

RESTRICTIONS ON USE

This product has been designed, developed and manufactured for general-purpose application in machinery and equipment. Accordingly, when used in applications outlined below, special care should be taken to implement a fail-safe and/or redundant design concept as well as a periodic maintenance program.

- Safety devices for plant worker protection
- Start/stop control devices for transportation and material handling machines
- Aeronautical/aerospace machines
- Control devices for nuclear reactors

Never use this product in applications where human safety may be put at risk.

The S720A solid state spark generator is used to ignite gun-type oil burners and power gas burners in domestic, commercial and industrial applications.

The level of radio frequency interference of the S720A is very low. Its small size and lightness make it highly suitable for use in compact burners.

Single electrode models for gas burners and dual electrode models for oil burners are available.

- High performance through solid state technology.
- Healthy ignition even when electrodes are dirty.
- Low power consumption.
- Small size, light weight.
- Meets low radio frequency interference (RFI) approval requirements.

S720A



SOLID STATE SPARK GENERATOR

SPECIFICATIONS

MODELS: S720A solid state spark generator.

Model	Supply voltage	Fuel	Electrode	Power consumption	Output voltage
S720A1016	220 Vac. 50 Hz	oil	dual	65 VA	2 x 8 kV RMS
S720A1024	240 Vac. 50 Hz				
S720A1040	220 Vac. 50 Hz	gas	single	45 VA	16 kV RMS
S720A1057	240 Vac. 50 Hz				

TOLERANCES ON SUPPLY VOLTAGE: +10, -15%.
OUTPUT CURRENT: 20 mA peak.
DUTY CYCLE: 33% (1 min ON, 2 min OFF).
AMBIENT TEMPERATURE LIMITS:
 -10°C to +60°C operating
 -20°C to +60°C storage.
MAXIMUM RELATIVE HUMIDITY:
 90% RH at 40°C.
LIFE: 100,000 cycles or 10 years under normal use
 (cycle: 1 min ON, 3 min OFF)

INSULATION RESISTANCE:

greater than 50 MΩ at 500 Vdc, measured with a Megger between earth terminals and each leadwire (high voltage terminals excluded).

DIELECTRIC STRENGTH:

1800 Vac for 1s between earth terminal and each leadwire (high voltage terminals excluded).

DISTANCE BETWEEN ELECTRODES (dual electrode models): $3 \begin{smallmatrix} +1.5 \\ -0 \end{smallmatrix}$ mm (recommended).

MAXIMUM AIR VELOCITY BETWEEN ELECTRODES: 20 m/s

RESISTANCE TO LIGHTNING SURGE:

10 kV maximum between power supply lines and between lines and earth.

MASS: 420 grams.

HIGH VOLTAGE TERMINALS:

fork connectors (wood screw connectors available on request).

HIGH VOLTAGE CABLE LENGTH:

30 cm recommended
 100 cm maximum.

The cable has to be of the same type as used for car plugs. Insulation: 15 kV RMS, 21 kV peak minimum.

CERTIFICATE OF CONFORMITY:

Meets Laboratoire Central des Industries Electriques (LCIE) approval requirements for radio frequency interference (RFI). Certificate reference 100/255 814/LCIE.

