move solutions

Vibrometer HS

VBR-HS-LR-2, software version 1.0



INSTALLATION & OPERATION MANUAL

Safety, Compliance and Warranty Information

Rev. 1

Move S.p.A.

VAT / P.IVA: 09887990969

REGISTERED OFFICE

Piazza Cavour, 7, 20121 Milan, Italy

MOVE SOLUTIONS CUSTOMER ASSISTANCE SERVICE

Visit the website at www.movesolutions.it for contact information relating to office addresses and phone numbers.

Vibrometer HS

INSTALLATION & OPERATION MANUAL

This document applies to:

VBR-HS-LR-2, software version 1.0

© 2026 Move S.p.A. All rights reserved.

Manual drafted in Italy
November 5, 2026
Revision 1

NOTICE OF PUBLICATION

The information contained in this manual may be subject to change without notification. For further instructions, more detailed information, product specifications and to download up-to-date manuals, visit our website at www.movesolutions.it.

Contents

1. **Regulatory and safety information** 6

WEEE Compliance 8

FCC Compliance. 8

ICES-ISED Compliance 9

Symbols and provisions used in the documentation 10

2. **General description** 11

2.1 Output data 12

2.2 Working principle 13

3. **Technical specifications** 14

3.1 Battery life estimation. 17

4. **What's in the box** 18

5. **Before installation** 20

5.1 Axis configuration. 20

5.2 Why change the longitudinal axis? 24

5.3 Schematics for each possible Vibrometer HS orientation 25

5.4 Optimizing radio performance. 32

6. **Installation** 34

7. **MyMove platform** 37

8. **Maintenance** 38

9. **Overall dimensions** 39

Annex A. **Troubleshooting** 40

1 Regulatory and safety information

For the correct and safe operation of the product, it is recommended to read and follow the instructions in this manual.

The device is designed and intended exclusively for the monitoring of dynamic parameters, including vibrations, accelerations, and structural movements, within civil, industrial, and environmental engineering applications. The device is intended to be installed on structures such as buildings, infrastructure, geotechnical works, or machinery, in order to collect data for structural health assessment, human exposure monitoring, predictive maintenance, and evaluation of operating conditions.

The product is supplied exclusively on a business-to-business (B2B) basis and is not intended for sale or use by private consumers. Installation, configuration, operation, and maintenance of the device must be carried out solely by qualified and trained personnel with appropriate technical expertise.

The product must be used in accordance with Move Solutions' technical specifications, within the declared environmental and operational conditions, and in combination with compatible communication systems (e.g. LoRaWAN networks). Any use other than that described above shall be considered non-compliant with the intended use of the device.

Great attention should be paid to the following warnings. Move Solutions shall not be held responsible for inconveniences, damage or malfunctions due to lack of compliance with the prescriptions and suggested use in this manual.

- The declared IP rating is guaranteed only when the product is correctly assembled, with the lid properly screwed in place, the antenna installed, and the Move Link connector protected either by a properly connected external cable or by the supplied protective cap when no cable is present.
- Before use, make sure that the product conforms to the description in this manual and that no damage is present.
- Do not use batteries other than those specified by Move Solutions inside the external Move Solutions Battery Pack (throughout this manual, the capitalized term **"Battery Pack"** will always refer to the **Move Solutions Battery Pack**, **SBE-STD-CB-1**). Do not use any power source other than the Battery Pack to power the sensor, without express approval from a Move Solutions representative.
- Before any operation on the product, disconnect the Battery Pack.
- The product is not intended for use in applications where safety is extremely critical, such

as medical-related applications or life-security systems.

- On top of the prescriptions in this manual, the user should operate in compliance with local standards for security and health, and according to the best engineering practices for a safe installation.
- The product must be kept out of reach of children, animals, and any unauthorized personnel.
- Do not disassemble the product except when explicitly instructed in this manual, as this could cause malfunctions and damage the product.
- Do not attempt to repair or modify the product.
- If the product releases smoke or heat during operation, immediately disconnect the Battery Pack.
- Do not expose the product to high temperatures outside the specified range or heat sources.
- Do not expose the product to liquids of any kind and do not operate on it with wet hands. The product can only be exposed to water when the conditions to guarantee the IP rating are satisfied.
- Do not operate on the product in extreme weather conditions that may damage the device or the user, such as thunderstorms or snowstorms.
- Do not modify the electrical circuit, wiring, or battery connections. Do not short-circuit the battery terminals or reverse the battery polarity, as this may cause product malfunction and/or potentially hazardous conditions.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired and any applicable certifications or approvals may no longer be valid.
- Do not dispose of the product or any of its parts in the environment.
- Correct functioning of the product in environments with high radio activity is not guaranteed.
- The product is compliant with all regulations concerning the fair use of ISM radio bands. However, given the free nature of these bands, occasional conflict with nearby devices operating on the same bands cannot be fully prevented.
- Measurements provided by the device are intended for informational purposes only. Move Solutions shall not be liable for any structural assessment, compliance decision, safety certification, or engineering decisions made by the user based on the data collected.
- The user acknowledges that wireless communication (e.g. LoRaWAN) is subject to environmental interference and network availability. Move Solutions does not guarantee 100% data delivery and is not responsible for any data loss or transmission delays.

NOTE

In case of deterioration or loss of this manual, a compliant copy may be requested by the customer from the manufacturer. For increased security, we suggest that you keep a copy of this manual in a place where it cannot be damaged or lost.

WEEE Compliance

This product contains electronic components that must be disposed of separately from common household waste, according to local regulations. To ensure correct disposal of the product at the end of its lifecycle, please contact your local authority. Failure to comply with these regulations could lead to penalties.



This product is registered in the Italian WEEE Register under number IT25110000017837, in accordance with Directive 2012/19/EU on Waste Electrical and Electronic Equipment (WEEE).

FCC Compliance

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Contains FCC ID: 2A3LJ-MAMWLE

ICES-ISED Compliance

This device complies with Innovation, Science and Economic Development Canada's (ISED) licence-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) this device may not cause interference, and

(2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This equipment complies with the radiation exposure limits set forth by Innovation, Science and Economic Development Canada for an uncontrolled environment.

Cet équipement est conforme aux limites d'exposition aux rayonnements établies par Innovation, Sciences et Développement économique Canada pour un environnement non contrôlé.

This Class B ISM device complies with Canadian ICES-001.

Cet appareil ISM de la classe B est conforme à la norme NMB-001 du Canada.

CAN ICES-001(B)/NMB-001(B)

Contains IC: 28058-MAMWLE

Contient IC: 28058-MAMWLE

Symbols and provisions used in the documentation

The following symbols and conventions are used throughout Move Solutions products documentation. Please follow all warnings and instructions marked on the product.



WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, can result in minor or moderate injury.



IMPORTANT

IMPORTANT indicates a potentially hazardous situation which, if not avoided, can result in property damage or loss of product functionality.

NOTE

NOTE specifies the operating environment, installation conditions, or special conditions of use.

Bold
Highlights an important point or keywords for understanding the context.

Underlined
Denotes a reference to another part of the documentation or to an element within the MyMove platform.



Fire Danger icons warn of the possibility of fire.



Electrical Danger icons warn of the risk of electric shock.



Prohibition icons indicate actions that must not be performed.

General description

2

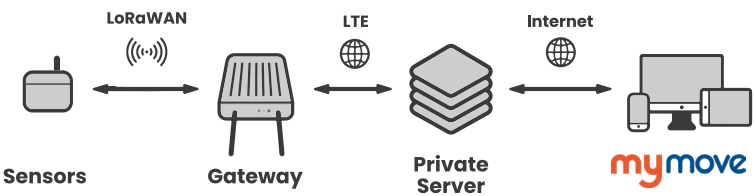
The Vibrometer HS (*High Shock*) is a triaxial wireless device designed to monitor strong vibrations through particle velocity. It supports waveform transmission for event analysis and streams data to the MyMove platform for visualization and alarms.

