

## Models 1022/1025/1032

- Single phase power controllers
- Current ratings from 10 to 70 Amps
- 1022 - 0 to 5VDC or pot input
- 1025 - 4 to 20 mA signal
- 1032 - Current limit capability

## Model 1029C

- Single phase power controllers
- Current rating from 50 to 300 Amps
- Full featured with diagnostics

## Model 3629B

- Three phase power controller. .
- Current rating from 50 to 300 Amps
- Full featured with diagnostics

### High Reliability/Low Maintenance

Solid-state electronic technology designed for long service life and low maintenance.

### Precise Control

Control current or voltage from 0 to 97% with 0.1% resolution resulting in highly accurate, smooth process control capability.

### Multiple Line Voltages/Amperages

Multiple models available from 120 to 575 volts and 10 to 300 amperes.

### Phase Angle Power Control

Provides precise and stable voltage control. Includes soft-start to ensure long lamp life.

### Fast

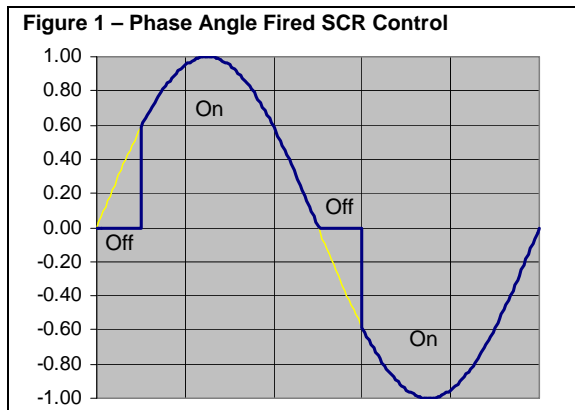
Switch load power on and off quickly providing the means to respond rapidly to command and load changes.

### On Board Diagnostics

Diagnostic LED system allows rapid troubleshooting (some models).

## Phase Angle Control

Phase angle power control is a technique for turning on (firing) SCRs. The amount of time the SCR is fired in each half cycle determines the power output (see Figure 1). The output with phase angle power control is very stable since the SCR on-time is adjusted within each AC half-cycle. The proportioning of every cycle allows gradual application of voltage to the load. All Research Inc. power controls are equipped with a soft-start feature to optimize lamp life.



## Features

The following describes features used in this power control family. Refer to Table 1 as a reference of which features are included with each specific control.

### Current Limiting

- Prevents the load current from exceeding a preset user adjustable value
- Prevents low resistance loads from drawing excessive current

### Over Current Trip

- Provides adjustable means to remove power when a load fault occurs
- Prevents the SCR's from being turned on in the event of excessive current
- Preset at 150% of current rating

### Shorted SCR Detection

- Relay is energized in the event an SCR fails in the "On" state
- Relay contacts may be used to signal alarm or remove system power

### Soft Start

- Reduces initial current applied to minimize current inrush to load
- Key feature for quartz halogen lamp loads (to ensure long lamp life)

## Run & Idle Signal Switching

- Closure of a contact changes control from the IDLE command input to the RUN command input
- Provides a convenient method of switching from auto to manual or from a RUN condition to an IDLE condition.

## LED's

- Diagnostic LED - Provides a convenient and safe method of analyzing the operation of the controller.
- Command LED - Varies intensity with the level of the applied command signal
- Load Current LED - Varies intensity with the level of current in the load
- Over Current Trip LED - Indicates that over current trip has been activated
- Shorted SCR LED - Indicates that an SCR has failed in the ON state.
- Line OK LED - Indicates 3 phase power is present and rotation is correct
- Line Current LED - Varies in intensity with the level of the applied command signal

## Metered Outputs

- 0 to 5 VDC signal output (load voltage)
- 0 to 5 VDC signal output (load current)

## Reset

- Remote contacts that reset the controller
- May be used as a Run/Stop control input

## Optically Coupled SCR Gate Drives.

- Provide superior transient immunity and electrical isolation compared to conventional techniques using pulse transformers
- Virtually eliminates false operation and prevents SCR failure that can result when SCRs are not properly gated into the on state.

## RMS Voltage Control and Line Voltage Compensation

- Provides a stable control loop – RMS voltage is proportional to command signal
- Output not affected by line voltage variations.

## Missing Cycle Detection

- Prevents transformer saturation and unit damage due to power interruptions.

Table 1: Feature Comparison				
Unit	1022 1025	1032	1029 C	3629 B
Phase	1	1	1	3
Current Limiting	N	Y	Y	Y
Over Current Trip	N	N	Y	Y
Shorted SCR Detection	N	N	Y	Y
Soft Start	Y	Y	Y	Y
Run/Idle Switching	N	N	Y	N
Diagnostic LED's	Y	Y	Y	Y
Command LED	N	N	Y	Y
Load Current LED	N	N	Y	N
Over Current LED	N	N	Y	Y
Shorted SCR LED	N	N	Y	Y
Line OK LED	N	N	N	Y
Line Current LED	N	N	N	Y
Metered Outputs	N	N	Y	N
Reset	N	N	Y	N
Coupled Gate Drives	N	N	Y	Y
RMS Voltage Control	Y	Y	Y	Y
Missing Cycle Detection	Y	Y	Y	Y

### 1022/1025/1032 – Single Phase Controls

The Models 1022 and 1025 are phase-angle SCR power controllers for use in single phase applications. The controllers are identical except the Model 1022 accepts either a 0 5Vdc or potentiometer command signal. The Model 1025 accepts a 4-20mA command signal. Both controllers control the RMS voltage to the load proportional to the command signal, independent of line voltage changes. The command signal is electrically isolated from the line and load voltage.

