

# WAVE RIDER<sup>®</sup> NL2

QUICK REFERENCE GUIDE



SINCE 1964

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This Quick Reference Guide is designed to help the user to familiarize themselves with the equipment, perform basic hardware setup/communications and operation. For detailed information on both Hardware & Software components, please refer to the Help system accessible in the M.O.L.E.<sup>®</sup> MAP Software.

To access the help system start the software and use any of the methods listed:

1) Select the **Help Button** on the **Toolbar**.



2) Pressing the shortcut key **[F1]**



3) On the **Help** menu, click **MAP Help**.



**Dwell Time Sensors (C, B, A):**

These record the time each sensor spends in contact with each solder wave.

**Barrier locking latch:**

Secures the cover of the barrier to prevent it from opening.

**Barrier box:**

This is the thermal protective barrier for the M.O.L.E.<sup>®</sup> Profiler.

**Speed Sensor:**

Used to calculate the speed of the solder machine conveyor.



**Extractor handle:** This disconnects the M.O.L.E.<sup>®</sup> Profiler from the connector

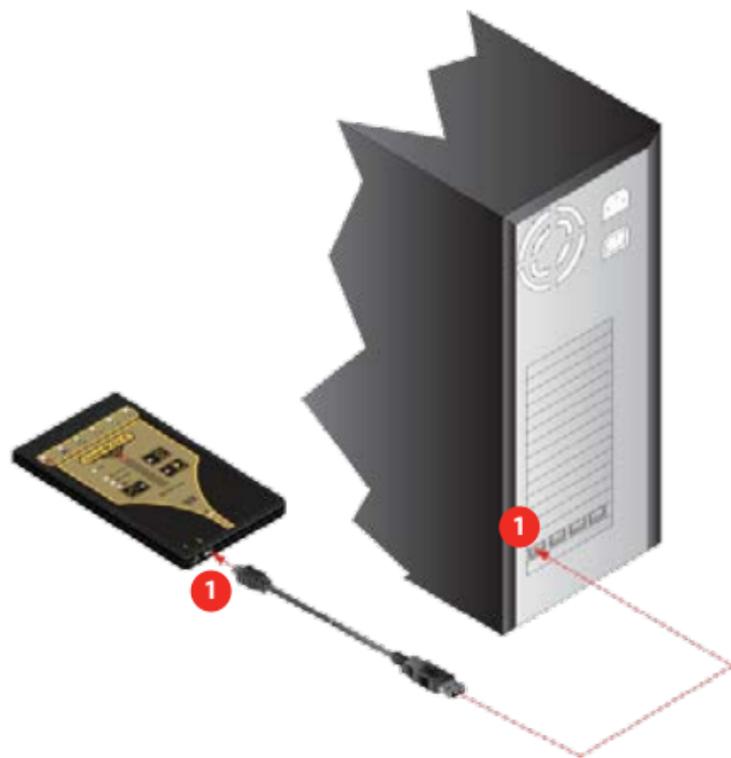
**Connector bridge:** This is where the M.O.L.E.<sup>®</sup> Profiler plugs into the RIDER.

**Coupon:** Sensors that record temperature data from the solder machine.

1. Insert the USB computer interface cable into a computer USB Port and the other end into the Data/Charging Port.



A completely discharged Power Pack takes about 8 hours to be fully charged. For quick charges, it can be charged for 15 minutes allowing one 10 minute data run to be performed.



