

REGULATION AND ACCESSORIES

Electronic room thermostat with LCD display SIEMENS RDG 160T

- optional accessory
- for 2 and 4 pipe heating systems
- 7-day time program with 8 programmable timers
- automatic or manual heating/cooling changeover
- manual or automatic 3-speed fan control
- operating modes: Comfort, Economy and Protection
- supply voltage 24 V DC, power consumption 1 W
- 0–10 V DC ECM fan
- setpoint setting range: 5 – 40 °C
- adjustable switching differential: 0.5 to 6 K
- IP 30
- dimensions (w×h×d): 93×128×30 mm

Accessories

- can be combined with separate QAA32 room temperature sensor, eg. for installations in humid environments
- IRA211 infrared remote control
- **order code:** REG-RDG160T



Electronic room thermostat with LCD display SIEMENS RDG 160KN

- optional accessory
- for 2 and 4 pipe heating systems
- 7-day time program with 8 programmable timers
- automatic or manual heating/cooling changeover
- KNX communication via S-mode and LTE-mode, applicable with BMS
- manual or automatic 3-speed fan control
- operating modes: Comfort, Economy and Protection
- supply voltage 24 V DC, power consumption 1 W
- 0–10 V DC ECM fan
- setpoint setting range: 5 – 40 °C
- adjustable switching differential: 0.5 to 6 K
- IP 30
- dimensions (w×h×d): 93×128×30 mm

Accessories

- can be combined with separate QAA32 room temperature sensor, eg. for installations in humid environments
- IRA211 infrared remote control
- **order code:** REG-RDG160KN



For correct operation, the thermostat must be set according to LICON operating instructions included in the thermostat packaging. The thermostat is supplied pre-set for 2-pipe heating systems.



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Manual room thermostat SIEMENS RAB 21-DC

- optional accessory
- for 2-pipe heating systems
- manual 3-speed fan switch
- heating or cooling mode
- supply voltage: 24 V DC, power consumption: 1 W
- 0–10 V DC EC fan
- setpoint setting range: 8–30 °C
- switching differential <1 K
- IP 30
- dimensions (w×h×d): 96×110×36 mm
- **order code:** REG-RAB21DC



QAA32 external room temperature sensor

- optional accessory
- for measuring temperature in heating systems where a thermostat cannot be placed in the room
- suitable for installation at swimming pools
- can be combined with RDG 160T and RDG 160KN
- setpoint setting range: 0–40 °C, accuracy at 25 °C: ± 0.3 K
- NTC sensor, 3 kΩ at 25 °C
- IP 30
- dimensions (w×h×d): 96.4×99.6×36 mm
- **order code:** REG-S-QAA32



Infrared remote control SIEMENS IRA 211

- optional accessory
- for RDG160T and RDG160KN
- heating or cooling operation
- temperature setting
- fan speed selection
- power supply: 2× 1.5 V AAA batteries
- IP 30
- dimensions (w×h×d): 42×106×18 mm
- **order code:** REG-IRA211



REGULATION AND ACCESSORIES

R-Box

- optional accessory
- combined with the power supply it creates the control voltage for the fan
- for use with thermostat with supply voltage of 230 V AC (such thermostat is not offered by LICON)
- 3 programmable speed settings
- input voltage: 230 V/50 Hz
- output signal: 0 to 10 V/1 kΩ
- 4 kV AC galvanic isolation optocouplers
- IP 30
- mounted on DIN rail on distribution board
- ambient operating temperature: 0–40 °C
- dimensions (w×h×d): 70×58×90 mm
- electrical diagram at www.licon.cz
- **order code:** REG-RBOX17



Temperature sensor NTC

- optional accessory
- temperature sensor situated on the exchanger blocks the fan until the temperature of the exchanger medium is approx. 37 °C in heating mode, and 15°C in cooling mode
- F4V 4-pipe convectors should be fitted with 2 temperature sensors – one for each circuit
- NTC sensor 10 kΩ at 25 °C
- Cable length: 0.3 m
- Connect to FCR-BOX in the convector
- includes installation clips
- **order code:** REG-S-NTC



Temperature sensor NTC is delivered separately to the trench heater. In case of a request to be mounted on the heat exchanger by Licon, please note in your order.



When using a thermostat not recommended by LICON, an R-Box must be used to achieve a signal of 0–10 V.

