

Cycle Control Units

G32A-EA

CSM_G32A-EA_DS_E_7_1

Refer to *Safety Precautions for All Power Controllers*.

Used in Combination with the G3PA to Enable High-precision Temperature Control

- Use cycle control to achieve power control with little noise.
- Used in combination with the G3PA to connect to single- and three-phase loads.
- Three types of input method available: Internal adjuster, external adjuster, or DC signals from 4 to 20 mA.
- Streamline design. Both DIN track mounting and screw mounting possible.
- Use linking terminals for close mounting of the G3PA.
- Built-in isolation transformer.
- Power supply range: 100 to 240 V.



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Model Number Structure

Model Number Legend

G32A-EA-US

1 2 3

1. Basic Model Type

G32A: Accessory for G3PA

2. Basic Model Name

EA: Cycle Control Unit

3. Certification

US: Certified by UL and CSA

Ordering Information

List of Models

Name	Isolation transformer	Rated power supply voltage	Model
Cycle Control Unit	Yes	100 to 240 VAC	G32A-EA-US

Accessories (Order Separately)

External Variable Resistor

Model
G32A-E-VR

Specifications

■ Ratings (at an Ambient Temperature of 25°C)

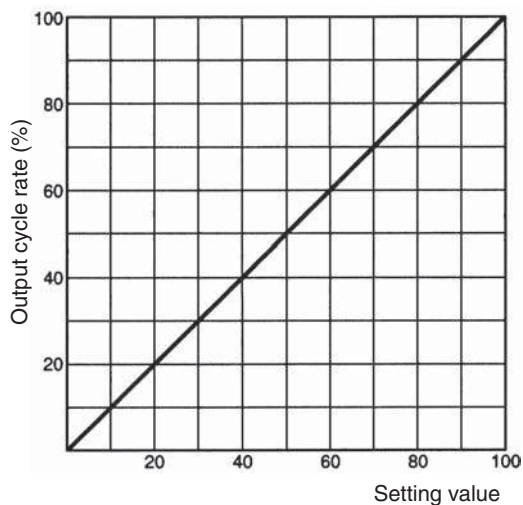
Rated power supply current	50 Hz	100 to 240 VAC	40 mA max.
	60 Hz	100 to 240 VAC	
Output signal			20 mA max. at 12 VDC \pm 15% (at 25°C)
Input signal			Current signal: 4 to 20 mA (input impedance: 352 Ω) Internal adjuster: 50 k Ω (1/4 W) External adjuster: 50 k Ω (1/4 W)
Output cycle rate			0 to 100%
Control cycle			0.2 s
Number of operable Units			3 G3PA-VD Relays max.

■ Characteristics

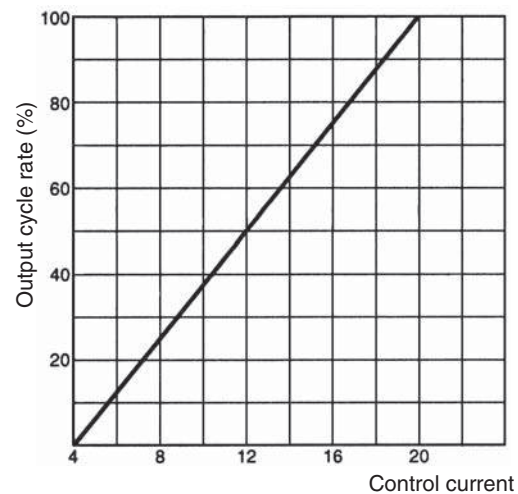
Power supply voltage range	75 to 264 VAC
Dielectric strength	1,500 VAC, 50/60 Hz for 1 minute (between AC power supply and input/output terminals)
Insulation resistance	100 M Ω max. (at 500 VDC)
Vibration resistance	10 to 55 to 10 Hz, 0.375-mm single amplitude (when mounted to DIN track)
Shock resistance	300 m/s ² (approx. 30 G)
Storage temperature	-30 to 100°C (with no icing or condensation)
Ambient temperature	-30 to 80°C (with no icing or condensation)
Ambient humidity	45% to 85%
Weight	Approx. 100 g

