

Sensor Selection Guide

OMRON's unique sensing technology responds to evolving needs.



Photomicro Sensor



Limited Reflective Sensor



3D TOF Sensor Module



MEMS Flow Sensor



Environment Sensor



MEMS Non-Contact Thermal Sensor



Seismic Sensor



MEMS Gauge Pressure Sensor



Human Vision Components

OMRON's sensing technology contributes to creating a safe, secure and comfortable IoT society that serves its people.



OMRON's sensing technology meets evolving needs

Algorithm Technology

- Distance
- Human Recognition Image Sensing
- Earthquake Detection



3D TOF Sensor Module



Embedded Human Recognition Image Sensor (Module)



Seismic Sensor

Technology

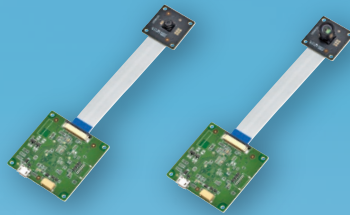
Sensor Line-Up

3D TOF Sensor Module



Distance

Embedded Human Recognition Image Sensor



Face Detection



Mr.Alex Face Recognition



happiness Facial Expression



age 25 Age



male Gender



Right 30° Facial Orientation



Line Of Sight



Human Body Detection



Hand Detection



Closed Eye Estimation

Environment Sensor



Temperature



Humidity



Barometric Pressure



VOC*



Illumination



Noise



UV



Acceleration

*VOC: Abbreviation for volatile organic compounds contained in alcohol, cigarette smoke, formaldehyde, etc.

Seismic Sensor



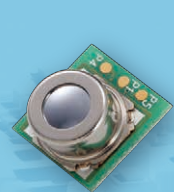
Earthquake

MEMS Gauge Pressure Sensor



Pressure

MEMS Non-Contact Thermal Sensor



People's Position



Temperature



Number of People

MEMS Flow Sensor



Air Flow

Limited Reflective Sensor



Presence of Objects



Hand Detection

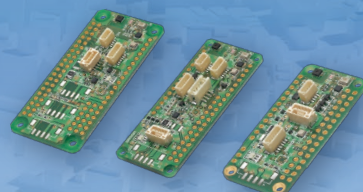
Photomicro Sensor



Presence of Objects

Sensor Evaluation Board

Sensor Evaluation Board



Optical Design Technology

- Presence of Objects
- Displacement
- Distance



Photomicro Sensor



Limited Reflective Sensor

MEMS Technology

- Temperature
- Gas Flow Rate
- Pressure



Environment Sensor



MEMS Flow Sensor



MEMS Gauge Pressure Sensor



MEMS Non-Contact Thermal Sensor

Photomicro Sensor EE-S Series

Model ^{*1}	EE-SX1320 /4320	EE-SX1321	EE-SX1330	EE-SX1340 /3340,4340	EE-SX1350 /3350,4350	EE-SX3173 /4173-P	EE-SX3162 /4162-P1(-Z), P2
Sensing Type (Termination)	Transmissive (SMD)					Transmissive (Connectors)	
Mounting Type	Surface Mount	Surface Mount	Surface Mount	Surface Mount	Surface Mount	M3 Screw-mounting	M2 Screw-mounting
Sensing Distance	2mm	2mm	3mm	4mm	5mm	5mm	5mm
Output Configuration ^{*2}	PTTr/P-IC	PTr	PTr	PTTr/P-IC	PTTr/P-IC	P-IC	P-IC
Aperture Size	0.3mm	0.3mm	0.3mm	0.5mm	0.5mm	0.5mm	0.5mm
Dimensions (LxWxH)	5.1x4x4	5.1x4x4	6x4x5	8x4x5.5	9x4x9	13.6x14.8x14.7	13x16x14
Features	Super miniature	Output 2ch Super miniature	Super miniature	Miniature	General purpose	Connector with lock Driving voltage 5/24V	Connector with lock

Model ^{*1}	EE-SX493	EE-SX1055	EE-SX1046	EE-SX1106	EE-SX198 /398,498	EE-SX1071 /301,401	EE-SX1081 /3081,4081
Sensing Type (Termination)	Transmissive (Terminal)						
Mounting Type	Board Mount	Board Mount	Board Mount	Board Mount	Board Mount	Board Mount	Board Mount
Sensing distance	2mm	2.8mm	3mm	3mm	3mm	3.4mm	5mm
Output Configuration ^{*2}	P-IC	PTr	PTr	PTr	PTTr/P-IC	PTTr/P-IC	PTTr/P-IC
Aperture Size	0.2mm	0.5mm	0.5mm	0.4mm	0.5mm	0.5mm	0.5mm
Dimensions (LxWxH)	11x8x9.7	8.9x4x5.4	10x6.5x5	6.4x4.2x5.4	12.2x5x10	13.6x6.2x10.4 /15.4x6.2x10.4	13.7x5x10
Features	High resolution	Miniature	Horizontal aperture	Miniature	General purpose Without a positioning boss ^{*3}	General purpose	General purpose

