



**Application-specific  
product information**

## **Belimo Solutions for Air Handling Unit Applications**

Edition 2024-08/A

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## Further documentation and weblinks

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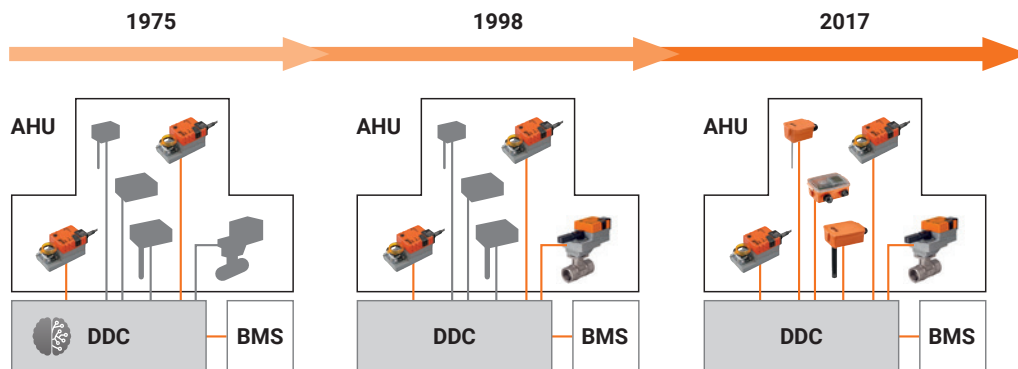
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# Actuator, valve and sensor solutions

## → Swiss quality since 1975

Belimo stands for continuous product innovation and high-quality control devices, such as air damper actuators, control valves, valve actuators and sensors. With the introduction of the first electric air damper actuators in 1975, Belimo laid the foundation for AHU (air handling unit) products. In 1998, valves and valve actuators were added. With the introduction of sensors in 2017 means Belimo now offers a complete product range to equip AHUs with control devices. AHUs are, therefore, an important application for Belimo and are increasingly moving into focus.



## Small devices, big impact.

Customer value is one of Belimo's top priorities. This is how we are able to offer our customers unparalleled solution leadership. We achieve this by focusing on five critical factors in product development: all our products must provide a high level of comfort, be energy efficient and safe for people, buildings and goods. To this end, it is important that the entire Belimo product range can be installed easily and quickly and that maintenance costs are kept to a minimum.

This is done with an awareness that "small" products from Belimo have a "big impact" on the functioning of HVAC systems.

### DOCUMENTATION / DOWNLOAD

 Belimo Product and Price Catalogue

### WEBLINK

[Belimo website](#)

# Applications

## Air

### Fire & Smoke Protection



### Room Comfort



### Cooling Tower



General applications in non-residential buildings

### Air Handling Unit



### Heating Plant



### Cooling Plant



Belimo offers a wide and complete range of actuators, valves and sensors for a variety of applications in modern non-residential buildings. This documentation focuses on products for the Air Handling Unit application.



## Application Air Handling Unit

Ventilation and air conditioning systems play an important role in keeping rooms comfortable and providing healthy air. In addition, sensitive processes and production facilities place high demands on the room climate and indoor air quality. AHUs form the core of these systems. They provide the supply air in the required quality and quantity. Belimo actuators and sensors contribute significantly to this.

### Correct temperature and humidity conditioning

- Reliable sensors for accurate measurement of temperature and humidity
- Pressure-independent control valves for precise and stable temperature control

### Proper amount of outdoor air

- Comprehensive actuator and sensor product range for control of air volume, thermal condition and quality
- Reliable sensors to ensure IAQ (indoor air quality)

### Proper filtration

- Differential pressure switches or single/dual differential pressure sensors for filter monitoring

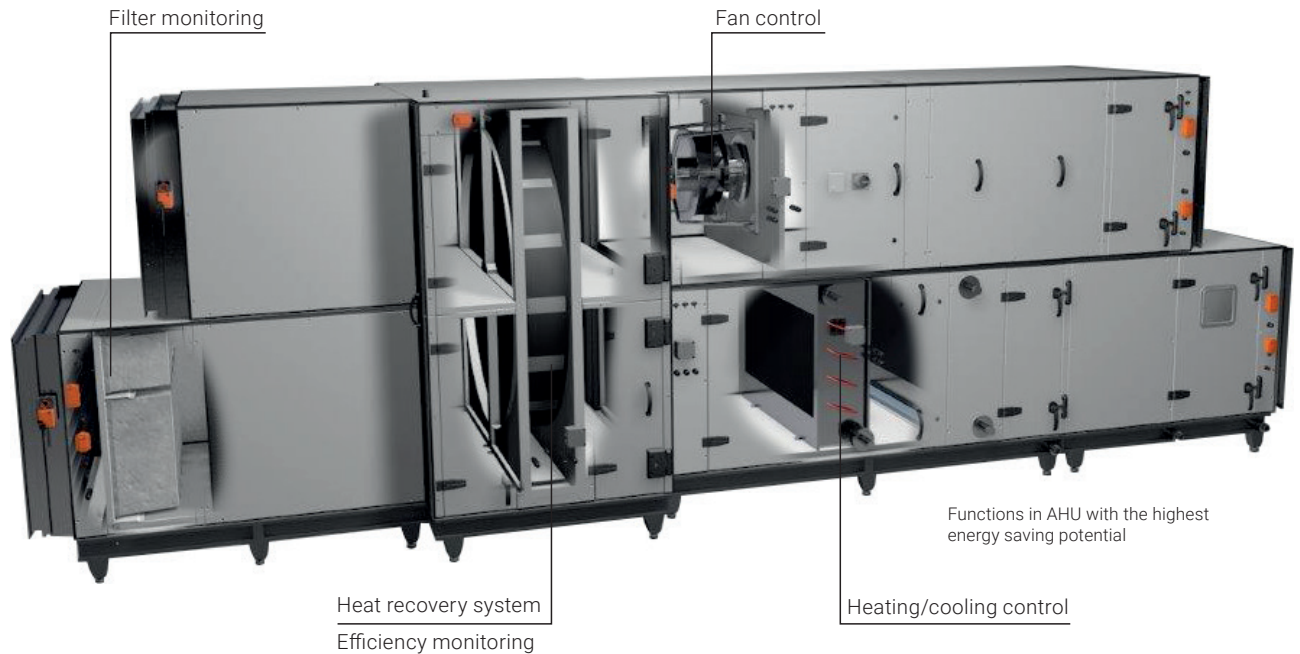
## DOCUMENTATION / DOWNLOAD

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Air handling units (AHU)

## Energy savings



The intelligent use of building technology systems can significantly improve indoor environmental quality (IEQ) by responding to the needs of building occupants.

However, the use of more energy efficient products, enabled by smart/connected technology, is an important prerequisite for energy efficiency in the built environment and its contribution to the unprecedented decarbonisation ambitions of the European Green Deal. In this context, European directives and regulations such as Ecodesign and EPBD (Energy Performance of Buildings Directive) require air handling units to be more energy efficient.

### TECHNICAL BUILDING SYSTEMS

- Belimo field devices are an important part of the technical building systems

### ENERGY SAVINGS

- Belimo products play an important role in realising the current and future energy savings potential of an AHU



## Belimo – benefits

### AHU energy savings potential

Fan control

Heating/cooling control

Heat recovery system  
Efficiency monitoring

Filter monitoring

### Belimo's important contribution: Small devices, big impact.

Accurate and reliable differential pressure sensors ensure the correct amount of air is delivered

Belimo Energy Valves provide transparent monitoring of the system, increasing the efficiency and controllability of the heating and cooling coils

Easy-to-install temperature and humidity sensors monitor the energy recovery system to ensure efficiency

Accurate and reliable differential pressure sensors monitor and indicate the status of filters to ensure timely filter replacement

→ **Note:** You can find more potential for energy savings right [here](#).

