

# FlowCon Green / GreEQ



## Pressure Independent Control Valves with 100% Authority

The FlowCon Green / GreEQ insert is designed as a 3-in-1 solution combining a full stroke modulation control valve, an automatic balancing valve and a differential pressure control valve. This insert includes an innovative diaphragm-based self-adjustment feature, which enables each valve continuously to self-balance. This ensures delivery of precisely the flow rate required by each terminal unit, independent of pressure fluctuations in the system. In addition, each insert can be adjusted to set an accurate maximum flow limit to each circuit without stroke limitation.

The FlowCon Green / GreEQ is a 100% authority pressure independent flow control valve which instantaneously self-balance at all points of operation, even when there is variance in pressure differential. As long as the pressure differential across the valve is within the operating range, the valve diaphragm is regulating nonstop ensuring constant differential pressure across the regulating element and thereby ensuring full authority. FlowCon Green / GreEQ will in other words always provide 100% authority for

any of its stepless-set 41 maximum flow settings, while maintaining full spindle stroke.

- **3-in-1 combi valve**, including modulating control valve, dynamic flow limiter and differential pressure control valve in one body.
- **100% authority pressure independent.**
- **Full stroke modulation** at any design flow.
- **Multiple Control Characteristics** available: Linear (Green) or Equal% (GreEQ) insert and Linear or Equal% actuator.
- **Easy solution to designers, installers and end-users** - due to its flexible complete solution and user-friendly setting.
- **Quick commissioning** as the insert can be **pre-set** prior to site-work or be **field adjustable** on demand.
- **Serviceable** - the insert can be adjusted or exchanged without removing the housing from the system.
- **"Sealed" setting** - actuator will cover the setting and **protect against tampering.**

# FlowCon Green / GreEQ

## Pressure Independent Control Valves with 100% Authority

### PICV with Actuator

Maintains correct flow despite pressure changes and guarantees that flow and actuator position only change when demand requirements change.

Size: DN15-40 / 1/2"-1 1/2".

Max. operational  $\Delta P$ : 800 kPaD / 116 psid.

Max. flow rates: 0.005-1.29 l/sec / 0.076-20.4 GPM.

Media temperature: -20°C to +120°C / -4°F to +248°F.

Static Pressure: 2500 kPa / 360 psi.

### Housings

The FlowCon Green / GreEQ insert can be used with the following FlowCon housings:

- FlowCon A - DN15-25 (1/2"-1").
- FlowCon AB - DN15-32 (1/2"-1 1/4").
- FlowCon ABV - DN15-40 (1/2"-1 1/2").

### Green / GreEQ Inserts

The insert range covers 20 mm / 3/4" insert in high and low  $\Delta P$  as well as one 40 mm / 1 1/2".

### FN, FNR and FT Actuators

FN: electrical actuators 0(2)-10V modulating, 3-point floating or 2-position.

FNR: electrical actuators 0-10V modulating, 3-point floating or 2-position.

FT: thermal actuators 0-10V modulating or ON/OFF.