Model ^{*1}	EE-SG3	EE-SX1161-W11 /3161-W11,4161-W11	EE-SX1088-W11 /3088-W11,4088-W11	EE-SX1096-W11 /3096-W11,4096-W11	EE-SX1160-W11 /3160-W11,4160-W11	EE-SY1200	EE-SY1201
Sensing Type (Termination)	Transmissive (Terminal)	Transmissive (Pre-wired)			*Detachable connector	Reflective	
Mounting Type	Screw-mounting	Screw-mounting	Screw-mounting	Screw-mounting	Screw-mounting	Surface Mount	Surface Mount
Sensing distance	3.6mm	3.2mm	3.4mm	3.4mm	9.5mm	1mm	3.0mm
Output Configuration ^{*2}	PTr	PTTr/P-IC	PTTr/P-IC	PTTr/P-IC	PTTr/P-IC	PTr	PTr
Aperture Size	2mm	0.5mm	0.5mm	0.5mm	0.5mm	-	-
Dimensions (LxWxH)	25.4x6.35x11.7	12.95x23.7x12.7	25x6x10	25x6x10	31.75x6x15.5	3.2x1.9x1.1	4.0x3.0x2.0
Features	Dust-proof	Dust-proof	General purpose	Horizontal aperture	Wide slot	Super miniature	Super miniature

^{*1} EE-SX3-... Dark ON, EE-SX4-... Light ON ^{*2} PTr... Photo-transistor, P-IC ... Photo-IC ^{*3} With a positioning boss... EE-SX199 ^{*4} With a positioning boss... EE-SX1115

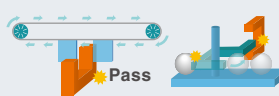
Example Applications

Rotation Detection



Robots

Passing Detection



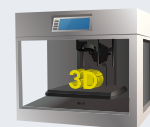
Cash dispensers

Non-Contact Switch



Medication dispensers

Origin Detection



3D printers

EE-SX3163 /4163-P1,P2	EE-SX3164 /4164-P1,P2	EE-SX460-P1	EE-SX461-P11	EE-SX3009-P1, 4009-P1	For connector models Accessories	EE-SX1018	EE-SX1103	EE-SX1105
Transmissive (Connectors)					Connector with cable (Order separately)	Transmissive (Terminal)		
M2 Screw-mounting	M2 Screw-mounting	Snap-in	Snap-in	Screw-mounting	EE-1005 Tyco Electronics Length: 1m	Board Mount	Board Mount	Board Mount
5mm	5mm	5mm	15mm	5mm		2mm	2mm	2mm
P-IC	P-IC	P-IC	P-IC	P-IC		PTr	PTr	PTr
0.5mm	0.5mm	0.5mm	2mm	0.5mm		0.5mm	0.4mm	0.4mm
13.6x13.3x14.7	22.6x8.3x14	30x11x23.6	32.5x12x23.6	34x11x21	EE-5002 JST Length: 1m	8x4x6	5x4.2x5.2	4.9x2.6x3.3
Connector with lock	Connector with lock	High resolution Detachable	Wide slot Detachable	High resolution		Miniature	Super miniature	Super miniature
EE-SX1041	EE-SX1042	EE-SX1035	EE-SX1070 /3070,4070	EE-SX1140	EE-SX129	EE-SV3	EE-SX1088 /3088,4088	EE-SX1096
Transmissive (Terminal)								
Board Mount	Board Mount	Board Mount	Board Mount	Board Mount	Screw-mounting	Screw-mounting	Screw-mounting	Screw-mounting
5mm	5mm	5.2mm	8mm	14mm	3mm	3.4mm	3.4mm	3.4mm
PTr	PTr	PTr	PTr/P-IC	PTr	PTr	PTr	PTr/P-IC	PTr
0.5mm	0.5mm	1mm	0.5mm	1.5mm	0.2mm	0.2/0.5/1mm	0.5mm	0.5mm
14x6x10	14x5x14.5	12.6x6.3x6.9	17.7x6x10	23x5x16.3	13x11x8	15.1x19x10.4	25x6x10	25x6x10
With a positioning boss	High profile Without a positioning boss *4	Small with wide slot	Wide slot With a positioning boss	Wide slot	High resolution	High resolution	General purpose	Horizontal aperture
EE-SY171	EE-SY169, 169A, 169B	EE-SY110 /310,410	EE-SF5, SF5-B	EE-SB5				
Reflective								
Board Mount	Board Mount	Board Mount	Board Mount	Screw-mounting				
3.5mm	4mm	5mm	5mm	5mm				
PTr	PTr	PTr/P-IC	PTr	PTr				
-	-	-	-	-				
14x4.2x3	12.5x6x8	12x4.6x4.8	13x5.7x8	25.4x6.35x11.5				
Thin	Red LED, A: General purpose, B: Red LED, high output	General purpose	Dust-proof	Dust-proof				

Product images do not represent actual size ratio.

