



Department of Environmental Protection

2600 Blair Stone Road ♦ Tallahassee, Florida 32399-2400

DEP Form: 62-761.900(9)

Form Title: Storage Tank Equipment

Registration Form

Effective Date: July 2019

Incorporated in Rule 62-761.850, F.A.C.

Storage Tank System Equipment Registration Form

Fill out completely

General Information

Company Name: Earthsafe Systems, Inc. Contact Name: Bill Edwards
Company Address: 2300 Wisconsin Ave, Ste 317 City, State: Downers Grove, IL Zip: 60515
E-mail: bill.edwards@earthsafe.com Contact Number: 630-842-8689
Product Name: Earthsafe M4 Fuel Tank Fill Station

Model Number(s): C9 and C900 Product Type: AST Overfill Protection and Leak Detection
Rule(s) citation that registration is being requested within Chapter 62-761 (UST), and/or 62-762 (AST),
62-762.501(2)(e)2

F.A.C.: Write a brief description of equipment registration request including product limitations:

C9-C900 Controller for overfill protection of aboveground tanks. Product incorporates high level sensors and leak sensors manufactured by FPI-Rochester Sensors per EQ-817.

Information Checklist (Choose Yes, No, or N/A - Not Applicable):

	Yes	No	N/A
1. Third-party Certification by a Nationally Recognized Testing Laboratory? (Required)	☒	☐	☐
2. Documentation of third-party evaluation that the equipment meets DEP Rules?	☒	☐	☐
3. Documents included about the qualifications of the Nationally Recognized Testing Laboratory?	☒	☐	☐
4. Technical information and drawings included?	☒	☐	☐
5. Installation instructions included?	☒	☐	☐
6. Annual Operability Testing Requirements (Rules 62-761.500, 62-762.501, & 62-762.502 F.A.C.)?	☒	☐	☐
7. Integrity Testing Requirements (Rules 62-761.700, 62-762.701, & 62-762.702, F.A.C.)?	☒	☐	☐
8. Compatible with fuel blends containing >10% ethanol or >20% biodiesel?	☒	☐	☐
9. Has the product been approved or registered in other countries or states? (If so provide list)	☐	☐	☒
10. Any requirements for company-certified installers or trainers?	☒	☐	☐
11. Was this product(s) previously approved or registered by the Department? If yes, EQ- _____	☐	☒	☐
12. Any changes or modifications to the equipment since the last submittal to DEP?	☐	☐	☒

Document Information: Provide supporting documents indicated as "Yes" above including this form via email to Tanknotify@floridadep.gov, or documents can be sent to FDEP, Division of Waste Management, 2600 Blair Stone Road, MS 4560, Tallahassee, FL 32399.

Write a brief description of equipment installation and performance in the U.S.:

Earthsafe Controllers have been used for over 30 years to safely transfer fuel from aboveground storage tanks to generator tanks

Equipment Registration Certification:

To the best of my knowledge and belief, all information submitted on this form is true, accurate and complete.

William Edwards, President

Printed Name and Title

Bill Edwards

Signature (right click to sign)

Digitally signed by Bill Edwards
Date: 2022.10.05 12:29:56 -05'00'

10/05/2022

Date

For Department Use Only:

Date Application Received: _____ Application complete: Yes: ☒ No: ☐

EQ- Date of complete or incomplete letter sent: _____ Date Equipment Requires Renewal:

Storage tank system equipment requires renewal every 5 years in accordance with subsection 62-761.850(2), F.A.C.

Florida Department of Environmental Protection
Storage Tank System Equipment Registration Form
Earthsafe Systems, Inc for C9-C900 Fuel Tank Controller

Supplemental Information

1. C9-C900 Controller Data Sheet
2. C9 / C900 Instruction Manual
3. FPI Rochester EQ-817 High Level and Leak Sensors



Fuel Systems for Critical Power

C9 Master Fuel System Controller

Control and Integrated Fuel System Operations and Data



General Description

The C9 Mater Controller is designed to monitor and control diesel fuel transfer for emergency power applications.

- Generator Tank Level Control
- Duplex Pump Control
- Fuel Filtration / Polishing
- Remote Tank Fill Systems

The new modular wiring system allows for simplified integration of input and output devices:

Inputs: (a) tank level sensors, (b) leak detection sensors, (c) flow sensors, (d) pressure sensors, (e) pump current sensors, (f) filter water sensors, (g) filter differential pressure sensors, (h) valve position sensors.

Outputs: (a) solenoid valves, (b) fuel supply pumps, (c) fuel return pumps, (d) actuated ball valves, (e) actuated butterfly valves.



C9 Master Fuel System Controller

Dimensions	24"H x 24"W x 8"D (600 x 600 x200)
Approval	UL / CE
Power	120-240 VAC / 5A / 50-60 Hz Single or Dual Source
Enclosure	NEMA 4 Color RAL 7035 (Light Gray)
Environmental	-20 to 130F (-30 - 55C) with heater
Communication	BACnet, Modbus, or LON
Other	Isolated Inductive Loads 5 Amp Output Relays (Typ)
Options	50 Hz Power CE Approval Intrinsic Safety Barriers Enclosure Heater
Modes	Base or Combined Applications for: Generator Tank Level Control Duplex Pump Control Fuel Filtration / Polishing Remote Tank Fill Systems

earth[●]safe

Fuel Systems for Critical Power

CentraPlex Model C900

Integrated System Control Module

BACnet, Modbus, Metasys N2, or LON Communications



Application

Diesel Generator Power Systems

The CentraPlex provides an integrated control and monitoring for mission critical fuel systems applications. The unit is flexible to be configured for systems ranging from 1 to 10 generator day tanks. The CentraPlex combines the functions of:

- (a) Duplex Pump Control
- (b) Day Tank Level Control
- (c) Tank Level and Leak Detection
- (d) Fuel Filtration Monitoring / Control

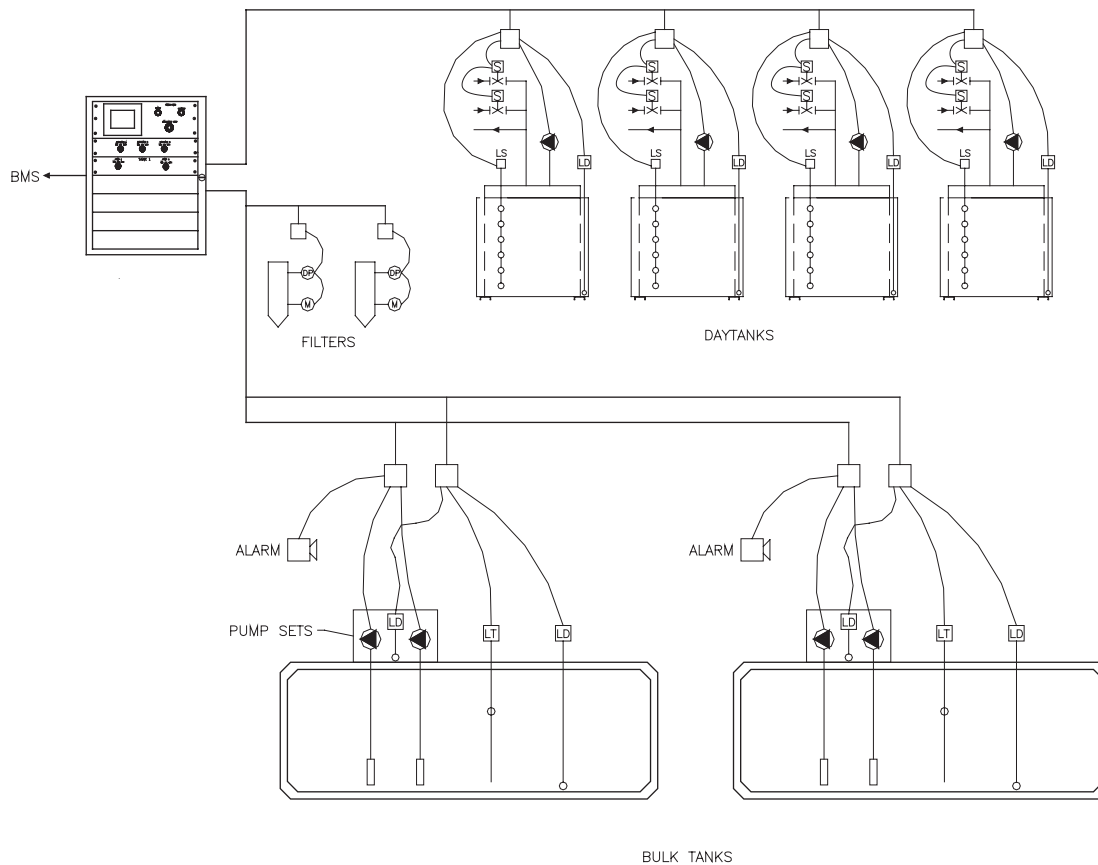
The CentraPlex is also compatible with Earthsafe PowerPlex Control Modules. This allows the integration of other system functions such as heater controls and tank fill systems.

The CentraPlex provides a graphic interface to display all system information, including alarms, for facility personnel. Equipment detail screens are accessed from the main menu screen to provide maintenance information.

The Modbus / BACNet output from the CentraPlex allows for integration into the facility BMS.

Quick Spec

Provide the Earthsafe CentraPlex Integrated System Control Module. The system shall integrate the control and monitoring functions for all day tanks, pump sets, tank level gauging, leak detection, and filtration. The unit shall be based on an AB Industrial PLC and shall have ON-OFF-AUTO selector switches for individual system components. The system shall be provided with all required day tank level sensors, leak sensors, main tank level transmitters, pump flow switches, filter DP switches, and filter water switches. The Control Module shall have a graphic screen for system status information and a Modbus / BACNet output for BMS integration.



Control Specification		
Power	120 VAC / 15 Amp / 60 Hz (220 VAC / 15 Amp / 50 Hz)	
Enclosure	NEMA 4 24 in Wide x 36 in High x 8 in Deep 610mm x 915mm x 205mm Color RAL 7035 Light Gray	
Environmental	32 to 131F (0 to 55 C)	
Monitor	6 in (150mm) Touchscreen	
Data Output	BACnet, Modbus, Metasys N2, or LON	
sApprovals	UL (CE)	
Input (TYPE AND NUMBER)	Level Sensors (5 Point)	4
	Leak Sensors	8
	Level XMTR	2
	Flow Switches	4
	Filter DP Switch	2
	Filter Water Switch	2
	Emergency Stop	2
Outputs (TYPE AND NUMBER)	Day Tank Solenoid Valves	8
Surge Suppression	Pump Motor Starts	8
Rated 5 Amp Max	High Level Alarm	1
	Programmable Relays	4
Alarm Conditions	Day Tank High, Low, Critical Low Levels Main Tank High and Low Levels Leak Detection Pump Flow Failure or Overload Filter High DP or Water	
Options	50 Hz Power CE Approval Ethernet Output Intrinsic Safety Sensors	Dual Power Source Dual PLC Control Enclosure Heater Enclosure Fan
Accessories	Remote Display Day Tank Level Sensors Tank Level Transmitters Tank Leak Sensors	Pump Flow Sensors Filter DP Sensors Filter Water Sensors

Touch Screen User Interface: C900 CentraPlex Module

EARTHSafe SYSTEMS, INC. EMERGENCY POWER FUEL SYSTEM	
→ INFO	
→ TANKS	STATUS NORMAL
→ PUMPS	ALARM
→ GENSETS	ALARM
→ FILTERS	ALARM
→ LEAK	ALARM

Main

GENSET TANK STATUS				
MAIN	GEN TANK # 1	# 2	# 3	# 4
→ TANKS	AUTO MODE	AUTO	NO	NO
→ PUMPS	FILL ACTIVE	ON	OFF	ON
→ GENSETS	NORMAL	YES	NO	NO
→ FILTERS	HIGH	OK	OK	ALM
→ LEAK	LOW	ALM	OK	OK
	CRITICAL	ON	OK	ALM

Gensets

FUEL STORAGE TANK STATUS		
MAIN	TANK 1	TANK 2
→ TANKS	CAPACITY	10,000 GAL
→ PUMPS	GALLONS	1234
→ GENSETS	% FULL VOL	1234
→ FILTERS	STATUS	ACTIVE
→ LEAK	HIGH LEVEL	ALARM
	REORDER	NORMAL
	LOW LEVEL	NORMAL

Tank

FILTER STATUS		
MAIN	FILTER	# 1
→ TANKS	AUTO MODE	AUTO
→ PUMPS	ACTIVE	ON
→ GENSETS	FLOW ALARM	ALM
→ FILTERS	DP ALARM	ALM
→ LEAK	WATER ALARM	ALM

Filters

FUEL PUMP STATUS				
MAIN	PUMP	# 1A	# 1B	# 2A
→ TANKS	AUTO MODE	AUTO	NO	NO
→ PUMPS	STATUS	LEAD	LAG	LEAD
→ GENSETS	ACTIVE	ON	OFF	ON
→ FILTERS	FLOW ALARM	ALM	OK	OK
→ LEAK	OVERLD ALARM	ALM	OK	OK

Pumps

LEAK DETECTION STATUS	
MAIN	NORMAL ☐
→ TANKS	ALARM ☒
→ PUMPS	UST #1 INTER ☐
→ GENSETS	UST #1 SLUMP A ☐
→ FILTERS	UST #1 SLUMP B ☐
→ LEAK	PIPE SLUMP 1 ☐
	DAY TANK #1 ☐
	DAY TANK #2 ☐
	DAY TANK #3 ☐
	DAY TANK #4 ☐

Leak



VERSION: ENGLISH—GLOBAL

Model C9, **C900** Master Control Module

INSTRUCTION MANUAL
EMERGENCY POWER FUEL SYSTEMS

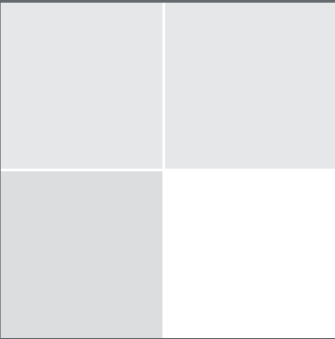
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Updated: October 2019

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Model C9 Series Master Control Module

EMERGENCY POWER FUEL SYSTEMS

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Notice

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Damage Claims

Thoroughly examine all components and units as soon as they are received. If damaged, write a complete and detailed description of the damage on the face of the freight bill. The carriers agent must verify the inspection and sign the description. Immediately notify the delivering carrier of damage or loss. This notification may be given either in person or by telephone. Written confirmation must be mailed within 48 hours. Risk of loss, or damage to merchandise belongs with the buyer. It is the buyers responsibility to file a claim with the carrier involved. Immediately advise Earthsafe of the problem so that we may assist you.

Safety Information

UL Listed. The Earthsafe C9 Control Module is UL listed.

Intended Use. The Earthsafe CentraPlex Control Module is intended for use with diesel fuel systems for emergency power generators. The control module and any connected sensors or devices are intended for operation only within ordinary electrical areas. Use of the module and connected sensors or devices within hazardous electrical areas is prohibited.

