

M.O.L.E.TM



Thermal Profiler

QUICK REFERENCE GUIDE

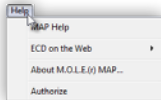


WELCOME	2
EQUIPMENT	
FEATURES/FUNCTIONS	3
STATUS ACTIVITY LED	4
HOME SCREEN	5
MAIN MENU	6
SETUP	
CHARGING THE POWER PACK	7
SOFTWARE INSTALLATION	8
SOFTWARE AUTHORIZATION	10
COMMUNICATIONS	11
OPERATION	
INTRODUCTION	13
STEP 1: SETUP INSTRUMENT	14
STEP 2: DATA COLLECTION	19
STEP 3: VIEW DATA	22
STEP 4: DOWNLOAD DATA	24






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.™ MAP Software.

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

- Select the **Help Button** on the **Toolbar**.
- Pressing the shortcut key **[F1]**
- On the **Help menu**, click **MAP Help**.





LED Color	Solid	Flashing
Green	Indicates thermal profiler is "ON" and idle 	Indicates thermal profiler is recording data. (Log Interval: 1 sec., flash each log, < 0.5 sec., flash 4 times per sec., > 1 sec., flash every 2 seconds) 
Yellow	Power ON. LED illuminated for 3 seconds during system check Indicates thermal profiler is "ON" and in RIDER mode 	- Indicates Profiler is recording RIDER data. (flash 4 times per second) 
Red	-	Flashes 5 times to indicate when the internal battery voltage is low or internal temp is at or above a threshold or all channels are OFF or when the memory is full 



1 Channel status indicators:

- Shows current sensor Temp.
- Grayed when disabled
- "N/C" if T/C not connected/open
- Touch opens Channel enable type selection screen

2 Date/Time:

- Displays the current date/time from the internal clock

3 Battery charge:

- Displays charge (0-100%)
- 20% resolution (5 steps)

4 File storage:

- Displays how full (0-100%)
- 10% resolution (10 steps)

**5 MOLE Temp:**

- Red if $>70C$
- Yellow if $>40C, \leq 70C$
- Green if $\leq 40C$

6 Rider Mode:

- Dimmed if not connected to a Rider pallet

7 Log interval:

- Displays the configured log interval

8 Menu button:

- Touch to open main menu screen



Log Interval:
 Start: hh:mm:ss.s
 Stop: hh:mm:ss.s
 Trigger:

Record Configure Screen

Profile:

Select Profile Screen

KPI Table:

Select KPI Screen

Month:
 Day:
 Year:
 Time: :

Date/Time Screen

Temp:
 Time:
 Slope:

Units Screen

OFF
 MAC: 00:00:00:00:00:00
 Pair Pin:

Bluetooth® Screen

Replaced: January/01/2022
 Charge: %

Battery Screen

Over Temp:
 Max Temp: °C
 Runs:

M.O.L.E. History Screen

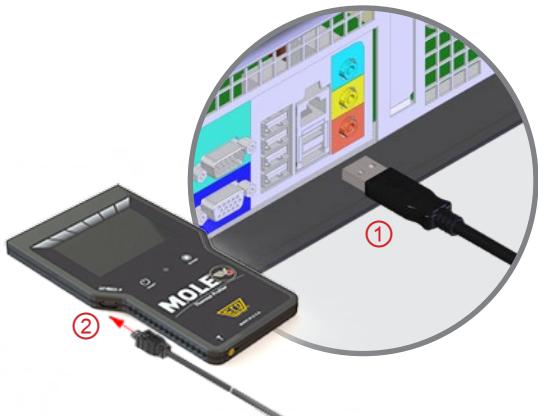
Firmware:
 S/N:
 Language:
 Cal Interval: months
 Backlite:
 Code:

Factory Screen

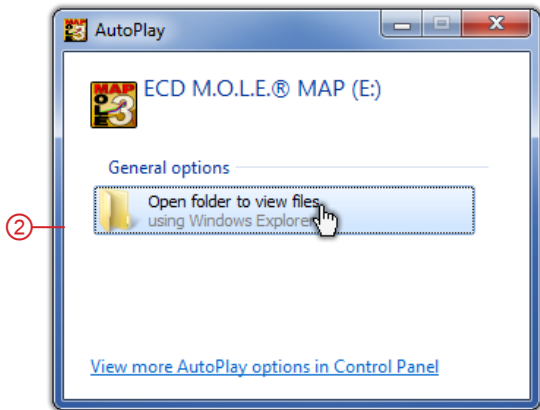
1. Insert the USB computer interface cable into a computer USB port
2. Insert the USB-C end into the data/charging port.



