iVIBE® Outdoor Installation

The contents of the Outdoor Installation Kit are illustrated below.

 Heavy Duty Tripod & Tripod Star	 Microphone Boom Arm	 5-meter Booted Cable
 Microphone Clip	 Water Resistant Windscreen	 Microphone Weather Shield
 Pair of Sandbags	 Wall Bracket	 Shield Clamp and M8x16 screw

Please contact Turnkey Instruments Ltd if any parts are missing

When being used outside, it is very important that the microphone and other parts and connectors of the equipment are properly protected from water, rain, snow, wind and other harsh weather conditions. The Outdoor Installation Kit has been especially developed for this purpose.

The microphone may be fitted to the heavy duty tripod and boom or the wall bracket. Always assess the likely impact of adjacent walls and buildings on the free field performance of the microphone.

Installation Site

When choosing a site, account should be taken of ease of access and risk of damage or loss of monitoring equipment.

The following locations should be avoided, wherever possible:

- areas where voids could affect the monitoring results, e.g. a hollow area beneath a concrete pavement; and
- areas where loose or poorly compacted fill could affect the monitoring results, e.g. on the berm of a slope, or close to concrete steps or surface drainage channels

DO NOT place iVIBE on a loose paving slab for this may move independently, giving rise to higher readings than those to which the adjacent structure is being subjected.

DO NOT place a brick, or similar heavy object, on top of the iVIBE. There is a very strong chance that it will lead to higher readings. Its centre of gravity will be raised and the object may well move independently of iVIBE giving spurious readings.

DO NOT drop the microphone. This is a precision item and must be handled carefully.

DO NOT drop the iVIBE seismic body. Damage to the accelerometers could be the result.

DO prevent iVIBE from being knocked or disturbed by objects, people or animals and thus giving false readings.

DO check daily that equipment has not been disturbed.

When using iVIBE to monitor vibration only, the instructions regarding the tripod and microphone placement may be ignored.

Tripod Installation on Hard Ground

Please note the central hook underneath the tripod's top plate will not take heavy weights.

When erecting the Tripod onto a slippery surface or on hard ground such as Tarmac or Asphalt you must attach the Tripod Star to all three legs of the tripod to prevent the legs from splaying apart. Proceed as follows:



1. Position Tripod and Tripod Star in desired location with legs through the open elastic loops as shown.



2. Detach elastic loop from tripod star leg, double the loop over and fit onto the tripod leg as far up the yellow spiked foot as you can, repeat on other two legs.



3. Finally, re-attach the star leg to elastic loop, repeat for each of the other two legs.



Always place a heavy weight or several filled sandbags in the centre of the Tripod Star. This will prevent the Tripod blowing over in strong winds. Make sure the weight is sufficient to ensure the Tripod cannot be blown over even in the strongest wind.

Tripod Installation on Soft Ground

To install the Tripod into soft ground such as turf or soft soil, simply push down the spiked legs into ground as far as they can go. The Tripod Star should be used as described above for extra stability in strong winds. Fit the Tripod Star before pushing the spiked legs into the ground.

Wall Bracket

The supplied Wall Bracket may be used to hold the microphone instead of the tripod. An assessment should be made of the effect of adjacent walls and buildings on the free field performance of the microphone. The Boom Arm can also be fitted to the Wall Bracket.



Fitting the Microphone Boom Arm



1. The Microphone Boom screws onto the threaded stud in top plate of the Tripod



2. Screw the Microphone Clip to end of Boom.

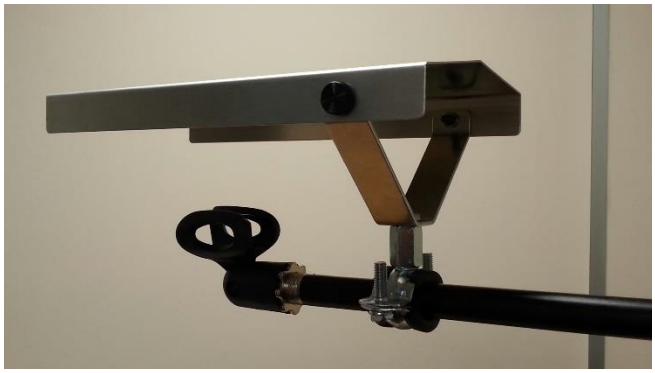


Microphone Weather Shield

For added microphone protection from heavy rain and snow, the Weather Shield can be fitted if desired.

