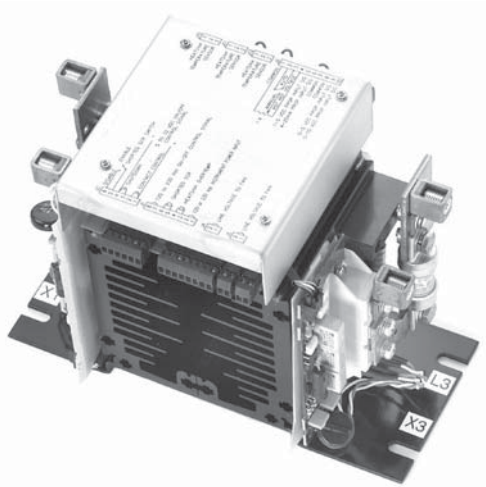


# Controls

## MiniMax 2

### Three Phase, 2-Leg SCR Power Pak



- 120-600 VAC @ 30-75 Amp
- User Adjustable Firing Modes Include:**
- **On/Off Control Inputs:**  
120VAC, 240VAC, 5-32 VDC Dry Contact Closure
  - **Proportional Zero Cross or DOT Firing Power Control**
- Inputs:**  
4-20mA, 0-5 VDC, 1-5 VDC, 0-10 VDC
- **Remote Manual Adjust, Remote Auto Manual Switch**
  - **Flexible I/O Power Wiring**
  - **Shorted SCR Detection (option)**
  - **Easy Customer Interface**
  - **Remote Stop**
  - **Electronically Protected with Temperature Warning and Shutdown System**
  - **Compact Size and Construction**
  - **dv/dt Transient Voltage Protection**
  - **MOV Protection**
  - **DOT Fired with Single or Three Cycle Resolution (Jumper selectable)**

#### Description

The MiniMax Series is specifically designed for the OEM market. The plug-in options, flexible I/O power wiring, space saving footprint, I<sup>2</sup>t fusing and universal approvals make it an excellent candidate for your product.

The MiniMax 2 is a Solid State, highly versatile power pak with optional plug-in and Shorted SCR Detection Boards. Firing modes can be switched between On/Off and proportional Zero Cross or DOT Firing power control at any time based on process needs.

Chromalox' exclusive DOT (Demand Oriented Transfer) firing switches the fewest number of cycles to provide the most precise zero cross-over control. At 50% output the unit's output alternates between three electrical cycles on and three cycles off. At 51% the output continues with three cycles on / three cycles off and gradually integrates three extra "on" cycle for the additional one percent. With the exception of phase angle firing, DOT firing is the most precise method of SCR control. DOT firing is preferred in many applications because phase angle firing creates unwanted RFI. DOT is excellent for applications where consistent heater/process temperature control is critical.

- PIV 1200V Min at 480 VAC  
PIV 1500V Min at 600 VAC
- Isolated Semiconductor Power Blocks are used on all Current Ratings

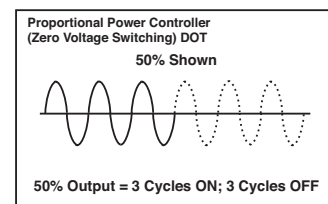
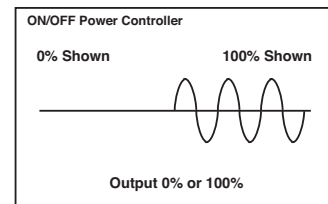
#### Safety Features

- Personnel Safety**
- Ground Potential Heat Sink
  - SCR to Heat Sink Isolation

#### Equipment/Process Safety

- Input to Output Isolation
- dv/dt Transient Voltage Protection
- I<sup>2</sup>t Fusing for SCR Protection
- Remote Stop Input
- Optional Shorted SCR Detection

#### Wave Form Cycle Rate



#### Mechanical Features

- LED Indication of Firing
- Customer Control Connections are made on a Plug-In Screw Type Terminal Block
- Optional Remote Manual Adjust and Auto/Manual Switch
- Heatsink Mounted Temperature Sensor

