

Dahlson

Sensor solutions for you!



About Us

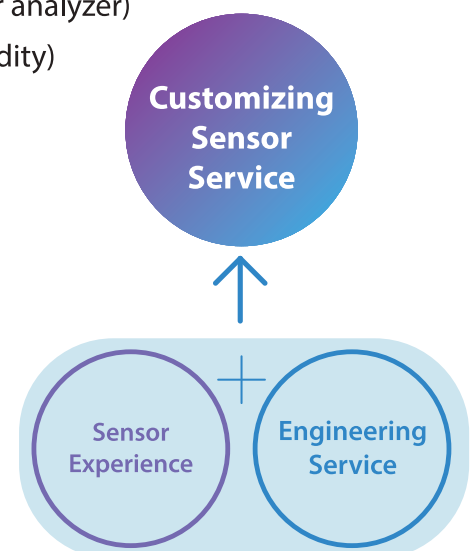
Dahlson was born by customer needs, our all activities are to satisfy various customer needs and solve customer technical issues. We are supplying sensors based on opto-electronics and ultrasonic technology, we focus on skilled technical support, we don't just understand only components, but also applications, how components are used in. We are working with broad range customers and supporting for lots of applications in Medical, Industrial, OA , consumer market.

Our Capability

- Opto-electrical parts
- Fabrication service
- Customizing service (Modularization, Sorted LED, Filtered detector)
- Ultrasonic solutions (Flow, Air-bubble detection)
- OEM business (Semiconductor packaging, Testing)
- Failure analysis capability (SAT, High-scope, Electrical parameter analyzer)
- Reliability test service (High Temp, Low Temp, Heatshock, Humidity)

Our Mission

- To fulfill our customer's needs with our sensor products, wide source range and application experience.
- To focus on engineering service, technical support, competitive pricing and service excellence.
- To be reliable supplier with good relationship, excellent responsibility and stable supply.





Business

Custom Design Service

As the customers want to have their own solution and design, the custom design business is growing in our business territory. Although the customers found right components and a solution, they might face difficulty or spend a lot of time to create their own module, then we are ready to provide one stop service circuit design, PCB art work, sample build and even evaluation. We are fully equipped for design.

OEM Business

Customers can find package drawings we have as OEM solution, customer can design with our open tool packages. We can provide Fabrication, Packaging, Test and Packing. We have strategic manufacturing partners who can offer good quality, cost effective manufacturing solutions certified in ISO 9001, 14001, IATF 16949. We are working very closely and cooperating for all process steps from incoming to outgoing.

Sensor Solution Providing

Our role is to help customer choose right sensing solution, we can provide guideline with our sensor technology and experience. Simulation or working data acquisition shows the customer way to find the fastest decision. Our long experienced engineers will support you to find not only correct solution but also right parts, process and even mass production set-up.

Distribution and Representatives

We always welcome new sources and partners who want to get into the world market and Korean market, we have various customers in broad range applications supporting with experienced technical skills. We are ready to cooperate with confidence. We are specially taking care of opto-electronics, ultrasonic solutions for industrial, medical, automotive, OA market.

PM SENSOR (Horse shoe sensor)

Description

- Horseshoe with two independent outputs of the photo micro sensor.

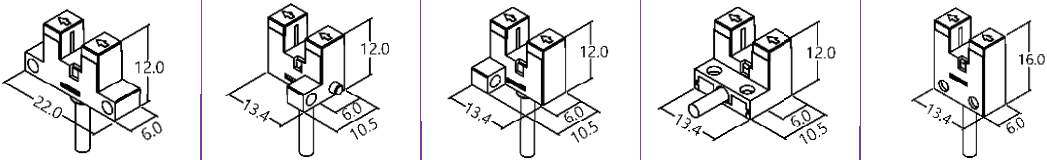

Application

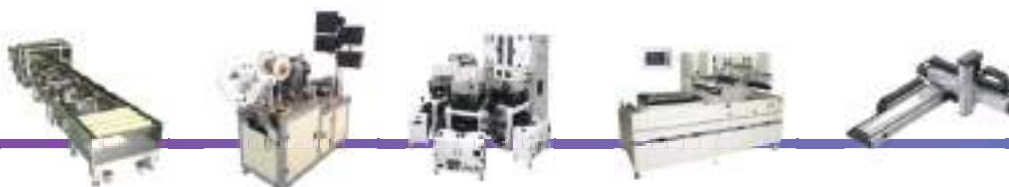
- Industrial sensors
- Automation equipments