The sensor is part of the Move Solutions range of LoRaWAN products for monitoring purposes; as such, it needs a LoRaWAN gateway in its range (such as the Move Solutions Gateway) to connect to MyMove. When the sensor is connected to the platform, the settings and data can be personalized to fit the user's needs.





The Vibrometer HS design ensures quick and easy installation, significantly reducing time and costs. Powered by the external Move Solutions **Battery Pack** (SBE-STD-CB-1, sold separately), the sensor is optimized for long battery life, which can be further extended by adjusting the sensor configuration.



2.1 Output data

The sensor provides information about vibrational activity at the installation point with the following output parameters.

PEAK AND SUMMARY METRICS

- PPV: peak particle velocity
- PVS: peak vector sum
- PPA: peak particle acceleration
- RMS velocity
- RMS acceleration

FREQUENCY AND SPECTRAL ANALYSIS

- F_{mg}: zero-crossing frequency
- FFT: Fast Fourier Transform
- F_{dom}: dominant frequency on the FFT spectrum
- Waveforms for each axis

HUMAN EXPOSURE INDICATORS

- KB_{FTi}: maximum of $KB_F(t)$ over each 30-second interval
- KB_{FTm}: mean value of KB_{FT} over the measurement period
- KB_{Fmax}: maximum value of KB_{FT}
- $KB_{FTr(rest)}$: assessment vibration value over the Day/Night window, with rest periods weighted as prescribed by DIN 4150-2
- $KB_{FTr(no\ rest)}$: same, without rest-period weighting
- VDV_i: instantaneous Vibration Dose Value, measured over a period of 30 seconds
- VDV: overall Vibration Dose Value

The sensor also records the temperature at measurement time.

NOTE

Due to sensor configuration constraints, not all of the output parameters listed above can be provided simultaneously; the set of output parameters depends on the selected sensor setup.

2.2 Working principle

The sensor can be configured for structural vibration assessment and human exposure monitoring, working with one of the supported regulations listed in chapter 3 Technical specifications (**Measurement performances** table).

A custom regulation is also available to tailor the data processing to more specific needs.

The customer can choose the preferred acquisition type from the following list of **Operating modes**:

1. **Trigger mode:** The sensor will constantly measure velocity on the 3 axes. A buffer equal to the pre-trigger time is always held by the sensor. When the threshold is surpassed on at least one of the axes:

   - With **auto-stop** end condition, the sensor will stop recording when the signal is below the trigger level on all 3 axes for the specified number of samples. As a consequence, different events have a different number of samples.
   - With **fixed post-trigger** end condition, the sensor will stop recording after a specified post-trigger number of samples. All the events recorded have the same number of samples.

   The sensor provides both summary parameters and the full waveform.

2. **Cadence mode:** The sensor measures velocity on the 3 axes. Time is divided into intervals that are equal to the cadence selected. Over the cadence time, the device detects a series of key parameters for the selected processing mode. The full waveforms are not provided, but only some summary parameters.
3. **Combo mode (Trigger mode + Cadence mode):** A combination of Trigger and Cadence modes.

NOTE

Some regulations require a specific working mode and/or specific settings. In this case some parameters might be forced to specific values.

Technical specifications

3

Measurement performances	
Sensing technology	MEMS accelerometer
Number of axes	3
Sampling frequency range[1]	250 Hz – 2 kHz
Bandwidth lower limit range	0.5 Hz – 10 Hz
Bandwidth upper limit range[2]	80 Hz – 315 Hz
Velocity full scale range	up to ±500 mm/s (±19.685 in/s)
Velocity resolution	0.0153 mm/s (0.000602 in/s) or better (16 bits)
RMS velocity noise[3]	≤ 0.15 mm/s (0.00591 in/s)
Acceleration full scale range	up to ±40.96 *g*
Supported regulations[4,5]	UNI 9916, Circulaire '86, ISEE[6], OSMRE[6], DIN 4150-2, RI 8507, BS 6472-1, BS 7385-2, SN 640-312a, DIN 4150-3 315Hz, DIN 4150-3 80Hz, custom (user-defined configuration)
Operating modes	Cadence, Trigger, Combo[7]

[1] Downsampled from a main sampling frequency of 4 kHz.

[2] Available options depend on selected sampling frequency.

[3] Typical value measured on a reference sample with 40.96 *g* acceleration full scale, 2 kHz sampling frequency and 1–315 Hz bandwidth.

[4] The device implements data processing according to the regulations listed (filtering, frequency weighting and evaluation parameters). Unless stated otherwise in a calibration certificate supplied with the unit, it is not certified as compliant with the instrument performance requirements of these regulations. Verifying that the measurement setup meets the applicable standard or regulation is the responsibility of the user. Contact Move Solutions for more details.

[5] When a specific regulation is selected many sensor settings are forced to the required value. To access the full set of configuration parameters please select the "custom" regulation (user-defined configuration).

[6] The device measures ground and structural vibration only. Air overpressure (airblast) is not measured.

[7] When Combo mode is selected, multiple operating modes are enabled simultaneously; as a result, individual mode performance may be reduced. To achieve optimal performance for each operating mode, it is recommended to avoid using Combo mode.

Measurement performances			
Processing modes, operating modes and output parameters	**Processing mode**	**Operating mode**	**Output parameters**
	A	Cadence	PPV, PVS, F_{mg}, RMS velocity, PPA, timestamp, temperature[1]
		Trigger	PPV, PVS, F_{mg}, RMS velocity, PPA, waveforms, FFT, F_{dom}, timestamp, temperature[1]
	B	Cadence[2]	KB_{FTi} (over 30-second slots), KB_{FTm}, KB_{Fmax}, $KB_{FTr(rest)}$, $KB_{FTr(no\ rest)}$, RMS acceleration, timestamp, temperature[1]
	C	Cadence[2]	VDV_i (over 30-second slots), VDV, RMS acceleration, timestamp, temperature[1]
Cadence range[3]	30 seconds – 24 hours		
Activation threshold range[4]	1.5 mm/s or 0.0591 in/s – Velocity full scale		
Data buffer maximum depth[4]	**Samples**	**Sampling frequency**	**Duration**
	21844 samples	250 Hz	87.3 seconds
		500 Hz	43.6 seconds
		1000 Hz	21.8 seconds
		2000 Hz	10.9 seconds
Trigger mode features[4]	Velocity activation threshold for each axis		
	Selectable pre-trigger time		
	Selectable post-trigger time, or auto-recording with selectable auto-stop time		
	Waveform data acquisition with individual enable flag for each axis		
Typical waveform transmission time[4,5]	**Number of samples**	**Transmission time**	
	250	10 seconds	
	1000	45 seconds	
	10000	7.5 minutes	
	21844 (max)	16 minutes	

[1] Temperature is measured internally within the sensor and may differ from the ambient temperature.

[2] Cadence period not customizable in B and C processing modes.

[3] Applies to Cadence mode only.

[4] Applies to Trigger mode only.

[5] The estimation refers to a sensor in a typical working environment with good quality radio connection between the sensor and the Gateway. It also refers to an input signal (velocity) whose value does not exceed 25% of full scale. All 3 axes are enabled. Transmission time is measured from when the full waveform has been recorded until the last packet is sent to the MyMove platform.

Measurement performances	
Timestamp accuracy[1]	±1 s
Temperature resolution	0.05 °C
Temperature accuracy[2]	±0.2 °C
Internal storage memory[3]	≥ 400 events with waveform, circular

[1] Under good LoRaWAN radio coverage.

