



Building optimization just got a lot smarter with TA-Smart. Discover more



**TA-Smart**  
Bringing  
DATA to life





# TA-Smart



Find out more  
[imi-hydronic.com](http://imi-hydronic.com)

TA-Smart is a balancing and control valve designed for heating and cooling applications **constructed around 3 key principles:**



## CONTROL

Versatility of valve control modes operating according to flow, power and valve position with outstanding controllability. A  $\Delta T$  limitation function can be added to any of the control type, even in part-load system conditions.



## MEASUREMENT

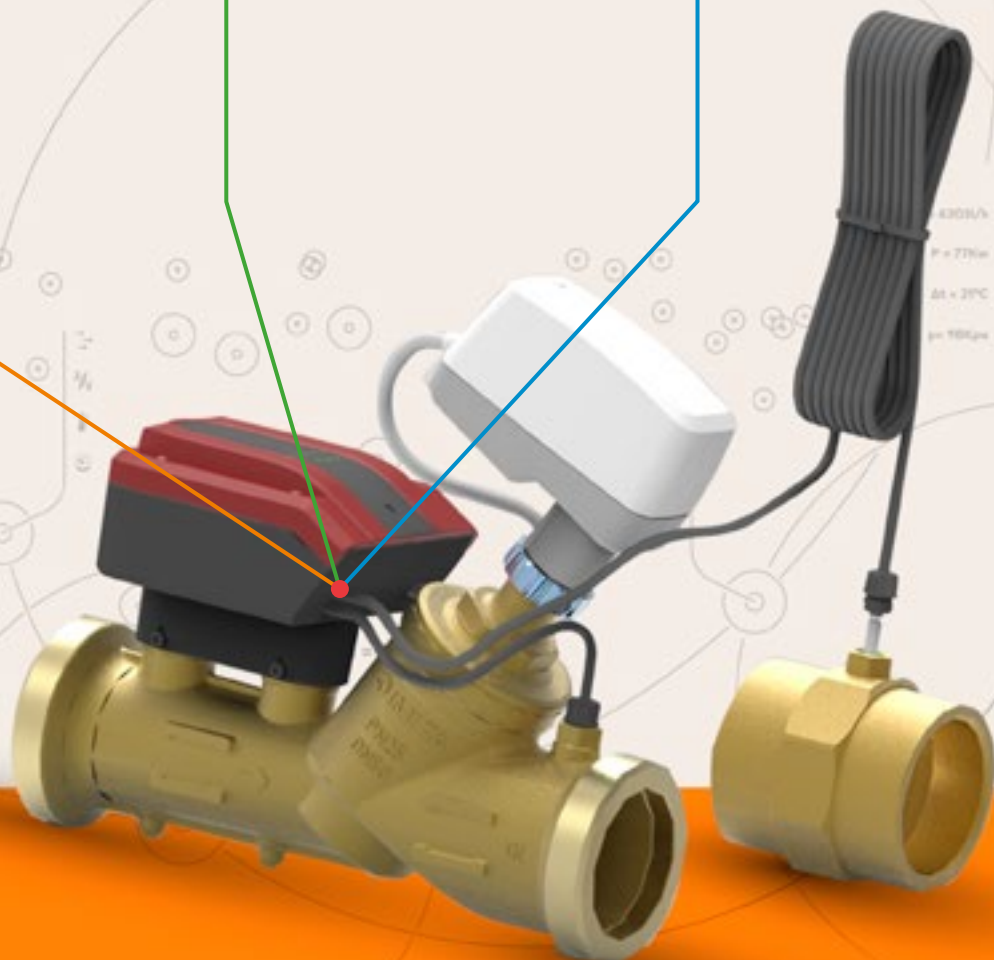
Continuous measurement of flow, valve position, return/supply temperatures, temperature difference, power and energy.



## COMMUNICATION

Communicates and stores: BLE, bus, Analog, Cloud.

Fully digitally configurable: HyTune mobile app, web app.





# Why use TA-Smart?



## To comply with European Regulations

The EU has set binding targets of at least a 32.5% reduction in energy by 2030. The Energy Performance of Building Directives (EPBD) holds the new rules agreed by the EU to help address the burden of buildings in energy consumption and has as key objectives to decarbonize buildings, encourage more automation and smart control systems to improve building efficiency and measure the buildings' ability to adapt to real system conditions.

The most notable provisions of the new EPBD include:

1. By 2025, Non-residential buildings with an output greater than 290kW require **mandatory installation** (or retrofit) **capable of:**
  - Monitoring, logging, analysis and allowing for adjustment of energy usage
  - **Detecting losses in efficiency** and informing opportunities for energetic improvements
  - Allowing for **communication** with connected building systems
2. Buildings equipped with BACS and **electronic monitoring** are exempted from inspections of HVAC systems.



## For Green Certification Labels

The number of new buildings certified is rising rapidly. Since 1990, 550k buildings were certified, while today there are 2 million buildings in the pipeline for certification.

This peak means it is becoming absolutely expected for high-end buildings to hold a certification label. Most fortune 500 companies, tech giants and financial institutions will not rent spaces that are not certified.

The growing demands from tenants have an impact on real estate. In fact, holding a building certification label allows building owners to increase their **rental fee by 18%** and seize better loan and investment opportunities from banks. In addition, certified buildings can **expect 21% premium on sales** transactions.

3 of the most known certification bodies, LEED, BREEM, HQE, request the installation of energy and power measurement points in the HVAC system as part of the certification criteria. These bodies claim that following such criteria help decrease by 10-20% energy consumption while improving indoor comfort.

✓ TA-Smart supports EPBD measurement requirements without the need to install support components. It seamlessly integrates circuit data for transparent monitoring and optimization of performance.

✓ TA-Smart fulfills measurement and energy monitoring requirements from certification labels without the need to install additional components.

# Why use TA-Smart?

## For HVAC monitoring



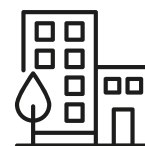
Buildings are responsible for 40% of the world's energy consumption and 36% of CO<sub>2</sub> emissions. **HVAC systems** account for **50% of a building's energy usage**, representing **20% of the world's energy consumption**.

Therefore, optimizing the hydronic distribution is the most cost-efficient way to generate immediate and substantial savings, on average up to 30%.

Managing active system pressures and flow control is critical in achieving high quality indoor temperature, comfort and energy efficiencies in the system.

However, to apply such actions and ensure the optimal flow and power is being delivered to where it is needed, one must **measure how the system behaves** to reach conclusions that can provide tangible optimizations.

## For precise indoor temperature that autonomously adapts



System control is critical for delivering **indoor comfort** and **energy efficiency** of the system. By correctly controlling the flow to a terminal unit, we can control the right amount of power delivered to ensure the right amount of heat/cooling transfer without wastage to ensure energy efficiency.

One of the challenges of good system control is ensuring the valve can control at low flows and when the system pressures vary. Today's heating and cooling systems rarely operate under design conditions. In fact, in most European countries, **systems operate under 20% of flow** (50% of power) approximately 80% of the time. This highlights the importance of **good valve control in low flow conditions**; otherwise, during most of the heating season, your system won't be able to deliver the desired levels of power and, therefore, temperature.

In addition, even minor deviations from the set-point, as low as +/- 1°C, can affect the operation of critical applications. Therefore, precise temperature control is not a "nice to have", it is a must-have.

✓ TA-Smart offers continuous and highly accurate measurement of crucial circuit parameters: flow, temperature difference, and power. All are available on your smartphone when within Bluetooth range for transparent insights on how that part of the system is operating. Data can also be access remotely if the valve is connected to the internet via HyCloud. Performances can be compared to design conditions and, if needed, fine-tuned with confidence.

✓ TA-Smart has an internal control feedback. It measures the flow that goes through it and the difference of temperatures to understand what power it is actually delivering, and communicates it to its own actuator, so it can adapt the power delivered to the room according to the input signal in a short time – full smart autonomous control! In addition, TA-Smart can control down to low flow to enable superior control of the system year round.

# Valve Construction

**SmartBox:**  
Analyzes flow and temperature measurement data into control signal for the actuator

**Actuator:**  
Dynamically positions the Control-Part of the valve to maintain the desired flow/power or position

**Secondary temperature sensor:**  
Measures the temperature of the media at the opposite side to TA-Smart (for  $\Delta T$  calculation)

*TA-Smart  
DN20-50*

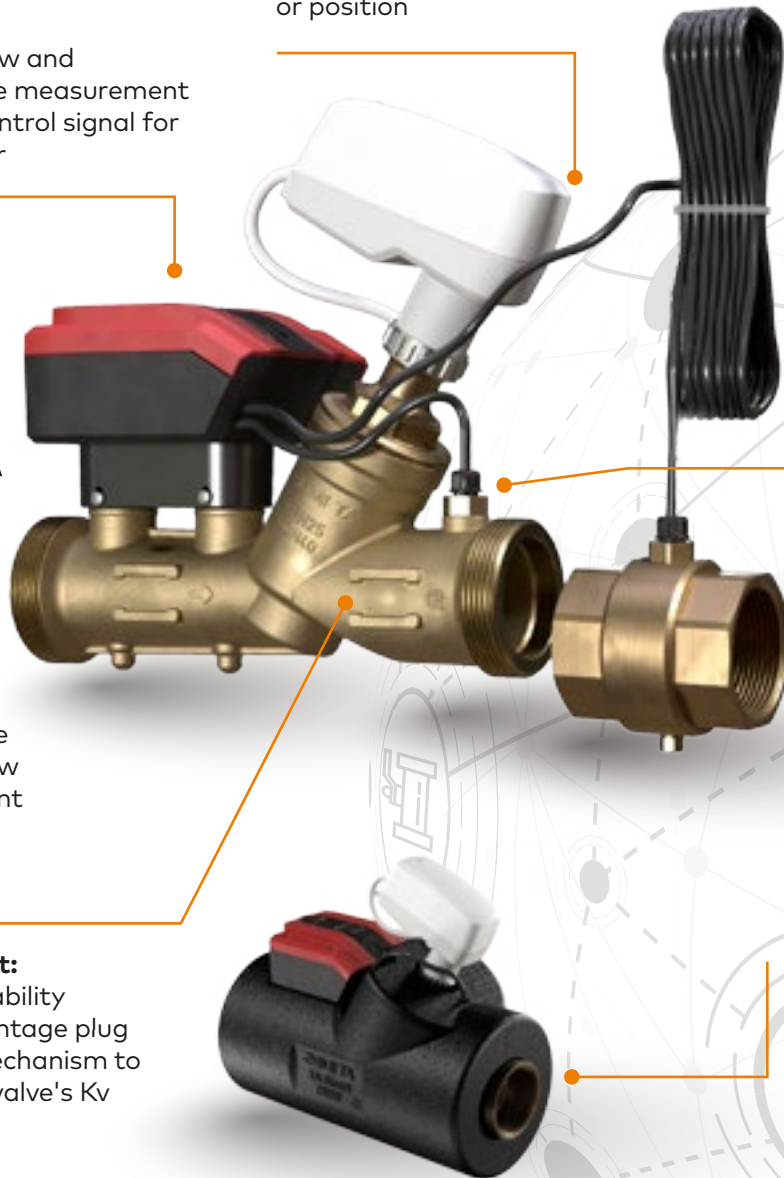
**Primary temperature sensor:**  
Measures the media temperature inside the valve

**Measuring section:**  
Contains the accurate flow measurement technology

**External temperature housing:**  
Housing for secondary temperature sensor

**Control-Part:**  
High-rangeability equal-percentage plug and seat mechanism to vary the valve's Kv

**Insulation shells:**  
For heating and non-condensing cooling applications



# Valve Construction

**SmartBox:**  
Analyzes the flow and temperature measurement data into control signal for the actuator

**Actuator:**  
Dynamically positions the Control-part of the valve to maintain the desired flow/power or position



TA-Smart  
DN65-125

**Measuring section:**  
Contains the accurate flow measurement technology

**Control-Part:**  
High-rangeability equal-percentage plug and seat mechanism to variate the valve's Kv

**Primary temperature sensor:**  
Measures the media temperature inside the valve

**Secondary temperature sensor:**  
Measures the temperature of the media at the opposite side to TA-Smart (for  $\Delta T$  calculation)

As of September 2023, the cover of the TA-Slider actuator changes from orange to red. This change has no impact on the performance of the product.

# Key Features



- ✓ **Versatility of Control Modes**  
Operating according to flow, power and valve position. A  $\Delta T$  limitation can be added to any of the control modes
- ✓ **Flow, Power, Energy and temperature measurement**  
Highly accurate measurement of key circuit data
- ✓ **Wireless commissioning**  
Valve configuration done via Smartphone app without cables or adaptors
- ✓ **High Controllability & Rangeability**  
Best in class flow control and rangeability
- ✓ **Fast response time**  
Accurate and fast response to input changes to achieve the desired set point
- ✓ **Reduced size & weight**  
Compact size allows for seamless mounting capabilities, even in retrofit applications
- ✓ **Great installation flexibility & IP54**  
Only 2 components required to be installed with minimal diameters required before the valve



# 4 Control Modes

**Did you know?**

HVAC systems operate **80% of the time at less than 50% of their design load, representing less than 20% of flow.** TA-Smart's great control and measurement capabilities at low flow regimes allow you to achieve optimal indoor comfort all year round!

