
ИЗМЕРИТЕЛИ МОЩНОСТИ

66201, 66202 66203 66204 66205

ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ

По вопросам продаж и поддержки обращайтесь:

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MODEL 66200 SERIES

Key Features:

- Voltage Range : 150/300/500 Vrms
- Current Range :
Model 66201 - 0.01/0.1/0.4/2 Arms
Model 66202 - 0.01/0.1/0.4/2 Arms
0.2/2/8/20 Arms
- Frequency Range : DC, 15Hz~10kHz
- Embedded high speed DSP, 16 bits Analog/Digital converters
- 10 mA minimum current range & 0.1mW power resolution
- Meets ENERGY STAR / IEC 62301 / EN 50564 / ErP measurement requirements
- Accumulated energy methods for unstable power measurement
- User-define criteria provides automatic PASS/FAIL indications
- Half rack width and 2U height, suitable for system integration
- Dual current shunt design provides high accuracy over a wide current range (Model 66202)
- THD and user-specify order distortion measurement (Model 66202)
- Inrush current and energy measurement (Model 66202)
- Interface options : USB or USB+GPIB
- Voltage/ Current harmonics measurement up to 50 orders

DIGITAL POWER METER MODEL 66200 SERIES

66200 Series Digital Power Meter is designed for single-phase measurements of AC power signals and related parameters common to most electronic products. Instead of traditional analog measurement circuits, the 66200 uses state-of-the-art DSP digitizing technology. The internal 16 bits analog/digital converters with sampling rates of up to 240kHz provide both high speed and high accuracy measurements which is unprecedented within the industry for this class of power meters current on the market.

The instruments include a four part display with 7-segment LED front panel readouts. Users can easily select desired parameters and readouts at a touch of a button. Instruments also include optional remote control using USB or GPIB interfaces via rear panel connections. The 66200 is packaged in a 2U high, half rack enclosure suitable for benchtop or system integration.

The Model 66201 includes simple measurement functions designed for low power applications (maximum current 2A). Examples of these devices are AC adapters, battery chargers, LCD monitors, and similar devices. Included measurement data is as following :

1. Voltage : Vrms, Vpeak+, Vpeak-

2. Current : Irms, Ipeak+, Ipeak-

3. Power : Watts, Power Factor,
Apparent Power VA,
Reactive Power VAR

4. Current Crest Factor & Frequency

The Model 66202 includes a 2-shunt design to provide highly accurate readings for both low and high current measurements. In addition to the parameters measured by Model 66201, the 66202 includes Inrush current, Total Harmonic Distortion of V/I, and Energy measurements. With these practical functions, the Model 66202 is suitable for the most demanding of R&D and quality control departments.



