SECTION 1

GENERAL DESCRIPTION

1.1 INTRODUCTION

This instruction manual contains information on the installation, operation, calibration, and maintenance of the California Instruments Model 653XP Three-Phase AC Power Source.

1.2 SPECIFICATIONS

Table 1-1 contains the operating specifications for the 653XP Power Source. 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 compatible XP-series oscillator/power controller. The following specifications apply for operation from 78% to 100% of full scale output voltage.

TABLE 1-1
SPECIFICATIONS

MAXIMUM OUTPUT POWER, VA:

@ TA=25 degrees C, 77.8% of range, 0.7 Power Factor	217 per phase
@ TA=25 degrees C, 100% of range, 0.7 Power Factor	279 per phase
@ TA=55 degrees C, 77.8% of range, 0.7 Power Factor	167 per phase
@ TA=55 degrees C, 100% of range, 0.7 Power Factor.	214 per phase

MAXIMUM OUTPUT CURRENT, Arms:

@ TA=25 degrees C.

67.5 VAC Range	4.13
135 VAC Range	2.07
270 VAC Range	1.03

@ TA=55 degrees C.

67.5 Volt Range	3.18
135 Volt Range	1.59
270 Volt Range	0.80

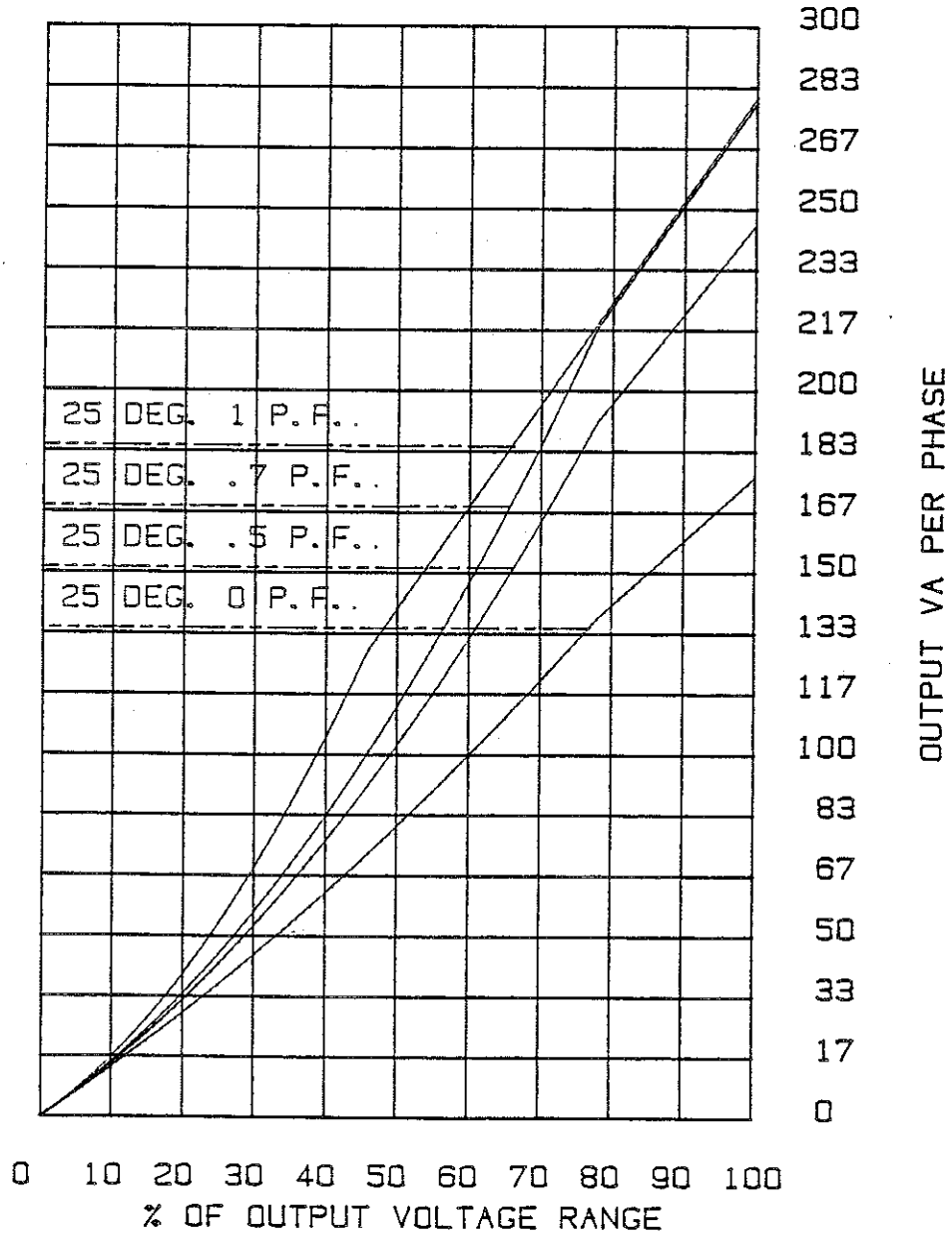
OUTPUT VOLTAGE RANGES:	
Standard:	0-135 volts rms. 0-270 volts rms.
Optional:	0-67.5 volts rms. 0-135 volts rms.
LOAD REGULATION:	±1%, 45 Hz to 5 KHz, power factor = 1.0.
	±5%, 5 KHz to 10 KHz, power factor = 1.0.
LINE REGULATION:	±0.1% of full output for a ±10% line change.
TOTAL HARMONIC DISTORTION:	less than 0.5% from 45 Hz to 5 KHz.
	less than 1% from 5 KHz to 10 KHz.
AMPLITUDE STABILITY:	±0.25% for 24 hours at constant line, load and ambient temperature.
FULL POWER FREQUENCY RANGE:	
Standard:	45 Hz to 5 KHz, sine wave.
Optional:	45 Hz to 10 KHz, sine wave.
SQUARE WAVE OPERATION: (typical performance)	
Frequency:	400 Hz to 5 KHz.
Rise Time:	< 20 microseconds.
Fall Time:	< 20 microseconds.
Overshoot:	< 15%.
Droop:	< 10%.
FREQUENCY RESPONSE:	±0.5dB over full power frequency range.
PHASE MATCHING: (Between any two phases of power source)	±1.5 degrees 45 to 2K Hz. ±0.5 degree/KHz. Does not include phase inaccuracy of oscillator drive signals.
EFFICIENCY:	50% at full power output at 135V at unity power factor.

