



The SSBHV is a versatile multipurpose sensor solution. It finds specific application for microseism studies and noise surveys.

It is available with different sensors solutions, among the most popular are the standard electrodynamic sensors up to the extended band sensors or force balance accelerometers.

The passive spring locking system and the original removable orientation tool allow the unit to be used for both permanent and mobile stations.

Ease of use

The SSBHV sensor is extremely simple to use, both in a borehole or as just buried equipment. It tolerates, depending on the sensing element, high degrees of tilt. For use in borehole sensors down 10-15 meters it can also be positioned and oriented using a special removable orientation tool with rigid orienting rods. Then it can be recovered by a safety cord always included in the suitcase.

If a specific orientation is not required the sensor can just be deployed with its own weight as ballast or with additional weight to be hanged on the sensor bottom.

If instead, high orienting precision is required a specific orienting key can be applied at the borehole jacket before insertion in the hole.

Precision

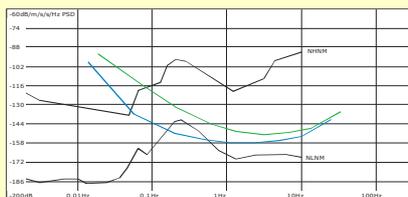
The SSBHV is equipped with the most reliable sensors available on the market and with driving electronic circuitry with high stability and calibrated to provide homogeneous response from the three axis and among different sensors. Transfer function in poles and zeroes is provided.

Flexibility

This solution allows the user to cover a variety of application from seismic monitor to mining industry and oil&gas applications. If required the unit can be equipped with force balance accelerometers. The internal room allows also to apply further customization or specific sensors the client would want to use. It is possible to have the casing in both PVC and INOX for aggressive/acid environments, or anodized aluminum for mechanical robustness.

Noise floor

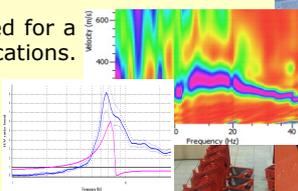
The two noise floors are provided in the following picture as reference for the two different sensors SS01 (blue) and SS02/05 (green). The noise floor calculation is performed using the method recommended by the USGS.



Applications

The sensor can be used for a wide range of applications.

From earthquake monitoring to noise surveys like large Nakamura's method surveys, and for Surface Waves Analysis (MASW) or, if needed, for deep refraction/reflection studies. You can run dynamic measurement noise surveys, aftershocks measurements. Landslides monitoring is also possible with use of SA10 embedded accelerometers cells capable also to record static acceleration (tilt) to be used as inclinometers and at the same time as accelerometers for dynamic motion recording.



Main technical features

Number of axis:	3 (Z vertical, and 2 horizontal)
Leveling:	not available, leveling would depend on the borehole verticality
Maximum leveling tolerance:	see table below
Sensor eigenfrequency:	see table below
Damping:	0.707 (nominal for all versions)
Sensitivity:	standard 400 V/m/s (customizable up to 2000V/m/s)
Dimensions:	800 x 70mm (sensor body)
Weight of sensor body:	about 3.8kg up to 4.5kg depending on sensing element
Total weight:	about 8.0kg with a 15 meter cable
Standard cable:	15 meters geophysical PUR cable with 10 conductors + shield
Connector at cable end:	MIL-C-26842 10 pins
Clamping:	passive with leaf spring
Power supply:	9-18Vdc
Power consumption:	10 < 90mA depending on type, configuration, operating conditions
Conformity declaration:	CE

Model	band	sensitivity	tilt tolerance
SS01BH	0.1-40Hz	400/1000/1500/2000 V/m/s	1.5°
SS02BH	0.2-50Hz	400/1000/1500/2000 V/m/s	3°
SS02BH45*	0.2-50Hz	400/1000/1500/2000 V/m/s	5°
SS05BH	0.5-50Hz	400/1000/1500/2000 V/m/s	5°
SS10BH	1-50Hz	400/1000/1500/2000 V/m/s	5°
SA10BH	DC-100Hz	2.5/5/10 V/g (acceleration)	90°

* This version is a five second unit obtained with electronic linearization from 4.5Hz geophones for higher tilt tolerance

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