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

BURNER CONTROLLER

(Model 207-FRD-AP-21)

GENERAL

This Burner Controller is designed for automatic start-up of gas burner with Flame Rod for flame sensing. The Controller has sequence specifications compatible with LGB 21.

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, 6 A resistive load. The inputs are potential free contacts.

IMPORTANT NOTE

The Controller provides a high voltage to the Flame Rod. The Flame Rod must be properly immersed in the flame. When the flame is present, the Controller senses a small electron current flow. Any leakage in the Flame Rod circuit wiring will cause reduction of flame signal and result in lockout. Hence, adequate care should be taken while connecting the Flame Rod circuit.

The Flame Rod must be properly insulated while mounting. A HV cable with good insulation must be used for connecting Flame Rod to the Controller. An earth wire from the Burner must be connected to the Controller at Terminal 5.

SEQUENCE SPECIFICATIONS

The following sequence will start when the 230 AC supply is connected to the terminals 1 (Phase) and 4 (Neutral).

Step No.	Time in Secs	Operation	Symbol Ref	Term Ref
1	T1 = 0	Run Indicator ON		

The Controller will go to LOCK OUT, if,

a) False Flame signal is sensed due to electrical leakage or leaky valve

b) Air Pr Low (Term 8 & 9) switch is NOT in CLOSED position

2	T2 = T1 + 2	Blower ON	B	7

The Controller will now wait for Air Pr High (Term 10 & 11) Switch to CLOSE, to prove that air supply is okay.

The Controller will go to LOCKOUT, If it is not achieved with in 5 seconds.

3	T3 = T2 + TP	Ignition ON	I	12

The Purge Time (TP) can be set as below:

a) TP = 7 seconds, if Terminals 29-30 and 31-32 are not looped.
b) TP = 15 seconds, if Terminals 29-30 is Looped and 31-32 is not Looped
c) TP = 30 seconds, if Terminals 29-30 is not Looped and 31-32 is Looped
d) TP = 45 seconds, if Terminals 29-30 and 31-32 are Looped

4	T4 = T3 + 2	Fuel Valve ON	V	13
5	T5 = T4 + 2	Ignition OFF		

If the Flame is sensed

6a	T6 = T5 + 3	Go to Step 7		

If the Flame is NOT sensed

6b	T6 = T5 + 3	All Outputs OFF LOCK OUT ON	L	15
7	T7 = T6 + 5	High Flame Output ON	H	14

The Controller is now in normal operating Condition. However, the Controller will go to LOCK OUT, if there is a flame failure during normal operation condition.

LOCK OUT CONDITION

The Controller will continuously monitor the presence of Flame. If they are not present, ALL OUTPUTS ARE SWITCHED OFF and LOCKOUT ALARM is initiated by providing supply at Terminal 15.

Operator intervention is necessary to restart the Controller after a Lockout. It is recommended that an investigation of the "Cause" is done before restart.

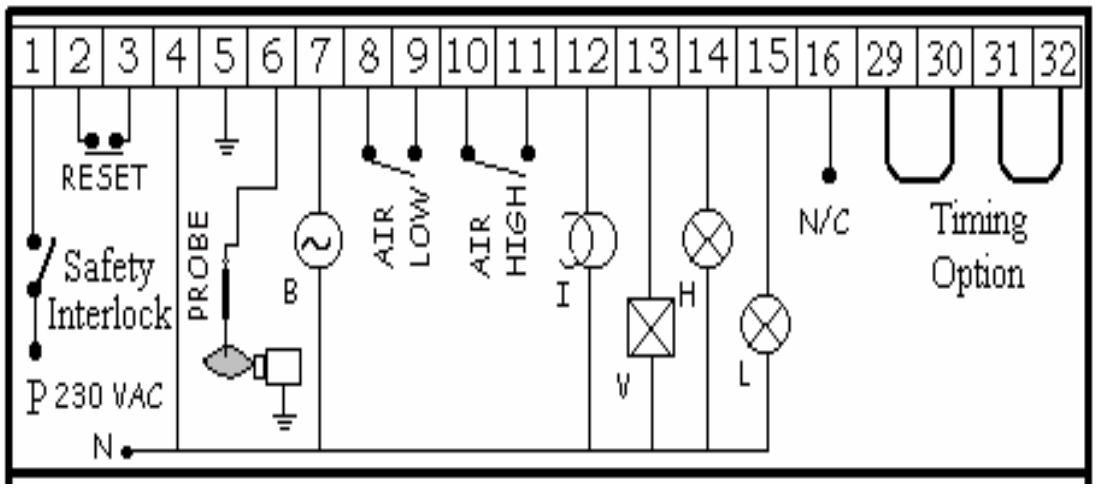
The Lock Out condition can be cleared by pressing the Reset Push Button, connected across Terminals 2 and 3. The Controller will re-start a new sequence.

SAFEFTY INTERLOCK

A safety interlock circuit is typically formed by connecting Temperature / Pressure switches in series. Such an interlock circuit can be wired in series with the supply to the Controller at terminal 1.

During normal operation, if the safety contacts are open, then there will be no supply will be available to the Controller at terminal 1. Hence, all outputs will be off. The Controller will now wait for the safety switches to close again. Upon closure, the Controller will start firing sequence from Step 1.

TERMINAL SCHEMATIC



IMPORTANT NOTES

1. The line voltage should never be connected at the Timing Option terminals. Such a connection will result in damage to the Controller and void the warranty.

2. The Controller Fuse rating is 5A. Do not use a higher rated fuse. Please note that a blown fuse indicates a fault external to the Controller. Hence a thorough investigation of the panel / external wiring must be done before switching on the Controller.