Engineering Data

Output Cycle Rate vs. Setting Value

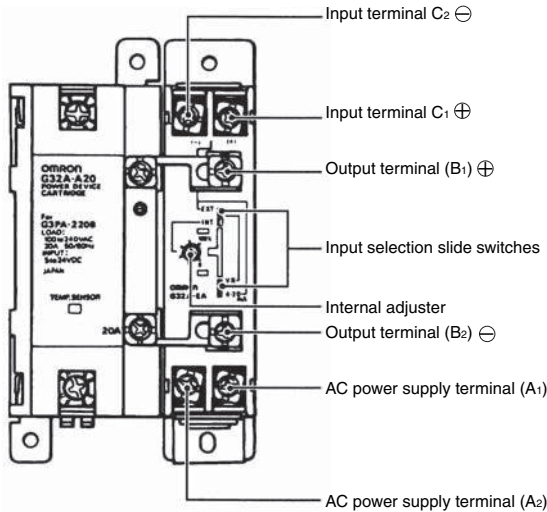


Output Cycle Rate vs. Control Current



Nomenclature

The following diagram shows the terminals, adjusters, and switches on the G32A-EA.



Control method	Input selection slide switches
External adjuster	 INT 4 to 20 mA
Internal adjuster (See note 2.)	 INT 4 to 20 mA
Control current	 INT 4 to 20 mA

- Note: 1.** The input selection slide switches are factory-set to internal adjuster input. Change the setting of the switches for the input method required.
- 2.** When using the internal adjuster, use with the input terminals (C₁, C₂) in the open state. Internal setting is not possible if there is a Temperature Controller or other device connected to C₁ or C₂.

