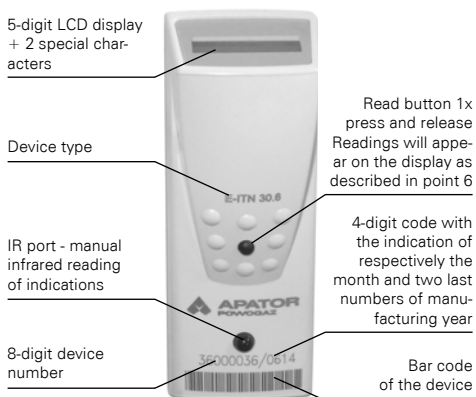


## OPERATION MANUAL

### 1. Application

E-ITN 30.51 and E-ITN 30.6 cost allocators for heat meters is a device that registers the temperature difference between the radiator surface and the room. On this basis the calculation system, strictly connected with the structure of given allocator, allows to determine which part of the costs of heat consumed during the heating period in the given building falls to the apartment in which given radiator is located.

### 2. Cost allocator structure



The allocator is equipped with mechanical and electronic seals that protect it against unauthorized access. The electronic seal is activated already during the production process, whereas the mechanical seal (clamp seal) is activated during the installation of the device on a radiator. In case of unauthorized opening of the allocator, the device will save the date of electronic seal breakage in its memory and will stop showing the data on the display. The display will show the description „Open“, which indicates unauthorized opening of the device. The allocator will continue the measurement and data transmission! The information about broken electronic seal will be available among the data transmitted via the radio module as well as the IR infrared interface. The device is powered with lithium battery and equipped with 16 byte microcontroller with very low energy consumption, as well as with the radio module.

### 3. Cost allocator performance

The cost allocator operates based on double-sensor measurement method, where one sensor measures the temperature of radiator surface and the other sensor measures the air temperature in the room. The allocator starts to calculate the units when the temperature of radiator measurement sensor is higher or equal 23 °C and the difference between the temperature of radiator surface and room temperature is higher or equal 5 °C. The units shown on LCD display are dimensionless units not connected with any physical quantities. The amount of calculated units allows to settle the costs incurred to the occupant for heating the flat.

**Warning:** The cost allocator is resistant against any manipulations. In the event of a manipulation, the allocator automatically switches to one-sensor operation mode (less convenient for the users). The allocator will switch back to standard operation mode (double-sensor mode) after the manipulation has stopped.

### 4. Failure mode

The cost allocator switches automatically from operation mode to failure mode when the microcontroller identifies a serious system failure. In failure mode the allocator constantly shows „Error“ message on the display. Cost allocator does not measure the temperature and neither calculates nor transmits the measured data, it only updates the date. In case of power failure, the data will not be completely lost because the allocator saves the data to its non-volatile memory every day. Saved data can be restored using special equipment.

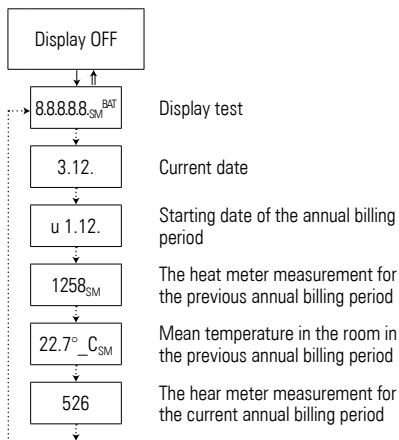
### 5. Battery life

Battery life is 10 years + 1 year. The information about battery life is stored in microcontroller's memory. In case of the allocator's operation in the last (tenth) year of battery life, the display will show a flashing symbol „BAT“. After the expiry of this period „BAT“ symbol will be displayed permanently.

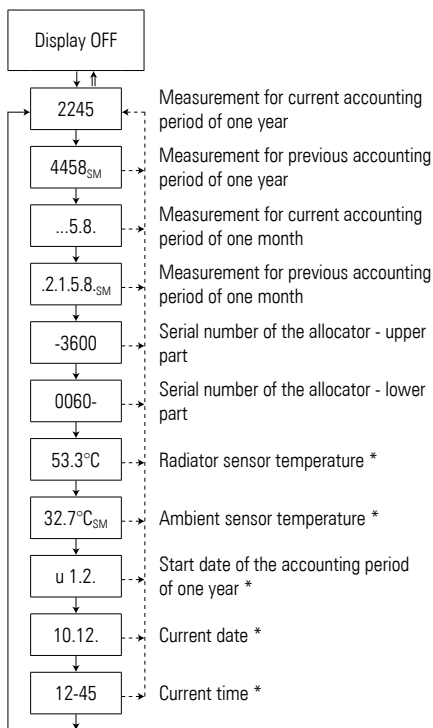
## 6. Reading the cost allocator's indications

### 6.1. Reading the indications from the display

#### Heating cost allocator 30.51



#### Heating cost allocator 30.6



### Legend

- Pushing the button shortly
- ⇄ the menu items on the display change every 6 seconds
- ⇄⇄ Button is not pushed during 20 seconds
- ⇒ Button is not pushed during ~1.5 minute what puts the device into sleep mode (display OFF)
- \*<sup>1)</sup> Position display may be turned off during configuration of the device

### 6.2. Radio reading

Due to the integrated radio module of the cost allocator, its indications can be read by the meter reader remotely, without the necessity to enter the flat. Thus it is not required that the user is present in the flat during the reading.

Measured data are transmitted in short frames with transmission time:

- 30.51 ~ 5 ms with transmission frequency every 30 seconds in the first month and every 240 seconds in the other 11 months of the annual period
- 30.6 ~ 5 ms and transmission frequency from 44 seconds (accounting period) up to 12 minutes (summer time).

The power of radio transmitter is 1 mW.

#### 6.2.1. Data sent by the cost allocator via the radio module

- Serial number of cost allocator
- Start date of accounting period
- Reading date
- Electronic seal breakage date
- Measurement of current accounting period of one year
- Measurement of previous accounting period of one year

#### Additional data sent only by the 30.51 heat meter:

- Mean temperature in the previous billing year
- Mean temperature in the current billing year

#### Additional data sent only by the 30.6 heat meter

- Measurement of current accounting period of one month
- Measurement of previous accounting period of one month
- Average ambient temperature of radiator for previous accounting period of one month

### 6.3. IR port reading

Reading of the cost allocator's indications can be performed using a special infrared reading device, which shall be put to IR port.



Do not place the used device together with municipal waste. Take it to a waste segregation point – comply with the rules of recycling.