

Simple and  
compact  
design

Remote  
system  
optimisation

HVAC insights  
made  
affordable



# Digital HVAC Control Solution

Digitise your way to energy-savings







# Optimising an HVAC system has never been easier

Keeping large buildings at the right temperature is a must. Not only for the comfort of the users but also for managing the buildings efficiently in terms of resources and energy use.

But often, there are issues with the heating and cooling system.

From complex and labour-intensive commissioning processes to low Delta T syndrome and resulting energy loss, getting the problems fixed is usually both time-consuming and difficult. Accessing system data can also be tricky.

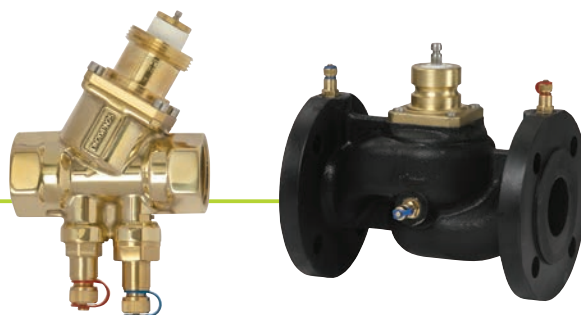
## **That is why we created a digital HVAC control solution**

The solution consists of the OPTIMA Compact valve from the Veriflow-series and the LOGICA Digital actuator from the Energy-series. This combination offers numerous benefits.

You can connect the flow control of the heating and cooling system directly with the Building Management System (BMS) and handle everything from commissioning to daily operation and data access remotely, saving time and manpower.

At the same time, energy management algorithms and smart features ensure that your HVAC system is constantly optimised and performing at its very best at all times.

**Make your life easier and buildings better →**



# Digital insights made affordable

We often prefer solutions we know. They have worked before, so they will probably work in the next project too. And if something works, why fix it?

But in all honesty, the traditional heating and cooling systems come with flaws. There is the uneven distribution of energy. Also, the valves are often out of balance, they are time-consuming to maintain, and you cannot get an overview of all system data in one system.

## **What if there is a new solution?**

What if you could get a system that distributed the energy evenly in every corner of a building. What if the valves were automatically balanced? And what if you could gather all measurements in one single overview and plan your HVAC operation based on detailed data instead of assumptions?

Imagine that you – on top of that – could save a lot of time on installation and commissioning, get substantial energy savings and a system that was much easier to maintain. Naturally, without compromising on reliability.

## **Then it's time to move on**

Our digital HVAC control solution gives you a cost-effective path to this digital and more sustainable future.

Combining the pressure independent balancing and control valve OPTIMA Compact, Veriflow-series and the LOGICA Digital, Energy-series actuator, you can harvest the benefits of digitisation while benefiting from easy maintenance and clever control.





A close-up photograph of a white cable and a brass valve assembly. The cable is on the left, and the valve assembly is on the right. The valve has a brass body with several ports and a red handle. The background is a grey, textured surface.

## Energy-efficient and optimised HVAC performance

The Digital HVAC Control System maximises Delta T and eliminates overflows in the system. The built-in Delta T control allows you to decrease the flow requirements on the pump and ensure constant system performance optimisation.

The data available also feeds you insights that enable you to create new energy-saving improvements.

## Simple and compact design

The simplified design and compact size make the system easy to install and commission. In fact, commissioning can also be done remotely.

It is also the first PICV on the market that integrates both flow measurement and verification of minimum differential pressure across the valve without add-ons and additional space requirements.

## Intelligent actuator enables more energy-efficient building operation

The advanced algorithms built into the actuator makes HVAC operation much smarter. For example, you can see the energy consumption live, commission the system remotely and set limits for the terminal unit power.

The actuator optimises energy use through direct communication with the building's BMS via Modbus or BACnet. Digitising the HVAC operation not only makes it easier and faster to operate and maintain, but it also helps you reduce the building's climate impact.

