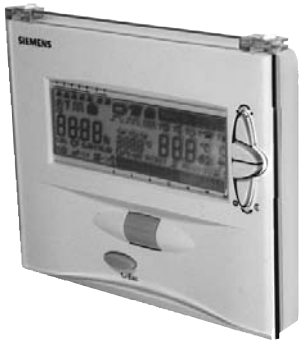

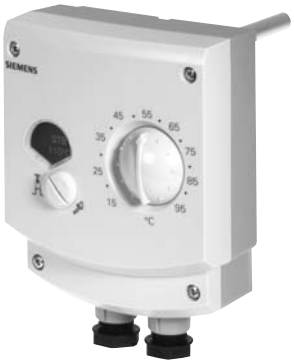

9

SIEMENS

Building Technologies

Thermostats and room controllers

- General
- Product range overview
- Thermostats

Thermostats overview
The thermostat range of Siemens includes products for individual room control, for pipe- and duct-mounting and frost protection.

The new thermostat range has arrived
Consisting of 16 families, the range covers almost every commonly encountered application in heating, cooling or ventilation. It offers an unbeatable price/performance ratio and is presented in a unified and elegant design. Applications include low voltage (AC 230 V) and extra low voltage (<AC 50 V). All devices meet the requirements for CE marking.

Selection criteria

	ON/OFF control		Modulating control (3-position, D...10V, communication)
Heating only/ cooling only	**RAA** 	**RCU10** **RCU10.1** 	**REV300** 
	RDD 	**RDE** 	**REV33** 
	RAV 	**REV12, REV16, REV23, REV26, REV100, REV200** 	**REV23M** 
	TRG2 	**RAK -TR** **-TW** 	
Heating, cooling and ventilation	**RAB** 	**RCC** 	**RCC50.1** **RCC60.1** 
		RDF 	**RDF50.1** **RDF60.1** 
Heat pump		**RDX** 	**RCU20** **RCU60..** **RCU61..** 
			RDU 
Monitoring	**QAF81** 	**RAZ** 	**QAF63/64** 
		RAK -ST **-TB** 	

©Siemens Switzerland Ltd.
Building Technologies / HVAC Products

Made-to-measure control solutions
Cost-effective application-specific products are available for mostly non-communicating individual room control with
- Heating/cooling
- Fan-coil units
- Variable air volume systems (VAV)
- Air ducts

The products operate in standalone mode.

For fan-coil units, the range includes simple ON/OFF products and versatile products with two proportional sequences and automatic fan control.

For heating only and/or cooling only, a wide range of products are available from a simple mechanical controller up to a 3-position controller with touchscreen interface.

For the monitoring of heating systems, domestic hot water heating and frost protection in air ducts, different variants of the RAK/RAZ and QAF families are available.

Heating only/cooling only

The RAK/RAZ product family
The electromechanical capillary tube thermostats RAK-TR, RAK-TW with integrated changeover contact are clamp-on thermostats and immersion thermostats in one. The RAZ-TW is a combination of RAK-TR and RAK-TW. All these thermostats convince by their robustness and installation friendliness.

The RAA product family
These electromechanical ON/OFF room temperature controllers are designed for the simplest heating and cooling applications.

The RCU/RDU product family (universal)
The RCU/RDU microprocessor-based room temperature controllers are designed for heating and cooling applications with 0...10 V, 3-position and ON/OFF field devices. RDU room temperature controllers have a digital display (LCD) and their additional functionality extends the variety of applications.

The RDD product family
The microprocessor-based room temperature controllers in the RDD product family have a digital display (LCD). They are available with a simple time setting facility. The controllers are designed for simple heating control with a 2-position control algorithm. Battery-powered and AC 230 V versions are available.

The RDE product family
The microprocessor-based room temperature controllers in the RDE product family have a digital display (LCD). They are available in a version with a 7-day program. These controllers were developed for simple heating control with a 2-position control algorithm. Battery-powered and AC 230 V versions are available.

The REV product family
The programmable room temperature controllers REV.. have a digital display (LCD). They ensure optimum comfort in apartments and single-family homes, at the same time lowering costs by reducing energy consumption: for example, via the function «automatic optimization» (self-learning control algorithm). They are available in 24-hour or 7-day time programmable versions with options for remote switching (via telephone), touchscreen display, 3-position controlling, wireless connection between controller and receiver as well as connection to an «OpenTherm Plus» capable boiler.