Recommended Sensors

SMD

Reduce assembly work and save space

Surface mount models

One-step installation

Easy, one-step installation thanks to usability with other products for reflow soldering.



SMD type Surface mounting to board

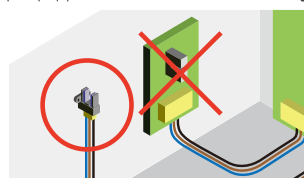
- Suitable for Small-Size Applications
- 2 to 5 mm slot widths available
- Photo-IC output models available for use in high-speed applications
- 2-channel models available for encoder functionality

Connector

No mounting required reducing workload!

Connector models

The all-in-one design includes the sensor, circuit board, and connector. This helps keep equipment sizes down thanks to no additional mounting required.





- All-in-one design for improved miniaturization
- Screw-based mounting for a more reliable installation
- M3 screw-mounting model is added
- Connector with cable (order separately) is available

Limited Reflective Sensor B5W-LB Series

Sensor evaluation board compatible models
P13 ▶

Type

Output type	Analog output type	Digital output type	
Exterior	Miniature type		Super miniature type
			
Power supply voltage	DC 5V ±10%	DC 24V ±10%	
Output type	Analog (phototransistor output)	ON/OFF (NPN open collector output)	
Degree of protection	-		IP50
Sensing distance (Target object: white paper)	10 to 55mm Note: When using a predetermined threshold value		2 to 10mm
Model	B5W-LB2101-1	B5W-LB2112-1 B5W-LB2122-1	B5W-LB1112-1 B5W-LB1122-1

Features

- Material Robustness**
Add shiny, white, black, reflective, or transparent objects to body
- Distance Robustness**
A wide sensing range to allow object shifting
- Lineup**
Suitable for embedding in commercial equipment

Product / Technology Overview

Stable detection of shiny, black or transparent objects

Past problem

Sensing of shiny, black or transparent objects was unstable, requiring more man-hours for development and production processes.

Solution!

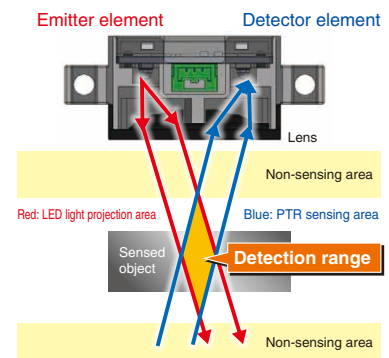
With OMRON's Light Convergent Reflective Sensors, unstable sensing of shiny, black or transparent objects is no longer a problem, meaning this product contributes to a reduction of man-hours



Here's why

Light Convergent Reflective Sensor Principles

The presence of an object is detected by the received light reflected off a sensed object. The sensor's optical system has a limited projection beam and light sensing area, so the system is capable of sensing objects only within a specific distance from the sensor (the range in which the projection beam and the light sensing area overlap).



Example Applications

Cup detection



Coffee makers

Hand detection



Sanitation equipment

Tablet package detection



Tablet Packaging

Container detection



Analysis equipment


Human body detection



Sterilization / deodorization equipment

3D TOF Sensor Module B5L Series

Type

Sensing type	Detection range (white paper)	NIR transmission filter	Model	Minimum number of deliverable units
TOF		Available (Built-in)	B5L-A2S-U01-010	1 piece



Features

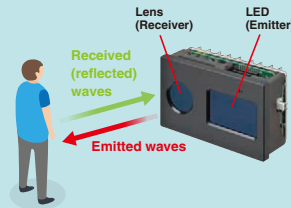
- 1 Ambient light immunity**
 Ambient light immunity equivalent to 100,000 lx !
 Its powerful ambient light immunity ensures stable detection performance free from saturation even in bright places
- 2 High Precision**
 $\pm 2\%$ (2 m)
 Achieves high output accuracy for compensated signals
- 3 Long life**
 Long life equivalent to 5 years under continuous driving.
 According to OMRON's research in March, 2020^{*1}
 Long life thanks to OMRON's unique circuit design and heat emission design
- 4 Interference prevention**
 With interference prevention function (up to 17 units **Industry's top class**)
 According to OMRON's research in March, 2020^{*2}
 Ideal for applications that require the use of multiple devices such as robots at the same time

Note: Functionality and performance may decrease under certain operating conditions. Refer to User's Manual (manual number: E596-E1) for details.
 *1. According to OMRON's evaluation method (reliability acceleration test at the ambient temperature of 20°C and the humidity of 65%RH).
 *2. However, product specifications are not guaranteed.

Product / Technology Overview

What is a TOF Sensor?

