

97301T Waste Gas Burner with Touch Screen Control Panel

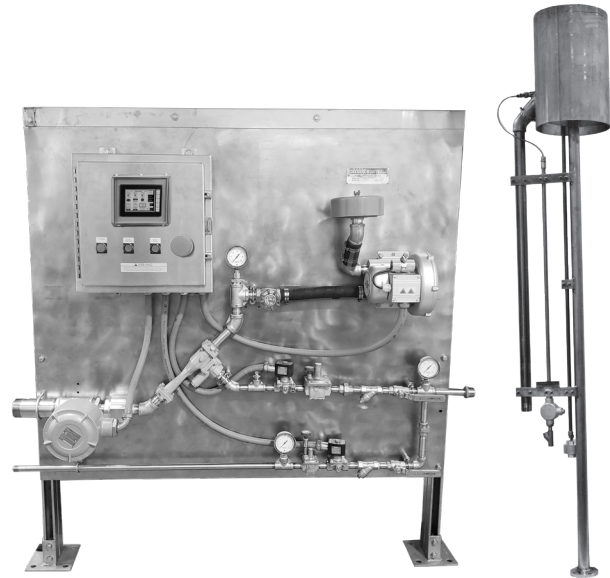
Designed for complete automatic operation of the entire Flare System, The S&J 97301T Waste Gas Burner and Touch Screen Control Box are designed to combust biogases generated in fermentation processes. It efficiently incinerates low BTU gases from anaerobic digesters, lagoons, and municipal landfills, minimizing odors and VOC's. The stoichiometric pilot ensures that a proper air to fuel mixture is maintained throughout the wide range of pressure and BTU fluctuations. A continuous burning pilot in the flame area provides stable, controlled, nonsmoking, combustion.

The 97301T is designed to withstand wind speeds up to 150mph as well as seismic zone 4 loads. Its stainless steel components endure the severest of process environments. The burner tip is designed with swirl inducers that create a cyclonic effect producing an efficient air/fuel mixture and maximizes flame retention. The wind shroud induces sufficient air to the flare tip for proper mixing and combustion throughout the operating range.

Paired with a touch screen control box, the flare is designed for automatic operation and gives the operator more flexibility in controlling the system. The Control Box can also be connected to a local PLC.

The Pilot Control Box utilizes state of the art electronics and instrumentation for safe operation. Pilot controls are enclosed in a NEMA 4, carbon steel, electrical enclosure (NEMA 4X, 304 or 316 optional). For automatic operation, the flare's pilot can be designed to operate only during initial startup or continuously. The Pilot Control Box includes a dry contact input for Remote Start from a SCADA system or a pressure switch. A standard system uses a PLC which can be wired to the SCADA system. The control box also includes Contact Status outputs for Alarm and Flame Proven.

The auto-ignition sequence is started by the closing of the remote start contact or pressure switch contact. This will indicate that the gas pressure limit has been reached and flaring of excess gas should begin. The operation of the burner will continue until the contact opens.



Features

- High Performance Stoichiometric Pilot
- Touch Screen Control Panel
- Sizes 2" Through 12"
- Burns High Flow, Low BTU "Wet" Methane
- Stainless Steel Flame Area
- Superior Pilot Wind Protection
- Solid State Controls
- Fully Automated Pilot: Continuous or Intermittent While Flaring
- Ground Level Venturi Pilot Ignition
- Provides Alarm Outputs

Specifications:**Sizes:**

2", 3", 4", 6", 8", 10" & 12"

Stack Burner Connection:

ANSI 150 lb. Raised Face Flange

Contact Outputs:

Pilot On/Off: SPDT, 120 VAC 1 Amp
 Pilot Fail: SPDT, 120 VAC 1 Amp
 Other Status Outputs Available

Power Requirements:

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

Controller:

Type: Touch Screen
 Temperature Range: -20 to 150 degrees F
 Enclosure: Wall Mount NEMA 4
 (Optional NEMA 4X)
 Enclosure Material: Carbon Steel
 Optional: Stainless Steel
 Functions: Manual Start
 Remote Start
 Automatic Sequencing
 Continuous Pilot or
 Intermittent Pilot

Stack Materials:

Burner Assembly &
 Pilot Nozzle: Stainless Steel
 Bottom Stack (Optional): Carbon Steel (6"-12")
 (Optional Stainless Steel)
 Stainless Steel (2"-4")
 *Other materials available

Biogas Criteria Composition:

50%-70% CH₄, 50%-30% CO₂, with trace amounts of
 H₂S, 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 start on the touch screen 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.

