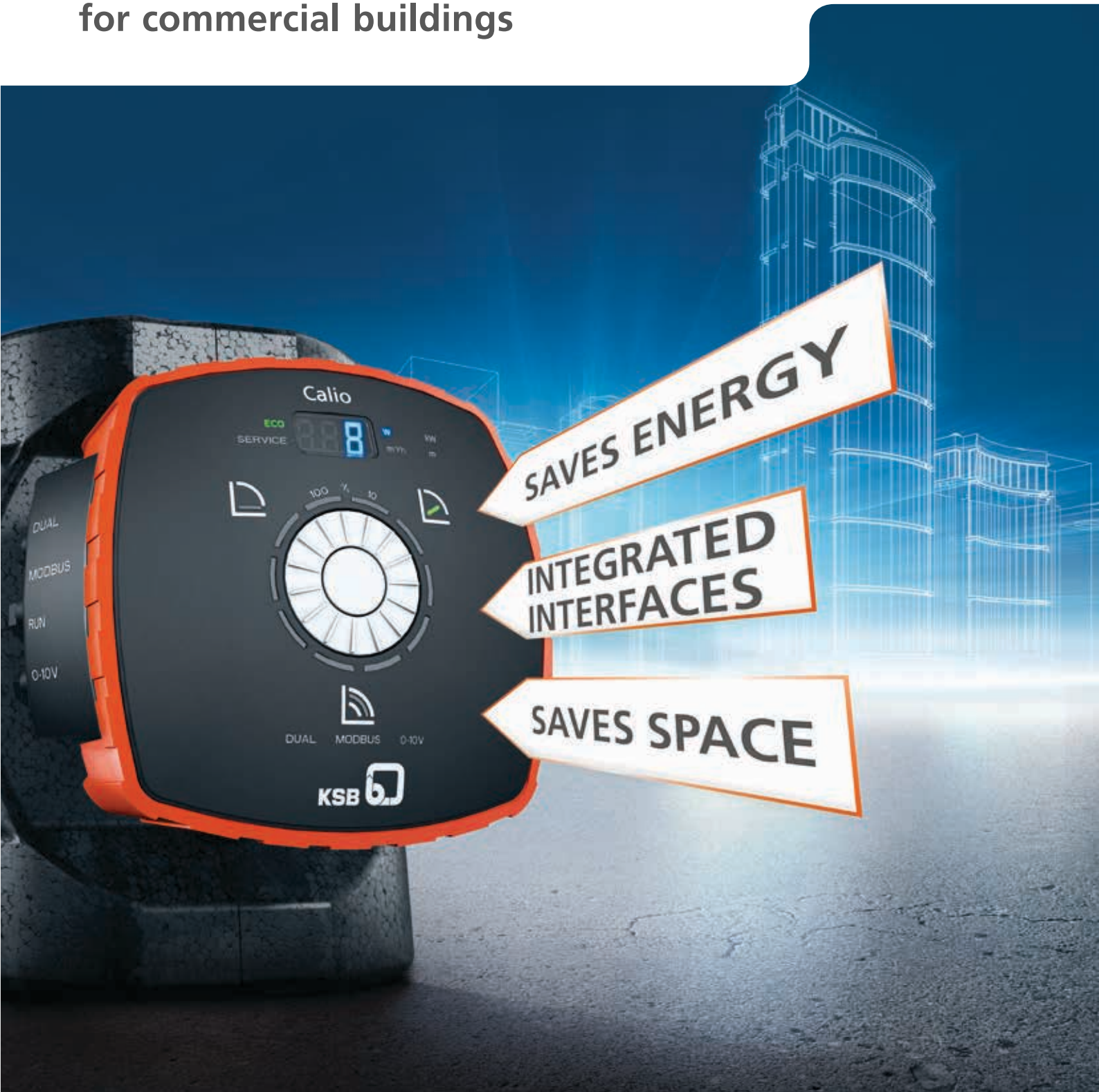
› **Our technology. Your success.**
Pumps ▪ Valves ▪ Service

Planning is simple: with Calio circulators for commercial buildings



Simply ingenious: heating, ventilation and air-conditioning from the full-liner

The future of heating ventilation and air-conditioning has a name: KSB. The full-liner offers a comprehensive range of pumps and valves as well as drive and automation solutions. In addition to outstanding products, such as Calio circulators, KSB provides a unique service: Around all products. Around the globe. Around the clock.

Calio: simply a perfect match

Calio is simply clever. It comes with all major interfaces and, compact in design, fits into any space. It is fast and straightforward to install. But that is not all: Calio is also highly innovative. Its unique Eco Mode achieves top efficiencies in the part-load range. This saves more than 40 % of the energy required for proportional-pressure control.

