

Automatic
Testing
Equipment

Single-Phase Power Meter



7110/7120



Key Feature

- AC / DC Dual amp / watt-hour meter
- Wide range 0.001W ~ 16KW
- Connection software attached
- Standby Power D.P.I. of 0.001W
- With crest factor ratio display
- Up to the 50 levels harmonic wave analysis capability
- 1000 sets of measurement data storage space

Accessory

Standard

- Power cord
- User manual CD
- RS-232 Cable
- F71201 Test Box
- TL218 Alligator Clips
- TL208 2mm Test Prob

Optional

- GPIB Cable
- PC Link Software

Measuring Range

Vrms	0.1V - 600V	PF	0.000 - ±1.000
Vdc	0.1V - 600V	Deg	-180° - +180°
Irms	0.1mA - 20A	THD	0.01% - 999.99%
Idc	0.1mA - 20A	Hz	15Hz - 100kHz
W	0.01W - 16kW		

Harmonics	Analysis Base	Achieve stable fundamental frequency by voltage or current (non-inverter)
	Frequency Range	45Hz - 440Hz
	FFT Data Length	1024
	FFT Data Format	32 bits
	Measurement Item	1-50 THD, 1-50 level voltage and current V [n], A [n] 1-50 level voltage and current distortion percentage V [n%], A [n%] 1-50 level watts W [n] 1-50 level watts distortion percentage Watt W [n%] 1-50 level voltage and current angle DEG [n] Vrms , Irms , Watt , PF

Frequency	Model	7110	7120
	Measuring Mode	Achieve stable fundamental frequency by voltage or current (non-inverter)	
	Frequency Range	DC 15Hz - 10kHz	DC 15Hz - 100kHz
	Data Length	Dual 4096x16 RAM for voltage & current	
	ADC Resolution	16 bits	
	Sampling Rate	AC 50 / 60Hz basic sampling rate 100KSPS/120KSPS	
	Arithmetic Precision	Watt / VRMS / IRMS / MEAN / PF / Deg / Line filter 32bits	
	Frequency Filter	500Hz cut off , digital chip filter based on 25MHz	
	Signal Filter	500Hz - 3db digital filter based on Butterworth 50Hz - 0.03% reading , 60Hz - 0.05% reading	
	Frequency Acquisition	Voltage / current 100MHz baseband digital dynamic meter chip	
Phase Lead Detection	Subject to the current, analog / digital hybrid detecting (error less than 5 degrees)		

General	Model	7110	7120
	Power Supply	Voltage : 100 ~ 240Vac , Frequency : 50 / 60Hz	
	Display	Seven-segment display	
	Interface	RS-232	RS-232 、 GPIB
	Flash Memory	6 sets	
	Operation	Temperature : 23°C ±5°C 、 Humidity : 20~80%RH	
	Dimension (W*H*D)	227x101x300 mm	
	Weight	1.85 Kg	
	Measuring Bandwidth	DC 15Hz - 10kHz	DC 15Hz - 100kHz
	Harmonic Function	Optional	Optional
	Model	7110-10k-HARM 7110-10k	7120-100k-HARM 7120-100k
	Fixture	F71201 TEST BOX	

Range	Current (fixed / auto)	0.01A 、 0.03A 、 0.1A 、 0.3A 、 1A 、 3A 、 10A 、 20A
	Voltage (fixed / auto)	10V 、 30V 、 100V 、 300V 、 600V

RMS/MEAN Mode Voltage & Current Accuracy (23°C ±5°C)

15 Hz ≤ f < 45 Hz	±(0.1% of reading + 0.4% 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 ≤ 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 reading]

F unit is 1kHz

When the L-FILTER sets as ON: 45-66Hz frequency range allowable error Add 0.5% of reading

When the AC is measured, if the fundamental frequency exceeds 200Hz, the F-Filter is required to be turned off in order to measure the most accurate value

**When the frequency range is more than 10kHz, the 7120 starts to support

DC Mode Voltage & Current Accuracy (23°C ±5°C)

10V-600V	±0.2% reading ± 0.2% of range	0.01A-20A	±(0.2% of reading + 0.2% of range) ±offset
To add up the OFFSET errors of various files during measuring the DC current			

Power (W) Accuracy (23°C ±5°C)

AC power ranges (Auto or Manual) (40 ranges) range up to 16kW
Maximum Power (W) value is determined by the highest range of voltage profile

DC ±0.2% reading ± 0.5% of range

15 Hz ≤ 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 ≤ 10 kHz ±(0.4% of reading + 0.3 % of range)± [{0.06×(f)}% of reading]

10 kHz < f ≤ 100 kHz ±(0.5 % of reading + 0.5 % of range)±[{0.09×(f-10)}% of reading]

Incidental allowable error conditions

Signal filter error (AC)	Frequencies between 45-66Hz: Add 0.3% of reading Frequency out of 45-66Hz: Add 1% of reading beyond
CF9 error (DC)	Add range tolerance * 3

Accuracy effect of the phase error of the power

When the power factor PF is 0, the error range of Watt is

Situation 1 : for 45 Hz < f · Add±1.0% of VA

Situation 2 : for 45 Hz > f or f > 66 Hz

Add ±{(3.5 + 0.5×f) % of VA} for up to 100 kHz as reference data

The unit for frequency f is kHz.

When the power factor is 0 < PF ≤ error range

When 0 < PF ≤ 1 (θ : phase angle of the voltage and current)

for 45 Hz ≤ f ≤ 66 Hz. Add ± power reading *{tan(θ)*(0.5)}%

for f < 45 Hz, f > 66 Hz. Add ± power reading *{ tanθ* (0.5×f+0.2) }%

Error within 12 months	Add ±(0.5% of reading)
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