3027

Three Phase, Zero-Cross
SCR Power Controller

FEATURES

- Electrical isolation of command signal from load and line voltages.
- Linear power with respect to command signal plus line voltage compensation.
- SCR Protection
- Compact size
- Sync-guard™
- Trans-Guard™
- Diagnostic Indicator
- Very fast cycle rate
- Underwriters Laboratories Listed
- Load & Line Fused
- Thermostat
- Internal Control Fuses

LISTED 3L32 INDUSTRIAL CONTROL EQUIPMENT E136219

CERTIFIED BY UL TO CANADIAN NATIONAL STANDARDS

PROUDLY DESIGNED & ASSEMBLED IN THE USA

APPLICATIONS

- Resistive Loads

DESCRIPTION

The model 3027 is a three-phase, zero-cross SCR power controller. The controller provides control of electrical power to resistive loads by means of silicon controlled rectifiers connected in two of the three lines. Control of power is linear with respect to a command signal. The command signal is electrically isolated from the line and load voltage.

The model 3027 controller features a compact design, a single plug-in circuit card for ease of operation and an electrically isolated heatsink. All three line leads are fused. The unit accepts 4-20mA, 0-5Vdc, 0-10Vdc or potentiometer command signals.

ADVANTAGES

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

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

High Voltage Peak Rating with dV/dT Snubber and MOVs.

Size of enclosure and panel space are reduced.

Reduces synchronous operation of multiple SCR controllers to obtain a smoother power demand.

Eliminates DC load currents and therefore transformer overheating due to saturation from induced DC primary voltages.

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

Rapid on-off operation provides a nearly continuous flow of power.

Nationally Recognized Testing Facility.

Three primary legs fused.

Senses the heatsink temperature.

Protects circuit and control transformer.

BENEFITS

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

Product quality remains constant.

SCR less likely to fail.

Snubber and MOV to protect against high frequency Transients and voltage spikes.

Valuable space is saved, enclosure costs are reduced.

Cooler operation of supply transformers, circuit breakers, etc., greatly reduces the possibility of voltage variations resulting multiple controllers cycling on and off at the same time.

Eliminates supply transformer problems caused by SCR controller operation. Increased transformer life.

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

Provides uniform heating, longer heater life and allows use with fast responding loads.

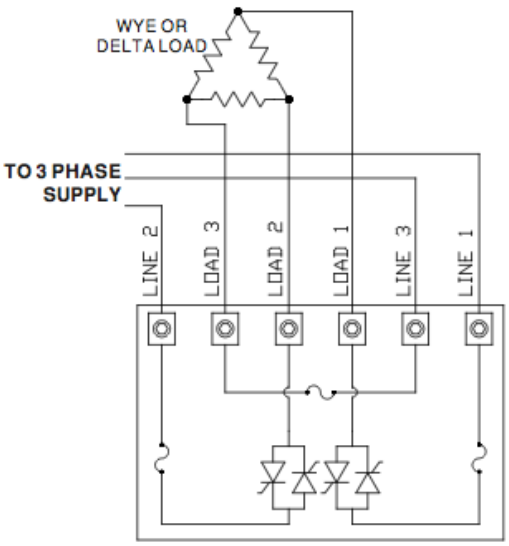
Tested for your safety.

Type "T" fuses protect SCRs and load.

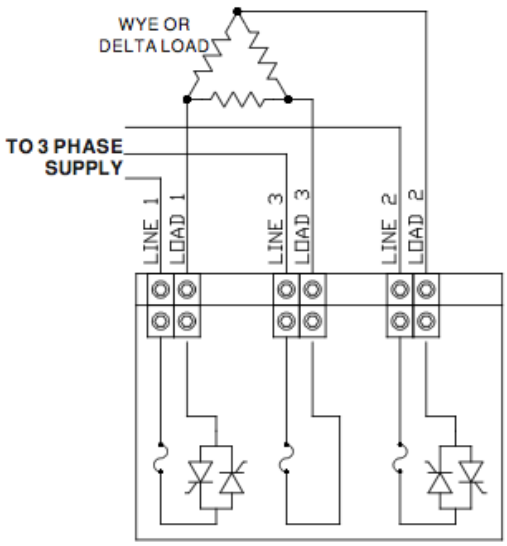
Prevents overheating by shutting the unit off.

