

## Product Datasheet - Technical Specifications



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### Your contact

Technical and commercial sales, price information,  
quotations, demo/test equipment, consulting:

Tel.: +49 - (0)81 41 - 52 71-0

E-Mail: [sales@meilhaus.com](mailto:sales@meilhaus.com)

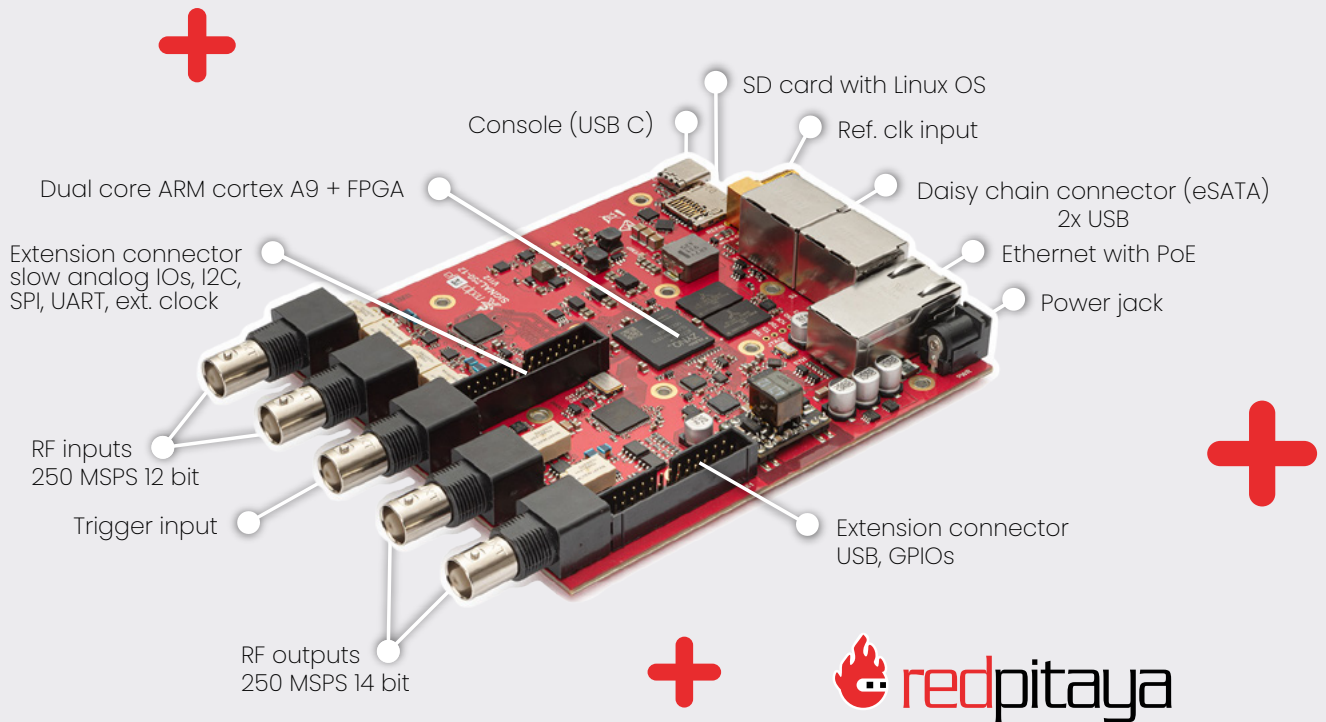
**Meilhaus Electronic GmbH**  
Am Sonnenlicht 2  
82239 Alling/Germany

Tel. +49 - (0)81 41 - 52 71-0 E-  
Mail [sales@meilhaus.com](mailto:sales@meilhaus.com)

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# RED PITAYA

## SIGNAL<sup>lab</sup> 250-12



**SIGNALlab 250-12 is most sophisticated Red Pitaya product, built for more demanding industrial applications and research, where robustness and performance matter more than cost.**

The device has full software control over the hardware and additional hardware features compared to other Red Pitaya products. Its larger Xilinx Zynq 7020 FPGA enables greater real-time processing capabilities plus a faster 250MSPS sampling rate, and just like other Red Pitaya products it offers the benefits of remote access, with an online app user interface accessible through Ethernet or Wi-Fi.

### ■ Key features

- Small form RF signal acquisition and generation platform
- Ethernet connectivity
- Xilinx SoC (CPU & FPGA)
- Two fast analog inputs and two outputs  
Possibility of integration into own system/  
product Open software source code available
- Power over Ethernet
- Works with Linux or Windows PC
- Free online apps (oscilloscope & signal generator, spectrum, Bode analyzer, logic analyzer, LCR meter\*, streaming, network manager and calibration tool)
- Can be controlled remotely using LabVIEW, MATLAB, Python, or Scilab
- Can be programmed to meet custom needs
- An app marketplace with several free apps available

\* Requires an extension module.

## ■ Technical Specifications

### BASIC

Processor	DUAL CORE ARM CORTEX A9
FPGA	FPGA Xilinx Zynq 7020 SOC
RAM	1 GB (8 Gb)
System memory	Micro SD up to 32 GB
Console connection	USB-C
Power connector	Power jack RJ45 (PoE version only)
Power consumption	24 V, 0.5 A max

### CONNECTIVITY

Ethernet	1 Gbit
USB	2x USB 2.0
WIFI	Requires WIFI dongle
Synchronisation	Daisy chain connector (up to 500 Mbps)

### RF INPUTS

RF input channels	2
Sample rate	250 MS/s
ADC resolution	12 bit
Input impedance	1 MOhm
Full scale voltage range	$\pm 1$ V / $\pm 20$ V (software selectable)
Input coupling	AC / DC (software selectable)
Absolute max. input voltage range	30 V
Input ESD protection	Yes
Overload protection	Protection diodes
Bandwidth	DC - 60 MHz

### RF OUTPUTS

RF output channels	2
Sample rate	250 MS/s
DAC resolution	12 bit
Load impedance	50 Ohm
Voltage range	$\pm 2$ V / $\pm 10$ V (Hi-Z load) (software selectable)
Short circuit protection	Yes
Connector type	BNC
Output slew rate	10 V / 17 ns
Bandwidth	DC - 60 MHz

### EXTENSION CONNECTOR

Digital IOs	16
Analog inputs	4
Analog inputs voltage range	0-3,5 V
Sample rate	100 kS/s
Resolution	12 bit
Analog outputs	4
Analog outputs voltage range	0-1,8 V
Communication interfaces	I2C, SPI, UART, USB, CAN
Available voltages	+5 V, +3,3 V, - 4 V
External ADC clock	Yes

### SYNCHRONIZATION

Trigger input	Through BNC connector
Daisy chain connection	Over SATA connection (up to 500 Mbps)
Ref. clock input	Through SMA connector