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Electronic
heat cost allocator WHE30...

Electronic unit for heat cost allocation through acquiring the amount of heat emitted by radiators. Storage of cumulated consumption values on a selectable set day. The WHE30Z was developed under the two-sensor measuring principle and also as WHE30 (single sensor) available. It can be used for low temperature heating as well as standard heating systems.

Use

WHE30.. is used to allocate heat costs to the various consumers based on the actual heat consumption.

Major fields of application are heating plants with central heat generation where heating energy is supplied to several individual consumers.

Plants of this type are used in houses or buildings such as

- Multi-family houses
- Office and administrative buildings

Typical users are
- Private building owners
- Property associations
- Building services companies and housing estate agents

The WHE30Z is suitable for
- Sectional radiators (made from cast iron or cast steel)
- Tube radiators
- Panel radiators with horizontal or vertical water flow
- Pipe register radiators
- Convectors

Functions

- Determination of the amount of heat emitted by a radiator based on the measured and rated radiator temperature
- Cumulating of consumption since the last set day
- Continuous self-test with error messages
- Checksum for user-readout of current and set day values
- Operation as single sensor device (WHE30) is also supported
- When used in low-temperature heating systems, the device must always be programmed with specific radiator data.

Type summary

The heat cost allocator usually is delivered together with a heat conductor. For replacement purposes, delivery without heat conductor is possible also.

Unit	Type reference
Compact device (single sensor measuring principle)	**WHE30**
Compact device (single sensor) without heat conductor	**WHE30.A**
Compact device (two sensor measuring principle)	**WHE30Z**
Compact device (two sensor) without heat conductor	**WHE30Z.A**
Remote sensor device (single sensor measuring principle)	**WHE30.FR**
Remote sensor device (two sensor measuring principle)	**WHE30Z.FR**

Technical design

Measuring principle

The device can be used unscaled up to a lower temperature limit of $t_{min} = 48\ °C$, scaled device up to $t_{min}\ 35°C$. For this purpose, the following values are fixed programmed:

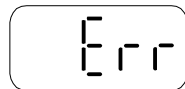$K_{cHF} = 1.28$ $K_c = 2.5$
$K_Q = 1000$ $EXP = 1.15$

Display

The display comes with an automatic alternation display:
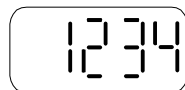

Error display

This display appears only in case of serious errors. In this case, the device no longer alternates between displays.
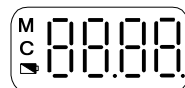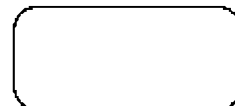

Current consumption (3 s)

Current consumption is displayed by a four-figure value without symbols. For optimal readout, the value is displayed for 3 s.

Segment display test (0.5 s)

  0.5 s   0.5 s

All segments of the display are displayed for half a second. After this, no display appears for 0.5 s.

Set day (1 s)

```
31.12.
```
1 s

The set day is displayed without symbols. Only day and month displays are possible. Year displays are not available. The display appears for 1 second.

Set day value (3 s)

```
M 3164
```
3 s

The set day value is displayed as a four-figure value with an "M" in the left corner. For optimal readability, this value is displayed for 3 seconds.

The set day values for consumption in first year are displayed as follows:
The date for the next set day is also entered in the date of the last set day. Thus, the display e.g. reads "31.12". The set day value is substituted by 4 dashes "-----".

Checksum (3 s)

```
C 1234
```
3 s

The checksum is displayed as a four-figure value with a "C" in the left corner. The checksum is calculated from the last four positions of the device number, the current reading value, the set day date, and the set day value. This display is shown for 3 seconds. If the device is a scaled device, two additional decimal places are displayed. The checksum makes for manipulation-proof readings.