## Moving into the digital age

Seven million. That is the amount of pressure independent valves we've sold over the years, and they are used in buildings, critical industries and processes throughout the world. So when we say that our valves are reliable, it is based on facts and figures from decades on the market.

With this solution Frese continues to bring our decades of know-how and expertise on flow management technology into the digital age.

# Let's make your life easier

## Design Engineer

### Struggling with this?

Building complexity  
Insufficient data from building systems  
Trying to balance cost and profit  
Keeping energy consumption low and comfort high

### Our solution gives you

- Compact, space-saving design
- Flow measurement accuracy
- Heating/cooling mode
- Simple wiring
- Room controller connection
- No control box between actuator and BMS
- Significant energy and cost savings because system is optimised

## Installer

### Struggling with this?

Problems with leaks or dirt in the system  
Difficult installation  
Incorrect wiring  
Unstable HVAC system operation

### Our solution gives you

- Compact, space-saving design
- No specialist installer required
- Can be installed in any orientation
- No need for metering station
- Can be commissioned by the installer
- Auto calibration and addressing

## Commissioning Engineer

### Struggling with this?

Not getting the right flow  
Dealing with design issues  
Supply chain flexibility and service level  
Lack of compatibility between components and products

### Our solution gives you

- Quick and easy commissioning
- Pre-set flow without manometer measurement
- $\Delta T$  control and indication
- Pump optimisation with min  $\Delta P$  measurement
- Dynamic balancing, calibration and system trimming
- Flow and bus failure indication
- Commissioning report can be generated from the BMS

# and buildings better

## System Integrator

### Struggling with this?

Ensuring programs run according to specification

Deciding on what hardware to use

Problems with building systems

Time delays and last-minute changes



### Our solution gives you

- Actuator with integrated valve library
- System performance optimisation through algorithms and smart functions
- Serial bus communication and bus failure management
- Remote flushing and commissioning
- Energy management incl. monitoring and reporting

## Facility Manager

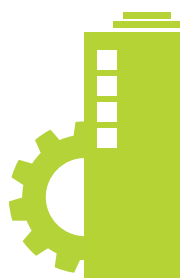
### Struggling with this?

Unsatisfied building owners and tenants

System and product failures

Lack of data and HVAC insights

Poor system design and commissioning



### Our solution gives you

- High tenant comfort due to dynamic system balancing
- Optimised system
- Remote flushing and commissioning
- Fault and service indication
- $\Delta T$  control and indication
- Energy management incl. monitoring and reporting

## Building Owner

### Struggling with this?

Keeping the building project on schedule and according to specifications

Keeping the energy bill and operational costs low

Getting the building in use from day one

Keeping the tenants content



### Our solution gives you

- High tenant comfort due to dynamic system balancing
- Significant energy and cost savings because system is optimised
- Compact, space-saving design
- No need for specialist installer
- Building and room data can be shared
- Energy management incl. monitoring and reporting





# More than the sum of the parts

## The OPTIMA Compact, Veriflow-series

The pressure independent OPTIMA Compact Veriflow valve makes it simple to achieve 100% control of the water flow in the building while creating high comfort and energy savings at the same time.

### Available in all sizes

- DN10-DN50 threaded valves with flow range 30-11,500 l/h
- DN50-DN300 flanged valves with flow range 1,400-600,000 l/h

### Dynamic balancing

The valves provide modulating control with full authority regardless of any fluctuations in the differential pressure of the system.

### Flow measurement

The unique P/T plug design allows for both flow measurement and verification of minimum differential pressure across the whole valve. And because we have built these features directly into the valve itself, there is no additional pressure loss involved. It costs absolutely nothing in terms of energy.

When using the KV-signal for flow measurement, the accuracy is  $\pm 5\%$  of the actual flow. This accuracy combined with optimised control, lower flow and pump pressure result in significant energy savings in buildings heating and cooling operation.