A TOF (Time of Flight) sensor uses the flight time of light to measure distances to objects. As well as being able to turn captured images into 3D images, it can also measure at a speed of 20 frames per second, allowing it to track the movement of objects three-dimensionally.

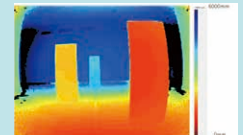


Capable of delivering stable detection performance even in direct sunlight.

Standard Camera Image (Indoor)

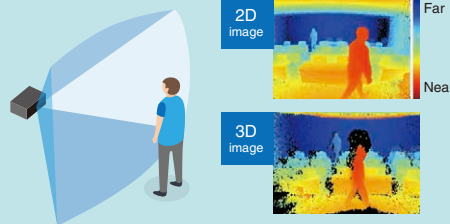


3D TOF Sensor Module



Differences from a conventional camera sensor

The use of extensive distance information enables the sensor to identify its peripheral environment

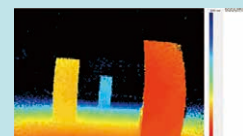


Watch a demonstration video here

Standard Camera Image (Outdoor)

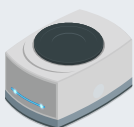


3D TOF Sensor Module



Example Applications

AMR/service robots



Drop detection / Environment recognition

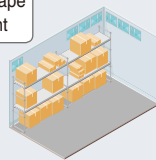


Periphery recognition / Human recognition

Logistics and conveyance



Volume and shape measurement



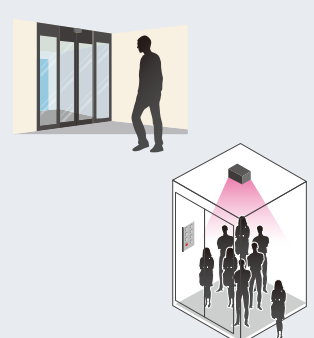
Empty space detection

Observation



Behavioral understanding and observation of patients under long-term care

Automatic doors/elevators







Counting people and tracking traffic flows

MEMS Flow Sensor D6F Series




Type

MEMS Flow Sensor (Flow Rate Type)










➤ Air ➤ Low flow ➤ Analog

Applicable fluid		Air			
Item	Model	D6F-P0001A1	D6F-01A1-110 D6F-P0010A□ D6F-P0010AM2	D6F-02A1-110	D6F-03A3-000
Appearance					
Flow range (L/min)		0 to 0.1L/min	0 to 1L/min	0 to 2L/min	0 to 3L/min

➤ Gas ➤ Low to medium flow ➤ Analog





Applicable fluid		Urban gas (13A)	LP gas	Urban gas (13A)
Item	Model	D6F-01N2-000	D6F-02L2-000 D6F-02L7-000	D6F-05N2-000 D6F-05N7-000
Appearance				
Flow range (L/min)		0 to 0.1L/min	0 to 2L/min	0 to 5L/min

➤ Air ➤ Medium to high flow ➤ Analog ➤ Digital  are the only digital types.

Applicable fluid		Air				
Item	Model	D6F-10A5-000 D6F-10A6-000 D6F-10A7-000 D6F-10A7D-000 	D6F-20A5-000 D6F-20A6-000 D6F-20A7D-000 	D6F-30A7-000 D6F-30AB71-000	D6F-50A5-000 D6F-50A6-000 D6F-50A7D-000 	D6F-70AB71-000 D6F-70AB71D-000 
Appearance						
Flow range (L/min)		0 to 10L/min	0 to 20L/min	0 to 30L/min	0 to 50L/min	0 to 70L/min







MEMS Air Flow Sensor (Velocity Type)

➤ Air ➤ Velocity ➤ Analog

Applicable fluid		Air			
Item	Model	D6F-W01A1	D6F-V03A1	D6F-W04A1	D6F-W10A1
Appearance					
Flow speed range (m/s)		0 to 1m/s	0 to 3m/s	0 to 4m/s	0 to 10m/s

MEMS Differential Pressure Sensor

➤ Air ➤ Differential pressure ➤ Digital  Digital

Applicable fluid		Air		
Item	Model	D6F-PH0505AD3 	D6F-PH0025AD1 	D6F-PH5050AD3 
Appearance				
Differential pressure range (Pa)		-50 to 50Pa	0 to 250Pa	-500 to 500Pa

Features

1 High Precision

±3%RD (25-100%F.S.) is realized by linear temperature correction using ASIC technology

Ambient temperature = 25°C (Model: D6F-20A7D-000-0).

2 High Sensitivity

Omron's unique MEMS technology allows detection of very low air velocities

Example of D6F-01A1-110:
Output corresponding to flow rate change below 1/1000 of full scale.

3 Miniature

The product size is reduced by using the world-smallest class size MEMS sensor element

Dimension of D6F-V model: 24x8x14mm.