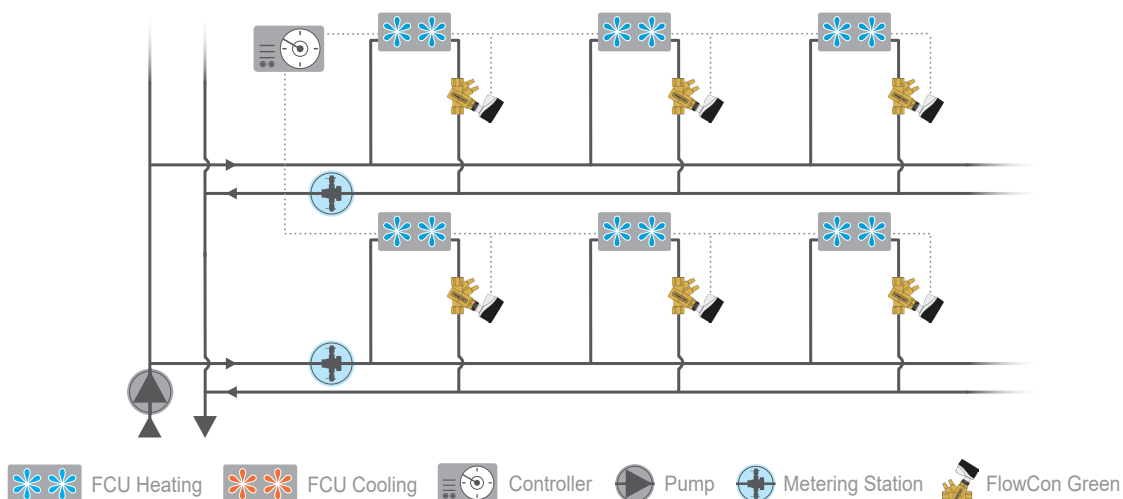
### Applications

Heating or cooling, Fan-coil units, Air-handler units and other terminal units - wherever dynamic balancing and fully accurate temperature control are required.

For further information visit [www.flowcon.com](http://www.flowcon.com)

### Application Example

Fan Coil Unit with Pressure Independent Control (PICV) - Modulating Control.



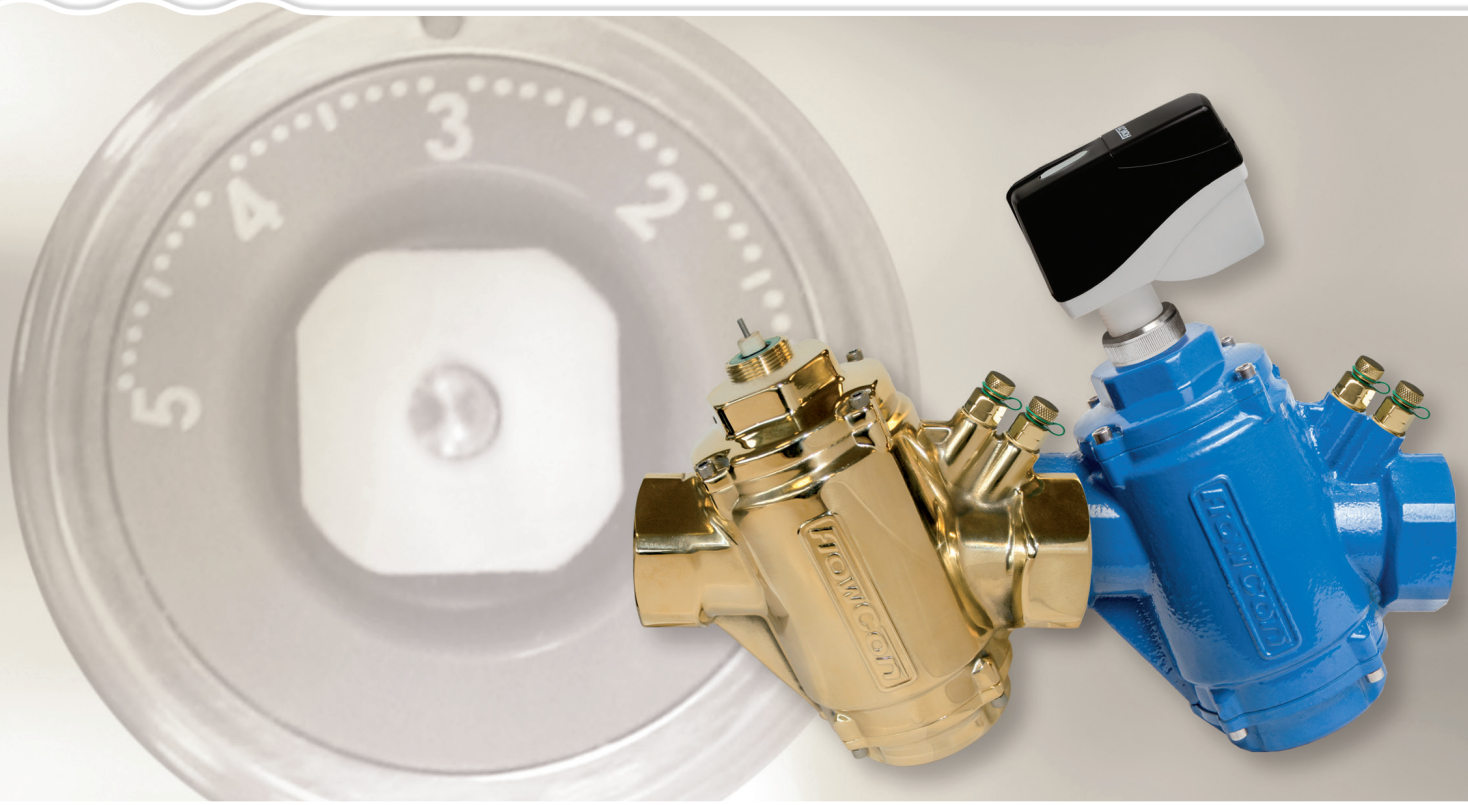
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# FlowCon Green.3



