

OMRON



Components Catalogue



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Welcome to the Omron Components Catalogue

Omron Components is a world-class business delivering a wide range of high quality, high performance components utilising latest technologies and backed by full technical, applications and logistical support.

We offer the widest range of relays for power, signal and automotive applications as well as solid-state and MOSFET relays. Our G3VM MOSFETS combine

the advantages of mechanical and solid-state technologies allowing design flexibility with either AC or DC load able to be connected in either direction. We are also developing our range of microsensors, and currently offer photomicrosensors and a new range of D8M-D8 micro pressure-sensors which meet stringent safety standards such as working reliably with low pressure, metal casing and flange fitting. Our broad range of switches includes micro, DIP, and tactile options, and you will find a wide selection of connectors to meet

industry-standard data interconnect, power transmission and signalling. Omron Double Reflection LEDs feature built-in optical light guide technology that more than doubles effective light output compared with conventional bullet-type LEDs.



Environmental research and experience enabled us to formulate a policy to remove recognised hazardous substances from our products well within the timescales of European Directives. We have identified suitable alternative materials and agreed the changes we need to make to our production processes in order to maintain quality levels. All of our manufacturing sites have achieved ISO14001 certification for the management of environmental protection in our organisation.



Using our website alongside this catalogue, you can be kept fully up-to-date with our range of products, technical capabilities and environmental policy.

www.eu.omron.com/ocb

Omron Electronic Components Europe B.V. reserves the right to make any changes to the specifications, technical information and data of the components described in this catalogue at its sole discretion without prior notice

Although we do strive for perfection, Omron Electronic Components Europe B.V. does not warrant or make any representations regarding the correctness or accuracy of the specifications, technical information and data of the components as described in this catalogue.

■ Luminous Intensity Rank Standard

	Luminous Intensity standards	
	Minimum	Maximum
Rank E	1000 mcd	1700mcd
Rank F	1700 mcd	3000mcd
Rank G	3000 mcd	5300mcd
Rank H	5300 mcd	9300mcd
Rank J	9300 mcd	16000mcd
Rank K	160000 mcd	-

Maximum and minimum values each have a tolerance of ±15%. Ordering by single rank is not available

Precautions

CAUTIONS

Blue, Bluish Green, and Green LEDs

Blue, bluish green, and green DR LEDs are very sensitive to surge voltages, such as those which occur in the event of electrostatic discharge. Extreme care in handling is required to protect the elements from damage and maintain LED reliability.

Make sure that the voltage applied to each LED does not exceed its absolute maximum rated voltage. Pay extreme attention to surge voltages resulting from turning the power supply ON and OFF.

HANDLING INSTRUCTIONS

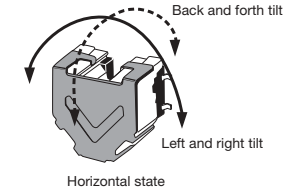
Measures for Preventing Static Electrification and Electrostatic Discharge

If a human body charged with static electricity comes in contact with blue, green, or bluish green units, the semiconductor elements may be subject to electrostatic discharge damage. The unit may be charged by induction caused by a charged object nearby the unit or by friction; therefore in these cases, if the unit comes in contact with a conductive object such as metal, the unit may be damaged as a result of electrostatic discharge. Ensure the following measures are taken when working on the unit.

1. Keep the unit away from insulators that easily build up electrostatic charge.
2. Keep the unit away from processes where the unit will be subject to friction.
3. Ground any equipment, devices and tools such as manufacturing equipment and measuring machines that require grounding.
4. Use a conductive mat or similar product to provide an environment in order to keep away from electrostatic charges.
5. Use an earth band to ground the worker's body.
6. In the case of lead forming, the lead bending point must be at least 1.5mm away in the lead-end direction from the mould so that the mould will be free of forming stress. Solder the leads after lead forming.
7. Apply solder to the leads below the tie bars, because applying solder above the tie bars may not be possible due to thin burrs.

