

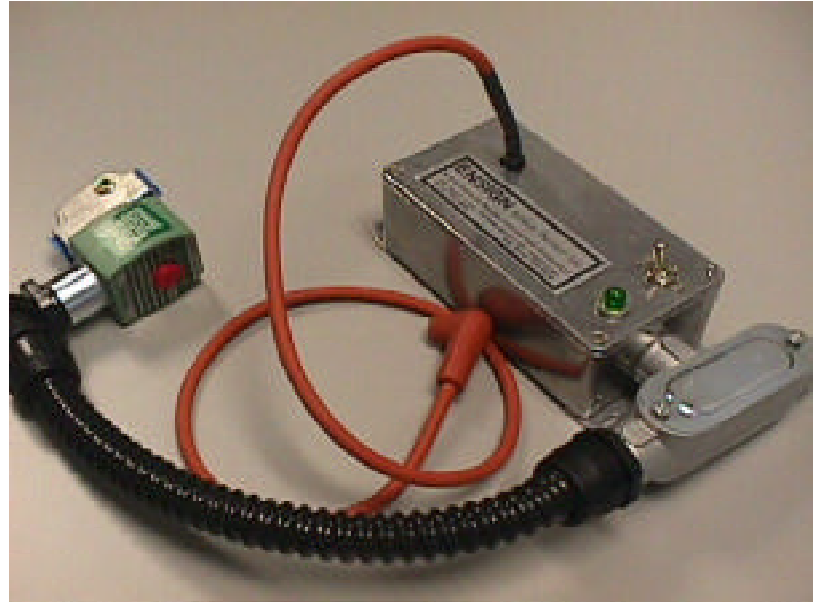


IGNITION CONTROL FLAME SAFETY

Ensign Ribbon Burners LLC
101 Secor Lane, Pelham Manor, NY 10803-2791/USA
(914) 738-0600 / Fax (914) 738-0928
E-Mail: Ensign @ Ensignrb.com
Web: www.ensignrb.com

Spark N SenseTM 120

Description - The SNS 120 single probe and SNS 122 double probe units are small, very economical direct spark ignition control designed for use in general heating applications. They can be safely used with any solenoid valve drawing 1 Amp or less. The maximum BTU's per burner is defined by the NFPA as 400,000, beyond which dual solenoid valves must be used. Any valve used for more than 150,000 BTU's must be provided with position indication. The SNS units are supplied with a polarized 6 (SNS 120) or 7 (SNS 122) pin connector for quick changeover of connections. The SNS 120 and SNS 122 are supplied with a case, potted, with externally mounted fuse, switch, terminal strip, and indicator light(s). The box is 3-3/4 inches wide by 6-1/4 inches high and 2-1/2 inches deep. See drawing for dimensions. Wiring diagrams for the SNS 120 and SNS 122 are shown.



Note that the SNS 120 model has a spark electrode which functions as both the ignition and the flame probe. The SNS 122 model has a separate probe to sense a flame. The recommended maximum distance between Sensor and module is 36". Both an ASCO 3/8" gas solenoid and a 36" silicone insulated ignition cable with RajahTM Connector are included with the Spark N Sense 120 or 122. Units are also available without solenoid.

Normal Operation - Heat Cycle - Upon a call for heat, the SNS 120 enters a 3 second purge. At the end of the purge period, the unit enters the trial for ignition (TFI). At the start of the TFI, the valve opens and the unit begins sparking at a synchronous rate of 60 sparks/second. Sparking continues until the 8.5 seconds trial time has elapsed. If the unit does sense a flame, the valve is held open, to commence heating, until the thermostat is satisfied.

Lockout if a flame is not established - If a flame is not established during the 8.5 Second trial for ignition, the valve is closed and the unit enters lockout. The thermostat must be opened and then closed again to provide another trial. The SNS 120 is equipped with quick reset circuitry so that the power interruption to restart the unit can be nearly instantaneous. The SNS 120 has an indicator lamp that is illuminated when the unit is working correctly.

Re-ignition after loss of flame or flame failure - If there is a loss of an established flame during a burn cycle, the valve remains open and the spark is re-established within 0.8 seconds. This immediate ignition attempt after loss of flame is called "spark restoration". The advantage of spark restoration is that an unstable flame will not cause valve clatter. Once the flame is re-established, usually shortly after the spark restoration trial begins, the burn cycle will continue until the thermostat is satisfied.

Power interruptions - The quick reset circuitry on the SNS 120 enables it to react very well to short power interruptions. A power loss of about 30 milliseconds or less is not recognized by the unit meaning that the purge, trial, or burn cycle will continue as if no interruptions had occurred. A longer power loss causes the unit to recycle. Therefore, a power interruption of any duration does not lead to lockout. Make sure that any loss of power results in a repurging of any closed space prior to the re- initiation of combustion. (ie: Power failure causes exhaust blower to stop, resulting in a system purge prior to power application to the SNS unit.)

Mounting - The SNS-120 and SNS-122 are mounted to the wall of your oven or system utilizing (2) brackets at the top and bottom of the case. These provide a small air space behind the unit. The flame probe (if separate) should have its tip within and its insulator outside of the flame envelope. The spark ignitor must be mounted in such a way that the spark gap of 0.1-0.15 inches (2.5-3.8 mm) is maintained. The tip of the ignitor must be placed in the air- gas mixture for proper ignition.

Testing - The flame voltage can be measured at the flame probe (SNS- 122) or the high voltage electrode (SNS-120) with no adjustments in wiring. This voltage must be more than - 20 VDC, typically in the -40 to -60 VDC range to prevent nuisance lockouts. A special test lead set is available (FT- 003) for use with a standard digital multimeter with an input impedance of 10 MegOhms, such as Radio Shack #22-166A. These test leads divide the voltage by 1000 so that the voltmeter reading in millivolts is actually the flame probe voltage in volts.

Approvals - The enclosed flame safety is approved by AGA and CSA, and is UL Listed.

Specifications

Operating Voltage	117VAC ±15%
Current	25ma, excluding Valve
Gas Valve	117VAC nominal, 1A max.
Operating Temperature	-40°C to +85°C
Humidity	100%
Purge time	3 seconds
Trial for Ignition	8.5 ±3 seconds
Spark Restoration	0.8 seconds

Ordering Instructions - The single probe Spark N Sense 120 part # 750-010 is supplied with 3/8" solenoid valve, and ignition cable. Part # 750-030 is the SNS-120 Module without cable or solenoid. The dual probe Spark N Sense 122, Part # 750-020 is also supplied with ignition cable and solenoid. Part # 750-040 is the same without solenoid or cable.

