

CPI Touchscreen Ku-band GEN IV klystron power amplifier for satellite uplink communications

This HPA is equipped with an MSDC klystron for high power and high efficiency.

New Features and Options

Touchscreen graphical display. Standard Ethernet interface 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. Enhanced cooling system adds even more life and improved reliability.

Backward Compatible

Slots in seamlessly with legacy GEN IV KPAs, same form factor as previous amplifiers. High efficiency, multi-stage depressed collector (MSDC) klystrons enable compact size without the threat of overheating or a shorter klystron life.

State of the Art Touchscreen Control

Includes fault logs, parameter trending and scopescreen for monitoring performance. Internal switch control eliminates need for external controllers.



CPI GEN IV Ku-band TouchPower KPA

FEATURES:

- Motorized channel selector
- Remote control panel
- Extended frequency range
- SNMP capability
- Meets international safety standard EN-60215, EMC compatibility 2014/30/EU and harmonic standard EN-61000-3-2
- Power Saver for added efficiency

BENEFITS:

- Multi-stage depressed collector results in saved money and more available physical space
- Worldwide 24 hour support, with more than 20 worldwide service centers

Quality Management
System - ISO 9001:2015



Specification	CPI GEN IV Klystron HPA K4U8 series		Ku-band
Frequency Ranges ¹	13.75 to 14.50 GHz		12.75 to 13.25 GHz
Klystron Power Output (min.)	3.0 kW (64.77 dBm)	2.45 kW (63.89 dBm)	2.35 kW (63.71 dBm)
Amplifier Output ² (min.)	2.5 kW (63.97 dBm)	2.0 kW (63.01 dBm)	2.00 kW (63.01 dBm)
Instantaneous Bandwidth, min.	85 MHz		80 MHz
Preset Channels	Up to 24 (Up to 99 with Digital Fast Tuner System (DFTS))		
Output Power Adjustability	0 to 30 dB of output typ., in 1 dB steps		
Gain (at rated power)	77 dB min.		
Gain Stability vs. Time	±0.25 dB/24 hr. max. at constant drive and temperature		
Gain Stability vs. Temperature	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 pk-pk max. over F ₀ ±30 MHz		
Gain Variation (at rated power)	0.4 dB pk-pk max. over F ₀ ±30 MHz		
VSWR	Input: 1.25:1 max; Output: 1.30:1 max; Load: 2.0:1 for full spec. compliance - any value for operation without damage		
Residual AM ³	-50 dBc max, 20 to 400 Hz; -60 dBc max, 400 Hz to 2 kHz; -80 dBc max, 2 kHz to 500 kHz		
AM/PM Conversion	4°/dB max. at rated power		
Harmonic Output ²	-80 dBc with filter; -35 dBc without filter		
Noise and Spurious	-135 dBW/4 kHz, 11.70 to 12.75 GHz; 65 dBW/4 kHz, passband; -110 dBW/4 kHz, 12.75 to 40 GHz, excluding passband	-135 dBW/4 kHz, 10.70 to 11.70 GHz; 65 dBW/4 kHz, passband; -110 dBW/4 kHz, 11.75 to 40 GHz, excluding passband	
Phase Noise ^{3,4}	Exceeds requirements of INTELSAT Standard IESS-308-309 at -10 dB backoff		
Intermodulation	-28 dBc with regard to each of two equal carriers at 7 dB backoff from rated output power		
Group Delay	In any 72 MHz band: 0.1 ns/MHz linear max.; 0.02 ns/MHz ² parabolic max; 2.0 ns pk-pk ripple max.		
Primary Power ³	All ratings are ± 10%, 47-63 Hz 3-phase with neutral and ground: 208 VAC or 380 to 415 VAC		
Power Consumption ⁵	9 kW max.	8.0 kW max; typical values for the following RF output backoffs with respect to rated (power saver OFF): 7.7 kW at 0 dB (rated); 5.6 kW at -4 dB; 4.9 kW at -7 dB; -4.6 kW at -10 dB; -4.5 kW at -13 dB	
Power Factor	0.95 min.		
Inrush Current, peak	180% of normal line current peak max. (first half-cycle only)		
RF Connection	Input: Type N Female; Output: WR75 waveguide flange; RF Power Monitors: Type N Female		
Dimensions (W x H x D)	RF Drawer 19 x 17.5 x 28 in. (483 x 445 x 711 mm); PS Drawer 19 x 8.75 x 24 in. (483 x 223 x 610 mm), without fans and handles		
Weight	RF Drawer 220 lbs w/ klystron (100 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	250 cfm min., at sea level		
External Ducts Backpressure	0.5 inch water gauge total, maximum.		
Klystron Heat Loss	5000 W max.	4400 W max.	
Heat Loss in Room	1700 W max. (cabinet less Klystron)		
Acoustic Noise	63 dBA nominal, measured 3ft. from front of equipment		
Ambient Temperature	-10° to +50° operating; -54° to +71° non-operating		
Relative Humidity	95%, non-condensing		
Altitude	10,000 ft. (3000 m) with standard adiabatic temp derating of 2°C/1000 ft. of 6.5°C/km, operating; 40,000 ft (12,000 m) non-operating		
Shock and Vibration	As normally encountered in satellite earth stations and shipping		

1. Other frequencies and power levels also available as options. Contact CPI for details.
2. External harmonic filter may be removed as an option. Add 0.25 dB to amplifier output for units ordered without harmonic filter, and raise harmonic output to -30 dBc.
3. Prime power AC line imbalance 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.

4. AC current harmonic content: less than 20%, primarily fifth and seventh harmonics. Harmonics must be considered when choosing UPS sources.
5. Lower power consumption can be achieved if power saver (included as standard) is employed when operating below rated output power.



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For more detailed information, please refer to the corresponding CPI technical description if one has been published, or contact CPI. Specifications may change without notice as a result of additional data or product refinement. Please contact CPI before using this information for system design.

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