Subminiature PCB Mounting Sensor Discriminating Left or Right Tilt

- Detects the inclination of the Sensor within an activated angle range between 45° and 75° (left and right) and a reset angle range between 50° and 20°
- A subminiature SMD PCB mounting model
- A highly reliable solid-state type by Hall IC
- A surprisingly low power consumption with a maximum of 20µA



Ordering Information

Output configuration	Model
ON/OFF	D6B-1

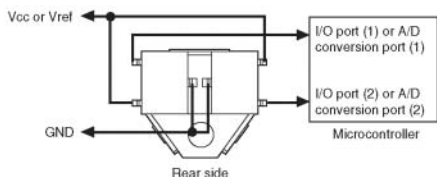
Application

Vertical or horizontal discrimination of digital cameras, PDAs, and cellular phones.

Performance

Operating characteristics	Activated angle	45° to 75° (left and right)
	Reset angle	50° and 20° (left and right)
Output Config.	Horizontal state	High-voltage signal output from the terminals on both sides.
	Inclined left or right	Low-voltage signal output only from the terminals on the side of the moving direction.
Electrical characteristics	Note: Characteristic values are provided, on condition that there is no tilt back and forth while the operation speed is 10° per second.	
	Ta = 25° and Vdd = 3V DC	
	Power supply voltage range (Vdd)	2.7 to 3.3 V DC
	High-voltage output	Vdd-0.5V min.
Low-voltage output	0.5V DC max.	
Current consumption	20 µA max. (10 µA typical)	
Maximum ratings	-0.1 to 5.0 V	
	Power supply voltage (Vdd)	
	Output current (Iout)	± 1mA
Basic specs.	Ambient temperature (operating)	-10°C to 60°C (with no condensation)
	Ambient temperature (storage)	-25°C to 70°C (with no condensation)
	Ambient humidity (operating)	25% to 85%

Electrical Connections



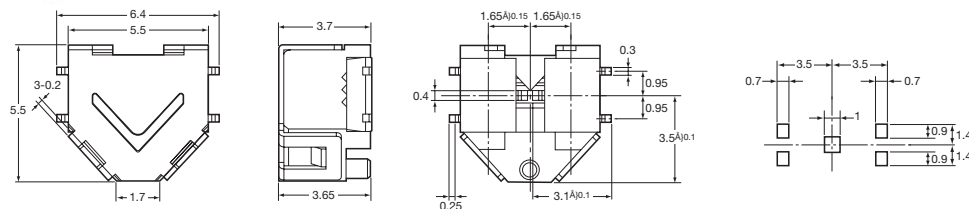
Soldering Conditions

Reflow (Infrared) Soldering Conditions
Weld a thermocouple on the terminal side of the Sensor with HMP (high melting point) solder, place the Sensor into the reflow oven and set the reflow oven so that the peak terminal temperature will be $230\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$. The peak terminal temperature must not exceed $240\text{ }^{\circ}\text{C}$.

Dismounting Conditions with Blower Employed
Dismount the Sensor at a temperature of $240\text{ }^{\circ}\text{C}$ within five seconds. If a soldering iron is applied manually, dismount the Sensor within 10 seconds at an iron tip temperature of $260\text{ }^{\circ}\text{C}$ or within three seconds at an iron tip temperature of $350\text{ }^{\circ}\text{C}$.

External Conditions

D6B-1



Cautions

- The Sensor does not use any materials detrimental to the ozone layer.
- Specifications other than the electrical or mechanical characteristics, external dimensions, or mounting dimensions of the Sensor are subject to change without notice.

