



Electronic heat cost allocator

WHE465...
WHE466...

Heat cost allocator with remote readout and different measuring principles

Electronic device for heat cost allocation by measuring the emitted amount of heat of a radiator. Remote readout by radio. Available as single- and double-sensor unit.

Application

The heat cost allocator is used as part of the Q walk-by system if the heat costs have to be allocated to several consumers on the basis of the actual consumption. The main fields of application are heating installations with central heating facilities in which the consumers receive the heat energy individually.

Installations of this type are used, for example, in:

- Multi-family homes
- Office and administrative buildings

Typical users are:

- Private building owners
- Housing industry
- Housing co-operatives
- Building servicing companies
- Real estate managements

On the radiator side, the heat cost allocator can be used for:

- Sectional radiators
- Tubular radiators
- Plate-type radiator with horizontal and vertical water flow
- Radiator tube register
- Convector heaters
- Average heating medium design temperatures of min. 35 °C to max. 105 °C (depending on the measuring principle).

Functions

- Determination of the emitted amount of heat of a radiator on the basis of the measured and evaluated radiator temperature
- Cumulated consumption since last due date
- Previous year's consumption
- Readout by radio and transmission of the consumption values to a readout unit of the Q walk-by system without direct entry of the unit.
- Tamper protection: Display and error message to central unit when units are opened without authorization
- Version WHE466.FR can be programmed via IrDA (opto-electronic) interface, version WHE465 in connection with WHZ4.PO.
- The heat cost allocators are delivered in the SLEEP mode. The device is awaked by the tampering contact and transmits installation telegrams when the device is mounted on the heat conductor.
- Parameterization options (parameterization by the customer)
 - Start day
 - Due date
 - Radiator-specific data
 - Read out mode yearly / monthly
 - Type of due date yearly/monthly
 - Time offset in days from readout day.
 - Weekdays without transmitting telegrams
 - Transmission period during a day (e.g. 6:00 a.m. - 6:00 p.m.)
 - Use in Q AMR-system (not reversible)
- Independently from the set read-out time, the meters send out status telegrams several times a day throughout the whole year

Type summary

	<i>Type of device</i>	<i>Type reference</i>
Single-sensor measuring principle	Heat cost allocator, compact device	WHE465
	Heat cost allocator, remote sensor device with IrDA interface	WHE466.FR
Double-sensor measuring principle	Heat cost allocator, compact device	WHE465Z
	Heat cost allocator, remote sensor device with IrDA interface	WHE466Z.FR

Technical design

Measuring principle:

The heat cost allocator is delivered as single-sensor device and double-sensor device.. The following rating factors are factory set:

$$K_{\text{CHF}} = 1.28 \quad K_c = 2.50 \quad K_Q = 1000 \quad \text{Exp.} = 1.15$$

If the heat cost allocator does not operate with a product scale, the consumption values must be calculated (CV) from the reading (RV) and the radiator-specific K values (K_c , K_{CHF} and K_Q) prior to billing:

Single-sensor device	$CV = 7.529 \cdot 10^{-4} \cdot RV \cdot K_Q \cdot K_{\text{CHF}}^{1.15}$
Double-sensor device	$CV = 3.486 \cdot 10^{-4} \cdot RV \cdot K_Q \cdot K_c^{1.15}$

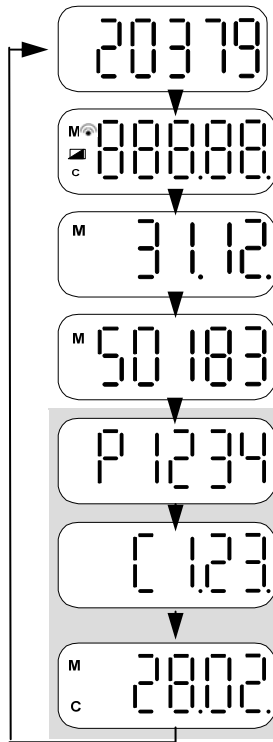
The factory setting for the due date is December 31.