[2] Temperature is measured internally within the sensor and may differ from the ambient temperature.

[3] The actual memory capacity depends on sensor configuration and input signal characteristics.

General data	
Wireless connection technology	Sub-GHz LoRaWAN protocol[4] (Gateway required)
Supported LoRaWAN regions	EU868, US915, AU915, AS923-1/2/3/4, IN865, KR920
Wireless coverage[5]	1 km line of sight from the nearest Gateway
Cable connection	Move Solutions 8-pole connector (**Move Link**)
IP rating[6]	IP67
Power supply	External Move Solutions **Battery Pack** (SBE-STD-CB-1) required (sold separately)
Operating temperature range	From -40 °C to +85 °C
Dimensions[7]	129 × 100 × 98 mm
Weight[7]	0.6 kg

[4] LoRaWAN packets are transmitted on a best-effort basis, and delivery is not guaranteed. Packet loss is inherent to the technology and depends on conditions outside the sensor, such as radio coverage, gateway density, interference and the installation site.

[5] Wireless coverage may vary based on the actual deployment scenario.

[6] The declared IP rating is guaranteed only when the product is correctly assembled, with the lid properly screwed in place, the antenna installed, and the Move Link connector protected either by a properly connected external cable or by the supplied protective cap when no cable is present.

[7] Refers to the sensor unit with protective dome, antenna, and fixed plate. The mounting plate and other accessories are not considered. For an illustrated overview of these components, see chapter 4 What's in the box.

General data	
Package weight	1 kg
Case material	GD-AlSi12 alloy
Installation options[1]	Wall, floor, or ceiling mount. Four-point attachment using screw anchors (Ø6 mm max). One set included in the package
Software version	v1

[1] To ensure the best measurement performance, please follow the best practices for the installation of vibration measurement equipment and/or the requirements of regulations of interest.

3.1 Battery life estimation

Mode[1,2]	Sampling frequency		
	500 Hz	1000 Hz	2000 Hz
Cadence mode Cadence set to 2 minutes	3.1 years	2.1 years	1.2 years
Trigger mode[3] Waveform on all axes, 1 event per hour	2.2 years	1.6 years	0.9 years
Trigger mode[3] Waveform on all axes, 4 events per hour	1.6 years	1.2 years	0.8 years
Trigger mode[3] No waveform, 4 events per hour	3.0 years	1.8 years	1.0 years

[1] Configuration parameters that are not specified are to be considered in their default configuration.

[2] The proposed battery life is an estimation for a sensor powered by Move Solutions **Battery Pack** (SBE-STD-CB-1) in a typical working environment with good quality of the radio connection between the sensor and the Gateway. Actual battery life may be worse in case the product is used under extreme conditions, such as prolonged working in high or low temperatures, bad quality of radio connection between the sensor and the Gateway, etc.

[3] Trigger mode values refer to a typical case. Battery life depends strongly on the vibrations at the installation site (number and duration of events) and on the sensor configuration, and may differ significantly from the stated values.

What's in the box

4

The Vibrometer HS is shipped in a cardboard box. On the side of the box, a label is affixed with the **EUI** and **Serial Number** of the product. The EUI uniquely identifies the sensor on the **MyMove** platform and must be retained for configuration and registration purposes. The package contains the following items:

- Vibrometer HS
- Move Solutions flyer with a QR code linking to the most up-to-date documentation

Mounting anchors are also supplied.

Carefully inspect the contents of the shipment upon receipt and verify that all components are present and in good condition.

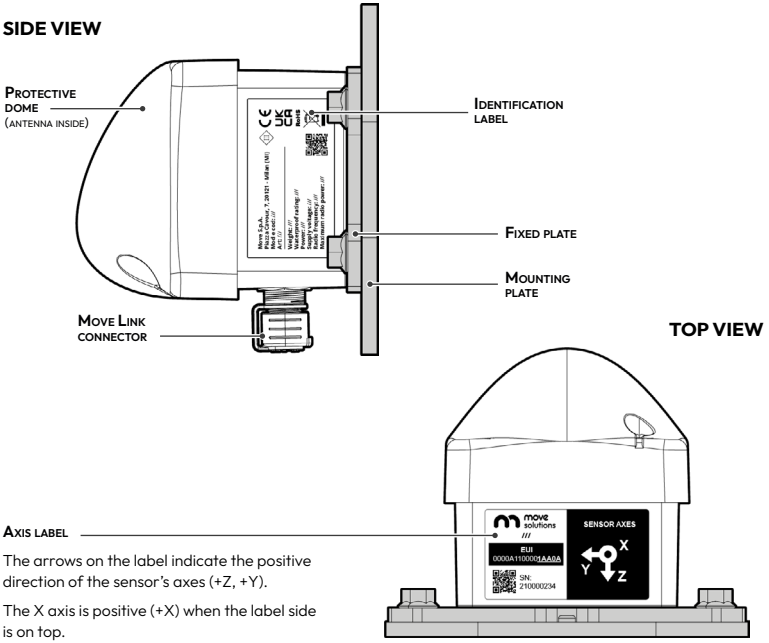




WARNING

DO NOT use the Vibrometer HS if any of the components looks broken or tampered with.

Two labels bearing the same information as the one on the packaging are affixed on the sides of the Vibrometer HS. From the outside you'll see:



The arrows on the label indicate the positive direction of the sensor's axes (+Z, +Y).

The X axis is positive (+X) when the label side is on top.

IMPORTANT

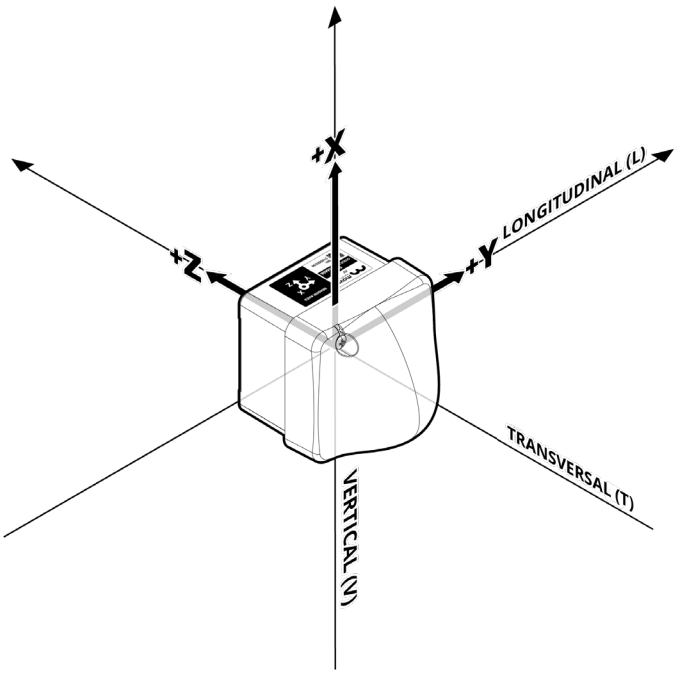
- **DO NOT** unbox or expose the Vibrometer HS in dusty and/or humid environments. The declared IP rating is guaranteed only when the product is correctly assembled, with the lid properly screwed in place, the antenna installed, and the Move Link connector protected either by a properly connected external cable or by the supplied protective cap when no cable is present.
- **DO NOT** loosen or tighten the screws of the Vibrometer HS except when explicitly instructed in this manual, as this could alter the product's IP rating.
- **DO NOT** remove the fixed plate from the Vibrometer HS, not even temporarily: doing so voids the warranty.

Before installation

5

5.1 Axis configuration

By default, the sensor's LONGITUDINAL axis (L) is set to be +Y and the TRANSVERSAL axis (T) is +Z, with the VERTICAL axis (V) being +X.

