SIEMENS

2886



Electronic heat cost allocator WHE5..

- **Electronic device for heat cost allocation on the basis of measuring the heat output from radiators.**
- **Available without communication, with optical interface or with radio interface for remote read outs**
- **Available as one or two sensor device as well as remote sensor**

Application

The electronic Siemeca™ heat cost allocator WHE5.. is designed for distributed usage and it is used if the heating costs must be allocated to several consumers based on the actual consumption. Values are measured through one (radiator) or two (radiator and room air temperature) temperature sensors. The 2-sensor mode determines the actual temperature difference between the ambient temperature and the radiator temperature, while a constant value for ambient temperature is specified in case of 1-sensor mode.

These measured values are used as the basis for the consumption calculation. The main area of application is in central heating systems where the heating energy is used individually by different consumers.

The electronic heat cost allocator can be operated as a 1-sensor measuring system or 2-sensor measuring system with product and unit scale.

Such systems are used 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

Compatibility:

The electronic heat cost allocators WHE5.. are replacing the heat cost allocators WHE3.. and WHE4.. The existing heat conductors of the WHE3.. and WHE4.. device families can be re-used for the WHE5.. devices.

Note:

The WHE2.. can NOT be replaced by the WHE5.., since both the measuring algorithm and the radio transmitter fitted in the heat cost allocator (with WHE26) are not compatible.

1-sensor and 2-sensor metering system

A joint use of different metering device types is only allowed within a property as long as they all use a standard metering system and have a standard measuring algorithm.
Two sensor heat cost allocators can be operated in one sensor as well as in two sensor mode.

Restrictions

Electronic heat cost allocators 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, measuring devices 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 electronic heat cost allocators unless the respective electric system has been removed or disabled.

Depending on the type of communication, the heat cost allocators are divided into:

- without communication interface
- with optical communication interface
- with radio interface

Without communication interface

Heat cost allocators without communication interface WHE50.. must be read visually at the site and the measuring results must be manually recorded. They are especially suited for tasks or systems that do not require complex data evaluations or particularly fast readout processes.

With optical communication interface

Heat cost allocators with an optical close-range interface WHE57.. must be read at the site. The respective device data can be read semi-automatic by using an IrDA readout head.

Readout parameter

The following parameters will be read via the optical close-range interface of the WHE57.. :

- Current meter status
- Last due date
- Meter status on last due date
- Meter status on second to last due date
- Next due date
- Maximum temperature
  - Date
  - Upper temperature limit
  - Duration of upper deviations
- Minimum temperature
  - Date
  - Lower temperature limit
  - Duration of lower deviations
- Statistical values
- General device data:
  - Serial number
  - Device type
  - Installation type
  - Software version
  - Medium
  - Date of commissioning
  - Remaining battery service life
  - Device date
  - Error date/error code
- Device information (customer specific settings)
  - Metering device algorithm
  - Operating mode
  - Sensor type
  - Evaluation factors KCHF / KC2F / KQ
  - Summer counting behaviour
  - Continuous counting (without zeroing)
  - Display battery warning
  - Start display as plain text
  - Display meter readings in case of errors
  - Date device was opened
  - Device name

With radio interface

Heat cost allocators that can communicate through radio technology are divided into:

- walk-by WHE55..
- AMR WHE56..

Walk-by

The WHE55.. heat cost allocators are locally read through radio technology. The meters transmit consumption data at the set reading time. The meter-reader collects the radio telegrams with the mobile data collector (WTZ.MB) and a netbook with associated software. The meter-reader does not have to enter the user's residence or office.
In the case of smaller systems, the data can usually be received by the meter-reader outside the building.

AMR

The WHE56.. heat cost allocators are read through radio technology.
The metering devices transmit the current consumption data in cycles to the network nodes. They automatically collect the data of all integrated heat cost allocators and store them. All consumption data of the system can be read remotely by the customer.

Readout parameter

The following parameters are transmitted via radio by the heat cost allocators WHE55.. / WHE56..:

- Device number (8-digits)
- Device type/software version
- Time/date
- Error status
- Error date
- Current consumption
- Due date
- Due date value
- Counter reading at end of last month
- 15 monthly values (only for walk-by)

Manipulation

The heat cost allocator is equipped with a factory installed lead seal.
An unauthorized device opening is registered, shown on the display of the heat cost allocator and transmitted via radio (WHE55.. / WHE56..).

