

1. Introduction

The EZ25 Encoder is a 2.5" incremental optical encoder, designed for optical shaft encoder motion control and precision sensor systems. Our ET7272 available models are short circuit proof with automatic thermal shutdown.

Besides short-circuit protection of the outputs, our EZ Encoder includes reverse voltage protection of the inputs. Our EZ Encoders are available with the most common connectors found on the market making it a universal drop-in replacement for hundreds of brands of encoders for a fraction of the price. This encoder is available with either a MS Connector or a mating 9-Pin D-Sub connector (SUBD).

2. Specifications

ELECTRICAL

INPUT

Voltage: 10-30 VDC
Current: 100 mA @ 24VDC (without any load)
High Voltage: Min. 2.4VDC TTL Compatible
Low Voltage: Max. 0.4VDC TTL Compatible

PROTECTION

Reverse Voltage Protected Inputs
Short Circuit Protected Outputs

POWER-ON SETTling TIME

Upon power-up the outputs are tri-stated for up to 100mSec.

OUTPUT FORMAT

Incremental: 100 to 1024 Pulses Per Revolution

OUTPUT DRIVERS

Line Driver Device: ET7272
Voltage: 30V/V = 18-30VDC ($V_{in} = V_{out}$)
30V/5= 5VDC
Max. Output Current: 40mA
High Voltage: Vcc-0.5V @ 20mA source current
Low Voltage: 0.5V @ 20mA sink current

ENVIRONMENTAL

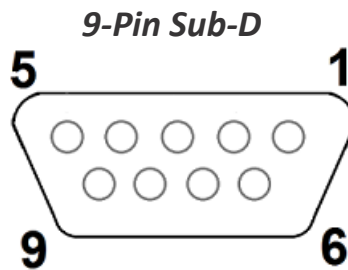
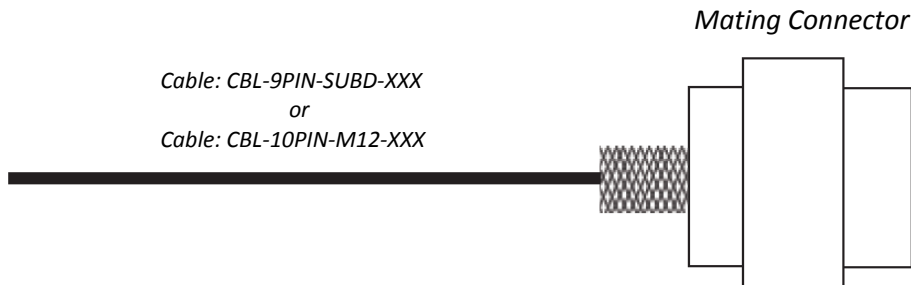
| Housing | Size 25 (2.5" dia.) SUBD Connector | Size 25 (2.5" dia.) MS Connector |
|--|---------------------------------------|-------------------------------------|
| Depth | 2.3" | 3.12" |
| Shaft Size | 3/8" | 3/8" |
| Max. Shaft Speed (RPM) | 5000 | 5000 |
| Max. Starting Torque @ 25 °C (oz. in.) | 5 | 5 |
| Max. Shaft Loading Axial and Radial: | 80 lb. | 80 lb. |
| Bearing Life at Max. Mfr. Spec. | 1 x 10 ⁹ | 1 x 10 ⁹ |
| Freq. Response | 100 kHz | 100 kHz |
| Shock | 100g for 11mSec | 100g for 11mSec |
| Vibration | 20g to 2000Hz | 20g to 2000Hz |
| Enclosure | NEMA 4/IP 65 | NEMA 4/IP 65 |
| Operating Temperature | -10°C to 70° C | -10°C to 70° C |
| Storage Temperature | -40°C to 85°C | -40°C to 85°C |

3. Wiring

1. The shielded interconnecting cable should be routed in its own conduit and kept separate from other high voltages/high inductance wiring. The shield drain wire should be connected to earth ground at both ends of cable.
2. In addition, use the appropriate mating connector (5 pin, 7 pin, 8 pin, or 10 pin) depending on model selected.

