



**Algas-SDI**  
Origins in 1932



ISO 9001  
Certified

# Second Sun™

## Flameless Catalytic Tank Heater



(Second Sun is supplied complete with starter cables as shown)

[algas-sdi.com](http://algas-sdi.com)

**Second Sun™** is a flameless catalytic tank heater designed to safely and efficiently augment natural vaporization in propane, LPG and anhydrous ammonia storage tanks.

When our environment is unable to supply the needed energy, **Second Sun™ is an ideal solution!**

### Key Points

→ **Safe**

→ **No flame**

→ **Simple to install**

→ **No AC power**

→ **Fully automatic**

→ **Installed in the field**



### The Heating Process

Catalytic heating is a flameless process that involves chemical reactions aided by a catalyst. The reactions occur on an electrically heated catalyst surface causing complex molecules to rearrange as simpler molecular structures. The primary byproduct of this catalytic process is heat. **Second Sun** emits this heat against the wetted surface of the tank as infrared waves similar to a radiant heater. This warm, low intensity heat mimics the energy from the sun. Since catalytic heating is flameless, **Second Sun** meets Class I, Division 2, Group D hazardous location requirements.



(Model SS-30K)

**IDEALLY SUITED FOR:**



Hotels & Resorts



Restaurants



Ag Market



Small Factories

Start up: 30 minutes (max)  
using "jumper cables" to vehicle

**Operational Overview**

**Second Sun**'s typical application involves maintaining tank pressure, or *equilibrium pressure*, as vapor is extracted. Consequently, the unit's 'ON' cycle is activated based on storage tank pressure. As vapor is consumed or the ambient temperature drops, tank pressure is reduced. **Second Sun** is activated 'ON' when tank pressure falls below approximately 50 PSIG (3.45 barg); **Second Sun** returns to standby when pressure is restored to 60 PSIG (4.14 barg).

**Second Sun** requires no AC electricity! Startup energy for the catalytic reaction (12VDC) is typically provided using "jumper cables" from a vehicle battery. After startup, sufficient voltage to operate the gas security valve is 'self-generated' by employing a physical phenomenon known as thermoelectric effect. This technique provides direct conversion of temperature differentials to electric voltage.

The heater is comprised of an integrated "pilot" and "main" heater. The pilot heater starts the catalyzing process; the main heater provides operational heat. It could not be simpler!

Two temperature switches integral to the **Second Sun** monitor the surface temperature of the storage tank at two different elevations. The temperature switch in the higher elevation position terminates gas flow to the main heater if tripped. If tripped, the heater returns to standby or 'pilot' mode. The lower positioned switch, when tripped, causes the **Second Sun** to completely shut OFF. Manual restart is required. As well, if the pilot heater temperature drops below the temperature necessary to catalyze the fuel, the **Second Sun** completely shuts OFF. Again, manual restart is required.

# Second Sun™ Specifications

<b>Vaporization Type</b>	No Flame (Catalytic Heater)
<b><sup>1</sup>Start-up Electrical</b>	12 VDC (Only for Start-up)
<b><sup>2</sup>Operating Electrical</b>	Self-generated
<b>Electrical Class</b>	Hazardous Locations (Class I Division 2 Group D)
<b>Environmental Range</b>	-40° F to 120° F (-40° C to 49° C)
<b>Fuel Type</b>	Propane, Butane or Any LPG Blend
<b>Inlet Fuel Connection</b>	¼" NPT
<b>Max. Inlet Pressure</b>	Regulated: 10 – 11" wc; (254 – 279mm H2O) Unregulated: 10 – 250 PSIG; (0.7 – 17.2 barg)
<b>On/Off Activation</b> <i>Factory Settings</i>	Via Tank Pressure (Adjustable Set Point) ON @ <50 PSIG (3.45 barg) OFF @ >60 PSIG (4.14 barg)
	<b>MODEL SS-30</b>
<b>Heat Input</b>	30,000 BTU/h (7560 kcal/h)
<b><sup>3</sup>Added Vaporization to Tank</b>	2.2MMBTU/h @ -20°F (550,000 kcal/h @ -28°C)
<b>Mounts To</b>	1,000–12,000 US Gal. Tanks (3,785–45,425 liters)
<b>Tank Diameters</b>	41" – 84" (1,041 – 2,134mm)
<b>Unit Weight</b>	125 lbs. (57 kg)
<b>Unit Dimensions</b>	74" L x 19" W x 9" H (1,880mm L x 486mm W x 227mm H)
<b>Shipping Weight</b>	185 lbs. (84 kg)
<b>Shipping Dimensions</b>	84" L x 24" W x 12" H (2,134mm L x 610mm W x 305mm H)

## Safety Monitoring (Per NFPA 58)

<b>Tank Pressure:</b> >160 PSIG (11.03 barg)	OFF — Manual Restart Required
<b>Tank Surface Temperature (2):</b> >125° F (51.7° C)	Upper Sensor: Reverts to Standby Mode Lower Sensor: OFF — Manual Restart Required
<b>Below Minimum Pilot Temperature:</b>	OFF — Manual Restart Required

<sup>1</sup> Use vehicle battery and "jumper cables"

<sup>2</sup> Thermoelectric device creates voltage based on  $\Delta T$

<sup>3</sup> Second Sun **adds** vaporization capability to the ambient vaporization capability of the tank itself. **Total vaporization** becomes the sum of the "natural" + "added" vaporization.

	<b>MODEL SS-30</b>	<b>MODEL SS-10</b>
<b>Heat Input</b>	30,000 BTU/h (7560 kcal/h)	10,000 BTU/h (2520 kcal/h)
<b><sup>3</sup>Added Vaporization to Tank</b>	2.2MMBTU/h @ -20°F (550,000 kcal/h @ -28°C)	0.5MMBTU/h @ -20°F (126,000 kcal/h @ -28°C)
<b>Mounts To</b>	1,000–12,000 US Gal. Tanks (3,785–45,425 liters)	250–3,900 US Gal. Tanks (946–14,742 liters)
<b>Tank Diameters</b>	41" – 84" (1,041 – 2,134mm)	30" – 41" (762 – 1,041mm)
<b>Unit Weight</b>	125 lbs. (57 kg)	45 lbs. (20 kg)
<b>Unit Dimensions</b>	74" L x 19" W x 9" H (1,880mm L x 486mm W x 227mm H)	28" L x 18.25" W x 10" H (711mm L x 355mm W x 254mm H)
<b>Shipping Weight</b>	185 lbs. (84 kg)	65 lbs. (29.5 kg)
<b>Shipping Dimensions</b>	84" L x 24" W x 12" H (2,134mm L x 610mm W x 305mm H)	42" L x 21" W x 12" H (813mm L x 584mm W x 381mm H)

Algas-SDI developed its first vaporizer in 1932. Over eighty years later, we still lead the market in quality, innovation and **commitment to our purpose**. Our products allow businesses located off the gas grid or under curtailment, to operate. We eliminate downtime ensuring **workers can work and goods and services can flow to market**.



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