dB Control
a HEICO company
Reliability by Design®

dB-3779G TWT Amplifier

4kW Pulsed
8 – 12 GHz

The dB-3779G is a rack-mounted TWT Amplifier (TWTA) operating in the X-band frequency range providing 4000 Watts peak power at a 8% maximum duty cycle. A wideband, periodic permanent magnet (PPM)-focused, conduction-cooled TWT is used for power amplification. The high-voltage power supply (HVPS) section uses modular architecture and low-noise power supply topology utilizing high-efficiency solid-state power-conversion circuits. A highly stable, solid-state modulator is used for pulsing the TWT grid. An embedded micro-controller provides the interface, control and protection functions and status indication for the TWT Amplifier. Ethernet is the standard interface protocol for remote control. Other interface protocols such as IEEE-488, RS-232 or custom interfaces are available as options. The TWT Amplifier is packaged in a standard 19-inch rack-mount configuration with integral forced-air cooling.

Features

- X-band TWTA
- 8 to 12 GHz, 4 kW, 8% duty cycle
- Rackmount configuration

Applications

- Radars
- Electronic countermeasures (ECM)
- Electronic warfare (EW) threat simulation
- Test and measurement
- Antenna pattern and radar cross-section measurements

1120 Auburn Street, Fremont, CA 94538 | Tel: 510.656.2325 | Fax: 510.656.3214

www.dBControl.com

dB-3779G TWT Amplifier Specifications

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Electrical

Frequency Range	8 to 12 GHz
Output Power, Peak	4000 Watts, min.
Duty Cycle	8%, max.
PRF	100 kHz, max.
Pulse Width	0.2 to 50 µsec
RF Drive for Rated Power	0 dBm (1 milliwatt)
Harmonics	-10 dBc, max.
Noise and Non-Harmonic Spurious	-50 dBc
RF Rise and Fall Times	50 nsec
Input VSWR	2.0:1, max.
Output VSWR	2.5:1, max.
Load VSWR	2.0:1, Continuous, no damage
Input Pulse	TTL into 100 Ω; 5V On, 0V Off
Prime Power	220 VAC, 1 Phase, 50/60 Hz
Protection	Helix Over-Current/Arc
	Cathode Over-Voltage
	High Reflected RF Power
	Over-Temperature (TWT and Power Supply)
	Excessive PRF, Pulse width or duty cycle
	Open Interlocks
Front Panel Display	Status, Faults
RF Power Sample	-50 dB
Instrument Control	Local (Front Panel) or Remote
Remote	Ethernet

Mechanical

Connectors	
Prime Power	MS3112E-14-5P
RF Input	SMA (F)
RF Output	WR-90 Waveguide Flange
RF Output Sample	SMA (F)
Test Points	BNC (F)
Remote Control/Pulse	RJ-45
Size	19" Rack Mount (W) x 7.00" (H) x 26" (D)
Weight	90 lbs, nominal
Cooling	Forced Air with integral fan

Environmental

Operating Temperature	-10° C to +55° C, ambient
Operating Altitude	Up to 12,000 feet ASL
Humidity	Up to 95% RH Non-Condensing

Options

- Custom Frequency Bands
- Different Prime Power Input
- Custom Protocol Interface
- RF Gain Control

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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