1 YEAR WARRANTY

CE

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User's Guide

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Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

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1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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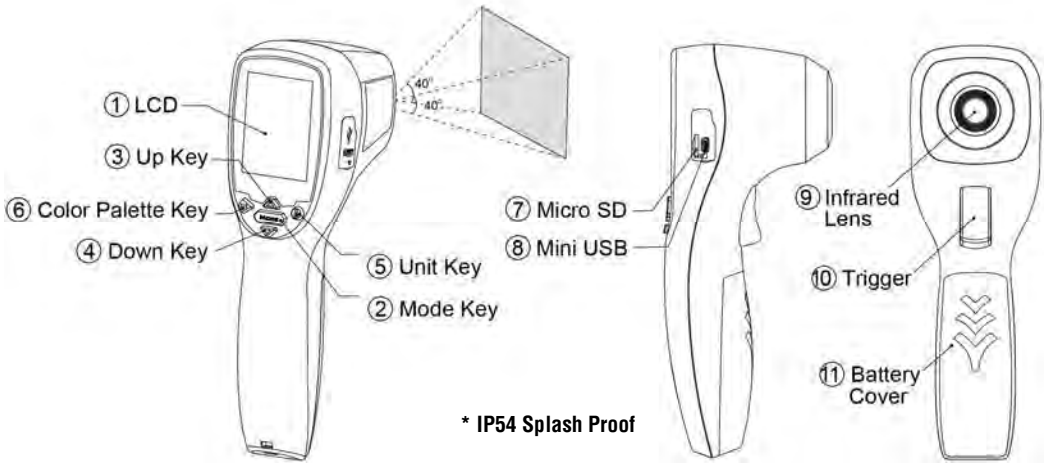
M5410/0714

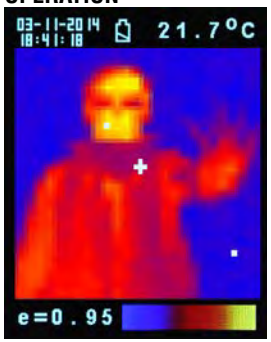
Operating Manual for OSXL-TIM3 Thermal Imager Camera

The thermal imager camera can measure from -20~250°C (-4~482°F) and displays the thermal image and temperature. Furthermore, thermal images can be saved to a micro SD card. Transferring images to the software is in cluded for image report generation from these saved images.



*** IP54 Splash Proof**

OPERATION



1. Power on
   Press Mode Key (②) or Trigger (⑩) to power on the unit.
2. Taking a thermal image and temperature
   After power on, simply aim the thermal imager camer a at the measure target with Lens (⑨) and 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. The cursor shows the temperature of the object located in the middle of the screen. 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) again to return to the measurement screen.
4. Color palette
   Press Color Palette Key (⑥) to select the color palette (4 selectable color palettes) to view thermal images.

5. ℃/°F/K
   Press Unit Key (⑤) for ℃、°F or K transferred.
6. Power off
   Press Mode Key (②) for more than 5 sec. to power off the unit. Autopower off time is around 30 sec..

FUNCTIONS

Press Mode Key (②) for scrolling more display functions, then press Up key (③) or Down key (④) to change the functions, then press Trigger (⑩) to confirm it.

Emissivity	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 step .01).
HAL	You can select **Set Min temp** or **Set Max item** to adjust the **High Alarm (HAL)** or **Lo Alarm (LAL)** limits (step .1).
LAL	
Language	Selectable **Chinese** or **English**
Backlight	Selectable 5 levels of brightness.
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 real-time stamp. Turn off **Time stamp** to hide date and time on stored thermal images.
Erase Image	Select **Yes, All image!** to clear all stored thermal images.
Reset	Select **Reset** to recover the factory setting data.
Set parameter	Select **Use Median Value** to reduce noise in an image. Select **No Filter** to display real image noise.

STORAGE & CLEANING

It 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 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 battery promptly and keep away from children.

SPECIFICATION

Thermal Image Resolution	32*31
Measurement Range	-20~250°C (-4~482°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	40*40 deg
Emissivity Range	0.95 default – adjustable 0.1 to 1 step .01
Focus	Focus free
LCD (inch)	2.8
LCD Type	Color
Image Storage	Stores up to 60000 images/GB, BMP format.
Memory Type	Support 8G micro SD card
Sensor Filter (um)	8~14um
Interface	USB
Battery Type	AA*4
Battery Life (hr)(backlit)	6
Dimensions	94.65 x 74.03 x 233.68mm (3.73 x 2.91 x 9.20 inch)
Weight	411 grams(14.5 oz) including batteries (AA*4pcs)

⚠ **EMC/RFI:** Readings 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.

Software Operating Instructions: OSXL-TIM3

STARTING UP

First you have to connect the application set to the power supply and the PC. Then start "**TIM03ArraySW.exe**".

The next step is to initialize the interface. Depending on your system you have to choose the pursuant COM Port. You have to regard the following steps:

1.) Connect the USB jack. If you want to connect the device directly to the computer, you have to use USB cable.