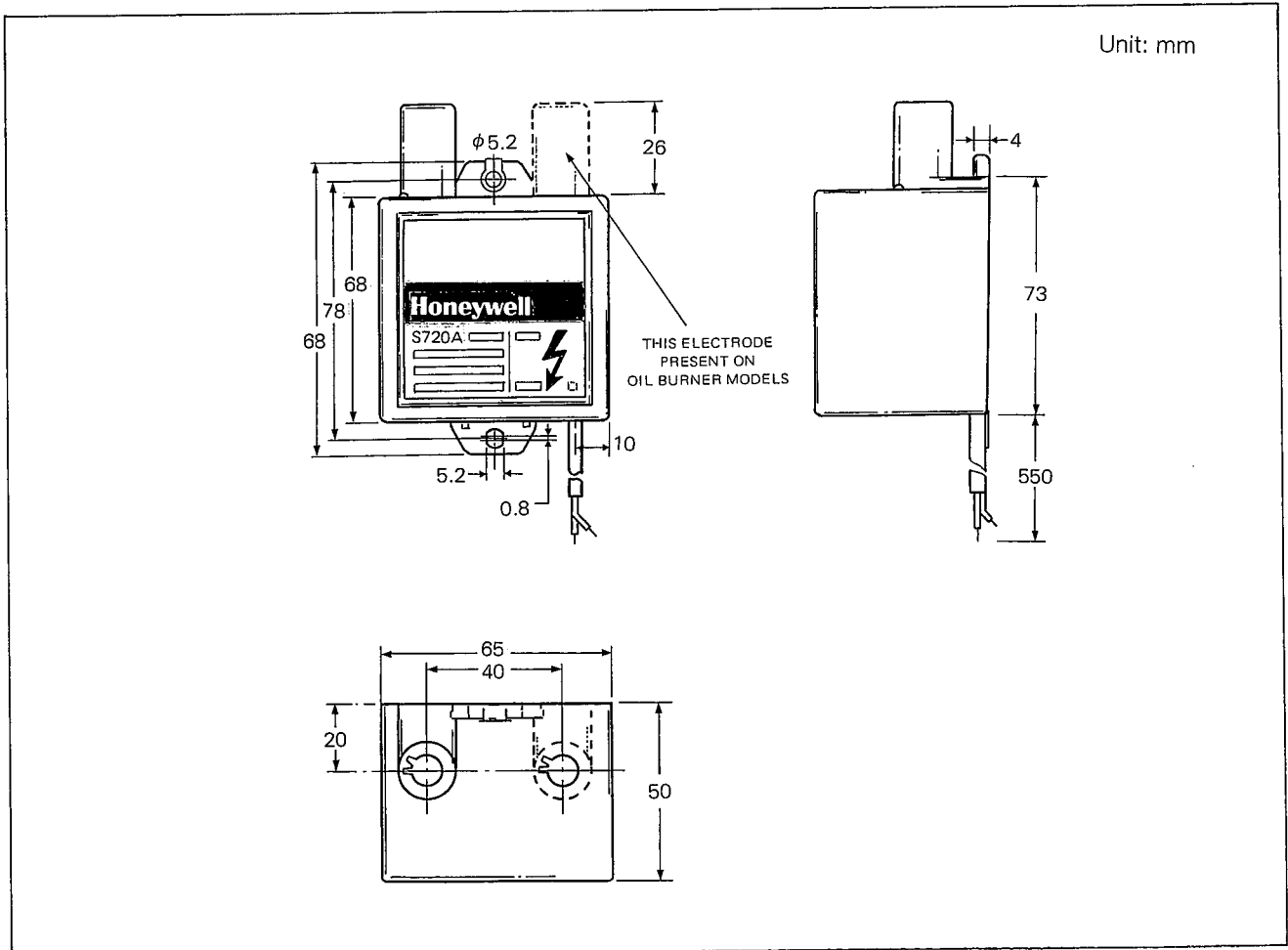


Fig. 1 S720A Dimensions

INSTALLATION

CAUTION

1. Installer must be a trained, experienced serviceman.
2. Disconnect power supply before wiring.
3. Use well insulated high voltage cable.
4. Conduct a thorough check-out when installation is completed.

Mounting

The S720A can be mounted in any position. (See figure 1 for mounting hole locations.) Ensure that enough space is available to make the high voltage connections without difficulty.

Wiring

All wiring must comply with applicable national regulations. To ensure that radio frequency interference is kept to a minimum it is recommended that:

1. The secondary cable be kept as short as possible.
2. The earth connection between the S720A and burner body is a secure one. The earth terminal is brought out to one of the mounting holes (see fig. 2).

