



CARMAR ACCURACY CO., LTD.

## Linear Gauge

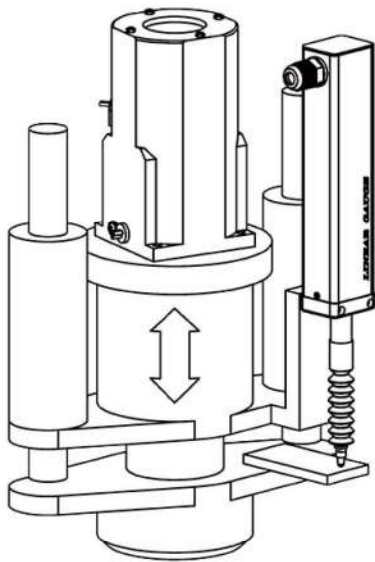
- Suitable for a variety of industrial automation ;  
High-accuracy dimension, displacement,  
thickness measurement
- Exchangeable probe-head ;  
Operable in harsh environments



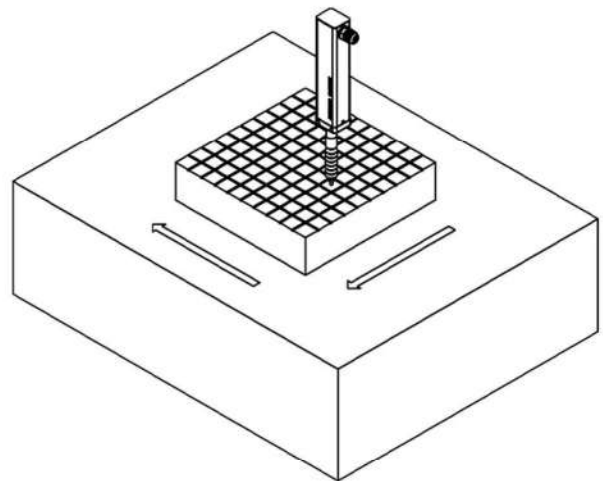
## ■ AREA OF APPLICATIONS

1. Free surface
2. Warpage
3. Thickness
4. Shaft slants
5. Mold critical dimensions
6. Spindle travel distance
7. Camshaft profiling
8. Sheet-metal probing in auto-industry
9. Structure displacement monitoring
10. Process quality control

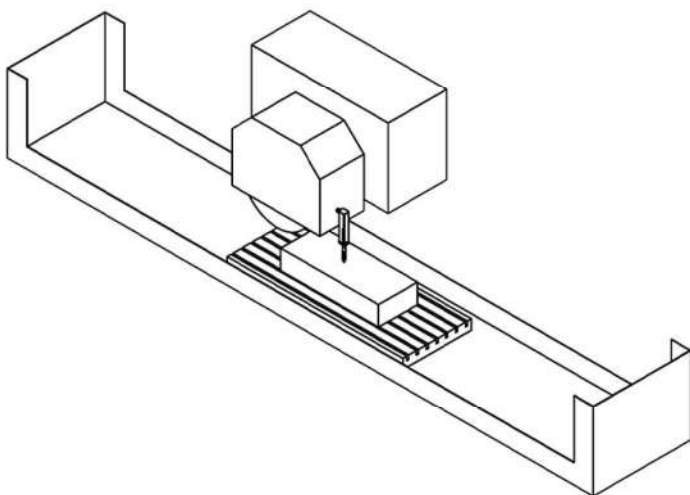
## ■ SAMPLE APPLICATIONS



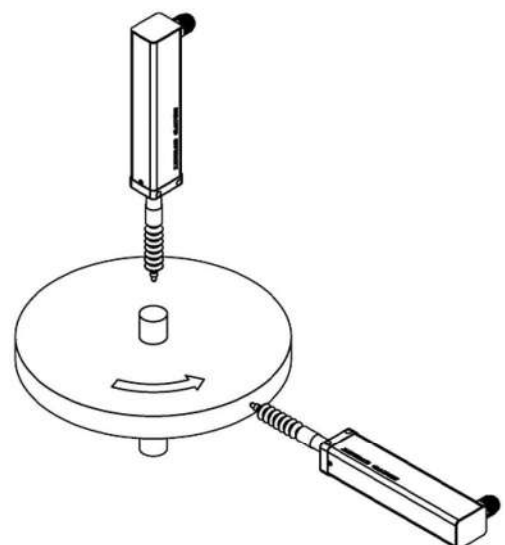
Travel calibration & compensation  
for PCB drilling machine spindles