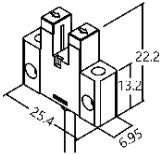
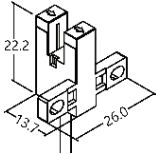
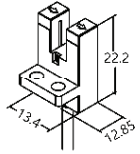
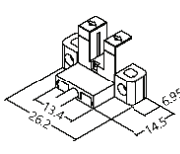
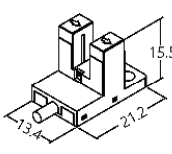





Feature

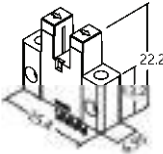
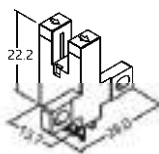
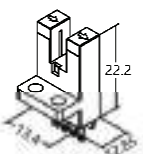
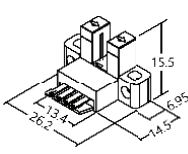
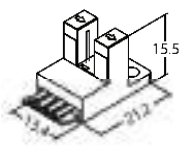





- Small package
- 5 types of design configuration
- Built-in overcurrent protection circuit
- Built-in Reverse polarity and output error connection protection circuit
- Equipped with two independent outputs
- Compact NPN of line configuration

Standard product

Appearance										
Picture										
Sensing range	5mm (fixed)									
Model No.	OMP-A500	OMP-A500P	OMP-A501	OMP-A501P	OMP-A502	OMP-A502P	OMP-A503	OMP-A503P	OMP-A504	OMP-A504P
Output	NPN open -collector transistor	PNP open -collector transistor	NPN open -collector transistor	PNP open -collector transistor	NPN open -collector transistor	PNP open -collector transistor	NPN open -collector transistor	PNP open -collector transistor	NPN open -collector transistor	PNP open -collector transistor
Output operation	Incorporated with 2 outputs : Light-ON / Dark-ON					Cable Type				



Appearance					
Picture					
Sensing range	5mm (fixed)				
Model No.	OMP-A600 OMP-A610	OMP-A601 OMP-A611	OMP-A602 OMP-A612	OMP-A603 OMP-A613	OMP-A604 OMP-A614
Output	NPN open -collector transistor	NPN open -collector transistor	NPN open -collector transistor	NPN open -collector transistor	NPN open -collector transistor
Output operation	Incorporated with 2 outputs : Light-ON / Dark-ON		Cable Type		

Appearance					
Picture					
Sensing range	5mm (fixed)				
Model No.	OMP-A610	OMP-A611	OMP-A612	OMP-A613	OMP-A614
Output	NPN open -collector transistor	NPN open -collector transistor	NPN open -collector transistor	NPN open -collector transistor	NPN open -collector transistor
Output operation	Incorporated with 2 outputs : Light-ON / Dark-ON		Connector type		

PHOTOELECTRIC SENSOR

Optical



Description

- OMP-A8XX Large gap horseshoe with two independent outputs of the photoelectric sensor.
- Two outputs include dark-on/Light-on selectable function.


Application

- Industrial machines
- Automation equipments

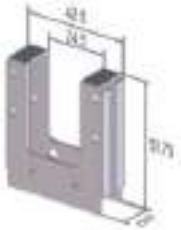
Features

- Horseshoe Type Sensor with groove width of 25mm
- Models are available with one or two light axes
- Models are available with Light-on or Dark-on

Product List

Type	Appearance (mm)	Axis	Sensing range	Connection Method	Model No.	Output	Output operation
Through - beam		1	25mm	Pre-Wired (2M)	OMP-A801	NPN Output	Light-On Dark-On Select
				Connector (M8, 4Pins)	OMP-A811		
		2		Pre-Wired (2M)	OMP-A802		
				Connector (M8, 4Pins)	OMP-A812		

