

## 97311T Enclosed Burner with Touch Screen Control Panel

Designed for complete automatic operation of the entire Burner System, the S&J 97311T Enclosed Flare and Touch Screen Control Panel is specifically designed to operate efficiently with low BTU anaerobic digester waste gases. The S&J 97311T Enclosed Flare incinerates harmful emissions from waste gas streams. Typical applications include fermentation off gas piping systems such as anaerobic digesters. This unit has no visible flame which makes it ideal for areas where no open flame is permitted.

The 97311T was specifically designed to completely combust gas in digester and landfill systems. With a minimum destruction efficiency of 99%, the 97311T provides low NO<sub>x</sub> and CO emissions levels. This burner works is ideal for environments that have strict emission requirements and regulations (such as the EPA) and keeps emissions within the allowable limit. The telescopic design of the 97311T draws in the proper amount of air to gas ratio to achieve the optimum operating temperature in order for complete combustion to occur. Key data is used to determine the appropriate residence time of the waste gas inside the stack. This is critical to both the reliability of the emissions removal as well as the efficiency of operation.

The Automatic Ignition System accepts a remote contact or signal from a pressure sensor to initiate ignition sequences. Advanced pilot design including UV sensors for positive flame proofing is available. Pilot System includes pilot pressure regulators and shut-off valves as specified.

The S&J 97311T can be configured with any combination of measuring instruments for complete recording and reporting. Flexible operation is achieved through innovative hardware design. The design of the 97311T flare eliminates the need for refractory lining in the combustion chamber.

Paired with a touch screen control panel, the flare controller is designed for complete automatic operation of the entire Flare System. Shand & Jurs' Flare System gives the operator much more flexibility in controlling the system with more parameters easily configured via the touch screen control panel. The Control Panel can also be connected to a PLC/SCADA system via Ethernet.

The S&J 97311T accommodates fluctuating gas stream composed of low BTU "wet" methane. It can withstand the severest of process environments including high wind loading and seismic conditions as specified.



### Features

- No visible flame
- Touch Screen Control Panel
- Controlled Combustion environment with natural draft design
- Meets emission standards of EPA & local regulations
- High Destruction removal efficiency
- High turn down ratios
- Ground Level inspirating venturi pilot/ignition lines
- Operates with low input pressures
- Advanced ground level automatic ignition system

**Specifications:****Sizes:**

3", 4", 6", 8", 10" &amp; 12"

**Manifold Connection:**

ANSI 150 lb. Raised Face Flange

**Contact Outputs:**

|                          |                     |
|--------------------------|---------------------|
| Alarm                    | SPDT, 120 VAC 1 Amp |
| Flame Proven             | SPDT, 120 VAC 1 Amp |
| Pilot Failure (Optional) | SPDT, 120 VAC 1 Amp |
| Main Gas Open (Optional) | SPDT, 120 VAC 1 Amp |

**Power Requirements:**

120 VAC, 10 Amp  
220 VAC, 5 amp (Optional)

**Controller:**

Temperature Range: -20 to 150 degrees F  
Enclosure: NEMA 4, Steel; NEMA 4X, Stainless Steel  
Functions: Manual Start, Remote Start  
Automatic Sequencing  
Continuous Pilot or Intermittent Pilot

**Stack Materials:**

|                          |   |
|--------------------------|---|
| Stack Assembly:          | 304L Stainless Steel<br>316L Stainless Steel (Optional) |
| Burner Assembly:         | 304L Stainless Steel<br>316L Stainless Steel (Optional) |
| Manifold/Pilot Assembly: | 304L Stainless Steel<br>316L Stainless Steel (Optional) |

**Biogas Criteria Composition:**50%-70% CH<sub>4</sub>, 50%-30% CO<sub>2</sub>, with trace amounts of H<sub>2</sub>S, Inert Gases and Air**Moisture Content:**

Saturated (100% Humidity)

**Pilot Gas:**

Natural Gas  
LPG (Propane)  
Waste Gas (500 BTU/ Cubic foot Minimum)

**Pilot/Ignition Gas Pressure:**

4"-30" W.C. Low Pressure - Standard  
1-30 PSIG (5 PSIG Minimum Required)

**Functions:****Manual Start:**

The operator puts selector to manual and initiates ignition by depressing the start push-button on the control panel.

