



Advanced Test Equipment Rentals

www.atecorp.com 800-404-ATEC (2832)

Elgar SL and B Series solid-state frequency changers are ideal for general purpose test applications as well as Automatic Test Equipment system and avionics testing. They save critical panel space and money by providing up to 50% more power density than most competitive models. All offer overload and over-temperature protection, can operate continuously at up to 150% rated capacity, and provide up to three output voltage ranges. SL Series AC power sources meet all requirements of MATE-STD-280673 including built-in TMA for CIL interfacing when used with a MATE-compatible Plug-In Programmer. Solid-state bench-top/19"-rack-mount AC power sources can be driven over full voltage and frequency ranges by fixed, variable or programmable plug-in oscillators or external devices.

| Model Number | Volt Ampere Rating | Number of Phases |
|--------------|--------------------|------------------|
| 121 B | 120 VA | 1 |
| 153 B | 150 VA | 3 |
| 251 B | 250 VA | 1 |
| 351 SL | 350 VA | 1 |
| 501 SL | 500 VA | 1 |
| 503 A | 500 VA | 3 |
| 751 SL | 750 VA | 1 |
| 1001 SL | 1000 VA | 1 |
| 1203 SL | 1200 VA | 3 |
| 1751 SL | 1750 VA | 1 |
| 1753 B | 1750 VA | 3 |
| 2253 SL | 2250 VA | 3 |
| 3001 | 3000 VA | 1 |
| 3603 B | 3600 VA | 3 |

Common Specifications:

Rated power voltage range Full rated VA from 85% of full scale to full scale over $\pm 10\%$ input voltage variation and rated PF range. Continuous duty at up to 150% of rated capacity at 25°C.

Frequency range 45 Hz-5 KHz at full rated power (45 Hz-3 KHz for 3001)

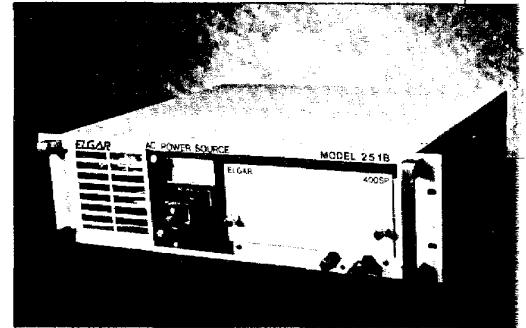
Harmonic distortion 0.6% max over full frequency range

Line & load regulation $\pm 1\%$ for 0-100% load change and $\pm 10\%$ input voltage variation over full frequency range. Adjustable to 0.1% for specific load conditions. Better than $\pm 0.25\%$ for fixed frequency output.

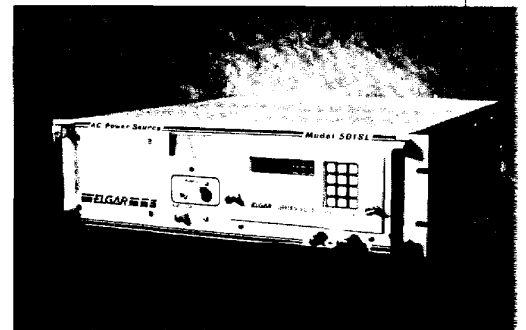
SL & B Series AC Power Sources & Configurations

SL and B Series components can be used as building blocks for creating a full range of single, two and three-phase AC power sources.

