9. INFRARED LENS

1. LCD

3. UP

8. MINI USB

7. MICRO SD

6. COLOR PALETTE

5. UNIT

10. TRIGGER

4. DOWN

2. MODE

11. BATTERY COVER

SETTING UP YOUR THERMAL IMAGER (TIM)

INSTALLING THE MICRO SD CARD

Before you begin to use your TIM, a microSD card must be inserted. A microSD card is a memory device that allows you to store images and videos recorded by your TIM. There is an 8 GB microSD card included in the product package. Please follow the steps below to insert the microSD card.

1. Please identify the 8GB microSD card, and remove it from its package.

microSD memory

microSD adapter

PLEASE NOTE: You can easily damage the microSD card by improper operation. Please be careful when inserting, removing, or handling the microSD card.

On one side of your TIM there is a rubber plug protecting the microSD slot and the USB connector from dust and damage. Please pull it up slightly and gently, and turn it 90° clockwise.

2. Insert the microSD card with the narrow side towards the slot, and the white lettering facing towards the screen.

Push it all the way inside the slot until you hear a "click", and the microSD card is now locked in place.

3. Once the microSD card is installed place the rubber plug back to secure the area against damage.

CAPTURING IMAGES AND VIDEO

You need to have a microSD card installed before taking images or videos with your TIM.To insert/remove a microSD card please turn off the unit.

USING YOUR TIM:

You can record the information being displayed as an image, or a video into the microSD card. To setup the file type, please follow these steps:

• Go to the **Main Menu**, by pressing **MODE**.

• Scroll down to **Save File as** option.
• Press the **TRIGGER** to enter to that sub-menu.
• Select the type of file you need: **Photo** (image) or **Video**.
• Press **MODE** to exit the **Main Menu** and go to the **main screen**.
• To Start/Stop capturing press the **TRIGGER**.

REVIEWING YOUR RECORDINGS ON YOUR TIM

You can review your recordings by pressing the UP/DOWN button from the main screen. (NOTE: The TIM will display only those file types you have selected on the Save File as menu).

USING YOUR PC

To use your TIM with the PC, you should have your TIM properly installed in your PC. If this is the first time you are connecting your TIM with the PC, please visit the next section **"Installing the TERMAL IMAGER(TIM) Software"** before continuing.

Once your TIM is fully connected to your PC you can use the supplied software to record the information being displayed as an image, a video, a binary data stream or a text file.

• Image File:

By pressing the **"Picture and Temperature Data"** button you will save a BMP (bitmap) file with a screenshot of what the thermal sensor is reading (same as the preview on your screen). These files are stored in the application folder.
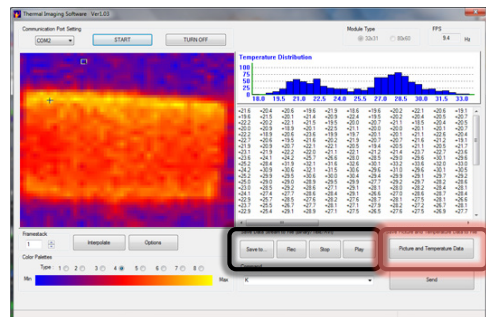

• Video/Binary Data Stream/Text file:

To record a video/binary data stream/text file you need to setup the storage folder first by pressing the **"Save To"** button and then specifying the file name and file type (AVI, BDS, TXT). When you are ready to record press the **"Rec"** button, and when you are done press the **"Stop"** button to stop the recording.

REVIEWING YOUR RECORDINGS ON YOUR PC

You can review the recordings made with your TIM in your PC if your PC is equipped with a SD card reader. If your PC does not have an SD card reader you may use an external SD card reader.

Turn your TIM off and remove the microSD card by pushing it further. You will hear a **"click"** indicating the microSD card is freely unlocked and can be pulled out. Place the microSD card into the supplied microSD card adapter. The adapter allows your microSD card to fit into normal SD slot in your PC (if available) and transfer your data easily.

BASIC OPERATION
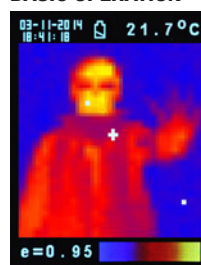
1. Power On:
   Press Trigger (10) to power on the unit.
2. Taking a thermal image and temperature:
   After power on, simply aim at the measure target with Lens (9) to get the thermal image and temperature immediately. Please make sure the target area is within the field of view.