Handling Precautions

Operating Environment

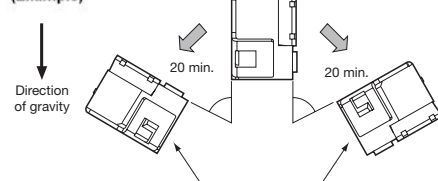
- The Sensor consists of a Hall IC and a magnet. Check that the Sensor in operation will not be influenced by any external magnetic fields.
- Do not install any magnetic materials within 2 mm of the Sensor, else the performance characteristics of the Sensor may not be guaranteeable. If there are any objects (e.g., motors and solenoids) generating magnetic fields near the Sensor, operate and test the Sensor before the Sensor comes into actual use.
- Do not apply any voltage exceeding 5V to the Sensor, else the Sensor may break.
- Do not wash the Sensor after the Sensor is soldered.
- Do not mount or dismount the Sensor while power is flowing to the Sensor.
- The Sensor may generate error signals if impacted at a minimum acceleration of 294 m/s^2 .
- The Sensor may generate error signals if a vibration at a minimum frequency of 15 Hz and a minimum acceleration of 15 m/s^2 is applied to the Sensor.

- Confirm that no static electricity at a maximum voltage of 5kV is applied to the pins, else the Sensor may break.

Operating Characteristics

The present output may be kept if the inclination of the Sensor back and forth is 20 ° or over. Under that condition, the output may not change even when the Sensor is leaned left or right.

(Example)



If the Sensor is kept inclined back or forth as shown in the above illustration, the level of output may not change from high to low or low to high when the Sensor inclines left or right.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Air Flow detector specifically to detect clogged conditions in air filters on servers and other types of computer equipment

- Detects the clogged conditions of air filters more efficiently than a conventional time totalling meter
- Adopts a velocity of the wind monitor employing an NTC thermistor to output 0 to 5V analog voltage signals



Ordering Information

Model
D6A-N

Specifications

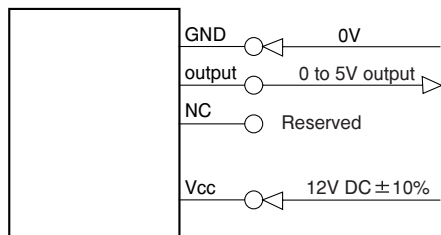
Mounting method	Front secured with nylon rivets (see External Dimensions for the dimensions of the Sensor)
Temperature device	NTC thermistor (epoxy resin coat)
Detection method	Velocity of wind monitor method (80 °C own heating type)
Connector	Japan Aviation Electronics Industry's IL-Z Series
Operating temperature	0°C to 45°C (with no icing)
Storage temperature	-25°C to + 65°C
Operating humidity	25 to 85%RH
Storage humidity	25 to 85%RH
Applicable gas	Air
Range of velocity of wind detection	0.5 to 1.5m/sec.
Mounting direction	Mount the Sensor so that the ventilation opening will be located vertical to the wind direction.
Drive power supply	12V DC asd ± 10%
Operating environmental conditions	The Sensor must be free of oil, moisture, and/or dust. Otherwise, the thermal diffusion characteristics of the Sensor will change.

Caution: Judge the degree of clogging condition from a voltage differential based on the initial voltage obtained when the filter is clean. One minute will be required for the stabilization of the Sensor after the Sensor is turned on.