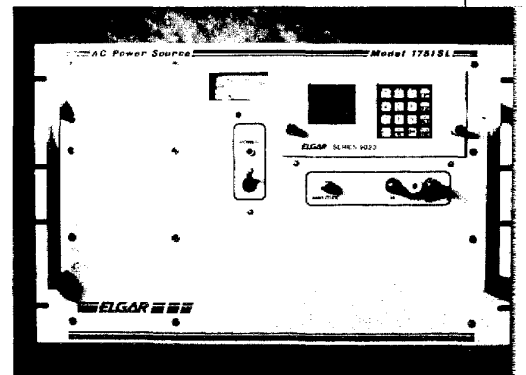
| Model # | Volt Ampere Rating |
|--------------|--------------------|
| Single-phase | 120 VA to 15 KVA |
| Two-phase | 240 VA to 18 KVA |
| Three-phase | 150 VA to 36 KVA |



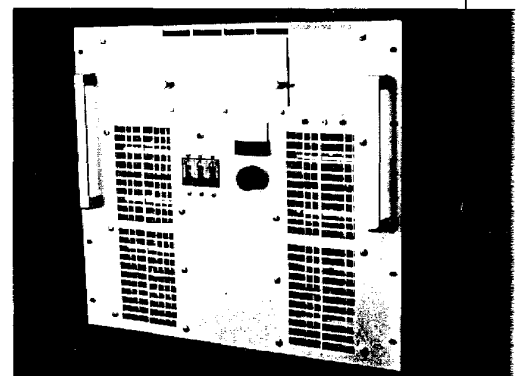
251B



501SL



1751SL



3001

SL SERIES

FEATURES

- Compact, Lightweight
- Programmable via IEEE 488 GPIB
- MATE Qualifiable - Embedded TMA
- Programmable Current Limit - Auto Shut Down and Reporting
- Continuous Duty at 150% Rated Capacity
- Overload and Over-temperature Protection
- Three Output Voltage Ranges: 0-65/130/260 VAC
- Available in 17 Models - 1, 2, and 3 Phase

PRODUCT DESCRIPTION

Elgar's SL Series solid-state frequency changers are small and lightweight in design. These linear power sources save critical panel space and money because they can provide up to 50% more power density and weigh nearly one-third less than most competitive models. The SL Series is ideal for general purpose test applications, as well as ATE systems and avionics testing.

The output voltage, frequency, current, phase angle and other parameters of the SL Series power source are controlled by Elgar's fixed, variable, or programable plug-in oscillators (PIPs).

SL Series AC power sources meet all requirements of MATE-STD-280673 including built-in TMA for CIIL/ATLAS interfacing.

The signal required to operate the SL/SX Series is provided by the Elgar PIP (Plug-in Programmer) or manual oscillator. Refer to the price list, or contact Elgar for complete model and option information.

SPECIFICATIONS

OUTPUT

Voltage Range: 0-65/130/260 VAC. Rear panel and internal jumpers provide either 0-65/130 VAC or 0-130/260 VAC voltage ranges.

Rated Power Voltage Range: Full rated VA from 55-65 VAC; 110-130 VAC; or 220-260 VAC over a $\pm 10\%$ input and rated PF range. Continuous duty at 150% of rated capacity at 55°C.*

Rated Power Output: 350VA - 5250VA.*†

Load Power Factor: Unity to ± 0.7 PF at rated VA, $\pm 10\%$ input.*

Output Current: Up to 40A†

Frequency Range: 45 Hz - 5 kHz at full rated power.

Total Harmonic Distortion: 0.6% maximum over full frequency range.

Load Regulation: $\pm 1\%$, no load to full load over full frequency range. Adjustable to 0.1% for specific load conditions. Better than $\pm 0.25\%$ for fixed frequency output.

Line Regulation: $\pm 0.25\%$ at rated load for a $\pm 10\%$ input range at full scale output voltage.

Response Time: < 50 microseconds.

AC Noise Level: 70 dB below full output voltage with input grounded.

Gain Stability: $\pm 0.25\%$ for 24 hours at constant line, load and temperature after warm-up.

Thermal Protection: Automatic thermal limiting prevents damage due to overload or over-temperature.

INPUT

Voltage: 115/208 \pm /230 VAC, $\pm 10\%$. User selectable.

Frequency: 47-63 Hz (400 Hz opt.) (45-70 Hz short term).

Efficiency: Up to 55%.

