

Hercules Encoders

Series N25

Heavy Duty Incremental Rotary Shaft Encoder

- Enclosure: N25-2.5" Dia. NEMA 4 type Sealing Servo, Flush or Flanged Mounting
- Vibration-resistant Anti-Jitter Circuitry, Shatterproof Metal Code Discs
- Shielded ABEC 5 Stainless Steel Spindle Bearings, Standard and Self-Mounting options
- Low Supply Current Requirement - 30 milliamps typical per encoder, maximum of 50 mA
- Operating Voltage Flexibility - 8 to 28 Vdc or 5 Vdc TTL Output, 5V or 8 - 15V with Line Driver
- Operating Temperature Rating designed for extremes, from -40° to +85° C (-40° to +185° F)



Specifications

Mechanical

| | |
|----------------------|---------------------------------------|
| Shaft Speed | 6000 RPM maximum |
| Shaft Direction | Bidirectional |
| Standard Shaft Sizes | .3747", .4997" |
| Shaft Extension(s) | Std 0.875", .50 x .05" flat |
| Shaft Seals | Neoprene or PTFE Options |
| Mounting | Refer to dimensional drawings |
| Bearings | .5000" ID ABEC 5 Spindle |
| Radial Loading | 90 lbs. Operating |
| Axial Loading | 45 lbs. Operating |
| Accuracy | ±0.1° of Shaft Rotation Typical |
| Housing | Black Anodized Aluminum |
| Weight (N25) | 22 oz. |
| Connector | 6, 7, 10 Pin MS3102E or 18" Cable Out |

Electrical

| | |
|-----------------------------|--|
| Pulse Rate | 15 kHz typical, up to 200 kHz available |
| Outputs | NPN w/ 3.3K pullup or open collector PNP sourcing Line Driver (with complementary outputs) |
| Output Ratings | |
| Open Collector Transistor | 40 Vdc maximum |
| Line Drivers 8-15 Vdc | 15 Vdc maximum |
| 5 Vdc TTL | 5.5 Vdc maximum |
| Supply Voltage | 8 to 28 Vdc 5 Vdc TTL output |
| Supply Current, per channel | 30 mA typical, 50 mA maximum |
| Current Sinking | 250 mA maximum |
| Output Duty Cycle | 50/50 w/ ±20% typical tolerance Tighter to ±5% by spec |
| Pulsed Outputs | 5-10 µsec or 25-35 µsec |
| Rise/Fall Times | 1 µsec typical, other options available |
| | See Wiring Diagrams for Pin Outs |

Environmental

| | |
|---------------------|----------------------------------|
| Operating Temp. | -40° to +85° C (-40° to +185° F) |
| Shock | 50 g's for 11 Milliseconds |
| Vibration | 5 to 2000 Hertz at 20 g's |
| Humidity | 100% Relative Humidity |
| Enclosures (Sealed) | NEMA 4X equiv. — Water-tight |

Electrical Connections

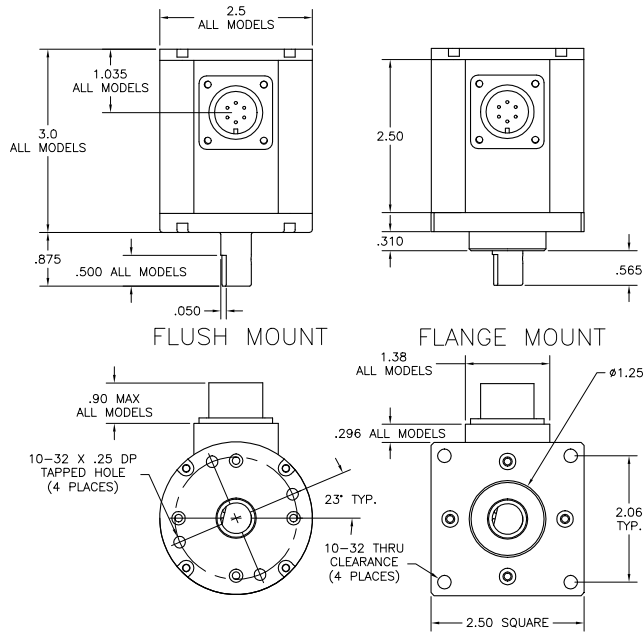
| Function | 6 Pin | 7 Pin | 10 Pin | Cable Out | Color |
|-----------|---------|-------|--------|-----------|-------|
| +V | B | D | D | D | Red |
| Common | A | F | F | F | Black |
| Channel A | D | A | A | A | Blue |
| Channel B | E | B | B | B | Brown |
| Channel A | C | E | H | E | White |
| Channel B | F | G | I | G | Green |
| Index | C or E* | C | C | C | White |
| Index | F | G | J | G | Green |

