

dB-4051A TWT Amplifier



50W CW
17.5-40 GHz

The dB-4051A is a rack-mounted Ka-Band traveling wave tube amplifier (TWTA) operating in the frequency range of 17.5 to 40 GHz and providing 40/50 Watts minimum output power. A wide-band, periodic permanent magnet (PPM)-focused, conduction-cooled TWT is used for power amplification of CW, AM, FM or pulse-modulated signals. The power supply topology uses proprietary low-noise, high-efficiency designs to operate the RF signal path. An embedded micro-controller provides the interface, control and protection functions, as well as extensive fault diagnostics and status indication for the TWT Amplifier. Standard communication interface is Ethernet. The dB-4051A is packaged in a standard 19-inch rack-mount configuration with an integral, forced air cooling system.

Features

- K/Ka-band TWTA
- 17.5 to 40 GHz, 40/50W, CW/Pulse
- Rackmount configuration

Applications

- ECM transmitters
- Electronic warfare (EW) simulation
- Test and measurement
- RFI susceptibility testing
- EMC Tests
- RF components testing
- Antenna pattern and radar cross-section measurements

dB-4051A TWT Amplifier Specifications

Reliability by Design®

Electrical

Frequency Range	17.5 to 40.0 GHz
Output Power	40 Watts CW, 17.5 - 18.0 GHz 50 Watts CW, from 18 - 28 GHz 60 Watts CW, from 28 - 38 GHz 50 Watts CW, from 38 - 40 GHz
Gain at Rated Power	48 dB min.
Gain Flatness	±3 dB at rated power
Harmonic Output	-4 dBc max.
Noise Power Density	-15 dBm/MHz max. (Beam ON) -80 dBm/MHz max. (Beam OFF)
Spurious	-50 dBc max.
Input/Output VSWR	2.5:1 max.
Load VSWR	1.3:1 max. for full specification compliance 2.0:1 max. no damage
Prime Power Input Voltage	220 VAC, 60 Hz, Single-Phase
Power Consumption	600 Watts max.
TWTA Protection	Helix Over-Current, Cathode Over-Voltage, High Reflected RF Power, Over-Temperature
Status/Indication/Monitor	Equipment status, faults, TWT Filament/operate hours, Forward/Reflected Power
Interface Control	Ethernet

Mechanical

Connectors:	
RF Input	Type K (F)
RF Output	WRD-180 Wave Guide Flange
RF Forward Power Sample	Type K (F)
Dimensions	19" Reinforced Rack x 24.5" (D) x 7" (H)
Cooling	Forced Air with integral fan
Air Inlet	Front Panel
Air Outlet	Rear Panel

Environmental

Operating Temperature	-10° C to +55° C, ambient
Storage Temperature	-20° C to +65° C
Operating Altitude	Up to 10,000 feet above sea level
Humidity	Up to 95% RH Non-Condensing

Options

- RF gain control
- Different prime power inputs
- Any standard or custom interface protocols

Specifications subject to change without notice.



About dB Control

Established in 1990, dB Control Corp., a subsidiary of the Electronic Technologies Group (ETG) of HEICO Corp., supplies mission-critical, often sole-source, products worldwide to military organizations, as well as to major defense contractors and commercial manufacturers. dB Control designs and manufactures reliable high-power TWT Amplifiers (TWTAs), microwave power modules (MPMs), transmitters and power supplies with modulators for radar, electronic countermeasures (ECM) and data link applications. The company's high-power amplifiers use solid state, as well as vacuum electron devices and cover the 1 to 50 GHz frequency range. The modularity of dB Control's designs enables rapid configuration of custom products for a variety of platforms, including ground-based and high-altitude military manned and unmanned aircraft. dB Control has an outstanding record of successfully repairing, refurbishing and replacing tightly packaged high-voltage transformers, assemblies and power supplies. The company offers specialized contract manufacturing, transformer winding and testing, full vacuum encapsulation, pressure cure, conformal coating and repair depot services from its modern 40,000 square foot facilities in Fremont, California. www.dBControl.com

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