GENERAL

Operating Temperature Range: 0°C to +55°C.

Operating Humidity Range: Up to 95% non-condensing.

Front Panel: FED STD 595 light gray color #26408 with black silkscreen color #27038.

Metering: 0-300 VAC output voltmeter, $\pm 3\%$ accuracy.

Controls: Input power switch/circuit breaker and pilot light. Full range, 10-turn output voltage control potentiometer.

ATE FEATURES

Range Change Relays: Optional internal range change relays to switch between 130 VAC and 260 VAC ranges under GPIB control or front panel local control with optional oscillator.

Output Relay: Optional internal output relay to connect load to output of power source under GPIB control.

Remote Sense: Available with Elgar Programmable Plug-In Oscillator (PIP) and other selected oscillators.

Current Limit Feedback: Optional internal current transformer to provide current limit feedback to the programmable oscillator.

Built-In-Test-Equipment: Optional with use of Elgar PIP9030, PIP9012 or PIP9023 programmable oscillators. Depending on PIP, system measures and reports RMS voltage, RMS current, frequency, phase angle, and RMS power in watts.

*See Power Rating Curve.

†See Model Selection Guide.

‡Not available on 351SL and 501 SL/SX Models.

MODEL SELECTION GUIDE

SL SERIES MODEL SELECTION GUIDE

| MODEL NO. | Minimum Volt Ampere Rating | OUTPUT | | | Frequency Range (Hz) | INPUT | | PHYSICAL | | | COMMENTS | | |
|--|----------------------------|--|---------------|---------------|----------------------|---------------------------|---------------------------|---------------|--------------|-------------------------------|------------|--|--|
| | | Voltage Range (RMS) Max. Current Rms/Ø | | | | Voltage and Phase | Maximum Volt A (kVA) | Height in/ mm | Depth in/ mm | Weight Net lbs/kg Ship lbs/kg | | | |
| S I N G L E | 351SL | 350 | 0-65 8 | 0-130 4 | 0-260 2 | 45 to 5k | 115 or 230, 1Ø | 1.6 | 5.25 193 | 21 533 | 75 34 | 83 38 | |
| | 501SL | 500 | 0-65 11.5 | 0-130 5.8 | 0-260 2.9 | 45 to 5k | 115 or 230, 1Ø | 2.2 | 5.25 193 | 21 533 | 80 36 | 88 40 | |
| | 751SL | 750 | 0-65 17.3 | 0-130 8.65 | 0-260 4.3 | 45 to 5k | 115, 208 or 230, 1Ø | 3.2 | 7.00 178 | 21 533 | 115 52 | 125 57 | |
| | 1001SL | 1000 | 0-65 23.1 | 0-130 11.5 | 0-260 5.8 | 45 to 5k | 115, 208 or 230, 1Ø | 4.2 | 7.00 178 | 21 533 | 125 57 | 135 61 | |
