Power Analyzer/Meter

High-precision Single-phase Power Meter
TM-9100 series

Product description:

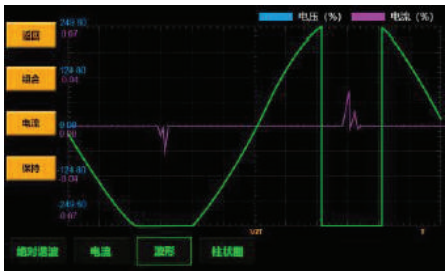
The design of TM-9100 series high frequency power measuring instrument adopts advanced 32-bit high speed processor and dual 16-bit A/D converter, which has the characteristics of high precision, wide power, wide frequency band and multi-range. Touch LCD display, easy to operate, intuitive display, sampling frequency up to 100kHz, multi-function display, the main interface parameter display can be switched, more humanized, is a new generation of high frequency power measuring instrument from Tessio Technology. The standard RS232/485, USB and other interfaces can basically meet the different test communication of users. Application for monitor, speaker, power consumption test of household appliances such as Air Con. etc.

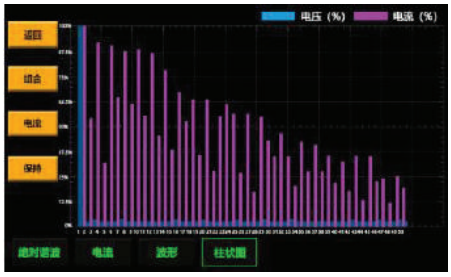
TM-9100 series

Features

- Wide band: bandwidth DC, 0.5Hz ~ 100kHz, can meet a variety of standard and non-standard sinusoidal waveform load power measurement.
- Using high-speed FPGA+ARM processor dual-core processing 16-bit high-speed high precision AD converter, basic accuracy up to 0.1%
- The low-pass filter of 500Hz and 5.5kHz can measure the fundamental wave value of PWM waveform & filter out the high-frequency interference of switching power supply current.
- Wide power: single channel can measure the current 20A, the minimum power resolution of 0.1mW, to meet the standby power consumption measurement needs and rated power measurement needs.
- Multi-range: Multiple ranges can be selected for voltage and current respectively, the test error is reduced more accurately.
- Multi-function with maximum hold, harmonic test, peak measurement, integral test and many other functions.
- Provided many interface port are USB/ RS232/485 and support ModBus protocol together.

Harmonic waveform interface





Data interface for Harmonic measurement

Ordering Informations

TM-9100 : High-precision Single-phase Power Meter 600V/20A with Harmonic function

TM-9100E: High-precision Single-phase Power Meter 600V/20A without Harmonic function

TM-9100H : High-precision Single-phase Power Meter 1000V/50A with Harmonic function

Standard Accessories :

- User Manual
- Power cord

Specifications

Model	TM-9100	TM-9100E	TM-9100H
Measurement channel	Single channel		
Measurement Accuracy	0.1%		
Display Mode	Touch LCD screen		
Measurement Mode	RMS (true RMS), Ac/(AC), DC(DC), V-MEAN (current rectioed average, current true RMS		
Voltage Range	0.5V ~ 600V		1.0V ~ 1000V
Current Range	0.01mA ~ 20A		0.05mA ~ 50A
Frequency	0.5Hz ~ 100kHz		
Bandwidth	DC, 0.5Hz ~ 100kHz		
Power Factor	0.1000 ~ 1.000		
Electric Energy	0 ~ 999999 MWh / 0 ~ -99999 MWh		
Amp-Hour	0 ~ 999999 MAh / 0 ~ -99999 MAh		
Energy Timing	99999h		
Harmonic Wave	1 ~ 50 times		1 ~ 50 times
Display Update	Display refresh period can be selectable : 0.25s, 0.5s, 1s, 2s, 5s		
A/D Conversion	Sampling period of about 70μs 16 bit, voltage and current synchronous sampling		
Input Impedance	The voltage input impedance is about 2MΩ, the current input impedance is low 0.5Ω and the high grade is about 4MΩ.		
Input Mode	The input impedance of the signal input terminal of the external sensor varies according to the input voltage about 100kΩ at 10V and about 20kΩ at 2V		
Interface	Standard USB/RS232/RS485(optional Ethernet communication), Support ModBus protocol		
Power Input	AC100V-240V 45-440Hz DC100V-300V		
Power Consumption	<10VA		
Dimension (WxHxD)	215mm×88mm×300mm.		
Weight	Approx. 2.8kg		

