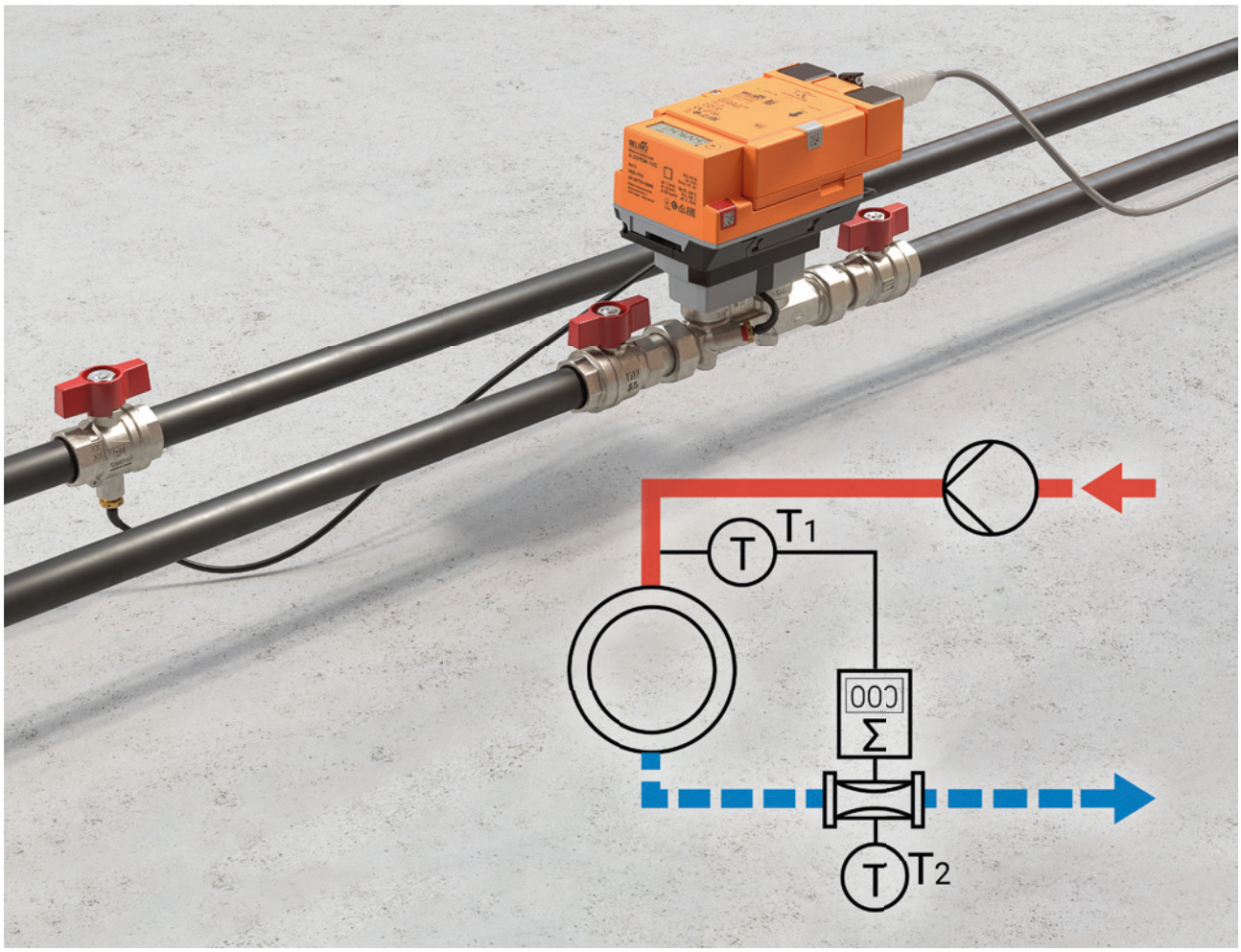
Energy billing made easier than ever.

Thermal Energy Meter

BELIMO

Transparent energy cost billing.



