RMM3006

Reference Multimeter

Accuracy class 0.02

General

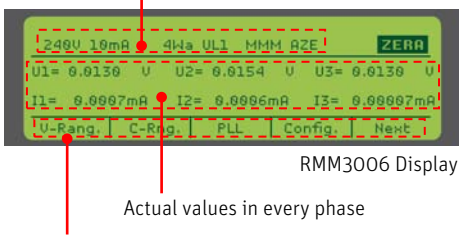
The Reference Multimeter RMM3006 is part of the ZERA high precision measuring instrument series. It is developed for current, voltage, phase angle and power measurements. Also energy comparison measurements of electricity meters via scanning head or other substandard meters via pulse input is possible.
The RMM3006 can be used for single- and polyphase applications. The functionality of RMM3006 is sufficient for metrological institutes, test laboratories of power utilities and electricity meter manufacturers. In combination with the transportation case (option) the RMM3006 is also suitable for on-site meter tests.

Reference Multimeter RMM3006

Transportation case

Features

- High accuracy, independent from measurement mode
- Simple, menu-controlled operation using a front-face LCD display
- Convenient operation and evaluation, including protocol generation
- Manual operation via function keys
- Windows® based SSM3000 operator software
- RS 232 interface

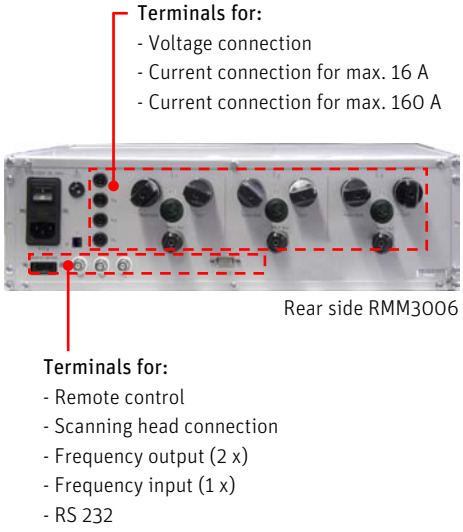


Software Functions

- Actual values
- Meter accuracy testing
- Energy comparison measurement

User Software

- The SSM 3000 control program works with MS Windows ® application (95/ 98/2000/XP/7...).
- The software is increasing the functionality of RMM3006 by a multiplicity of additional features.



Actual Values

The following measurements in a three phase AC system are displayed as mean values:

- Individual voltage and current RMS values
- All phase angles
- Active, reactive and apparent power, with power factors
- Frequency and phase indication
- DC components

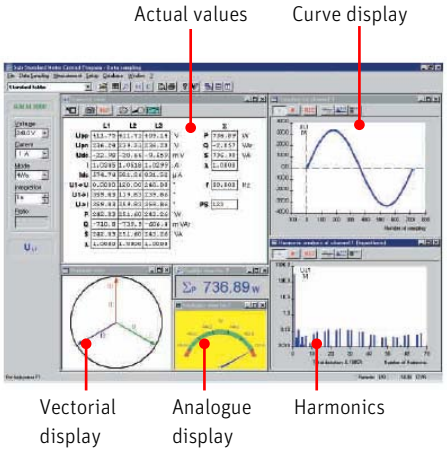
The actual values can be displayed as an overview with all values, as display of individual values, view as a measuring instrument or as graph. In addition, measurements over long periods are possible, to allow their long-term behavior to be analyzed. The SSM3000 software is used to read out voltage and current waveforms. The values can be displayed graphically, as a logarithmic frequency spectrum giving the relative harmonic content or as a list of Fourier coefficients.