## SETUP - CHARGING THE POWER PACK (SuperM.O.L.E.<sup>®</sup> Gold)

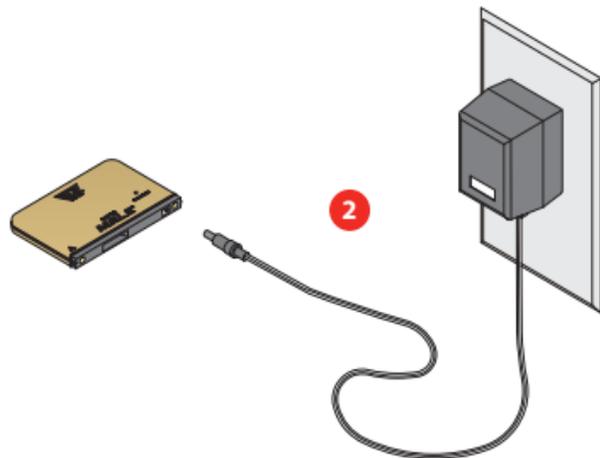
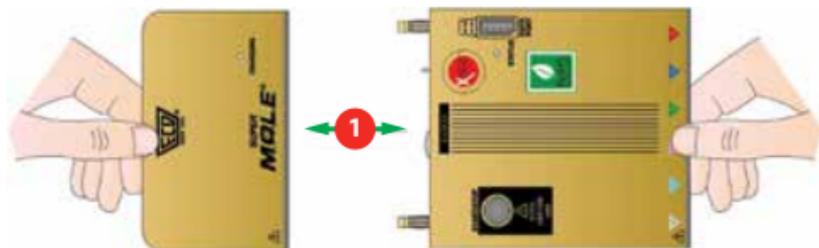
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1. Remove the Power Pack.
2. Plug the transformer end of the charger into a (120 or 230VAC) wall outlet and the connector end into the Power Pack.



A completely discharged Power Pack takes about 14 hours to be fully charged.

3. Once charged, reconnect to the M.O.L.E.<sup>®</sup> Profiler. The LED will flash once indicating that the M.O.L.E.<sup>®</sup> Profiler is ready to collect data.



1. Insert the Flash Drive in a USB Port and the AutoPlay menu appears.
2. Select **Open folder to view files** button on the AutoPlay menu to launch Windows® Explorer. Closely follow the instructions for your operating system. For detailed information view the **Installation Help** file on the Flash Drive.



The user must have administrator permissions for the computer to install the software

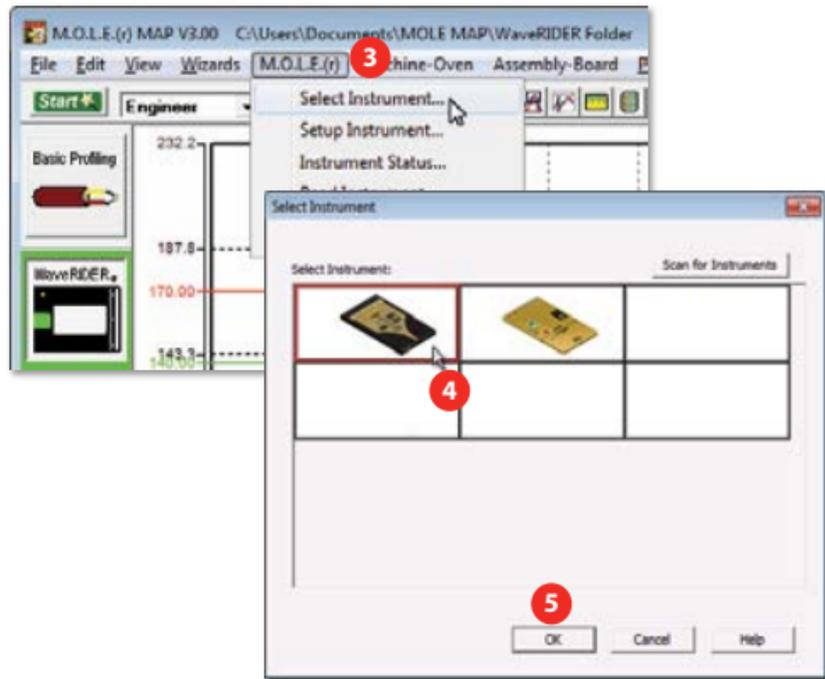


1. Plug the Computer Interface Cable into a computer COM Port and the other end into the M.O.L.E.<sup>®</sup> Profiler Data Port.

2. Start M.O.L.E.<sup>®</sup> MAP



3. On the M.O.L.E.<sup>®</sup> menu, click the **Select Instrument** command.
4. Select the desired instrument from the dialog box. If there are none displayed, click the **Scan for Instruments** command button to detect all available instruments.
5. Click the **OK** command button to accept.