Function control

The heat cost allocator performs a self-test every 4 minutes. An error message "Err x" will be displayed if the error lasts for five consecutive measuring cycles (20 minutes).

After the error has been registered and shown on the display, the measuring device stops the measuring operation. The data of the error occurrence is stored internally.

Type summary

The following types are available:

WHE without communication interface

Options	*Stock No.*	*Product No.*
1-sensor, battery warning On, Summer switch-off between 06/01 and 09/30, Due date 09/30	S55562-F100	WHE501-D29
2-sensor, battery warning On, Summer switch-off between 06/01 and 08/31, Due date 12/31	S55562-F101	WHE502-D10
2-sensor, battery warning On, Summer switch-off between 06/01 and 09/30, Due date 09/30	S55562-F102	WHE502-D29

	Options	*Stock No.*	*Product No.*
WHE with radio interface walk-by	1-sensor, Due date 12/31, type of readout: Annual	S55562-F103	WHE551-0000
	1-sensor, battery warning On, Summer switch-off between 06/01 and 09/30, Due date 09/30, type of readout: Monthly	S55562-F104	WHE551-D291
	2-sensor, Due date 12/31, type of readout: Annual	S55562-F105	WHE552-0000
	2-sensor, battery warning On, Summer switch-off between 06/01 and 08/31, Due date 12/31, type of readout: Annual	S55562-F106	WHE552-D100
	2-sensor, battery warning On, Summer switch-off between 06/01 and 09/30, Due date 09/30, type of readout: Monthly	S55562-F107	WHE552-D291
WHE with radio interface AMR	1-sensor, Due date 12/31	S55562-F108	WHE561-000
	1-sensor, battery warning On, Summer switch-off between 06/01 and 09/30, Due date 09/30	S55562-F109	WHE561-D29
	2-sensor, Due date 12/31	S55562-F110	WHE562-000
	2-sensor, battery warning On, Summer switch-off between 06/01 and 08/31, Due date 12/31	S55562-F111	WHE562-D10
	2-sensor, battery warning On, Summer switch-off between 06/01 and 09/30, Due date 09/30	S55562-F112	WHE562-D29
WHE with optical close range interface	1-sensor, battery warning On, Summer switch-off between 06/01 and 09/30, Due date 09/30	S55562-F113	WHE571-D29
	2-sensor, battery warning On, Summer switch-off between 06/01 and 09/30, Due date 09/30	S55562-F114	WHE572-D29

	Component	*Stock No.*	*Product No.*
Attachment parts	Threaded hoop (pipe 18 to 30 mm)	JXF:FKT0014	FKT0014
	Threaded hoop (pipe up to 17 mm)	JXF:FKT0004	FKT0004
	Shank nut M3 x 3	JXF:FNM0002	FNM0002
	Shank nut M3 x 6	JXF:FNM0003	FNM0003
	Shank nut M3 x 9.5	JXF:FNM0001	FNM0001
	Clamping sleeve special radiator	JXF:FKM0002	FKM0002
	Clamping bracket (pipes TE 36 mm)	JXF:FKT0015	FKT0015
	Clamping bracket (pipes TE 46 mm)	JXF:FKT0016	FKT0016
	Clamping bracket shortened	JXF:FKT0009	FKT0009
	Clamping bracket trapezoidal 35 mm	JXF:FKT0018	FKT0018
	Clamping bracket trapezoidal 50 mm	JXF:FKT0019	FKT0019
	Clamping bracket trapezoidal 65 mm	JXF:FKT0020	FKT0020
	Expanding bracket for lamella-type radiator	JXF:FKA0004	FKA0004
	Square bolt 4.5 mm with cross pin	JXF:BOZ4002	BOZ4002
	Square bolt 6 mm with cross pin	JXF:BOZ4003	BOZ4003
	Square bolt 12 mm with cross pin	JXF:BOZ4004	BOZ4004

