

EVB90637

User manual

Dear Melexis Customer,

Thank you for your interest in the MLX90637 infrared temperature sensor.
In this document, the hardware and software for the MLX90637 Evaluation kit is described.

For software and manual please contact Melexis.

Check our website for more information www.melexis.com or contact your distributor.

1. Introduction

The EVB90637 is an easy interface between the SMD MLX90637 infrared thermometer and a Windows PC.

With this evaluation board one can quickly and easily perform a first test with the [MLX90637](#).

It also gives access to the internal settings of the sensor to adjust the sensor to a specific application by changing optical window compensation constants, the refresh rate or the I²C address of the sensor.

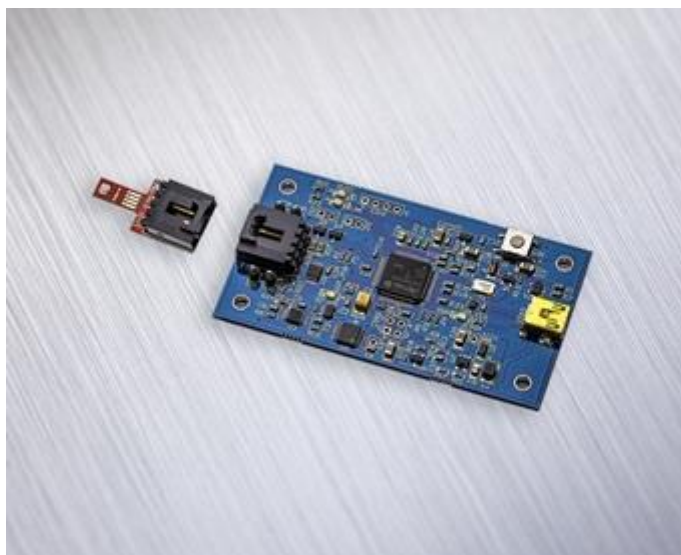


Figure 1 EVB90637

2. Hardware

- Comes with two MLX90637KLD-BCB-000 soldered on separate break-out boards with a red soldermask;
- Cable for connecting EVB with sensor;
- USB controller with USB Mini-b connector. Note: the new revision of the USB controller will be with a red PCB solder mask;
- Test pins to sniff the I²C bus.

