

Electric Meters Through History

As use of electrical energy became more prominent in the late 1800s, a way to measure consumption had to be developed.

80th
ANNIVERSARY

1872

Samuel Rawson Gardiner patented his "lamphour" meter. This early meter measured the time that energy was supplied to the load, but it became obsolete when subdividing lighting circuits became practical with the introduction of the light bulb.



1879

Thomas Edison developed a meter with two rods of copper submerged in a jar containing a zinc-sulfate electrolyte solution. As electricity flowed through the jar, it dissolved zinc off the positive plate and deposited it onto the negative one, which could be weighed.

Thomas A. Edison

1886

Edward Weston developed a moving-coil galvanometer meter that becomes the standard for amp, volt and watt meters for more than 100 years.



1888



Early power pioneer Elihu Thomson built one of the first reliable wattmeters, known as the electromechanical induction meter. It utilized a motor and counted the revolutions of an aluminum disc that rotated at a speed proportional to power usage.

1888

A laboratory accident led Oliver Shallenberger at Westinghouse to develop the first alternating-current-measuring meter. The AC motor revolutionized electric meters and set a new standard.



1889



Bláthy's design became the first commonly used electric meter. Many of the kilowatt hour meters used today operate on the same principle.

Hungarian Otto Titus Bláthy developed a device containing a rotating metallic disk or cylinder, which is acted upon by two magnetic fields displaced in phase from one another.

1970s

Availability of analogue and digital integrated circuits makes electronic meters possible, though vacuum-tube meters stick around for a couple more decades.

1980s

Hybrid meters consisting of induction meters and electronic tariff units were constructed, but this technology had a relatively short run.



The number of digital multimeters in service outnumbers older tube-based or magnetic multimeters. The newer meters can send usage information via internet or radio signals.

1934

Landis & Gyr developed the Trivector meter, which could measure various types of energy depending on how it was configured.



1890s

The International Electrical Congress creates standards for measurement of electricity.

1900

Multi-tariff, maximum-demand and prepayment meters were all developed around this time.

1922

The first vacuum-tube voltmeter was invented by E.B. Moullin. It could measure higher voltage and, over several decades, replaced coil galvanometers.