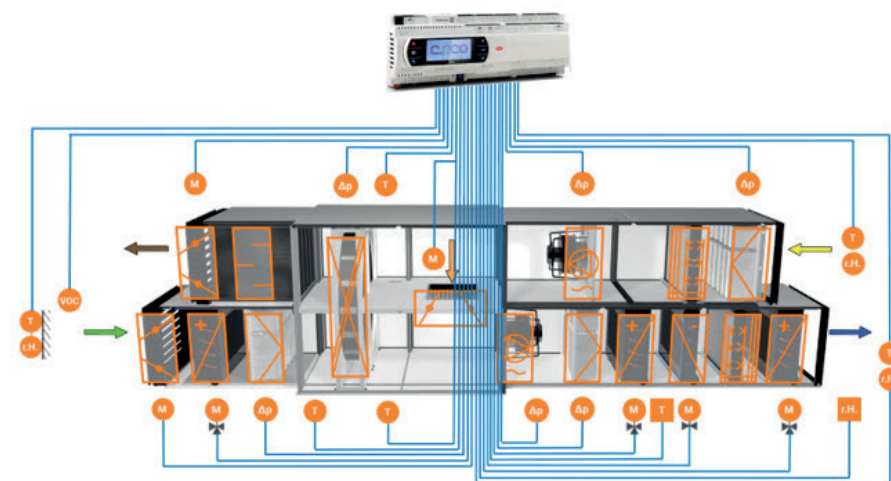
# Bus solutions from Belimo

## Energy and cost savings

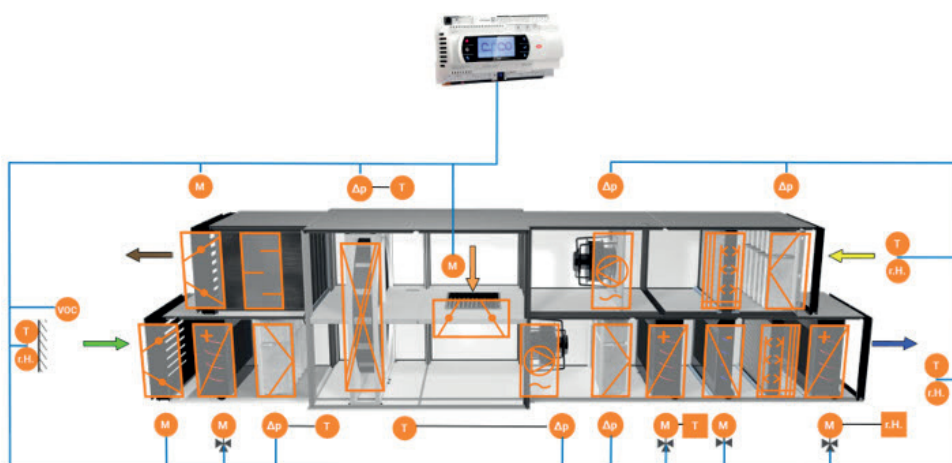
The networking of building technology systems increases comfort, safety and transparency in air-conditioned buildings. This transparency can help optimise operations and reduce overall energy consumption, especially in air handling units. Individual components can be easily networked using bus systems.

### A bus system provides several advantages, such as:

- Unrestricted access to control, feedback and parameters on each individual device
- Cost-effective total wiring solution (fewer wires, smaller cabinet, fewer I/Os in the control)
- Faster installation and lower fire load due to fewer wires
- Integration of one or two active or passive sensors to ensure a cost-effective overall solution

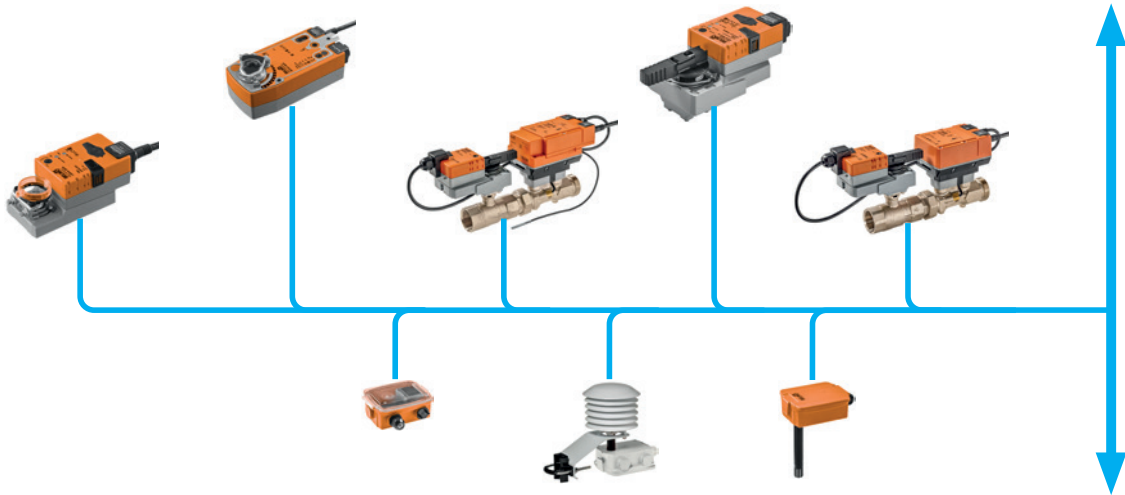


Classical field communication



Easy networking with bus system

## Bus systems



### Modbus

Modbus is a communication protocol that has become a de facto standard, widely used around the world and in a wide range of applications.

#### Direct connection to Modbus RTU

The RS-485 interface installed in the Modbus devices enables the direct connection of the field devices to Modbus RTU. Up to 32 actuators can be connected to a Modbus line.

Modbus is very popular with many AHU manufacturers due to its ease of implementation. This documentation focuses mainly on our Modbus products, although Belimo offers a wide range of products for other bus systems (please see section on MP-Bus) or analogue control.





### MP-Bus – alternative communication

In addition to Modbus RTU, Belimo MP-Bus is an alternative form of communication. The MP-Bus can be used especially for smaller, stand-alone ventilation units.



MP-Bus was developed as a single-client/multi-server bus system for HVAC actuators and sensors. It allows up to eight different field devices to be grouped together and connected to any higher-level system. DDC controllers with an integrated MP interface serve as the MP client.



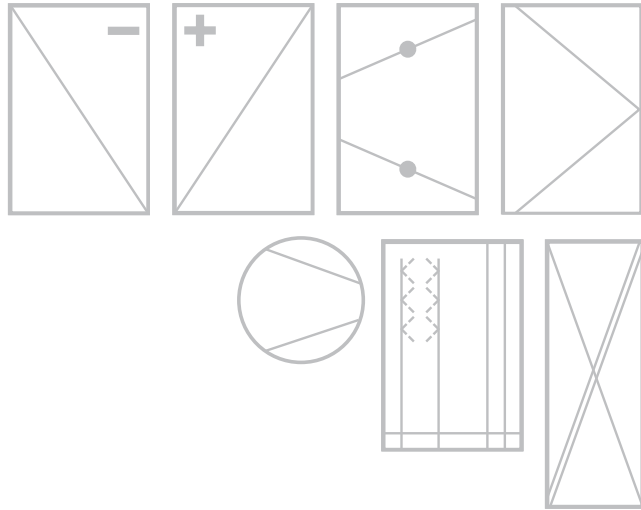
#### DOCUMENTATION / DOWNLOAD

-  Belimo product range with MP-Bus
-  MP-Bus cooperation partners

#### PLANNING INFORMATION / DOWNLOAD

-  Notes for project planning
-  Overview – Bus solutions from Belimo





## AHU functions and Belimo products



# Belimo product range for AHU

## 1 Damper control



## 2 Filter monitoring



## 3 Temperature control (sensors)



## 4 Temperature control (valves and valve actuators)



## 5 Humidity control



## 6 Heat recovery control



## 7 Volumetric flow or pressure control



## 8 Air quality control



## 9 Safety



### DOCUMENTATION / DOWNLOAD

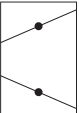
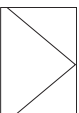
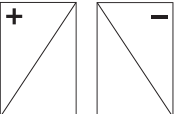
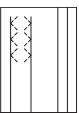