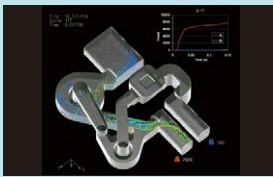
Product/Technology Overview

What is MEMS flow sensor? Realizing a highly accurate flow measurement, sensing even a single flap of a butterfly's wings.

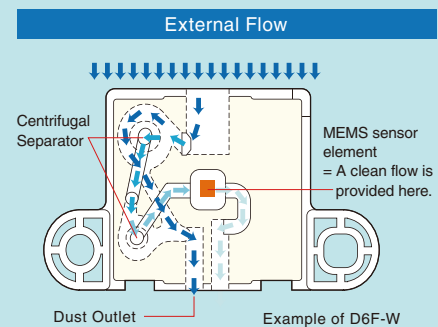
A sensor that measures how much gas (how many liters) is flowing per minute. The basic principle is the heat ray method where the temperature sensor captures the heat transfer generated by the movement of the air flow.

Resistant to dust - Equipped with a dust segregation system (cyclonic) - D6F-W/-V/-P

Patented No. 4534526



- The sensor can be placed anywhere thanks to its dust-resistant structure.
- Omron's unique design of 3D flow path provides a high level of reliability by separating dust particles to reduce its effect on the sensor chip. Additionally, Omron succeeded in reducing the sensor size, allowing it to be used in wider range of applications.



Example Applications

Clogging Detection

▶ Flow rate ▶ Velocity ▶ Differential pressure



Projector



PC



Server

Combustion Control

▶ Flow rate ▶ Differential pressure



Fuel cell



Water heater



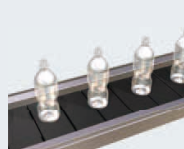
Boiler

Flow Measurement

▶ Flow rate ▶ Differential pressure



Welder



Container manufacturing machine



Environmental analyzer



Mounting machine

Air Volume Detection

▶ Velocity ▶ Differential pressure



Air flow measurement (environment)



Duct



Air conditioner

Environment Sensor 2JCIE Series

Type

Choose from three types of sensors based on your needs.

Powered from a USB port, allowing the sensor to run continuously

Portable battery-operated type that can be used in your choice of location

Embedded type for design optimization

USB type

2JCIE-BU01



Bag-shaped type

2JCIE-BL01



PCB type

2JCIE-BL01-P1



Sensor functions	Sensor functions	Sensor functions
Temperature Humidity Light Barometric Pressure Noise Acceleration VOC* <small>*VOC: Abbreviation for volatile organic compounds contained in alcohol, cigarette smoke, formaldehyde, etc.</small>	Temperature Humidity Light UV Index Barometric Pressure Noise	Temperature Humidity Light UV Index Barometric Pressure Noise
Data logging	Data logging	Data logging
60,000 times (Ex. Approx. 7 months of data storage with 5 minutes logging interval)	26,624 times (Ex. Approx. 3 months of data storage with 5 minutes logging interval)	26,624 times (Ex. Approx. 3 months of data storage with 5 minutes logging interval)

Features

1 Convenient
Combines Bluetooth® low energy technology with different sensing capabilities. Immediately available for your use.

2 Multitask
Multiple sensing capabilities in one package. Users can choose different locations to sense the surrounding environment.

3 Reliable
All sensing data is stored in the internal memory of the device. Users can access it at all times without having to worry about loss of data.

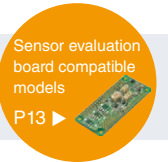


*The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by OMRON Corporation is under license.

Example Applications

Scene	Temperature	Humidity	Barometric Pressure	Light	UV Index	Noise	Acceleration	VOC
Home • Monitoring babies, elderly family members and pets • Checking if family members have come home • For a good night's sleep								
Office • Maintaining a comfortable office environment								
Outdoor • Notifying weather changes and UV alerts • Notifying heat stroke alerts								
Factory • Maintaining the quality of factory environment								

MEMS Non-Contact Thermal Sensor D6T Series

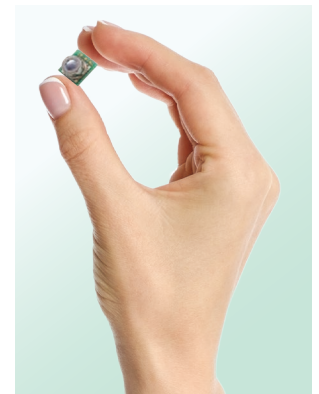


Type

Model	D6T-1A-01	D6T-1A-02	D6T-8L-09	D6T-8L-09H	D6T-44L-06	D6T-44L-06H	D6T-32L-01A
Number of elements	1(1x1)		8(1x8)		16(4x4)		1024(32x32)
Appearance							
Viewing angle X-direction Y-direction	X = 58.0° Y = 58.0°	X = 26.5° Y = 26.5°	X = 54.5° Y = 5.5°		X = 44.2° Y = 45.7°		X = 90.0° Y = 90.0°
Object temperature detection range	5 to 50°C	-40 to 80°C	5 to 50°C	5 to 200°C	5 to 50°C	5 to 200°C	0 to 200°C

