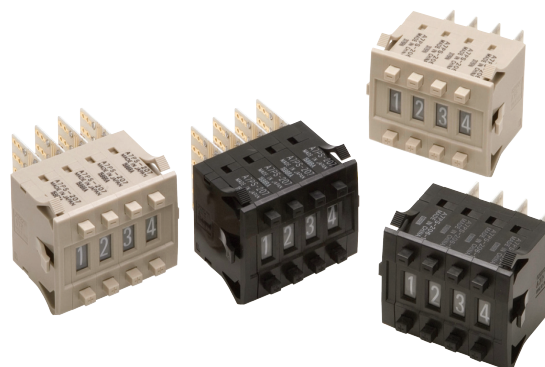


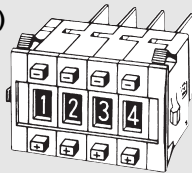
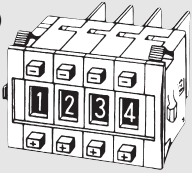
Dust-tight, Easy-to-Use, Push-operated Switches with Large Display Characters

- 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 Classification (See note 1.) Character height Terminals Color	A7PS		A7PH	
	Snap-in (front mounting) 		Snap-in (front mounting)  Long-life type	
	Decimal: 6.8 mm Hexadecimal: 4.0 mm			
	Solder terminals			
	Light gray	Black	Light gray	Black
Output code number	Model			
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) *1	A7PS-207	A7PS-207-1	A7PH-207	A7PH-207-1
19 (decimal code, with component-adding provision)	A7PS-219	A7PS-219-1	---	---
54 (binary coded hexadecimal)	A7PS-254	A7PS-254-1	A7PH-254	A7PH-254-1
55 (binary coded hexadecimal, with component adding provision) *1	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).

"-SOF" can not be available for type -254, -255.

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 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 End Caps and Spacers, with the Switch Units.

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

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	•

Specifications

Item	Model	A7PS	A7PH
Switching capacity (resistive load)		50 VAC or 3.3 to 28 VDC 1 mA to 0.1 A	125 VAC or 3.3 to 28 VDC 10 μ A to 0.15 A
Continuous carry current		1 A max.	3 A max.
Contact resistance		300 m Ω max.	
Insulation resistance	Between non-connected terminals	10 M Ω min. (at 500 VDC)	100 M Ω min. (at 500 VDC)
	Between terminal and non-current carrying part	1,000 M Ω min. (at 500 VDC)	
Dielectric strength	Between non-connected terminals	600 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		10 to 55 Hz, 1.5-mm double amplitude for 2 hours min.	
Shock resistance		490 m/s ² min.	
Durability	Mechanical	100,000 operations min.	2,000,000 operations min.
	Electrical	50,000 operations min.	1,000,000 operations min.
Ambient temperature		Operating: -10°C to 65°C	
Ambient humidity		Operating: 45% to 85%	
Max. operating force		6.37 N max.	

Dimensions

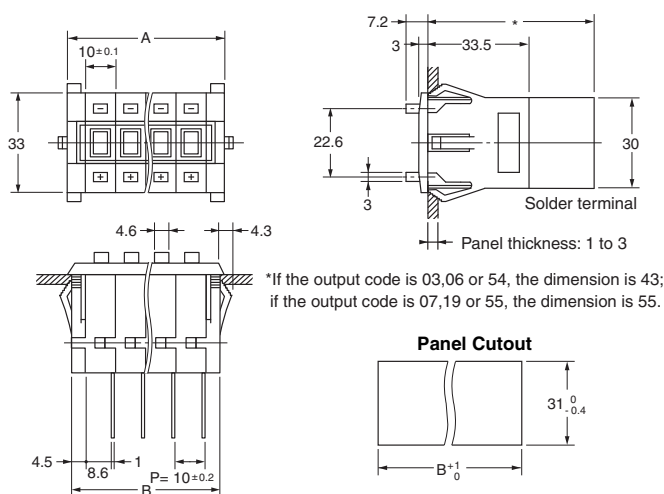
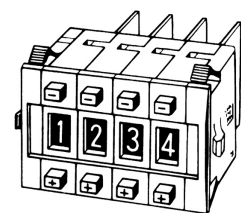
(Unit: mm)