Note: There are three cursors on the screen. One cursor shows the temperature of the object located in the middle of the screen. The other two moving cursors indicate the highest and lowest temperatures in the thermal image.

3. Save thermal images:
   Press Trigger (10) to save the thermal image to the micro SD card, press Up Key (3) or Down Key (4) to show the saved images. Press Mode Key (2) to return to the measurement screen. (The default mode is "Picture". You can select "Picture" or "Filter" mode first. Please see the "FUNCTIONS" section to learn how to setup the "Save mode".)

4. Color palettes:
   Press Color Palette Key (6) to select thermal image, (4 selectable color palettes).

IRONBOW   RAINBOW   HIGH CONTRAST   GRAY SCALE

5. °C/°F/°K:
   Press unit key (5) for °C, °F or °K units.

6. Power Off:
   Press Mode Key (2) for more than 3 sec. to power off the unit. Adjustable Auto Power Off time is set at 30 sec. from the factory.

FUNCTIONS

Press Mode Key (2) for display functions, press Up Key (3) or Down Key (4) to highlight the

function, then press Trigger (10) to confirm. Use the arrows to change the value. Press the Trigger to save and Mode to return to normal functioning.

E	The default emissivity is 0.95, or select other default emissivity: **Matt: 0.95, Semi-matt: 0.8, Semi-glossy: 0.6, Glossy: 0.3** Select Set Value to adjust the emissivity (0.1 to 1, in 0.01 steps)
HAL LAL	You can select HAL or LAL to adjust the High Alarm (HAL) or Low Alarm (LAL) limits.
Power off	The default setting is "Auto off 1 min", you can select other default values: 5, 10, 20 minutes or "No auto off". Manually power off the device by pressing Mode Key (2) for 3 seconds.
Backlight	Select low, middle or high
Set time	Set the date and time in **MM/DD/YYYY** (month/day/year) and **HH/MM/SS** (hour/minute/second) formats.
Time stamp	Turn on **Time Stamp** to save thermal images with time stamp. Turn off **Time Stamp** to hide date and time on stored thermal images.
Erase file	Select **All picture!** to clear all stored thermal images. Select **All movie!** to clear all stored videos.
Save mode	Select **Picture** to save thermal images in image mode. (BMP and Excel formats) Select **Movie** to save thermal images in video mode.
Noise filter	Turn on **Filter** to reduce noise in an image. Turn off **Filter** to display real image noise.

STORAGE & CLEANING

The thermal imaging camera should be stored at room temperature. The sensor lens is the most delicate part of the thermometer. The lens should be kept clean at all times, care should be taken when cleaning the lens using only a soft cloth or cotton swab with water or medical alcohol. Allowing the lens to fully dry before using the thermometer. Do not submerge any part of the thermometer.

BATTERIES

The thermometer incorporates visual low battery indication as follows:

"Battery OK":
Measurements are possible

"Battery Low":
Battery needs to be replaced, measurements are still possible

"Battery Exhausted:
Measurements are not possible

• When the 'Low Battery' icon indicates the battery is low, the battery should be replaced immediately with 4 AA, 1.5V batteries.
• **Please Note:** It is important to turn the instrument off before replacing the battery otherwise the thermometer may malfunction
• Dispose of used batteries properly and keep away from children.

SPECIFICATIONS:

Thermal Image Resolution:	32 x 31
Measurement Range:	-20 to 350°C (-4 to 662˚F)
Accuracy(Tamb=20~26°C):	±2% of reading, or 2°C (4°F) whichever is greater
Thermal Sensitivity:	0.1°C
Frame Rate:	9Hz
Field of View:	33 x 33 deg
Emissivity Range:	0.95 default - adjustable 0.1 to 1 (in 0.01 steps)
Focus:	Focus free
LCD (inch):	2.8
LCD type:	Color
Image Storage:	Store up to 25000 images/GB, BMP format.
Memory Type:	Support 8G micro SD card
Spectral Range:	8.14um
Interface:	USB
Battery Type:	AA*4
Battery Life (with backlight):	6 hrs continuous use
Dimensions:	94.65 x 74.03 x 233.68 mm (3.73 x 2.91 x 9.20 inch)
Weight:	0.4 kg (14.1 oz) Including batteries (AA*4pcs)

EMC/CRFI: Reading may be affected if the unit is operated within radio frequency electromagnetic field strength of approximately 3 volts per meter, but the performance of the instrument will not be permanently affected.

