# A7PS/A7PH

CSM\_A7PS\_A7PH\_DS\_E\_3\_1

# Dust-tight, Easy-to-Use, Push-operated Switches with Large Display Characters

- Simple push mechanism and large, easy-to-view numeric display make setting easy.
- Dust penetration prevented with seal for the display windows.



# **Ordering Information**

## **Switches (Single Switch Units)**

Model	A7	PS	А7РН					
Classification (See note 1.)	Snap-in (front mounting)	284 D	Snap-in (front mounting)  Long-life type					
Terminals		Solder te	minals *1					
Color	Light gray	Black	Light gray	Black				
Output code number		Мо	del					
03 (decimal code)	A7PS-203	A7PS-203-1	A7PH-203	A7PH-203-1				
06 (binary coded decimal)	A7PS-206	A7PS-206-1	A7PH-206	A7PH-206-1				
07 (binary coded decimal, with component-adding provision) *2	A7PS-207	A7PS-207-1	A7PH-207	A7PH-207-1				
19 (decimal code, with component-adding provision)	A7PS-219	A7PS-219-1	A7PH-219					
54 (binary coded hexadecimal)	A7PS-254	A7PS-254-1	A7PH-254	A7PH-254-1				
55 (binary coded hexadecimal, with component adding provision) *2	A7PS-255	A7PS-255-1						

- 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 stoppers are also available. Add "-S \\_" after the "203," "206," "207," "219," "254," or "255" in the model number and specify the display range in the \\_\_. For example, to specify the range 0 to 6, add "-S06" to the model number (e.g., A7PS-206-S06-1).
  - 4. Models with +, displays can also be produced. Add "-PM" after the "206" in the model number (e.g., A7PS-206-PM or A7PS-206-PM-1)
- \*1. Models with PCB terminals are available.
- \*2. Models with diodes are available. Add "-D" to the model number (e.g., A7PS-207-D or A7PS-207-D-1).

## Accessories (Order Separately)

Use accessories, such as  $\operatorname{End}$  Caps and  $\operatorname{Spacers},$  with the Switch Units.

Accessory	Color	Light gray	Black			
End Caps		A7P-M *	A7P-M-1 *			
Spacer		A7P-P□	A7P-P□-1			
Spacer		(See note.)	(See note.)			
Connec- Solder terminals		NRT-C				
Connec- tors	Solder terminals	NRT-CN				
10.0	PCB terminals	NRT-CP				

Note: The  $\square$  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	Α	В	С	D	Е	F	G
Stamp	No designation	SEC	MIN	Н	g	kg	mm
Cymphal			1/		^	_	- 11
Symbol	Н	J	K	L	Q		U

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<sup>\*</sup> The minimum order is for 10 End Caps.

# **Specifications**

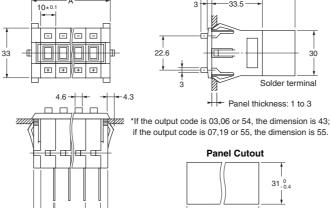
Item	Model	A7PS	А7РН			
Switching canacity (registive load)		50 VAC or 5 to 28 VDC 1 mA to 0.1 A	125 VAC or 5 to 28 VDC 10 µA to 0.15 A			
Continuou	s carry current	1 A max.	3 A max.			
Contact re	sistance	300 mΩ max.				
Insulation	Between non-connected terminals	10 MΩ min. (at 500 VDC)	100 MΩ min. (at 500 VDC)			
resistance	Between terminal and non-current carrying part	1,000 MΩ min. (at 500 VDC)				
Dielectric	Between non-connected terminals	600 VAC, 50/60 Hz for 1 min				
strength	Between terminal and non-current carrying part	1,000 VAC, 50/60 Hz for 1 min				
Vibration I	esistance	10 to 55 Hz, 1.5-mm double amplitude for 2 hours min.				
Shock res	istance	490 m/s <sup>2</sup> min.				
Durability	Mechanical	100,000 operations min.	2,000,000 operations min.			
Durability	Electrical	50,000 operations min. 1,000,000 operations min.				
Ambient to	emperature	Operating: -10°C to 65°C				
Ambient h	umidity	Operating: 45% to 85%				
Max. operating force 6.37 N max.						

**Dimensions** (Unit: mm)

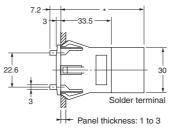
# **Switches**

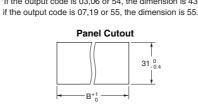






P= 10±0



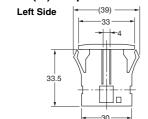


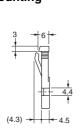
Number of Switches (n)	Size A (n x 10 + 12)	Size B (n x 10 + 9)
1	22	19
2	32	29
3	42	39
4	52	49
5	62	59
6	72	69
7	82	79
8	92	89
9	102	99
10	112	109

- Note: 1. The dimensions above include both End Caps, and will increase 10 mm for each Spacer inserted.
  - 2. Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions. The tolerance for multiple connection is ±(number of units x 0.4) mm.

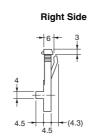
## **Accessories (Order Separately)**

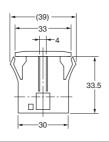
# **End Caps for Push-operated Switches** A7P-M(-1) Snap-in Panel Mounting



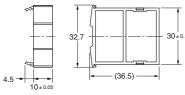


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# **Spacers for Push-operated Switches** A7P-P□(-1) Snap-in Panel Mounting



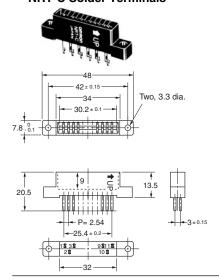
The  $\square$  in the Spacer model number stands for a letter in the range A to U. (Refer to the table under the explanation about Spacers on page 1.)