The new thermal energy meters in the standard version or with MID approval are distinguished by high accuracy and reliability. They can be seamlessly and directly integrated into the building automation system, feature a PoE (Power over Ethernet) connection and are designed for IoT-based energy cost billing. The devices can be put into operation either via the integrated webserver or via smartphone with the Belimo Assistant App. Their modular construction simplifies the replacement of the sensor module once the time for recalibration is reached. The logic module remains integrated in the system, thus leading to considerable savings in terms of both costs and time. The thermal energy meters are multi-application devices and can be used as heat meters, cooling meters, or as combined heat/cooling meters. Integrated glycol measurement and compensation guarantee precise energy metering at all times. The energy meters can be mounted in both the supply and the return, which can be easily set at the construction site using the Belimo Assistant App.

Integrated energy metering and billing.

The thermal energy meters integrate energy metering and IoT-enabled billing in a single device. They enable seamless and direct integration into a building automation system.

Certified Metering

Belimo thermal energy meters are certified in accordance with EN 1434/MID and prepared for remote IoT-based billing. Belimo's patented automatic glycol monitoring and compensation ensure that your measurement remains accurate, even if the glycol concentrations change.

Digital Processes

Apps and web tools support the design process and offer fast and simple commissioning at your fingertips. The digital approach and full transparency of energy data makes your work easier.

Seamless Integration

Seamless and direct integration in the building automation system and designed for IoT-based energy cost billing – integrating energy data has never been so easy.

"Installation is easier than ever before – thanks to Power over Ethernet. Data transmission and power supply take place simultaneously via the Ethernet cable. This reduces the costs of wiring at the time of installation to a minimum."

Philipp Aeberhard, Project Manager
Pezag Elektro AG

"With the additional connection to the cloud, we now have full transparency, anytime and anywhere."

Emanuel Tan, Project Manager
Pezag Elektro AG

The most important advantages at a glance.

Certified metering, MID approval
Meets all requirements of EN 1434, including type approval in accordance with the European Measuring Instruments Directive 2014/32/EU (MI-004).

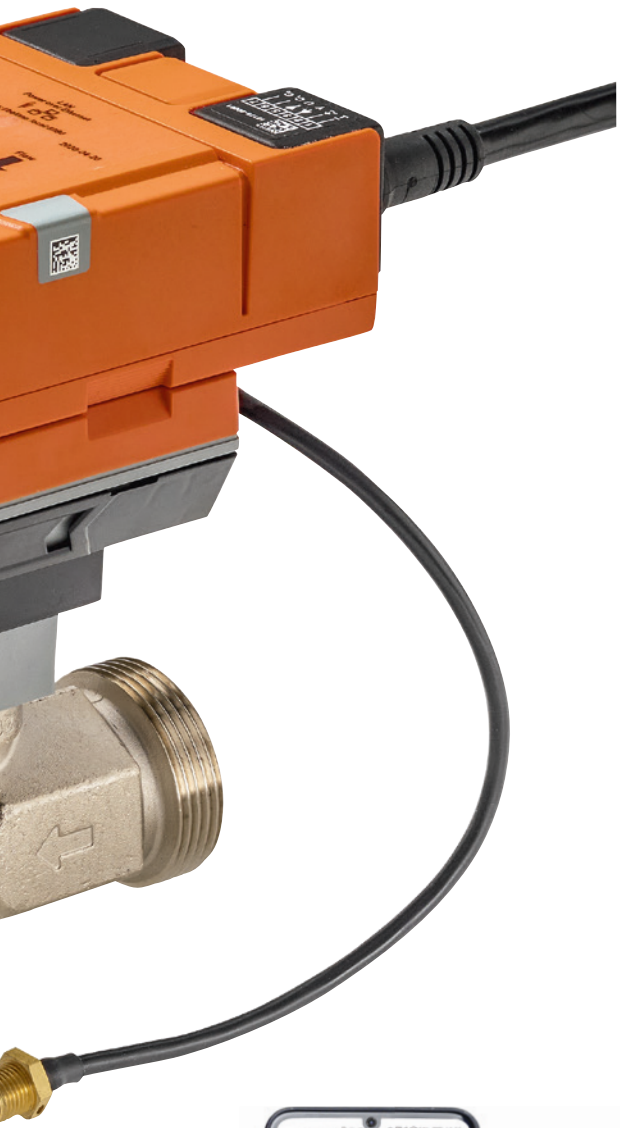
Digitally supported processes
The Belimo Assistant App guides you through the commissioning process.

IoT-based billing
When connected to the Belimo Cloud, owner-authorised 3rd parties are able to securely access consumption data and provide billing services.

