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SECTION I

GENERAL DESCRIPTION

1.1 INTRODUCTION

This instruction manual contains information on the installation, operation, calibration and maintenance of the California Instruments XP Series AC Power Sources Model 321XP, 651XP, 971XP and 1301XP.

1.2 SPECIFICATIONS

Table 1-1 contains the operating specifications for XP Series power sources. All specifications are tested in accordance with standard California Instruments test procedures and apply with a stable, low distortion input signal as generated by any XP-series oscillator/power controller. The following specifications apply for operation from 78% to 100% of full scale output voltage.

TABLE 1-1 SPECIFICATIONS
XP-SERIES POWER SOURCE

MODEL	321XP	651XP	971XP	1301XP
MAXIMUM OUTPUT POWER, VA				
@ TA=25 degrees C, 77.8% of Range 0.7 Power Factor	325	650	975	1,300
@ TA=25 degrees C, 100% of Range 0.7 Power Factor	419	836	1,252	1,671
@ TA=55 degrees C, 77.8% of Ramge 0.7 Power Factor	250	500	750	1,000
@ TA=55 degrees C, 100% of Range 0.7 Power Factor	321	642	964	1,285
MAXIMUM OUTPUT CURRENT, Arms				
@ TA=25 degrees C				
67.5 Volt Range	6.19	12.38	18.56	24.76
135 Volt Range	3.10	6.19	9.28	12.38
270 Volt Range	1.55	3.10	4.64	6.19
@ TA=55 degrees C				
67.5 Volt Range	4.76	9.52	14.28	19.04
135 Volt Range	2.38	4.76	7.14	9.52
270 Volt Range	1.19	2.38	3.57	4.76

OUTPUT VOLTAGE RANGES:	0-135 volts rms 0-270 volts rms
OPTIONAL:	0-67.5 volts rms 0-135 volts rms Voltage range selectable by front panel range key or via IEEE-488 bus when used with the XP-series programmable oscillators/AC power controllers.
LOAD REGULATION:	±1% over the range from 45 Hz to 5 KHz when tested at unity power factor.
TOTAL HARMONIC DISTORTION:	Less than 0.5% from 45 Hz to 5 KHz.
LINE REGULATION:	±0.1% of full output for a ±10% line change.
AMPLITUDE STABILITY:	±0.25% for 24 hours at constant line, load and ambient temperature.
FULL POWER FREQUENCY RANGE:	45 Hz to 5 KHz (Optional 15 Hz at derated power, 33% voltage and 30% power).
FREQUENCY RESPONSE:	±0.5dB 45 Hz to 5 KHz.
PHASE MATCHING: (Between identical power source models)	±1.5 degrees 45 to 2KHz. ±.5 degree/KHz. Does not include phase inaccuracy of oscillator drive signals.
EFFICIENCY:	321XP 651XP 971XP 1301XP 43% 52% 55% 53% at full power out at 135V at unity power factor
AC NOISE LEVEL:	70dB rms below full rms output with shorted input. 60dB below full peak-to-peak output with shorted input. 50dB below full peak-to-peak output at full rated power output.

OVERLOAD/SHORT CIRCUIT OVERPOWER PROTECTION:	A fault resulting from overloading, short circuit or overpower condition will cause an "OVERLOAD" indicator to illuminate on the front panel. The output voltage will then be clipped on the peaks. Clipping will be proportional to the amount of the overload.
OVERTEMPERATURE PROTECTION:	Thermal overload resulting from excessive heatsink temperature will cause an "OVERTEMP" indicator to illuminate on the front panel and the output voltage will drop to zero.
AMPLIFIER DRIVE: (normally obtained from plug-in oscillator through Power Monitor)	5 volts rms (typical) produces full scale output.
PROGRAMMABLE CURRENT LIMIT OPTION:	Current Limit programming is in peak amperes. The accuracy is ±5% of programmed value from 10% to 100% of rated output.
AC MAINS INPUT:	Models 321XP and 651XP normally wired for 103 to 135 VAC. Models 971XP and 1301XP normally wired for 180 to 253 VAC. The AC INPUT may be rewired for any of the three input ranges, 103 to 135 VAC, 180 to 253 VAC or 207 to 270 VAC. NOTE: When rewired the AC input check Table 2-3 for the correct circuit breaker.
AC MAINS FREQUENCY:	48 Hz to 65 Hz.
OPERATING TEMPERATURE RANGE:	0 to 55 degrees C.
STORAGE TEMPERATURE RANGE:	-25 degrees to 85 degrees C.
ACOUSTIC NOISE:	Less than 60 dB maximum when mounted in equipment rack measured three feet from front center, "A" weighted scale.

FRONT PANEL METER: (For Power Monitor specifications, refer to applicable Power Monitor Instruction Manual)	Monitors output voltage or load current. Resolution is 1 volt or 0.1 ampere. With "kiloWatts" option resolution is 10 watts.
FRONT PANEL INDICATORS:	"POWER ON" "RANGE" "OVERLOAD" "OVERTEMP"
FRONT PANEL CONTROLS:	
Amplifier:	Main Circuit Breaker
Power Monitor:	Range; IMB, IMC Volts; IMB, IMC Amp: IMB, IMC KiloWatt; IMC
INPUT/OUTPUT CONNECTORS:	AC MAINS INPUT provided on rear mounted terminal block, Kulka 9-85-3. Output provided on rear mounted terminal block, Kulka 9-85-3. Output provided on rear mounted terminal block, Kulka 9-85-3. Output provided on rear mounted terminal block, Kulka 9-85-3. Output provided on rear mounted terminal block, Kulka 9-85-3. Servo Sense inputs for individual phases provided on Amp cap 1-480701-0 w/Amp Socket Contact 350689-1. The mating connector is Amp plug 1-480700-0 w/Amp contact pin 350547-1. Interfacing in a multi-phase system is provided with the California Instrument cable assembly 4000-427. The power source connector is Amp 552118-1. The mating connector is Amphenol 57-20500-15.

INPUT/OUTPUT CONNECTORS: (continued)	Oscillator/Control signals for programmable oscillators are provided on rear mounted IEEE-488 (GPIB) connector 3M 3549-1000.
DIMENSIONS: (in inches)	1301XP - 19W - 22D - 7.00H 971XP - 19W - 22D - 7.00H 651XP - 19W - 22D - 5.25H 321XP - 19W - 22D - 5.25H
NET WEIGHT:	1301XP 103 Pounds 971XP 92 Pounds 651XP 78 Pounds 321XP 59 Pounds
SHIPPING WEIGHT:	1301XP 131 Pounds 971XP 128 Pounds 651XP 114 Pounds 321XP 93 Pounds
FRONT PANEL FINISH:	Gray, 26440 per federal standard 595 with black silk-screened lettering.

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