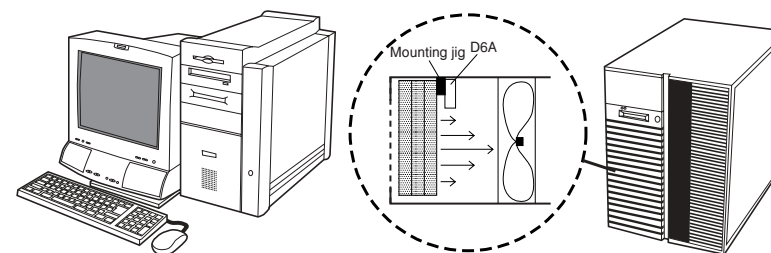
Performance

Head	Test Method	Criteria
(1) Output voltage characteristics	<ul style="list-style-type: none"> Power supply voltage: 12.0V DC Load resistance: 1MΩ Ambient temperature: 25 ± 5 degrees, Relative humidity: 25% to 85% RH 	Output range: 0.2 to 5.0V (0 to 1.5m/sec.) [Relative value] Based on output at a velocity of wind of 1.5m/sec. Output at velocity of wind of 1.0m/sec.: -1.80V ± 0.45V Output at velocity of wind of 0.5m/sec.: -4.25V ± 0.75V [Absolute value] (Reference value) <ul style="list-style-type: none"> EVelocity of wind of 0.5m/sec.: Output of 0.25V ± 1.2V EVelocity of wind of 1.0m/sec.: Output of 2.70V ± 1.35V EVelocity of wind of 1.5m/sec.: Output of 4.50V ± 1.35V
(2) Temperature characteristics	<ul style="list-style-type: none"> Power supply voltage: 12.0V DC Ambient temperature: 0°C to 45°C Relative humidity: 25% to 85% RH 	[Relative value] Based on output (at 25 °C) at a velocity of wind of 1.5m/sec. Output at velocity of wind of 1.0m/sec.: -1.80V ± 0.55V Output at velocity of wind of 0.5m/sec.: -4.25V ± 0.90V
(3) Max. output voltage	<ul style="list-style-type: none"> Power supply voltage: 13.2V DC Velocity of the wind: 1.5m/sec. Ambient temperature: 25 ± 5°C Load resistance: 1MΩ 	5.2V max
(4) Current consumption	<ul style="list-style-type: none"> Power supply voltage: 13.2V DC Measured velocity of the wind: 1.5m/sec. Ambient temperature: 25 ± 5°C Load resistance: 1MΩ 	60mA max.
(5) Insulation resistance	Measure the insulation resistance between the whole terminals and the sensor frame with a 100V DC insulation resistance tester	20MΩ min.
(6) Dielectric strength	Apply 500V AC for one minute between the whole terminals and the sensor frame.	Max. leak current of 1mA

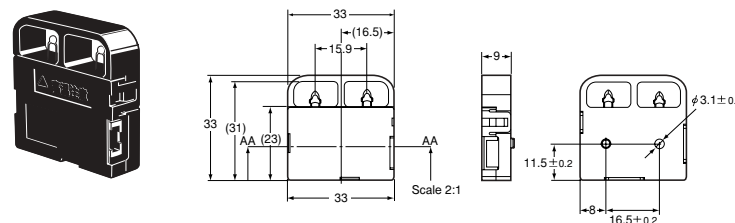
Electrical Connections



Application Example



External Dimensions



Cautions

HANDLING PRECAUTIONS

Storage

- Pay the utmost attention as follows when storing the Sensor for long periods of time.
- (1) Select a storage venue in consideration of protecting the Sensor from dust and humidity.
 - (2) Store the Sensor in the original packing materials

Mounting to Store computer

- (1) Perform a safety check if the Sensor is dropped.
- (2) Connect the Sensor to the connector securely.
- (3) Use Kitagawa Industries' NRP-345 nylon rivets to secure the Sensor.

Precautions for Operation

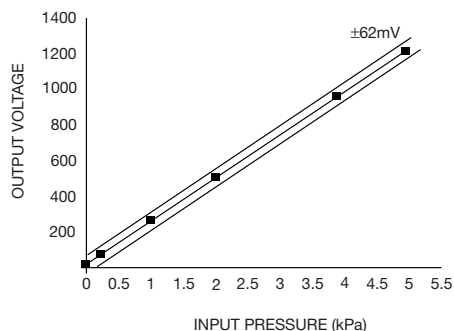
- (1) Do not apply a voltage of 13.2V DC or higher to the Sensor.
- (2) Keep clean the thermistor during maintenance. The output voltage of the thermistor will drop if there is any oil, moisture, and/or dust on the surface of the thermistor.
- (3) Do not bend the terminals of the thermistor while cleaning, otherwise the output voltage of the thermistor will drop.
- (4) Check that the PCB is free of water or moistened dust, otherwise the internal circuit will short-circuit.
- (5) A maximum of 12V DC is applied to the terminals of the thermistor.
Do not touch them, otherwise an electric shock may be received. When incorporating the Sensor into your product, describe this precaution in the maintenance manual of the product.
- (6) When the Sensor is turned on, the thermistor will heat to approximately 80°C. Touching the thermistor may result in burns.
When incorporating the Sensor into your product, describe this precaution in the maintenance manual of the product.
- (7) When disposing of the Sensor, be mindful of necessary risk prevention and environmental maintenance.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