Accessories

Type	Appearance (mm)	Model No.
Protective Bracket		OMP-80B

Specifications

Parameter		Specifications (mm)	
Number of optical axes		1	2
Sensing distance		25mm	
Standard sensing object		Opaque, 1.5mm dia min	
Light source		Infrared LED (940nm)	
Indicator		Light indicator (Power : Green, Output : RED)	
Supply voltage		12V ~ 24VDC \pm 10 % Ripple P-P 5% or less	
Current consumption		30mA Max	40mA Max
Output		NPN open-collector transistor •Maximum sink current : 50mA •Applied voltage : 30 V DC or less (between output and O V) •Residual voltage : 0.7 V or less (at 50 mA sink current) 0.4 V or less (at 16 mA sink current)	
Output operation		Selectable : Light-ON / Dark-ON	
Response time		1 ms or less (1 KHz)	
Environmental resistance	Protection	IEC IP64	
	Ambient temperature	-25 ~ +55 C(No dew condensation or icing allowed) , Storage : -30 ~ +70°C	
	Ambient humidity	35 ~ 85%RH, Storage : 35 ~ 85%RH	
	Ambient illuminance	Incandescent lamp 3,000lx max Sunlight : 10,000lx max	
	Insulation resistance	20M Ω min. at 500VDC between lead wire and case	
	Dielectric strength	1,000VAC, 50/60Hz for 1 min between lead wires and case	
	Vibration resistance	10~55 Hz frequency, 1.5mm amplitude in X, Y and Z directions for two hours each	
	Shock resistance	500m/s ² acceleration (5G approx.) in X, Y and Z directions for three times each	
Material		Case : Acrylonitrile butadiene styrene, Slit cover : Polycarbonate	
Connection method		Pre-Wire cable(standard length : 2M) / Pre-wired Connector(standard length : 0.3M)	
Weight		Pre-Wire cable(Approx. 70g) / Pre-wired Connector(Approx. 30g)	
Protective function		Reverse polarity protection circuit Output over-current protection circuit Output error connection protection circuit	

WATER DETECTION SENSOR

Optical



Description

- DST-SI02W Photoelectric sensor of transmissive type which detects the water.

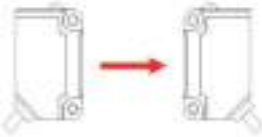
Application

- Detection of water level in tank
- Water detection in transparent tube
- Water detection in colored bottle

Features

- Not respond by froth and bubbles
- Low current consumption
- Convenient Mounting

Product List

Type	Specifications (mm)	Sensing range	Model No.	Output	Output operation
Emitter		500mm	OMS-W50	-	Incorporated with outputs : Light-ON
Receiver			Pre-Wired (2M)	NPN open-collector transistor	Cable Type (2M)



Specifications

Parameter		Specifications (mm)
Sensing range		0.5M (without container or pipe)
Minimum sensing object		Φ25mm or more liquid which contains water, or opaque object
Supply Voltage		12V~24V DC ±10% Ripple P-P 10% or less
Current consumption		Emitter : 15mA or less, Receiver : 15mA or less
Output		NPN open-collector transistor • Maximum sink current : 100mA • Applied voltage : 30 V DC or less (between output and 0V) • Residual voltage : 1.5 V or less (at 100 mA sink current) 0.4 V or less (at 16 mA sink current)
Output operation		Incorporated with outputs: Light-ON
Response time		12ms or less
Power indicator		Red LED
Operation indicator		Blue LED(lights up under light received condition)
Environmental resistance	Protection	IP67 (IEC)
	Ambient temperature	0~+55°C (No dew condensation or icing allowed), Storage : -30~+70°C
	Ambient humidity	35~85%RH, Storage : 35~85%RH
	Ambient illuminance	Fluorescent light : 1,000lx at the light-receiving face
	Voltage withstandability	Fluorescent light : 1,000lx at the light-receiving face
	Insulation resistance	20MΩ, or more, with 250V DC megger between all supply terminals connected together and enclosure
	Vibration resistance	10~2,000Hz frequency, 1.5mm amplitude in X, Y and Z directions for two hours each
	Shock resistance	500m/s ² acceleration (50G approx.) in X, Y and Z directions for three times each
Emitting element		Infrared LED
Material		Polycarbonate
Cable		0.09mm ² 3-core(emitter:2-core) cabtyre cable 2M(OMS-W5x)
Weight		Emitter : 40g Approx, Receiver : 45g approx

SLOTTED SWITCHES

Optical



Description

- DST153-51LA is transmissive type slotted switch with infrared LED and NPN silicon photo transistor. Dust resist design and no aperture opening.

Application

- Timing, Home and End sensor for ATM, Printers, Semi conductor equipments

Features

- Slot width: 3.11mm
- Aperture inside
- Selectable Aperture: 0.254mm, 1.27mm
- Wire: 1m
- Transistor output
- Dust resist design
- Visible light cut filter

Absolute maximum ratings

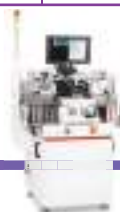
(Ta=25 °C)

Parameter		Symbol	Rating	Unit
Input	Power dissipation	P _O	100	mW
	Reverse voltage	V _R	5	V
	Forward current	I _F	50	mA
Output	Collector Power dissipation	P _C	100	mW
Operating temperature		T _{OPR}	-25 ~ 85	°C
Storage temperature		T _{STG}	-30 ~ 100	°C

Electro-optical characteristics

(Ta=25 °C)