## 100% Authority - Pressure Independent Control Valve

The FlowCon Green.3 valve is a pressure independent dynamic control valve which meets today's HVAC requirements of reducing building running costs without increasing initial installation costs. The FlowCon Green.3 is an essential partner in the strive for reducing operational cost, energy consumption and CO<sub>2</sub> emission.

The valve includes an innovative self-adjustment feature allowing continuous mechanical self-balancing in all valve positions. Next to this, the valve is constructed in such a way that the valve stroke is unaltered regardless which of multiple design flow settings is selected. This ensures that each thermal unit controlled by a Green.3 valve is always supplied with the exact flow required for the specific system condition.

The FlowCon Green.3 valve is a true pressure independent control valve which always holds 100% authority. As long as the pressure differential across the valve is within the operating range, the Kv (Cv) of the valve is changing and continuously regulated

to maintain required flow. Any flow below design flow is controlled with full authority via the BMS through the valve actuator.

- **Compact one-unit PICV**, including modulating control valve, dynamic flow limiter and differential pressure control valve in one body.
- **100% authority pressure independent** - for any of the valve's pre-defined 41 max. flow settings.
- **Full stroke modulation** at any flow setting - for **full control** providing **accurate flow** also at reduced load.
- **Easy setting** and **Field adjustable** - flow setting is stepless and can easily be set to any design flow in the flow range. Setting can be done before or after installation and flow may be changed on demand without removing the valve from the installation.
- **"Sealed" setting** - actuator will cover the setting and **protect against tampering**.
- **Standard or failsafe actuator**; always incl. feedback signal - an **easy solution for designers, installers and end-users**.

# FlowCon Green.3

## 100% Authority - Pressure Independent Control Valve

### PICV with actuator

Maintains correct flow despite pressure changes and guarantees that flow and actuator position only change when demand requirements change.

Size: DN40-50 (1 1/2"-2")

Max. operational  $\Delta P$ : 800 kPaD (116 psid)

Max. flow rates: 0.528-3.79 l/sec (8.36-60.0 GPM)

Mediatemperature: -20°C to +120°C (-4°F to +248°F)

Static Pressure: 2500 kPa (360 psi).

### Housings

The FlowCon Green.3 is available in ductile iron or brass and in housing sizes covering:

- DN40 (1 1/2"), female/female threaded
- DN50 (2"), female/female threaded.

### FH actuator

Green.3 valves have their own high force actuator series including a standard and a failsafe version. No matter which version you choose you will get electrical modulation or digital control from the same actuator which also, as a built-in feature, will include feedback signal for BMS verification of flow.