| | 1751SL | 1750 | 0-65 40.4 | 0-130 20.2 | 0-260 10.1 | 45 to 5k | 115, 208 or 230, 1Ø | 7.5 | 12.25 311 | 21 533 | 190 86 | 200 91 | |
| T W O | 700SL-2 | 700 | 0-65 8 | 0-130 4 | 0-260 2 | 45 to 5k | 115 or 230, 1Ø | 3.2 | 10.50 267 | 21 533 | 150 68 | 166 72 | 2 ea. 351SL in 2Ø 90°, 1 ea. 400SR 1 ea. signal cable |
| | 1000SL-2 | 1000 | 0-65 11.5 | 0-130 5.8 | 0-260 2.9 | 45 to 5k | 115 or 230, 1Ø | 4.4 | 10.50 267 | 21 533 | 160 73 | 176 80 | 2 ea. 501SL in 2Ø 90°, 1 ea. 400SR 1 ea. signal cable |
| | 1500SL-2 | 1500 | 0-65 17.3 | 0-130 8.65 | 0-260 4.3 | 45 to 5k | 115, 208 or 230, 1Ø | 6.4 | 14.00 356 | 21 533 | 230 105 | 250 114 | 2 ea. 751SL in 2Ø 90°, 1 ea. 400SR 1 ea. signal cable |
| | 2000SL-2 | 2000 | 0-65 23.1 | 0-130 11.5 | 0-260 5.8 | 45 to 5k | 115, 208 or 230, 1Ø | 8.4 | 14.00 356 | 21 533 | 260 118 | 280 127 | 2 ea. 1001SL in 2Ø 90°, 1 ea. 400SR 1 ea. signal cable |
| | 3500SL-2 | 3500 | 0-65 40.4 | 0-130 20.2 | 0-260 10.1 | 45 to 5k | 115, 208 or 230, 1Ø | 15.0 | 24.50 622 | 21 533 | 360 172 | 400 182 | 2 ea. 1751SL in 2Ø 90°, 1 ea. 400SR 1 ea. signal cable |
| T H R E E | 1050SL-3 | 1050 | 0-65 8 | 0-130 4 | 0-260 2 | 45 to 5k | 115 or 230, 1Ø | 4.8 | 15.75 400 | 21 533 | 225 102 | 249 114 | 3 ea. 351SL, 2 ea. 400SR 1 ea. signal cable |
| | 1203SL | 1200 | 0-65 9.7 | 0-130 4.8 | 0-260 2.4 | 45 to 5k | 115, 208, or 230, 1Ø | 3.5 | 8.75 220 | 21 533 | 135 61 | 142 65 | |
| | 1500SL-3 | 1500 | 0-65 11.5 | 0-130 5.8 | 0-260 2.9 | 45 to 5k | 115 or 230 1Ø or 3Ø | 6.6 | 15.75 400 | 21 533 | 240 109 | 264 120 | 3 ea. 501SL (4 wire Y), 2 ea. 400SR 1 ea. signal cable |
| | 2250SL-3 | 2250 | 0-65 17.3 | 0-130 8.65 | 0-260 4.3 | 45 to 5k | 115, 208 or 230, 1Ø or 3Ø | 9.6 | 21.00 533 | 21 533 | 345 157 | 374 170 | 3 ea. 751SL (4 wire Y), 2 ea. 400SR 1 ea. signal cable |
| | 2253SL | 2250 | 0-65 17.3 | 0-130 8.65 | 0-260 4.3 | 45 to 5k | 208, 3Ø | 9.6 | 14.00 356 | 19 482 | 207 95 | 225 103 | |
| | 3000SL-3 | 3000 | 0-65 23.1 | 0-130 11.5 | 0-260 5.8 | 45 to 5k | 115, 208 or 230, 1Ø or 3Ø | 12.6 | 21.00 533 | 21 533 | 390 177 | 420 191 | 3 ea. 1001SL (4 wire Y), 2 ea. 400SR 1 ea. signal cable |
| 5250SL-3 | 5250 | 0-65 40.4 | 0-130 20.2 | 0-260 10.1 | 45 to 5k | 115, 208 or 230, 1Ø or 3Ø | 22.5 | 36.75 933 | 21 533 | 570 259 | 600 273 | 3 ea. 1751SL (4 wire Y), 2 ea. 400SR 1 ea. signal cable | |