Free surface checkup





Feed control for grinding wheel



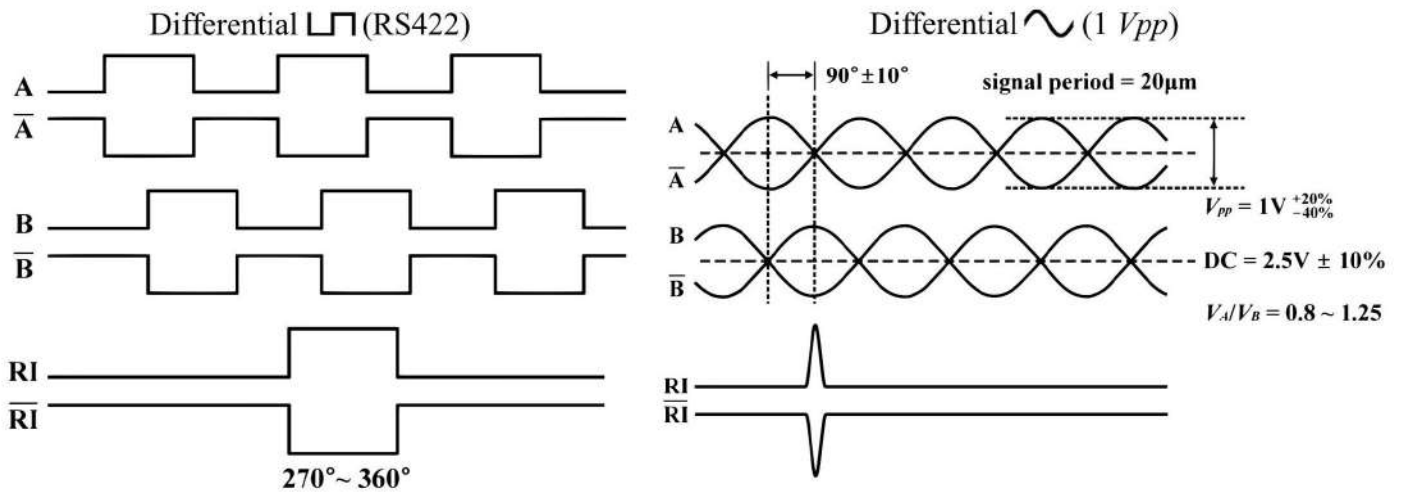
Cam waviness and runout

## ■ SPECIFICATIONS

Model	Digital: DLG 25 / DLG 30	Analog: ALG 25 / ALG 30
Resolution *	0.1 μm / 0.2 μm / 0.5 μm / 1 μm / 5 μm	—
Signal period	4-fold the resolution	Grating period 20 μm
Travel	25 mm / 30 mm	
Accuracy (@ 20°C)	± 3 μm / ± 5 μm	
Meas. Force	< 5 N	
Max Speed	400 mm / s	
Guaranteed travels	> 10 million times	
IP grade	IP 54 / IP 67	
Stem diameter	φ 5.0 mm	
Probe-head thread	M2.5 × 0.45p	
Input voltage	5.0 Vdc ± 5%	
Operation current	Digital : ≤ 70 mA (@ 5 Vdc) Analog : ≤ 55 mA (@ 5 Vdc)	
Operation temperature	0 ~ +50 °C	
Storage temperature	-10 ~ +55 °C	
Output signal	Digital : A / B phase differential  (RS422) Analog : A / B phase differential  (1 Vpp)	
Cable length	≈ 2 m, or customized (≤ 10 m)	
Mass (with cable)	25 mm : ≈ 320 g / 30 mm : ≈ 340 g	

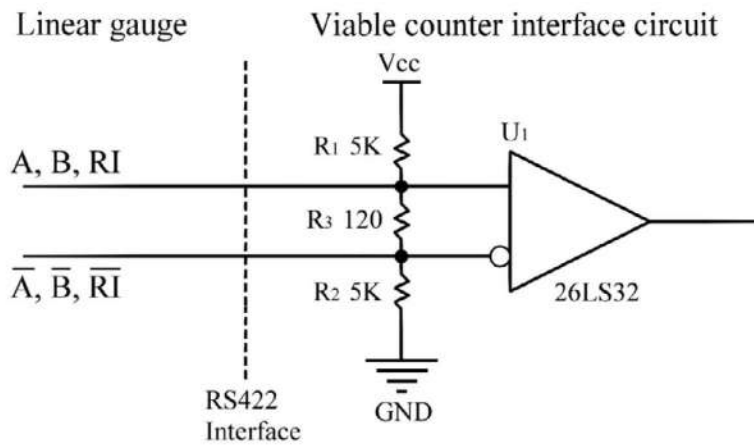
◆ A four-fold increase of the signal period. Refer to output signals on the next page.

