



Energy Management
Made Easy

Belimo Energy Valve™



Learn more
www.belimo.com

BELIMO®

Transparent tenant billing



The Belimo Energy Valve and Thermal Energy Meter provide energy control and efficient energy billing. They offer an accurate measurement and monitoring of energy consumption in a heating and cooling system with direct IoT-based cost accounting using a single device. Designed to EN1434/CSA C900 standards, they ensure high accuracy and reliability, allowing for transparent tenant billing.

Energy savings you can see

The Belimo Energy Valve is an IoT cloud-connected pressure independent valve that monitors coil performance and energy consumption while maintaining Delta T. A patented glycol monitoring and compensation feature provides accurate, repeatability flow measurement and ensures glycol content meets design requirements.



Cloud Optimization

Energy usage is monitored and enhanced to deliver optimal system performance. System analytics are also provided to show historical performance.

“The installation of Energy Valves in Citizens Plaza, Rachel Jackson, and the Andrew Jackson building was a major success. The results exceeded my expectations. We now have savings that we can see.”

Chad Lovell, Operations and Safety Specialist
Jones Lang LaSalle



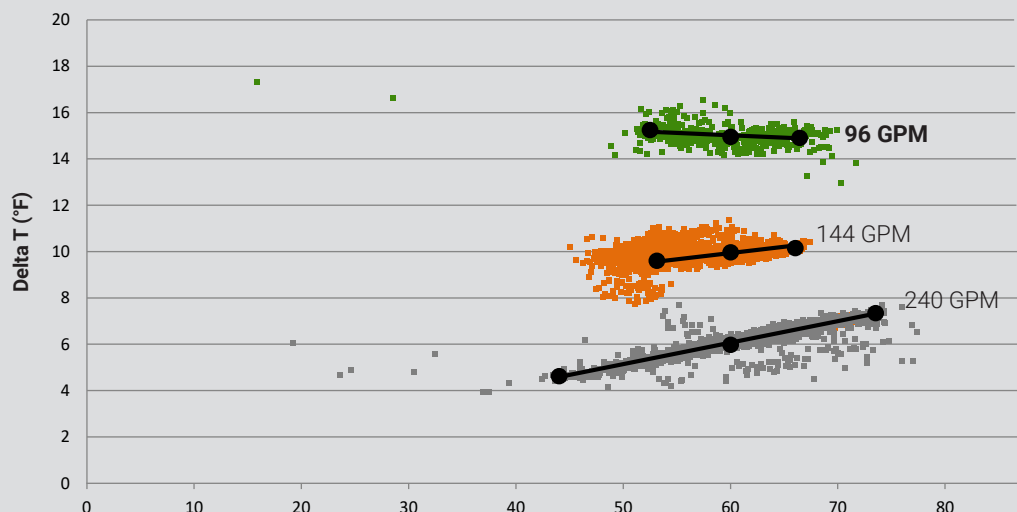
Delta T Management

The Belimo Delta T Manager algorithm reduces pumping and chiller/boiler operating costs by increasing plant efficiency and maintaining design Delta T.



Energy Monitoring

An integrated energy meter provides accurate coil and energy consumption data for tenant billing. The data is used to verify system performance after commissioning and acts as a baseline. This feature helps achieve LEED points through Energy and Atmosphere within credits 1 and 5.



Coil performance to achieve 60 tons of cooling:

– Conventional control valve (position control) uses 240 GPM with a 6°F Delta T.

– Flow control with Delta T Manager uses only 96 GPM with a 15°F Delta T. A conventional control valve uses 2.5 times more water than the Energy Valve with Delta T Manager for the same load!

Key features at a glance

Certified metering

Meets the requirements of EN1434 and CSA C900 and is Measurement Canada AV2478C certified.



Digitally supported workflows

The Belimo Assistant App guides you through the setup process.



IoT-based billing

Owner-authorized third parties are able to securely access data consumption and provide billing services.



