ESUM Two Encoder to One Encoder Adder/Subtractor

RoHS COMPLIANT

Description

The **ESUM** combines the quadrature outputs of two encoders into a single quadrature output. The output quadrature may be selected to be either the sum or difference of the two quadrature inputs. The index from encoder 0 is simply wired to the index of the output. The index from Encoder 1 is not used. Connectors are 5-pin positive finger-latching.

Applications for the **ESUM** include:

- Coarse and fine operator controls when one encoder is high resolution and the other is low resolution.
- Measuring the difference in position between 2 shafts with one encoder is mounted on each.
- Measuring dynamic coupling twist with one encoder mounted on each side of the coupling.

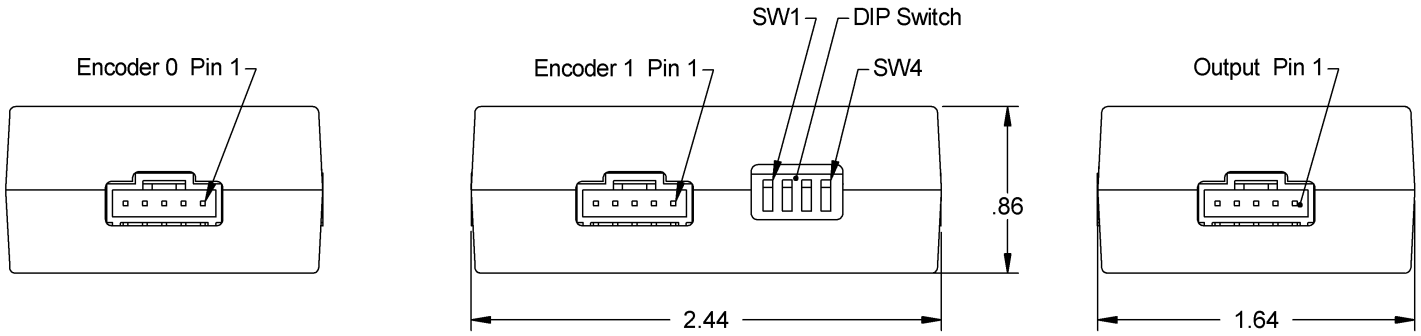
The **ESUM** functions by sampling the two encoder inputs, decoding the quadrature inputs into up/down signals, combining the up/down signals, and synthesizing new quadrature on the output. The sampling nature of the operation limits the maximum quadrature frequency to 46.8 kHz.

To use, simply place the **ESUM** in-line with the encoder cables. The **ESUM** derives its power from the +5V pin of the encoder cable. DIN rail mounting is available. Only SW1 effects the function of the ESUM. SW2, SW3 and SW4 are not used.

Features

- Fast hardware solution
- Obtains sum or difference of 2 encoder positions
- DIN rail mount option

Mechanical Drawing



Absolute Maximum Ratings

Parameter	Min.	Max.	Units
Storage Temperature	-40	100	C
Operating Temperature	0	70	C
Humidity (non-condensing)	0	95	%

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Parameter	Min.	Max.	Units
Digital Inputs (diode clamped)	-0.6	5.6	V

Electrical

Parameter	Min.	Typ.	Max.	Units
Supply Voltage (Vcc)	4.75	5.0	5.25	V
Supply Current (no encoders)		120		mA
Input Low Voltage	0		0.8	V
Input High Voltage	2.0		Vcc	V
Output Low (8 mA current sink)			0.4	V
Output High (4 mA current source)	2.4			V
Max. Input Frequency			46.8	kHz
Max. Phase Delay			40	usec.

Pin-outs

Encoder 0 Input:

Pin	Description
1	Ground
2	Index
3	A channel
4	+5V out (direct connection to pin 4 of Output connector)
5	B channel

Encoder 1 Input:

Pin	Description
1	Ground
2	Index (value ignored)
3	A channel
4	+5V out (direct connection to pin 4 of Output connector)
5	B channel

Encoder Output:

Pin	Description
1	Ground
2	Index
3	A channel
4	+5V input
5	B channel

DIP Switch Settings

Switch	Description
1	switch down = sum (Encoder 0 + Encoder 1) switch up = difference (Encoder 0 - Encoder 1)
2	no function
3	no function
4	no function

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.	Download

Ordering Information

ESUM -

Mounting
D =*Default*
R =*DIN rail (35mm wide)*

Notes

- Cables and connectors are not included and must be ordered separately.
- US Digital warrants its products against defects in materials and workmanship for two years. See complete warranty for details.

Base Pricing

Quantity	Price
1	$103.95
10	$95.55

For volume discounts, please contact us at sales@usdigital.com or 800.736.0194.

- Add $10.00 per unit for **Mounting** of DIN rail (35mm wide)

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