The RAV product family
The programmable room temperature controllers RAV are ideal for users who prefer analog rather than digital operation. They ensure optimum comfort in apartments and single-family homes, at the same time lowering costs by reducing energy consumption: for example, via the function «automatic optimization» (self-learing control algorithm). Our range includes battery-powered RAV11. Based on the application, the RAV11.x is equipped with an analog 24-hour or 7-day time switch.

©Siemens Switzerland Ltd.
Building Technologies / HVAC Products

Heating and cooling

The RAB product family
The electromechanical ON/OFF room temperature controllers in the RAB family are designed specifically for fan-coil systems. They are used for control in simple 2-pipe and 4-pipe systems.

The RCC product family
The RCC room temperature controllers are based on microprocessor technology and are designed specifically for moderately complex to complex fan-coil systems. They can be used for 2-pipe and 4-pipe systems.

The RDF product family with display
RDF is a family of microprocessor-based fan coil controllers with digital display (LCD). They can be used for cooling, heating or cooling and heating with automatic changeover. The display and the elegant design make them especially suitable for offices or hotels where a display is required. There are variants for 2-pipe and 4-pipe systems and options for simple ON/OFF, 3-position or analog output signals.

The RDX product family with display
RDX is a family of microprocessor-based controllers with digital display (LCD). It is designed for 1- or 2-stage heating and 1-stage cooling with fan coil as well as heat pump applications with 1-stage compressors and reversing valve.

VAV

The RCU/RDU product family (VAV)
The RCU/RDU microprocessor-based controllers are designed for VAV room temperature control acting on 0...10 V, 3-position or ON/OFF field devices. RDU room temperature controllers have a digital display (LCD) and their additional functionality extends the variety of applications.

Monitoring

The RAK/RAZ product family
For temperature limitation of heating systems as well as domestic hot water, we recommend RAK-TB and RAK-ST capillary tube thermostats. RAK-ST are similar to RAK-TB but with increased safety functions. RAZ-ST is in each case a combination of RAK-TR and RAK-ST. For the safety limit thermostats (STB), the failsafe function and the compensation of the ambient temperature are special features.

The QAF product family
The QAF frost protection thermostats can be used for frost protection in air conditioning systems. The QAF family consists of purely electromechanical models with ON/OFF output as well as capillary tube thermostats with electronic measurement and modulating as well as ON/OFF outputs.

©Siemens Switzerland Ltd.
Building Technologies / HVAC Products

Fields of application and principal functions

Compact room temperature controllers

Heating only/cooling only

	RAA..	RCU..	RDU..	RDD..	RDE..
RAA					
Tamperproof version	10				
Setpoint adjuster	20				
Setpoint adjuster, ON/OFF switch	30				
Setpoint adjuster, ON/OFF switch, mode indications	30.16 / GR				
Setpoint adjuster, 2 ON/OFF switches, 2 mode indications	30.26 / GR				
Setpoint adjuster, mode changeover switch for heating or cooling	40				
RCU/RDU					
Heating or cooling and secondary heating sequence ON/OFF/PWM		10			
Heating or cooling and secondary heating sequence, mode changeover switch ON/OFF/PWM		10.1			
Heating or cooling (3-position)		20	20		
RDD					
LCD and automatic operation mode changeover				10	
LCD and automatic operation mode changeover, battery-powered				10.1	
RDE					
LCD, 7-day time switch					10
LCD, 7-day time switch, battery-powered					10.1
LCD, 7-day time switch, ext. temperature sensor input, battery-powered					20.1

Heating only/Cooling only	24-hour clock	Weekday/ week-end clock	7-day clock	7-day clock	7-day clock
Application RAV11.1	REV100, REV12,	REV16 REV26, RAV11.7	REV23.., REV200,	REV33, REV300	REV23M
Gas boilers	■	■	■		
Burner control	■	■	■		
Electric room heating	■	■	■		
Cooling fan-coil units			■		
Circulating pump control	■	■	■		
3-position mixing control				■	
ON/OFF zone control	■	■	■		
Open/closed actuators	■	■	■		
Floor heating distribution	■	■	■	■	
«OpenTherm Plus» boiler					■
	Quasi-modulating control (ON/OFF)			**Modulating control (3-position)**	**Modulating control (communication)**

See the relevant data sheets for technical data and a brief description

©Siemens Switzerland Ltd.
Building Technologies / HVAC Products

Fields of application and principal functions

Fan-coil systems with RAB../RCC../RDF..

