

LC300

FUEL LEVEL CONTROLLER

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For the most up-to-date information for this product and others, please contact Simplex, Inc. at (800) 637-8603 or visit us on the web at <http://www.simplexdirect.com>.

Many of the illustrations and instructions in this manual refer to the standard configuration for this product. If you have requested customizations, the drawings provided with your order take precedence; please refer to them for details specific to your order.

**If you have any questions,
please contact Simplex at 800-637-8603.**

1 WARNINGS AND CAUTIONS

SAFETY INFORMATION SYMBOLS

The following images indicate important safety information:



This General warning symbol points out important information that, if not followed, could endanger personal safety and/or property.



This Explosion warning symbol points out potential explosion hazards.



This Fire warning symbol points out potential fire hazards.



This Electrical warning symbol points out potential electrical shock hazards.

CAUTIONS



- Improper operation of this equipment such as neglecting its maintenance or being careless can cause possible injury or death. Permit only responsible and capable persons to install, operate, and/or maintain this equipment.
- Potentially lethal voltages and amperages are present in these machines. Ensure all steps are taken to render the machine safe before attempting to work on the equipment.
- All hardware covered by this manual have dangerous electrical voltages and can cause fatal electrical shock. Avoid contact with bare wires, terminals, connections, etc., on the hardware, if applicable. Ensure all appropriate covers, guards, grounds, and barriers are in place before operating the equipment. If work must be done around an operating unit, stand on an insulated dry surface to reduce shock hazard.
- Do not handle any kind of electrical device while standing in water, while barefoot, or while hands or feet are wet. **DANGEROUS ELECTRICAL SHOCK MAY RESULT.**
- If trained personnel must stand on metal or concrete while installing, servicing, adjusting, or repairing this equipment, place insulative mats over a dry wooden platform. Work on the equipment only while standing on such insulative mats.
- The National Electrical Code (NEC), Article 250 requires the frame of the equipment to be connected to an approved earth ground and/or grounding rods. This grounding will help prevent dangerous electrical shock that might be caused by a ground fault condition or by static electricity. Never disconnect the ground wire.
- Wire gauge sizes of electrical wiring, cables, and cord sets must be adequate to handle the maximum electrical current

(ampacity) to which they will be subjected.

- Before installing or servicing this (and related) equipment, make sure that all power voltage supplies are completely turned off at their source. Failure to do so will result in hazardous and possibly fatal electrical shock.
- In case of accident caused by electric shock, immediately shut down the source of electrical power. If this is not possible, attempt to free the victim from the live conductor. **AVOID DIRECT CONTACT WITH THE VICTIM.** Use a nonconducting implement, such as a dry rope or board, to free the victim from the live conductor. If the victim is unconscious, apply first aid and seek immediate medical attention.
- Never wear jewelry when working on this equipment. Jewelry can conduct electricity resulting in electric shock or may get caught in moving components causing injury.
- Keep a fire extinguisher near the hardware at all times. Do NOT use any carbon tetra-chloride type extinguisher. Its fumes are toxic, and the liquid can deteriorate wiring insulation. Keep the extinguisher properly charged and be familiar with its use. If there are any questions pertaining to fire extinguishers, please consult the local fire department.
- The illustrations in this manual are examples only and may differ from your unit.

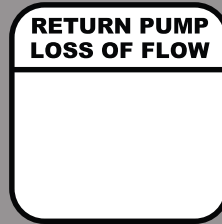


2 NAMEPLATES AND PLACARDS

LEVEL CONTROLLER



**RETURN
PUMP MOTOR**



**RETURN PUMP
MOTOR ARMED
ABOVE 70% LEVEL**

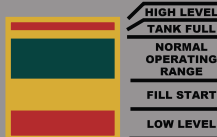
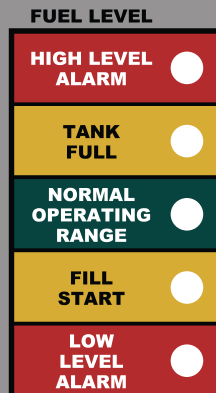
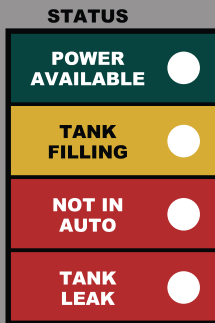
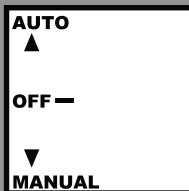
**RETURN
PUMP MOTOR
RUNNING**