Simple integration
Using BACnet IP and MS/TP, as well as Modbus TCP and RTU, the thermal energy meter can be integrated directly in the building management system.

Connecting the old and new worlds of thermal energy management
M-Bus via converter and parallel operation with BACnet or Modbus for connection to the building automation system.

Power over Ethernet (PoE)
The devices can be connected with one standard Ethernet cable for power supply and data transmission.



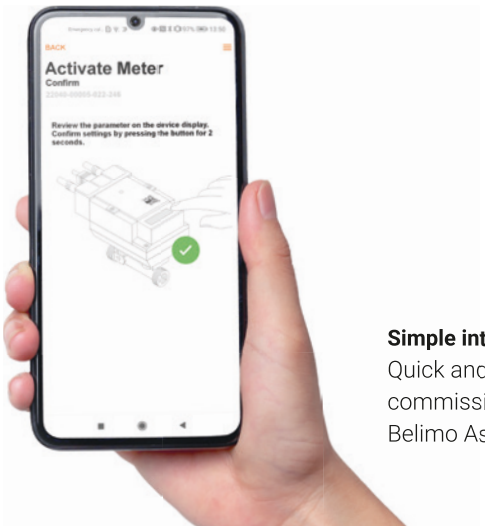
Embedded web server
Direct data access is possible via the integrated webserver and settings can be undertaken very easily.

Glycol measurement and compensation
Glycol measurement and compensation guarantee precise energy metering of standard devices at all times. With the MID version, a glycol alarm is triggered.

Sensor interface
Optionally, a passive resistance sensor, an active sensor or a switching contact can be connected. The thermal energy meter digitises the analogue signal of the sensor and transfers it to the corresponding bus system.

Modular design for rapid meter switching
The energy meter is comprised of a logic module and a sensor module. Once the calibration deadline has been reached, only the sensor module needs to be replaced. Significant savings in terms of both costs and time.

Versatile
Designed as a multi-application device, the thermal energy meter can be used as a heat meter, cooling meter or as a combined heat/ cooling meter.



Simple interaction via NFC interface
Quick and simple data access onsite – commissioning and troubleshooting with the Belimo Assistant App and a smartphone.

The added value for you as a Belimo customer.

Consulting engineer

- Reduced planning expenditures thanks to multi-functionality
- Traceable verification and logging (commissioning report)

Building owner

- Traceable verification and logging of billing-relevant data
- Open data access provides flexibility in choosing a service provider (e.g. for billing)
- Low commissioning and operating costs, which translate to optimum investment protection
- Future-proof and transparent thanks to direct internet connection
- Ultrasonic time-of-flight technology. As a result, the thermal energy meters provide precise measurements while also remaining dirt-resistant, free of wear and maintenance-free

Operator, facility manager

- Maximum comfort with minimum operating costs throughout the entire life cycle
- Integrated glycol measurement and compensation with the standard version or a glycol alarm in the case of MID devices, guarantee system safety and ensure accurate measuring values
- Traceable verification and logging of billing-relevant data
- High transparency and efficiency thanks to energy and system monitoring with the Belimo Cloud
- Simple replacement of the devices subject to obligatory calibration

Installer

- Cost reduction and time savings via optimally coordinated multifunctional solution
- Automatic generation of a commissioning report for the meter
- Additional commissioning benefits can be found below

System integrator

- Free selection of integration (BACnet MS/TP or IP, Modbus RTU or TCP, MP-Bus, M-Bus (with converter) and link to the Cloud)
- Simple, time-saving commissioning and parametrisation
- Simplified installation through PoE (Power over Ethernet), as no local power supply is required
- Additional commissioning benefits can be found below

Measurement service provider

- App-guided commissioning, automatic generation of a formal commissioning report
- Measurement data of the MID-certified energy meter can be used directly for consumption billing
- Easy connection to other cloud interfaces
- Easy data logging and processing
- Seamless and easy integration into open systems for energy cost billing
- Additional commissioning benefits can be found below

Commissioning

- Meets the requirements of EN 1434 and has the type approval in accordance with the European Measuring Instruments Directive MID (2014/32/EU)
- Integrated web server for direct data access and setting options
- A single smartphone app for everything: commissioning, parametrisation, diagnosis and monitoring
- Intuitive start-up wizard for commissioning and logging

Reliable certified measurement.