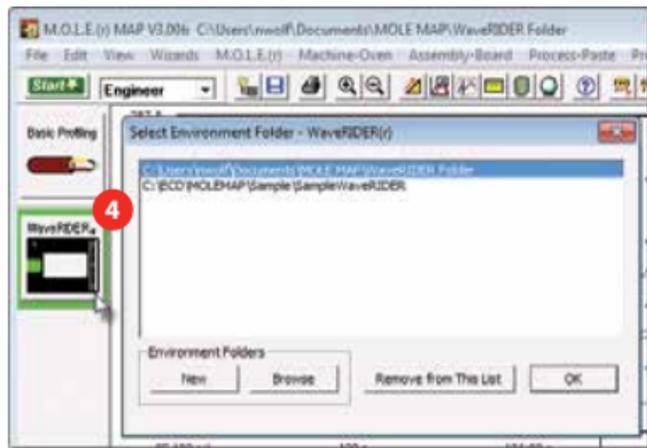
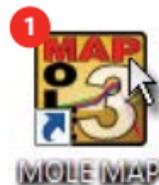
This operation procedure guides you through a typical process on how to set a M.O.L.E. Profiler up for performing a WaveRIDER® data run. For additional detail, consult the Users Help Guide in the software.

The M.O.L.E.® Thermal Profiler depends on the MAP (Machine-Assembly-Process) software to control how it collects and interprets data. Several kinds of data runs may need to be performed to achieve desired information, or the same data run may be performed repeatedly over time to monitor one process. Either way, each data run must be set up at least once.

The MAP software includes wizards that help you get started quickly, even if you are a beginner or infrequent user.

## Step I: Setup Instrument

1. Double-click the M.O.L.E.<sup>®</sup> MAP application icon to start the software.
2. Connect the M.O.L.E.<sup>®</sup> Thermal Profiler to a computer.
3. Make sure the M.O.L.E.<sup>®</sup> Power Pack battery is fully charged. When a M.O.L.E.<sup>®</sup> Thermal Profiler is selected, the software status bar displays the current battery voltage.
4. Set an WaveRIDER<sup>®</sup> Environment. Either open an existing Environment Folder or create a new one.





When navigating through the wizard, the step list on the left of the dialog box uses a color key to inform the user of the progression through the wizard.

 Current     Completed     Remaining

5. On the **M.O.L.E.<sup>®</sup> menu**, select **Setup Instrument** and the workflow wizard appears.
6. Select the desired M.O.L.E.<sup>®</sup> Thermal Profiler from the dialog box. If a M.O.L.E.<sup>®</sup> Thermal Profiler has already been selected during a different process, the software automatically selects the M.O.L.E.<sup>®</sup> Thermal Profiler connected to the COM port previously used.
7. Click the **Next** command button.