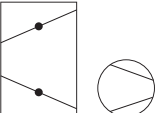
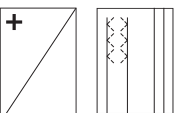
 Further documentation



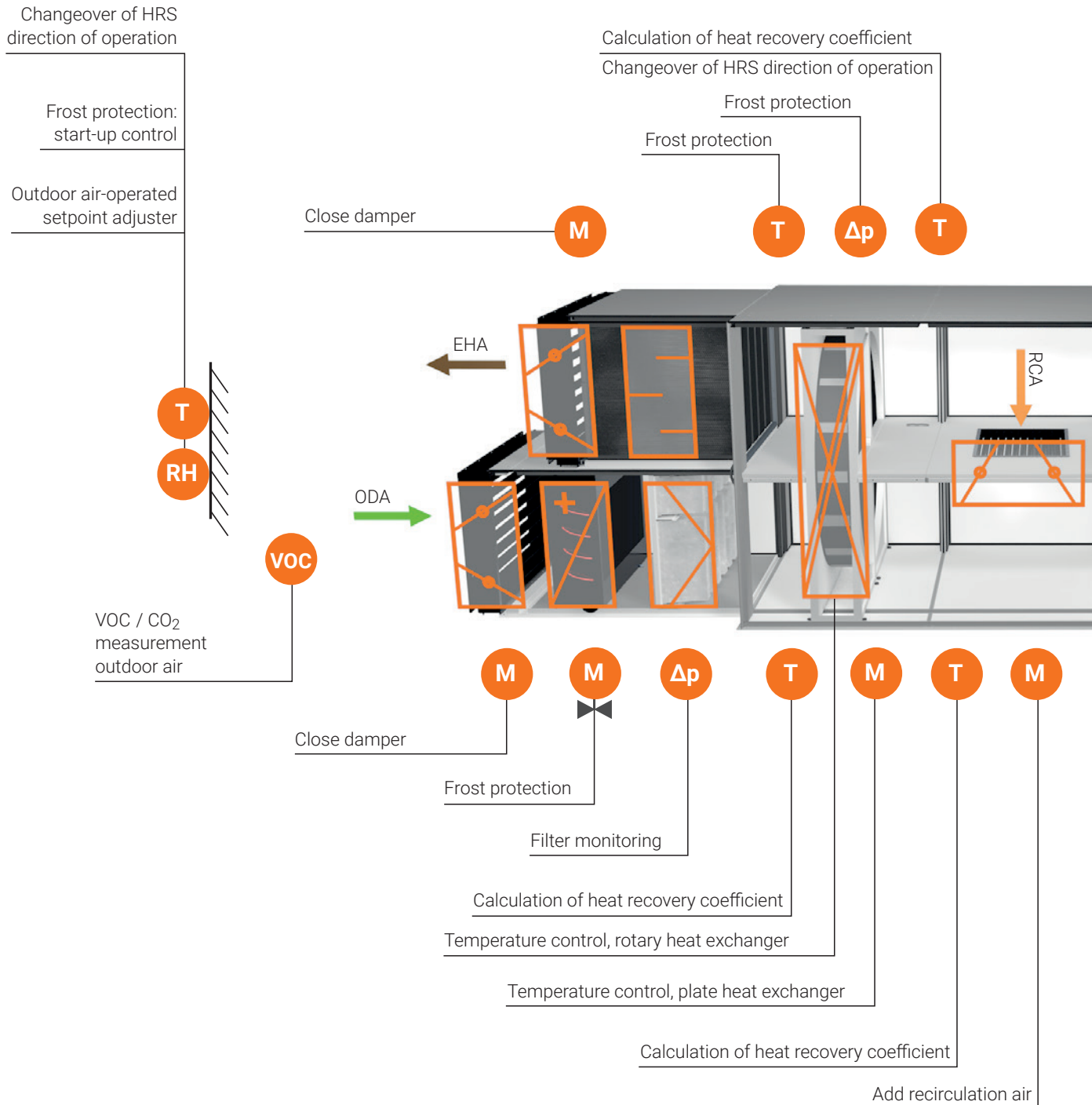
### SUPPORT

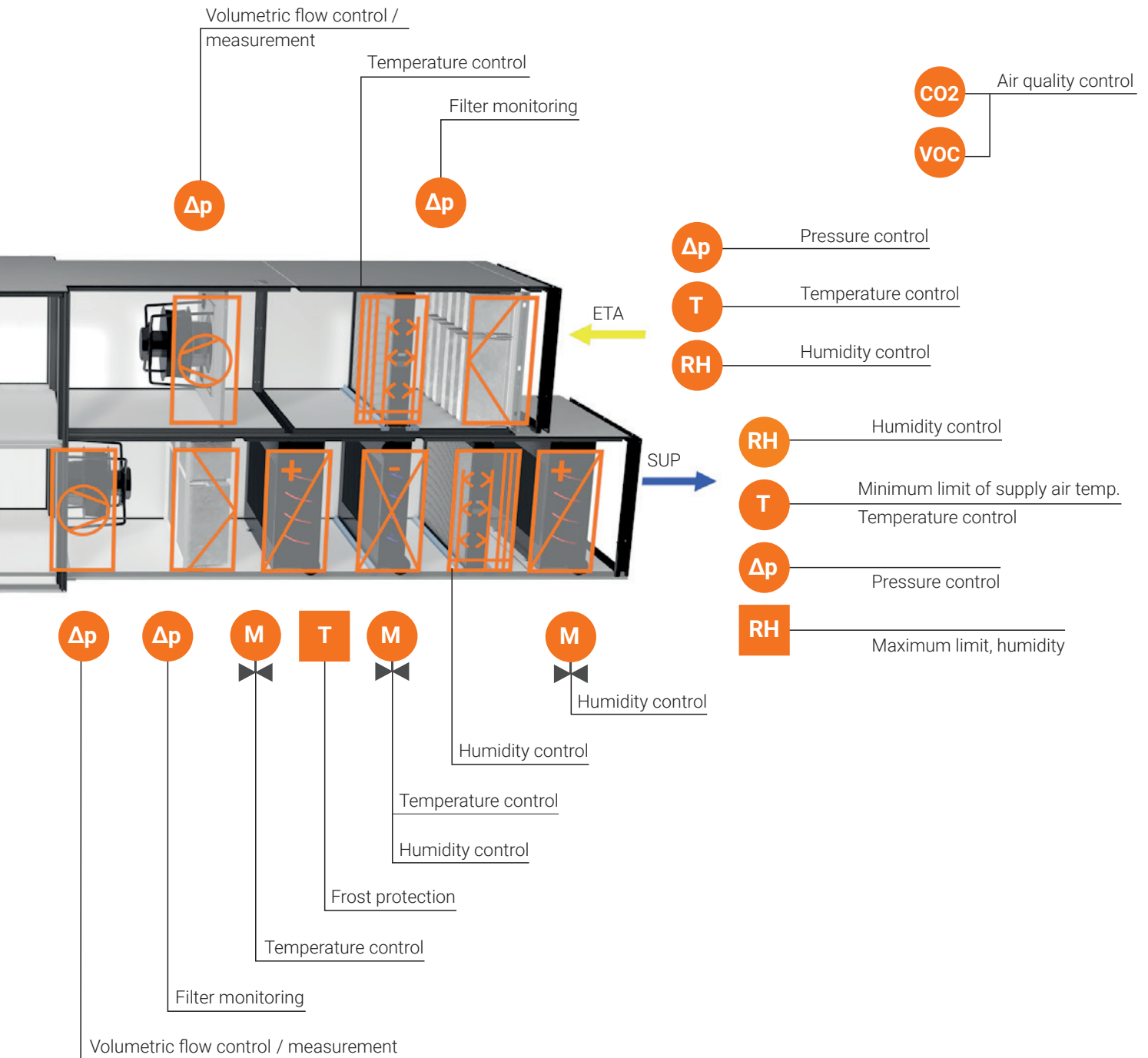
If you do not find your product in this booklet or on the Belimo website, please get in touch with your local Belimo contact person. We will find an alternative for you.

