# MODEL HS25-P50/10/B — Bidirectional Hollow Shaft Encoder

## DESCRIPTION

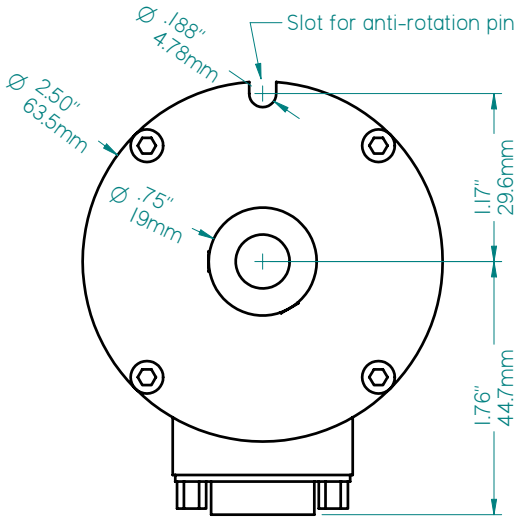
The HS25 incremental encoder fits onto an existing shaft and converts shaft rotation into square wave pulses: 50 pulses per revolution (ppr) on output A and 10 ppr on output B. Output C indicates the direction of shaft rotation, clockwise (CW) or counter-clockwise (CCW), as viewed from the shaft collar end.

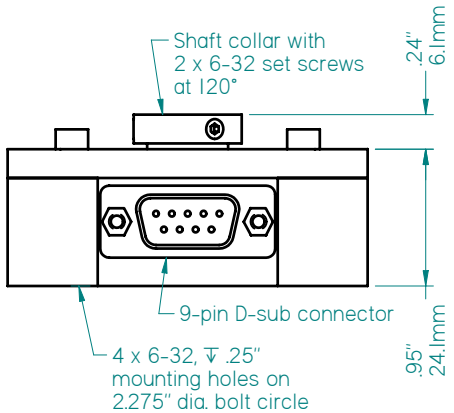
## FEATURES

- **Up to 3/8" or 10mm shaft bore diameter**
- **ESD and short circuit protection**
- **5 vdc and 8 to 30 vdc supply voltages**
- **9-pin D-Sub connector**

## DIMENSIONS

(shown with 3/8" shaft bore and 9-pin D-sub connector)




## SPECIFICATIONS

### Mechanical

**Shaft Bore:** Any up to 3/8", 10mm diameter
**Maximum Speed:** 2,500 rpm
**Shaft Loading:**
— Radial: 5.5 lbs. / 2.5 kg max.
— Axial: 2.2 lbs. / 1 kg max.
*A flexible mounting bracket is required.*
**Bearing Life:** 42 x 1,000,000/rpm = hours
*If the encoder is rigidly attached to the machine frame, the bearings **will** fail.*
**Materials:** — Case: Aluminum, anodized
— Shaft: 303 Stainless steel
**Weight:** 5.5 oz. (156 grams)
**Enclosure Rating:** IP50

### Electrical Connections

**Single Ended Outputs:**

| 9-pin D-sub Pin No. | Function | Wire Color |
|---|---|---|
| 1 | Common | Black |
| 2 | +vdc | Red |
| 3 | Output A | White |
| 4 | Output B | Green |
| 5 | Output C | Brown |
| 6-9 | not used | - |

**Differential Line Driver Outputs:**

| 9-pin D-sub Pin No. | Function | Wire Color |
|---|---|---|
| 1 | Common | Black |
| 2 | +vdc | Red |
| 3 | Output +A | White |
| 4 | Output +B | Green |
| 5 | Output +C | Yellow |
| 6 | Output -A | Blue |
| 7 | Output -B | Brown |
| 8 | Output -C | Orange |
| 9 | not used | - |

### Accessories

See our website or contact us for more information about Cables, Flexible Mounting Brackets, and the Anti-Rotation Pin.

### Electrical

**Supply Voltages:** (specify when ordering)
— 5 ± 5% VDC
— 8-30 VDC
**Current:** 50 mA max (no load)
100 mA max (line driver)
**Pulse Rate:** 0 - 30 kHz
**Operating Temperature:** 0° to 70° C
**Output Circuit:** (specify when ordering)
Output voltage level is approximately the same as the input voltage level.
Single Ended:
— 7273 open collector (30vdc/50mA max )
— 7272 Push/Pull (50mA max source/sink)
Differential Line Driver:
— 7272 line driver (output same as input volts)
— RS422 line driver (regulated 5vdc output)
**Pulses per Revolution:** 50 ppr on output A, 10 ppr on output B. Both are "low" when power is initially applied. The 10 ppr output may not occur at the same shaft position between different power cycles.
**Output Waveshape:** 50/50 squarewave
— Pulse symmetry: 180°±10%
— Pulse interval jitter: 10% max
— Pulse rise time: 2usec (max)
— Pulse fall time: 5usec (max)
— Voltage (high): Vin-2.5 vdc (min)
— Voltage (low): 1.5 vdc (max)
**Direction output:** Indicates the direction of rotation, and is updated at each 1/200th of a revolution. This output is "low" for clockwise rotation when viewed from the shaft collar end, and "high" for counter-clockwise rotation. "Low" when power is initially applied.

## MODEL NUMBER

| HS25 | | — | P50/10/B | / | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Model Number** | **Shaft Bore:** **A**=5/16", **B**=3/8", **C**=1/4", **.188**=3/16", **M6**=6mm, **M8**=8mm, **M10**=10mm | | **Custom encoder configuration with: 50 ppr on output A, 10 ppr on output B, direction on output C** | | **Supply Voltage:** **5**=5vdc, **8-30**=8 to 30 vdc | **Output Circuit:** leave blank for push/pull **C**=NPN open collector, **DH**=7272 line driver **DL**=RS422 line driver | **Connector:** leave blank for 9-pin D-Sub, **S3**=4-pin M12 connector | **Modification Number:** optional modification or special feature ID. Call or see our website. | **Accessories:** leave blank for no accessories. Call or see our website for more information. |

Example: **HS25B-P50/10/B/8-30** - 3/8" shaft bore, 50 ppr on A, 10 ppr on B, direction output on C, 8-30 vdc, push/pull output, 9-pin D-Sub connector


TRI-TRONICS®
MATERIAL HANDLING AND INDUSTRIAL EXPERIENCE SINCE 1974
PHOTOCRAFT Encoders
PO Box 25135 813-886-4000
Tampa FL 33622-5135, USA 800-237-0946
ttco.com • photocraftencoders.com