

## Introduction

The duplex demand dose Smart Panel™ is a smart relay operated control panel for water and wastewater applications. The Smart Panel provides information on pump cycles, pump run time and alarm cycles. This panel can be operated by float switches or any switch with any dry contact type level or pressure switch.

## Safety Guidelines



1. DO NOT USE WITH FLAMMABLE OR EXPLOSIVE FLUIDS SUCH AS GASOLINE, FUEL OIL, KEROSENE, ETC. DO NOT USE IN EXPLOSIVE ATMOSPHERES.
2. DO NOT HANDLE WITH WET HANDS OR WHEN STANDING ON A WET OR DAMP SURFACE OR IN WATER.
3. DISCONNECT ALL ELECTRICAL SERVICE BEFORE WORKING ON OR HANDLING.
4. THIS ELECTRICAL PANEL MUST BE INSTALLED AND SERVICED BY A LICENSED ELECTRICIAN IN ACCORDANCE WITH THE NEC NFPA-70, STATE AND LOCAL ELECTRICAL CODES. CABLE CONNECTIONS MUST BE LIQUID TIGHT IN NEMA 4X ENCLOSURES. NEMA 4X ENCLOSURES ENSURE A DEGREE OF PROTECTION AGAINST CORROSION, DUST, RAIN, & SPLASHING WATER FROM ANY ANGLE.
5. TO PREVENT ELECTRICAL SHOCK AND EQUIPMENT MALFUNCTION, USE ONLY WITH A PUMP SUPPLIED WITH A GROUNDING CONDUCTOR.

## Installation

### Mounting & Wiring

Note: Conduit sealant must be used to prevent moisture and gasses from entering the panel. If splicing is required use liquid tight junction box and connectors. Do not mount junction box inside sump or basin. Run control switches in separate conduit from pump and line power.

1. Determine a good location for mounting the control panel.
2. Use the mounting devices supplied with the panel to mount the panel in an upright position, high enough so the panel will not be subject to submersion.
3. Determine the number, size, and location of the conduit locations on the enclosure. Note: control switches require separate conduit from power and pump cables.
4. Drill proper size holes for conduit connectors.
5. Attach cable/conduit connectors to enclosure.
6. Identify and label each wire before pulling through conduit/connectors.
7. Pull cables though conduit/connectors.
8. Tighten connectors/apply conduit sealant.
9. Make connections per panel schematic. Ensure incoming pump and control voltages match that of the panel and pump motors.
10. Power up the panel. After making final adjustments, ensure the panel is operating properly.

# Smart Panel™

## Duplex Demand Dose

Operation, Maintenance & Installation Manual



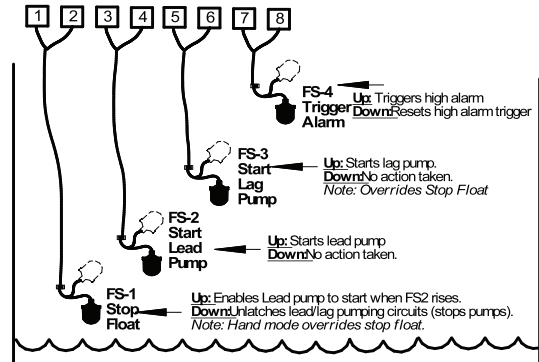
### Sequence of Operation

#### Hand Mode:

When a HOA switch is placed in “Hand” mode the corresponding pump will be called to run regardless of conditions.

#### Auto Mode:

When the HOA switches are placed into “auto” mode the float switches control when the pump(s) will be called to run and stop. See diagram below. The lead pump will alternate after each run cycle. When the lead pump has failed or is taken out of “Auto” mode the lag pump will take over the lead pumps duty.



### Alarm Conditions

#### High Level Alarm:

The alarm will trigger if the high alarm float, FS-4, is in the raised position. The alarm will reset automatically when the float drops. The alarm buzzer may be silenced by toggling the alarm switch to the “silence” position. The alarm may also be tested by toggling the same switch to the “test” position.

### Controller Display

The controller has 2 display screens. The main display shows pump on/off condition and how long the pump has been on/off during a run cycle. This screen also displays float up/down positions. The history display screen shows pump run time total and run count total (non-resettable). To move between the screens press the 1 or 4 buttons.

**Main Display**

- Program Number: Pgm=01.0003.0
- Floats Up Display: Floats Up = 12
- Pump Off Display: Pump#1 Off
- Pump Running Display: Pump#2 On= 00:00:09
- Hours:Minutes:Seconds: 1 4

Press 1 to move to Alarm History. Press 4 to move to Pump History.

**Pump History Display**

- Hours: Minutes: Seconds: 0-32500:59:59
- Run Time Totalizer: 0-32500:59:59
- Run Count Totalizer: 0-32500
- Run Count Totalizer: P1 Run Cnt= 000000, P2 Run Cnt= 000000

Press 1 or 4 to move between screens.

**Alarm History Display**

- Alarm Count Totalizer: 0-32500
- Alarm Count: Alarm Count= 00000
- Note: Float or test switch must be on for 5 seconds for additional count.