# Legend

No.	Symbol function	Symbol definition	Belimo solution	Page
1		Damper control	Fail-safe actuators Non fail-safe actuators	M 14
2		Filter monitoring	Differential pressure sensors Differential pressure switches	Δp Δp 15
3		Temperature control	Temperature sensors	M T T 16
4			Valves and valve actuators	
5		Humidity control	Humidity sensors	RH RH 20
6		Heat recovery control	Temperature sensors Differential pressure sensors	T Δp 21
7		Volumetric flow Pressure control	Differential pressure sensors	Δp 22
8		Air quality control	Air quality sensors	VOC CO2 23
9		Safety	Frost monitors Duct humidistat	T RH 24

# Overview





**BELIMO PRODUCT RANGE**

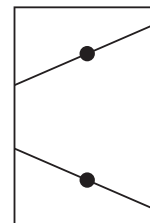
For every function of an air handling unit, Belimo has the right answer. Whether you need an actuator, valve or sensor with Modbus communication, you can choose from a wide range of products.

# 1 Damper control

Belimo damper actuators are designed for outdoor air dampers, exhaust air dampers or bypass dampers for heat recovery systems in air handling units. They ensure reliability and reduced current consumption. Direct mounting to the damper ensures reliable torque transmission.

## Key features

- Energy efficiency due to reduced power consumption at rest position
- Integration of additional sensor signal (active/passive/switch)
- Fast addressing by push-button on actuator
- Connection possibilities by 1 m cable or RJ12 socket



LM24A-MOD



NF/SF24A-MOD

## Rotary actuators, non fail-safe

Actuator type	Specifications	Data sheet	Installation instructions
<b>LM24A-MOD</b>	5 Nm / 35...150 s		
<b>NM24A-MOD</b>	10 Nm / 43...173 s		
<b>SM24A-MOD</b>	20 Nm / 86...346 s		
<b>GM24A-MOD</b>	40 Nm / 75...290 s		
<b>SMC24A-MOD</b>	20 Nm / 35...150 s		

## Rotary actuators, fail-safe

Actuator type	Specifications	Data sheet	Installation instructions
<b>NF24A-MOD</b>	10 Nm / 40...150 s		
<b>SF24A-MOD</b>	20 Nm / 70...220 s		
<b>GK24A-MOD</b>	40 Nm / 90...150 s		

### DOCUMENTATION / DOWNLOAD

- Modbus Interface Description
- Further documentation

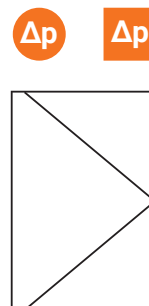
### ALTERNATIVES / WEBLINKS

Belimo offers a comprehensive product range of actuators with standard control options:

- Non fail-safe actuators
- Fail-safe actuators
- Fast running actuators
- Linear actuators
- Actuators for harsh environmental conditions

## 2 Filter monitoring

Accurate pressure measurements are important for optimal HVAC system performance. Belimo differential pressure sensors measure very low to high pressures in air. The sensors accurately measure pressure and differential pressure and calculate the volumetric flow for reliable control and monitoring. Filters can be monitored by differential pressure switches or differential pressure sensors. Belimo recommends the use of differential pressure sensors due to their continuous monitoring capability and indication of the current status.



### Key features

- Excellent zero-point stability and high accuracy
- Detachable mounting plate
- IP65 protection with snap-on cover
- Removable pluggable spring loaded terminal block / modular cable glands



22ADP-154K

### Differential pressure sensors

Sensor type	Specifications	Data sheet	Installation instructions
<b>One measuring system</b>			
<b>22ADP-154</b>	-100...2500 Pa, multirange, 2 outputs (0...5 V / 10 V, pressure / flow)		
<b>22ADP-154L</b>	-100...2500 Pa, multirange, LCD display, 2 outputs (0...5 V / 10 V, pressure / volumetric flow)		
<b>Two measuring systems</b>			
<b>22ADP-154D</b>	-100...2500 Pa, multirange, 2 outputs (0...5 V / 10 V, pressure / flow)		
<b>22ADP-154F</b>	-100...2500 Pa, multirange, LCD display, 2 outputs (0...5 V / 10 V, pressure / flow)		
<b>22ADP-154H</b>	-100...2500 Pa, multirange, 2 inputs (NTC10k / switch), 2 outputs (0...5 V / 10 V, pressure / flow)		
<b>22ADP-154K</b>	-100...2500 Pa, multirange, LCD display, 2 inputs (NTC10k / switch), 2 outputs (0...5 V / 10 V, pressure / flow)		

**Note:** Single differential pressure sensors also available with pressure range -100...250 Pa or with automatic zero-point calibration.



01APS-10R

### Differential pressure switches

Sensor type	Specifications	Data sheet	Installation instructions
<b>01APS-10R</b>	20...300 Pa / field-adjustable switch point		
<b>01APS-10U</b>	50...500 Pa / field-adjustable switch point		

**Note:** Switches also available with pressure range 200...1'000 and 500...2'500 Pa. Also available in multipacks of 45 pcs.

#### DOCUMENTATION / DOWNLOAD

- Modbus Interface Description
- Further documentation

#### ALTERNATIVES / WEBLINKS

Belimo offers a comprehensive product range of sensors with standard control options:

Active differential pressure sensor

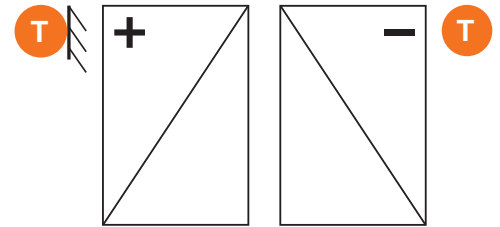
## 3 Temperature control

### Sensors

Reliable and accurate temperature readings are essential for optimal building comfort and energy efficiency. The outdoor air, duct and pipe temperature sensors are designed for precise and easy measurement and simple mounting.

#### Key features

- Up to eight field-selectable ranges to simplify logistics, reduce inventory and increase flexibility
- Additional sintered moisture protection coating on all duct, immersion and cable sensors protects against condensation, mechanical stress and vibration
- IP65 protection with snap-on cover
- Removable pluggable spring loaded terminal block / modular cable glands



22DTH-15M

### Air temperature sensors (Modbus)

Sensor type	Specifications	Data sheet	Installation instructions
<b>Duct</b>			
22DTH-15M	Probe length 140 mm / -20...80°C	<a href="#">[icon]</a>	
22DTH-15Q	Probe length 270 mm / -20...80°C	<a href="#">[icon]</a>	<a href="#">[icon]</a>
22DTM-15	Probe length 180 mm / 0...50°C	<a href="#">[icon]</a>	
<b>Outdoor</b>			
22UTH-150X	-35...90°C	<a href="#">[icon]</a>	<a href="#">[icon]</a>

**Note:** Modbus air temperature sensors can also measure humidity.

### Air and water temperature sensors (active / passive)

Product	Sensor family	Specifications	Data sheet	Installation instructions
	01DT.. / 22DT..	Duct and pipe		
	01HT.. / 22HT..	Contact		
	01MT.. / 22MT..	Average value	<a href="#">[icon]</a>	<a href="#">[icon]</a>
	01UT.. / 22UT..	Outdoor		
	01CT.. / 22CT..	Cable sensor		

**Note:** Active sensors (22..) available with output 0...5 / 10 V or 4...20 mA. All sensors available with various probe lengths (except outdoor sensors).  
Passive sensors (01..) available in a variety of types (Pt/Ni).

→ For higher demands, active sensors (22..) can also be supplied with Modbus communication.