	Component	*Stock No.*	*Product No.*
Installation parts	Spacer sleeve	JXF:FKT0010	FKT0010
	Spacer	JXF:FKA0013	FKA0013
	Threaded bushing	JXF:FKA0012	FKA0012
	Clamping piece (threaded hoop 17 mm)	JXF:FKA0003	FKA0003
	Clamping piece (threaded hoop 18 to 30 mm)	JXF:FKA0008	FKA0008
	Installation plate for remote sensor	JXF:FKA0009	FKA0009
	Mounting plate standard	S55563-F115	FKA0017
	Mounting plate wide	JXF:FKA0022	FKA0022
	Safety cap for sensor housing	JXF:FKK0045	FKK0045
	Sensor housing	JXF:FKK0029	FKK0029
	Wall bracket	JXF:FKK0044	FKK0044
	Contact screw	JXF:FKA0010	FKA0010
	Contact screw long	JXF:FKA0011	FKA0011
Standard parts	Self-tapping screw B 2.9 x 13	JXF:FNR0008	FNR0008
	Screw B 3.9 x 45	JXF:FNR0007	FNR0007
	Cross-slot screw M4 x 30	JXF:FNR0003	FNR0003
	Cross-slot screw M4 x 40	JXF:FNR0004	FNR0004
	Cross-slot screw M4 x 50	JXF:FNR0005	FNR0005
	Cross-slot screw M4 x 70	JXF:FNR0006	FNR0006
	Welding stud M3 x 8	JXF:FKT0013	FKT0013
	Welding stud M3 x 12	JXF:FKT0011	FKT0011
	Welding stud M3 x 15	JXF:FKT0012	FKT0012
	Hexagon nut M4	JXF:FNM0004	FNM0004
	Self-locking nut with serrated bearing M3	JXF:FNM0005	FNM0005
Other accessories	Dowel 6 mm	JXF:FNU0001	FNU0001
	Remote sensor 1.5 m	JXF:BBV4003	BBV4003
	Remote sensor 2.5 m	JXF:BBV4004	BBV4004
	Remote sensor 5.0 m	JXF:BBV4005	BBV4005
	Lead seal blue	JXF:FKK0041	FKK0041
	Cable duct white	JXF:FOZ0001	FOZ0001
	Snap-on panel	JXF:FKK0034	FKK0034
	Installation template	JXF:HCAIP001001	HCAIP001001
	Programming adapter	JXF:HCAPH001001	HCAPH001001
	Infrared read head with USB interface	JXF:WFZ.IRDA-USB	WFZ.IRDA-USB
	ERGO universal instant glue 3g	JXF:FSS0007	FSS0007
	Installation aid (convector)	JXF:FKT0017	FKT0017

Ordering

Quantity, name, type and stock number must be listed when ordering

Scope of delivery

The heat cost allocator is delivered in packages of 50 units (1 packaging unit).

Note

The heat cost allocators are delivered without instructions and without heat conductor.

Order numbers

Type	*Part number*	*Designation*
WHE5..	see type designation in the type overview	Electronic heat cost allocator

System manual

The system manual is available in the following languages:

- German CE2M2886de
- English CE2M2886en

Device combinations

The heat cost allocators WHE55.. / WHE56.., which communicates via radio, can be used with the following components in a system:

Device designation	*Type*	*Documentation*
Network node	WTT16.. WTX16..	N2874
Network node with Gateway	WTX16.GSM WTX16.IP WTX16.MOD	N2878
Operating software network node	ACT26	J2870
The mobile data collector set	WTZ.MBSET-2/PC	N2885
Readout software mobile data collector	ACT46	N2885
M-Bus central unit	OZW10	N5362
M-Bus level converter	WZC-P60	N5382
M-Bus level converter	WZC-S250	N5364
M-Bus level converter	WZC-P250	N5365
M-Bus repeater	WZC-R250	N5366
Operating software M-Bus central unit	ACS790	N5649

Technology

Measuring principle

The heat cost allocator is delivered as a one sensor or two sensor device. The following valuation factors are programmed when the units are delivered:

KcHF = 1.28 Kc = 2.50 KQ = 1000 Exp. = 1.15

If the heat cost allocator does not work with a product scale, then the consumption value (VW) must be calculated before billing based on the readout value (AW) and the radiator specific K-values (K_c, K_{cHF} und K_Q).