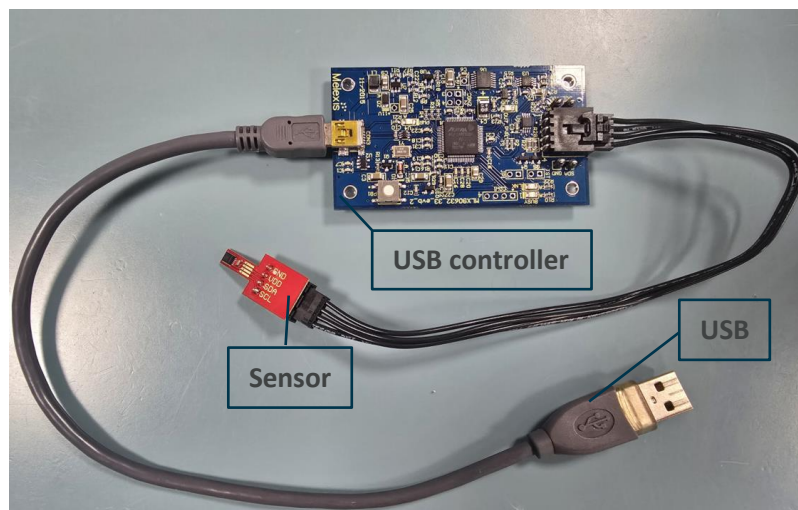


Figure 2 The controller - wired with a sensor

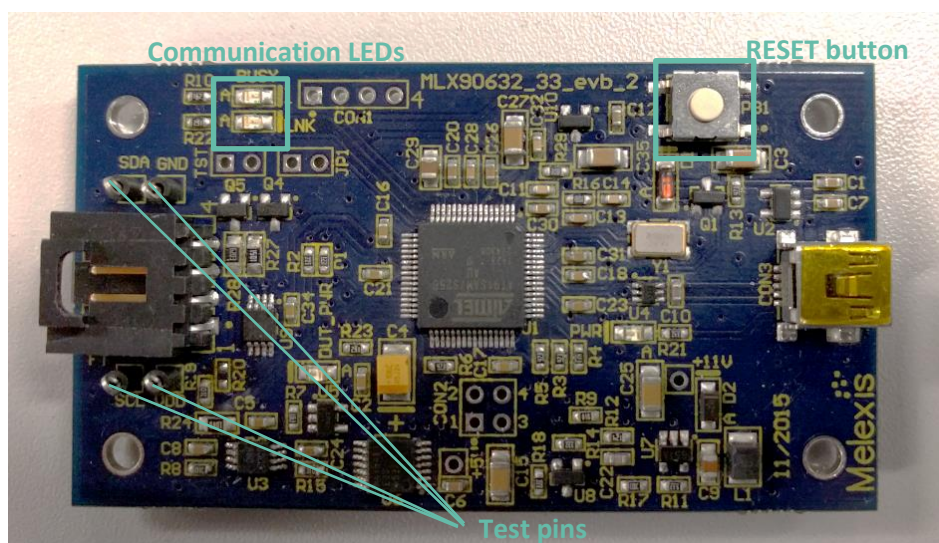


Figure 3 Floorplan of the controller

3. Software

3.1. Installation

- Download and install the latest EVB90637 software
- After installation connect the EVB90637 to the PC
- Wait until the board is recognized in Windows
- Open “MlxCIRT 90637”

3.2. Application settings

When the application is started, the software will automatically search for connected Evaluation boards. The following status is shown when an EVB90637 is detected:

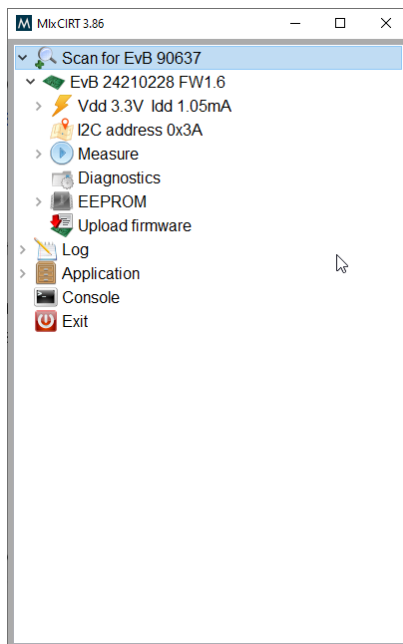


Figure 4 EVB is successfully detected

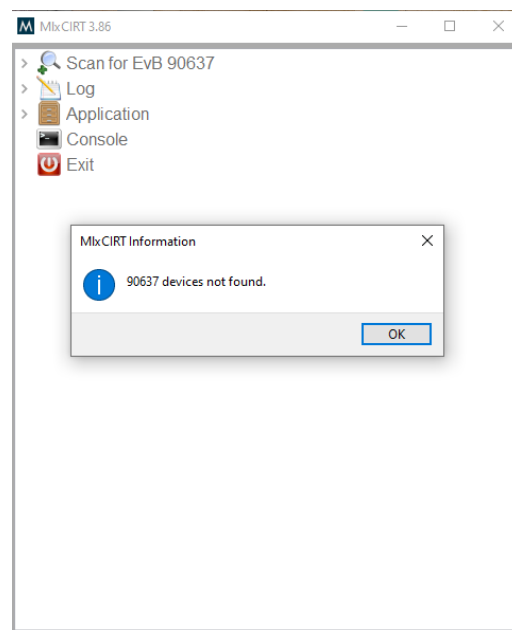


Figure 5 EVB or device is not detected – check sensor and USB cable and rescan.

3.2.1. Scan for EVB 90637

- EvB xxxxxxxx FW1.6

Hardware ID and firmware version

- ❑ Vdd 3.3V Idd 1.06mA

Voltage and current consumption

- ❑ I2C address 0x3A

Master I²C address (does not change the I²C address of the sensor itself)

Note:

