

Power Mini

Portable DC Power Analyzer

Product overview

Quectel Power Mini is a highly integrated, portable DC power consumption analyzer that combines adjustable DC power supply, high-precision current sampling, and dynamic current waveform analysis. It supports wide-range current measurement from nA to A levels, and features multiple measurement modes and auto-ranging capability, enabling it to accurately capture current variation characteristics of a system in different operating states such as standby, wake-up, and peak transmission.

The compact design and multi-interface power supply options make it suitable for mobile testing scenarios outside the laboratory, significantly improving debugging flexibility. With the PC software tool and multi-language SDK, users can perform real-time data acquisition, waveform analysis, and power consumption modeling. It is widely used for power consumption optimization and performance evaluation of wireless communication modules, embedded systems, wearable devices, and IoT terminals.



Fine-adjustable power supply



Wide current measurement range



High-speed dynamic sampling



Powerful secondary development ecosystem



Output overload protection



Compact and portable design

Key features

- Adjustable DC power output: 0.6 V to 6.5 V (50 mV step)
- Wide current measurement range: nA to 5 A
- Three measurement modes: precision mode / auto mode / normal mode
- nA-level current resolution
- 5 ksps maximum sampling rate
- Output overload protection
- Multi-language SDK support (C#, Python, VB, C++, C, LabVIEW, etc.)
- PC tool support
- Compact and lightweight

Application scenarios

Application scenarios	Description
Smart wearable devices	Low-power analysis of wearable electronic products
Mobile phones / computers	Current consumption analysis in different operating states
Power consumption evaluation	System-level power consumption analysis and optimization
Device selection evaluation	Power consumption performance comparison among candidate devices
Portable DC power supply	Adjustable voltage source without a benchtop power supply
Battery life evaluation	Battery life evaluation based on actual current profiles
Module / evaluation board testing	Current analysis of wireless modules and development boards

Electrical characteristics

Parameter items	Minimum	Typical value	Maximum	Units
DC input voltage	-	12	13	V
Type-A input voltage	-	5	-	V
Type- C input voltage	5	9	12	V
Output voltage range	0.6	-	6.5	V
Output voltage step	-	50	-	mV
Output voltage ripple	-	-	30	mVpp
Load regulation ^①	-	-	5	%
Maximum output power	-	-	25	W
Current range	nA	-	5	A
Current resolution	-	nA – μ A	-	-
Sampling rate	-	5	-	ksps

Measurement modes and accuracy

Mode	Range	Accuracy	Remarks
Precision mode ^②	0 nA – 260 mA	$\geq 100 \mu\text{A}$: $\pm(1\% \text{ of reading} + 4 \mu\text{A})$	High-resolution mode
		$< 100 \mu\text{A}$: $\pm(1\% \text{ of reading} + 50 \text{ nA})$	
Auto mode	0 μA – 5 A	$\geq 200 \text{ mA}$: $\pm(1\% \text{ of reading} + 100 \mu\text{A})$	Auto-ranging mode
		$< 200 \text{ mA}$: $\pm(1\% \text{ of reading} + 4 \mu\text{A})$	
Normal mode	0 μA – 5 A	$\pm(1\% \text{ of reading} + 100 \mu\text{A})$	Standard mode

Notes:

①: Test conditions: voltage = 4 V, load dynamic range = 10 mA to 2.0 A.

②: In precision mode, the reading for a 100 μA load current is approximately 101 μA .

Mechanical and environmental specifications

Parameter items	Specifications
Dimensions	103 × 70 × 24 mm (L × W × H)
Weight	Approx. 170 g
Operating temperature	0 °C to 60 °C
Packing list	Quectel Power Mini, Type-A USB cable, red and black leads, and Esight tool

Interfaces and connections

Parameter items	Specifications
USB host connection	Type-A, USB 2.0
Power input	DC 12 V adapter / Type-C charger / power bank
DUT output	Red and black leads
Output protection	Supported
Firmware upgrade	Supported (via USB)

Software and SDK

Parameter items	Specifications
PC tool	Esight (supports Windows 7 and later)
SDK support	C#, Python, VB, C++, C, LabVIEW, etc.

Dimensions & appearance