#### DOCUMENTATION / DOWNLOAD

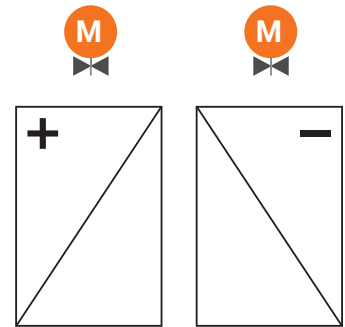
- [\[icon\] Modbus Interface Description](#)
- [\[icon\] Further documentation](#)



## 4 Temperature control

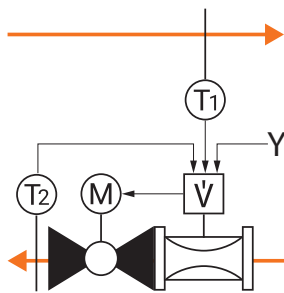
### Control valves and valve actuators

Belimo recommends using Belimo Energy Valve for all air heaters and air coolers in AHUs as they can detect, display and compensate for pressure fluctuations and temperature changes in the system. This provides transparent monitoring of the system, increases the efficiency and controllability of these heat exchangers and thus reduces costs.

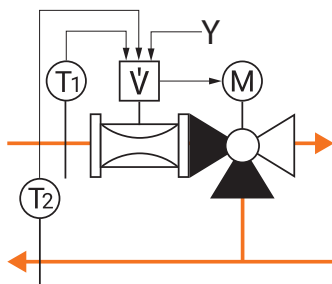


#### Key features

- Measuring: Integrated sensors to measure temperature spread, flow and therefore heating or cooling capacity
- Controlling: Control of valve position, flow or power to perfectly control the heat exchanger
- Balancing: The Belimo Energy Valve™ ensures the correct quantity of water, even during differential pressure changes and partial load operation
- Energy monitoring: Identify optimisation potential by capturing all system data



2-way flow diagram



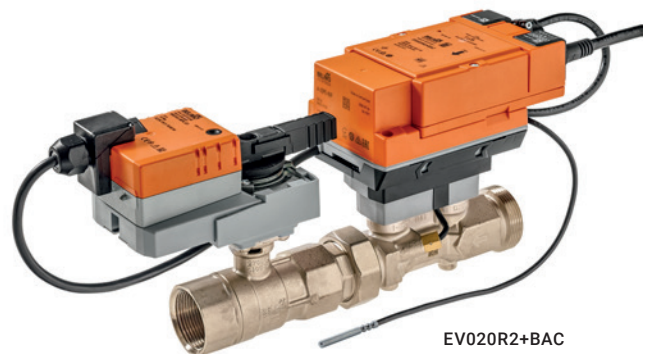
3-way flow diagram

### Belimo Energy Valve™

Complete transparency and highest efficiency

Sensor type	Specifications	Data sheet	Installation instructions
<b>EV0..R2+BAC</b>	2-way / DN 15...50		
<b>EV0..R3+BAC</b>	3-way / DN 15...50		

**Note:** 2-way Belimo Energy Valve™ also available for DN 65...150 and with fail-safe.



EV020R2+BAC

#### DOCUMENTATION / DOWNLOAD

- Modbus Interface Description
- Further documentation

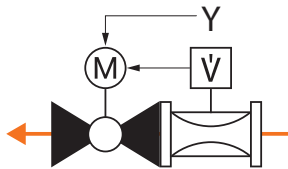
#### PLANNING INFORMATION / DOWNLOAD

- Application brochure Air Handling Units

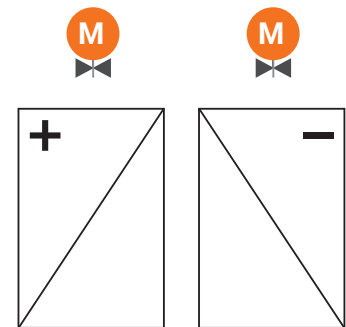
## Control valves and valve actuators

### Key features

- Controlling: Control of valve position or flow to perfectly control the heat exchanger
- Balancing: The EPIV ensures the correct quantity of water, even during differential pressure changes and partial load operation
- Isolating: No leakage thanks to air-bubble tight characterised control valve



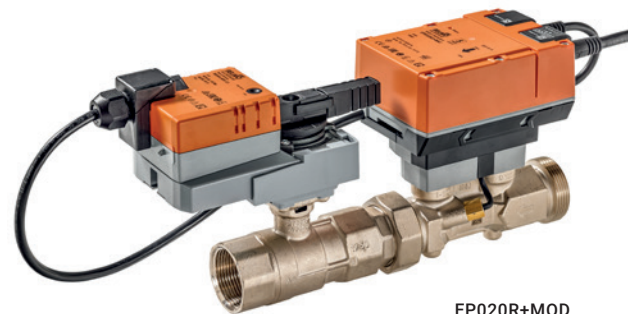
2-way flow diagram



### Electronic pressure-independent characterised control valves (EPIV)

Sensor type	Specifications	Data sheet	Installation instructions
EP..R+MOD	2-way / DN 15...50		

**Note:** EPIV also available for DN 65...150.  
EPIV also available with fail-safe.



EP020R+MOD

#### DOCUMENTATION / DOWNLOAD

- Modbus Interface Description
- Further documentation

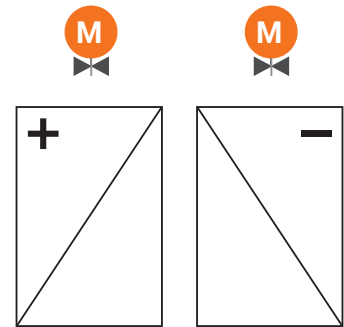
#### PLANNING INFORMATION

- Application brochure Air Handling Units

# Control valves and valve actuators

## Key features

- Controlling: Control of valve position for perfect heat exchanger control
- Isolating: No leakage thanks to a air-bubble tight characterised control valve
- Reliable: Self-cleaning ball valve
- Connection possibilities by 1 m cable or RJ12 socket



2-way flow diagram



..R..-B3-PW\_NR24A

## Characterised control valves (CCV)

Reliable control of heating and cooling circuits

Actuator type	Specifications	Data sheet	Installation instructions
LR24A-MOD	5 Nm / 35...420 s		
NR24A-MOD	10 Nm / 45...170 s		
SR24A-MOD	20 NM / 90...350 s		

**Note:** Valve actuators also available with 1 Nm and 40 Nm.  
 Valve actuators also available with fail-safe.  
 Wide range of control valves available in various sizes (DN), 2-way and 3-way, internal and external threads and flanges

### DOCUMENTATION / DOWNLOAD

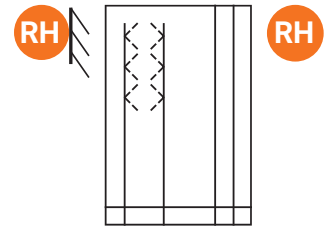
- Modbus Interface Description
- Further documentation

### ALTERNATIVES / WEBLINKS

Belimo offers a comprehensive product range of valve actuators with standard control options:  
 Technical brochure – Water applications

## 5 Humidity control

Ideal humidity conditions are required for optimal comfort in a building, as well as for building infrastructure, production processes, stored goods or works of art. The product range of long-term stable humidity sensors for duct, outdoor air and condensation enables energy-optimised operation and ensures compatibility with all major building automation systems. High-quality and reliable sensors ensure accuracy and repeatability of sensor readings. Combined temperature and humidity sensors provide a flexible and cost-effective solution.