1. Attach the Weather Shield Clamp to boom arm near to the Microphone Clip.

2. Secure Weather Shield to holder with M8 X 16 Socket Button Head Screw.



Note the Weather Shield may affect the free field performance of the microphone.

Microphone Cable Assembly

To prevent water damaging the microphone and connections, the Outdoor Kit contains a 75mm diameter All Weather Windscreen and a double booted 5-metre cable. This connects the microphone to the iVIBE microphone input.



Make sure the ACO 7146 Class 1 microphone has the rubber sleeve fitted as shown in the above photograph. If it isn't the rubber boot will not provide a waterproof connection. The Turnkey Class 2 microphone does not require the sleeve but has a machined step instead.



1. Connect the BNC plug from one end of the double booted cable to the microphone's BNC socket.



2. Next, ease the flexible rubber boot over the connector and rubber sleeve.



3. Finally, push the foam All Weather Windscreen onto the microphone so it meets the boot. The microphone is now ready to be fitted to the microphone clip on the boom arm

The ACO 7146 is a free field microphone and should always be pointed towards the direction of the noise source. Always make sure that the microphone is angled slightly upwards so that any water will run away from, not towards, the microphone diaphragm



Microphone shown with the Weather Shield fitted. Note slight upward angle of the microphone.

Vertical Microphone Mounting

For long term monitoring it may be best to orientate the microphone vertically (either pointing up or down). *See our practical Microphone Orientation Guide which may be downloaded from,* http://www.turnkey-instruments.com/images/documents/Microphone-Orientation-Guide.pdf

The supplied boom has a plastic handle part which can be pulled off the boom part. This will allow the boom to be swiveled into a vertical position and fitted to the tripod as shown. The weather shield will no longer be required in this orientation, but the foam All Weather Windscreen must still be fitted.







iVIBE seismic body

All monitoring stations required for regulatory control purposes should be agreed with the site supervisory staff. The location of the monitoring stations should be consistent, as far as practicable, with the locations at which permissible vibration levels were derived. For buildings, vibration limits generally relate to the ground adjacent to the building, so the ground rather than the building should be monitored.

It is essential that the iVIBE seismic body is mechanically coupled to the ground being monitored. Ideally it should be levelled on a solid hard surface. If necessary, weight down with a loosely filled sandbag which touches the ground all around the iVIBE body.

The following locations should be avoided, wherever possible:

- areas where voids could affect the monitoring results, e.g. a hollow area beneath a concrete pavement; and
- areas where loose or poorly compacted fill could affect the monitoring results, e.g. on the berm of a slope, or close to concrete steps or surface drainage channels

DO NOT place iVIBE on a loose paving slab for this may move independently, giving rise to higher readings than those to which the adjacent structure is being subjected.

DO NOT place a brick, or similar heavy object, on top of the iVIBE. There is a very strong chance that it will lead to higher readings. Its centre of gravity will be raised and the object may well move independently of iVIBE giving spurious readings.

When on-soil location cannot be avoided, it is best to embed a 200mm deep concrete pad for iVIBE within the soil. If this cannot be done, using one off the supplied sandbags, loosely fill and place so that its sides touch the ground around the iVIBE. Level the iVIBE on top of the sandbag using the three adjustment feet and lock off. The sandbag provides coupling, stops the levelling feet sinking into the ground and will also help keep the iVIBE clear of water if the ground is susceptible to flooding.

iVIBE can now be connected to the microphone and Power Portal.



For information about fitting and connecting the Power Portal, please refer to the **Installing the Power Portal** instructions at www.iVIBE.uk

Connecting the Microphone

After the iVIBE seismic body and microphone tripod have been installed, all that remains is to connect the microphone.

Connect the microphone cable BNC plug to the shrouded BNC jack socket on the iVIBE connector panel. Push the rubber boot over the shroud to form a watertight seal.





DISCLAIMER

Turnkey Instruments Ltd will not be liable for damage caused by water ingress or by the blowing over of equipment unless these installation instructions are followed exactly.

NOTES

If you need assistance, please contact:

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Please visit www.iVIBE.uk to access other iVIBE and iDB documentation

Revision History

- Original RP, Oct 2016
- Issue 2: edited MJL, Nov 2016
- Issue 3: & 4, Power Portal instructions added
- Issue 5:Class 2 mic orientation notes added
- Issue 6: updated mounting instructions

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