Cycle Control Units

G32A-EA

CSM_G32A-EA_DS_E_7_3

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. (This does not apply to some models.)
- 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)

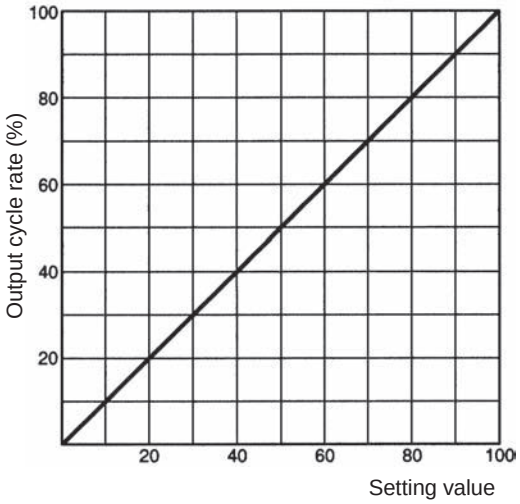
Rated power supply current	**50 Hz**	**100 to 240 VAC**	40 mA max.
	60 Hz	**100 to 240 VAC**	
Output signal			20 mA max. at 12 VDC ±15% (at 25°C)
Input signal			Current signal: 4 to 20 mA (input impedance: 352 Ω) Internal adjuster: 50 kΩ (1/4 W) External adjuster: 50 kΩ (1/4 W)
Output cycle rate			0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

■Characteristics

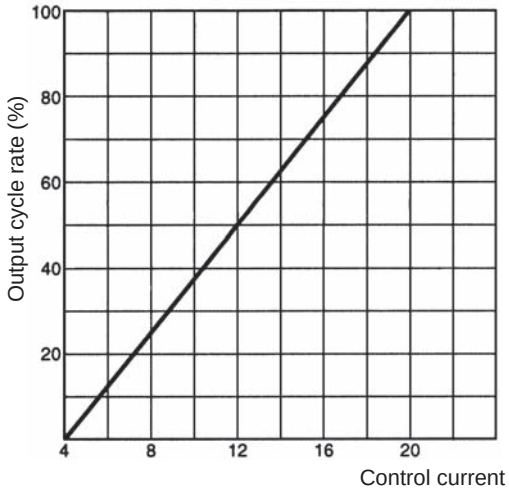
Power supply voltage range	75 to 264 VAC
Dielectric strength	1,500 VAC, 50/60 Hz for 1 minute (between AC power supply and input/output terminals)
Insulation resistance	100 MΩ max. (at 500 VDC)
Vibration resistance	10 to 55 to 10 Hz, 0.375-mm single amplitude (when mounted to DIN track)
Shock resistance	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

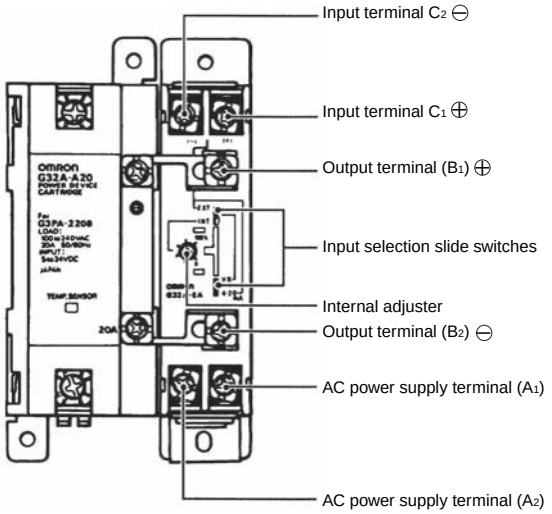


Output Cycle Rate vs. Control Current



Nomenclature

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



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.

Control method	Input selection slide switches
External adjuster	
Internal adjuster (See note 2.)	
Control current	

There is no slide switch combination with INT and 4 to 20 mA. Such combinations would have no current input control for 4 to 20 mA.

