

# 1022 / 1025

Single-Phase  
Phase-Angle  
**SCR Power  
Controller**

## FEATURES

- Compact Size
- Soft Start
- Missing Cycle Detection
- Diagnostic Indicator
- Electrical Isolation of command signal from load and line voltages.
- RMS voltage control and line voltage compensation.
- Continuous operation at 55°C

1022



1025



## APPLICATIONS

- Transformer-Coupled Loads
- Lamp Loads
- Fast-Responding Resistive Loads



LISTED 3L32  
INDUSTRIAL  
CONTROL  
EQUIPMENT  
E136219



CERTIFIED  
BY UL TO  
CANADIAN  
NATIONAL  
STANDARDS



## DESCRIPTION

The models 1022 and 1025 are phase-angle SCR power controllers for use in single phase applications. The controllers are similar except for command signals. The 1022 accepts 0-5 Vdc, 0-10 Vdc or potentiometer. The 1025 accepts 4-20 mA.

Both controllers control the RMS voltage to the load proportional to the command signal, independent of line voltage changes of +10/-15%.

The command signal is electrically isolated from the line and load voltage.

## ADVANTAGES

Size of enclosure and panel space are reduced.

Provides slow application of power, reducing inrush (surge) currents. Prevents nuisance fuse blowing and circuit breaker tripping.

Missing cycle detection prevents transformer saturation or damage due to power interruptions.

Light emitting diode (LED) provides visual indication of controller operation.

Eliminates potential ground loops. Provides safe operation with inexpensive, non-isolated process controllers.

Provides a stable control loop because RMS load voltage is proportional to command signal and is not affected by line voltage variations.

No de-rating required below 55°C.

## BENEFITS

Valuable space is saved, enclosure costs are reduced.

Controllers may be used to operate transformer loads or loads that have a low cold resistance such as lamps.

Prevents surge currents often seen in inductive or variable resistance loads.

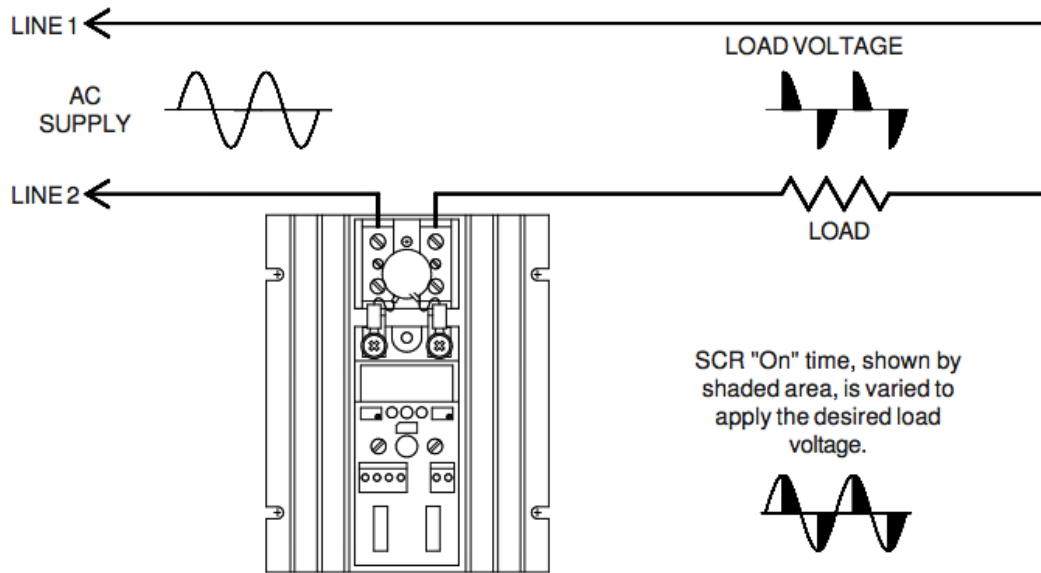
Provides an easily understood means to troubleshoot by inexperienced personnel.  
Reduces down-time.

A less costly, more reliable means to achieve good process control.

Product quality remains constant.

Improves reliability and provides long life operation.

