

Specifications for: [OSOP Raspberry Jam](#)

- Universal 24-bit Digitizer -
An IoT device

Born on: October, 2017

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Last updated: 16-november-2017

Unit

The “Raspberry Jam” universal 24-bit digitizer is an IoT plug-and-go solution for seismology created by [OSOP, S.A.](#) The Jam supports 3-channels of **single-ended** and **differential-ended** signal inputs, **passive** and **active** sensors. The Raspberry Jam is manufactured in Volcán, Panamá using cutting-edge 3D printing and laser-cutting technology.

Warranty: 1 year from ship date

Specifications subject to change without notice.

Parameter	Value
Raspberry Shake Jam Version	V3 (Current version: V3)
Dimensions (estimated)	12x9x9 cm
Weight (estimated)	0.6 kg
Immersion rating	IP67
Connectors	<i>IP67 enclosure:</i> Ethernet (RJ45), Power, 10-pin MIL-C sensor cable connector
Installation Considerations	Designed for plug-and-go installation Mounting screw anchor slot provided
Operating Temperature	0 to 60 C (limited by RPi, the Raspberry Jam itself can go to -40C)

On Board Computer	Wifi-enabled Raspberry Pi 3 Model B
Storage Device	8 Gb or + micro SD card <u>Est. # days of disk space:</u> OS/ software: ~3 Gb Remaining space for data: ~5 Gb # days (15 Mb/ day/ channel [x4]): ~80, more if you use a bigger SD
Timing	Network Timing Protocol, NTP
Timing Quality	NTP timing quality remains within 1 sample of accuracy versus startup accuracy: +/- 10 ms or better @ 100 sps

Digitizer

Parameter	Value
<p><i>Earthquake Early Warning (EEW) compatible</i></p> <p><i>data packets shipped across serial port at a rate of 4 packets/ second (250 ms/ packet)</i></p>	
Type	24-bit digitizer
# channels	3
Samples per second	100 on all 3-channels
Digitizer Dynamic range	24-bit ADC Sigma-Delta $\Sigma\Delta$ 144 dB (24 bits)
Input supported	Supports 3-channels of single-ended and differential-ended signal inputs, passive and active sensors
Example Passive Sensors Supported	ASIR A_F2-GS-70 Geotech S-13, GS-13[BH], GS-21 Metry (previously ASIR) F41-15.0, F50-4.5, F72-[2.0,4.5], G88-[2.0,4.5], G202-1.0, G110-1.0 Sercel (previously Mark Products) L-4C
Example Active Sensors Supported	Chaparral Model [25,25/21], 50[a], 60/64, 60Vx, 60UHP Geotech KS-[1,2000,5400], PA23, S-230 Guralp [3,5T,6,40] Series, Fortis Kinometrics Episensor [2,ES-T,ES-U2] Lennartz LE-3D[lite/5s], MKIII

Metrozet PBB, MBB-[1/2]

Nanometrics Trillium Compact [PH,AT], Trillium 120 [Q/QA]

RefTel (now Trimble) 151B-120, 147A

Seismowave LP[ZA,HA], MB3 A

Steckeisen STS[2,2.5,5A,6A]

Software

Software installed on Raspberry Shake's RPi computer
100% SeisComP3 compatible Also: AQMS, Antelope, Earlybird, Earthworm, Hydra, ObsPy, SEISAN, ...
Native SeedLink Server (source: GEOFON) with OSOP Data Flow Message Router
Tight and automatic integration with SeisComP
Web-interface (HTML) for easy configuration
Software to store continuous seismic data in miniSEED format
Web-based helicorder plot generator (source: USGS)
Swarm (source: USGS)
Software distributed with Docker
Automatic updates
Operating System: Debian 8 (Linux)

Communications

Parameter	Value
Digital bandwidth consumption at 100 Hz, 4 channels (estimated)	Incoming rates RX: ~72.0 kbits/s Outgoing rates TX: ~282.0 kbits/s TCP Flow rate: 25.2 kbits/s
TCP/IP compatible	
Compatible with Wifi, Ethernet, Cell modem, GPRS, Satellite	

Power

Parameter	Value
Power Supply Voltage	5 Volts DC (2.5 Amp supply)
Power Consumption (RPi + Raspberry Shake, estimated)	$5.14 \text{ Volts} \times 0.270 \text{ A} = 1.4 \text{ Watts}$

Questions?

Email us at sales@raspberrysake.org