

# dB-9004 Integrated Digital Control Unit



**6 – 18 GHz**

**Two Modes of Frequency Modulation  
Amplitude and Pulse Shape Modulation**



The dB-9004 is a custom-mounted Integrated Digital Control Unit (IDCU) operating in the C, X and Ku-band frequency range providing highly accurate RF Output, which can be FM, AM and Pulse Shape Modulated. The Digital Control Units (DCU) are capable of controlling its internal RF Source and other external RF Equipment such as Antennas and Amplifiers. The DCU can be controlled and set up with a network port or can be pre-programmed with a removable SCD card. Digital Control Units are capable of controlling its internal single Frequency Locked Oscillator (FLO) and other RF equipment. The DCU can be controlled and set up with a network port or can be pre-programmed with a removable SCD card. The IDCU units are packaged in a custom configuration with integral forced-air and conduction cooling.

## Features

- Wideband and high accuracy
- 6 to 18 GHz
- Two modes of frequency modulation
- Amplitude modulation
- Pulse Shape modulation
- Generates programmable modulation patterns
- Pulse width 100 ns to CW
- Ability to control external RF equipment

## Applications

- RF and radar simulation
- Radars
- Electronic countermeasures (ECM)
- Electronic warfare (EW) threat simulation
- Test and measurement

# dB-9004 IDCU Specifications

**Reliability by Design®**

## Electrical

Frequency Range Amplitude	6 to 18 GHz
Measurement Range	-50 to 0 dBm
Duty Cycle	5%, max.
Pulse Width Measurement	100 ns to CW
Nominal Output Power	+22 dBm
Frequency Measurement Accuracy	Open Loop Mode: $\pm 9$ MHz max., $\pm 4$ MHz typical over the entire temperature range Closed Loop Mode: $\pm 1$ MHz max., $\pm 0.2$ MHz
Frequency Switching Speed	Typical over the entire temperature range 1 $\mu$ s to be within $\pm 1$ MHz accuracy
Modulation Types	Two modes of Digital Frequency Modulations: $\pm 10$ MHz $\pm 250$ MHz
Amplitude Control Pulse Modulation	Digital Amplitude Control: 8-bit control Word with LSB of 0.125dB, total of 50dB max. Digital pulse control (RF ON/OFF) with max. output of -60dBm when off
Shaping Modulations	Ability to control the rise and fall pulse shape with a control voltage
Spurs	Below -60 dBm
Nominal Power Consumption	120W

## Mechanical

Connectors:	
Prime Power	MS27508E10F99P
Data In/Out	MS27508E18F35P, MS27508E12F35P, MS27508E10F35P
RF Output	Type SMA (F)
RF Detection Outputs	Type SMA (F)
Dimensions	8.5" (L) x 6.5" (W) x 4.0" (H)
Weight	10 lbs.
Cooling	Forced air with integral fan and conduction

## Environmental

Operating Temperature	-20° C to +50° C, ambient
Operating Altitude	Up to 40,000 feet ASL
Humidity	Up to 95% RH non-condensing

## Options

- Custom frequency bands and output power
- Different prime power input
- Custom frequency, amplitude measurement accuracy
- Custom pulse width measurement accuracy
- Custom modulation types
- Custom RF Detection Outputs
- Customizable digital interface for control/communication
- Digital noise generator/source

*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](http://www.dBControl.com)

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