#### Electrical Features

#### Applications

- Resistive Heaters
- Electric Ovens
- Furnaces
- Kilns
- Environmental Chambers

SCR COMPONENTS

# Controls

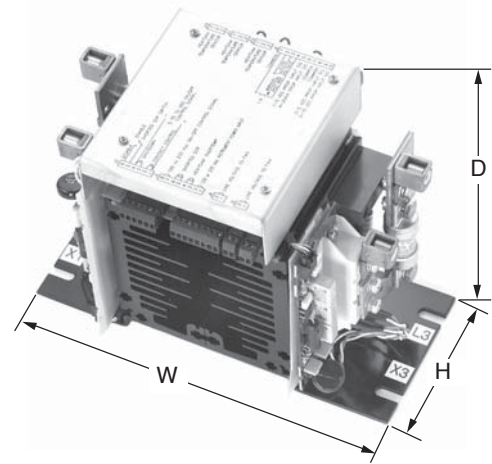
## MiniMax 2

Three Phase, 2-Leg  
SCR Power Pak  
*(cont'd.)*

### Mounting Dimensions

#### MiniMax 2 Open

Amps	Height H	Width W	Depth D
30	6.25	9.5	7.25
50	6.25	9.5	7.25
75	5	14	9.5



### Ordering Information

Complete the model number using the matrix provided.

Model	SCR Power Pack
<b>Mmax2</b>	3 Phase SCR Power Controller complete with Lugs and I2T Fusing <sup>1,2</sup>
Code	Control Configuration
<b>5</b>	Proportional Control, DOT Zero-Crossover Firing, Command Input Signals: 4-20mA, 0-5VDC, 1-5VDC (via Modbus RTU/485 only), 0-10VDC, Remote 0-1000 OHM Potentiometer w/Manual Override, Modbus RTU/RS485 Communications. RTD Heat Sink Temperature Sensor with Two Set-Points, Automatic Line Sensing 50/60HZ, Remote Permissive Shutdown Input, Form "C" Dry Contact Alarm Output, Staged Heating w/Digital Calibration Zero / Span Adjustments(4-8mA, 8-12mA, 12-16mA, 16-20mA(via Modbus RTU/RS485 only), LED Diagnostics: Command Input, Main/Trigger Boards Running, SCR Status per Phase, Diagnostic Kit via Modbus RTU/RS485: Highest Heat Sink Temperature, Last Heat Sink Temperature, Highest and Lowest Ambient Temperature, Line Frequency Monitoring, Third Party Certifications: UL, cUL, CE, DEMKO (650A and below).
Code	Current at 50°C (122°F) Ambient
<b>01</b>	30 Amp
<b>02</b>	50 Amp
<b>03</b>	75 Amp
Code	Line Voltage
<b>1</b>	120 - 480 VAC
<b>2</b>	575/600 VAC <sup>2</sup>
Code	Instrument Power (10 Va Required)
<b>1</b>	120 to 240VAC 50/60Hz
Code	Remote Man. Adjust/Auto Man. Switch <sup>3</sup>
<b>0</b>	None
<b>1</b>	Pot with 0-100% dial and local/Remote Switch, Single Turn 1K ohm Potentiometer (Proportional control only)
<b>Mmax 2 - 5 01 1 1 0</b>	<b>Typical Model Number</b>

Note:  
Storage Temperature 14°F to 158°F (-10°C to 70°C).

CE Application requires filters.

#### Chromalox Part Numbers

0005-60056 — Line filter, three phase, 440 VAC

0005-60057 — Line filter, 120-230 VAC

**CE application requires filter.**

- 1) SCR fusing is for semiconductor protection only, not wire protection.
- 2) Fuses are supplied loose for 575/600 VAC applications.
- 3) Potentiometer supplied loose for customer mounting.