SX SERIES MODEL SELECTION GUIDE

| MODEL NO. | Minimum Volt Ampere Rating | OUTPUT | | | Frequency Range (Hz) | INPUT | | PHYSICAL | | | COMMENTS | | |
|--|----------------------------|--|--------------|---------------|----------------------|-------------------|---------------------------|---------------|--------------|-------------------------------|------------|------------|---|
| | | Voltage Range (RMS) Max. Current Rms/Ø Repetitive Peak | | | | Voltage and Phase | Maximum Volt Amps (kVA) | Height in/ mm | Depth in/ mm | Weight Net lbs/kg Ship lbs/kg | | | |
| S I N G L E | 501SX | 500 | 0-65 11.5 | 0-130 5.8 | 0-260 2.9 | 45 to 1k | 115 or 230, 1Ø | 2.2 | 5.25 193 | 21 533 | 80 36 | 88 40 | |
| | 1001SX | 1000 | 0-65 23.1 | 0-130 11.5 | 0-260 5.8 | 45 to 1k | 115, 208 or 230, 1Ø | 4.2 | 7.00 178 | 21 533 | 130 59 | 140 64 | |
| | 1751SX | 1750 | 0-65 40.4 | 0-130 20.2 | 0-260 10.1 | 45 to 1k | 115, 208 or 230, 1Ø | 7.5 | 12.25 311 | 21 533 | 195 89 | 205 93 | |
| T W O | 1000SX-2 | 1000 | 0-65 11.5 | 0-130 5.8 | 0-260 2.9 | 45 to 1k | 115 or 230, 1Ø | 4.4 | 10.50 267 | 21 533 | 160 73 | 176 80 | 2 ea. 501SX in 2Ø 90° 1 ea. 400SR, 1 ea. signal cable |
| | 2000SX-2 | 2000 | 0-65 23.1 | 0-130 11.5 | 0-260 5.8 | 45 to 1k | 115, 208 or 230, 1Ø | 8.4 | 14.00 356 | 21 533 | 260 118 | 280 127 | 2 ea. 1001SX in 2Ø 90° 1 ea. 400SR, 1 ea. signal cable |
| | 3500SX-2 | 3500 | 0-65 40.4 | 0-130 20.2 | 0-260 10.1 | 45 to 1k | 115, 208 or 230, 1Ø | 15.0 | 24.50 622 | 21 533 | 390 172 | 410 186 | 2 ea. 1751SX in 2Ø 90° 1 ea. 400SR, 1 ea. signal cable |
| T H R E E | 1500SX-3 | 1500 | 0-65 11.5 | 0-130 5.8 | 0-260 2.9 | 45 to 1k | 115 or 230 1Ø or 3Ø | 6.6 | 15.75 400 | 21 533 | 240 109 | 264 120 | 3 ea. 501SX (4 wire Y), 2 ea. 400SR, 1 ea. signal cable |
| | 3000SX-3 | 3000 | 0-65 23.1 | 0-130 11.5 | 0-260 5.8 | 45 to 1k | 115, 208 or 230, 1Ø or 3Ø | 12.6 | 21.00 533 | 21 533 | 390 177 | 420 191 | 3 ea. 1001SX (4 wire Y), 2 ea. 400SR, 1 ea. signal cable |
| | 5250SX-3 | 5250 | 0-65 40.4 | 0-130 20.2 | 0-260 10.1 | 45 to 1k | 115, 208 or 230, 1Ø or 3Ø | 22.5 | 36.75 933 | 21 533 | 585 266 | 615 280 | 3 ea. 1751SX (4 wire Y), 2 ea. 400SR, 1 ea. signal cable |

*Refer to SX specification for maximum peak current rating.

1. See Power Rating Curve for maximum operating power.

POWER SOURCE RATINGS

COMPARATIVE RATINGS

Power ratings are a critical factor to consider when selecting your AC Power Source equipment because they provide an indication of how your unit will perform under various operating conditions.

