

L.B.WHITE

An Automatic Variable-Rate Heat Solution: **SMART SENSE®**

**AVAILABLE
CONFIGURATIONS:**

60,000 Btu/h
100,000 Btu/h
250,000 Btu/h
Spark / Hot Surface



U.S. Patent No. 9,328,937

Works with leading environmental
control systems such as:

MAXIMUS, DICAM, EDGE, FUSION,
GENIUS, AP, VALCO, & PMSI!

SAVE
35%
UP TO
ON HEATING COSTS!



A Difference You Can Feel

Smart Sense® is a technologically-advanced swine facility heating solution. This **innovative heating technology** eliminates the inefficiency of standard on/off controls by managing the heat automatically through the house control. Smart Sense® operates at maximum efficiency to provide:

- ✓ Fuel-cost savings up to 35%
- ✓ Consistent room temperature
- ✓ Enhanced animal welfare
- ✓ Improved air quality

The L.B. White® system generates only the amount of heat required to reach, maintain, and hold a desired temperature by modulating Btu output. This is achieved only through our patented technology engineered for L.B. White® forced air heaters and radiant heat brooders.



Smart Sense® Heating System

Smart Sense® automatically manages the heat in pig buildings based on temperature curve settings and heat management preferences.

What's in a complete Smart Sense® system?

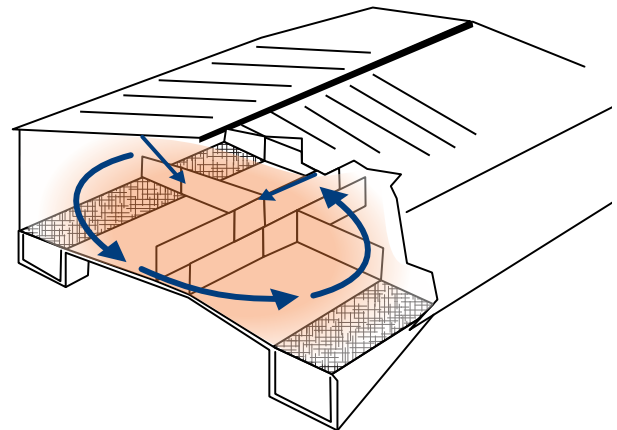
- ✓ Forced air heaters with proportional control gas valve and electronic control.
- ✓ Radiant heat brooders.
- ✓ Radiant heat zone control panels with a proportional valve.
- ✓ House control with the required software and capacity to operate Smart Sense® heaters.



An L.B. White® forced air heater and radiant heat brooder with Smart Sense®.

Heat On Demand!

Smart Sense® operates more efficiently because it automatically controls the heater Btu output to produce the amount of heat required to reach and maintain room temperature. Smart Sense® technology eliminates room temperature target overshoot and distributes heat consistently, evenly in pig buildings.



Heat Management Protocol

Smart Sense® maintains an even room temperature through the house control. With this system, growers are not required to setup probes.

You're Smart, Heat Smart!



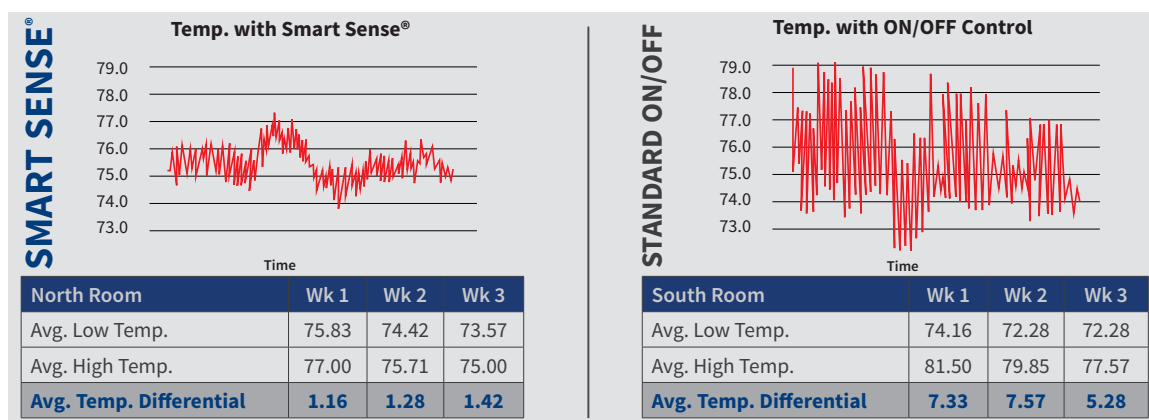
Manage Room Temperature Automatically

Don't React to the Room Environment—Control It!

Smart Sense® automatically provides heat at only the rate required to reach a set point, and then maintains that temperature.

HEAD TO HEAD RESULTS

PRESTAGE FARMS, IOWA



1.) Temperatures recorded in degrees Fahrenheit 2.) Test site location- Prestage Farms, Iowa (2,400 head) 3.) Test duration-January through April 4. Results-22% savings.



Additional Features When Used with Smart Controllers

Remote Control:

Connect the Smart Sense® heaters to any smart house controller with web enabled features and control settings remotely.

