Basic requirements on utility meters if multiple rates are applied

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OIML Seminar on Smart Meters
Brijuni, Croatia – 2-5 June 2009

Basic requirements on meters

WELMEC view in respect to MID requirements

Basic requirements on meters with cumulating registers for different rates

Basic requirements:

- The consumption values (quantities) which are the basis for the price to pay shall be measured by an instrument under legal control

- These values shall be checkable by the costumer on legally controlled display

- If values are transmitted only, this transmission is not necessarily under legal control

WG 11 of WELMEC discuss issues of MID in respect to legal metrology

WG 11 developed guidance on MID requirement in respect to Annex 1

Measurement results that serves as the basis for the price to pay may be:

A) the values of **different registers**, which are activated by remote control, a watch or other means (for instance a threshold of the current, a temperature threshold or a flow rate).
Each **register represents the total quantity, connected to one rate** in the billing process.

B) **memorised values, which represent the increase of the measured quantity during subsequent, fixed time intervals** (like 1/4 hour, 1 hour). The values may be processed during the billing process in order to connect rates to one or a number of those values (maximum demand in billing period, weekend rates etc).
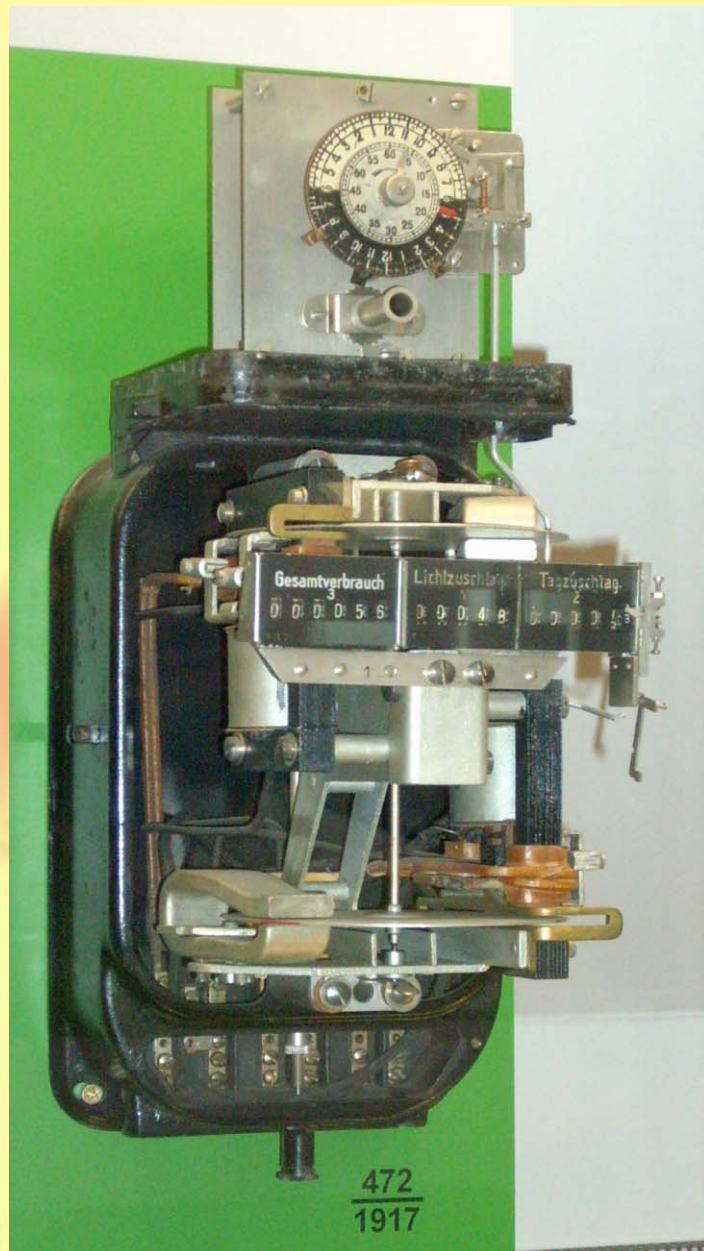
different registers for rates

clock or remotely controlled change of rates → switching between different registers

Definition:

rate register

A cumulating register which totalises the measured quantitie during the time in which a related rate is activated

Requirements:

- The meter shall be able display the results of each rate register on the display by means of the user interface (see WELMEC guide 7.2, for instance buttons on the instrument). It is possible to show the results on different displays, periodically or on request via user interface

- The meter shall indicate the currently active rate register

- A rate may be activated by remote control, a watch or other means (for instance a threshold of the current, a temperature threshold or a flow rate).

Requirements:

- If a rate is activated by a clock then the time shall be displayed periodically or on request via user interface

- the time shall be provided by the instrument in a way that a transformation to legal local time can be easily accomplished (e.g. indication of UTC).

- The clock shall be settable under user protection (password)

- The clock shall be settable remotely, if the meter has a communication interface

- The time difference between clock and the legal time shall be not more then 3 minutes

- before a rate register is set to zero (at the end of billing period) the value of a rate register shall be stored in a special register or in a log book

Notes:

If the rate structure is changed via communication interface the information should be displayed on request via user interface

If a rate is activated by a discrimination measurement the conditons for switching have to be defined

Example:

- the peek power consumption shall be determined in a gliding interval of 2 minutes

- After the peek power consumptions has exceed the limit the meter shall switches in the related rate

- After the peek power consumptions was in a time of 10 minutes below the limit the meter switches back

Interval meter

Requirements as draft available in WG 11

1   Scope

2   Definitions

Requirements

3   Clock

→ synchronization, setting of time,

4   Measuring Intervals

→ frame, handling of faults, time settings

5   Indication

→ minimum requirements, exceptional solutions

6   Influences

→ requirements on the quantity measurements and internal communication

- Record of commands (logbook) received or generated that could
  - affect the metrological properties (see D31)
  - change tariffs
- Record of time stamped measurement results
- The presence of (self) checking devices
- Devices that will enable the user to trace transmitted measurement data back to meter readings