

Specifications

L M E

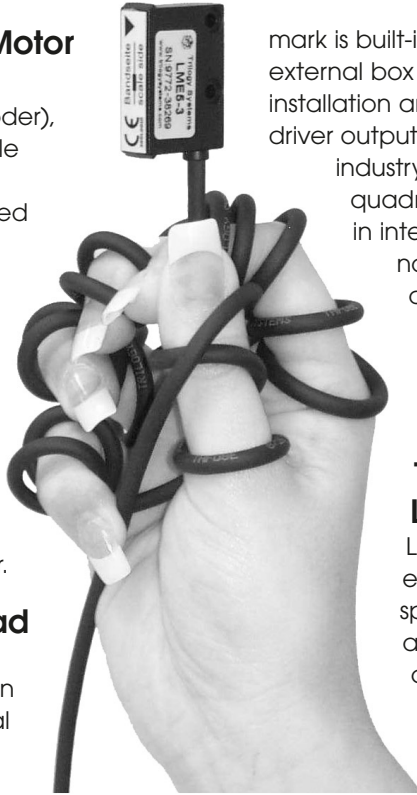
L I N E A R M O T O R E N C O D E R

Encoders for Linear Motor Applications

The LME (Linear Motor Encoder), Trilogy's magnetic tape scale encoder, combines all the benefits and features needed for high performance incremental linear measurement. The LME1F has a 1µm (0.00004") resolution and the LME5F has a 5µm (0.0002") resolution. LME's are small, rugged, and work in environments from clean rooms to the dirt and grime of a factory floor.

Small Integrated Head

LME's have the smallest readhead of any encoder in its class. Best of all, the signal interpolation circuitry including the reference



mark is built-in. There is no external box to complicate installation and wiring. Line driver output signals are industry standard quadrature. With built-in interpolation, EMI noise immunity is assured.

High Speeds to Match Trilogy's Linear Motors

LME's have to endure high speeds and accelerations common with linear motor applications. Constant flexing and

millions of cycles in a rolling cable track are normal. The LME's ultra high flex cable has been proven in thousands of linear motor applications. All Trilogy high flex cable uses very fine stranding and high tensile strength copper alloy conductors. The LME1F reaches speeds up to 2.5m/s (100ips) and the LME5F up to 7.0m/s (275ips).



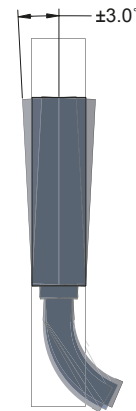
Non-critical Alignment Simplifies Installation

LME's are very forgiving of misalignment. Air gaps are;

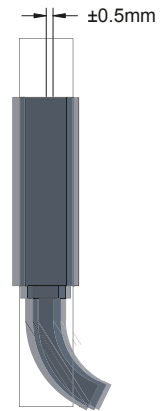
- LME1F 0.3mm±0.2mm
- LME5F 0.8mm±0.7mm

This is from 100% to 600% greater than optical encoders with the same resolution. Angular and translation misalignment tolerance for both the LME1F and LME5F are more than 3 times that of optical encoders.

Angular



Translation



Simple, Reliable, Low Cost

LME's install fast, last indefinitely and are the lowest priced encoder of its type. LME's drive up the ease-of-use and drive down the cost of high performance linear motion.

FEATURE

BENEFIT

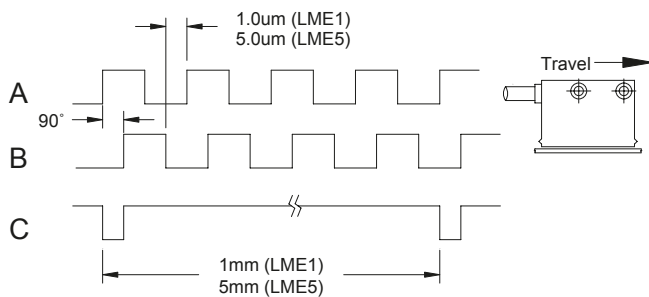
- Smallest readhead of its type
- Built-in signal interpolation with quadrature outputs and periodic reference mark
- Proven magnetostrictive head & tape technology
- High flex cable uses high tensile strength alloy conductors