**Remote Start:**

Remote ignition is performed by placing selector switch in the auto position and closing the remote location dry contact to initiate the operation of the waste gas burner.

**Auto Start:**

Automatic Start is performed by the sensing of a pressure permissive in the system. The pilot control panel must be set to "Auto" position for this to be controlled by the pressure switch. When the pressure switch contacts close, the auto flaring sequence will begin. Once the pressure drops below the pressure switch set point the contacts will open, halting operation.

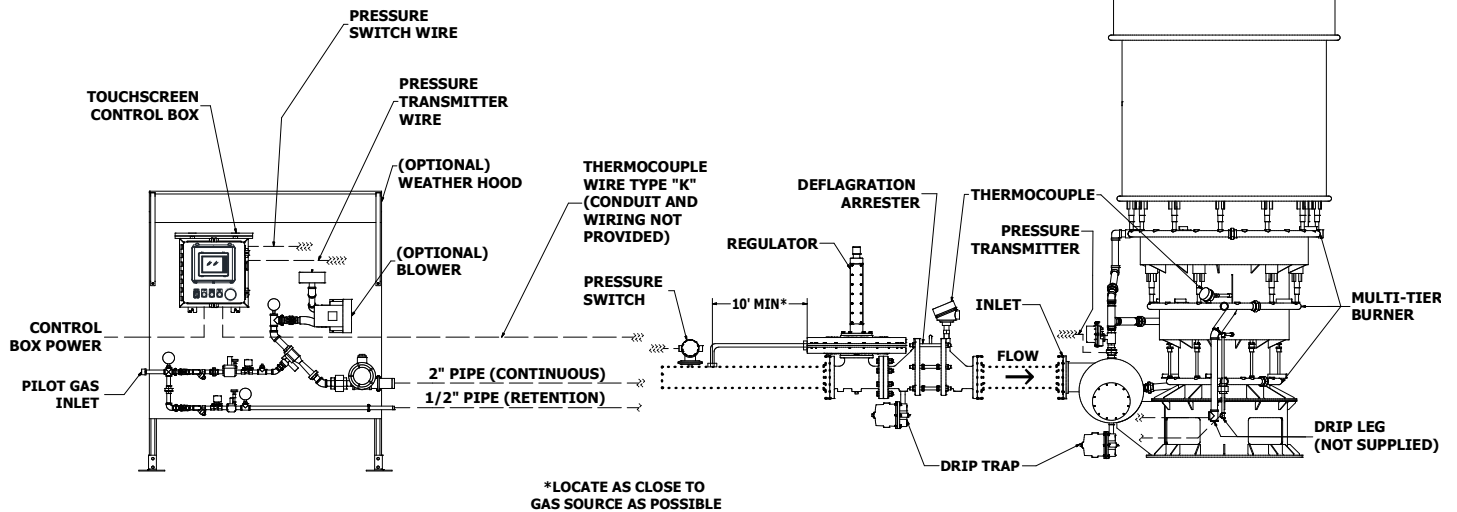
**Accessories:**

A pressure regulator / flame arrester should be installed in the digester line just upstream of the flare. For automatic operation, a solenoid option must be included.

## Dimensions:

### Additional Options

- Weatherhood for Control Panel
- Stand
- Pressure Switch (Remote/Automatic Control)
- 316 Stainless Steel Piping and Fittings
- NEMA 7, Explosion Proof Configuration



All designs subject to change. Certified dimensions and specifications available upon request.

L&J Technologies or any of its subsidiaries assume no responsibility and shall not be liable for any damage, injury or death caused by the mis-application or improper installation of the products that it provides. Installation shall be per manufacturer's instructions in accordance to any applicable local, state or federal regulations. It is the responsibility of the purchaser to ensure these guidelines are followed and that the products are applied properly.

# 97311T Ordering Guide

## Model Number Selection

The model number will have a base number **97311T** followed by 9 digit numbers. These digits will represent 9 sets of option tables.