Easy integration

Using BACnet/IP, BACnet MS/TP, Modbus TCP or RTU, the Energy Valve can easily communicate directly to the BMS.



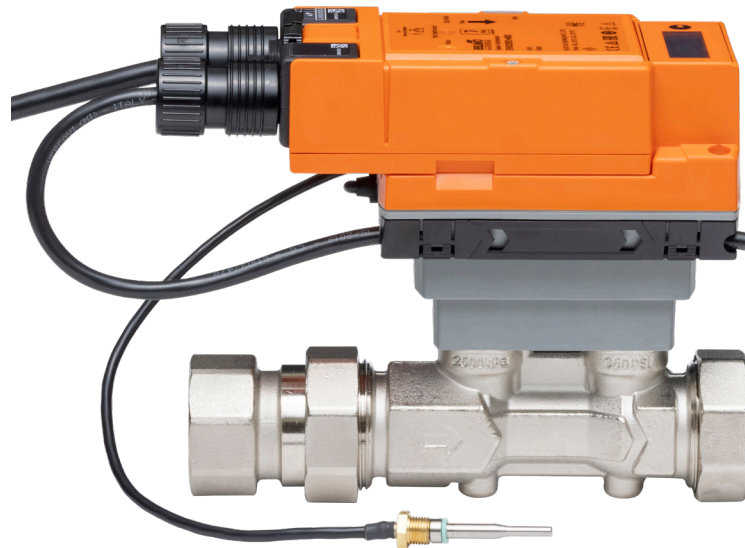
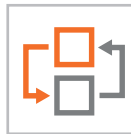
Power over Ethernet (PoE)

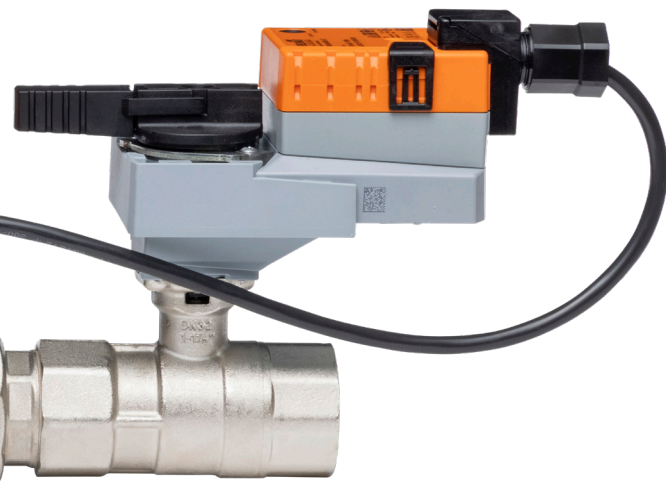
The device can connect with one standard Ethernet cable that provides power and allows data transmission.



Modular design

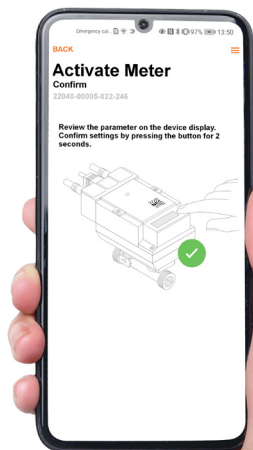
The unit consists of two temperature sensors and a BTU meter with metering and logic functionality.





Easy interaction through NFC

Quick data access, field adjustable, commissioning and troubleshooting with the Belimo Assistant App and a smartphone.



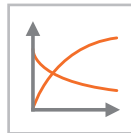
Energy monitoring

The thermal energy data is accurately measured, logged, and identifies areas for optimization when detected.



Glycol measurement and compensation

Equipped with a patented glycol algorithm, it compensates to provide proper flow and energy measurement.



Delta T Manager

Built-in logic monitors coil performance and optimizes the available energy of the coil by maintaining the Delta T.



Dynamic coil performance

Transparency is provided in power degradation and other operational issues in real-time.