SPECIFICATIONS

Model	66201	66202
Channel	1	1
Parameters	V, Vpk, I, Ipk, W, VA, VAR, PF, CF_I, F	V, Vpk, I, Ipk, Is, W, VA, VAR, PF, CF_I, F, THD_V, THD_I, Energy
AC Voltage		
Range	150/300/500Vrms (CF = 1.6)	150/300/500Vrms (CF = 1.6)
Accuracy	(0.1% + 0.05% x kHz) of rdg + 0.08% of rng	(0.1% + 0.05% x kHz) of rdg + 0.08% of rng
Input Resistance	1M Ω	1M Ω
AC Current		
Range	0.01/0.1/0.4/2 Arms (CF=4) *1	SHUNT H : 0.2/2/8/20Arms (CF=2@0.2/2/8A, CF = 4@ 20A) SHUNT L : 0.01/0.1/0.4/2Arms (CF=4)
Accuracy *2	0.01A range : (0.1 + 0.05 x kHz)% of rdg + 0.25% of rng 0.1/0.4/2 A range : (0.1 + 0.05 x kHz)% of rdg + 0.1% of rng	SHUNT H : 0.2A range : (0.1 + 0.05 x kHz)% of rdg + 0.12% of rng 2/8/20 A range : (0.1 + 0.05 x kHz)% of rdg + 0.1% of rng SHUNT L : 0.01A range : (0.1 + 0.05 x kHz)% of rdg + 0.25% of rng 0.1/0.4/2 A range : (0.1 + 0.05 x kHz)% of rdg + 0.1% of rng
Power		
Range(W)=Voltage \times Current	1.5W ~ 1000W, 12 ranges	1.5W ~ 10kW, 24 ranges
Accuracy	47Hz ~ 63Hz : 0.1% of rdg + 0.1% of rng 15Hz ~ 1kHz : (0.1 + 0.2/PF x kHz)% of rdg + 0.18% of rng	47Hz ~ 63Hz : 0.1% of rdg + 0.1% of rng 15Hz ~ 1kHz : (0.1 + 0.2/PF x kHz)% of rdg + 0.18% of rng
	For EN 50564 (300V x 100mA range) 0.1% of rdg + 0.05% of rng	For EN 50564 (300V x 100mA range) 0.1% of rdg + 0.05% of rng
Power Factor Accuracy *3	0.006 + (0.003/PF) x kHz	0.006 + (0.003/PF) x kHz
Frequency		
Range	DC, 15Hz ~ 10kHz	DC, 15Hz ~ 10kHz
Measuring Condition	Voltage (10 ~ 100% of the voltage range)	Voltage (10 ~ 100% of the voltage range)
Others		
Display Resolution	5 Digits	
Display update rate	0.25~2 sec	
Power Supply	90V ~ 130V / 180V ~ 250V, 50Hz/ 60Hz, 30VA	
Interface	Option: USB or GPIB+USB	
Operating Temperature	0°C ~ 40°C	
Storage	-40°C ~ 85°C	
Safety & EMC	CE (include EMC & LVD)	
Dimension (H x W x D)	88 x 212 x 348.1 mm / 3.46 x 8.35 x 13.7 inch (excluding projections)	
Weight	3.8 kg / 8.37 lbs	

The specifications are valid only after the power meter is turned on more than one hour in a thermally stable environment.

Note*1 : The maximum measurable current of 66201 is 4 Arms.

Note*2 : The current accuracy applies temperature range $23 \pm 1^\circ\text{C}$ for 0.01A & 0.2A (CF=2). For all the other current ranges, the spec. applied under $23 \pm 5^\circ\text{C}$.

Note*3 : The PF spec. applies only when the signals are higher than 50% of the selected voltage and current ranges.

MODEL 66203/66204

Key Features :

- Voltage Ranges :
15/30/60/150/300/600 Vrms,
1200Vrms (optional kit)
- Current Ranges :
0.005/0.02/0.05/0.2/0.5/2/5/20 Arms
- Frequency Range : DC, 15Hz~10kHz
- Embedded high speed DSP,
16 bits Analog/Digital converters
- Half rack size, up to 4 input modules
- Supports various single and 3 phase
wiring configurations (see diagram)
- Supports external shunt and CT for
higher current applications
- 5 mA minimum current range &
0.1mW power resolution
- Meets ENERGY STAR / EN 50564 /
IEC 62301 / ErP
- Includes accumulated energy methods for
unstable power measurement
- User-define criteria provides automatic
PASS/FAIL indications
- Dual current shunt design provides high
accuracy over a wide current range
- THD and user-specify order distortion
measurement
- Inrush current and energy measurements
- Voltage / Current harmonics measurements
up to 50 orders

DIGITAL POWER METER MODEL 66203/66204

66203/66204 Power Meters are designed for multiple phase power measurement applications. The wiring mode function allows the user to take accurate power measurements for various wiring modes 1P2W/1P3W/3P3W/3P4W as well as providing accurate standard power measurements common for most electrical devices. A unique feature of the 66203/66204 is its state-of-the-art DSP digitizing technology instead of less accurate and slower traditional analog circuits. The internal 16 bits analog/digital converters with sampling rates of up to 250kHz provide both high speed and high accuracy measurements which is unprecedented within the industry for this class of power meters.

The instruments include a four part display with 7-segment LED front panel readouts. Users can easily select desired parameters and readouts with a touch of a button. The 66203/66204 meters also include remote control using USB or GPIB interfaces via rear panel connections.

The 66203/66204 are packaged in a 3U high, half rack enclosure suitable for bench top or system integration. The power meters are capable of supporting external shunts and CT for higher current application. The 4 channel 66204 is suitable for input and output parameter measurement and efficiency of 3 phase PV inverters can be calculated with measurement of the DC voltage/current at the input side of the inverter.