- Analogue output
- Pressure range 0 to 4.9kPa
- Current Consumption 2.5mA (supply voltage 2.2±0.01V, load resistance 1MΩ min., supply pressure 4.9kPa)
- Temperature compensated over full range -30° to 70°C
- Supply Voltage 2.2±0.1VDC
- Output resistance 500 Ω
- Protection Structure IP40



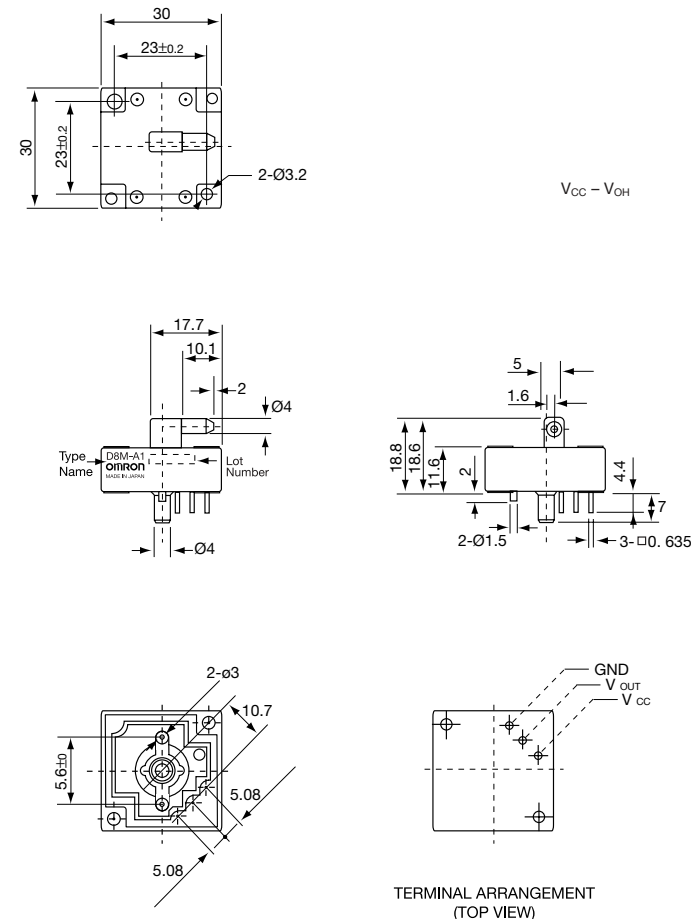
Recommended Operating Condition



Characteristics

Output Voltage	15 to 1247mV (at the central value)
Repeatability & Hysteresis	±0.5%
Operating Temperature	-30° to 70°C
Storage Temperature	-40° to 80°C
Operating Humidity	25 to 95%
Insulation Resistance	100MzΩ min (250VDC between load terminals and base)
Dielectric Withstand	250VAC 50/60Hz for 1 min
Material	Case: PBT(poly-butylene-teleftaret) Base: PBT(poly-butylene-teleftaret)
Withstand Pressure	0.1MPa (3 minutes)

Dimensions



ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

- Digital output
- High noise immunity
- Pressure range 0 to 5.88kPa
- Current consumption 150mA ±5% at output 3VDC
- Temperature compensated over full range -30°C to 70°C
- Protection Structure IP 40

