

Versette Stage Calibration: X, Y and Z Axis

Automated Liquid Handlers
Diane Baraket, Applications Support Specialist
Thermo Fisher Scientific, 22 Friars Drive, Hudson, NH 03051 USA

Introduction

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

A choice between 96- or 384-channel pipetting heads and user-friendly programming combined with reliable performance makes it an ideal choice for 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 six-stage assembly
- ControlMate software, installed on computer or laptop with communications cable
- NTC Pipetting Module (installed)
- Versette 96- or 384-Channel Head
- Calibration Plate
- NTC Teach Tool



Procedure

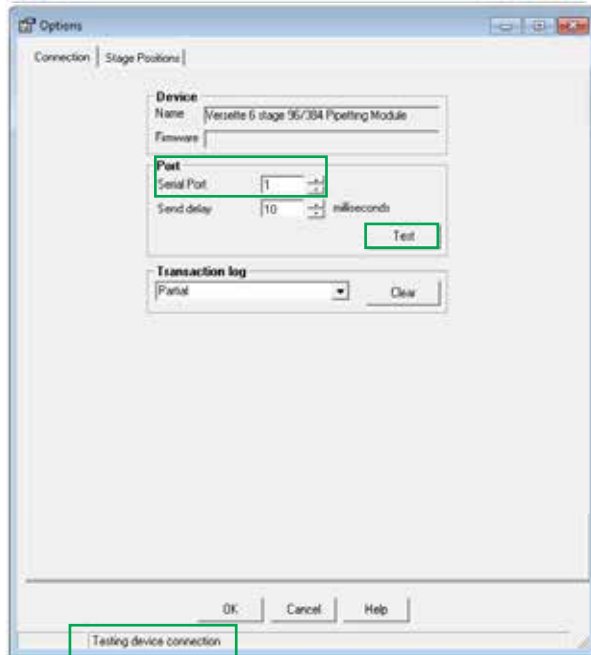
Note: Calibration can only be performed through ControlMate Software and not by using the onboard GUI.