Junction box

- optional accessory
- embedded in wall
- for installation of AC power source (60 W, 100 W and 150 W)
- IP 40
- dimensions (w×h×d): 318×258×72 mm
- **order code:** REG-IB



Thermoelectric actuator TEP 24

- optional accessory
- reset time: 4 min
- M30×15 thread
- cable length: 2.5 and 5 m
- closed without voltage
- supply voltage: 24 V DC
- power consumption <2 W
- IP 44
- unit height: 65 mm
- **order code** (2.5 m cable): REG-TEP24-250
- **order code** (5 m cable): REG-TEP24-500



DC power supply 60 W, 100 W, 150 W, 240 W and 480 W

- optional accessory
- switch-mode DC power supply
- silent operation, high efficiency
- DIN rail assembly
- IP 20



power supply size	60 W	100 W	150 W	240 W	480 W
input supply voltage	85–264 V AC	85–264 V AC	85–264 V AC	88–264 V AC	90–264 V AC
output voltage	24 V DC/2.5 A	24 V DC/3.9 A	24 V DC/6.25 A	24 V DC/10 A	24 V DC/20 A
dimensions w×h×d	53×90×55 mm	70×90×55 mm	105×90×55 mm	60×126×114 mm	86×126×129 mm
order code	REG-PS60	REG-PS100	REG-PS150	REG-PS240	REG-PS480



For calculation of the proper power supply size - see the example at the bottom of p. 105.

Lockshield

- optional accessory
- straight or axial
- size 1/2" G
- nickel-plated brass
- max. operating pressure: PN 10
- max. operating temperature: 90 °C
- **order code:**
 straight lockshield: REG-LS
 axial lockshield: REG-LA



Preset	1	2	3	4	5	6	7	8	9
Turns	1 ¼	1 ½	1 ¾	2	2 ½	3	3 ½	4	FO
K_v	0.14	0.2	0.31	0.43	0.6	0.79	1	1.2	1.35

K_v flow coefficient (m³/h)
 FO fully open

Thermostatic valve

- optional accessory
- straight or axial
- preset value: K_v
- size 1/2" G
- thread: M30x1.5
- nickel-plated brass
- max. operating pressure: PN 10
- max. operating temperature: 90 °C
- **order code:**
 straight thermostatic valve: REG-TVS
 axial thermostatic valve: REG-TVA

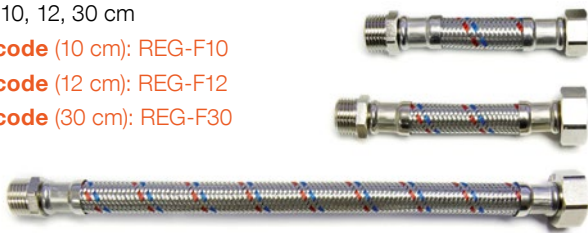


Preset values	1	2	3	4	5	6
K_v ($\Delta t = 2K$)	0.10	0.20	0.30	0.40	0.50	0.60
K_{vs}	0.10	0.20	0.30	0.40	0.57	0.80

K_v flow coefficient (m³/h)
 K_{vs} maximum flow (m³/h)
 $\Delta t = 2K$ valve proportional band (K)

Flexible connecting hose

- optional accessory
- stainless steel mesh
- connecting nuts: 1/2"x1/2"M
- length: 10, 12, 30 cm
- **order code** (10 cm): REG-F10
- **order code** (12 cm): REG-F12
- **order code** (30 cm): REG-F30



Brass elbow

- optional accessory
- 1/2"x1/2" 90° without rim
- **order code:** REG-E90



Example power supply size calculation

For regulation, the power consumption must be correctly calculated in order to select the proper size of the DC source. The total wattage of units is calculated using the total power consumption of all thermostat-controlled trench heaters with fans. Fan electricity power consumption is shown in the output tables for each type and length of trench heater.

Here we have selected the values for the third fan speed.

Example

There will be used these trench heaters in the project:

2 x KORAFLEX FVO 160/11/26 – in the table

we see a power consumption of **6 W**

3 x KORAFLEX FVO 240/11/26 – in the table

we see a power consumption of **9 W**

5 x Thermoelectric actuators – power consumption is **2 W**

Total input power

2x6 W+3x9 W+5x2 W=49 W. Increase by a reserve of 20 %.

Total input power is **58.8 W**. Required power supply size **60 W**.

Length	Optimal-V	Energy	Fan speed setting	Output [W]		Power consumption [W]		Acoustics	
				75/65/20 °C	55/45/20 °C	Optimal-V 24 V DC	Energy 230 V AC	Sound pressure [dB(A)]	Acoustic output [dB(A)]
1600	1800		0	237	109	0	0	-	-
			1	1 801	1 091	2	12	21,2	29,2
			2	2 870	1 754	4	15	29,5	37,5
2400	2600		3	3 363	2 063	6	16	32,4	40,4
			0	385	176	0	0	-	-
			1	2 918	1 768	4	14	22,4	30,4
2600	2800		2	4 650	2 842	7	18	31,3	39,3
			3	5 449	3 343	9	21	34,5	42,5
			0	421	193	0	0	-	-
2600	2800		1	3 197	1 937	4	14	22,7	30,7
			2	5 095	3 114	9	19	31,6	39,6
			3	5 970	3 663	13	22	34,9	42,9