

## MAVOWATT | 20

### Energy and Power Analyzer

#### Features

- 4 voltage inputs up to 600 V RMS, 4 current inputs
- Intuitive operation with color touch-screen
- Harmonic analysis up to the 63<sup>rd</sup> harmonic
- Automatic limit value settings
- Built-in uninterruptible power supply battery for up to 3 hours of operation



#### Description

The MAVOWATT 20 is a high performance, but nevertheless easy to use measuring instrument for comprehensive energy and power analysis at single and 3-phase energy systems.

It's extremely well suited for testing energy saving systems, acquiring energy consumption values and costs, determining the efficiency of photovoltaic inverters, and for harmonic analysis.

You can create test reports quickly and automatically with the help of free EPRW software, which can be exported to Excel or Word by simply pressing a key. Furthermore, the MAVOWATT 20 supports the calculation of CO<sub>2</sub> footprints and energy costs by tariff zone.

The MAVOWATT 20 is equipped with a large, color touch-screen. The various measuring functions can be selected directly with the respective icons. Intuitive user prompting is available in German, French, Italian and English.

The measuring instrument automatically detects mains parameters and electrical circuit type. The user can specify the utilized type of monitoring with automatic or manual limit value definitions by means of menu driven functions.

Acquired data are saved to CF memory cards. Optional communication is possible via RS 232, Ethernet or USB.

High performance EPRW software is included as a standard feature, which makes it possible to create energy reports or time sequences for a great variety of parameters in no time at all.

More extensive evaluations can be optionally conducted with the comprehensive analysis tools provided by DranView software.

#### Specifications

##### Language Versions

German, English, French, Italian, Spanish, Swedish, Finnish, Japanese, Chinese, Korean

##### General Specifications

Dimensions:	300 x 203 x 64 mm (H x W x D)
Weight:	1.9 kg
Operating temperature:	0 to +50° C
Storage temperature:	-20 ... 0 ... +50° C
Relative humidity:	10 to 90%, no condensation
System time:	Quartz movement, resolution: 1 s
Battery charger:	90 to 264 V AC / 47 to 63 Hz
Display:	LCD color touch-screen
Data storage:	Compact flash ≥ 4 GB

##### Optional Accessories

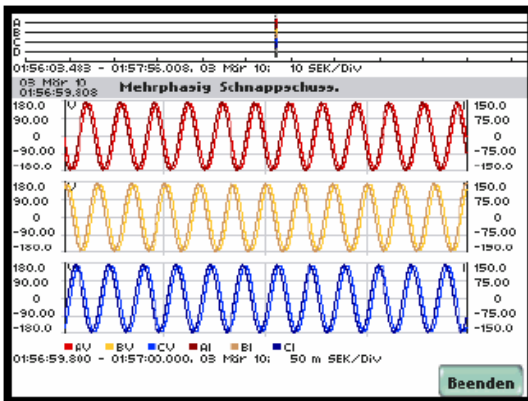
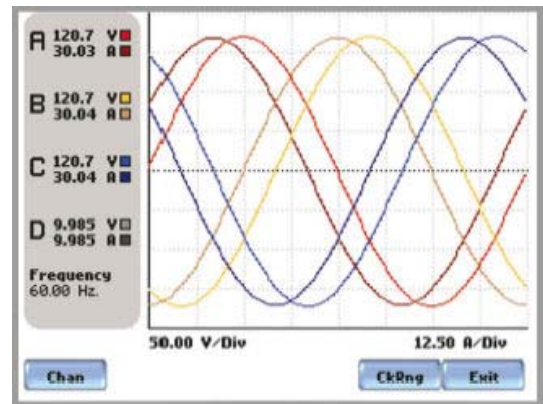
Current clamps:	
TR-2510A:	0.1 to 10 A, conductor dia. up to 20 mm
TR-2500A:	10 to 500 A, conductor dia. up to 30 mm
TR-2520A:	3000 A, conductors up to 135 x 50 mm
TR-2019B:	1 to 300 A, conductor dia. up to 50 mm (adapter required)
Flexible clamps:	30 to 6000 A, various dia.
Hall sensors:	150 A or 1500m A for AC/DC
CA4300LEM:	CT cable adapter
VCP4300:	Voltage cable kit
SCC-4300:	Carrying pouch
BP-PX5:	Replacement battery pack
XBC-PX5:	External battery charger

##### Communications Interfaces

COMM-RS232	Glass fiber to RS 232
COMM-OUA	Glass fiber to USB
COMM-OEA	Glass fiber to Ethernet
DRAN-VIEW	Software analysis and visualization

### Oscilloscope Mode

In the oscilloscope mode, all 8 channels are graphically and numerically displayed, phase locked. Direct voltage level can also be measured and monitored at all channels.

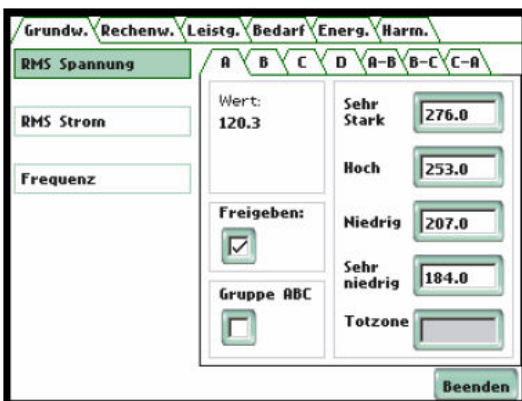
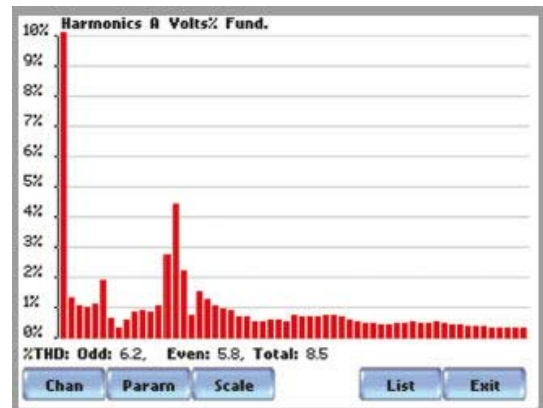


### Acquired and Saved Results

Saved results can be graphically displayed as waveforms or RMS value curves. They're furnished with a precise time stamp.