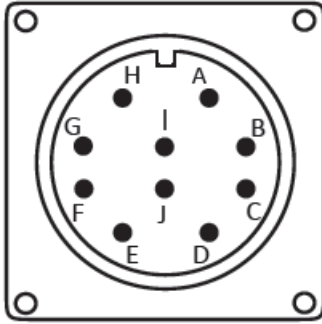
CAUTION:

- Upon power-up the outputs are tri-stated for up to 100mSec.
- Check the cable wiring before applying power.



| 9 Pin Sub-D Connector Cable Wiring | | |
|------------------------------------|-------------------|------------------|
| Connector Pin | Function | Cable Color Code |
| 1 | Signal A | Red |
| 2 | Signal \bar{A} | Red/Black |
| 3 | Signal B | Yellow |
| 4 | Signal \bar{B} | Yellow/Black |
| 5 | Signal Z | Green |
| 6 | Signal \bar{Z} | Green/Black |
| 7 | Com (-V) | White/Black |
| 8 | Power Source (+V) | White |
| 9 | NC | - |

10- Pin M18 MS Connector Pin Out



10- Pin M12 MS Connector Pin Out

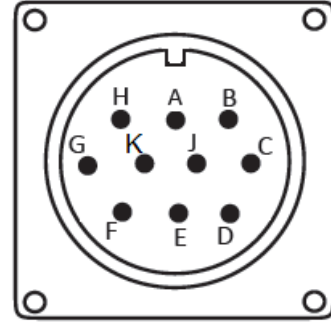


Table 1: 10DL (10 Pin Differential)

| Connector Pin | Function | Cable Color Code |
|---------------|-------------------|------------------|
| A | Signal A | Red |
| B | Signal B | Yellow |
| C | Signal Z | Green |
| D | Power Source (+V) | White |
| E | Not Connected | - |
| F | Com (-V) | White/Black |
| G | Case Ground | - |
| H | Signal \bar{A} | Red/Black |
| I | Signal \bar{B} | Yellow/Black |
| J | Signal \bar{Z} | Green/Black |

Table 2: 10DM (10 Pin Differential)

| Connector Pin | Function | Cable Color Code |
|---------------|-------------------|------------------|
| A | Signal A | Red |
| B | Signal B | Yellow |
| C | Signal Z | Green |
| D | Power Source (+V) | White |
| E | Not Connected | - |
| F | Com (-V) | White/Black |
| G | Case Ground | - |
| H | Signal \bar{A} | Red/Black |
| K | Signal \bar{B} | Yellow/Black |
| J | Signal \bar{Z} | Green/Black |

5- Pin M12 Connector Pin Out

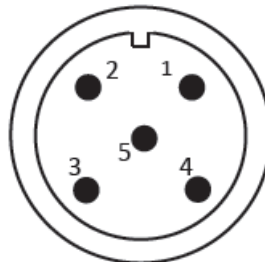
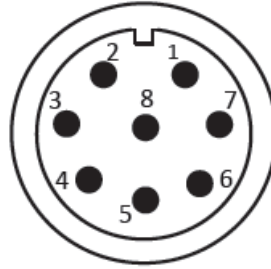


Table 3: 05D (5 Pin Differential)

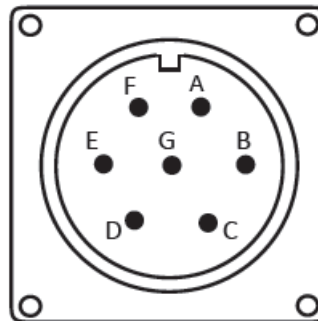
| Pin | Function | Wire Color |
|-----|------------------|-------------|
| 1 | Signal \bar{B} | White |
| 2 | Signal B | Yellow |
| 3 | GND | White/Black |
| 4 | Signal A | Red |
| 5 | Signal \bar{A} | Green |

8- Pin M12 Connector Pin Out



| Table 4: 08DL (8 Pin Differential) | | |
|------------------------------------|-------------------|--------------|
| Pin | Function | Wire Color |
| 1 | Signal A | Red |
| 2 | Power Source (+V) | White |
| 3 | Signal \bar{A} | Red/Black |
| 4 | Signal B | Yellow |
| 5 | Signal \bar{B} | Yellow/Black |
| 6 | Signal Z | Green |
| 7 | Com (-V) | White/Black |
| 8 | Signal \bar{Z} | Green/Black |

7- Pin M16 Connector Pin Out



| Table 5: 07DL (7 Pin Differential) | | |
|------------------------------------|-------------------|--------------|
| Pin | Function | Wire Color |
| A | Signal A | Red |
| B | Signal B | Yellow |
| C | Signal \bar{A} | Red/Black |
| D | Power Source (+V) | White |
| E | Signal \bar{B} | Yellow/Black |
| F | Com (-V) | White/Black |
| G | Case Ground | - |