**97311T - AB - CD - EF - GH - I**

### Table A - Pilot Gas

| Option A | Pilot Gas    |
|----------|--------------|
| 0        | Natural      |
| 1        | Propane      |
| 2        | Bio          |
| 3        | Auto Dual*   |
| 4        | Manual Dual* |

\* Biogas or other gas continuous pilot

### Table B - Unit Size

| Option B | Unit Size |
|----------|-----------|
| 2        | 2"        |
| 3        | 3"        |
| 4        | 4"        |
| 5        | 6"        |
| 7        | 8"        |
| 8        | 10"       |
| 9        | 12"       |

### Table C - Power Source / P.E. Certificate

| Option C | Description                      |
|----------|----------------------------------|
| 1        | 120 VAC, 60HZ                    |
| 2        | 220/240 VAC, 60HZ                |
| 3        | 120 VAC, 60HZ with P.E. Cert     |
| 4        | 220/240 VAC, 60HZ with P.E. Cert |

### Table D - Enclosure Rating / UL

| Option D | Description                     |
|----------|---------------------------------|
| 0        | NEMA 4 - Carbon Steel           |
| 2        | NEMA 4X - 304 Stainless Steel   |
| 3        | NEMA 4X - 316 Stainless Steel   |
| 4        | NEMA 4 - Carbon Steel (UL 508A) |
| 6        | NEMA 4X - 304 SS (UL 508A)      |
| 7        | NEMA 4X - 316 SS (UL 508A)      |

### Table E - Control Inputs

| Option E | Description                           |
|----------|---------------------------------------|
| 1        | 1 Dry Contact Input                   |
| 2 - 4    | Reserved                              |
| 5        | 2 Dry Contact Inputs                  |
| 6        | 1 4-20MA Analog Input                 |
| 7        | 1 4-20MA Analog + 1 Dry Contact Input |

Typically Dry Contacts are used for SCADA or pressure switch. Analog for pressure transmitter.

### Table F - Pilot

| Option F | Description                               |
|----------|---|
| 1        | Continuous (ON While Flaring)             |
| 2        | Intermittent (OFF While Flaring)          |
| 3        | Continuous (ON While Flaring; 347 SS*)    |
| 4        | Intermittent (OFF While Flaring; 347 SS*) |

\* 347 Stainless Steel Venturi

### Table G - Blower/Control Box Location

| Option G | Description                                  |
|----------|--|
| 1        | Blower Motor - General Purpose / Local C.B.  |
| 2        | Blower Motor - NEMA 7 / Local C.B.           |
| 3        | Blower Motor - General Purpose / Remote C.B. |
| 4        | Blower Motor - NEMA 7 / Remote C.B.          |
| 5        | No Blower / Local C.B. *                     |
| 6        | No Blower / Remote C.B. *                    |

\*5 PSIG minimum pressure required

### Table H - Control Panel Construction\*

| Option H | Description  |
|----------|--|
| 2        | 304 SS Panel, Pipe & Fittings                                |
| 3        | 304 SS Panel, Pipe, Fittings & Base                          |
| 4        | 304 SS Panel, Base & Weatherhood                             |
| 5        | 304 SS Panel w/ 316 SS Pipe & Fittings                       |
| 6        | 304 SS Panel & Base w/ 316 SS Pipe & Fittings                |
| 7        | 304 SS Panel, Base & Weatherhood with 316 SS Pipe & Fittings |

NOTE: \*Other materials available upon request.

### Table I - Flare Construction

| Option H | Base - Manifold / Stack / Burners |
|----------|-----------------------------------|
| 5        | 304(L) SS / 304(L) SS / 304(L) SS |
| 6        | 304(L) SS / 304(L) SS / 316(L) SS |
| 7        | 316(L) SS / 304(L) SS / 316(L) SS |
| 8        | 316(L) SS / 316(L) SS / 316(L) SS |

NOTE: Pilot Material 316 Stainless Steel

### Accessories

| PART NUMBER | DESCRIPTION  |
|-------------|--|
| 9730-10124  | Pressure Switch - Explosion Proof, 30" W.C. Adjustable Deadband 1/4" NPT   |
| 122200      | Pressure Transmitter - Explosion Proof, 1/2" NPT, 4-20 Output, 1.5 PSI Max |