 0 and the pump's runtime to 0.0.

To use these menus, press "Select" to activate data-entry mode. Press the "Up" or "Down" keys to change from "No" to "Yes". Press "Select". When the "Yes" changes back to "No" the pump's starts and runtime have been reset to zero.

**BACK LIGHT OFF
DELAY 30 SECS**

Press **DOWN**

**SET REAL-TIME
CLOCK MONTH> 2**

Press **DOWN**

**SET REAL-TIME
CLOCK DAY> 12**

Press **DOWN**

**SET REAL-TIME
CLOCK YEAR> 3**

Press **DOWN**

**SET RTC
DAY-OF-WEEK> 4**

Press **DOWN**

**SET REAL-TIME
CLOCK HOUR> 16**

Press **DOWN**

**SET REAL-TIME
CLOCK MINUTE> 32**

Press **DOWN**

**SET REAL-TIME
CLOCK SECOND> 0**

Press **DOWN**

**SET LOG TIME
HOUR> 8**

Press **DOWN**

Press "Select" at any of these menus to activate data-entry mode.
Press "Menu" to return to the back light off menu.

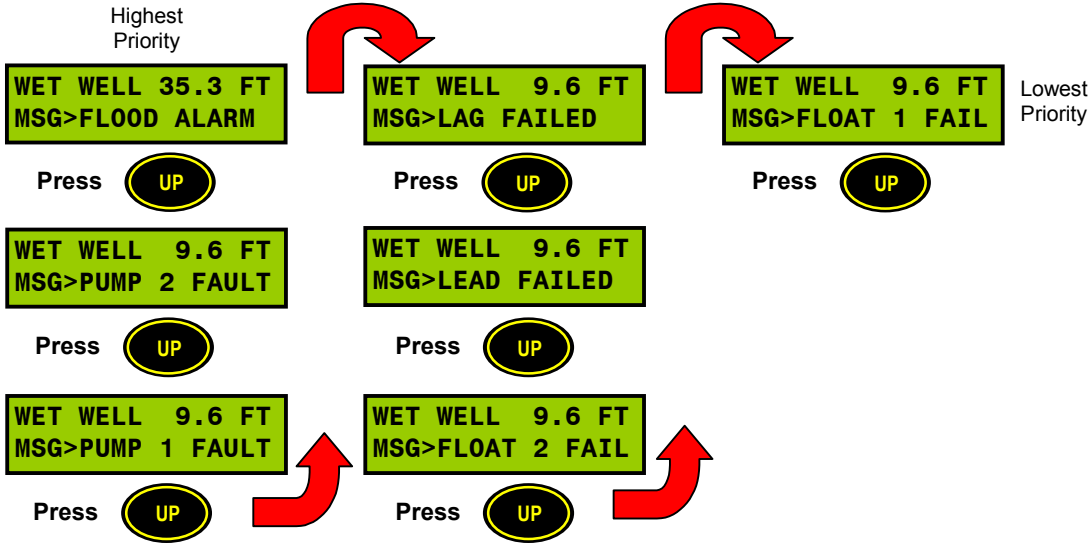
Return to
Back Light Off
Menu

The "Back light off" delay menu provides a setting to delay the LCD back light from switching off after the last key press. The default setting of 30 seconds would switch off the back light 30 seconds after the last key press. A setting larger than 300 prevents the back light from being switched off.

Set the real-time clock by changing the values of the month, day, year, day-of-week, hour, minute, and then second.

The log time determines the hour of the day when pump starts and runtimes will be saved.

PFiX Controls® Alarm Messages



Alarm notification provided by message area on second line of main display screen. Alarms listed on this page are shown by priority, highest to lowest. Press the <UP> key to acknowledge alarms. Acknowledging alarms clears the display and digital output. Lower priority alarms will display after acknowledging higher priority alarms. Alarms will not re-trigger until alarm condition returns to normal.

PUMP OFF LEVEL
2.0 FT

Press



PUMP OFF LEVEL
00**2**.0 FT

Press



PUMP OFF LEVEL
00**2**.0 FT

Press



PUMP OFF LEVEL
00**2**.0 FT

Press



PUMP OFF LEVEL
00**3**.0 FT

Press



PUMP OFF LEVEL
00**4**.0 FT

Press



PUMP OFF LEVEL
004.**0** FT

Press



PUMP OFF LEVEL
4.0 FT

Press



Next menu item

Press



Up one
menu level

Press "Select" key to activate data-entry mode. The black cursor block appears indicating the data entry mode. Edit numeric values one digit at a time, from highest to lowest. Pressing the "Up" and "Down" key changes a numeric digit by one respectively. Press "Select" to accept the entry and move to the next digit. To skip a digit, press "Select". Pressing "Select" at the last digit, accepts the entire number as the new setting for the menu item.

Pressing "Menu" key during data entry, (i.e. Black Cursor Block appears), cancels the changes made and returns the controller to the non-data entry mode, (i.e. Black Cursor Block disappears).



**ALTERNATE PUMPS?
YES**

Press

**ALTERNATE PUMPS?
YES**

Press

**ALTERNATE PUMPS?
NO**

Press

**ALTERNATE PUMPS?
NO**

Press



Next menu item

Press

Up one
menu level

Press "Select" key to activate data-entry mode. The black cursor block appears indicating the data entry mode. Edit selection values by alternating between the two choices. Pressing the "Up" or "Down" key alternates between the choices. Pressing "Select" accepts the entire selection as the new setting for the menu item.

Pressing "Menu" key during data entry, (i.e. Black Cursor Block appears), cancels the changes made and returns the controller to the non-data entry mode, (i.e. Black Cursor Block disappears).