AC NOISE LEVEL:	70 dB rms below full rms output with shorted input. 60 dB below full peak-to-peak output with shorted input. 50 dB below full peak-to-peak output at full rated power output.
OVERLOAD PROTECTION:	A fault resulting from overloading, short circuit, or excessive power dissipation in the output stage 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 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. Reset is automatic when heat sink temperature is again within acceptable limits.
AMPLIFIER DRIVE: (normally obtained from plug-in oscillator)	5 volts rms (typical) produces full scale output.
AC MAINS INPUT: (jumper configurable)	103 to 135 VAC 180 to 253 VAC 207 to 270 VAC (standard)
AC MAINS FREQUENCY:	48 Hz to 65 Hz.
OPERATING TEMPERATURE RANGE:	0 to 55 degrees C.
STORAGE TEMPERATURE RANGE:	-40 to 85 degrees C.
FRONT PANEL METERING:	Analog meter indicating line to neutral voltage. Three position switch to select individual phase.
FRONT PANEL INDICATORS:	"POWER" "OVERLOAD" "OVERTEMP" "HIGH RANGE"

FRONT PANEL CONTROLS:	Main Circuit Breaker. Voltmeter Selector Switch.
CONNECTIONS:	
Input power:	Rear-mounted terminal block. Kulka #9-85-3
Output:	Rear-mounted terminal block. Amphenol #15133-04-10G
Remote Sense Input:	Three individual rear panel connectors, AMP #350760-4 Mating connector, AMP #1-480700-0 w/AMP pin contact 350547-1.
System Interface Connectors:	15 pin, AMP #1-480711-0 w/AMP pin contact 350547-1. Mating connector, AMP 1-480710-0 w/AMP socket contact 350689-1. 12 pin, AMP #1-480709-0 w/AMP pin contact 350547-1. Mating connector, AMP 1-480708-0 w/AMP socket contact 350689-1.
IEEE-488 Interface Connector:	Mounted on rear panel.
Optionally:	Clock/Lock, isolated BNC. DFI, MS 3102A-10SL-4-S.
DIMENSIONS: inches (centimeters)	
Width:	19.0 (48.3).
Depth:	22.1 (56.1).
plus input/output terminal blocks	1.1 (2.8).
Height:	7.0 (17.8).
NET WEIGHT: pounds (kilograms)	100 (45.4).
FRONT PANEL FINISH:	Gray, 26440 per federal standard 595 with black silk-screened lettering.

653XP OUTPUT POWER CURVE

OUTPUT POWER PER PHASE



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OUTPUT POWER PER PHASE