Linear Systems **Ph/Fax: +91 22 25576002**

BOILER SEQUENCE CONTROLLER
(Model LS-107)

GENERAL

This Burner Controller is designed for Fuel Oil firing with Gas (LPG) Pilot. The Fuel Oil is used for main combustion. The Flame sensing is done by means of Light Detecting Resistor (LDR) Sensor. The Controller has a built-in Flame Sensor Amplifier for sensing of the flame.

The Controller uses microprocessor based design and is housed in a ABS plastic enclosure with over all size of 150(L) x 70(B) x 110(H) mm. The mounting is by means of standard 35 mm DIN rail or on back panel with two screws. The outputs are relay based, with contact ratings of 230V AC, 5 A resistive load.

1.0 SEQUENCE SPECIFICATIONS

When the Power supply is connected to the Sequence Controller and the Start push button is depressed, the Sequence and timings for a NORMAL start up are as given below:
(NOTE: Timings are Factory set)

Step No.	Time in sec	Operation	Term Ref.
I	t = 0	RUN Indicator ON	(3)
		Blower ON	(9)
		Oil Pump ON	(10)
II	t = 30	Ignition ON	(11)
III	t = 30+30	Main Solenoid Valve OPEN	(12)
IV	t = 30+30+7	High Flame Valve OPEN	(13)
		Ignition OFF.	(11)

The following is initiated in case of following **SPECIAL / UNSAFE** conditions

Oil Too Cold:

If the interlock loop Terminals 6&7 is open at the end of Step I, indicating that oil has not attained required temperature, Ignition is not energized. Now Sequence Controller waits till the oil reaches the required temperature. If this wait period is more than 30 secs, Blower stops after 30 secs. When oil reaches the required temperature, which is indicated by closing the loop 6&7, Ignition is energized. Step III & IV follow.

Unsafe Operating Conditions (Safety Loop OPEN):
The Safety Loop is typically formed by connecting Pressure/ Temperature switch contacts in series across Terminals 7 and 8. The contacts MUST BE POTENTIAL FREE. Mains supply is provided internally by the Sequence Controller.

If the Safety Loop is OPEN at the end of Step I OR at any time during normal operation, then all circuits are turned OFF except the Blower. The Blower is turned OFF after a Post Purge time of 30 seconds.

The Sequence Controller now waits for SAFE operating conditions to return and starts the sequence from Step I. During the wait period the RUN indicator is ON.

False Flame Check:

If the flame is sensed during step I & II, all outputs are shut OFF and flame failure terminal (14) is energized. A manual RESTART is necessary.

Flame Failure:

If the flame is not present at the end of Step IV or if the flame is not detected during normal operation, then all outputs are shut OFF and flame failure terminal (14) is energized. A manual RESTART is necessary.

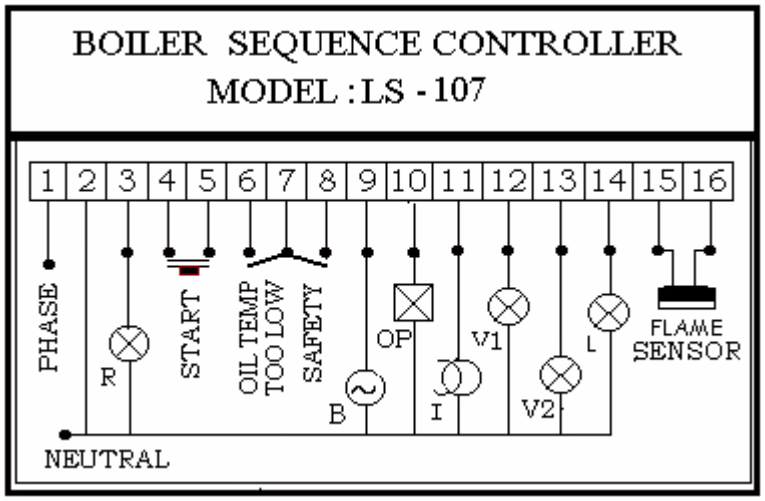
2.0 OPERATING INSTRUCTION ***** IMPORTANT *****

1. It is important to note that the FUSE RATING should not exceed 5 Amps.
The fuse has been provided essentially to protect against short circuits External to the Sequence Controller, namely in a contactor, solenoid etc. Hence, it is recommended to investigate the panel wiring before replacing the fuse. Use of higher fuse would cause severe damage to the Sequence Controller.

2. It is recommended to use Shielded wire for LDR connection, 230V SUPPLY SHOULD NEVER BE CONNECTED TO FLAME SENSOR TERMINALS.

3. Safety circuit is formed by potential free contacts. External supply should never be connected to terminals 6,7 and 8. Supply is provided internally.

3.0 SCHEMATIC DIAGRAM



For more details and clarifications please contact us.