

► Brunata Futura Heat for remote reading and with external sensor

Electronic heat cost allocator

Brunata Futura Heat is an electronic metering device for recording the heat consumption from individual radiators in a building.

The purpose is to measure individual heating consumption precisely and based on the measurements calculate and allocate the costs of the heating to the actual consumer of the heating.

The heating is delivered from a common heating system, and the distributor of the heating decides the price of a heating unit. Futura Heat only measures the amount of heating (calculated in units) used from every radiator very precisely.

External sensor

The external sensor makes it possible to measure heat consumption from radiators in remote places e.g. addicts, radiators installed on the other side of a wall and radiators installed below the floor.

As a standard the extension is 2 meters long.

Brunata Futura Heat

- Is equipped with a radio transmission module which enables remote readings without inconvenient service visits from reading personnel.
- Is designed for both high temperature and the still more common low temperature heating systems.
- Offers a clear and easy-to-read display, showing the added-up consumption for the ongoing metering period and the consumption total for the previous, closed metering period. Further, a ten-year reading history is stored in the memory.
- Is powered by a replacable battery so it can continue operation without being replaced.

Measures correctly the whole year

- Futura Heat records not only the heat emitted by the radiator ('plus heat'), but also outbalances the heat absorbed by the radiator from the surroundings ('minus heat'). In this way it is avoided that heat absorbed due to e.g. infalling sunlight or wood-burning stoves is wrongly recorded as consumption. Futura Heat only records the heating from the central heating system itself for billing.



10 yrs. battery	Description of Futura Heat ⁺ 3.0 with external sensor
50-3005-A	E1, with external radiator sensor (50 mm sensor). Used when mounting by welding bolt.
50-3006-A	E1, with external sensor (22 mm sensor). Used for mounting on a floor heating valve.
50-3009-A	E1, with external sensor for casting/embedding into the floor.
50-3007-A	E2, with both external radiator and room sensors

- Futura Heat works along the two-sensor measuring principle, and both sensors may be employed within the temperature range from 0 °C to to 125 °C with an external sensor. All temperatures are processed in the allocator with a 0.1 K resolution. Continuously, measurements of the radiator's average temperature and of the room temperature are carried out for ongoing calculation of the radiator's heat emission based on the difference between those temperatures.
- Futura Heat is notable in not using a calendar function to raise the temperature limit for starting registrations. This ensures that e.g. heat consumption in cold periods of early and late summers is also recorded. This is important in particular for central heating systems with low supply temperatures or systems with automated temperature reduction during summers.

Brunata is a Danish owned company which ensures a fair and individual allocation of energy costs with Danish metering solutions. We have almost 100 years of experience within developing and producing meters, heat cost allocators, consumption accounts and meter services. Today meters are often remotely read with access to data via the Internet. Brunata has a quality control system fulfilling DS/EN ISO 9001 and 14001.

Clear and easy-to-read display

Futura Heat+ is easy to read for the user. By simple symbols, the different data alternate in the display:

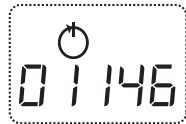
Units this year

The heat consumption is measured in units and accumulated in a counter unit, and shown as "⌚" on the allocator's display. On the first day of a new heat accounting year, the measurement of "Units this year" automatically starts at zero.



Units last year

Last year's heat consumption is read exactly on the terminal date, is stored in the memory and shown as "⌚" on the display. This way, it is possible for the consumers to continuously monitor their heat consumption and compare it with the consumption the preceding year. The consumption of the past ten years is stored in the allocator's internal memory.



Scale and control figure

When installed, each allocator is adjusted to the radiator capacity by means of a scale. This ensures that the heat consumption is measured correctly and is comparable with the consumption in other locations where Futura Heat+ cost allocators are installed. In addition, the allocator is equipped with a control figure, which provides extra security for correct reading of the consumption.



Allocator no.

Each allocator has its own unique number. As a result, Brunata can always find details of consumption, installation location, etc.



Data telegrammes transmit

Consumption for current two-week-period
Consumption for previous two-week-period
Consumption for pre-previous two-week-period
Consumption current season as per reading date
Allocator's ID no.

Useful data storage in the memory

- Consumption totals at the end of all two-week-periods reaching back 26 months
- Data on radiator and room temperatures
- Calendar date and time
- Damages and tampering attempts
- Other information on the operational conditions of the allocator

The data history offers important advantages:

- No need for additional readings, e.g. when residents move in or out.
- Possible to analyse extraordinary consumption patterns on radiator level.

Technical data

Operating principle

Electronic heat cost allocator with two-sensor measurement. One sensor records the radiator surface temperature, the other records the room temperature.

Standards

Danish type approval DS/EN 834

System designation TS 27. 21 027

The Danish type approval does not include metering of floor heating. European standard EN301489, EN60950, EN62311

Application area

Ordinary types of one and two piped heating systems, incl. low temperature systems and buildings insulated post-construction.

Criteria of consumption recording

$t_z - t_1 > 0 \text{ } ^\circ\text{C}$ In conformity with DS/EN 834 item 5.3
+ and - heat Only heat supplied to the radiator from the central heating system is recorded as consumption
(patented) Measures correctly at very low temperatures
Range 0 °C – 125 °C (0 °C - 105 °C standard)
Range 0 °C – 125 °C (0 °C - 105 °C standard)

t_{room}
 t_{rad}

Type designations

E1 with external radiator temperature sensor t_{rad}
Range 0 °C – 125 °C
E2 with external radiator and room temperature sensor
 t_{rad} Range 0 °C – 125 °C


Transmission frequency

Futura Heat ver2 sends a telegram every two minutes

Protocol

Futura Heat ver2 uses BrunataNet ver2 protocol

Display

⌚ "Units this year", ⌚ "Units last year",
 "Scale" and # "Allocator no."
are shown alternately

Protection class IP42

Memory

The latest 52 measurements from the 1st and 15th day of the month (heat consumption, radiator and average room temperature) 26 months in total. The closing date for heating accounts. Dated log of operation conditions and error conditions. Statistics of operation conditions (function modes), and annual consumption for the past ten years.

Measurements and weight

Futura Heat: 131 x 39 x 19 mm, approx. 65 g

Battery

All allocators are supplied with a battery for 10 or 15 years' normal use + one year. When the battery expires, it is replaced. The replacement does not influence the memory.

Disposal according to WEEE directive:



Caution

Risk of explosion if battery is replaced by an incorrect type
Dispose of used batteries according to the instructions