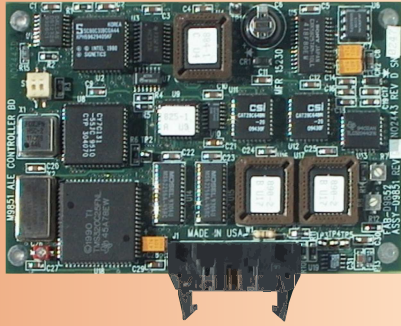


# NSGDatacom Inc.

Model D9851



## Embedded Automatic Link Establishment (ALE) Radio Controller

- **Link Quality Analysis (LQA)**
- **Scanning (2 or 5 channels per second)**
- **Selective Calling**
- **Automatic Sounding**
- **Low Power**
- **DSP Technology**

MIL-STD-188-141A and FED-STD-1045 Automatic Link Establishment are a set of protocols and specifications created in order to standardize automated high frequency (HF) radio systems and to provide a basis for system interoperability. Automated features such as Frequency Scanning, Selective Calling, Link Quality Analysis and Channel Sounding are all addressed within the specifications.

NSGDatacom's D9851 miniature ALE controller board is designed to be installed within new and existing high frequency (HF) radio systems. Using state-of-the-art surface mount components and Digital Signal Processing (DSP), the board fully implements the required provisions of the ALE protocol as defined in both MIL-STD-188-141A and FED-STD-1045 and provides complete ALE interoperability with all other systems adhering to these standards.

To help simplify system integration, the D9851 has been designed as a completely self-contained system. It contains all the necessary hardware and software to perform ALE functions without requiring extensive system interaction. A full set of commands have been provided which allow the system manager to "fill" the controller with all of the parameters pertaining to ALE operation - thus relieving the radio from the burden of keeping track of items such as Station ID's, channel assignment maps, sounding timers, etc.

The actual I/O requirements of the D9851 have been kept to a minimum. The interface consists of a serial Command line, a serial Status line and audio I/O. Power requirements have also been kept to a minimum - only a single +5V source is required.

The standard ALE board is 3" x 5", however boards may be customized by our technical staff to meet specific size and mounting requirements. Please contact our Sales Department for more information.

# D9851 Specifications

## Model D9851



### Physical

#### Size:

Approximately 3" x 5"

#### Weight:

2.7 Oz. (80g)

### Environmental

#### Temperature:

Operating: -40 to +65 degrees C

Storage: -40 to +75 degrees C

#### Humidity:

0 to 95% non-condensing

#### Altitude:

Operating: 0 to 15,000 feet

Storage: 0 to 25,000 feet

### Electrical

#### Power:

+5 volts @ 250mA (typical)

#### Audio Bandwidth:

500 - 2750 Hz

#### Tone Frequencies:

750 Hz, 1000 Hz, 1250 Hz, 1500 Hz, 1750 Hz,  
2000 Hz, 2250 Hz and 2500 Hz

#### Audio I/O level:

-10 to 0 dBm

#### Audio Input Impedance:

Selectable 600 Ohm or 10K Ohm

#### Channel Scan Rate:

Selectable: 2 or 5 channels per second.

Manual control available.

#### Listen Time / Channel:

100ms minimum active listen time per channel  
is required for ALE detection.

(500ms total dwell time at 2 channels / second)

(200ms total dwell time at 5 channels / second)

#### Transmitter Tuning:

Initiated via 'Keyline On' command from ALE.

Monitored via status report from radio or via  
selectable timer.

#### Remote Control:

Separate Serial In/Out Control Lines. TTL  
Signal Levels; ASCII Characters; Selectable  
9600 or 19200 baud; 1 start bit, 8 data bits  
1 stop bit, no parity.

#### Keyline/PTT I/O:

Selectable via software command or via TTL  
control lines. The hardwire option has  
programmable signal polarity.

- **MIL-STD-188-141A /  
FED-STD-1045  
interoperability**

- **Simplified System  
Integration**

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