RoHS COMPLIANT

Description

The S4 miniature optical shaft encoder is a non-contacting rotary to digital converter. Useful for position feedback or manual interface, the encoder converts real-time shaft angle, speed, and direction into TTL-compatible quadrature outputs without index. The encoder utilizes an unbreakable mylar disk, metal shaft, and bushing or bearing. It operates from a single +5VDC supply.

The S4 encoder is available with ball bearings for motion control applications, or static drag to feel like a potentiometer for front-panel manual interface.

The reflective sensor incorporates an LED light source and a monolithic photo detector with signal shaping electronics, providing two channel bounceless quadrature TTL outputs.

The S4 can be connected by using a high retention 4 conductor snap-in polarized 1.25mm pitch connector. The mating connector is polarized and should attach smoothly to the encoder; do not force. See below for Cables & Connectors.

Features

- Miniature size
- Low cost
- High retention snap-in polarized connector
- Tracks from 0 to 30,000 cycles/sec
- Ball bearing option tracks up to 7,000 or 15,000 RPM
- -10 to +85C operating temperature
- 100 to 360 cycles per revolution (CPR)
- 400 to 1440 pulses per revolution (PPR)
- 2 channel quadrature TTL squarewave outputs
- Low power strobe option available

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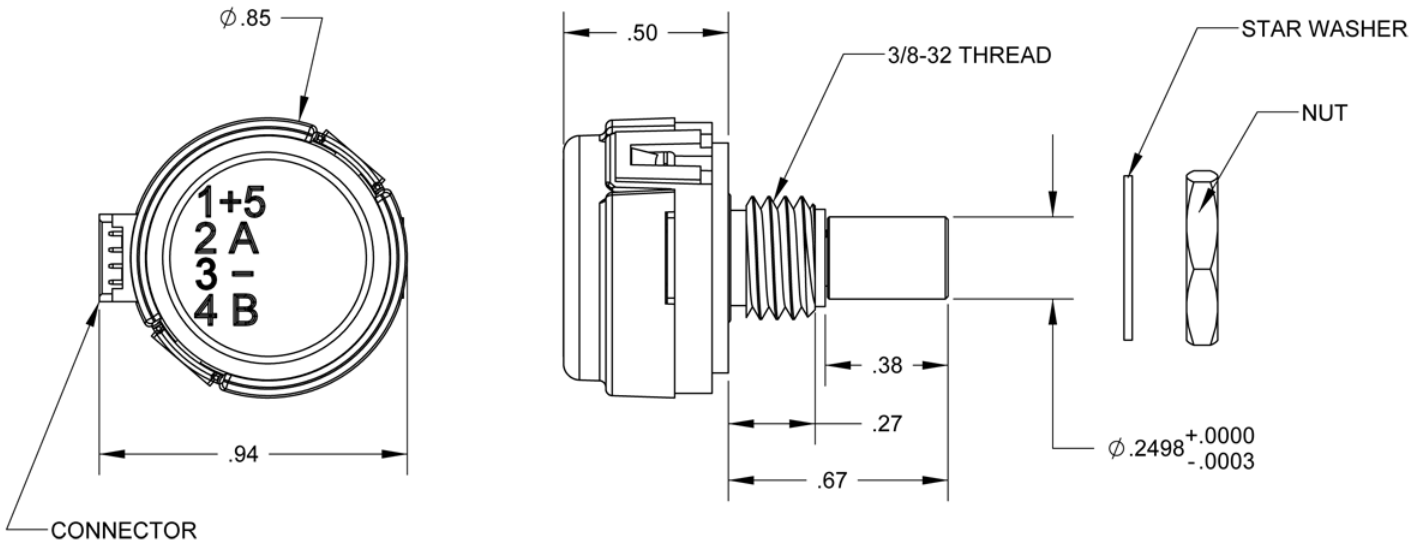
Mechanical Drawing



Mechanical

Specification	Sleeve Bushing	Ball Bearing
Acceleration	10,000 rad/sec²	250,000 rad/sec²
Vibration	20 g. 5 to 2KHz	20 g. 5 to 2KHz
Shaft Speed	100 RPM max. continuous	15,000 RPM max. continuous
Shaft Torque	0.5 ±0.2 in. oz. 0.3 in. oz. max. (**N**-option)	0.05 in. oz.
Shaft Loading	2 lbs. max. dynamic 20 lbs. max. static	1 lb. max.
Bearing Life	-	$(40/P)^3$ = life in millions of revs. where P = radial load in pounds
Weight	0.46 oz.	0.42 oz.
Shaft Runout	0.0015 T.I.R. max.	0.0015 T.I.R. max.

Materials

Shaft	Brass or Stainless
Bushing	Brass
Connector	Gold plated

Mounting

Hole Diameter	0.375" +0.005 - 0
Panel Thickness	0.125 in. max.
Panel Nut Max. Torque	20 in.-lbs.

Phase Relationship

B leads A for clockwise shaft rotation, A leads B for counter clockwise shaft rotation viewed from the shaft/bushing side of the encoder (*see the AEDRpage*).

Electrical

For complete details see the AEDR page.

Pin-out

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

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Ordering Information

S4 - [ ] - [ ] - [ ] - [ ]

CPR	Shaft	Torque	Power
100	125 =*1/8"*	D =*Default*	D =*Default*
108	236 =*Metric 6mm diameter shaft*	B =*Ball Bearing*	L =*Low Power Strobe*
120	250 =*1/4"*	N =*Light Static Drag*	
125			
128			
200			
250			
256			
300			
360			

Notes

- For ordering information please see the Compatible Cables / Connectors section above.
- US Digital warrants its products against defects in materials and workmanship for two years. See complete warranty for details.

Pricing

Quantity	Price
1	$46.95
10	$39.51
50	$35.03
100	$31.13

- Add $1.00 per unit for **Shaft** of Metric 6mm diameter shaft
- Add $5.80 per unit for **Torque** of Ball Bearing