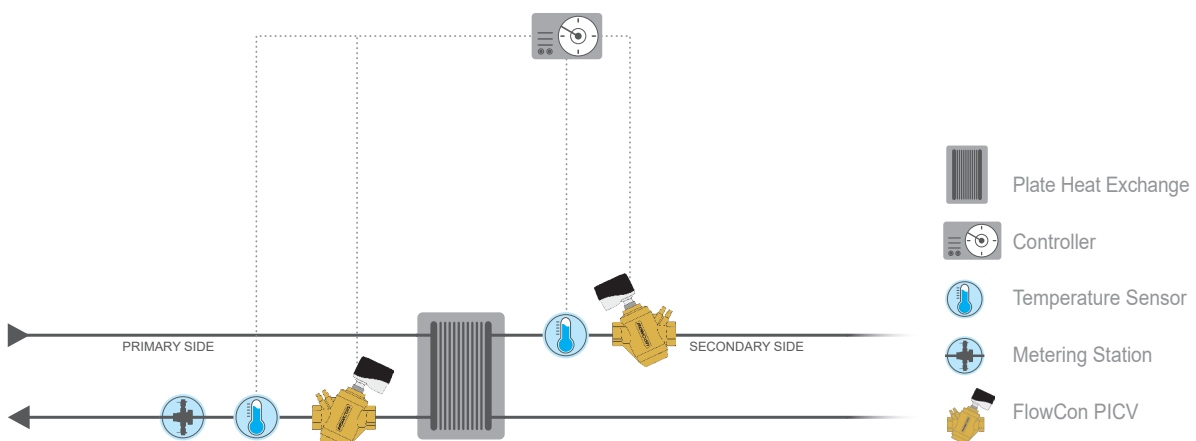
### Applications

The FlowCon Green.3 is designed to facilitate large fan coils, smaller air handling units, smaller heat exchangers or equivalent. In general, it is the optimal choice in any applications where efficient distribution of water - with focus on system pressure drop - is required. In addition, will FlowCon Green.3's low pressure drop and feedback option will make the valve ideal for Green Building projects.

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### Application Example

Plate Heat Exchanger with Pressure Independent Control (PICV) - Modulating Control.