Intellectual Property

The equipment and software described herein are the property of Earthsafe Systems, Inc. and are protected by various trademarks and patents.

Model C9 Series Master Control Module

EMERGENCY POWER FUEL SYSTEMS

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Model C9 Series Master Control Module

EMERGENCY POWER FUEL SYSTEMS

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General Description

The C9 Master Multi-Function Control Module is designed to monitor and control diesel fuel transfer for emergency power applications. The C9 Module is customized with operating software to provide required operating functions for over 6 common applications:

- Generator Tank Level Control
- Duplex Pump Control
- Fuel Filtration / Polishing
- Multi-Tank Selection Control
- Remote Tank Fill Systems

The C9 Module receives inputs from operating systems including: (a) tank level sensors, (b) leak detection sensors, (c) flow sensors, (d) pressure sensors, (e) pump current sensors, (f) filter water sensors, (g) filter differential pressure sensors, (h) valve position sensors.

The C9 Module operates output devices for the fuel system including: (a) solenoid valves, (b) fuel supply pumps, (c) fuel return pumps, (d) actuated ball valves, (e) actuated butterfly valves.

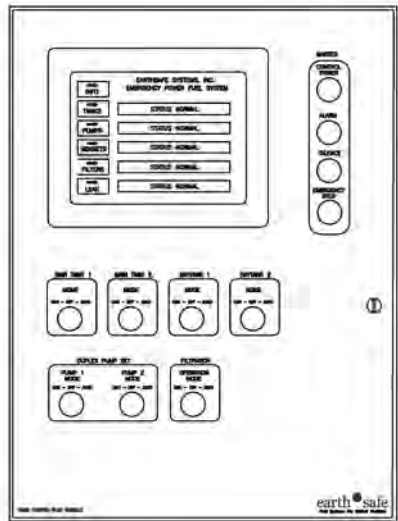
The control module includes MAN.-OFF-AUTO selector switches for the fuel transfer pump / valves. The manual mode allows the pump / valve to be activated for manual operation or testing. In the auto mode the pump / valve are activated by the conditions of the input sensors.

The C9 Module includes the following elements:

1. Programmable Controller
The programmable controller provides the control logic for the system and operates system elements with limited current capabilities.
2. Output Control Relays
The unit includes relays to operate valves, pumps, remote alarms, and to isolate the Controller from these devices.
3. Mode Selector Switches
The module includes dual MAN.-OFF-AUTO mode selector.
4. Display Screen
The module includes a display to communicate the operating status of the unit. Different screens are presented based on the specific operating function of the unit. See the operating section of the manual for additional information.
5. Alarm Horn
The module includes an audible alarm which operates on a auto-shutoff adjustable timer.
6. Emergency Stop
The module includes an emergency stop button which interrupts the function of the output relays to stop pumps and close valves. The emergency stop button is mechanically maintained with a twist to release function.
7. Communications Link
The module includes a communication link to allow operating status data to be transferred to other control and monitoring systems.

The control module is operationally tested at the factory. However additional inspection and testing is required at installation to ensure that the unit has not been adversely affected by shipment.

Model C9
Master Control Module



Module - Features may Vary for Application	
Dimensions	136" H x 24" W x 8" D
Approval	UL
Power	120 VAC / 5 A / 60 Hz Single or Dual Source 24 VDC Control Circuits
Enclosure	NEMA 4 Color RAL 7035 (Light Gray)
Environmental	32 to 131 F (0-55 C) -20 to 130 F with heater
Communication	BACnet, Modbus, LON, Metasys
Processor	AB Micro 800
Other	Isolated Inductive Loads 5 Amp Output Relays (Typ)
Options	50 Hz Power CE Approval Intrinsic Safety Barriers Enclosure Heater
ORDERING INFORMATION	
PART	DESCRIPTION
C900.04	Control Module: 1-4 Functional Units
C900.08	Control Module: 5-8 Functional Units
C900.12	Control Module: 9-12 Functional Units
C900.16	Control Module: 13-16 Functional Units
C900.20	Control Module: 17-20 Functional Units
	Calculate the Functional Elements as follows: + Number of Fuel Transfer Pumps + Number of Generator Day Tanks + Number of Bulk Storage Tanks + Number of Filtration / Polishers + Number of Fill Stations = Total Functional Elements

Model C9 Series Master Control Module

EARTHSAFESYSTEMS, INC. EMERGENCY POWER FUEL SYSTEM	
→ INFO	
→ TANKS	STATUS NORMAL
→ PUMPS	ALARM
→ GENSETS	ALARM
→ FILTERS	ALARM
→ LEAK	ALARM

Main

GENSET TANK STATUS				
MAIN	GEN TANK # 1	# 2	# 3	# 4
→ TANKS	AUTO MODE	AUTO	NO	NO
→ PUMPS	FILL ACTIVE	ON	OFF	OFF
→ GENSETS	NORMAL	YES	NO	NO
→ FILTERS	HIGH	OK	OK	ALM
→ LEAK	LOW	ALM	OK	OK
	CRITICAL	ON	OK	ALM

Gensets

FUEL STORAGE TANK STATUS		
MAIN	TANK 1	TANK 2
→ TANKS	CAPACITY	10,000 GAL
→ PUMPS	GALLONS	1234
→ GENSETS	% FULL VOL	1234
→ FILTERS	STATUS	ACTIVE
→ LEAK	HIGH LEVEL	ALARM
	REORDER	NORMAL
	LOW LEVEL	NORMAL

Tank

FILTER STATUS			
MAIN	FILTER	# 1	# 2
→ TANKS	AUTO MODE	AUTO	NO
→ PUMPS	ACTIVE	ON	OFF
→ GENSETS	FLOW ALARM	ALM	OK
→ FILTERS	DP ALARM	ALM	OK
→ LEAK	WATER ALARM	ALM	OK

Filters

FUEL PUMP STATUS					
MAIN	PUMP	# 1A	# 1B	# 2A	# 2B
→ TANKS	AUTO MODE	AUTO	NO	NO	NO
→ PUMPS	STATUS	LEAD	LAG	LEAD	LAG
→ GENSETS	ACTIVE	ON	OFF	ON	OFF
→ FILTERS	FLOW ALARM	ALM	OK	OK	OK
→ LEAK	OVERLD ALARM	ALM	OK	OK	OK

Pumps

LEAK DETECTION STATUS	
MAIN	NORMAL ☐ ALARM ☒
→ TANKS	UST #1 INTER ☐ UST #2 INTER ☐
→ PUMPS	UST #1 SUMP A ☐ UST #2 SUMP A ☐
→ GENSETS	UST #1 SUMP B ☐ UST #2 SUMP B ☐
→ FILTERS	PIPE SUMP 1 ☐ PIPE SUMP 2 ☐
→ LEAK	DAY TANK #1 ☐ FILTER #1 ☐
	DAY TANK #2 ☐ FILTER #2 ☐
	DAY TANK #3 ☐ OTHER ☐
	DAY TANK #4 ☐

Leak

Model C9 Series Master Control Module

Software Versions

The C9 Controller is programmed to operate in a wide variety of fuel system control configurations. The software is selected at the time of purchase and is factory configured, but can be field modified by an Earthsafe technician. The modular software is designed to integrate a variety of operating elements.

Standard Software Element

ELEMENT	TYPE	GENERAL DESCRIPTION
OS100.01	Gen Tank Refill	Single or Twin Inlet Valve High Stop Valve or Return Flow Pump Pump Start Signal to Remote Pumps Critical Low Output Relay Common Alarm Output Relay: Leak-High-Low
OS200.01	Duplex Pump	Start Pump From Day Tank Signal Submersible or Standard Pumps Alternate Pump Starts Monitor Pump Current / Flow and Switch on Fail
OS300.01	Filter / Pump	Programmable Timer for Filtration Cycle Start – Stop Pump on Time Cycle Monitor Filter Pressure and Water
OS400.01	Single Tank Fill	Single Tank Fill Station Monitor Tank High Level Sensors Audible – Visual Alarm Close Fill Valve at High Level
OS400.10	Dual Tank Fill	Dual Tank Fill Station Select Tank To be Filled Monitor Tank High Level Sensors Audible – Visual Alarm Close Fill Valve at High Level
OS450.01	Multi-Tank Select Dual Tanks	Select Tank for Supply – Return Operate Supply Pump or Valves Operate 3 Way Return Valve or Dual FOR Valves Switch Tanks on Low Level

Model C9 Series Master Control Module

Enhanced Software Elements

Enhanced Software Versions are available for the C9 Controller. Project Specific documents include detailed information on the specialized operating sequence, wiring diagrams, and operating instructions associated with each version.

ELEMENT	TYPE	MODIFICATIONS FROM STANDARD
OS100.02	Gen Tank Refill % Fill Display	Level Control from Analog Sensor % Fill Display
OS100.03	Gen Tank Refill Dual Inlet	Duplex Inlet Valve or Duplex Supply Pumps Alternates Valve-Pump each Start or Low Level
OS100.04	Gen Tank Refill Actuated Valves	Dual Inlet Actuated Ball Valves instead of Solenoids Monitor Feedback from Valve and Switch on Fail
OS100.05	Gen Tank Refill Duplex Supply Pumps	Single or Twin Inlet Valve Operation Operate Duplex Fuel Supply Pumps Alternate Pumps on Start Monitor Pump Flow / Current and Switch on Fail
OS200.10	Duplex Pump Dual Tank	Operate Duplex Pumps Select Tank for Supply – Return Operate Supply Valves Operate 3 Way Return Valve or Dual FOR Valves
OS300.02	Pump / Filter Dual Tank	Operate Filter / Pumps on Timed Cycle Select Tank to be Filtered on Alternate Cycles Operated Supply and Return Valves for Selected Tank
OS300.03	Dual Filter	Operate Remote Pumps for Dual Filter Monitor Dual Filter Status
OS450.02	Multi-Tank Select 3-Tanks	Select Tank for Supply – Return Operate Supply Pump or Valves Operate Return Flow Valves Switch Tanks on Low Level
OS450.03	Multi-Tank Select 4-Tanks	Select Tank for Supply – Return Operate Supply Pump or Valves Operate Return Flow Valves Switch Tanks on Low Level
OS400.02	Single Tank Fill % Fill Display	Operate Single Tank Fill Operation Display Tank % Fill
OS400.03	Single Tank Fill Pump Flow	Operate Single Tank Fill Operation Operate Pump for Fuel Transfer
OS400.04	Single Tank Fill % Fill Display Pump Flow	Operate Single Tank Fill Operation Display Tank % Fill Operate Pump for Fuel Transfer
OS410.02	Dual Tank Fill % Fill Display	Operate Dual Tank Fill Station Display Tank % Fill
OS410.03	Dual Tank Fill Pump Flow	Operate Dual Tank Fill Operation Operate Pump for Fuel Transfer
OS450.02	Multi-Tank Select 3-Tanks	Select Tank for Supply – Return Operate Supply Pump or Valves Operate Return Flow Valves Switch Tanks on Low Level
OS450.03	Multi-Tank Select 4-Tanks	Select Tank for Supply – Return Operate Supply Pump or Valves Operate Return Flow Valves Switch Tanks on Low Level

Model C9 Series Master Control Module

Installation Instructions

A. General

1. The system including the control panel, sensors, and devices is designed for ordinary electrical areas, and shall not be installed in hazardous electrical areas.
2. The control panel, external devices, and wiring should be installed by a competent electrician in accordance with National Electric Code requirements and all applicable local regulations.

B. Control Panel

1. Select an appropriate location for the control panel installation. The location should be indoors in a dry and temperature controlled environment. The operating temperature for the control panel is 32 to 104 degrees F (0 to 40 degrees C). The control panel must be protected from severe vibration, extremes in temperature and humidity, rain, and other conditions that could harm computerized electronic equipment.
2. Remove all packaging material. Inspect the control module for damage. Install the panel on a wall or bracket and secure with (4) bolts at the corners. Provide 120 VAC power supply to the control module from a dedicated circuit breaker. Provide conduit openings in the panel suitable for the input and output wiring to external devices.
3. Always disconnect power at the external circuit breaker, using approved lock out / tag out procedures prior to terminating wiring inside the control panel.

C. External Devices

1. The control panel is designed to receive inputs from external sensors, operate external valves and pumps, and supply on/off signals to remote systems. Install external sensors, valves, and pumps per their manufacturers recommendations. Install wiring junction boxes where required to make wiring connections to the devices. Junction boxes should be rain tight where exposed to weather.

D. Conduit Systems

1. The system can be installed using a variety of conduit systems as applicable for the environment and code requirements, including PVC, EMT, IMC, and RGS.
2. Wiring should be separated in conduit systems in conformance with code requirements, and in conformance with the following:
 - (a) separate fuel system wiring from wiring for other building systems.
 - (b) separate DC wiring from AC wiring in conduits.
 - (c) separate AC signal wires from AC power for motor loads.
 - (d) separate data wiring for networks from other wiring
 - (e) separate Intrinsically Safe wiring for tank gauge sensors.

E. Wiring

1. Use only stranded THHN wiring. Use #14 AWG wiring for signal wiring unless noted otherwise. Use sequential numbering to identify wiring in each conduit to assist in connection and troubleshooting.
2. Network data wiring shall be 8 conductor, minimum 24 gauge wiring with RJ45 connectors.

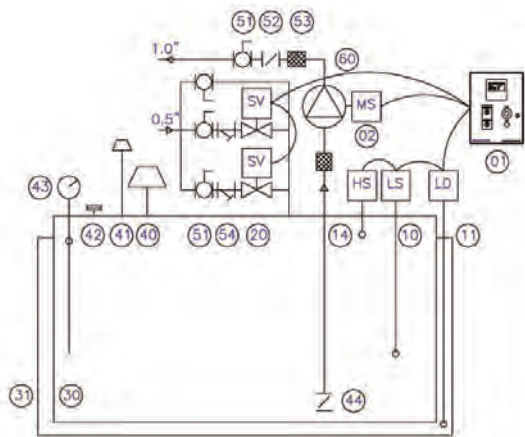
Model C9 Series Master Control Module

Functional Description:

Generator Tank Level Control – Dual Inlet

INSTRUCTION MANUAL

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Day Tank with Dual Inlet Valves

The control panel monitors the tank level sensors, which are approximately 90% High Level, 85% Fill Stop, 75% Fill Start, 50% Low Level, and 25% Critical Low level. Upon receipt of the Fill Start signal, the control panel closes an output relay to send a pump on / fuel request signal to the remote fuel transfer pump. Simultaneously the lead inlet solenoid valve is energized to open. Upon receipt of the Fill Stop signal, the pump on / fuel request signal ceases, and the inlet solenoid valve de-energizes to close. At Low Level the control panel energizes the lag inlet solenoid valve. The inlet solenoid valves automatically alternate upon starts.

High, Low, and Critical Low Level signals activate and alarm signal and message. The High Level alarm disables the operation of the system in the MAN mode. The system monitors independent Critical High Level, and Tank Leak sensors. Activation of these sensors disable to tank fill operation in either MAN or AUTO mode.

