

**EVK75027**

**3D OPTICAL SENSORS**

**TIME-OF-FLIGHT  
CHIPSET EVALUATION KIT**



Microbats generate ultrasound via the larynx and emit the sound through the nose or open mouth; from 14,000 to over 100,000 Hertz, well beyond the range of the human ear. The emitted vocalizations form a broad beam of sound used to probe the environment, as well as communicate with other bats.

## VGA TIME-OF-FLIGHT EVALUATION KIT

EVK75027 is the evaluation platform for Melexis' automotive qualified MLX75027 Time-of-Flight (TOF) image sensor. This sensor enables real-time 3D imaging at VGA resolution with unsurpassed accuracy & sunlight robustness. The evaluation kit is a complete camera that can be connected directly to a PC for real-time visualization, recording & analysis of distance data, whilst allowing easy access to many configuration settings.

This modular plug-and-play platform perfectly set up for customization by its customers. The kit consists of four stacked PCBs (from top to bottom: illumination board, TOF sensor board, interface board and a processor board). A graphical user interface for Windows is provided for live depth map visualization, basic recording, analysis and configuration. For custom SW development, a MATLAB SDK and C API is provided. The built-in flexibility of our evaluation kit enables any designer to develop the necessary system know-how and product experience for use in their application.



**The evaluation kit is available with a 110° horizontal field-of-view and 940nm VCSEL illumination.**

### KEY FEATURES

- ✓ MLX75027 VGA Time-of-Flight sensor
- ✓ VCSEL illumination (110° FOV @940nm)
- ✓ Modulation frequencies in range 4 to 100MHz
- ✓ Exchangeable sensor optics (standard S mount)
- ✓ Distance & confidence data at max. 35 FPS
- ✓ Raw data mode(s)
- ✓ Visualizer, C API & Matlab SDK
- ✓ Dimensions: 80 x 50 x 35 mm (complete module)  
80 x 50 x 27 mm TOF chipset board  
(front end only incl. optional MIPI SerDes boards)



## ILLUMINATION BOARD

- ✓ 4x VCSELs (110° circular FOV @940nm)
- ✓ Programmable peak optical power to simulate 1, 2 or 4 VCSEL operation
- ✓ Over temperature protection
- ✓ Eye safe (certificate available)

## TOF SENSOR BOARD

- ✓ MLX75027 VGA (640x480 pixels) TOF sensor array
- ✓ Optimized optics incl. optical band-pass filter
- ✓ Standard S mount (M12x0.5) lens holder
- ✓ External & on-chip temperature sensors

## INTERFACE BOARD

- ✓ Physical interface between MLX75027 & i.MX6 processor
- ✓ Power input (9 - 16V) and RJ45 ethernet connector
- ✓ GPIO connector (I2C, SPI, VIN, 3V3 & three GPIOs)

## CM-I.MX6 PROCESSOR BOARD

- ✓ Quad core i.MX6 processor running up to 1.2 GHz
- ✓ Calculates the distance & confidence data

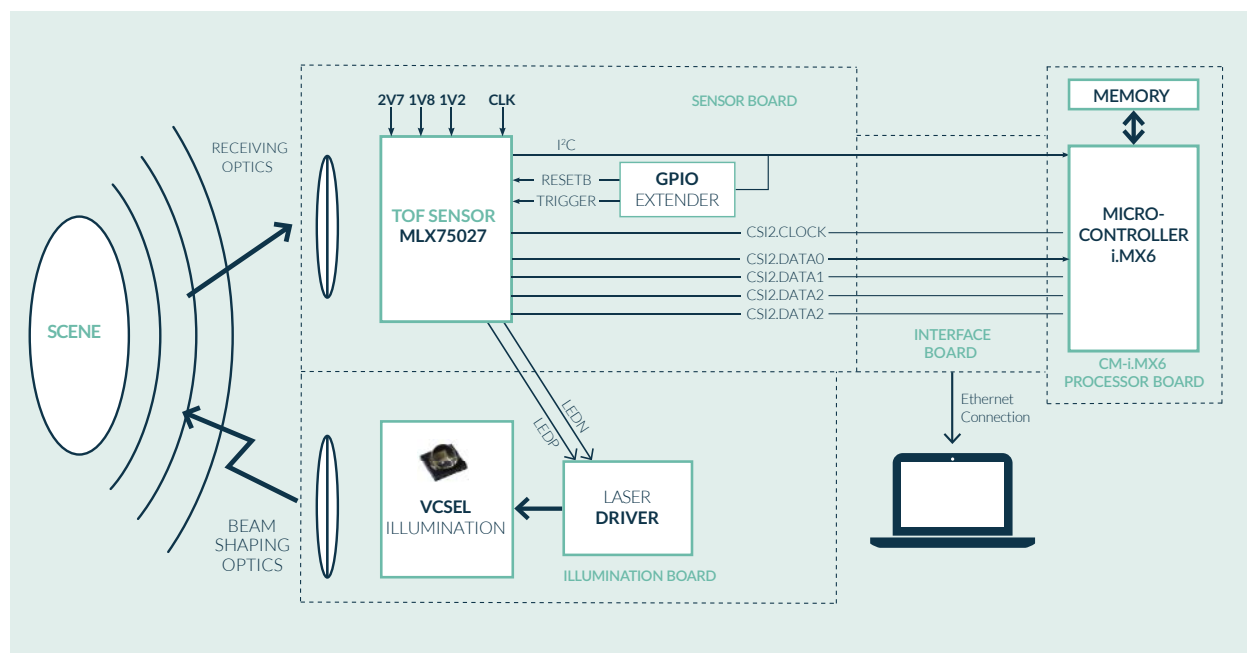
## EVK75027 PACKAGE CONTENTS

- ✓ 1x HW module
- ✓ 1x external AC/DC 12V PSU
- ✓ 1x ethernet cable
- ✓ Visualizer for Windows
- ✓ Matlab SDK & C API (+ example code)
- ✓ Unique registration key (for documentation, software, updates & support)

## EVK75027 ORDER CODES

- ✓ EVK75027-110-940-1:  
110deg HFOV with 940nm VCSELs

## BLOCK DIAGRAM



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