A completely discharged battery takes about 4 hours to be fully charged.

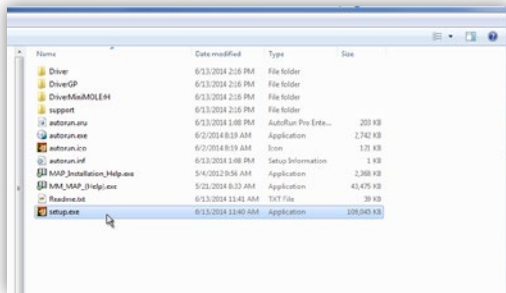


1. Insert the flash drive in a USB port and the AutoPlay menu appears.
2. Select **Open folder to view files** button on the AutoPlay menu to launch Windows® Explorer. Closely follow the instructions for your operating system. For detailed information view the **Installation Help** file on the flash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





Locate the **setup.exe** on the installation drive. Double-click the file to proceed.



An **Unlock Key** can be obtained via an online registration form or using the contact information supplied on the dialog box, contact ECD.

1. On the **Help** menu, click **Register** and the dialog box appears.
2. Select **Online Registration** and enter the required information on the M.O.L.E. MAP software Registration form.
3. Enter the 16-digit Unlock Key and then the **Register** command button to complete the software Registration.

MAP Registration

Manual Registration

Use the Registration Number below to obtain your Unlock Key.

Web: www.ecd.com/register
Email: register@ecd.com
Phone: +1 503 659 6100

Registration Number: 18978944

Unlock Key:

Help Ask Me Later Register

1. Plug the USB cable into a computer COM Port and the USB-C end into the M.O.L.E. thermal profiler data port. The AutoPlay panel appears in the lower right corner of the desktop. This panel displays the four most common MAP commands.
2. Select **Start M.O.L.E. MAP**

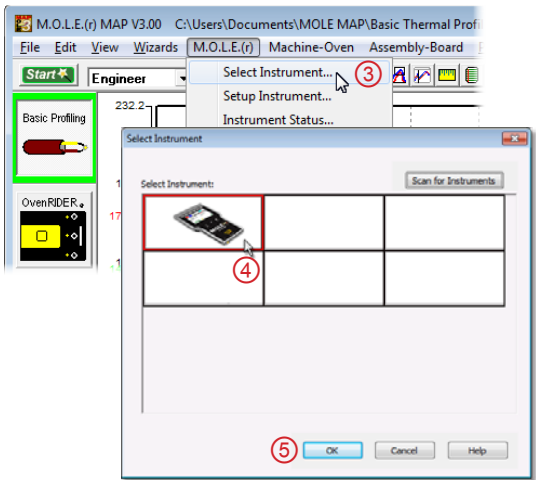


3. On the M.O.L.E. menu, click the **Select Instrument** command.
4. Select the desired instrument from the dialog box. If there are none displayed, click the **Scan for Instruments** command button to detect all available instruments.



Once a M.O.L.E. thermal profiler has been selected, the software automatically selects it if used again on the same COM port.