The next set day

During manufacturing of the WHE30.., identical values for the last set day and the date for the next set day are programmed. If the next set day scheduled is changed, the next set day is inserted in the display. This display is marked with "M" and "C". To display the data, only the sequence "day . month" is possible. Year values are not displayed.

```
M
C 08.02.
```

Start day

```
01.04.
```

```
2002
```
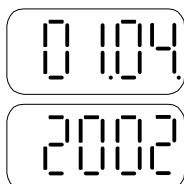
It is possible to enter a start date in the WHE30.. Consumption is not recorded until this date is reached. This function is used e.g. for installation in new buildings prior to initial occupancy. Thus, the heat cost allocator can be installed prior to the start of the heating phase without recording consumption. Days, months and year are shown at an alternating sequence. After the start date is reached, the standard display is invoked and the device starts to record heating consumption from the radiators.

Battery symbol   After 10 years of runtime, the battery symbol is displayed.

Standard parameterization

```
        ┌──────────────────────────────┐
        ▼                              │
┌──────────────────────┐              │
│     Current value     │              │
└──────────────────────┘              │
        │ 3 s                          │
        ▼                              │
┌──────────────────────┐              │
│ Display test - everything │          │
│   switched on         │              │
└──────────────────────┘              │
        │ 0.5 s                        │ 3 s
        ▼                              │
┌──────────────────────┐              │
│ Display test - everything │          │
│   switched off        │              │
└──────────────────────┘              │
        │ 0.5 s                        │
        ▼                              │
┌──────────────────────┐              │
│    Date of set day    │              │
└──────────────────────┘              │
        │ 1 s                          │
        ▼                              │
┌──────────────────────┐              │
│ Previous year's reading │            │
└──────────────────────┘              │
        │ 3 s                          │
        ▼                              │
┌──────────────────────┐              │
│      Checksum         │              │
└──────────────────────┘              │
        └──────────────────────────────┘
```
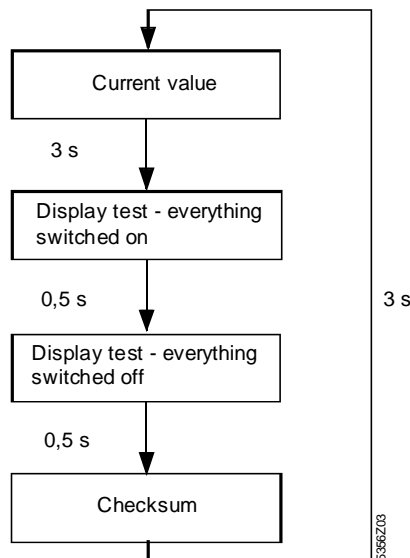5356Z02
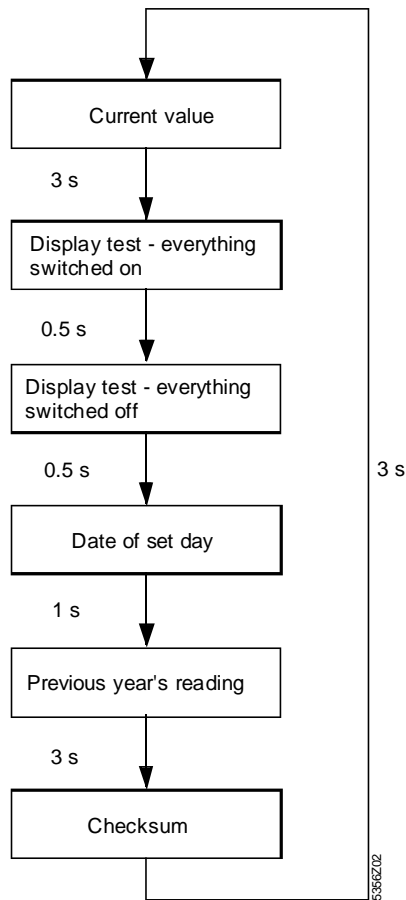
Per default, the heat cost allocator comes with a set day "31.12." and the following display parameters.