One sensor device VW = 7.529 * 10-4 * AW * KQ * KcHF1,15

Two sensor device VW = 3.486 * 10-4 * AW * KQ * Kc1.15

The respective K_C values can be determined by using the K_C value database.

Standard parameters

The following is programmed when the device leaves the factory:

- Zeroing after the due date: yes
- Counting progress even after a device opening was identified

- Opening display as plain text: yes
- The conversion of the consumption values is not performed if the device parameters are changed

The following parameters can be programmed:

- Sensor type
  1-sensor or 2-sensor metering system
- K_C / K_Q
  Valuation factors for the calculation of the heat output of a radiator (depending on the measuring device algorithm and the sensor type)
- Next due date
  Day the annual value is stored
- Device name/device password
  Device access data to prevent unauthorized device access

Special functions

- Continuous counting (without zeroing)
  The meter status is not "zeroed" at the due date, it continues to count like a roller type counter. As a default, this option is set to “no” (counter reading will be reset to “0” at the due date).
- Display battery warning
  The heat cost allocator has service life monitoring. An optical message “bat00” is shown on the display if the battery service life has expired.
- Display meter readings in case of errors
  The units accumulated until the heat cost allocator fails will be displayed on the heat cost allocator as a counter reading.

  As a default, this option is set to “no”, i.e. the display of the heat cost allocator shows “-----“ if the consumption values are not feasible for a billing due to an error in the device.
- Start display as plain text
  An identified device opening will be displayed as “c OPEn” alternating with the current value or the value of the previous year (old value) as a plain text message on the display of the heat cost allocator.

  If this option is set to “no”, then an identified device opening can be identified by the display of the icon “c” in all displays (discrete display).
- Summer switch-off
  The summer switch-off is activated by programming one date each for the start and the end of the summer switch-off. If the summer switch-off is active, then no consumption values will be recorded by the heat cost allocator for this time.

walk-by

- Radio system
  Reprogramming for use in the AMR system (not reversible)

  Walk-by => AMR

  AMR ~~=>~~ Walk-by
- Type of readout
  - Annual = 48 readout days once per year after the due date

  - Monthly = 4 readout days after the first day of each month
- Transmission period
  Setting of the time for the start or the end of the transmission of radio telegrams. The daily transmission period of the device is specified for 10 hours (default = 8:00 AM – 6:00 PM CET).
- Transmission delay (offset)
  Time delay of the transmission of telegrams after the due date or the start of the month in days (default = 0 days).

