

Moving Test – MT781/MT786

Three-phase Fully Automatic Test System with
Integrated Current and voltage Source



MT781 – Accuracy Class 0.1

MT786 – Accuracy Class 0.05

General

The state of the art test system MT781 consist of a class 0.1 reference meter (MT786 class 0.05) with built-in voltage/current source (up to 500 V/120 A). The system is 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 10.4" LCD-display.



Features

- Verification of the load conditions on metering installation
- Verification of the energy registration
- 4 quadrant measurement
- Frequency-, phase angle- and power factor measurement
- Testing of 3 or 4 wire systems with pulse output
- Harmonic spectrum analysis
- Wave form analysis
- Available with:
 - Accuracy class 0.1 (MT781)
 - Accuracy class 0.05 (MT786)



Functions

- User friendly menu guided operation
- Vector diagram display and phase sequence indication on integrated 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



Available with trolley (option)

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 MT78x 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 displayed simultaneously in a summary:

- RMS values of voltage and current
- Phase angle between voltage and current
- Active, reactive and apparent power
- Test frequency
- Power factor ($\cos \varphi$)



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 MT78x system can operate automatically without need of an external PC.



Harmonic Measurement

Due to the high sampling rate of the working standard the MT78x is able to measure harmonics in voltage and current up to the 40th 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

	MT781	MT786
General		
Power supply	85 ... 265 VAC, 47... 63 Hz	
Power consumption	approx. 500 VA	
Temperature range	-15° ... + 45° C	
Relative humidity (not condensing)	max. 95 %	
Dimensions (HxWxD)	219 x 518 x 429 mm	
Weight	approx. 20 kg	
Reference Meter		
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	0.05
Voltage measurement	5 mV ... 500 V	
Voltage ranges	250 mV - 5 V - 60 V - 125 V - 250 V - 420 V	
Voltage measurement accuracy ⁴	< 0.05 % (40 V ... 500 V) < 1 % (50 mV ... < 40 V) < 3 % (5 mV ... < 50 mV)	< 0.025 % (40 V ... 500 V) < 1 % (50 mV ... < 40 V) < 3 % (5 mV ... < 50 mV)
Voltage measurement temperature drift ²	< 15 x 10 ⁻⁶ /K	< 10 x 10 ⁻⁶ /K
Voltage measurement long term stability ¹²	< 100 x 10 ⁻⁶ /year	< 50 x 10 ⁻⁶ /year
Current measurement	10 mA ... 120 A	
Current ranges	20 - 50 - 100 - 200 - 500 mA 1 - 2 - 5 - 10 - 20 - 50 - 100 A	
Current measurement accuracy ⁴	< 0.05 % (50 mA ... 120 A) < 0,2 % (10 mA ... <50 mA)	< 0.025 % (50 mA ... 120 A) < 0,2 % (10 mA ... <50 mA)
Current measurement temperature drift ³	< 20 x 10 ⁻⁶ /K	< 15 x 10 ⁻⁶ /K
Current measurement long term stability ¹³	< 100 x 10 ⁻⁶ /year	< 50 x 10 ⁻⁶ /year
Angle measurement error ²³	< 0.015°	< 0.010°
Frequency measurement error	± 0,01 Hz	
Power/energy measurement error ²⁴⁵	< 0.1 % (50 mA ... 100 A) < 0,3 % (10 mA ... <50 mA)	< 0.05 % (50 mA ... 100 A) < 0,3% (10 mA ... <50 mA)
Power/energy measurement temperature drift ²³	35 x 10 ⁻⁶ /K	25 x 10 ⁻⁶ /K
Power/energy measurement stability ¹	< 100 x 10 ⁻⁶	
Source		
Angle range for U/I-output	0.0 - 359.9°	
Current circuit output	10 mA ... 120 A	
Current circuit maximum output power ⁶	60 VA	
Current circuit harmonic distortion	< 0,5 %	
Voltage circuit output	40 V ... 500 V	
Voltage circuit maximum output power ⁶	30 VA	
Voltage circuit harmonic distortion	< 0,5 %	

 Status: 8th February 2010