

CPI Touchscreen C-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 C-band TouchPower KPA

FEATURES:

- Motorized channel selector
- Remote control panel
- 80 MHz instantaneous bandwidth
- Extended frequency range
- SNMP capability
- Meets international safety standard EN-60215, EMC compatibility 2014/30/EU and harmonic standard EN-61000-3-2

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	GEN IV Klystron HPA	C-Band
Frequency Ranges	5.850 - 6.425 GHz; other options available	
Klystron Power Output	2.45 to 3.35 kW min. (63.9 to 65.2 dBm), depending on klystron	
Amplifier Output ¹	2.15 to 2.88 kW min. (63.3 to 64.6 dBm), depending on klystron, at flange with harmonic filter	
Bandwidth	45 MHz; 80 MHz optional	
Power Adjustability	0 tp -20 dB of output with ± 0 -30 dB typical resolution	
Gain (at rated power)	77 dB min. (74 dB min. with BUC option)	
Gain Stability vs. Time	± 0.25 dB/24 hr. max. at constant drive and temperature (± 0.35 dB/24 hr. w/BUC)	
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 max. over Fo ± 13 MHz (Fo ± 18 MHz with 80 MHz option)	
Gain Variation (at rated power)	0.4 dB pk-pk max. over FO ± 13 MHz (Fo ± 18 MHz with 80 MHz option)	
Input VSWR	1.25:1 max. (1.50:1 with BUC option)	
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 max., 20 to 400 Hz; -60 dBc max., 400 Hz to 2 Hz; -80 dBc max., 2 kHz to 500 kHz	
AM/PM Conversion	4°/dB max. at rated power	
Harmonic Output	-80 dBc with filter; -35 dBc without filter	
Noise Density (at rated gain)	-135 dBW/4 kHz, 3.7 to 4.2 GHz; -70 dBW/4 kHz, in passband; (-65 dBW/4 kHz with linearizer option) (-60 dBW/4 kHz with BUC option); -110 dB/MHz, 4.2 to 40 GHz (excluding passband)	
Phase Noise ²	Exceeds requirements of INTELSAT Standard IESS-308-309 at -10 dB backoff	
Intermodulation	-29 dBc with two equal carriers at total output 7 dB below rated single-carrier output (at 4 dB below with linearizer option)	
Group Delay	In any 72 MHz band: 0.25 ns/MHz linear max.; 0.05 ns/MHz ² parabolic max; 2.0 ns pk-pk ripple max.	
Primary Power ³	All ratings are $\pm 10\%$, 47-63 Hz 3-phase with neutral and ground: 380 to 415 VAC	
Power Consumption ⁴	9.5 kW max, Typical values for the following RF output backoffs with respect to rated (power saver turnoff): 8.9 kW @ 0 dB (rated); 6.6 kW @ -4 dB; 5.6 kW @ -7 dB; 5.2 kW @ -10 dB; 4.8 kW @ -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: CPR-137F flange	
RF Power Monitors	Type N Female	
Dimension (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 180 lbs w/ klystron (81.7 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	175 cfm min., at sea level	
External Ducts Backpressure	0.5 inch water gauge total, maximum.	
Klystron Heat Loss	5300 W max	
Heat Loss in Room	2000 W max. (cabinet less Klystron)	
Acoustic Noise	63 dBA nominal, measured 3ft. from front of equipment	
Ambient Temperature	-10° to 50° operating; -40° to +80° non-operating	
Relative Humidity	95%, non-condensing	
Altitude	operating non-operating	10,000 ft. (3000 m) with standard adiabatic temp derating of 2°C/1000 ft. of 6.5°C/km 40,000 ft. (12,000 m)
Shock and Vibration	As normally encountered in satellite earth stations and shipping	

Note 1. Harmonic filter can be removed as an option. Add 0.25 dB to amplifier output for units ordered without harmonic filter.

Note 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.

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

Note 4. 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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