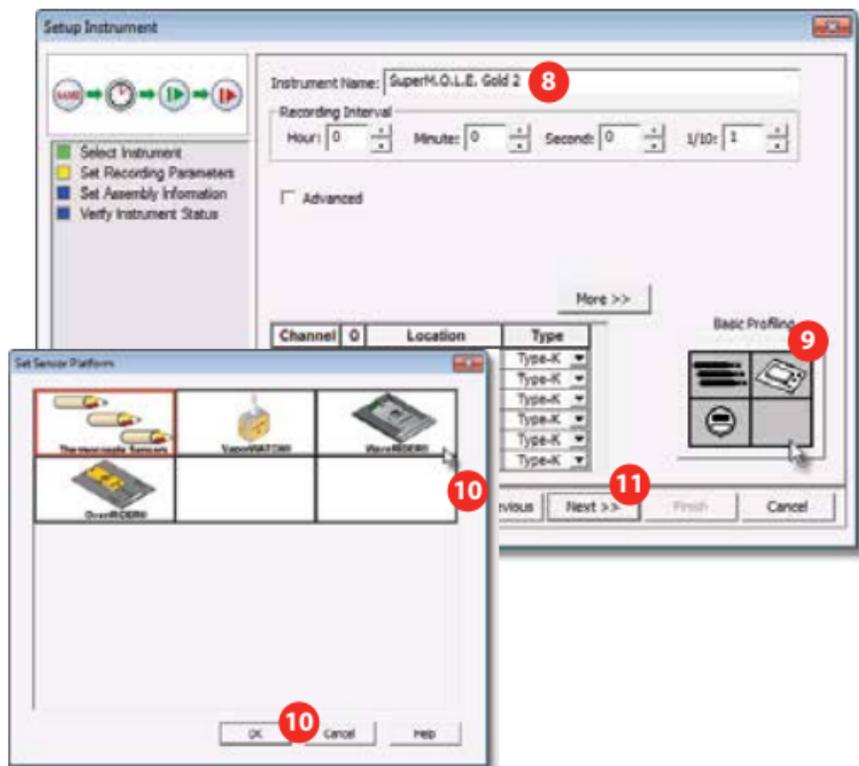


## 8. Set the *Instrument Name*.

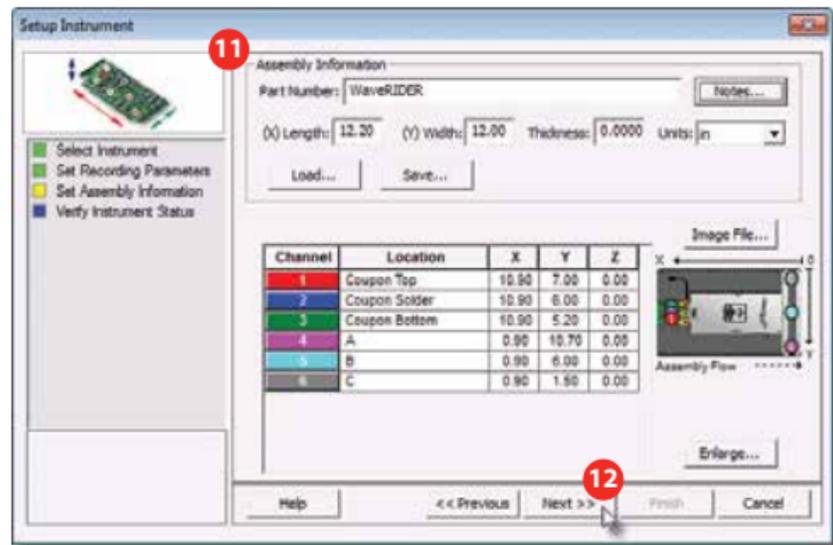


For settings such as **Start Parameters** and **Stop Parameters**, select the **More>>** command button.

9. Select the **Sensor Platform** button.
10. Select the WaveRIDER® then the **OK** command button to proceed.
11. Confirm the settings and then, select the **Next** command button to send the data listed in the dialog box to the instrument.



11. Confirm the assembly information.
12. Click the **Next** command button.

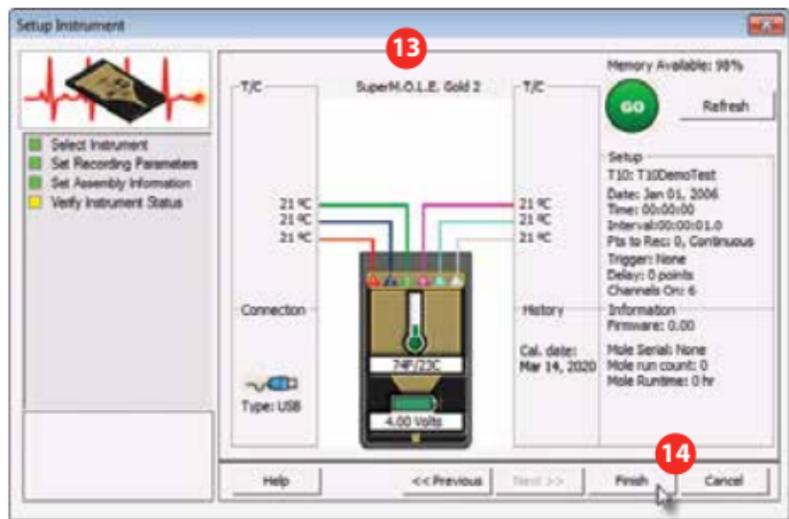


13. Verify the instrument status. This dialog box displays the health of the M.O.L.E.<sup>®</sup> Profiler such as battery charge, internal temperature, thermocouple temperatures.



