Electronic heat cost allocator HKVE 201S

Electronic device for heat cost allocation on the basis of measuring heat output from radiators. Single-sensor device with intelligent heating operation detection. Fits all bases of the types KUNDO HKVE 1650/51, 1700/51 and 1851.

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Application

The electronic heat cost allocator HKVE 201S is used as a directly acquiring decentralised measuring system that measures radiator heat output to the surrounding air. The values are measured by 1 temperature sensor (radiator temperature sensor). The main area of application is in central heating systems where the heating energy is used individually by different consumers.

Such systems can be found in e. g.:
~ Apartment buildings
~ Offices and administration buildings

Typical users are:
~ Meter reading service companies
~ Housing industry and housing associations
~ Building service companies and property management

The heat cost allocator can be used for the following types of radiator:
~ Ribbed radiators
~ Tubular radiators
~ Panel-type radiators with horizontal and vertical water flow
~ Radiators with internal tube register
~ Convectors

Restrictions

HKVE cannot be used with steam heaters, fresh-air radiators, underfloor heating, ceiling heating elements or flap-controlled radiators.

In the case of combined valve and flap-controlled radiators, HKVEs may only be installed if the flap control unit has been removed or disabled in the “open” position.

Convectors that can change their output through an electric blower and towel heaters with an electric heating cartridge must not be fitted with HKVEs unless the respective electric system has been removed or disabled.

Functions

~ Determines radiator heat output on the basis of measured and validated radiator temperature
~ Due date can be programmed
~ Internal cumulative overall memory
~ Check number display
~ Fault detection and display
~ Intelligent heating operation detection
~ Cumulates consumption since the last due date
~ Previous year’s consumption

Type summary

Single-sensor measuring principle	Part number
Heat cost allocator, compact device	E42/201S-01
Heat cost allocator, compact device with remote sensor 1.5 m	E42/201S-02
Heat cost allocator, compact device with remote sensor 2.5 m	E42/201S-03

Technology

Measuring principle

The overall validation factor $K_{overall}$ must be determined for each radiator according to the following equation:

$$\mathbf{K_{overall} = K_Q \times K_C \times K_T \times K_A}$$

The overall validation factor $K_{overall}$ is calculated by multiplying the individual validation factors. The validation level K must be determined from the programming table with the aid of the $K_{overall}$ value calculated.

Example:	Q_{nom} = 2500 W	K_Q = 2.5
	DIN steel radiator, radiator mounted,	K_C = 1.14
	Room design temperature	K_T = 1.0
	Radiator connection type	K_A = 1.0

$$K_{overall} = 2.5 \times 1.14 \times 1.0 \times 1.0 = 2.85$$

The HKVE 201S is pre-programmed in the factory and equipped with a battery (typ. service life 10 years) so that it can be used directly ex factory without reprogramming being necessary.

The factory programming is as follows: K = 26 / due date = 1 (01.01. every year)

Heating operation detection

Consumption is always detected when the HKVE's temperature sensor measures a temperature of above 32 °C at the surface of the radiator.

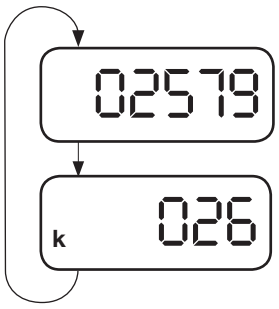
Between about 27 °C and 32 °C, the dynamic heating operation feature verifies whether the heat is coming from the radiator or another heat source.

This type of heating operation detection is not permissible above 32 °C.

Display

Display loops

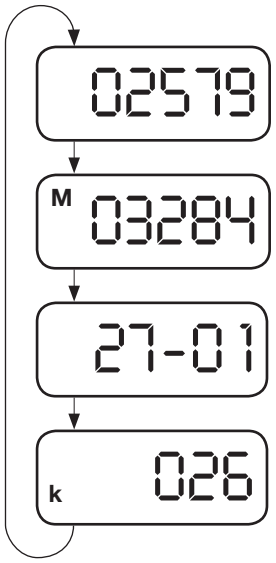
Alternating display in normal operation (**without** due date programmed)



Current consumption

k = Validation level
026 = Validation number

Alternating display in normal operation (**with** due date programmed)



Current consumption

Old value (value from previous year)

27 = Check number
01 = Due date (1st January)

k = Validation level
026 = Validation number

This display only appears if an error has occurred.
The device does not switch to any other display.

If the HKVE has been exposed to an ambient temperature lower than about 5 °C for a longer period (e.g. during transport in a vehicle in winter), the HKVE can display “Error”.

Wait until the device has adapted to room temperature (min. 15 °C).

If the display remains blank or the word Error does not disappear, the HKVE must not be used. It must be returned to the manufacturer for checking!

Available data

Device number

The device number is printed as an 8-digit code on the front of the device.