The display indicates: (a) normal or alarm condition, (b) fill active status, (c) alarm indication for critical high, high, low, critical low, and leak alarms, (d) optional % full or gallons. A common alarm output relay and a serial data interface are provided for BMS integration.

Optional Return Flow Pump: In the AUTO mode the pump is activated by the high level signal. The pump operates until the high level signal ceases, plus a 60 second stop delay to prevent short cycling.

Day Tank – Dual Inlet Valves

Item	Qty	Description
1	1	Control Panel
10	1	Tank Level Sensor
11	1	Leak Sensor
14	1	High Level Sensor
20	2	Solenoid Valve NC
30	1	Day Tank UL 142
31	1	Tank Containment
40	1	Emergency Vent
41	1	Standard Vent
42	1	Inspection Port
43	1	Direct Read Gauge
51	3	Ball Valve
54	2	Strainer
Add for Return Flow Pump Option		
2	1	Pump Control Panel
44	1	Foot Valve
51	1	Ball Valve
52	1	Check Valve
53	2	Flex Connector
60	1	Pump – Return Flow

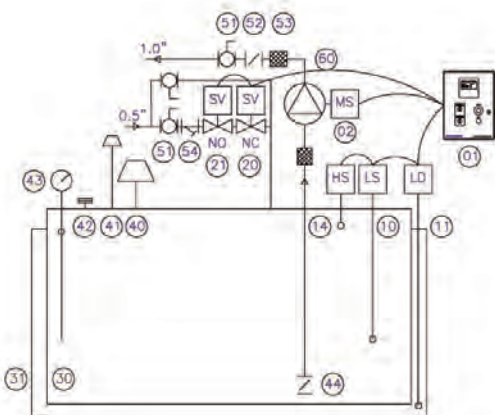
Model C9 Series Master Control Module

Functional Description:

Generator Tank Level Control – High Level Stop Valve

INSTRUCTION MANUAL

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Day Tank with High Stop Valve

The control panel monitors the tank level sensors, which are approximately 90% High Level, 85% Fill Stop, 75% Fill Start, 50% Low Level, and 25% Critical Low level. Upon receipt of the Fill Start signal, the control panel closes an output relay to send a pump on / fuel request signal to the remote fuel transfer pump. Simultaneously the inlet solenoid valve is energized to open. Upon receipt of the Fill Stop signal, the pump on / fuel request signal ceases, and the inlet solenoid valve de-energizes to close.

High, Low, and Critical Low Level signals activate and alarm signal and message. The High Level alarm disables the operation of the system in the MAN mode, and energizes the Normally Open Fill solenoid valve to close. The system monitors independent Critical High Level, and Tank Leak sensors. Activation of these sensors disable to tank fill operation in either MAN or AUTO mode, and energizes the Normally Open Fill solenoid valve to close.

The display indicates: (a) normal or alarm condition, (b) fill active status, (c) alarm indication for critical high, high, low, critical low, and leak alarms, (d) optional % full or gallons. A common alarm output relay and a serial data interface are provided for BMS integration.

Optional Return Flow Pump: In the AUTO mode the pump is activated by the high level signal. The pump operates until the high level signal ceases, plus a 60 second stop delay to prevent short cycling.

Day Tank – Inlet Valve with High Stop

Item	Qty	Description
1	1	Control Panel
10	1	Tank Level Sensor
11	1	Leak Sensor
14	1	High Level Sensor
20	1	Solenoid Valve NC
21	1	Solenoid Valve NO
30	1	Day Tank UL 142
31	1	Tank Containment
40	1	Emergency Vent
41	1	Standard Vent
42	1	Inspection Port
43	1	Direct Read Gauge
51	2	Ball Valve
54	2	Strainer
Add for Return Flow Pump Option		
2	1	Pump Control Panel
44	1	Foot Valve
51	1	Ball Valve
52	1	Check Valve
53	2	Flex Connector
60	1	Pump – Return Flow

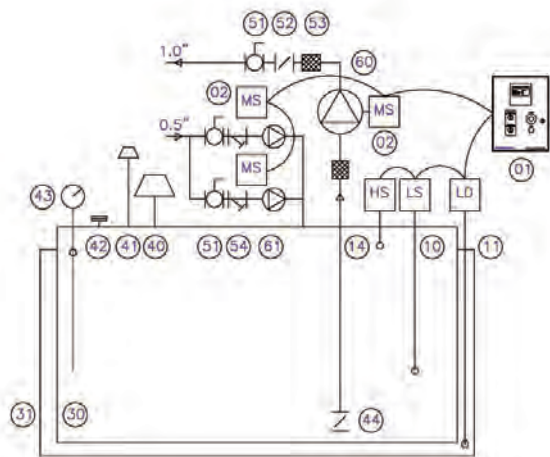
Model C9 Series Master Control Module

Functional Description:

Generator Tank Level Control – Duplex Transfer Pumps

INSTRUCTION MANUAL

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Day Tank with Dual Fuel Supply Pumps

The control panel monitors the tank level sensors, which are approximately 90% High Level, 85% Fill Stop, 75% Fill Start, 50% Low Level, and 25% Critical Low level. Upon receipt of the Fill Start signal, the control panel closes an output relay to activate the lead fuel transfer pump. Upon receipt of the Fill Stop signal, the pump on / fuel request signal ceases, and the fuel transfer pump stops. At Low Level the control panel energizes the lag fuel transfer pump. The fuel transfer pumps automatically alternate upon starts.

High, Low, and Critical Low Level signals activate and alarm signal and message. The High Level alarm disables the operation of the system in the MAN mode. The system monitors independent Critical High Level, and Tank Leak sensors. Activation of these sensors disable to tank fill operation in either MAN or AUTO mode.

The display indicates: (a) normal or alarm condition, (b) fill active status, (c) alarm indication for critical high, high, low, critical low, and leak alarms, (d) optional % full or gallons, (e) pump status. A common alarm output relay and a serial data interface are provided for BMS integration.

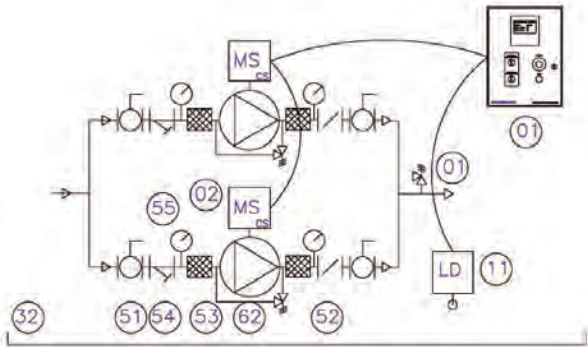
Optional Return Flow Pump: In the AUTO mode the pump is activated by the high level signal. The pump operates until the high level signal ceases, plus a 60 second stop delay to prevent short cycling.

Day Tank – Dual Transfer Pumps

Item	Qty	Description
1	1	Control Panel
2	1	Pump Control Panel
10	1	Tank Level Sensor
11	1	Leak Sensor
14	1	High Level Sensor
30	1	Day Tank UL 142
31	1	Tank Containment
40	1	Emergency Vent
41	1	Standard Vent
42	1	Inspection Port
43	1	Direct Read Gauge
51	2	Ball Valve
54	2	Strainer
61	1	Pump – Day Tank Supply
Add for Return Flow Pump Option		
2	1	Pump Control Panel
44	1	Foot Valve
51	1	Ball Valve
52	1	Check Valve
53	2	Flex Connector
60	1	Pump – Return Flow

Model C9 Series
Master Control Module

Functional Description:
Duplex Pump



Duplex Pump:

The control panel monitors day tanks, gensets, or other systems for a pump on / fuel request signal. The primary / lead pump is started and is monitored for a current sense signal from the motor starter indicating operation. When the pump on / fuel request signal ceases, then the pump shuts down after a 20 second delay that prevents short cycling.

The first pump selected from OFF to AUTO mode is the lead pump and the other pump is the lag pump. Pumps automatically alternate on consecutive starts. The lag pump will start, after a 20 second delay, if the lead pump has on overload alarm or a current sense failure. The 20 second standard delay can be increased to accommodate the operation of line leak detection systems. The audible alarm operates for 60 seconds, or until reset. Alarms are reset by placing the pump selector in the OFF position and returning to AUTO.

The display indicates for each pump: (a) lead / lag status, (b) normal / alarm status, (c) overload alarm condition, (d) current sense fail condition, (e) not-in-auto status, (f) pump run time meter. A common alarm output relay and a serial data interface are provided for BMS integration.

Duplex Pump Set

Item	Qty	Description
1	1	Control Panel
2	2	Pump Control Panel
11	1	Leak Sensor
33	1	Pump / Filter Containment
51	4	Ball Valve
52	2	Check Valve
53	4	Flex Connector
54	2	Strainer
55	4	Pressure / Vacuum Gauge
62	2	Pump – Main Transfer
72		Pressure Relief Valve

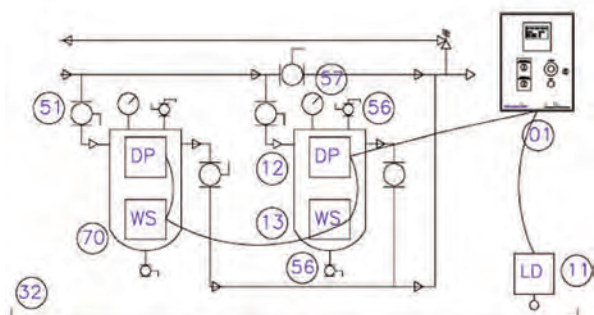
Model C9 Series Master Control Module

Functional Description:

Filtration / Polishing

INSTRUCTION MANUAL

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Filter / Polishing Unit

The control panel operates the pump on a programmable timed cycle to circulate fuel from the storage tank through the filter and returning to the storage tank. The unit can be operated with a tank selection system to provide filtration for multiple tank units.

The programmable timer allows setting of the start time / date, the ON cycle time, and the OFF cycle time for the AUTO mode. The programmable timer allows setting of the cycle duration for the MAN mode, to start the pump upon manual initiation and stop it after the defined cycle.

The control panel monitors the filter unit for high differential pressure indicating a need for filter change, and water accumulation. The leak sensor is also monitored and disables the unit from operation in MAN or AUTO mode.

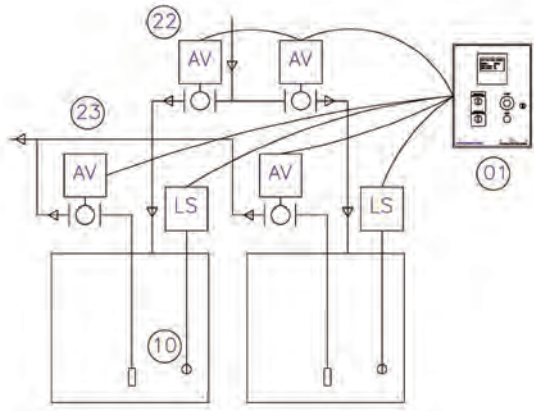
The display indicates: (a) normal or alarm condition, (b) cycle active status, (c) time to start / stop cycle, (d) alarm indication for differential pressure, water accumulation, or leak, (e) pump status. A common alarm output relay and a serial data interface are provided for BMS integration.

Filter – Pump Set

Item	Qty	Description
1	1	Control Panel
2	1	Pump Control Panel
12	1	Filter DP Sensor
13	1	Filter Water Sensor
33	1	Pump / Filter Containment
51	2	Ball Valve
52	1	Check Valve
53	2	Flex Connector
54	1	Strainer
55	2	Pressure / Vacuum Gauge
56	2	Valve – Filter Drain-Vent
57	1	Gauge - Filter
64	1	Pump - Filtration
70	1	Filter Vessel / Cartridges

Model C9 Series
Master Control Module

Functional Description:
Multi-Tank Selection



Tank Selection Control

Item	Qty	Description
1	1	Control Panel
10	1	Tank Level Sensor
22	2	Actuated Ball Valve - FOR
23	2	Actuated Ball Valve - FOS

Dual Tank Selection:

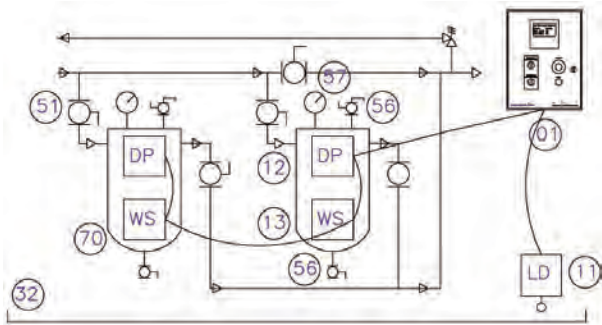
The control panel monitors pump sets for a pump on signal. The panel energizes the FOS and FOR valves from the primary fuel supply tank, and receives an open limit switch signal to prove operation. When the pump on signal ceases, then the FOS and FOR valves from the primary tank are closed.

The first tank selected from OFF to AUTO mode is the lead tank and the other tank is the lag tank. The operation will switch to the alternate tank if a low level signal is received for the primary tank. The low level signal can be generated by an independent sensor, or from a tank level gauge output signal.

The display indicates for each tank: (a) lead / lag status, (b) normal / alarm status, (c) valve open / close status, (d) not-in-auto status. A common alarm output relay and a serial data interface are provided for BMS integration.

Model C9 Series
Master Control Module

Functional Description:
Duplex Filter



Dual Filter Unit

The control panel operates the remote pump on a programmable timed cycle to circulate fuel from the storage tank through the filter and returning to the storage tank. The unit can be operated with a tank selection system to provide filtration for multiple tank units.

The programmable timer allows setting of the start time / date, the ON cycle time, and the OFF cycle time for the AUTO mode. The programmable timer allows setting of the cycle duration for the MAN mode, to start the pump upon manual initiation and stop it after the defined cycle.

The control panel monitors the filter unit for high differential pressure indicating a need for filter change, and water accumulation. The leak sensor is also monitored and disables the unit from operation in MAN or AUTO mode.

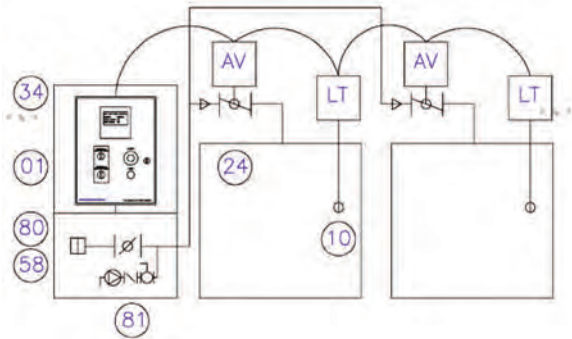
The display indicates: (a) normal or alarm condition, (b) cycle active status, (c) time to start / stop cycle, (d) alarm indication for differential pressure, water accumulation, or leak, (e) filter status, (f) pump status. A common alarm output relay and a serial data interface are provided for BMS integration.