If everything is **OK**, the dialog box displays a **GREEN** sign. If there are any items that may prevent the user from collecting good data, they are highlighted and a **RED** sign is displayed.

14. Select the **Finish** command button to complete the Setup Instrument wizard.

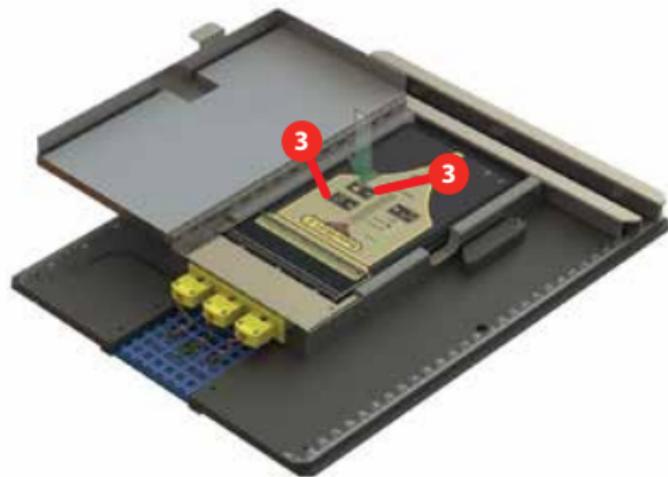


## Step 2: Data Collection

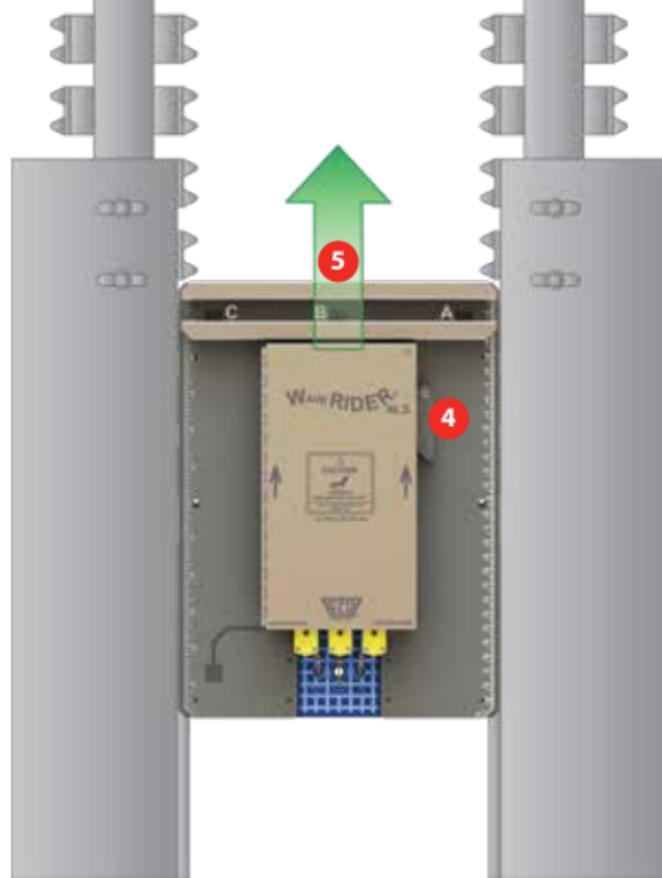


Never permit the M.O.L.E.<sup>®</sup> Thermal Profiler to exceed the absolute maximum warranted internal temperature, as permanent damage may result. The warranty will not cover damage caused by exceeding the maximum specified internal temperature.

1. Set the width of the conveyor to match the RIDER.
2. Set the solder wave, pre-heat temperatures and conveyor speed.
3. Connect the M.O.L.E. Profiler to the connector bridge in the Thermal Barrier, turn it "**ON**" and press the "**RECORD**" button.