Cloud connection

The Energy Valve connected to the Belimo Cloud provides secure, easy access to data and reports anytime from anywhere.



Power control

The power output can be set to a specific value providing a linear response, making the coil and valve characteristic irrelevant, which allows the Energy Valve to be both pressure and temperature independent.

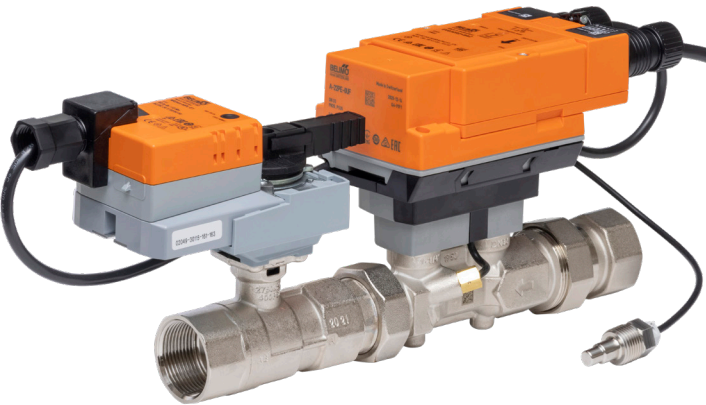


Differential pressure control

Accurate control of branch and system differential optimizes system performance and efficiency with added transparency of flow and energy

Belimo Energy Valve™

The Energy Valve has a patented Power Control and Belimo Delta T Manager™ logic built in to monitor coil performance and optimize the available energy of the coil by maintaining Delta T. In addition to the standard analog signal and feedback wiring, it communicates its data to the Building Management System (BMS) via BACnet MS/TP or BACnet/IP as well as Modbus RTU and Modbus TCP/IP. The built-in web server enables clear visualization of the valves' operation in real time. Performance data is stored for 13 months onboard the valve. Cloud data provides lifetime data access.



FEATURES

- **Delta T Optimization & Flow Setpoints**
Cloud analytics provide recommended Delta T and flow setpoints which can be updated remotely or automatically to save time and improve efficiency.
- **Performance Reporting**
Key performance indicators are graphically illustrated showing current and historical performance data of flow rates, energy usage, Delta T, and other points of interest.
- **Optional PoE**
The device can be powered, and the data transferred directly via an Ethernet cable (PoE)
- **Online Tech Support**
Belimo's industry-leading technical support team is available to assist you remotely.
- **Software Updates**
Latest software and security updates are automatically provided for maximum productivity and reliability.

End Fittings	Size	GPM Range	Measurement Canada AV2478C certified	Monitors	Compensates	Alarm
NPT	½" - 2"	2.0 - 100		■	■	■
	½" - 2"	2.0 - 66	■	■	■	
Flanged (ANSI 125)	2½" - 6"	38 - 713		■	■	
Flanged (ANSI 250)	2½" - 6"	38 - 713		■		

Thermal Energy Meter

Belimo's Thermal Energy Meters are designed according to EN1434/CSA C900 standards and provide remote IoT-based billing. They have a patented glycol monitoring and compensation feature that provides accurate, repeatability flow measurement and ensures glycol content meets design requirements. The thermal energy meters incorporate ultrasonic transit time technology with no moving parts eliminating wear over time. Each unit is individually wet calibrated to ensure accuracy and repeatability over the life of the product. The meters offer accurate and reliable measurement of energy consumed, providing customers with the information required to analyze their consumption and control costs.



FEATURES

– IoT-based Billing

Thermal energy meters offer Ethernet connectivity to support remote IoT metering and billing.

– Glycol Measurement and Compensation

Energy meters are equipped with a patented glycol compensation algorithm that automatically selects the correct glycol concentration to provide precise flow and energy measurement, ensuring reliable measurement and eliminating manual input and inaccuracy.