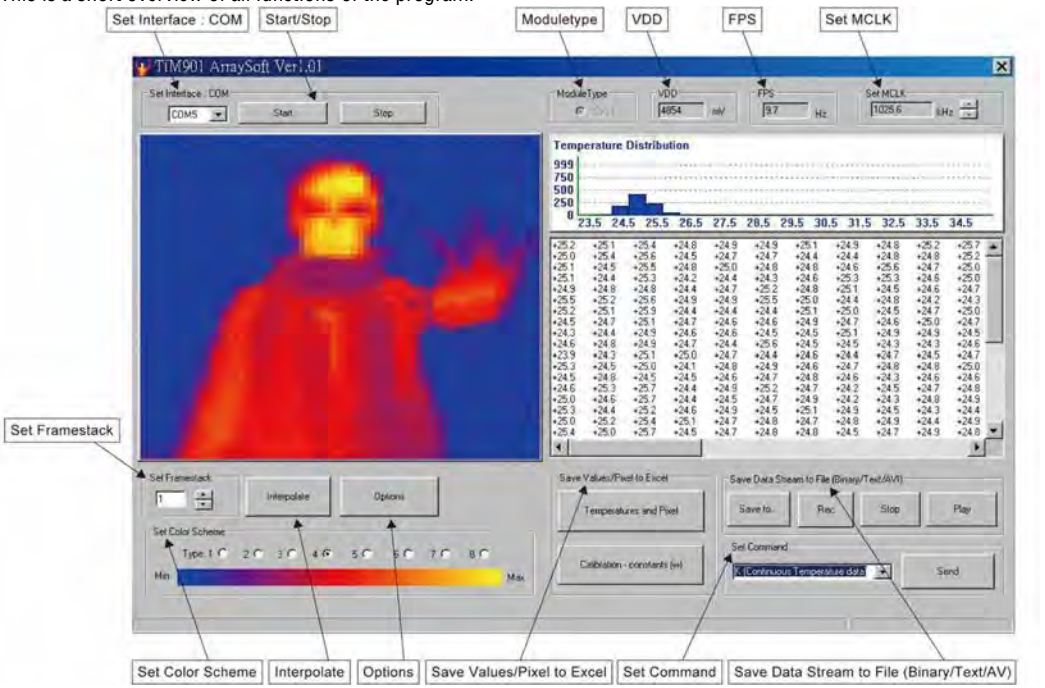
2.) Power up the device by connecting the power jack.

3.) Select " COM* " in the Interface-Combo-Box.

4.) Click " Start " in the Interface-Button. If TIM 03 is present, the GUI will show data in the dialogue.

PROGRAM FEATURES

This is a short overview of all functions of the program:



As you can see in the screenshot some elements are information-giving others are for control. First we will discuss the information giving elements:

Item	Function
Pixel Screen	The Pixel Screen shows a calculated RGB-Value for the temperature or voltage each thermopile sees.
Voltage/Temperature Distribution of all Pixels	This field shows a histogram. It represents the distribution of voltages or temperatures.
Pixel Voltage/Temperature	This field shows the voltage or temperature of all thermopiles.
False Color Scale	The False Color Scale shows the range of the chosen color scheme and the minimum and maximum Value in the Pixel Screen.
Single Pixel Information	Single Pixel Information shows several information of a pixel selected at the Pixel Screen by mouse or keyboard (use arrows).

Note: If a setting in any dialogue-box is changed, it must be confirmed with ENTER.

The control elements are:

Item	Function
Set Interface : COM	Determine your COM port. Protocol specifications :Transfer rate 460800 baud, 8 bata bits, no parity, 1 stop bit, NONE
Start/Stop	Starts and stops capturing of data.
Moduletype	Thermopile sensor array is 32*31
VDD	Show Power supply voltage (3.3VDC ±2%, 300mA)
FPS	Show Frames per second.
Set MCLK	The clock for the ASIC, delivered by the microcontroller, can be decreased. So the ASIC works slower. In temperature mode a decrease of the MCLK results in incorrect temperatures.
Set Framestack	Framestack allows integrating over multiple pictures for better quality because of noise reduction by accepting a lower frame rate. The Framestack can get a size between 1 and 300.
Interpolate	Interpolation simulates a higher resolution, from 32x31 to 128x127 pixels for example.
Set Color Scheme	There are eight different color schemes available.
Save Values/Pixel to Excel	Temperatures and Pixel: saves Temperature- values table to Excel(TIM_TempV_*****.xls) saves Pixels to Excel(TIM_Temp_*****.bmp)
	Calibration-constants(w): shows Calibration-constants in GUI and saves data to Excel (TIM_CalC_*****.xls)
Save Data Stream to File (Binary/Text/AV)	The data stream can be saved in a binary or a text file. For analysis the text files are easier to handle. First click "Save to…" and enter name, file type and destination where you want it to save. If you are using a text file, you can enter the starting-pixel and the amount of pixels stored after that. For example, entering 5 and 3 means the pixels 5, 6, 7 will be stored. This option does not exist for binary files. To begin data capturing click "Rec" in the Save to File-Box. The Button is highlighted red, as long as data capturing proceeds. You can stop recording by pressing "Stop" in the Save to File-Box. The red highlighting of the Rec-Button disappears. If you want to play the stored stream with your program, press "Play". A new window appears. Press "Open stream…" and open the desired file. Now enter the Frame rate, press enter and confirm with play. It is also possible to reduce the size of the file by setting the figure in the "Every Frame"-field to a different amount. When "Every Frame" is set to 6, for example, then only each sixth frame is recorded. This value is also used, when a recorded data stream is played.
Set Command	"K": send continous binary temperature datastream(Uc-adc)[K*10]
	"k" : read single temperature frame.
	"x" : stops stream without prompt.
Options	Set temperatures in Kelvin/degree Celsius. Set mirror frame: X-Axis/Y-Axis/Both.

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