Parameterization using a programming adapter

```
        ┌──────────────────────────────┐
        ▼                              │
┌──────────────────────┐              │
│     Current value     │              │
└──────────────────────┘              │
        │ 3 s                          │
        ▼                              │
┌──────────────────────┐              │
│ Display test - everything │          │
│   switched on         │              │
└──────────────────────┘              │
        │ 0,5 s                        │ 3 s
        ▼                              │
┌──────────────────────┐              │
│ Display test - everything │          │
│   switched off        │              │
└──────────────────────┘              │
        │ 0,5 s                        │
        ▼                              │
┌──────────────────────┐              │
│      Checksum         │              │
└──────────────────────┘              │
        └──────────────────────────────┘
```
5356Z03

The set day can be set to "00.00." using a special programming adapter. As a result, the device does not carry out a set day reading. The display simply continues to run. If this is programmed, the display automatically is reduced to a few values only.

If later a new set day is programmed, the complete display appears.

Parameter settings

Programming units	Type reference
Programmer (12 set days)	**WHZ3.P1**
Programmer (to switch off the set day function)	**WHZ3.P2**
Programmer to connect to a PC or laptop	**WHZ3.P3**

To program the heat cost allocator with radiator-specific values, the programming adapter WHZ3.P3 is necessary. This adapter can be connected to either a PC or a laptop.

Installation ruler and other accessories

Accessories	Type reference
Installation ruler	**WHZ2.ML**
Seal for WHE30..	**U12130-2004**
Bezel for WHE30.. to cover unsightly radiator spots	**WHZ3.B1**

The WHE30.. is delivered together with seals and standard heat conductor. For replacement purposes, the seals must be ordered separately.

Installation kits

The following installation kits comprise all possible components. The appropriate components must be selected individually for each installation. Kits are available for:
- Panel radiators
- Ribbed radiators
- Convectors
- Finned radiators
- Aluminum radiators

Installation kit for steel panel radiator

Parts	Variants	Packaging unit	Type reference
Heat conductor	Heat conductor 4-1	50 pieces	**F12130-2001/4-2**
Slotted round nut	M3	500 pieces	**F12102-2019**
Welding bolt	M3 × 6 mm	100 pieces	**02/572**
Welding bolt	M3 × 10 mm	100 pieces	**02/574**
Welding bolt	M3 × 15 mm	500 pieces	**F12102-2041**
Welding bolt (aluminum)	M3 × 16 mm	1.000 pieces	**F12102-2041/1**
Shank nut (hexagon nut)	M3 × 3 mm	100 pieces	**FZ253-210**
Shank nut (hexagon nut)	M3 × 6 mm	1.000 pieces	**FZ253-200**
Shank nut (hexagon nut)	M3 × 9.5 mm	100 pieces	**FZ253-220**
Corrugated-head nut	M3	1.000 pieces	**FZ253-230**

Installation kit for ribbed radiators

Parts	Variants	Packaging unit	Type reference
Heat conductor	Heat conductor 4-1	50 pieces	**F12130-2001/4-2**
Heat conductor	Adapter 2/55mm	50 pieces	**F12105-2061**
Trapeze Slide nut 35	35 mm	50 pieces	**FZ253-300**
Trapeze Slide nut 50	50 mm	50 pieces	**FZ253-310**
Trapeze Slide nut 65	65 mm	50 pieces	**FZ253-320**
Screw	M4 x 35	1.000 pieces	**F12105-2084**
Screw	M4 × 50	500 pieces	**F12105-2085**
Screw	M4 x 70	500 pieces	**F12105-2086**

The corresponding heat conductor and the appropriate trapeze slide nut must be used commensurate with the installation requirements.

Installation kit for convectors, remote sensor installation

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

The remote sensor must be attached to the previously installed convector clamp by using the pull-off nut.