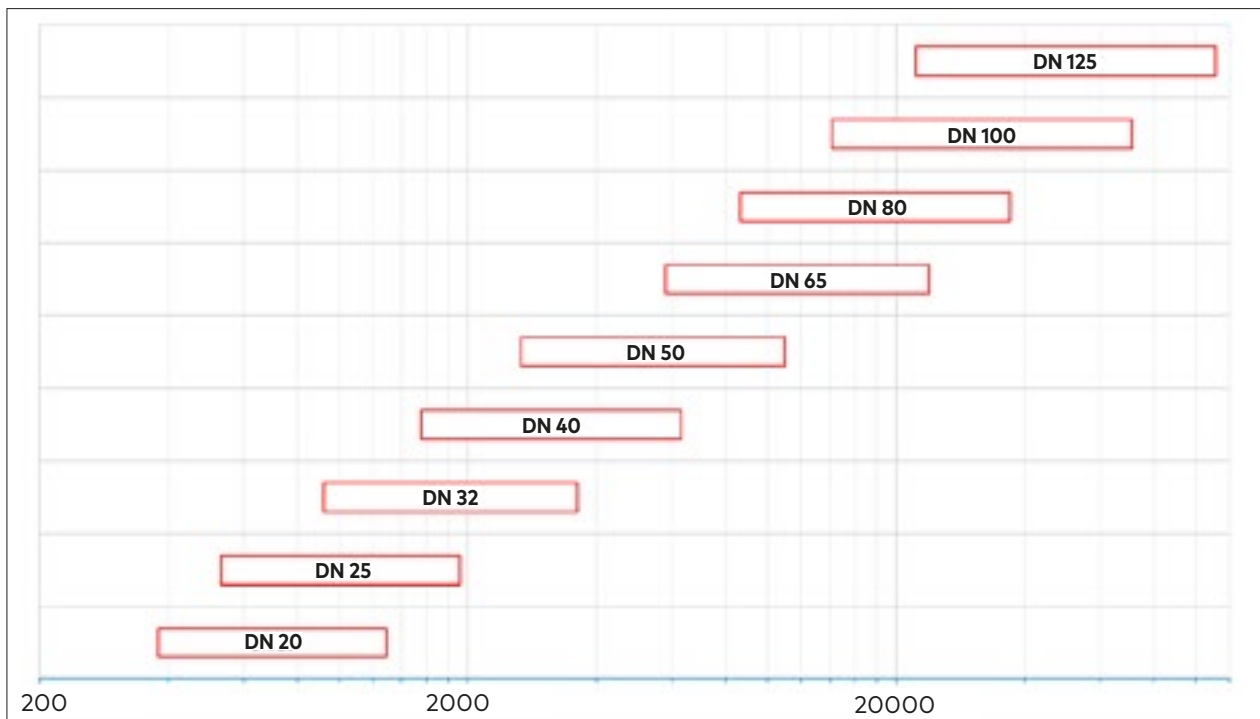
Bus or 0(2)-10VDC/0(4)-20mA

- 1 | **Flow control\***
- 2 | **Power control\***
- 3 | **Position control\***
- 4 | **DP control\*\***

\*A  $\Delta T$  limitation function can be added to any of the 3 control modes.

\*\*Available with TA-Smart-Dp and Dp sensor.

TA-Smart



## Max. Flows

The maximum flows can be settable through lift limitation of the control valve. This corresponds to 20% of  $q_{nom}$ .

Flow bar diagram



$q_{set.min}$

$q_{nom}$



**WATCH THE VIDEO**

When Controllability in Low Flow matters

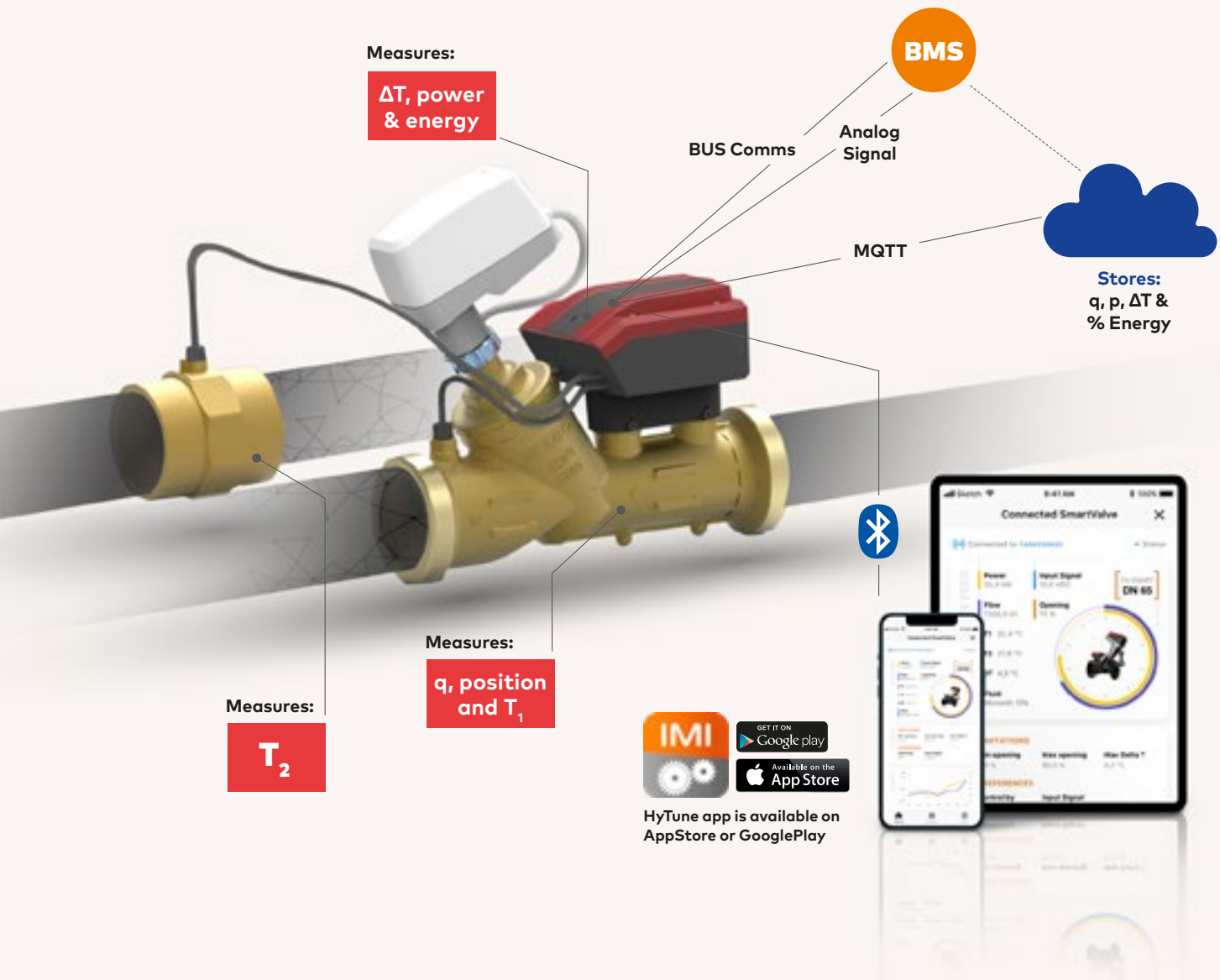
# Measuring & Logging

## Functions:

- **Control** (flow, power, position,  $\Delta T$  and temperature return limitation)
- **Pre-setting** (max/min flow, max power, max/min position)
- **Reading** (flow, power, energy, return/supply temperature,  $\Delta T$ , position)

## Logging time-frame options:

- **Xtra Long Logging** (13 months, every 1 hour)
- **Long Logging** (31 days, every 1 minute)
- **Fast Logging** (7 days, every 15 seconds)
- **Xtra Fast Logging** (12 hours, every 5 seconds)



# Communication & Configuration Modes



## BLE 5.0 (BLE 4)

to smartphones and tablets (Android and iOS). No laptop, no cable, no dongle needed



## Analog

0(2)-10VDC/0(4)-20mA



## Bus comms

BACnet MS/TP  
Modbus RTU  
BACnet IP  
Modbus TCP  
from/to BMS



## MQTT

to and from Cloud



## Thread wireless comm.

Between TA-Smart valves

- ✓ **No requirements of additional hardware** (cables or adaptors) for valve configuration increases flexibility and reduces commissioning & troubleshooting time.
- ✓ Over the air upgrades for firmware, no cables necessary.
- ✓ TA-Smart can be **integrated in all types of system**, and the thread wireless communication enables TA-Smart valves to interact with each other to improve the system.



**WATCH THE VIDEO**

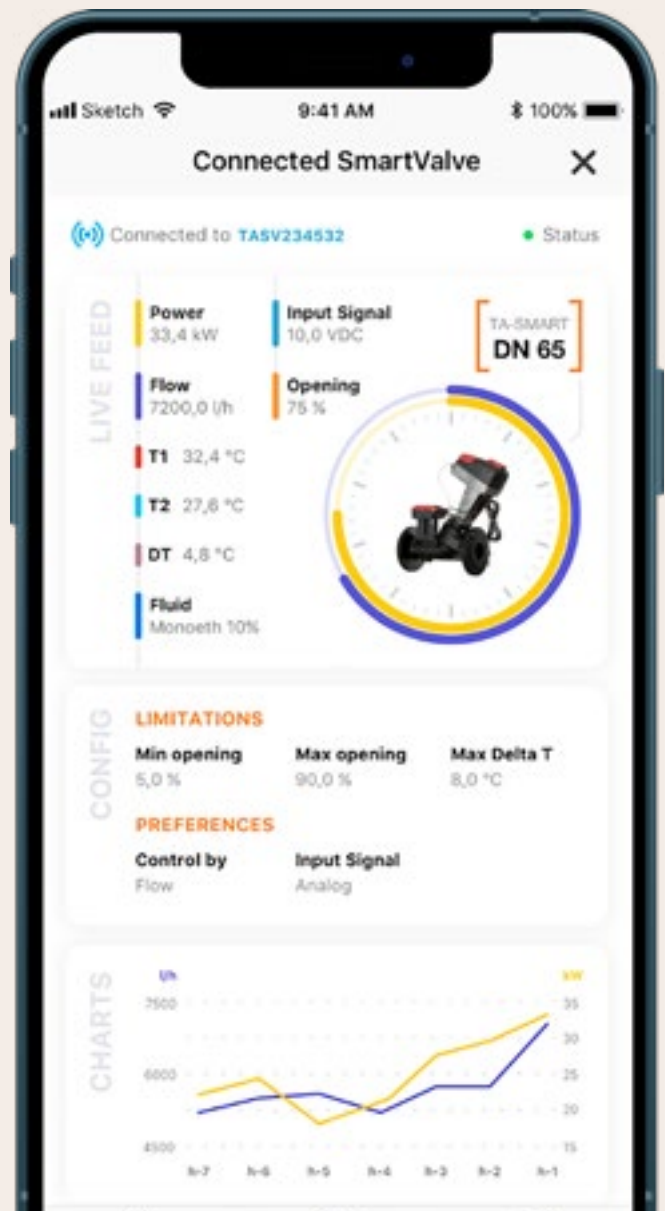
When Connectivity matters



GET IT ON  
Google play

Available on the  
App Store

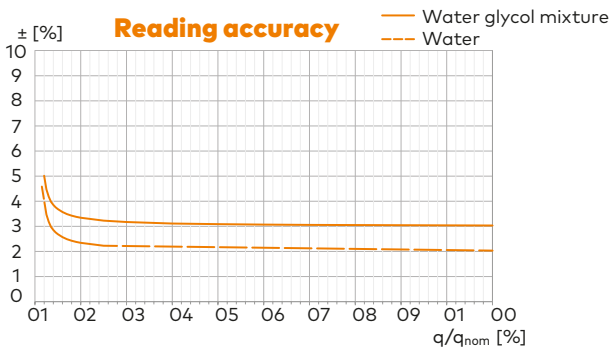
HyTune app is available on AppStore or GooglePlay



# Measurement Accuracy

$$P = k * q * \Delta T$$

<b>Flow measurement</b>	TA-Smart uses Ultrasonic Flow measurement technology to guarantee <b>high accuracy of flow measurement</b> for all regimes at any temperature covering water-glycol mixtures up to 57%.
<b>Temperature measurement</b>	TA-Smart uses <b>2 Pt1000 EN 60751 class AA</b> temperature sensors which are pair-calibrated to provide improved accuracy even at low $\Delta T$ .
<b>Power measurement</b>	Leveraging accurate flow and temperature measurement, TA-Smart provides accurate power measurement in both heating and cooling applications.



