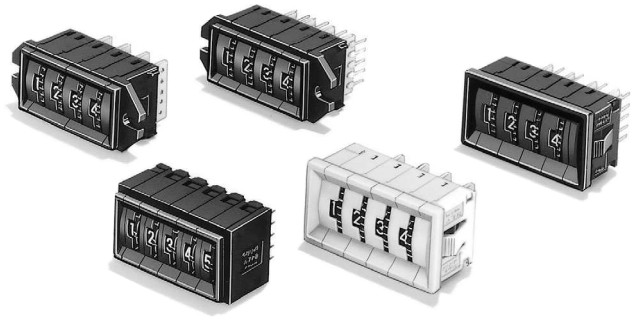
Thumbwheel Switch
A7MD/A7MA

Refer to *Warranty and Application Considerations* (page 1) and *Safety Precautions* (page 3).

Ultra-small Thumbwheel-operated Switches

- High reliability achieved with gold contacts.
- Select from screw mounting or snap-in mounting as the mounting method and models with solder terminals or PCB terminals are available.



Model Number Structure

■ Model Number Legend

A7M□-□□□-□-□
1 2 3 4 5

1. Basic Model
- D: Mounts via printed circuit board
- A: Screw mounting (back mounting) or snap-in (front mounting)

2. Mounting Method
- 1: Screw mounting (back mounting)
- 2: Snap-in (front mounting)

3. Output Code Number
- 06: Binary coded decimal output
- 07: 06 with component-adding provision

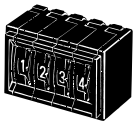
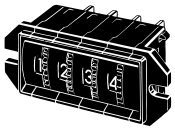
4. Terminal Specifications
- None: Solder terminals
- P2: PCB terminals

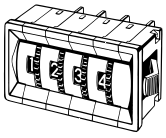
5. Unit Color
- None: Light gray
- 1: Black

Ordering Information

■ List of Models

Push-operated Switches

Model	A7MD/A7MD-□-D	A7MA–1	
Classification (See note 1.)	Mounts via printed circuit board 	Screw mounting (back mounting) 	
Output code number / Terminals	PCB terminals	Solder terminals	PCB terminals
Color	Black	Black	Black
06 (binary coded decimal)	A7MD-106-P-09	A7MA-106	A7MA-106-P2
	A7MD-106-P-09-D (See note 4.)		
07 (binary coded decimal, with component-adding provision) (See note 5.)	---	A7MA-107	A7MA-107-P2

Model	A7MA–2			
Classification (See note 1.)	Snap-in (front mounting) 			
Output code number / Terminals	Solder terminals		PCB terminals	
Color	Light gray	Black	Light gray	Black
06 (binary coded decimal)	A7MA-206	A7MA-206-1	A7MA-206-P2	A7MA-206-P2-1
07 (binary coded decimal, with component-adding provision) (See note 5.)	A7MA-207	A7MA-207-1	A7MA-207-P2	A7MA-207-P2-1

Note: 1. The classification diagrams show 4 Switch Units combined with End Caps to create 4-digit displays.
2. The model numbers given above are for 1 Switch Unit.
3. Models with +, – displays can also be produced. Add "-PM" after the "106" or "206" in the model number (e.g., A7MA-106-PM or A7MA-106-PM-1).
4. Equipped with built-in diode.
5. Models with diodes are available. Add "-D" to the model number (e.g., A7MA-207-D or A7MA-207-D-1).

Accessories (Order Separately)

Use accessories, such as End Caps and Spacers, with the Switch Units.

Classification	A7MD/A7MD-□-D	A7MA-1	A7MA-2	
Accessory / Color	Black	Black	Light gray	Black
End Caps	A7MD-1M	A7M-1M	A7M-2M	A7M-2M-1
Spacer	A7MD-P□	A7M-1P□	A7M-2P□	A7M-2P□-1

Note: The □ in the Spacer model number stands for a letter in the range A to U. (Refer to the table in the following explanation about Spacers.)