			RAB..	RCC..	RDF..
RAB..					
2-pipe	External changeover	with ventilation	20.1		
	Heating or cooling	without ventilation	20		
2-pipe	Manual changeover	with ventilation	10.1		
	Heating or cooling	without ventilation	10		
4-pipe	Manual changeover	with ventilation	30.1		
	Heating or cooling	without ventilation	30		
RCC../RDF..					
2-pipe	Manual changeover heating or cooling				10.2
	Heating or cooling			10.1	10.1
	Heating or cooling with ext. sensor input			10	10
	Heating or cooling with electr. heating			20	20
	Heating or cooling (0...10 V)			50.1	50.1
	Heating or cooling (3-position)			60.1	60.1
4-pipe	Heating or cooling			30	30

Heat pump

	RDX..
RDX	
Heat pump controller AC 230 V	42.2
Heat pump controller AC 24 V	42.22

VAV and CAV

	RCU..	RDU..
RCU/RDU		
One sequence (0...10 V), automatic heat-cool change-over	50	50
One sequence (0...10 V), operating mode selector	50.1	
One sequence (0...10 V), operating mode selector	50.2	50.2
2 sequences (0...10 V and ON/OFF / PWM)	60	
2 sequences (0...10 V and ON/OFF / PWM), operating mode selector	60.1	
2 sequences (0...10 V and 3-position)	61	
2 sequences (0...10 V and 3-position), operating mode selector	61.1	

See the relevant data sheets for technical data and a brief description

©Siemens Switzerland Ltd.
Building Technologies / HVAC Products
2006

Fields of application and principal functions

Immersion thermostats and strap-on thermostats RAK-T®, RAK-S®, RAZ-T®, RAZ-S®

Single and double thermostat, 2-position controller with capillary tube sensor, changeover contact.

	Application								Function				Data sheet	Set						Approvals					
Type reference	Temperature control	Temperature limitation	Frost protection	Air conditioning control	Heating boilers	Domestic hot water heating	Heat exchangers	Underfloor heating	Control thermostat (TR)	Thermal reset limit thermostat (TW)	Safety limit thermostat (STB)	Limit thermostat (TB)	Data sheet number	SPocket 100 mm for PN10	Strap 330 mm in package	Setpoint minimum temperature (°C)	Setpoint maximum temperature (C°)	Setpoint cutout temperature (C°)	Capillary length (mm)	CE ENEC	DIN3440	ISPESL	C-Tick	PED	
RAK-TR.1000B	■				■	■	■		■				CE1N1186	■	■	15	95		700	■	■	■		■	■
RAK-TR.1000S	■				■	■	■		■				CE1N1186		■	15	95		700	■	■	■		■	■
RAK-TR.1210B	■				■	■	■		■				CE1N1186	■	■	15	82		700	■	■	■	■	■	■
RAK-TW.1000B	■				■	■	■	■		■			CE1N1187	■	■	15	95		700	■	■	■	nr	■	■
RAK-TW.1000S	■				■	■	■	■		■			CE1N1187		■	15	95		700	■	■	■	nr	■	■
RAK-TW.1200B	■				■	■	■	■		■			CE1N1187	■	■	40	120		700	■	■	■	nr	■	■
RAK-TW.1200S	■				■	■	■	■		■			CE1N1187		■	40	120		700	■	■	■	nr	■	■
RAK-TW.5000S			■	■						■			CE1N1188		■	5	65		1600	■	■	nr	nr	■	■
RAK-TW.5010S			■	■						■			CE1N1188		■	-10	50		1600	■	■	nr	nr	■	■
RAK-ST.010FP		■			■						■		CE1N1189	■				95	700	■	■		■	■	■
RAK-ST.020FP		■			■						■		CE1N1189	■				100	700	■	■			■	■
RAK-ST.030FP		■			■						■		CE1N1189	■				110	700	■	■			■	■
RAK-ST.1300P																		120..							
		■			■						■		CE1N1189	■				130	700	■	■	■		■	■
RAK-ST.1310P		■			■						■		CE1N1189	■				90..110	700	■	■	■		■	■
RAK-ST.1430S		■			■						■		CE1N1189		■			80..100	1600	■	■			■	■
RAK-TB.1400S		■			■			■				■	CE1N1190		■			45..60	700	■	■			■	■
RAK-TB.1410B		■			■							■	CE1N1190	■	■			50..70	700	■	■			■	■
RAK-TB.1420S		■			■							■	CE1N1190		■			65..80	700	■	■			■	■
RAZ-TW.1000P	■				■				■	■			CE1N1191	■		15	95		700	■	■	■		■	■
RAZ-TW.1200P	■				■				■	■			CE1N1191	■		40	120		700	■	■	■		■	■
RAZ-ST.010FP	■	■			■				■		■		CE1N1192	■		15	95	95	700	■	■			■	■
RAZ-ST.011FP	■	■			■				■		■		CE1N1192	■		15	82	95	700	■	■		■	■	■
RAZ-ST.020FP	■	■			■				■		■		CE1N1192	■		15	95	100	700	■	■			■	■
RAZ-ST.030FP	■	■			■				■		■		CE1N1192	■		15	95	110	700	■	■			■	■
RAZ-ST.1500P	■	■			■				■		■		CE1N1192	■		40	120	120..							
																		130	700	■	■	■		■	■
RAZ-ST.1510P	■	■			■				■		■		CE1N1192	■		15	95	90..110	700	■	■	■		■	■