**Accuracy measurement operates under the following flow conditions:**

**Water:** From 2% accuracy at 100% of  $q_{nom}$  to 2.4% accuracy at 5% of  $q_{nom}$  (according MID-Class 2 EN1434).

**Water+glycol:** From 3% accuracy at 100% of  $q_{nom}$  to 4% accuracy at 5% of  $q_{nom}$  (according to MID-Class 3 EN1434).

These accuracies are subject to the respect of required upstream straight pipe lengths (OD for TA-Smart DN 20-50 and 5D for TA-Smart DN 65-125).

Temp. regime			TA-Smart	
Supply Temp. [°C]	Return Temp. [°C]	$\Delta T$ [K]	Accuracy [K]	Accuracy [%]
6	12	6	$\pm 0.06$	1.1%
15	18	3	$\pm 0.03$	1.2%
40	30	10	$\pm 0.08$	0.8%
70	50	20	$\pm 0.17$	0.9%

Temp. regime			TA-Smart		
Supply Temp. [°C]	Return Temp. [°C]	$\Delta T$ [K]	Flow accuracy [%]	$\Delta T$ accuracy [%]	Power accuracy [%]
6	12	6	$\pm 3.0$	$\pm 1.1$	$\pm 4.1$
15	18	3	$\pm 3.0$	$\pm 1.2$	$\pm 4.2$
40	30	10	$\pm 3.0$	$\pm 0.8$	$\pm 3.8$
70	50	20	$\pm 3.0$	$\pm 0.9$	$\pm 3.9$



# TA-Smart-Dp

## 2-way Smart electronic differential pressure controller with flow, temperature and power measurement capabilities

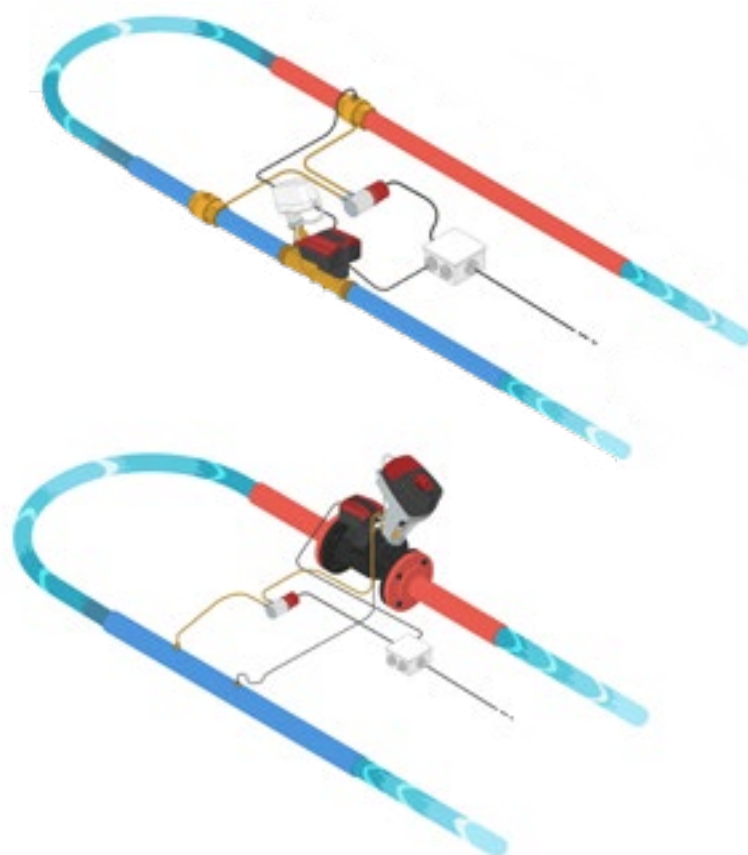
Add the TA-Smart-Dp module to turn the TA-Smart into a differential pressure controller.

Get the benefits of having stable pressure in a circuit while getting the energy and operation data from the TA-Smart. Stable pressure gives the hydronic circuit the basis for good control.

- Stabilize the differential pressure over a circuit
- Measure the power (flow, return and supply temperature) over the circuit
- Compatible with all TA-Smart sizes, from DN20 to DN125
- Easy to upgrade systems by replacing existing Dp controllers thanks to the compact design and F1 flange length. DN65-DN125 have the same size as STAP and TA-PILOT-R differential pressure controllers
- Easy to set up with HyTune



Pressure sensor



Two different pressure modules depending on the circuit pressure:

- 10-100 kPa
- 40-400 kPa

# TA-Smart HyCloud



WATCH THE VIDEO

Revolutionize connectivity  
with TA-Smart valves via  
HyCloud

## Get connected to your TA-Smart valves

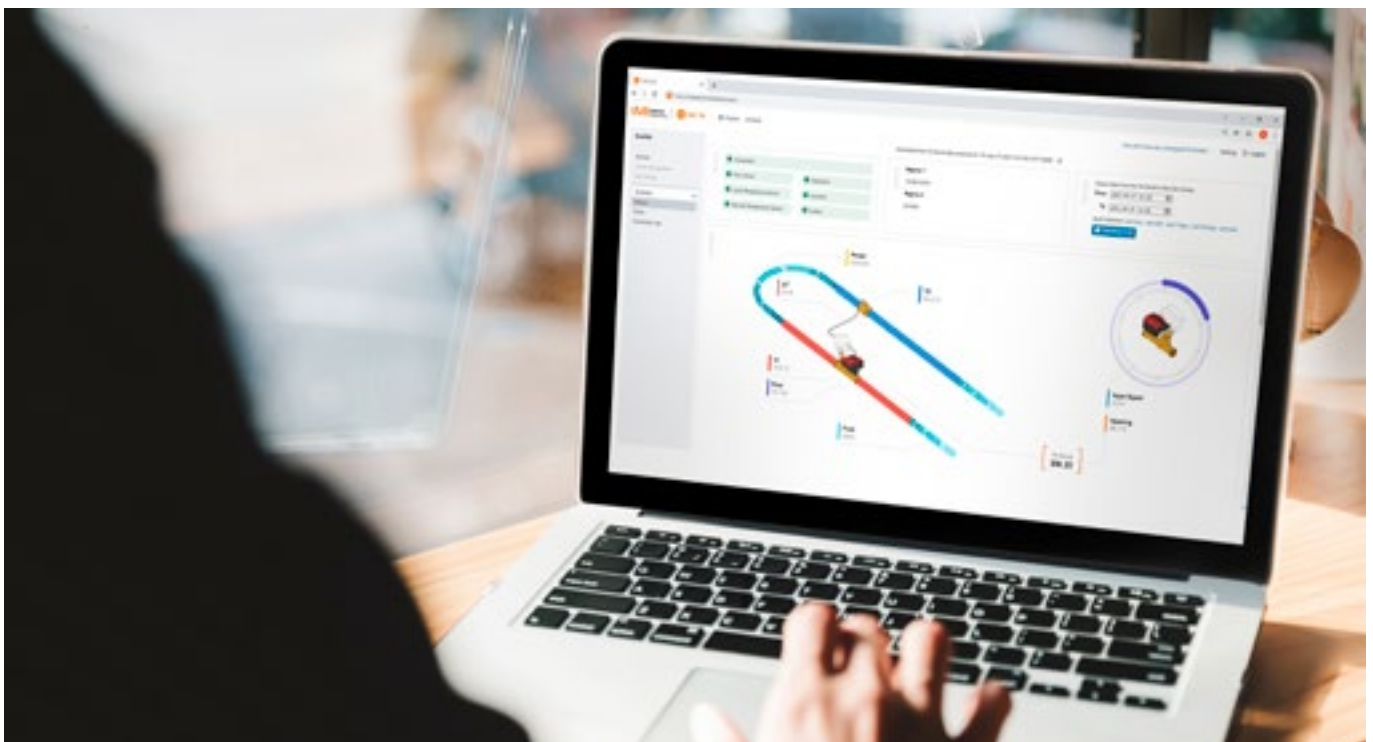
- Create projects where you can share data with your colleagues and stakeholders
- Add colleagues and stakeholders to the project, either as read only or admin rights
- Get full overview of the performance of TA-Smart

## Use HyCloud to get an overview of how your system is performing.

- Status of your valves
- Current and historical data reading of the valves
  - Flow
  - Position
  - Power
  - Supply, return and delta temperatures
  - Input signal

## Easy access to data

- View charts and dashboards on HyCloud
- Export data as csv
- Access data via API



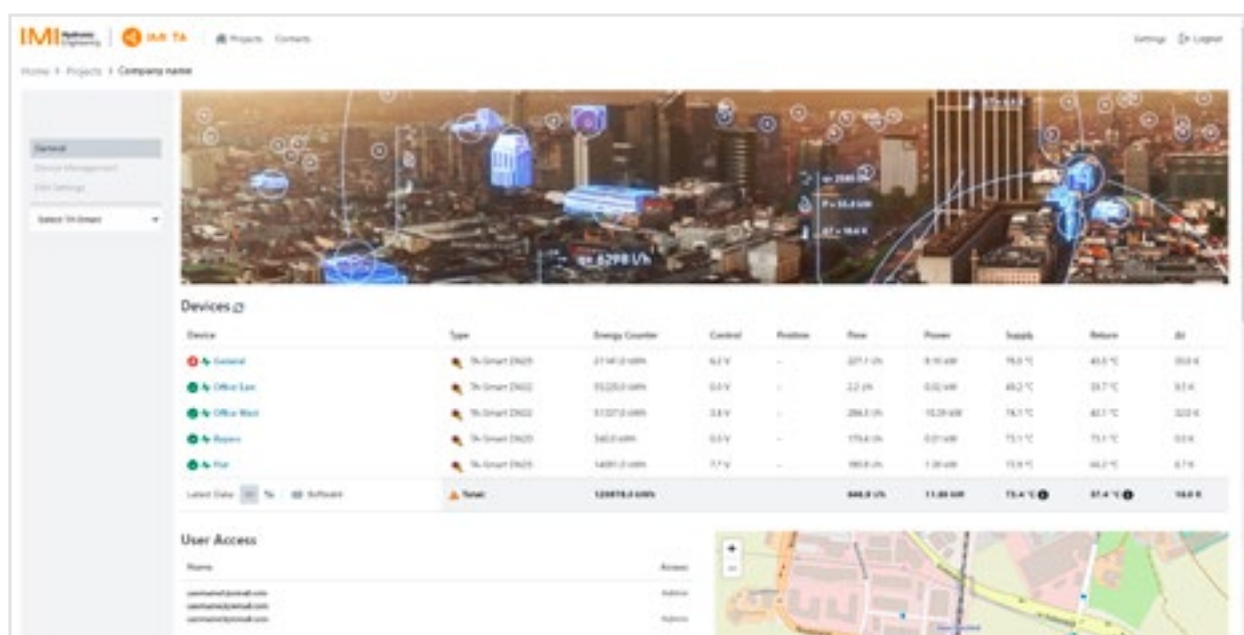
# TA-Smart HyCloud



→ Create your  
HyCloud account  
Available in English

## Easy steps to connect TA-Smart valves

- Step 1** Create HyCloud account
- Step 2** Connect TA-Smart valve to internet
  - With the built in HyCloud diagnostics you can easily see the status of your connection.
- Step 3** Connect TA-Smart valve to HyTune
  - Enter your account email to connect the TA-Smart to your HyCloud.
  - Enable cloud connection on the TA-Smart valve using HyTune.
- Step 4** Assign your TA-Smart valve to your project in HyCloud
  - Create projects in HyCloud and add valves to get an easy overview.



## Highest level of data security

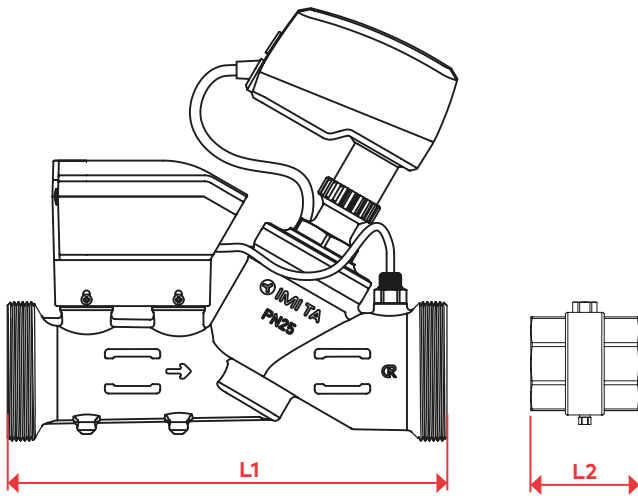
- **Data transmission:** the communication to the Cloud infrastructure is protected and encrypted using MQTT over TLS (Transport Layer Security). Authentication mechanisms have been put in place ensuring both server and TA-Smart are identified through their certificates.
- **Data storage:** is secured by the choice of Amazon Web Services (AWS) as the hosting provider for HyCloud. AWS supports more security standards and compliance certifications than any other offering, in full accordance with data privacy like GDPR and also with data security like FIPS 140-2 and NIST 800-171.