High quality measurement

Belimo's thermal energy meters use ultrasonic transit time technology, and as a result are dirt-resistant, wear-free, and measure precisely. The multipoint wet calibration of each individual meter in production ensures high accuracy over the entire flow measurement range.

Multipoint wet calibration of the sensor modules

Multi-application device

Belimo's thermal energy meters are designed to be multi-application devices, i.e. they can be used as heat meters, cooling meters, or as combined heating/cooling meters. They are installed either in the return or in the supply of the system. The application and the installation position are defined at the time of commissioning with a smartphone and the Belimo Assistant App.

Certified energy metering

Belimo's certified thermal energy meters meet the requirements of EN 1434 and have type approval in accordance with the European Measuring Instruments Directive 2014/32/EU (MID). These devices bear the accompanying MID conformity marking. They provide validated data for invoicing purposes, which can be used for direct invoicing. The thermal energy meters are approved according to MID for heat metering in pure water systems. Permanent glycol monitoring means that an alarm is triggered if glycol is present in the water.

CE M22 1259
DE-22-MI004-PTB010

MID conformity marking

Even greater accuracy thanks to automatic glycol compensation

Our thermal energy meters are also available without MID approval. They reliably measure energy even when there is glycol in the water. They automatically and continuously measure the glycol content in the fluid, compensate for it and, in doing so, ensure reliable ultrasonic flow measurement. This enables precise determination of thermal energy.

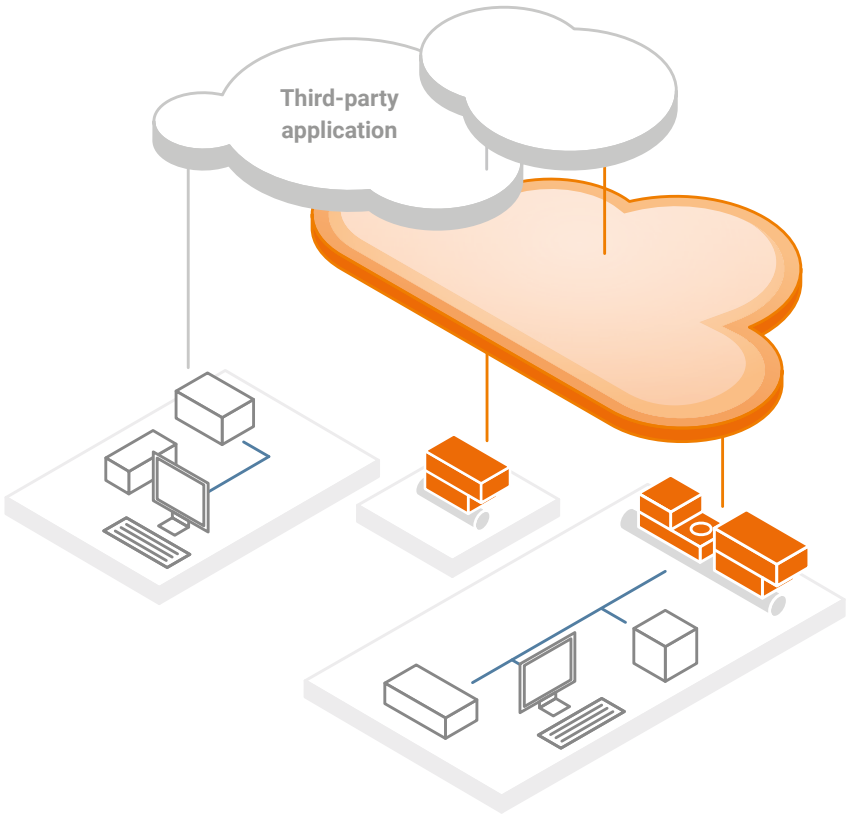
Modular design for fast meter switching

The thermal energy meter consists of a sensor module (lower part), which houses the measuring system, and a logic module (upper part), through which the thermal energy meter is connected to the power supply. The bus and near field communication interface is also available via the logic module. A calibration deadline exists in various countries, at which time the thermal energy meter must be replaced. Only the sensor module needs to be replaced on the thermal energy meter from Belimo, thereby saving time and costs. The logic module remains connected to the system. High integration costs are prevented, as the system integrator does not need to travel to the plant to reintegrate the sensor module when it is replaced.

IoT-based billing.

