



Thermo Fisher Scientific Aquilos SEM Installation

Customer: Columbia University

ITEM NO.	DESCRIPTION	QTY.
1	AVI-600S-LP.stp	2
2	Bottom Plate^Installation Setup	1
3	Top Plate^Installation Setup	1
4	SEM Model	1
5	Floor^Installation Setup	1
6	LFS Sensor^Installation Setup	1

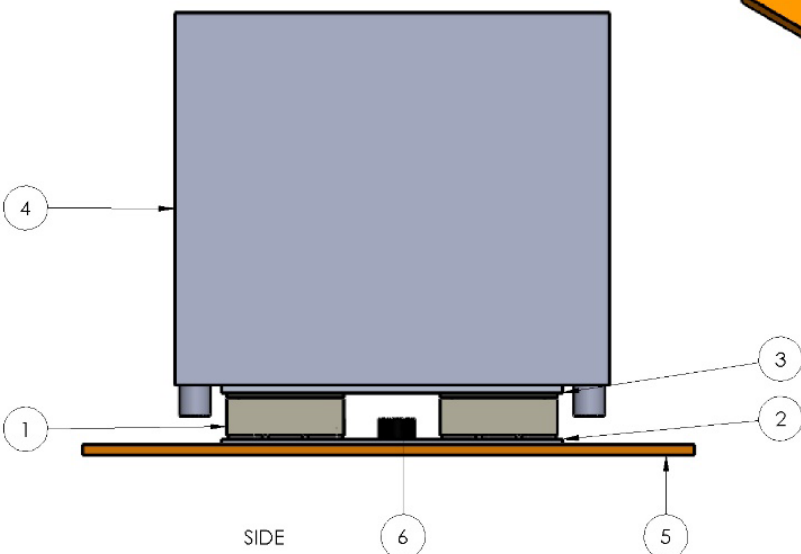
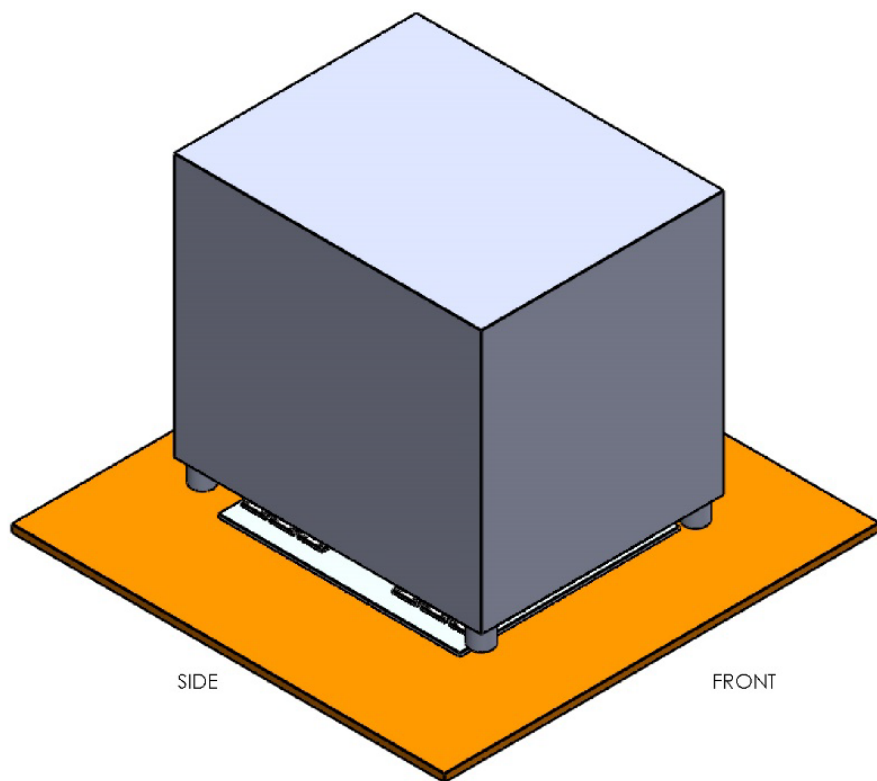


Figure 1: Components for assembling the AVI Platform from Herzan.

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Overview

The following installation manual is meant to supplement the factory-supplied AVI instruction manual. This manual is dedicated to installing AVI platforms for Thermo Fisher Scientific Aquilos scanning electron microscopes. Please read the complete instruction manual and refer to <http://www.herzan.com/support/troubleshooting/active-vibration-control.html> for additional operation questions.

