



PHASETRONICS™

SCR Power Control Specialists

36P1

Series

**Three-Phase SCR Power Control
Phase Angle Control, 25 - 600A**

Design Features

- Digital Electronics
- 3 Phase Dual SCR Output
- Adjustable Soft Start
- Load Voltage Regulation
- Multiple Control Inputs
- Hard Firing Gate Pulse
- Subcycle I²T Fuse
- Transient Voltage Protection
- Isolated Heatsink Design (thru 75A)
- Small Compact Package

Typical Applications

- Temperature Control
- Heater Control
- Variable Autotransformer
- Oven & Furnace Control
- Wire Annealing
- Power Supplies
- Quartz Lamps
- Transformer Control

Description

Phasetronics Model 36P1 Series of three-phase SCR Power Controllers feature phase angle control to provide smooth proportional output power from 0 – 100%. The model 36P1 controllers are available with line voltage ratings ranging from 120 through 575Vac. These units are ideally suited for all resistive, inductive and lamp type loads. With a variety of standard pre-engineered options, they are the ideal choice for system designers, panel builders and end users.

Standard features on all Model 36P1 units include isolated heatsink design through 75 amperes, fast blow fuses, transient voltage protection networks and high PIV rated SCR's. State-of-the-art digital electronics with hard firing gate pulse and associated logic control circuitry allows these units to fit a variety of applications.

Control Options

Milliamp Input

Accepts conventional automatic control signals from a process controlled instrument for automatic operation. Gain and offset potentiometers are provided to adjust for maximum and minimum desired output levels. If both manual and automatic inputs are used, the larger signal will override the smaller input unless a customer supplied Auto/Manual switch is used.

Current Limit

Adjustable from 0-125% of unit rating. Current Limit will override the input signal to limit the output current. Current transformer included.

Soft Start

When initial power is applied, unit output voltage is ramped to desired output level. Non "K" series power on soft start is adjustable up to 60 sec. "K" series option is adjustable up to 25 seconds and can be initiated on a lockout release or current trip reset.

Manual Control Input

Accepts 10K ohm potentiometer for manual control. If both manual and automatic inputs are used the larger signal will control the unit unless a customer supplied Auto/Manual switch is used.

Current Trip

Adjustable from 75-200% for instantaneous trip if current exceeds set level. Non K Current Trip option requires manual reset. K series Current Trip includes automatic reset and adjustable reset delay time. Current transformer included.

Load Voltage Regulation

Will maintain output within a $2\% \pm 10\%$ line variation.

Feedback Signals

Only available on the "K" series of options, two 0-10vdc feedback signals are provided. One, proportional to load voltage and the other, proportional to load current.

DC Voltage & Current Regulation

Specific to DC voltage and current applications, the "V" and "T" options provide constant voltage and/or constant current control with automatic crossover and regulation of typically 0.75% or better.

Specifications

AC Supply Voltage

Operates within + 10% to – 15% of 120, 208, 240, 277, 380, 415, 480 and 575 Vac, Three Phase, 60Hz line voltages. (50Hz available if specified).

Control Input

| | |
|-----------|------------------------------------|
| Manual | 10k ohm potentiometer |
| Automatic | 4-20mA, 0-10 Vdc 10-50mA, 1-5mA |

Ambient Temperature

0 to 40° C at rated current

Output Stage: Back-to-back SCR configuration

Load Types: Resistive, inductive and lamp.

Output Voltage: 0 to 100%

Regulation

Maintains output within 2% with a $\pm 10\%$ line variation

Milliamp Input Impedance

| | |
|-----------|--------------------|
| 4-20 mA | 510 Ohms |
| 10 - 50mA | 200 Ohms |
| 1 - 5mA | 2K Ohms |
| 0 - 10VDC | 100K Ohms Minimum. |

Adjustments

Soft Start - Option series specific
Gain & Offset for automatic signal
Current Limit (optional) 0 to 125%
Current Trip (optional) 75 to 200%

Protective Features

I²T Fuse (fast-blown)
Transient voltage supressor (MOV)
dv/dt Networks
PIV rating of SCR's 1500V

Model Number Selector

How To Select a Model Number

To order units with 120, 240 and 480 Vac line ratings, select the model number with the desired current rating from Table A and add the appropriate Option Designator from Table B for the desired control options.