– Seamless Integration

With BACnet/IP, BACnet MS/TP, Modbus TCP or RTU (always on board), the thermal energy meter can communicate directly to the BMS.

– Optional PoE

The thermal energy meter can connect with one standard Ethernet cable providing power and data transmission simplifying installation.

– Built-in Data Logger

Built-in data logger captures the energy, flow, and operational data for further system optimization and efficiency.

– Digitally Access

Easily set or adjust parameters using NFC and the Belimo Assistant App or a web server.

End Fittings	Size	GPM Range	Measurement Canada AV2478C certified	Monitors	Compensates	Alarm	Display
NPT	½" - 2"	6.6 - 100		■	■		
	½" - 2"	6.6 - 66	■	■	■	■	■

Digitally supported

Webview

Safe and easy interaction through NFC with the Belimo Assistant App and your smart phone provides quick data access, programming, commissioning, and troubleshooting. Local override function for commissioning and maintenance during operation (when powered) is possible with a few clicks. Easily read and forward parameters for more efficient operation and gain transparency.

Webview is an onboard graphical user interface that provides the ability to easily configure and change parameters on the Energy Valve and Thermal Energy Meter. The operation overview provides flows, temperatures, energy, glycol concentration, Delta T, operational errors, and other system information, along with historical trend data. Below is an example of the Webview overview page for the Belimo Energy Valve.

Cloud Connection

Connecting to the Belimo cloud offers a variety of benefits. By maintaining the Energy Valve in the cloud, authorized users can interact with the data directly or change parameters. Device owners can approve third-party vendors to integrate API via the cloud, enabling additional features such as billing or analytical services; the possibilities are endless.



Platform for on-site Energy Valve optimization

The Belimo Clear Edge is an analytical device that leverages the data from all installed Belimo Energy Valves in a BACnet Building Automation System (BAS). It automatically analyzes the Energy Valve data to optimize, manage, and monitor key performance indicators of water coil performance and hydronic energy consumption. The Clear Edge offers trending capability with automated Delta T setpoint adjustment to increase system performance and energy savings strategies. An internet connection is not needed.

The Belimo Clear Edge technology is accessible as a plug-in for SkySpark from Stackhub (www.stackhub.org).

FEATURES

– Aggregated Start Screen

A simplified view of Key Performance Indicators (KPI's) is accessible, including BACnet object name, instance number, supply and return temperatures, Delta T, delta setpoint, flow, current energy usage, and 30 days of energy consumption.

– Energy Dashboard

Input cost and kWh data, pump efficiency, and other building specific variables provide aggregated cost and energy savings due to reduced pumping. Reporting is available by the day, month, quarter, and year.

– Automatic and Continuous Delta T Optimization

Software analytics provide the optimal Delta T and flow setpoints, which are automatically written to the Delta T Manager to save time and improve efficiency.

– Coil Power and Delta T Curves

Scatter plots automatically generate load profiles and flow saturation points of coil characteristics and Delta T performance.

– Setpoint Configuration

Change parameters on installed Energy Valves individually or collectively.

– Automatic Discovery

Energy Valves on a BACnet network are viewable with a single click. Point mappings automatically provide fast and easy analysis and optimization.

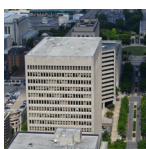


Most capable valve in the HVAC industry

Features	Typical PI Valve*	Energy Valve
Smartphone Configuration		✓
Cloud Analytics		✓
Glycol Monitoring		✓
Commissioning Report		✓
Power Over Ethernet		✓
Dynamic Balancing	✓	✓
Energy Meter w/ Additional Sensor Input		✓
Power Control		✓
Differential Pressure Control		✓
Delta T Manager		✓
Live Data and Coil History		✓
CCV Technology		✓
Leakage	ANSI Class IV	0%
High Close-off		✓
Low Minimum Pressure Drop		✓
Field Configuration	✓	✓
Bus Communication		BACnet MS/TP or IP, Modbus RTU or TCP/IP and MP Bus
Password Configuration		✓
Set-Up Wizard		✓
Certification for Tenant Billing		✓
5-Year Warranty	✓	✓

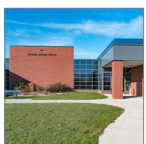
*Typical pressure independent valves based on globe valve technology.