Parameter		Symbol	Conditions	Min	Tpy	Max	Unit
Emitter	Forward voltage	V _F	I _F =20mA	-	1.2	1.5	V
	Reverse current	I _R	V _R =5V	-	-	10	μA
Detector	Collector Dark Current	I _{CEO}	V _{CEO} =10V	-	-	0.1	μA
	Collector Emitter voltage	V _{CEO}	I _{CE} =500μA	30	-	-	V
	Emitter Collector voltage	V _{ECO}	I _{EC} =50μA	5	-	-	V
Coupled output current		I _C	V _{CE} =5V, I _F =20mA	0.5	-	-	mA
C-E saturation voltage		V _{CE(sat)}	I _F =30mA, I _C =0.1mA	-	-	0.4	V
Switching Speeds	Rise time	t _r	V _{CC} =5V, I _C =2mA	-	5	-	μs
	Fall time	t _f	R _L =100Ω	-	5	-	μs





Description

- DST153-51DT is transmissive type slotted switch. It is designed dust resist without aperture opening.
- The output can be selected as totem pole or open collector.

Application

- Timing, Home and End sensor for ATM, Printers, Factory automation machine.

Features

- Slot width : 3.11mm
- Aperture inside
- Selectable Aperture : 0.254mm, 1.27mm
- Output : Totem pole, open collector
- Dust resist design
- Visible light cut filter

Absolute maximum ratings

Ta=25°C

Parameter		Symbol	Rating	Unit
Emitter	Power dissipation	P _o	100	mW
	Reverse voltage	V _R	5	V
	Forward current	I _F	50	mA
Operating temperature		T _{OPR}	-25 ~ 85	°C
Storage temp		T _{STG}	-30 ~ 100	°C

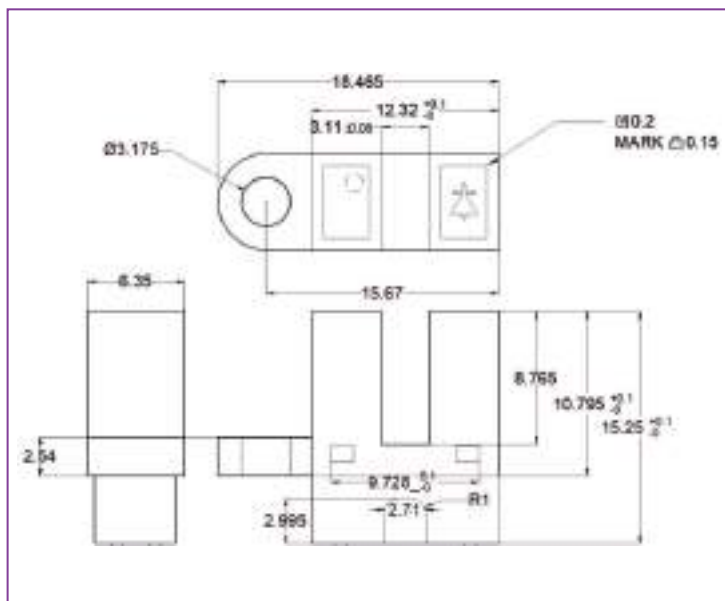
Electro-optical characteristics (Totem pole & Open-Collector)

Ta=25°C

Parameter		Symbol	Conditions	Min	Typ	Max	Unit
Emitter	Forward voltage	V _F	I _F = 20mA	-	1.2	1.5	V
	Reverse current	I _R	V _R = 5V	-	-	10	μA
Detector	Operating Supply Voltage	V _{CC}	-	4.75	5	5.5	V
	Low Level Supply Current	I _{CCH}	-	-	-	15	mA
	High Level Supply Current	I _{CCL}	-	-	-	15	mA
	High Level Output Voltage	V _{OH}	-	2.4	-	-	V
	Short Circuit Output Current	I _{OS}	V _{CC} = 5V, I _F = 10mA	-	40	-	mA
	Output Rise Time	t _r	-	-	0.1	-	μs
	Output Fall Time	t _f	-	-		-	