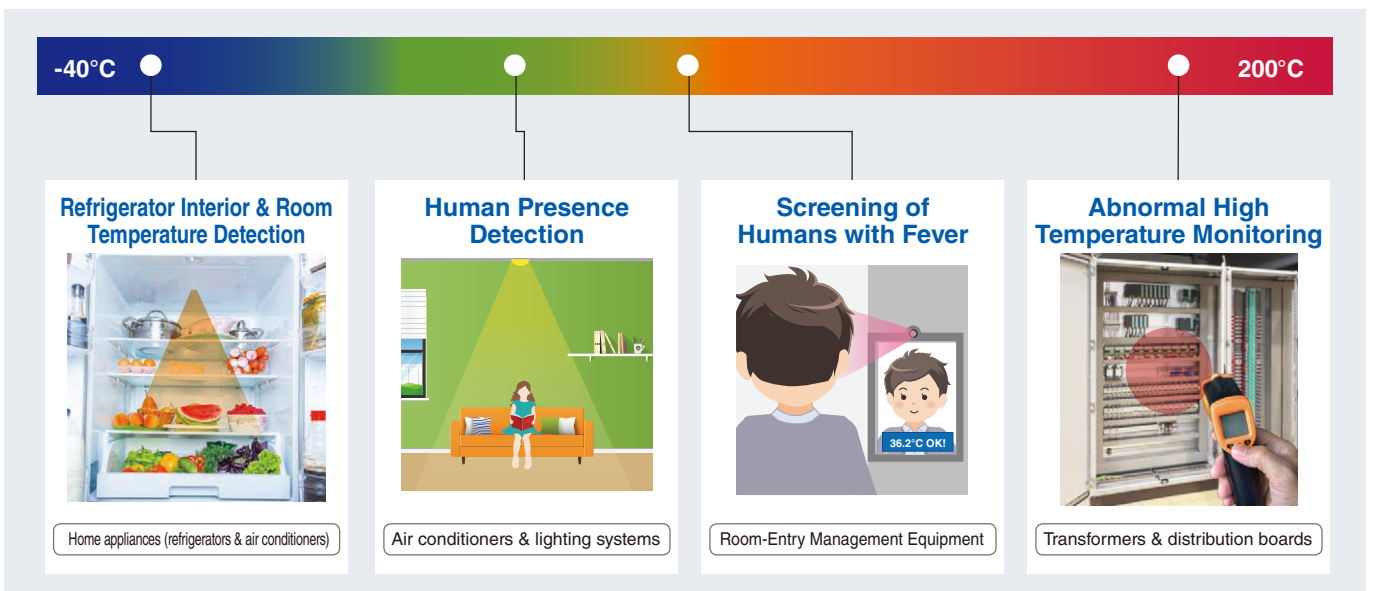
Features

- 1 High Precision**
 World's highest-class* stable temperature output
- 2 Easy connection**
 Direct temperature value output allows easy software design
- 3 Number of elements x temperature lineup**
 Variation of the number of elements (1 to 1024) x temperature range (-40 to 200°C)



*According to OMRON's research as of February 2021, except for D6T-32L-01A

Example Applications



Seismic Sensor D7S Series

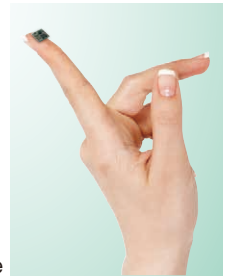
Type

Model	D7S-A0001
Acceleration Detection Range	-2,000~+2,000gal
Shutoff Output	Output at seismic intensity level 5 or higher



Features

- 1 **Super miniature**
Ideal for embedded applications
- 2 **High Reliability**
Prevent false detection and non-detection
- 3 **IoT Link**
Allow secondary use of earthquake information



Example Applications

The world's smallest-class seismic sensor can be used in wider range of applications. Also ideal for embedded applications.

Industrial



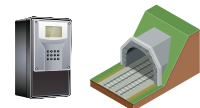
Semiconductors/FPDs, machine tools, control panels, combustion furnaces, printers

Residential



Distribution boards, disaster prevention systems, home appliances (heaters, gas stoves)





Commercial



Electrical/gas meters, chemical plants, highways, bridges, tunnels, railroads

Automatic Horizontal Vibration Sensor / Sealed Vibration Sensor / Fall Sensor D7A/D7E

Type

	Model	D7A-1	D7A-2	D7A-3-1	D7E-1	D7E-2	D7E-5	D7E-3
	Type	For horizontal boards	For vertical boards	Screw tightening	Vibration sensor			Fall sensor
	Appearance							
Operating characteristics	Acceleration setting	90 to 170 gal			130 to 200 gal	100 to 170 gal	120 to 195 gal	-
	Operation angle	-			-	-	-	50 to 80°
Output configuration	Structure setting	1a			1b			