## PHASE ANGLE OPERATION

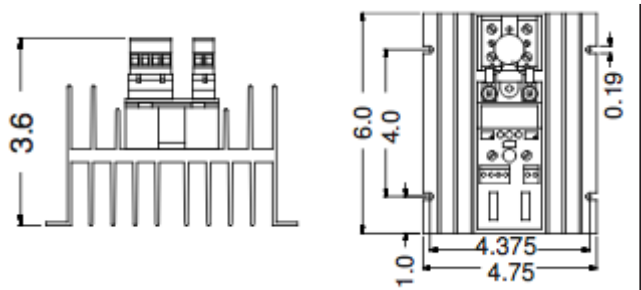


# SPECIFICATIONS

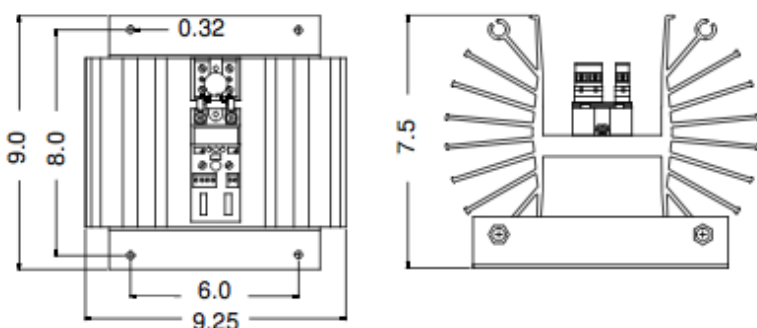
<b>Control Mode</b>	Single phase, Phase-Angle control of RMS load voltage.			
<b>Command Signal</b>	Model 1022;	0-5 Vdc,	Impedance: 100K	
		0-10 Vdc or potentiometer.	Impedance: 200K	
	Model 1025;	4-20 mA	Impedance: 300W	
<b>Power Circuit</b>	Inverse parallel silicon controlled rectifier (SCRs)			
<b>Operating Voltage</b>	120, 240, 480 or 575 Vac (+10%, -15%) 50/60 Hertz			
<b>Ambient Temperature</b>	Operating:	0° to 55°C (32 to 131°F)		
	Storage:	-40° to 80°C (-40 to 176°F)		
<b>Humidity</b>	0 to 90%, non-condensing.			
<b>Isolation</b>	Isolation between power circuit, command signal and ground is greater than 2500 volts RMS.			
<b>Linearity</b>	The RMS load voltage is linear within 2% of span of the command signal.			
<b>Control Range</b>	0 to 97% of supply voltage.			
<b>Soft Start and Missing Cycle Detection</b>	On startup or after momentary power interruptions, the SCR conduction angle (SCR "on" time) is set to zero and then allowed to ramp to the desired value. This prevents surge currents often seen in inductive or variable resistance loads.			
<b>dV/dT and MOV Protection Zero and Span Adjustment</b>	200 volts/usec minimum dv/dt snubber circuit and an MOV are used to protect against high frequency transients (dv/dt) and voltage spikes.			
<b>Mounting</b>	20% of span.			
<b>Diagnostic Indicator</b>	Vertical surface with fins vertical. Because heatsinks are electrically isolated, units may be mounted adjacent to each other.			
<b>Heat Dissipation</b>	The intensity of the LED is proportional to the command signal.			
<b>Physical</b>	1.2 watts per amp.			
<b>Current Rating</b>	Weight; 10 thru 40 Amp; 2lbs, 70 Amp; 12 lbs			
	Dimensions: Refer to installation drawing			
	<b>Model</b>	<b>Continuous RMS amps</b>	<b>Surge Current (amps)</b>	
			<b>Peak 1 Cycle</b>	<b>RMS 1 Second</b>
	1022/25-XX-10	10	120	22
	1022/25-XX-20	20	250	40
	1022/25-XX-30	30	625	80
	1022/25-XX-40	40	1000	150
1022/25-XX-70	70	1000	150	
<b>Approximate Shipping Weight and Box Size</b>	10-40A	3 Lbs	7-5-5" Box Size	
	70A		14-14-10" Box Size	

# INSTALLATION DRAWINGS

10 - 40 AMPS

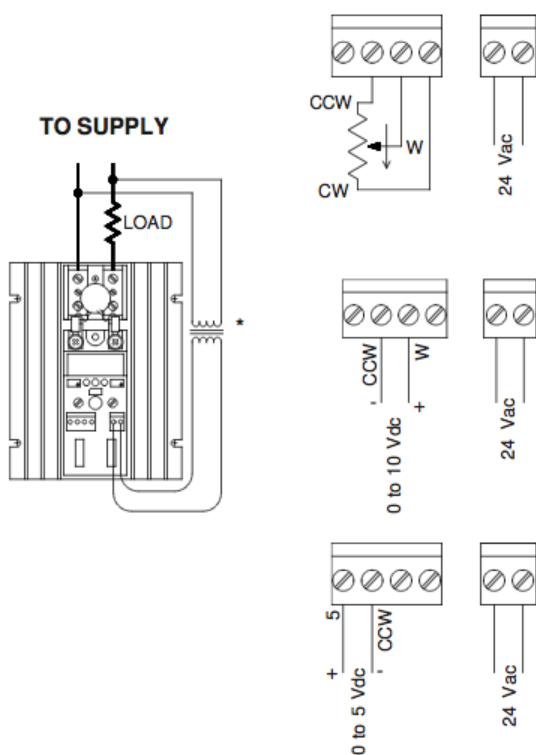


70 AMPS

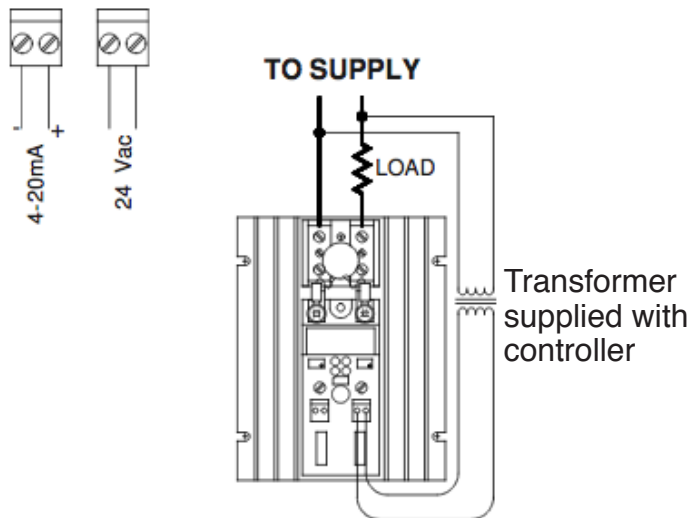


# ELECTRICAL CONNECTIONS

Model 1022



Model 1025



# ORDERING INFO

Specify Model: \_\_\_\_\_ 1022 - XX - XX  
 1022 or 1025  
 Specify Voltage: \_\_\_\_\_  
 12 = 120 Vac, 24 = 240 Vac, 48 = 480 Vac  
 Specify Current: \_\_\_\_\_  
 10, 20, 30, 40, 70 Amp

# ABOUT US

Control Concepts, Inc. has the expertise to meet your specific industrial power control needs with a full range of standard and custom SCR power controllers and signal conditioners. All Control Concepts products are covered by a limited two year warranty.

Call us for more information and assistance.



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