# Reduced Size & Weight

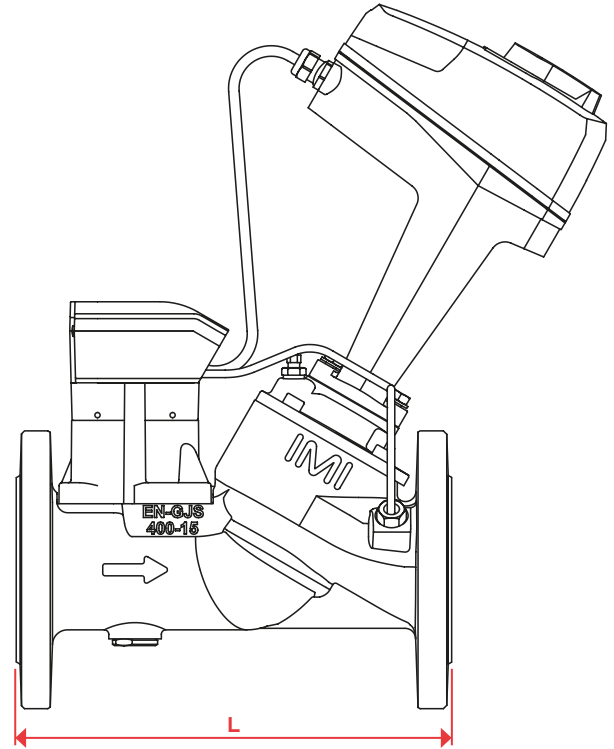


WATCH THE VIDEO

When Compactness matters



TA-Smart  
DN20-50



TA-Smart  
DN65-125

- Super compact size, the smallest of its kind
- Two bodies (only 4 fittings to mount)
- OD requirement upstream

DN	D	L1 [mm]	H [mm]	W [mm]
20	G1	180	174	97
25	G1 1/4	187	174	97
32	G1 1/2	200	199	97
40	G2	218	198	97
50	G2 1/2	239	198	97

Very compact (up to 80% smaller than competitors' product)

- Ultra compact F1 length (Face-to-face length EN-558-1)
- Remote temperature sensor to be fitted separately

DN	D [mm]		No of bolts		L [mm]	H [mm]
	PN16	PN25	PN16	PN25		
65	185		4	8	290	377
80	200		8		310	380
100	220	235	8		350	435
125	250	270	8		400	440

Compact F1 length (up to 30% smaller than competitor's product)



# TA-Smart Applications

## Types of Buildings

**Where Certifications are requested**

*"I want a BREEAM/LEED certified building"*

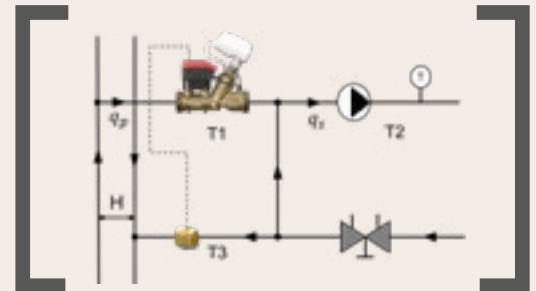
**Where Energy Cost is paramount**

*"I want to know where the energy is going"*

**Where reliability is paramount**

*"Failure is not an option. I need to solve any problems quickly and effectively"*

## Application Types



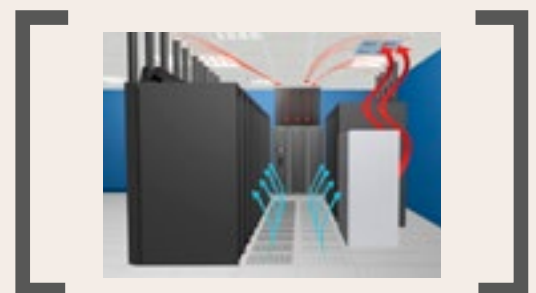
**Secondary / Tertiary Circuit Control**



