

< **Automatic burner control unit** >

*MONO ELECTRODE FLAME DETECTION*



## SAITEK srl

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## INSTRUCTIONS FOR USE

Read carefully and preserve this use and maintenance reference manual.

### ATTENTION!!!

**Any indication and operation indicated in the present manual shall be carried out only by authorized and qualified personnel in charge.**

**Improper and incorrect assembly, adjustment, modification, use or maintenance can cause serious damages and accidents to persons and things.**

**Read carefully the instructions before installing the appliance. The assembly shall be in compliance with the regulations in force.**

**In order to prevent accidental electrocutions it is recommended you disconnect the electric current before opening the appliance.**

**Before supplying power check the value reported on the tag.**

## CONFORMITY

The manufacturer declares that:

- The **CF4** □ has been designed, realized and tested in compliance with the European Rule **EN298** relative to "Control and safety automatic systems for gas burners and gas appliances with or without fan.
- The **CF4** □ is conform to the essential requirements provided for by Directive **90/396/EEC** for gas applications (E.D. 90/396/EEC art. 1 paragraph 2).

**Classification according to EN 298:**

**B M R L X N**

## APPLICATIONS

The **CF4** □ flame control appliance directly lights and controls intermittent gas burners, **or rather burners that shall be turned off at least once in the 24 hours.** The burner is checked by an ionization electrode.

For grounded grids.

With a single restart due to flame put out.

The **CF4** □ can be applied directly to the burner in industrial thermal processes for metals, glass, ceramic, plastic, chemical, etc..., where there is no need of a pre-ventilation before turning it on.

Besides it can be applied on atmospheric burners for general heating.

### ATTENTION

Avoid presence of condensation inside the box and on the card surface.

## TECHNICAL SPECIFICATIONS

- For data relative to power supply specifications ( $V \approx Hz/W$ ), working temperature ( $^{\circ}C$ ), IP protection class, waiting time before starting (Wt), discharge times (lg T), safety (Sc) and threshold of detection (Sens.) refer to the tag.
- The load tension shall be the same of the power supply.
- Double spark plug detection by electrodes.
- Possibility of using ignition transformers both electronic and standard wound.
- LED display: on, block, discharge and detection.
- Alarm contact in exchange: NC closed when blocked, NA closed when in detection.

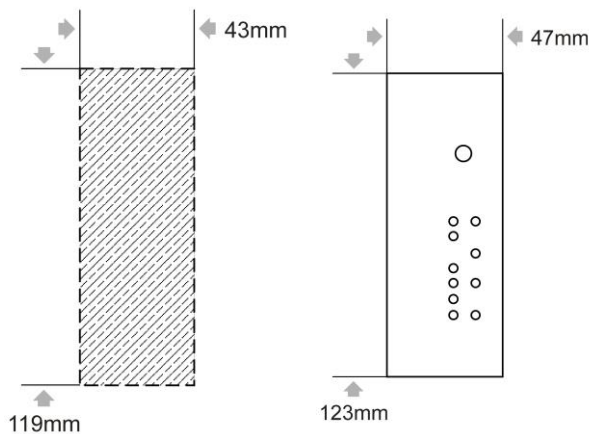
## DISPLAY CARD

The **CF4Q** flame control device can be supplied with the additional display card STK035 (optional extra), which enables an effective and immediate check of the appliance's functionality.

This is possible thanks to the four LEDs of the flame level display, the LED of the safety systems control and the LED of the release control by remote switch, which is on when the main switch is on 0 position in order to signal the voltage presence. **(N.B: it can only be used by authorized personnel, keeping the burner to be lighted under strict control).**

## ASSEMBLY

- Assembly position at will.
- The box can be assembled built-in from a panel with a hole and final overall dimensions here-below indicated.



- The **CF4Q** is usually equipped with a pair of hooks used to fix the box, to be inserted in proper slits placed on the upper and lower side of the built-in part of the box.