Duplex Filter Set

Item	Qty	Description
1	1	Control Panel
12	2	Filter DP Sensor
13	2	Filter Water Sensor
33	1	Pump / Filter Containment
51	5	Ball Valve
56	4	Valve – Filter Drain-Vent
57	2	Gauge - Filter
70	2	Filter Vessel / Cartridges
71	1	Back Pressure Regulator

Model C9 Series
Master Control Module

Functional Description:
Tank Fill — Standard



Tank Fill System

Item	Qty	Description
1	1	Control Panel
10	2	Tank Level Sensor
24	2	Actuated Butterfly Valve
34	1	Fill Station Cabinet
58	1	Butterfly Valve
80	1	Hose Adapter / Cap
81	1	Hand Pump Assembly

Tank Fill Control:

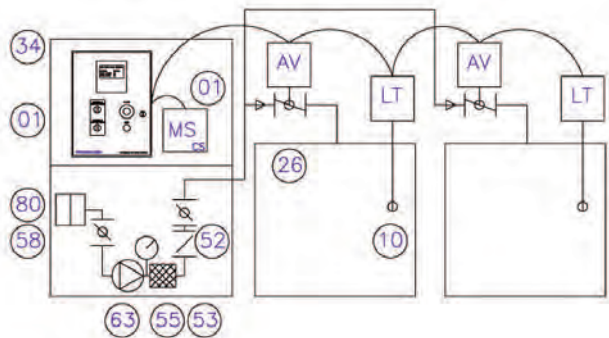
The control panel monitors a high level sensor in the fuel tank and controls the opening of the actuated valve in the fill pipe. The tank to be filled is selected at the control panel. The fill line valve is energized to open, as long as the tank level is less than 85%. The fill valve limit switch provides feedback to the panel, so that when filling multiple tanks only one valve is open at any one time.

Fuel is transferred into the tank until the 85% tank level is reached and an audible alarm is activated. The audible alarm operates for 60 seconds, or until reset. Alarms are reset by placing the tank selector in the OFF position. At 90% fill level the alarm is re-activated and the fill pipe valve is closed. The valve may be opened in the manual mode up to 95%, at which point the valve is closed and disabled.

Model C9 Series
Master Control Module

Functional Description:

Tank Fill — Transfer Pump



Tank Fill Control with Pump:

The control panel monitors a high level sensor in the fuel tank and controls the opening of the transfer pump and actuated valve in the fill pipe. The tank to be filled is selected at the control panel. The pump is enabled and the fill line valve is energized to open, as long as the tank level is less than 85%. The fill valve limit switch provides feedback to the panel, so that when filling multiple tanks only one valve is open at any one time.

The transfer pump is operated by placing its motor starter in the AUTO position. Fuel is transferred into the tank until the 85% tank level is reached and an audible alarm is activated. The audible alarm operates for 60 seconds, or until reset. Alarms are reset by placing the tank selector in the OFF position. At 90% fill level the alarm is re-activated, the transfer pump is disabled, and the fill pipe valve is closed. The transfer pump and fill pipe valve may be operated in the manual mode up to 95%, at which point the pump and valve are closed and disabled.

Tank Fill System - Pump

Item	Qty	Description
1	1	Control Panel
2	1	Pump Control Panel
10	2	Tank Level Sensor
24	2	Actuated Butterfly Valve
35	1	Fill Station Cabinet - Pump
52	1	Check Valve
53	1	Flex Connector
55	1	Pressure / Vacuum Gauge
58	2	Butterfly Valve
63	1	Pump – Fill station
80	1	Hose Adapter / Cap

Model C9 Series Master Control Module

Operation Instructions

Gen Tank Level Control

INSTRUCTION MANUAL

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Generator Tank Level Control

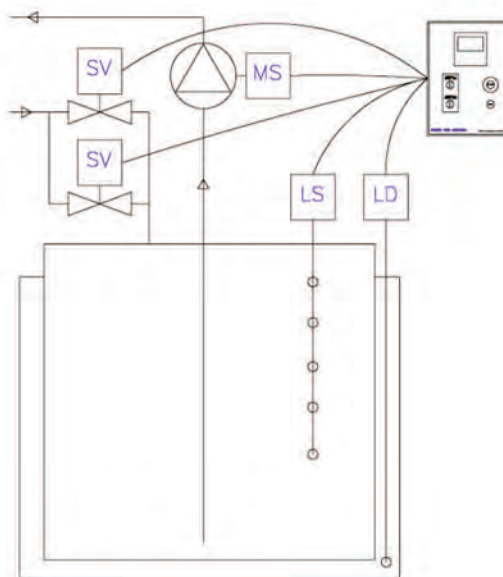
Refer to Standard Operating Procedures for detailed description of inputs, outputs, and operating logic.

Manual Mode

Place the switch in the manual mode to (a) energize and open the inlet solenoid valves, and (b) generate an output signal for remote pump on request. High level in tank disables this function.

Auto Mode

Place the switch in the auto mode to operate based on inputs from the tank level sensor. (a) Critical Low Level and Low Level activates panel alarm and output relay. (b) Fill Start Level energizes inlet valves to open and generates an output signal for remote pump on request. (c) Fill Stop Level de-energizes to close inlet solenoid valve and ends remote pump on signal. (d) High Level activates panel alarm and remote output relay, disables manual fill mode, and activates relay for high level stop valve or overflow pump.



Model C9 Series Master Control Module

Operation Instructions

Duplex Pump Control

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Duplex Pump Control

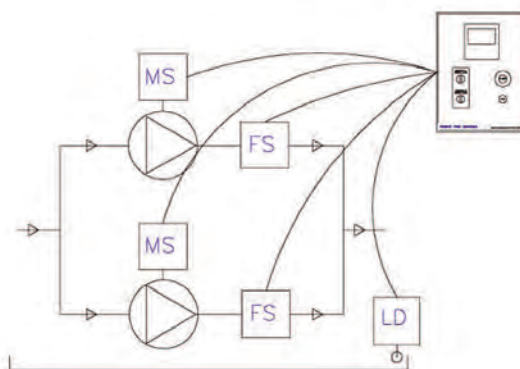
Refer to Standard Operating Procedures for detailed description of inputs, outputs, and operating logic.

Manual Mode (Pump 1 or 2)

Place the switch in the manual mode to (a) energize pump motor starter and start pump.

Auto Mode (Pump 1 or 2)

Place the switch in the auto mode to operate pumps based on remote inputs. (a) Start pump when input active from day tank requesting refill, and stop pump when signal ceases. (b) Alternate pumps on successive starts. (c) Monitor input from pump flow or pump current sensor to prove pump, and auto switch to second pump if no signal after 30 second time delay. (d) Monitor pump motor starter for not-in-auto state and indicate alarm.



Model C9 Series Master Control Module

Operation Instructions

Filter Polisher Control

INSTRUCTION MANUAL

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Filter Polisher Control

Refer to Standard Operating Procedures for detailed description of inputs, outputs, and operating logic.

Filter Pump Manual Mode

Place the switch in the manual mode to energize pump motor starter and start pump. (a) When timer selector switch is in OFF mode the pump will continue until removed from MAN mode. (b) When timer selector switch is AUTO mode, the pump will run through the on cycle set time, and then stop until reset.

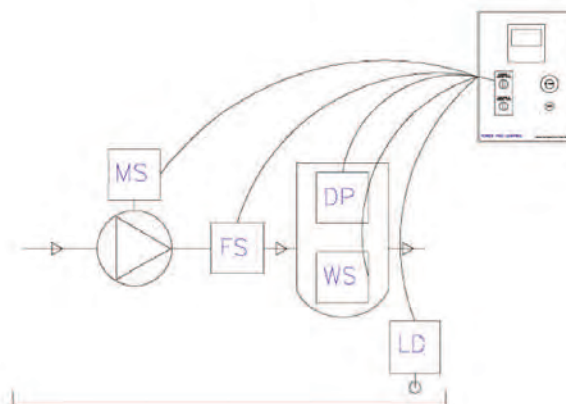
Filter Pump Auto Mode

Timer Auto Mode (Lower Selector Switch)

Place the switch in the auto mode, with timer in auto mode, to operate pumps based on timer settings for on/off cycle.

Timer Reset Mode (Lower Selector Switch)

When the selector switch is moved to the OFF position, the timer is reset.



Model C9 Series Master Control Module

Operation Instructions

Tank Fill Control

INSTRUCTION MANUAL

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Tank Fill Control

Refer to Standard Operating Procedures for detailed description of inputs, outputs, and operating logic.

Auto Mode

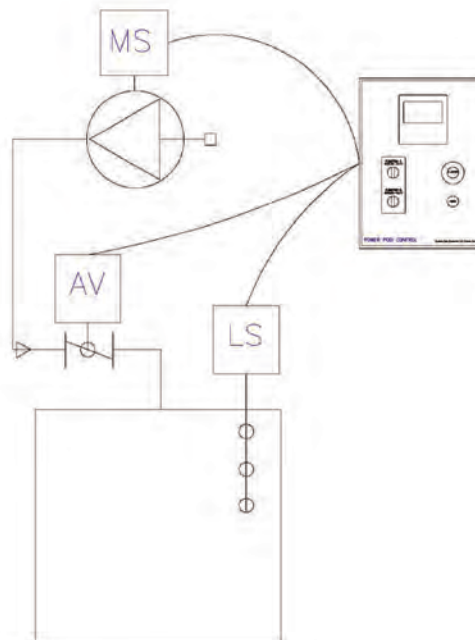
Place the switch in the auto mode to operate based on inputs from the tank level sensor and fill selection switch.

Fill Start Mode

Energizes to open the inlet actuated valve and generates output signal to enable fill pump if used. At 85% fill level, audible alarm is activated. At 90% fill level function is disabled.

Fill Jog Mode

Energizes to open the inlet actuated valve and generates output signal to enable fill pump if used. Resets to OFF position after 10 seconds. At 95% fill level function is disabled.



Model C9 Series Master Control Module

Operation Instructions

Dual Tank Fill Control

INSTRUCTION MANUAL

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Dual Tank Fill Control

Refer to Standard Operating Procedures for detailed description of inputs, outputs, and operating logic.

Tank Select Mode (Top Selector Switch)

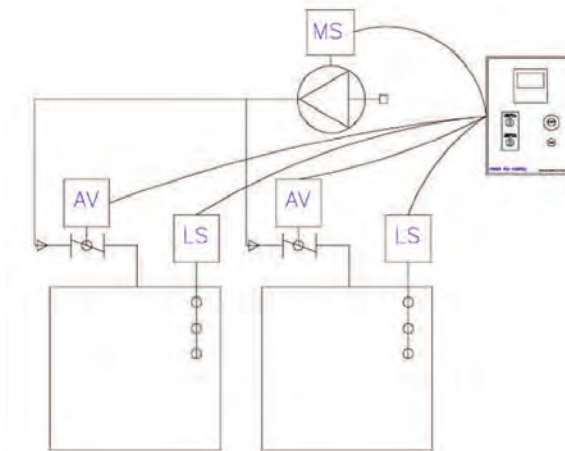
Select the Tank to be filled.

Fill Start Mode (Mode Selector Switch)

For the selected tank, energizes to open the inlet actuated valve and generates output signal to enable fill pump if used. At 85% fill level, audible alarm is activated. At 90% fill level function is disabled.

Fill Jog Mode (Mode Selector Switch)

For the selected tank, energizes to open the inlet actuated valve and generates output signal to enable fill pump if used. Resets to OFF position after 10 seconds. At 95% fill level function is disabled.



Model C9 Series Master Control Module

Operation Instructions

Multi-Tank Selection Control

INSTRUCTION MANUAL

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Multi-Tank Selection Control

Refer to Standard Operating Procedures for detailed description of inputs, outputs, and operating logic.

Tank Manual Mode

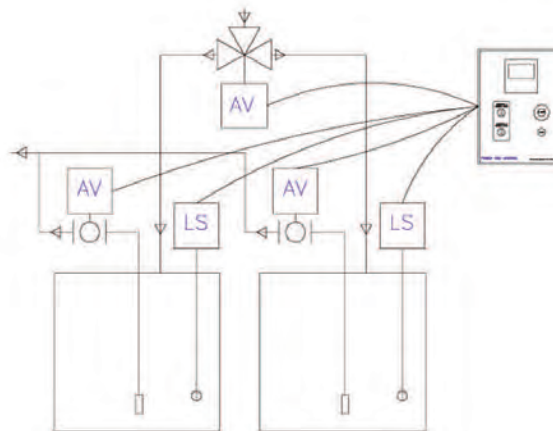
(a) Energizes to open the FOS supply valve for the selected tank, and (b) energizes the 3 way return flow valve (or dual 2-way return flow valves) to open to the selected tank. First tank in manual mode disables the function for the second tank.

Tank Off Mode

Closes the FOS supply valve for the selected tank

Tank Auto Mode

Enables the automatic selection of the tank. Upon receipt of remote pump on signal: (a) energizes to open the FOS supply valve for the selected tank, and (b) energizes the 3 way return flow valve (or dual 2-way return flow valves) to open to the selected tank. (c) switches to alternate tank upon receipt of low level signal.



Model C9 Series Master Control Module

Troubleshooting

INSTRUCTION MANUAL

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Troubleshooting

MODE	ITEM	DESCRIPTION	RESPONSE
General	1.01	Display not Active	Check circuit breaker status Check panel internal breaker Check display latch to processor
	1.02	No outputs active	Check Emergency Stop position
	1.03	Select outputs not active	Check wire terminations at panel Check wire terminations at device Check output relay continuity
Gen Tank Refill	2.01	Low Level Alarm Critical Low level Alarm	Check auto mode selected Check emergency stop position Check for closed manual inlet valves Check inlet solenoids energized Check pump active signal Check low sensor input
	2.02	High Level Alarm	Check inlet solenoid closed Check inlet solenoid not leaking Check fill stop sensor input
	2.03	Leak Alarm	Visually inspect for source
Duplex Pump	3.01	Pump did not start	Check auto mode selected Check emergency stop position Check motor starter power on. Check motor starter auto position Check motor starter overload Check on request input
	3.02	Pump start but no flow	Check for closed manual valves Check pump prime
Filter Polisher	4.01	Pump did not start or Pump start but no flow	Check pump items above
	4.02	Filter pressure alarm	Confirm high pressure / change filter Check pressure sensor
	4.03	Filter water alarm	Open valve to drain filter water Check water sensor
	4.04	On/Off cycle error	Check selector switch positions Check emergency stop position Check set points for start and cycles
Tank Fill	5.01	Valve does not open	Check wire terminations at panel Check wire terminations at valve Check selector switch positions Confirm no high level Check emergency stop position Check output relay for continuity
	5.02	Valve or level position error	Check wire terminations at panel Check wire terminations at sensors
Multi-Tank Select	6.01	Valve does not open	Check wire terminations at panel Check wire terminations at valve Check selector switch positions Confirm no high level Check emergency stop position Check output relay for continuity
	6.02	Valve or level position error	Check wire terminations at panel Check wire terminations at sensors

Model C9 Series Master Control Module

Maintenance Instructions / Spare Parts

INSTRUCTION MANUAL

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Maintenance Instructions

ITEM	MAINTENANCE	SCHEDULE
1	Operate selector switches to manual or test position	30 day intervals
2	Open panel and check for water seepage or excessive condensation	30 day intervals
3	Remove sensors and activate to confirm system function	Annually

Spare Parts

Spare parts are available worldwide from local Allen Bradley parts distributors. Locate local distributor information at www.ab.com

Model C9 Series Master Control Module

Technical Support / Warranty Service

INSTRUCTION MANUAL

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Technical Support

Contact Earthsafe at

(312) 226-7600

www.earthsafe.com

Warranty Statement

Earthsafe Systems, Inc. warrants the controls to be the kind and quality described in specification provided herein and to be free from defects in material or workmanship under normal service for a period of 1 year after shipment. Earthsafe obligations under this warranty shall be limited to repair or replacement, at the option of Earthsafe, of parts deemed to be defective upon inspection by Earthsafe. User is responsible for transportation of parts or assemblies to Earthsafe or its authorized repair location where the repairs are to be performed.

