

Smart Heating Control in a Swiss Residential Building

Centralized Renewable Integration with Non-Intrusive, Room-Level Temperature Management

Val de Bagnes, Switzerland

Milesight Partner
Energroup

Location
Val de Bagnes, Switzerland

Applications
HVAC Control, Infrastructure Management

Devices Deployed
WT401*50, WS558*10, UG65*1

Background

Located in Val de Bagnes, Switzerland, the Pyxis residential building was facing growing pressure to improve energy efficiency, reduce operational costs, and enhance tenant comfort. Aging heating infrastructure and limited system visibility made it increasingly difficult for operators to maintain optimal performance. To address these challenges, the building underwent a comprehensive energy retrofit focused on modernizing heating and domestic hot water systems while integrating renewable energy sources. The goal was to establish a more transparent, efficient, and future-ready energy foundation.



Challenges



High Energy Consumption

The building's decentralized heating and hot water system operated inefficiently, leading to excessive energy consumption and increased operational costs.



Lack of Centralized Control

Without centralized management or remote monitoring capabilities, operations relied heavily on manual intervention, reducing overall efficiency and responsiveness.



Difficulty Maintaining Comfort

Maintaining stable indoor temperatures and reliable hot water availability was challenging, negatively affecting tenant comfort and satisfaction.



Non-Intrusive HVAC Retrofit

Modernizing the HVAC systems without structural modifications was essential, while ensuring the solution could support scalable smart control and future expansion.

Solution

As part of a comprehensive energy retrofit of the Pyxis residential building in Val de Bagnes, Switzerland, Milesight, in collaboration with Energroup, deployed a LoRaWAN® based smart heating control system to modernize the building's heating and energy systems.

WT401 Wireless Smart Thermostat:

Installed in each room, this battery-powered thermostat continuously measures temperature and humidity and sends data wirelessly via LoRaWAN®. Tenants can adjust setpoints locally or through a mobile app, while the system optimizes heating automatically. Its compact design enables easy installation in retrofitted buildings without additional wiring.



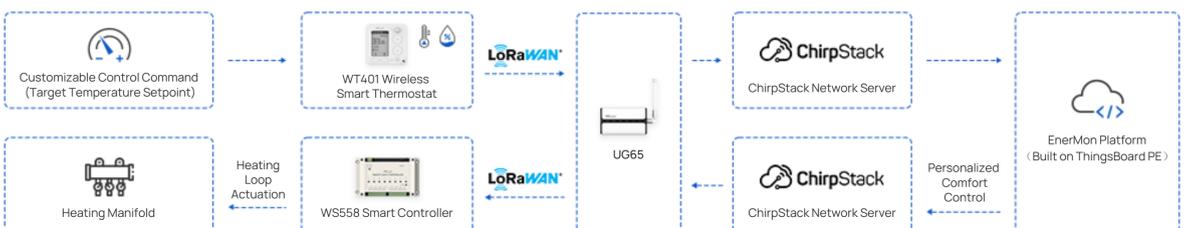
WS558 Smart Controller:

Mounted on heating distribution manifolds, the WS558 controls multiple independent underfloor heating loops. It receives commands from the gateway to precisely manage heating across multiple zones, ensuring comfort and energy efficiency.



UG65 LoRaWAN® Gateway:

Located in the technical room, the UG65 collects data from all thermostats and controllers and transmits it securely to the network server. It ensures reliable wireless connectivity across the building and is fully compatible with ChirpStack servers, supporting secure, seamless communication between devices and the management system.



The WT401 wireless smart thermostats collect temperature and humidity data from each room and send it via LoRaWAN® to UG65 gateway. The gateway forwards this data to the ChirpStack network server, which routes it securely to the EnerMon platform (built on ThingsBoard PE). Based on the data and user preferences, EnerMon generates personalized comfort control commands that are sent back through ChirpStack and UG65 to WS558 controllers, which adjust the heating manifold and regulate individual heating loops. This data-driven heating management system provides centralized monitoring, precise room-level temperature control, and comprehensive energy reporting across the building, which delivers smart, efficient heating without additional wiring—ideal for retrofit projects.

Results

Superior Tenant Comfort

Accurate temperature control and instant hot water delivery enhance daily living, creating a more comfortable environment for tenants.

Seamless Remote Access

Intuitive mobile app controls let tenants adjust heating anytime, anywhere, for ultimate convenience and flexibility.

Efficient Operations & Cost Savings

Centralized monitoring and remote diagnostics reduce maintenance effort, cut energy consumption, and enable smarter, data-driven management.

Future-Ready Infrastructure

Smart controls combined with renewable energy integration modernize building systems, ensuring adaptability and scalability for tomorrow's energy needs.

Discover More about Milesight Products



WT102
Smart Radiator Thermostat



WT304
Smart Fan Coil Thermostat



AM300
Series Indoor Air Quality Sensor



UC300
IoT Controller

Why Choose Milesight



For this project, Energroup selected the Milesight WT401 thermostat for its modern design, advanced control functions, and especially its non-intrusive installation. Being battery-powered and wireless, it allows integration into existing buildings without modifying the electrical infrastructure.

Combined with the WS558 LoRaWAN smart controller, the solution enables precise control and regulation of the heating loops while avoiding major renovation work. This combination provides a flexible, scalable, and cost-efficient way to modernize heating systems in existing buildings.



Partner

ENERGROUP

About Energroup

Energroup is a Swiss-based company specialized in smart energy management solutions for residential, commercial, and industrial buildings. We design and implement intelligent control systems that optimize energy consumption, improve operational efficiency, and support the energy transition. By integrating advanced IoT technologies such as LoRaWAN, we deliver reliable, scalable, and future-proof solutions tailored to our clients' needs.