**PRESS TO TEST
ONLY WHEN ARMED
(HOLD FOR MANUAL)**

**UNDER TEST
RETURN PUMP WILL RUN AND
PUMP-DOWN TANK TO 70% LEVEL
TO REFILL TANK TO NORMAL FULL LEVEL,
PRESS TEST PUSHBUTTON ON MAIN CONTROL PANEL**

LC-300 Fuel Oil Level Controller

SIMPLEX®



SIMPLEX[®]

(800) 637-8603

www.simplexdirect.com

W.O.#: XXXXX

MODEL: LC-300

SHORT CIRCUIT

CURRENT RATING: 5kA

ENCLOSURE: TYPE 1

CONTROL CIRCUIT:

115VAC, 1-PH, 60HZ

FULL LOAD AMPS: 2A

3 UNPACKING

INCLUDED COMPONENTS AND PARTS

The following items are included with your LC300 Fuel Level Controller. If any of the following are not included, please contact your Simplex representative or call Simplex Direct, Inc., at 800-637-8603.

1. Fuel Level Controller
2. Float Assembly(s)
3. Manual
4. Drawings package

PRIMARY INSPECTION



If any problems are observed during Primary Inspection, call Simplex 24 hours a day at 800-637-8603

Preventative visual inspection of the shipping crate and the fuel level controller is advised. Never apply power to a fuel level controller before performing this procedure. The following four-point inspection is recommended before installation and as part of a 6-month maintenance schedule:

1. If the crate shows any signs of damage, examine the fuel level controller in the corresponding areas for signs of initial problems.
2. Check the entire outside of the cabinet for any visual damage, which could cause internal electrical or mechanical problems due to reduced clearance.
3. Check electrical connections for tightness.
4. Examine all accessible internal electrical components.

Figure 1 Fuel Level Controller

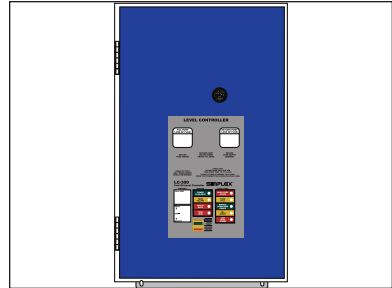


Figure 2 Float Assembly



4 DESCRIPTION AND SPECIFICATION

OVERVIEW OF USE

The LC300 Fuel Level Controller provides intelligent control and monitoring of fuel level for day tanks and other storage tanks.

The LC300 monitors the fuel level in a tank, keeping it at least half full in standard configurations. When the fuel level drops to the Fill Start level, it calls for fuel. When the fuel level reaches Full level, it cancels the call for fuel and can optionally return fuel to the main storage tank, if needed.

With optional equipment, the fill controller can also shut down the generator if the fuel level reaches a critical low level and request a fill-up when the generator stops running.

CAPABILITIES

The LC300 Fuel Level Controller is capable of monitoring and controlling round or rectangular tanks up to 100,000 gallons. The LC300 can optionally control two valves - one to accept fuel, and another to return it to the main storage tank.

SAFETY

The controller's main goal is to prevent overfilling of a tank and starving the generator's fuel injectors. To that end, the controller has four float level switches to ensure the fuel level remains in normal operating range. If the fuel level rises past the full level to the high fuel level, the controller will register an error.

The controller can also monitor a leak sensor. When a leak is detected, the controller ceases to ask for fuel until the error is cleared.