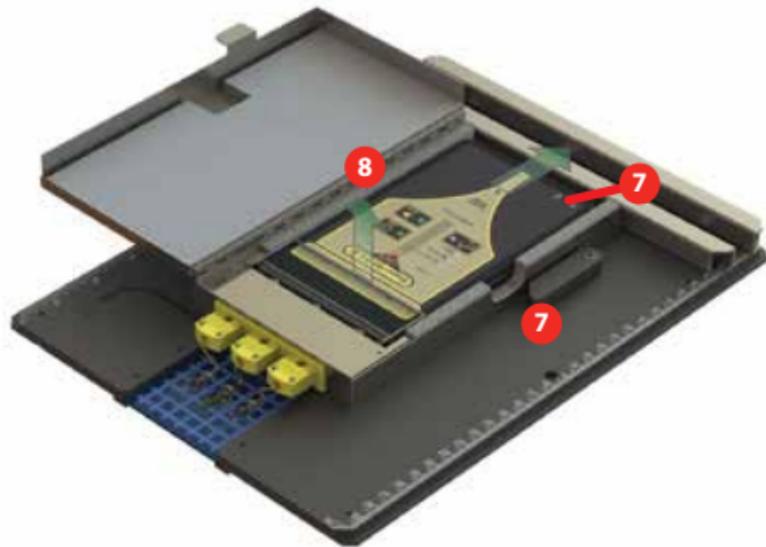
4. Close the barrier box cover and latch securely.
5. Place the RIDER on the Wave solder machine conveyor. Make sure the RIDER is fed into the machine in the proper direction. There are two arrows on the RIDER barrier that indicates the proper direction. When using a manual feed wave solder machine, hold the RIDER until the conveyor fingers have fully grabbed the RIDER.
6. When the RIDER has traveled through the wave solder machine, use protective gloves to retrieve it from the conveyor. The best way to handle the RIDER is to place one hand under the pallet and the other hand on the barrier box cover.





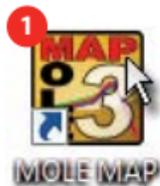
Now that the data collection is complete, it is important to open the barrier box to prevent the internal temperature of the M.O.L.E.® Profiler to rise above operating temperature specification.

7. Open the Thermal barrier and if the Record button is still flashing this means the M.O.L.E.® Profiler is still logging and it should be stopped.
8. Remove the M.O.L.E.® Profiler from the barrier box by pulling the extractor handle up. Wait a few minutes for the M.O.L.E.® Profiler to cool. Handle it carefully, as the case may still be warm.

