

Moving Test – MT30

Portable Working Standard



General

The MT30 is a portable working standard based on state of the art technology in power and energy measurement. Various measuring features combined with a user friendly operation concept is providing the greatest possible flexibility for a comprehensive testing of metering installations in the field. Its excellent measurement stability is reflecting the high quality of the system.

The MT30 working standard is distinguished by its exemplary combination of functionality and design. It is offering optimal ergonomics and functionality combined with an excellent menu guided operation via built-in soft-keys and a 6.4" LCD-display.



Features

- Easy and user friendly operation
- Current measurement up to 120 A with error compensated clamp on CTs
- Accuracy class 0.2
- No additional error for reactive measurement
- Unique long-term and temperature stability
- Driven by powerful rechargeable battery-pack*
- Internal memory to store measurement results and customer data
- Windows based data management software MTVis for evaluation of the test results and test report generation
- A complete and light weight meter test set

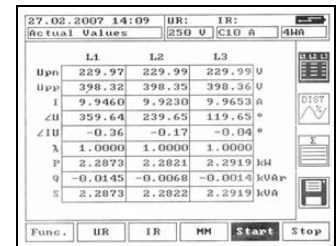
Functions

- Testing of electricity meter installations with single-phase 2-wire, three-phase 3-wire and three-phase 4-wire circuits
 - Testing of energy and power registers
 - Power and energy measurement of active, reactive and apparent energy
 - 4-quadrant measurement
 - Frequency-, phase angle- and power factor measurement
 - Harmonic curve analysis for voltage and current up to the 40th harmonics
 - Distortion factor measurement
 - Vector diagram display
 - Curve sampling
 - Rotary field indication
 - * Selective power measurement
 - * External thermal-printer for presentation of the measuring results at customer side
- * optionally available

Actual Value Measurement

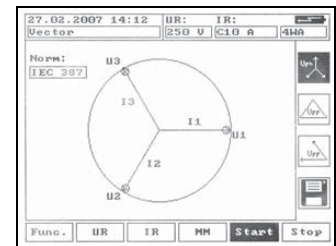
All instantaneous values are simultaneously displayed.

- RMS values of voltage and current
- All phase angles between voltage and current
- Phase angles between the voltages
- Current for all 3 phases
- Active, reactive and apparent power
- Frequency and phase rotation
- Power factor ($\cos \phi$)



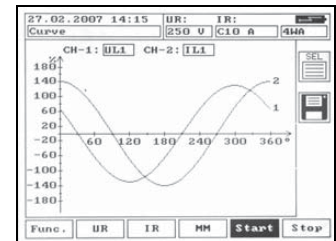
Vectorial Display

The vector diagram display makes it very easy to detect wiring faults in the voltage and current circuits of a meter installation.



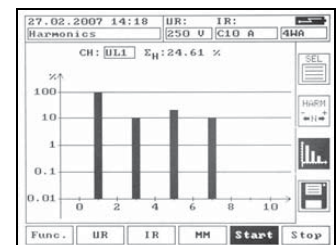
Curve Display

The curve display for voltage and current serves for analyzing the signal quality. Two channels can be measured and displayed simultaneously. The measured curve can be stored in the internal memory of the system according to the customer information data.



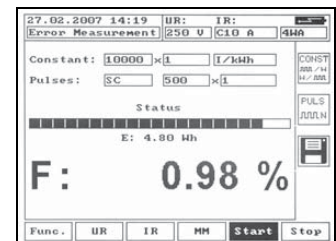
Harmonic Measurement

The MT30 can measure harmonics in voltage and current up to the 40th harmonics (conform to the voltage quality norm DIN EN 50160) which is possible by the high scanning rate of the working standard. The measured harmonic spectrum can be displayed in a chart or in a diagram.



Error Measurement

By entering all relevant parameter like meter constant and the number of pulses, the system can perform the error measurement on electricity meters. The system is able to determine the percentage error and the operator can store it according to the customer information data. To be informed about the status of the measurement a bar graph indicates continuously the registered energy.



