

U n i v e r s a l

M e a s u r i n g

D e v i c e

UMG 96



Digital Variety
vs.
Analogue Naivety



Janitza
electronics



Universal Measuring Device

Application

The UMG 96 is a universal measuring device, which is suitable for measuring, saving and supervision of electrical quantities in low voltage networks. The measurement is designed for 3 phase systems with neutral conductor. One of its main features is the compact design (96x96mm). In order to reach all the features, about 13 other devices such as amperemeter, voltmeter, voltmeter-change over, power meter (kW, kVA, kvar, cos-phi), impulse sender (Real/Reactive) and frequency meter would be necessary.

Therefore the costs for the project, installation, wiring and storage are much lower. This means an interesting price compared to analogue measuring devices.

Possible applications are:

- Supervision and control of electrical quantities in energy distributions.
- Pulse outputs for real and reactive energy or transducer for PLC.



General operation

The three phase electronic measuring system measures and digitizes the effective values of voltages and currents in a 50/60 Hz network. One random test is carried out each second. From those scanned values, the inserted microprocessor calculates the electrical quantities. Maximum values, lowest values and programming data are saved in a non-volatile memory.

Display

The well legible LCD-display and the function keys inform about the selected measured values (actual, lowest, peak and mean values). The UMG 96 can indicate three measured values on its display.

Selection of measured values and display rotation

At the time of delivery all measured values can be read. Measured values, which are not necessary, can be shown or suppressed.

For display rotation, an interval of 1 to 250 seconds can be set. The display rotation can also be deactivated.

Bimetallic function

The bimetallic function is reproduced for the three outer conductor currents, sum current in neutral conductor as well as the sum real power.

These values can be integrated over a selectable time of 5, 10, 30, 60, 300, 480 and 900 seconds and saved as highest mean value.

Working hour meter

The working hour meter is activated immediately after connecting the device, and cannot be reset.

Transistor outputs for real and reactive energy or limits (Min./Max.)

The transistor outputs P1 and P2 can be used for real and reactive energy or for supervision of limits. At programming of limits the electronic outputs can be combined with a measured value and activated while exceeding or underscoring. In order to avoid a too frequent switching, a minimum connection time can be programmed for each transistor output. The transistor outputs are suitable for the control of electrical switchgear with DC-voltage or devices with NPN-inputs, for example a PLC.

Technical data

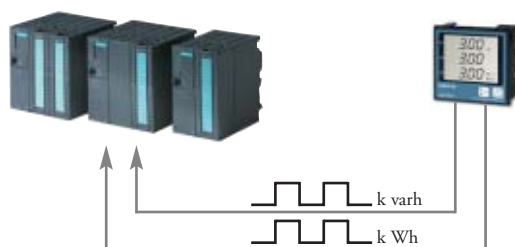
Overvoltage class:	CAT III
Pollution degree:	2
Operating ambient temperature:	-10 °C .. +55°C
Storage temperature:	-20°C .. +70°C
Humidity:	15% to 95% without dew
Mounting position:	any
Dimensions:	w96 x h96 x d42mm
Measuring voltage:	196 - 275 L/N ² 340 - 475 L/L ²
Frequency:	45Hz .. 65 Hz
Current measurement:	.. /5A (/1A)
Minimum working current:	10 mA
Power consumption:	ca. 0,2 VA
Protection class:	Front IP 65 according to IEC 529 Back IP 20 according to IEC 529
Outputs:	NPN Transistor, 30V DC, 50 mA

² Optional: L-N 49 .. 76V / L-L 85 .. 132V and L-N 98 .. 140V / L-L 170 .. 242V

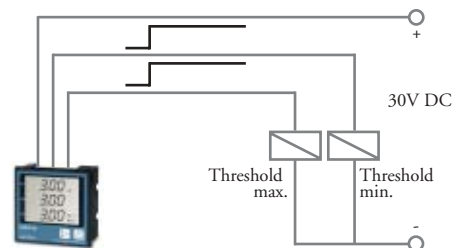


Technical data

Cost detection and supervising limits



Cost detection and supervising limits



Supervision of limits

Measured values

Measured values

Quantity to be measured	Indication	Measuring range at scale factor 1	L1	L2	L3	Sum	Lowest value	Mean value ¹	Peak value		Measuring accuracy
									Mean value	Measured value	
Current .. 1/5A L1-L3	0,00 .. 9,99 kA	0,01 .. 5 A	●	●	●		●	●	●	●	±1 % Mr
Current .. 1/5A N	0,00 .. 9,99 kA	0,03 .. 15 A				●		●	●	●	±3 % Mr
Voltage L-N	0 .. 11,5 kV	196 .. 275 V AC ²	●	●	●		●			●	±1 % Mr
Voltage L-L	0 .. 20 kV	340 .. 476 V AC ²	●	●	●		●			●	±2 % Mr
Frequency (U)	45 .. 65 Hz	45 .. 65 Hz	●								±1,5 % Mv
Real power +/-	0,00 W .. 9,99 MW	0,2 W .. 1,375 kW	●	●	●	●		●	● ⁴	●	±1,5 % Mr
Apparent power	0,00 VA .. 9,99 MVA	0,2 VA .. 1,375 kVA	●	●	●	●		●		●	±1,5 % Mr
Reactive power	0,00 var .. 9,99 MVar	0,2 var .. 1,375 kvar	●	●	●	●		●		ind.	±1,5 % Mr
cos (phi)	0,00 ind. .. 1,00 .. 0,00 cap.	0,00 cap. .. 1,00 .. 0,00 ind.	●	●	●	●					±3 % Mr ⁵
Real Energy	0 .. 999.999.999 kWh					●					*3
Reactive Energy	0 .. 999.999.999 kvarh					●					
Working hours	0 .. 999.999.999 h										±2 min. per day

Mr: of measuring range, Mv: of measured value

¹ Integration over time: 5, 15, 30, 60, 300, 480, 600 and 900 seconds, ² Optional: L-N 49 .. 76V / L-L 85 .. 132V and L-N 98 .. 140V / L-L 170 .. 242V

³ The measuring accuracy of energy is related to the accuracy of power, ⁴ Only for sum values, ⁵ The measured apparent power must be in the range of 1 .. 100%.

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Representative