

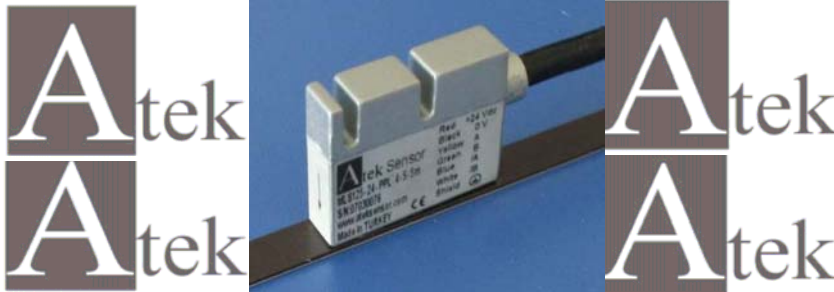


Industrial Encoders
Direct Ltd

LINEAR ENCODERS

MLS-1

Magnetic Incremental Technology



Measuring Scale & Free-Floating (Un-guided) Sensor Head

Features

- Resolution up to 0,001 mm
- Sturdy metal construction
- High technology yet very small
- Shielded metal enclosure
- Easy mounting (glues into place)
- Contact-less
- High resistance to vibration
- IP67 Protection
- Resistant to humidity
- High accuracy (+/- 5 micron)
- Highly reliable
- Measuring lengths up to 100 Meters.
- Connection cable up to 20 Meters.
- Signal processing incorporated

Intended to measure linear displacements on industrial machines & automation systems, the MLS-1 high precision Magnetic Linear Encoder system produces standard incremental encoder signals. It consists of a sensing head and a magnetically encoded tape. The sensing head glides over the tape, with a head gap of up to 2.5 mm. Since the system works on the principle of magnetism, unlike optical systems it is highly immune to contamination from oils, dust etc. The tape's alternating magnetic north / south poles are magnetized at a certain distance, known as the pole pitch. As the sensor is moved along the magnetic tape it detects the displacement and produces an output signal equivalent to that of an incremental encoder or a linear scale. A resolution of up to 1 μ m is achievable with the MLS-1. A linear accuracy of 5 μ m can be achieved with this system. These properties make it ideal for use in harsh industrial, oily & dusty environments.



Typical Applications

The MLS-1 Magnetic Linear Encoder System with its 'B5' magnetic tape has the capacity to measure distances of up to 100 Meters. Its ease of assembly, large uncritical head gap and its ability to cope with water, oil & dust make this system suitable for a large number of applications. Typical applications include: Machine Tools, Automatic Wood Working, Marble Cutting, Glass Working, PVC Cutting, Lathes, Milling, Grinding, Welding Machinery and many other applications. The sensor produces standard incremental encoder signals that can easily be interfaced with Displays, PLC, CNC, Axes Control etc...

B5- Magnetic Tape Complex Structure



Strontium ferrite bonded into a plastic or rubber (elastomer) matrix bonded onto a steel support.

The B5 Magnetic tape features:

- Easy splicing and assembling
- Resistant to moisture & fluids
- Extensive ruggedness
- Highly resistant to dust
- Extremely flexible

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Magnetic Tape Mechanical Properties

Mechanical properties

Width	5 mm
Thickness	1,2 mm
Length	Up to 100 m
Number of tracks	1
Pole pitch	1 mm, 2 mm, 5 mm
Absolute pole pattern possible	yes

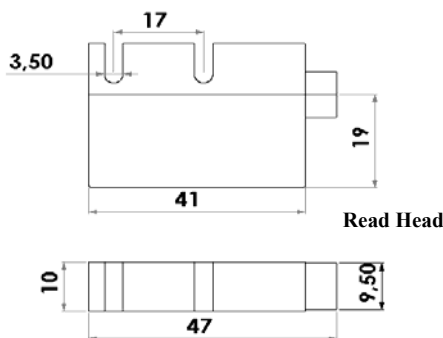
Magnetic Tape Environmental Properties

Operating temperature	-40°C to +120°C
Storage temperature	-40°C to +120°C
Water Protection	CrNi 17 7 stainless steel carrier nitrile rubber high temperature magnetic tape

Technical Specifications

Resolutions: (μm) 1, 5, 10, 25, 62.5, or 1mm
(with 4x triggering)
Output signals: A, /A, B, /B, (Z, /Z option)
Input current: Max. 40mA per Channel
Power supply: 10...30VDC or 5VDC
Housing Material: Aluminium
Connections: Up to 100 m (on request)
Allowable Head Gap: Up to 2.5 mm
(Depend on pole pitch)

Allowable Head Gap: Up to 2.5 mm
(Depend on pole pitch)
Travel velocity: 3 m/s
Magnetic Tape Type:
B5 high temperature magnetic tape
Measure Accuracy: ± 5 micron
Linear Expansion Coefficient: $(11\pm 1) \times 10^{-6} / \text{K}$
Repeatability: ± 1 increments
Temperature range: $-25 + 85$ °C
Protection Class: IP67



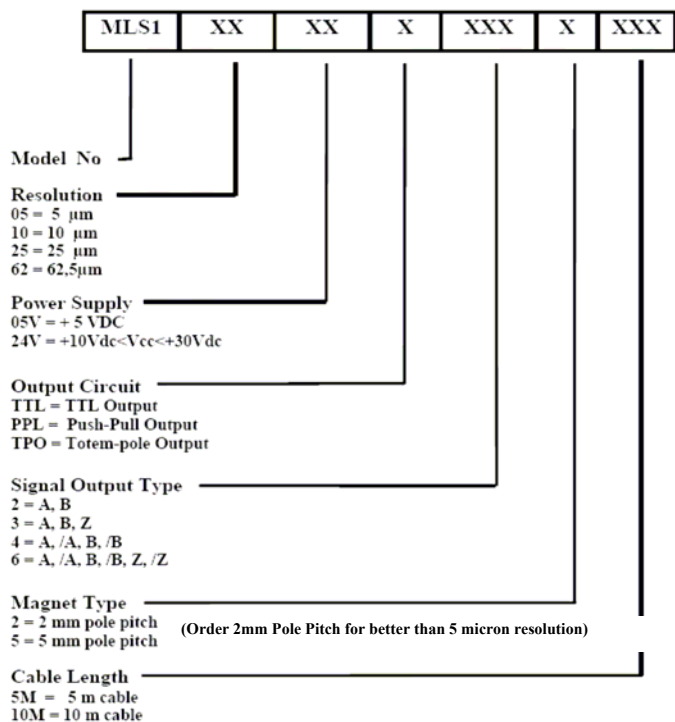
Mechanical Dimensions

B5 Tape

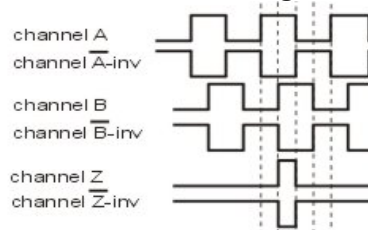
The B5 Tape

- Easy splicing and assembling
- Resistant to moisture and many fluids
- Extensive ruggedness against dust

Ordering Codes



Waveform Diagram



Connections

Function	Colour	Pin
A	Yellow	1
B/	White	2
+V	Red	3
0V	Black	4
A/	Blue	5
B	Green	6
Z/	Grey	7
Z	Orange	8
Ground	Shield	9