

Versette Stage Calibration: X, Y, and Z Axis

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Introduction

The Thermo Scientific™ Versette™ is a compact automated liquid handler that fits a wide range of research laboratories.

Your choice of 96- or 384-channel pipetting heads and user-friendly programming, combined with reliable performance, makes it ideal for the liquid handling needs of most laboratories.

This technical note describes how to quickly calibrate the default Stage 2 position on the Versette. Once this stage is calibrated, all remaining stages will adjust accordingly, based on the calibration settings in the software. It is recommended to optimize all remaining stage positions to ensure proper alignment with Labware on all stages. For detailed instructions, refer to the “Calibration” section in the Versette User Manual.

Required Equipment

- Versette system with 6-stage assembly
- ControlMate software, installed on a computer or laptop with a communications cable
- NTC Pipetting Module (installed)
- Versette 96- or 384-Channel Head
- Calibration Plate
- NTC Teach Tool



Procedure

Note: Calibration can only be performed through ControlMate

Step 1

Verify Communications with Versette System

Step 2

Verify Versette Setup

Step 3

Load NTC Housing and NTC Teach Tool

Step 4

Calibrate Stage XY

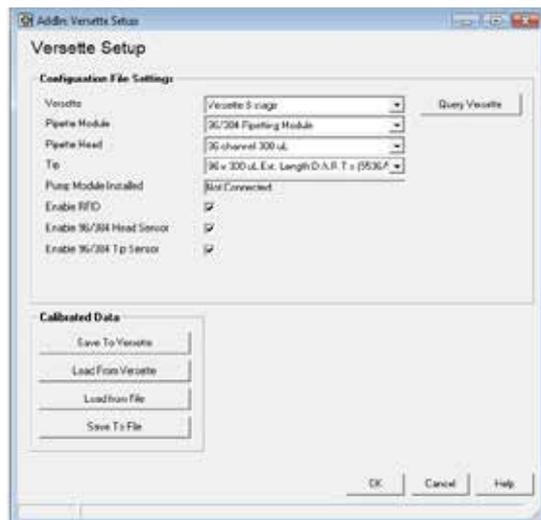
Step 5

Calibrate Z Axis



Step 2: Verify Versette Setup

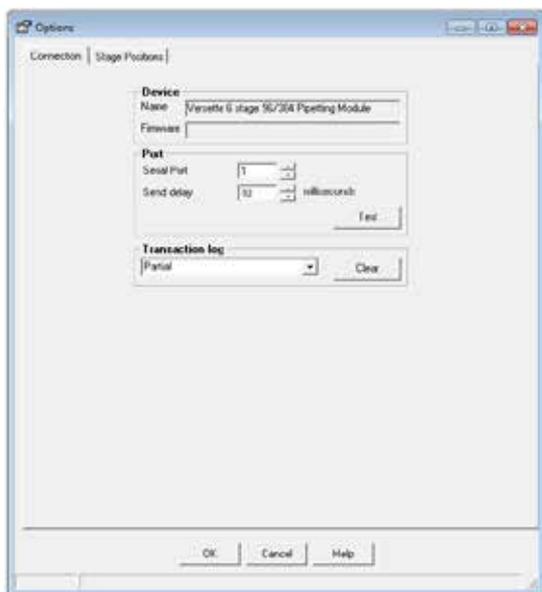
1. Click Query Versette to confirm the machine and ControlMate are properly communicating. Dropdown menus automatically prefill with the appropriate information. When finished, click OK.



Follow these basic guidelines on how to quickly and accurately calibrate the Versette.

Step 1: Verify Communications with the Versette System

1. Connect the Versette to a computer running ControlMate software.
2. From the Tools menu, select Options.

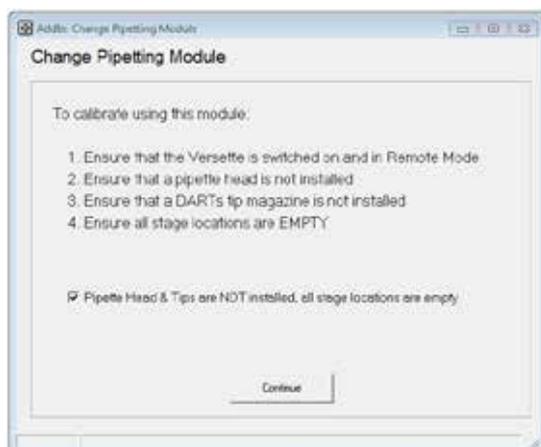


3. Click Test. Verify the device connection is OK. The system defaults to Serial Port 1.

Note: If you are unable to connect, verify that your computer recognizes the port the communication cable is attached to on your computer. This is done through Device Manager.