With respect to walk-by, the WHE46xx is set to:

- Read out mode yearly
- Type of due date yearly
- Time offset from the readout day 0 days
- Daily transmission period 8:00 a.m. to 6:00 p.m.
- No transmission of telegrams on Sundays

Display

Display loop



The display contents changes cyclically and comprises the following data:

Current consumption

Segment test (flashing)

Depending on parameter "Type of due date"
Due date (yearly) / Date at the last month end

Depending on parameter " Type of due date "
Consumption value of due date / Consumption value at the last month end

k_Q value
corresponds to radiator rated output in W

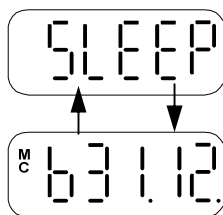
These display steps only become visible when the WHE4xx was equipped with product scale.

k_C value
evaluation factor taking into account different thermal coupling of the temperature sensors

Date of target due day

Appears only if the date of the target due day differs from the date of the due day.

Sleep mode



SLEEP and due day are displayed alternately.

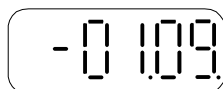
b in front of due date indicated walk-by parameterization

P in front of due date indicated AMR

No identification - no radio parameterization

In Sleep mode, the WHE4xx does not count consumption values. This allows the device, for example, to be transported in summer without continuing counting. The standard counting mode is started and the display loop set by mounting the WHE 4 on the heat conductor.

Special displays



Start day - The device will not count until the start date arrives.



Error display

only when a serious error occurs The device no longer changes the display.



IrDA communication becomes possible again in the following month



Device service life of 10 years has been exceeded.

Accessories

Installation gauge and other accessories

Accessories

Installation gauge	WHZ2.ML
Spare seal for WHE30 / WHE46...	U12130-2004
Bezel for WHE46...	WHZ4.B
IrDA adapter for WHE4 without IrDA interface	WHZ4.PO

Mounting kit

The following mounting kits comprise all available components. Select the appropriate components according to the type of installation. Installation kits are available for:

- Panel radiators
- Convection heaters
- Tubular radiators
- Aluminum radiators

Mounting kit for panel radiators

Parts	Variants	Packaging unit	Type reference
Heat conductor (long hole)	Heat conductor 4-1	50 pcs	F12130-2001/4-2
Slotted round nut	M3	500 pcs	F12102-2019
Welding bolt	M3 × 6 mm	100 pcs	02/572
Welding bolt	M3 × 10 mm	100 pcs	02/574
Welding bolt	M3 × 15 mm	500 pcs	F12102-2041
Welding bolt (aluminum)	M3 × 16 mm	1000 pcs	F12102-2041/1
Shank nut (hexagon nut)	M3 × 3 mm	100 pcs	FZ253-210
Shank nut (hexagon nut)	M3 × 6 mm	1000 pcs	FZ253-200
Shank nut (hexagon nut)	M3 × 9.5 mm	100 pcs	FZ253-220
Self-locking nut with serrated bearing	M3	1000 pcs	FZ253-230

Mounting kit for sectional radiator

Parts	Variants	Packaging unit	Type reference
Heat conductor (long hole)	Heat conductor 4-1	50 pcs	F12130-2001/4-2
Heat conductor	Adapter 2/55 mm	25 pcs	F12105-2061
Trapeze slide nut 35	35 mm	50 pcs	FZ253-300
Trapeze slide nut 50	50 mm	50 pcs	FZ253-310
Trapeze slide nut 65	65 mm	50 pcs	FZ253-320
Screw	M4 × 35 mm	1000 pcs	F12105/2084
Screw	M4 × 50 mm	500 pcs	F12105/2085
Screw	M4 × 70 mm	500 pcs	F12105/2086

Use the corresponding heat conductor and the appropriate trapeze slide nut in accordance with installation requirements.

Mounting kit for convection heaters (remote sensor device)

Parts	Variants	Packaging unit	Type reference
Complete convector clamp (clamp, counter support, 2 slotted nuts, pull-off nut)		1 pce	F12105-1051
Welding bolt	M3 × 6 mm	100 pcs	02/572
Slotted round nut	M3	500 pcs	F12102-2019

Attach the remote sensor to the previously installed convector clamp by means of the pull-off nut.

