

### Description

The **EDAC2** converts the A and B quadrature output of an incremental encoder into a voltage that is proportional to the encoder position. The output from the encoder causes an internal 12-bit counter to count up or down. The output of the counter is fed into a 12-bit DAC that converts the 12-bit position count value to an analog voltage.

Eight DIP switches are provided to select various options. The user can choose unipolar output mode with 0 to 4.095V or 0 to 10V output, bipolar output mode with  $\pm 4.095V$  or  $\pm 10V$  output, 1X or 4X counting, reset on index, reverse rotation, midrange reset and range limit counting. Full scale output in 10V mode is actually 9.962V.

The **EDAC2** has an internal counter that may be reset in one of three ways: by pressing the reset button, power cycling the unit or enabling the reset on encoder index. The reset may be configured to either mid-range or zero volts.

The **EDAC2** also provides a TTL logic level output bit, which changes state to indicate the polarity of the analog voltage output.

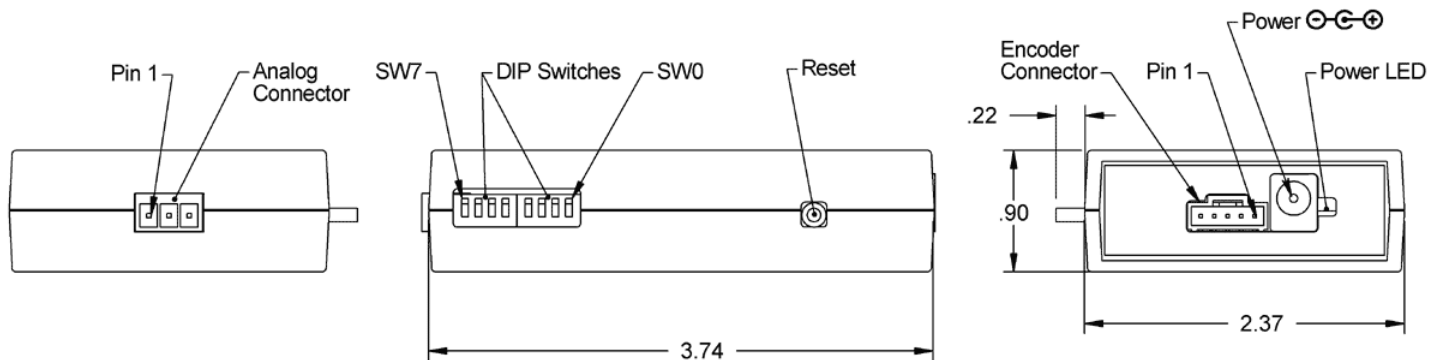
Power for the **EDAC2** is provided by an external power supply which also provides +5VDC to an external encoder through the encoder input connector. A three position screw terminal block provides the analog output connections and logic level direction bit output.



### Features

- ▶ Converts any incremental encoder into an analog position sensor
- ▶ 12 bit analog resolution
- ▶ 0 to 4.095V or 0 to 10V unipolar output voltage operation
- ▶  $\pm 4.095$  or  $\pm 10V$  bipolar output voltage operation
- ▶ Reset can be configured to zero or mid-range voltage
- ▶ Simple DIP switch defined programming
- ▶ DIN rail mounting is available
- ▶ TTL logic level output bit to indicate direction of rotation or linear movement

### Mechanical Drawing



### Electrical

Unless otherwise specified, all accuracy measurements assume operation within temperature range 0C to 70C.

Parameter	Min.	Typ.	Max.	Units	Notes
Voltage Out to Encoder	4.8	5.0	5.2	Volts	Under 100mA load
Input Supply Voltage	12	-	16	Volts	
Supply Current	-	110	-	mA	12V input, no encoder load
	-	255	-	mA	12V input, 250mA encoder load
Full Scale Output Error - Analog Output	-0.5	0.25	0.5	% full scale	0 - 4.095V output range
	-1.5	±0.25	1.5	% full scale	0 - 10V output range
Integral Non-linearity Error - Analog Output	-3.0	±1.0	3.0	mV	0 - 4.095V output range
	-8.0	±3.0	8.0	mV	0 - 10V output range
Offset Error - Analog Output	-6.0	±1.0	6.0	mV	0 - 4.095V output range
	-6.0	±1.0	6.0	mV	0 - 10V output range
Quadrature Encoder Inputs*					
Logic Low	0	0.4	0.8	Volts	
Logic High	2.0	5.0	5.75	Volts	
Polarity Bit Output					
Logic Low	-	-	0.4	Volts	8mA (sinking current)
Logic High	2.4	-	-	Volts	-4mA (sourcing current)
Analog Output Load Impedance	2000	-	-	Ohms	

\* Diode clamped to ground and +5V, 5kΩ pullup to +5V.

## Absolute Maximum Ratings

Parameter	Min.	Typ.	Max.	Units
Operating Temperature	0	-	70	C
Encoder Current*	0	-	250	mA
Quadrature Input Frequency	0	-	400	kHz
Analog Output Update Frequency	0	-	400	kHz

\* +5VDC power for external encoder.

## DIP Switches

The EDAC2 is programmed by eight DIP switches in either an up or down position.

Switch	Name	Up ↑	Down ↓	Explanation
0	Not Used	-	-	-
1	Reset	Mid-range	Zero	Reset voltage level

Switch	Name	Up ↑	Down ↓	Explanation
2	Range Limit	Range Limit	Rollover	Sets counting mode
3	Count Multiplier	1X	4X	Enables quadrature counting
4	Analog Voltage	4.095V	10V	Sets full scale output voltage
5	Reverse	A / B	B / A	Swaps increasing count direction
6	Index	Reset	No Reset	Ignores the index or resets on index
7	Output Mode	Unipolar	Bipolar	0 to +VDC or ±VDC output

### Pin-outs

#### Encoder Input:

Pin	Description
1	Ground
2	Index
3	A channel
4	+5VDC power
5	B channel

#### Analog Output:

Pin	Description
1	Ground
2	+VDC output
3	Polarity

#### Power Input:

Pin	Description
Center	13 to 16VDC
Outer Barrel	Ground

### Product Change Notifications

Title	Date	Description	Download
PCN 1011	9/21/2011	The AD2B, AD4B, AD7, EADAPT, EDAC2, EDIVIDE, EPOT, EQUAD, ESUM, ESWITCH, ETACH2, SEI-USB, USB-232 currently utilizes a printed thermal transfer label. This label will no longer be used and will be replaced by laser marking directly onto the housing of the product. The purpose for this change is to create a more durable solution, and eliminate the possibility of the label being inadvertently removed from the housing.	<a href="#">Download</a>

EOL EDAC2 - PCN 1034 6/17/2013

This PCN is a formal notification that US Digital is discontinuing the EDAC2. [Download](#)

### **Included Accessories**

PS-12 Power supply