Awards and accolades



Belimo Energy Valve Retrofit at Tennessee State Office Building Reduces District Energy Chilled Water Usage by 49%

"As a result of the retrofit project, we were able to reduce chilled water pumping by 49%, which equated to about \$23,000 in annual savings", said Chad Lovell. "The total cost of the project, including installation, was \$53,474. A simple financial calculation produced a payback in about 2.4 years. The installation of Energy Valves in Citizens Plaza, Rachel Jackson, and the Andrew Jackson building was a major success. The results exceeded my expectations. We now have savings that we can see."



Red Wing School District will Achieve Payback in Under Two Years

"Savings are always difficult to quantify for new buildings; however, at River Bluff, we are pumping approximately 50% less water than that of a similar sized building in our district," Kevin Johnson, Director of Building and Grounds and Technology Director, Red Wing School District said. "This equates to substantial pump cost savings over the long-term and represents an improvement over traditional valves, which often deliver far more GPM than needed to maintain temperature setpoints."



Belimo Energy Valve™ Cures Medical University's Low Delta T

"The University started seeing a 10-degree Delta T," said Scott Czubkowski, PE, Director of Engineering at Kerney Associates. "It went from a 7-degree to a 10-degree Delta T within a day." But that was not all. Kerney and Associates found that within one hour, the system went from using 600 gallons to 100 gallons of water per minute.



New Energy Valve Technology at Charles Hayden Library Reaps the Rewards of Higher Delta T

"One thing that impressed us was having such intelligence right on the valve actuator," said Peter Cooper, Manager of Sustainable Engineering and Utility Planning at MIT, Hayden Library. "You can characterize a coil's performance with just a couple of pieces of data and with that information you can observe the degradation of coils and refocus your maintenance efforts accordingly."

Awards

2019

- Control Trends: **HVAC Control Valve Solution of the Year**

2018

- EnergieGenie Award**

2017

- AHR Expo: **Innovation Award Finalist**

2016

- ACME: **Innovation Award**
- Poznan International Trade Fair: **Gold Medal**
- Control Trends: **Energy Savings Solution Product of the Year**

2015

- Energy Show: **Best Energy Efficient Product of the Year**
- AREX: **Award of Excellence**
- CSA: **Innovation in Commissioning**
- Deutscher Rechenzentrumspreis: **German Data Centre Prize**

2014

- Control Trends: **Energy Saving Product of the Year**
- AHR EXPO: **Innovation Award**
- Shanghai Energy Conference: **Golden Key Award**
- Poznan International Trade Fair: **Gold Medal**

2013

- Building Efficiency Congress Fair: **Building Efficiency Award**
- Interclima Show: **Silver Trophy Award**
- BCIA: **Technical Innovation of the Year Products**
- Trade Fair: **Building Efficiency**
- Innovation Competition: **Intelligent Energy Management**

2012

- Control Trends: **Best Commercial Product of the Year**
- HVR Awards: **Air Conditioning Product of the Year**

All inclusive

At Belimo, we continually invest in new technologies that increase customer value by improving occupant comfort, energy efficiency, simplified installation, and maintenance-free operation. Our sales team is available to consult and provide insight and advice on how to achieve the best solution to help increase your system performance. Belimo will continue to focus on providing you with exceptional product availability, fast delivery times, and world-class customer service and technical support. We remain dedicated to continuously improve our standards and are committed to providing you the highest value possible.

Whatever your HVAC application, our global network of support experts are on hand and ready to assist.



5-year guarantee



On site around the globe



Complete product range



Tested quality



Short delivery time



Comprehensive support