The provisions of the warranty shall not apply to any equipment, part, or accessory which (a) has been improperly specified by buyer, (b) has been improperly stored or handled prior to placing in service, (c) has been damaged or loosened during shipment, (d) has been improperly mounted or connected, (e) has not been operated within the equipment specifications, or (f) has been improperly maintained.

Earthsafe reserves the right to reject warranty claims of any kind for equipment for which it has not received full payment.

This warranty is in lieu of all other warranties, express or implied, and all other obligations or liabilities on the part of Earthsafe. Earthsafe assumes no responsibility or liability for any special, incidental, or consequential damage.

DEP Forms



Department of Environmental Protection

2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DEP Form: 62-761.850(2)
Form Title: Storage Tank Equipment
Registration Form
Effective Date: July 2019
Incorporated in Rule 62-761.850, F.A.C.

Storage Tank System Equipment Registration Form

Fill out completely

General Information

Company Name: FPI Sensors LLC	Contact Name: Customer Service
Company Address: 1301 Corporate Center Dr., Suite 140	City, State: Eagan, MN Zip: 55121
E-mail: CustomerService@RochesterGauges.com	Contact Number: (872) 241-2161
Product Name: FPI Sensors International	
Model Number(s): LD Generic Leak Detection System	Product Type:
Rule(s) citation that registration is being requested within Chapter 62-761 (UST), and/or 62-762 (AST), Chapter 62-761 & Chapter 62-762.851(2)	

F.A.C.: Write a brief description of equipment registration request including product limitations:

LD Generic Leak Detection Sensor arison/off switches that alarm when the fuel level reaches the alarm point of the float. It is constructed of Buna and is compatible with all commonly encountered fuels. This float sensor alarms when the liquids rise approximately one-half inch above the bottom of the float and can be manufactured to any length

Information Checklist (Choose Yes, No, or N/A - Not Applicable)

	Yes	No	N/A
1. Third-party Certification by a Nationally Recognized Testing Laboratory? (Required)	☒	☐	☐
2. Documentation of third-party evaluation that the equipment meets DEP Rules?	☒	☐	☐
3. Documents included about the qualifications of the Nationally Recognized Testing Laboratory?	☒	☐	☐
4. Technical information and drawings included?	☒	☐	☐
5. Installation instructions included?	☒	☐	☐
6. Annual Operability Testing Requirements (Rules 62-761.500, 62-762.501, & 62-762.502 F.A.C.)?	☒	☐	☐
7. Integrity Testing Requirements (Rules 62-761.700, 62-762.701, & 62-762.702, F.A.C.)?	☒	☐	☐
8. Compatible with fuel blends containing >10% ethanol or >20% biodiesel?	☒	☐	☐
9. Has the product been approved or registered in other countries or states? (If so provide list)	☐	☒	☐
10. Any requirements for company-certified installers or trainers?	☐	☒	☐
11. Was this product(s) previously approved or registered by the Department? If yes, EQ-817	☒	☐	☐
12. Any changes or modifications to the equipment since the last submittal to DEP?	☐	☒	☐

Document Information: Provide supporting documents indicated as "Yes" above including this form via email to Environmental@floridades.gov, or documents can be sent to FDEP, Division of Waste Management, 2600 Blair Stone Road, MS 4560, Tallahassee, FL 32399

Write a brief description of equipment installation and performance in the U.S.:

The LD Generic Leak Detection System does not have any limitations or certifications on who can install the float switch. It is resistant to corrosion, UV, and able to withstand deterioration. It is designed to be installed in the field by experienced installers and contractors for underground storage tanks and shop-fabricated aboveground storage tanks and tank components. The sensor must be tested before it is put into initial operation.

Equipment Registration Certification:

To the best of my knowledge and belief, all information submitted on this form is true, accurate and complete.

Ian Mott-Smith, VP Ian Mott-Smith 9/25/19
Printed Name and Title Signature Date

For Department Use Only:

Date Application Received 9/26/2019 Application complete: Yes: ☒ No: ☐
EQ-817 Date of complete or incomplete letter sent 9/27/2019 Date Equipment Requires Renewal 9/27/2024

UPDATE

Storage tank system equipment requires renewal every 5 years in accordance with subsection 62-761.850(2), F.A.C.

FPI Sensors International

Equipment Registration Renewal and Update Request

to the

**Florida Department of Environmental Protection's
Permitting and Compliance Assistance Program
Storage Tank Compliance**

by

**FPI Sensors International
& Rochester Gauges**

for

Underground and Aboveground Storage System Release Detection Equipment

Submitted by

Marshall T. Mott-Smith, President
Mott-Smith Consulting Group, LLC
111 North Calhoun Street
Tallahassee, FL 32301
marshall@mott-smithconsulting.com
850-391-9835 work
850-591-1434 cell
www.mott-smithconsulting.com





September 26, 2019

Kimberly Curran
Permitting and Compliance Assistance Program
Florida Department of
Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: Equipment Registration Renewal Request for FPI Sensors International

Dear Kim:

FPI Sensors International is submitting an Equipment Registration Renewal Form with supporting documentation to the Florida Department of Environmental Protection for several models of storage tank system sensors.

The storage tank system sensors are listed by UL, and therefore provides the third-party certification as a Nationally Recognized Laboratory in accordance with Rule 62-761.200(36), F.A.C.

FPI Sensors was recently purchased by Rochester Gauges, but the branding is still FPI Sensors. The contact information is Customer Service, Contact Number: 972 241-2161, and the E-Mail address is: CustomerService@RochesterGauges.com - This information is provided on the DEP Equipment Registration Form.

FPI Sensors International appreciates your consideration in this matter, and please feel free to contact me if you have any questions or if we need to provide additional information.

Best Regards,

Marshall Mott-Smith, President
Mott-Smith Consulting Group, LLC

111 North Calhoun Street
Tallahassee, FL 32301
850.391.9835
888.768.2916 fax
www.mott-smithconsulting.com

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1. Introduction (All Models)

This Equipment Renewal and model designation update is sought in accordance with Florida Administrative Code Rule 62-762.851(2).

The request is sought by FPI Sensors International for model LD Generic Leak Detection System and the model CL Generic Continuous Level 4-20 mA Sensor which are UL listed for tank-monitoring in hazardous locations. The model LS Generic Level Float Switch is UL listed for float and pressure operated locations.

FPI Sensors International models noted above are float sensors that are activated when liquids in a containment sump or interstitial space cause the floats to rise from their installed position and subsequently activate the electronic signal to the monitor. The LS Generic Level Float Switch and the LD Generic Leak Detection Sensor are on/off switches that alarm when the fuel level reaches the alarm point of the float. The CL Continuous Level Sensor is a continuous 4-20 mA float switch. When it is combined with an appropriate readout or monitor, it can be used as a monitoring level device and as a leak detection system in a confined space.

The float for the LD Generic Leak Detection Sensor is constructed of Buna and is compatible with all commonly encountered fuels. This float sensor alarms when the liquids rise approximately one-half inch above the bottom of the float. The LD Generic Leak Detection Sensor can be manufactured to any length. The CL Continuous Level Sensor changes from 4 mA at the low level to 20 mA at the high level. The float utilized by this sensor is constructed of stainless steel. The LS Generic Level Float Switch is a single or multi-level float switch that provides a switch point (alarm or process) in the presence of liquids. A signal occurs when the level of liquid reached in the sensor area reaches approximately one-half inch in depth. The sensors were originally tested by Ken Wilcox Associates from Grain Valley, Missouri. All three sensors are corrosion-resistant, durable, and use UL listed components and parts. They are constructed of materials that are compatible with petroleum products and can be easily installed at new or existing sites. Strict quality control is provided during the manufacturing of these systems. Optional shielding minimizes the effect of turbulence and helps prevent interference of foreign objects. Additional options include weighted collar, customized lead length, magnets for shavings collection. All of the FPI Sensors International system models are designed for either monthly visual inspection or electronic notification as required by Florida Underground and Aboveground Storage Tank Systems rules.

The FPI Sensors Internationals' sensors are designed to be installed in the field by experienced installers and contractors for underground and shop-fabricated aboveground storage tanks and storage tank components. The installation instructions are the same for each of the three models. The post-installation integrity of these systems can be verified using the Operational Testing protocols provided by the FPI Sensors International in Appendix 4.

The specifications for each of the three sensor models are provided in Attachment 5, and include information about operating temperatures, operating pressures, and materials of construction.

All Equipment Registration Forms for each model are attached in Appendix 6.

2. Third Party Certifications (All Models)

The FPI Sensors International models are UL Listed. The Third-Party Certification confirms that the products meet the Department rules contained in Chapter 62-762.501, Chapter 62-762.601, and Chapter 62-762.701, F.A.C., and Chapter 62-761.500, Chapter 62-761.600, and 62-761.700, F.A.C. All of the Rochester Gauges, LLC. models are designed to function in accordance with applicable industry reference standards for underground and shop-fabricated aboveground storage tanks. Mott-Smith Consulting Group, LLC, certifies that the systems provide an equivalent protection to the existing rules.

The UL Certification is provided in Appendix 1 of this Request.

3. The Installation Process (All Models)

The installation process for each model of the FPI Sensors International system's is the same as provided in Appendix 2. The installation procedures contain prescribed instructions for installers to install the equipment with attention to quality control, operability, safety, and leak detection effectiveness. The FPI Sensors International does not have any limitations or certifications on who can install their systems, but as previously mentioned, the systems are designed to be installed in the field by experienced installers and contractors for underground storage tanks and shop-fabricated aboveground storage tanks and tank components.

All leak detection models are constructed with UL listed components that are manufactured in accordance with the highest industry standards. All of the models are resistant to corrosion, UV and weather resistant, and able to withstand deterioration. The sensors must be tested before they are put into initial operation. The testing must be performed in accordance with the operability testing procedures described in Appendix 4 after installation is completed to ensure initial performance of the system meets the design standards.

4. Operability Testing

The FPI Sensors Internationals' leak detection systems can be tested at installation before being placed into service, and annually as required by Florida Department of Environmental Protection UST and AST System Rules. The operational tests vary for each of the three models and are provided in Attachment 4.

5. Compatibility (All models)

The only portions of the FPI Sensors Internationals' model series that are in contact with petroleum products are the floats, casings, submersed electrical cables, and the float support mechanisms. These systems are constructed with corrosion resistant metals such as stainless steel and aluminum, and other materials like Buna that are compatible with light, middle, and heavy distillate petroleum products they are designed to be in contact with, as well as a number of other chemical substances.

The FPI Sensors Internationals' systems are compatible with the types of regulated substances commonly stored in underground and aboveground storage systems. The list includes gasoline, ethanol, bio-diesel, diesel, aviation fuels, jet fuel, kerosene, waste oils, new oils, and numerous other substances.

6. Operation and Maintenance (All Models)

The FPI Sensors Internationals' model series can be easily cleaned and maintained. The Operating Principles and Maintenance Instructions are specified for the three sensors in Appendix 5.

7. Technical Drawings and Information

The technical drawings contain information about the electrical connections, housings, fitting connections, resolution, accuracy, alarms, materials of construction, and other details. The drawings are provided in Appendix 3.

Appendix 1 – UL Certifications

UL Certificate of Compliance

CERTIFICATE OF COMPLIANCE

Certificate Number 20140226-E366291
Report Reference E366291-20140226
Issue Date 2014-FEBRUARY-26

Issued to: FPI SENSORS L L C
SUITE 140, 1301 CORP CTR DR
EAGAN MN 55121

This is to certify that
representative samples of

TANK-MONITORING EQUIPMENT FOR USE IN
HAZARDOUS LOCATIONS

Intrinsically Safe Apparatus for use in Class I, Division 1,
Groups C and D Hazardous Locations.
Liquid Level Probe, Model CLIS Intrinsically Safe for Use in
Class I Groups C and D Hazardous Locations when
installed in accordance with manufacturer's control drawing
no. CLIS-1.

Have been investigated by UL in accordance with the
Standard(s) indicated on this Certificate.

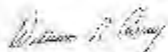
Standard(s) for Safety: UL 913, Intrinsically Safe Apparatus and Associated
Apparatus for Use in Class I, II, and III, Division 1,
Hazardous (Classified) Locations
CAN/CSA C22.2 No. 157-92, Intrinsically Safe and Non-
incendive Equipment for Use in Hazardous Locations

Additional Information: See the UL Online Certifications Directory at
www.ul.com/database for additional information

Only those products bearing the UL Listing Mark for the US and Canada should be considered as
being covered by UL's Listing and Follow-Up Service meeting the appropriate requirements for US
and Canada.

The UL Listing Mark for the US and Canada generally includes: the UL in a circle symbol with "C" and
"US" identifiers,  the word "LISTED"; a control number (may be alphanumeric) assigned by UL,
and the product category name (product identifier) as indicated in the appropriate UL Directory.

Look for the UL Listing Mark on the product.



William R. Gentry, Director, North American Division

UL 332

Any reference to a standard (including UL standards) is a reference to the latest edition of that standard, unless otherwise indicated. The publisher of this
document is not responsible for the accuracy of the information contained herein.



CERTIFICATE OF COMPLIANCE

Certificate Number	20160819-E324587
Report Reference	E324587-70160813
Issue Date	2015-AUGUST-19

Issued to: FPI SENSORS L L C
Suite 140
1391 Corp Ctr Dr
Farago MN 55121

This is to certify that
representative samples of

COMPONENT - MOTOR CONTROLLER, FRS, FLOAT- AND
PRESSURE-OPERATED

USR, CNR – Float Operated Switches:
Models LS (SS), LS (Brass), LS (Susp), LS (Temp.Sensor),
LS (Polypropylene Float), LS (Poly/Poly), LS (SS/SS), LS
(SS/Buna), LS (Brass/Buna), LTS (SS/SS), LTS
(SS/Buna), LTS, (Brass/Buna), LS Large (SS/Buna), LS
Large (SS/SS), SM Side (Poly/Poly), SM Side (SS/SS), LD
(Brass Shroud), LD (SS Shroud), SW, and SM (SS). All
models may include additional suffixes.