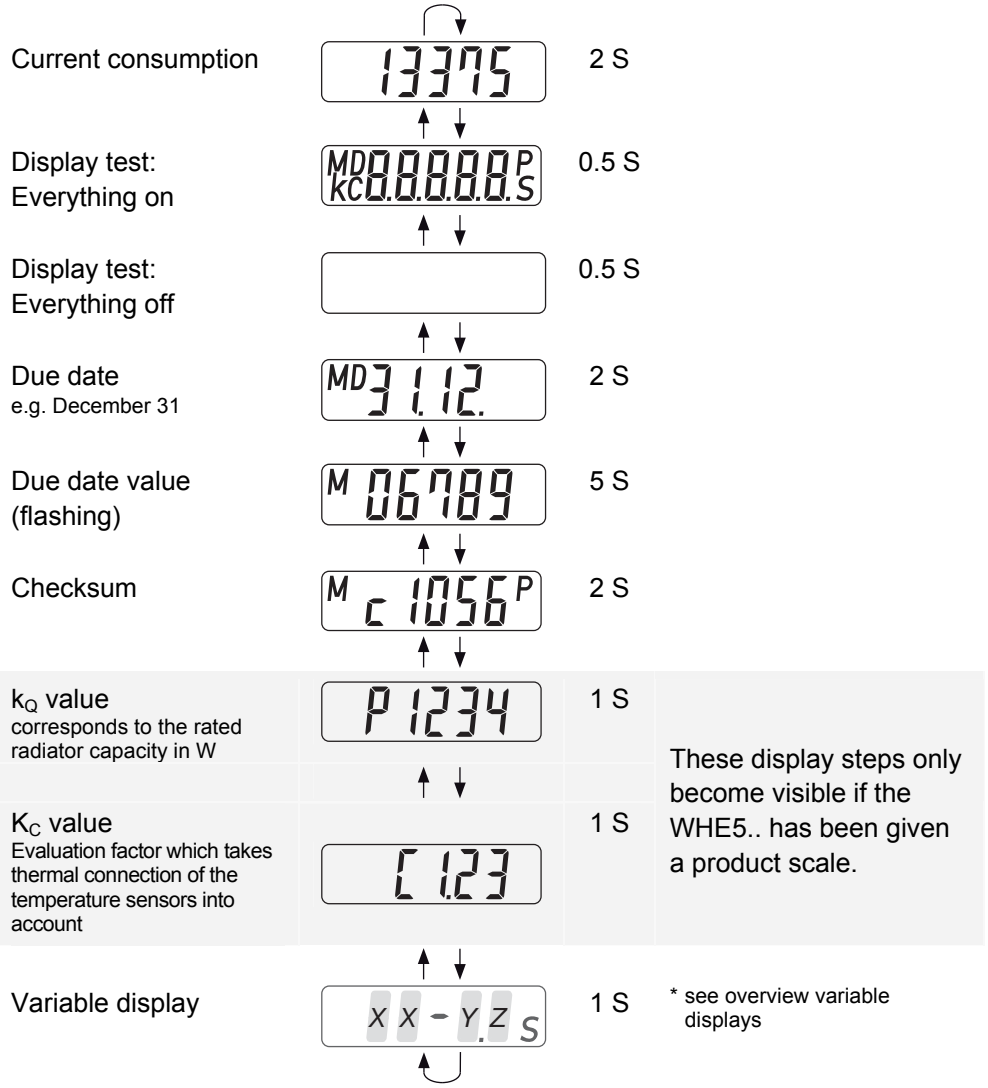
- Transmission-free days
  A maximum of 2 week days – selected from Friday, Saturday and Sunday - can be defined as transmission-free days. At least 1 weekday must be set:
  - Annual = Sunday
  - Monthly = Saturday & Sunday

Display

Meter type

Device states, consumption values and measuring system information are displayed on the LCD in a display loop

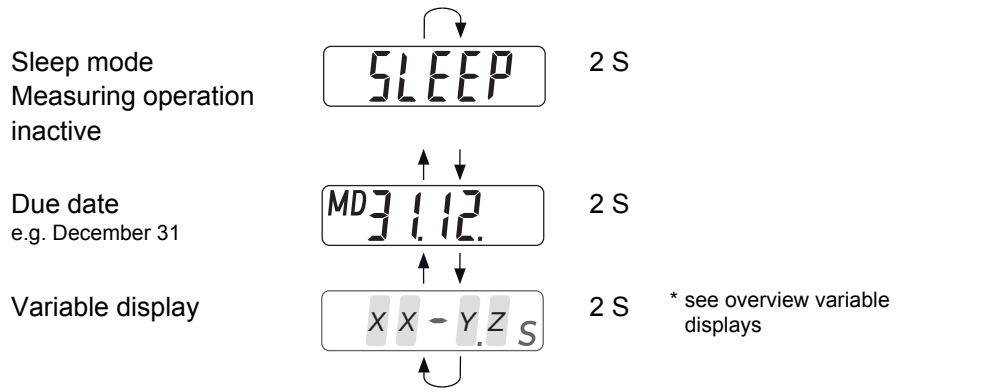
Display loops normal mode



Sleep mode

The meters are delivered from the factory in sleep mode. Measuring operation is inactive.

Display loops sleep mode



Overview
variable displays

X X	"**FA**" = Code for the AMR radio system **"FB"** = Code for the walk-by radio system **"AL"** = Algorithm, no radio system available
Y	**"3"** = Code for the WHE3x algorithm **"4"** = Code for the WHE4x algorithm
Z	**"1"** = Code for the 1-sensor measuring system **"2"** = Code for the 2-sensor measuring system "**S**" = Sensor

Special displays

Error messages

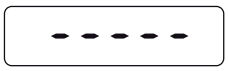
"Err 1" appears permanently. All other error messages are displayed in quick succession alternating with consumption values.