Simplified energy billing

The thermal energy meters are ready for IoT-based cost accounting. The data are available to authorised users via a cloud interface. This enables simple integration in other platforms and permits in turn maximum flexibility with respect to the selection of service providers. The high quality of the data made available means that the data can also be used for a variety of other applications.



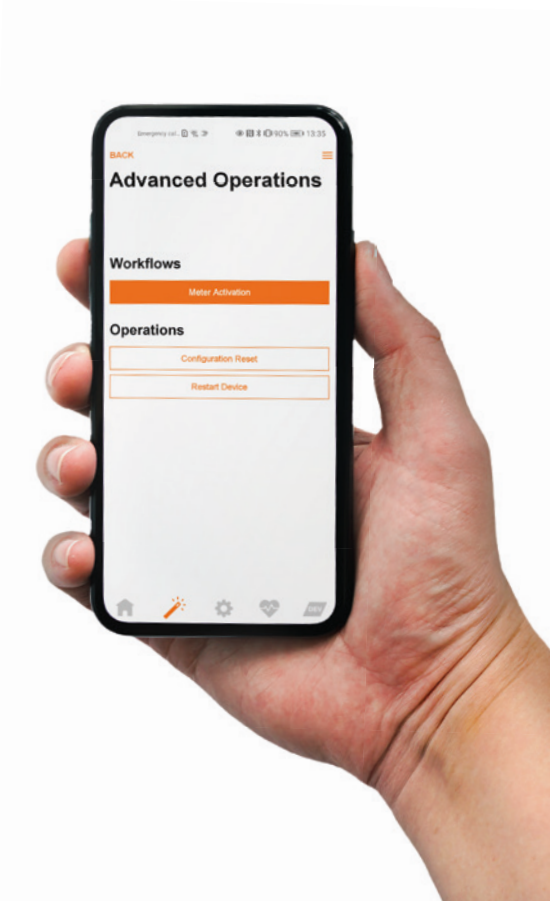
Digitally supported planning and commissioning.

Simple commissioning and activation via NFC

The thermal energy meters with NFC (Near Field Communication) interface enable easy commissioning, parametrisation, and maintenance directly from a smartphone. With the Belimo Assistant App, devices can be parametrised intuitively and a commissioning log can be generated. Numerous diagnostics parameters show the user how the device is interacting with the plant during ongoing operations. Rapid failure analysis is made possible, should a service call become necessary.

Multifunctional devices with connection to the cloud

Connection to the Belimo cloud offers not just an extension of the guarantee by two years to seven years, but a whole host of other benefits. Device owners can for example appoint a third-party supplier to provide billing or even analytic services – the possibilities are endless, and increasing from one day to the next.



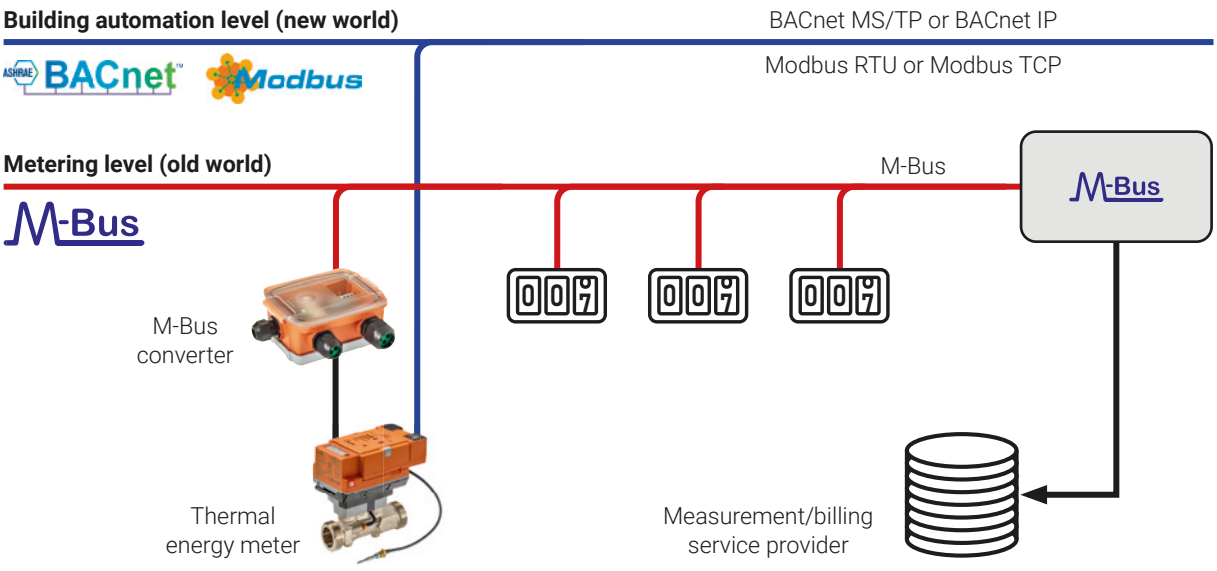
Seamless integration of the metering data.