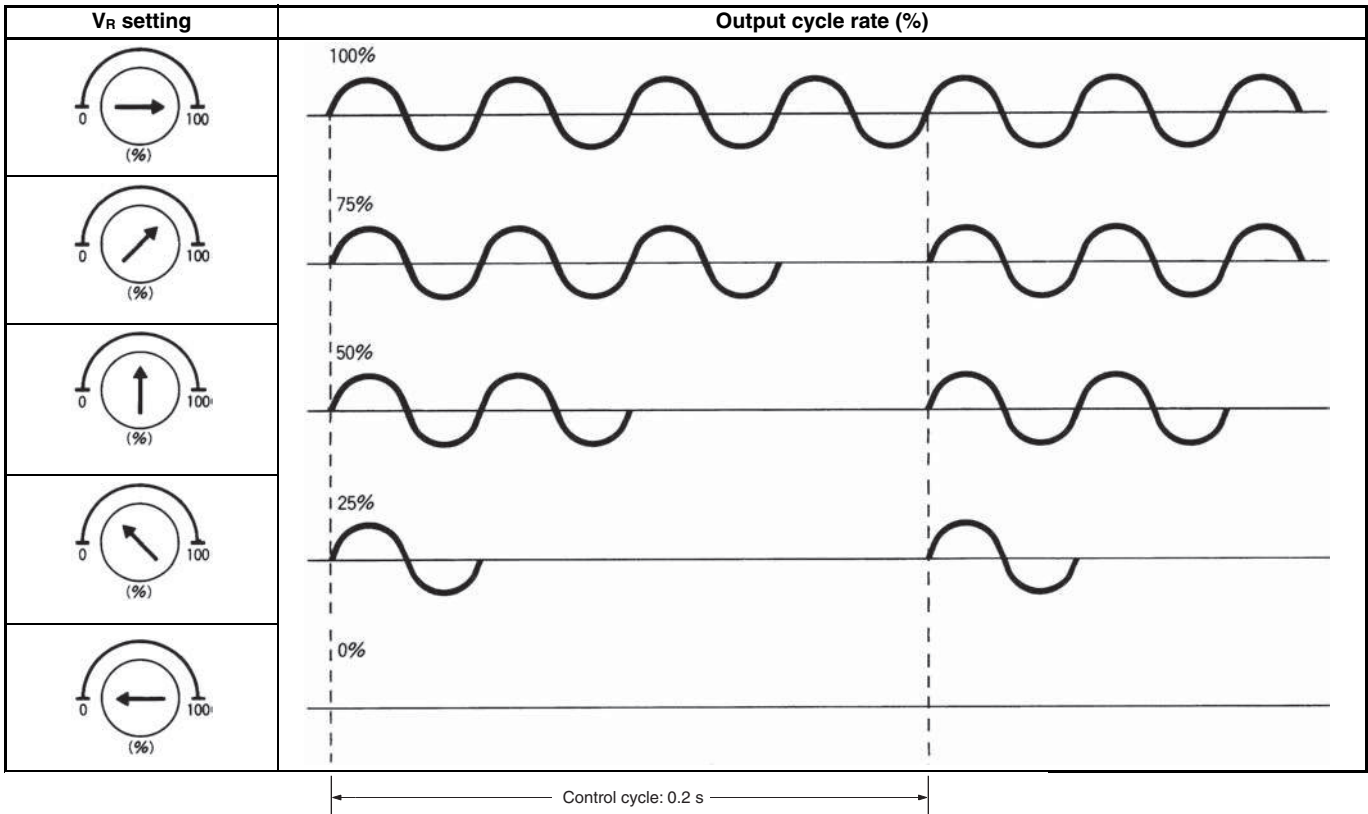
Setting the Input Method

Select external adjuster, internal adjuster, or control current as the input method using the selection switches as shown in the following table.

■ Cycle Control Setting Method

The output cycle rate can be adjusted using the internal or external adjuster.
For current control, refer to the Output Cycle Rate vs. Control Current graph on page 2.

Note: When using the internal adjuster or external adjuster, it is necessary to set the input control method in the way described previously.

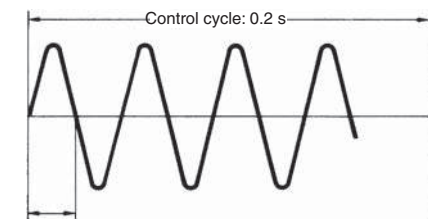


Note: The resistance is 50 kΩ at 100% and 0 Ω at 0%.

■ Output Power Resolution

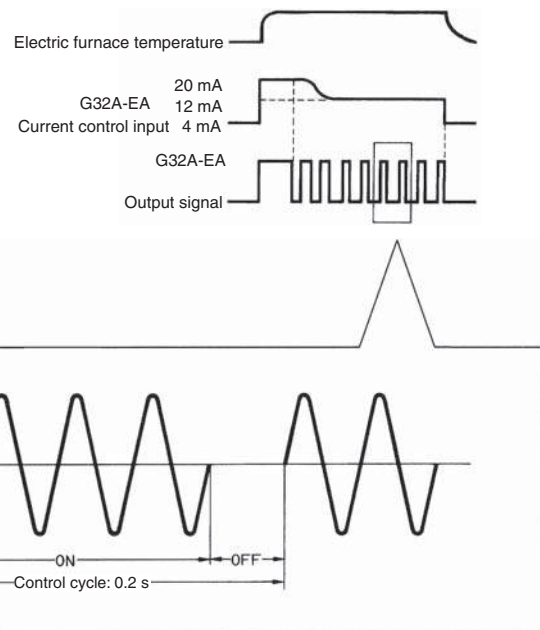
When power is controlled using the Cycle Control Unit, the output resolution (minimum variation value) depends on the half cycle of the power supply frequency and the time depends on the power supply frequency. (SSR with zero cross function)

Control cycle	Output power resolution	
	50 Hz	60 Hz
0.2 s	5% (10 ms)	4.2% (8.3 ms)



■ Cycle Control Method

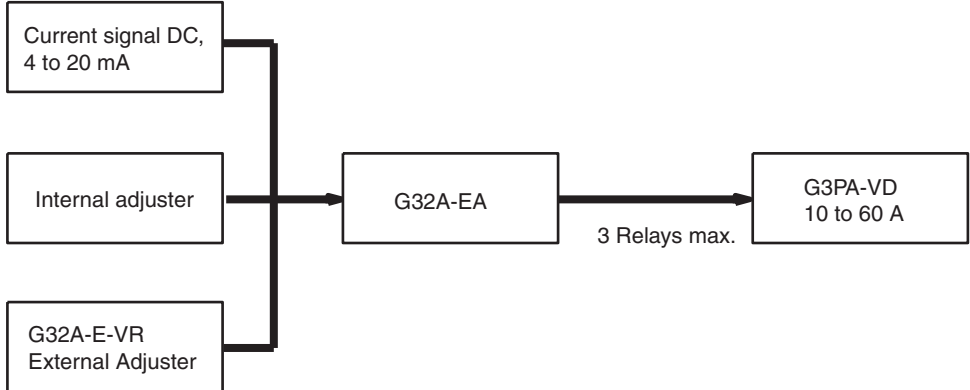
The power on the load side can be controlled by adjusting the number of cycles within the control cycle of 0.2 s and repeating this control cycle.