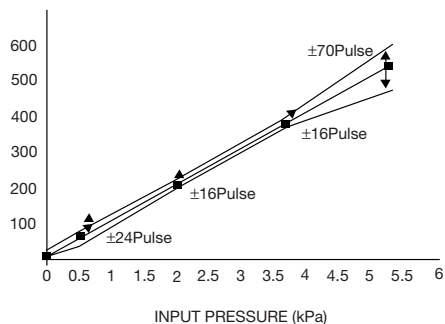


Recommended Operating Condition

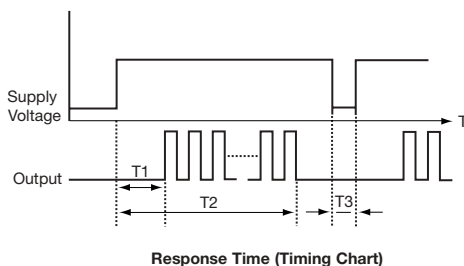
Parameter	Item	Condition	Min.	Max.	Unit
V _{CC}	Supply voltage	-	2.2	3.4	V
V _{OH}	High output voltage	V _{CC} = 3V, I _{OH} = 500μA	V _{CC} - 3V	-	V
V _{OL}	Low output voltage	V _{CC} = 3V, I _{OL} = 500μA	-	V _{CC} + 3V	V

Timing Characteristics

Output resolution	0.1 kPa/1 pulse
Output frequency	150 ~ 450kHz
Output pulse	0 to 550 pulses (at the central value)



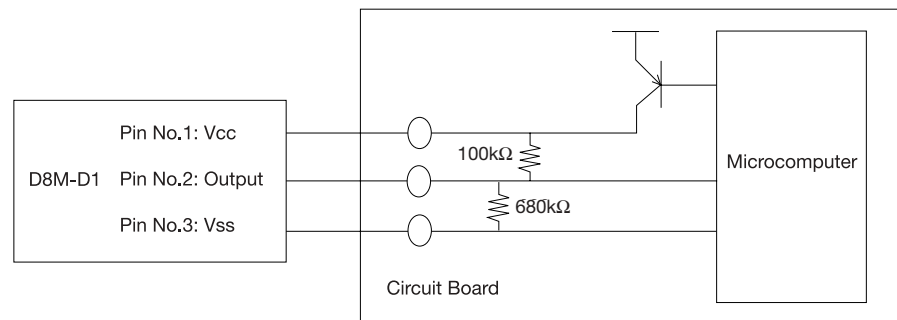
T1 : Pressure measurement time	2.5ms min.
T2 : Response time	18ms max.
T3 : Electrical discharge time	100ms min.



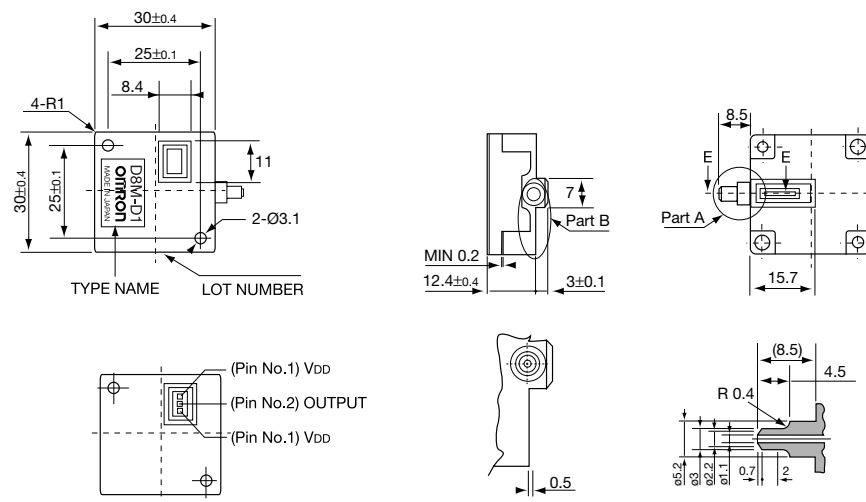
Characteristics

Repeatability & Hysteresis	±0.5%
Operating Temperature	-30° to 70°C
Storage Temperature	-40° to 80°C
Operating Humidity	25 to 95%
Insulation Resistance	100MΩ min (250VDC between load terminals and base)
Dielectric Withstand	250VAC 50/60Hz for 1 min
Material	Case: PBT (poly-butylene-teleftaret) Base: PBT (poly-butylene-teleftaret)
Withstand Pressure	58.8kPa (3 minutes)