### Key features

- Polymer capacitive sensor with  $\pm 2\%$  relative humidity accuracy and long-term drift  $< \pm 0.3\%$
- Multi-sensor with selectable measured values: relative humidity, absolute humidity, enthalpy and dew point
- IP65 protection with snap-on cover
- Removable pluggable spring loaded terminal block / modular cable glands





22DTH-15M

### Humidity and temperature sensors (Modbus)

Sensor type	Specifications	Data sheet	Installation instructions
<b>Duct</b>			
<b>22DTH-15</b>	Probe length 140 mm, -35...90°C, 0...100% RH		
<b>22DTH-15M</b>	Probe length 140 mm, -35...90°C, 0...100% RH		
<b>22DTH-15Q</b>	Probe length 270 mm, -35...90°C, 0...100% RH		
<b>Outdoor</b>			
<b>22UTH-150X</b>	-35...90°C, 0...100% RH		

**Note:** Sensors can measure relative and absolute humidity, enthalpy and dew point.

### Humidity and temperature sensors (active)

Product	Sensor family	Specifications	Data sheet	Installation instructions
	<b>22DTH-..</b>	Duct		
	<b>22UTH-..</b>	Outdoor		

**Note:** Active sensors (22..) available with output 0...5 V / 10 V or 4...20 mA.



22UTH-150X

#### DOCUMENTATION / DOWNLOAD

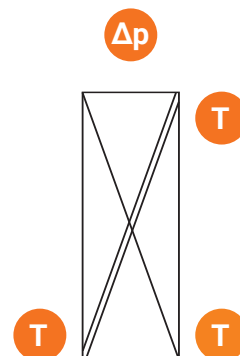
- Modbus Interface Description
- Further documentation

## 6 Heat recovery control

To reduce energy consumption, the Ecodesign Directive requires a heat recovery system (HRS) for all bi-directional ventilation units in Europe. Reliable and accurate monitoring of the heat recovery system for ice formation and efficiency is necessary to achieve the required efficiencies.

### Key features

→ Same as for Filter monitoring (page 15), Temperature control (page 16) or Volumetric flow or pressure control (page 22).



### Frost protection:



22ADP-154K

### Differential pressure sensors for ice detection

Sensor type	Specifications	Data sheet	Installation instructions
22ADP-15Q	One measuring system, 0...250 Pa, multirange		
22ADP-15QL	One measuring system, -100...250 Pa, multirange, display		

**Note:** Differential pressure sensors 0...250 Pa also available with automatic zero-point calibration. Single differential pressure sensors also available with pressure range -100...2500 Pa.

### Calculation of heat recovery coefficient:



22DTH-15M

### Air temperature sensors (Modbus)

Sensor type	Specifications	Data sheet	Installation instructions
<b>Duct</b>			
22DTH-15M	Probe length 140 mm, -35...90°C		
22DTH-15Q	Probe length 270 mm, -35...90°C		
22DTM-15	Probe length 140 mm, -35...90°C		
<b>Outdoor</b>			
22UTH-150X	-35...90°C		

**Note:** Modbus air temperature sensors can also measure humidity.

### Air temperature sensors (active / passive)

Product	Sensor family	Specifications	Data sheet	Installation instructions
	01DT.. / 22DT..	Duct		
	01MT.. / 22MT..	Average value		

**Note:** Active sensors (22..) available with 0...5 V / 10 V or 4...20 mA. All sensors available with different probe length. Passive sensors (01..) available in a variety of NTC and RTD (Pt/Ni).

#### DOCUMENTATION / DOWNLOAD

- Modbus Interface Description 22ADP..
- Further documentation

- Modbus Interface Description 22DT../22UT..

## 7 Volumetric flow or pressure control

Accurate pressure measurements are important for optimal HVAC system performance. Belimo differential pressure sensors measure very low to high pressures in air. The sensors accurately measure pressure and differential pressure and calculate the volumetric flow for reliable control and monitoring.



### Key features

- Volumetric flow calculation (considering specific fan k-factor)
- Excellent zero-point stability and high accuracy
- Detachable mounting plate
- IP65 protection with snap-on cover
- Removable pluggable spring loaded terminal block / modular cable glands



### Differential pressure sensors

Sensor type	Specifications	Data sheet	Installation instructions
<b>One measuring system</b>			
22ADP-154	-100...2500 Pa, multirange, 2 outputs (0...5 V / 10 V, pressure / flow)		
22ADP-154L	-100...2500 Pa, multirange, LCD display, 2 outputs (0...5 V / 10 V, pressure / flow)		
22ADP-156	-154...7000 Pa, multirange, LCD display, 2 outputs (0...5 V / 10 V, pressure / flow)		
22ADP-156L	-100...7000 Pa, multirange, LCD display, 2 outputs (0...5 V / 10 V, pressure / flow)		
<b>Two measuring systems</b>			
22ADP-154D	-100...2500 Pa, multirange, 2 outputs (0...5 V / 10 V, pressure / flow)		
22ADP-154F	-100...2500 Pa, multirange, LCD display, 2 outputs (0...5 V / 10 V, pressure / flow)		
22ADP-154H	-100...2500 Pa, multirange, 2 inputs (NTC10k / switch), 2 outputs (0...5 V / 10 V, pressure / flow)		
22ADP-154K	-100...2500 Pa, multirange, LCD display, 2 inputs (NTC 10 k / switch), 2 outputs (0...5 V / 10 V, pressure / flow)		

**Note:** Single differential pressure sensors also available with pressure range -100...250 Pa.

#### DOCUMENTATION / DOWNLOAD

- Modbus Interface Description
- Further documentation

#### ALTERNATIVES / WEBLINKS

Belimo offers a comprehensive product range of sensors with standard control options:  
Active differential pressure sensor

## 8 Air quality control

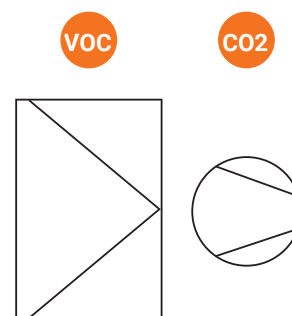
Belimo air quality sensors, such as CO<sub>2</sub> and VOC sensors, ensure optimal indoor air quality with increased comfort and maximum energy savings in buildings. Combined temperature and humidity sensors are also available.

### Key features

- Dual channel CO<sub>2</sub> sensor based on NDIR technology. The additional reference channel provides reliable compensation for long-term and temperature drift, ensuring maximum accuracy and long-term stability
- Wide range of combined multi-sensors for CO<sub>2</sub>, humidity, temperature and VOC offer reduced labour and material costs
- Dual channel self-calibration technology allows Belimo CO<sub>2</sub> sensors to be used in all buildings and applications, even where the ABC (Automatic Background Calibration) method cannot be used



22DTM-15



### Duct CO<sub>2</sub>, humidity and temperature sensors (Modbus)

Sensor type	Specifications	Data sheet	Installation instructions
<b>22DTM-15</b>	0...2'000 ppm, 0...50°C, absolute and relative humidity, dew point, enthalpy, probe length 180 mm		

### Duct CO<sub>2</sub>, VOC, humidity and temperature sensors (active)

Function	Sensor type/family	Specifications	Data sheet	Installation instructions
CO <sub>2</sub>	<b>22DC-..</b>	0...2000 ppm, probe length 150 mm		
CO <sub>2</sub> , Humidity, Temperature	<b>22DTM-..</b>	0...2000 ppm, 0...100% RH, probe length 180 mm		
CO <sub>2</sub> , Temperature	<b>22DTC-..</b>	0...2000 ppm / 0...5000 ppm, 0...50°C, probe length 180 mm		
CO <sub>2</sub> , VOC	<b>22DCV-11</b>	0...2000 ppm, probe length 150 mm		
CO <sub>2</sub> , VOC, Temperature	<b>22DCM-11</b>	0...2000 ppm, 0...50°C, probe length 150 mm		
CO <sub>2</sub> , VOC, Temperature, Mix CO <sub>2</sub> +VOC	<b>22DCK-11</b>	0...2000 ppm, 0...50°C, probe length 180 mm		

**Note:** 22DTM-.. available with display.

#### DOCUMENTATION / DOWNLOAD

- Modbus Interface Description
- Further documentation

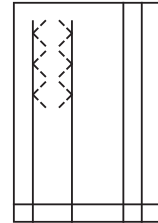
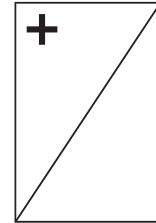
## 9 Safety

Belimo frost monitors reliably indicate the risk of frost. When outdoor temperatures are very low, the water in the heating coil can freeze and damage the coil, resulting in high follow-up costs.

The Belimo humidistat detects humidifier malfunctions in air handling units. Consequential moisture damage in the zones can thus be prevented.