Mounting kit for folded,
wave and ribbed
radiators

<i>Parts</i>	<i>Variants</i>	<i>Packaging unit</i>	<i>Type reference</i>
Heat conductor (long hole)	Heat conductor 4-1	50 pcs	F12130-2001/4-2
Complete mounting kit		1 pce	WHZ2.FWE

Mounting kit for tubular
radiators

<i>Parts</i>	<i>Variants</i>	<i>Packaging unit</i>	<i>Type reference</i>
Heat conductor (long hole)	Heat conductor 4-1	50 pcs	F12130-2001/4-2
Heat conductor	Adapter 2/55 mm	25 pcs	F12105-2061
Slide nut	36 mm	1 pce	FZ253-130
Slide nut	45 mm	1 pce	FZ253-120
Recessed head screw	M4 x 35 mm	1000 pcs	F12105-2084
Recessed head screw	M4 x 50 mm	500 pcs	F12105-2085
Recessed head screw	M4 x 70 mm	500 pcs	F12105-2086
Filler piece		10 pcs	F12130-2016

Mounting kit for
aluminum radiators

<i>Parts</i>	<i>Variants</i>	<i>Packaging unit</i>	<i>Type reference</i>
Heat conductor (long hole)	Heat conductor 4-1	50 pcs	F12130-2001/4-2
2 square pins		50 pcs	FZ253-160
2 recessed head screws	M3 x 25 mm	500 pcs	F12105-2076
2 self-tapping screws	C 4.2 x 25 C (instead of square screw)	500 pcs	F10102-2026

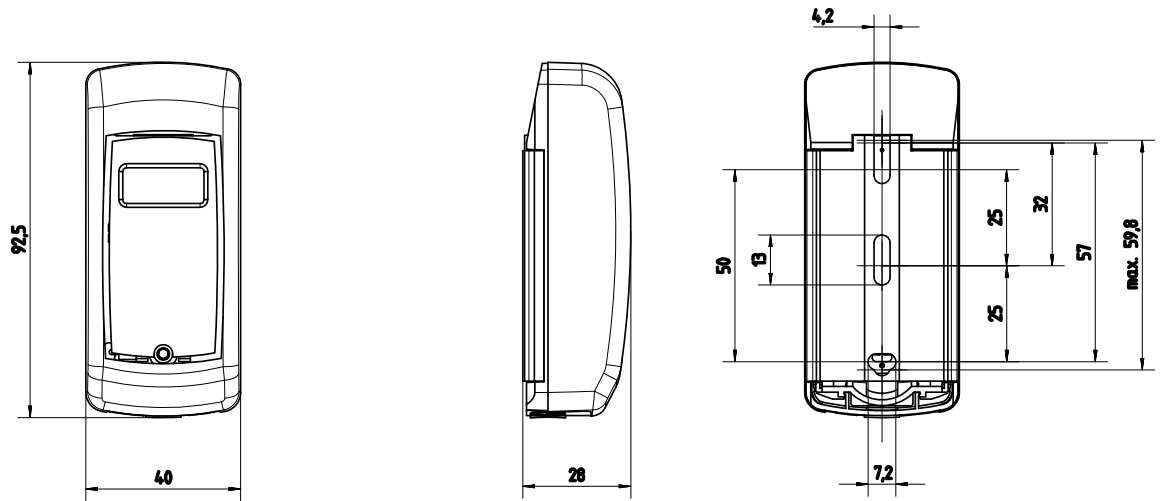
Use either the two self-tapping screws C 4.2 x 25 or two square screws with the appropriate screws M 3 x 25 according to mounting requirements.

Technical Data

Standards	CE Conformity	Directive 1995/5/EC (R&TTE Directive) Radio and Telecommunications Terminal Equipment Act (FTEG)
	Heat cost allocator for the detection of consumption values of room heating surfaces	EN 834
	Electromagnetic compatibility	
	Interference immunity	ETSI EN 301 489-1 ETSI EN 301 489-3 EN 61000-6-2
	Interference emission	EN 300 220-1 EN 300 220-3 EN 61000-6-3
	Safety of IT installations	EN 60950
General device data	Measuring principle:	Single-sensor or double-sensor
	Field of application ¹⁾ :	
	Single-sensor devices	$t_{\min,m} = 55\text{ °C}$, $t_{\max,m} = 105\text{ °C}$
	Double-sensor devices	$t_{\min,m} = 35\text{ °C}$, $t_{\max,m} = 105\text{ °C}$
	Start of metering:	(t_z refers to the measured heating medium temperature)
	Single-sensor devices	$t_z \geq 30\text{ °C}$ (at $t_L = 20\text{ °C}$) unprogrammed $t_z \geq 28\text{ °C}$ (at $t_L = 20\text{ °C}$) programmed
	Double-sensor devices	$t_z - t_L \geq 5\text{ K}$
	¹⁾ Definitions according to DIN EN 834	
	$t_{\min,m}$	Lowest average design temperature of the heating medium at which the heat cost allocator may be used. For single-tube radiators, this is the average design temperature of the heating medium of the last radiator in the row.
	$t_{\max,m}$	Highest average design temperature of the heating medium at which the heat cost allocator may be used.
t_z	Average heating medium temperature of the radiator..... at which the counting mechanism of the heat cost allocator will start counting.	
t_L	Reference air temperature	
t_m	Average heating medium temperature	
Dimensions (W x H x D):	92.5 x 40 x 28 mm	
Service life	10 years plus 15 months reserve	
Display	LCD, five-digit with symbols	
Weight	120 g	
Nominal frequency	868.3 MHz	
Transmission power	< 5 dBm	
Duty cycle	< 1 %	
Allowed ambient temperature		
During transport and storage	-25 °C to max.+60 °C	
During storage and in operation	0 °C to max. +55 °C	

