

ClimaCon F 316

Room Thermostat for Six-Way Ball Valves



The ClimaCon F 316 room thermostat is used to control heat and cold consumers in four-pipe systems via six-way ball valves. It can be used, for example, to control heating and cooling ceilings, radiant ceiling panels or ceiling sails. The room temperature is automatically switched between heating and cooling – depending on whether the setpoint temperature is set above or below the room temperature. If the room temperature reaches the setpoint temperature, the six-way ball valve is controlled to the dead zone. With the ClimaCon F 316, a modular system solution is offered. An overview of the common solutions is given on the following pages.

The setback mode (Eco mode) saves energy, e.g. during absence or at night.

The room thermostat has a reduced display, with integrated time switch and setting options via app.

Features

- + Modular system solution
- + Intuitive operation
- + Energy-saving room temperature control
- + Easy installation, quick configuration
- + Appealing, modern design

Product Details

ClimaCon F 316 heating and cooling

The ClimaCon F 316 room thermostat with reduced display includes a dot-matrix display (58 white LEDs) for temperature indication. There are also backlit symbols (heating / cooling) and touch surfaces (Automatic and Eco modes as well as plus and minus and On/Off). The room thermostat can be configured with the ClimaCon app and an active Bluetooth connection (e.g. for setting time programmes). The ClimaCon app is available for Android and iOS smartphones. The settings are stored in the room thermostat.

Functions

- Dot-matrix display for visualisation of the setpoint temperature, the actual temperature, various error codes and the OFF display when the device is switched off
- LED display heating and cooling
- LED display with touch surfaces for adjusting the setpoint temperature via the Plus and Minus keys and for switching between Automatic and Eco mode
- Automatic switching between heating and cooling
- Possible modes: Automatic (daily or weekly schedule), Eco/ Setback, Manual
- Frost protection (6 °C/ 43 °F) is activated when the room thermostat is switched off
- Temperature limitation and offset temperature adjustable
- Valve protection function
- Direct connection of safety sensors (e.g. dew point monitor, safety temperature limiter)

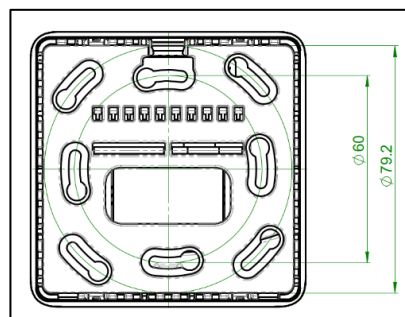


ClimaCon App


- Easy switching between applications in the app
- Setting of the limit voltages in the app
- Setting of the hysteresis
- Setting of the control parameters (P and I component)

Technical Data

Operating voltage	24 V AC ±15%
Switching current (short-time)	1 A (max. 5.5 W)
Temperature range	12...28 °C 54...82 °F
Setback/Eco-temperature	Adjustable in the app
Temperature control (depending on the application)	On/off control and/or modulating control (0...10 V)
Hysteresis	Adjustable
Correction offset	Adjustable, ± 3,0 K in 0.5 K
Potential-free contact	Max. 24 V, 90 mA DC/AC
Fuse	SMD (not exchangeable)
Bluetooth	BLE 5.0
App	For smartphones in portrait format (Android: 7.x; iOS: 13.x)
App languages	DE, EN, FR, PL, BG, ES, HR, NL, UA, RU, CN, RO, HU, DK, IT
Mounting	Surface mounting
Protection class	II
Protection type	IP 20
Colour	RAL 9003 (semi matt)