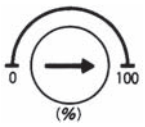
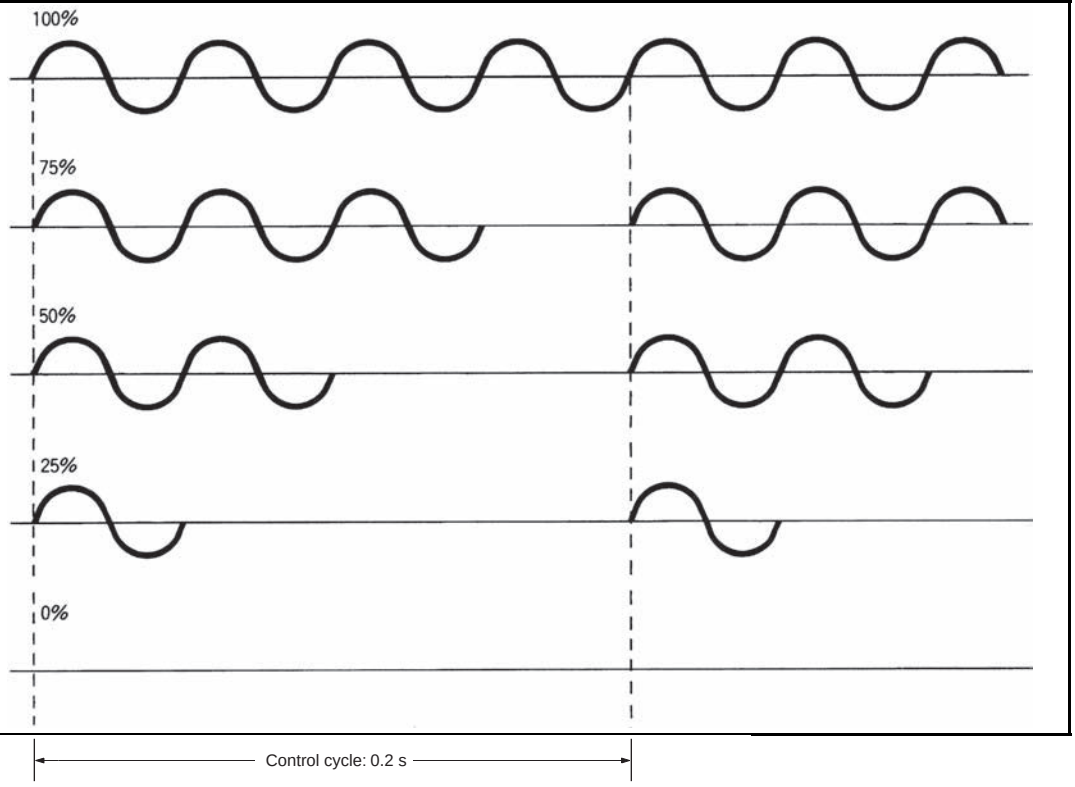
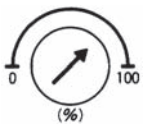
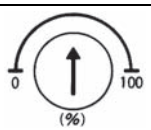
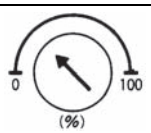
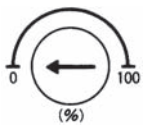
Note: 1. The input selection slide switches are factory-set to internal adjuster input. Change the setting of the switches for the input method required.

2. When using the internal adjuster, use with the input terminals (C_1, C_2) in the open state. Internal setting is not possible if there is a Temperature Controller or other device connected to C_1 or C_2.

■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.