Switches

A7PS-2□□(-1)

A7PH-2□□(-1)

Solder Terminal



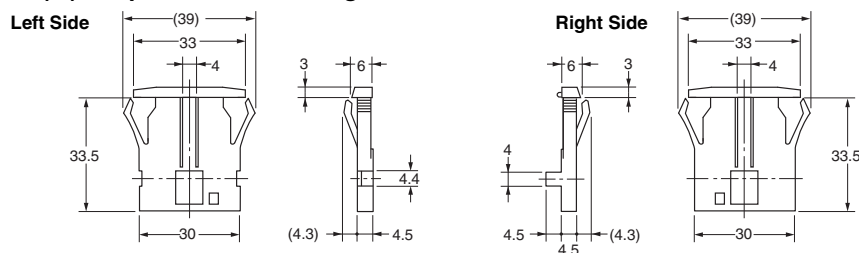
Number of Switches (n)	Size A (n x 10 + 12)	Size B (n x 10 + 9)
1	22	19
2	32	29
3	42	39
4	52	49
5	62	59
6	72	69
7	82	79
8	92	89
9	102	99
10	112	109

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 ± 0.4 mm applies to all dimensions. The tolerance for multiple connection is $\pm (\text{number of units} \times 0.4)$ mm.

Accessories (Order Separately)

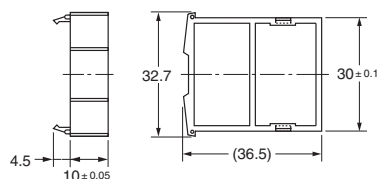
End Caps for Push-operated Switches

A7P-M(-1) Snap-in Panel Mounting



Spacers for Push-operated Switches

A7P-P□(-1) Snap-in Panel Mounting



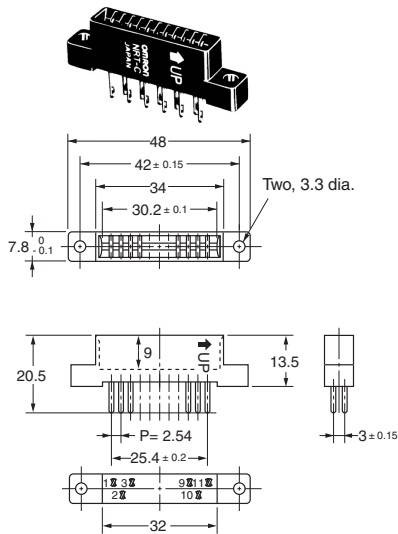
The □ in the Spacer model number stands for a letter in the range A to U. (Refer to the table under the explanation about Spacers on page 1.)

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

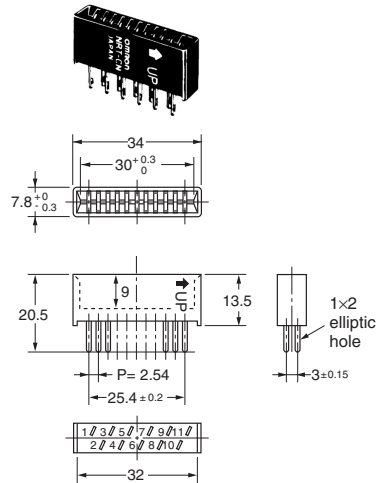
Connectors

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

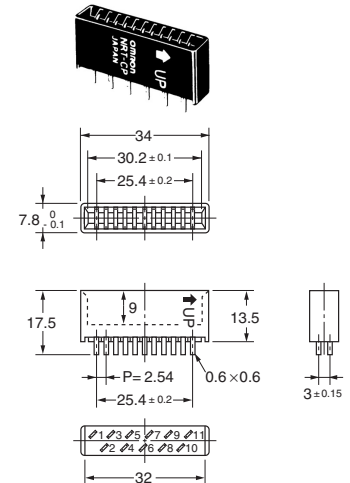
NRT-C Solder Terminals



NRT-CN Solder Terminals



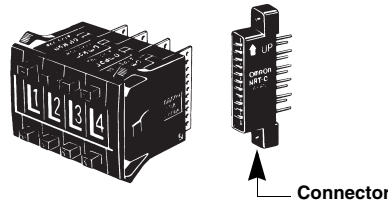
NRT-CP PCB Terminals



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

Inserting Connectors

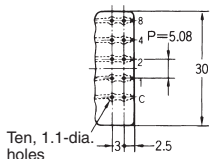
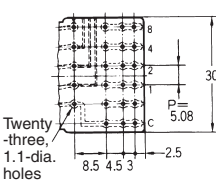
Insert Connectors with the "UP" arrow pointing up.