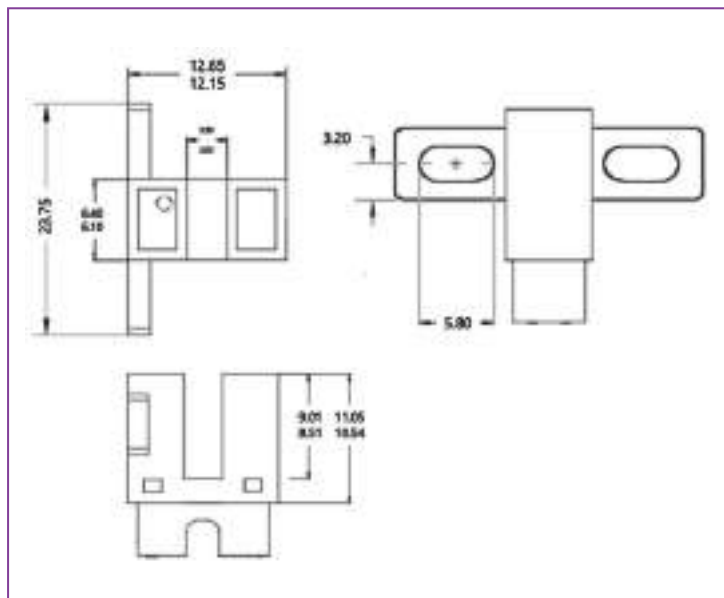
■ Dimensions

DST153-51LA



Color - Pin #	Description
Brown- 1	Anode
Blue -2	Cathode
White - 3	Collect
Black - 4	Emitter

DST153-51DT



Color - Pin #	Description
Red - 1	Anode
Black -2	Cathode
White - 3	Vcc
Blue - 4	Output
Green - 5	Ground

OPTICAL SENSOR

Standard product

Image	Part No.	Type	Feature	Description	Color - Pin #
	OGT-201T	Transmissive	IR LED, P-TR	General purpose slotted switch with mount tab	OA, Industrial
	OGT-202T	Transmissive	IR LED, P-TR	General purpose slotted switch	OA, Industrial
	OGT-203T	Transmissive	IR LED, P-TR	General purpose slotted switch	OA, Industrial
	OGT-204T	Transmissive	IR LED, P-TR	There is no open aperture outside	OA, Industrial
	OGT-205T	Transmissive	Schmitt trigger	Under development	OA, Industrial
	OGT-301T OGT-302T	Separated	IR LED, P-TR	Connector, hooks for snap-in	OA, Industrial
	OGT-401T OGT-402T	Separated	IR LED, P-TR	Connector, mount tab	OA, Industrial
	OGT-403T OGT-404T	Separated	IR LED, P-TR	Connector, Clicking type	OA, Industrial
	OGT-501T OGT-502T	Separated	IR LED, P-TR	Connector, dual beam, mount tab	OA, Industrial
	OGR-01	Reflective	IR LED, P-TR	Dip type	OA, Industrial
	OGR-3020	Reflective	COB, IR LED, P-TR	Surface mount available	OA, Industrial
	OGR-1200	Reflective	COB, Color sensor	Customized type	OA, Industrial
	DST153-51LA	Transmissive	Wire Harness	Mount Tab, 1m wire	OA, Industrial
	OGT-207T	Transmissive	Wire Harness	Mount Tab, 1m wire	OA, Industrial

DISTANCE SENSOR



Description

- OMS-RPSD30, OMS-RPSD80 are a distance measuring sensor unit.
- Composed with an integrated of PSD, Infrared emitting diode and signal processing circuit.