INSTALLING THE THERMAL IMAGER (TIM) SOFTWARE

Before the TIM is connected to the computer for the first time the **Auto Power Off** settings must be adjusted; so, the system will have enough time to detect the TIM and install the drivers needed.

• Turn ON the TIM by pressing the **TRIGGER**.
• Go to **Main Menu** by pressing the **MODE** button.
• Use the arrow keys to highlight the **Auto Off** option and press the **TRIGGER** to confirm.
• By default the **Auto Off** is set to **1 minute**. Please change it to **10 minutes** (only for the first time)

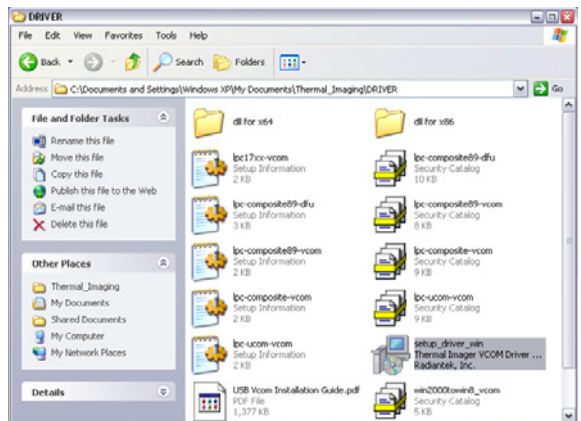### METHOD 1: USING THE SETUP (RECOMMENDED)
STEP 1
Copy the ZIP file supplied containing all necessary files into a folder (i.e. My Documents) and extract all files.
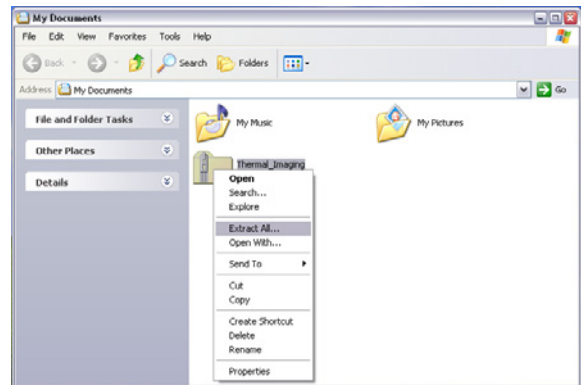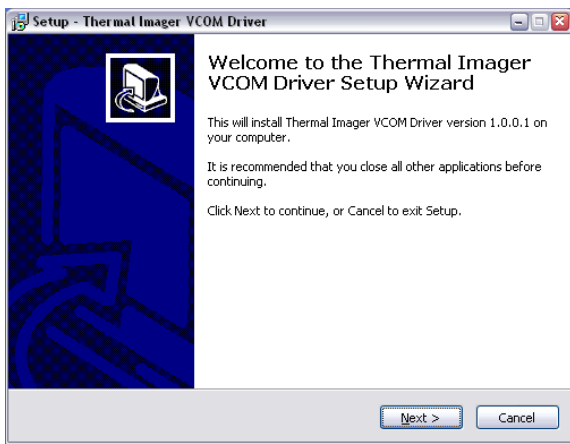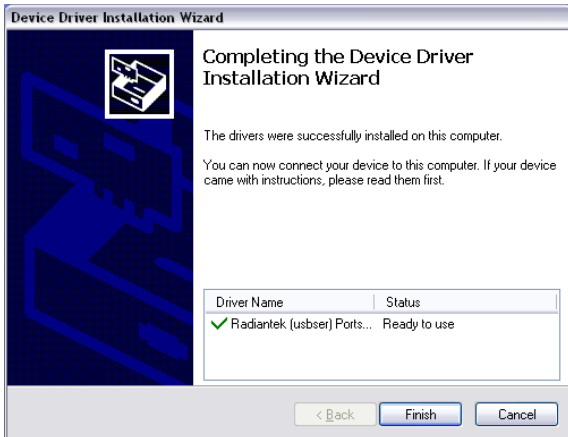

STEP 2
Get into the folder created after extracting all files (i.e. Thermal_Imaging) and there open the DRIVER folder. Look for the file setup_driver_win and open it by doing double-click on it.