- Fits into tight spots and produces more compact positioners.
- Eliminates complexity of wiring with external interpolator. Signals connect directly to drives and controllers.
- IP67 rated to operate in clean rooms, vacuum, food wash-down areas, or environments with dirt and debris.
- Eliminates cable breakage and the need for intermediate connectors or periodic cable change out. Permits tight bend radius in rolling cable tracks.

specifications

PERFORMANCE		TRILOGY MAGNETIC TAPE SCALE	
Encoder Part Number		LEM1F-x	LEM5F-x
Encoder Designator-Positioners		A	B
Resolution	μm	1.0	5.0
	in	0.00004	0.0002
Peak Velocity	m/s	2.5	7.0
	in/sec	100	275
Repeatability	μm	± 1.0	± 5.0
	in	± 0.00004	± 0.0002
Accuracy		$\pm(25\mu\text{m} + 10\mu\text{m}/\text{m})$	
Gap: Head-Tape	mm	0.3 ± 0.2	0.8 ± 0.7

OPERATING			
Supply Voltage	vdc	$5 \pm 5\%$	
Current Required	ma	100	
Temp Working	$^{\circ}\text{C}$	-10 to +70	
Protection Class		IP67	
Moisture		100% RH Condensing	
CE Compliant		yes	



wiring

CABLE: THF08E

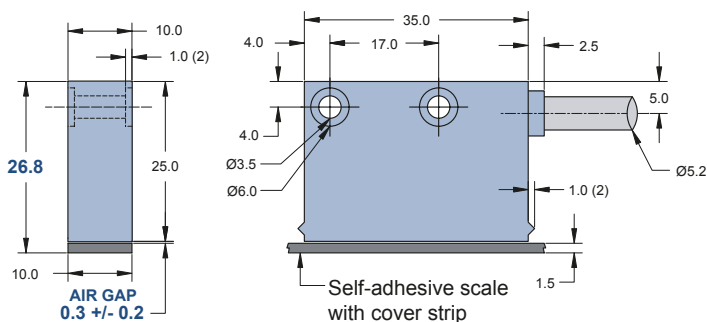
LME1F & LME5F WIRING	
COLOR	FUNCTION
Brown	+5 vdc
White	0 vdc
Green	A
Yellow	A/
Blue	B
Red	B/
Black	C
Orange	C/
Shield	Ground

ordering

INFORMATION	
LME1F-3	1,5 (microns, resolution) 3, 5, 10, 15 (meters, cable length) F, C (F: Flying leads; C: Custom connector - requires custom dwg. no.)
LMS1-xxxx	1,5 (microns, resolution) (millimeters, scale length, 90 meters max)

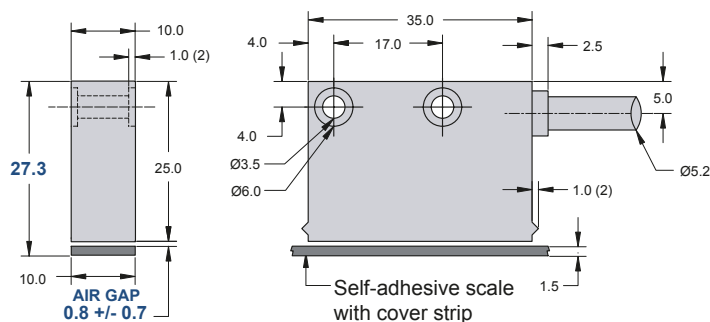
dimensions

READHEAD: LME1F
SCALE: LMS1



Readhead Color: Blue

READHEAD: LME5F
SCALE: LMS5



Readhead Color: Black

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