

## GAS BURNER SEQUENCE CONTROLLER

(MODEL 307-GI-S / MODEL 107-SGI)

### GENERAL

This Controller is designed for automatic start up of Gas Burner with Pilot Flame proven start up sequence. It has built in UV Amplifier Relay, hence there is no need for a separate UV Flame Amplifier Relay (UV-FR-01). This model also has interlock for proven air pressure. The Controller has the feature of False Flame Signal check at the beginning of the sequence. The details of the sequence are as given below.

The Controller uses microprocessor-based design and is housed in a ABS plastic enclosure with overall size of 150(L) x 70(B) x 110(H) mm. The mounting is by means of 35 mm DIN rail or on back panel with two screws.

### SEQUENCE SPECIFICATIONS:

The power supply (230V AC, 50 Hz) is connected to the Sequence Controller across terminals 1 & 2. The sequence starts when the Safety Loop (Terminals 6 & 7) is closed and the Start Push Button (Terminals 4 & 5) is momentarily depressed.

<u>Step No.</u>	<u>Time in Seconds</u>	<u>Operation</u>	<u>Symbol Ref</u>	<u>Terminal Ref</u>
1	T1 = 0	Blower ON Run Indicator ON	B R	9 3
2	T2 = T1 + 60	Pilot Valve ON (Open) Ignition ON	P I	11 10
<b>If Flame is present</b>				
3A	T3 = T2 + 5	Ignition OFF (Go to Step 4)	I	10
<b>If Flame is not present</b>				
3B	T3 = T2 + 5	All Outputs OFF <b>LOCK OUT ON</b>	L	14
4	T4 = T3 + 10	Main Solenoid ON (open)	V	12
5	T5 = T4 + 5	Pilot Valve OFF (Closed) High Flame Terminal ON	P H	11 13

The **LOCKOUT** sequence is initiated in the case of LOW Air Pressure, Flame Failure, False Flame and Low Gas Pressure conditions.

1. If the Air Pressure Switch (connected across Terminals 7 & 8) is not closed with in **5 seconds** of starting of the Blower or at any instant there after, the Controller goes to Lockout.
2. If the flame is not present at the end of Step 3 or if there is no flame during normal operation, then all devices are turned OFF and Lockout terminal is energized.
3. If Flame is sensed before the opening of Pilot Valve and Ignition, the Controller goes to Lock Out.

When the Controller is under Lock Out condition, the sequence can be restarted **ONLY** by depressing the Start Push Button. The sequence then restarts from the beginning.

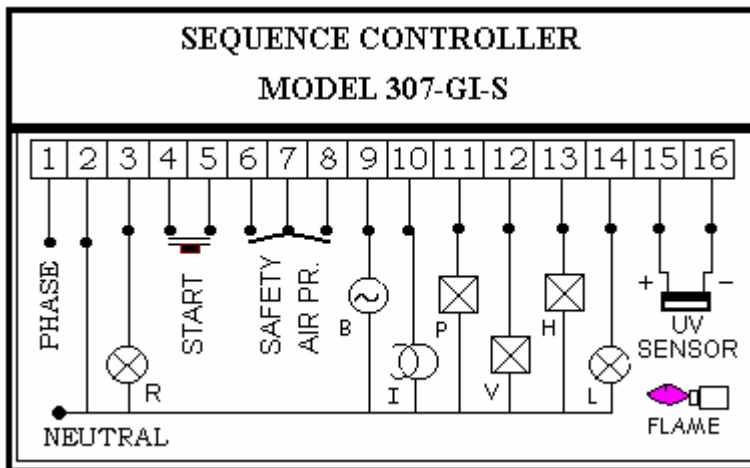
### SAFETY LOOP / POST PURGE SEQUENCE

The Safety circuit is typically formed by connecting Steam Pressure Switch and , Temperature controller Switch in series, across terminals 6 & 7. The switches must be potential free. The line voltage is supplied from inside the Controller.

When Safety loop is OPEN, all circuits are switched OFF, except for the Blower and Run Indicator. The Blower runs for **10 seconds** before it stops.

The Controller now waits for Safety Loop to close again. This condition is indicated by RUN Indicator ON and all other Indicators OFF. Upon closure of Safety Loop, the Controller restarts **Step 1**.

### WIRING DIAGRAM



The Outputs are relay contacts, with a rating of 230V AC, 5A resistive. However, the Controller total output current should not exceed 5A and is protected by a 5 A fuse.