Note: Unless otherwise indicated, dimensional tolerances for dimensions in the models above are  $\pm$  0.4 mm.

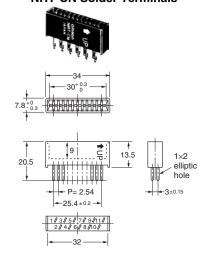
#### **Connectors**

(These devices allow Switches to be quickly removed for maintenance and inspection of connectivity, and quickly re-installed.)

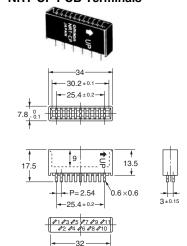
#### **NRT-C Solder Terminals**



#### **NRT-CN Solder Terminals**



#### **NRT-CP PCB Terminals**

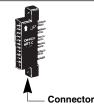


Note: Unless otherwise indicated, dimensional tolerances for dimensions in the models above are  $\pm$  0.4 mm.

## **Inserting Connectors**

Insert Connectors with the "UP" arrow pointing up.





# **Output Codes/Terminals**

- Switches with output codes 06 or 07 both use binary coded decimal but Switches with output code 07 have a componentadding provision. Similarly, Switches with output codes 54 or 55 both use binary coded hexadecimal but Switches with output code 55 have a componentadding provision.
- How to Read Output Codes
   For example, when the dial position is
   "3," the common terminal C on the
   Switch is connected to terminals 1 and 2.

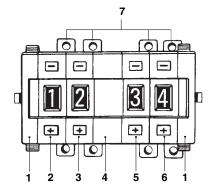
   When the Switch is inserted into the
   Connector, the common terminal C
   becomes connector terminal 3, and terminals 1 and 2 become connector terminals 5 and 7 respectively.

Output code number	Terminals	Output codes												
	03  Twenty  Twenty	Model	Switch Unit or Connector							com	mon			
00			Switch Unit	С	0	1	2	3	4	5	6	7	8	9
US		03,19	Connec- tor	6	1	2	3	4	5	7	8	9	10	11
	-two, 1.1-dia. holes			1	•	•								
				2		Ť	•							
	Forty-four, 1-dia. holes			3				•						
	9 7 P= 2.54 <sub>12.7</sub>	Dial		<del>1</del> 5					•	•				
	30			5 5							•			
19	19 12.7		-	7								•		_
				3									•	
			l .	9	_		L	L.			<u>.                                    </u>	<u> </u>		•
	Component-adding provision	Note: The solid dot ● indicates that the internal switch is ON (i.e., connected to the common terminal).												
	8 P= 5.08	Model	Switch Unit or Connector	Common ter- minal number	Terminals con-									
06	30		Switch Unit	С	1	2	4	8						
00	_	06	Connec- tor	3	5	7	9	11						
	Ten, 1.1-dia. 2.5 holes	07	Connec- tor	1	5		9							
	110.00			)										
	f* = 1 × × × 8	1 2		•	•									
	* * * 4 P= 5.08		3		•	•			Note: The solid do indicates the					
	30	5	4				•		the internal				ıl	
07	Twenty	Dial	5		•		•						is C	
	-three, 8.5 3 2.5			5 7	•	•	•		-		(i.e., connected to the common			
	holes 4.5			<del>/</del> 3				•		terminal).				
	Component-adding provision			9	•			•						

Output code number	Terminals	Output codes									
		Model	Switch Unit or Connector	Common ter- minal number	Terminals connected to common						
	8 P=5.08		Switch Unit			2	4	8			
54	30	54	54 Connector		5	7	9	11			
01	<b>54</b>	55	Connec- tor	1	"	′	9	' '			
	Ten, 1.1-dia.		(	b							
	Holos			1	•						
			2		_	•		_			
			;	•	•	•	_				
		5		•		•	_				
		Dial -		3 3	_	•	•	_			
				7	•	•	•				
			8					•			
			,	9				•			
	2 30		,	Ą		•		•			
55			В		•	•		•			
	Twenty -three,		С		_		•	•			
	1.1-dia.		D E		•		•	•			
	holes 6.5 4.5 3			_		-					
	Component-adding provision	(		dot I indi	N						

# **Ordering Procedure**

Place orders as shown in the example below, specifying the model and number.



- 1. A7P-M (End Caps): 1 set
- 2. A7PS-203 (Switch Unit): 1 piece
- 3. A7PS-206 (Switch Unit): 1 piece
- 4. A7P-PA (Spacer): 1 piece
- 5. A7PS-207 (Switch Unit): 1 piece
- 6. A7PS-219 (Switch Unit): 1 piece

Note: Standard products are not factory-assembled for shipment. Contact your OMRON representative for details on ordering factory-assembled sets.

7. NRT-C (Connector): 4 pieces

# **Safety Precautions**

Refer to Precautions for Correct Use on in the Technical Guide for Thumbwheel Switches.

### **Precautions for Correct Use**

## Handling

- 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.
- A7P Thumbwheel Switches are dust-proof, but they are not dripproof. Do not use them in areas subject to water or oil exposure.
- Do not allow solder flux or alcohol to enter the Switch.
- Do not push the (+) and (-) operating push-buttons at the same time.