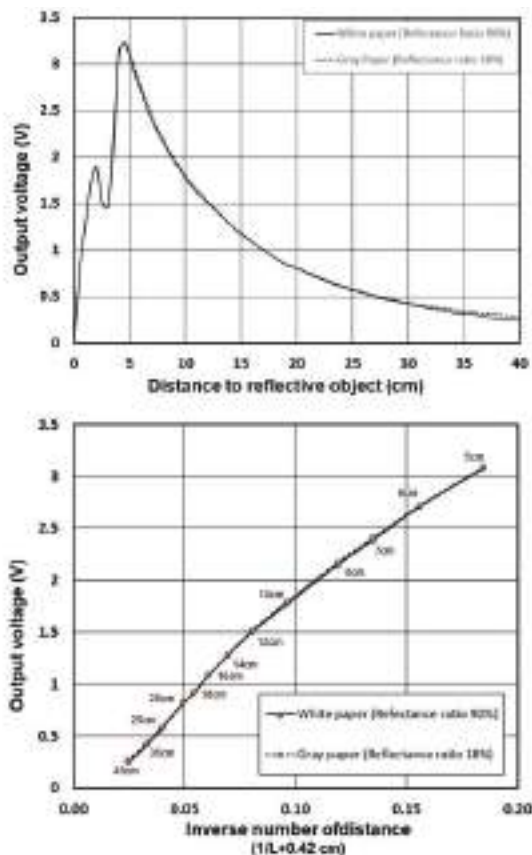
Application

- Robot cleaner
- Touch-less switch
- ATM, Copy machine
- Human detector

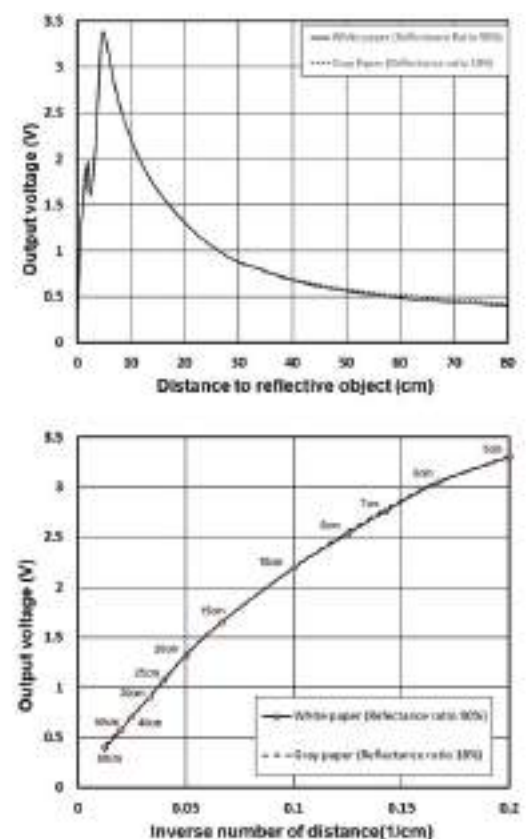
Features

- Analog or Digital output
- Distance measuring range
 - OMS-RPSD30 : 5 to 30cm
 - OMS-RPSD80 : 10 to 80cm
- Package size : 29.5 x 13 x 13.5mm

OMS-RPSD30



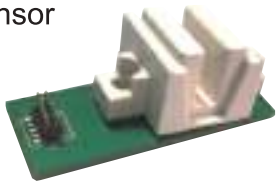
OMS-RPSD80



AIR BUBBLE SENSOR



Digital Bubble Sensor



DST-SU03



Separated Type

Description(DST-SU03)

- Bubble sensor with ultrasonic solution to detect bubble in tube.

Application

- Infusion pump

Features

- Analog output
- High sensitivity : minimum bubble size 30% tube
- Tube size (Recommendation : $\Phi 3.5 \sim 4.0 \text{mm}$ (outside dia.))
- Tube type : Soft

Ultrasonic

Characteristics

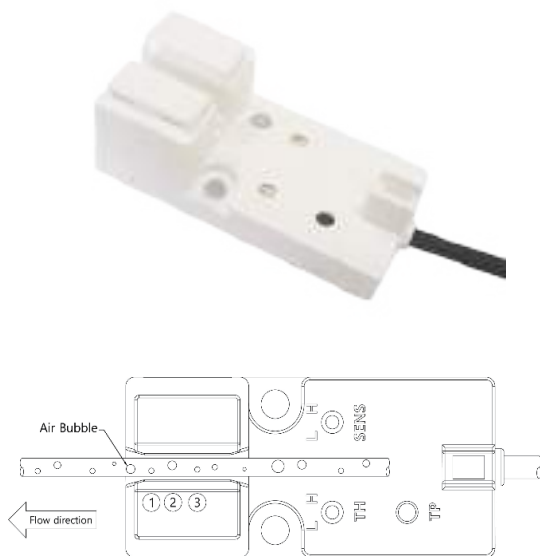
(Ta=25℃, VCC=5V)

Parameter	Symbol	MIN	TYP	MAX	UNIT
Supply Voltage Range	V_{CC}	3.15	3.3	3.5	V
Supply Current	I_{CC}	-	3	4	mA
Output Low Voltage (Bubble)	V_{OL}	0	-	0.5	V
Output High Voltage (No Bubble)	V_{OH}	-	0.8	2.0	V



DIGITAL BUBBLE SENSOR

Ultrasonic



Description

- Bubble sensor with ultrasonic solution to detect a bubble in tube

Features

- Digital output
- Adjustable sensitivity

Application

- Infusion pumps

Specifications

Parameter	Specification	Note
Supply Voltage Range	5.0VDC \pm 5%	
Supply Current	Max 30mA	When 5.0 VDC power is applied
Analog Output Voltage	Empty Tube : 0~0.5VDC Filled Tube : 0.5~4.0VDC	
Digital Output Voltage	Empty Tube : Logic Low(0~0.1VDC) Filled Tube : Logic High(4.5~5.0VDC)	
Tube Size Available	Φ 1.8mm ~ Φ 2.3mm	
Detectable Bubble Size	Φ 0.4mm	May vary depending on tube material/thickness.
Storage Temperature	-10°C ~ 60°C	
Operating Temperature	-10°C ~ 40°C	
Suitable Temperature	Up to \pm 10% (23°C)	