The future of HVAC systems is connected

Connectivity has always been an important feature of our products. The thermal energy meters support all common building automation communication protocols (BACnet IP and MS/TP, Modbus TCP and RTU, Belimo MP-Bus, and via a converter M-Bus). As an intelligent connection socket, the M-Bus converter provides the thermal energy meter with voltage and integrates it on M-Bus. Furthermore, the M-Bus converter can be used to wire the RS485 communication interface as a "daisy chain" and to connect an optional sensor.

Connection of the old world and the new

The thermal energy meters are normally connected to the new world of thermal energy management. They are integrated into the building automation level via BACnet or Modbus. Parallel operation of M-Bus and BACnet or Modbus are possible via M-bus converter. The energy data of the thermal energy meters can be transferred via the M-Bus converter onto the meter level (old world) while at the same time being transferred onto the building automation level, i.e. onto BACnet or Modbus.

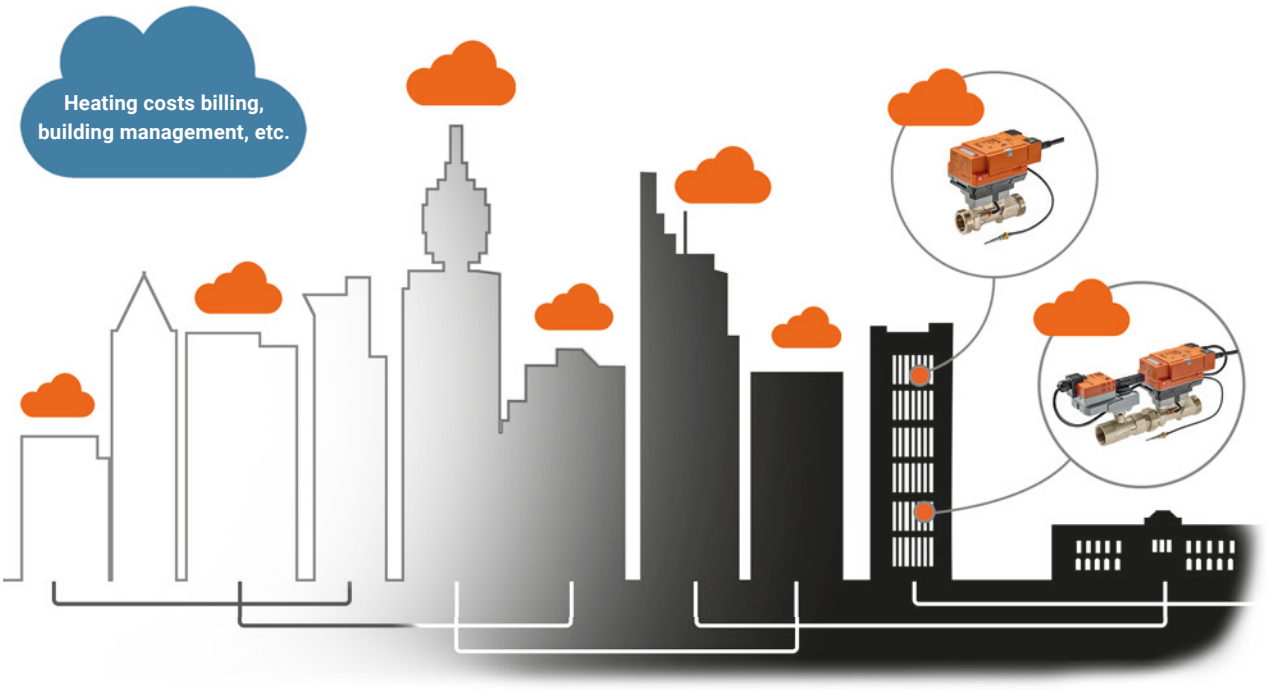


Power over Ethernet

All thermal energy meters can be integrated via PoE. This allows the device to be powered and the data to be transmitted simultaneously via an Ethernet cable. This simplifies installation, avoids wiring errors and eliminates the need for a local power supply.

