



# ALS SERIES OPTIC LINEAR ENCODER SCALE

**for Digital Read-out Systems**



## Features;

- Incremental Encoder output A,B,Z
- 5 V TTL / RS422 Line Driver Output
- Two square wave signals. TTL output with 90 deg. phase difference
- Robust shielded metal enclosure
- Accuracy:  $\pm 10 \text{ mm/m}$
- With single/double sealing technologies resistant to dirt, humidity and dust
- Compact design, easy mounting
- High Resolution: 0,001 mm, 0,005 mm
- High tolerance to shock and vibration
- Measuring lengths: 50 mm up to 12000 mm
- 60 m/min traversing speed
- Reference mark every 50 mm

ALS Series sealed Optic Linear Encoder Scales are protected from dust, chips and splash fluids and are ideal for operation on machine tools. An aluminum housing and elastic sealing lips protect the scale, scanning carriage and guideway from chips, swarf, dirt and splashwater. The scanning carriage travels in a low-friction guide within the scale unit. It is connected to the external mounting block by a coupling that compensates unavoidable misalignment between the scale and the machine guideways.

Sealed linear encoders are available with full-size scale housings for high resistance to vibration up to 12000 mm measuring length.

## Design :

- Scale and scanning unit protected by aluminum housing
- Scanning unit guided on scale via ball bearings
- Coupling between scanning unit and mounting block to compensate small errors in machine guideway

## APPLICATIONS :

The areas of application for ALS Series Optic Linear Scales are wide and varied. Sealed linear encoders are ideal for applications requiring measurement of length with high accuracy and resolution in harsh environments with airborne liquids and particles such as coolants, lubricants, chips and swarf.

Typical areas of application:

- Machining centers
- Lathes
- Milling machines
- Drilling and boring machines
- Grinding machines
- Electrical discharge machines
- Welding machines



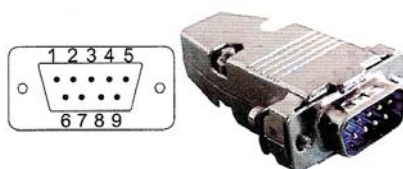
Series	Measurement Stroks	Protecting
ALS-4	50 mm – 450 mm	Single Sealing
ALS-5	50 mm – 1000 mm	Single Sealing
ALS-6	1100 mm – 12000 mm	Single Sealing
ALS-7	50 mm – 12000 mm	Double Sealing

## TECHNICAL SPECIFICATIONS :

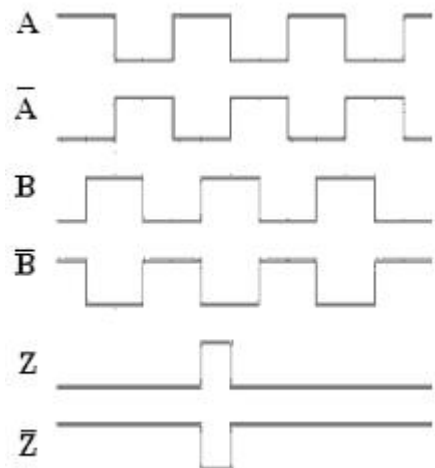
Resolution types	1 $\mu\text{m}$ , 5 $\mu\text{m}$ at 4 edge triggering	
Output Circuit	TTL, RS422 Line Driver	
Output signals	A, /A, B, /B, Z,/Z	
Power supply	5VDC	
Dimensions	See drawing	
Housing Material	Aluminium	
Reference Mark	1 reference mark every 50 mm.	
Travel velocity	60 m/min	
Repeatability	$\pm 1$ increments	
Operating temperature	0 to +50 ° C	
Storage temperature	-40 to +55 ° C	
Protection Class	IP54	
Cable length	50-500 mm scale	3 m armoured cable
	600-2000 mm scale	5 m armoured cable
	2200-6000 mm scale	7 m armoured cable
	Optional TTL=max 20 m., Optional RS-422= max. 100 m. Cable length	

## ELECTRICAL CONNECTIONS :

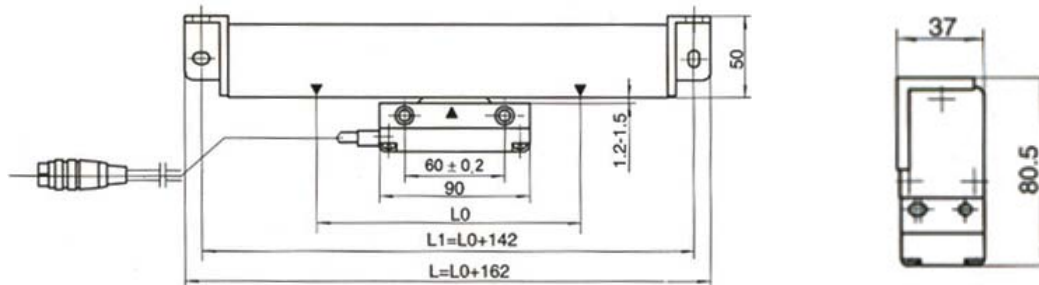
Signal Name	Open cable end Cable Colour	Conn. D-sub, (9 pin) Pin no.
A	GREY	1
/B	BROWN	2
+V	RED	3
0 V	BLACK	4
/A	BLUE	5
B	GREEN	6
/Z	YELLOW	7
Z	WHITE	8
GROUND	SHIELD	9



## SIGNAL TYPES :



**DIMENSIONS :**



ALS Series

**ORDER CODE :**



**MODEL NO :**

- 4 = Recommended for 100 mm to 400 mm applications
- 5 = Recommended for 150 mm to 1000 mm applications
- 6 = Recommended for over to 1000 mm applications
- 7 = Recommended for 100 mm to 900 mm applications **with** double sealing
- 8 = Recommended for over 1000 mm applications **with** double sealing

**MEASURING LENGTH :**

50 mm to 12000 mm

**RESOLUTION :**

- 1 = 1  $\mu$ m resolution
- 5 = 5  $\mu$ m resolution