Pre-Installation Checklist

The *Pre-Installation Checklist* reviews all preliminary items needing to be considered prior to installing the AVI platform, ensuring an optimal user experience. Please mark YES if an item listed below has been confirmed to be true. Please mark NO or N/A if items listed below are incorrect or have not been confirmed to be true. If there are items listed below marked No or N/A, please contact Herzan directly (949-363-2905 or support@herzan.com) for further instructions.

Item	Description/Notes	Yes	No	N/A
Is the AVI Platform load capacity greater than the weight of the SEM?	To ensure proper support and vibration isolation performance, verify the weight of your instrument does not exceed the load capacity of the AVI platform.			
Is the Displacement of Mass Central Throughout the SEM?	The load capacity is designed to account for a central weight displacement and/or central point of mass for the instrument, delivering optimal vibration isolation results from the AVI platform.			
Will additional accessories be added to the SEM, increasing the weight of the SEM?	If additional accessories are planned for the future of your instrument (whereby exceeding the load capacity of the AVI system occurs), a revision to the original system recommendation will be needed.			
Does the floor within the lab meet Herzan's floor flatness specification?	Floor flatness is necessary to ensure stability and support consistency for the AVI Series. The floor resting underneath the AVI system will need to meet the 2 millimeters per meter requirement. Herzan may supply a bottom mounting plate to help the customer's environment achieve this specification.			
Is there enough room to install the AVI Platform?	It is recommended that at least 2 feet of space surround the instrument to allow the installer enough room to perform a proper installation.			

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Is there enough clearance below the frame of the SEM for the AVI isolators to be installed?	When installing the AVI isolators, a minimum of 5" of clearance underneath the instrument will be needed (an additional 1.5" if mounting plates are required). If the leveling feet are not capable of achieving this minimum height clearance, a forklift, pallet jack or rigger will be needed to lift the instrument high enough to allow the AVI isolators to be installed.			
Does the supported SEM have proper cable management?	During installation of the AVI System, please adhere to the cabling of the instrument and ensure the cables are not resting on the floor, in contact with a vibrating surface, or have enough slack.			
Ambient Vibration Noise Levels	Are the ambient vibration noise levels known (i.e. have they been measured) and has that information been shared with Herzan?			
TFS Aquilos SEM Vibration Noise Specifications	Are the environmental specifications for vibration noise known for the instrument and has that information been shared with Herzan?			
Specifications Versus Performance	Will the performance of the AVI platform bring the TFS Aquilos SEM within specification for vibration noise?			

Item Checklist

The *Item Checklist* ensures all necessary items are included in the AVI Platform. Mark YES if an item listed below has been included in your shipment. Mark NO or N/A if an item listed below is not included. If items listed below not included in your shipment, contact Herzan directly (949-363-2905 Extn. 307 or support@herzan.com) to receive replacement parts.

QTY	Item	Description/Notes	Yes	No	N/A
2	AVI Isolators	Standard AVI platforms will include QTY 2 isolators. - AVI-600 Series: AVI-600M			
1	AVI Controller	Standard AVI platforms will include QTY 1 controller. - AVI-600 Series: B6 (Standard)			
2	Aluminum Mounting Plates	Aluminum mounting plates will include the same width and depth dimension, but different thicknesses. The top plate will be 0.75 inch thick; the bottom plate will be 0.50 inch thick.			
12	15-Pin D Sub Cables	15-Pin D Sub Cables are used to connect the AVI-600 isolators to the AVI-600 controller and the AVI-600 isolators to the LFS Sensor. The AVI-600 isolators require 3 D Sub Cables each (6 D Sub Cables Total), when			

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		connecting to both the AVI-600 Controller and LFS Sensor.			
1	25-Pin D Sub Cable	25-Pin D Sub Cable is used to connect the LFS Sensor to the LFS Power Supply.			
1	LFS Sensor	If the LFS System upgrade is purchased, QTY 1 LFS Sensor is used to support two AVI-600 isolators			
1	LFS Power Supply	If the LFS System upgrade is purchased, QTY 1 LFS Power Supply will be included to accompany the LFS Sensor.			
2	Power Cable	A power cable is used to supply power to the AVI controller and LFS Power Supply. The Power Cables are a US Version.			
1	Hex Wrench	The hex wrench is used to remove the bolts and external panels found on the AVI isolators to access the internal adjustment springs			
1	Spanner Wrench	The Spanner Wrench is used to adjust the internal springs of the AVI isolators.			
8	Wooden Blocks	Wood blocks are used to assist in the installation of the AVI isolators by helping the leveling feet elevate high enough to install the isolators underneath the SEM.			
4	Metal Shims	Metal shims are used to assist in the installation of the AVI isolators by helping with the unevenness of the floor, making the contact of the mounting plates and AVI isolators level with the floor.			
1	Installation Manual	If a printed installation manual was not provided in the AVI platform shipment, please reference the following online resource for further download/print instructions: http://www.herzan.com/resources/manuals-downloads.html .			