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

STEP 1: Verify Communication with the Versette System

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

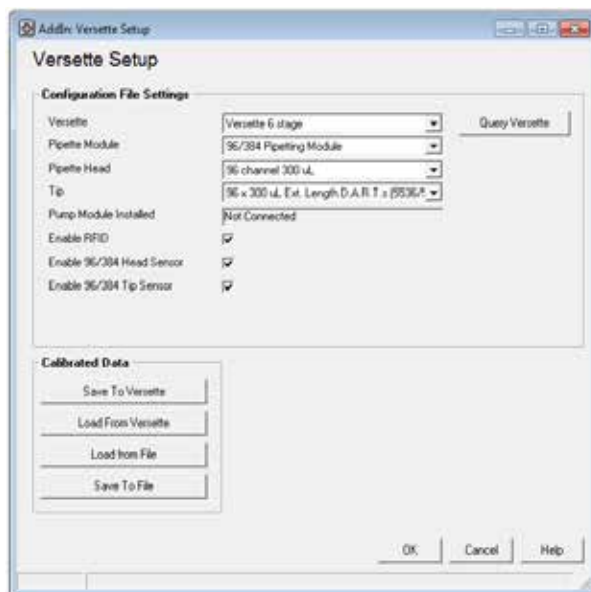


3. Click the 'Test' button. Verify the device connection is OK; system defaults to Serial Port 1.

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

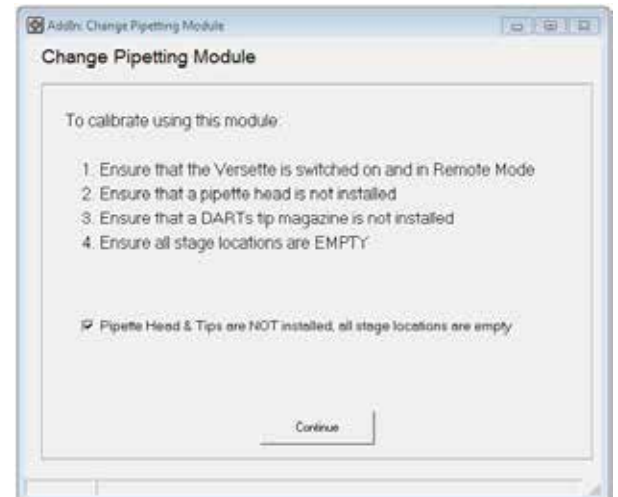
STEP 2: Verify Versette Setup

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



STEP 3: Install the NTC Pipetting Module

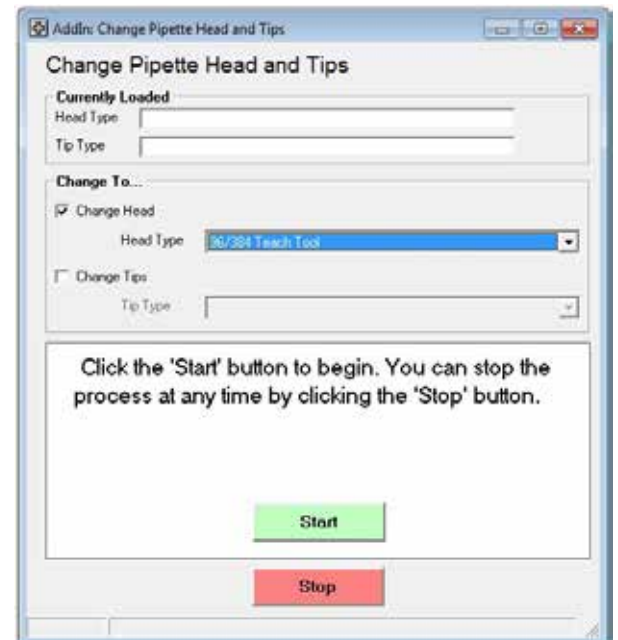
1. Click the Add-Ins menu and select Change Pipetting Module.
2. Check the box once all criteria are met.



3. Follow prompts for installation of NTC Pipetting Module.

Install Teach Tool

4. Click the Add-Ins menu and 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 prompts for installation of teach tool.



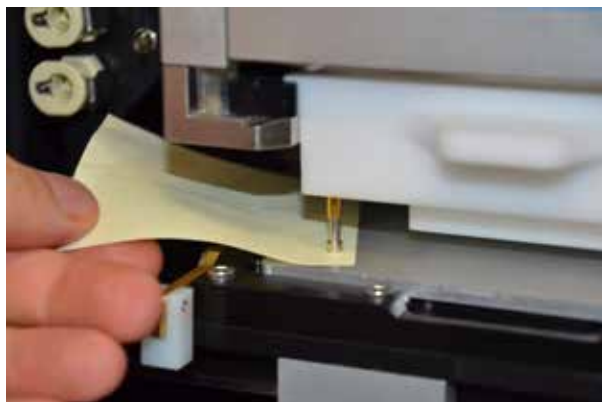
96/384 Teach Tool



Calibration Plate

STEP 4: Install Calibration Plate and Perform Stage Calibration XY

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



4. Follow prompts for installation of calibration plate (stage position 2).
 - Insert the calibration plate in the same orientation (as pictured above) when verifying all stage positions.
5. Click 'Move to Position.'
6. Lower teach tool using Z Axis arrows until pins are just above plate surface ~1 mm.
 - Choose Step Size accordingly in 0.1, 1, 10, or 100 mm increments.
7. Center all pins into front-right, rear-left holes marked as 'A' using the Move Stage (X and Y) position arrows. Carefully lower tool down into the holes to check for alignment.
 - All four pins should align into holes. If not, ensure the 'A' position holes are targeted to be properly centered within microtiter plates.
8. Save adjustments. When the 'Save X and Y Axis Positions' window appears, 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 teach tool using 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 lower-most pin as this reflects how the tips are positioned in Labware. Use front-right pin as the default; lower the pin so it "just" touches the Post-It so it cannot be moved. Click on the up arrow once (0.1 mm) to see if the Post-It can be moved; if so, click the down arrow once (0.1 mm) to ensure proper height.
3. Save adjustments. When the 'Save Z Axis Position' window appears 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 using 384 Well Plates and corresponding Labware.



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