



**CONTROL  
CONCEPTS**

# 1022/1025

Single-Phase, Phase-angle



1022



1025

## 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.

## Applications

- Transformer coupled loads
- Lamp Loads
- Fast-responding resistive loads



LISTED 3L32  
INDUSTRIAL  
CONTROL  
EQUIPMENT  
E136219



CERTIFIED  
BY UL TO  
CANADIAN  
NATIONAL  
STANDARDS

## Features

## Advantages

## Benefits

Compact size

Size of enclosure and panel space are reduced.

Valuable space is saved, enclosure costs are reduced.

Soft start

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

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

Missing cycle detection

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

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

Diagnostic indicator

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

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

Electrical isolation of command signal from load and line voltages.

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

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

RMS voltage control and line voltage compensation.

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

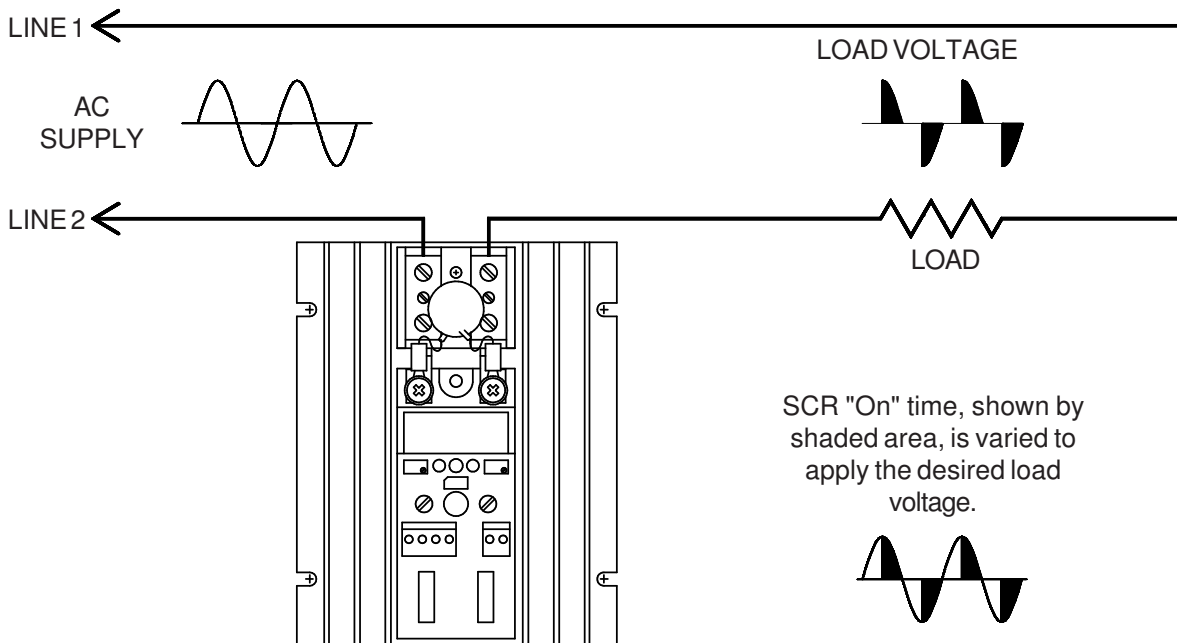
Product quality remains constant.

Continuous operation at 55°C

No de-rating required below 55°C.

Improves reliability and provides long life operation.