Example:

Model 36P1-1225-V is a three phase 120Vac, 25Amp unit with the DC voltage and current regulation option.

Table A. Model Selection Guide

| AMPS | 120V AC | | 240V AC | | 480V AC | |
|------|---------|----------------|---------|----------------|---------|----------------|
| | KVA | MODEL NUMBER * | KVA | MODEL NUMBER * | KVA | MODEL NUMBER * |
| 25 | 5.2 | 36P1-1225 | 10.4 | 36P1-2425 | 20.7 | 36P1-4825 |
| 50 | 10.4 | 36P1-1250 | 20.8 | 36P1-2450 | 41.5 | 36P1-4850 |
| 75 | 15.5 | 36P1-1275 | 31 | 36P1-2475 | 62 | 36P1-4875 |
| 110 | 22.8 | 36P1-12110 | 45 | 36P1-24110 | 91 | 36P1-48110 |
| 140 | 29 | 36P1-12140 | 58 | 36P1-24140 | 116 | 36P1-48140 |
| 175 | 36.3 | 36P1-12175 | 72 | 36P1-24175 | 145 | 36P1-48175 |
| 225 | 46.7 | 36P1-12225 | 93 | 36P1-24225 | 187 | 36P1-48225 |
| 300 | 62.3 | 36P1-12300 | 124 | 36P1-24300 | 249 | 36P1-48300 |
| 400 | 83 | 36P1-12400 | 166 | 36P1-24400 | 332 | 36P1-48400 |
| 500 | 104 | 36P1-12500 | 207 | 36P1-24500 | 415 | 36P1-48500 |
| 600 | 124 | 36P1-12600 | 249 | 36P1-24600 | 498 | 36P1-48600 |

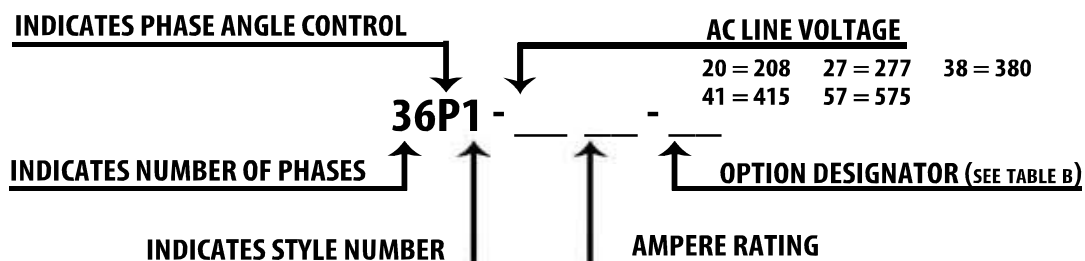
*Add desired Option Designator Letter to the end of the model number when ordering.
K series options include feedback signals as standard.

Table B. Control Option Selection Guide

| CONTROL OPTIONS | OPTION DESIGNATOR | | | | | |
|---------------------------------|-------------------|------|------|------|----------------|----------------|
| | (K)B | (K)G | (K)F | (K)H | V | T |
| MANUAL POTENTIOMETER INPUT | √ | √ | √ | √ | √ | √ |
| AUTOMATIC INPUT | √ | √ | √ | √ | √ ¹ | √ ¹ |
| CURRENT LIMIT | | √ | | √ | | |
| CURRENT TRIP | | | √ | √ | | √ |
| SOFT START | √ | √ | √ | √ | √ | √ |
| DC VOLTAGE & CURRENT REGULATION | | | | | √ | √ |