Parameter Error Calculation Method

Parameter	Measuring Range	Error (f unit : Hz, F unit : kHz)
Voltage(V)	Peak factor CF=3 : normal range Peak factor CF=6 : normal range /2	DC ±(0.1% of reading + 0.2% of range) 0.5Hz ≤ f < 45Hz ±(0.1% of reading + 0.2% of range)
Electric Current (A)	Peak factor CF=3 : normal range Peak factor CF=6 : normal range /2 When the current frequency exceeds 30k Hz, the most The high current input is 6A	45Hz ≤ f ≤ 66Hz ±(0.1% of reading + 0.1% of range) 66Hz < f ≤ 1kHz ±(0.1% of reading + 0.2% of range) 1kHz < f ≤ 10kHz ±((0.07*F)% of reading + 0.3% of range) 10kHz < f ≤ 100kHz ±(0.5% of reading + 0.5% of range) ±[{0.04*(F-10)}% of reading]
Active power	U*I (i.e. PF=1.0)	DC ±(0.1% of reading + 0.2% of range) 0.5Hz ≤ f< 45 Hz ±(0.3% of reading + 0.2% of range) 45 Hz ≤ f ≤ 66 Hz ±(.1% of reading + 0.1% of range) 66 Hz < f ≤ 1 kHz ±(0.2% of reading + 0.2% of range) 1kHz < f ≤ 10 kHz ±(0.1% of reading + 0.3% of range) ±[{0.067*(F-1)}% of reading] 10 kHz < f ≤ 100 kHz ±(0.5% of reading + 0.5% of range) ±[{0.09*(F-10)}% of reading]
Power Factor	0.100 ~ 1.000	Plus or minus [(lambda - lambda / 1.0002) + | cos Ø - cos {Ø + sin - 1 (the influence of power factor of the lambda equals zero % / 100)} |] ±1 bit voltage and current are quantified
Frequency (Hz)	0.5 ~ 100kHz	Counting mode, 0.1% * reading, when the signal value is greater than 0.1* current range
Electric Energy Accumulation	0 ~ 999999 MWh /0 ~ -99999 MWh	DC ±(0.1% of reading + 0.2% of range) 0.5Hz ≤ f< 45 Hz ±(0.3% of reading + 0.2% of range) 45 Hz ≤ f ≤ 66 Hz ±(0.1% of reading + 0.1% of range) 66 Hz < f ≤ 1 kHz ±(0.2% of reading + 0.2% of range) 1 kHz < f ≤ 10kHz ±(0.1% of reading + 0.3% of range) ±[{0.067*(F-1)}% of reading] 10 kHz < f ≤ 100 KHZ ±(0.5% of reading + 0.5% of range) ±[{0.09*(F-10)}% of reading]
Ampere-hour Accumulation	0 ~ 999999 MAh /0 ~ -99999 MAh	DC ±(0.1% of reading + 0.2% of range) 0.5Hz ≤ f< 45 Hz ±(0.1% of reading + 0.2% of range) 45 Hz ≤ f ≤ 66 Hz ± (0.1% of reading + 0.1% of process) 66 Hz < f ≤ 1 kHz ±(0.1% of reading + 0.2% of range) 1 kHz < f ≤ 10 kHz ±((0.07*F)% of reading + 0.3% of range) 10 kHz < f ≤ 100 KHZ ±(0.5% of reading + 0.5% of range) ± [{0.04*(F-10)}% of reads]
Energy Time	99999h	± 2 seconds/hour
Harmonic Wave	1 ~ 50 times	Maximum number of fundamental frequency analyses 10Hz ~ 65Hz 50 65Hz ~ 100Hz 32 100Hz ~ 200Hz 1 200Hz ~ 400Hz 8