Single-Phase Power Meter

7110 / 7120

Features

- 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
- Current crest factor is highest CF9

RS-232 | GPIB

Accessories / Fixtures

Standard

- Power Cord
- RS232cable
- F71201 TEST BOX
- TL218 Alligator Clips
- TL208 2mm Test Probe

Optional

- GPIB cable

F71201 TEST BOX

TL208 2mm Test Probe

TL218 Alligator Clips

Specification

Model Name	7110	7120
Frequency Measurement Mode	To achieved stable base frequency measurement (variation less than 1%) by voltage or current (non-inverter)	
Frequency Range	DC15Hz-10kHz	DC15Hz-100kHz
Data Length	Dual 4096×16 RAM for voltage & current	
ADC Resolution	16 bits	
Sampling Rate	AC 50Hz/60Hz basic sampling rate 100 KSPS / 120 KSPS	
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 Mode	Voltage / current 100MHz baseband digital dynamic meter chip	
Phase Lead Detection	Subject to the current, analog/digital hybrid detecting (error less than 5 degrees)	

Range

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

Specification

Model Name	7110	7120
Power Supply	Voltage 100 ~ 240Vac Frequency 50/60Hz	
Display	Seven-segment display	
Interface	RS-232	RS-232+GPIB
Flash Memory	6 Sets	
Environment	Temperature: 23℃±5℃, Humidity: 20-80%RH	
Dimension (W*H*D)	227×101×300 mm	
Weight	1.85kg	
Measurement bandwidth	DC 15Hz-10kHz	DC 15Hz-100kHz
Harmonic (option)	Yes/NA	Yes/NA
Model	7110-10k-HARM 7110-10k	7120-100k-HARM 7120-100k
Fixture	F71201 TEST BOX	

Harmonics

Analysis base	To achieved stable fundamental frequency analysis by voltage or current (non-inverter)
Frequency Range	45Hz-440Hz
FFT Data Length	1024
FFT Data Format	32 bits
Measurement Projects	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

Parameters Measurement 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		

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

15Hz ≤ f < 45Hz	±(0.1% of reading + 0.4% 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 ≤ 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]
F unit is 1KHz When the L-FILTER sets as ON: 45Hz~66Hz frequency range allowable error-0.03 %~-0.05 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℃ ±5℃)

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℃ ±5℃)

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 15Hz ≤ f < 45Hz ±(0.3% of reading + 0.2 % of range) 45Hz ≤ f ≤ 66Hz ±(0.1% of reading + 0.1 % of range) 66Hz < f ≤ 1kHz ±(0.2% of reading + 0.2 % of range) 1kHz < f ≤ 10kHz ±(0.4% of reading + 0.3 % of range)±[{0.06×(f)}% of reading] 10kHz < f ≤ 100kHz ±(0.5 % of reading + 0.5 % of range)±[{0.09×(f–10)}% of reading]	
Incidental Allowable Error Conditions	
Signal Filter Error (AC)	Frequency between 45-66Hz: Add 0.3% of reading. Frequency between45-66Hz: 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 45Hz < f, Add±1.0% of VA Situation 2: for 45Hz > f or f > 66Hz Add ±{(3.5 + 0.5×f)% of VA} for up to 100kHz 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 45Hz ≤ f ≤ 66Hz. Add ±power reading *{tan(θ)*(0.5)}% for f < 45Hz, f > 66Hz. Add ±power reading *{ tanθ*(0.5×f+0.2) }%	
Error within 12 months	Add ±(0.5% of reading)