### Maximised Delta T, optimised control and compact design

- Maximised Delta T due to faster response and increased system stability
- Dynamic balancing eliminates overflows, regardless of fluctuating pressure conditions in the system
- High flows with minimal required differential pressure due to advanced design of the valve
- Small dimensions and no mounting restrictions
- Higher presetting precision due to stepless analogue scale





## The LOGICA Digital, Energy-series

Paired with an OPTIMA Compact valve, the LOGICA Digital actuator offers intelligent hydronic control and insight.

### Easy installation and connection with BMS

This incredibly compact digital actuator is easy to install and sets you up for direct communication with the BMS via Modbus or BACnet, eliminating the need for a separate control box.

### Reduced energy consumption

LOGICA Digital has built-in Delta T control which decreases the flow requirement on the pump and ensures constant system performance optimisation.

It offers insight right down to the individual terminal unit and allows system integrators and facility managers to analyse and act on potential improvements and enact new energy efficiency strategies.

## Intelligent solution with unmatched features

- BACnet MS/TP & Modbus RTU support
- Simple addressing via dip-switches
- 1 binary or analogue input supporting binary input, 0-10 V or Pt1000
- 1 universal input/output supporting binary, 0-10 V in,
- Pt1000, 0-10 V out or 0-10 V position feedback
- Complete built-in library of OPTIMA Compact valves.
- Selectable Linear or EQ% characteristic
- Flow indication
- Thermal Power indication (when combined with 2 temperature sensors)
- Thermal energy consumption indication
- 5 selectable control methods in BMS
- Programmable scheduled valve flushing & exercising
- Nominal stroke up to 15 mm
- Auto calibration to all valve strokes
- Direct assembly on valve neck with union nut
- Position indicator for stem travel
- Short-circuit and reverse polarity protection
- Compact design
- Remote setting and commissioning