Site Preparation/Tools Required

The following items are recommended to have available onsite to complete the AVI platform installation.

- Cleaning supplies to remove dust and large particles from the floor underneath the bottom plate
- Gloves when handling the aluminum plates and modules.
- Tools necessary to remove caster wheels from Aquilos SEM (screwdrivers, wrenches, hex keys, etc.) TFS might have this available.

Installation Procedures

Step 1: Place Bottom Mounting Plate

Place Bottom Plate in the floor in the desired location. Bottom Plate is 0.5 inches thick. Short side, 30 inches, should be parallel with short side of instrument 33.15 inches.

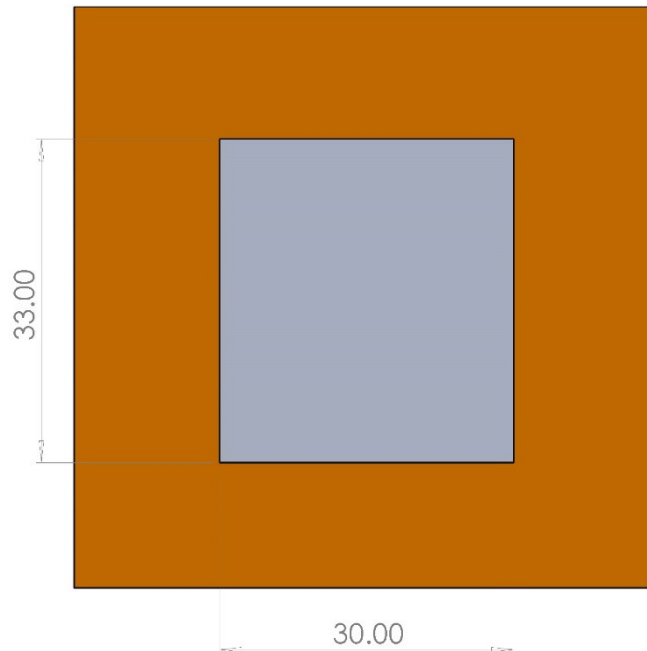


Figure 2: Top view of bottom plate, 30-inch dimension is parallel with the front of the instrument.

Step 2: Place AVI-600M Isolators

Place AVI-600M isolators on the plate with orientation in Figure 3. **IMPORTANT:** ensure the D-Sub connectors are pointing inwards, towards each other, arrows of Figure 3. Circled in Figure 4.

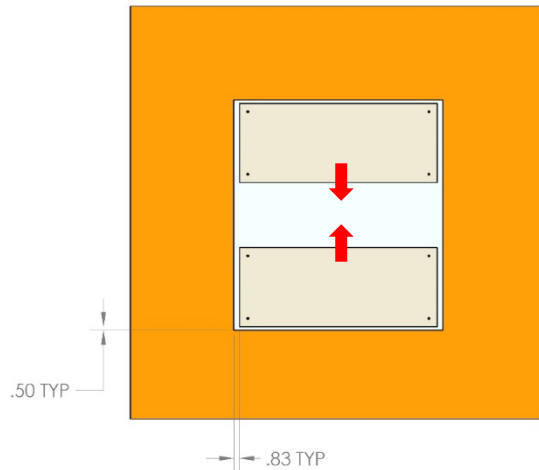


Figure 4: Position the AVI modules as the dimensions show. The dimensions are typical for all corners.

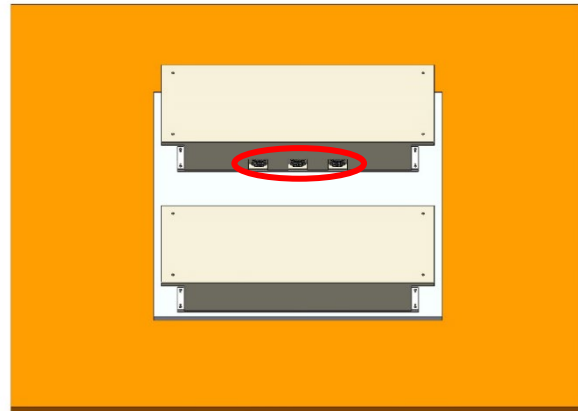


Figure 3: D-Sub connectors must be facing each other for system to work properly.