Example Applications



Fan heater



IH / gas stove



Gas meter

MEMS Gauge Pressure Sensor 2SMPP Series

Type

Model	2SMPP-02	2SMPP-03
Pressure range	0 to 37kPa	-50 to 50kPa



Features

- 1 High precision***
Enable accurate pressure control *For 2SMPP-03, the offset voltage is -2.5 ± 4.0 mV and the span voltage is 42.0 ± 5.5 mV
- 2 Compact 6.1 x 4.7 x 8.2 mm**
Keep equipment sizes down, ideal for embedded applications
- 3 Low power consumption (Driving current: 100 uA)**
Ideal for portable equipment



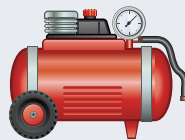
Example Applications

Air conditioner / air purifier



Intake / exhaust detection

Air Pumps



Pressure control




Air Leak Detection



Air leakage / abnormal pressure detection

Sensor Evaluation Board 2JCIE-EV Series

Type

Model	2JCIE-EV01-RP1	2JCIE-EV01-AR1	2JCIE-EV01-FT1
Type	RP type	AR type	FT type
Appearance			
Supported platform ^{*4}	Raspberry Pi ^{*1}	Arduino ^{*2}	Feather ^{*3}
Table of Models	3 A/1 B+/2 B/3 B+/Zero/Zero W ^{*5}	MKR Vidor 4000/MKR WiFi 1010/MKR ZERO ^{*5}	HUZZAH32 ^{*5}

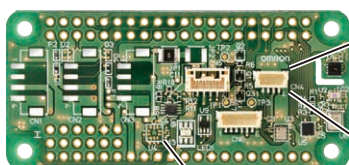
*1. Raspberry Pi is a registered trademark of the Raspberry Pi Foundation.
*2. Arduino is a registered trademark of Arduino LLC and Arduino SRL.
*3. Feather is a registered trademark of Adafruit Industries LLC.

*4. Boards for supported platforms are not included.
*5. Do not use a model other than those listed in each table of platform supporting models.

Features

Compatible with 3 major platforms. Allow various sensing functions to be easily evaluated.

OMRON sensor evaluation board



Can be connected to OMRON sensors*



Includes a connector that supports Qwiic sensors.

Can be connected to a variety of sensors

Six types of sensing functions

Temperature, humidity, light, barometric pressure, noise, acceleration

<https://components.omron.com/sensor/evaluation-board/2jcie>

* For compatible models, see the list of "External Expansion Sensors".



Platform



(Raspberry Pi)

Supports three platforms

Raspberry Pi^{*1}
Arduino^{*2}
Feather^{*3}



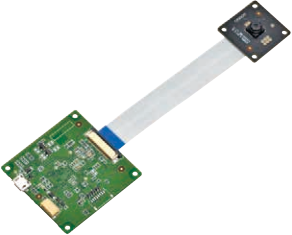
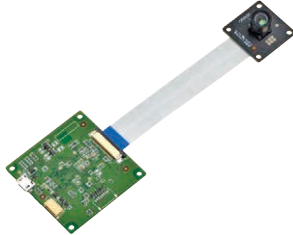
Sample source code
Now available

<https://github.com/omron-devhub>



Human Vision Components (HVC) B5T Series

Type

Item	Long-distance detection type B5T-007001-010	Wide-angle detection type B5T-007001-020
Appearance		
Horizontal detection range (angle of view)	Approx. 54°	Approx. 94°
Vertical detection range (angle of view)	Approx. 41°	Approx. 76°
Input resolution	1600x1200 pixels	
Output resolution	Selectable (no image output, 160x120 pixels, 320x240 pixels)	
Shooting in the dark	200lx max.	
Power supply voltage	DC 5V±0.5V	
Current consumption	0.4A max.	
Power consumption	2W max.	
Operating temperature	0°C to +50°C (with no condensation or icing)	
Communication method	① UART 3.3V ② USB CDC-class devices	

Features

1

Choice of wide-angle type and long-distance type depending on detection distance or range needs

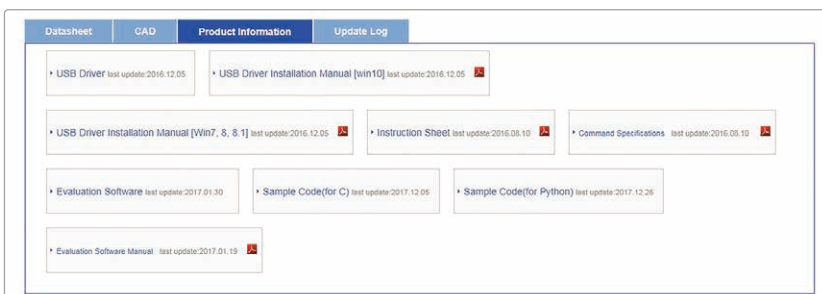
2

Can be used for apps that analyze customer base from attribute information (age, gender, etc.) and utilize the data for marketing

