



# ITT

## Cleveland Motion Controls



## ENCODERS SHAFT-TYPE

### DataTorque™ HS15

#### Performance Benefits

Cleveland Motion Controls is widely recognized for providing high performance shaft and motor-mounted DataTorque™ Encoder solutions. The new DataTorque HS15 is no exception.

With high-performance, high-resolution digital feedback in an extremely small package, the new DataTorque HS15 combines the resolution and performance common with much larger encoder packages with the stability of a bearing encoder design. The HS15 provides a bearing design that simplifies encoder attachment, resulting in a longer service life with less downtime (from feedback device failure). It delivers high noise immunity. In addition, the DataTorque HS15 is cost competitive with modular encoders.

#### Design Features

The DataTorque HS15 is miniature in size, only 1.5 inches (38 mm) in diameter and low profile, only 0.87 inches (22 mm) in assemble height, yet it provides resolutions up to 5,000 lines with or without commutation. Output options are single-ended or differential line driver.

The DataTorque HS15 has low supply current requirements. The optional 5 to 26 VDC can help reduce inventory. It is constructed of a conductive carbon fiber composite that provides the EMI shielding of an all-metal housing and the performance of a lightweight robust assembly.

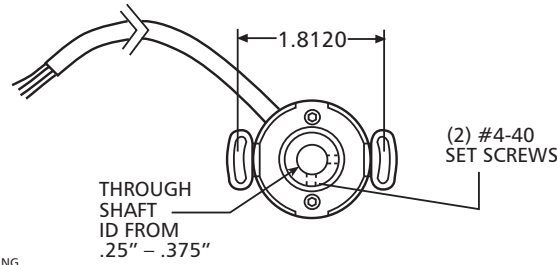


#### *Providing High-Resolution Digital Performance in a Miniature Package*

- Resolutions up to 5,000 lines
- Miniature size, only 1.5 inches (38 mm) in diameter
- Single-ended and differential outputs
- High noise immunity
- Conductive carbon fiber housing
- Low supply current requirements
- Supply voltages of 5 v or 5 to 26 VDC
- IP50 sealing
- Cost competitive with modular encoders
- Commutation
- 500 kHz frequency response

# DataTorque™ HS15

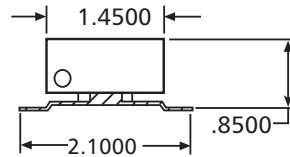
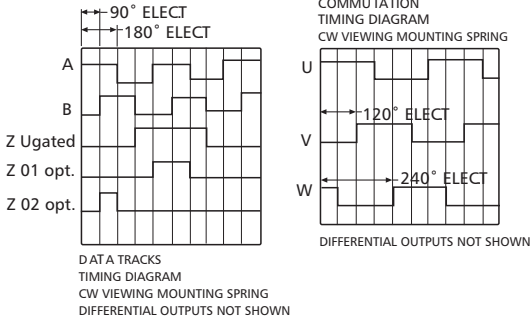
## PACKAGE DIMENSIONS



## TERMINATIONS

Red	+VDC
Black	Common
Brown	Output A
White	Output A'
Blue	Output B
Green	Output B'
Orange	Output Z
Yellow	Output Z'

## CW VIEWING MOUNTAIN END



Violet	Output U
Gray	Output U'
Brown/White	Output V
Red/White	Output V'
Orange/White	Output W
Yellow/White	Output W'
Black/White	Case Ground
Drain Wire	Cable Shield

## ELECTRICAL SPECIFICATIONS

Input Voltage	5 VDC +/- 5% or 5-26 VDC
Outputs	5v L.D.-AM26LS31, RS422A Line Driver 5-26v. L.D, OL7272, TTL
Phase Sense	"A" leads "B" CW, Full cycle "Z" with "A"
Symmetry	180 degrees +/- 10%
Zero Reference	Standard: Ungated 270 deg. elect. MIN to 380 deg. elect. MAX, 01: 1/2 cycle, 02: 1/4 cycle
Frequency Response	500 kHz
Quadrature	54 electrical degrees minimum edge separation
Commutation Format	Three phase 4, 6 or 8 poles
Commutation Accuracy	+/- 1 mechanical degree
Noise Immunity, Tested to:	BS EN5502: 1995    DN ENV50204: 1996 DD ENV50141: 1994    BS EN61000-4-4: 1995 IEC 801-3: 1993    BS EN61000-4-2: 1995

## ENVIRONMENTAL SPECIFICATIONS

Storage Temperature	-40 to +125 degrees C
Operating Temperature	-20 to 100 degrees C Typical -20 to 120 degrees C Optional*
Humidity	98% Non-condensing
Vibration	20 g's @ 50 to 500 CPS
Shock	50 g's @ 11 mS duration

\* Consult factory for more information

## ORDERING INFORMATION

HS15 - 05/05 - 2000 - 0 - 04 - T1 - 01 - 02  
A B C D E F G H

- A. Encoder Series:
- B. Supply Voltage: 05/05 = 5 VDC +/- 5%  
05/26 = 5-26 VDC
- C. Resolution: 200, 256, 500, 512, 600, 1000, 1024, 1250, 2000, 2048, 2500, 4096, 5000
- D. Motor Poles: 0 = No Comm, 4 = 4 pole, 6 = 6 pole, 8 = 8 pole
- E. Output Option: 01 = RS-422A Line Driver, 02 = OL7272 5-26 VDC  
03 = TTL Output, 04 = RS-422A Incremental Open Collector Commutation
- F. Bore Size: T1 = .250", T2 = .312", T3 = .375",  
T4 = 6 mm, T5 = 8 mm, T6 = 10 mm, T11 = 5mm
- G. Mounting: 01 = STD 1.812" Flex, 02 = Size 15 Resolver Mount  
SS = Special
- H. Index Gating: Blank = Ungated Index, 01 = Gated to A, 180°,  
02 = Gated to A & B, 90°

## MECHANICAL SPECIFICATIONS

Maximum Shaft Speed	8,000 RPM
Radial Shaft Movement	0.0007 inches
Axial Shaft Movement	+/- 0.030 inches
Termination	15 conductor cable, 28 AWG 18 inches long
Mounting	1.812 inches bolt circle
Moment of Inertia	1.5 X 10 (-4) oz-in-S(2)
Acceleration	1 X 10(5) Radians/S (2)
Accuracy	0.8 Arc minutes

## Cleveland Motion Controls

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