



ENERGY PERFORMANCE OF BUILDINGS

The University of Miskolc has been developing measuring devices and performing expert measurements for decades, primarily in order to optimise the electricity consumption of electricity suppliers, public buildings and industrial facilities. Recently, device development and system integration has expanded with the development of custom IoT tools and IT solutions that can be easily and efficiently applied to energy management systems in buildings and even smart grids.

COMPETENCIES

- Electricity, electricity efficiency
- General electronic device development, development of wired and wireless IoT devices for building energy systems
- On-site and remote monitoring of electricity systems on the service provider and consumer side
- Investigation and identification of disturbances in the electricity network
- Energy analysis and development of industrial systems, buildings, equipment



INSTRUMENTS

- Smart meters that can be adapted to individual needs and integrated into a building's energy system convenience smart devices; development of smart control units with wired and wireless communication (Ethernet, Modbus, wifi, LoRa, GSM/4G, NBIoT)
- Electrical measurement and expertise of industrial sites and public buildings
- Development of measuring, monitoring, test systems and equipment for automotive and commercial industrial applications, tailored to individual needs
- Measurement and calculation of energy processes



TOOLS

- Vibration meter (Easy Viber)
- Flue gas analyser (TESTO 330)
- Universal measuring instruments for measuring flow rate, temperature, absolute pressure, differential pressure, volume flow and humidity (TESTO 400, 445, 701)
- 64 channel pressure gauge (Single Scanivalve System)
- Pressure gauge (Druck DPI 145)
- Ultrasonic flow meter (PANAMETRIX PT868)
- Infrared thermometer (IRCON)
- Measurement data logger (SPIDER 8)
- Energy logger (Energy Logger 3500)
- 2 thermal imagers and their evaluation software (VarioCAM, IRCON)
- Software (ANSYS Autodesk Inventor PTC MathCAD 15 DesignBuilder Engineering Pro)



REFERENCES

- Construction of a building management system at E.ON's Trans-Tisza Electricity Network site
- Preparation and on-site revival of electricity network data collection devices on the runways and network endpoints of the transformer stations operating in the area of E.ON Trans-Tisza Electricity Network., Satrax Kft.
- HVAC system modernization study, Borsod Brewery
- Energy Auditor / Energy Review Training Program, MIHŐ
- Efficient and optimal energy distribution of electricity providers, optimization of controls, ÉMÁSZ