Applications

- Hot water heating systems
- Venting and air-conditioning systems
- Closed cooling circuits
- Industrial circulation systems

Simply more benefits

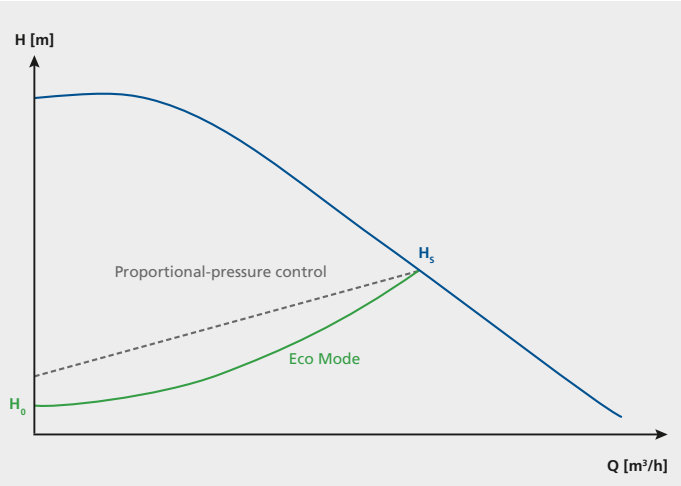
- Eco Mode saves energy costs
- Direct selection of the Modbus address via the display
- All major interfaces integrated
- Clever, space-saving design
- Fast to install and commission
- Simple to use
- Long service life with membrane technology preventing ingress of pollutants into the rotor space

Simply efficient: in the unique Eco Mode

Variable load profiles are the norm in heating, ventilation and air-conditioning applications. For top efficiencies also in the part-load range Calio has been designed with a special operating mode: the Eco Mode.

Eco Mode: simply save on operating costs

In Eco Mode the pump operated in part-load range adjusts the differential pressure to the system demand along a quadratic pump curve. A setpoint can be selected as a starting point for computing the characteristic curve. In addition to the familiar operating modes of Constant-pressure Control and Proportional-pressure Control, the newly developed operating software comprising an integrated energy-saving function called Eco Mode further saves the user considerable costs.



Your benefits

- **Lower energy and operating costs:** lower differential pressures per flow rate value than in Proportional-pressure Control mode
- **Power input reduced by more than 40 %:** compared with proportional-pressure control
- **H = k x Q²:** quadratic relationship between head and flow rate, unlike standard control modes
- **No flow noises:** no generation of unnecessarily high heads

Energy savings in excess of 40 % at the example of a Calio 40 – 100, Q = 12 m³/h, H = 5 m

Q = 100 %; t = 6 % **kWh full-load operation** 410 h	Q = 75 %; t = 15 % **kWh part-load operation** 1026 h	Q = 50 %; t = 35 % **kWh setback operation** 2394 h	Q = 25 %; t = 44 % **kWh low-load operation** 3010 h	**kWh sum** 6840 h	**[€]** **energy costs/year** **at 0.20 €/kWh**
Mode of operation (Δp - v) for variable differential pressure					
138.99	220.08	314.81	248.20	922.08	**184**
Eco Mode					
138.99	146.41	101.19	15.90	402.49	**80**

(Based on the load profile for circulators of the Blue Angel ecolabel, February 2007)

This example shows:

Compared with the Δp - v operating mode for variable differential pressure, the Eco Mode saves 519.59 kWh per year. At an energy price of 20 cents/kWh, savings amount to € 104/year. Per pump.


TOP EFFICIENCIES
ECO MODE
ENERGY SAVINGS OF 40 %+
Calio
ECO
SERVICE
W
kW
m³/h
m
100
%
10
DUAL
MODBUS
0-10V
KSB

Simply user-friendly – rather than complicated

Quick to connect and reliable to operate, Calio comes with interfaces and functions to process the common building services signals, so it can be linked to external systems without extra investment costs.

Interfaces and functions integrated in the pump

- Modbus
- Setpoint input 0 - 10 V
- External On/Off
- Volt-free general fault message relay
- Dual-pump configuration
- Volt-free "system operational" relay

Fast and simple to install

- Interfaces and functions integrated in the pump

Straightforward to commission

- Simple to use
- Display of electrical power input, flow rate and fault messages
- Symbols for operating mode

The replacement pump that saves costs

The high-efficiency Calio pump is the clever alternative for lowering energy consumption and costs. Calio pays, even when replacing pumps which are still functional: Savings from the first minute will quickly exceed the investment costs.

KSB Service: simply closer to you

Innovative solutions, short response times and comprehensive support from a single source. KSB is your perfect partner – from planning through to implementation. The right answer to all questions: **www.ksb.com/service**

Calio Z: Dual pump management with automatic pump changeover, changeover and peak load operation in the event of a fault

Technical data	Calio	Calio Z
Flow rate	Up to 50 m³/h	Up to 70 m³/h
Head	Up to 18 m	Up to 18 m
Fluid temperature:	-10 to +110 °C	-10 to +110 °C
Operating pressure	PN 6/10/16	PN 6/10/16
Process connection	Rp 1", 1¼" (screw-ended pump) DN 32, 40, 50, 65, 80, 100	Rp 1¼" (screw-ended pump) DN 32, 40, 50, 65
Electrical connection	1~230 VAC 50/60 Hz	1~230 VAC 50/60 Hz
Enclosure	IPX4D	IPX4D

Calio S: The clever circulator, ideal for use in single and multiple dwellings

www.ksb.com/calio-and-calio-s

Technology that **makes its mark**

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