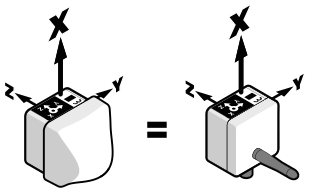


The association between the (X, Y, Z) and (L, T, V) axis systems can be configured on the MyMove platform, allowing the user to define a unified axis representation in which both reference systems are mapped onto the same structural axes.

VERTICAL AXIS CONFIGURATION

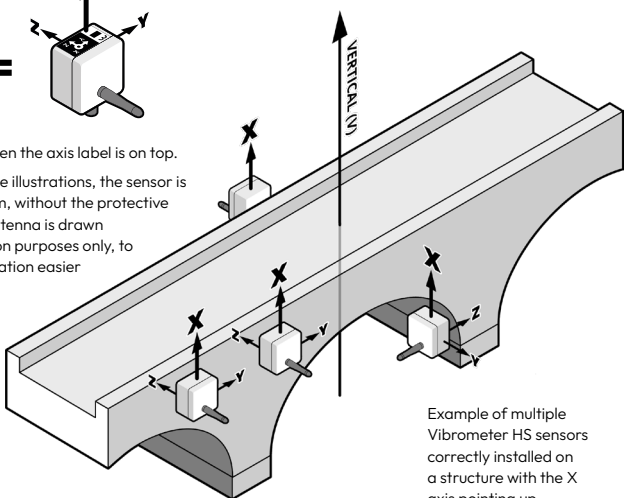
It's important to be aware, during installation, which one of the three axes of the sensor (out of X, Y and Z) is VERTICAL and in which direction (pointing up or pointing down). The proper configuration of this parameter is crucial for the sensor's correct functioning.

By default, the sensor is set to have **+X as VERTICAL (V)** (X axis, pointing up). Installing the sensor in that position is preferable, in order to avoid a configuration step (setting a different VERTICAL axis on the MyMove platform).



X axis is pointing up when the axis label is on top.

For clarity in small-scale illustrations, the sensor is shown in simplified form, without the protective dome or plates. The antenna is drawn elongated for illustration purposes only, to make the sensor orientation easier to read.



Example of multiple Vibrometer HS sensors correctly installed on a structure with the X axis pointing up.

IMPORTANT

In case it was not possible to install the sensor with the X axis pointing up, the user will have the possibility to configure, from MyMove, the axis of the sensor associated with VERTICAL.

LONGITUDINAL AXIS CONFIGURATION (OPTIONAL)

Once the VERTICAL axis is properly configured, changing the axis associated with LONGITUDINAL is not a required configuration step.

This step is needed in two cases:

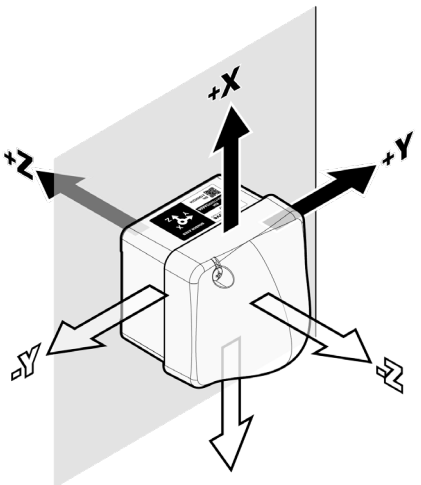
- **VERTICAL axis is different from default (+X)**
- **To ensure consistent axis alignment across sensors on the same structure**

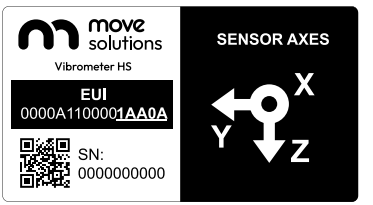
Check chapter 5.2 Why change the longitudinal axis? for more details.

NOTE

When associating the axis of the sensor to LONGITUDINAL and TRANSVERSAL, for every axis the two options + and – are available (example: +Y and -Y).

If +Y is set as LONGITUDINAL it means that the positive (+) direction of Y is associated with LONGITUDINAL. If -Y is set as LONGITUDINAL it means that the negative (-) direction of Y axis is associated with LONGITUDINAL.





Refer to the axis label on the top side of the Vibrometer HS to identify the axis positions and directions. The arrows indicate the positive direction of each axis (+X, +Y, +Z).

Consequently the directions opposite to the arrows can be identified as the negative side of the axes (-X, -Y, -Z).

Default configuration

By default, the axis configuration is **FIG.1**:

- LONGITUDINAL (L) associated with +Y
- TRANSVERSAL (T) associated with +Z

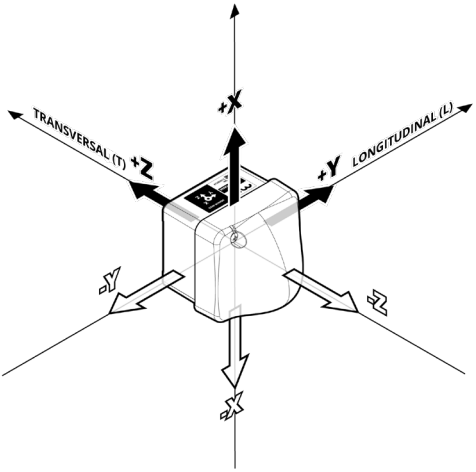


FIG.1
DEFAULT CONFIGURATION

Structure axis	L	T	V
Sensor axis	+Y	+Z	+X

Alternative configuration

Modifying the LONGITUDINAL and TRANSVERSAL axis configuration means associating different axes with them. An example of an alternative configuration would be **FIG.2**:

- LONGITUDINAL (L) associated with +Z
- TRANSVERSAL (T) associated with -Y

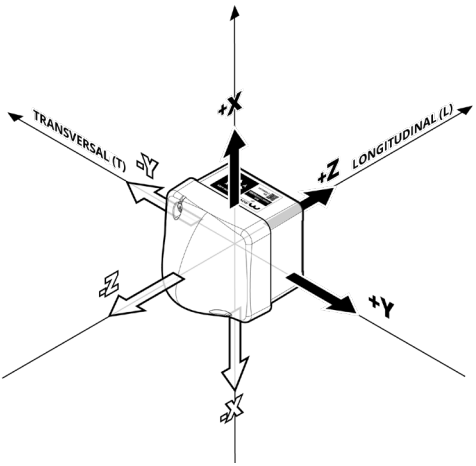


FIG.2
ALTERNATIVE CONFIGURATION

Structure axis	L	T	V
Sensor axis	+Z	-Y	+X

5.2 Why change the longitudinal axis?

The two situations that make it necessary to modify that parameter are:

1. **VERTICAL axis is different from default (+X):** in this scenario it's necessary to identify new LONGITUDINAL and TRANSVERSAL axes.
2. **Axis alignment across a structure:** if multiple sensors are installed on the same structure with different axes orientations, it may be necessary to adjust the axes associated with LONGITUDINAL and TRANSVERSAL on some sensors. In this way, the LONGITUDINAL and TRANSVERSAL axes of each sensor are aligned and consistently represent those of the entire structure.