Input/output definition (cable)

Pin Number	Wire Color	Pin Assign
1	Brown	Vcc(+)
2	Blue	GND(-)
3	Black	Analog output
4	White	Digital output

* Wire : AWG 28 * 4C(0.09mm²), Out Diameter Φ 2.5mm, Length 1,000mm

Threshold Voltage Setting

No	Threshold Voltage Set Value	Digital Output Occurrence Voltage Difference
1	3.5V < Threshold Voltage	0.1V
2	2.7 < Threshold Voltage ≤ 3.5V	0.2V
3	1.8 < Threshold Voltage ≤ 2.7V	0.3V
4	1.0 < Threshold Voltage ≤ 1.8V	0.4V
5	Threshold Voltage ≤ 1.0V	0.5V

AMBIENT LIGHT SENSOR



MIP1A-2F5R1



MIL1A-2F5R1-1 (5mm)



MIL1A-2F5R1 (3mm)

Description

• Low cost ambient light sensor with a current output which is directly proportional to the ambient light level. It has a built-in optical filter to provide a response which is close to the human eye, or "Photopic". The output current can be converted to a voltage by connecting it in series with a resistor. The dynamic range is determined by the external resistor and power supply (10K and 5V gives a range of 0 to 160 Lux, but can be over 700 Lux with a 1 K resistor). The internal dark current cancellation circuit enables a stable accuracy over the full temperature range, even at low light levels.

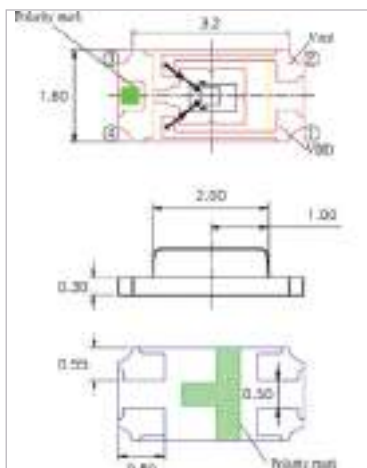
Application

- Dawn/dusk sensing
- Surveillance cameras
- Display backlighting in laptops, mobile phones, LCD TVs
- Automotive head light systems

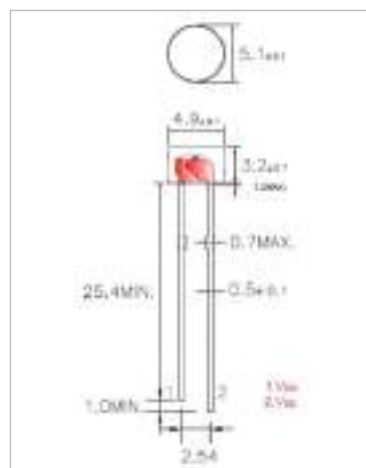
Features

- Near human eye photopic response
- High IR rejection with embedded optical filter
- Current output high linear vs. ambient light level
- Temperature stable
- Integrated photo-current amplifier
- Excellent dark-current performance

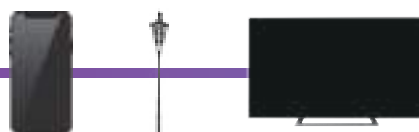
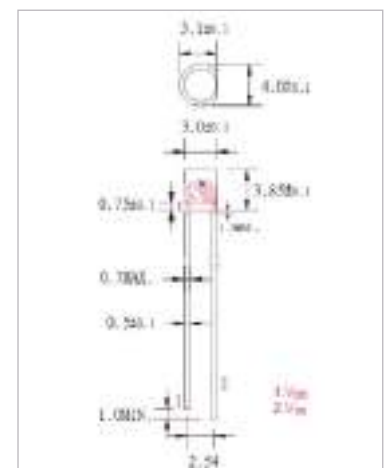
SMD Type



5mm



3mm



Recommended Operating Conditions (Ta=25°C)

Parameter	Min		Max	Units
Input Supply Voltage, VIN	3	5	5	V
Junction Temperature Range	-40		125	°C
Ambient Temperature Range	-40		125	°C

* Specifications may vary depending on the package.

