

# MP7100 RF Recorder

**MP7** Series Ultra Light Edition

# Design

The RF recorder supports a large range of digital or analog modulation signals in the frequency spectrum.

ADIVIC MP7100 RF recorder incorporates a hardware capture module covering the frequency spectrum from 48MHz to 1GHz and also the GPS L1 band at 1.57542GHz. The RF input supports active and passive antenna types. The system can extend larger storage capacity through swap SSD(Recommend option) or HDD design and eSATA interface. Each recording can be easily named by the user via the friendly UI. Remote control function is supported via Ethernet RJ45 interface. To the mobility shock environment, a specially designed Shock Absorber of Independent hard disk mechanism is installed in every MP7100 to efficiently reduce the harm to hard disk. The DC power input had been made to intake supplies possible from external battery pack and car cigar lighter receptacle. Remarks:Please check if the battery pack and car cigar lighter receptacle can support the DC power module spec requirement.

# Introduction

ADIVIC RF Recorder, MP7 SERIES is an exquisite RF- engineering tool for both field testing and performance testing. The MP7100 is capable of RF signal real-time capture and record for any type of signal modulation schemes.

# Support standard

## Worldwide Radio Broadcasting Standard

FM/RDS/TMC  
IBOC FM - HD Radio  
DAB without L Band

## Worldwide Navigation Standard

GPS L1

## Worldwide TV Broadcasting Standard

DVB-T/H  
DVB-T2  
DVB-SH  
CMMB  
ISDB-T  
ISDB-T<sub>SB</sub>  
MediaFLO

ATSC-MH  
T-DMB  
DVB-C  
DVB-C2  
OPEN Cable  
ATSC  
DTMB  
NTSC  
PAL  
SECAM



MP7100  
RF Recorder

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[www.adivic.com](http://www.adivic.com)

## Idea

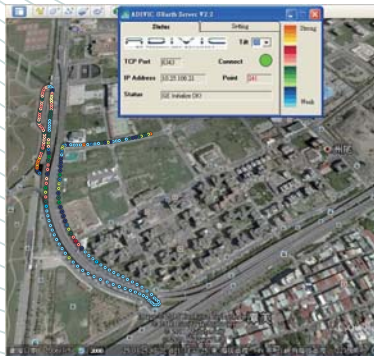
MP7100, with its small size and light weight features, is easy for field testing. All MP7 Series adopt user-friendly TFT-LCD touch screen. MP7100 RF recorder covers the frequency spectrum from 48MHz to 1GHz and also the GPS L1 band at 1.57542GHz. It satisfies various broadcasting communication and GPS applications. The RF signals can be stored in a large-sized hard disk. These files can be analyzed via MATLAB software or played by MP7200\* or MP9000\* The RF Player.

With the bandwidth of acquisition 24MHz(20MHz Guaranty BW), it allows the users to record and analyze the wanted channel signal, adjacent channel signal, noise/fading signal and any distortion signals accordingly.



## Location Function

GPS location log function can support the recordings of the GPS NEMA. The data can be transmitted via Ethernet to other PCs installed with Google Earth software and ADIVIC's utility software, and users can freely define the power level color class and the rate of GPS location update according to each recording length and mobile speed. It helps users to see clearly the geographical condition via Google earth. Users can free download Google Earth software from Google web. Please notice that PCs need to be connected to the Internet to get the Google Earth map data during operation.

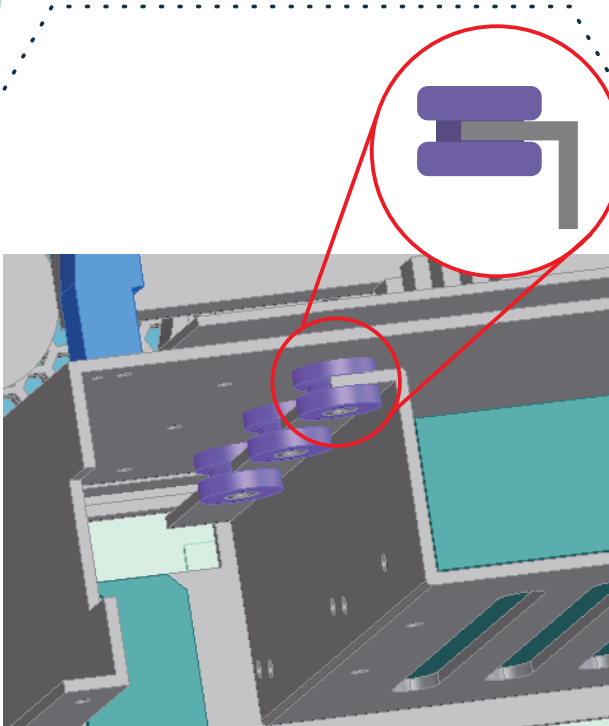


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# UI



Shock Absorber of Independent  
HDD Mechanism



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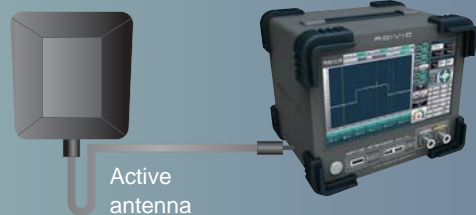
# Feature