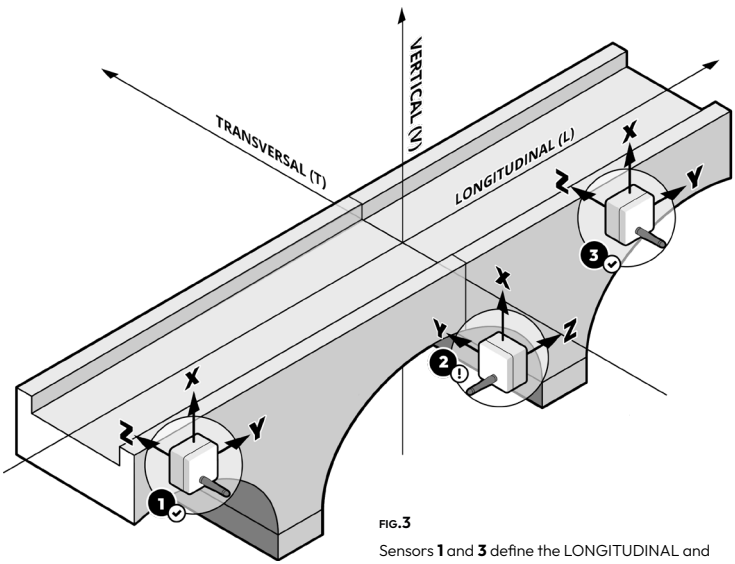


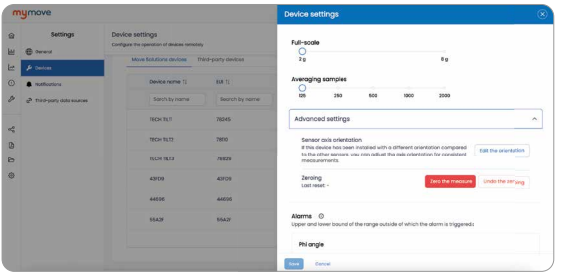
FIG.3

Sensors **1** and **3** define the LONGITUDINAL and TRANSVERSAL axes of the structure based on their position. Sensor **2** is installed with a different orientation compared to Sensors **1** and **3**. You can adjust the axis assignment of Sensor **2** on the MyMove platform, to align with the other sensors.

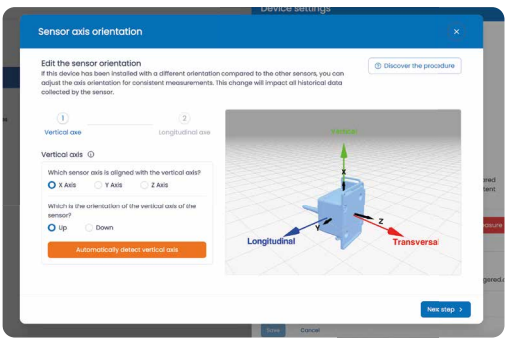
5.3 Schematics for each possible Vibrometer HS orientation

As already mentioned, you can change the orientation of the sensor axes from the **MyMove** platform. To do this, follow the steps below:

1. In **MyMove** once you're on a project dashboard, use the lateral menu to navigate to Settings > Devices.
2. Locate and select the device you want to configure, then click Edit settings. A side panel titled Device settings will appear.
3. In the side panel, click Operation.
4. Under the Operation section, open the Advanced settings accordion.



5. From here, you can access the Sensor axis orientation editor to adjust the sensor axes.



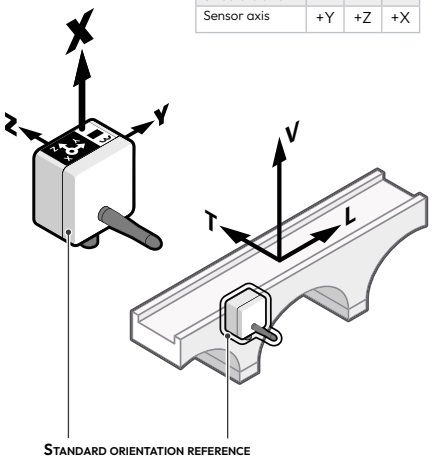
A. X axis pointing upwards (+X as VERTICAL)

The figure alongside illustrates the Vibrometer HS in its standard reference orientation. In the subsequent examples, the axis reorientation procedure is demonstrated with respect to a reference Vibrometer HS.

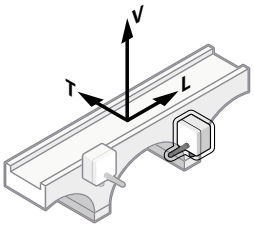
Keep in mind that there is no universal standard for assigning the LONGITUDINAL or TRANSVERSAL axis of the structure. A practical recommendation is to adopt as the reference orientation the position in which the majority of your Vibrometer HS sensors are installed.

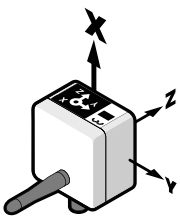
A.1

Structure axis	L	T	V
Sensor axis	+Y	+Z	+X



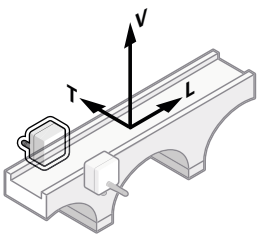
STANDARD ORIENTATION REFERENCE

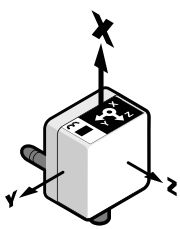




A.2

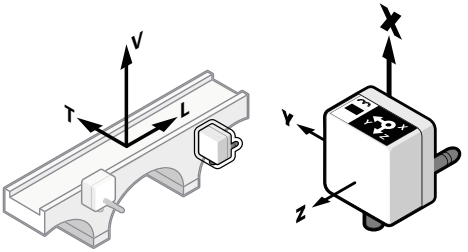
Structure axis	L	T	V
Sensor axis	+Z	-Y	+X





A.3

Structure axis	L	T	V
Sensor axis	-Y	-Z	+X



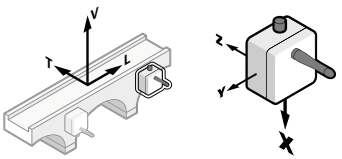
A.4

Structure axis	L	T	V
Sensor axis	-Z	+Y	+X

B. X axis pointing downwards (-X as VERTICAL)

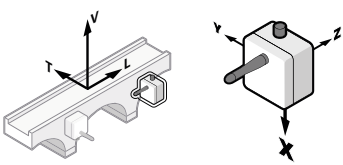
IMPORTANT

For optimal performance, **DO NOT** install the Vibrometer HS with the axis label facing downward and the connector pointing upward. The option to change the axis configuration in **MyMove** in the B.1, B.2, B.3 and B.4 orientations should be considered only as a failsafe measure, to be used exclusively when it is not possible to adjust the device orientation at the installation site.



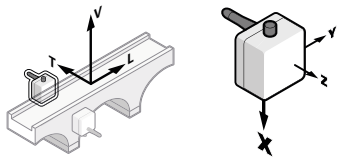
B.1

Structure axis	L	T	V
Sensor axis	-Y	+Z	-X



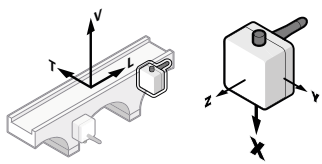
B.2

Structure axis	L	T	V
Sensor axis	+Z	+Y	-X



B.3

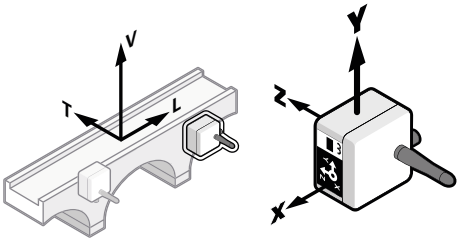
Structure axis	L	T	V
Sensor axis	+Y	-Z	-X



B.4

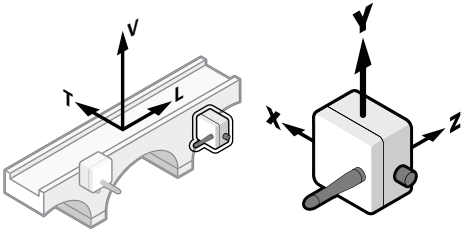
Structure axis	L	T	V
Sensor axis	-Z	-Y	-X