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate

Standard(s) for Safety: Standard for Industrial Control Equipment, UL 508
Industrial Control Equipment, CSA C22.2 No. 14-03

Additional Information: See the UL Online Certifications Directory at www.ul.com/certbase for additional information.

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Recognized components are completed in certain construction facilities or restricted in performance capabilities and are intended for use as components of complete equipment submitted for investigation rather than for direct separate installation in the field. The final acceptance of the component is dependent upon its installation and use in complete equipment submitted to UL LLC.

Look for the UL Certification Mark on the product.

E. M. Kelly
 Department of Natural Resources and Environment
 10/1/00

[illegible]

Appendix 2 – Installation

FPI SENSORS INTERNATIONAL

A HIGHER LEVEL OF SATISFACTION

4-20 mA CONTINUOUS LEVEL USER GUIDE

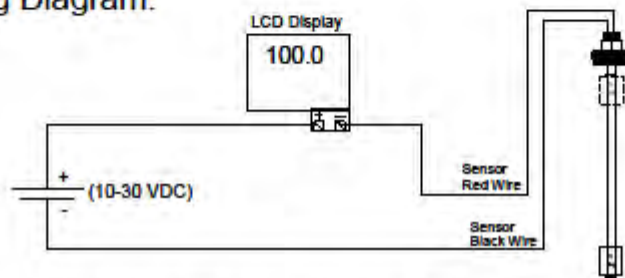
INSTALLATION:

When initially installing, mount the sensor into the tank with the matching fitting. When threading metal threads into a metal coupling, pipe sealant or Teflon® tape is recommended. After the sensor is mounted in tank, add the conduit. Use only appropriate conduit hubs that are specified to maintain the desired UL/CSA rating.

Associated apparatus must be installed in accordance with its manufacturers control drawing and Article 504 of the National Electrical Code (ANSI/NFPA 70) for installation in the United States, or Section 18 of the Canadian Electrical code for installations in Canada.

Associated apparatus must not be used in combination unless permitted by the associate's apparatus certification.

CL Wiring Diagram:



The sensor should be wired by qualified, licensed technicians only. There are two wires exiting the housing of the sensor. The red wire connects to signal (or + VDC), the black wire connects to - VDC. The power supply should be fused with a 25mA/24VDC fast blow fuse.

OPERATION:

The 4-20 mA sensor operates on a loop power or a separate power supply of 10-30 VDC. The sensor will provide a linear output between 4-20mA across the measuring range. When the float is at the bottom of the measuring range (furthest away from the fitting) the signal output will be 4 mA. As the float moves closer to the fitting, the mA output will increase until it reaches the top of the measuring range, providing a 20 mA signal. The mA signal will change every 1/4" of float movement. The mA value will change with every 1/4" of float movement. The value of mA change per 1/4" of float movement equals 4 divided by total measuring range inches.

CALIBRATION AND MAINTENANCE:

There is no calibration necessary. For reliable operation, the float and stem need to remain clean so the float has unrestricted movement as it travels up and down the stem. When cleaning, only use solutions that are compatible with the sensor material. It is also necessary that the leads exiting the sensor are kept dry and protected.

TROUBLESHOOTING:

Verify that the wiring is correct and proper power is being applied to the sensor. If the system is still not working, isolate the sensor from the system, apply 24VDC and monitor the sensor's output with a mA meter. Wire the independent meter and power supply as shown above. Move the float up and down the stem to verify the sensor's signal is correct. If the sensor is still not operating, contact FPI Sensors for assistance.

FPI Sensors 1-800-852-9984 info@FPIsensors.com

Appendix 3 – Technical Drawings

Model LD-

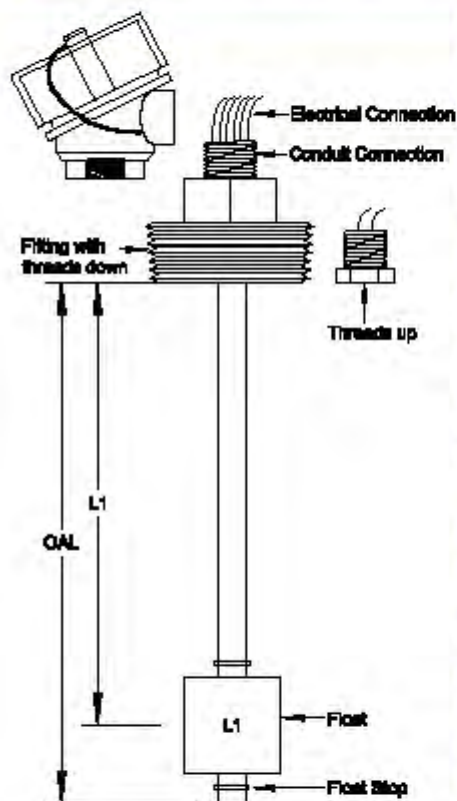
FPI SENSORS INTERNATIONAL

A H I G H E R L E V E L O F S A T I S F A C T I O N

Single Level Configurator – Build to Order

We excel in **LOW COST** » **HIGH QUALITY** » **72 HOUR MFG TIME**

MANY OTHER VARIATIONS AND OPTIONS ARE AVAILABLE



HOUSING:

☐ Nema 4X Explosion Proof ☐ Watertight ☐ NA

ELECTRICAL CONNECTION:

☐ Wire ☐ Cable ☐ Connector (specify) _____

CONDUIT CONNECTION:

☐ 1/2" NPT ☐ Other _____ ☐ NA

FITTING AND STEM MATERIAL:

☐ SS ☐ Brass ☐ PVC ☐ Poly ☐ Teflon

FITTING SIZE (NPT):

☐ 1/4" ☐ 1/2" ☐ 3/4" ☐ 1" ☐ 1 1/4" ☐ 1 1/2" ☐ 2"
☐ Flange _____ ☐ Other _____

THREAD ORIENTATION:

☐ Threads down (threads from outside of the tank)
☐ Threads up (threads from inside of the tank)

LEAD LENGTH: _____ *

FLOAT STOPS:

☐ Retaining ring ☐ Set collar

FLOAT MATERIAL:

☐ SS ☐ Buna ☐ Poly ☐ Teflon ☐ PVC

SWITCH TYPE:

☐ SPST ☐ SPDT

SWITCH RATING:

☐ 10 watt (500ma) ☐ 50 watt (1 amp) ☐ 100 watt (3 amp)

ACTUATION:

L1 _____ *

OPERATION:

☐ N.O. ☐ N.C.

SPECIFIC GRAVITY:

☐ .60sg ☐ .93sg

Minimum actuation is 1" Maximum actuation is 235"

OPTIONS:

☐ Shroud ☐ Centering Disk
☐ Field Adjustable Length ☐ Compression Union
☐ Thermocouple _____ ☐ Thermistor _____
☐ Temp Switch ☐ N.O. or ☐ N.C. _____ °F set point

1.800.852.9984

www.FPISensors.com

info@FPISensors.com

Fax 631.681.1888

Model CL-

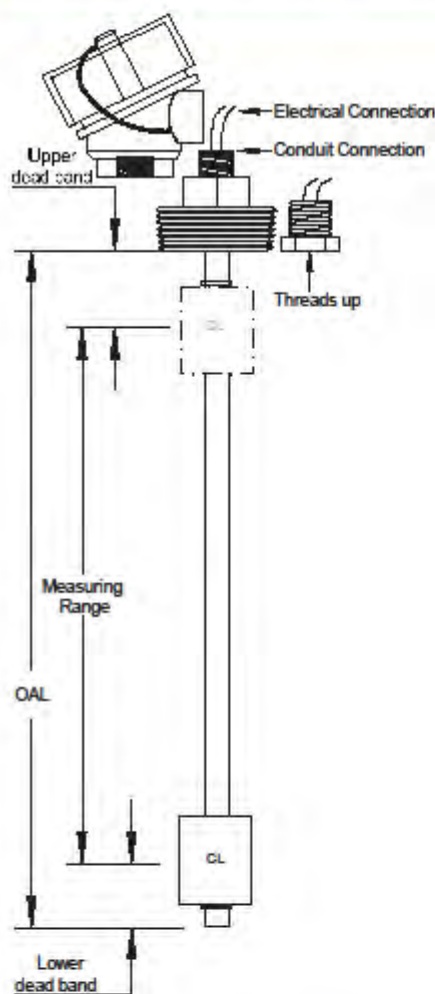
FPI SENSORS INTERNATIONAL

A H I G H E R L E V E L O F S A T I S F A C T I O N

Continuous Level (4-20ma) Configurator – Build to Order

We excel in **LOW COST** » **HIGH QUALITY** » **72 HOUR MFG TIME**

MANY OTHER VARIATIONS AND OPTIONS ARE AVAILABLE



HOUSING:

☐ Nema 4X & Explosion Proof ☐ Watertight ☐ NA

ELECTRICAL CONNECTION:

☐ Wire ☐ Cable ☐ Connector (specify) _____

WIRING:

Red Wire = Signal
Black Wire = Negative voltage
(Loop powered 10-30 VDC)

CONDUIT CONNECTION:

☐ 1/2" NPT ☐ Other _____ ☐ NA

FITTING AND STEM MATERIAL:

☐ SS ☐ Brass

FITTING SIZE (NPT):

☐ 1/4" ☐ 1/2" ☐ 3/4" ☐ 1" ☐ 1 1/4" ☐ 1 1/2" ☐ 2"

☐ Flange _____ ☐ Other _____

THREAD ORIENTATION:

☐ Threads down (threads from outside of the tank)

☐ Threads up (threads from inside of the tank)

LEAD LENGTH: _____"

FLOAT MATERIAL:

☐ SS ☐ Buna

MEASURING RANGE: _____"

(4" – 96", 1-inch increments only)

UPPER DEAD BAND: _____" (1" minimum)

LOWER DEAD BAND: _____" (1" minimum)

OPERATIONAL INDEPENDENT ALARM SWITCH(S):

ALARM:	OPERATION:	SPECIFIC GRAVITY:
#1 _____"	☐ N.O. ☐ N.C.	☐ .60sg ☐ .93sg
#2 _____"	☐ N.O. ☐ N.C.	☐ .60sg ☐ .93sg

If alarm point is outside of the measuring range, dead band dimensions will be affected. If alarm point is inside the measuring range, contact factory for details.

OPTIONS:

☐ Centering Disk	☐ Field Adjustable Length
☐ Thermocouple _____	☐ Thermistor _____
☐ Temp Switch ☐ N.O. or ☐ N.C. _____	°F set point

RESOLUTION: 1/4" increments

ACCURACY: +/-2% of measuring range

MAXIMUM OPERATING PRESSURE: 200 PSI

OPERATING TEMPERATURE RANGE: -20°F – 210°F

1.800.852.9984

www.FPIsensors.com

info@FPIsensors.com

Fax 651.681.1088

Model LS-

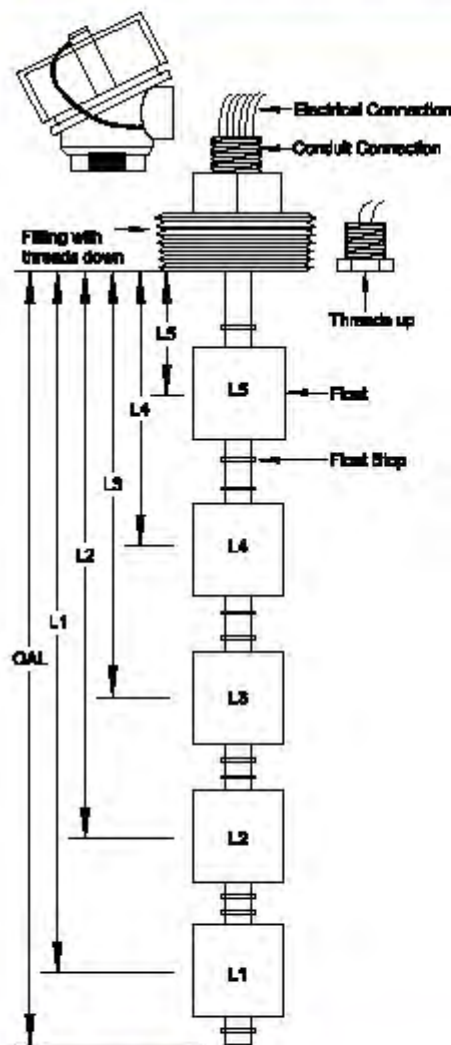
FPI SENSORS INTERNATIONAL

A HIGHER LEVEL OF SATISFACTION

Five Level Configurator – Build to Order

We excel in **LOW COST** » **HIGH QUALITY** » **72 HOUR MFG TIME**

MANY OTHER VARIATIONS AND OPTIONS ARE AVAILABLE



HOUSING:

☐ Nema 4X Explosion Proof ☐ Watertight ☐ NA

ELECTRICAL CONNECTION:

☐ Wire ☐ Cable ☐ Connector (specify) _____

CONDUIT CONNECTION:

☐ 1/2" NPT ☐ Other _____ ☐ NA

FITTING AND STEM MATERIAL:

☐ SS ☐ Brass ☐ PVC ☐ Poly ☐ Teflon

FITTING SIZE (NPT):

☐ 1/4" ☐ 1/2" ☐ 3/4" ☐ 1" ☐ 1 1/4" ☐ 1 1/2" ☐ 2"

☐ Flange _____ ☐ Other _____

THREAD ORIENTATION:

☐ Threads down (threads from outside of the tank)
☐ Threads up (threads from inside of the tank)

LEAD LENGTH: _____"

FLOAT STOPS:

☐ Retaining ring ☐ Set collar

FLOAT MATERIAL:

☐ SS ☐ Buna ☐ Poly ☐ Teflon ☐ PVC

SWITCH TYPE:

☐ SPST ☐ SPDT

SWITCH RATING:

☐ 10 watt (500ma) ☐ 50 watt (1 amp) ☐ 100 watt (3 amp)

ACTUATION:

L5 _____"
 L4 _____"
 L3 _____"
 L2 _____"
 L1 _____"

OPERATION:

☐ N.O. ☐ N.C.
☐ N.O. ☐ N.C.
☐ N.O. ☐ N.C.
☐ N.O. ☐ N.C.
☐ N.O. ☐ N.C.

SPECIFIC GRAVITY:

☐ .60sg ☐ .93sg
☐ .60sg ☐ .93sg
☐ .60sg ☐ .93sg
☐ .60sg ☐ .93sg
☐ .60sg ☐ .93sg

Minimum actuation is 1" Maximum actuation is 235"

OPTIONS:

☐ Shroud ☐ Centering Disk
☐ Field Adjustable Length ☐ Compression Union
☐ Thermocouple ☐ Thermistor _____
☐ Temp Switch ☐ N.O. or ☐ N.C. _____ °F set point

1.800.852.9984

www.FPISensors.com

info@FPISensors.com

Fax 631.681.1088

Appendix 4 – Annual Operability



Annual operability test

To perform annual operability tests on FPI Sensors models LS-, LD- and CL, you must have access to the float(s) of the sensor.