## ■ OUTPUT SIGNALS

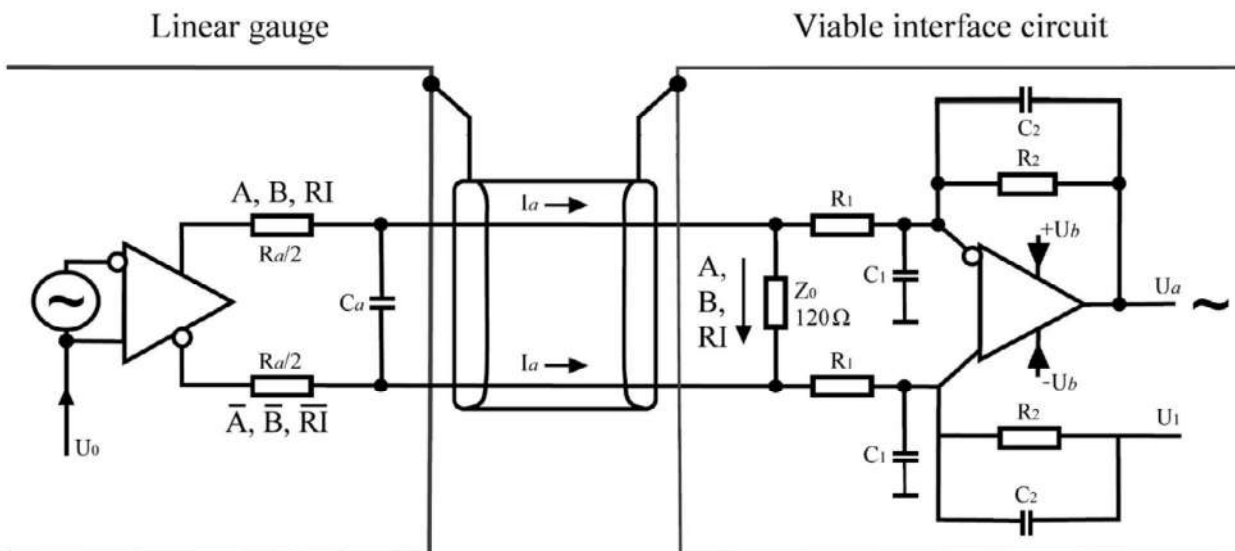


## ■ INTERFACE CIRCUIT ALTERNATIVES

Square-wave signal output (RS422) interface circuit



Sinusoidal signal output interface circuit





*25 series*



*30 series*



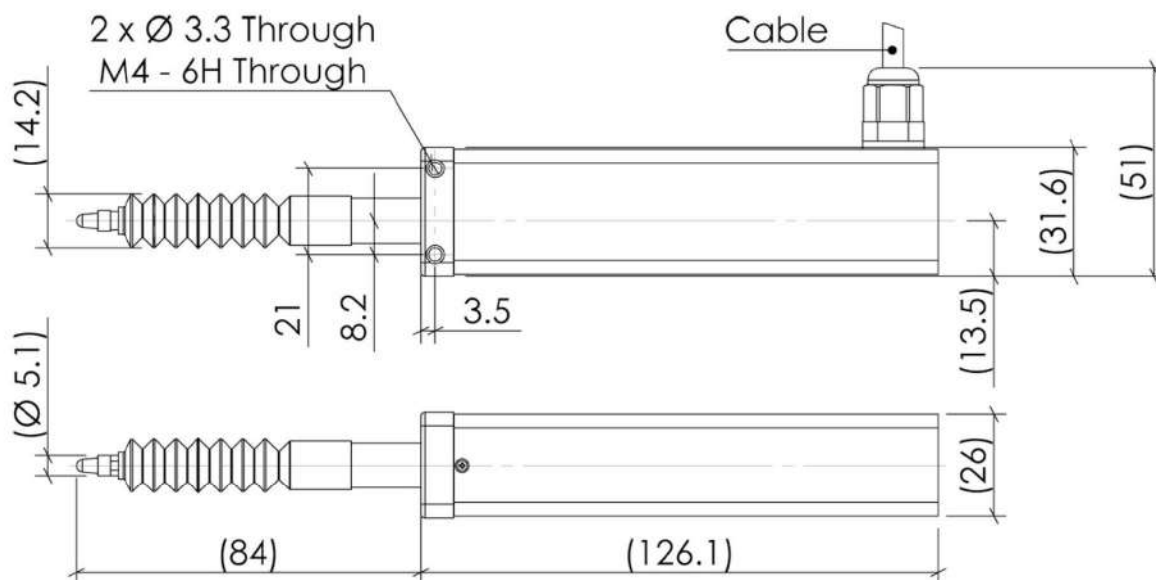
## ■ SPECIAL FEATURES



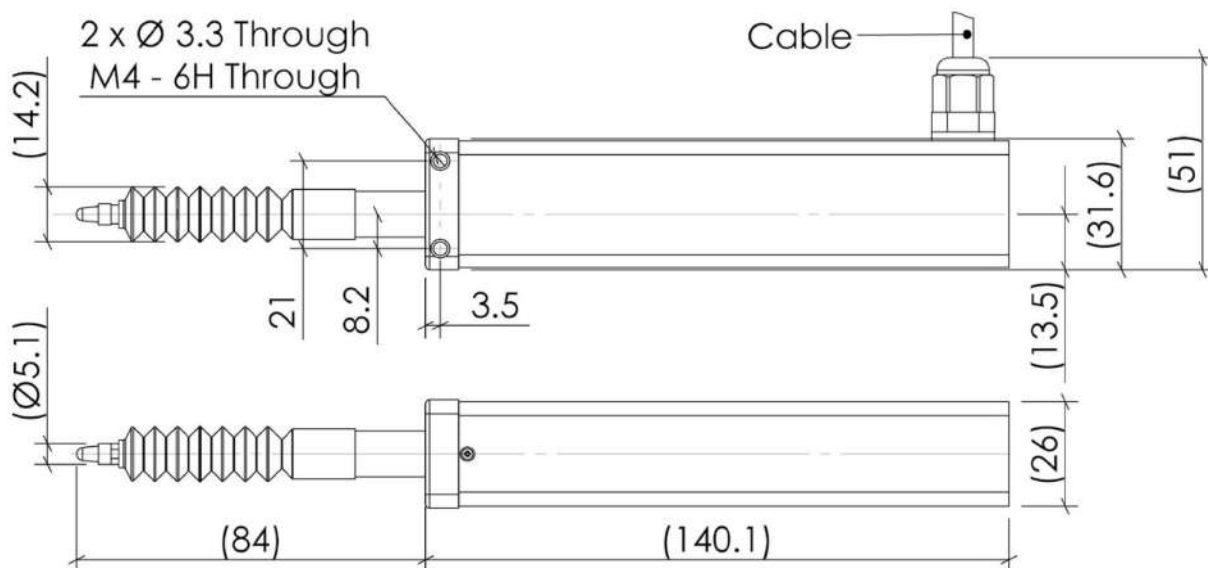
- High-accuracy dimension, displacement, thickness measurement
- Low measuring force, high stability, low noise
- Exchangeable probe-head; easy operation and installation
- Protection against dust, splash, coolant, oil, etc.; used in harsh environments, and along with cooling system

## ■ DIMENSIONS (in mm)

### *25 series*



### *30 series*

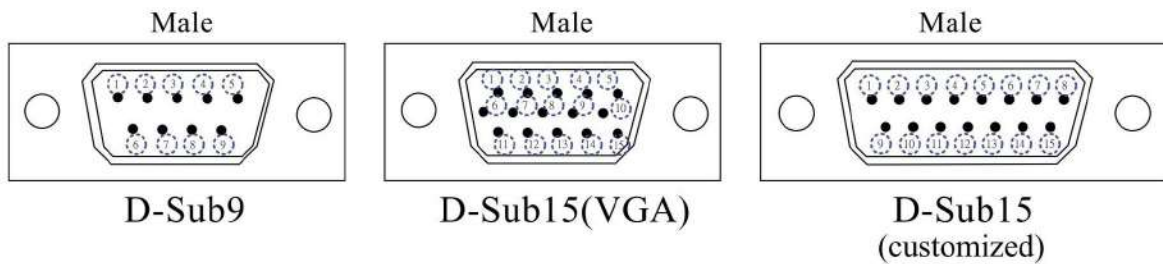


## ■ MODEL NUMBER CODING

$\frac{\text{DLG}}{\text{①}}$      $\frac{\text{25A}}{\text{②}}$  -  $\frac{\text{10}}{\text{③}}$  -  $\frac{\text{N}}{\text{④}}$      $\frac{\text{E}}{\text{⑤}}$      $\frac{\text{20}}{\text{⑥}}$      $\frac{\text{A}}{\text{⑦}}$

Model number coding			
①	Series name	DLG : Digital	ALG : Analog
②	Travel and Cable outlet	25A / 30A : 25mm / 30mm	
③	Resolution / Grating period	01 : 0.1μm    10 : 1μm 02 : 0.2μm    50 : 5μm 05 : 0.5μm	Grating period 20μm
④	Reference index (RI)	N : without RI	R : with RI
⑤	Connector type	D : D-Sub9 E : D-Sub15 (VGA)(Std)	F : D-Sub15 (customized) N : bare wires (customized) S : custom-design
⑥	Cable length	05 : 0.5m 10 : 1 m	15 : 1.5 m 20 : 2 m (standard)
⑦	IP grade	A : IP67	B : IP54

## ■ PIN ASSIGNMENT



Differential (male connector)									
Assignment	+5V	0V	A+	B+	RI+	RI-	A-	B-	Shield
D-Sub9	1	2	3	4	5	6	7	8	
D-Sub15	1	2	3	4	15	5	13	14	

\* Shield means external shielding line / case; 0V means 0Vdc / internal shielding line.