The Setup process will start. Follow the on-screen instructions.

At the end you will have a screen displaying that the Radiantek drivers needed were successfully installed.

If you have some issues using the setup_driver_win file, you may need to install the drivers manually. Please visit the alternative "METHOD 2: Manually install the drivers"; otherwise, please visit the next section "SECTION 3: Running the THERMAL IMAGER(TIM) Software".

METHOD 2: MANUALLY INSTALL THE DRIVERS
STEP 1
Connect the TIM to the computer using the supplied cable.

The small end of the cable goes into the TIM USB port (covered by a rubberized cap) whereas the bigger end goes into one of your PC USB ports.

Once the TIM is connected for the first time Windows will try to identify the device attached to the PC.

Since the driver is not installed yet you will get an Error message.
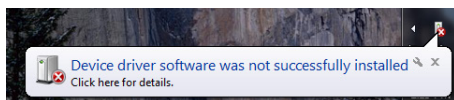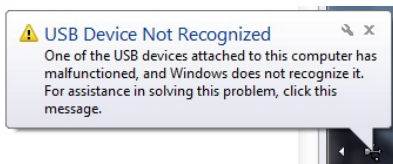
So, in the next step you will provide Windows with the appropriate program.

STEP 2
Now, it's time to install the driver for the TIM. Thus, we need to open the Device Manager

(component in the Control Panel).

Windows Control Panel is a collection of components used to configure the system. One of these components, the Device Manager, is used to see what devices are installed in the computer, change their settings, or update their drivers.

So, go to Control Panel.

Click on the Start Button.

Click on Control Panel (on the right-hand pane of the Start Menu).

Sometimes you can't see the Control Panel option because you may be using a customized version of Windows 7. So, if this is the case, type Control Panel in the Search Box (this box is located at the bottom of the Start Menu and has a magnifying glass in it) then choose Control Panel from the list of results.
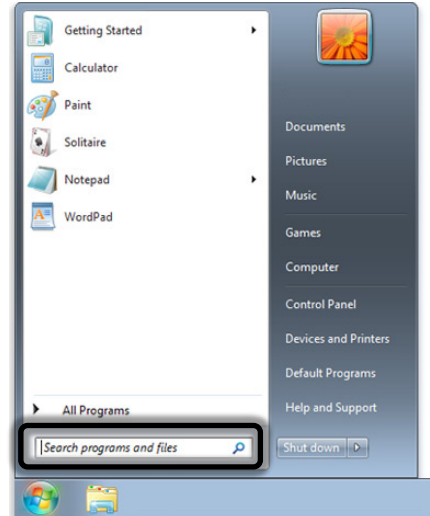

By default, Windows 7 Control Panel organizes all tasks in Categories. This view can be changed to Large icons or Small icons (which makes finding the component needed much easier). So, change the View to either Large icons or Small icons, and then select Device Manager.

