ALDERON™ Industries
Leading Edge Control Products

Introduction

Product Overview

The Check It™ Three Phase Simplex control panel is designed to operate a single sewage pump in demand dose applications. It supports 208/230/460 VAC or 230/460/575 VAC pumps (depending on the model) within specified FLA ranges and has a Type 4X (indoor/outdoor) enclosure.

The panel offers up to four float inputs: low level alarm, stop level, start level, and high alarm or high alarm/start level. The pump starts when the liquid level rises and activates the start level switch, and runs until the pump stop switch is deactivated, ending the cycle. If the low level float deactivates, a low level alarm will be triggered and the pump will turn off. The high level float will trigger a high level alarm when activated.

Product Highlights

Below is a list of highlighted features of the Check It™ Three Phase Simplex system. For further details on each feature, please see the rest of this document.

Power Inputs

- 208/230/460 VAC or 230/460/575 VAC Pump Power Input
  - Option Code 460 for 208/230/460 VAC
  - Option code 575 for 230/460/575 VAC

Sensor Inputs

- Four Float Inputs
  - Low Level, Stop, Lead, and Alarm
- Seal Fail Sensor Input (Optional)
  - With Sensitivity Adjustment Between 10K and 100K

User Inputs

- Test/Silence Switch
- Test/Config Switch (For Changing Field Settings)
- Hand-Off-Auto Control

Outputs

- Pump Contactor With Specified FLA Ranges

- Pump Contactor With Specified FLA Ranges
- One Auxiliary Dry Contact Output

Indications

- Red/Green Beacon for System Normal, Pump Run, and Alarm Indication
- Indicator LEDs for Each Sensor Input
- Pump Run Indicator LED

Field Configurations

- Input Error Detection
- Automatic Alarm Reset
- High Float Redundant Start Enable
- Seal Fail Pump Stop Enable
- Seal Fail Buzzer Enable
- Green System Normal Beacon Enable

Before Installation

Before proceeding with the installation or operation of the control panel read all instructions thoroughly, as well as comply with all Federal, State and Local Codes, Regulations and Practices. The control panel must be installed by qualified personnel familiar with all applicable local electrical and mechanical codes. Refer to the National Electrical Code (NFPA 70). Failure to properly install and test this product can result in personal injury or equipment malfunction. All conduit connected to the panel must be sealed with conduit sealant to prevent moisture or gases from entering the panel. NEMA 1 enclosures are for indoor use only while NEMA 4X panel enclosures may be used indoor or outdoor. Refer to panel model name plate on inside of door for enclosure rating. Note: If options are ordered that affect the number of floats, refer to the panel schematic for complete information.

Safety Guidelines

1. DO NOT USE WITH FLAMMABLE OR EXPLOSIVE FLUIDS SUCH AS GASOLINE, FUEL OIL, KEROSENE, ETC. DO NOT USE IN EXPLOSIVE ATMOSPHERES. CONTROL PANEL SHOULD ONLY BE USED IN WATER AND WASTEWATER APPLICATIONS THAT ARE NOT RATED AS A HAZARDOUS LOCATION.
2. DO NOT WORK ON THE CONTROL PANEL WITH LIVE VOLTAGE APPLIED TO THE CONTROL PANEL WITH WET HANDS OR WHEN STANDING ON A WET SURFACE.
3. DISCONNECT ALL ELECTRICAL SERVICE BEFORE WORKING ON OR HANDLING THE CONTROL PANEL
4. INCOMING VOLTAGE MUST MATCH THE CONTROL PANEL VOLTAGE. REFER TO THE PANEL SCHEMATIC FOR COMPLETE INFORMATION.

Description of Product Interface

The following sections will describe all of the interface points with the Check It™, including all buttons, indicator outputs, and sensor inputs for the system.

Outside of the Panel

Each Check It™ panel is equipped with a test/silence switch, an Red-Green (RG) indicator LED, and a buzzer. The test/silence switch is used to activate an indicator test routine to verify the beacon, buzzer, and LED indicators are all functioning properly. The Red-Green beacon will by default be illuminated green while the system is normal and monitoring, will blink green while the pump is running, and will blink red when there is an alarm. If both an alarm and a pump run event are happening simultaneously, the beacon will alternate between Red and Green. If the pump is not enabled (set to OFF mode), the beacon will blink a yellow warning to the user.

Inside of the Panel

HOA Switch

The Check It™ features a Hand-Off-Auto (HOA) selector switch. When set all the way up, the pump will enter hand mode and the contactor output from the Check It™ will activate. When in the middle, the pump will be in OFF mode and will not activate during pump starting events. When set all the way down, the pump will be in auto mode and will be turned on during pump start events. Note that if the pump is set to OFF, the RG beacon will blink yellow to warn the user that the system will be unable to activate the pump.

