



87234 Series USB Peak and CW Power Sensor



Ceyear Technologies Co., Ltd

Technical Specifications

Specifications		
Frequency Range	87234D	50MHz~18GHz
	87234E	50MHz~26.5GHz
	87234F	50MHz~40GHz
	87234L	500MHz~67GHz
Power Range	Normal Mode	-30dBm~+20dBm (50MHz~500MHz)
		-35dBm~+20dBm (≥500MHz)
	Average Mode ¹	-45dBm~+20dBm
Damage level	+23dBm (Average Power)	
	+30dBm (Peak Power, Duration<1us)	
Rise/fall time	≤13ns ²	
Sampling Rate	80MSamples/sec, Continuous sampling	
Video bandwidth	≥30MHz	
Single capture bandwidth	≥30MHz	
Minimum pulse width	50ns	
Basic accuracy of average power measurement ³	87234D	±0.20dB (±4.5%)
	87234E	±0.25dB (±6.0%)
	87234F	±0.30dB (±6.7%)
	87234L	±0.33dB (±7.9%)
Maximum capture length	1s (Down frequency)	
	1.2ms (Maximum sampling rate)	
Maximum pulse repetition rate	10MHz	
Maximum SWR	87234D	1.20 (50MHz~2GHz)
		1.26 (2GHz~18GHz)
	87234E	1.20 (50MHz~2GHz)
		1.26 (2GHz~18GHz)
		1.35 (18GHz~26.5GHz)
	87234F	1.20 (50MHz~2GHz)
		1.26 (2GHz~18GHz)
		1.35 (18GHz~26.5GHz)
		1.50 (26.5GHz~40GHz)
	87234L	1.20 (500MHz~2GHz)
		1.26 (2GHz~18GHz)
		1.35 (18GHz~26.5GHz)
1.50 (26.5GHz~40GHz)		
1.70 (40GHz~67GHz)		

Calibration uncertainty	87234D	4.0% (50MHz~10GHz)
		4.5% (10GHz~18GHz)
	87234E	4.2% (50MHz~1GHz)
		4.5% (1GHz~18GHz)
		5.3% (18GHz~26.5GHz)
	87234F	4.2% (50MHz~1GHz)
		4.5% (1GHz~18GHz)
		5.3% (18GHz~26.5GHz)
		5.8% (26.5GHz~40GHz)
	87234L	4.5% (500MHz~18GHz)
		5.3% (18GHz~26.5GHz)
		5.8% (26.5GHz~40GHz)
7.0% (40GHz~67GHz)		
Interface	87234D	N-Type(m)
	87234E	3.5mm(m)
	87234F	2.4mm(m)
	87234L	1.85mm(m)

Note:

1. It is recommended to perform the zero calibration operation when the machine is turned on, The temperature changes significantly or after a long time has passed since the last zero calibration. In average mode, perform external zero calibration and ensure that the power meter and the RF source are isolated.
2. It is effective when the frequency is $\geq 500\text{MHz}$ and the video bandwidth is off.
3. It is valid when the power range is $-15\text{dBm} \sim +20\text{dBm}$, the frequency is $\geq 500\text{MHz}$, and the SWR of the device under test is less than 1.20. In the free running mode, the average value is 32.

Timebase and Trigger Specifications

Timebase and trigger		
Timebase	Range	2ns/div~100ms/div
	Accuracy	$\pm 25\text{ppm}$
Internal trigger level (typical)	Range	$-20\text{dBm} \sim +20\text{dBm}$
	Resolution	0.1dB
	Level accuracy	$\pm 0.5\text{dB}$
External TTL trigger input	High	$> 2.4\text{V}$
	Low	$< 0.7\text{V}$
	Maximum trigger voltage input	5V
	Impedance	50 Ω
External TTL trigger output	High	$> 2.4\text{V}$
	Low	$< 0.7\text{V}$
	Impedance	50 Ω

Specifications

Trigger delay	Range	±1.0s (Max)
	Resolution	1%, (Min)12.5ns
Trigger hold off	Range	1us~1s
	Resolution	1%, (Max)12.5ns