The 1032 controller has the same feature set as the 1022 and 1025. In addition, current limiting is a standard feature on the 1032. The 1032 controller can be configured either as 0 to 5 VDC input, 4 to 20 mA, or with potentiometer input.

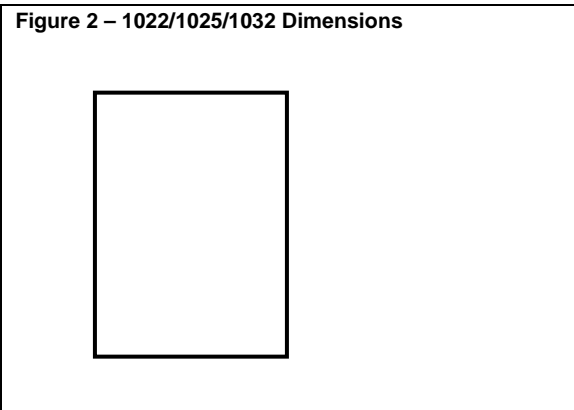


Table 2: Model 1022/1025/1032 Ordering Information	
Model	Product Description
1022	Single Phase SCR Power Control 0 to 5 volt or potentiometer control signal
1025	Single Phase SCR Power Control 4 to 20 mA control signal
1032	Single Phase SCR Power Control 0 to 5 volt or potentiometer control signal or 4 to 20 mA control signal
Code	Line Voltage (AC)
120V	120 Volts AC
240V	120 Volts AC
480V	240 Volts AC
575V	480 Volts AC
Code	Current Capacity / per phase
10A	10 Amps
20A	20 Amps
30A	30 Amps
40A	40 Amps
70A	70 Amps
Code	Options
0/5V	0 to 5 VDC control signal (1022 or 1032)
POT	Potentiometer input (1022 or 1032)
4/20mA	4 to 20 mA control signal (1025 or 1032)
IL (XX%)	Current Limit (specify value from 20% to 110% of model current rating (1032)

### 1029C – Single Phase Control

The Model 1029C is a single phase, phase angle power controller. The controller linearly controls the RMS value of the load voltage with respect to a command signal. The controller can be configured to accept all standard industrial command signals. The Model 1029C is available with current ratings

from 50 to 300 amps and voltage ratings from 120 to 575 Vac. (Other current ratings from 380 to 2000 amperes are available – consult the factory.) The controller will operate without adjustment or modification on 50 or 60 hertz. The Model 1029C is intended for controlling loads such as fast-responding, tungsten lamps found in Research Inc. infrared heaters, transformer-coupled loads, and other non-linear loads in which the resistance changes with time or age.

Model	Product Description
1029C	Single Phase SCR Power Control
Code	Line Voltage (AC)
120V	120 Volts AC
208V	208 Volts AC
240V	120 Volts AC
277V	277 Volts AC
380V	380 Volts AC
480V	240 Volts AC
575V	480 Volts AC
Code	Current Capacity / per phase
50A	50 Amps
80A	80 Amps
120A	120 Amps
160A	160 Amps
200A	200 Amps
250A	250 Amps
300A	300 Amps
Code	Options
R0-5V	0 to 5 VDC control signal Accepts potentiometer (order as accessory)
R4-20mA	4 to 20 mA control signal
IPOT	Idle potentiometer (order as accessory)

**Model 3629B**

The Model 3629B is a three phase, six SCR, phase-angle power controller. The controller linearly controls the RMS value of the load voltage with respect to a command signal. The controller can be configured to accept most standard industrial command signals. The Model 3629B is available with current ratings from 50 to 300 amperes and voltage ratings from 208 to 575 Vac. (Other current ratings from 380 to 1000 amperes are available – consult the factory.) The controller will operate

without adjustment or modification on 50 or 60 hertz and can be connected for in-line or inside-delta operation. The Model 3629B is intended for controlling loads such as fast responding, tungsten lamps found in Research Inc. infrared heaters, transformer-coupled loads, and other non-linear loads in which the resistance changes with time or age. applied to the load. The relay contacts can be used to activate an alarm or to cause system power to be removed.

Model	Product Description
1029C	Single Phase SCR Power Control
Code	Line Voltage (AC)
120V	120 Volts AC
208V	208 Volts AC
240V	120 Volts AC
277V	277 Volts AC
380V	380 Volts AC
480V	240 Volts AC
575V	480 Volts AC
Code	Current Capacity / per phase
50A	50 Amps
80A	80 Amps
120A	120 Amps
160A	160 Amps
200A	200 Amps
250A	250 Amps
300A	300 Amps
Code	Options
R0-5V	0 to 5 VDC control signal Accepts potentiometer (order as accessory)
R4-20mA	4 to 20 mA control signal
IPOT	Idle potentiometer (order as accessory)

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