- FREQUENCY COVERAGE FROM 48MHz to 1GHz & 1.57542GHz GPS L1
- ADJUSTABLE BANDWIDTH FROM 1MHz TO 24MHz (20MHz Guaranty BW)
- SAMPLE RATE:100MS/s
- RESOLUTION: 14 BIT
- NOISE FLOOR: < -162dBm/Hz
- CONVENIENT MOBILE FIELD TESTING SOLUTION FOR DTV AND GPS
- RECORDING FILE FORMAT SUPPORTS MATLAB SOFTWARE ANALYZING
- POSSIBLE DC POWERED BY CAR CIGAR LIGHTER SOCKET
- eSATA INTERFACE FOR EXTERNAL STORAGES
- SWAP INTERNAL SATA 2.5" SSD (300GB x2 ) or HDD(500GB x 2)
- SUPPORTS GPS NEMA DATA LOGGING RECORDING
- SPECTRUM ANALYZER / Marker / Channel Power Measurement
- SHOCK ABSORBER OF INDEPENDENT HDD DESIGN
- 10.2" TOUCH SCREEN

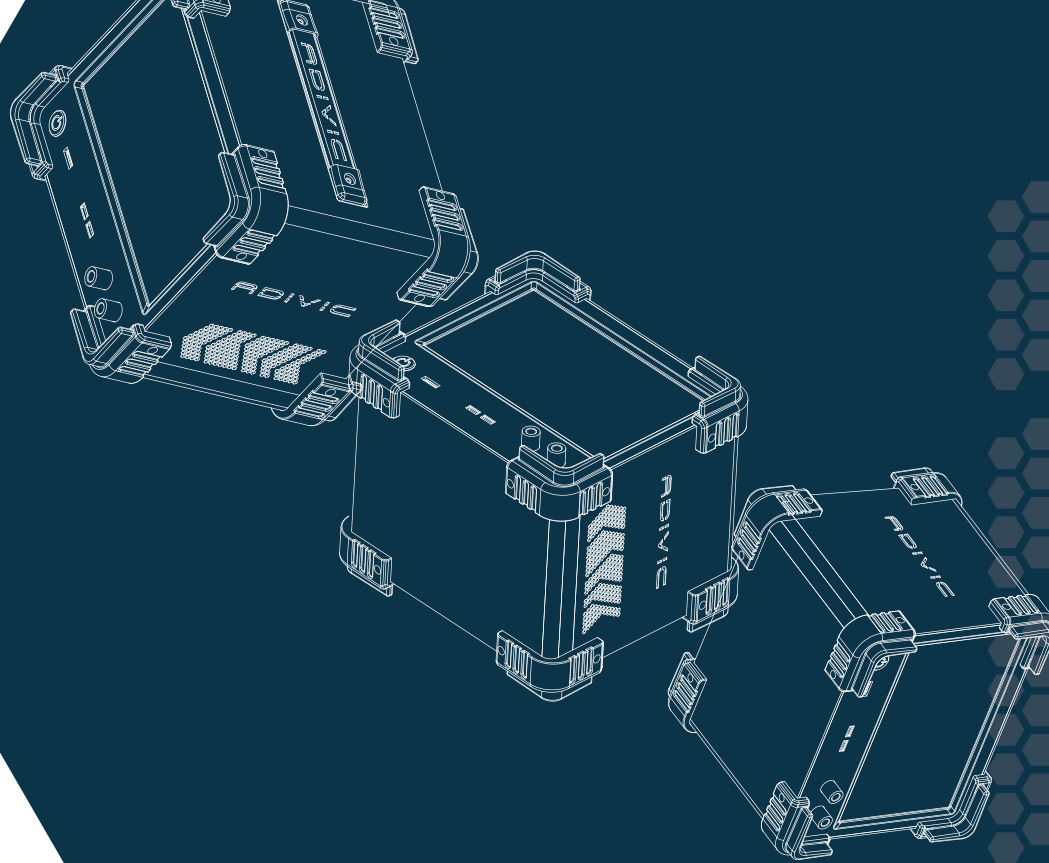
## GPS Signal Recorder Scenario

ADIVIC, GPS Option allows MP7100 to record low-power-level signals, such as GPS signals with its package kits. An active antenna is used in this case. The following instructions will guide you to set up the kits properly :