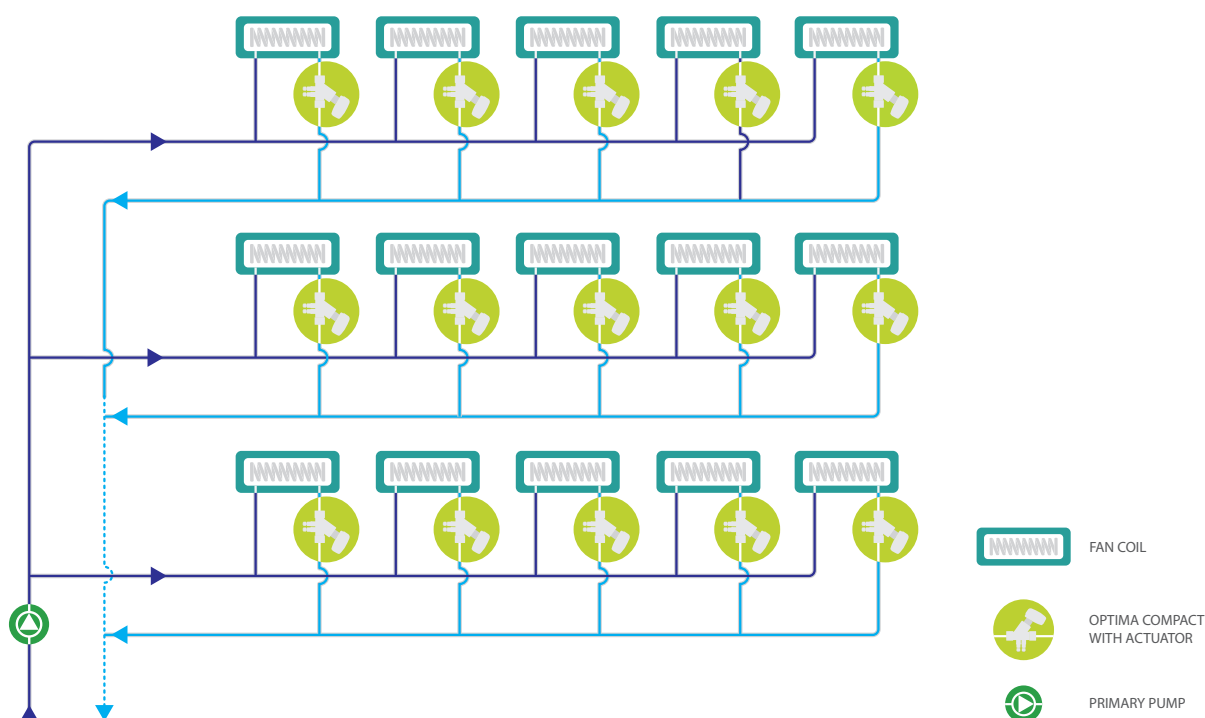


# Fan Coil Application Example

DN10-DN50

In this application example the OPTIMA Compact PICV ensures the balancing of the flow and eliminates the use of both static balancing valves and differential pressure control valves.

If you choose the LOGICA Digital, Energy-series actuators for these valves, you will get direct communication with BMS via Modbus or BACnet, no need for separate controller and all the benefits of remote commissioning.





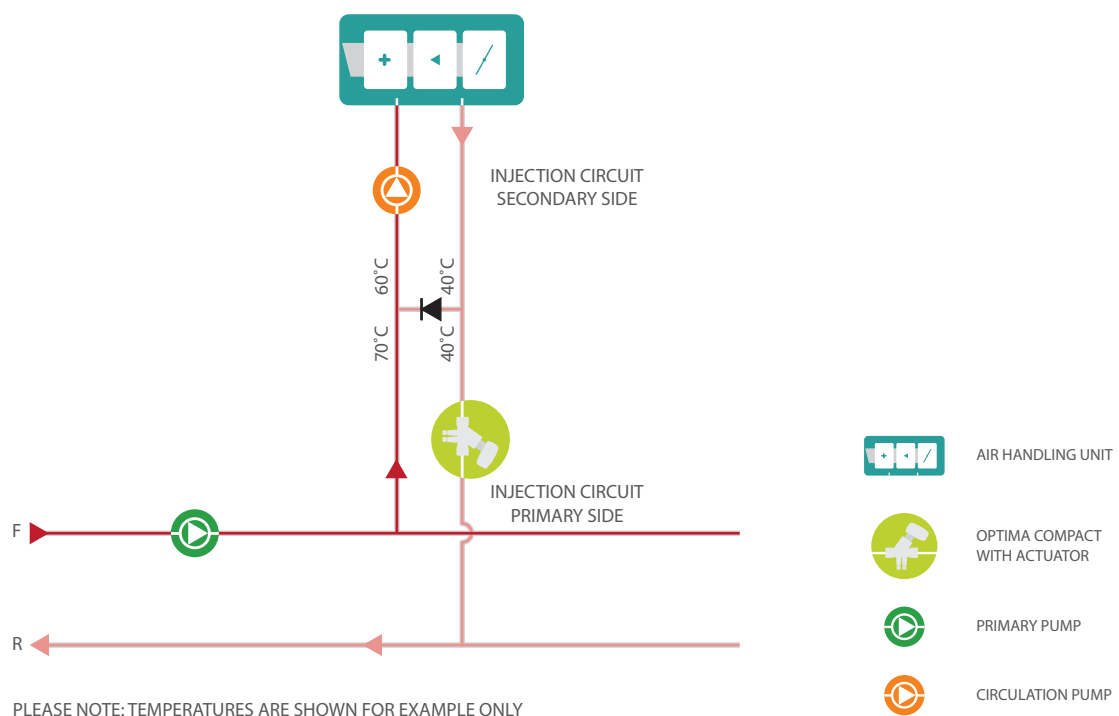


# AHU Application Example

DN50-DN300

In this application example the OPTIMA Compact PICV ensures balancing of the primary flow and eliminates the use of both static balancing valves and differential pressure control valves. Direct relation between coil temperature and power output.

AHUs with a large coil area have a uniform temperature in all parts of the coil, providing precise temperature control.





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