**Air Handling units**



**Heat Exchangers**

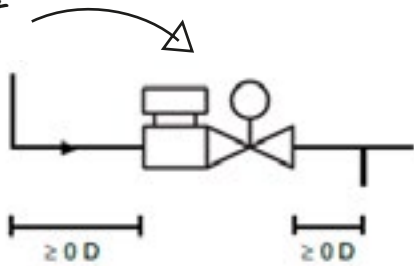


**CRAC units**

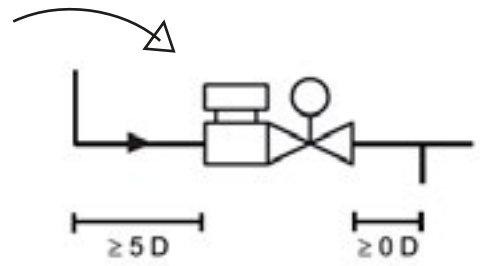
# TA-Smart Applications

## Installation Requirements

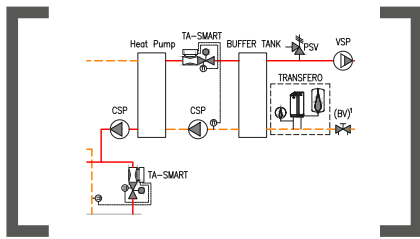
TA-Smart  
DN20-50



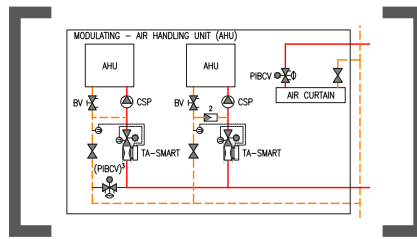
TA-Smart  
DN65-125



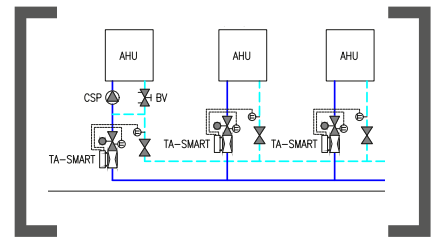
## Application Types



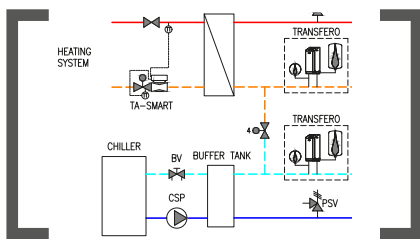
Heat Pumps



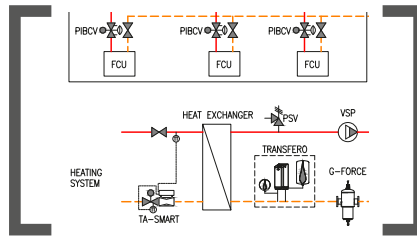
Heating system - variable flow



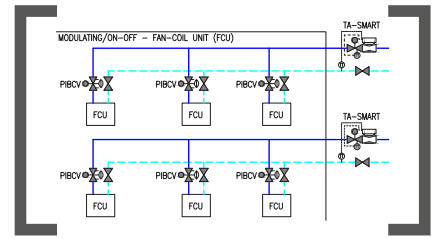
Cooling system - variable flow



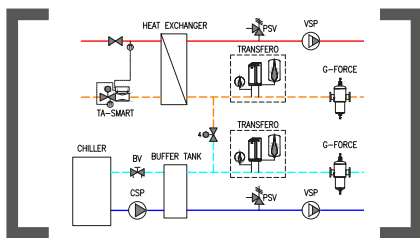
4-pipe system - variable flow



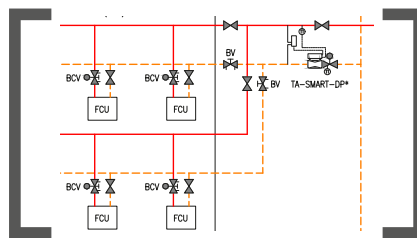
Heating system - zone valve



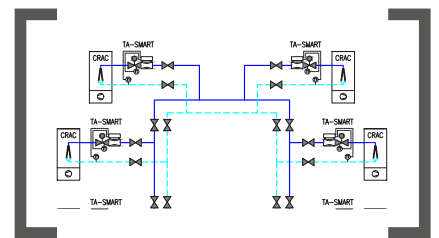
Cooling system - zone valve



4-pipe system - zone valve

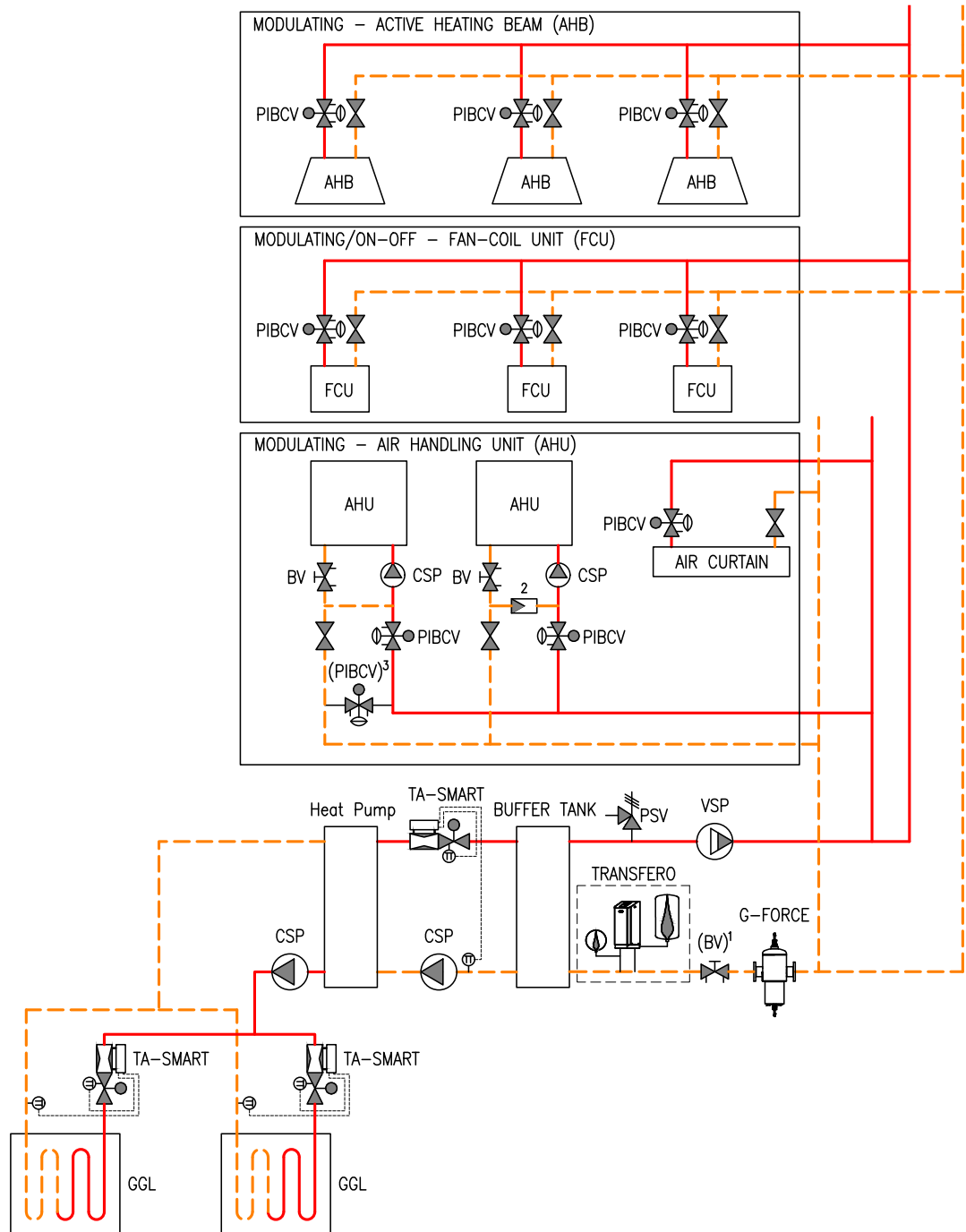


Heating system - pressure control



CRAC unit - variable flow

# Heat Pumps



## Legend:

**BV** – Balancing valve

**G-FORCE** – Microbubble and dirt separator with Cyclonic technology

**CSP** – Constant speed pump

**GGL** – Geothermal ground loop

**PIBCV** – Pressure independent balancing and control valve

**PSV** – Safety valve

**VSP** – Variable speed pump

**TA-SMART** – 2-way balancing & control valve with flow, temperature and power measurement capabilities

**TRANSFERO** – Pump based pressurization unit with water make-up and vacuum degassing

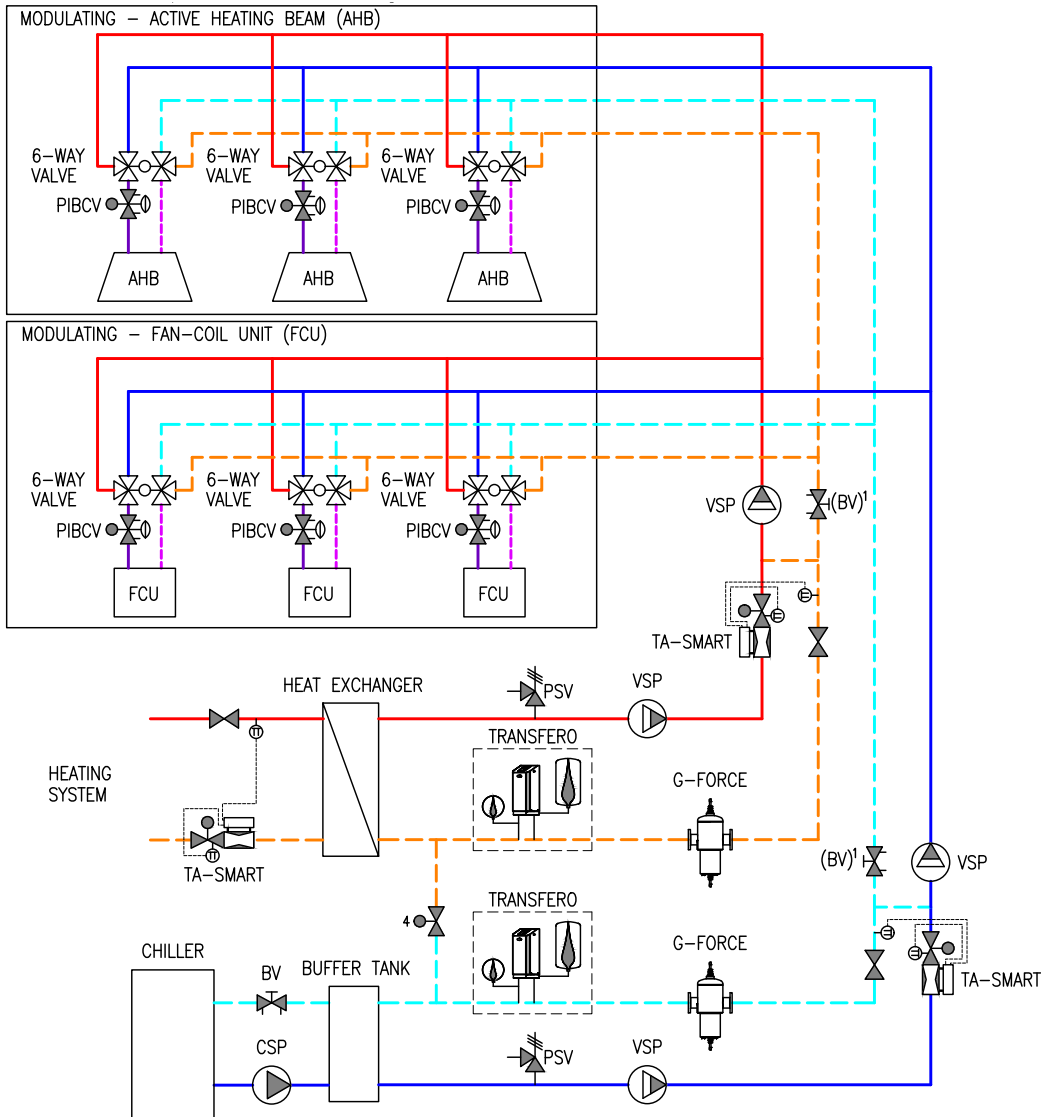
1 Optional/recommended for flow measuring and system diagnostics.

2 Check valve is recommended to protect AHU against freezing up if secondary pump fails.

3 Optional/recommended for maintaining hot water in the supply pipe (without or with actuator that is opening when AHU control valve is fully closed).

# 4-pipe system – variable flow

## Pressure independent balancing and control valves and 6-way valve



### Legend:

- BV** – Balancing valve
- G-FORCE** – Microbubble and dirt separator with Cyclonic technology
- CSP** – Constant speed pump
- PIBCV** – Pressure independent balancing and control valve
- PSV** – Safety valve

**6-WAY VALVE** – Special valve to switch between heating and cooling

**VSP** – Variable speed pump

**TA-SMART** – 2-way balancing & control valve with flow, temperature and power measurement capabilities

**TRANSFERO** – Pump based pressurization unit with water make-up and vacuum degassing

1 Optional/recommended for flow measuring and system diagnostics.

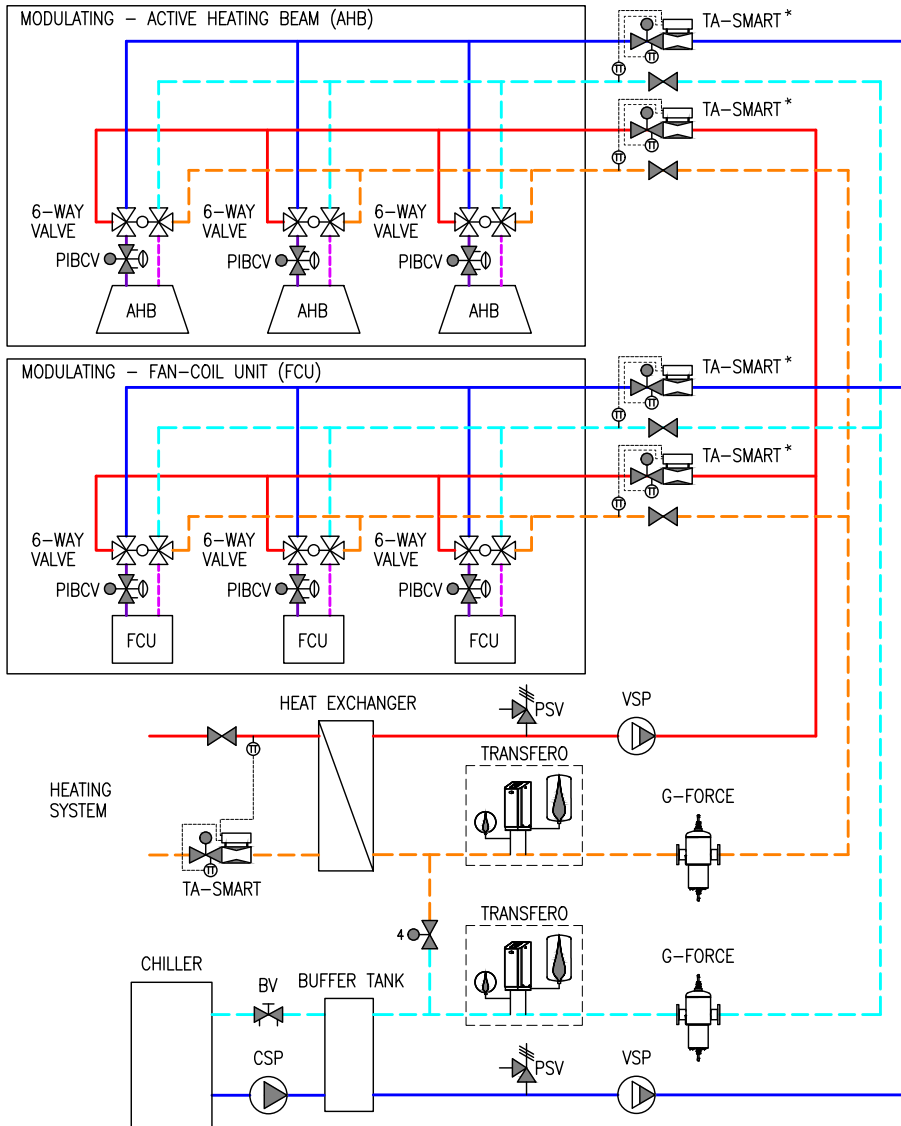
4 System connection valve to compensate for volume. This ensures System connection valve to compensate for volume.

This ensures automatic and economic volume compensation because of the naturally and inevitably volume transfer during the operation of changeover systems. Transfero Connect in heating and cooling system is recommended to operate the pressurisation units in Master Slave IO (isolated operation).



# 4-pipe system – with zone measuring

Pressure independent balancing and control valves and 6-way valves with optional zone valve installation per circuit



## Legend:

- BV** – Balancing valve
- G-FORCE** – Microbubble and dirt separator with Cyclonic technology
- CSP** – Constant speed pump
- PIBCV** – Pressure independent balancing and control valve
- PSV** – Safety valve

**6-WAY VALVE** – Special valve to switch between heating and cooling

**VSP** – Variable speed pump

**TA-SMART** – 2-way balancing & control valve with flow, temperature and power measurement capabilities

**TRANSFERO** – Pump based pressurization unit with water make-up and vacuum degassing

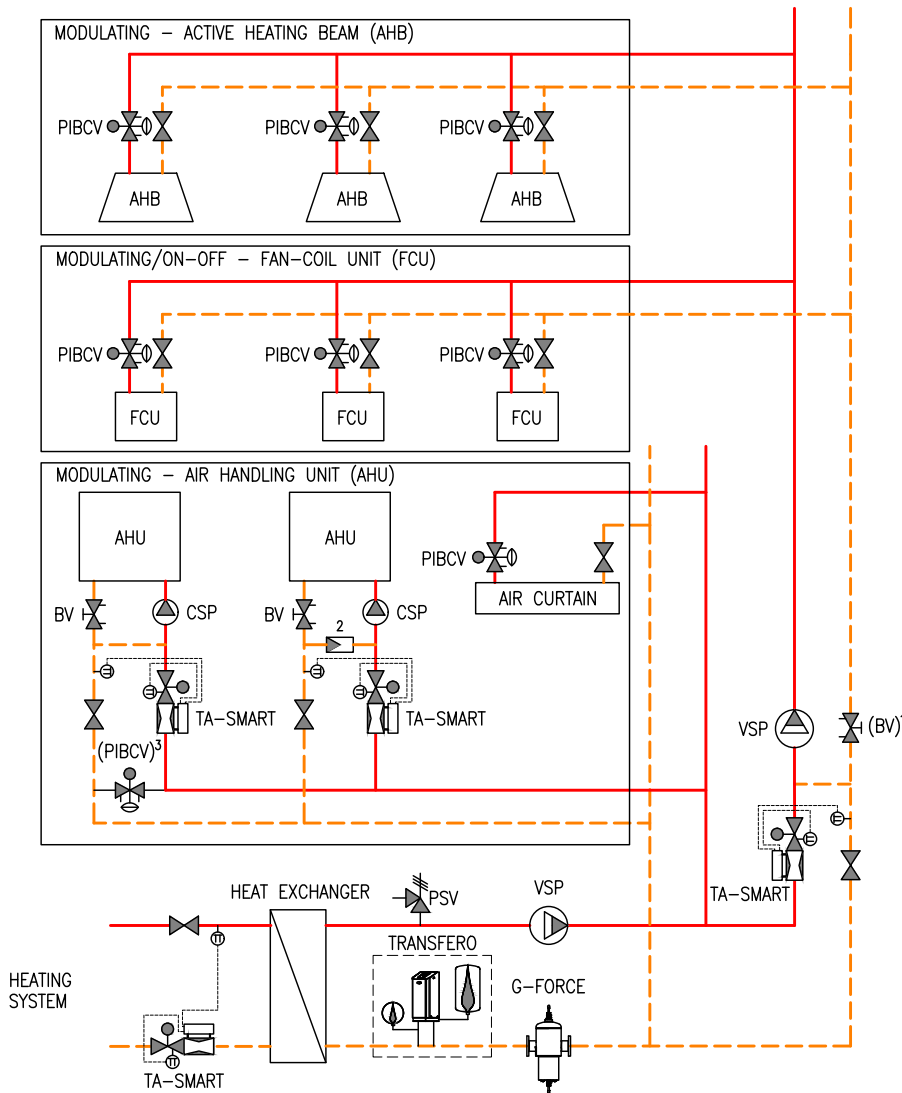
\* Optional use of TA-SMART providing additional isolation of a zone and providing metering opportunities for power and flow.

4 System connection valve to compensate for volume. This ensures System connection valve to compensate for volume.

This ensures automatic and economic volume compensation because of the naturally and inevitably volume transfer during the operation of changeover systems. Transfero Connect in heating and cooling system is recommended to operate the pressurisation units in Master Slave IO (isolated operation).