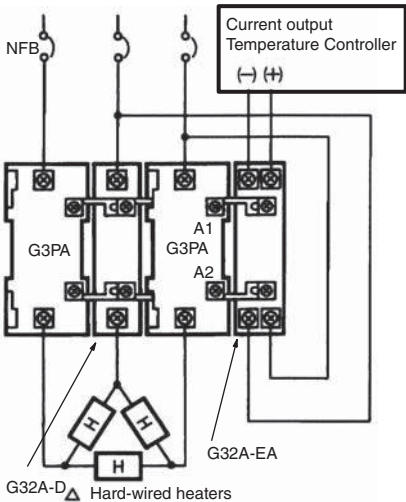
Operation

Application Examples

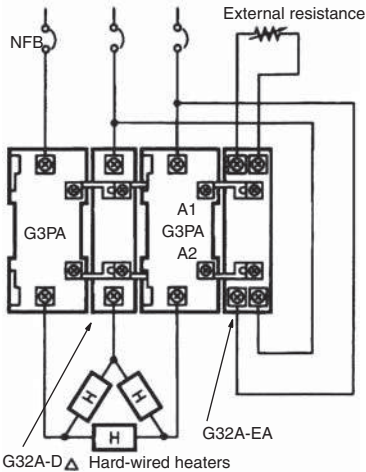
High-precision temperature control can be achieved in combination with the G3PA.



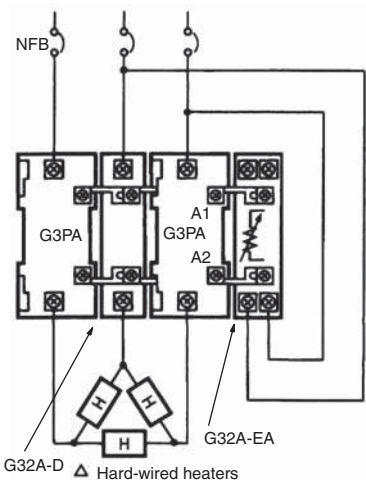
1. Control Using Current Input



2. Control Using External Adjuster



3. Control Using Internal Adjuster



Applications 1, 2, and 3 each use a different type of input method and so it is necessary to change the settings of the input selection slide switches. Be sure to change the slide switch settings in accordance with the input method on page 3.

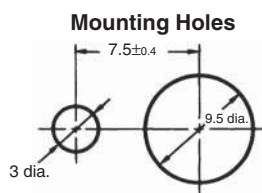
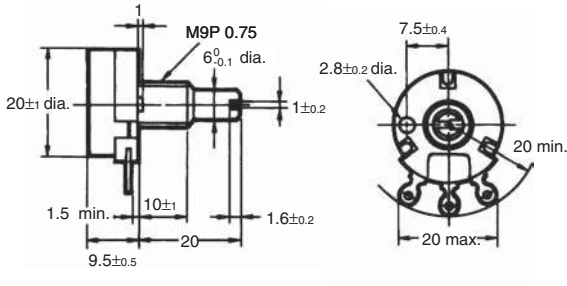
- Note:**
1. For details of input selection slide switch settings, refer to *Setting the Input Method*.
 2. The above examples are for when a G3PA-VD (except 60-A models) is used at 200 VAC.
 3. When performing ON/OFF control for example 2 or 3, do not connect output terminals B1 and B2 on the G32A-EA to input terminals A1 and A2 of the SSR as linking terminals. Rather, connect contacts between these terminals for switching.
The current flow is 20 mA max. at 12 VDC.

External Adjuster

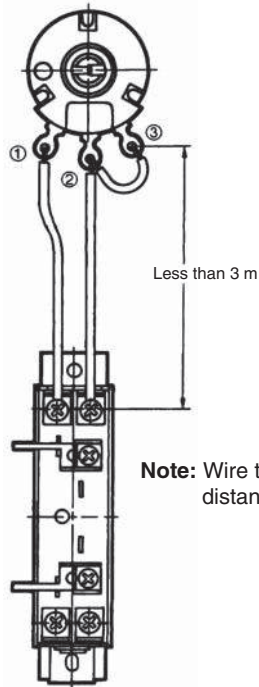
G32A-E-VR

The external adjuster, its adjuster knob, and its nameplate, all come in a set (G32A-E-VR).