End Caps

End Caps are used on the Switch Units at each end and allow all the Switch Units to be securely mounted to a panel. They come in pairs, one for the left and one for the right.

Spacers

Spacers are used for creating extra space or gaps between the Switch Units and have the same dimensions as the Switch Units themselves.

There are also Spacers with engraved characters or symbols that can be used for indicating units, such as time and length. (Refer to the following table.) Consult your OMRON representative for details.

Symbol	A	B	C	D	E	F	G
Stamp	No designation	SEC	MIN	H	g	kg	mm
Symbol	H	J	K	L	Q	T	U
Stamp	cm	m	°C	PCS	x 10 SEC	0	•

Ordering Procedure

When ordering, be sure to specify the End Space model number (A7M-1M, -2M).

Standard products, such as the Switch Units and End Caps, are not factory-assembled for shipment.

Specifications

■ Characteristics

Item		A7MD/A7MD-□-D (See note 1.)	A7MA-1/A7MA-2
Switching capacity (resistive load)		5 to 28 VDC 1 mA to 0.1 A	
Continuous carry current		1 A max.	
Contact resistance		200 mΩ max., 10 Ω max. (See note 2.)	200 mΩ max.
Insulation resistance (See note 1.)	Between non-connected terminals	10 MΩ min. (at 500 VDC)	
	Between terminal and non-current carrying part	1,000 MΩ min. (at 500 VDC)	
Dielectric strength (See note 2.)	Between non-connected terminals	200 VAC, 50/60 Hz for 1 min	
	Between terminal and non-current carrying part	1,000 VAC, 50/60 Hz for 1 min	
Vibration resistance	Malfunction	10 to 55 Hz, 1.5-mm double amplitude for 2 hours min.	
Shock resistance	Malfunction	490 m/s² min.	196 m/s² min.
Durability	Mechanical	30,000 operations min.	
	Electrical	20,000 operations min.	
Ambient temperature (with no icing)		Operating: –10°C to 65°C Storage: –20°C to 80°C	
Ambient humidity		Operating: 45% to 85%	
Max. operating force		2.94 N max.	

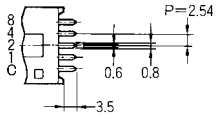
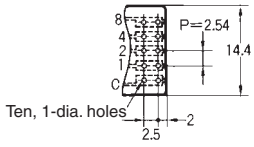
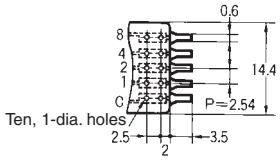
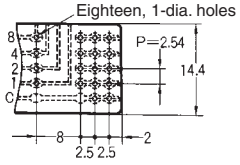
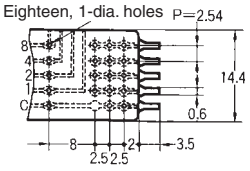
Note: 1. For A7MD(-D) with diode, the dielectric strength was measured at display of "0."

2. Contact resistance for A7MD-□-D with diode was evaluated at 6 to 8 VDC, 0.1 A. Reverse-direction voltage was 35 V (min.).

■ Output Codes/Terminals

Switches with output codes 06 or 07 both use binary coded decimal but Switches with output code 07 have a component-adding provision.

Terminals

Output code number	A7MD (PCB terminals)	A7MA-□ (solder terminals)	A7MA-□-P2 (PCB terminals)
06			
07	---	 Component-adding provision	 Component-adding provision

Output Codes 06 and 07

Dial	Terminal connected to common C			
	1	2	4	8
0				
1	•			
2		•		
3	•	•		
4			•	
5	•		•	
6		•	•	
7	•	•	•	
8				•
9	•			•

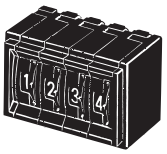
Note: The solid dot • indicates that the internal switch is ON.

