

# SwarmStat™

## Innovation that Unlocks New Energy Savings

Leverage the power of artificial intelligence to reduce HVAC-related energy costs by 10%-30%



### Encycle helps you overcome your HVAC energy management challenges.

In today's increasingly competitive environment, reducing operating expenses is more critical than ever. Lean facility management teams must constantly balance expected comfort levels for customers and employees with rising energy costs. Inherent issues in a building's design, age of equipment, changes in building usage, and operating and maintenance practices often result in:

- Energy waste
- Excessive greenhouse gas (GHG) emissions
- Compromised comfort
- Challenges in maintaining HVAC assets

**SwarmStat™ solves these problems and more.**

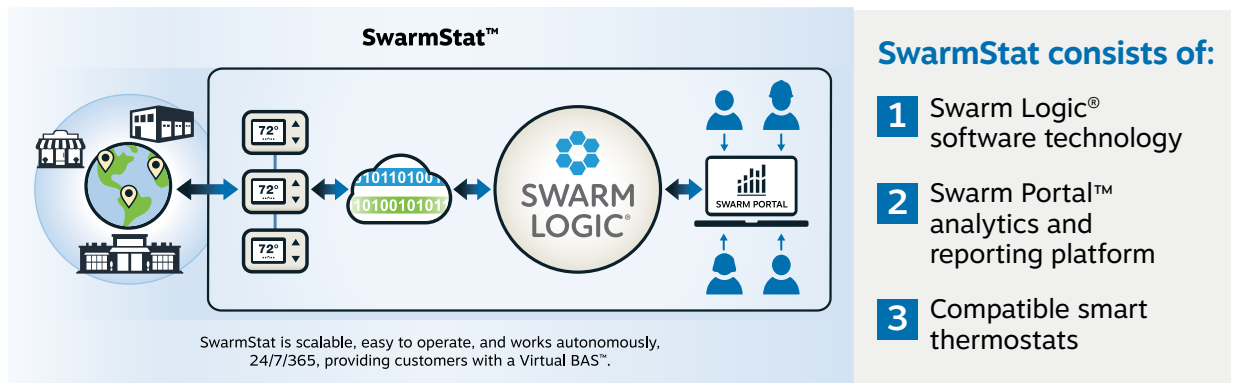
## SwarmStat™ enables proven and advanced energy-saving capabilities using smart thermostats

Encycle's SwarmStat™ brings the power of our unique data-driven Swarm Logic® technology to customers through compatible smart thermostats, making it easy to achieve new levels of energy efficiency.

The multi-patented cloud-based software uses smart thermostats to collect HVAC asset and building operational data, sending it to the cloud where Swarm Logic uses artificial intelligence (AI) to determine optimal HVAC control decisions.

Swarm Portal™, Encycle's web-based reporting and analytics platform, provides intuitive insights into Swarm Logic performance, energy savings, and the health and operations of your HVAC assets.

Commercial and industrial enterprises across North America rely on Swarm Logic to significantly lower electric costs, maximize efficiency, and reduce environmental impact. **All this with a payback period of a few months.**



## Tangible results that embrace continuous commissioning practices

A growing number of companies are adopting continuous commissioning practices to improve building efficiency and comfort. Compared to building commissioning and retro-commissioning that center around “one-time” optimizing events, continuous commissioning aims to keep buildings operating at peak efficiencies. The challenge is that most commissioning efforts typically require significant time commitments and expertise.

Swarm Logic enables customers to overcome these time and expertise barriers. **Using real-time analysis of energy-related data collected every five minutes, Swarm Logic autonomously delivers on the promise of continuous commissioning.** Swarm Logic combines the power of IoT and patented artificial intelligence to create custom operational decisions that maximize energy savings across your entire portfolio of buildings.










By embracing continuous commissioning practices, Swarm Logic delivers annual energy savings as high as 20% while avoiding the need to call in expert resources.

## Transforming energy management

Swarm Logic HVAC energy management technology uses AI to deliver significant reductions in HVAC-related kW, kWh, and CO<sub>2</sub>. Swarm Logic operates in the background 24/7/365, requiring no human interaction. As thermal loads in the building vary in response to factors such as changing outdoor temperatures and occupancy levels, Swarm Logic continuously updates HVAC equipment control decisions to optimize energy efficiency and occupant comfort.

