

# Datastick®

## VSA 6- and 7-Series

### Vibration Spectrum Analyzers

**The VSA 6-Series and 7-Series add special-application features to the VSA-1215, VSA-1225, and VSA-2215 Vibration Spectrum Analyzers**

**VSA-1216**



**VSA-1226**



**VSA-2216**

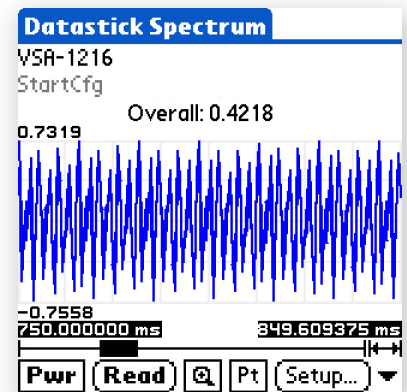


The VSA-1216, VSA-1226, and VSA-2216 have all the features and capabilities of the VSA-1215, VSA-1225, and VSA-2215 plus:

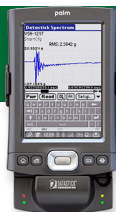
- The ability to accept a signal from an *independently powered and conditioned* displacement sensor or system and display displacement without mathematical integration
- The ability to accept a direct signal from an ICP®-compatible pressure sensor

#### Applications

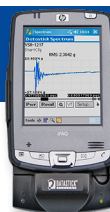
- Spot-recording of displacement data at the machine under test or from online systems such as those by Bently Nevada (Requires signal conditioning)
- Flow balancing of pump systems to achieve optimum efficiency in initial setup and continuing efficiency in maintenance checks



**VSA-1217**



**VSA-1227**



**VSA-2217**

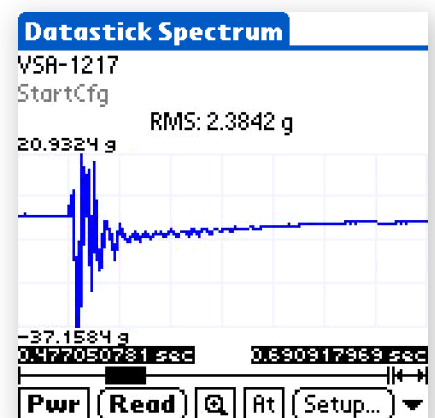


The VSA-1217, VSA-1227, and VSA-2217 have all the features and capabilities of the VSA-1216, VSA-1226, and VSA-2216 plus:

- Automatically triggered recording of impact tests with sample rates up to 1 kHz; trigger levels are adjustable for maximum differentiation between the test impact and background noise

#### Applications

- Impact (bump) testing to determine resonant frequencies as well as faults, such as cracking and fatigue, that can change resonant frequencies
- Initial equipment setup and acceptance
- Maintenance and reliability checks



# VSA System Specifications

**Channels:** 1

**A-to-D:** 12 bit

**Antialiasing Filter:** 10th order hardware

**Sensor Input:** BNC, ICP®-compatible (except displacement sensor, which requires independent power)

**Sensor Types Accepted:**

**VSA-1214:** Accelerometer

**VSA-1215, VSA-1225, VSA-2215:**

Accelerometer or velocity sensor

**VSA-1216, VSA-1226, VSA-2216:**

Accelerometer, velocity sensor, pressure sensor, independently powered and conditioned displacement sensor or system output, raw voltage

**VSA-1217, VSA-1227, VSA-2217:**

Accelerometer, velocity sensor, pressure sensor, independently powered and conditioned displacement sensor or system output, raw voltage

**Input Impedance:** 100 kOhm

**Sensor Sensitivity:** 100 mV/g (mV/ips, mV/mil, mV/psi) nominal; adjustable from 10 mV/g to 1,000 mV/g (mV/ips, mV/mil, mV/psi)

**Sensor Power (for ICP-compatible sensors):**

**VSA-1214:** 24 V, 10 mA

**All others:** Selectable: ICP Power off/on, 5 V, 12 V, 18 V, 24 V; 2 mA, 5 mA, 10 mA, 20 mA, 25 mA

**Maximum Input Levels (Selectable):**

**VSA-1214:** 20 g, 5 g

**All others:** With 100 mV/g input: 50 g, 20 g, 10 g, 5 g, 2 g, 1 g (or equivalent for velocity [in/sec or mm/sec], displacement [mil or um] or pressure [psi or kPa]).