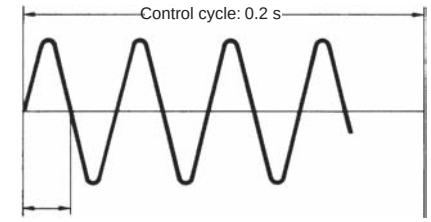
V_R setting	Output cycle rate (%)
	
	
	
	
	

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)

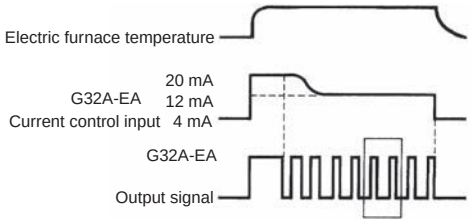
Control cycle	Output power resolution	
	50 Hz	60 Hz
0.2 s	5% (10 ms)	4.2% (8.3 ms)

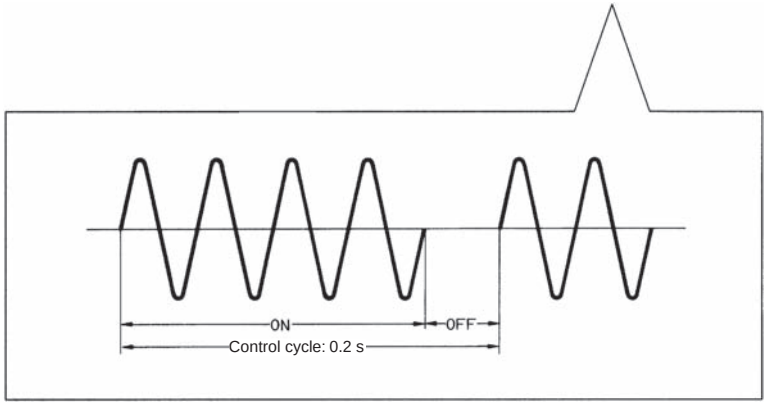


50 Hz: 5% (10 ms)
60 Hz: 4.2% (8.3 ms)

■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.

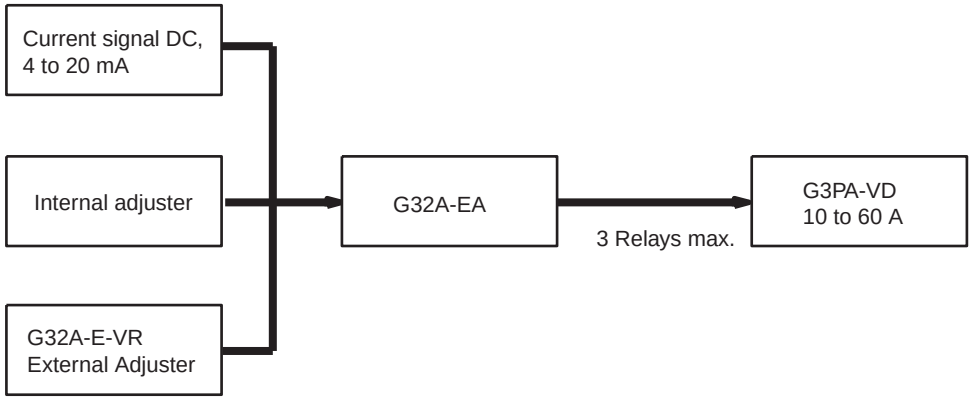




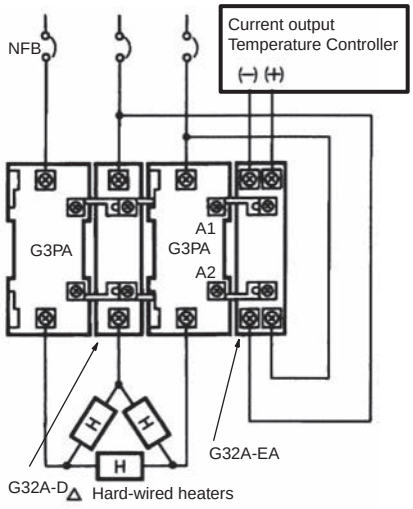
Operation

■Application Examples

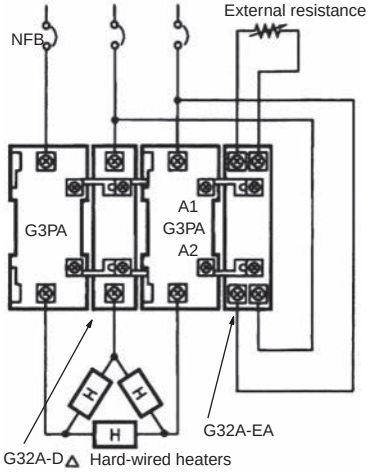
High-precision temperature control can be achieved in combination with the G3PA.



