

PDS 46.150 en product data sheet flexotron®400

flexotron®400: Electronic Controller for Simple Applications

Areas of use

Used universally in ventilation and heating systems, or in similar applications

Features

- Preinstalled applications for ventilation and heating
- Easy configuration via the backlit display
- Operation via push knob
- Language-independent display with symbols
- Weekly programme (depending on variant)
- Frost protection functions (depending on variant)







Product

Туре	Description
RDT405F201	Universal controller, 24 V~, 5 inputs/outputs, with LCD unit
RDT410F201	Universal controller, 24 V~, 10 inputs/outputs, with LCD unit
RDT410F301	Universal controller, 230 V~, 10 inputs/outputs, with LCD unit

Technical data

Electrical supply			
Power supply	24 V~, ±15%, 5060 Hz		
	230 V~, +10%/-15% 5060 Hz		
	(only RDT410F301)		
Dissipated power	4 VA, 2 W (RDT405)		
	7.5 VA, 5 W (RDT410)		
Start-up current	16 A (2 ms) 24V~ devices		
	23 A (2 ms) 230 V~ devices		

Sp	ecif	icat	ions

Control characteristic	PI, PID, P/PI	
	Depending on model / control mode	
P range Xp	080 K (RDT405)	
	099 K (RDT410)	
Integral action time	0990 s	

Setting and measuring ranges

County and modelaning ranges	
Measuring range for normal temperature	-2060, 20100, 60140°C (RDT405)
	580, -3050°C (RDT410)
External setpoint	040°C
Humidity	0100% rh
Pressure sensor	1002500 kPa for 100% signal
CO ₂	109900 ppm for 100% signal

Ambient conditions

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Permissible ambient temperature	050 °C
Storage and transport temperature	-2070 °C
Permissible ambient humidity	595% rh. no condensation

Inputs and outputs

Analogue inputs		Ni1000 (DIN 43760)		
Digital inputs		Potential-free contacts		
Universal inputs		Ni1000, 010 V or potential-free		
		contact		
Analogue outputs		010 V, 2 mA, protected against		
		short circuit		
Digital outputs	RDT410F201	Triac, 24 V~, 0.3 A (DO1, DO2)		
	RDT410F301	Triac, 24 V~, 0.16 A (DO1, DO2)		
	Relay RDT410	230 V~, 1000 VA		

Structural design

Dimensions W x H x D	122 x 121 x 64 mm (with terminals)	
Screw terminals	Pluggable terminals, for connecting	
	cables up to 1.5 mm ²	
Fitting	Top-hat rail, switch panel	
	(with accessories)	
Housing material	PC+ABS	

Standards, directives

Type of protection	IP 20 (when installed)	
CE conformity as per		
EMC Directive 2004/108/EC	EN 61000-6-1, EN 61000-6-3	

Additional information

Fitting instructions		P100011436
Material and environmental declaration		MD 46.150
Connection diagram RDT405		A10772
	RDT410	A10773, A10774
Dimension drawing		M11514
Short manual RDT405		P100011692
Short manual RDT410		P100011654
User manual RDT405		P100012100
User manual RDT410		P100012103

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Accessories

Туре	Description
XYE460F001	Demo case for flexotron®400
0460240001	Pluggable terminal strips for flexotron®400/800
0460240010	Cabinet fitting kit for flexotron®400
EGT338F102	External setpoint adjuster, room operating unit with potentiometer

Inputs and outputs

Туре	RDT405F201	RDT410F201	RDT410F301
Analogue inputs	1	2	2
Digital inputs	1	2	2
Universal inputs	1	1	1
Analogue outputs	2	2	2
Digital outputs	-	3	3
Display	•	•	•

Definition

The flexotron®400 devices are digital, pre-configured controllers for ventilation systems in building automation.

The devices feature five different prepared applications and can be operated using the push knob. The display is language neutral and displays the operating statuses and other indicators using symbols. The display is backlit; the light is activated when the operating knob is pressed or turned.

The flexotron®400 devices are available in various models, RDT405 with 5 inputs/outputs and RDT410 with 10 inputs/outputs, the latter in the variants with 24 V~ or 230 V~ supply voltage.

Engineering notes

3-point activation of the valves:

- With the RDT410F301, the valve actuators must be activated using coupling relays.
- For actuators and devices with 24 V~, the LS terminal (24 V) of the RDT is connected to the MM terminal (ground in SAUTER devices) of the actuators. If additional components are connected in the system, you must be sure to avoid ground faults. If required, coupling relays are used to activate the actuators.
- With actuators with 24 V=, the valve actuators must be activated using coupling relays.

The ground wiring for the analogue inputs and outputs and the universal inputs must be performed according to the diagram and separately in order to avoid measurement errors.

