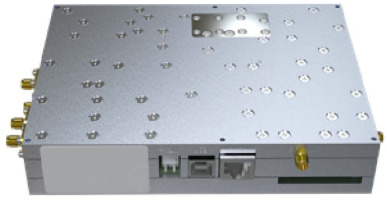
SMR Series Monitoring Receiver Module



Core module

Standard housing

Overview

SMR series monitoring receiver module has excellent performance and compact size. The monitoring frequency covers 9kHz~8GHz/18GHz, the real-time bandwidth is up to 40MHz digital intermediate frequency, and the frequency scanning speed is up to 80GHz/second; the standard ITU measurement mode can It is widely used in radio monitoring to meet the testing needs of radio monitoring stations. The receiver comes with a PC host computer that can be used independently, or you can use the complete SDK development package for secondary development. The receiver itself has powerful signal analysis and processing capabilities, and the PC host computer can directly obtain the measurement results, and users can flexibly conduct secondary development according to needs. In distributed RF sensor applications, multiple receiver modules can be connected remotely over a standard TCP/IP network.

Key features

- Frequency range 9kHz~8GHz/18GHz.
- Adjustable digital IF bandwidth, maximum 40MHz panoramic IF display.
- Panoramic scan speeds up to 80GHz/s for quick setup and discovery.
- Equipped with panoramic scan, frequency band scan, list scan and fixed frequency point monitoring functions.
- Equipped with AM/FM/LSB/USB/CW and other audio demodulation modes.
- Supports multi-target audio demodulation and field strength measurement, and provides an analog audio streaming interface.
- Equipped with AM/FM modulation analysis capabilities to meet standard ITU measurement requirements.
- Signal storage and playback facilitates monitoring, processing and positioning of transient signals.
- I/Q data flow recording, storage bandwidth up to 40MHz, real-time storage depth up to 4Gb, I/Q sample rate: 51.2M@IFBW=40MHz.
- Supports GPS/BD time synchronization function, data timestamp accuracy is better than 40ns.
- With complete SDK development kit and API documentation, users can flexibly conduct secondary development according to their needs.
- LAN interface for remote control and data output.
- Low power consumption, light weight and compact size, suitable for system integration and installation.

Specifications

Model		SMR008	SMR018
RF data			
Frequency Range		9kHz~8GHz	9kHz~18GHz
Input Resistance		50Ω	
VSWR		≤ 2.0:1(Typ.,RF 10dB attenuation)	≤ 2.5:1
Channel Gain Control	RF Attenuator	Max.30dB	Max.30dB
	IF Amplifier	Max.30dB	Max.30dB
Amplitude Accuracy		±1.5dB	±1.5dB
Noise Figure	low Noise Mode	12dB(Typ.)	18dB(Typ.)
Third Order Intercept(TOI)	Input In-band	13dBm	10dBm(Low Distortion)
Second Order Intercept(SOI)		45dBm	40dBm(Low Distortion)
Phase Noise	fc = 1.0GHz	-98dBc/Hz@10kHz	-90dBc/Hz@10kHz
Image Rejection		9kHz~3.6GHz 90dB(Typ.) 3.6GHz~8GHz 80dB(Typ.)	60dB(Typ.)
IF Suppression		9kHz~3.6GHz 90dB 3.6GHz~8GHz 80dB	70dB
Inherent Residual Response		-110dBm(＞ -110dBm, ≤ 5 points)	-95dBm(＞ -95dBm, ≤ 5 points)

IF data			
Spectrum Display Range		10kHz~40MHz	
Display Mode		Regular, Average and Max Hold	
IF Demodulation Bandwidth	20 gears	1.5kHz~40MHz	
Audio Demodulation		AM、FM、LSB、USB、CW、Pulse	
Demodulation Analysis		AM、FM	
Signal Processing			
Scan Rate	100kHz RBW	80GHz/s	
Fast Fourier Transform	IF Spectrum	2048 points (Blackman window)	
Type of Data	I/Q data (14bit accuracy)	Bandwidth up to 40MHz	
	Spectrum Data	IF spectrum and swept spectrum	
	Field Strength Level	Channel bandwidth as small as 1.5kHz	
Data StorageDepth		512MB storage space	
Scan Mode			
Panoramic Scan	Start/Stop Frequency	User selectable	
	Scan Step	125/250/500/625Hz/1.25/2.5/3.125/ 6.25/12.5/25/50/100/200/400kHz	
	Step Points	≤ 1,500,000 points	
Band Scan	Start/Stop Frequency	User selectable	
	User Setting Parameters	Scan step, dwell time, audio demodulation	
	Step Points	≤ 4,000 points	
Storage Scan	Storage Location	No more than 1024 channels, users can edit channel frequency, dwell time, IF bandwidth, audio demodulation mode, etc.	
Measurement Accuracy and Display Mode			
Frequency Resolution		3Hz	12Hz
Frequency Accuracy	within Operating Temperature	±0.5ppm	±0.2ppm
	Aging Rate	±1ppm/year	±0.5ppm/year
Display Error		±1.5dB	
Interface			
Antenna Input		SMA,50Ω	
Maximum Measurement Level		+20dBm	
Reference Input	10 MHz	SMA,50Ω	
	Input Level	0dBm~+10dBm	
IF Output (analog)		145MHz, SMA,50Ω	
I/Q Output		LAN	
Audio Output (analog)		300Hz to 12.5kHz	
Data and Control Interface	Remote control and data transmission	Ethernet10/100BaseT	
General			
Working Temperature	Typical range	0°C to +50°C	
Allowable Temperature	Maximum range	-10°C to +50°C（No condensation）	
Power	DC	9V~13V	
	Current	About 1.6A（+12V）	About 1.8A（+12V）
Core Module Size	165mm×120mm×32mm		
Standard Housing Size	245mm×190mm×44mm		
Module weight(excluding housing)	About 900g		About 1000g

Ordering

Configuration	Description	Model
Main Machine	Monitoring receiver module	SMR008
		SMR018
Accessories	CD (user manual, programming manual, host computer software (basic software package))	
	LAN cable (standard Ethernet cable)	
Optional	GPS/BD timing module	SMR-GPS
	Compact omnidirectional antenna (0.3~7.5GHz)	OA750
	Handheld directional antenna (0.6~8GHz)	DA800
	Module standard housing	SMR-WK