C. Y axis pointing upwards (+Y as VERTICAL)



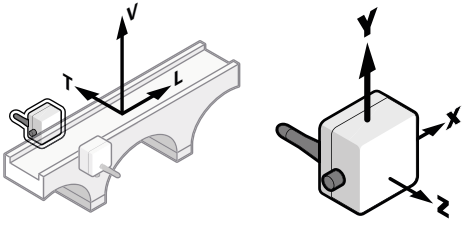
C.1

Structure axis	L	T	V
Sensor axis	-X	+Z	+Y



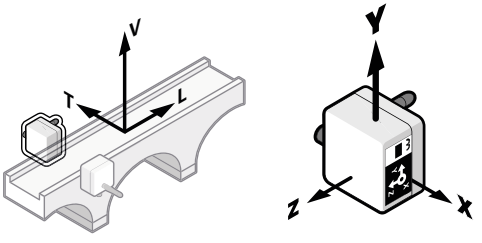
C.2

Structure axis	L	T	V
Sensor axis	+Z	+X	+Y



C.3

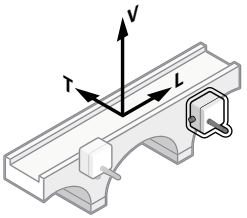
Structure axis	L	T	V
Sensor axis	+X	-Z	+Y

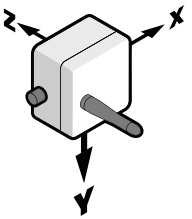


C.4

Structure axis	L	T	V
Sensor axis	-Z	-X	+Y

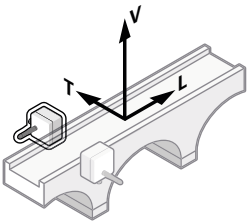
D. Y axis pointing downwards (-Y as VERTICAL)

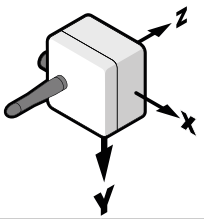




D.1

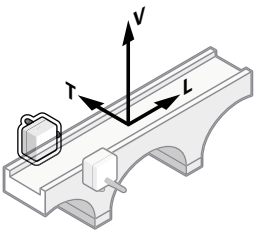
Structure axis	L	T	V
Sensor axis	+X	+Z	-Y

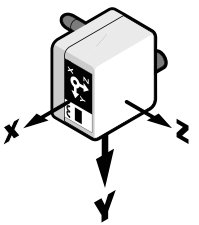




D.2

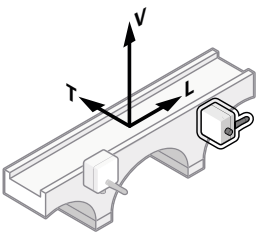
Structure axis	L	T	V
Sensor axis	+Z	-X	-Y

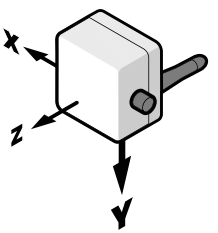




D.3

Structure axis	L	T	V
Sensor axis	-X	-Z	-Y

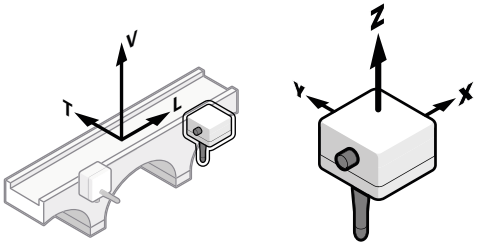




D.4

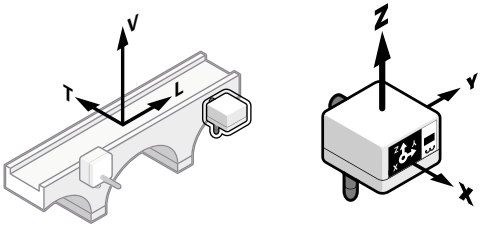
Structure axis	L	T	V
Sensor axis	-Z	+X	-Y

E. Z axis pointing upwards (+Z as VERTICAL)



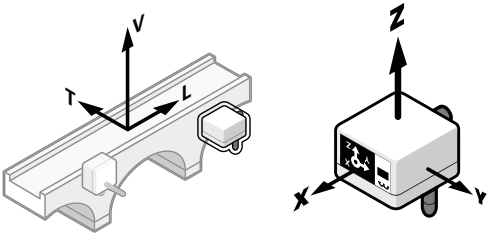
E.1

Structure axis	L	T	V
Sensor axis	+X	+Y	+Z



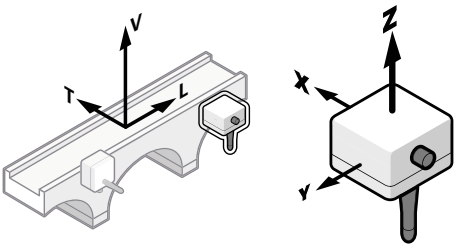
E.2

Structure axis	L	T	V
Sensor axis	+Y	-X	+Z



E.3

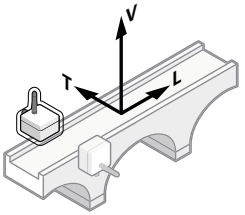
Structure axis	L	T	V
Sensor axis	-X	-Y	+Z

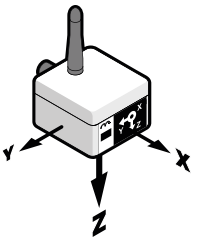


E.4

Structure axis	L	T	V
Sensor axis	-Y	+X	+Z

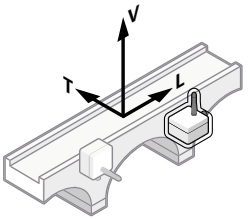
F. Z axis pointing downwards (-Z as VERTICAL)

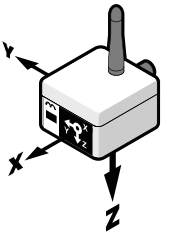




F.1

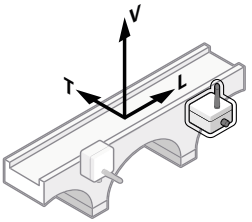
Structure axis	L	T	V
Sensor axis	-Y	-X	-Z

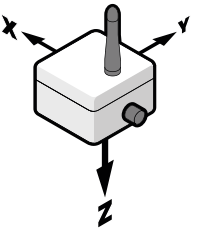




F.2

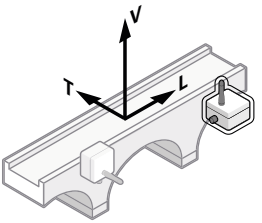
Structure axis	L	T	V
Sensor axis	-X	+Y	-Z

