Linear Systems **Ph/Fax: +91 22 2557 6002**

GAS BURNER SEQUENCE CONTROLLER

(MODEL 307-GI-V2)

GENERAL

The Burner Controller is designed for automatic start up of gas Burner and has built-in UV Amplifier for flame monitoring. It has the feature of monitoring the airflow through butterfly valve limit switches. It also provides 2 pre-purge timing options. The controller is housed in elegant ABS plastic enclosure with over all size of 150 X 70 X 110 mm. (LXBXH). The controller can be mounted on standard 35 mm DIN rail or on back panel with two screws.

SEQUENCE SPECIFICATIONS

All the connections are done as shown in the Schematic (shown in Page 3) and the power supply (230 V AC) is provided at terminals 1 and 2. The sequence of operation is as given below:

At the start of the sequence, the UV Flame Sensor must NOT be sensing Flame, which will be treated as "False Flame" and the LOCKOUT will be initiated.

Step No.	Time in Seconds	operation
1	T1 = 0	a) RUN Indicator (R) ON b) Blower (B) ON c) Damper Motor Supply (D) ON

The Controller now waits for limit switch (VF) to close to prove the Full opening of the Butterfly Valve. Upon closing of VF, Purge timing starts.

2	T2 = T1 + 30 / 15	a) Damper Motor Supply (D) OFF

Note : The actual timing depends on the Timing Option Jumper (Term 31-32)

The Controller now waits for limit Switch (VP) to close to prove the Partial opening of the Butterfly Valve. After proving the same the following sequence is initiated

b) Ignition (I) ON.

3	T3 = T2 + 10	a) Fuel Valve (V) ON

If flame is sensed by the UV Flame Sensor

4 (a)	T4 = T3 + 5	a) Ignition (I) OFF,

If flame is NOT sensed by the UV Flame Sensor

4 (b)	T4 = T3 + 5	a) Fuel valve (V) OFF b) Lock out Signal (L) ON c) Blower will remain ON

- Step 5 (a) completes the normal firing sequence.
- Step 5 (b) is LOCK OUT condition as result of failure to establish normal flame.

LOCKOUT CONDITION

Whenever the Controller is in LOCKOUT condition, all outputs are turned off, except for the Blower. Note that the Blower continues to run under LOCKOUT condition. Lockout indication will be available at Terminal 13.

The sequence can be restarted by pressing the Reset Push button (N/O contact) switch. Upon Reset, the sequence starts from the beginning and attempts a new start up. An interruption Power supply will also will have the same effect as the Reset.

The controller will go to Lockout under following circumstances:

1. If flame is not sensed at the end of Step 5(a).

2. If flame is not sensed at any instant of time after Step 5(a) during normal running.

3. If flame is sensed during Step 1 & 2, that is, during pre purge cycle, which is considered as false flame.

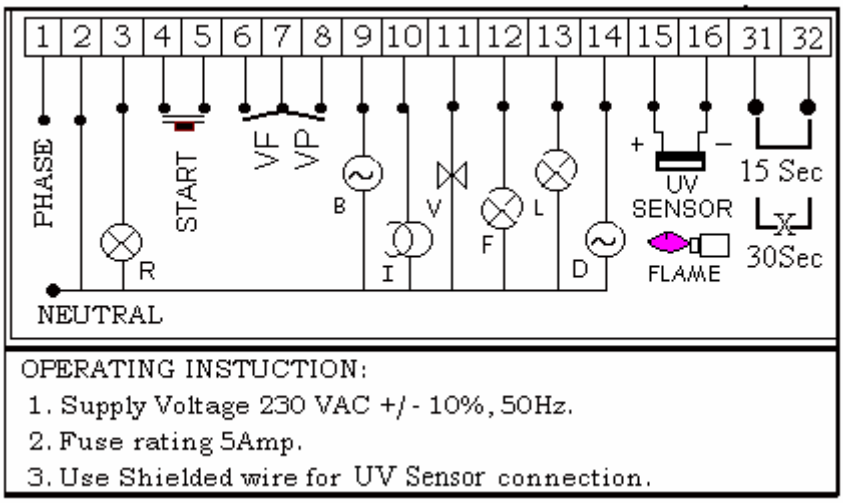
4. If Damper contacts fail to operate with in **90 seconds** from the start of the firing sequence.

SAFETY INTERLOCK

The safety circuit typically formed by connecting the pressure / temperature switches and the start-up interlocks in series with the supply line at Terminal 1. The combination of switches is normally referred to as the “Main Control Switch”.

At any instant of time during normal operation, if the Main Control Switch is opened, then the firing is stopped. All Outputs are switched OFF. The Controller will now wait for the Main Control Switch to close again. Upon closure of the same, the Controller will re-start the firing sequence from Step 1.

SCHEMATIC DIAGRAM



- The Butterfly Valve (D) connected to Terminal 14 is used for Damper Control
- Pre-purge time is 15 sec, if the link between terminal 31 and 32 is closed, the pre-purge time is 30 sec if the link is open.
- The Terminal 12 provides an output, whenever the flame is sensed, independent of the status of the sequence.