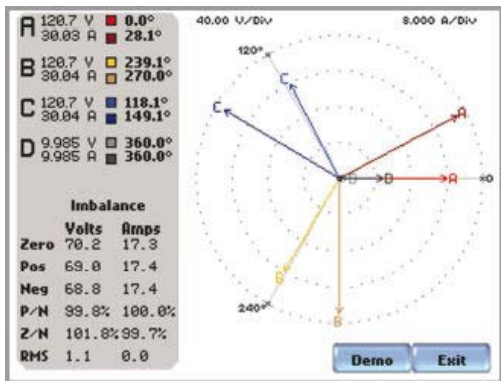
### Harmonic Analysis Up To the 63<sup>rd</sup> Harmonic

The instrument acquires integer harmonics as well as sub-harmonics up to the 63<sup>rd</sup> harmonic, and displays them as a spectrum.



### Automatic or Manual Limit Value Settings

The configuration of the circuit connected to the instrument is detected automatically. Based on momentary measured values, limit values are set automatically for subsequent monitoring, and can be manually changed if desired.



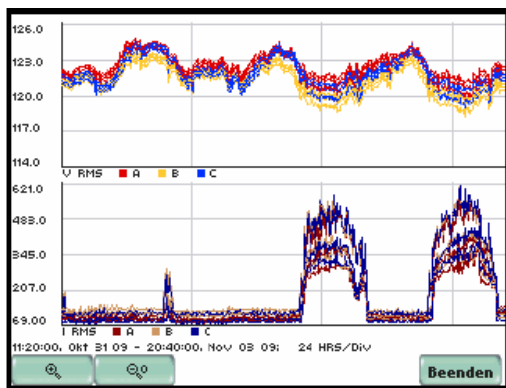
### Phase Vector Display

This display provides a quick overview of phase relationships amongst the individual phases, as well as between the voltage and current channels. It's very well suited for testing current clamp polarity.

### Status Display During Monitoring

This view can be displayed any time during monitoring. In addition to momentary measured values, supplementary information is also provided such as power demand, load peaks, costs and CO<sub>2</sub> footprint.

Measured quantities appear in color coded fields that change color like a traffic light when parameters are exceeded.

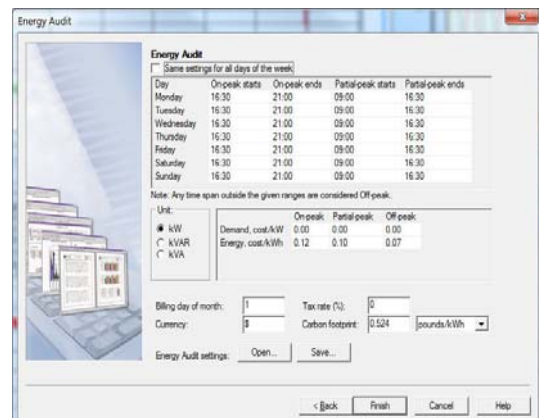


### Energy Monitoring and Recording

Energy costs are rising in all areas. Reduced energy consumption in production is becoming a more and more urgent task. The MAVOWATT 20 allows for detailed recording and analysis of energy consumption over long periods of time. Excessive peak loads at certain times of day are thus easy to detect and document.

### License-Free Energy Platform Report Writer

This software is provided with each MAVOWATT 20 and summarizes measurements in configurable, easy to read reports. Characteristic curves for voltage and current, active, reactive, and apparent power, power factor, harmonics, import, energy and many other parameters can be summarized in a user configured report. If the automatic function is used, EPRW quickly generates a report without the need for any settings.



## Technical Specifications

### Measurement Inputs

4 voltage inputs, 1 to 600 V RMS, AC/DC, 0.1% rdg.,  
256 samples per period, 16 bit ADC  
4 current inputs, 1 to 6000 A RMS, AC/DC, 0.1% rdg. + CTs,  
256 samples per period, 16 bit ADC

Frequency range: 45 to 65 Hz  
Phase lock loop

### Types of Monitoring

EN 16001 energy management system

IEC 61000-4-30, class B

Long-term monitoring with min., max. and mean values  
Continuous data recording

### Distortion / Power / Energy

THD / harmonic spectrum (U, I, P),

TID sub-harmonics / sub-harmonic spectrum  
(U,I) up to 63<sup>rd</sup> per IEC / EN 61000-4-7

Crest factor, K factor, transformer derating factor,  
telephone interference factor  
Asymmetry (max. deviation of RMS value) and  
sequence components

W, VA, VAR, TPF, DPF, consumption, energy etc.

### Scope of delivery

Basic instrument with rubber holster and calibration  
certificate, battery charger, voltage measurement cable with  
alligator clips, memory card  $\geq 4$  GB and EPRW software

### Packages

With 4 additional current clamp sensors or flexible current sensors  
(depending on the package), carrying pouch

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