

## Distance-Coded Linear Feedback Encoder



The Spherosyn® Distance-Coded Linear Feedback Encoder reference markers allow the controller to acquire absolute position by moving the encoder system across two uniquely spaced reference markers.

By using its internal absolute position count, the encoder can mimic the distance-coded index marks that are generated by glass scales. An index pulse is generated at uniquely spaced intervals in the range of 4 to 10mm, varying by 20-micron increments. As the system is not constrained by any hardware limitations it can calculate and output almost any sequence of marker pulses.

### KEY FEATURES AND BENEFITS

- IP67 Rating (fully submersible)
- Withstands dust, dirt, oil and other environmental conditions
- No mechanical wear characteristics
- No broken or scratched glass
- Requires no cleaning or maintenance
- Accuracy to +/-3 micron
- Resolution to 0.1 micron
- Tolerant to vibration and shock
- Easy installation, no machined surface or backer bar is required

	SPHEROSYN® DISTANCE-CODED
Output Signal	RS422 TTL level square wave, 1Vpp or 11µApp
Reference Marker	Distance-Coded 0.78" (20mm) maximum to establish position
Accuracy/Meter	+/-0.0004", +/-0.0002", +/-0.00075" (+/-10µm, +/-5µm or +/-3µm)
Repeatability	Within 1 resolution count
Resolutions	10µm, 5µm, 2µm, 1µm, 0.5µm, 0.2µm or 0.1µm
Equivalent Line Count/Inch	635, 1270, 3175, 6350, 12,700, 31,750, 63,500
Maximum Traverse Rate	65.6' (20M)/second (10µm), pro-rated to resolution
Power Supply	5VDC +/-5%, <180mA
Shock (11ms)	100g (IEC 69-2-6)
Vibration (55-2000Hz)	30g (IEC 68-2-27)
Sample Period	50µs
Scale Travels	4" to 365" (102mm to 9.3M)
Environmental	IP67 (fully submersible) according to IEC 529. Exceeds NEMA Type 6.
Operating Temperature	32° to 131°F (0° to 55°C)
Coefficient of Expansions	12x10 <sup>-6</sup> /K
Scale Material	304 Stainless Steel
Scale Diameter	0.601" (15.25mm)
Overall Scale Length	Scale Travel Length + 10" (254mm)
Encoder Dimensions	2.04"H x 5.16"L x 1.10"D (52mm x 131mm x 28mm)
Standard Cable	15 core, 11.5' (3.5M) Stainless Steel Armored
Maximum Cable Length	65' (20M)
EMC Compliance	BS EN 50081-2, BS EN 61000-6-2

Contact MachineMate for other output protocols.  
Specifications subject to change without notice.

NUSADCF/MM-0303

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