

**ZERA**

**MT681**

# **Moving Test - MT681**

**Accuracy Class 0.1**



**Three-phase Fully Automatic Test System with  
Integrated Current Source**

### General

The state of the art MT681 three phase system consists of a class 0.1 reference meter with built-in current source up to 100 A. It was particularly designed for analysis of complete metering installations and local mains conditions.

The equipment offers high functionality combined with an excellent menu guided operation via built-in soft-keys and colored 6.4" LCD-display.



### Field of Application

- Verification of the load conditions on metering installations
- Verification of the energy registration
- Testing of meters with accuracy classes 1 and 2
- 4 Quadrant measurement
- Frequency-, phase angle and power measurement
- Independent generation of load conditions by using incoming voltage from the grid
- Testing of 3 or 4 wire systems with pulse output
- Harmonic spectrum analysis
- Wave form analysis

### Advantages

- User friendly menu guided operation
- Vector diagram display and phase sequence indication on colored screen
- Extendable compact flash memory for storage of customer data and measurement results
- Easy verification and analysis of meter installations
- **No** additional error for reactive measurements
- Automatic operation without need of an external PC

### Data Management

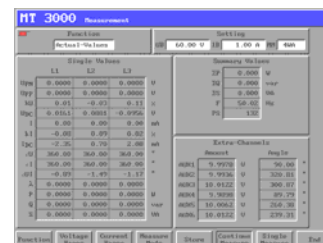
For later download on a PC, the operator can store all test results and measuring values on a Compact-Flash-Memory-Card. The data management software MTVis provides the ability to transfer the data between MT681 and an external PC.

All test results can be summarized and printed in a test report by putting the compact-flash-memory card into an external PC.

### Actual Values Measurement

All instantaneous values are simultaneously displayed.

- RMS values of voltage and current
- Phase angle between voltage and current
- Active, reactive and apparent power
- Test frequency
- Power factor



### Vector Display

The colored vector diagram display for voltage and current makes it very easy to detect wiring faults in voltage and current circuits.

All measured values can be stored on the Compact-Flash-Memory according to the customer information data.



### Error Measurement

By entering all relevant test parameters, like meter constant and the number of pulses, the system can perform the error measurement on electricity meters. The percentage error including all statistical values can be stored according to the customer information data. In order to inform the operator about the status of the measurement a bar graph indicates continuously the measured energy as well as the detected metrology pulses from the unit under test.



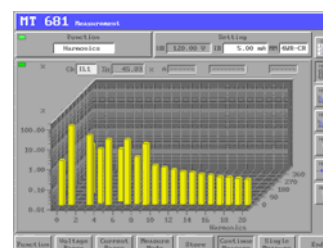
### Automatic Operation

By using predefined test routines the MT681 system can operate automatically without need of an external PC.



### Harmonic Measurement

Due to the high sampling rate of the working standard the MT681 is able to measure harmonics in voltage and current up to the 40<sup>th</sup> THD (conform to the voltage quality norm DIN EN 50160). The measured harmonic spectrum can be displayed in a chart or in a logarithmic diagram.



### Technical Data

<b>MT 681</b> <b>Three-Phase Portable Test System</b>	<b>Accuracy Class 0.1</b>
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<b>General</b>	
Power supply	85 ... 132 VAC / 170 ... 265 VAC, 47 ... 63 Hz
Power consumption	max. 350 VA
Temperature range	-15° ... + 45° C
Dimensions (HxWxD)	216 x 521 x 425 mm
Weight	approx. 12 kg
<b>Reference Meter</b>	
Measuring modes	4-wire-active / -reactive / -apparent 3-wire-active / -reactive 2-wire-active / -reactive
Fundamental frequency	45 ... 65 Hz
Accuracy class for measuring of power / energy	0.1
Voltage measurement	30 V ... 300 VAC
Voltage ranges	250 V
Voltage measurement accuracy <sup>2 4</sup>	< 0.05 %
Voltage measurement temperature drift <sup>2</sup>	< 15 ppm / K
Voltage measurement long term stability <sup>1 2</sup>	< 100 ppm / year
Current measurement	1 mA ... 100 A
Current ranges	0.03 A ... 100 A
Current measurement accuracy <sup>3 4</sup>	< 0.1% (50 mA ... 100 A) < 0.5% (10 mA ... 50 mA)
Current measurement temperature drift <sup>3</sup>	< 15 ppm / K
Current measurement long term stability <sup>1 3</sup>	< 100 ppm / year
Angle measurement error <sup>2 3</sup>	< 0.015°
Frequency measurement error	± 0.01 Hz
<b>Source</b>	
Current circuit output	10 mA ... 100 A
Current circuit maximum output power <sup>6</sup>	50 VA
Current circuit harmonic distortion	< 0,5 %
Angle range for U/I-output	0.0 - 359.9°

Status: 19. February 2008

1 stability over 1 year (every months one measurement with  $t_i=60s$ )

2 from 30 V to 300 V

3 from 50 mA to 100 A

4 related of end of range

5 related of apparent power

6 related of end of maximum range