4. Mounting

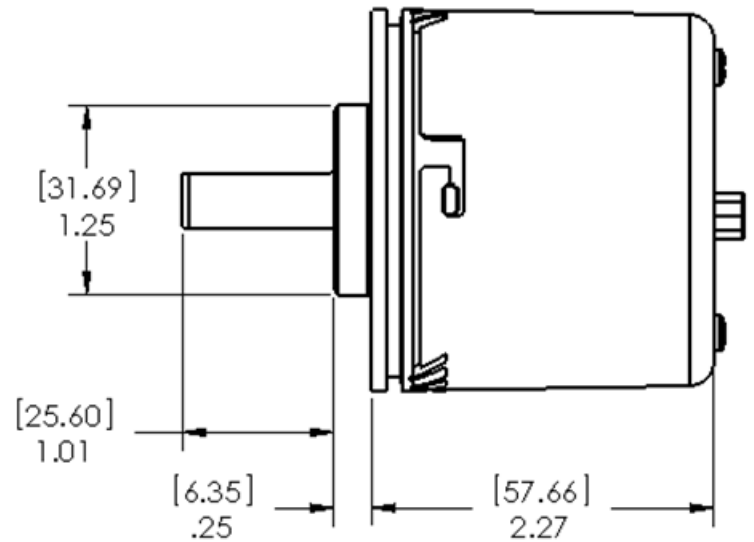
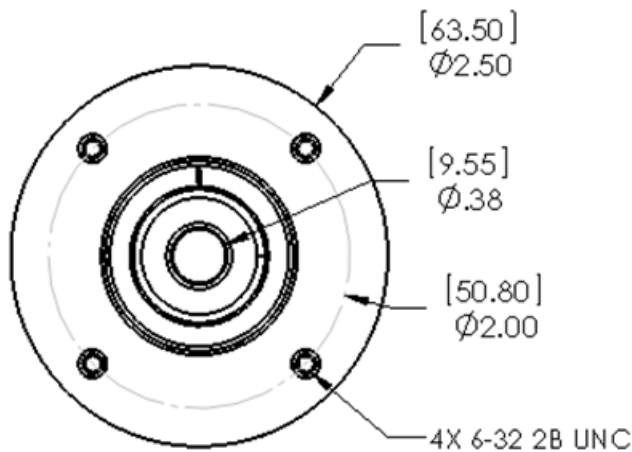
Types of Mounting

Our EZ Encoder can be mounted up to three ways: servo-mount, face mount or flange mount. Depending on model purchased, mounting options might be limited. Typically, mounting can be achieved with traditional servo-clamps or through the four 6-32 mounting holes on the face of the resolver.

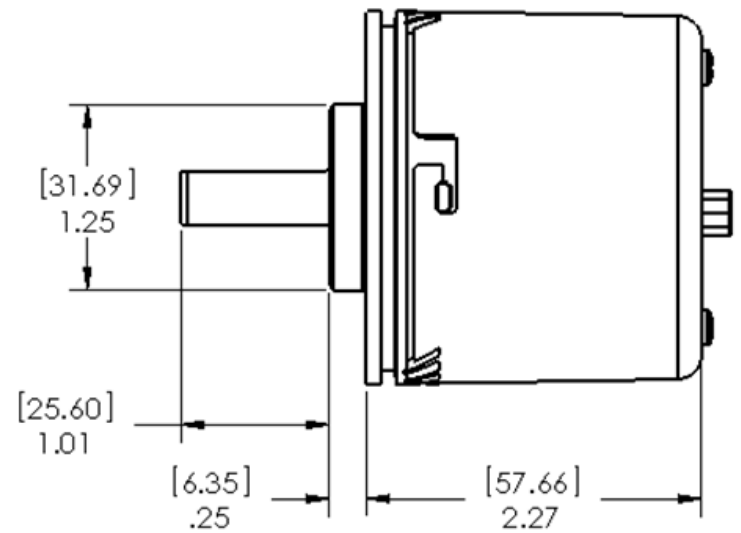
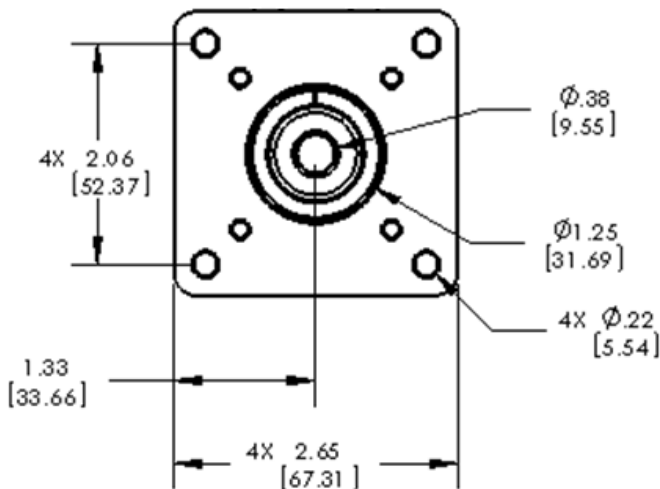
Zero Reference ($\pm 5^\circ$): The position at which the flat on the shaft lines up with the screw in the case and the two mounting holes on the EZ Encoder's face plate.

