

ET 255.03

Consumers in solar electricity systems



Learning objectives/experiments

- prioritisation of electrical consumers in solar electricity systems
- energy management systems for optimising self-consumption
- use cases with changing grid availability
- consumers in emergency power mode
- experiments with specified generation and consumption profiles

Specification

- [1] two power resistors executed as tubular fixed resistors in a mesh enclosure
- [2] control unit with power displays, operation and settings
- [3] electrical supply through ET 255
- [4] connection to the GUNT software via network
- [5] separate electrical connections for demand- and availability-controlled consumers
- [6] status displays for request and release
- [7] operation with changing grid availability (grid-connected or stand-alone or emergency electricity operation)
- [8] time-controlled specification of consumption profiles by GUNT software in ET 255

Technical data

- 2 Power resistors
- continuous power 1: 600W
 - resistance value 1: 88 Ohm
 - continuous power 2: 1600W
 - resistance value 2: 33 Ohm

- Measuring ranges
- power resistor 1: 0...750W
 - power resistor 2: 0...22500W

LxWxH: 340x470x150mm
Weight: approx. 15kg

Required for operation

ET 255

Scope of delivery

- 1 experimental unit

Description

- controllable electrical consumers
- availability-controlled self-consumption
- usage optimisation through energy management system

In solar electricity systems, demand- and availability-controlled consumption of solar electricity plays a key role in cost-effective operation. This shows that different prioritisation of consumers can significantly increase efficiency while maintaining user comfort.

ET 255.03 contains two controllable electrical consumers that are prioritised differently. Two wire-wound tubular fixed resistors with different power consumption are used as consumers.

A consumer with lower power consumption is supplied with the highest priority. The lower priority is assigned to a consumer with higher power consumption.

Both electrical consumers can be switched on manually on the control unit or by a request from the GUNT software in ET 255. Settings in the energy management system in ET 255 ensure that consumers with lower priority are only supplied at certain times of day or depending on weather forecasts, for example.

The GUNT software in ET 255 controls the experiments. Typical generation and consumption profiles can be specified in the software via time-controlled sequences in order to investigate the optimisation of self-consumption under different operating options.

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Required accessories

ET 255 Operating options for modular solar electricity systems

Optional accessories

ET 255.01 Photovoltaic simulator

ET 255.02 Photovoltaic modules for solar electricity systems