Configuration and parameterisation

The unit is configured and parameterised using the built-in display and push knob.

Access rights

The devices have various access rights, which can be activated using the push knob. All devices have a configuration menu, and the RDT410 has an additional menu for the time programme.

You can access the corresponding menus by pressing the push knob for 10 or 3 seconds.

External setpoint

The option EGT338F102 can be used to set an external setpoint of 12...28°C. This signal is activated in the configuration menu.

Alarms

With the RDT410 devices, the corresponding symbol flashes on the display in case of alarm. Four different alarms can be displayed: frost protection, overtemperature, fan operating message and sensor fault.

Time programme

Both variants of the RDT410 have a weekly time-switch. There are a total of four switching intervals available, which can be assigned to individual or all working days, or to all days of the week.

Activating the valves

With the RDT410, the valves can be activated with 0... 10 V or alternatively via 3-point activation. When using a 3-point actuator, the alarm output cannot be used.

With the RDT405, only the 0...10 V variant is possible.

Universal input for RDT410

There are four different setting options for the universal input UI1: frost protection on analogue output AO1, frost protection on analogue output AO2, overtemperature limit switch or unallocated input.

Overview of the control models

The flexotron®400 controllers have the following control models

RDT405:

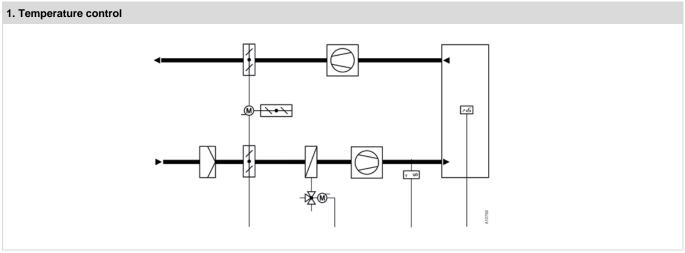
- Temperature control
- CO2 control
- · Universal control, e.g. humidity
- Pressure control
- Outside-temperature sensing pressure control

RDT410:

- Supply-air temperature control
- Outside-temperature sensing supply-air temperature control
- Return-air (room) supply-air cascade control
- Heating circuit control with heating curve
- DHW control

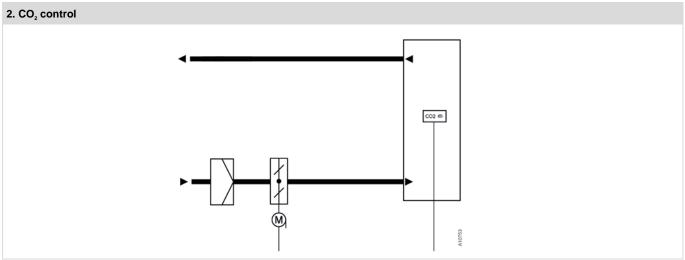


Control models of the RDT405



A PI control loop is used. The analogue outputs can be configured for the following combinations.

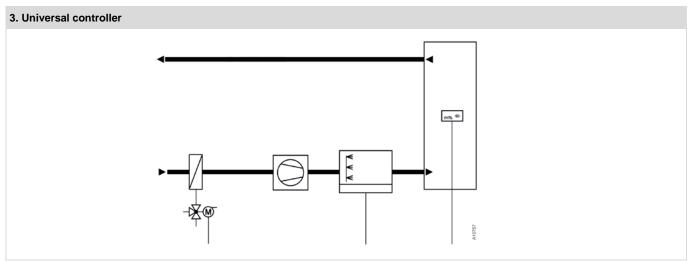
	AO1 Heating	AO2	Display symbols	
1			٠ - ١٠	
2	Cooling		, X	
3	Heating	Cooling	\/ -\\\-\\	
4	Heating	Heating	11 -88-	
5	Cooling	Cooling	// 3/6 3/6	
6	Heating	Damper	V * 1	
7	Cooling	Damper	v * 7	
8	Change-over	_	3	



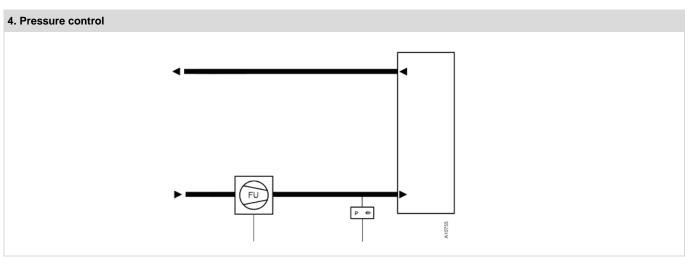
A PI control loop is used. Min./max. limitation of the output is possible.

