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GPM-8213

Digital Power Meter

FEATURES

- 4" TFT LCD
- Basic Accuracy : ±(0.1% of reading + 0.1% of range)
- Two Data Display Modes
  - Standard Display : Displaying Two Major Measurement Items + Six Minor Measurement Items
  - Simple Display : Displaying Test Data of Four Different Measurement Items
- Met the Requirement of IEC 62301 Power Measurement
  - Voltage/Current Test Frequency Bandwidth : DC ~ 6kHz
  - Watt Resolution : 1mW
  - Current Resolution : 0.1μA
  - 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
- Front Panel Test Terminal
- Standard Interfaces : RS-232C, USB Device, LAN
- Optional Test Fixture : GPM-001

GW Instek GPM-8213 power meter is designed specifically for single-phase (1P/2W) AC power supply's power measurements. Powerful features, including 4" TFT LCD, five-digit measurement display, 19 power measurement parameters, integral measurement function, high-accuracy voltage/current/power measurement capabilities, front/rear panel input terminals, and various communications ports, are to facilitate users with clear, convenient, and accurate power measurements.

GPM-8213 provides as many as 19 power measurement parameters, including voltage (Vrms/V+pk/V-pk), current (Irms/I+pk/I-pk), frequency (VHz/IHz), power (P/P+pk/P-pk), crest factor (CFV/CFI), apparent power (VA), reactive power (VAR), power factor (PF), phase angle (DEG), total harmonic distortion (THDV/THDI), high-accuracy voltage/current/power measurement capabilities (reading: ±0.1%; level: ±0.1%). The advantages of TFT LCD have been efficiently deployed to simple mode and standard mode. Simple mode displays conventional power meter's four measurement parameters to meet the requirement of accuracy and clarity for the test on manufacturing process. Standard mode extends the display to the maximum of 8 measurement parameters (2 major measurements + 6 monitor measurements) to satisfy the various measurement application requirements of R&D, design, and quality verification.

For DUT requiring IEC 62301/EN 50564 standby power consumption test, GPM-8213 provides the optimal measurement supports, including test frequency bandwidth of DC~6kHz, the minimum current level of 5mA (resolution: 0.1uA), power measurement resolutions (1uW for minimum current and voltage levels; 1mW for maximum current and voltage levels), crest factor reaching 3 (half range reaching 6), and measurement of total harmonic distortion (at least 13th order power harmonic). For large voltage/large current measurement applications of general power measurement, GPM-8213 provides PT/CT rate function to collocate with external potential transformer or current transformer to meet the measurement requirements.

With respect to data retrieval and storage, the standard RS-232C/USB interfaces (virtual COM)/LAN can be utilized to edit and retrieve programs or the optional GPIB interface (installed by manufacturer) can be selected to meet users' automatic test system requirements.

PANEL INTRODUCTION

A. TWO DISPLAY MODES

Standard Mode (Setting & 8 Measurements)

Simple Mode (4 Measurements)

GPM-8213 provides two display modes so as to maximize users' measurement effectiveness. Standard mode: simultaneously displays 8 measurement parameters (2 major measurements + 6 secondary measurements) and related measurement setting parameters; ideal for R&D, design, and engineering verification. Simple mode : displays four measurement parameters; ideal for production tests.

B. VARIETY OF 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-

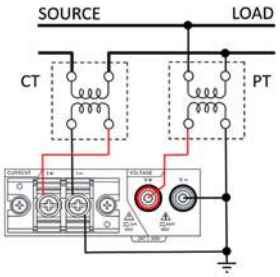
Note : " * " Vdc/Idc is selectable only when measurement mode DC is selected

Comparing with products of the same category, GPM-8213 provides more diverse measurement items and functions, including voltage, current, frequency, active power, apparent power, reactive power, power factor, crest factor, and total harmonic distortion measurement. GPM-8213 also features the integral measurement function for DUT's power or current time. Users can set a time period to execute the transient power integration and divide the result by time to receive DUT's average power.

C. OPTIAML MEASUEMENT CAPABILITIES

Low Current Range & High Resolution

For IEC 62301/EN 50564 standby power consumption test requirement, GPM-8213 can fully meet the demand by its features, including measurement frequency bandwidth of DC~6kHz, minimum current level of 5mA (resolution: 0.1uA), power measurement resolutions (1uW for minimum current and voltage levels; 1mW for maximum current and voltage levels). Beyond that, time resolution for integral measurement is one second.



PT/CT Connection

With respect to large power measurement, users can utilize terminal on the rear panel to conduct 600V/20A measurement. Users can also use external potential transformer/current transformer for measurement and collocate with PT/CT to set multiplying factor (1~9999) to change readings to the original input voltage or current values without the trouble of additional calculation.

D. VARIOUS STANDARD INTERFACES

The various practical interfaces, RS-232/USB device/LAN, are equipped as standard making control convenient and flexible for remote control and measurement result collection. Also, GPIB is available as optional.