Output Codes/Terminals

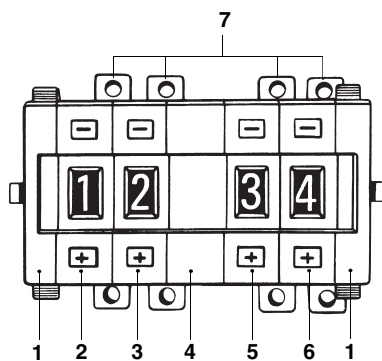
- Switches with output codes 06 or 07 both use binary coded decimal but Switches with output code 07 have a component-adding provision. Similarly, Switches with output codes 54 or 55 both use binary coded hexadecimal but Switches with output code 55 have a component-adding provision.
- How to Read Output 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-two, 1.1-dia. holes	<table><tr><th>Model</th><th>Switch Unit or Connector</th><th>Common terminal number</th><th colspan="11">Terminals connected to common</th></tr><tr><td></td><td>Switch Unit</td><td>C</td><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr><tr><td>03,19</td><td>Connector</td><td>6</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td></tr></table>	Model	Switch Unit or Connector	Common terminal number	Terminals connected to common												Switch Unit	C	0	1	2	3	4	5	6	7	8	9	03,19	Connector	6	1	2	3	4	5	7	8	9	10	11																																																																																	
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03,19	Connector	6	1	2	3	4	5	7	8	9	10	11																																																																																																															
19	Forty-four, 1-dia. holes Component-adding provision	<table><tr><td rowspan="10">Dial</td><td>0</td><td></td><td>●</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1</td><td></td><td></td><td>●</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>2</td><td></td><td></td><td></td><td>●</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>3</td><td></td><td></td><td></td><td></td><td>●</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td>●</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td>●</td><td></td><td></td><td></td><td></td></tr><tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>●</td><td></td><td></td><td></td></tr><tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>●</td><td></td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>●</td><td></td></tr><tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>●</td></tr></table> Note: The solid dot ● indicates that the internal switch is ON (i.e., connected to the common terminal).	Dial	0		●										1			●									2				●								3					●							4						●						5							●					6								●				7									●			8										●		9											●
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06	Ten, 1.1-dia. holes	<table><tr><th>Model</th><th>Switch Unit or Connector</th><th>Common terminal number</th><th colspan="4">Terminals connected to common</th></tr><tr><td></td><td>Switch Unit</td><td>C</td><td>1</td><td>2</td><td>4</td><td>8</td></tr><tr><td>06</td><td>Connector</td><td>3</td><td></td><td></td><td></td><td></td></tr><tr><td>07</td><td>Connector</td><td>1</td><td>5</td><td>7</td><td>9</td><td>11</td></tr></table>	Model	Switch Unit or Connector	Common terminal number	Terminals connected to common					Switch Unit	C	1	2	4	8	06	Connector	3					07	Connector	1	5	7	9	11																																																																																													
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	Switch Unit	C	1	2	4	8																																																																																																																					
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07	Connector	1	5	7	9	11																																																																																																																					
07	Twenty-three, 1.1-dia. holes Component-adding provision	<table><tr><td rowspan="10">Dial</td><td>0</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>1</td><td>●</td><td></td><td></td><td></td><td></td></tr><tr><td>2</td><td></td><td>●</td><td></td><td></td><td></td></tr><tr><td>3</td><td>●</td><td>●</td><td></td><td></td><td></td></tr><tr><td>4</td><td></td><td></td><td>●</td><td></td><td></td></tr><tr><td>5</td><td>●</td><td></td><td>●</td><td></td><td></td></tr><tr><td>6</td><td></td><td>●</td><td>●</td><td></td><td></td></tr><tr><td>7</td><td>●</td><td>●</td><td>●</td><td></td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td>●</td><td></td></tr><tr><td>9</td><td>●</td><td></td><td></td><td>●</td><td></td></tr></table> Note: The solid dot ● indicates that the internal switch is ON (i.e., connected to the common terminal).	Dial	0						1	●					2		●				3	●	●				4			●			5	●		●			6		●	●			7	●	●	●			8				●		9	●			●																																																													