Mounting plate dimensions ClimaCon

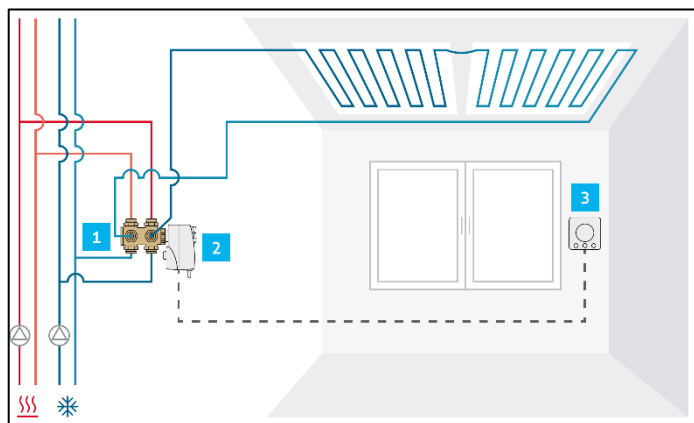
	Item no.	Power supply	Inputs	Outputs	W [mm]	H [mm]	D [mm]
	1155536	24 V AC/ 50...60 Hz	Safety sensors	On/off output 0...10 V output Setback output Potential-free contact	88	88	20

Applications

In combination with the Aktor R rotary actuator and the ClimaCon F 316 room thermostat as well as optional Kvs orifices or a control valve, complete solutions can be composed for flow regulation and individual room control of heating and cooling ceilings and other surface systems for combined heating and cooling.

Note: The ClimaCon F 316 has no integrated control of fan speeds and is therefore not suitable for use with units whose fan is controlled by the room thermostat.

INDIVIDUAL ROOM CONTROL WITHOUT FLOW LIMITATION



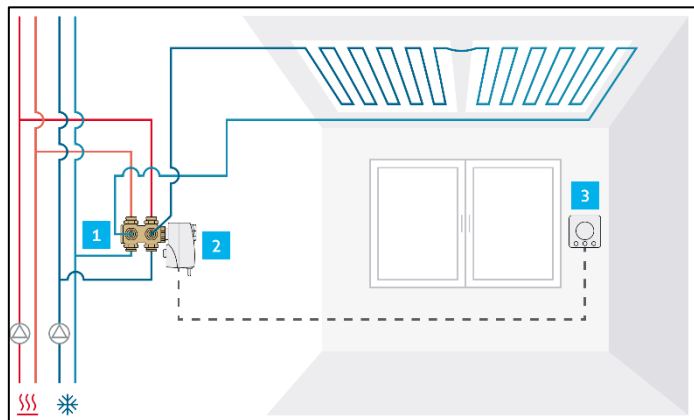
The Optibal W6 is always used with the Aktor R rotary actuator, which was specially developed for the Optibal W6. The ClimaCon F 316 room thermostat, on the other hand, was developed for use with the Aktor R and, if necessary, another Aktor M motorised actuator – see applications below. Modulating control of the Aktor R is carried out by the ClimaCon F 316 via a 0...10 V signal. The limit voltages for cooling, shutoff and heating are set by default.

The ClimaCon F 316 allows the control of other actuators for six-way valves. This may require parameterisation of the values for the limit voltages, which can be easily carried out with the ClimaCon app.

The following components are used for this application:

Position	Item	Notes	Item no.
1	Optibal W6 six-way ball valve	Select the suitable nominal size. The technical data are identical for both item numbers.	1132004 (DN 15) 1132006 (DN 20)
2	Aktor R rotary actuator	Suitable for all Optibal W6.	1132030
3	ClimaCon F 316 room thermostat	Application 1: Select "Six-way ball valve alone".	1155536

