

SECO-RANGEFINDER-GEVK: SiPM Direct Time of Flight (dToF) LiDAR

The Direct Time of Flight (dToF) SiPM LiDAR Platform is a single point range finder development kit for cost-optimized industrial and commercial applications. The kit is based on the latest NIR SiPM from ON Semiconductor (RB series) and integrates all the essential sub-systems for the application involving laser and reference circuit (Tx), receiving circuit (Rx), power management systems, and core FPGA and UART communication.

The kit is FDA certified and includes a multifunctional GUI enabling a complete evaluation of the range-finding performance as well as the adjustment of system variables such as the buffer number of pulses or the bias voltage for the SiPM-RB photomultiplier.



Features and Applications

Features

- Direct ToF operation for single point applications
- > 0.11 m to 23 m detectable range
- Out of the box operation with user-friendly GUI with adjustable system variables
- Optimized system cost
- Time to Digital Conversion (TDC)
 - FPGA based (ice3)
 - ~ 85ps bin width
 - Automatic TDC calibration (FPGA reference clock)
- Power supply
 - Different supply options
 - USB = 5V
 - PMOD connector = 3.3V
- Laser and optics
 - RB-Series SiPM detector
 - 905nm laser diode transmitter
 - 650-1050nm coated BK7 Plano-convex lenses
 - maximize distance measurement





selected spectrum

- Regulations
 - Complies - laser safety standard IEC / EN 60825-1:2014 and 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 56
 - FDA Certified
- Software
 - Software adjustable settings for variety of industrial and IoT applications
 - FPGA-based Time-to-Digital Convertor (TDC), readout, communication interface and control of two regulated bias supplies

Applications

- Indoor Navigation and range-finding (up to 23 m)
- Collision detection
- 3D Mapping

Evaluation/Development Tool Information					
Product	Status	Compliance	Short Description	Parts Used	Action
SECO-RANGEFINDER-GEVK	Active	Pb-free	SiPM Direct Time of Flight (dToF) LiDAR	BAS16HT1G , BAT54T1G , BC817-40WT1G , BC856BWT1G , BSS138LT1G , EMI2121MTTAG , FPF2110 , FQT13N06LTF , LM2903DMR2G , MBR120LSFT1G , MICRORB-10010-MLP-TR , MMSD701T1G , NBA3N012CSNT1G , NCP161ASN330T1G , NCP170BXV120T2G , NCP170BXV250T2G	Buy





NCV308SN330T1G
NSVF4015SG4T1G

Technical Documents

Type	Document Title	Document ID/Size	Rev
User's Manual	SiPM dToF LiDAR Platform User Guide	UM70015/D - 43373 KB	3
Eval Board: Gerber	SECO-RANGEFINDER-GEVK Gerber Layout Files (Zip Format)	SECO-RANGEFINDER-GEVK_GERBER - 11634 KB	1
Eval Board: Schematic	SECO-RANGEFINDER-GEVK Schematic	SECO-RANGEFINDER-GEVK_SCHEMATIC - 1088 KB	0
Software	SECO-RANGEFINDER-GEVK Graphical User Interface	SECO-RANGEFINDER-GEVK_GUI - 19773 KB	2
Conformance Report	SiPM dToF LiDAR Platform BS EN 60825-1:2014 Laser Classification Report	TND6342/D - 390 KB	0
Video	What is Industrial Ranging?	WVD17688/D	
Video	SiPM dToF LiDAR Platform GUI Walkthrough	WVD17715/D	
Software	LiDAR Range Finder FPGA HDL	LiDAR Range Finder FPGA HDL - 177 KB	1

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