5. Click the **OK** command button to accept.



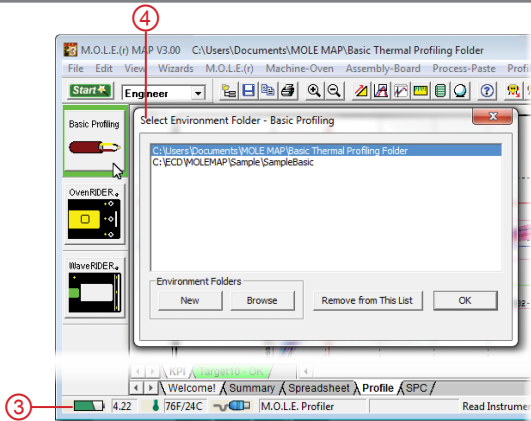
This operation procedure guides you through a typical process on how to set a M.O.L.E. thermal profiler up for performing a data run. For additional detail, consult the Help System in the software.

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 1: SETUP INSTRUMENT

1. Open the M.O.L.E. MAP software.
2. Connect the M.O.L.E. thermal profiler to the computer.
3. Make sure the M.O.L.E. battery is fully charged. When a M.O.L.E. thermal profiler is selected, the software status bar displays the current battery voltage.
4. Set an Environment. Either open an existing Environment Folder or create a new one.

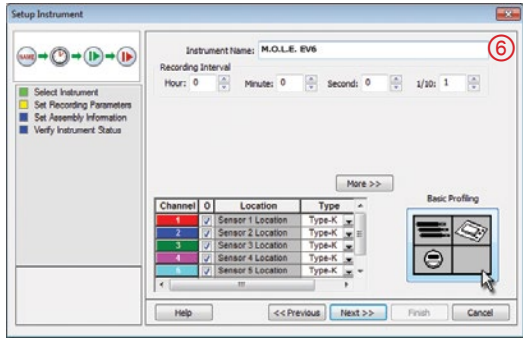




When navigating through the wizard, the step list on the left of the dialog box uses a color key to inform the user of the progression through the wizard.

- Current
- Completed
- Remaining

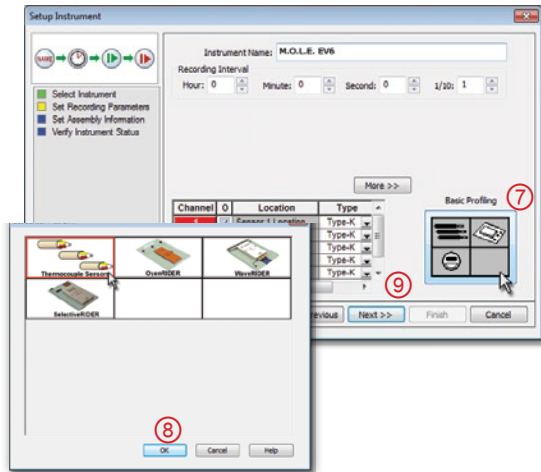
5. On the **M.O.L.E. menu**, select **Setup Instrument** and the workflow wizard appears.
6. Set the **Instrument Name**.



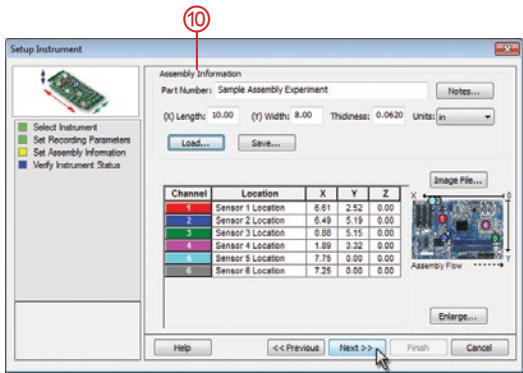


For settings such as **Start Parameters** and **Stop Parameters**, select the **More >>** command button.

7. Select the **Sensor Platform** button.
8. Select the desired sensors then the **OK** command button to proceed.
9. Confirm the settings and then, select the **Next >>** command button to send the data listed in the dialog box to the instrument.



- 10.** Confirm the assembly information such as the test **Product Description, size, sensor locations** and a **image**.
- 11.** Click the **Next** command button.