The input value is in decimal format

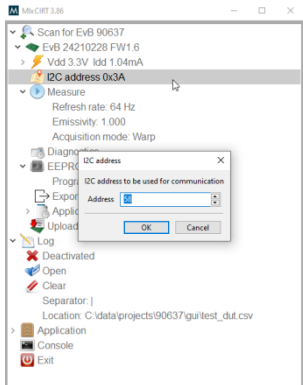


Figure 6 Changing the default I2C address

3.2.2. Measure Menu

Double click to start measuring

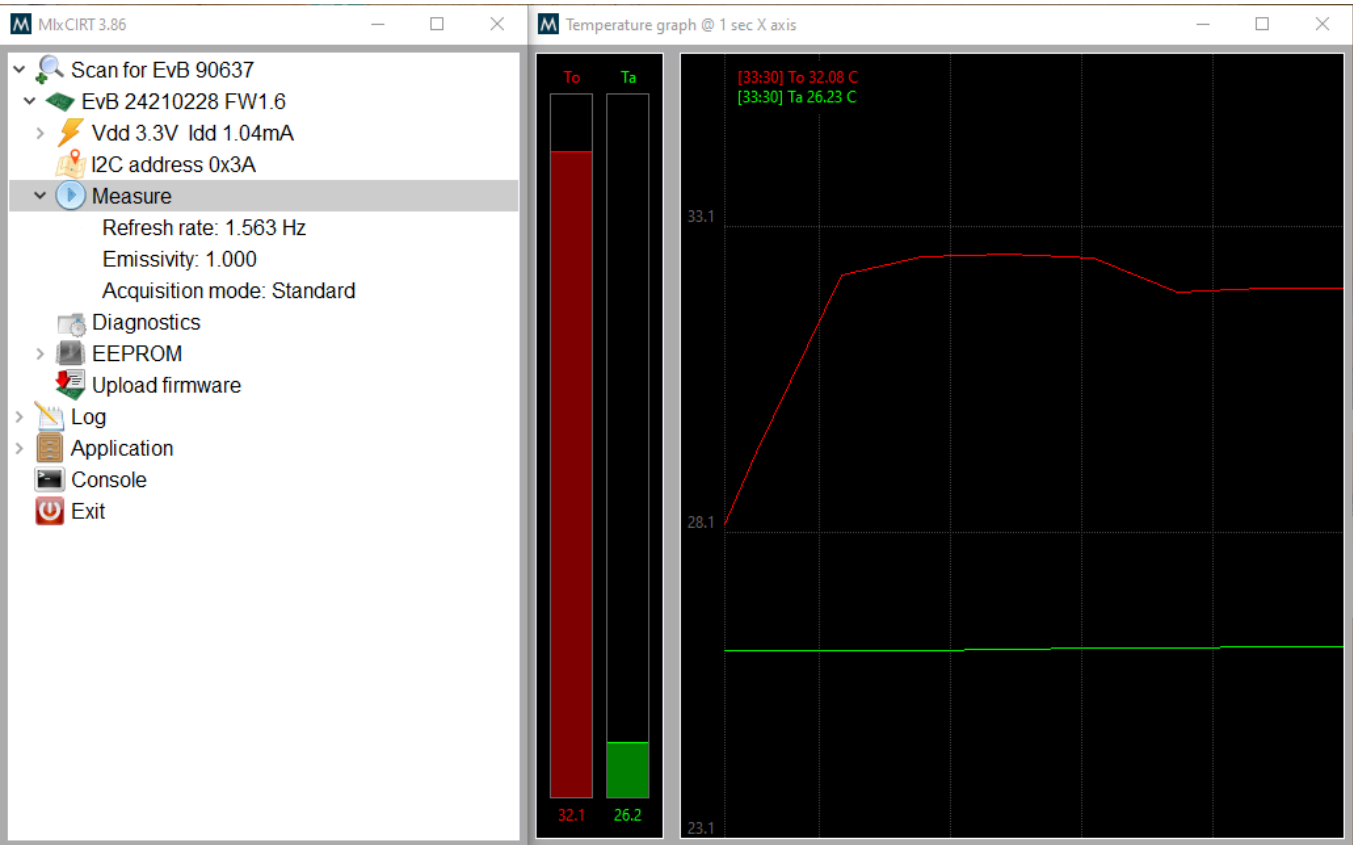


Figure 7 Temperature graphs

Hover the mouse pointer over the graph to show ambient and object temperature in left top corner.

The Measure menu allows setting multiple parameters:

- *Acquisition mode of the device – Standard, Fast or Warp;*
- *Emissivity – for Object temperature calculation*

Emissivity parameter is directly linked to the object temperature calculation as described in the datasheet

- *Refresh rate (of the GUI). The refresh rate, for Standard mode only, of the device can be set by modifying the corresponding EEPROM addresses described in the datasheet.*

Writing the desired refresh rate to EEPROM measurement settings will happen only after user confirmation in “Program EEPROM” submenu.

Changing the refresh rate will affect the noise performance of the device.

Due to hardware limitations of the EVB, the refresh rates 15.6Hz (Fast mode) and 64Hz (Warp mode) are limited to 50ms readout speed.

3.2.3. Diagnostics Menu

MLX90637 is an ASIL-A device and as such a number of diagnostics are available by using the Melexis driver.

