lercules

18

Hercules Encoders

Series 2000

Medium Duty Incremental Rotary Shaft Encoder

- Enclosure: Standard Series Industry Standard 2.25"
 Cube NEMA 12/13 or NEMA 4 type Sealing
- Flush or Flanged Base Styles
- Anti-Jitter Circuitry, Shatterproof Metal Code Discs up to 600 PPR Quadrature
- Internally and Externally Shielded ABEC 5 Stainless Steel Bearings, Mounted Internally
- 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 -20° to +70° C (-4° to +158° F)





Specifications

Mechanical

6000 RPM maximum
Bidirectional
.2497", .3747" 0.80" with .50x.05" flat
Neoprene or PTFE Options
Refer to dimensional drawings
ABEC 5 Shielded
30 lbs. Operating
15 lbs. Operating
±0.1° of Shaft Rotation Typical
Black Anodized Aluminum
Standard: 14 oz., Sealed: 19 oz.
6 Pin MS3102 or 18" Cable Out

Electrical

Pulse Rate	10 kHz, up to 200 kHz
Outputs	NPN w/ pullup; NPN open collector; PNP sourcing
- m-F	Line Drivers (5Vdc/TTL level, 8 to 15 Vdc)
	All line drivers have complementary outputs.

All lilic univ	cis mave 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

Rise/Fall Times

1 μsec typical, other options available

See Wiring Diagrams for Pin Outs

Environmental

Operating Temp.	-20° to $+70^{\circ}$ C (-4° to $+158^{\circ}$ F)
Shock	50 g's for 11 Milliseconds
Vibration	5 to 2000 Hertz at 20 g's
Humidity	100% Relative Humidity
Enclosures (Sealed)	NEMA 4 type — Water-tight
(Std)	NEMA 12/13 equiv — Dust- Oil-Tight

Electrical Connections

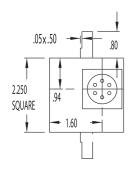
Function	<u>6 Pin</u>	Cable Out	Color
+V	В	D	Red
Common	A	F	Black
Channel A	D	A	Blue
Channel B	E	В	Brown
Channel \overline{A}	C	E	White
Channel \overline{B}	F	G	Green
Index	C or E*	C	White
Index	F	G	Green

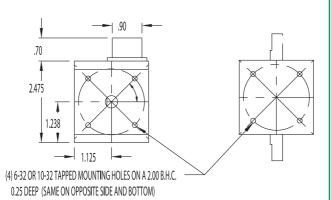
 $^{^{*}}$ C is standard; for outputs "KI" or "LI" (line driver with index), index pin is E

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

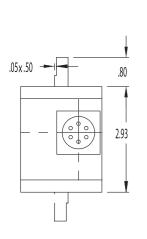
Dimensional Drawings

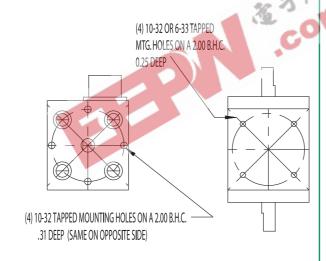
Series 2000 Standard





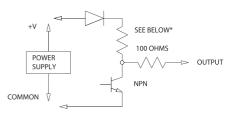
Series 2000 Sealed





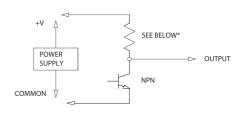
Wire Drawings

OUTPUT TYPES A. B & D

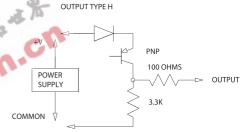


+8 to +28Vdc *Maxium of 18Vdc for "D" output *3.3K pullup on "A", Not installed on "B", 1.5K on "D"

OUTPUT TYPES F & G

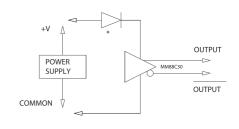


+5 Vdc *3.3K Pullup on "F", Not installed on "G"



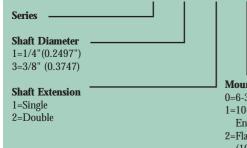
+8 TO +28Vdc

OUTPUT TYPES K & L



+8 TO +15Vdc on "L", +5V on "K'
*Only installed on "L"

Ordering Information



Encoder Type

<u>S</u>

_=Standard Encoder S=Sealed (Elastomer) T=Sealed (PTFE)

Mounting Type

0=6-32 BHC on Ends 1=10-32 BHC on Shaft Ends & Base 2=Flanged Base (10-32BHC on Shaft Ends)

Channel Outputs

A=NPN w/3.3K Pullup B=NPN Open Collector D=1.5K Pullup, No Ser. R F=5Vdc TTL NPN w/Pullup G=5Vdc TTL NPN OC H=PNP Sourcing Output K=5Vdc Line Driver L=8 to 15 Vdc Line Driver

Channel Types

S=Single Channel Q=Quadrature Outputs I=Index Pulse

<u>Q</u> <u>0600</u> — <u>AQ0120</u>

PPR (Pulses per Revolution) 0025 0030 0050 0060 0093 0100 0120 0090 0125 0128 0150 0180 0186 0250 0256 0300 0360 0372 0500 0512 0600 Consult factory for PPR not listed

Optional Index Channel or Add. Encoder

(Same types of Channel Outputs) Order the Secondary Channel like a Primary Channel