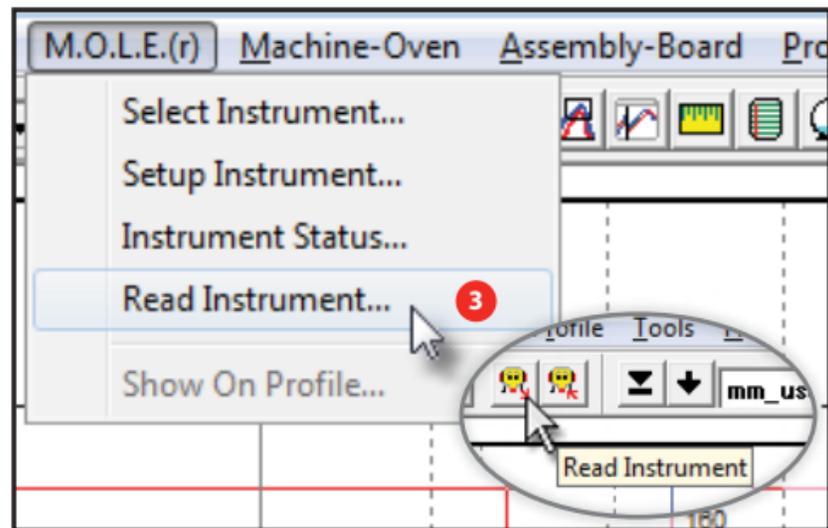


## Step 3: Download Data

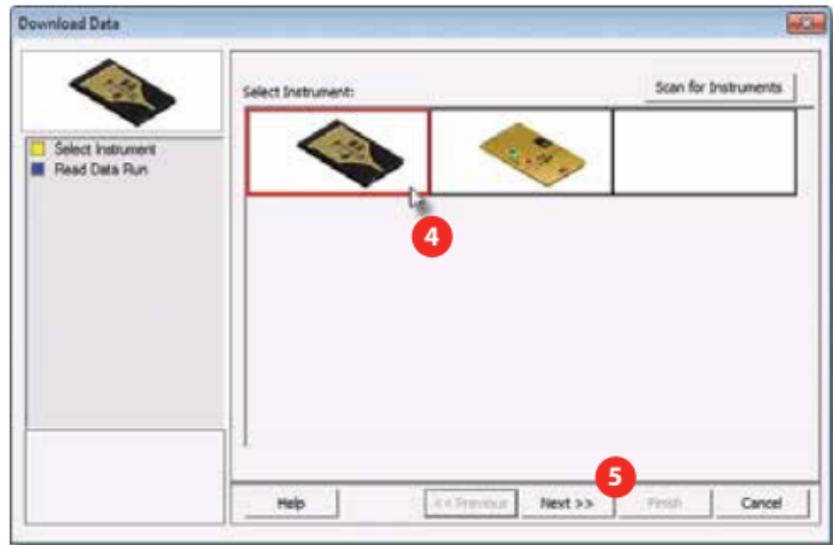
1. Double-click the M.O.L.E.® MAP application icon to start the software.



2. Connect the M.O.L.E.® Thermal Profiler to a computer.
3. Select the Read Instrument command from the M.O.L.E.® menu or toolbar and the workflow wizard appears.



4. Select the instrument from the dialog box that was used with the WaveRIDER®. If a M.O.L.E.® Profiler has already been selected during a different process, the software automatically selects the M.O.L.E.® Profiler connected to the COM Port previously used.
5. Click the **Next** command button.

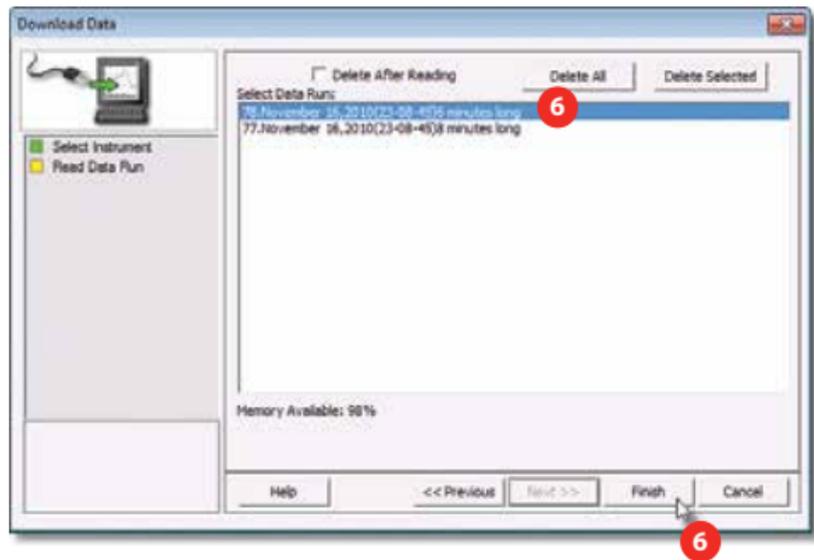


6. Select the desired data run and then click the **Finish** command button to complete the wizard and read the data run from the M.O.L.E.® Profiler. When the data run has been downloaded, the software will prompt the user to name and save the data run file (\*.XMG).



If a data run (\*.XMG) is saved in a different Environment Folder other than the currently selected, the software automatically activates the new Environment Folder. This process does not delete any data run files in the previously set Environment Folder and can be quickly accessed using the Recent Environment Folders on the File menu.

The information is automatically saved in the data run file (\*.XMG) and the experiment data can now be analyzed with the software tools.





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