Curve Sampling

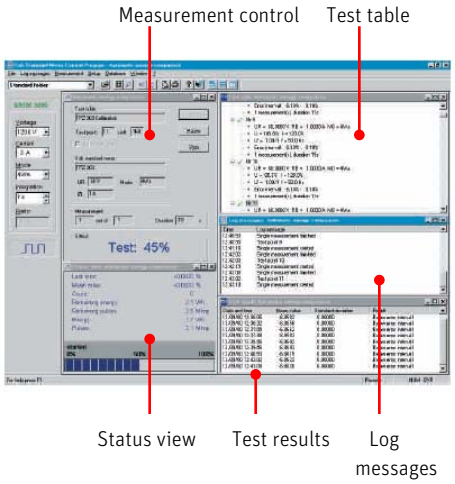
Energy Comparison Measurement

Accuracy Test

With energy comparison measurement, RMM is able to test other substandard meters with a pulse output proportional to the power.
Static and mechanical electricity meters can be tested with RMM during the accuracy test. A scanning head (option) is required for this test.
Manual and automatic operating modes are provided for both tests.



All relevant data (parameters and control codes for the item under test, switch-on sequence, tolerance ranges etc.) are stored in databases. The test results from databases can be statistically analyzed with the SSM3000 software protocol function, printed out in the different display forms, and exported into MS Excel files.



Technical Data

RMM3006 Reference Multimeter

General	
Power supply	115V / 230 V +/-15 %, 50 … 60 Hz
Power consumption	~ 35 VA
Temperature range, operation	5° … + 40° C
Temperature range, storage	-15° … + 65° C
Relative humidity (not condensing)	max. 95 %
Dimensions (DxWxH)	483 x 132 x 400 mm
Weight	~ 12 kg
Max. height above sea level	2000 m
Safety	
IP class according to DIN EN 60529	IP30
Declaration of conformity	CE conform
Protection class according to DIN EN 61140	I
Overvoltage category voltage measurement	CAT III 300 V
Overvoltage category current measurement	CAT III 300 V / CAT II 600V
Reference meter	
Measuring modes	3WA / 3WR / 3WAP / 3WRCA / 3WRCB / 3WQ60 / 3WQ60C / 3WAPG / 3WRG 4WA / 4WR / 4 WAP / 4WRC / 4WQ60 / 4WQ60C / 4WAPG / 4WRG
Fundamental frequency	15 … 70 Hz
Bandwidth	3000 Hz
Sampling	16 bit 720 samples/period
Accuracy class for measuring of power / energy	0.02
Angle measurement accuracy 3) 4)	< 0.01 °
Frequency measurement deviation	± 0.01 Hz
Voltage Measurement	
Voltage measurement	10 ... 480 V
Voltage range(s)	480 V, 240 V, 120 V, 60 V
Voltage measurement accuracy 3) 5)	< 100 x 10 E-6
Voltage measurement temperature drift 3)	< 2.5 x 10 E-6 / K
Voltage measurement long term stability 2) 3)	< 30 x 10 E-6 / year
Current measurement	
Current measurement	1 mA … 160 A
Current range(s)	200 A, 100 A, 50 A, 20 A, 10 A, 5 A, 2 A, 1 A, 500 mA, 200 mA, 100 mA, 50 mA, 20 mA, 10 mA, 5 mA
Current measurement accuracy 5)	< 100 x 10 E-6 @ 50 mA ...160 A < 300 x 10 E-6 @ 2 mA … < 50 mA
Current measurement temperature drift4)	< 5 x 10 E-6
Current measurement long term stability 2)	< 70 x 10 E-6 / year @ 50 mA … 16 A < 200 x 10 E-6 / year @ > 16 A … 160 A
Power Measurement	
Power/energy measurement accuracy 3) 4) 6) 7)	< 200 x 10 E-6 @ 50 mA … 160 A < 400 x 10 E-6 @ 2 mA … 50 mA
Power/energy measurement temperature drift 3) 4)	< 7.5 x 10E-6 / K
Power/energy measurement long term stability 2) 3) 4)	< 100 x 10 E-6 / year @ 2 mA … 16 A < 200 x 10 E-6 / year @ > 16 A … 160A

1: Stability over 1 hour (every minute one measurement with ti = 60 s)
2: Stability over 1 year (every month one measurement with ti = 60 s)
3: From 30 V to 500 V
4: From 50 mA to 160 A
5: Related of end of range
6: Related to the read value at optimum range selection
7: Related of apparent power

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Subjects to alteration.