If the high voltage cable is longer than 60 cm fix it with insulating material in such a way that it stays more than 3 cm away from the earth terminal.

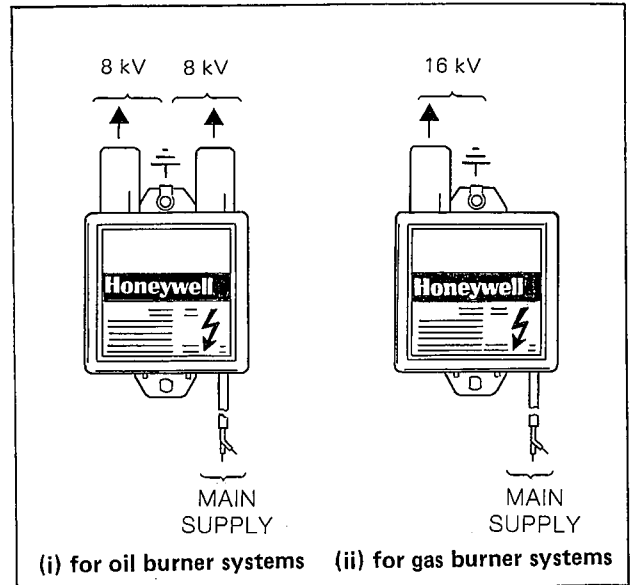


Fig. 2 Connection Diagrams

ELECTRODE SETTING AND POSITIONING

Oil Burner Systems

To obtain optimum performance from the S720A it is important to set and position the ignition electrodes correctly. For reliable light-up follow the recommendations indicated in fig. 3. Avoid positioning the electrodes:

1. Too near the fuel nozzle.
2. Too near the flame retaining components.
3. In the fuel spray pattern.

Gas Burner Systems

Electrode location must be found by trial and error taking into account the following points:

1. Electrodes must not interfere with the normal flame pattern.
2. Electrodes should not be positioned such that they will be overheated by the flame.
3. The flame detection device must not be adversely affected: in the case of flame rod sensors ensure that the ignition spark does not disturb the flame signal unduly.

For UV sensors ensure that the spark does not give a false flame indication.