Optional Features

- Quick connecting cable set
- Scanning head (universal or only for LED)
- Pulse converter K121
- Flexible AC current sensor up to 10000 A
- AC current clamps for 120 A measurement (MT3430) and 300 A measurement (MT3416)
- External thermal printer

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General

Power supply	16 V DC $\pm 3\%$, 2.5 A
Power consumption	~ 20 VA
Rechargeable battery operation : operating time	~ 1 h
Rechargeable battery operation : recharging time 7)	~ 3 h
Temperature range, operation	$-15^\circ \dots + 50^\circ$ C
Temperature range, storage	$-15^\circ \dots + 65^\circ$ C
Relative humidity (not condensing)	max. 95 %
Dimensions (DxWxH)	190 x 190 x 80 mm
Weight	~ 1.6 kg
External power supply unit	Type: Mascot 9921 (90 ... 264 V / 47 ... 63 Hz / max 0.9 A)

Safety

IP class according to DIN EN 60529	IP40
Declaration of conformity	CE conform
Overvoltage category voltage measurement 16)	CAT III 300 V
Overvoltage category current measurement (MT3430)	CAT III 30 V

Reference meter

Measuring modes 10)	1-ph 2 WA / WR / WAP 3-ph 3 WA / WR / WRCA / WRCA / WRCA / WRCA / WRCA / WAP 3-ph 4 WA / WAb / WR / WRb / WRC / WAP / WAPb
Fundamental frequency	15 ... 70 Hz
Bandwidth	3000 Hz
Sampling	16 bit 504 samples/period
Accuracy class for measuring of power / energy	0.2
Rotary field indication/indicator	yes
Angle measurement accuracy 3) 4)	$< 0.1^\circ$
Frequency measurement deviation	± 0.01 Hz

Voltage Measurement

Voltage measurement	10 ... 300 V
Voltage range(s)	250 V
Voltage channels input impedance (@ range)	264,5 k Ω @ 250 V
Voltage measurement accuracy 3) 5)	$< 0.05\%$ @ 30 ... 300 V
Voltage measurement temperature drift 3)	$< 15 \times 10^{-6}$ / K
Voltage measurement stability 1)	$< 50 \times 10^{-6}$
Voltage measurement long term stability 2) 3)	$< 100 \times 10^{-6}$ / Year

Current measurement via AC current clamps MT3430

Current measurement	5 mA ... 120 A
Current range(s)	100 A, 50 A, 10 A, 5 A, 1 A, 500 mA, 100 mA, 50 mA
Usage of ranges	10 ... 120 %
Current measurement accuracy 5)	$< 0.15\%$ @ 500 mA ... 120 A $< 0.3\%$ @ 100 mA ... < 500 mA
Current measurement temperature drift 4)	$< 50 \times 10^{-6}$ / K
Current measurement stability 1) 4)	$< 150 \times 10^{-6}$
Current measurement long term stability 2) 4)	$< 600 \times 10^{-6}$ / Year
Clamp for max. \emptyset	12 mm

Power Measurement (@MT3430)

Power/energy measurement accuracy 3) 4) 5) 6)	$< 0.2\%$
Power/energy measurement temperature drift 3) 4)	$< 65 \times 10^{-6}$
Power/energy measurement stability 1)	$< 200 \times 10^{-6}$
Power/energy measurement long term stability 2)	$< 700 \times 10^{-6}$ / Year

- 1: Stability over 1 hour (every minute one measurement with $t_i = 60$ s)
 2: Stability over 1 year (every month one measurement over one hour)
 3: From 30 V ... 300 V (45 ... 65 Hz)
 4: From 500 mA ... 120 A (45 ... 65 Hz)
 5: Related to the read value at optimum range selection
 6: Related of apparent power
 7: At cells with different charge up to max.30 h
 10: Depending on the selected option
 16: Option CAT IV 300V

24.02.2016

Subjects to alteration.