## Encycle SwarmStat benefits

SwarmStat is a simple-to-install and economical energy management solution that adds a new suite of capabilities to smart thermostats:

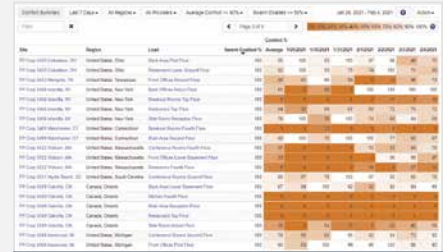
- 
Dramatically reduces energy costs without impacting comfort
- 
Easily manage setpoints and group scheduling remotely
- 
Easy-to-understand energy and HVAC unit operational reporting and analytics that shift maintenance activities from reactive to proactive
- 
SwarmStat supports your sustainability goals by reducing GHG emissions
- 
24/7/365 multiple user access with role-based security and permissions
- 
Hands-free, autonomous operation frees your facility operations team to focus on other priorities
- 
Fast and easy to install (typically done in a day)
- 
Supports demand response programs to unlock additional revenue (OpenADR 2.0 and CPower Link)
- 
SwarmStat works with several manufacturers' smart thermostats

### What do you need for connectivity?

To realize the benefits of Encycle's Swarm Logic energy optimization technology, you will need:

- Smart thermostats compatible with SwarmStat
- Wi-Fi and internet connection
- Thermostats registered for use with SwarmStat

## Swarm Portal provides energy and HVAC operational reporting and analytics.

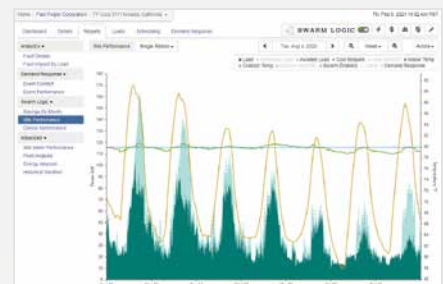


Unit	Region	Unit	Smart Thermostat	Control	Temp	Humidity	CO2	PM2.5	PM10	PM2.5/PM10	PM10/PM2.5
01-001	US	01-001	01-001	01-001	72	50	400	10	20	1.5	3.0
01-002	US	01-002	01-002	01-002	70	50	400	10	20	1.5	3.0
01-003	US	01-003	01-003	01-003	72	50	400	10	20	1.5	3.0
01-004	US	01-004	01-004	01-004	70	50	400	10	20	1.5	3.0
01-005	US	01-005	01-005	01-005	72	50	400	10	20	1.5	3.0

Comfort report



Schedule edit



Site energy use

## Create a Virtual BAS™ with SwarmStat for a fraction of the cost

Compared to a traditional BAS, a more economical way to manage energy and realize significant savings is by creating a Virtual BAS™.

Many customers want more savings and operational insights than a smart thermostat can provide, but are unable to justify traditional BAS due to its cost and/or need for trained experts to program and monitor the system.

SwarmStat gives customers the best of both worlds – *the power of a BAS with the ease of use and cost-*

*effectiveness of smart thermostats!* This is an optimal solution for customers who want to better manage their HVAC systems but do not need integration with other systems such as lighting, security, fire suppression, and refrigeration.

**Integrating Swarm Logic and Swarm Portal with smart thermostats delivers many of the same capabilities of a BAS – essentially creating a Virtual BAS for a fraction of the cost and complexity.**

## Comparison of features: Encycle SwarmStat vs. traditional controls

Features / Functions	SwarmStat	Building Automation Systems	Smart Thermostats
Initial cost	●	○	●
Payback period	●	◐	●
Complexity to install / deploy	●	○	●
Complexity to operate and maintain	●	○	●
Time required to monitor / manage systems	●	○	◐
Automated monitoring and control	●	●	○
Remote programming of schedules and setpoints	●	●	◐
Bulk schedule / setpoint programming for multiple sites	●	●	○
Advanced analytics and reporting	●	◐	○
Supports demand response programs	●	●	◐
Web-based User Interface and reporting	●	●	◐
Method of controlling RTUs	●	●	◐
Savings reporting	●	○	○
Alarming	○	●	○
Lighting control	○	●	○

● feature included   ◐ feature may be included   ○ feature not included

## About Encycle

Encycle is a technology-driven company that is transforming energy management for commercial and industrial companies. The company leverages its Swarm Logic technology to lower customers' electric costs, maximize efficiency, and reduce environmental impact without sacrificing comfort. We are disrupting the building controls industry by making the promises of artificial intelligence reality. Our enterprise-wide solution uses AI to create highly accurate and dynamic models for each building and its thermal profile. We are proud to be helping buildings become smarter and greener.

## Utility Incentives

SwarmStat has been qualified by a growing number of utilities for energy efficiency and demand response incentives. Contact Encycle to learn more.



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