0.5 S alt.

Consumption display suppressed

Is displayed in the event of an error in place of the invalid consumption values, depending on programming.



0.5 S alt.

End of battery run time

Is displayed after the end of service life, alternating with the consumption values, depending on programming.



0.5 S alt.

Manipulation or housing opening

Is displayed in the event of manipulation either as plain text alternating with the consumption values or by the indicator "c" shown discreetly on all displays, depending on programming.

Example: Display "current value" with "c".



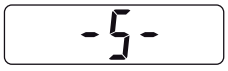
Plain text 0.5 S



Discreet 0,5 S

Data interface
(Close range interface)

This display signalises an active close-range interface.



10 S

Radio system activated (AMR/walk-by)

The transmission of installation telegrams is indicated in this display.
Display sequence: InSt8, InSt7, ... InSt1



30 S

Commissioning

This display appears following clipping to the mounting plate. Then the display changes to the normal mode display loop.



3 S

Remote sensor identification

The meter has detected a remote sensor and adjusts its measuring behaviour accordingly.



3 S

Note about project planning and operation

- The heat cost allocator is designed for on-wall mounting.
- Place the heat cost allocator in accordance with the system manual.
- Adherence to the permissible ambient temperature conditions is required.
- The heat cost allocators must not be subjected to dripping water.

Note

Information about project planning and the installation of heat cost allocators can be found in the system manual.

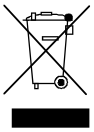
Installation

Depending on the radiator, the heat cost allocators must be mounted using the respective installation materials.

Maintenance

The heat cost allocators are free of maintenance.

Disposal



The heat cost allocators and the different partner devices are – with respect to disposal - old electronics devices in accordance with the European directive 2002/96/EU (WEE) and must not be disposed as household garbage. Adherence to the respective domestic, legal regulations is required and the devices must be disposed through the specified channels. Adherence to the local, currently valid laws is required. Used batteries must be disposed through the specified collection points.

Warranty service

The user related technical data are only guaranteed together with the products mentioned in this data sheet.
The functionality must be guaranteed by the user if the heat cost allocators are operated with external devices that are not explicitly mentioned. In this case, Siemens does not provide any services or warranty services.

Technical data

Supply	Battery type	3V lithium battery
	Battery service life	typ. 10 years
Radio	Radio frequency	868 MHz with 1 % duty cycle
	Transmission power	0 dBm[1] (typ. 3 dBm)
	Radio protocol	Wireless M-Bus acc. to EN13757-4
Measuring principle	1-sensor or 2-sensor	
	Application area[2]:	
	1-sensor WHE3x algorithm	$T_{min,m}$ = 55°C, $T_{max,m}$ = 90°C
	1-sensor WHE4x algorithm	$t_{min,m}$ = 55 °C, $t_{max,m}$ = 105 °C
	2-sensor WHE3x algorithm	
	Standard scale:	$t_{min,m}$ = 48 °C, $t_{max,m}$ = 105 °C
	Scaled:	$t_{min,m}$ = 35 °C, $t_{max,m}$ = 105 °C
	2-sensor WHE4x algorithm	$t_{min,m}$ = 35 °C, $t_{max,m}$ = 105 °C
	Start of metering: (t_Z refers to the temperature of heating medium determined)	
	1-sensor devices	$t_Z \geq$ 30 °C (at t_L = 20 °C) non-evaluated
		$t_Z \geq$ 28 °C (at t_L = 20 °C) evaluated
	2-sensor devices	$t_z - t_L \leq$ 5 K
Protection data	Protection class	III acc. to EN61140
	Protective rating for housing	IP32 acc. to EN60529

Ambient conditions

	Operation EN 60721-3-3	**Transport** EN 60721-3-2	**Storage** EN 60721-3-1
Climatic conditions	3K4	2K3	1K3
Temperature	5...70 °C	-25...70 °C	-5..0.45 °C
Humidity	<95% rel. hum.		
Mechanical conditions	3M2	2M2	1M2
Maximum altitude	no data		

[1] In connection with an AMR network node, a horizontal transmission range of app. 15 m and a vertical transmission range of app. storey up or down can be achieved in a typical building. The PC radio module (WTZ.RM) is available for the exact transmission range determination.The transmission range information has only informative value and does not establish guaranteed system parameters.