Step 3: Install the NTC Pipetting Module

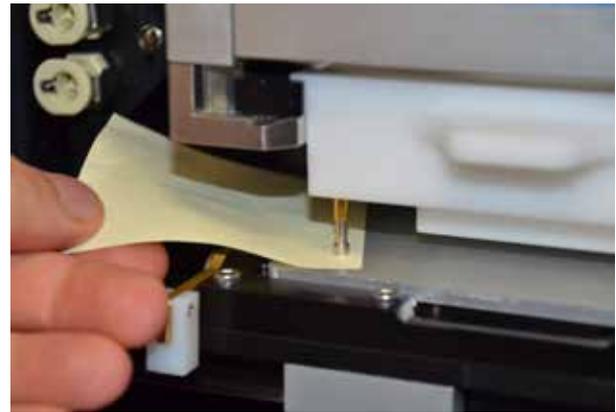
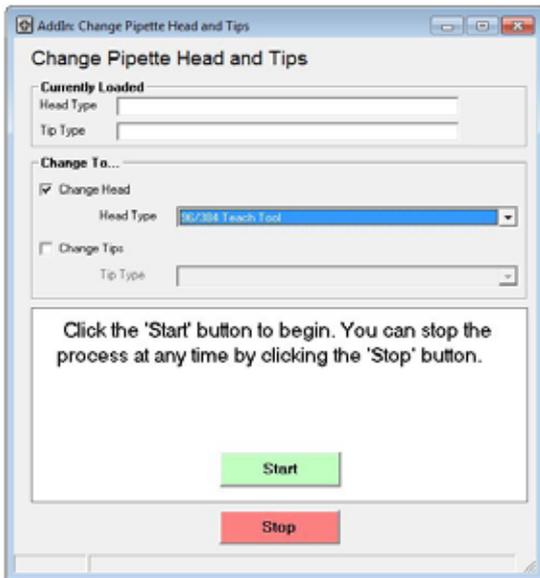
1. From the Add-Ins menu, select Change Pipetting Module.
2. Click the box once all criteria are met. Click Continue.



3. Follow the prompts to install an NTC Pipetting Module.

Install the Teach Tool

4. From the Add-Ins menu, select Change Pipette Head and Tips.
5. Under the Change To... section, select "96/384 Teach Tool" as the Head Type from the dropdown menu.
6. Click Start and follow the prompts to install the Teach Tool.



4. Follow the prompts to install the calibration plate (stage position 2).
 - Insert the calibration plate in the same orientation (pictured) when verifying all stage positions.
5. Click Move to Position.
6. Lower the Teach Tool using Z Axis arrows until the pins are just above the plate surface, ~1 mm.
 - Choose the Step Size accordingly in 0.1, 1, 10, or 100 mm increments.



96/384 Teach Tool



Calibration Plate

Step 4: Install Calibration Plate and Perform Stage Calibration XY

1. From the Add-Ins menu, select Versette Calibration.
2. Click the 96/384 Pipetting Module box (this enables the Calibration Steps to become active).
3. Select Calibrate the Stage XY.



7. Center all pins into the front-right and rear-left holes marked A, using the Move Stage (X and Y) position arrows. Carefully lower the tool down into the holes to check for alignment.
 - All four pins should align into the holes. If not, ensure the A position holes are targeted to be properly centered within microtiter plates.
8. Save the adjustments. When the Save X and Y Axis Positions window opens, click OK to save these values to the Versette.
 - Once the data is saved, the NTC homes upward and out of the calibration plate.

Step 5: Perform Z Axis Calibration

1. Select Calibrate Z Axis.
2. Lower the Teach Tool using the Z Axis arrows until pins are just touching the surface of the plate as measured by a Post-It Note or equivalent. HINT: If all pins do not touch the plate at the same height, select the lowest pin because this reflects how the tips are positioned in Labware. Use the front-right pin as the default; lower the pin until it just touches the Post-It so it cannot be moved. Click the up arrow once (0.1mm) to see if the Post-It can be moved; if it moves, click the down arrow once (0.1 mm) to ensure proper height.
3. Save the adjustments. When the Save Z Axis Position window opens, click OK to save this value to the Versette.
 - Once the data is saved, the NTC homes upward and out of the calibration plate.
4. The machine has now been calibrated. To optimize all remaining stage positions, refer to the Versette User Manual for detailed instructions.
 - This is recommended if you are using 384 Well Plates and corresponding Labware.

Find out more at thermofisher.com/versette

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