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

BOILER SEQUENCE CONTROLLER

Model: 107 –MX

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.

SEQUENCE SPECFICATION:

When all the connections are done as shown in the schematic, Power supply of 230 VAC 50 Hz is provided at terminals 1 and 2. The controller waits for safety interlock across 6 & 7 to be closed for a start of firing sequence. The controller now starts the sequence for a normal start up. The following table summaries the steps in chronological order, corresponding timings and sequence result at the terminals are indicated.

Step No	Time in Seconds	Operation
1	T = 0	RUN Indicator ON (3) SFT ON Blower ON (9) Damper ON (10)
2	T = 0+30	Damper OFF

Now waits for Oil tempt. Interlock to close wired across terminals 7 & 8.

3	T = 0+30+2	Ignition ON (11)
4	T = 0+30+2 +30	Valve 1 ON (12)

If flame is not sensed by the Flame sensor.

5a	T = 0+30+2 +30+10	Blower, Ignition and Valve 1 OFF

Retrial: Now the controller will attempt for retrial from STEP 1. Failure to establish flame in this attempt will result in lockout.

If flame is sensed by the Flame sensor.

5b	T = 0+30+2+30+10	Ignition OFF
6	T = 0+30+2+30+10+30	Valve 2 ON (13) Damper ON (10)

Step 6 completes the normal firing sequence.

LOCK OUT CONDITIONS:

Whenever the controller is in Lock out condition the sequence can be restarted by pressing the N/O P.B wired across terminals 4 & 5. Upon Reset, the Controller again starts sequence from the beginning and attempts for a new start up. An interruption in Power supply will also have the same Reset effect on the controller.

The Controller can go to LOCK OUT under the following circumstances:

1. If flame is not sensed at the end of Step 5a even after second attempt.
2. If flame is not sensed at any instant of time after step 5a during normal running.
3. If flame is sensed during Step 1, that is during pre purge cycle, which is considered as false flame.

NORMAL SHUT DOWN:

A safety circuit typically formed by connecting the pressure/temperature switches and start up safety interlocks wired in series across terminals 6 & 7 which forms the main control switch.

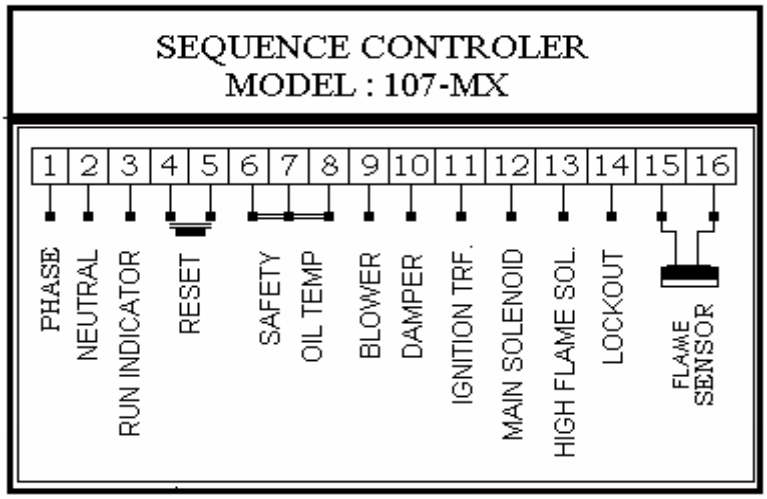
If at any instant of time during normal firing operation, Main control switch is opened, the firing is stopped. Oil valves are closed.

The controller will now wait for the Main control switch to close again. Upon closure of the same the Controller will start the firing sequence all over again from Step 1.

OPERATING INSTRUCTIONS:

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 Controller, namely in a Solenoid etc. Hence, it is recommended to investigate the Panel wiring before replacing the Fuse. Usage of higher rated fuse would cause severe damage to the Controller.
2. It is recommended to use shielded wire for Flame sensor connection. 230 VAC supply should never be connected to Flame sensor terminals.
3. Main control switch circuit is formed by potential free contacts through Phase - 230 VAC supply.

SCHEMATIC DIAGRAM:



For more details and clarification please contact us.