TELEDYNE TEST TOOLS
Everywhereyoulook™

T3PM1006 Data Sheet

Digital Power Meter



Tools for Improved Debugging

• 4" Large TFT LCD Display.	✓ Clear visibility of your measurement results.
• Two numerical display modes along with a waveform display of various parameters.	✓ Choose the best display mode for your measurement requirements.
• Front and Rear Input Terminal.	✓ Flexibility in choosing measuring terminals.
• Standard interfaces: USB, LAN, RS-232C.	✓ Remote control your measurements.
• 3 Years Warranty as standard.	✓ Reliable product gives peace of mind.

Key Specifications

Specification	T3PM1006
Input Type	Voltage: Floating input through resistive voltage divider Current: Floating input through shunt
Measurement Range	Voltage: 15 V, 30 V, 60 V, 150 V, 300 V, 600 V Current: 5 mA, 10 mA, 20 mA, 50 mA, 100 mA, 200 mA, 0.5 A, 1 A, 2 A, 5 A, 10 A, 20 A
Input Bandwidth	DC, 45 Hz to 6 kHz

PRODUCT OVERVIEW

Teledyne Test Tools T3PM1006 is a digital power meter for single-phase (1P/2W) AC power measurements with a test Bandwidth of DC, 45 Hz to 6 kHz. The T3PM1006 features a 4" TFT LCD screen with a five-digit measurement display. It offers 19 power measurement parameters to choose from, integration measurement function, front/rear panel input terminals, and various communication interfaces to help users to make convenient and accurate power measurements.

The rated direct input voltage of T3PM1006 is 600 V and the input current is 20 A. The minimum current level is 5 mA (resolution up to 0.1 µA) and the power measurement resolution is 1 µW. The crest factor can reach 3 (half measurement range can reach 6 or 6 A), and the voltage/current/power measurement capability can reach ± 0.1 % reading ± 0.1 % level. Different measurement modes can be selected and offers up to 19 relevant parameters for power measurement. The T3PM1006 can be used to measure power consumption of general products as well as to measure standby power consumption of low power devices which requires greater range and accuracy.

In addition, the T3PM1006 offers PT/CT rate fucntions for large voltage/current measurement applications. High voltage measurements can be done using VT rate setting along with an external voltage Potential Transformer. Current measurements above 20 A can be done by connecting Current Transformer (current output type) directly to current input terminal on the rear panel and setting the appropriate CT ratio state in the Ratio configuration menu.

T3PM1006 provides RS-232C, USB device (virtual COM), and LAN communication interfaces for remote control applications. USB host supports screen capture, accessing data stored in internal memory, and firmware update.

Features

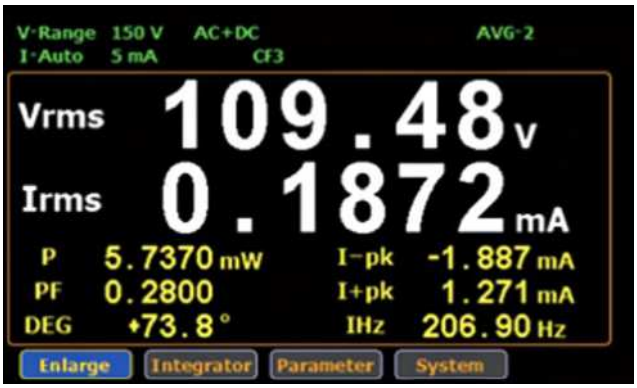
- 4" TFT LCD
- DC to 6 kHz Voltage/Current Test Frequency Bandwidth
- Two numerical display modes
  - General Mode: Displays 2 main test items + 6 secondary test items
  - Simple Mode: Displays the test values of 4 main test items
- Meets the Requirement for IEC 62301 Power Measurement
  - Voltage/Current Test Frequency Bandwidth: DC – 6 kHz
  - Watt Resolution: 1 mW
  - Current Resolution: 0.1 µA
  - Current/Voltage Measurements Reach CF = 3 for Distorted Wave and CF = 6 for Half Range
  - W-h Power vs Time/A–h Current vs Time Integration Function
  - Total Harmonic Distortion Measurement
- Standard Interfaces: RS-232C, USB Device/Host, LAN

PANEL INTRODUCTION



1. 4" TFT LCD
2. Display 8 or 4 Measurement Parameters
3. Operation Key
4. Navigator Key
5. Front Panel Input Terminal (< 10 A)
6. Rear Panel Input Terminal
7. Standard Interfaces : RS-232C, LAN, USB Device
8. Universal Input Power

DUAL DISPLAY MODES



Standard Mode (Setting & 8 Measurements)



Simple Mode (4 Measurements)

T3PM1006 provides two display modes for various measuring situations. Standard mode displays 8 measurement parameters (2 major measurements + 6 secondary measurements) and related measurement setting parameters which is ideal for applications in R&D, design, and engineering verification. Simple mode displays four measurement parameters which can be useful in production environments.