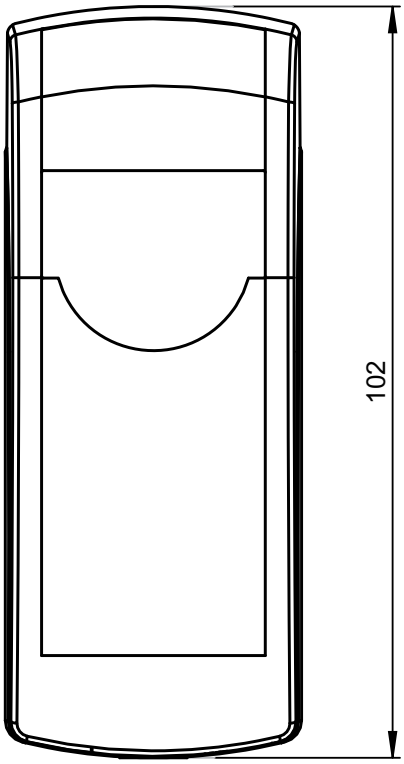
[2] Definitions according to DIN EN 834

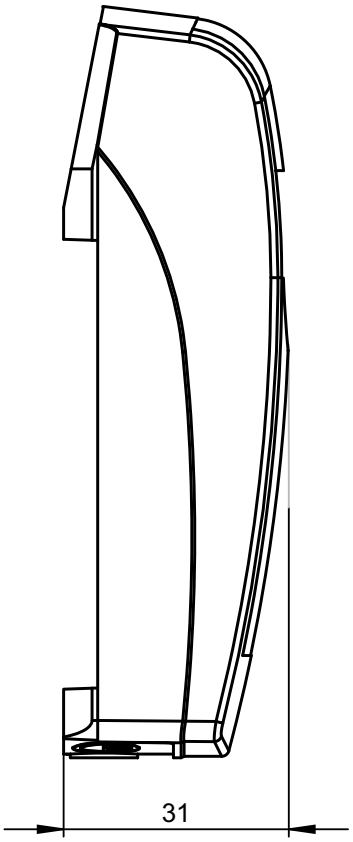
- $t_{min,m}$ Lowest mean design heating medium temperature at which the heat cost allocator may be used. With single-tube heating systems this is the mean design heating medium temperature of the last radiator in the strand.
- $t_{max,m}$ Highest mean design heating medium temperature at which the heat cost allocator may be used.
- t_Z Mean heating medium temperature of the radiator at which the counter of the heat cost allocator starts up
- t_L Reference air temperature
- t_m Mean heating medium temperature

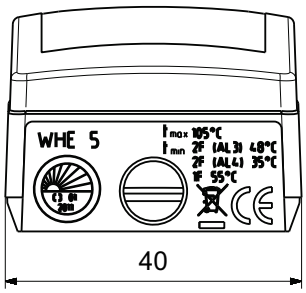
Norms and standards	CE - Conformity according to	
	EMC guideline - Interference resistance, emissions	2004/108/EC EN 61000-6-2, EN 61000-6-3
	Low-voltage guideline - Electrical safety	2006/95/EC EN 60950-1
	RTTE (Radio & Telecom. Equipment) - Radio communication	1999/5/EC EN 300220-2
	Heat cost allocator for acquiring consumption data for room heating	DIN EN 834
Environmental compatibility	Product environment declaration CE1E2886en contains data about environmentally friendly product design and evaluation (RoHS conformity, substances used, packaging, environmental benefits, disposal) See online catalog	ISO 14001 (environment) ISO 9001 (quality) GL 2002/95/EC (RoHS) Regulation (EC) 1907/2006 (REACH)
Dimensions	(W x H x D):	40 x 102 x 31 mm
Sensor cable length		2.5 m
Weight	Device packed with attachments	58 g
Material	Housing material	PC-ABS
Housing colours		RAL 9016 Traffic White

Dimensional drawings

Dimensions in mm







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