



**2034  
DAC105  
DIGITAL TO ANALOG CONVERTER**



### 1. FEATURES

- Single slot module
- High speed (up to 5M samples per second) DAC
- Quantization 10 through 14 bits
- Automatic configuration to match ADC105 source
- Easy to operate module
- Programmable Channel ID Tag

### 2. OVERVIEW

This plug-in module reproduces a bipolar analog signal having a bandwidth of up to 2M Hz that was digitized by a companion ADC105 module in an AL4300 multiplexer. The DAC105 selects Source Packets based on the channel ID TAG. A frequency synthesizer on the DAC105 reconstructs the original sample rate. It is this clock that is used to move the captured digital data produced by the ADC105 to the output Digital to Analog converter on the DAC105.

In order to achieve the highest fidelity signal reproduction (amplitude and phase), DSP techniques are used to manipulate the digital data prior to the analog conversion process. The data is interpolated 3:1 and then filtered with a sharp cut-off, constant delay FIR filter. Adjustments are made to the amplitude to regain full scale of the signal. This interpolation process has been found to be superior to an average or linear interpolation method. The resulting data is fed to a D/A connector at 3 times the original sample rate and is passed through an anti-aliasing filter. Phase distortion is therefore minimized.

The Source Packet generated by the ADC105 contains information that the DAC105 module uses to automatically configure its word size and sample rate.

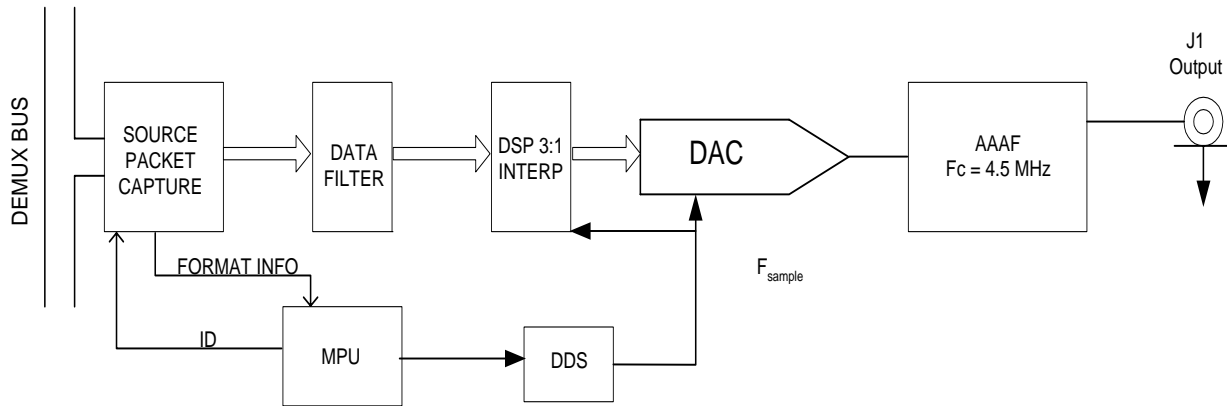


Figure 1 DAC105 Functional Block Diagram

### 3. SPECIFICATIONS

#### NUMBER OF CHANNELS

1 Channel on a BNC type connector

#### OUTPUT VOLTAGE RANGE:

-2.5Volts to +2.5 Volts

10m Amps drive capability

#### FREQUENCY RESPONSE:

DC to 600k Hz +/- 0.6 dB

600k Hz to 2M Hz +/- 1.2 dB

#### DIGITIZER:

Automatically follows ADC105 Sampling Rate,  
100k samples per second thru 5M samples per  
second

Automatically accepts ADC105 data digitized to  
10 through 14 bits

#### DSP FILTER:

A constant delay FIR type Filter is automatically  
set to  $\frac{1}{2}$  the selected sample rate

#### CHANNEL ID

RX Demux Channel ID 0x000-0x7FO

#### COMPATIBILITY

AL4300 MITC Bus

One Chassis Slot Required

NOTE: This module does NOT support 10 ms SI  
operation

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