**NOTE:** These levels change with different sensor sensitivity. A 10 mV/g accelerometer produces these maximum inputs: 500 g, 20 g, 100 g, 50 g, 20 g, 10 g (or equivalent for velocity [in/sec or mm/sec], displacement [mil or um] or pressure [psi or kPa]).

A 1,000 mV/g accelerometer produces these maximum inputs: 5 g, 2 g, 1 g, 0.5 g, 0.2 g, 0.1 g (or equivalent for velocity [in/sec or mm/sec], displacement [mil or um] or pressure [psi or kPa]).

**Dynamic Range:\*\***

**VSA-1214:** 90 dB total; 65 dB/input range

**All others:** 130 dB total; 65 dB/input range

**Displays:**

**Time Domain:** Acceleration or voltage waveform, optional overall vibration

**Frequency Domain:** Acceleration, velocity, displacement, voltage, vibration dB, FFT spectrum, pressure (VSA-XXX6 and VSA-XXX7); optional overall vibration

**Maximum Frequencies (Selectable):**

**VSA-1214:** 10, 5, 4, 2, 1 kHz, 800, 500, 400, 200, 100, 50 Hz

**All others:** 20, 10, 5, 4, 2, 1 kHz, 800, 500, 400, 200, 100, 50 Hz

**FFT Resolution (Selectable):**

**VSA-1214:** 1600, 800, 400 lines

**All others:** 3200, 1600, 800, 400 lines

**Display Units:** Hz or CPM; English or metric

**FFT Windows:** Rectangle (Uniform), Hanning, Hamming, Flattop, Blackman, Bartlett

**Averaging:** Linear or peak hold, 1, 2, 4, or 8 averages

**Peak Detection:** Up to 15 highest peaks

**Triggering (VSA-1217/VSA-1227/VSA-2217 only):** Automatic for signals up to 1 kHz

**Cursors:** Zoom/Pan, Inspect (any x-y value), Peak inspect (peak x-y values), Orders, Peak orders, Difference (between two points), Peak difference (between two peaks), Period (period between any two waveform peaks, expressed in frequency and time)

**Alerts:** Color-coded for ISO 10816-3 or user-specified levels

**Route-inspection Capability:** Reloadable configurations allow every test point to be uniquely named and exactly repeatable. (Optional Datastick InSpect™ software for creating routes on the PC and downloading to the handheld computer)

**Power Supply:** Internal 900 mA/h Li-ion battery; optional external 3000 mA/h Li-ion battery powers both the VSA module and the handheld computer or smartphone

**Operating Time (Typical, internal battery):** 8 hours continuous (VSA-1215 powering sensor at 24 V, 5 mA)

**Dimensions and Weights**

**VSA-1214, VSA-1215, VSA-1216, VSA-1217**

**Dimensions (with Palm T1X):** 5.75 x 3.125 x 1.875 in (146 x 79 x 48 mm)

**Weight (with Palm T1X):** 10 oz (283 g)

**VSA-1225, VSA-1226, VSA-1227**

**Dimensions (with HP iPAQ hx2400 series handheld computer):** 5.75 x 3.125 x 1.875 in (146 x 79 x 48 mm)

**Weight (with HP iPAQ hx2400 series handheld computer):** 10.5 oz (300 g)

**VSA-2215, VSA-2216, VSA-2217**

**Dimensions (with Palm Treo 700p smartphone, including antenna):** 6.0 x 2.75 x 1.875 in (153 x 70 x 48 mm)

**Weight (with Palm Treo 700p smartphone):** 10 oz (283 g)



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