Model LS-

If access to float is available without uninstalling the sensors, simply observe the tank monitoring system (AGC or similar) and individually move each float up to the top float stop. You should observe the tank monitoring system indicate the appropriate alarm or process condition has been activated. Move the float back to its original position and you should observe the tank monitoring system return to its original state. If the alarm or process condition is not observed when the float is moved, see the float sensor trouble-shooting guide.

If the sensor is not accessible, then it is necessary to remove the sensor from the tank. After removal, inspect the sensor for damage or corrosion. Move the float from the bottom clip to the top clip and hold it in place while observing the tank monitoring system. Move the float back to its original position and you should observe the tank monitoring system return to its original state. If the alarm or process condition is not observed when the float is moved, see the float sensor trouble-shooting guide.

Model LD-

The model LD is tested the Model LS explained above, however the float may have a shroud around it. If a shroud is in place, to move the float from the bottom clip to the top clip, simply invert the sensor assembly so the leads are pointing down which will result in the float moving to the top clip. Follow the instructions shown above.

Model CL-

Model CL is tested the same as the Model LS as defined above. The only difference is that the travel distance of the float will be about the full length of the stem.

6-17



1301 Corporate Center Drive, Suite 115, Cager, MN 55121
1-800-862-4984 Fax 631-681-1828
www.FPIsensors.com

Appendix 5 – Operating Principles and Maintenance



Float Style Level Sensor- Operating Principles and Maintenance

The FPI Sensors float style level sensor operates with an internal magnetic reed switch and an external magnetic field in the float.

Inside the stem, there is an individual, hermetically sealed, electrically insulated, magnetically activated dry contact reed switch. The reed switch is classified by its maximum power ratings and magnetic sensitivity. Because this is a dry contact, it stores no power. The reed switches are electrically isolated to pass a minimum 1.6KV Hipot (dielectric breakdown) test.

The float on the outside of the stem provides the magnetic field (which is matched to the reed switch) to activate the internal reed switch.

These float style level sensors are listed under UL File E324587. In addition, these sensors are designed to be compatible with intrinsically safe circuits for use in hazardous locations.

Maintenance of the float is suggested for applications where there is a potential for material buildup that would prevent the float from operating. For cleaning, remove the sensor assembly from the tank and inspect for any material build up. If build up is present, select a cleaning solution that is compatible with the sensor's float and stem material and clean appropriately. If the float needs to be removed, make sure the top of the float and the float stop locations are identified so insure the float goes back on to the stem with the proper orientation and the float stops are returned to there original location.

To confirm the sensors operation, disconnect the wires from your control system. Connect an ohm meter or continuity meter to the sensor wires. Move the float up and down to verify the switch opens and closes in the designed float location. The design dimensions of the sensor are typically measured from the face of the mounting fitting. See the specific drawing information for more detailed information.

Updated July 2012



1301 Corporate Center Drive - Suite 140 Eau Claire, MN 56121
1-800-852-0984 Fax 651-681-1888
www.FPISensors.com

DEP Forms



Department of Environmental Protection

2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DEP Form: 62-761.800(9)
Form Title: Storage Tank Equipment
Registration Form
Effective Date: July 2019
Incorporated in Rule 62-761.850, F.A.C.

Storage Tank System Equipment Registration Form

Fill out completely

General Information

Company Name: FPI Sensors LLC	Contact Name: Customer Service
Company Address: 1301 Corporate Center Dr., Suite 140	City, State: Eagan, MN Zip: 55121
E-mail: CustomerService@RochesterGauges.com	Contact Number: (972) 241-2161
Product Name: FPI Sensors International	
Model Number(s): LD Generic Leak Detection System	Product Type:
Rule(s) citation that registration is being requested within Chapter 62-761 (UST), and/or 62-762 (AST), Chapter 62-761 and Chapter 62-762.851(2)	

F.A.C.: Write a brief description of equipment registration request including product limitations:

LD Generic Leak Detection Sensor are on/off switches that alarm when the fuel level reaches the alarm point of the float. It is constructed of Buna and is compatible with all commonly encountered fuels. This float sensor alarms when the liquids rise approximately one-half inch above the bottom of the float and can be manufactured to any length.

Information Checklist (Choose Yes, No, or N/A - Not Applicable):

	Yes	No	N/A
1. Third-party Certification by a Nationally Recognized Testing Laboratory? (Required)	☒	☐	☐
2. Documentation of third-party evaluation that the equipment meets DEP Rules?	☒	☐	☐
3. Documents included about the qualifications of the Nationally Recognized Testing Laboratory?	☒	☐	☐
4. Technical information and drawings included?	☒	☐	☐
5. Installation instructions included?	☒	☐	☐
6. Annual Operability Testing Requirements (Rules 62-761.500, 62-762.501, & 62-762.502 F.A.C.)?	☒	☐	☐
7. Integrity Testing Requirements (Rules 62-761.700, 62-762.701, & 62-762.702, F.A.C.)?	☒	☐	☐
8. Compatible with fuel blends containing >10% ethanol or >20% biodiesel?	☒	☐	☐
9. Has the product been approved or registered in other countries or states? (if so provide list)	☐	☒	☐
10. Any requirements for company-certified installers or trainers?	☐	☒	☐
11. Was this product(s) previously approved or registered by the Department? If yes, EQ- <u>817</u>	☒	☐	☐
12. Any changes or modifications to the equipment since the last submittal to DEP?	☐	☒	☐

Document Information: Provide supporting documents indicated as "Yes" above including this form via email to Tanknotify@floridadep.gov, or documents can be sent to FDEP, Division of Waste Management, 2600 Blair Stone Road, MS 4560, Tallahassee, FL 32399.

Write a brief description of equipment installation and performance in the U.S.:

The LD Generic Leak Detection System does not have any limitations or certifications on who can install the float switch. It is resistant to corrosion, UV, and able to withstand deterioration. It is designed to be installed in the field by experienced installers and contractors for underground storage tanks and shop-fabricated aboveground storage tanks and tank components. The sensor must be tested before it is put into initial operation.

Equipment Registration Certification:

To the best of my knowledge and belief, all information submitted on this form is true, accurate and complete.

Ian Mott-Smith, VP Ian Mott-Smith 9/25/19
Printed Name and Title Signature (right click to sign) Date

For Department Use Only:

Date Application Received: _____ Application complete: Yes: ☐ No: ☐

EQ- 817 Date of complete or incomplete letter sent: _____ Date Equipment Requires Renewal: _____

Storage tank system equipment requires renewal every 5 years in accordance with subsection 62-761.850(2), F.A.C.



Department of Environmental Protection

2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DEP Form: 62-761.90(9)
Form Title: Storage Tank Equipment
Registration Form
Effective Date: July 2019
Incorporated in Rule 62-761.850, F.A.C.

Storage Tank System Equipment Registration Form

Fill out completely

General Information

Company Name:	FPI Sensors LLC	Contact Name:	Customer Service
Company Address:	1301 Corporate Center Dr., Suite 140	City, State:	Eagan, MN
E-mail:	CustomerService@RochesterGauges.com	Zip:	55121
Product Name:	FPI Sensors International	Contact Number:	(972) 241-2181
Model Number(s):	LS Generic Level Float Switch	Product Type:	
Rule(s) citation that registration is being requested within Chapter 62-761 (UST), and/or 62-762 (AST), Chapter 62-762.851(2)			
F.A.C.: Write a brief description of equipment registration request including product limitations: LS Generic Level Float Switch is UL listed for float and pressure operated locations.			

Information Checklist (Choose Yes, No, or N/A - Not Applicable):

	Yes	No	N/A
1. Third-party Certification by a Nationally Recognized Testing Laboratory? (Required)	☒	☐	☐
2. Documentation of third-party evaluation that the equipment meets DEP Rules?	☒	☐	☐
3. Documents included about the qualifications of the Nationally Recognized Testing Laboratory?	☒	☐	☐
4. Technical information and drawings included?	☒	☐	☐
5. Installation instructions included?	☒	☐	☐
6. Annual Operability Testing Requirements (Rules 62-761.500, 62-762.501, & 62-762.502 F.A.C.)?	☒	☐	☐
7. Integrity Testing Requirements (Rules 62-761.700, 62-762.701, & 62-762.702, F.A.C.)?	☒	☐	☐
8. Compatible with fuel blends containing >10% ethanol or >20% biodiesel?	☒	☐	☐
9. Has the product been approved or registered in other countries or states? (If so provide list)	☐	☒	☐
10. Any requirements for company-certified installers or trainers?	☐	☒	☐
11. Was this product(s) previously approved or registered by the Department? If yes, EQ- <u>817</u>	☒	☐	☐
12. Any changes or modifications to the equipment since the last submittal to DEP?	☐	☒	☐

Document Information: Provide supporting documents indicated as "Yes" above including this form via email to Tanknotify@floridadep.gov, or documents can be sent to FDEP, Division of Waste Management, 2600 Blair Stone Road, MS 4560, Tallahassee, FL 32399.

Write a brief description of equipment installation and performance in the U.S.:

The LS Generic Level Float Switch does not have any limitations or certifications on who can install the float switch. It is designed to be installed in the field by experienced installers and contractors for underground storage tanks and shop-fabricated aboveground storage tanks and tank components. The sensor must be tested before it is put into initial operation.

Equipment Registration Certification:

To the best of my knowledge and belief, all information submitted on this form is true, accurate and complete.

<u>Jan Mott-Smith, VP</u>	<u>Jan Mott-Smith</u>	<u>9/25/19</u>
Printed Name and Title	Signature (must click to sign)	Date

For Department Use Only:

Date Application Received:	Application complete:	Yes: ☐ No: ☐
EQ- <u>817</u>	Date of complete or incomplete letter sent:	Date Equipment Requires Renewal: <u> </u>

Storage tank system equipment requires renewal every 5 years in accordance with subsection 62-761.850(2), F.A.C.



Department of Environmental Protection

2600 Blair Stone Road • Tallahassee, Florida 32399-2400

DEP Form: 62-761.850(2)
Form Title: Storage Tank Equipment
Registration Form
Effective Date: July 2019
Incorporated in Rule 62-761.850, F.A.C.

Storage Tank System Equipment Registration Form

Fill out completely.

General Information

Company Name: FPI Sensors LLC Contact Name: Customer Service
Company Address: 1301 Corporate Center Dr., Suite 140 City, State: Eagan, MN Zip: 55121
E-mail: CustomerService@RochesterGauges.com Contact Number: (972) 241-2161
Product Name: FPI Sensors International
Model Number(s): CL Generic Continuous Level 4-20mA Product Type: _____

Rule(s) citation that registration is being requested within Chapter 62-761 (UST), and/or 62-762 (AST), Chapter 62-761 and Chapter 62-762.851(2)

F.A.C.: Write a brief description of equipment registration request including product limitations:

The CL Generic Continuous Level 4-20mA Sensor is UL listed for tank monitoring in hazardous locations. The float is constructed of stainless steel. The sensor changes from 4 mA at the low level to 20 mA at the high level.

Information Checklist (Choose Yes, No, or N/A - Not Applicable):

	Yes	No	N/A
1. Third-party Certification by a Nationally Recognized Testing Laboratory? (Required)	☒	☐	☐
2. Documentation of third-party evaluation that the equipment meets DEP Rules?	☒	☐	☐
3. Documents included about the qualifications of the Nationally Recognized Testing Laboratory?	☒	☐	☐
4. Technical information and drawings included?	☒	☐	☐
5. Installation instructions included?	☒	☐	☐
6. Annual Operability Testing Requirements (Rules 62-761.500, 62-762.501, & 62-762.502 F.A.C.)?	☒	☐	☐
7. Integrity Testing Requirements (Rules 62-761.700, 62-762.701, & 62-762.702, F.A.C.)?	☒	☐	☐
8. Compatible with fuel blends containing >10% ethanol or >20% biodiesel?	☒	☐	☐
9. Has the product been approved or registered in other countries or states? (If so provide list)	☐	☒	☐
10. Any requirements for company-certified installers or trainers?	☐	☒	☐
11. Was this product(s) previously approved or registered by the Department? If yes, EQ- <u>817</u>	☒	☐	☐
12. Any changes or modifications to the equipment since the last submittal to DEP?	☐	☒	☐

Document Information: Provide supporting documents indicated as "Yes" above including this form via email to Tanknetify@floridadeep.gov, or documents can be sent to FDEP, Division of Waste Management, 2600 Blair Stone Road, MS 4560, Tallahassee, FL 32399.

Write a brief description of equipment installation and performance in the U.S.:

The CL Generic Continuous Level 4-20mA Float Switch does not have any limitations or certifications on who can install the float switch. It is resistant to corrosion, UV, and able to withstand deterioration. It is designed to be installed in the field by experienced installers and contractors for underground storage tanks and shop-fabricated aboveground storage tanks and tank components. The sensor must be tested before it is put into initial operation.

Equipment Registration Certification:

To the best of my knowledge and belief, all information submitted on this form is true, accurate and complete.

Jon Mott-Smith, VP Jon Mott-Smith 9/25/19
Printed Name and Title Signature (sign date to sign) Date

For Department Use Only:

Date Application Received: _____ Application complete: Yes ☐ No ☐

EQ- 817 Date of complete or incomplete letter sent: _____ Date Equipment Requires Renewal: _____

Storage tank system equipment requires renewal every 5 years in accordance with subsection 62-761.850(2), F.A.C.



**FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION**

BOB MARTINEZ CENTER
2600 BLAIRSTONE ROAD
TALLAHASSEE, FLORIDA 32399-2400

RICK SCOTT
GOVERNOR

HERSCHEL T. VINYARD JR.
SECRETARY

January 13, 2014

Mr. Marshall T. Mott-Smith
Mott-Smith Consulting Group
1933 Commonwealth Lane
Tallahassee, FL 32303

Subject: Approval of the FPI Sensors International
Models LD 1001 Generic Leak Detection Sensor, CL1001 Generic Continuous Level
4-20 mA Sensor, and LS 1001 Generic Level Float Switch.
File No. EQ-817

Dear Mr. Mott-Smith:

The Office of District and Business Support has concluded its review of the Equipment Approval request dated October 31, 2013 that was submitted for FPI Sensors International Models LD 1001 Generic Leak Detection Sensor, CL1001 Generic Continuous Level 4-20 mA Sensor, and LS 1001 Generic Level Float Switch, pursuant to Rules 62-761.640(3)(a), 62-761.850(2), 62-762.641(3)(a), and 62-762.851(2), Florida Administrative Code (F.A.C.). The Models LD 1001 Generic Leak Detection Sensor, CL1001 Generic Continuous Level 4-20 mA Sensor, and LS 1001 Generic Level Float Switch are release detection sensors for monitoring secondary containment systems associated with underground and aboveground storage tanks and for an associated float switch associated with the sensors. The Models LD 1001 Generic Leak Detection Sensor, CL1001 Generic Continuous Level 4-20 mA Sensor, and LS 1001 Generic Level Float Switch have been third party evaluated by Ken Wilcox Associates and meet the technical requirements of the Florida storage tank system rules.