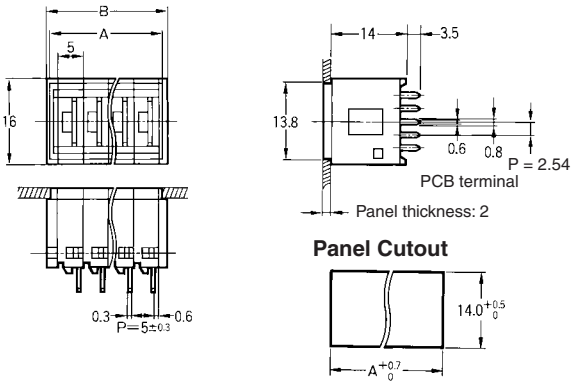
Dimensions

Note: All units are in millimeters unless otherwise indicated.

■ Push-operated Switches

A7MD-106-P-09
A7MD-106-P-09-D
PCB Terminals

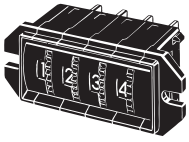


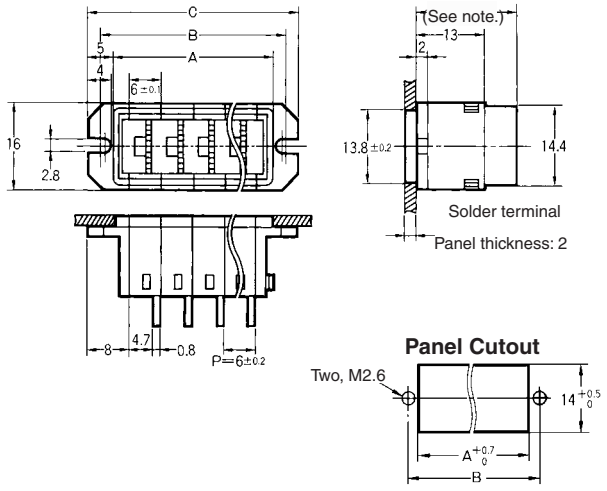


Number of Switches (n)	A (5n + 3)	B (5n + 5)
1	8 mm	10 mm
2	13 mm	15 mm
3	18 mm	20 mm
4	23 mm	25 mm
5	28 mm	30 mm
6	33 mm	35 mm
7	38 mm	40 mm
8	43 mm	45 mm
9	48 mm	50 mm
10	53 mm	55 mm

Note: 1. The dimensions above include both End Caps, and will increase 6 mm for each Spacer inserted.
2. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
The tolerance for multiple connection is ±(number of units x 0.4) mm.

A7MA-1□□
Solder Terminals



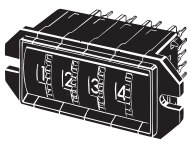


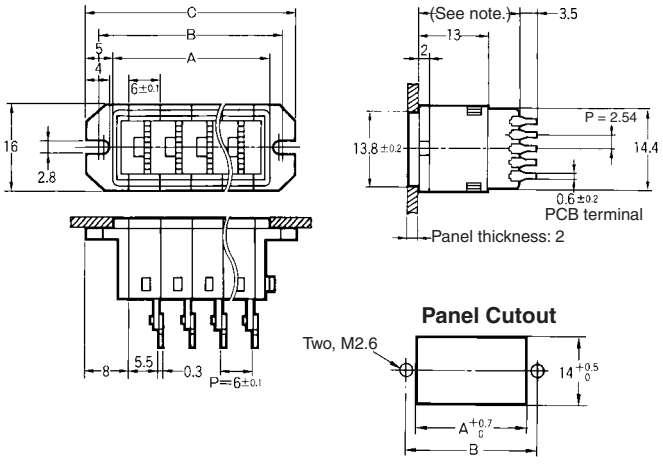
Number of Switches (n)	A (6n + 6)	B (6n + 11)	C (6n + 16)
1	12 mm	17 mm	22 mm
2	18 mm	23 mm	28 mm
3	24 mm	29 mm	34 mm
4	30 mm	35 mm	40 mm
5	36 mm	41 mm	46 mm
6	42 mm	47 mm	52 mm
7	48 mm	53 mm	58 mm
8	54 mm	59 mm	64 mm
9	60 mm	65 mm	70 mm
10	66 mm	71 mm	76 mm

Note: 1. The dimensions above include both End Caps, and will increase 6 mm for each Spacer inserted.
2. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
The tolerance for multiple connection is ±(number of units x 0.4) mm.