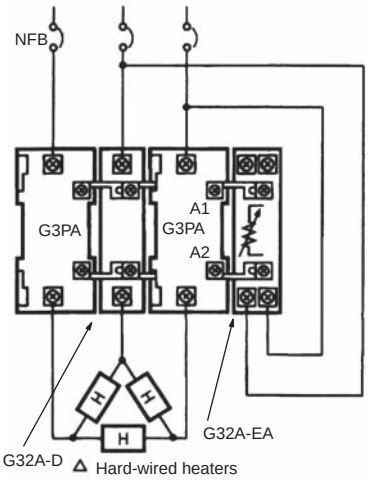
1. Control Using Current Signal



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 and 50-A models) is used at 200 VAC.

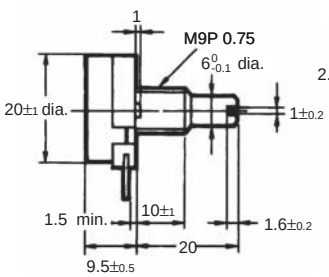
3. When performing ON/OFF control for example 2 or 3, do not connect output terminals B1 and B2 on the G32A-EA to input terminals A1 and A2 of the SSR as linking terminals, Rather, connect contacts between these terminals for switching.
The current flow is 20 mA max. at 12 VDC.

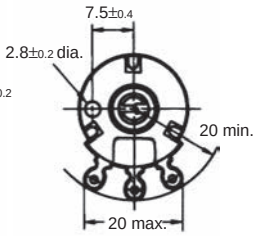
■External Adjuster

G32A-E-VR

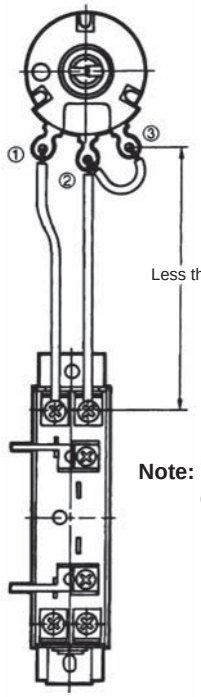
The external adjuster, its adjuster knob, and its nameplate, all come in a set (G32A-E-VR).

External Adjuster
(50 kΩ, B Characteristic)



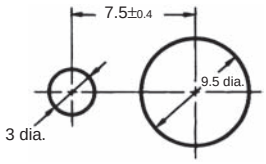


When wiring, connect in the way shown below.

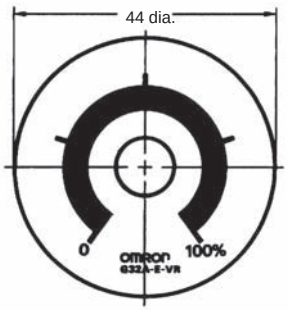


Note: Wire the external adjuster at a distance of less than 3 m.