General Specifications

Inputs/Outputs		
RF input	87234D	N-Type(m)
	87234E	3.5mm(m)
	87234F	2.4mm(m)
	87234L	1.85mm(m)
Trigger input	Compatible with TTL level, MMCX connector	
Trigger output	Compatible with TTL level, MMCX connector	
Video output	0~1V, 50Ω impedance, MMCX connector	
Program control interface	USB2.0 port, Compatible with USB-TMC	
Maximum measurement speed	50000 readings per second	

Product features

Product features		
Display	Main monitor	
Language	Chinese/English	
Power supply	+5V,500mA	
Operating temperature	0°C ~ 50°C	
Storage Temperature	-40°C ~ +70°C	
Humidity	No humidity control when the temperature is lower than 10°C When the temperature range is 10°C ~ 30°C, the relative humidity is (5~95)% When the temperature range is 30°C ~ 40°C, the relative humidity is (5~75)% When the temperature range is above 40°C, the relative humidity is (5~45)%	
Altitude	0~4600m	
Weight	<0.3kg	
Dimension (Width×Height×Length)	87234D	141.1mm×52.0mm×34.0mm
	87234E	133.9mm×52.0mm×34.0mm
	87234F	124.7mm×52.0mm×34.0mm
	87234L	124.7mm×52.0mm×34.0mm
Vibration	Random vibration: Frequency5 ~ 100Hz, Power Spectral Density,	

	0.015g ² /Hz, Frequency 100 ~ 137Hz, Slope: -6dB, Frequency 137 ~ 350Hz, Power Spectral Density: 0.0075g ² /Hz, Frequency: 350 ~ 500Hz, slope: -6dB; Frequency 500Hz, Power Spectral Density 0.0039g ² /Hz.
Reliability requirements	MTBF (θ_0) \geq 5000h
Recommended calibration interval	1 year

System and Installation Requirements

PC operating system	
System	Windows 10 32-bit and 64-bit Windows 7 32-bit and 64-bit Windows XP and Linux
Computer hardware	Processor: 1GHz or higher (2GHz or higher recommended) Memory: 2GB or higher (4GB or higher recommended) Hard disk space: 1.0GB or higher Display resolution: 1280×1024 or higher

Ordering information

Main unit	Description
87234D	USB Peak/CW Power Sensor, 50MHz~18GHz
87234E	USB Peak/CW Power Sensor, 50MHz~26.5GHz
87234F	USB Peak/CW Power Sensor, 50MHz~40GHz
87234L	USB Peak/CW Power Sensor, 500MHz~67GHz

Standard accessory	Description
1	One power cable, 2.0m
2	Two trigger cables, 1.5m
3	One CD

Options	Description
87234-H01	Power cables, 4.5m
87234-H02	Trigger cable, 4.5m
87234-H03D	Commercial calibration certificate, 87234D
87234-H03E	Commercial calibration certificate, 87234E
87234-H03F	Commercial calibration certificate, 87234F
87234-H03L	Commercial calibration certificate, 87234L
87234-H04	English
87234-H05A	Hard suitcase (one set can be carried)
87234-H05B	Hard suitcase (two sets can be carried)

Specifications

87234D-EWT1	Extended warranty service
87234E-EWT1	Extended warranty service
87234F-EWT1	Extended warranty service
87234L-EWT1	Extended warranty service

Definition of Specifications

- **Specifications (spec):** Unless otherwise specified, the calibrated instruments can be placed in the operating temperature range of 0°C to 50°C for at least two hours, and after 30 minutes of warm-up, the performance can be guaranteed, including measurement uncertainty degree.
- **Typical value (typ):** Indicates the typical performance that 80% of the instruments can achieve. This data is not a guarantee data, and does not include the uncertainty factors during the measurement process. It is only valid at room temperature (approximately 25°C).
- **Nominal value (nom):** Indicates the expected average performance, designed performance characteristics, or performance that cannot be tested by limited test methods, such as 50 Ω connectors. The product performance marked as rated value is not included in the product quality assurance range, and is measured at room temperature (approximately 25°C).
- **Measured value (meas):** Represents the performance characteristics measured during the design stage in order to compare with the expected performance, such as changes in amplitude drift over time. This data is not guaranteed and it is measured at room temperature (approximately 25°C).