Installation kit for finned radiators and similar models

Parts	Variants	Packaging unit	Type reference
Heat conductor	Heat conductor 4-1	50 pieces	**F12130-2001/4-2**
Mounting kit		1 piece	**WHZ2.FWE**

Installation kits for tubular radiators

Parts	Variants	Packaging unit	Type reference
Heat conductor	Heat conductor 3/1	50 pieces	**F12130-2001/1**
	Adapter 2/55 mm	25 pieces	**F12105-2061**
Slide nut	36 mm	1 piece	**FZ253-130**
	45 mm	1 piece	**FZ253-120**
Hexagon screw	M4 x 35	1.000 pieces	**F12105-2084**
Hexagon screw	M4 × 50	500 pieces	**F12105-2085**
Hexagon screw	M4 x 70	500 pieces	**F12105-2086**
Profile spacer		10 pieces	**F12130-2016**

Installation kits for aluminum radiators

Parts	Variants	Packaging unit	Type reference
Heat conductor	Heat conductor 3/1	50 pieces	**F12130-2001/1**
square pin		50 pieces	**FZ253-160**
screw	M3 × 25	500 pieces	**F12105-2076**
self-tapping screw	C 4.2 × 25 C (in place of square pin)	500 pieces	**F10102-2026**

Either two self-tapping screws C 4.2 × 25 or two square pins with the appropriate screws M 3 × 25 must be used commensurate with the mounting method.

Technical data

General data

Measuring principle	Two-sensor with standard scale
Operation range	t_{min} = 35 °C, t_{max} = 105°°C[1] to t_{min} = 48 °C unscaled operation
Battery life	10 years
Display	LCD, 4 digits, special symbols
Weight	90 g

[1]) WHE30Z scaled device applicable up to t_{min} 35°C

Standards

Heat cost allocators for the determination of the consumption of room heating radiators – Appliances with electrical energy supply.	EN 834
Electromagnetic compatibility Emissions	EN 61000-6-2:1999 (EN 50082-2:1995)
Immunity	EN 50081-1:1992 (EN55022:1999-05)

Dimensions

Dimensions in mm
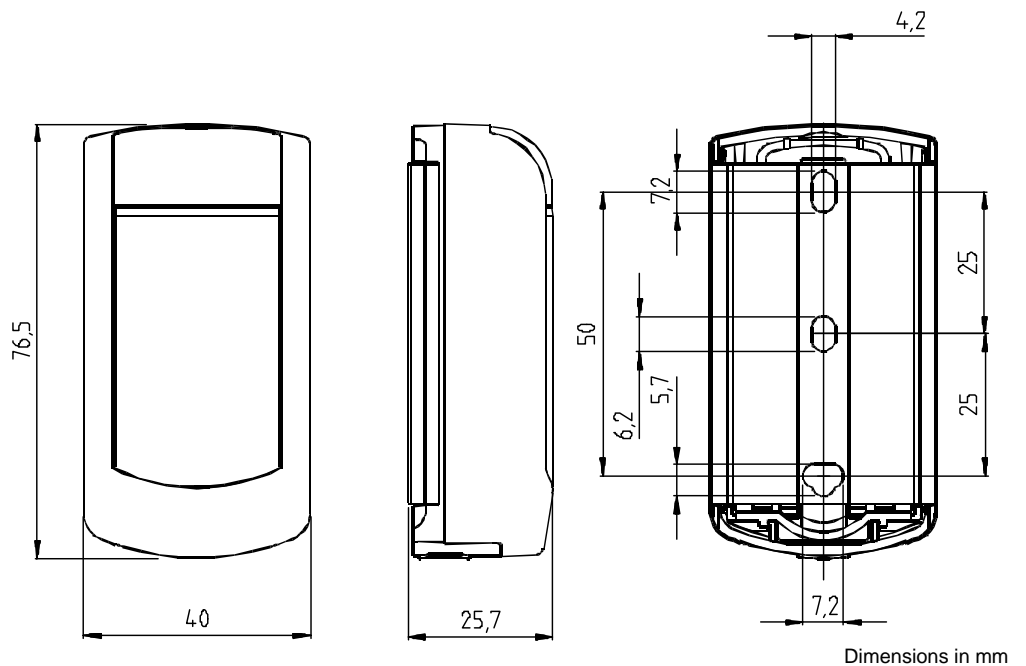
This data sheet contains only general descriptions for e.g. performance and capability characteristics and other features which, in certain cases, may not apply as described or which may change through development of the product. Accordingly, the desired performance or capability characteristics are legally binding if agreed to expressly upon signing a contract.

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