The 66203/66204 power meters include a 2-shunt design to provide high accurate readings for both low and high current measurements. The power meters also support features such as Inrush current, Total Harmonic Distortion of V/I, and Energy measurements. With these practical functions, the 66203/66204 power meters are suitable for meeting the demanding tasks of R&D, production and quality control departments.



SPECIFICATIONS

Model	66203	66204
Meas. Channel	3	4
Parameters	V, Vpk, I, Ipk, Is, W, VA, VAR, PF, CFI, F, THD V, THD I, E	
AC/DC Voltage		
Voltage Range (V)	15V/30V/60V/150V/300V/600Vrms (CF=2), 6 range HV option up to 1200Vrms	
Voltage Accuracy	15Hz to 1kHz: 0.1% RD + 0.08% RNG 1kHz to 10kHz: (0.1+0.05*kHz)% RD + 0.05% RNG	
Voltage Harmonics Accuracy	15Hz to 1kHz: 0.1% RD + 0.08% RNG 1kHz to 10kHz: (0.1+0.05*kHz)% RD + 0.05% RNG	
DC Voltage Accuracy	0.1% RD + 0.08% RNG	
AC/DC Current		
Current Range (I)	5mA/20mA/50mA/200mA/500mA/2A/5A/20Arms (CF=4)	
Current Accuracy	15Hz to 1kHz: 0.1% RD + 0.12% RNG 1kHz to 10kHz: (0.1+0.05*kHz)% RD + 0.1% RNG	
Current Harmonics Accuracy	15Hz to 1kHz: 0.1% RD + 0.12% RNG 1kHz to 10kHz: (0.1+0.05*kHz)% RD + 0.1% RNG	
DC Current Accuracy	0.1% RD + 0.1% RNG	
Power		
Power Range (W)	75mW ~ 12kW (48 ranges)	
Power Accuracy	47Hz to 63Hz: 0.1% RD + 0.1% RNG 1KHz to 10KHz: (0.1+0.1*kHz+0.3/PF*kHz)% RD + 0.18% RNG	
Power Factor accuracy	0.001+(15ppm/PF)*Hz	
Frequency		
Fundamental Frequency Range	DC, 15Hz ~ 10kHz	
THD Frequency Range	40Hz ~ 70Hz (100 order) 70Hz ~ 440Hz (50 order)	
Bandwidth	50kHz	
Others		
Display Resolution	5 Digits	
Display Update Rate	0.25sec/0.5sec/1sec/2sec	
Input Voltage	100~240V ± 10%, 50/60Hz	
Interface	USB+GPIB (Standard)	
Operation Temperature	0°C ~ 40°C	
Storage	-40°C ~ 85°C	
Safety & EMC	CE (include EMC & LVD)	
Dimension (H x W x D)	133 x 212 x 420 mm / 5.25 x 8.25 x 16.3 inch	
Weight	7.5 kg / 16.5 lbs	8.5 kg / 18.7 lbs

The specifications are valid only after the power meter is turned on more than one hour in a thermally stable environment.

MODEL 66205

KEY FEATURES

- Voltage Ranges:
15/30/60/150/300/600 Vrms
1200Vrms (optional)
- Current Ranges : 0.005/0.02/0.05/
0.2/0.3/0.5/2/5/20/30 Arms
- Frequency Range : DC, 15Hz~10kHz
- Embedded high speed DSP, 16 bits
Analog/Digital converters with
max sampling rate up to 250kHz
- Capable of meeting the IEC 61000-4-7
harmonics measurement requirements
- Smart Range function provides seamless
power integration measurement under
auto range mode
- Supports external shunt and CT for
higher current applications
- 5 mA minimum current range &
0.1mW power resolution
- Meets ENERGY STAR /EN 50564/
IEC 62301/ErP requirements
- User-define criteria provides
automatic PASS/FAIL indications
- THD and user-specify order distortion
measurement
- Inrush current and energy measurements
- Voltage/ Current harmonics measurements
up to 100 orders
- USB (Host) interface provides data logging
functionality
- Support GPIB, USB, RS232, LAN (option)
interface



DIGITAL POWER METER MODEL 66205

The 66205 is the 2nd generation of the 66200 series power meter designed specifically for single channel measurement. Its state of art design is capable of providing highly accurate power measurements to meet the requirements of IEC 62301/EN50564 standards. Functionality improvements of the 66205 increase power measurement capabilities to a wider range of applications.

