

GENERAL INFORMATION

The WLS accelerometer is an innovative triaxial wireless vibration sensor.

It contains a 3-axis accelerometer, electronic boards for signal conditioning, digitization and communication, and rechargeable battery.

Its design successfully combines technical constraints like global ergonomics, resistance to harsh environment, and optimized frequency response.

Associated with FUSION or DUO instruments, it enables recording and storing single axis or 3-axis vibration signals, in parallel with audio signals and acoustic indicators.

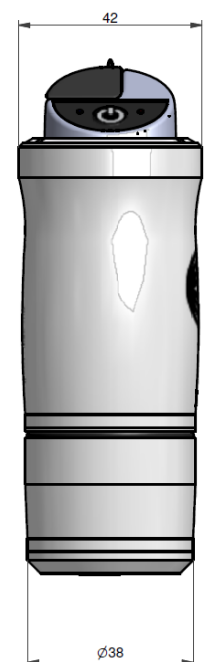
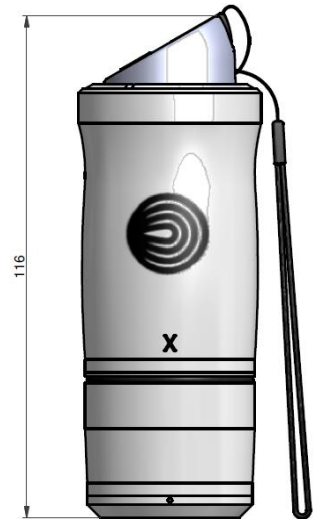
Raw vibration & acoustic signals can be post-processed using dBTRAIT or dBFA software.

TECHNICAL SPECIFICATIONS
Physical

Dimensions	Ø42 x H116 mm
Weight.....	373g
Mounting	M6 threaded hole
Housing material	Stainless steel

Metrology

Single axis (Z) or Triaxial (X, Y, Z)	Synchronous acquisition
Sampling frequency	12.8 kHz on all axes
Sensing element	Piezoelectric / Annular shear mode
Sensing element sensitivity, 24°C	25 mV/g, +/- 20%,
Sensitivity adjustment	Factory-calibrated and adjusted (all axis)
Full scale.....	80 g
Signal-to-Noise ratio.....	> 80dB
Amplitude non-linearity.....	1% max
Frequency range of the integrated accelerometer (nominal):	
• ± 1dB (Z)	1–6 kHz
• ± 1dB (XY).....	1–2800 Hz
• ± 3 dB (Z)	0.4 Hz–15 kHz
• ± 3 dB (XY).....	0.4 Hz–6 kHz
Operational frequency range.....	limited to 5kHz by the anti-aliasing filter
Transverse response sensitivity (120Hz, 1g)	< 5% (< -26dB)
Temperature response	
• -50°C	-10% (estimated value)
• +120°C	+12%
Electrical noise, nominal (results from 1min average measurements on suspended sensor):	
• Broadband	
○ 0 Hz–5 kHz.....	< 5 mg
○ 1 Hz–5 kHz.....	< 1 mg
• > 1 Hz.....	< 20µg/√Hz
• Peak velocity (after 1 integration on the time signal)	< 0.13 mm/s


Environmental

Operating temperature range.....	-20°C to 80°C
Resistance to shocks	5,000 g peak
Resistance to continuous vibration.....	500 g peak
Protection.....	IP65
ATEX/IECEX.....	certification pending

Battery

Type	Li-Ion
Operating lifetime	8 hours
Charge level display	Through the FUSION or DUO status bar
Rechargeable	By USB (power supply adapter in standard delivery)
Charging time.....	About 8 hours with the standard 500 mA charge current.
Automatic stand-by	After 10 min if no connection has been established
.....	Automatic stand-by is disabled if a connection has been established.

Communication

Wireless protocol.....	Wi-Fi Ad-Hoc connection with FUSION and DUO
IP address.....	fixed: 192.168.1.1
SSID	WLS_[S/N]
Pairing to FUSION or DUO	Semi-automatic, point to point
Coexistence	Several FUSION/WLS (or DUO/WLS) pairs can operate in the same area
Typical distance range	10 to 20 meters line of sight, depending on the environment.
Sync protocol	Proprietary
Signal sync with DUO and FUSION	Typically about 80 to 200 msec for a good quality connection.

Various

Recording duration.....	Depends on the free memory on FUSION or DUO's SD card. The signal is
.....	automatically split in contiguous files of 30 minutes maximum each.

ACCESSORIES

Reference	Description	
ACC1071000	WLS power supply	
ACC1073000	WLS USB cable	
ACA1023000	Optional: ECR-3 M6 cementing stud: M6 mounting, Ø 35 mm, stainless steel	
ACA1024000	Optional: Flat magnet: M6 mounting, Ø 35 x H 17 mm Suitable for planar surfaces.	
ACA1026000	Optional: Bi-polar magnet for Triaxial WLS: M6 mounting, Ø 35 x H 19 mm Suitable for all surfaces.	