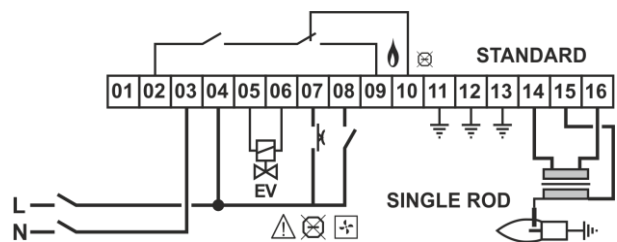
## CABLES RECOMMENDED

- IONIZATION: max. length 10 m. with section 1 mm. Place far from interference sources, avoid external electric influences.
- IGNITION: like from specific of the constructor of the ignition transformer. Suggested conductor diameter 1 mm. Place singularly far from metal parts.

## WIRING

Disconnect the plant.

In three-phase plants use the same phase on the inputs. No power shall be present on the solenoid valve outlet.



The **CF4Q** enabling control deriving from the safety sequence (main controls device for safety such as thermostats, GAS min., Gas max., seal control, pre-washing, etc....) shall be contacts without tension.

**Do not invert phase and neutral wire.**

The outlet power for the solenoid valve and the ignition transformer (usually included in **CF4Q**) and the inlet power are the same.


The max. current of solenoid valve and ignition transformer is 1A.

Alarm contact max 1A 230 Vac **not protected by inner fuse.**

For a correct operating, carry out a good connection of the CF4Q earth to the burner ground.

## IGNITION

1. Open the gas valve
2. Turn on the plant.
3. Supply power to the **CF4** □.
4. Press the IGNITION push-button (power green LED on)
5. Supply power to the enabling terminal in order to start the cycle
6. Waiting time before starting about 5 secs.
7. After this time the **CF4** □ will carry out the ignition cycle. The gas solenoid valve will be driven and at the same time the discharge is carried out (yellow discharge LED on). At the end of the discharge the presence of the flame will be controlled.
8. In case of flame the appliance goes to the operative mode, turning on the green detection LED and supplying power to the solenoid valve.
9. Differently the **CF4** □ blocks (the gas solenoid valve power will be cut off, the alarm contact will shut and the block red LED will light). It will be necessary to turn off the appliance by means of the ON button in order to reset and restart it.

**N.B.** The terminal  shall never be used. This terminal has the unblock function from remote switch and shall be used only by authorized personnel keeping under strict control the burner to be re-lighted.

## OPERATION CHECK

1. During the operating remove the detection pipe
2. The **CF4** □ will try to restart only one time, then it will block because of an anomaly (the solenoid valve power will be cut off, the alarm contact will close and the red LED will light).

3. The burner flame shall die down.
4. In case of different operation, check the wirings and if the problem is not solved disassemble **CF4** □ and send it to the manufacturer for a complete overhauling.

After the replacement of the safety device, check its operation:

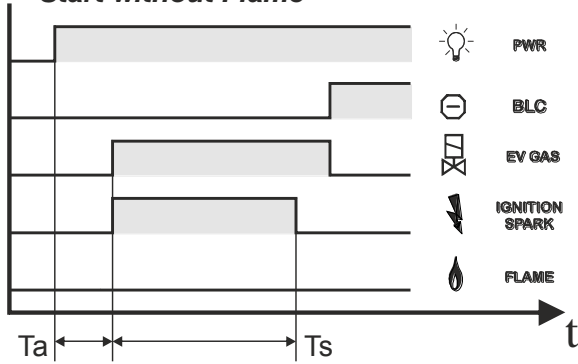
- Turn off the main gas valve and check that the appliance does not start.

If the safety device works correctly and the wiring is in good order but the appliance starts the burner, send it to the manufacturer for an inspection.