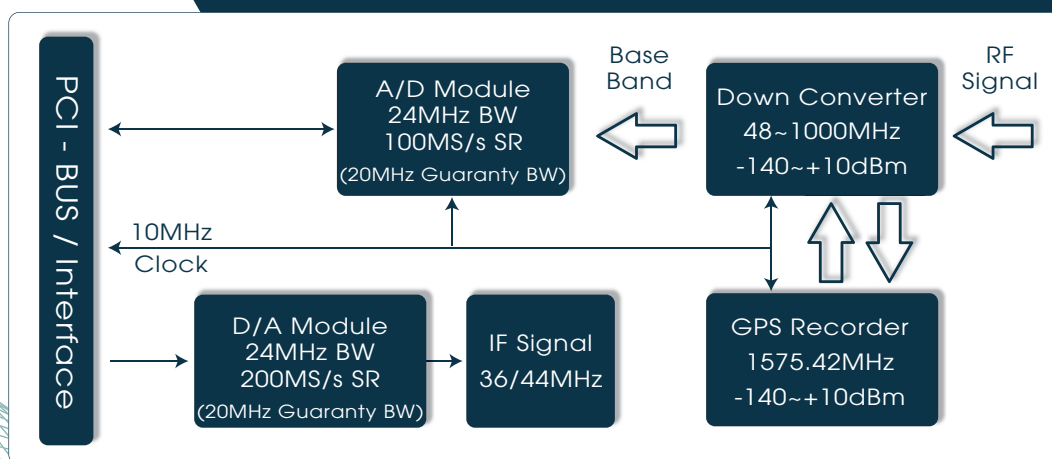
## The GPS Option Package Setup Instruction



Connect the RF signal input to the RF Port and set up DC output in Active antenna mode.



## MP7100 Block Diagram



	MP7100	MP7200	MP9000
Model	RF Recorder/IF Player	RF Recorder/Player	RF Player
TFT Touch Screen	Capacity	Capacity	Resistive
Frequency	48MHz-1GHz 1575.42MHz	25MHz-2.7GHz	25MHz-2.7GHz
Bandwidth	24MHz(20MHz Guaranty BW)	25MHz (20MHz Guaranty BW)	25MHz (20MHz Guaranty BW)
Record	◆	◆	
Play	IF 36/44MHz -20dBm	◆	◆
Segment Play		◆	◆
SAI* SSD/HDD	◆		
SWAP SSD/HDD	◆	◆	
Power	DC 9V to 36V 120W	AC 100-250V	AC 100-250V
Size	L:27.8xW:24.2xH:23.6 cm	L:34.6xW:30.2xH:22.9 cm	L:36 x W:34 x H:20 cm
Weight approx	9 Kgw	14.3 Kgw	17 Kgw

\*Shock Absorber of Independent HDD Mechanism

# Specification

MP7100 RF Recorder

## Frequency

Frequency range ..... 48MHz to 1.0 GHz & 1575.42MHz  
Real-time bandwidth..... 1~24 MHz  
Frequency resolution..... 1KHz step minimum  
Resolution bandwidth (RBW)..... Fully adjustable (100 Hz to 3MHz)  
Warm-up time (typical)..... 30 minutes  
Temperature stability .....  $\pm 1$  ppm maximum  
Initial achievable accuracy.....  $\pm 1$  ppm maximum  
Aging  
Per year.....  $\pm 1$  ppm maximum

## Spectral purity

Phase Noise@1 kHz offset, 1GHz..... -80 dBc/Hz typ

**RF input Spurious Response**..... <-90 dBm

## Noise Density

Noise Density @100MHz..... <-165dBm/Hz

## Amplitude

Input level Accuracy ( 15 to 35°C )..... <+/- 1dB  
Input signal range@CW mode..... -145 dBm~+10 dBm  
Gain Range..... 0~+40 dB@ 5dB step  
Input level resolution..... 0.01dB  
Maximum DC input.....  $\pm 50$  VDC  
DC Voltage Output Range..... 0~+10V@0.1Vstep  
Group delay..... 30 nspk-pk

## RF input

Passive RF input..... 50ohm , AC-coupled N female

## IF output

IF output..... 36MHz or 44MHz. -20dBm

## IF Band

Resolution..... 14 bits  
Sample rate..... 100MS/s

## Storage

Storage..... SSD: 600 GByte (recommend option)  
HDD: 1 Tera Standard

## Calibration

Calibration ..... 1 year

## Environment

Operating temperature ..... 0 to +50°C  
Relative humidity..... 10 to 90%  
Storage temperature ..... -20 to 70 °C  
Relative humidity..... 5 to 95%

## Power

DC input..... 9V to 36V input 120W  
AC/DC Power Adapter..... 90V to 264V AC input  
19V Output Voltage  
6.32A Output Current

## Mechanical

Dimensions..... (L):27.8x(W):24.2x(H):23.6 cm  
Weight..... approx 9 kgw