# Heating system – variable flow

## Pressure independent balancing and control valves



### Legend:

**BV** – Balancing valve

**G-FORCE** – Microbubble and dirt separator with Cyclonic technology

**PIBCV** – Pressure independent balancing and control valve

**PSV** – Safety valve

1 Optional/recommended for flow measuring and system diagnostics.

2 Check valve is recommended to protect AHU against freezing up if secondary pump fails.

**VSP** – Variable speed pump

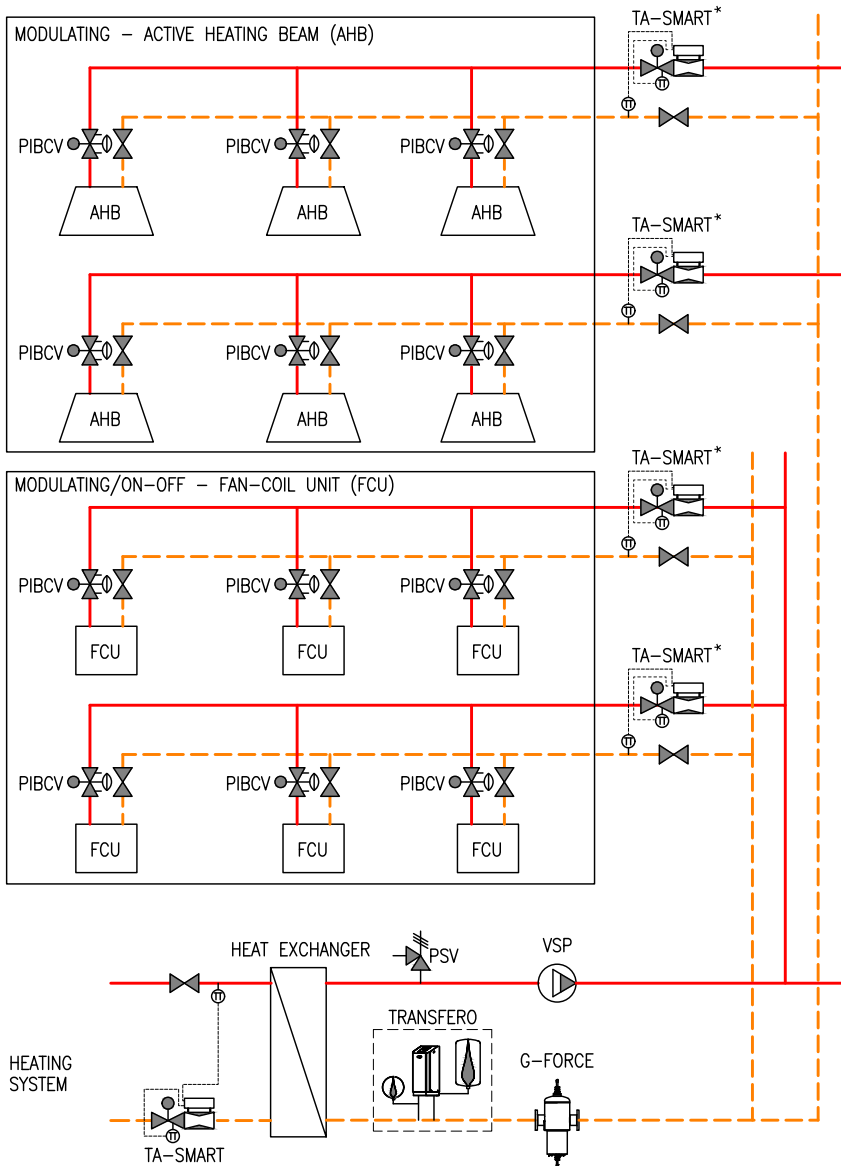
**TA-SMART** – 2-way balancing & control valve with flow, temperature and power measurement capabilities

**TRANSFERO** – Pump based pressurization unit with water make-up and vacuum degassing

3 Optional/recommended for maintaining hot water in the supply pipe. (without or with actuator that opens when AHU control valve is fully closed)

# Heating system – with zone measuring

Pressure independent balancing and control valves with optional zone valve installation per circuit



## Legend:

- G-FORCE** – Microbubble and dirt separator with Cyclonic technology
- PIBCV** – Pressure independent balancing and control valve
- PSV** – Safety valve
- VSP** – Variable speed pump

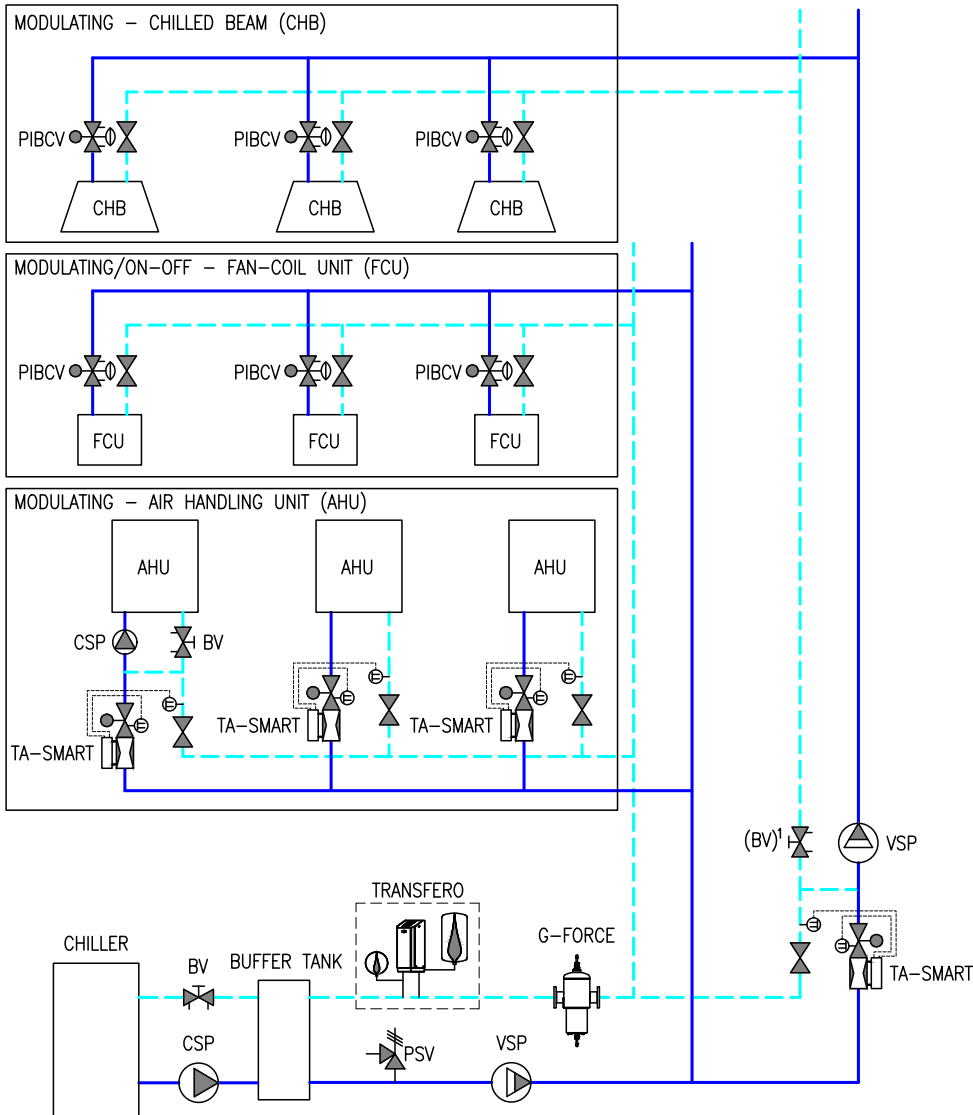
**TA-SMART** – 2-way balancing & control valve with flow, temperature and power measurement capabilities

**TRANSFERO** – Pump based pressurization unit with water make-up and vacuum degassing

\* Optional use of TA-SMART providing additional isolation of a zone and providing metering opportunities for power and flow.

# Cooling system – variable flow

## Pressure independent balancing and control valves



### Legend:

**BV** – Balancing valve

**G-FORCE** – Microbubble and dirt separator with Cyclonic technology

**CSP** – Constant speed pump

**PIBCV** – Pressure independent balancing and control valve

**PSV** – Safety valve

**VSP** – Variable speed pump

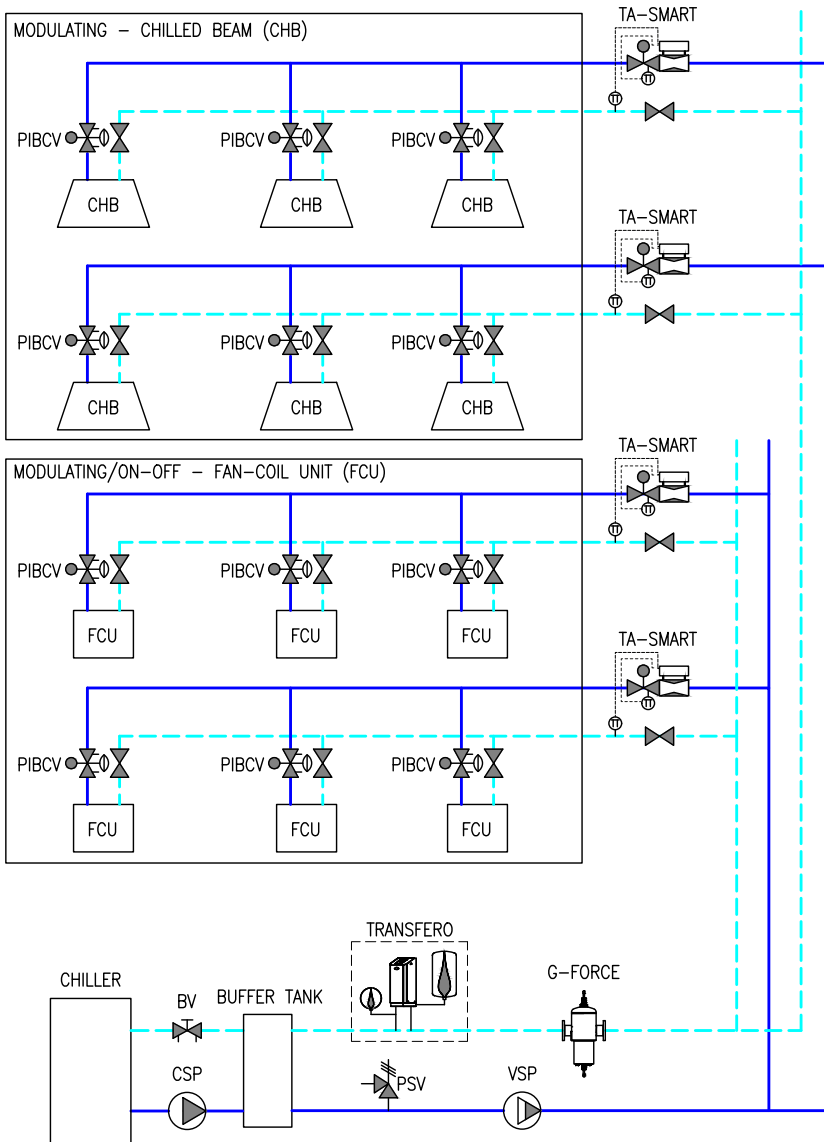
**TA-SMART** – 2-way balancing & control valve with flow, temperature and power measurement capabilities

**TRANSFERO** – Pump based pressurization unit with water make-up and vacuum degassing

1 Optional/recommended for flow measuring and system diagnostics.

# Cooling system – with zone measuring

Pressure independent balancing and control valves with optional zone valve installation per circuit