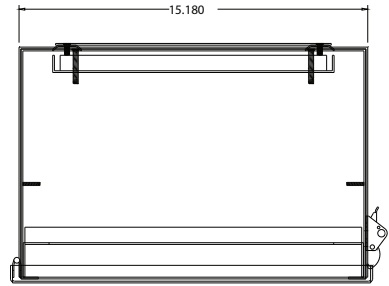
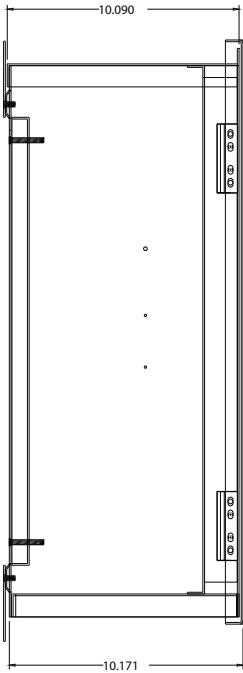
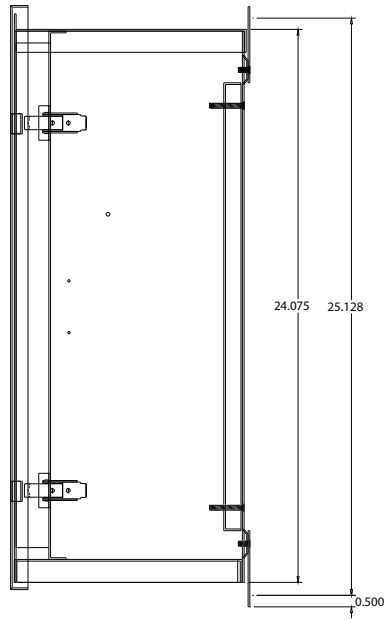
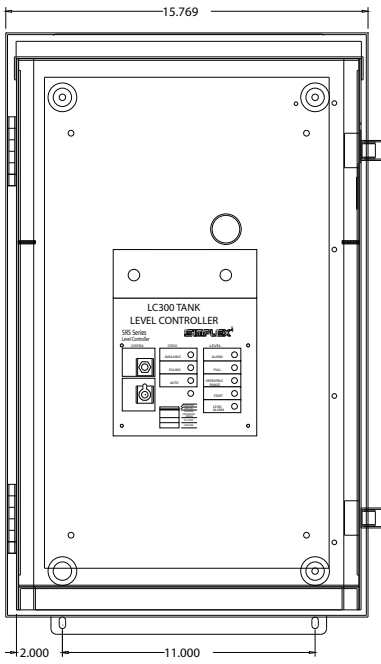


Figure 3 Controller dimensions
Insight  Onsite

5 INSTALLATION

The Fuel Level Controller should be mounted at the tank it is monitoring, then wired to the power source, float assemblies, valves, and any other sensors or system integration connections.

INSTALLING WIRING

The controller must be completely wired prior to applying power. Failure to follow the wiring information and guide may result in product damage and loss of warranty coverage. If requested, startup services can be provided by Simplex Onsite, Inc. or Simplex, Inc. to check field wiring prior to applying power as well as assuring proper operation.

INSTALLING CABLE ACCESS

To bring cabling into the fuel level controller, pull a hole into the cabinet at a location of your choosing and install a 3R-rated conduit connector for access.

INSTALLING CONTROL POWER

To power your controller, connect a single-phase, 115VAC, 15A power source to TB-PS-9-10.

INSTALLING FLOAT ASSEMBLIES

To install the float assembly, push the latch handles on the assembly down and slide the coupler off.

Apply an appropriate threadlocker to the threads on the coupler and screw it into the appropriate fitting.

Slide the assembly into the coupler and lift the latching arms until the assembly is locked into place.

Connect:

1. Common wire to TB-ASB-1
2. High Level Float wire to TB-ASB-2
3. Full Start Float wire to TB-ASB-3
4. Fill Start Level Float wire to TB-ASB-4
5. Low Level Float wire to TB-ASB-5

Figure 4 Float Assembly Cable



If there are any questions about wiring the controller, please contact Simplex Inc. Simplex Inc. is not responsible for damage due to incorrect wiring installation.