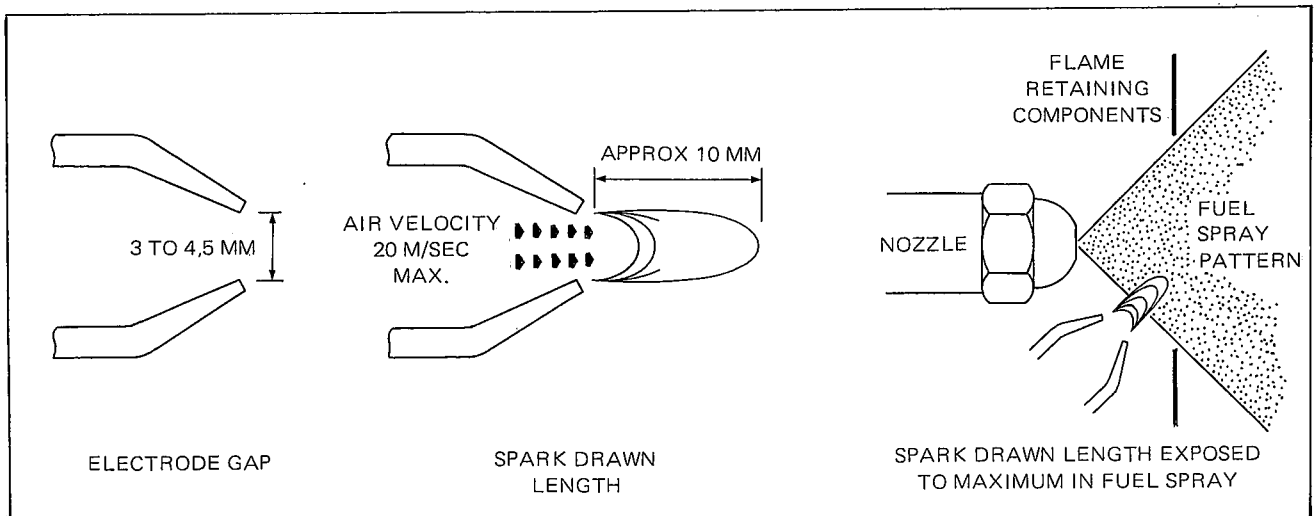


Fig. 3 Electrode and Positioning Recommendations – Oil Burner Systems

OPERATION

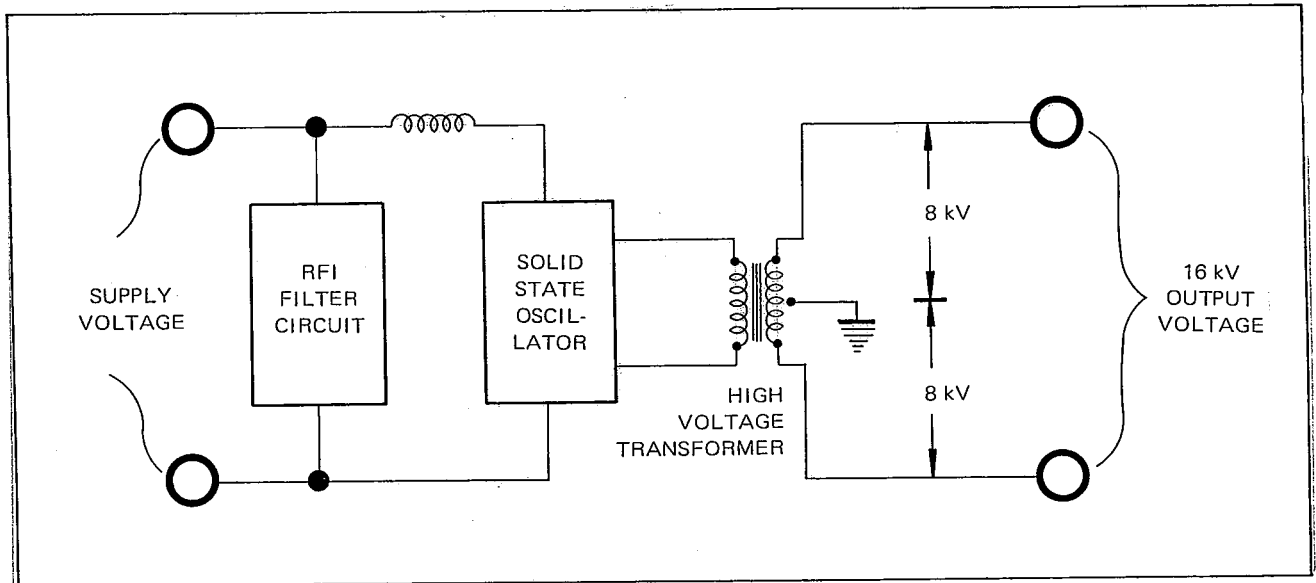


Fig. 4 S720A Solid State Spark Generator — Internal Schematic

Principles of Operation

Referring to fig. 4, it can be seen that the S720A essentially comprises an RFI filter circuit, a solid state oscillator circuit and a high voltage transformer. The solid state oscillator comprises a transistor controlling an LC resonant circuit. The capacitor in the LC circuit charges and discharges and the voltage developed across the inductor is stepped up by the high voltage transformer.

Radio Frequency Interference (RFI)

The S720A meets low radio frequency interference requirements. It was tested by the Laboratoire Central des Industries Electriques (LCIE) in France according to directive 76/889/CEE.

Certificate of Conformity number: 100/255 814/LCIE.
The LCIE certificate is valid throughout Europe.

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