Mounting Dimensions

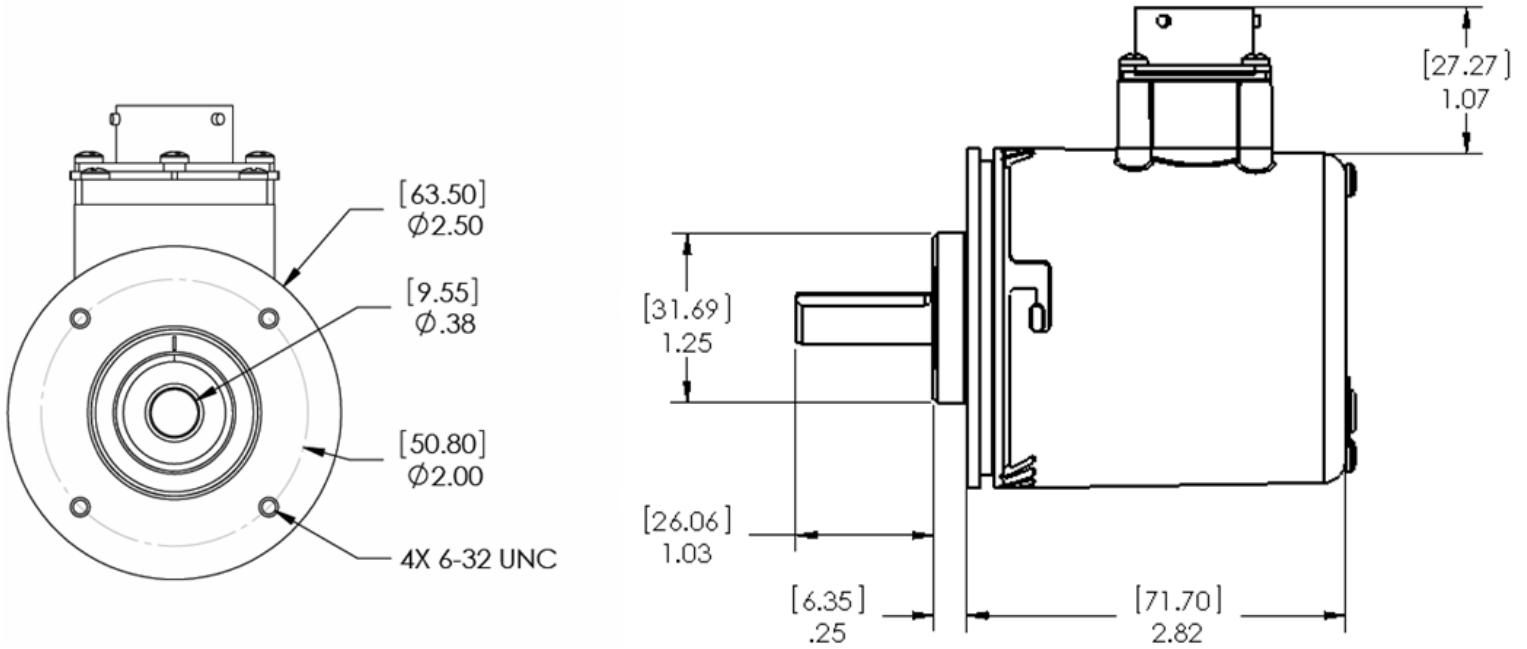
SUBD Connector (Servo Mount)



