

# REDUCE CARBON AND HVAC LOAD, SAVE ENERGY, IMPROVE KITCHEN COMFORT

*Don't let your profits go up in smoke*

Demand Controlled Kitchen Ventilation System providing significant energy cost savings to Commercial Kitchens

## THE CHALLENGE

Commercial kitchens are running exhaust fans continuously throughout operating hours. Conditioned air is exhausted out of the building at rapid rates, resulting in increased emissions and energy use.

## THE SOLUTION

The Merlin 3000S energy saving control system has been specifically designed for NEW and RETROFIT store applications, providing automated control over the ventilation system by adjusting exhaust and kitchen HVAC inlet air in response to the presence and level of cooking activity. Based on the temperature inside the exhaust hoods, the Merlin 3000S maximizes kitchen ventilation energy efficiency and reduces energy waste while improving kitchen comfort. The Merlin 3000S is also qualified for Energy Technology List (ETL).



Quick and simple installation



One controller monitors up to two hoods



Works with gas or electric kitchen appliances



Average installed ROI is 1-2 years based on climate

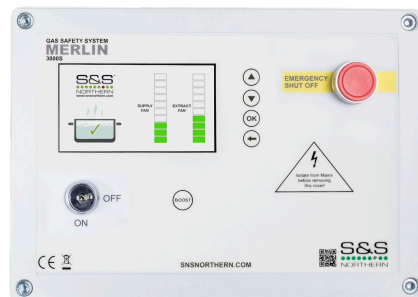
## THE SYSTEM



2-WIRE PT100 RTD SENSORS



S&S CO2 iS Detector



MERLIN 3000S SYSTEM

# Merlin 3000S System

## Inputs

- (2) Temperature Probes
- (2) Optical Sensors
- (1) Fire Panel
- (1) Gas Meter
- (1) CO Detector
- (1) CO2 Detector
- (1) Emergency Stop Button



## Outputs

- (1) Extract Fan
- (2) Supply Fan
- (2) 0-10V
- (1) SPDT Relay
- (2) 12VDC

## DCKV Program Status - Pilot Results 2023

### Cambridge Case Study

The 2023 commercial kitchen case study restaurant, carried out in Cambridge, sought to optimize energy usage and operational efficiency within their commercial kitchen environment. In pursuit of this goal, they collaborated with us to implement the Merlin 3000S energy-saving system. The below data has been recorded over a 12 month period and at the Cambridge site, only exhaust fan demand based control was implemented.

### Predicted vs. Measured Results:

**Predicted Energy Saving (Annualized):** 6,795 kWh

**Predicted Average Load Reduction:** 39.8%

**Measured Energy Saving (Annualized):** 6,675 kWh

**Measured Average Load Reduction:** 39.1%

**Measured Result as Percentage of Expected:** 98.2%

### Financial Benefits (Exhaust Fan Only):

The implementation of the Merlin 3000S yielded significant financial benefits.

**Annualized Financial Benefit:** £1,909.05

**Unit Rate Used for Modeling:** 28.6p/kWh

For further details on this case study, please contact S&S Northern Ltd.

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PEOPLE, PLACES, & THE PLANET



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