Note: If the output code is 06, the dimension is 19; if the output code is 07, the dimension is 31.

A7MA-1□□-P2
PCB Terminals



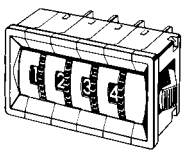


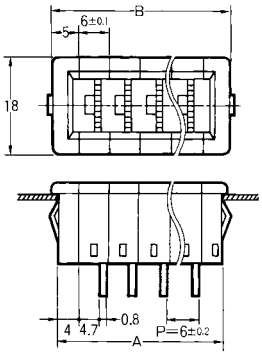
Number of Switches (n)	A (6n + 6)	B (6n + 11)	C (6n + 16)
1	12 mm	17 mm	22 mm
2	18 mm	23 mm	28 mm
3	24 mm	29 mm	34 mm
4	30 mm	35 mm	40 mm
5	36 mm	41 mm	46 mm
6	42 mm	47 mm	52 mm
7	48 mm	53 mm	58 mm
8	54 mm	59 mm	64 mm
9	60 mm	65 mm	70 mm
10	66 mm	71 mm	76 mm

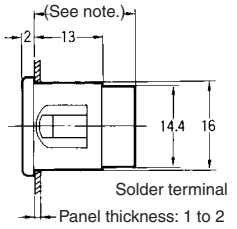
Note: 1. The dimensions above include both End Caps, and will increase 6 mm for each Spacer inserted.
2. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
The tolerance for multiple connection is ±(number of units x 0.4) mm.

Note: If the output code is 06, the dimension is 19; if the output code is 07, the dimension is 31.

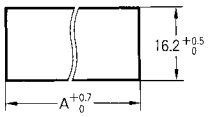
A7MA-2□□(-1)
Solder Terminals







Panel Cutout

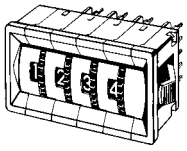


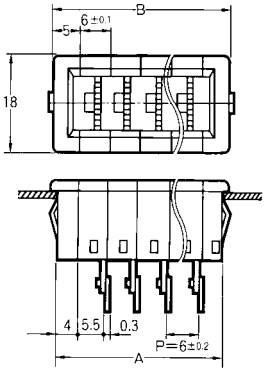
Note: If the output code is 06, the dimension is 19; if the output code is 07, the dimension is 31.

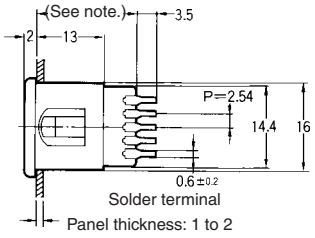
Number of Switches (n)	A (6n + 8)	B (6n + 10)
1	14 mm	16 mm
2	20 mm	22 mm
3	26 mm	28 mm
4	32 mm	34 mm
5	38 mm	40 mm
6	44 mm	46 mm
7	50 mm	52 mm
8	56 mm	58 mm
9	62 mm	64 mm
10	68 mm	70 mm

Note: 1. The dimensions above include both End Caps, and will increase 6 mm for each Spacer inserted.
2. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions. The tolerance for multiple connection is ±(number of units x 0.4) mm.

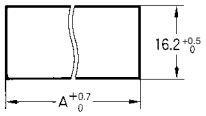
A7MA-2□□-P2(-1)
PCB Terminals







Panel Cutout



Note: If the output code is 06, the dimension is 19; if the output code is 07, the dimension is 31.