STATIC FLOW LIMITATION

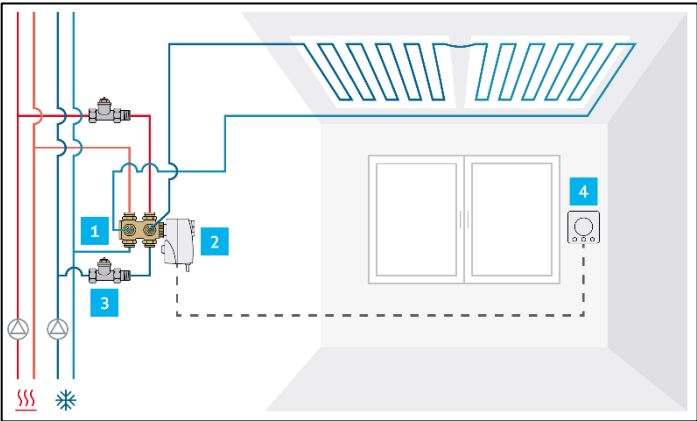


In conjunction with Kvs orifices, the flow rate for heating and cooling mode can be individually statically limited. The Kvs orifices are inserted in the supply or return of the respective connection before installation of the Optibal W6. Due to the shape of the orifices, they enable an almost linear characteristic line with a modulating 0...10 V control. The design ensures that the orifices are installed in the correct position. A set of Kvs orifices contains two orifices each with the Kvs value 0.25 – 0.4 – 0.63 – 1 – 1.6 and 2.5. Kvs orifices can also be installed later, but not under pressure, as the connection must be exposed for this.

The following components are used for this application:

Position	Item	Notes	Item no.
1	Optibal W6 six-way ball valve	Select the suitable nominal size. The technical data are identical for both item numbers.	1132004 (DN 15) 1132006 (DN 20)
	Kvs orifices for Optibal W6	Required 1 x per Optibal W6.	1132020
2	Aktor R rotary actuator	Suitable for all Optibal W6.	1132030
3	ClimaCon F 316 room thermostat	Application 1: Select "Six-way ball valve alone".	1155536

AUTOMATIC FLOW LIMITATION WITH AQ VALVES



The AQ valve has a pressure-independent control function. The maximum flow rate is set in litres per hour. One AQ valve each is installed in the heating circuit and in the cooling circuit upstream of the Optibal W6. The maximum flow rate of the respective circuit is thus limited and automatically regulated, independent of the differential pressure. The Aktor R rotary actuator of the Optibal W6 acts as a switching valve with modulating control and a 0...10 V control signal.

The control signal can be output by the ClimaCon F 316 room thermostat, for example. The ClimaCon F 316 is supplied with the appropriate limit voltages for heating, shutoff and cooling by default.

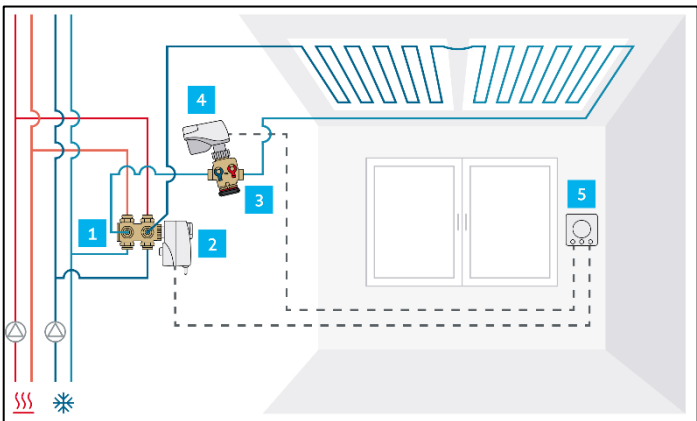
AQ valves can regulate up to 170 l/h, AQH valves (AQ valves with high flow rate) up to 420 l/h. Both regulate independently of pressure up to a differential pressure of 150 kPa (1.5 bar). It is not necessary to use actuators on the AQ valves, as these are only used for pressure-independent flow limitation. The modulating switching between heating – shutoff – cooling is carried out by the Aktor R rotary actuator.

The use of AQ valves allows pressure-independent flow limitation, individually for the cooling and heating circuit, without installation and wiring of additional actuators.