The Smart Range function is one of the most important new features added to the 66205 power meter. Smart Range allows the power integration mode to perform active power measurements with the measurement range in auto mode. Chroma's proprietary design automatically selects the appropriate range, based on changes in sensed voltage and current, ensures the best accuracy when integrating the measurements over time.

The 66205 provides 10 selectable current measurement ranges from 5mA up to 30A. External sensor options A662017~A662020 are available to increase the current measurement range. Six selectable voltage ranges are available up to 600V.

External sensor option A662012 can be used to increase the voltage measurement range to

1.2kV. The 66205 provides a low range error up to 0.05% and is capable of meeting the measurement uncertainty requirement of IEC 62301/EN50564.

66205 power meter is designed to comply with IEC 61000-4-7. Continuous high-performance harmonic measurement, with 5Hz frequency resolution and a packet harmonic function, it can accurately measure sub-harmonics, inter-harmonics and harmonics.

For remote operation, the 66205 offers 4 types of communication interfaces including GPIB, USB, RS-232 and LAN (optional). Using the softpanel, it can create complete test reports and perform power quality as well as regulation tests. In addition, its STORE function records the measured values and saves them to a USB storage device. The Limit function can be used for production tests by performing GO/NG tests on the upper and lower limits of voltage, current and power parameters; additionally, it can be integrated into automated production when I/O port is used. The 66205 is a great fit for meeting the demanding tasks of R&D, production and quality control.



SPECIFICATIONS

Model	66205
Channel	1
Parameters	Vrms, Vpk+, Vpk-, V_harm, V_THD, CFv, Irms, Ipk+, Ipk-, I_harmonic, I_THD, CFI, Is, W, VA, var, PF, Freq_V, Freq_I, Wh, Ah, ° (degree)
AC/DC Voltage	
Range	15V/30V/60V/150V/300V/600Vrms (CF=2), 6 ranges
Accuracy	DC, 10Hz to 850Hz : 0.1% rdg+0.05% rng 850Hz to 10kHz : (0.1+0.05*kHz)% rdg+0.08% rng
Harmonics Accuracy	DC, 10Hz to 850Hz : 0.1% rdg+0.05% rng 850Hz to 10kHz : (0.1+0.05*kHz)% rdg+0.08% rng
Input Resistance	2MΩ
AC/DC Current	
Range	Low Shunt: 5mA/20mA/50mA/200mA/300mA (CF=4) High Shunt: 500mA/2A/5A/20Arms/30Arms (CF=4)
Accuracy	DC, 10Hz to 850Hz : 0.1% rdg+0.05% rng 850Hz to 10kHz : (0.1+0.05*kHz)% rdg+0.1% rng
Harmonics Accuracy	DC, 10Hz to 850Hz : 0.1% rdg+0.05% rng 850Hz to 10kHz : (0.1+0.05*kHz)% rdg+0.1% rng
Power	
Range	75mW ~ 18kW (60 ranges)
Accuracy	DC, 10Hz to 850Hz : 0.1% rdg+0.05% rng 850Hz to 10kHz : (0.1+0.07*kHz)% rdg+0.15% rng
Power Factor accuracy	0.001+(15ppm/PF) x Hz
Frequency	
Range	DC, 10Hz ~ 10kHz
Measuring Condition	Synchronizing by voltage signal (10%~100% of the voltage range) Synchronizing by current signal (30%~100% of the current range)
Others	
Display Resolution	5 digits
Display Update Rate	50ms/100ms/250ms/500ms/1s/2s/5s/10s
Input Voltage	100~240 ± 10%, 50/60Hz
Interface	Standard : USB (host), USB (device), GPIB and RS232 Optional : LAN
Operation Temperature	0°C ~ 40°C
Storage	-40°C ~ 85°C
Safety & EMC	CE (include EMC & LVD)
Dimension (H x W x D)	88mm x 208mm x 348mm / 3.47" x 8.19" x 13.7"
Weight	Approx. 4.4kg / 9.7lbs

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