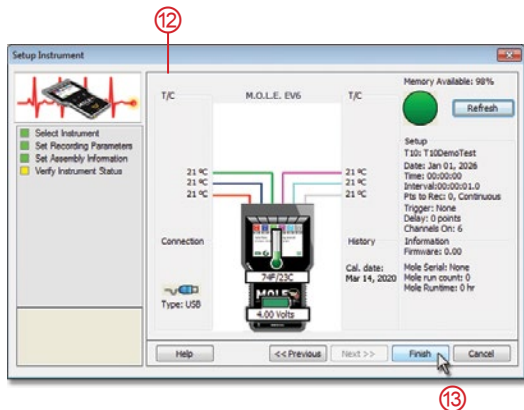


12. Verify the instrument status. This dialog box displays the health of the M.O.L.E. thermal profiler such as battery charge, internal temperature, thermocouple temperatures.



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.

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

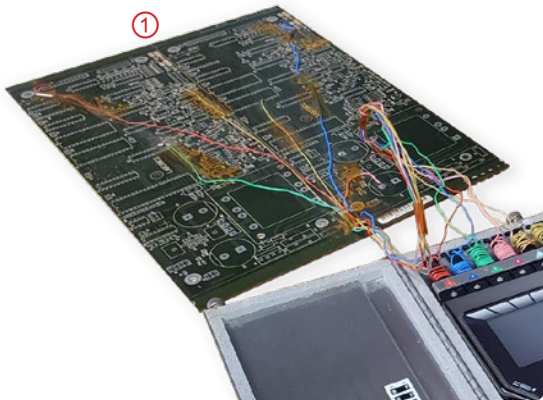


STEP 2: DATA COLLECTION

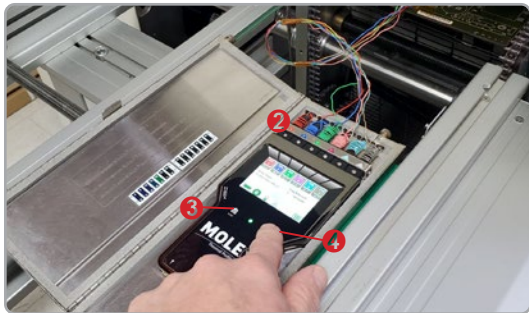


Never permit the M.O.L.E. thermal profiler to exceed the absolute maximum warranted internal temperature, as permanent damage may result. The warranty will not cover damage caused by exceeding the maximum specified internal temperature.

1. Attach the thermocouple sensors into the test product. Soldering is the most common method. This process will vary depending on the type of data you are trying to collect.



2. Connect the M.O.L.E. thermal profiler to the sensors.
3. Press the "ON" button.
4. Place the M.O.L.E. thermal profiler in the appropriate thermal barrier and press the "Record" button.
5. Close the thermal barrier making sure the sensor wires do not get pinched and the latch is secure.
6. Pass the thermally protected M.O.L.E. thermal profiler, and test product through the process.



When retrieving the M.O.L.E. thermal profiler and test product use caution as it may be warm.

7. As the M.O.L.E. thermal profiler and test product emerge from the process, retrieve the sensors from the test product and lay the thermal barrier on a table or flat surface.
8. Open the thermal barrier and if the Record button is still flashing this means the M.O.L.E. thermal profiler is still logging and it should be stopped.
9. Remove the M.O.L.E. thermal profiler from the thermal barrier and wait a few minutes for it to cool. Handle it carefully, as the case may still be warm.
10. Disconnect M.O.L.E. thermal profiler from the sensors and place it near the PC that has MAP installed.

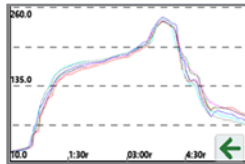
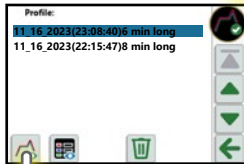


If sensors are removed before the M.O.L.E. thermal profiler has stopped collecting data, it may cause the data to become distorted.



STEP 3: VIEW DATA

1. Turn ON the M.O.L.E. thermal profiler by pressing the ON/OFF button.
2. From the **Home Screen**, press the **Main Menu** button.
3. Press the **Select Profile** button.
4. Select the desired thermal profile from the list.
5. Press the **View Profile** or **View KPI** button.