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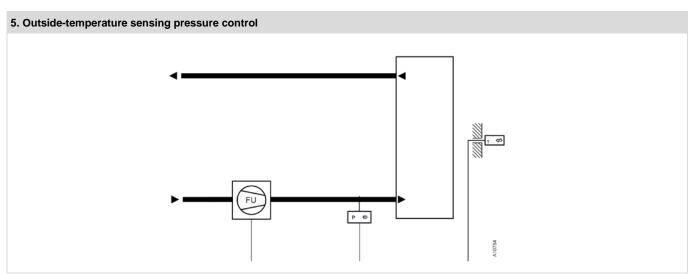




A PI-controller is used. With humidity control, humidifying is accomplished with AO1 (positive control) and dehumidifying with AO2 (negative control).



A PI control loop is used. The pressure transmitter must have an output signal of 0...10 V. The measuring range can be adjusted up to 2500 kPa.

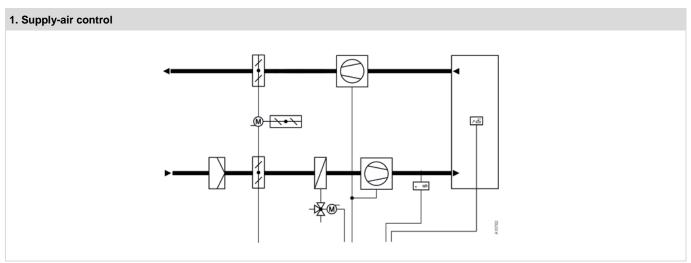


A PI control loop is used. The pressure setpoint is defined depending on the outside temperature; the temperature range is set to 20...60°C. The pressure transmitter must have an output signal of 0...10 V. The measuring range is adjustable up to 2500 kPa.

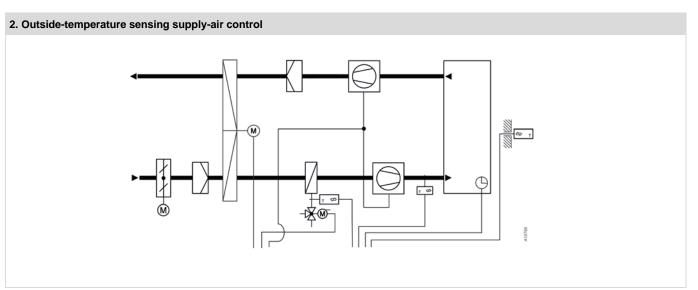


Control models of the RDT410

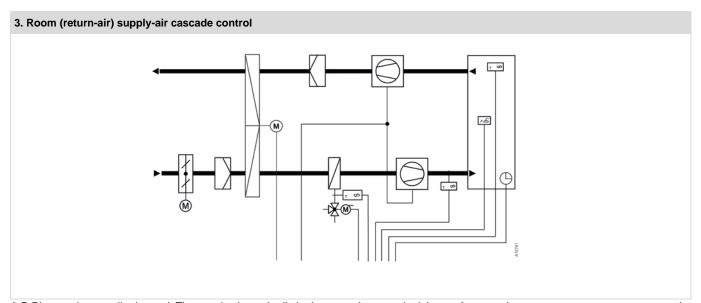
The control modes are for both variants of the RDT410, regardless of whether they are 24 V or 230 V variants.



A PI control loop is used.



A PI control loop is used. The setpoint is defined automatically depending on the outside temperature.



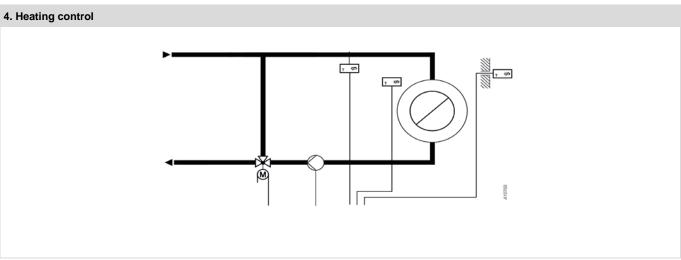
A P-PI cascade controller is used. The supply air can be limited to a maximum and minimum. A return-air or room-temperature sensor must be used.

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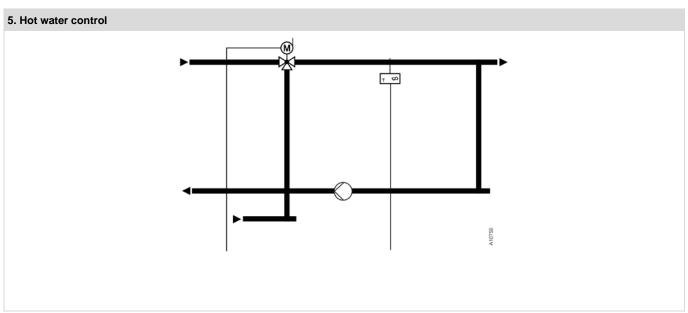


In the control modes 1 to 3, the analogue outputs can be selected for the following combinations.