The following components are used for this application:

Position	Item	Notes	Item no.
1	Optibal W6 six-way ball valve	Select the suitable nominal size. The technical data are identical for both item numbers.	1132004 (DN 15) 1132006 (DN 20)
2	Aktor R rotary actuator	Suitable for all Optibal W6.	1132030
4	ClimaCon F 316 room thermostat	Application 1: Select "Six-way ball valve alone".	1155536
From the valves listed in position D, select one for the heating circuit and one for the cooling circuit. The nominal size should match that of the Optibal W6 to avoid reductions.			
3	AQ valve , straight version ¹	Control range 10...170 l/h	1183164 (DN 15) 1183166 (DN 20)
	AQH valve , straight version ¹	Control range 35...420 l/h	1183194 (only available in DN 15)

AUTOMATIC FLOW LIMITATION WITH COCON QTZ CONTROL VALVES



For larger volume flows, Cocon QTZ valves can also be used instead of AQ valves. For automatic hydronic balancing, the Cocon QTZ is installed in the return of the consumer, i.e. downstream of the Optibal W6.

The Cocon QTZ is typically equipped with an Aktor M motorised actuator. In this application, the room temperature is controlled via the Aktor M motorised actuator on the Cocon QTZ. Modulating control of the Aktor M is carried out by a 0...10 V control signal.

In this application, the Aktor R rotary actuator on the Optibal W6 only works as a switching valve and is controlled via an on/off signal. The ClimaCon F 316 room thermostat is able to

perform both the on/off control of the Aktor R rotary actuator and the modulating control of the Aktor M motorised actuator

¹ Also available in angle version.

simultaneously. The ClimaCon F 316 has no integrated control of fan speeds and is therefore not suitable for use with units whose fan is controlled by the room thermostat.


The following components are used for this application:

Position	Item	Notes	Item no.
1	Optibal W6 six-way ball valve	Select the suitable nominal size. The technical data are identical.	1132004 (DN 15) 1132006 (DN 20)
2	Aktor R rotary actuator	Suitable for all Optibal W6	1132030
5	ClimaCon F 316 room thermostat	Application 1: Select "Six-way ball valve alone".	1155536
Select only ONE of the valves listed under position D. The nominal size should match that of the Optibal W6.			
3	Cocon QTZ pressure-independent control valve	Control range 30...210 l/h	1147504 (DN 15, without measuring valves) 1148504 (DN 15, with measuring valves)
		Control range 150...1050 l/h	1147704 (DN 15, without measuring valves) 1148704 (DN 15, with measuring valves)
		Control range 200...1300 l/h	1147404 (DN 15 without measuring valves) 1149404 (DN 15, with measuring valves)
		Control range 250...1800 l/h	1147306 (DN 20, without measuring valves) 1149306 (DN 20, with measuring valves)
4	Aktor M motorised actuator	24 V AC/DC, modulating 0...10 V	1012717

Accessories


Optibal W6 six-way ball valve

For switching between heating and cooling, DN 15 or DN 20.

	Suitable for	Item no.
	ClimaCon F 316	1132004 (DN 15) 1132006 (DN 20)


AQ/AQH valve

Pressure independent valve with infinitely adjustable presetting.

	Control range	Item no.
	10...170 l/h	1183164 (DN15) 1183166 (DN20)
	35...420 l/h	1183194 (DN15)


Aktor R ST L rotary actuator

For precise control of the six-way ball valve.

	Suitable for	Item no.
	Optibal W6 DN15 and DN 20	1132030


Cocon QTZ pressure independent control valve

For dynamic volume flow control.

	Control range	Item no.
	30...210 l/h	1147504 (DN 15, without measuring valves) 1148504 (DN 15, with measuring valves)
	150...1050 l/h	1147704 (DN 15, without measuring valves) 1148704 (DN 15, with measuring valves)
	200...1300 l/h	1147404 (DN 15, without measuring valves) 1149404 (DN 15, with measuring valves)
	250...1800 l/h	1147306 (DN 20, without measuring valves) 1149306 (DN 20, with measuring valves)


Sensor GA FD dew point monitor

Is required in conjunction with room thermostats to protect against condensation on cooling surfaces.

	Suitable for	Item no.
	24 V ClimaCon Room thermostats	1141951

Aktor M motorised actuator

For Cocon QTZ control.

	Description	Item no.
	24 V AC/DC, modulating 0...10 V	1012717