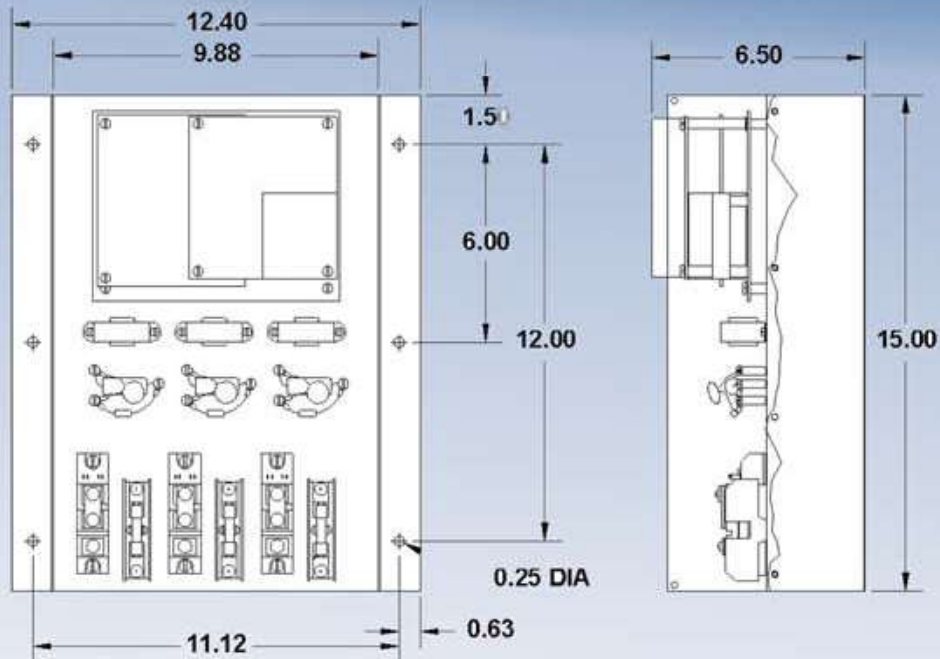
Model Selection Guide for 208, 277, 380, 415 or 575 Vac UNITS

To order units with 208, 277, 380, 415 or 575 Vac line ratings, simply make up the appropriate number as shown in the following example.

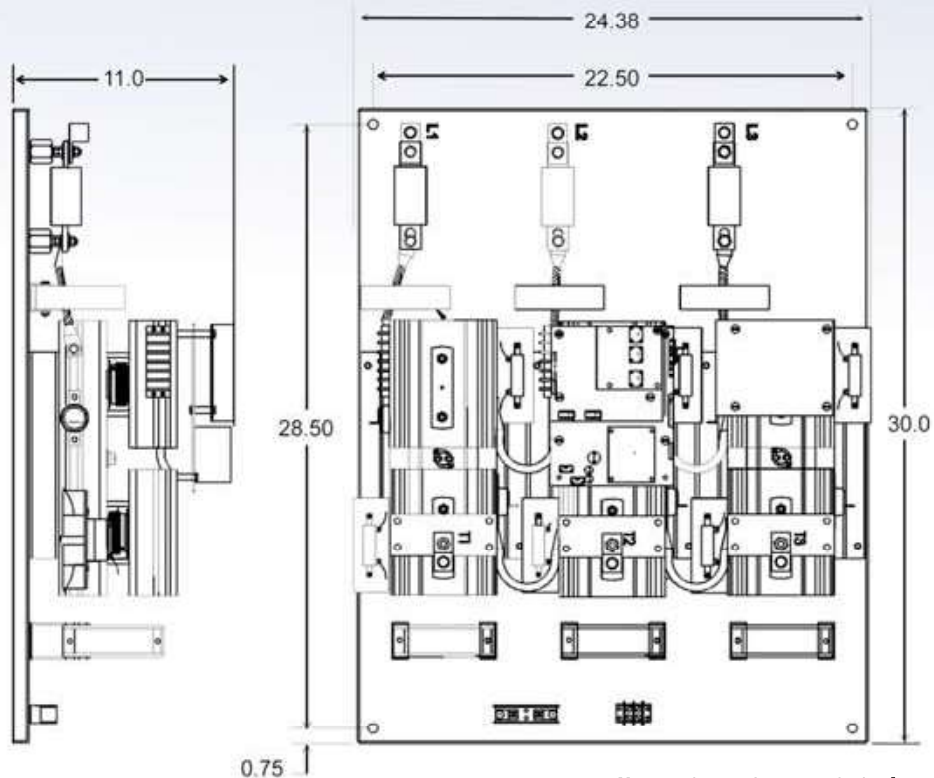


1: 4 - 20mA only.

25, 50 & 75 Amp Units



110 to 600 Amp Units



Note: Dimensions are in inches.

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