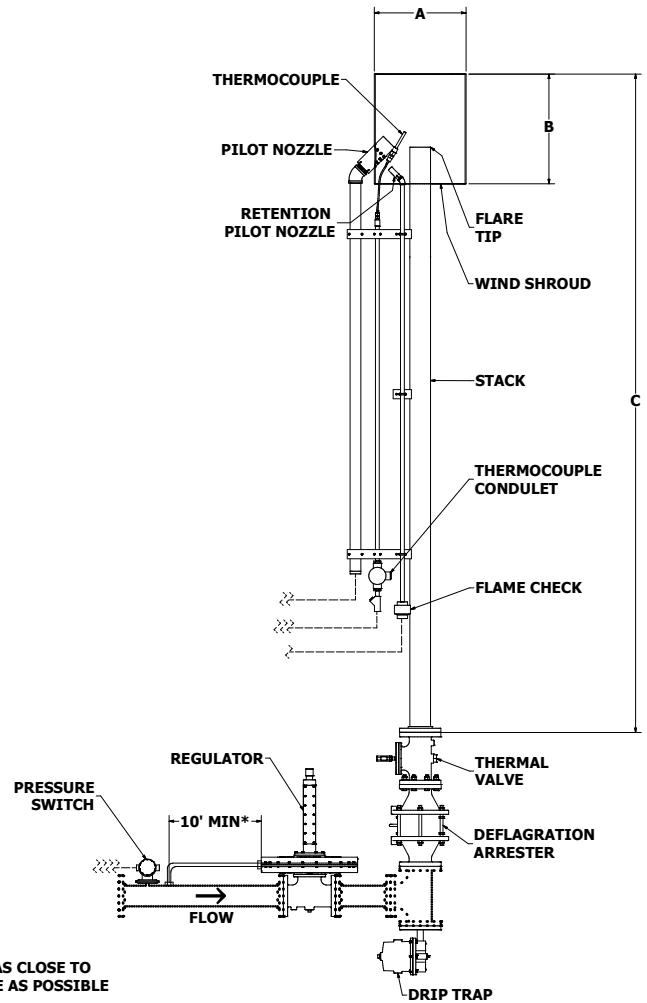
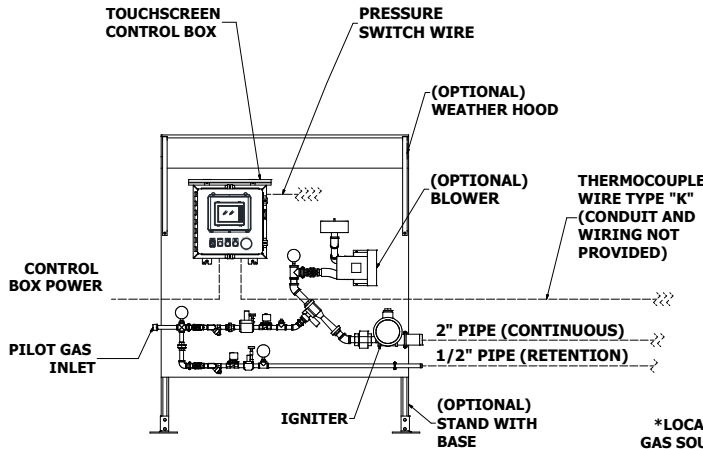
Accessories:

A back pressure regulator / deflagration arrester should be installed in the digester line just upstream of the flare. For automatic operation, the solenoid option must be selected on the back pressure regulator.

Dimensions:

Additional Options

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



Stack Dimensions

| Dimensions (Inches [mm]) | | | |
|--------------------------|----------|-----------|------------|
| Size | A | B | C |
| 2 [50] | 16 [406] | 24 [610] | 88 [2235] |
| 3 [75] | 18 [457] | 24 [610] | 92 [2337] |
| 4 [100] | 20 [508] | 24 [610] | 92 [2337] |
| 6 [150] | 24 [610] | 36 [914] | 128 [3251] |
| 8 [200] | 24 [610] | 48 [1219] | 144 [3658] |
| 10 [250] | 30 [762] | 48 [1219] | 176 [4470] |
| 12 [300] | 36 [914] | 60 [1524] | 188 [4775] |

Capacity

| Size (Inches mm) | Capacity (FT ³ /Hr.) |
|------------------|---------------------------------|
| 2 [50] | 4000 |
| 3 [75] | 9970 |
| 4 [100] | 22250 |
| 6 [150] | 44200 |
| 8 [200] | 76800 |
| 10 [250] | 129000 |
| 12 [300] | 218600 |

Flow specified for gas with 0.8 specific gravity, air at 60°F, and .5" WC pressure drop

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97301T Ordering Guide

Model Number Selection

The model number will have a base number **97301T** followed by 9 digit numbers. These digits will represent 9 sets of option tables.

97301T - 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 - Materials of Construction

| Option H | Stack / Piping |
|----------|---|
| 2 | 304(L) Stainless Steel / 304(L) Stainless Steel |
| 4 | 316(L) Stainless Steel / 316(L) Stainless Steel |
| 5 | 304(L) Stainless Steel / 316(L) Stainless Steel |
| 6 | 316(L) Stainless Steel / 304(L) Stainless Steel |

NOTE: Pilot Material 316 Stainless Steel