Removes power from control circuit on detection of high temperature.

ELECTRICAL CONNECTIONS



85, 145 & 175 AMP



240, 295, 370 & 425 AMP

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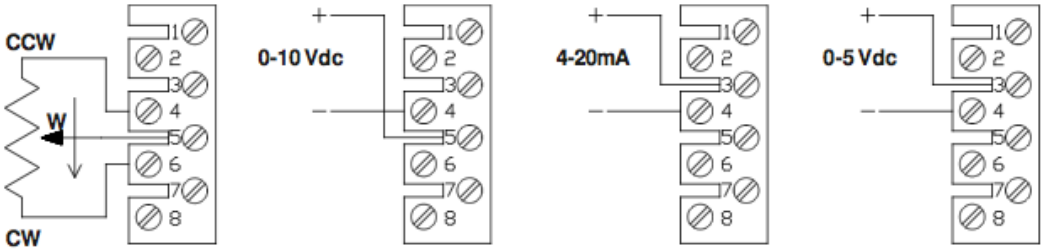
COMMAND SIGNAL CONNECTIONS



SPECIFICATIONS

Control Mode(s)	Three-phase, Two-leg, zero-cross control.
Command Signal	Range / Input Resistance 4-20mA 300 ohms 0-5Vdc 120K 0-10Vdc 240K potentiometer 240K (1K to 10K 1/2w)
Power Circuit	Inverse parallel Silicon Controlled Rectifiers (SCR's).
Operating Voltage	208 / 240 / 380 / 415 / 480 / 575 (+10%, -20%), 50/60 Hertz. Consult factory for other voltages.
Ambient Temperature	Operating: 0° to 55°C Storage: -40° to 80°C
Humidity	0 to 90%, non-condensing.
SCR Protection	1400 Volt Peak dV/dT 200 Volts/second.
Diagnostic Indicator	The frequency of operation of the LED is proportional to the command signal. It is "ON" when power is applied to the load.
Heat Dissipation	Watts dissipated = 3 watts x line current.

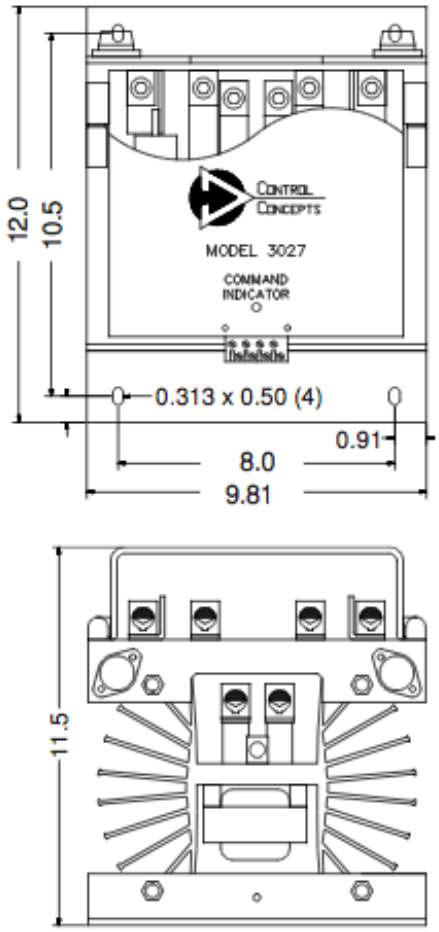
Isolation	Isolation between power circuit, command signal and ground is greater than 2500 volts RMS.
Linearity and Voltage Compensation	Load power is linear with respect to the command signal. Variations in load power resulting from supply voltage variations are reduced by an average voltage feedforward technique.
Control Range	0 to 99.5% of supply voltage. dV/dT snubber circuits and MOV's are used to protect against high frequency transients (dV/dT) and voltage spikes.
Zero and Span	Multiturn potentiometers provide adjustment of ±20% of span.
Mounting	Controllers with fans (145 Amps and larger) may be mounted in any direction. Smaller controllers must be mounted with fins vertically.
Physical	Weight: 85, 145 & 175 Amp = 20 lbs. 240, 295,370 & 425 = 50 lbs. Dimensions: Refer to installation dwg.
Approximate Shipping Weight and Box Size	85-175A 20 Lbs 14-14-14" Box Size 240-425A 47 Lbs 18-18-16" Box Size 500-1000A 100 Lbs* 30-30-16" Box Size