Based on the information provided by FPI Sensors International, the Models LD 1001 Generic Leak Detection Sensor, CL1001 Generic Continuous Level 4-20 mA Sensor, and LS 1001 Generic Level Float Switch provide environmental protection substantially equivalent to that provided by compliance with the requirements established in to Rules 62-761.640(3)(a), and 62-762.641(3)(a), F.A.C. and may be used as release detection sensors and a float switch associated with underground and aboveground storage tanks systems.

Pursuant to Rules 62-761.850(2) and 62-762.851(2), F.A.C., the request for the use of the FPI Sensors International Models LD 1001 Generic Leak Detection Sensor, CL1001 Generic Continuous Level 4-20 mA Sensor, and LS 1001 Generic Level Float Switch are approved in the State of Florida as release detection sensors and a float switch associated with underground and

aboveground storage tank systems. The installation and operation of the release detection sensors and the float switch shall be made in accordance with the manufacturer's recommendations.

Please be advised that the above referenced DEP rules are subject to change. If the above rule standards are modified in the future, this order may be modified or rescinded for future upgrades and installations. Additionally, if the product(s) show a consistent pattern of failure(s), and therefore does not provide substantially equivalent environmental protection, the Department may rescind this order.

The Department's Order shall become final unless a timely petition for an administrative hearing is filed under sections 120.569 and 120.57, F.S., within **21** days of receipt of this Order. Persons who have filed such a petition may seek to mediate the dispute and choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement. The procedures for petitioning a hearing and pursuing mediation are set forth below.

Persons affected by this Order have the following options:

- A. If you choose to accept the Department's decision regarding the Order, you do not have to do anything. This Order is final and effective as of the date on the top of the first page of this Order.
- B. If you choose to challenge the decision, you may do the following:
 - 1. File a request for an extension of time to file a petition for hearing with the Department's Agency Clerk in the Office of General Counsel within **21** days of receipt of this Order. This request should be made if you wish to meet with the Department in an attempt to resolve any disputes without first filing a petition for hearing or negotiate an agreement to mediate; or
 - 2. File a petition for administrative hearing with the Department's Agency Clerk in the Office of General Counsel within **21** days of receipt of this Order.

In addition to requesting an administrative hearing, any petitioner may elect to pursue mediation under Section 120.573, F.S., and must negotiate an agreement to mediate within **10** days after the deadline for filing a petition.

How to Request an Extension of Time to File a Petition for Hearing

For good cause shown, pursuant to Rule 62-110.106(4), F.A.C., the Department may grant a request for an extension of time to file a petition for hearing. Such a request must be filed (received) by the Agency Clerk in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000, within **21** days of receipt of this Order. Petitioner, if different from the applicant, shall mail a copy of the request to the applicant at the time of filing. Failure to file a petition within this time period shall waive the right of anyone who may request an administrative hearing under Sections 120.569 and 120.57, F.S.

How to File a Petition for Administrative Hearing

A person whose substantial interests are affected by this Order may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) by the Agency Clerk in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, MS 35, Tallahassee, Florida, 32399-3000, within **21** days of receipt of this Order. Petitioner, if different from the applicant shall mail a copy of the petition to the applicant at the time of filing. Failure to file a petition within this time period shall waive the right of anyone who may request an administrative hearing under Sections 120.569 and 120.57, F.S.

Pursuant to Subsection 120.569(2), F.S., and Rule 28-106.201, F.A.C., a petition for administrative hearing shall contain the following information.

- a) The name, address, and telephone number of each petitioner; the name, address, and telephone number of the petitioner's representative, if any, the site owner's name and address, if different from the petitioner, the DEP facility number, and the name and address of the facility;
- b) A statement of when and how the petitioner received notice of the Department's action or proposed action;
- c) An explanation of how each petitioner's substantial interests are or will be affected by the Department's action or proposed action;
- d) A statement of the disputed issues of material fact, or a statement that there are no disputed facts;
- e) A concise statement of the ultimate facts alleged, including a statement of the specific facts the petitioner contends warrant reversal or modification of the Department's action or proposed action;
- f) A statement of the specific rules or statutes the petitioner contends requires reversal or modification of the Department's action or proposed action; and
- g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the Department to take with respect to the Department's action or proposed action.

How to Pursue Mediation

In addition to requesting an administrative hearing, any petitioner may elect to pursue mediation. The election may be accomplished by filing with the Department a mediation agreement with all parties to the proceeding (i.e., the applicant, the Department, and any person who has filed a timely and sufficient petition for hearing). The agreement must contain all the information required by Rule 28-106.404, F.A.C. The agreement, signed by all parties, must be received by the Agency Clerk in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000 within **10** days after the deadline for filing a petition, as set forth above. Choosing mediation will not adversely affect the right to a hearing if mediation does not result in a settlement.

Pursuant to Rule 28-106.404, F.A.C., an agreement to mediate must include the following.

- (i) The name, address, and telephone number of the persons who may attend the mediation, (also the DEP facility number, the name and address of the facility if applicable);
- (ii) The name, address, and telephone number of the mediator agreed to by the parties;
- (iii) How the costs and fees associated with the mediation will be allocated (the Department will not pay any of the costs of mediation);
- (iv) The agreement of the parties regarding the confidentiality of discussions and documents introduced during mediation to the extent authorized by law;
- (v) The date, time, and place of the first mediation session;
- (vi) The name of the party's representative who shall have authority to settle or recommend settlement; and
- (vii) The signature of the parties.

As provided in Section 120.573, F.S., the timely agreement of all parties to mediate will toll the time limitations imposed by Sections 120.569 and 120.57, F.S., for holding an administrative hearing and issuing a final order. Unless otherwise agreed by the parties, the mediation must be concluded within sixty days of the execution of the agreement. If mediation results in settlement of the administrative dispute, the Department must enter a final order incorporating the agreement of the parties. Persons seeking to protect their substantial interests that would be affected by such a modified final decision must file their petitions within **21** days of receipt of this notice, or they shall be deemed to have waived their right to a proceeding under Sections 120.569 and 120.57, F.S. If mediation terminates without settlement of the dispute, the Department shall notify all parties in writing that the administrative hearing processes under Sections 120.569 and 120.57, F.S., are resumed.

This Order is final and effective as of the date on the top of the first page of this Order. Timely filing a petition for administrative hearing postpones the date this Order takes effect until the Department issues either a final order pursuant to an administrative hearing or mediation settlement.

Judicial Review

Any party to this Order has the right to seek judicial review of it under Section 120.68, F.S., by filing a notice of appeal under Rule 9.110 of the Florida Rules of Appellate Procedure with the Agency Clerk of the Department in the Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within thirty days after this order is filed with the clerk of the Department (see below).

Questions

Any questions regarding the Department's review of your equipment approval should be directed to John Svec at (850)245-8845. Questions regarding legal issues should be referred to Rebecca

Robinette, Office of General Counsel, at (850)245-2242. Contact with any of the above does not constitute a petition for administrative hearing, a request for a time extension to file a petition for hearing or an agreement to mediate.

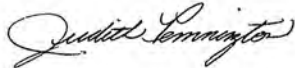
Sincerely,



John A. Coates, PE, Assistant Division Director
Division of Waste Management

JAC/js

FILING AND ACKNOWLEDGMENT FILED,
on this date, pursuant to §120.52 Florida Statutes,
with the designated Department Clerk, receipt of
which is hereby acknowledged.



Clerk
(or Deputy Clerk)

01/13/2014

Date

FPI Sensors International

Equipment Approval Request

to the

Florida Department of Environmental Protection

by

FPI Sensors International

for

**Underground and Aboveground
Storage System Release Detection Equipment**

Submitted by

Marshall T. Mott-Smith, President
Mott-Smith Consulting Group, LLC
1933 Commonwealth Lane
Tallahassee, FL 32303
marshall@mott-smithconsulting.com
850-391-9835 work
850-591-1434 cell
www.mott-smithconsulting.com

BUREAU OF WASTE CLEANUP

OCT 31 2013

**PROGRAM & TECHNICAL
SUPPORT SECTION**





October 31, 2013

John Svec, P.E.
Storage Tank Program
Florida Department of
Environmental Protection
2600 Blair Stone Road
Tallahassee, FL 32399-2400

Re: Equipment Approval Request for FPI Sensors International

Dear John,

FPI Sensors International is requesting approval from the Florida Department of Environmental Protection for several models of storage tank system sensors.

Ken Wilcox Associates, Inc. has performed the third party certification as a Nationally Recognized Laboratory in accordance with Rule 62-761.200(36), F.A.C.

FPI Sensors International appreciates your consideration in this matter, and please feel free to contact me if you have any questions or if we need to provide additional information.

Best Regards,

Marshall Tipton Mott-Smith

Marshall Mott-Smith, President
Mott-Smith Consulting Group, LLC

1933 Commonwealth Lane
Tallahassee, FL 32303
850.391.9835
888.768.2916 fax
www.mott-smithconsulting.com

1. Introduction

This Equipment Approval Request is sought in accordance with Florida Administrative Code Rule 62-761.600(2). The FPI Sensors International Corporation is requesting that stamped documents within this Equipment Approval Request be considered **CONFIDENTIAL**. The reason that FPI Sensors International Corporation is requesting confidentiality is because of the proprietary nature of the information, and the FPI Sensors International does not want to share this information with competitors and adversely affect the marketability of their leak detection systems.

The Contact information for FPI Sensors International is:

Gary Maas
FPI Sensors International
1301 Corporate Center Drive
Suite 140
Eagan, MN 55121

1-800-852-9984
Fax 651-681-1888
gary.maas@fpisensors.com
www.FPIsensors.com

The Request is sought by the FPI Sensors International for the product line model numbers listed below. Product specifications, installation instructions, and testing requirements are all provided in the attachments of this document.

The FPI International Sensors are leak detection systems that are designed to be installed in confined spaces such as piping and dispenser sumps, or the interstice of a double wall storage tank for shop-fabricated aboveground storage tanks and underground storage tanks containing regulated petroleum products. The following is a list of the models along with the model numbers:

<u>Model</u>	<u>Model #</u>
LD 1001 Generic Leak Detection Sensor	LD FPI BB15
CL 1001 Generic Continuous Level 4-20 mA Sensor	LD FPI SP15
LS 1001 Generic Level Float Switch	LD FPI SP12

These models are float sensors that are activated when liquids in a containment sump or interstitial space cause the floats to rise from their installed position and subsequently activate the electronic signal to the monitor. The LS-1001 Level Float Switch and the LD 1001 Leak Detection Sensor are on/off switches that alarm when the fuel level reaches the alarm point of the float. The CL 1001 Continuous Level Sensor is a continuous 4-20 ma float switch. When it is combined with an appropriate readout or

FPI Operational Test

Certain organizations and jurisdictions require operational periodic operational test for level detection sensors. FPI Sensors can be tested with a few different methods

LEAK DETECTION SENSORS:

If the sensor can maintain its connection to the monitoring system, remove the sensor from the tank and turn the sensor 180 degrees so that gravity will cause the float to move from the bottom position to the top position. As the float is observed to move the monitoring systems should provide the signal that the float has changed state.

If the sensor is not connected to the monitoring system, connect the two float wires to a continuity meter or an ohm meter. Remove the sensor from the tank and turn the sensor 180 degrees so that gravity will cause the float to move from the bottom position to the top position. As the float movement is observed, the meter should provide the signal that the float has changed state.

4-20 mA SENSOR

If the sensor can maintain its connection to the monitoring system, remove the sensor from the tank and slide the float up the stem. While moving the float, observe the monitoring system changing its tank reading.

If the sensor is not connected to the monitoring system, connect the sensor wires to a ma meter. It will also be necessary to provide 24 VDC power, in series with the 4-20 ma sensor and the ma meter.

Remove the sensor from the tank and slide the float up the stem. While moving the float, observe the ma meter changing its reading. It should read 4 ma when the float is at the bottom position and 20 ma when the float is at the top position.

PROCESS LEVEL SENSOR

If the sensor can maintain its connection to the monitoring system, remove the sensor from the tank and move each float up and down while observing the systems operation. Confirm the system operation is in agreement with the float position.

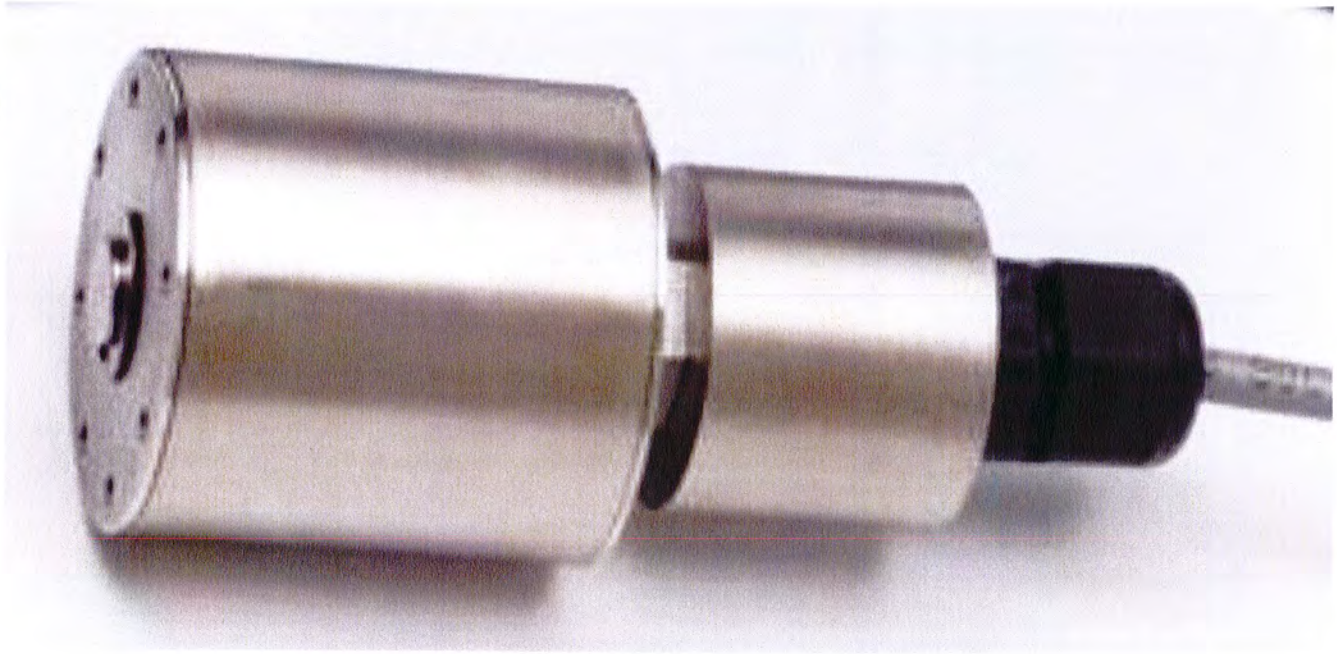
If the sensor is not connected to the monitoring system, connect the float wires to a continuity meter or an ohm meter. Remove the sensor from the tank and move each float up and down while observing the ohm meter or continuity meter. As the float movement is observed, the meter should provide the signal replicating the systems operation.

September 2013





Model Number LD FPI BB15



Model Number LD FPI SP15



Model Number LD FPI SP12