Electrical and Optical Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Min. Operating Voltage	-	VDD-VSS	-	3	5	V
Output Current	I _{OUT1}	Ev=10Lux, VDD=3.0V	-	0.50	-	μA/Lux
	I _{OUT2}	Ev=100Lux, VDD=3.0V	-	50.0	-	μA/Lux
	I _{OUT3}	Ev=100Lux, VDD=3.0V	-	56.0	-	μA/Lux
Light Current Ratio	I _{OUT3} /I _{OUT2}	Incandescent to fluorescent light	-	0.88	-	-
Dark Current Equivalent Lux	I _{dkΔL}	Ev=0lux, TA=25°C, VDD=3.0V	-	-	0.01	Lux
		Ev=0lux, TA=85°C, VDD=3.0V	-	0.31	-	Lux
Dark Current	-	25°C	-	0.2	-	nA
		85°C	-	0.5	-	nA
		125°C	-	100	-	nA
Gain Linearity	-	-	-10	-	+10	%
Peak Spectral response	-	-	-	550	-	nm
Sensitivity Area	-	-	-	0.09	-	mm ²
Useable Light Range	-	-	5	-	1000	Lux

* Specifications may vary depending on the package.

LED

Description

- UV, Visible, Infrared LEDs with diverse packages
- COB, Plastic, Ceramic, MID, PLCC, Metal can, Metal PCB
- Engineered Lens available

Application

- Medical sensor : SPO2
- Currency counter
- Industrial machine
- Agricultural sensor

Discrete

Image	Package type	Lens	UV	VI	IR	Description	Application
	COB			0	0	Easy to customize, multifunctional -LED available	Medical, Industrial, OA
	COB/SMD	0		0	0	Easy to mount, good for mass production	Home appliance (Indicators), Industrial
	Standard COB			0	0	Compact, good for indication	Home appliance, OA
	COB/Array			0	0	Good for customized sensor application	OA
	Flat TO-Can		0	0	0	Highly reliable performance	Industrial, Defense, OA
	TO-Can	0	0	0	0	Precision lens, good reliability	Industrial, Defense, OA
	Plastic	0		0	0	General purpose	General purpose
	Transfer mold	0		0	0	General purpose	OA, industrial, Home appliance
	Ceramic	0	0	0		High power	Illumination
	High Power	0		0	0	High power	Illumination
	MID	0		0	0	Good uniformity for sensor application	Industrial, OA
	PLCC/3528	0		0	0	Lens available with PLCC	Illumination, Industrial
	PLCC/3528			0	0	General purpose	Illumination, Industrial
	PLCC/5450		0	0	0	High tech sensing	Illumination, Industrial, Medical
	Side looker			0		General purpose	Illumination
	AL Package		0	0	0	Ultra durable with surface mount package	illumination, Medical



DETECTOR

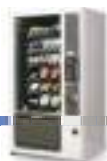
Description

- Standard photo diode, TR, InGaAs PD, Color sensor, thin film coated detector with various package and customized design.

Application

- OA: Printer, Currency counter
- Home Appliance: LCD TV, Wireless Audio, Remote control
- Industrial: Encoder, Photo sensor
- Automotive: Sun-load sensor • Defense sensor

Package type	Single Cell	Array	Color Sensor	Photo TR (or Array)	Quadrant	ASIC Photo-IC
Metal Can						
COB						
Lead Frame						
Plastic						
COB Pin						
Ceramic						
Lens						



SMART DUAL LOCK



■ Features

- Dual lock system with Biometric+Bluetooth
- Automatic user identify with pairing
- 3 mode available; One-shot, Bluetooth, Dual lock
 - One-shot : One touch lock/open mode
 - Bluetooth : Smartphone control mode
 - Dual lock : Security enhanced mode

■ 3Lock Mode operations

- One-shot mode
 - It's working just with biometric
 - Finger print information is removed after one time using
- Bluetooth mode
 - Locker can be operated by smartphone
 - Adjust setting and mode selection available
- Dual Lock mode
 - This is Security enhanced mode
 - Locker identify user's smartphone and finger print together
- Simple operation: User's smartphone identification is done automatically, it's same operation as one-shot mode

■ Extra Feature

- Micro-USB connector against battery out
- LED indicator
- Application for setting and adjustment

Module



Emergency Power
interface



LED indicator



Application
software

WEARABLE SENSOR MODULE



Description

- Scoliosis brace attachment sensor module
- Sensor module for temperature, pressure measurement
- Operates for more than 6 months with 2032 battery
- Supports USB, bluetooth data transmission

Application

- Scoliosis brace

Characteristics

Items	Performance	Note
Power	3.2V Coin battery	2032 Standard
Communication Standards	USB CDC	
Battery operating life	6 Months	Based on 20-minute cycle storage
Storage capacity	9 Month supply	
Storage interval	20 minutes	
Storage information	time (YYYY-MM-DD-hh-dd) pressure, temperature	
Measuring pressure range	5g ~ 4kg	Output in percentage
Operating temperature	0 ~ 50°C	