* ships on a pallet, weight doesn't include pallet

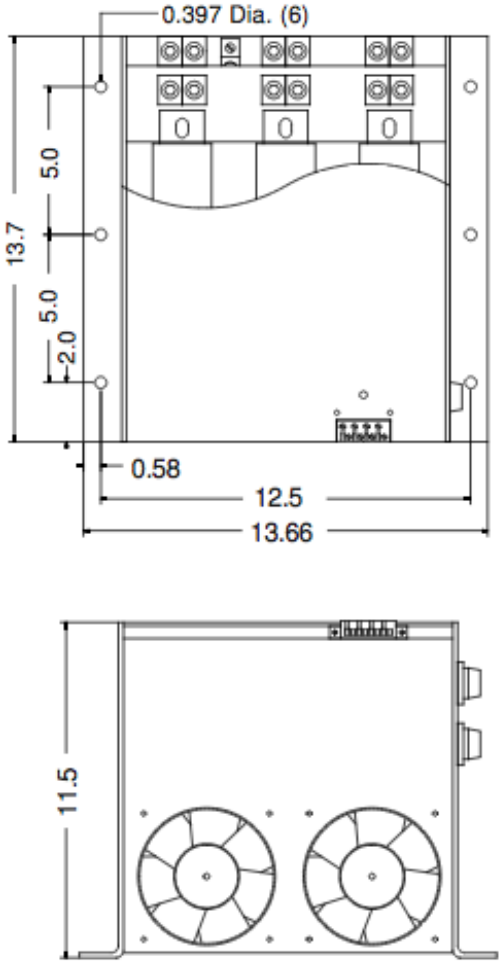
Current rating Continuous RMS amps at 55°C	KW						Controller Load Fuses
	208Vac	240Vac	380Vac	415Vac	480Vac	575Vac	
85	30.6	35.3	55.9	61.1	70.7	84.7	110A
145	52.2	60.3	95.4	104.2	120.6	144.4	175A
175	63.0	72.7	115.2	125.8	145.5	174.3	200A
240	86.5	99.8	158.0	172.5	199.5	239.0	300A
295	106.3	122.6	194.2	212.0	245.3	293.8	350A
370	133.3	153.8	243.5	266.0	307.6	368.5	450A
425	153.1	176.7	279.7	305.5	353.3	423.3	500A

Units over 425 Amps do not have internal line fuses.
Separate 120 Volt power may be required to power the firing circuit and cooling fan(s).

INSTALLATION DRAWINGS



85, 145 & 175 AMP



240, 295, 370 & 425 AMP

ORDERING INFO

3027 - (XXX)V - (XXX)A - (XXXXXX)

Voltage:
208, 240, 380, 415, 480, or 575. Substitute voltage for X's in this field.

Current:
85, 145, 175, 240, 295, 370, or 425. Substitute current for X's in this field.
Larger frame sizes are available; consult factory.

Specify Command Signal:
0/5V = 0-5 Vdc Command 0/10V = 0-10 Vdc Command Pot = 1K to 20K Potentiometer

CONTACT/ORDERING INFORMATION

TEL: (952) 474-6200 I (800) 765-2799
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CONTROL CONCEPTS

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