Step 3: Connect AVI-600M Isolators to Controller

Connect QTY 6: 15-Pin D Sub cables (5 meters long) from the two AVI-600M isolators to the AVI-600 controller. Connect the D-Sub cables that go to the controller to the bottom connectors. Cables should have female ends. To plug into male side of AVI modules.

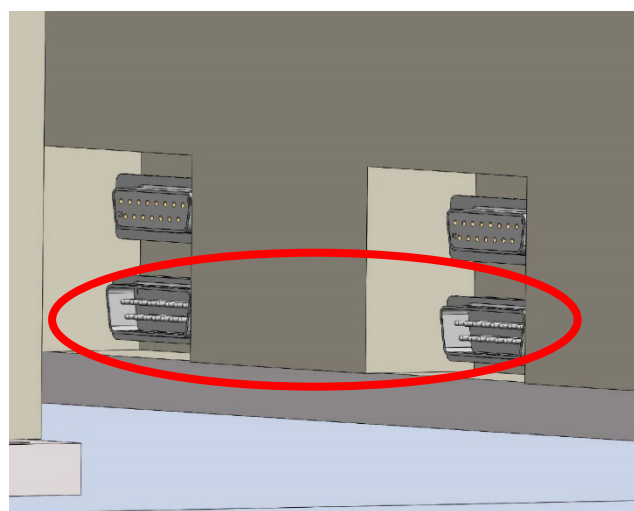


Figure 5: Controller D-Sub Cables plug into bottom D-Sub ports circled in RED.

Step 4: Place LFS-3 Sensor

Place the LFS-3 Sensor between the two AVI-600M isolators on the lower mounting plate.

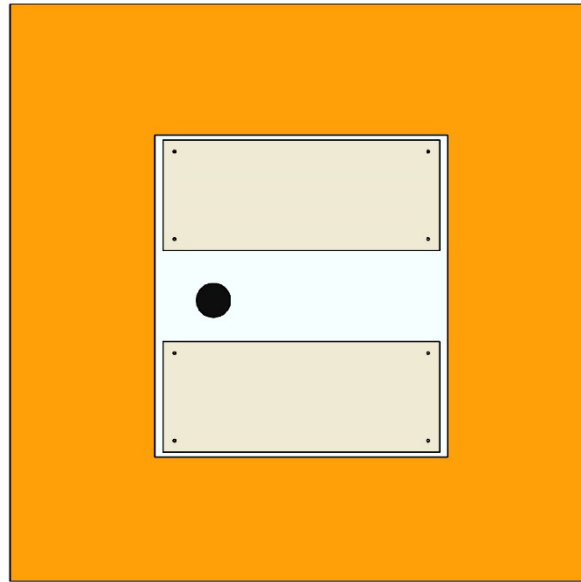


Figure 6: Place LFS Sensor somewhere where it will not interfere with the cables. Any location on the bottom plate will work.

Step 5: Connect AVI-600M Isolators to LFS-3 Sensor

Connect QTY 6: 15-Pin D Sub cables (5 meters long) from the upper inputs on the two AVI-600M isolators to the LFS-Sensor.

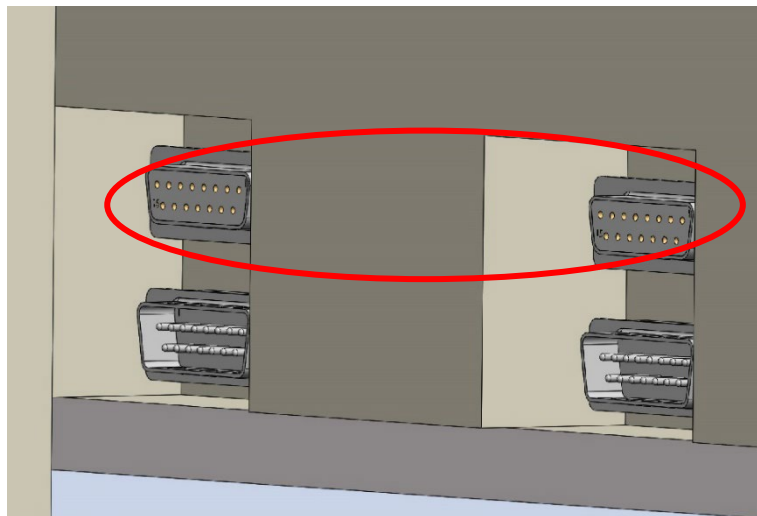


Figure 7: Use the Upper plug to connect LFS Sensor to the AVI modules.

