X-Band Compact Klystron High Power Amplifier

The Classic Space-Saving Alternative Solution

X-Band

The Compact High Power Amplifier

X-Band CKPA — provides up to 3 kW of power in a dual drawer package with power tracker/ power saver

Technology Reuse At its Best

Assures high reliability in a compact design based on field proven performance. Features Power Saver and Power Tracker, optimizing K-HPA efficiency to meet your operating condition.

New Features and Options

Scopescreen provides a graphical log display. The Ethernet Option provides higher speed connections, can update and coordinate all clock settings, and enables a snapshot feature where user can create a file containing all settings, alarms and faults at a single point in time.

Useful Displays

Large, high quality, color, graphical display has a wide viewing angle and a sharp appearance. All important functions are clearly displayed, and an event log is included.

Easy Maintenance, Easy Handling

All areas of the amplifier are easily accessible and there are no large harnesses to get in the way. Separate RF and Power Supply drawers slide out from a standard rack.

Worldwide Support

Backed by over three decades of satellite communications experience, and CPI's worldwide 24-hour customer support network that includes fifteen regional factory service centers.

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satcom division

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OPTIONS:

- *Motorized Channel Selector: (<1 second)*
- *Remote Control Panel*
- *Ethernet Interface*
- *Variable Speed Blower*

SPECIFICATIONS, Model K3X

Electrical

Frequency Range	7.9 - 8.4 GHz
Klystron Power Output	3.0 kW min. (64.77 dBm)
Amplifier Output at flange[1]	2.6 kW min. (64.15 dBm)
Instantaneous Bandwidth	40 MHz
Power Adjustability	0 to -20 dB of output with ±0.1 dB typical resolution
Gain at Rated Power	74 dB min.
Gain Stability vs. Time	±0.25 dB/24 hr. max. at constant drive and temperature
Gain Stability vs. Temp.	1 dB max. from 20° to 40°C; ±2.5 dB max from 0° to 50°C (at constant drive)
Gain Slope (at rated power)	0.04 dB/MHz typ. over (Fo±13 MHz)
Gain Variation (at rated power)	0.4 dB pk-pk typ. over (Fo±13 MHz),
Input VSWR	1.25:1 max.
Output VSWR	1.30:1 max.
Load VSWR	2.0:1 max. for full spec. compliance; any value for operation without damage
Residual AM[2]	-50 dBc maximum, 20 to 400 Hz -60 dBc maximum, 400 Hz to 2 kHz -80 dBc maximum, 2 kHz to 500 kHz
AM/PM Conversion (at rated power)	4°/dB typ.
Harmonic Output	-80 dBc (see note 1)
Noise and Spurious (at rated gain)	-135 dBW/4 kHz, 3.4 to 4.2 GHz -70 dBW/4 kHz, 4.2 to 12 GHz -110 dBW/MHz, 12 to 40 GHz
Phase Noise[2]	Exceeds requirements of IESS-308/309 by -10 dB at -10 dB backoff.
Intermodulation	-29 dBc with two equal carriers at total output 7 dB below rated single-carrier output
Primary Power[3]	All ratings are ± 10%, 47-63 Hz 3-phase with neutral and ground: 200 VAC w/o neutral 208 VAC 380 to 415 VAC
Power Consumption[4]	11.0 kW max. Typical values for the following RF output backoffs with respect to rated (power saver on): 10.5 kW @ 0 dB (rated) 10.5 kW @ -4 dB 8.5 kW @ -7 dB 7.0 kW @ -10 dB 6.0 kW @ -13 dB

Electrical, continued

Power Factor	0.95 min.
Inrush Current	180% of normal line current peak max. (first half cycle only)

Mechanical

RF Input Connection	Type N female
RF Output Connection	CPR-112 grooved flange
RF Power Monitors	Type N Female
Dimensions (W x H x D without fans and handles)	
RF Drawer	19 x 21 x 28.75 in. (483 x 534 x 730 mm)
PS Drawer	19 x 8.75 x 24 in. (483 x 223 x 610 mm)
Weight	
RF Drawer	170 lbs w/klystron (77.3 kg)
PS Drawer	100 lbs (45.4 kg)
Cooling	Forced air with integral blower and fans; separate klystron collector cooling path
Air Flow Rate, Klystron	300 cfm min., at sea level
External Ducts Backpressure	0.5 inch water gauge total, maximum
Klystron Heat Loss (3.3 kW)	9000 W max.
Heat Loss in Room (cabinet less Klystron)	1500 W max.
Acoustic Noise	63 dBA nominal, measured 3 ft. from front of equipment

Environmental

Ambient Temperature	-10° to +50° operating; -40° to +80° non-operating
Relative Humidity	95%, non-condensing
Altitude	
operating:	10,000 ft. (3000 m) with standard adiabatic temp derating of 2°C/1000 ft. or 6.5°C/km
non-operating:	40,000 ft. (12,000 m)
Shock and Vibration	As normally encountered in satellite earth stations and shipping

[1] Harmonic filter can be removed as an option. Add 0.25 dB to amplifier output for units ordered without harmonic filter. Output VSWR without harmonic filter is 1.25:1 max.

[2] Prime power AC line unbalance not to exceed 3%. Excess imbalance may cause an increase in residual RF noise (AM, FM and PM). Phase noise increase is typically 2.5 dB / % imbalance.

[3] AC current harmonic content: less than 20%, primarily fifth and seventh harmonics. Harmonics must be considered when choosing UPS sources.

[4] Lower power consumption can be achieved if power saver (included as standard) is employed when operating below rated output power.

ISO 9001 Certificate Number: 30515

NASDAQ GLOBAL SELECT

Communications & Power Industries

satcom division

Please check CPI's web site to ensure most current data sheet.

For more detailed information, please refer to the corresponding CPI Technical Description.

Note: *Specifications may change without notice as a result of additional data or product refinement.*

Please contact CPI before using this information for system design.

MKT 175, ISSUE 3 08/09 PDF