Once the Device Manager opens up you will see your tool connected but not recognized by Windows (a yellow question mark is on the device's icon).
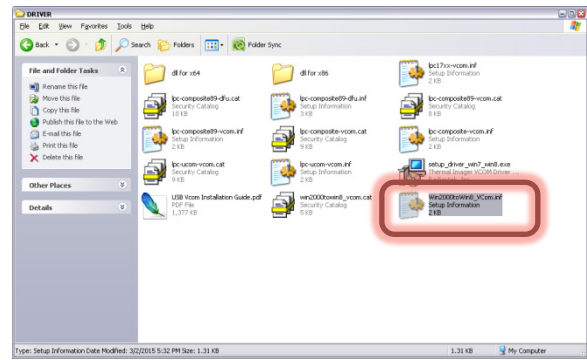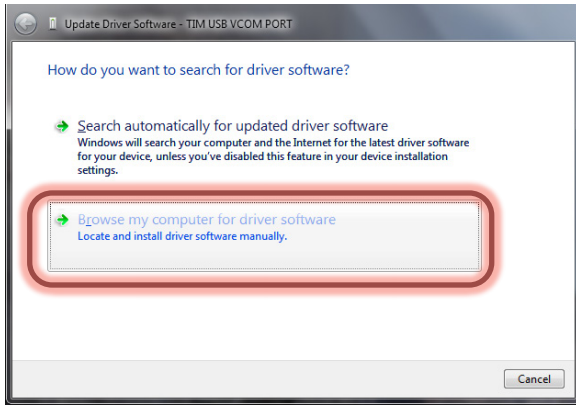
Your tool is under Other devices branch by the name of TIM USB VCOM PORT.
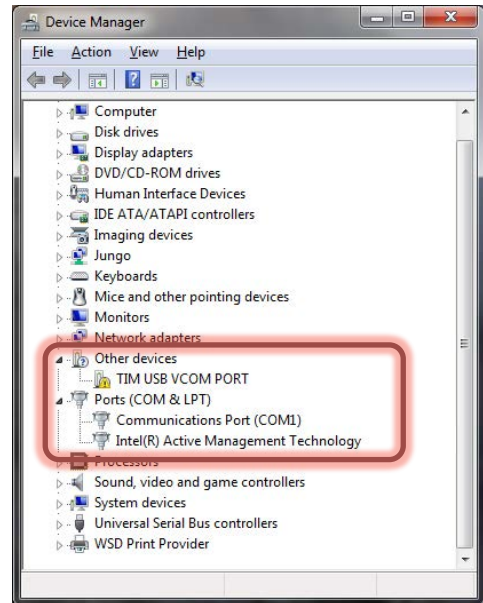
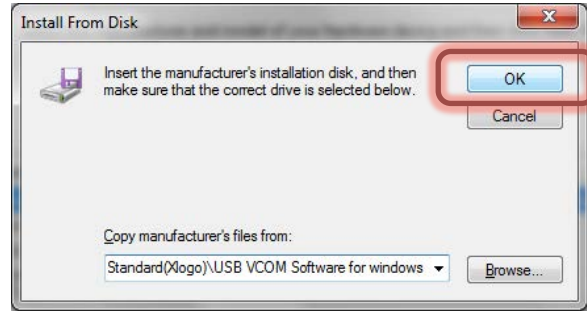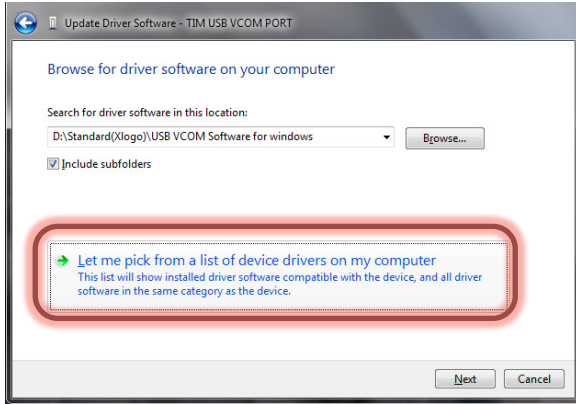Do a right click on TIM USB VCOM PORT, and select the Update Driver Software option.
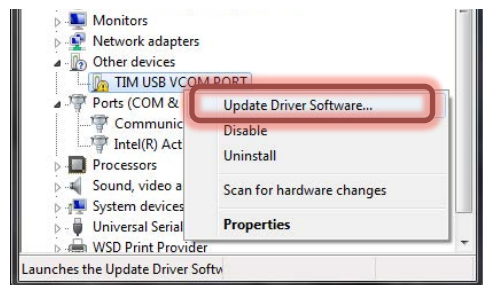
On this screen select Browse my computer for driver software. Go to the folder you first extracted the ZIP file and open the DRIVER folder.


On the next screen select Let me pick from a list of device drivers on my computer.

On the next screen click on Have Disk.

On the next screen you need to select the driver from the DRIVER folder; so, click on Browse, and go to the folder you first extracted the ZIP file and there you will find the DRIVER folder.

There select Win2000toWin8_VCom.inf and then click on Open.

Then, click on OK.