Current rating changeover contact: TR & TW: 0.1..10(2.5) / 6(2.5) A
Current rating changeover contact: TB & STB: 0.1..10(2.5) / 0.5 A
Voltage range: AC 24..250 V

nr: not required

See the relevant data sheets for technical data and a brief description

©Siemens Switzerland Ltd.
Building Technologies / HVAC Products

Fields of application and most important functions

Frost units QAF8.. and QAF6..[1)]

Electromechanical frost protection thermostats QAF81.. and electronic frost protection thermostats as well as frost protection sensors QAF6.. with average temperature measurement by a capillary tube filled with gas.

Type reference	Operating voltage (AC)	ON/OFF output	Modulating output	Automatic reset	Manual reset	Data sheet number	Setpoint setting range (°C)	Measuring range (°C)	Capillary tube length (mm)	Minimum active length (mm)	IP protection class
QAF81.3		■		■		CE1N1284	-5...15	-5...15	3000	300	IP54
QAF81.6		■		■		CE1N1284	-5...15	-5...15	6000	300	IP54
QAF81.6M		■			■	CE1N1284	-5...15	-5...15	6000	300	IP54
QAF63.2	24 V		■			CE1N1821		0...15	2000	250	IP42
QAF63.6	24 V		■			CE1N1821		0...15	6000	250	IP42
QAF64.2	24 V	■	■	■	■	CE1N1283	1...15	0...15	2000	250	IP42
QAF64.6	24 V	■	■	■	■	CE1N1283	1...15	0...15	6000	250	IP42

[1)] Note that the QAF6.. modulating frost sensor may be used only with certain control valves, i. e. it is not suitable for use with 0...20 V phase-cut or AC 230 V actuators.

Various thermostats

Simple changeover thermostats and various electromechanical single and double thermostats for industrial applications; with adjustable switching differentials.

Type reference	Room thermostat	Double thermostat	Adjustable switching differential	Adjustable switching interval	Changeover thermostat	Fire protection thermostat	Changeover contact (SPDT)	Data sheet number	Measuring range (°C)	IP protection class
TRM2.	■						■	CE1N1328	5...30	IP30
TKM2						■	■	CE1N1291	20...110	IP54
TKM2D			■				■	CE1N1224	-10...35	IP54
TRG2	■		■				■	CE1N1329	-5...50	IP54
TRG22	■	■		■			■	CE1N1329	-5...50	IP54
TTM2D			■				■	CE1N1223	-10...80	IP54
TTW2D.			■				■	CE1N1223	20...150	IP54
RYT182					■		■	CE1N1295	19...30	IP54

See the relevant data sheets for technical data and a brief description

©Siemens Switzerland Ltd.
Building Technologies / HVAC Products