Direct integration into IoT platforms

The IoT-ready thermal energy meters can be connected directly to modern building IoT platforms. This means you can benefit from the possibilities of a networked digital ecosystem.



From building solutions to district heating/cooling

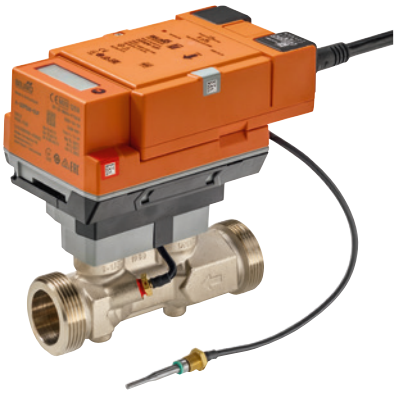
Thermal energy meter.

Two versions of the thermal energy meter are available, depending on the desired application. The first version meets the requirements of EN 1434, and has a type approval in accordance with the European Measuring Instruments Directive 2014/32/EU (MID). This is used when the application requires a calibrated heat measurement, which can be used to bill the costs directly.

Thermal energy meters are however also available without approval, for applications or regions that do not require it. This version should be selected when automatic glycol compensation is required, e.g. with cooling applications.

FEATURES

- Accurate measurement based on ultrasonic time-of-flight technology
- Ready for IoT-based billing
- Simple setup and parametrisation with the Belimo Assistant App
- Digitisation of analogue signals from passive and active sensors or switches
- Analogue output (DC 0...10 V) is available and can output the flow rate or temperature of the fluid



Version	Type code	Auto. glycol compensation	Glycol alarm	Approved according to EN 1434 MID	Display	Nominal diameter DN	Nominal flow [m^3/h]
 MID-approved	22PEM		■	■	■	15...50	1.5...15
 Standard	22PE	■					

The multifunctional all-in-one solution.

We recommend the Belimo Energy Valve™ for instances where measurement, regulation and control functions are required in addition to the outstanding properties of the thermal energy meter. In addition to the thermal energy meter, the Belimo Energy Valve™ consists of a 2-way or 3-way characterised control valve, an actuator and integrated logic.

The Belimo Energy Valve™ provides pressure-independent flow and power control in addition to transparent monitoring of the heating or cooling system, ensuring that excessively low temperature spreads (low delta T syndrome) are prevented. By measuring, calculating, and visualising important system data and the performance reports provided by Belimo, energy-efficient system operation is guaranteed over the entire service life. Depending on the desired application, the requirements according to EN 1434 are met with a type approval according to the European Measuring Instruments Directive 2014/32/EU (MID) or devices with automatic glycol compensation are available, all of which enable accurate billing.

- Measuring: Integrated sensors for measuring temperature spread, flow (incl. compensation of glycol content) and therefore power.
- Control: Control the valve position, the flow or the power for perfect control of the heat exchanger.
- Balancing: The Belimo Energy Valve™ always ensures the correct amount of water – even if there are differential pressure changes and during partial load operation.
- Shut off: No leakages thanks to air-bubble tight-closing characterised control valve.
- Energy monitoring: Demonstration of optimisation potential by recording all system data.
- Billing: Ready for IoT-based tenant billing.

Learn more
in the Belimo Energy Valve™ brochure.

All inclusive.

Belimo as a global market leader develops innovative solutions for the controlling of heating, ventilation and air-conditioning systems. Damper actuators, control valves, sensors and meters represent our core business.

Always focusing on customer value, we deliver more than only products. We offer you the complete product range for the regulation and control of HVAC systems from a single source. At the same time, we rely on tested Swiss quality with a five-year warranty. Our worldwide representatives in over 80 countries guarantee short delivery times and comprehensive support through the entire product life. Belimo does indeed include everything.

The "small" Belimo devices have a big impact on comfort, energy efficiency, safety, installation and maintenance.

In short: Small devices, big impact.

- 5-year warranty
- On site around the globe
- Complete product range
- Tested quality
- Short delivery times
- Comprehensive support

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