INSTALLING DRY CONTACT ALARMS (IF ORDERED)

To connect the controller to external alarms, connect TB-A-1-12 to your system as follows:

For Not in Auto alarm annunciation:

1. Normally Open to TB-A-1
2. Common to TB-A-2
3. Normally Closed to TB-A-3

For Leak alarm annunciation :

1. Normally Open to TB-A-4
2. Common to TB-A-5
3. Normally Closed to TB-A-6

For High Level alarm annunciation:

1. Normally Open to TB-A-7
2. Common to TB-A-8
3. Normally Closed to TB-A-9

For Low Level alarm annunciation:

1. Normally Open to TB-A-10
2. Common to TB-A-11
3. Normally Closed to TB-A-12

INSTALLING SOLENOID VALVES

To connect valves, connect the following:

1. Solenoid 1 (fill valve): TB-SOL-1-3
2. Solenoid 2 (high cut-out valve): TB-PS-2 and TB-ASB-6

6 OPERATING INSTRUCTIONS

Once installed, the Fuel Level Controller will not normally require further interaction to maintain the fuel level in the tank. In the event that you do need to use the interface, read the following section closely to avoid errors that may interfere with proper operation.

SYSTEM CHECK

Before filling the tank, check to see if any alarms (illuminated red lamps) or warnings (illuminated yellow lamps) are active.

TEST FILL

The Test Fill button allows you to confirm that the panel is communicating with the fill pump correctly.

While the day tank's fuel level is below the fill stop/tank full level, pressing the Test Fill button will cause the fuel level controller to send a call for fuel to the pump controller. Once the day tank's fuel level increases to the fill stop/tank full level, the call for fuel signal is terminated.

If the filling operation is completed successfully, you can be assured the fuel level controller will operate correctly when needed.

SEQUENCE OF OPERATIONS

The Fuel Level Controller allows automatic fuel level monitoring and maintenance. As fuel is consumed and drops to the fill start level, the base tank controller generates a call for fuel. When the base tank reaches the tank full/fill stop level, the call for fuel signal is terminated.

If the fuel level reaches the High level, the controller will activate the lead return pump (if ordered) and trigger an alarm.

If the fuel drops below the fill start level to the low level, the controller will activate the lag fill pump (if ordered) and register an alarm.

7 ALARMS AND WARNINGS

Normally equipped, the Fuel Level Controller registers three alarms and three warnings.

All alarms are indicated via an audible horn and light on the panel. To silence the horn, push the “Silence Horn” button above the touch screen.

If there are any active alarms, contact the site supervisor immediately.

ALARMS

1. Low Fuel: The fuel level has fallen below the Fill Start level.
2. High Fuel: The fuel level has risen above the Tank Full level.
3. Not in Auto: The pump has been set to Hand or Off mode

WARNINGS

The Fuel Level controller presents warnings for situations that are noteworthy but not necessarily in need of immediate attention. Active warnings are displayed only on the touch screen by yellow indicators.

1. Tank Full: The tank has reached the full level and cannot be filled any further.
2. Fill Start: The tank fuel has fallen to the low level and is sending a call for fuel to the fuel system.
3. Tank Filling: The pump is running and filling the tank.

8 MAINTENANCE/TROUBLESHOOTING

PREVENTATIVE MAINTENANCE

The Fuel Level Controller is designed to require minimal maintenance. On a yearly schedule, the unit should be fully opened and cleaned out. At this time, it would be a good idea to disconnect power and tighten all connections to ensure proper operation. This would also be a good time to tighten any mounting hardware.

TROUBLE SHOOTING

To troubleshoot the Fuel Level Controller, a full set of drawings is required. Any electrical work should be performed by trained personnel. Simplex, Inc. is not liable for any damage or bodily harm. If additional help is required, contact Simplex or your local Simplex Onsite Branch for troubleshooting and onsite assistance.



Remove all power before servicing the Fuel Level Controller. Never operate or service a fill controller that is not grounded.



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