

DBS-Band Compact Klystron High Power Amplifier

The Classic Space-Saving Alternative Solution

The Compact High Power Amplifier

*DBS-Band CKPA—
provides up to
2.4 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 classic klystron technology common to CPI's renowned generations of klystron high power amplifiers.

Installation Versatility

Racks and stacks two amplifiers into one cabinet in any configuration.

Useful Displays

Provides a clear, high quality, graphical display with a wide viewing angle and a sharp appearance. Clearly displays all critical functions including a comprehensive event log.

DBS-Band



Easy Maintenance, Easy Handling

Offers easy access to all areas of the amplifier with no harness obstructions. 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 sixteen regional factory service centers.

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DBS-Band

Compact Klystron High Power Amplifier

SPECIFICATIONS, Ku-Band CKPA

Electrical

| | |
|---|--|
| Frequency Ranges | 17.3 to 18.1 GHz (to 18.4 GHz optional) |
| Klystron Power Output | 1.7 to 2.4 kW min. (62.3 to 63.8 dBm) |
| Amplifier Output at Flange ¹ | 1.4 to 2.0 kW min. (61.46 to 62.01 dBm) |
| Bandwidth | 50 MHz (optional 85 MHz available at 1700 W, 65 MHz available at 2100 W) |
| Power Adjustability | 0 to -20 dB of output with ± 0.1 dB typical resolution |
| Gain at Rated Power | 75 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 max. over Fo ± 18 MHz |
| Gain Variation (at rated power) | 0.4 dB pk-pk max. over Fo ± 18 MHz |
| Input VSWR | 1.30 max. |
| Output VSWR | 1.35 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 kHz -80 dBc max., 2 kHz to 500 kHz |
| AM/PM Conversion (at rated power) | 6°/dB max. (7°/dB max. for 2400 W klystron) |
| Harmonic Output | -80 dBc |
| Noise and Spurious (at rated gain) | -135 dBW/4 kHz, 10.95 to 12.7 GHz -65 dBW/4 kHz, in passband -110 dBW/MHz, 12.7 to 40 GHz (excluding passband) |
| Phase Noise ² | Exceeds requirements of INTELSAT Standard IESS-308/309 by -10 dB at -10 dB backoff |
| Intermodulation | -28 dBc with two equal carriers at total output 7 dB below rated single-carrier output |
| Group Delay | In any 72 MHz band: 0.10 ns/MHz linear max. 0.02 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: 200 VAC w/ neutral 208 VAC 380 to 415 VAC |
| Power Consumption ⁴ | 11.0 kW max. (12.5 kW for 3.0 kW klystron). Typical values for the following RF output backoffs with respect to rated (power saver on, 2.45 kW klystron): 10.9 kW @ 0 dB (rated) 10.9 kW @ -4 dB 9.0 kW @ -7 dB 7.5 kW @ -10 dB 6.0 kW @ -13 dB |

OPTIONS:

- *Motorized Channel Selector: (<1 second)*
- *Remote Control Panel*
- *Protection Switching*
- *Extended Frequency (17.3-18.4 GHz), available with 1700 watt klystron only*
- *Linearizer*
- *L-Band Block Upconverter (BUC) (Contact factory for typical performance specifications with integrated BUC)*
- *Ethernet Interface*
- *Uplink Power Control*
- *Variable Speed Blower*

Electrical (continued)

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

Mechanical

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| RF Input Connection | Type N female |
| RF Output Connection | WR-62 with grooved flange |
| RF Power Monitors | Type N female (Type SMA for 18.4 GHz klystron) |
| Dimension (W x H x D without fans and handles) | |
| RF Drawer | 19 x 21 x 28.75 in. (483 x 533 x 730 mm) |
| PS Drawer | 19 x 8.75 x 24 in. (483 x 223 x 610 mm) |
| Weight | |
| RF Drawer | 190 lbs w/klystron (86.4 kg) |
| PS Drawer | 90 lbs (40.8 kg) |
| Cooling | Forced air with integral blower and fans; separate klystron collector cooling path |
| Air Flow Rate, Klystron | 300 cfm min., at sea level and 23°C ambient air |
| External Ducts Backpressure | 0.5 inch water gauge total, max. |
| Klystron Heat Loss ⁵ | 9,500 W max. |
| Heat Loss in Room (cabinet less Klystron) | 1400 W max. |
| Acoustic Noise | 68 dBA nominal, measured 3 ft. from front of equipment |

Environmental

| | |
|---------------------|---|
| Ambient Temperature | -10°C to +50°C operating; -40°C to +80°C 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 |

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

²Prime 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.

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

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

⁵For 2400 W klystron only.



Communications & Power Industries

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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.