### Key features

- Continuously monitor frost hazard with a DC 0...10 V signal output (start-up function) and via a single-pole potential-free changeover contact
- Humidistat with single-pole changeover contact and temperature compensation
- Frost monitors and humidistat available with automatic reset



T

RH



### Products

Sensor type	Specifications	Datasheet	Installation instructions
<b>Temperature → Frost monitors</b>			
<b>01ATS-10..</b>	Switch, different capillary tube length, -10...15°C, automatic or manual reset		
<b>20DTS-1P..</b>	Active 0...10 V, different capillary tube length, 1...10°C, automatic and manual reset		
<b>Humidity → Duct humidistat</b>			
<b>01DH-10N</b>	Switch, probe length 150 mm, 15...95% RH		

**Note:** Temperature monitor switches also available.

#### DOCUMENTATION / DOWNLOAD

Further documentation



# International support

→ Close to our customers – in more than 80 countries.



## European Belimo locations:

- ▶ Belimo Norway
- ▶ Belimo Finland
- ▶ Belimo Sweden
- ▶ Belimo Poland
- ▶ Belimo Austria
- ▶ Belimo Turkey
- ▶ Belimo Italy
- ▶ Belimo UAE
- ▶ **Belimo Switzerland**  
**International Headquarters**
- ▶ Belimo Germany
- ▶ Belimo Netherlands
- ▶ Belimo Belgium
- ▶ Belimo France
- ▶ Belimo United Kingdom
- ▶ Belimo Spain

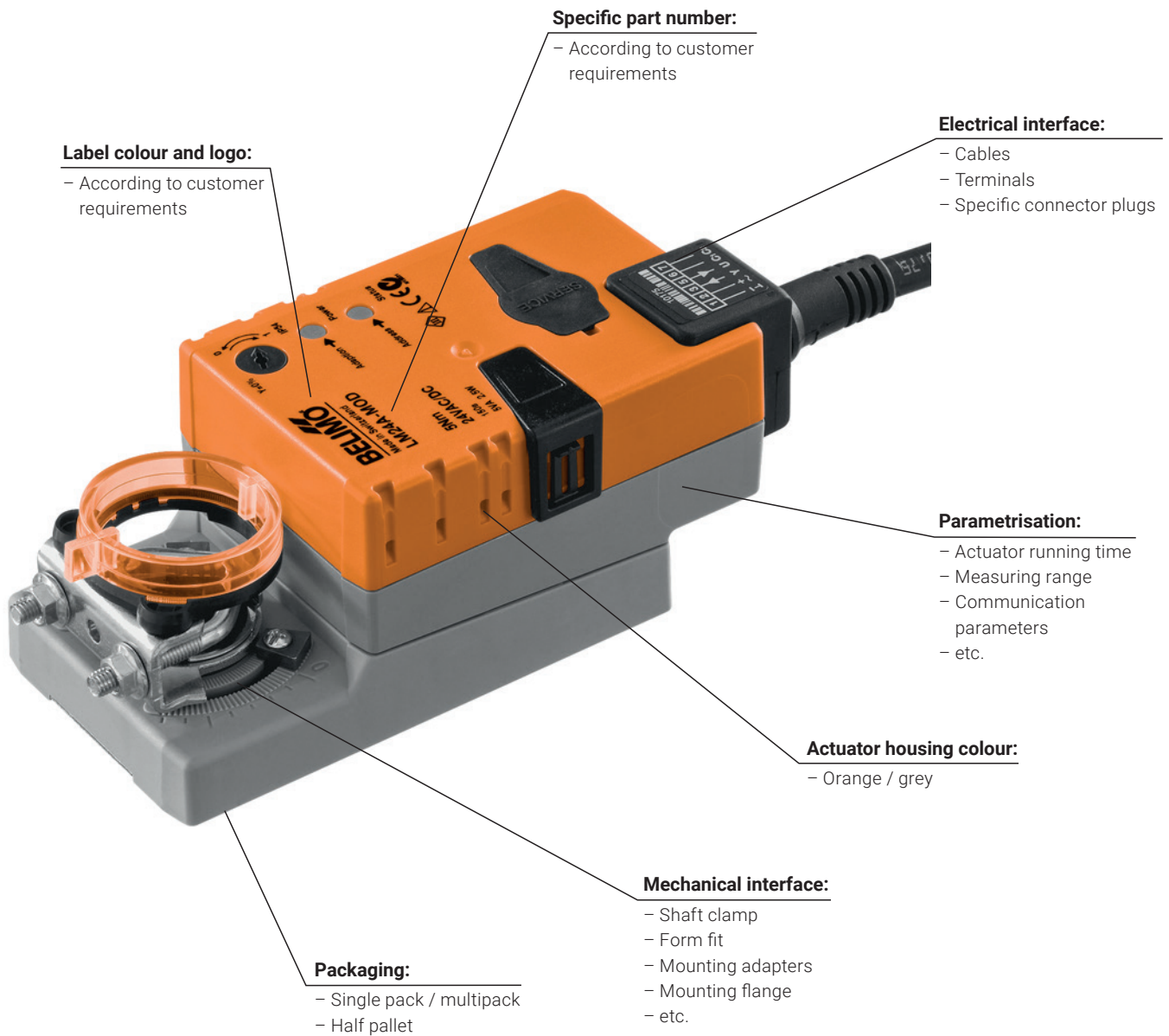
● Headquarters  
● Subsidiaries  
● Representatives, Franchising Partners

**SUPPORT**



For any request, please get in touch with your local Belimo contact person.

# Customer-specific product assembly



## SUPPORT



If you do not find your product in this booklet or on the Belimo website, please get in touch with your local Belimo contact person. We will find an alternative for you.

## Individual solutions

In addition to the standard products described above, Belimo offers individual solutions for every need, specifically tailored to the customer's requirements. The delivered products can be unpacked, installed easily and put into operation in a very efficient way.



### Customer products

For OEM customers, Belimo can supply products (actuators and sensors) specifically to their requirements, typically for larger quantities. The following properties can be defined accordingly:

#### Customising – features and possibilities

Features	Possibilities
Housing colour	Orange, grey
Label colour	Orange, transparent, according to customer requirements
Customer logo	According to customer requirements
Customer-specific part number	According to customer requirements
Electrical interface	Cables, terminals, specific connector plugs
Mechanical interface	Shaft clamp, form fit, mounting adapters, mounting flange etc.
Parametrisation	Actuator running time, measuring range etc.
Accessories	Differential pressure pickup devices, tubes, anti-rotation clip, thermal paste etc.
Packaging	Single pack or multipack

**Note:** Definite possibilities after consultation with Belimo and expected order quantity.



### Customised products

#### Variant configurator

Customers can choose from a list of predefined options for actuators and sensors. This option provides customised products with very short lead times, typically for one-time, low-volume orders.

#### Design to order (DTO)

The Belimo DTO process combines the advantages of the "Customised Product" and the "Variant Configurator". If you have a one-off project, you can order any Belimo product in any custom design.

Examples:

- Actuators and sensors equipped with customised cables and connector plugs
- Pre-assembled packages of actuators and valves, as well as pipe parts, sensors, connections and much more
- Pre-assembled combination of actuators and sensors as a package
- Parametrisation according to customer requirements
- etc.

# Belimo added values

## More than just products

→ We are where you need us, speak your language and understand you.



→ Complete product range with shortest delivery time in the industry.



→ 5-year warranty and tested quality.



→ Award-winning service to assist customers quickly and effectively, remotely or on-site.



### SUPPORT



For any request, please get in touch with your local Belimo contact person.