Recommended Interface Circuit

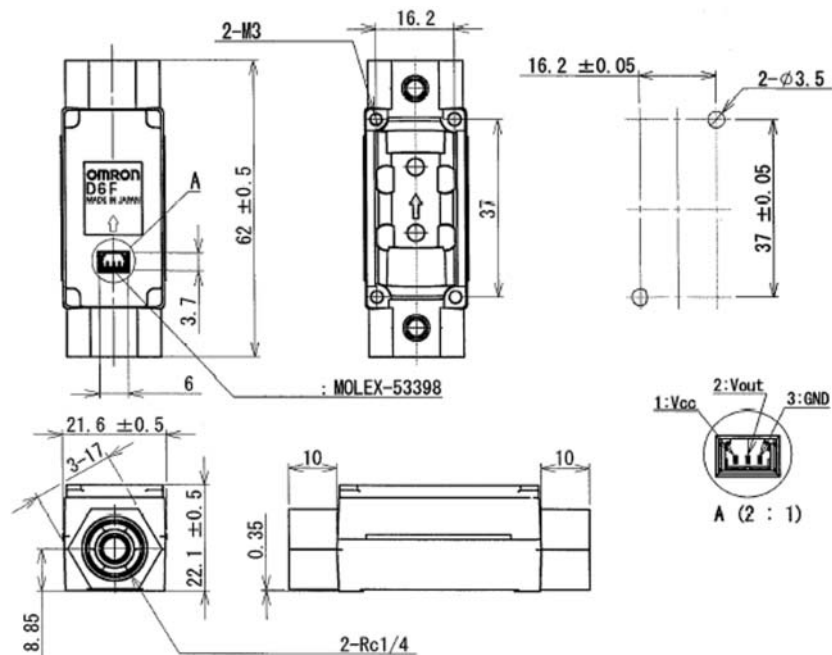


Dimensions



(All dimensions in mm)

D6F-05N2-000



ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

- Pure mechanical vibration detector
- Sealed enclosure
- Output capacity from 0.1A at 5VDC to 100A at 30VDC