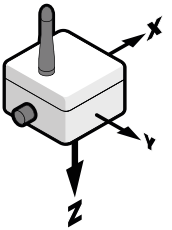




F.3

Structure axis	L	T	V
Sensor axis	+Y	+X	-Z





F.4

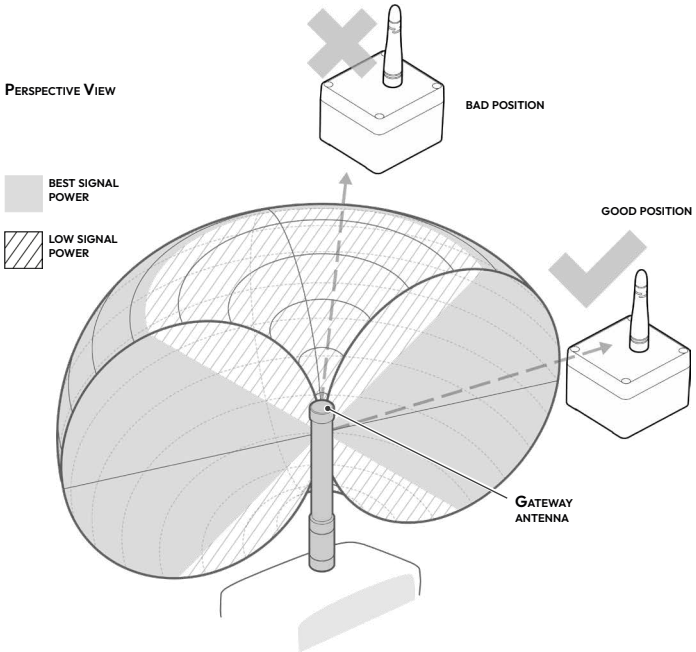
Structure axis	L	T	V
Sensor axis	+X	-Y	-Z

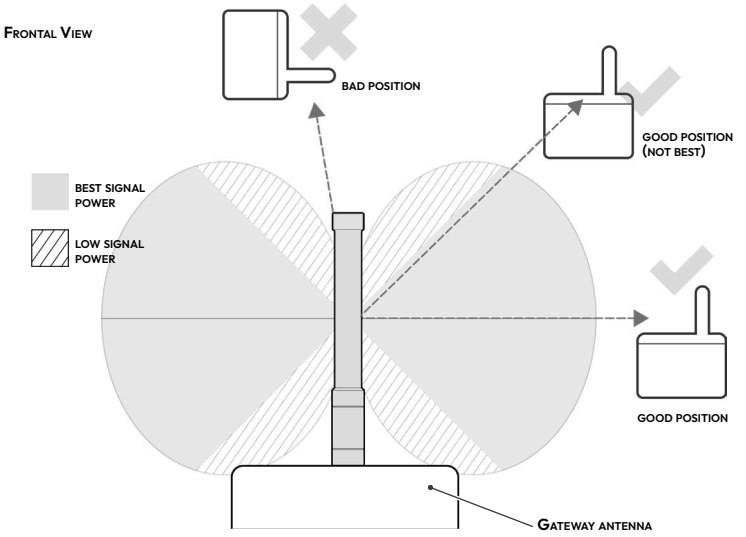
5.4 Optimizing radio performance

When installing the Vibrometer HS, it is important to follow some basic prescriptions to ensure the correct operation of the product.

Avoid, if possible, placing the Gateway directly above or below the Vibrometer HS. If this cannot be avoided, it is best to keep the two antennas perpendicular to one another. Keep the Vibrometer HS and the Gateway in line of sight as much as possible, as obstacles along the path of the signal could have a negative impact on the radio link.

Additional information on optimal positioning can be found in the Gateway manual.





Try to keep the antenna as far as possible from metallic materials that could alter its radiative performance. Similarly, keep the antenna as far as possible from high-voltage power cables, radio and TV antennas and any other source of unwanted electromagnetic disturbance.

Use the hardware supplied with the Vibrometer HS to fix it to the wall, floor, or ceiling.

WARNING

Remember to install the Vibrometer HS away from busy areas where it could be damaged by or cause damage to animals or people.

For example, don't install the Vibrometer HS on the floor unless it's in a completely secluded area.

Installation

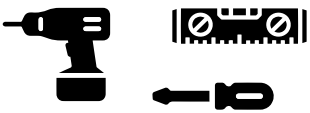
IMPORTANT

Installation must be performed by qualified personnel.

The mounting hardware provided and the instructions in this manual are for guidance only.

The choice of installation materials and the proper execution of the installation are the sole responsibility of the installer. Move Solutions is not responsible for any damages of any kind, including personal injury, resulting from the installation of the device.

Check that you have the right tools for the operation.

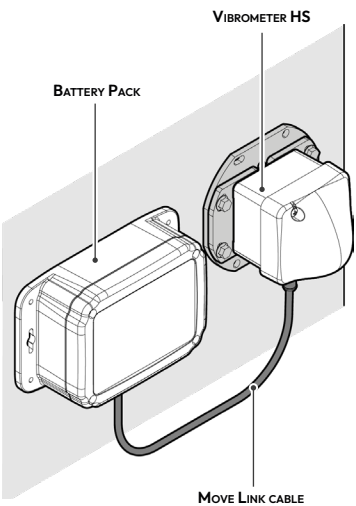


- A drill of suitable size
- A screwdriver of suitable size
- A level

POWERING THE SENSOR

The Vibrometer HS is not equipped with internal batteries. It must be powered using the external Move Solutions **Battery Pack** (SBE-STD-CB-1, sold separately) connected to the Move Link connector.

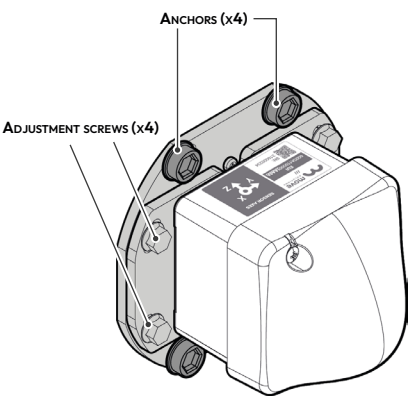
For Battery Pack installation and operation, refer to the Battery Pack manual. When positioning the Battery Pack, consider the mounting orientation and cable length relative to the Vibrometer HS to prevent mechanical stress or tension on the Move Link cable.

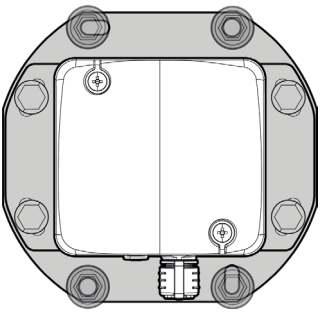


SENSOR POSITIONING AND ADJUSTMENT

The Vibrometer HS is supplied with a mounting plate designed for installation on rigid surfaces using anchors. For maximum stability, the unit should be secured with four anchors, as shown in the figure.

Once the sensor is installed, the mounting plate allows rotation about the Z axis to fine-tune the sensor alignment. The adjustment screws on the plate can be loosened to slightly rotate the unit and correct its orientation if needed. Once the desired position is achieved, fully tighten all screws to ensure stable and secure mounting.



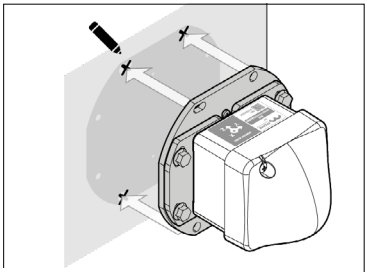


Front view

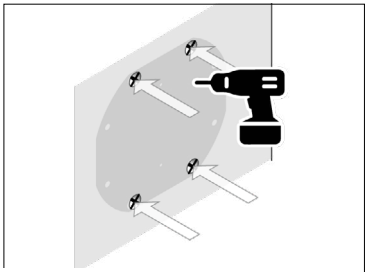
IMPORTANT

Make sure the surface where the Vibrometer HS is going to be installed has no irregularities or protrusions. Close, stable and tight contact of the device with the surface is crucial for accurate measurements.

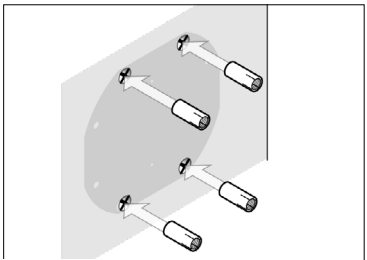
DO NOT remove the fixed plate from the Vibrometer HS, not even temporarily. Doing so voids the warranty. To adjust the sensor orientation, loosen only the four adjustment screws.



