



# MAXWELLON MSA800

9kHz~1.8GHz/3.6GHz/7.5GHz

Spectrum Analyzer Module

2023

Maxwellon MSA800 series spectrum analyzer module is the perfect choice for system integration with excellent performance, small size and high cost performance. Users can connect it with a PC to display the test screen, just click the mouse on the PC to enjoy the convenience and speed of the desktop spectrum analyzer. It can also be integrated into your system to develop related functions of spectrum analysis. The modular design of MSA800 will bring great convenience to user testing and save costs at the same time. The PC host computer directly obtains the measurement results through the USB or LAN interface. Users can flexibly carry out secondary development according to their needs, and can quickly build and upgrade the integrated test system.

## Key Feature

- Frequency range: 9kHz - 1.8GHz/3.6GHz / 7.5GHz
- Resolution bandwidth: 1Hz -3MHz
- Sensitive, DANL < -158dBm
- Adopt USB, LAN interface, easy to control connection
- Standard and complete SCPI
- Small size, ultra-light weight, easy system integration

## Specification

Model	MSA820A	MSA830	MSA870
Frequency Range	9kHz~1.8GHz	9kHz~3.6GHz	9kHz~7.5GHz
Frequency Reading Accuracy	$\pm$ (Frequency standard reading $\times$ Frequency reference accuracy+1% $\times$ Sweep width+10% $\times$ RBW+0.5 $\times$ [Sweep width/(Sweep point -1)]+1Hz)		
Internal Reference (10MHz)	Standard: Aging rate:<1ppm/year, Temperature drift:<0.5ppm (15°C to 35°C)		
Resolution Bandwidth(RBW)			
Range	1Hz to 500kHz (in continuous steps of 1 to 10), 1MHz, 3MHz		
Selectivity (60db/3db)	RBW $\leq$ 500kHz <5:1 typical value (digital implementation, close to Gaussian shape)		
Accuracy			
Video Bandwidth (VBW)	1Hz ~ 3MHz		
DANL (1Hz resolution bandwidth, RF attenuator 0dB)			
Pre Amplifier Off	1MHz~10MHz <-130dBm 10MHz~1GHz <-135dBm 1GHz~1.8GHz<-134dBm	1MHz~10MHz <-130dBm 10MHz~1GHz <-135dBm 1GHz~3.6GHz<-130dBm	1MHz~10MHz <-125dBm 10MHz~2GHz <-133dBm 2GHz~3.4GHz<-130dBm 3.4GHz~5GHz<-133dBm 5GHz~7.5GHz<-127dBm
Pre Amplifier On	1MHz~10MHz <-150dBm 10MHz~1GHz <-155dBm 1GHz~1.8GHz<-153dBm	1MHz~10MHz <-150dBm 10MHz~1GHz <-155dBm 1GHz~3.6GHz<-148dBm	1MHz~10MHz <-140dBm 10MHz~2GHz <-147dBm 2GHz~3.4GHz<-143dBm 3.4GHz~5GHz<-145dBm 5GHz~7.5GHz<-140dBm
Phase Noise			
fc=500MHz (sampling detection, average number of traces $\geq$ 10)	-90dBc/Hz at 30kHz frequency offset		-80dBc/Hz at 30kHz frequency offset
	-100dBc/Hz at 100kHz frequency offset		-90dBc/Hz at 100kHz frequency offset
	-115dBc/Hz at 1MHz frequency offset		-110dBc/Hz at 1MHz frequency offset
Sweep Time			
Non Zero Sweep Width	3ms to 3000s		
Zero Sweep Width	1ms to 3000s		
Sweep Mode	Continuous, Single		
Frequency Counter			
Counting Resolution	1Hz, 10Hz, 100Hz, 1kHz		
Counter Uncertainty	Frequency Reading $\times$ Frequency Reference Accuracy+Counting Resolution		

Model	MSA820A	MSA830	MSA870
Amplitude Accuracy (20 C to 30 C )	±1.5dB		
Amplitude			
Measurement Range (f <sub>c</sub> ≥10MHz)	DANL to +20dBm	DANL to +27dBm	DANL to +20dBm
Max. Safe Input Level(Average continuous power)	+23dBm	+27dBm	+23dBm
Max. DC Input Voltage	50Vdc		
Input Attenuator Range	0 - 30dB, Steps of 1 dB	0 - 39dB, Steps of 3 dB	0 - 30dB, Steps of 1 dB
Stray and Residual Response			
TOI (third order distortion)	>30MHz	+7dBm	+10dBm
SHI (second-order distortion)	>10MHz	+40dBm	
Input related spurious signal		<-60dBc	
Remaining Response		<-85dBm	
Tracking Signal Source (option)			
Frequency Range	100kHz to 1.8GHz	100kHz to 1.5GHz	100kHz to 3.2GHz
Output Power	-30dBm to 0dBm in 1dB steps		
Flatness Output	± 3 dB		
Input/Output			
RF Input/Output	SMA female (50 Ω)		
USB	USB 2.0 B connector		
LAN	10/100 Base-T, RJ-45 connector		
Reference Input/Output	10MHz, BNC female; Input power: 0dBm to+10dBm; Output power: 0dBm ± 2dB		
FM/AM Audio Demodulation	Speaker and Headphone Jack		
General			
Weight	800g		1.1kg
Working Temperature	0 C to 40 C		
Storage Temperature	-40 C to+70 C		
Core module Dimensions (width×high×deep)	120mm×145mm×28mm		
Standard Dimensions (width×high×deep)	245mm×190mm×44mm		
Power	Single Power Supply	+5.2VDC~+5.4VDC	
	Current	1.5A	1.6A

## ■ Ordering Information

### Model

Model	Name	Description
MSA820A	Spectrum Analyzer Module	9kHz - 1.8GHz
MSA830	Spectrum Analyzer Module	9kHz - 3.6GHz
MSA870	Spectrum Analyzer Module	9kHz - 7.5GHz

### Standard

No.	Name
1	CD-ROM (User Manual, Programming Manual)
2	+5V power adapter, LAN connection cable

### Options

Option Model	Name
MSA830-TG15	100kHz to 1.5GHz tracking source
MSA820A-TG18	100kHz to 1.8GHz tracking signal source
MSA830-TG36	100kHz to 3.6GHz tracking signal source
MSA870-TG32	100kHz to 3.2GHz tracking source
OA750/DA800	Omnidirectional antenna/directional antenna
MSA800-WK	Standard Housing



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