	AO1 Heating	AO2	Display symbols	
1			V.	-X-
2	Cooling	1.50	,	**
3	Heating	Cooling	1/	-Ö- 🗱
4	Heating	Heating	11	-ÖÖ-
5	Cooling	Cooling	11	* *
6	Heating	Damper	\/	* 🛱
7	Cooling	Damper	\/	* 0

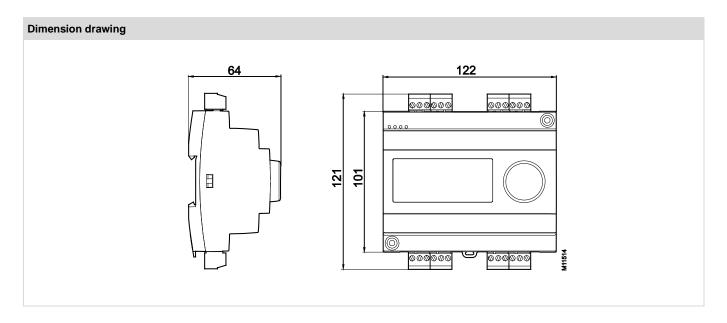


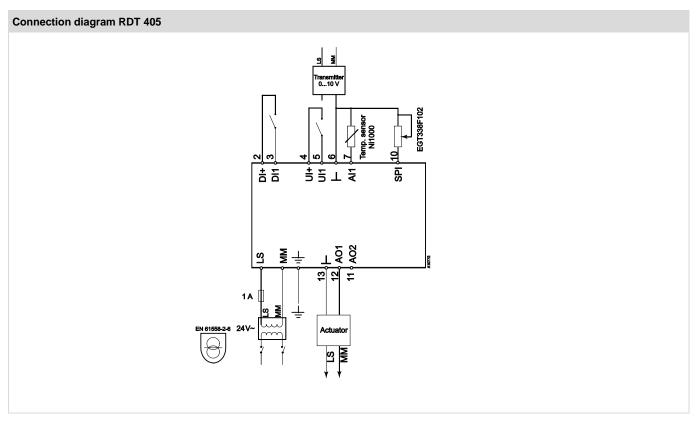
A PI control loop is used. The setpoint of the supply temperature is defined automatically depending on the outside temperature.



A PID control loop is used.



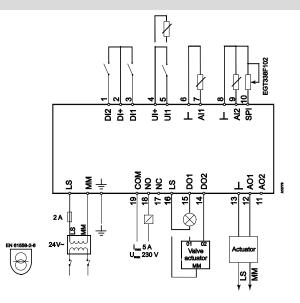


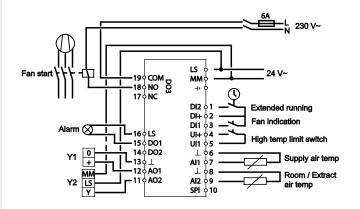


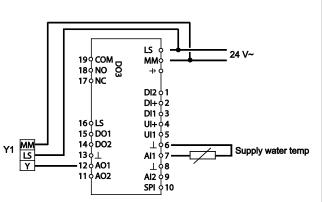
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Connection diagram RDT410F201





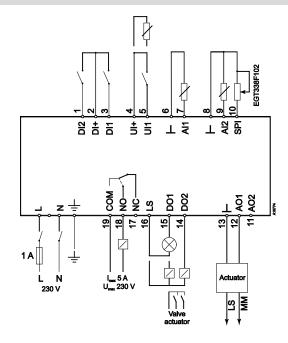


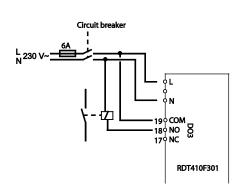
Terminal assignment: RDT410 with heater (electric) and dampers. cascade control

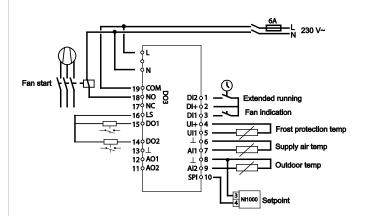
Control mode 5: Terminal assignment RDT410F201 with 0...10 V actuator

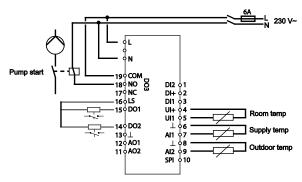


Connection diagram RDT410F301









Terminal assignment RDT410F301 with heater (water), 3-point output. Outdoor-temperature sensing supply-air temperature control with external setpoint transmitter.

Control mode 4: Terminal assignment RDT410F301 with 3-point actuator and room-temperature sensor (possible use without room sensor)