* C is standard; for outputs "KI" or "LI" (line driver with index), index pin is E

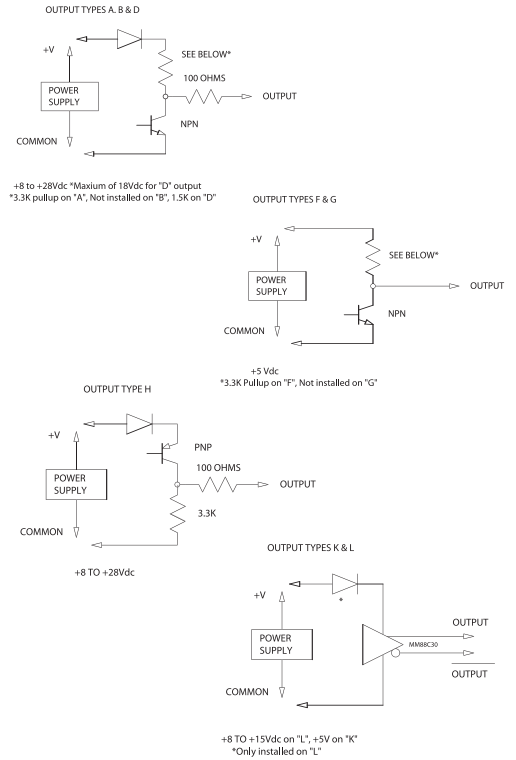
For the latest specifications visit our website
www.herculesencoders.com

Dimensional Drawings

Series N25 Standard



Wire Drawings



Ordering Information

N25SA — 1 1 2 — A Q 0600 — AI

Size
N25SA=Sealed (Elastomer)
N25TA=Sealed (PTFE)

Mounting Style
1=Flush mount
3=Flange mount

Shaft Style
1=3/8" Standard Shaft
2=1/2" Standard Shaft

Connector Style
1=6 Pin rear mounted
2= 6 Pin side mounted
3= 7 Pin rear mounted
4= 7 Pin side mounted
5=10 Pin rear mounted
6=10 Pin side mounted
7=Cable rear mounted
8=Cable side mounted

Channel Outputs
(All outputs available with complementary outputs)
A=NPN w/Pullup Res.
B=NPN Open Collector
F=5Vdc w/Pullup Res.
G=5Vdc Open Collector
H=PNP Sourcing Output
K=5Vdc Line Driver
L=8 to 15 Vdc Line Driver

Channel Types
Q=Quadrature Outputs
P=1st Output CW Pulses
2nd Output CCW Pulses
U=1st Output Pulse Train
2nd Output Logic High
For CW Rotation, Low
For CCW Rotation
I=Index Pulse

Index Channel
(same types as Channel Outputs)

PPR
Channel Types "U" "P" & "Q"

| | | | |
|--|------|------|------|
| 0090 | 0093 | 0125 | 0128 |
| 0180 | 0186 | 0250 | 0256 |
| 0360 | 0372 | 0500 | 0512 |
| 0720 | 1000 | 1024 | |
| If "P" or "U" add (Square Wave) | | | |
| 1440 | 2000 | 2048 | |
| If "P" or "U" add (Pulsed) | | | |
| 1488 | 4000 | 4096 | |

Consult factory for PPR not listed