The three graphs to the right illustrate power ratings from several power source manufacturers, including Elgar. Although each vendor rates its equipment slightly differently, *Elgar rates its power sources more conservatively and more thoroughly than all others.*

Power ratings of Elgar's SL and SX models are unbeatable in the industry because they provide:

Guaranteed performance on a continuous 100% duty cycle basis

and

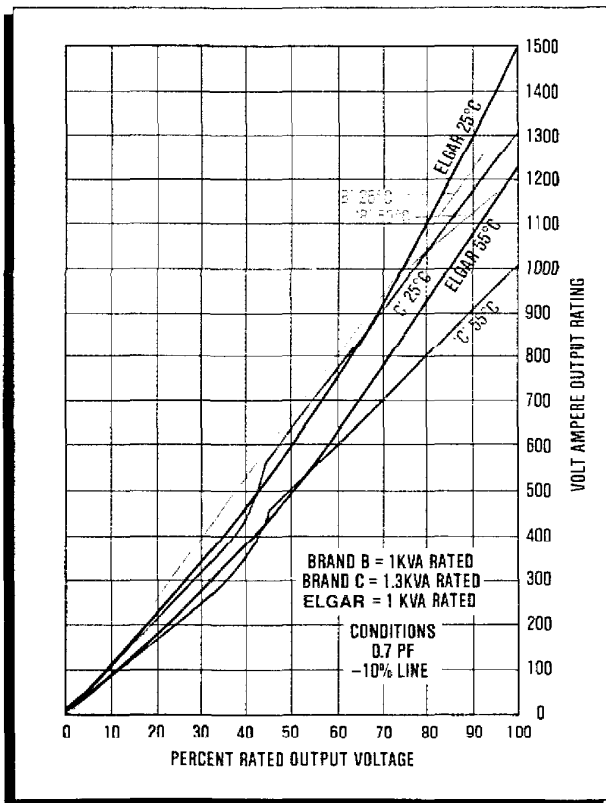
Ratings at continuous 55°C operation over a ± 10% nominal input line range

and
Full power availability at a ± 0.7 Power Factor with an output adjustment range of 85 - 100% of rating.

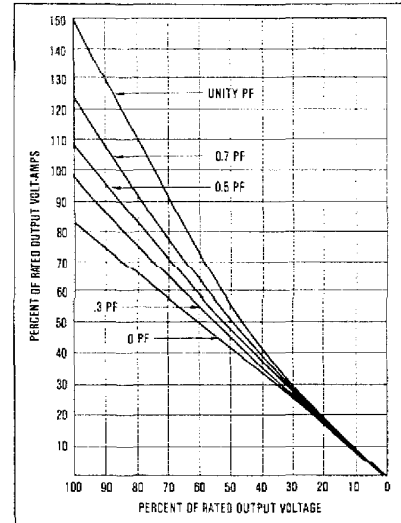
This allows for operation at 150% of rating under optimum conditions. Reserve power provides substantial cost savings by maximizing power output. Your *exact* needs are met time after time.

The graph below further illustrates the superior performance of Elgar's equipment in relation to its competitors. The data from the graphs on the right has been standardized and compiled below in order to provide a clear comparison of power rating performance.

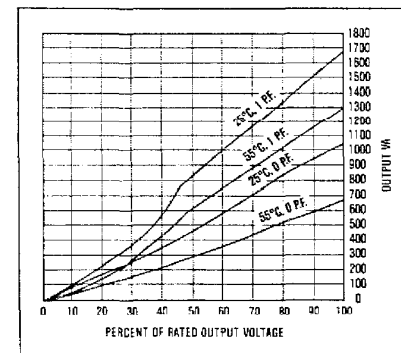
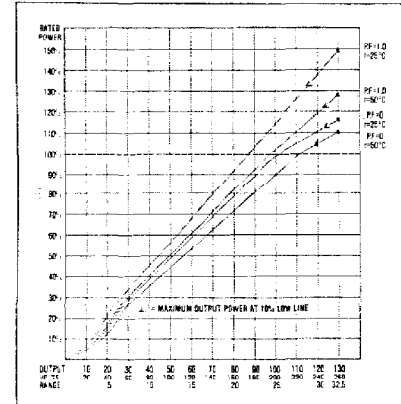
Review the data and see for yourself why more design engineers have chosen Elgar for their AC Power Source needs.



