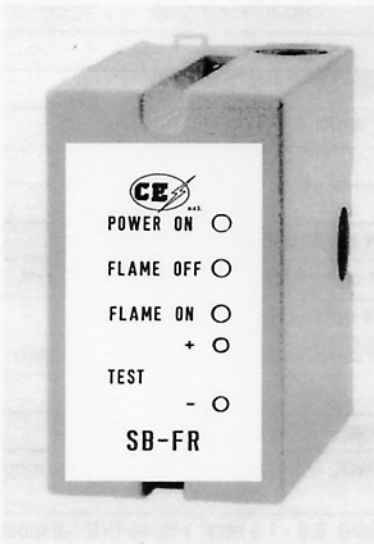




SOLID STATE RECTIFICATION FLAME CONTROL SB-FR

DESCRIPTION

The SB-FR module assures the flame failure protection for manual ignition gas burners.

The SB-FR module consists of an electronic card inserted in a box having 12 screw-terminals for up to 2x1.5 Sqmm wires.

The SB-FR module feeds the rectification flame rod, amplifies the received signal, checks it with the failure flame threshold and drives the flame relay.

The SB-FR module is mounted on a socket wiring base with golden contacts.

The wiring base may be fixed on a wall by screws or onto the DIN 6277 and DIN EN 50022 mounting rail by additional unit.

SPECIFICATIONS

Supply voltage:	110 or 220Vac 50Hz
Power consumption:	5W max
Flame Failure Response Time (F.F.R.T.):	From 1 to 4 seconds upon request
Ambient Temperature Limits:	-20°C/+60°C
Flame relay contacts rating:	DPDT contacts at 120Vac, 5A 1 contact is fuse protected
-Green Led : Power on	
-Green Led : Flame detected	
- Red Led : Flame failure	
- No. 2 Test points for measuring flame signal strength.	
- Dimensions:	52x112x106 mm

INSTALLATION

Mount the SB-FR module base on a panel or on a wall. Installation must be in the specified temperature rating.

The base may be mounted in any position.

All the wirings must be in accordance with the norms in force and be suitable for 75 degrees C. minimum.

For the electrical connections consult page 4.

Supply: Connect the neutral phase to terminal 12 and the hot phase to terminal 10 or 11 in relation to the applied supply.

WORKING TESTING

Working testing of SB-FR module is accomplished with the use of a test meter with 20,000 Ohm/Volt input impedance or a digital meter with 500K Ohm/Volt or greater.

Test points are located on the faceplate named "Test + and -".

Flame signal is also accessible to be tested at terminals 7 and 9.

Flame signal must be as follow:

DIRECT CURRENT FLAME SIGNAL		
MINIMUM	MEDIUM	MAXIMUM
10 V	15 V	20 V

SELECTION OF WIRES AND FLAME ROD CONNECTION

The connection wire between flame rod and amplifier must be an unshielded single-core wire with a 600V working tension.

By using an unshielded wire, the distance between flame rod and amplifier may be 80 m.

If for plant reasons it is necessary to use a shielded wire, distances are shortened; the reduction depends on the capacity between conductor and shield of the wire.

It is advisable to use an RG62 coaxial cable or equal and the maximum distance becomes 35 m.

Note: Ground connected to terminal 7 must be the same as the one connected to the burner where the flame rod is installed. As a good rule connect a ground cable between terminal 7 of the amplifier and the ground of the above-mentioned burner.

INSTALLING THE CONTROL

Assure that electrical power is shut-off.

Insert the module on the base and tighten the 2 lateral screws, by a screwdriver, to fix the module on the base.

INSTALLATION - FLAME ROD

The flame rod proves a gas pilot flame and/or main gas flame.

It is a "spark plug" type unit consisting of $\frac{1}{2}$ " NPT mount, a KANTHAL flame rod, a glazed porcelain insulation rod holder and a sparkplug connector for making electrical connection to Terminal S1.

The rectification flame rod can be 300mm, 450mm or 600mm long.

The flame rod may be located to monitor only the gas pilot flame or both the gas pilot and main gas flames.