VARIOUS MEASUREMENT PARAMETERS

MEASUREMENT ITEMS	Symbols
Voltage	Vrms, V+pk, V-pk, Vdc*
Current	Irms, I+pk, I-pk, Idc*
Power	P, P+pk, P-pk, VA, VAR
Power Factor	PF
Crest Factor	CFV, CFI
Phase Angle	DEG
Frequency	VHz, IHz
Total Harmonic Distortion	THDV, THDI
INTEGRATION	WP, WP+, WP-, q, q+, q-

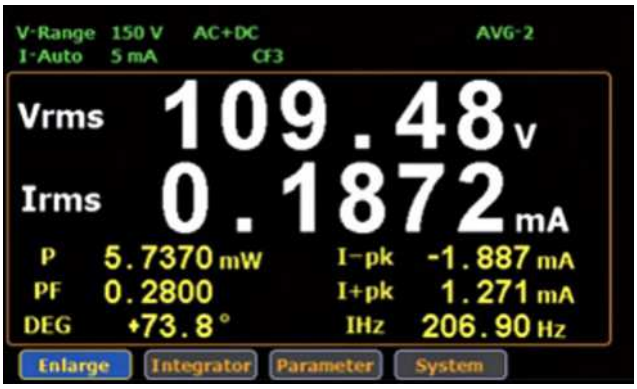
Note: "*"V dc/Idc is selectableonly when measurement mode DCis selected



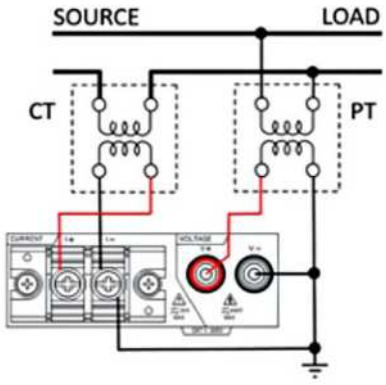
T3PM1006 provides various measurement functions such as voltage, current, frequency, active power, apparent power, reactive power, power factor, crest factor, and total harmonic distortion measurement.

T3PM1006 is also equipped to measure time integral of power or current for the DUT. Users can set a time window to perform instantaneous power integration at specified intervals and then divide value by total time period to obtain the average power of the DUT.

OPTIMAL MEASUREMENT CAPABILITIES



LowCurrent Range & High Resolution



PT/CT Connection

T3PM1006 offers measurement frequency bandwidth of DC-6 kHz, minimum current level of 5 mA (resolution: 0.1 μA), power measurement resolution of 1 μW(1 μW for minimum current and voltage levels; 1 mW for maximum current and voltage levels). These parameters meet the test requirement according to IEC 62301/EN 50564 standard and hence can be used to measure standby power consumption of low power devices.

T3PM1006 offers PT/CT rate functions for large voltage/current measurement applications. High voltage measurements can be done using VT rate setting along with an external voltage Potential Transformer. Current measurements above 20 A can be done by connecting Current Transformer (current output type) directly to current input terminal on the rear panel and setting the appropriate CT ratio state in the Ratio configuration menu.

MEASUREMENT CHARACTERISTICS

Input

Rating Voltage		600 Vrms
Rating Current		20 Arms
Impedance (50/60 Hz)	Voltage Current Current	2.4 MΩ 5 mA – 200 mA: 500 mΩ 0.5 A – 20 A: 5 mΩ
Maximum Voltage		700 Vrms
Maximum Current		25 Arms
Maximum Common-mode Voltage		300 V
Low Pass Filter	Cut off frequency	500 Hz

Parameters

Measurement	Voltage Current Power Crest Factor Power Factor Frequency Angle Total Harmonic Distorsion Integration	Vdc, Vrms, V+pk, V-pk Idc, Irms, I+pk, I-pk P, P+pk, P-pk, VA, VAR CFV, CFI PF VHz, IHz DEG THDV, THDI Time, WP, WP+, WP-, q, q+, q-
Display Digits		5 digits
Frequency Bandwidth		DC, 45 Hz – 6 kHz
Average		1, 2, 4, 8, 16, 32, 64
PT Rate		1 – 999.999
CT Rate		1 – 999.999
Display Mode	Standard Simple	8 measurement Items 4 measurement Items

