

RP-5100 Series

Multi-Channel, 20 MHz Compact RF Recorder



Capture real-world RF signals with impairments for Navigation as well as Broadcast Radio and Video for validation, testing and support.

Averna
Instrumentation
Tools for:

**R&D, Validation/
Test and Support
Engineers/FAEs
working for OEMs,
ODMs and CMs in
the Semiconductor,
Automotive, Consumer
Electronics and
Telecom Infrastructure
markets developing
Navigation, Radio and
Video receivers.**

The Averna RP-5100 RF Recorder (available in 1- and 2-channel models) is an advanced tool for both field testing and performance testing. Its compact size and integrated display make it ideal for easy field operation and its innovative engineering is designed to drive sophisticated applications and to build libraries of real-world RF environments.

Recording live (impaired) RF signals of interest in the field, without de-modulation or alteration, reduces the need for traditional field-testing of RF receivers. By reproducing complex field conditions accurately and consistently in the lab, you can cut-back on costly field trips to validate design changes.

The Averna RP-5100 Series can be paired with the Averna URT-5000 RF Player and Signal Generator for a complete Record and Playback solution.

RF Studio™

The RP-5100 comes preloaded with Averna's RF Studio, which is a workflow tool for making painless RF recordings, managing collected data, and analyzing or playing back collected RF environments. With RF Studio, you can have confidence that the intended signals were captured – all without the need for RF experts on site.

> Key Features

- **Use 20 MHz recording bandwidth** to capture most signals found in automotive receivers
- **Two channels** to capture signals operating at different frequencies
- **Field-ready** with an integrated touchscreen display, ruggedized chassis and compact size
- **Record all day** with 2 TB of hot-swappable storage
- **Simple field setup** and intuitive user interface and test-case profiles
- **Option: DriveView™** for synchronized recording/viewing of video, audio, and GPS positioning data
- **Available in two models:** RP-5110 (1 channel) and RP-5120 (2 channels)

RF Input

Frequency	
Input Frequency	250 kHz to 2.65 GHz*
Resolution	0.1 Hz
Phase Noise (1 GHz @ 10 kHz offset)	<-94 dBc/Hz
Internal Reference	10 MHz +/- 50 ppb (max.) initial accuracy +/- 100 ppb/year aging
Temperature Stability	20 ppb (max.)
Amplitude	
Noise Floor	-172 dBm/Hz (w/LNA Pre-Amp) 3.5 dB noise figure typ.
Maximum Input	+ 10 dBm (with minimum gain)
Adjustable Pre-Amp Gain Range	> 55 dB (with LNA) 0.5 dB steps
Level Accuracy	+/- 1dB (typ.)
Baseband	
Real-time Bandwidth	1 MHz to 20 MHz
Sample Rate	25 MS/s
Output Resolution	14-bit
Dynamic Range	80 dB SFDR

Connectivity

RF Connectors (50Ω)	
IN (Pre-Amp)	1 x SMA Female per channel AC coupled
DC+RF (Bias-T)	1 x SMA Female per channel DC coupled, 2 – 10 V
RF (Bias-T) Input	1 x SMA Female AC coupled
RF (Bias-T) Output	1 x SMA Female
Pre-Amp Input	1 x SMA Female
Pre-Amp Output	1 x SMA Female
RF (VSA) Input	1 x SMA Female
GPS Antenna	1 x SMA Female DC coupled, antenna bias
10 MHz Reference	
10 MHz REF Input (50Ω)	1 x SMA Female Freq. 10 MHz; Level 0/+10 dBm, Max.: +15 dBm
10 MHz REF Output (50Ω)	2 x SMA Female Freq. 10 MHz; Level +2d Bm, Max.: +10 dBm
Trigger/Sync Input(s) and Output(s)	
Input (50Ω)	1 x SMA Female Freq.: PULSE; Level: TTL 5V TOL, Max.: -0.5/5.5 V
Output (50Ω)	1 x SMA Female Freq.: PULSE, Level: TTL 5V TOL, Max.: -0.5/5.5 V
Ethernet	
1 x 10/100/1000 Mbps RJ-45 LAN port	
Keyboard, Mouse and Service Port	
2 x USB 2.0/1.1 Type A connector ports	
External Display	
DisplayPort (includes VGA adaptor)	

* With internal Pre-Amplifier @ 20 MHz bandwidth

Environmental

Warm-up Time	
30 min (typ.)	
Weight	
20.5 kg (45 lbs), RP-5110 / 22.7 kg (50 lbs) RP-5120	
Size (H x W x D)	
273 mm (10.75 in) x 311 mm (12.25 in) x 533 mm (21 in)	
597 mm (23.5 in) x 419 mm (16.5 in) x 686 mm (27 in)	
w/lightweight reusable shipping container 6 kg (13.5 lbs)	
Temperature	
Operating	+ 0°C (32°F) to 40°C (104°F)
Storage	-20°C (-4°F) to 70°C (158°F)
Relative Humidity	
10% to 90% (non-condensing)	
Power	
DC Input	11-15 Volts 165 Watts (typ) – RP-5110 190 Watts (typ) – RP-5120 DB 7W2 Terminal Connector SAE j563 12-Volt Size A to DB 7W2, 5.5 m (18 ft) North American power cord included SAE j563 12-Volt Size B to DB 7W2, 5.5 m (18 ft) European power cord included Battery clips to DB 7W2, 5.5 m (18 ft) power cord included
AC Supply	90-264 Volts 50/60 Hz 200 Watts (typ) – RP-5110 230 Watts (typ) – RP-5120 IEC 60320-C14 power connector inlet IEC 60320-C13 to NEMA 5-15P, 3 m (9.8 ft) North American power cord IEC 60320-C13 to CEE 7/7, 3 m (9.8 ft) European power cord included
Compliance	
FCC 47 part 15 Class A	
CE: European Directive 98/336/EEC Class A (Emission)	
European Directive 2002/95/EC (WEEE)	
Integrated Display	
1024 x 768 pixel, 270 mm (10.5 in) integrated touch-ready display	
Calibration	
1 year	
Storage	
4 x 2.5 in hot-swappable drive bays	
Up to 4 x 2.5 in 500 GB (2 TB total)	
SATA 2.0 hard drives	



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