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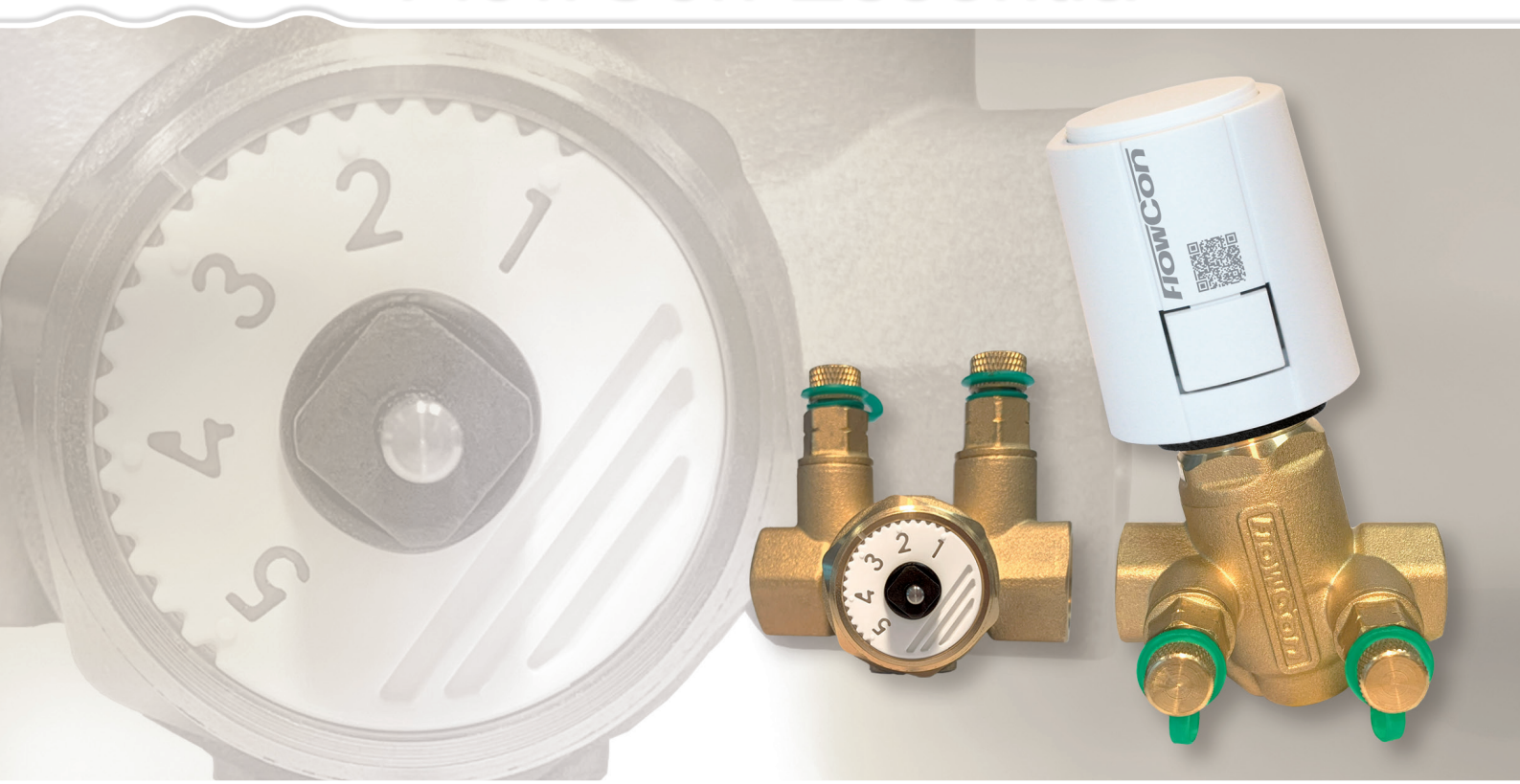
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# FlowCon Essentia



## The Essence of an Adjustable and Compact PICV

With FlowCon Essentia, PICV design is even more compact and is still able to deliver the same basic benefits as FlowCon's other adjustable PICVs.

Similarly, FlowCon Essentia is a 100% authority guaranteed pressure independent flow control valve with full stroke modulation. The valve will self-balance at all points of operation, even when exposed to variable control signals, providing optimal authority at all times. Despite change in the valve's maximum flow, the actuator will always have electrical control over the full valve stroke length.

The compact design of FlowCon Essentia provides a 3-in-1 complete unit covering three flow ranges from 0.00987 to 0.473 l/sec (0.156-7.48 GPM) in three  $\Delta P$  ranges up to 600 kPaD (87 psid). The valve offers stepless adjustment with 41 different setting indications between minimum and maximum flow.

Setting is done with the standard FlowCon adjustment key. Position is defined by a "mark" on the edge of the housing top.

- **Compact one-unit PICV**, including modulating control valve, dynamic flow limiter and differential pressure control valve in one valve housing.
- **100% authority pressure independent** - for any of the valve's pre-defined 41 max. flow settings.
- **Full stroke modulation** at any flow setting - for **full control** providing **accurate flow** also at reduced load.
- **Simple setting and field adjustable** - flow setting is stepless and is easily set either before or after installation. Setting may be changed on demand without removing the valve from the installation.
- **"Sealed" setting** - actuator will cover the setting and **protect against tampering**.
- Choice of thermal or electrical actuator.
- An **easy solution for designers, installers and end-users**.