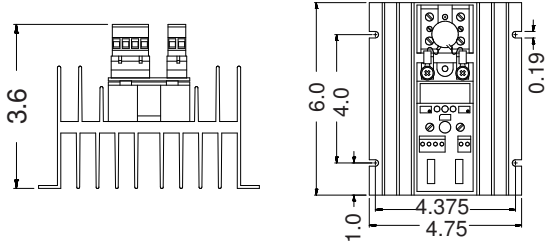
## Phase Angle Operation



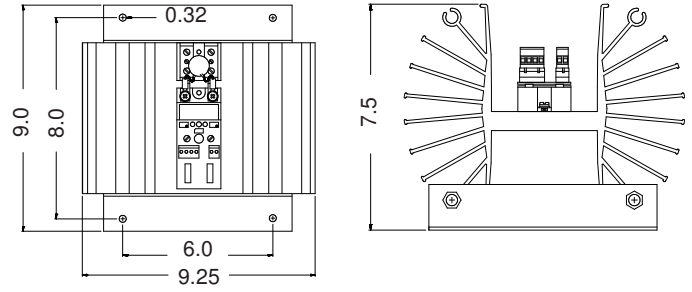
# Specifications

<b>Control Mode</b>	Single phase, Phase-Angle control of RMS load voltage.		
<b>Command Signal</b>	Model 1022;	0-5 Vdc, 0-10 Vdc or potentiometer.	Impedance: 100K Impedance: 200K
	Model 1025;	4-20 mA	Impedance: 300Ω
<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</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>Zero and Span Adjustment</b>	20% of span.		
<b>Mounting</b>	Vertical surface with fins vertical. Because heatsinks are electrically isolated, units may be mounted adjacent to each other.		
<b>Diagnostic Indicator</b>	The intensity of the LED is proportional to the command signal.		
<b>Heat Dissipation</b>	1.2 watts per amp.		
<b>Physical</b>	Weight; 10 thru 40 Amp; 2lbs, 70 Amp; 12 lbs Dimensions: Refer to installation drawing		
<b>Current Rating</b>	<b>Model</b>	<b>Continuous RMS amps</b>	<b>Surge Current (amps)</b>
			<b>Peak 1 Cycle      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

# Installation Drawings

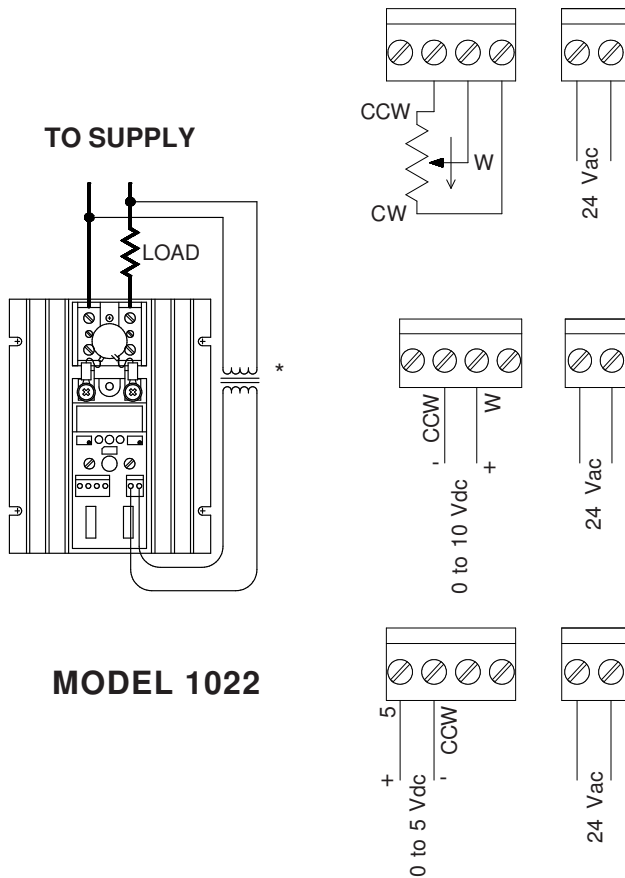


10 THRU 40 Amps

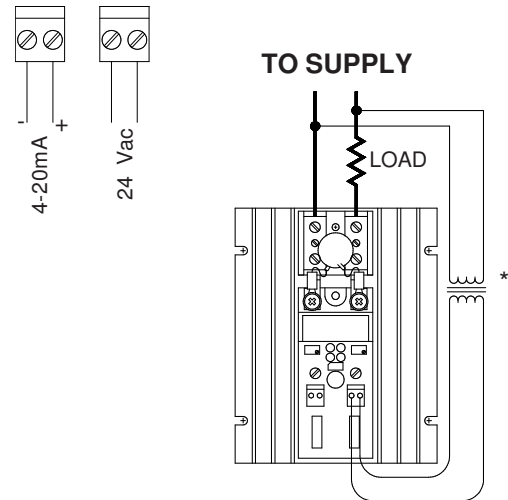


70 Amps

# Electrical Connections



MODEL 1022



MODEL 1025

\*Transformer supplied with controller

# To Order

Specify Model: 1022 or 1025  
 Specify Voltage: 12 = 120Vac, 24 = 240Vac, 48 = 480Vac.  
 Specify Current: 10, 20, 30, 40, 70 Amps  
 Example: 1022-48-40



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# About Control Concepts

Control Concepts, Inc., offers a wide variety of power controllers designed for your toughest process control applications. Single and Three Phase controllers are available with current ratings from 10 to 1000 amps. In addition, Control Concepts, Inc. offers custom SCR power controllers to meet your unique requirements.

Control Concepts, Inc. has the expertise and the products to meet your specific industrial control needs. Call us today for answers that work. **(800)-765-2799**