ELGAR POWER RATING CURVE



COMPETITIVE RATING CURVES



SLX 790 5M

ELGAR

9250 BROWN DEER ROAD • SAN DIEGO • CA • 92121
1-800-73-ELGAR 619-450-0085
FAX: 619-458-0267 TELEX: 211063 ELSU UR

Plug-In Programmable Oscillators

Since inventing the world's first digital programmer for computer control of AC power in 1971, Elgar's continuing development program has resulted in a family of microprocessor-based, multi-function systems. Our Plug-In Programmers (PIP) can control amplitude, frequency, phase angle and current limits. Built-In Test (BIT) capabilities handle self-testing and over-voltage protection, and Optional Built-In Test Equipment (BITE) functions are also available to measure and report actual output frequency, phase angle, true Watts, RMS voltage and RMS current locally or remotely. All PIP's have a GPIB IEEE-488 listener/talker interface port.

Model PIP 9030 offers single or three-phase programming of output frequency from 45-4095 Hz in a single range, with resolution of 1 Hz and accuracy of 0.01% of programmed value. It is used in programmable applications which do not require local control. Zero, peak or random commands give users control of the point on the sine wave for the voltage and/or frequency change to occur. There are 2 methods of creating zero crossing voltage drop-outs for power line problem simulation.

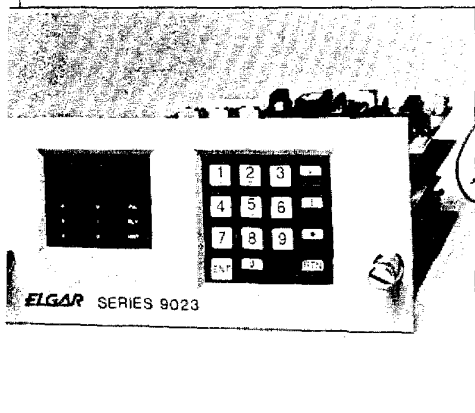
Model PIP 9012 is well suited for applications such as pass/fail incoming inspection testing. It has a 12-pad keyboard for local control. It offers the same 2 methods of creating zero crossing voltage drop-outs for power line problem testing as the PIP9030. The PIP9012's unique programmable frequency range achieves a maximum resolution of 0.01 Hz from 45-99.9 Hz, 0.1 Hz from 45-999 Hz, and 1.0 Hz from 45-5000 Hz, with accuracy of 0.001% of programmed value. Output voltages of 0-135 VAC or 0-270 VAC can be remotely selected. Programming from zero volts to full scale takes less than 1 millisecond to within $\pm 1\%$ of full scale, and 50 milliseconds to within $\pm 0.2\%$ of full scale. Programming from 5% or greater of full scale to full scale takes less than 1 millisecond to within $\pm 0.2\%$ of full scale.

Model PIP 9023 is the product of choice for complicated, variable-phase applications such as gyro testing. Its three independent phase angles are programmable in 0.5 degree steps through 360 degrees. Two or more PIP9023's can be frequency/phase locked to simulate complex power grid situations. All slave phase angles can be programmed relative to the master phase A reference for watt meter testing and calibration. Resolution of programmed frequencies of from 45 to 999.9 Hz is 0.1 Hz, and from 1000 Hz and above resolution is 1 Hz. Accuracy is $\pm 0.001\%$ of the programmed value.

Model PIP 704 Plug-In Programmable Transient Generator meets the MIL-STD-704 Rev A-D "Aircraft Electrical Power Characteristics" test requirements for 400 Hz power. All of the critical test parameters are pre-programmed in E-PROM. The PIP704 can be programmed and monitored locally or remotely for simultaneous or independent transients including 704D ramps, voltage surges/sags, frequency deviation, voltage phase differentiation and waveform distortion in any single-phase or in all three phases. Standard frequency range is 45 Hz to 1 KHz with voltage drop-outs from 1 millisecond to 222.2 seconds. Optional range is 45 Hz to 5 KHz with 200 microsecond to 222.2 second drop-outs.



PIP 9012



PIP 9023