# FlowCon Essentia

## The Essence of an Adjustable and Compact PICV

### PICV with Actuator

Maintains correct flow despite pressure changes and guarantees that flow and actuator position only change when demand requirements change.

Size: DN15-25 (1/2"-1")

Max. operational  $\Delta P$ : 600 kPaD / 87 psid

Max. flow rates: 0.00987-0.473 l/sec / 0.156-7.48 GPM

Media temperature: -20°C to +100°C / -4°C to +212°F

Static Pressure: 2500 kPa / 360 psi.

### EV and FN Actuators

- EV/EVP: thermal actuators 0-10V modulating or ON/OFF, normally closed.
- FN/FNP: electrical actuators, 3-point floating or 2-position.

### Applications

The FlowCon Essentia is particularly ideal for chilled ceilings, chilled beams or small FCUs. It can be used in both new installations as well as retrofit projects.

### Housings

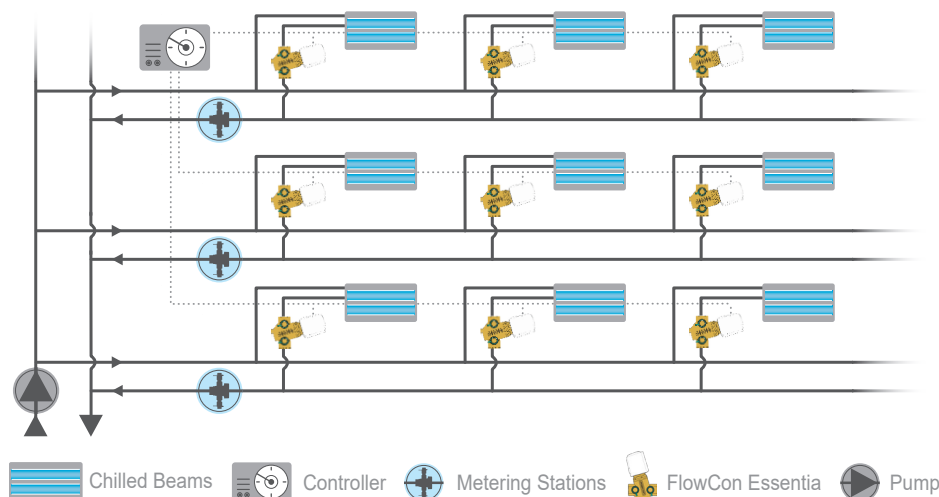
The FlowCon Essentia is available in housing sizes covering:

- DN15 (1/2"), female/female threaded
- DN20 (3/4"), female/female threaded
- DN25 (1"), female/female threaded
- DN15 (3/4"), male/male flat faced threaded.

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### Application Example

Chilled beams with Pressure Independent Control (PICV) - ON/OFF Control.



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# FlowCon SM



## The most Advanced PICV in the World with User-friendly Actuator

The FlowCon SM valve is a pressure independent dynamic control valve, which automatically keeps a constant differential pressure across the internal controlling orifice of the valve. FlowCon SM valve setting will limit flow to design flow at full load, and the FlowCon SM actuator will precisely and with full authority limit the flow requirement at any partial load. The dynamic flow characteristics keep the FlowCon SM in constant authority and automatically balanced. This ensures delivery of precisely the flow rate required by each unit, independent of pressure fluctuations in the hydronic system.

The FlowCon SM is a 100% authority pressure independent flow control valve, which instantaneously self-balance at all points of operation, even when there is variance in pressure differential. As long as the differential pressure across the valve is within the operation range, the Kv of the valve is regulated nonstop to keep the control valve in full authority.

All together, the choice for FlowCon SM will avoid extensive calculations, assessment of valve authority and over-sized control valves.