The execution of the diagnostics can be triggered by clicking on the menu. The results appear in a pop-up window:

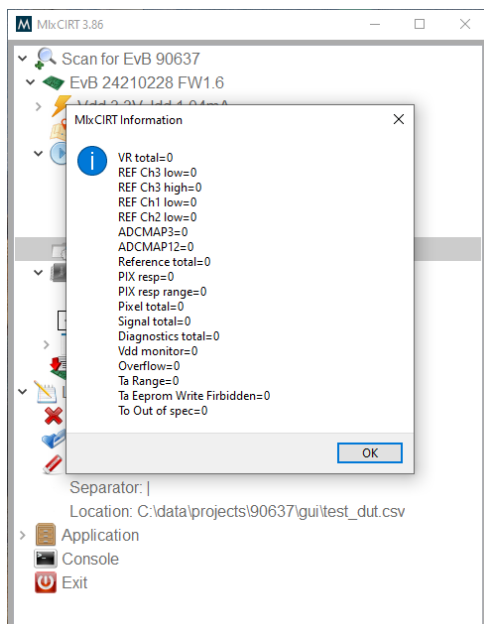


Figure 8 Diagnostics results

3.2.4. EEPROM Menu

Supports the following features:

- *Export to file*
Exports the EEPROM data to .bin file
- *Program changes in EEPROM*
This feature allows programming the application parameters Ha and Hb into device's non-volatile memory. Note: This feature should be used cautiously, because the device has limited EEPROM write cycles.
- *Application calibration parameters*
Double click the desired parameter in order to change it:
 - *Ha 0x4000*
 - *Hb 0x0000*

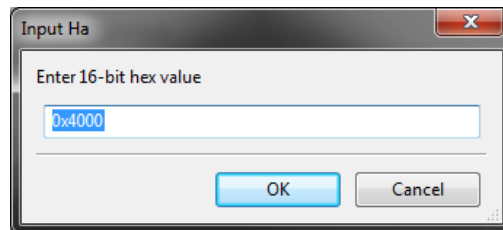


Figure 9 Modification of application parameter Ha

The parameters are used in the object calculation formula for post calibration.

Melexis provides a tool for easy Ha and Hb calculation.

Please contact your distributor for more information on post calibration.

3.2.5. Upload firmware Menu

Possibility to upload firmware for Evaluation board.

Please do not use this function unless Melexis specifically asks to upload new firmware.

3.2.6. Log Menu

- *Activated/Deactivated*
Double click to activate or deactivate logging
- *Open*
Opens the current log file
- *Clear*
Clears the current log file

- *Separator*

Separator to be used for logging

By default the tab separator (|) is used

For Excel processing, the comma separator (,) is advised

The separator can be changed by double clicking

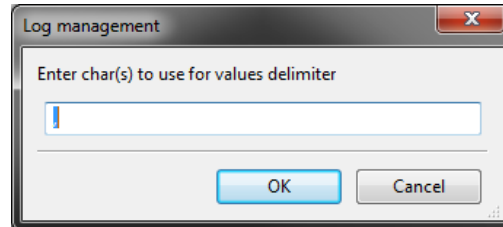


Figure 10 Value delimiter for the log file

- *Location C:\...\xxxxx.csv*

Location of the log file can be set here

3.2.7. Application Menu

- *Range [auto]*

Temperature scale during measurement can be set to manual or automatic

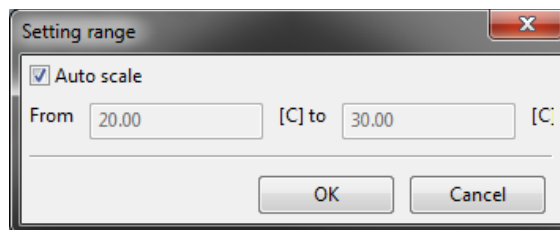


Figure 11 Range setting for Temperature graphs

- *Scale Celsius*

Unit for temperature value

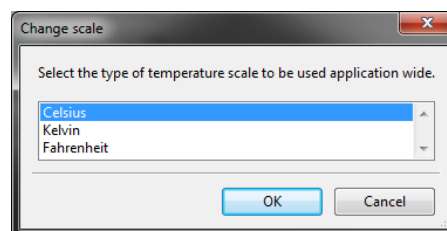


Figure 12 Scale setting for Temperature graphs

3.2.8. Console Menu

Melexis internal use only.

3.2.9. Exit

Closes the application.

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