# Further documentation and weblinks

## Documentation



Air handling units (AHUs)



Bus solutions from Belimo



Non fail-safe actuators for ventilation applications



Fail-safe actuators for ventilation applications



Fast running actuators for ventilation applications



Linear actuators for ventilation applications



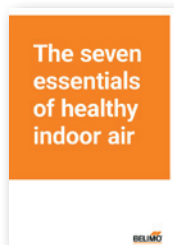
Actuators for harsh environmental conditions in ventilation applications



Belimo sensors and meters



Technical brochure – Water applications

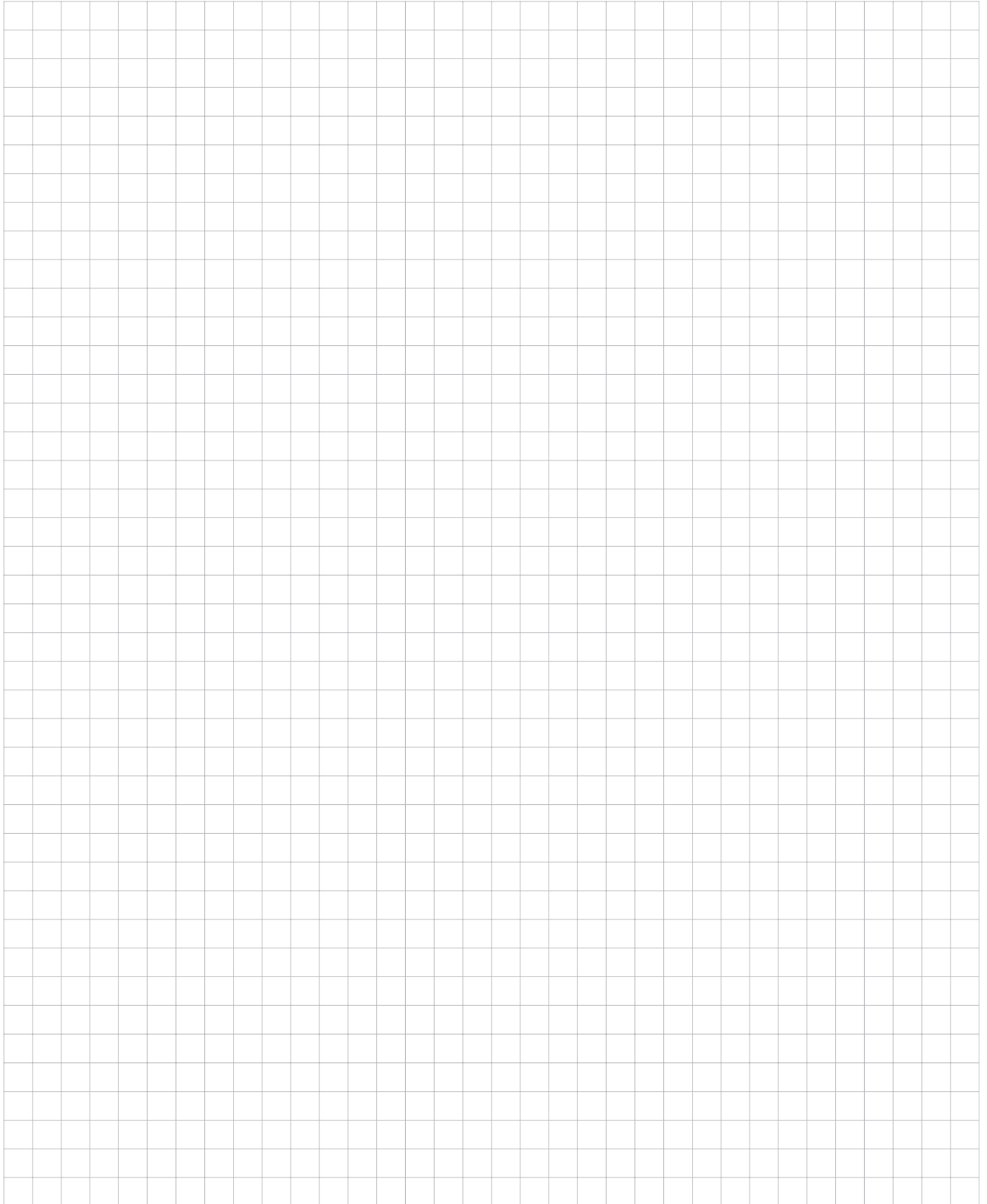


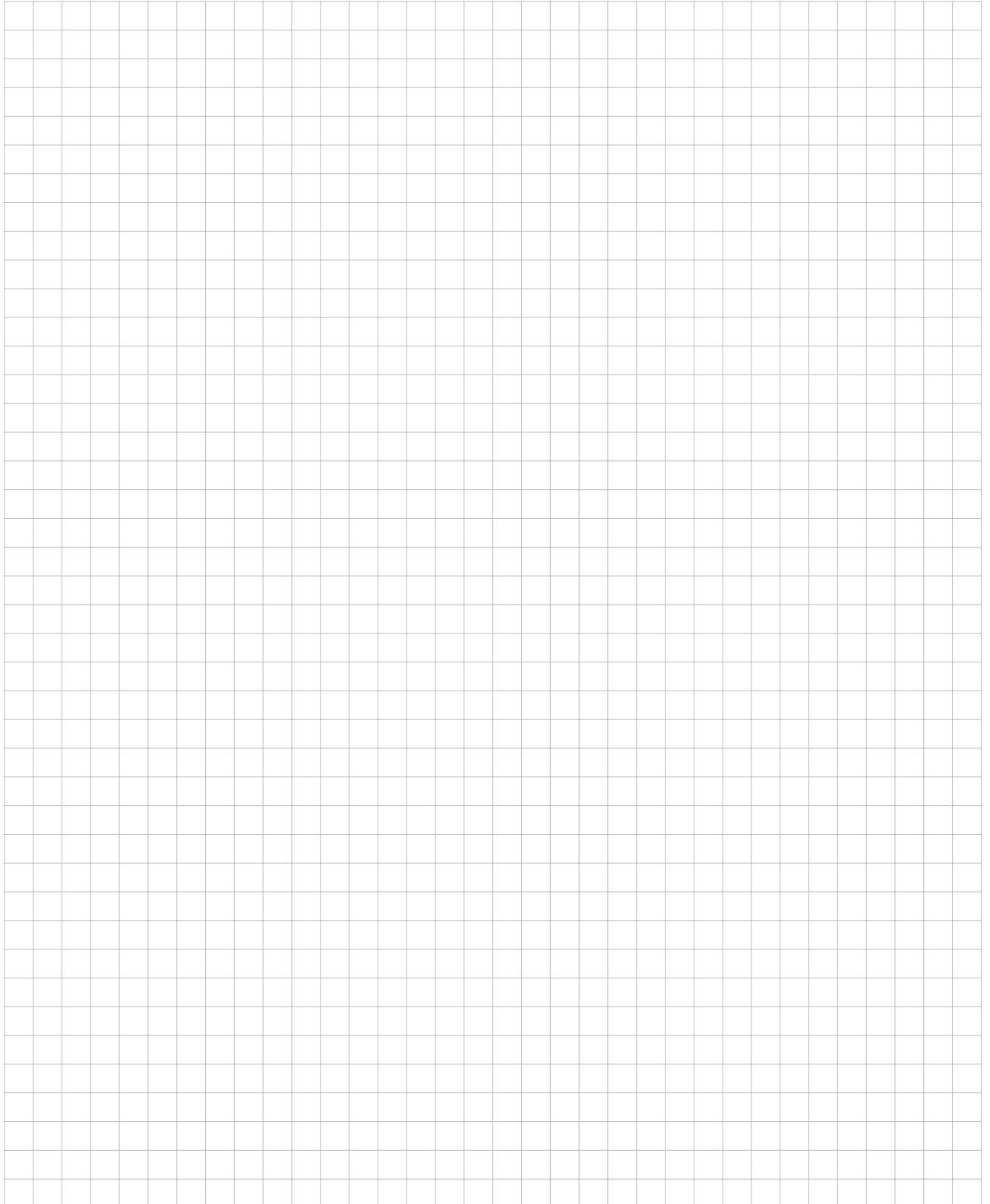
The seven essentials of healthy indoor air

## Weblinks

Belimo website  
 Air handling units  
 Fail-safe damper actuators  
 Linear actuators

Belimo Product and Price Catalogue  
 Non fail-safe damper actuators  
 Fast running actuators  
 Actuators for harsh environmental conditions





# 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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