In the next screen, Windows will display the driver you are about to install TIM USB VCom Port.
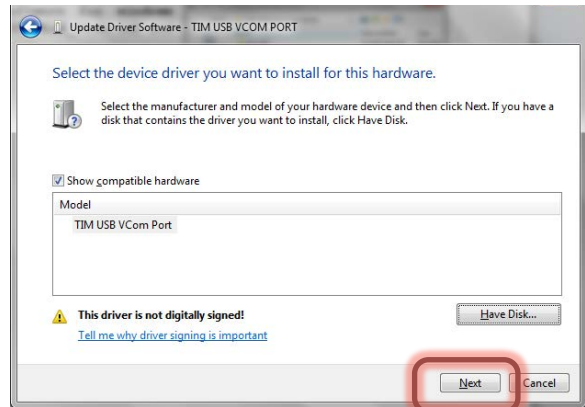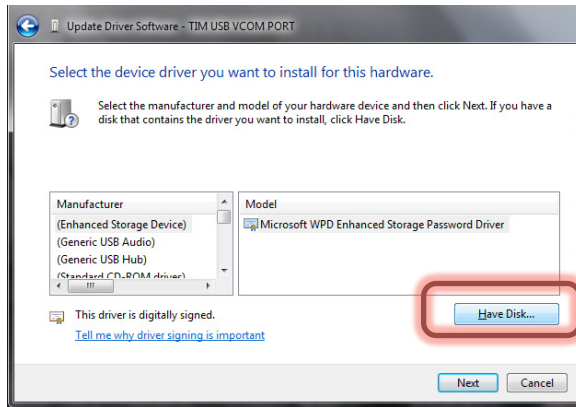
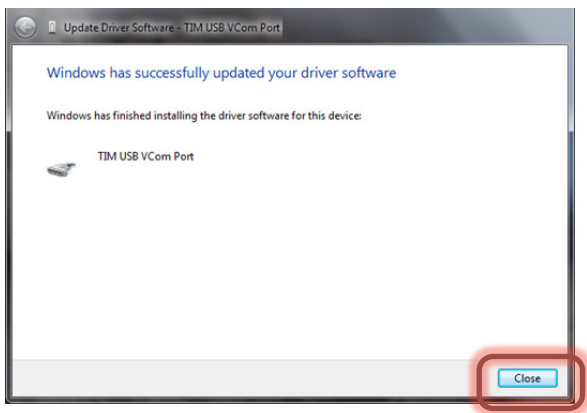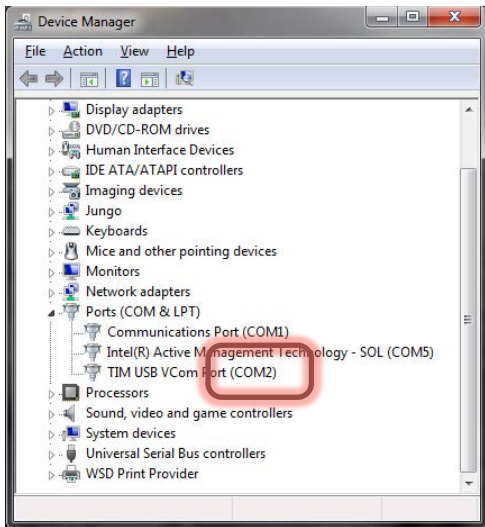Since the driver is not digitally signed a warning screen will pop up, click on Install this driver software anyway.
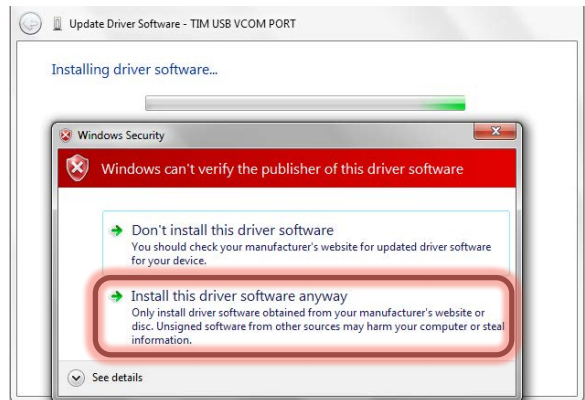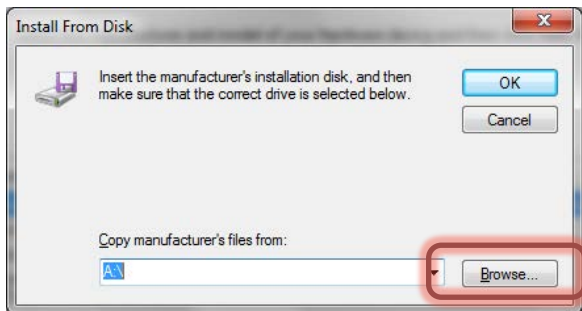
Windows will install the driver for the TIM.