SUBD Connector (Flange Mount)

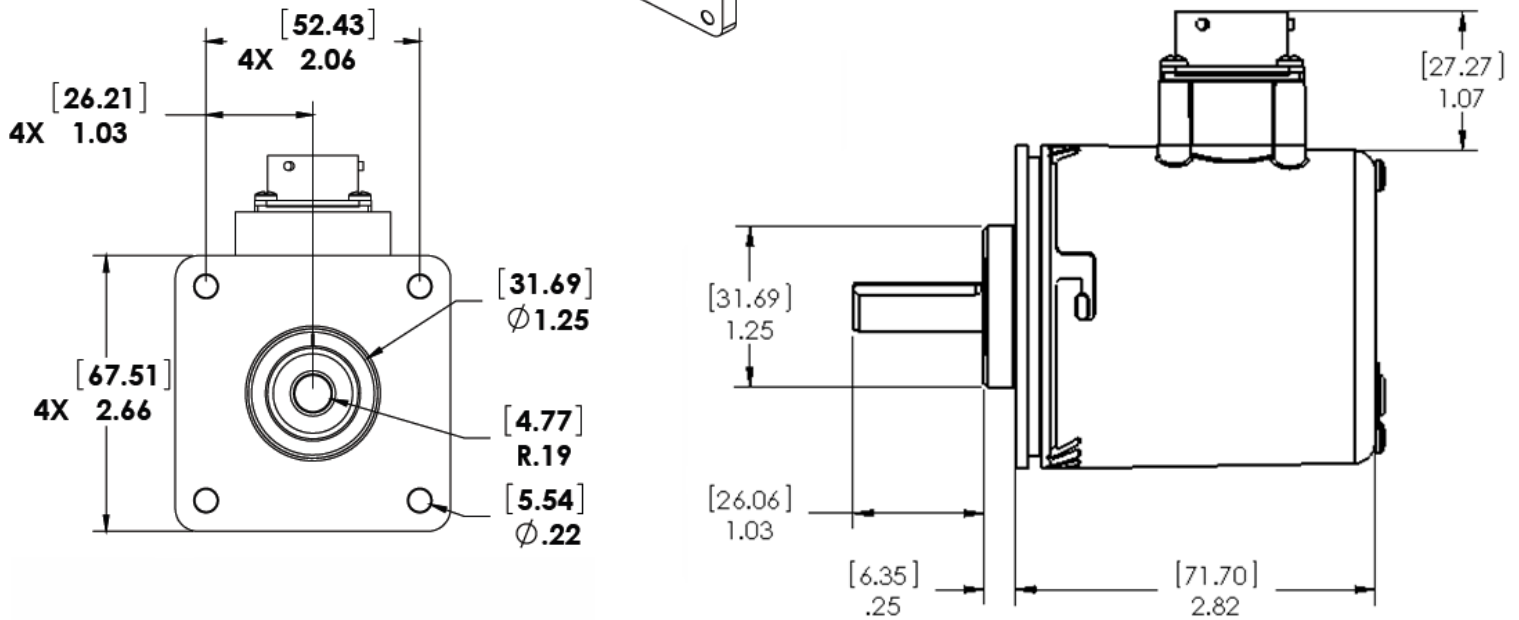
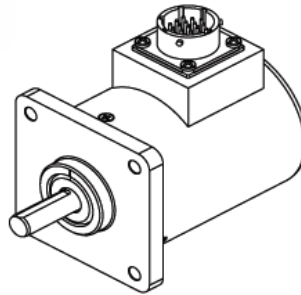


MS Connector (Servo Mount)



MS Connector (Flange Mount)

Units: [mm]
inches



5. How to Order

EZ25X – **XXXX** – **XXXX** – **XXXX** – **XXX**
1 **2** **3** **4**

1. Mounting Type

S Servo or Face Mount
F Flange or Face Mount

2. PPR

0100 0250 0360 0500
0720 1000 1024

3. Input Power / Output Driver

30V/V 10-30Vin, $V_{in}=V_{out}$
30V/5 10-30Vin, $V_{out}=5V$

4. Connector Type

SUBD 9-pin, Sub-D Connector
05D-M12 5 Pin Differential, MS connector
07D-M16 7 Pin Differential, MS connector
08D-M12 8 Pin Differential, MS connector
10D-M12 10 Pin Differential, MS connector
10D-M18 10 Pin Differential, MS connector