- **100% authority pressure independent** - for any of each valve's 51 max. flow settings.
- **User-friendly touch panel actuator** for **easy setting** of flow, control input, control mode etc.
- **Display actuator** as well as actuator feedback to BMS allow **monitoring** of valve performance.
- Optional **failsafe and BACnet actuator** versions available.
- **Wide range** from DN15-250 (1/2"-10") all using the same type actuator - an **easy solution for designers, installers and end-users**.
- Multi-rotational actuator - for **precise position** of the spindle providing **accurate flow**.
- **Multiple control modes** included providing **high accuracy**.

# FlowCon SM

## The most Advanced PICV in the World with User-friendly Actuator

### PICV with actuator

Maintains correct flow despite pressure changes and guarantees that flow and actuator position only change when demand requirements change.

Size: DN15-250 (1/2"-10").

Max. operational  $\Delta P$ : SM.1/2: 320 kPaD / 46 psid.

SM.3/4/5/6: 800 kPaD / 116 psid.

Max. flow rates: 0.176-76.8 l/sec / 2.79-1220 GPM.

Media temperature: -20°C to +120°C / -4°C to +248°F.

Static Pressure: SM.1/2: 2500 kPa / 360 psi.

SM.3/4/5/6: 4000 kPa / 580 psi.

### Housings

The FlowCon SM is available 6 different housing sizes covering:

- SM.1 - DN15-25 (1/2"-1"), union end connections.
- SM.2 - DN25-40 (1"-1 1/2"), union end connections.
- SM.3 - DN50-80 (2"-3"), flange connection.
- SM.4 - DN80-100 (3"-4"), flange connection.
- SM.5 - DN125-150 (5"-6"), flange connection.
- SM.6 - DN200-250 (8"-10"), flange connection.

### SM actuator

All SM valves can be fitted with the same type state-of-the-art actuator, which both in design and user-friendliness is unique. All features are selected directly on the touch panel or remotely via BACnet.

The actuator display continuously shows current flow rate and a range of additional valve information.

The SM actuator is electrical 0(2)-10V or 0(4)-20mA modulating, 3-point floating or 2-position in one and the same unit and always with feedback.

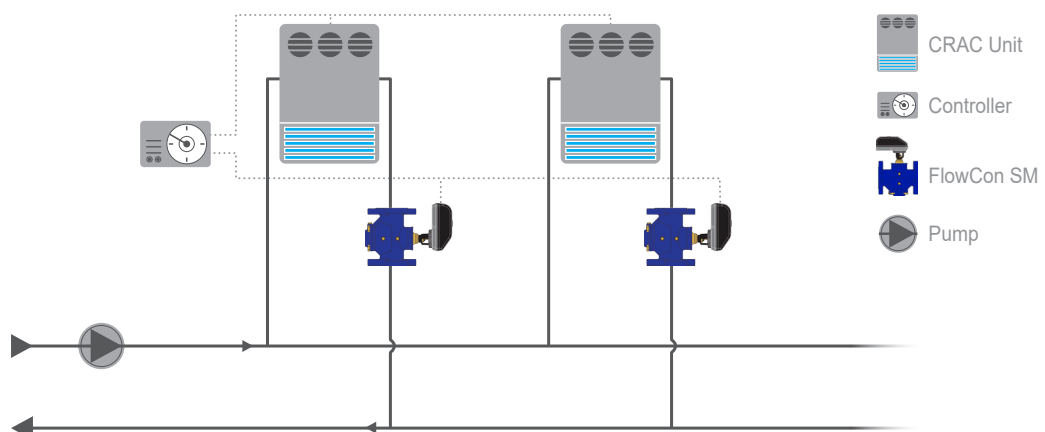
### Applications

The FlowCon SM is designed for HVAC installations. The 2-way regulation/control valve is used: in radiator heating circuits and inverted heat systems, on fan coil units, air handler units, CRAC units, heat exchangers and hot water tank systems - wherever dynamic balancing and fully accurate temperature control are required.

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### Application Example

CRAC Unit, Computer Room Air Condition with PICV Direct Control.



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