## Legend:

**BV** – Balancing valve

**CSP** – Constant speed pump

**G-FORCE** – Microbubble and dirt separator with Cyclonic technology

**PIBCV** – Pressure independent balancing and control valve

**PSV** – Safety valve

**VSP** – Variable speed pump

**TA-SMART** – 2-way balancing & control valve with flow, temperature and power measurement capabilities

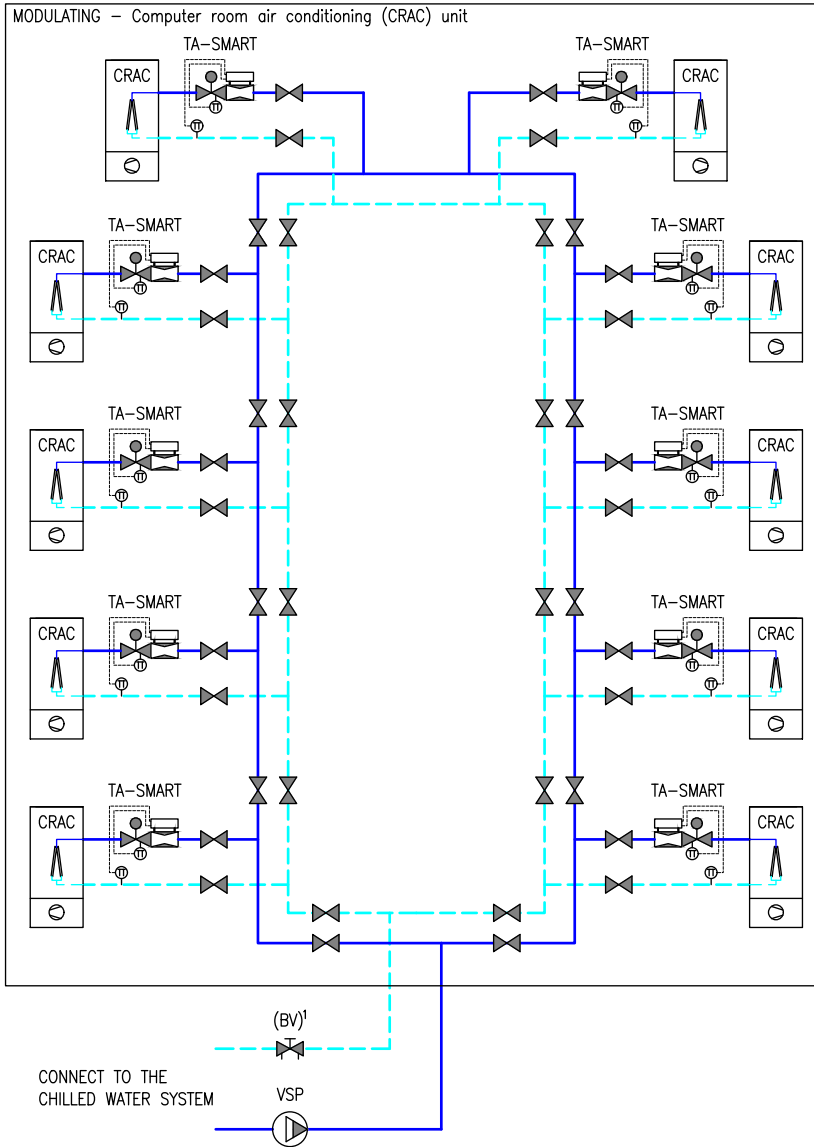
**TRANSFERO** – Pump based pressurization unit with water make-up and vacuum degassing

\* Optional use of TA-SMART providing additional isolation of a zone and providing metering opportunities for power and flow.



# CRAC unit – variable flow

## Balancing and control valves with flow measuring capabilities



### Legend:

**BV** – Balancing valve

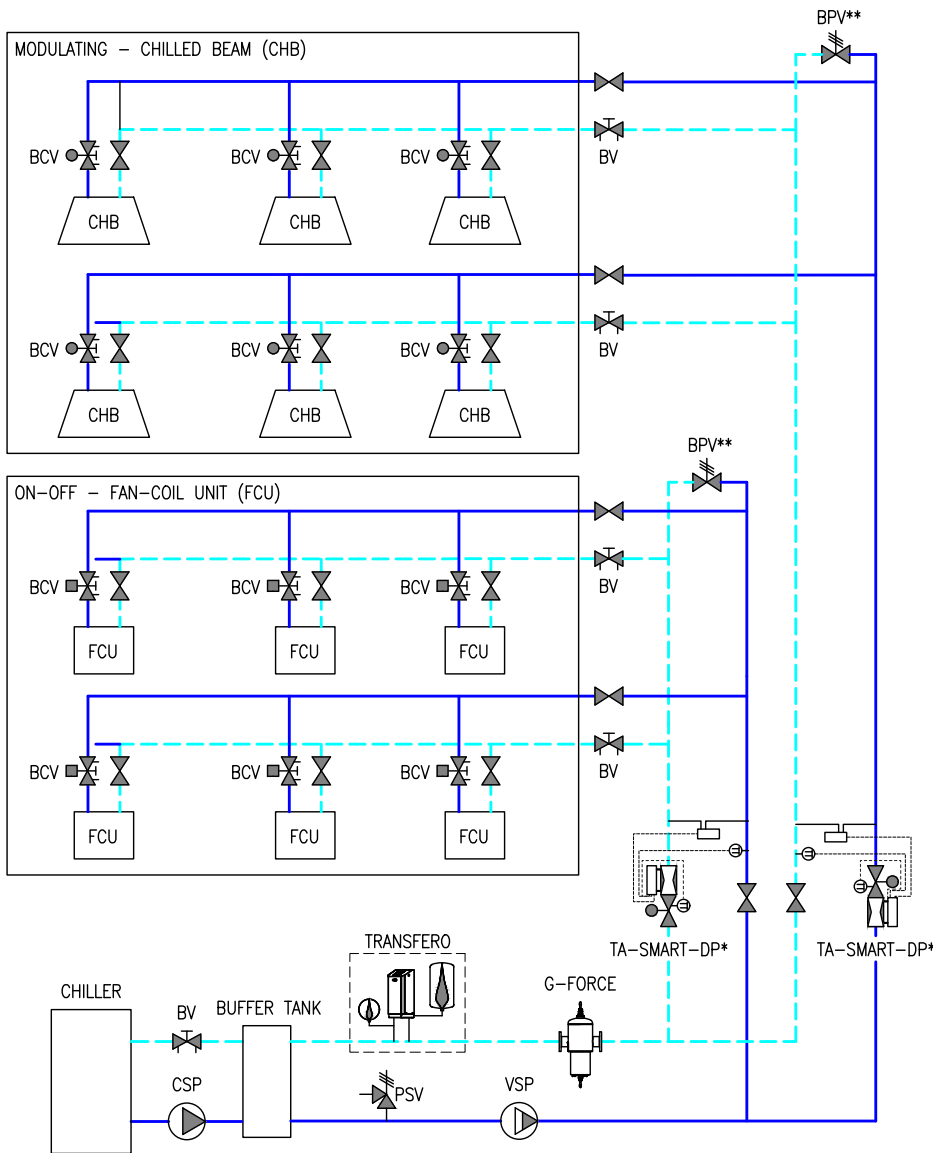
**VSP** – Variable speed pump

**TA-SMART** – 2-way balancing & control valve with flow, temperature and power measurement capabilities

1 Optional/recommended for flow measuring and system diagnostics.

# Cooling system – pressure control for small terminal units

Terminal units with standard balancing and control valves having the pressure stabilized with TA-Smart-Dp



## Legend:

- BCV** – Balancing and control valve
- BPV** – Differential pressure relief valve
- BV** – Balancing valve
- CSP** – Constant speed pump
- G-FORCE** – Microbubble and dirt separator with Cyclonic technology
- PIBCV** – Pressure independent balancing and control valve
- PSV** – Safety valve

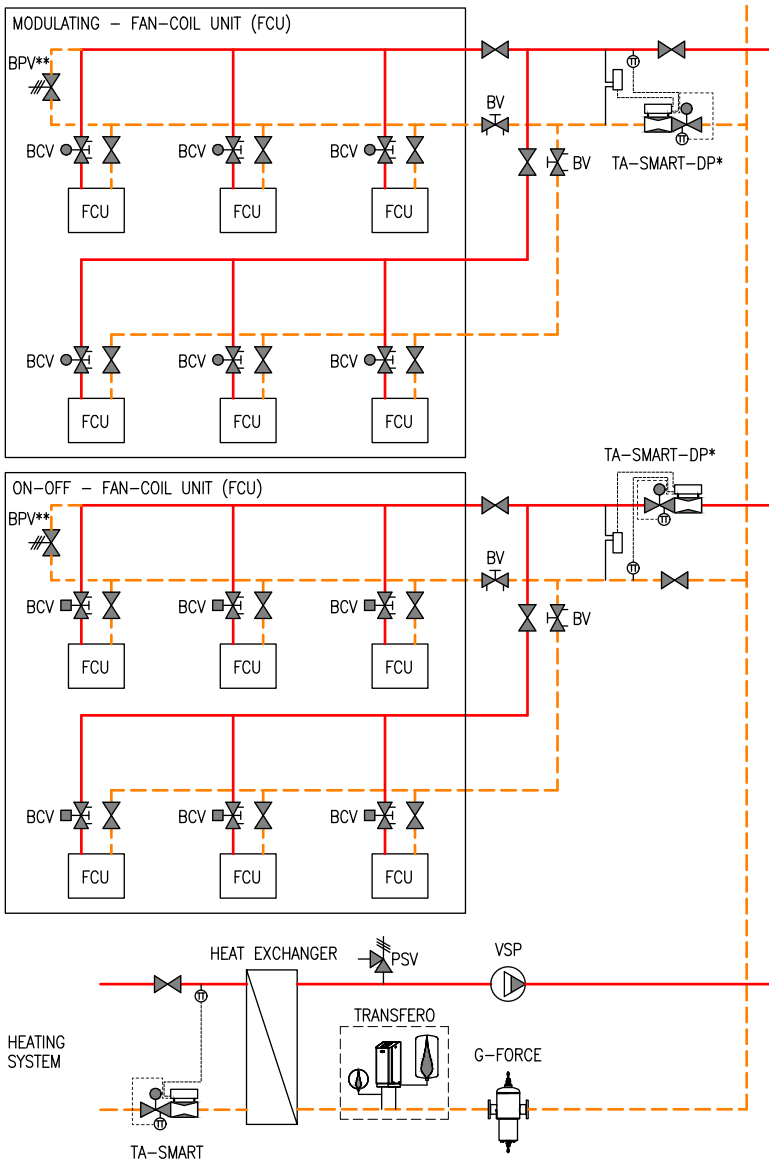
- VSP** – Variable speed pump
- TA-SMART** – 2-way balancing & control valve with flow, temperature and power measurement capabilities
- TA-SMART-DP** – 2-way balancing & control valve with flow, temperature and power measurement capabilities and DP control
- TRANSFERO** – Pump based pressurization unit with water make-up and vacuum degassing

\* The valve can be installed in both the supply and return pipes.

\*\* Valve to ensure minimum flow rate of pump and ensuring flow through TA-Smart to avoid pressure spike at terminal unit.

# Heating system – pressure control for small terminal units

Small terminal units with standard balancing and control valves having the pressure stabilized with TA-Smart-Dp



## Legend:

**BCV** – Balancing and control valve

**BPV** – Differential pressure relief valve

**BV** – Balancing valve

**G-FORCE** – Microbubble and dirt separator with Cyclonic technology

**PSV** – Safety valve

**VSP** – Variable speed pump

**TA-SMART** – 2-way balancing & control valve with flow, temperature and power measurement capabilities

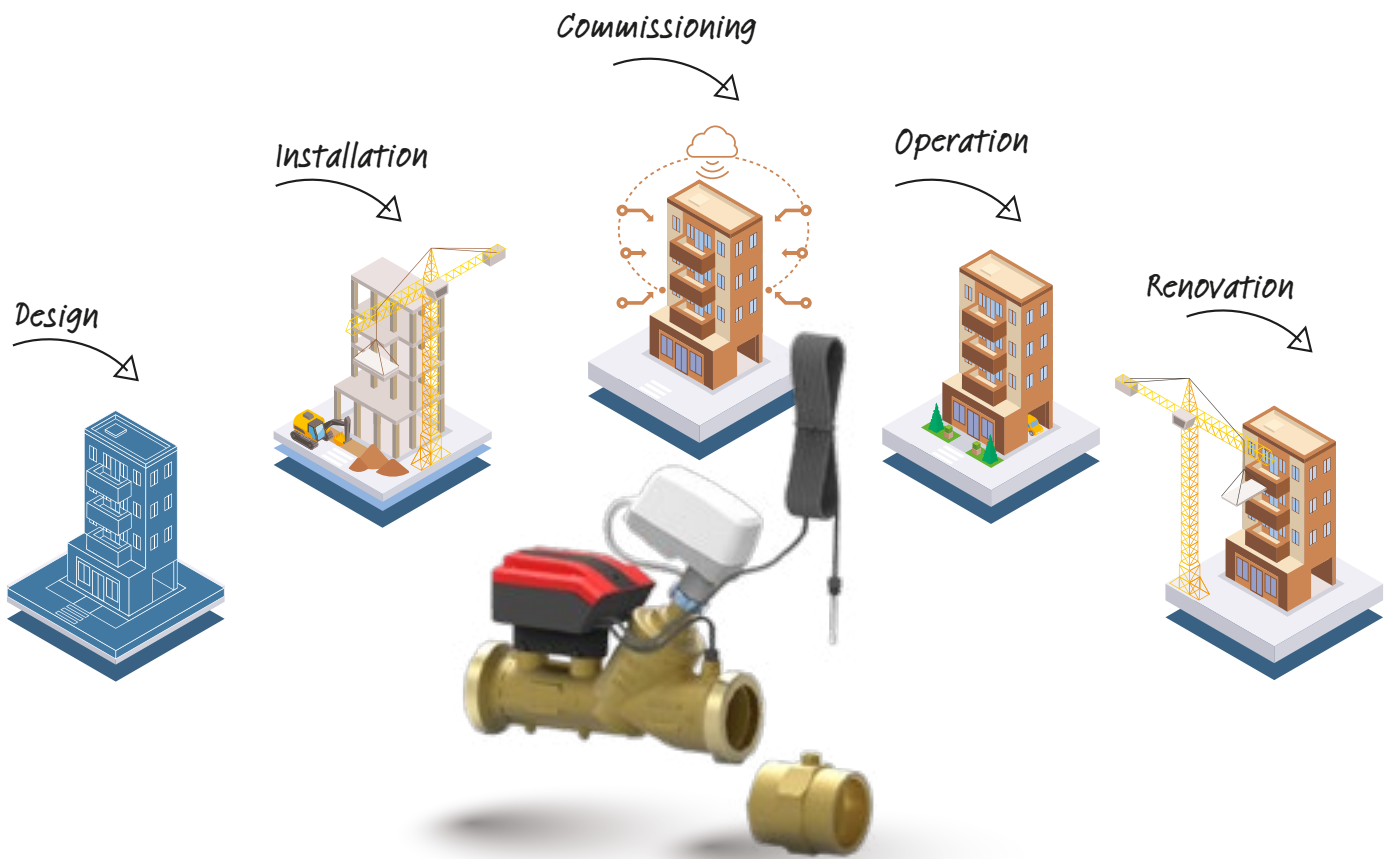
**TA-SMART-DP** – 2-way balancing & control valve with flow, temperature and power measurement capabilities and DP control

**TRANSFERO** – Pump based pressurization unit with water make-up and vacuum degassing

\* The valve can be installed in both the supply and return pipes.