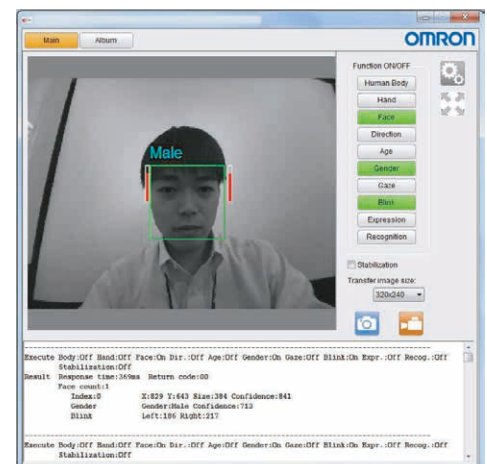
3

Evaluation software and development tool can be downloaded for free from the website

- Development tool [\[Japanese\] https://www.omron.co.jp/ecb/](https://www.omron.co.jp/ecb/)
Click here to download [\[English\] https://components.omron.com/](https://components.omron.com/)



Development tool download page



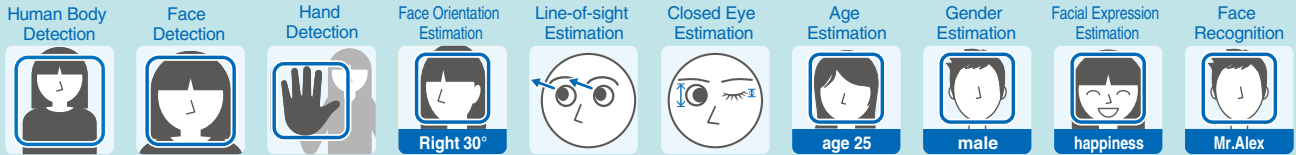
Evaluation software (image)

Product / Technology Overview

- Equipped with human recognition image sensing technology (cumulative shipments* of over 1 billion licenses) supported by face information of more than 1 million people.



* Cumulative number of licenses shipped over the past 10 years, as of April 2018, according to our in-house research



* "OKAO" and "OKAO Vision" are trademarks or registered trademarks of OMRON Corporation in Japan and other countries.

- The human recognition image sensing technology has been modularized by utilizing the algorithm's strengths of small size and high speed.

▶▶▶ It can be easily installed in customer's equipment that lacks a camera. *A system needs to be built after output is received from the product.

Customer's equipment that lacked a camera



Example Applications

Example Applications

Beverage vending machines, ticket vending machines, POS, signage

- It can be used for marketing upon analyzing the customer base from attribute information (age, gender, facial expression) and accumulating data
- Enable effective advertising by switching and displaying advertisements according to attribute information

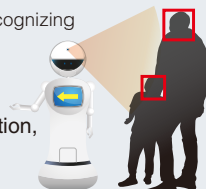
Usage function example:
Face detection, age / gender estimation, facial expression estimation, etc.



Amusement equipment, robot equipment

- Identifying the operator and changing the action
- Acting as the eyes for the robot, and recognizing and communicating with the user

Usage function example:
Face detection, human body detection, facial expression estimation, etc.



Modules tailored to specific applications

Wide-angle detection type

B5T-007001-020

Suitable for detecting objects with a wide angle of view at a relatively short distance



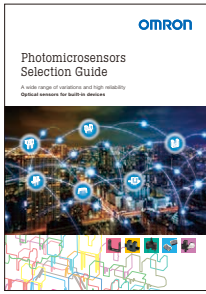
Long-distance detection type

B5T-007001-010

Suitable for detecting objects at a relatively long distance



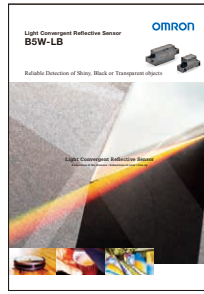
Information of Related Products



Photomicrosensors Selection Guide



Catalog No.
Y211-E1



Light Convergent Reflective Sensor



Catalog No.
E589-E1



3D TOF Sensor Module



Catalog No.
E598-E1



MEMS Flow Sensors



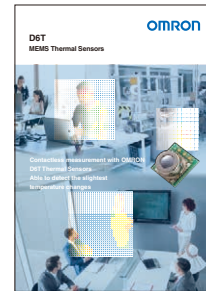
Catalog No.
X211-E1



Environment Sensor



Catalog No.
A287-E1



MEMS Thermal Sensors



Catalog No.
A274-E1

Please check each region's Terms & Conditions by region website.

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Japan

<https://www.omron.co.jp/ecb/>