

Power measurement of electronic devices

Goal

Record the rating and consumption of electrical devices, finding power wasters.

Brief description

With the help of a rated measurement device, you can measure the power consumed by a device as well as the energy consumption over a certain time. Some electric devices have surprisingly high connection loads. For example, measure the power consumption of the following:

- ✓ A coffee machine that is only on to keep the coffee warm.
- ✓ A laser printer in stand-by mode.
- ✓ A desk lamp (first with an incandescent lamp, then with an energy-saving lamp).



Not all power-consuming devices can be measured since these are permanent fixtures and not plugged in. The consumption of devices using constant power levels can be calculated based on their ratings. For example, the ceiling lights have a rating of 65 Watts per fluorescent lamp. For 12 lamps in one classroom, the ceiling lights consume 780 watt-hours per hour ($12 \times 65 \text{ W} \times 1 \text{ h}$) or 0.78-kilowatt hours. One kWh is the unit for which the electric company charges approx. € 0.20.

Example of use

With the power measurement device, you can check devices that are constantly in operation as to whether limited operation is sufficient. These include drink machines, electric water heaters, etc.

Measure the normal consumption, for example, over a 24-hour period, and then use the timer to switch off the machine over night. Measure the consumption of the device again (this time while using the timer) and check the power savings.