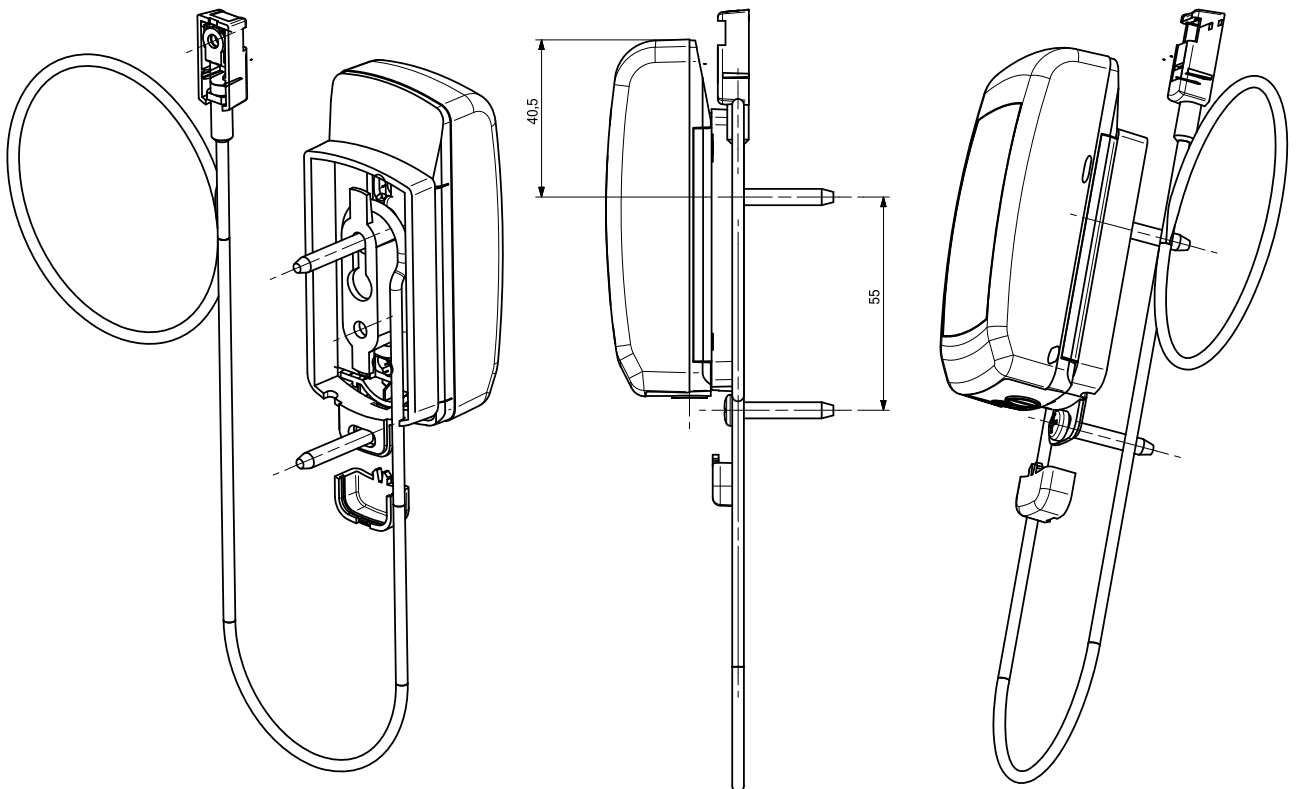
Dimensional diagram

Compact device



Dimensions in mm

Remote sensor device



Dimensions in mm

The general information and description of features given in this data sheet may not always apply to each and every application, or may change due to product development. Product features are binding only when explicitly agreed upon at the time of conclusion of contract.

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