

ENCODERS

SHAFT-TYPE

DataTorque™ SM15

Performance Benefits

Torque systems is widely recognized for providing high performance shaft and motor-mounted DataTorque™ Encoder solutions. The CE compliant DataTorque SM15 is no exception.

By combining high performance, advanced design, proven reliability and low cost, the DataTorque SM15 is an ideal industrial encoder to meet a wide variety of application requirements. It meets all of the requirements of EIA standard RS-422 while retaining low power characteristics of CMOS, enabling the construction of serial and terminal interfaces while maintaining minimal power consumption.

All DataTorque Encoders can be custom configured to meet specific, high volume OEM requirements. We can accommodate many specialized combinations of electrical and mechanical interfaces. Please consult our experienced team of application engineers for details on custom OEM products.

Design Features

The DataTorque SM15 Encoder is manufactured with precision surface mount technology. It utilizes high precision, spindle grade ball bearings (shielded), providing a rugged encoder within its design.

The DataTorque SM15 Encoder incorporates the 2631 series quad differential line driver, designed for digital data transmission over balanced lines.

The SM15 utilizes a monolithic solar array with stop gap diffusion, providing further noise immunity. The differential array tracks evenly under temperature, voltage and light source variations.

The DataTorque SM15 is an optical incremental encoder with resolution of 1-2500 CPR (cycles per revolution). It is accurate to ± 6 arc seconds (pulse to adjacent pulse) and ± 3 arc minutes (pulse to any other pulse).



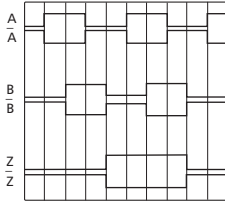
Low Cost Advanced Industrial Encoder

- High performance that costs less
- Precision surface mount technology
- Rugged design utilizing high precision spindle grade bearings
- Noise immunity with monolithic solar array
- Incorporates 2631 differential line driver for digital data transmission over balanced lines
- Enables the construction of serial and terminal interfaces while maintaining minimal power consumption
- Numerous built-in design features and performance benefits enable the SM15 to meet or exceed any other competitive encoder on the market today.
- CE compliant

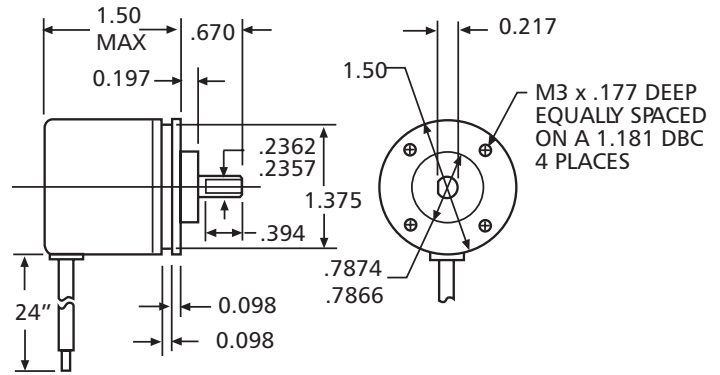


DataTorque™ SM15

CW VIEWING SHAFT
OUTPUT SIGNALS



PACKAGE DIMENSIONS



ELECTRICAL SPECIFICATIONS

Encoder Type	Optical Incremental
Resolution	1-2500 CPR (cycles per revolution)
Power Input	5 VDC ~ 24 VDC (specify when ordering)
Symmetry	180 degrees ±9 degrees
Quadrature	90 degrees ±18 degrees
Illumination Source	Single Infrared Emitting Diode (IRLED) Gallium Aluminum Arsenide (GaAlAs)
Frequency Response	200 kHz
Drive Capability	RS-422 compatible
Output Mode	2631 series
Accuracy	Pulse to Adjacent Pulse: ±6 arc seconds Pulse to Any Other Pulse: ±3 arc minutes

MECHANICAL SPECIFICATIONS

Angular Acceleration	1 X 10 ⁵ rad/sec ²
Bearing Life	11 X 10 ⁹ revolutions
Bearings	ABEC 5+ spindle grade, shielded
Operating Speed	3,000 RPM
Slew Speed	6,000 RPM maximum
Shaft Loading	Radial 4.4 lbs., (2 Kg), Axial 2.2 lbs. (1Kg)
Starting Torque	5g - cm or less
Net Weight	80 grams maximum
Inertia	10g - cm ²

ENVIRONMENTAL SPECIFICATIONS

Operating Ambient	-10 to +70 degrees C
Storage Ambient	-30 to +80 degrees C
Vibration	50 Hz - 10 G - 1 Hr
Shock	30 G 11 ms
Humidity	35 to 85% RH, no condensation

TERMINATIONS

Cable
Color Code: Standard
Green A output
Yellow Z output
White B output
Red +VDC
Black Ground

Cable
Color Code:
Differential Line Driver
Green A output
Yellow Z output
White B output
Red +5 VDC
Black Ground
Blue \bar{A} output
Brown \bar{B} output
Orange Z output

9 PIN "D" Type
Pin Function:
Standard
1 \bar{B} 6 Z or N/C
2 B 7 \bar{Z} or N/
3 A 8 D.C. Ground
4 \bar{A} 9 N/C
5 +VDC

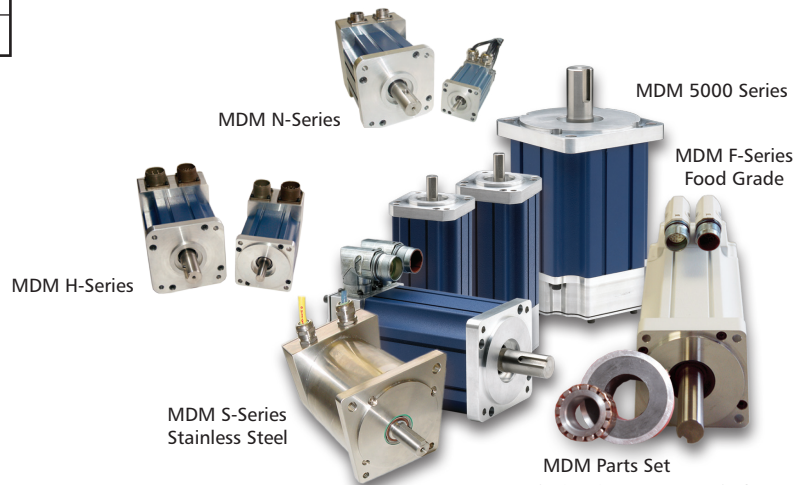
Mating Connector: AMP# 747905-2
or equivalent

ORDERING INFORMATION

SM15 - 256 - 50 / 5 - 03 - X - XXX

A B C D E F G

- A. Encoder Series:
- B. Resolution: (Up to 2500 CPR, many standards, please inquire)
- C. Output Configuration:
 - 20 = Single Channel
 - 30 = Single Channel with Index Pulse
 - 40 = Dual Channel
 - 50 = Dual Channel with Index Pulse
- D. Power Input: 5 VDC ~ 24 VDC, specify when ordering
- E. Output Options:
 - Blank = single ended
 - 03 = Differential line driver option
- F. Termination:
 - Blank = Cable
 - D = 9 Pin "D" Connector
- G. Special Deviation:



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