External Adjuster (50 kΩ, B Characteristic)

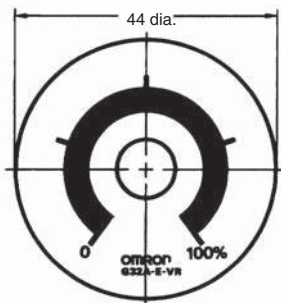


When wiring, connect in the way shown below.



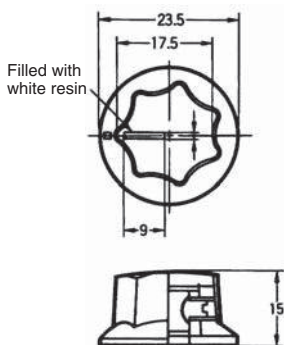
Note: Wire the external adjuster at a distance of less than 3 m.

Nameplate



Note: When using the external adjuster for input, be sure to set the input selection slide switches accordingly.

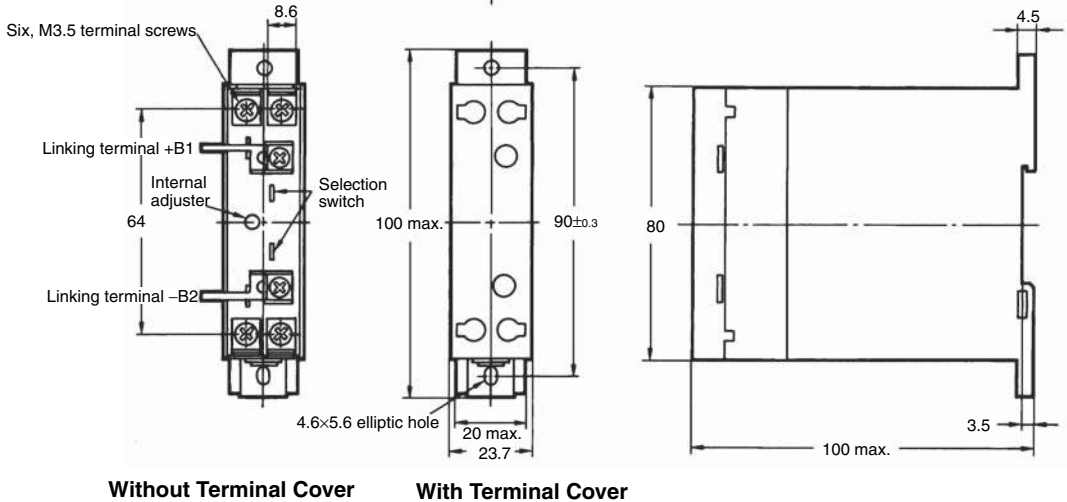
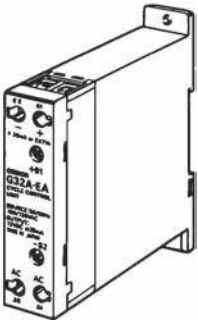
Knob



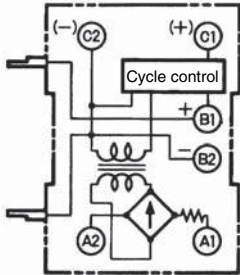
Dimensions

Note: All units are in millimeters unless otherwise indicated.

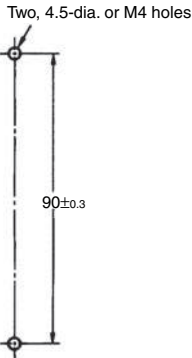
G32A-EA-US



Terminal Arrangement/ Internal Connection



Mounting Holes



Safety Precautions

Refer to *Safety Precautions for All Power Controllers*.

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

In the interest of product improvement, specifications are subject to change without notice.

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.

2014.4

In the interest of product improvement, specifications are subject to change without notice.

OMRON Corporation
Industrial Automation Company

<http://www.ia.omron.com/>

(c)Copyright OMRON Corporation 2014 All Right Reserved.