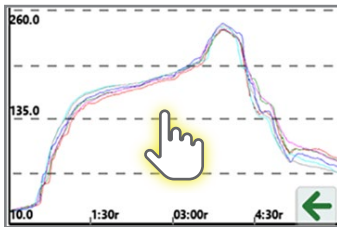




When viewing a thermal profile or KPI table, you can touch the screen to toggle between views.



To view the thermal profile KPI data, a table must be uploaded using MAP software. Refer to the Help System in MAP. When viewing a KPI table, you can select the desired KPI table that has been uploaded from the selector at the bottom of the screen.



A table selector interface. At the top, there are four colored blocks: purple, pink, blue, and red. Below them is a table with 6 rows and 4 columns. The first column contains numbers 1 through 6, each in a different color (red, blue, green, purple, cyan, grey). A hand icon is shown touching the table. To the right of the table are three vertical arrow buttons (up, down, and a larger down arrow). At the bottom, there is a dropdown menu showing 'SAC305' with a green checkmark. To the right of the dropdown are three arrow buttons (left, right, and a larger left arrow).

STEP 4: DOWNLOAD DATA

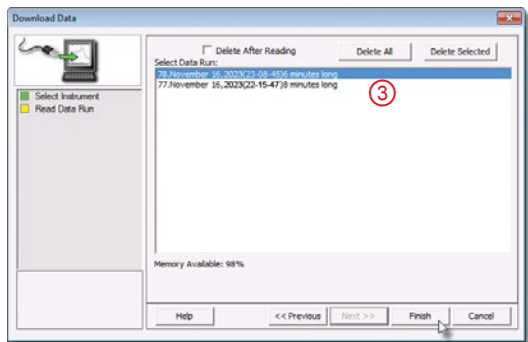
1. Connect the M.O.L.E. thermal profiler to a computer and the AutoPlay panel appears in the lower right corner of the desktop.
2. Select the **Read Instrument** command and the workflow wizard appears.



3. Select the desired data run from the memory list and then click the **Finish** command button to complete the wizard and read the data run from the M.O.L.E. thermal profiler.



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 or Welcome Worksheet.



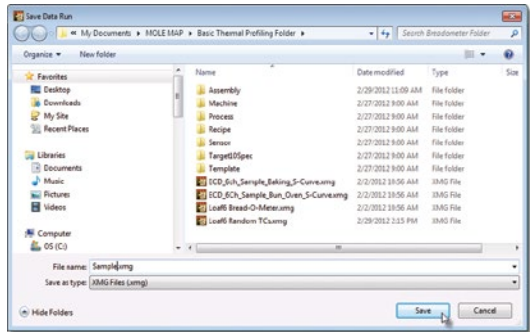
3

4. When the data run has been downloaded, the software will prompt the user to name and save the data run file (*.XMG).



To prevent data loss, it is recommended that data run files (*.XMG) are not saved in the M.O.L.E. MAP Sample Environments. Your Environment Folders should be in locations such as **Libraries**>**Documents**.

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





ECD WORLD HEADQUARTERS

(North America - US, Canada)
4287-B SE International Way
Milwaukie, Oregon 97222 U.S.A.
Tel: +1 800 323 4548
E-Mail: sales@ecd.com
Web: www.ecd.com

APAC

(Asia-Pacific, China, India)
Singapore Office
Mobile: +65 9692 6822
E-Mail: ecd.asia@ecd.com

EMEA

(Europe, Middle East, Africa)
UK Office
Mobile: +44 (0) 7903 252560
E-Mail: ecd.europe@ecd.com

LATAM

(Mexico, Central, South America)
Houston, TX U.S.A. Office
Phone: +1 503 659 6100 x 250
Mobile: +1 832 533 0046
E-Mail: ecd.latam@ecd.com

©2023 ECD. All Rights Reserved. Foreign and US Products of ECD are covered by US Patents and Patents Pending.

The trapezoidal ECD logo is a registered trademarks of ECD .M.O.L.E.™ (Multi-Channel Occurrent Logger Evaluator) is a Trademark.