\*\* Valve to ensure minimum flow rate of pump and ensuring flow through TA-Smart to avoid pressure spike at terminal unit.

# Benefits at every stage



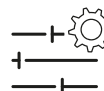
**Time savings**



**Energy efficiency**



**Certifications**



**Flexibility of use**














**Peace of mind**











**Comfort**

# Design











Feature	Benefit
<b>Compact Size</b>	<ul style="list-style-type: none"> <li>Fits into space restrictive spaces</li> </ul>  <p>Time savings</p>
<b>High Controllability &amp; Rangeability</b>	<ul style="list-style-type: none"> <li>Great control function no matter the existing flow regime delivering comfort under all circumstances</li> <li>Energy savings (terminal units' efficiency, boilers' efficiencies, pump head optimization)</li> </ul>  <p>Energy efficiency</p>  <p>Comfort</p>
<b>Smart Control</b>	<ul style="list-style-type: none"> <li>Versatility of control modes, operating according to q, P and <math>\Delta T</math></li> <li>TA-Smart continuously measures the flow rate electronically and balances fluctuations in available differential pressure, with no need for time-consuming calculations</li> <li>The Dynamic balancing system is very energy efficient and ensures great indoor comfort, even under part-load conditions.</li> </ul>  <p>Peace of mind</p>  <p>Energy efficiency</p>  <p>Comfort</p>  <p>Flexibility of use</p>
<b>Integrated Control &amp; Measuring function in 1 valve</b>	<ul style="list-style-type: none"> <li>No need to install additional components than a valve to meet both functions</li> <li>Helps meet green certification / regulation requirements for monitoring</li> </ul>  <p>Time savings</p>  <p>Certifications</p>
<b>Digital access to valve data</b>	<ul style="list-style-type: none"> <li>Full transparency of the valve settings and easy adjustments can be done at any time via remote access</li> <li>Fact-based analysis with verifiable hydronic performance at the end of the project, including energy-efficient operation</li> <li>Easy to identify and to correct potential system problems</li> </ul>  <p>Peace of mind</p>  <p>Energy efficiency</p>











# Installation

Feature	Benefit	
<b>Compact Size</b>	<ul style="list-style-type: none"> <li>• Fits into space restrictive spaces</li> </ul>	 <p>Time savings</p>
<b>Integrated Control &amp; Measuring function in 1 valve</b>	<ul style="list-style-type: none"> <li>• No need to install additional components to a control valve to meet both functions</li> </ul>	 <p>Time savings</p>  <p>Flexibility of use</p>
<b>Smart Control</b>	<ul style="list-style-type: none"> <li>• Rely on automatic hydronic balancing as you would with a PIBCV. This self-optimizing dynamic valve balances fluctuations in available differential pressure and automatically balances the system without the need for complex calculation and or flow regulating valves</li> </ul>	 <p>Peace of mind</p>  <p>Energy efficiency</p>  <p>Comfort</p>
<b>Valve construction</b>	<ul style="list-style-type: none"> <li>• Only 2 components needed for installation. Valve and actuator comes pre-assembled.</li> <li>• TA-Smart has been specially designed to be the easiest in the installation in the market</li> <li>• Limited space needed before and after the valve</li> <li>• No need to install union components to connect to the pipe</li> </ul>	 <p>Time savings</p>  <p>Flexibility of use</p>



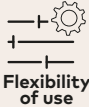

# Commissioning

Feature	Benefit
<b>Smart Control</b>	<ul style="list-style-type: none"> <li>Rely on automatic hydronic balancing as you would with a PIBCV. This self-optimizing dynamic valve balances fluctuations in available differential pressure and automatically balances the system without the need for complex calculation and or flow regulating valves</li> </ul> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Peace of mind</p> </div> <div style="text-align: center;">  <p>Energy efficiency</p> </div> <div style="text-align: center;">  <p>Comfort</p> </div> <div style="text-align: center;">  <p>Flexibility of use</p> </div> </div>
<b>Digital Configuration</b>	<ul style="list-style-type: none"> <li>No need of any additional device (laptop, dongle), cables or adaptors for commissioning, only your smartphone</li> <li>Ease &amp; speed of commissioning, automatic mesh in between TA-Smarts</li> </ul> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Time savings</p> </div> <div style="text-align: center;">  <p>Peace of mind</p> </div> </div>
<b>Versatility of communication</b>	<ul style="list-style-type: none"> <li>Flexibility and variability of communication protocols and free choice of control (BACnet, Modbus, Analog signal)</li> </ul> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Time savings</p> </div> <div style="text-align: center;">  <p>Flexibility of use</p> </div> </div>
<b>System Insights on the cloud</b>	<ul style="list-style-type: none"> <li>All circuit data is available directly on your Smartphone app or seamlessly forwarded to the cloud to allow for full system transparency and data-based analysis. This lets you check and verify values at any time even remotely</li> </ul> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Peace of mind</p> </div> <div style="text-align: center;">  <p>Energy efficiency</p> </div> </div>

# Operation

Feature	Benefit
<b>Dynamic Operation</b>	<ul style="list-style-type: none"> <li>The valve dynamically compensates for available differential pressure fluctuations –for optimum room comfort as well as high energy and cost efficiency.</li> <li>Static valves cause pressure fluctuations resulting inconstant room temperatures. TA-Smart is a dynamic valve it balances pressure fluctuations and stabilizes the indoor climate. This is highly efficient and leads to significant reduction in energy use</li> </ul> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Peace of mind</p> </div> <div style="text-align: center;">  <p>Energy efficiency</p> </div> <div style="text-align: center;">  <p>Comfort</p> </div> <div style="text-align: center;">  <p>Flexibility of use</p> </div> </div>
<b>Integrated Control &amp; Measuring function in 1 valve</b>	<ul style="list-style-type: none"> <li>No need to install additional components than a valve to meet both functions</li> </ul> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Time savings</p> </div> <div style="text-align: center;">  <p>Certifications</p> </div> </div>
<b>Transparent system insights</b>	<ul style="list-style-type: none"> <li>Digital access to valve data allows for full transparency on hydronic performance and fact-based analysis to easily verify hydronic performance, including energy-efficient operation and identify potential system problems</li> <li>Solve problems before they occur. TA-Smart continuously monitors values and records data. In case of irregularities, you can simply check where the problem is and correct it immediately. Even changes in building use or plant expansions are not a problem. This is how you can guarantee smooth operation – consistently and in the long term</li> </ul> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Peace of mind</p> </div> <div style="text-align: center;">  <p>Energy efficiency</p> </div> </div>

# Renovation

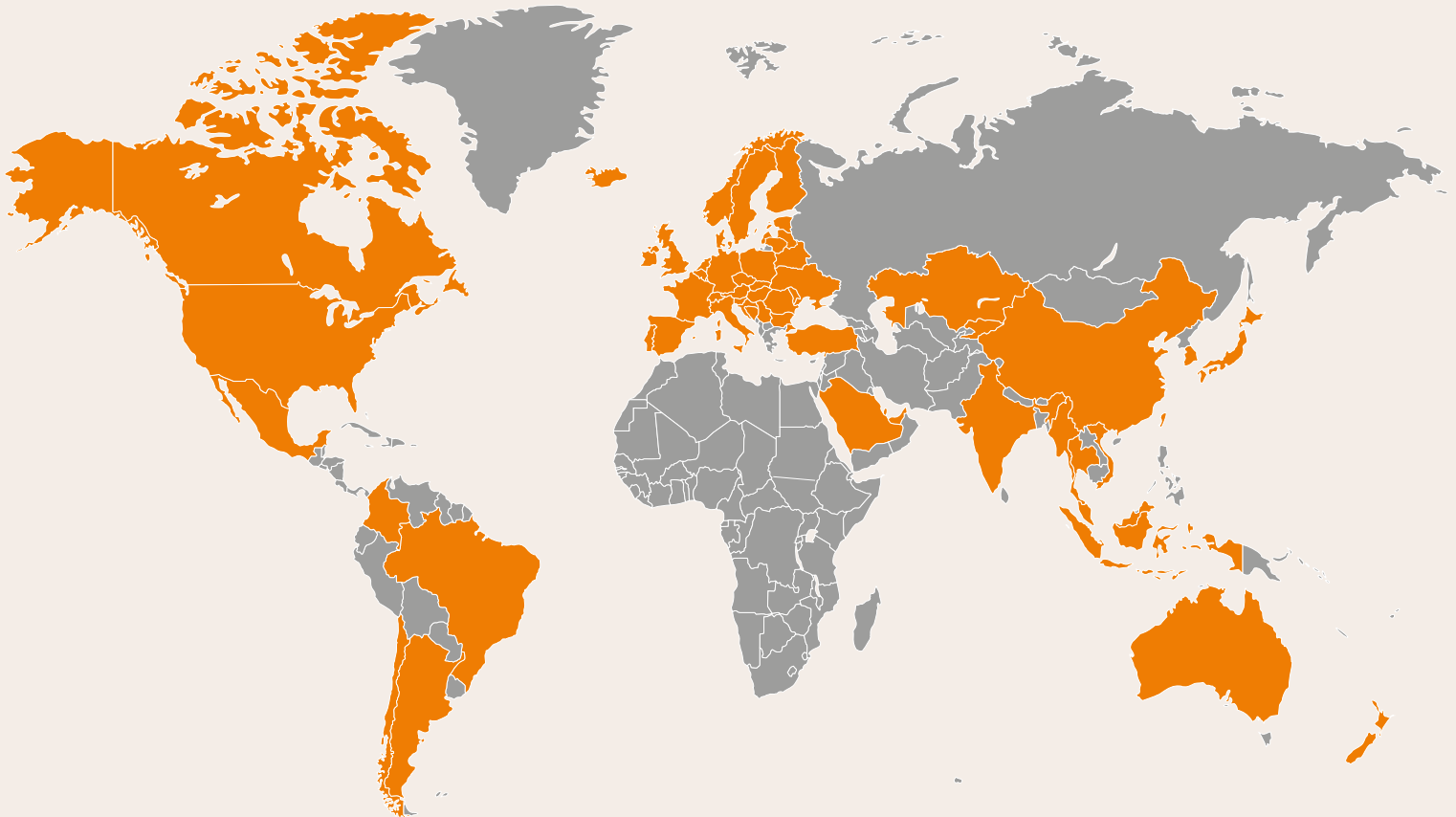
Feature	Benefit
<b>Compact Size &amp; valve construction</b>	<ul style="list-style-type: none"> <li>• Ability to retrofit without requiring additional piping work</li> <li>• Fits into space restrictive spaces</li> <li>• No need to install union components to connect to the pipe</li> </ul>  <p>Time savings</p>
<b>Great controllability</b>	<ul style="list-style-type: none"> <li>• Great control function no matter the existing flow regime, even in low flow conditions</li> <li>• Fast response time and best in class adaptability to the existing system conditions to deliver precise indoor comfort</li> </ul>  <p>Energy efficiency</p>
<b>Integrated Control &amp; Measuring function in 1 valve</b>	<ul style="list-style-type: none"> <li>• No need to install additional components to a control valve to meet both functions</li> <li>• Helps meet green certification / regulation requirements for energy monitoring</li> </ul>  <p>Flexibility of use</p>  <p>Certifications</p>

# How can we help you?

**We are operating in more than 33 countries, please get in touch with one of our local offices and our expert team will be happy to help you.**



If you want to know more, please scan the QR code and fill in the online form and our expert team will answer all your questions.



 **Contact us**  
**[imi-hydronic.com](http://imi-hydronic.com)**



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