Driver installed successfully. Click on Close.

The Device Manager will tell you what port is the TIM attached to. In this case COM2.

NOTE: if the TIM shuts off before the driver is installed you will get an error.
If you get this error just unplug the TIM from the PC, turn it on and plug it back to the PC. Windows will automatically assign the proper driver.

## RUNNING THE THERMAL IMAGER SOFTWARE
Get into the folder initially created after extracting all files (i.e. Thermal_Imaging) and there open the file ArraySW.exe by doing double-click on it.
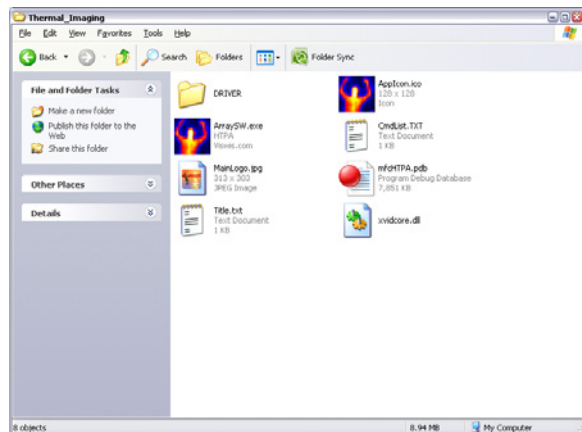
Note: Please RUN the Thermal Imaging program from your hard drive.
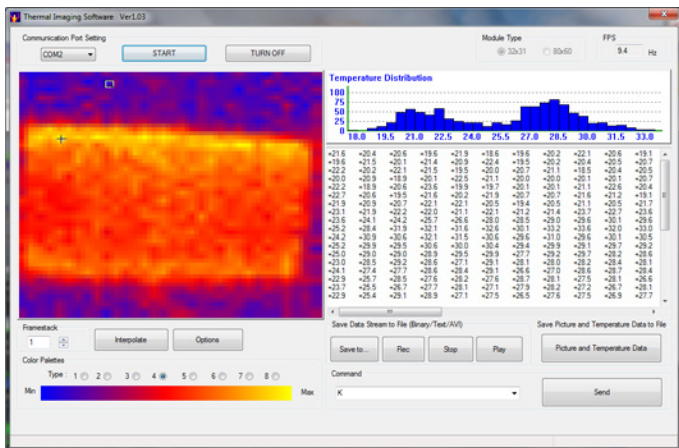
Once the TIM software shows up.
• Select the port the TIM is connected to (in this case COM2).
• Then click on START.
• Point the TIM at the target location.
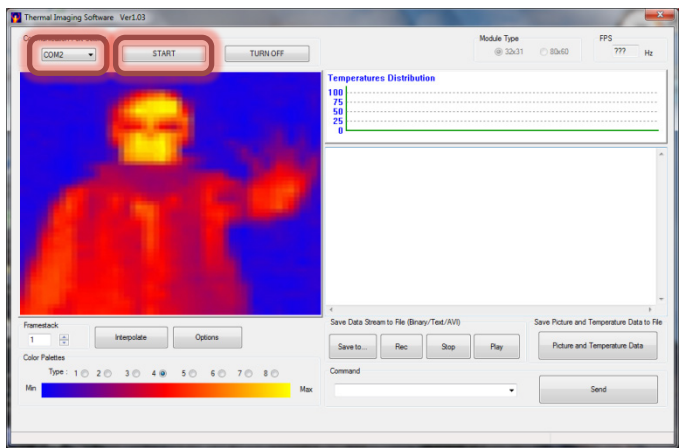
• Once the TIM is in sync with the application the message "Output to PC. Please connect USB cable" will be displayed on the TIM's screen.

Also your target's heat signature will be displayed on the PC.

• When you are done click on TURN OFF to close the connection between the TIM and the PC, then close the application.

View other diagnostic & testing tools made by Mastercool on our website.