Test/Config Button

The Test/Config button is used to activate the indicator test routine, to clear active alarms, and the modify the system settings. See the "How To Clear an Alarm" section for details on alarm clearing and the "How to View and Change Settings" section for details on configuring the device.

Indicator LEDs

The Check It™ features indicator LEDs for each sensor input as well as an indicator LED for the pump. The F1 through F4 LEDs indicate the state of the float inputs. the S1 LED indicates if the seal fail sensor input is tripped or not. The Pump Run LED indicates whether or not the pump is running. Note that if the Pump Run LED is blinking, that means that pump's seal fail sensor has been tripped.

Auxiliary Dry Contact

The Check It™ features a single auxiliary dry contact alarm output with both normally open and normally closed connections. This dry contact output will activate during any alarm condition. Additionally, the contact will be active when the product loses power, allowing for power loss detection and alarming when connected to building automation systems.

Sensor Connections

Float Sensors

The F1 through F4 inputs are designed for standard signal level gold contact floats. They are powered by an isolated 3.3 Volt low power and touch safe power source generated by the Check It™ circuit board.

Seal Fail Sensors

The S1 input is a water detecting probe circuit designed for use with stainless steel pump seal fail probes. It is powered by an isolated 12 Volt alternating, low power and touch safe power source generated by the Check It™ circuit board. Next to the seal fail sensor input, there is a "SEAL SENSITIVITY" adjustment potentiometer. This can be used to adjust the trip point of the seal fail probe between 10 and 100 Kilo-Ohms of equivalent resistance through water. 100 K is the most sensitive setting, and 10 K is the least sensitive.

How To Clear an Alarm

If automatic alarm reset is disabled, the user must manually clear all alarm events. To do this, activate and hold the Test/Silence switch on the side of the panel **or** the Test/Config button on the product chassis for 5 seconds. This will reset all active alarms. Note that if the alarm immediately re-activates and the buzzer activates again, this means that the alarm condition is still present and the system cannot clear the alarm. If this happens, check for the source of the alarm.

Settings

The Check It™ panel has several settings that the user can use to customize the panel for the application. This section will describe how to change the settings and provide a list of the available settings.

How to View and Change Settings

Press and hold the test/configure pushbutton on the Check It™ chassis to begin the setting viewing and changing routine. The system will immediately begin a test blinking pattern of all indicator outputs. After holding for 5 seconds, the setting viewing and changing routine will begin. The routine is as follows:

1. **LED Test Pattern**; Press and hold the Test/Config button.
    - The LED indicator outputs, buzzer, and beacon will all begin blinking in a test pattern.
2. **View Settings**; Hold the Test/Config button for 5 seconds.
    - The test blinking pattern will stop and the indicator LEDs will display the current system settings.
    - If an indicator LED is ON, that means the setting is enabled. Otherwise, the setting is disabled.
    - See the "Available Settings" section for a summary of the configs and which LED they are indicated by.
3. **Toggle Settings**; Hold the Test/Config button for another 5 seconds to change a setting.
    - A fast blinking pattern will begin to move through the indicator LEDs from left to right and then up to the green beacon.
    - This fast blinking pattern indicates which setting is currently selected.
    - To toggle a setting, release the Test/Config button while the desired Setting Indicator LED is blinking.
    - After releasing the Test/Config button, a medium blinking pattern will confirm which setting was toggled, after which the system will display the new system settings followed by a burst of fast blinks before the system returns to normal operation..
4. **Exit Without Saving**; To exit without changing any settings, keep holding the Test/Config button until the fast blinking pattern moves through all of the indicator LEDs and the system returns to the test blinking pattern. The Test/Config button can now be released without changing any settings.

Automatic Low-Alarm Enable

The low alarm input of the Check It™ is disabled by default to remove the need for installing jumpers on panels that do not use it. However, the system will automatically enable this input if it detects a closed float connected to it for at least 30 seconds.

Available Settings

Name	Indicator LED	Factory Default	Description
Input Error Detection	F1 LED	Enabled	Enables input sequence error detection. If the floats activate out of sequence (e.g., the high level float activates before the start float) the system will alarm.
Automatic Alarm Reset	F2 LED	Enabled	Enables automatic alarm resetting. If enabled, the system will automatically stop alarming once the alarm condition is resolved. If disabled, the user must manually clear each alarm by holding the test/silence switch.
High Float Redundant Start Enable	F3 LED	Enabled	Enables redundant pump starting on the high alarm float.
Seal Fail Pump Stop Enable	F4 LED	Disabled	If enabled, this will cause the pump to stop when the seal fail input has been triggered.
Seal Fail Buzzer Enable	S1 LED	Enabled	If enabled, the buzzer will enunciate when the seal fail input is triggered. If disabled, only the beacon will activate.
Green System Normal Beacon Enable	Green Beacon	Enabled	If enabled, the beacon will be illuminated green when the system is normal. If disabled, the green beacon will only activate when one of the pumps are running.