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Uponor Smatrix AI

Field testing by Universidad de Granada confirms real energy savings

AI-powered underfloor heating control: proven to save energy without sacrificing comfort.

Underfloor heating systems are highly efficient, but traditional heating curves are static. They cannot react fast enough when outdoor conditions change. Uponor Smatrix AI solves this by using weather forecast data and building response patterns to continuously adjust supply water temperature (SWT) automatically, and without manual input.

What the tests found

Field testing by the Universidad de Granada on a five-zone residential installation benchmarked Uponor Smatrix AI directly against the best-performing traditional heating curve available. The findings are clear:

Energy savings of 8.5–17.4% per day

On matched-weather test days, Uponor Smatrix AI reduced daily energy consumption by 8.5 to 17.4% compared to the calibrated heating curve baseline. The system achieved this by operating at consistently lower supply water temperatures and initiating heating earlier, before demand peaks.

Seasonal savings of at least 10%

Field testing confirms the figure: the distribution of weather conditions across a typical heating season skews toward days with medium savings potential, supporting consistent performance throughout.

Thermal comfort fully maintained

Room temperatures remained within ±1°C of the target setpoint throughout testing. Anticipatory supply water temperature adjustments prevented the temperature undershoots common with static heating curves: occupants stayed comfortable even as outdoor conditions shifted.

No manual tuning required

Traditional heating curves require expert setup and periodic adjustment. Uponor Smatrix AI removes this requirement entirely. The system self-optimizes based on real building data and short-term weather forecasts, with no specialist intervention needed after installation.

How Uponor Smatrix AI delivers these results

During field testing, Uponor Smatrix AI ran three artificial intelligence models in parallel: one comfort-oriented (higher SWT), one energy-oriented (lower SWT), and an intermediate model (one balancing both). An automatic policy selector chose the right model based on current room-level conditions. The system processed historical building data alongside weather forecast information, making supply water temperature adjustments throughout the test period.

The installation was set up and managed via the Uponor Smatrix Pulse 2 App. Uponor Smatrix AI integrated directly with the heat pump on site, with indoor measurements logged to the cloud and third-party weather forecasts ingested hourly.

A software upgrade with measurable impact

Uponor Smatrix AI is a software-only upgrade, compatible with existing Uponor Smatrix Pulse installations. It delivers proven energy savings with no disruption to the building or heating system.

	Traditional Heating Curve	Uponor Smatrix AI
Energy Use	Fixed supply water temperature	Continuously adjusted to conditions
Comfort reliability	Reactive to temperature drop	Proactive, anticipates changes
Tuning requirement	Expert setup and adjustment	Automatic, no tuning needed
Seasonal energy savings	Baseline	At least 10%

Visit **uponor.com/smatrix-ai** for technical details, compatible heat pump integrations, and setup guidance.

Excellence in Flow⁺