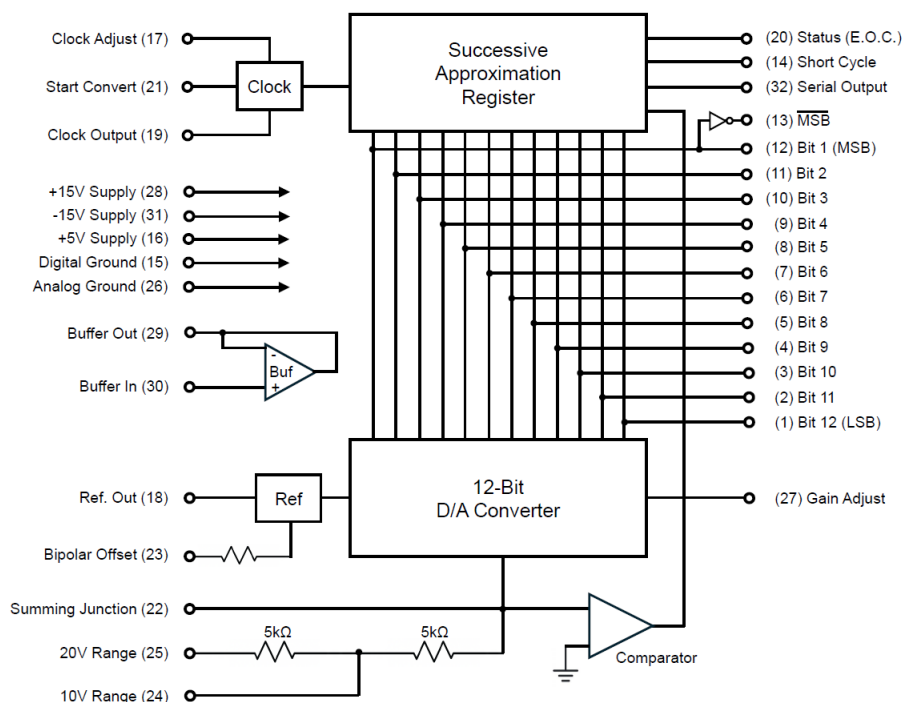


Background

The original MNADC87, a multi-range, 12-bit, 8 μ sec A/D converter has become an obsolete item because of the availability issues related to the monolithic DAC80KD1 die used in its design. Spectrum Control will offer its MNADC87 customers an alternate device choice which will “drop” into most existing applications as described below. This alternate design will use the 565A DAC and will offer most of the function of the original MNADC87 product, however, there are some differences relating to the operation of the alternate design that are discussed in this note.

Block Diagram



Input Range Selection

Pin Connections	Analog Input Voltage Range				
	0 to +5V	0 to +10V	$\pm 2.5V$	$\pm 5V$	$\pm 10V$
For Normal Unit					
Input Impedance (k Ω)	2.5	5	2.5	5	10
Connect Pin 23 to Pin	26	26	22	22	22
Connect Pin 25 to Pin	22	Open	22	Open	Input Signal
Connect Pin 30 to Pin	26	26	26	26	26
Connect Input to Pin	24	24	24	24	25
For Buffered Unit					
Input Impedance (M Ω)	100	100	100	100	100
Connect Pin 23 to Pin	26	26	22	22	22
Connect Pin 25 to Pin	22	Open	22	Open	29
Connect Pin 29 to Pin	24	24	24	24	25
Connect Input to Pin	30	30	30	30	30

Description of Application Considerations – Alternate U & B Models

The MNADC87 has been replaced by two hybrids. The MNADC87U has been designed specifically for unipolar applications with input ranges of 0 to +5V and 0 to +10V.

The MNADC87B has been designed for bipolar applications with +/-2.5V, +/-5V and +/-10V input ranges.

Pin 23, the Bipolar Offset connection for both unipolar (“U” models) and bipolar (“B” models) devices is now a “no connect”. The 20V input span remains on pin 25 while the 10V input span remains on pin 24 of the MNADC87U and MNADC87B devices. The unipolar or bipolar operation of the devices will be “hard wired” internal to the MNADC87U (for unipolar operation) and the MNADC87B (for bipolar operation) hybrids.

Users of the MNADC87 need to determine the input range that their device is configured for in their application, and then select either MNADC87U or MNADC87B as a replacement.

As an example, if a user had been using the MNADC87H/B in their system in the +/-10V input range (analog input connected to pin 25, Bipolar Offset pin 23 connected to the Summing Junction pin 22), they would select the MNADC87B as a replacement device. In this case, no changes will be required on the circuit card and the MNADC87B will drop in and function as if it were of the original design. The jumper connection from pin 23 to pin 25 can remain on the circuit card as pin 23 of the new MNADC87B model is a “NC” (no connect) internal to the hybrid.

Likewise, if a user had been using the MNADC87H/B in their system in the 0 to +10V input range (analog input connected to pin 24, Bipolar Offset pin 23 connected to analog ground pin 26), they would select the MNADC87U as a replacement device. As in the case above, no changes to the circuit card will be required and the MNADC87U will drop in and function as if it were the original design. The jumper on the circuit card connecting pin 23 and pin 26 can remain intact as pin 23 of the MNADC87U is also a “NC” (no connect) internal to the hybrid.

Input Range Selection – MNADC87U Alternate Device Type – Unbuffered Input

Pin Connections	Analog Input Voltage Range	
	0 to +5V	0 to +10V
Input Impedance (k Ohms)	2.5	5
Connect Pin 25 to	Pin 22	Open
Connect Pin 30 to	Pin 26	Pin 26
Connect Input to	Pin 24	Pin 24

Note: Pin 23 is a no Connect.

Input Range Selection – MNADC87U Alternate Device Type – Buffered Input

Pin Connections	Analog Input Voltage Range	
	0 to +5V	0 to +10V
Input Impedance (M Ohms)	100	100
Connect Pin 25 to	Pin 22	Open
Connect Pin 29 to	Pin 24	Pin 24
Connect Input to	Pin 30	Pin 30

Note: Pin 23 is a no Connect.

Input Range Selection – MNADC87B Alternate Device Type – Unbuffered Input

Pin Connections	Analog Input Voltage Range		
	+/-2.5V	+/-5V	+/-10V
Input Impedance (k Ohms)	2.5	5	10
Connect Pin 25 to	Pin 22	Open	Input Signal
Connect Pin 30 to	Pin 26	Pin 26	Pin 26
Connect Input to	Pin 24	Pin 24	Pin 25

Note: Pin 23 is a no Connect.

Input Range Selection – MNADC87B Alternate Device Type – Buffered Input

Pin Connections	Analog Input Voltage Range		
	+/-2.5V	+/-5V	+/-10V
Input Impedance (M Ohms)	100	100	100
Connect Pin 25 to	Pin 22	Open	Pin 29
Connect Pin 29 to	Pin 24	Pin 24	Pin 25
Connect Input to	Pin 30	Pin 30	Pin 30

Note: Pin 23 is a no Connect.

Contact Spectrum Control for More Information.