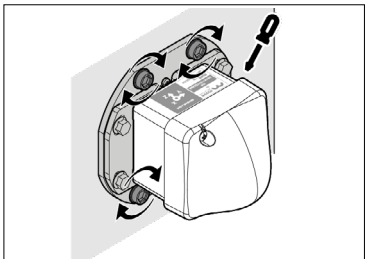
1. Using the mounting plate as reference, mark the chosen spot.



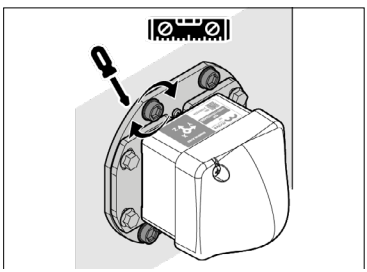
2. Drill four holes for the anchors in the mounting surface.



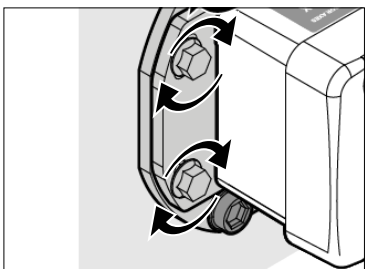
3. Insert the four anchors in the holes.



4. Place the Vibrometer HS on the structure and loosely tighten the four anchor screws.



5. Using a level, make sure that the sensor is as horizontal as possible. The plate allows for slight corrections in inclination. Tighten the anchor screws to lock it in place.



6. Make sure that the four adjustment screws between the two plates are fully tightened.

If the Gateway is already running, you can start checking your data on the MyMove platform within a few minutes. Otherwise, a maximum time of 30 minutes after the installation of the Gateway is required before the sensor can be viewed on the platform.

MyMove platform

7

GENERAL SETTINGS

To access MyMove, connect to the URL that you have been supplied with by Move Solutions and log in with your credentials.

Through MyMove you'll be able to:

- check the data of the last 24 hours and the current state of all your devices
- explore all the data that has been gathered by your sensors since day one
- set alarms and email notifications for each sensor
- manage settings for each sensor
- ...and more!

NOTES

- MyMove is frequently updated with new features, fixes, and reviews. Refer to its documentation for more detailed information.
- Settings that alter the Vibrometer HS behavior (settings that don't concern email alarms and sensor naming) can require up to 1 hour to be synchronized with the sensor.

Maintenance

8

IMPORTANT

Opening the Vibrometer HS and breaking the seal, or removing the fixed plate, voids the warranty. For issues on devices still covered by warranty always consult Move Solutions before deciding to open the product.

The Vibrometer HS does not include any batteries but relies on the Battery Pack for power. There is no need for the user to open the device to perform regular maintenance.

Depending on the sensor's working settings and its environmental conditions, a replacement of the batteries inside the Battery Pack (or the Battery Pack as a whole) may be necessary every few months to every few years.

For maintenance information about the Battery Pack (SBE-STD-CB-1), refer to the **Battery Pack** manual.

Overall dimensions

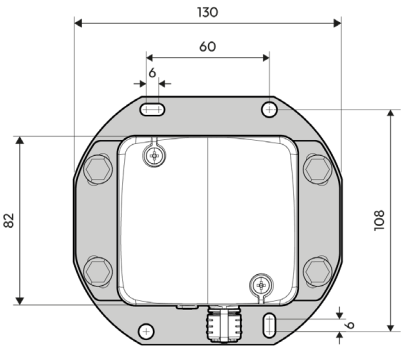
9

Please note that the drawings provided in this manual are not drawn to scale.

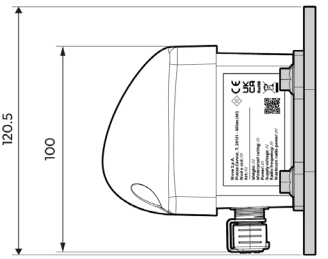
The purpose of these illustrations is to assist you in understanding the various components and their relative positions. Therefore, it is essential to rely on the numerical measurements provided alongside the drawings for accurate dimensions.

The following measurements are expressed in millimeters (**mm**).

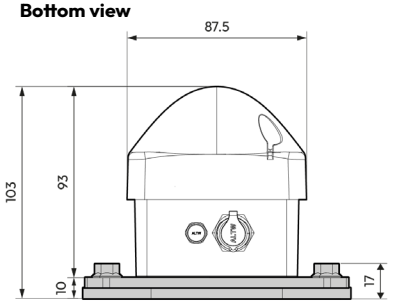
Front view



Side view



Bottom view



Annex A
Troubleshooting

A

Here we seek to give a few pointers to the most common malfunctions and suggested countermeasures.



WARNING

Remember to always disconnect the Battery Pack before physically operating on the Vibrometer HS.

1. THE VIBROMETER HS IS OFFLINE

Check that a Gateway is installed nearby, and that it is online. If the Gateway is offline, refer to its manual or to the customer service to solve the problem. If the Gateway has no issues, the problem can be ascribed to the sensor itself, so follow these steps:

- Wait a few hours: the Vibrometer HS might be functioning correctly, but the data may not arrive due to high traffic on the radio channel. This might be the case in installations with a high density of LoRaWAN devices, or when the radio environment has abruptly changed. The device automatically adapts its radio parameters to the environment, but in some cases up to one day might be required to reach stability.
- Examine the surroundings of the Vibrometer HS and check that no disturbance is present. Disturbances might come from industrial appliances, machinery, or metal objects in general. If the device has stopped working after regularly working for a while, investigate environmental conditions that might have appeared (drastic changes in atmospheric conditions, such as fog or snow, or new obstacles that might have been installed). Changes in the device's environment could cause the device to go offline for several hours, for example if a large metal object is placed close to the sensor, behaving as a radio shield.
- Dismount the Vibrometer HS and move it to a location closer to the Gateway and wait up to one day. If the Vibrometer HS goes back online, it probably means that the radio path between it and the Gateway is suboptimal, and action needs to be taken.

If all these tests fail, contact customer support for assistance.

2. THE VIBROMETER HS IS ONLINE, BUT NO DATA IS SHOWING ON THE MYMOVE PLATFORM

The Vibrometer HS might be configured in Trigger mode (or Combo mode), but the measured data never reach the threshold. Check that the Vibrometer HS mechanical coupling to the structure is correct. If the mechanical coupling is correct, then the measured data might actually be unable to reach the selected threshold: in this case, you can set a lower threshold to collect more data points. If the sensor is in Cadence mode, you can shorten the cadence to collect more data points for the same time interval.

3. UNEXPECTED BEHAVIOR AFTER CHANGING THE SETTINGS

Changes made in the platform's setup menu might require up to 1 hour to be synchronized to the sensor. Moreover, if the setup is changed on more than one sensor, there might be a difference on when different sensors receive the new setting. For the best results, please allow some time for the system to stabilize after changing any settings.

Document revisions

NO.	DATE	NOTES
Rev. 1	November 5, 2026	Initial release

MOVE SOLUTIONS CUSTOMER ASSISTANCE SERVICE
Visit the website at www.movesolutions.it for contact information relating to office addresses and phone numbers.

LICENSE AND COPYRIGHT
© 2026 Move S.p.A. All rights reserved.

PUBLICATION
Manual drafted in Italy
November 5, 2026
Revision 1



move solutions

www.movesolutions.it

© 2026 Move S.p.A.

NEED HELP WITH INSTALLATION, MAINTENANCE OR SERVICE?

Write to: **support@movesolutions.it**

or call: **+39 342 64 86 115**