Mounting Holes

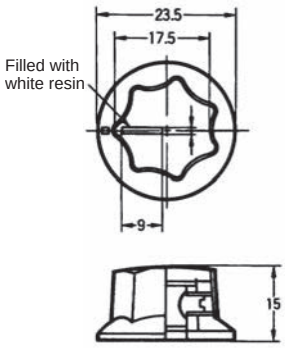


Nameplate



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

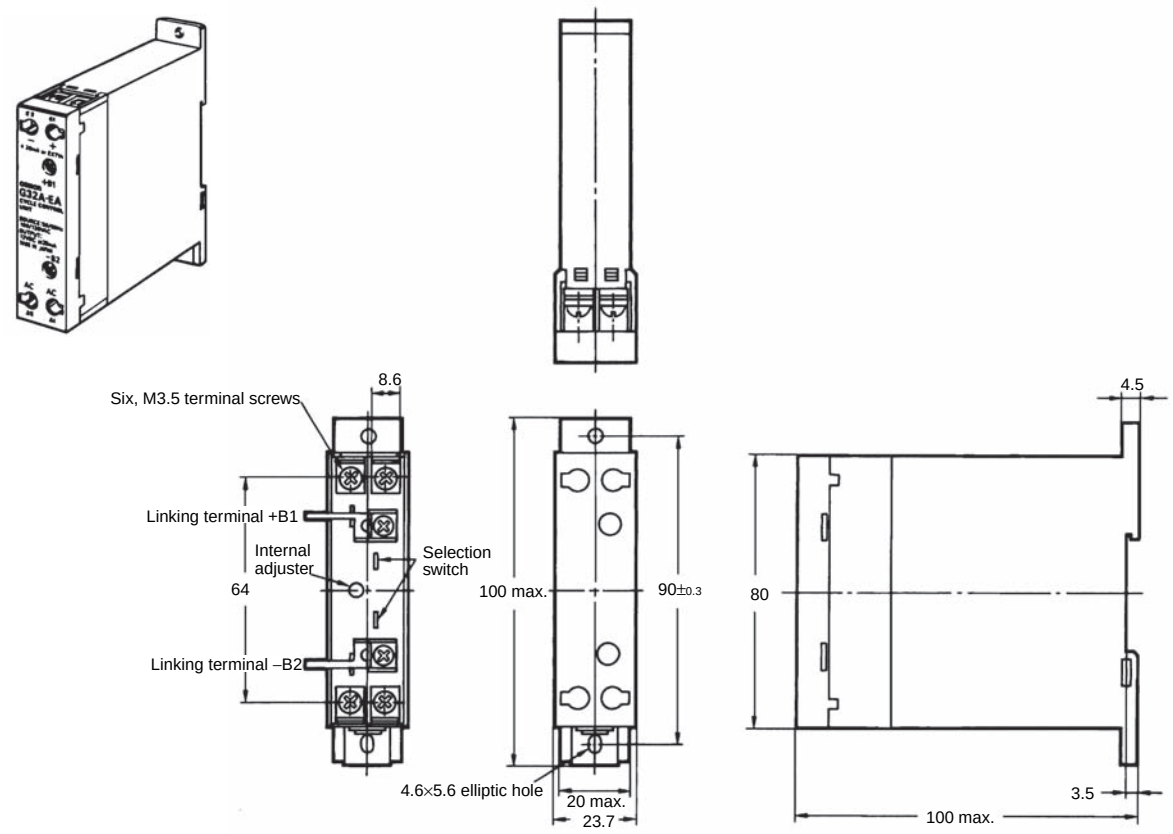
Knob



Dimensions

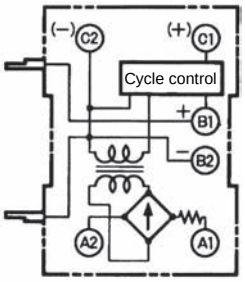
Note: All units are in millimeters unless otherwise indicated.

G32A-EA-US

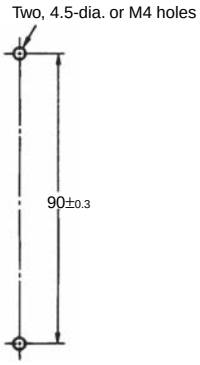


Without Terminal Cover **With Terminal Cover**

Terminal Arrangement/ Internal Connection



Mounting Holes



Safety Precautions

Screw tightening torque: 0.79 to 1.18 N·m for M3.5 screws

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

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