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Output code number	Terminals	Output codes																																																																																	
54		<table><tr><th>Model</th><th>Switch Unit or Connector</th><th>Common terminal number</th><th colspan="4">Terminals connected to common</th></tr><tr><td></td><td>Switch Unit</td><td>C</td><td>1</td><td>2</td><td>4</td><td>8</td></tr><tr><td>54</td><td>Connector</td><td>3</td><td></td><td></td><td></td><td></td></tr><tr><td>55</td><td>Connector</td><td>1</td><td></td><td></td><td></td><td></td></tr></table>	Model	Switch Unit or Connector	Common terminal number	Terminals connected to common					Switch Unit	C	1	2	4	8	54	Connector	3					55	Connector	1																																																									
Model	Switch Unit or Connector	Common terminal number	Terminals connected to common																																																																																
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55		<table><tr><td rowspan="16">Dial</td><td>0</td><td></td><td></td><td></td><td></td></tr><tr><td>1</td><td>●</td><td></td><td></td><td></td></tr><tr><td>2</td><td></td><td>●</td><td></td><td></td></tr><tr><td>3</td><td>●</td><td>●</td><td></td><td></td></tr><tr><td>4</td><td></td><td></td><td>●</td><td></td></tr><tr><td>5</td><td>●</td><td></td><td>●</td><td></td></tr><tr><td>6</td><td></td><td>●</td><td>●</td><td></td></tr><tr><td>7</td><td>●</td><td>●</td><td>●</td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td>●</td></tr><tr><td>9</td><td>●</td><td></td><td></td><td>●</td></tr><tr><td>A</td><td></td><td>●</td><td></td><td>●</td></tr><tr><td>B</td><td>●</td><td>●</td><td></td><td>●</td></tr><tr><td>C</td><td></td><td></td><td>●</td><td>●</td></tr><tr><td>D</td><td>●</td><td></td><td>●</td><td>●</td></tr><tr><td>E</td><td></td><td>●</td><td>●</td><td>●</td></tr><tr><td>F</td><td>●</td><td>●</td><td>●</td><td>●</td></tr></table> Note: 1. The solid dot (●) indicates that the internal switch is ON (i.e., connected to the common terminal).	Dial	0					1	●				2		●			3	●	●			4			●		5	●		●		6		●	●		7	●	●	●		8				●	9	●			●	A		●		●	B	●	●		●	C			●	●	D	●		●	●	E		●	●	●	F	●	●	●	●
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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

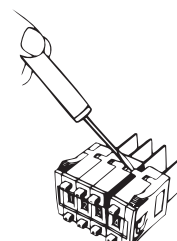
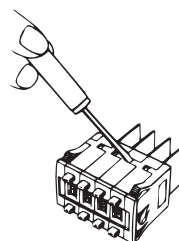
Refer to *Precautions for Correct Use* on in the *Technical Guide for Thumbwheel Switches*.

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 drip-proof. 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.
- To separate the Switches, use a flat-blade screwdriver as shown in the following figure to release the hooks on the top and bottom and then separate the Switches. Be careful not to bend the hooks.



Terms and Conditions Agreement

Read and understand this catalog.

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

Warranties.

(a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.

(b) Limitations. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE.

Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty.

See <http://www.omron.com/global/> or contact your Omron representative for published information.

Limitation on Liability; Etc.

OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY.

Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.

Suitability of Use.

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Programmable Products.

Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.

Performance Data.

Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.

Change in Specifications.

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

Errors and Omissions.

Information presented by Omron Companies has been checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical or proofreading errors or omissions.

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