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SPECIFICATIONS

MEASUREMENT CHARACTERISTICS

INPUT

ITEM		Range
RATING VOLTAGE		600 Vrms
RATING CURRENT		20 Arms
IMPEDANCE(50/60Hz)	Voltage	2.4 MΩ
	Current	5mA~200mA : 500 mΩ
	Current	0.5A~20A : 5 mΩ
MAXIMUM VOLTAGE		700 Vrms
MAXIMUM CURRENT		25 Arms
MAXIMUM COMMON MODE VOLTAGE		300 V
LOW PASS FILTER	Cutoff frequency	500 Hz

PARAMETERS

ITEM		Symbol
MEASUREMENT	Voltage	Vdc, Vrms, V+pk, V-pk
	Current	Idc, Irms, I+pk, I-pk
	Power	P, P+pk, P-pk, VA, Var
	Crest Factor	CFV, CFI
	Power Factor	PF
	Frequency	VHz, IHz
	Angle	Deg
	Total Harmonic Distortion	THDV, THDI
	Integration	Time, WP, WP+, WP-, q, q+, q-
DISPLAY DIGITS		5 digits
FREQUENCY BANDWIDTH		DC, 45Hz~6kHz
AVERAGE		1, 2, 4, 8, 16, 32, 64
PT RATE		1 ~ 9999.999
CT RATE		1 ~ 9999.999
DISPLAY MODE	Standard	8 measurement Item
	Simple	4 measurement Item

VOLTAGE

ITEM		Range
RANGE	CF=3	15V, 30V, 60V, 150V, 300V, 600V
	CF=6	7.5V, 15V, 30V, 75V, 150V, 300V
CREST FACTOR		3 or 6 (selectable)
ACCURACY	Effective Range	1% ~ 105% of range
	DC	±(0.2% of reading+0.2% of range)
	45Hz ≦ f ≦ 66Hz	±(0.1% of reading+0.1% of range)
	66Hz < f ≦ 1kHz	±(0.1% of reading+0.2% of range)
	1kHz < f ≦ 6kHz	±3% of reading
	Filter(ON)	Add 0.3% of reading@45Hz ~ 66Hz
TEMPERATURE EFFECT	5-18° C / 28-40° C	Add ±0.03% of reading/° C
RESIDUAL NOISE		0.5% of range

CURRENT

ITEM		Range
MEASUREMENT	CF=3	5mA, 10mA, 20mA, 50mA, 100mA, 200mA, 500mA, 1A, 2A, 5A, 10A, 20A
	CF=6	2.5mA, 5mA, 10mA, 25mA, 50mA, 100mA, 250mA, 0.5A, 1A, 2.5A, 5A, 10A
CREST FACTOR		3 or 6 (selectable)
ACCURACY	Effective Range	1% ~ 105% of range
	DC	±(0.2% of reading+0.2% of range)
	45Hz ≦ f ≦ 66Hz	±(0.1% of reading+0.1% of range)
	66Hz < f ≦ 1kHz	±(0.1% of reading+0.2% of range)
	1kHz < f ≦ 6kHz	±3% of reading
	Filter(ON)	Add 0.3% of reading@45Hz ~ 66Hz
TEMPERATURE EFFECT	5-18° C/28-40° C	Add ±0.03% of reading/° C
RESIDUAL NOISE		0.5% of range

POWER

ITEM		Range
ACCURACY	Effective Range	1% ~ 110% of range
	DC	±(0.2% of reading+0.2% of range)
	45Hz ≦ f ≦ 66Hz	±(0.1% of reading+0.1% of range)
	66Hz < f ≦ 1kHz	±(0.1% of reading+0.3% of range)
	1kHz < f ≦ 6kHz	±3% of reading
	Filter(ON)	Add 3% of reading@45Hz~66Hz
TEMPERATURE EFFECT	5-18° C/28-40° C	Add ±0.03% of reading/° C

FREQUENCY

ITEM		Range
MEASUREMENT	Filter(ON)	30.000 Hz~499.99 Hz
	Filter(OFF)	30.000 Hz~9.9999 kHz
PARAMETER		Voltage, Current
EFFECTIVE RANGE		10%~105% of voltage input
ACCURACY		±0.06% of reading

INTEGRATION

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

GENERAL INFORMATION

DISPLAY	4" TFT LCD
STANDARD INTERFACE	RS-232C, USB device, LAN
POWER SOURCE	AC 100~240 V, 50-60Hz
POWER CONSUMPTION	Max. 25VA
DIMENSION & WEIGHT	270(W) x 110(H) x 350(D) mm, Aapprox. 2.9kg

Specifications subject to change without notice. PM-8213CD1BH

ORDERING INFORMATION

GPM-8213 with GPIB Digital Power Meter (RS-232C/USB device/LAN/Opt.01 GPIB)
GPM-8213 Digital Power Meter (RS-232C/USB device/LAN)

ACCESSORIES

Safety Sheet x 1, Power Cord x 1, Test Lead GTL-209 x 2
CD x 1 (User manual/ USB driver)

OPTION

Opt.01 GPIB card (factory installed)

OPTION ACCESSORIES

GPM-001 Test Fixture
GTL-232 RS-232 Cable, 9-pin Female to 9-pin, null Modem for Computer
GTL-246 USB Cable, A-B type, approx. 1200mm
GTL-248 GPIB Cable, approx. 2000mm
GTL-251 GPIB-USB-HS+ (high Speed)
GRA-422 Rack Adapter Panel (19", 2U)

GPM-001 Test Fixture

GPM-001(EU) Test Fixture

GTL-213 Test Lead

GTL-210 Test Lead