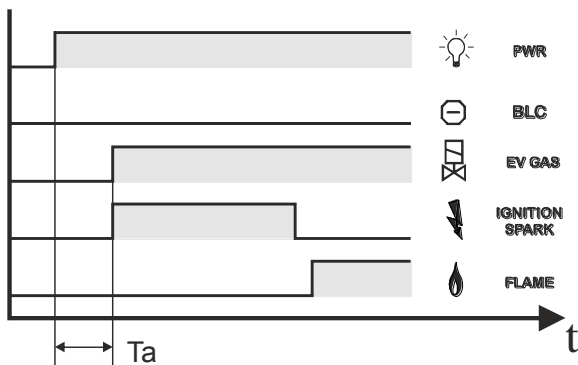
**OPERATING MODES GRAPHS**

Ta => waiting time before starting

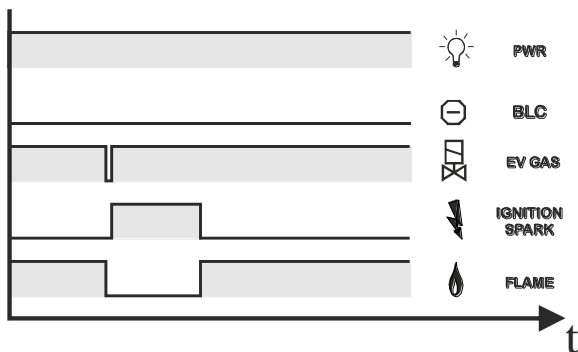
**Start without Flame**



**Normal Start with Flame**



**Restart after flame lost**



## RECTIFICATION OF FAULTS

### CAUTION!!!

**Danger of death due to shocks!**  
**Before intervening on the appliance cut off the tension to any cable.**

**The elimination of breakdowns can be carried out by authorized personnel only.**

**In case of improper repairs or incorrect electrical connections, the good running of the appliance is not granted.**

**The release at distance can be carried out only by authorized personnel keeping under strict control the burner to be lighted**

? < TROUBLE >  
! < CAUSE >  
\* < REMEDY >

? THE IGNITION SPARK DOES NOT APPEAR.

! The distance between the electrode and the burner body is too great.

\* Set a distance of max. 2 mm.

! The igniter cable does not make contact with the pipe.

\* Re-screw the pipe tightly.

! The igniter cable has a leakage on the earth.

\* Check the laying of the cable, clean the ignition electrode.

! The ignition voltage is too low.

\* use an ignition transformer with power > 5 KV

! The ignition cable is too long.

\* Shorten its length to 1 m. (max. 5 m.)

! The igniter cable does not make contact.

\* Screw it tightly on the ignition transformer.

? THE GAS DOES NOT REACH IT

! The gas solenoid valve does not open

\* Check the solenoid valve connection.

! There is still presence of air in the gas hosepipe.

\* Make many ignition attempts in order to fill completely the gas hosepipe.

? THE GAS DOES NOT REACH IT AND THE IGNITION SPARK DOES NOT APPEAR, THE CF4Q DOES NOT START.

! Short circuit in the ignition or in the solenoid valve outlet.

\* Check the wiring

- in case of short circuit in outlets eliminate it and change the inner fuse (2,5 A). Or send the appliance to the manufacturer.

? THERE IS THE FLAME BUT THE DETECTION LED IS OFF.

! The detection electrode is in short circuit because of dirt, soot or damp.

! The detection electrode is not in a correct position as to the flame.

! The combustion air/gas ratio is incorrect.

! The flame makes no contact with the burner body because air and/or gas pressure is too high.

! The burner or CF4Q are not earthed correctly.

! Short circuit or detection cable interruption.

! Phase and neutral wire inverted.

\* Eliminate the defect.

? THE APPLIANCE DOES NOT PERFORM THE IGNITION CYCLE AND GOES IMMEDIATELY IN DETECTION.

! Anomaly on the detection (flame simulation)

\* Eliminate the cause of the flame anomaly.

! Anomaly of the flame detection circuit.

\* Send the appliance to the manufacturer for its replacement.

? THE APPLIANCE DOES NOT START EVEN IF ALL THE TROUBLES HAVE BEEN ELIMINATED AND THE MAIN SWITCH HAS BEEN PRESSED.

\* Send the appliance to the manufacturer for the functional inspection.

## **WARRANTY**

Saitek Co. Ltd warrants these appliances to be free from defects in material and workmanship for 12 months from the date of their installation up to a maximum of 18 months from the date of their original purchase by a consumer, provided that the appliances are properly used in accordance with their operating instructions and applications.

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