Display

The display alternates between the following information:
~ Current display value
~ Old value
~ Due date
~ Validation level K
~ Check number
~ Error display

Tabletop programming adapter

The following data can be readout using the tabletop programming adapter PA01, the PC-Comms link cable, the KSS, and a PC:
~ Current display value
~ Old value
~ Due date
~ Internal time and date
~ Cumulated display value (total of old values and current consumption value)
~ Service information

Parameter-setting possibilities

The following values can be programmed in by the customer using a tabletop programming adapter with or without PC support
~ Due date
~ Validation level K

Installation material

Installation sets

Name	Part number
Cast iron radiator TGL	593 209
Ribbed radiator (40 to 60 mm)	593 210
Ribbed radiator (< 40 mm)	593 211
Panel-type radiator (welded studs 8 mm)	593 212
Panel-type radiator (welded studs 12 mm)	593 213
Panel-type radiator (welded studs 15 mm)	593 214
Profile radiator	593 215
Cast radiator with frontal area (groove width 4.5 to 6.0 mm)	593 216
Cast radiator with frontal area (groove width 6.0 to 8.0 mm)	593 222
Aluminium ribbed radiator	593 217

Installation sets remote sensors

Name	Part number
Device wall-mounting	593 218
Sensor attachment panel radiator	522 539
Sensor attachment ribbed radiator	525 721
Sensor attachment profile radiator	525 722
Sensor attachment cast iron radiator “RR”	533 002
Sensor attachment cast iron radiator “KR”	533 001
Sensor attachment convector	522 125
Installation aid convector	523 727

Other accessories

Installation accessories

Name	Part number
Leading as device seal	592 931
Short trim for covering signs of installation of old heat cost allocator	593 112
Long trim for covering signs of installation of old heat cost allocator	593 239

Programming accessories

Name	Part number
Tabletop adapter for programming	G99/PA01-01

Ordering

Note

By ordering the individual parts you save on having to unpack the individual installation sets on site.
This means you gain time, particularly with the most common installation sets, and we can supply them cheaper since time-consuming packing and labelling are no longer required.

Technical data

Device data

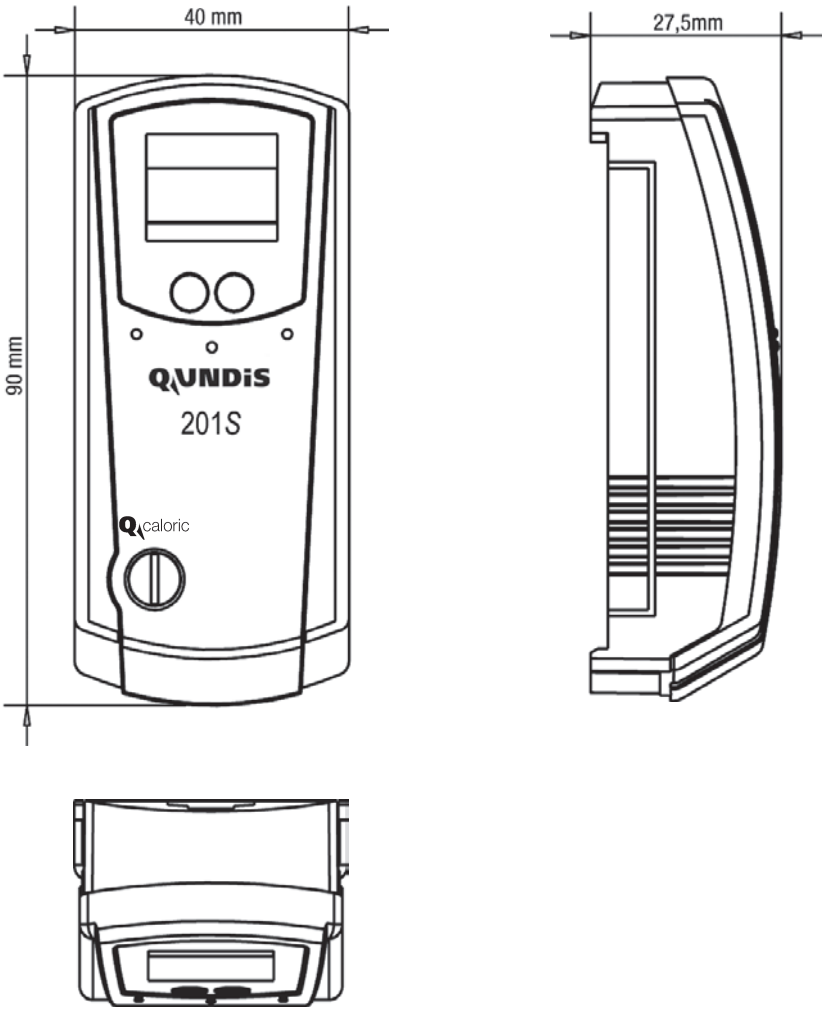
Measuring system	1-sensor measuring system with dynamic heating operation detection
Device type	HKVE 201S (HKVE = electronic heat cost allocator)
Device variants	Compact and remote sensor version
Power supply	3V lithium battery
Service life	10 years
Display	Liquid crystal display (LCD)
Scope of display	5 digits (00000 ... 99999)
Radiator power range	21 Watt ... 10,000 Watt ...
Gradation	255 levels of 40 Watt
Exponent	1.1
Sensor temperature range	0 °C ... 110 °C
Suitabe for use in temperature range (t_{min}...t_{max})	55 °C ... 105 °C (compact device) 55 °C ... 110 °C (remote sensor device)
Temperature sensor	NTC, prematurely aged
K_C	Validation factors through digital K_C database
Device versions	See device variants
Installation material	See installation sets
Standard installation height	Installation heights can be found in the HKVE installation manual

Technical data

Norms and standards

Heat cost allocator for acquiring consumption data for room heating	DIN EN 834
Testing method	DIN registration no. 251/06E HKVO-tested, test no. A 1-01-2001
Type approval acc. to HKVO	A1.01.2001
Security of IT equipment	EN 60950
CE conformity	89/336/EEC - Guideline for harmonizing the legal regulations of the Member States concerning electronic compatibility EN 55011:1998 + A1:1999 EN 50082-1:1007

Dimensional drawing



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