Number of Switches (n)	A (6n + 8)	B (6n + 10)
1	14 mm	16 mm
2	20 mm	22 mm
3	26 mm	28 mm
4	32 mm	34 mm
5	38 mm	40 mm
6	44 mm	46 mm
7	50 mm	52 mm
8	56 mm	58 mm
9	62 mm	64 mm
10	68 mm	70 mm

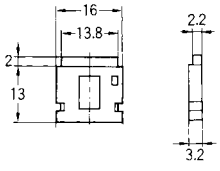
Note: 1. The dimensions above include both End Caps, and will increase 6 mm for each Spacer inserted.
2. Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions. The tolerance for multiple connection is ±(number of units x 0.4) mm.

■ Accessories (Order Separately)

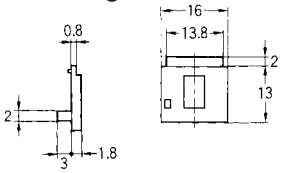
End Caps for Push-operated Switches

A7MD-1M PCB Mounting (Side Plate)

Left Side



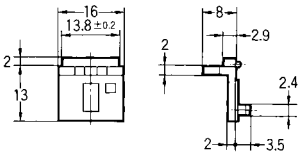
Right Side



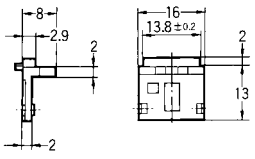
Note: The A7MD cannot be mounted by a screw panel or snap-in panel. Fasten the PC board after mounting the A7MD to the PC board.

A7M-1M Screw Panel Mounting

Left Side

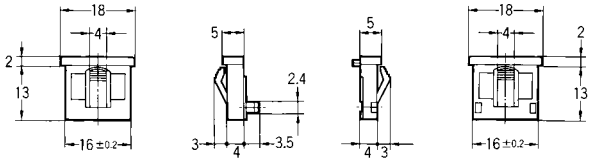


Right Side



A7M-2M(-1) Snap-in Panel Mounting

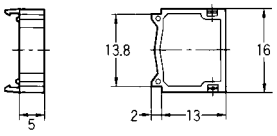
Left Side



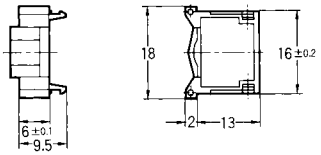
Right Side

Spacers for Thumbwheel Switches

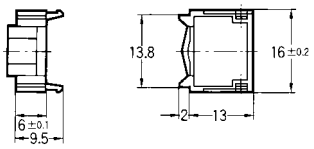
A7MD-P□
PCB Mounting



A7M-2P□(-1)
Snap-in Panel Mounting



A7M-1P□
Screw Panel Mounting



Note: The □ in the Spacer model number stands for a letter in the range A to U. (Refer to the table under the explanation about Spacers on page 46.)

Safety Precautions

■ Precautions for Correct Use

Please observe the following precautions to prevent failure to operate, malfunction, or undesirable effect on product performance.

Refer to *Precautions for Correct Use* on page 4 for information common to all models.

Handling

The A7MD Switches are mounted on PCBs. When projecting the operating face from the back of a panel, refer to the recommended panel cutout dimensions. The A7MD Switches, however, cannot be mounted to panels individually.

The molded components of the Switch use polyacetal resin and ABS resin. It is recommended that alcohol is used to wipe off dirt and smudges from the molded components. Take care to prevent the alcohol from getting inside.

Do not use thinner or other solutions which might damage the resin.

Models with PCB Terminals

Refer to *Precautions for Correct Use* on page 4.

Screw-mounting Models

Tighten mounting screws to a torque between 0.2 to 0.24 N·m, using M2.6 screws. Use plain washers or spring washers together with the screws.

Soldering

Refer to *Precautions for Correct Use* on page 4.

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

Cat. No. A155-E1-01A In the interest of product improvement, specifications are subject to change without notice.