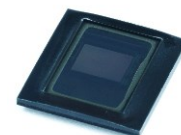


Understand People. Identify Objects. Perceive Spaces.

Robust 3D Perception by TOF sensors



A single sensor enabling simultaneous 2D/3D imaging,
robust day-and-night detection, and real-time position sensing.

Simultaneous 2D/3D



Parallax-free (※)
Up to recognition.

※ KW33000 : IR image + Depth image

KW33003 : RGB image+ IR image + Depth image

Robust detection



Reduced False Detections
under day and night. (※)

※ 0lx ~120klx

Real-time position sensing



By built-in depth processing.

■ Possible Application

● Monitoring ● AMR ● XR/Co-bot ● Automotive

Object Monitoring



Privacy-preserving
Reduced False Detections

RVC /Lawnmower



Obstacle recognition
Boundary detection

Service Robot



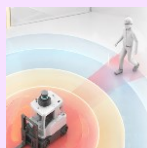
Reduce unnecessary stops
by accurate spatial recognition

Wearable



Simultaneous
Gesture, Object recognition and
Spatial mapping

Safety Area Sensor



Reflectance Range:
1.8% to 90%
(0.5 m to 2.5 m)

Reduce Downtime with Real-
Time Safety Distance Monitoring

Humanoid

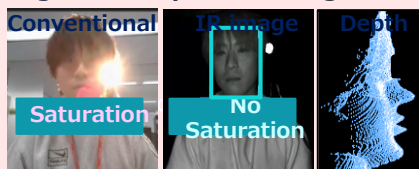


Human-Like Perception
Low-Latency Picking

Security/Sentry mode



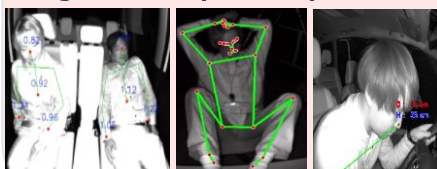
Seamless, stress-free entry
High-Security facial recognition



In-Cabin sensing



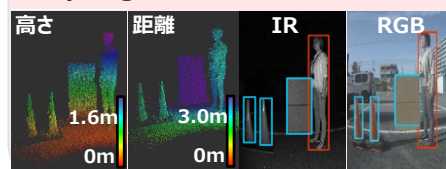
Enhanced passive safety
High-accuracy Out of position



Exterior



Enhanced Low-Speed AEB
Day/Night Pedestrian Detection



The products and product specifications described in this document are subject to change without notice for modification and/or improvement. At the final stage of your design, purchasing, or use of the products, therefore, ask for the most up-to-date Product Standards in advance to make sure that the latest specifications satisfy your requirements.

As of July. 31, 2026

List of Features

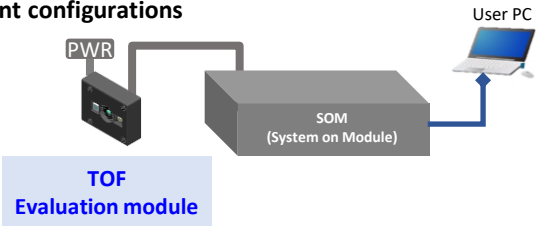
※Bare chip supply is also available.

	KW33000 (※)	KW33003 (※)
	<i>iTOF pulse method, On-chip depth processing</i>	<i>RGB-iTOF pulse method, On-chip depth processing</i>
Package	iBGA, 9.5 x 10mm, 97pins	←
Optical size	¼型 at VGA	←
Number of pixels	IR/Depth : VGA (640×480)	RGB: VGA (640×480) IR/Depth : QVGA (320x240)
Pixel size	5.6μm x 5.6μm	←
Supply voltage	2.8V/1.8V/1.1V	←
Output signal	3D(12bit), 2D(12bit)	←
Max. frame rate	IR/Depth : 60fps (VGA) 120fps (QVGA)	RGB mode、IR/Depth mode : 60fps RGB+IR/Depth mode: 30fps
Register I/F	(1) I ² C (2) SPI (4-wire serial I/F) Switchable by external terminal control	←
Output I/F	MIPI(CSI2), 2 lanes Max. output data rate: 1.296 Gbps/lane	←
Quality grade	AEC-Q100 Grade2	←
Functional safety	ASIL B compliant	TBD

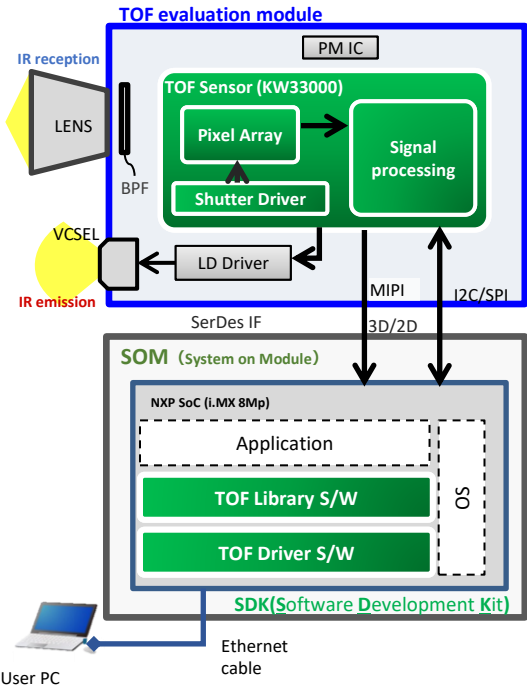
Evaluation kit

TOF evaluation module and SOM (System on Module) are prepared.

Equipment configurations



System block diagram



Lineup of TOF evaluation module

Type number	KHKT043	KHKT071	KHKT090 (RGB-TOF)
Measurement range [m]	0.3~3.0	0.5~10.0	0.1~5.0
FOV [deg] (H x V)	126x90	90x70	90x65
Frame rate [fps]	30	20 Short:10 Long:10	30 Short:10 Long:10 RGB:10
Outline [mm] (W x H x D)	49x34x20	125x50x35	65x53x140
TOF sensor	KW33000		KW33003
Resolution [pixels]	640x480 (IR/Depth)		RGB:640x480 IR/Depth:320x240
Wavelength [nm]	940		
SoC	NXP i.MX 8M Plus	NXP i.MX 8M Nano	Horizon
Camera Interface	MIPI CSI-2 (to SOM)		
SOM Interface	Ethernet (to PC)		

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As of July. 31, 2026