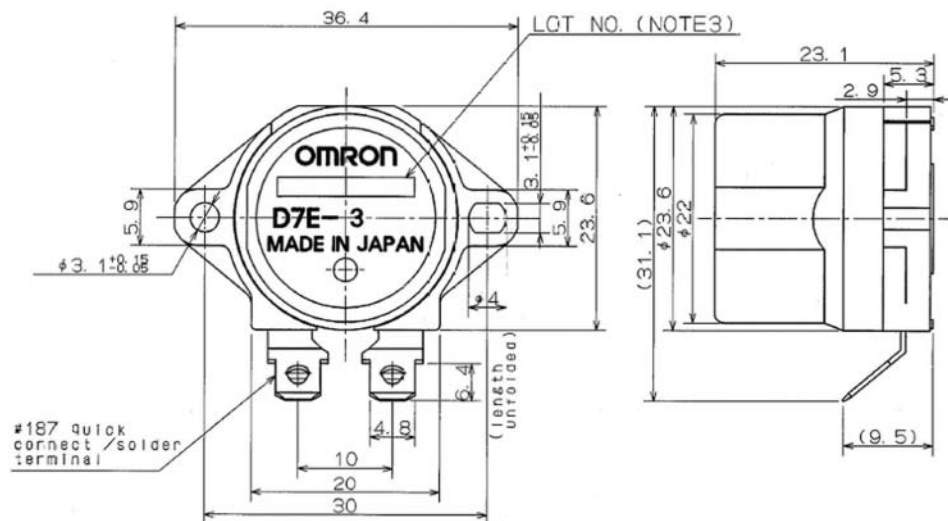
Ordering Information

Model	Operating Angle
D7E-3	50 to 80 degrees

Characteristics

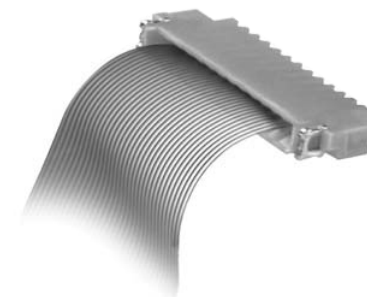
Model	D6F-01A1-110
Operating Angle	Tilt of 50 to 80 degrees. The value of tilt degree is specified when the switch is tilted gradually (approx. 1 degree/s) from the horizontal.
Returning Angle	Tilt of more than 25 degrees. The value of tilt degree is specified when the switch is tilted gradually (approx. 1 degree/s) from the horizontal
Permissible Mounting Level	1 degree max. from the horizontal
Contact Form	Single pole single throw (NC contact / slow action)
Mounting	Pitch: 30mm 2 screws (M3) Height: 5.3mm
Soldering	Soldering iron: temperature 350±10°, 3 sec. MAX
Ratings	5VDC, 0.1mA to 30VDC, 100mA (Resistive load)
Insulation Resistance	100MΩ MIN. (250VDC, between each terminal of the same polarity To measure off condition)
Contact Resistance	300m Ohm MAX. (Initial value)
Vibration During Transportation	Condition: Vibration: 200 gal (1cycle: 0.5 sec.) Vibration direction: 2 axial directions Time: Total 50 hours
Shock	Condition: Acceleration: 980 m/s ² 3 times Shock direction: 3 axial directions
Operating temperature and humidity	Temperature: -25 degrees to +60 degrees (with no icing and condensation) Humidity: 45 to 95 % RH
Storage temperature and humidity	Temperature: -25 degrees to +60 degrees (with no icing and condensation) Humidity: 45 to 95 % RH Protection
Protection	IP67

(All dimensions in mm)



ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Optimum low-profile design (SMT Terminal).
Ultra-low-profile FPC/FFC connector only 1.5mm above the PCB.



- Side-entry
- Ultra-low-profile only 1.5 mm on the PCB allows mounting in spaces with restricted height.
- 0.8 mm-pitch SMT connectors allow high-density mounting.
- Modified-PA-resin housing is compatible with VPS, IR reflow, etc
- Double-sided contacts maintain a stable contact force.
- Standard tape packing compatible with automatic mounting.

Specifications

Rated Current	0.5A
Rated Voltage	50 VDC
Contact resistance	30 mΩ max. (max. 20 mV, max. 100 mA)
Insulation resistance	100 MΩ min. (at 100 VDC)
Withstand voltage	500 VAC 1 min. (leakage current: 1 mA max.)
Total insertion force	Poles x 2.0 N (200 gf) max.
Total removal force	Poles x 0.3 N (200 gf) max.
Insertion tolerance	10 times
Ambient temperature	-30 to +85°C (No condensation at low temperatures.)

Materials/Finish

Housing	Modified PA resin containing glass (UL94V-0)/opal
Contact	Copper-alloy/nickel spring substrate (2μm) plated with tin alloy (2μm)
Hold Down	Copper-alloy/copper substrate (2μm) plated with tin alloy (2μm)

Ordering Information

Poles	Model	Poles	Model	Quantity per reel*
5	XF2E-0515-1	10	XFE-1015-1	4,000
6	XF2E-0615-1	12	XFE-1215-1	
7	XF2E-0715-1	15	XFE-1515-1	
8	XF2H-0815-1	17	XFE-1715-1	

*Order an integer multiple of the quantity per reel.