Voltage

Range	CF = 3 CF = 6	15 V, 30 V, 60 V, 150 V, 300 V, 600 V 7.5 V, 15 V, 30 V, 75 V, 150V, 300 V
Crest Factor		3 or 6 (selectable)
Accuracy	Effective Range DC 45 Hz ≤ f ≤ 66 Hz 66 Hz < f ≤ 1 kHz 1 kHz < f ≤ 6 kHz Filter (On)	1 % – 105 % of range ± (0.2 % of reading + 0.2 % of range) ± (0.1 % of reading + 0.1 % of range) ± (0.1 % of reading + 0.2 % of range) ± 3 % of reading Add 0.3 % of reading@45 Hz ~ 66 Hz
Temperature Effect	5 – 18 °C / 28 – 40 °C	Add ± 0.03 % of reading/°C
Residual Noise	0.5 % of range	

MEASUREMENT CHARACTERISTICS

Current

Measurement	CF = 3	5 mA, 10 mA, 20 mA, 50 mA, 100 mA, 200 mA, 500 mA, 1 A, 2 A, 5 A, 10 A, 20 A
	CF = 6	2.5 mA, 5 mA, 10 mA, 25 mA, 50 mA, 100 mA, 250 mA, 0.5 A, 1 A, 2.5 A, 5 A, 10 A
Crest Factor		3 or 6 (selectable)
Accuracy	Effective Range	1 % – 105 % of range
	DC	± (0.2 % of reading + 0.2 % of range)
	45 Hz ≤ f ≤ 66 Hz	± (0.1 % of reading + 0.1 % of range)
	66 Hz < f ≤ 1 kHz	± (0.1 % of reading + 0.2 % of range)
	1 kHz < f ≤ 6 kHz	± 3 % of reading
	Filter (On)	Add 0.3 % of reading@45 Hz ~ 66 Hz
Temperature Effect	5 – 18 °C / 28 – 40 °C	Add ± 0.03 % of reading/°C
Residual Noise	0.5 % of range	

Power

Accuracy	Effective Range	1 % ~ 110 % of range
	DC	± (0.2 % of reading + 0.2 % of range)
	45 Hz ≤ f ≤ 66 Hz	± (0.1 % of reading + 0.1 % of range)
	66 Hz < f ≤ 1 kHz	± (0.1 % of reading + 0.3 % of range)
	1 kHz < f ≤ 6 kHz	± 3 % of reading
	Filter (On)	Add 3 % of reading@45 Hz ~ 66 Hz
Temperature Effect	5 – 18 °C / 28 – 40 °C	Add ± 0.03 % of reading/°C

Frequency

Measurement	Filter (0n)	30.000 Hz ~ 499.99 Hz
	Filter (0ff)	30.000 Hz ~ 9.9999 Hz
Parameter		Voltage, Current
Effective Range		10 % ~ 105 % of voltage input
Accuracy		± 0.06 % of reading

Integration

Integration Time	Accuracy	± (voltage or current accuracy + 0.1 % of reading)
	Range	0 hour 00 min ~ 9999 hour 59 min
	Accuracy	± 0.01 % ± 1 second

SPECIFICATIONS

GENERAL INFORMATION

Display	4" TFT LCD
Standard Interface	RS-232C,USB device, LAN
Power Source	AC 100 ~ 240 V, 50 – 60 Hz
Power Consumption	Max. 25 VA
Dimension & Weight	270 (W) x110 (H) x 350 (D) mm, Approx. 2.9 kg

Specifications subject to change without notice.

Ordering Information

Models	**T3PM1006**	AC/DC Single Phase Digital Power Meter 6 kHz

ABOUT TELEDYNE TEST TOOLS

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Company Profile

Teledyne LeCroy is a leading provider of oscilloscopes, protocol analyzers and related test and measurement solutions that enable companies across a wide range of industries to design and test electronic devices of all types. Since our founding in 1964, we have focused on creating products that improve productivity by helping engineers resolve design issues faster and more effectively. Oscilloscopes are tools used by designers and engineers to measure and analyze complex electronic signals in order to develop high-performance systems and to validate electronic designs in order to improve time to market.

The Teledyne Test Tools brand extends the Teledyne LeCroy product portfolio with a comprehensive range of test equipment solutions. This new range of products delivers a broad range of quality test solutions that enable engineers to rapidly validate product and design and reduce time-to-market. Designers, engineers and educators rely on Teledyne Test Tools solutions to meet their most challenging needs for testing, education and electronics validation.

Location and Facilities

Headquartered in Chestnut Ridge, New York, Teledyne Test Tools and Teledyne LeCroy has sales, service and development subsidiaries in the US and throughout Europe and Asia. Teledyne Test Tools and Teledyne LeCroy products are employed across a wide variety of industries, including semiconductor, computer, consumer electronics, education, military/aerospace, automotive/industrial, and telecommunications.

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T3 stands for Teledyne Test Tools.

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