Ability to Heat if House Control Fails:

Smart Sense® Heaters will continue to heat your barn at full Btu/h output if your communication with your house control is lost, when a backup thermostat is installed



SAVE 35% in Fuel Costs! (Results in as little as 1 year!)

Smart Sense® is so efficient and effective at managing heat that payback on the system can be realized in as **little as 1 year**. Studies have indicated a fuel-cost savings of up to 35%!

	Head Count	Fuel (Gallons)	Cost of Fuel†	20% Savings	35% SAVINGS
Farm 1 (wean-to-finish) IOWA ¹	2,400	6,300	\$10,080	\$2,016	\$3,528
Farm 2 (nursery) OHIO ²	2,400	13,800	\$22,080	\$4,416	\$7,728
Farm 3 (nursery) IOWA ³	1,200	3,600	\$5,760	\$1,152	\$2,016

† \$1.60 per gallon at time of study. Payback results will vary by cost of fuel.

1. Initially tested at Farm 1 from February-May 2012 in a north room, and during that period reported a 23% savings in fuel costs.

2. Tested at Farm 2 in March 2011, and after several turns reported a 35% savings in fuel costs.

3. Tested at Farm 3 in 2012, and after several months reported a 25% savings in fuel costs.



Guardian® with Smart Sense® Forced Air Heaters

Guardian® heaters with Smart Sense® provide an automatic variable-rate control, compared to manual control in today's standard Guardian® heaters. **(Complete with our latest upgrades including: robust nickel plated steel terminals sealed and covered with polyolefin adhesive-lined shrink tubing, and covered and sealed connections)**, these upgrades reinforce our commitment to provide you with the best performing product on the market.

Smart Sense® allows the heater to run longer at lower firing rates and become part of the circulation system. This results in a much more consistent room temperature.

✓ Available Smart Sense® Configurations:

- 60,000 Btu/h - Galvanized
- 100,000 Btu/h - Tri-Shield Protected
- 250,000 Btu/h

✓ Ignition Types:

- Spark - Hot Surface

✓ Works with Leading Environmental Control Systems:

- MAXIMUS - AP - DICAM - FUSION
- GENIUS - VALCO - PMSI



A Guardian® forced air heater with Smart Sense®.



Operates at firing rates as low as 25% of max Btu/h!

while maintaining acceptable carbon monoxide levels and ignition characteristics.



Brooder Heater with Smart Sense® Radiant Heat Brooder with Zone Control

- ✓ Both standard manual and spark ignition I-17 brooders function with Smart Sense®.
- ✓ Requires sensor mounting kits for existing and new installations.
- ✓ Operates with any existing 0-10 vdc control.

I-17 Manual Ignition for OEM 0-10V Control

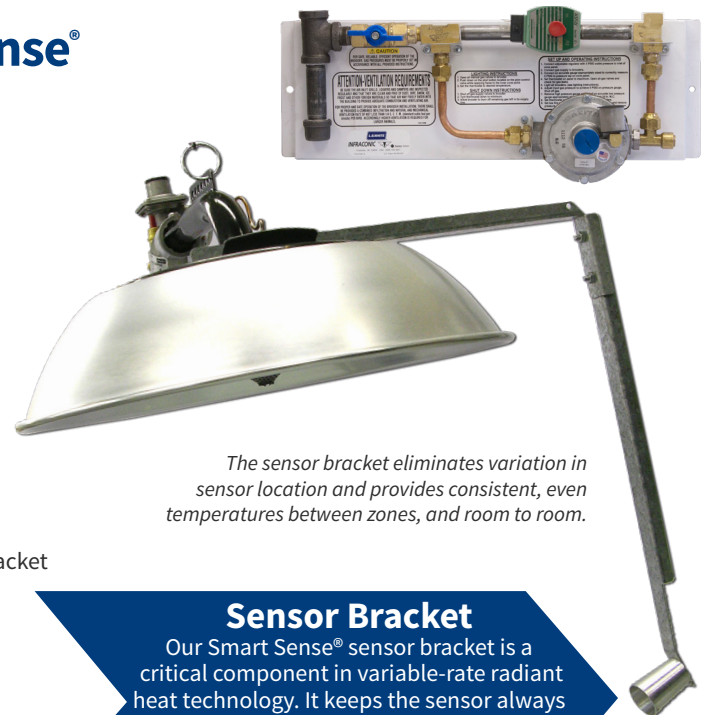
- 24 Brooder capacity—Model 500-28543
- Solenoid valve, control module, power supply, and sensor bracket

I-17 Spark Ignition for OEM 0-10V Control

- 24 Brooder capacity—Model 500-26487
- Solenoid valve, control module, power supply, sensor bracket

I-17 Manual Ignition (any zone control or thermostat)

- Low-High Zone
 - 20 Brooder capacity—Model 500-09958
 - 40 Brooder capacity—Model 500-09959
- Low-Medium-High Zone
 - 20 Brooder capacity—Model 500-09875-B
 - 40 Brooder capacity—Model 500-22553



The sensor bracket eliminates variation in sensor location and provides consistent, even temperatures between zones, and room to room.

Sensor Bracket

Our Smart Sense® sensor bracket is a critical component in variable-rate radiant heat technology. It keeps the sensor always locked into position to achieve precise results based on suggested protocols and desired pig pattern.