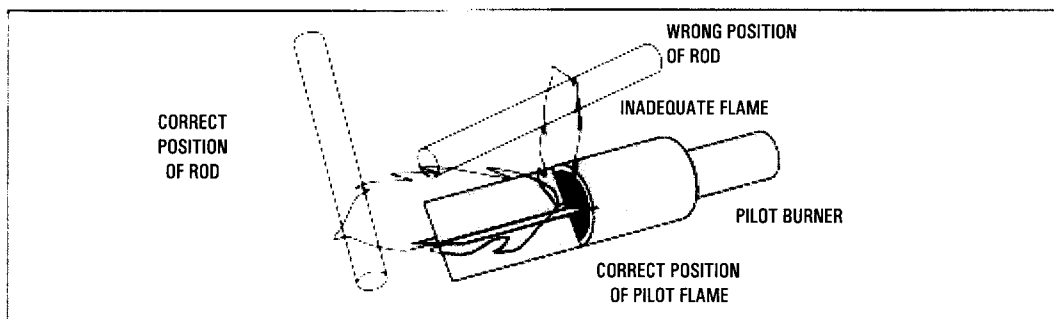
It is mounted on a $\frac{1}{2}$ " NPT coupling.

The following instructions should be observed:

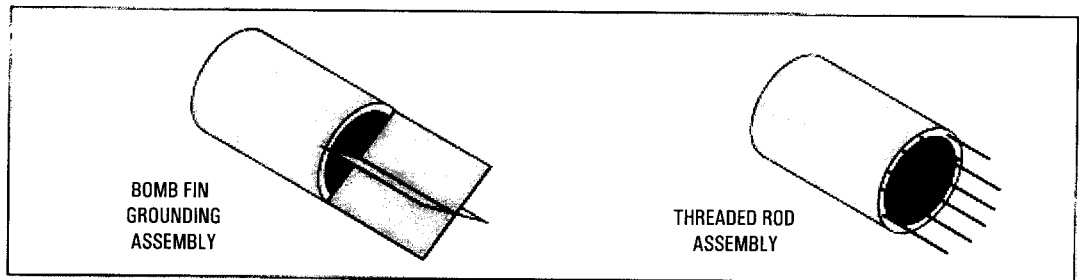
1. Keep flame rod as short as possible.
2. Keep flame rod at least $\frac{1}{2}$ " from any refractory.
3. Flame rod should enter the pilot flame from the side so as to safely prove an adequate pilot flame under all draft conditions.
4. If the flame is nonluminous (air and gas mixed before burning), the electrode tip should extend at least $\frac{1}{2}$ " into the flame, but not more than half-way through.
5. If the flame is partly luminous, the electrode tip should extend only to the edge of the flame. It is not necessary to maintain absolutely uninterrupted contact with the flame.
6. It is preferable to angle the rod downward to minimize the effect of sagging and prevent it from coming in contact with any object.
7. An adequate grounding surface for the flame must be provide. The grounding surface in actual contact with the flame must be at least four times greater than the area of the portion of the flame rod in contact with the flame. It is essential to adjust the flame rod and ground area ratio to provide a maximum test meter reading.

Note: Interference from the ignition spark can alter the true test-meter reading by adding to or subtracting from it. This trend sometimes may be reversed by interchanging primary wires (line voltage) to the ignition transformer, and may be made ineffective by the addition of grounded shielding between the flame rod and ignition spark.

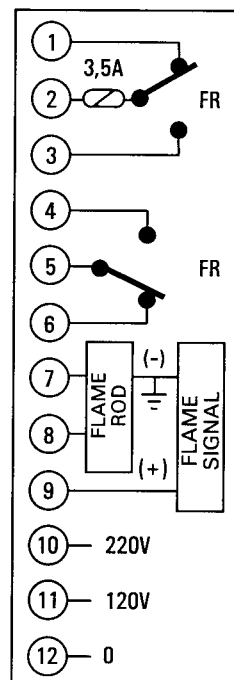
FLAME ROD INSTALLATION



8. Proven types of flame grounding adapters, as shown below, may be used to provide adequate grounding surface. High temperature stainless steel should be used to minimize the effect of metal oxidation. This assembly may be welded directly over the pilot or over the main burner nozzle.



WIRING TERMINALS



NOTICE

When C.E. s.r.l. products are combined with equipment manufactured by others and/or integrated into systems designed or manufactured by others, the C.E. s.r.l. warranty applies only to the C.E. s.r.l. products and not to any other equipment or to the combined system or its overall performance.

WARRANTIES

C.E. s.r.l. guarantees for one year from the date of shipment of its products to replace, or, at its option, to repair any product or part thereof (except lamps, electronic tubes and photocells) which is found defective in material or workmanship or which otherwise fails to conform to the description of the product on the face of its sales order.

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