Step 6: Connect LFS-3 Sensor to LFS Power Supply

Connect the 25-Pin D Sub cable from the LFS-Sensor to the LFS Power Supply.

Step 7: Place Upper Mounting Plate

Place the upper mounting plate (0.75 inch thick) on top of the AVI-600M isolators, following the same orientation as the lower mounting plate.

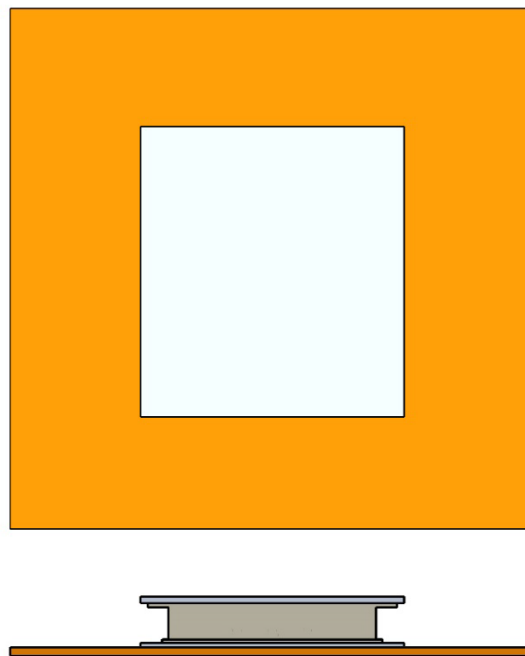


Figure 8: Top plate has same footprint as the bottom plate and should be aligned the way.

Step 8: Lower Aquilos SEM Onto AVI Platform

Lower the Aquilos SEM onto the AVI-600M platform based on the provided schematic.

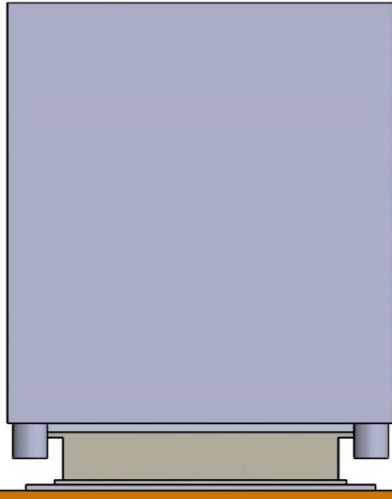


Figure 9: Front view of final position. Top plate should be positioned center with the bottom of instrument. Long side of plate 33 inches should be parallel with long side of instrument 42 inches.

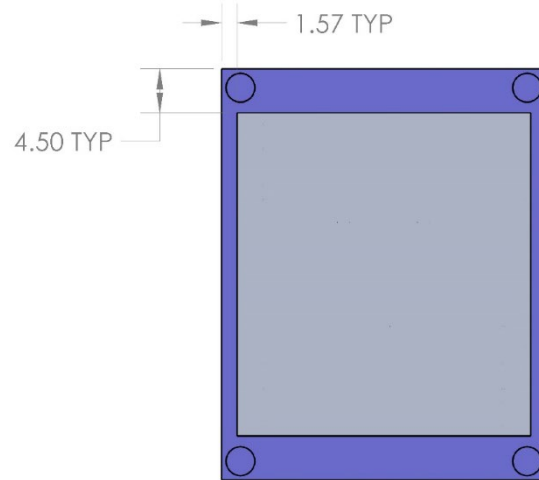


Figure 10: Plate should be symmetrically aligned with instrument; dimensions are given as a reference to check once placed.

Step 9: AVI Platform Calibration

Calibration of springs will be performed during installation of Octagonal Frame and Spicer system.

Contact Us

If you have questions about your AVI platform or would like to speak to a Herzan representative about future applications, please don't hesitate to contact us at any time.

Sales

- Phone: (949) 363-2905 Extn. 305
- Email: sales@herzan.com

Support

- Phone: (949) 363-2905 Extn. 307
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