



CARMAR TECHNOLOGY CO., LTD.

All series linear scale

- | | |
|---|----------------|
| ☐ Sealed Standard Type | LE series |
| ☐ Sealed Slim Type | LS series |
| ☐ Open Type | GPS 20R series |
| ☐ Open Type | GPS 40R series |





CARMAR TECHNOLOGY CO., LTD.

■ Sealed Standard Type Linear Scale (LE series)



■ Sealed Slim Type Linear Scale (LS series)



- ☐ The linear scales are designed with five bearings on the slide for superior repeatability, high slide accuracy and long service life.
- ☐ The scale frame is manufactured from anode treated aluminum alloy.
- ☐ The hard chrome scanning head is treated for corrosion resistance.
- ☐ The signal wires employ a multiple layer braided net and are guarded with stainless steel shades for waterproof and anti-interference performance.



CARMAR TECHNOLOGY CO., LTD.

LE series specifications

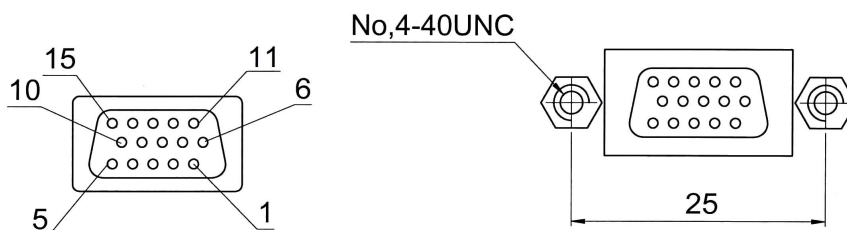
Grating pitch	20 μ m
Resolution	0.005 mm , 0.001 mm , 0.0005 mm (option)
Measuring length (ML)	50 mm ~ 3,000mm
Output signal	TTL square wave (std.) ; RS422 (option)
Accuracy	$\pm (5 + L/200) \mu$ m ; L: measuring length (mm)
Max. Response Speed	60 m/min (1 μ m resolution)
Signal Cable	3.5 m for ML < 1,200mm 5 m for 1,200 $\leq$ ML
Working temperature	0°C ~ +40°C
Storage temperature	-20°C ~ +50°C

■ Model

Resolution\ML	50mm	100mm	150mm	200mm	250mm	300mm	350mm
0.005mm	LE50-0050	LE50-0100	LE50-0150	LE50-0200	LE50-0250	LE50-0300	LE50-0350
0.001mm	LE10-0050	LE10-0100	LE10-0150	LE10-0200	LE10-0250	LE10-0300	LE10-0350
Resolution\ML	400mm	450mm	500mm	600mm	700mm	800mm	900mm
0.005mm	LE50-0400	LE50-0450	LE50-0500	LE50-0600	LE50-0700	LE50-0800	LE50-0900
0.001mm	LE10-0400	LE10-0450	LE10-0500	LE10-0600	LE10-0700	LE10-0800	LE10-0900
Resolution\ML	1000mm	1100mm	1200mm	1300mm	1400mm	1500mm	1600mm
0.005mm	LE50-1000	LE50-1100	LE50-1200	LE50-1300	LE50-1400	LE50-1500	LE50-1600
0.001mm	LE10-1000	LE10-1100	LE10-1200	LE10-1300	LE10-1400	LE10-1500	LE10-1600
Resolution\ML	1800mm	2000mm	2200mm	2600mm	2800mm	3000mm	
0.005mm	LE50-1800	LE50-2000	LE50-2200	LE50-2600	LE50-2800	LE50-3000	
0.001mm	LE10-1800	LE10-2000	LE10-2200	LE10-2600	LE10-2800	LE10-3000	

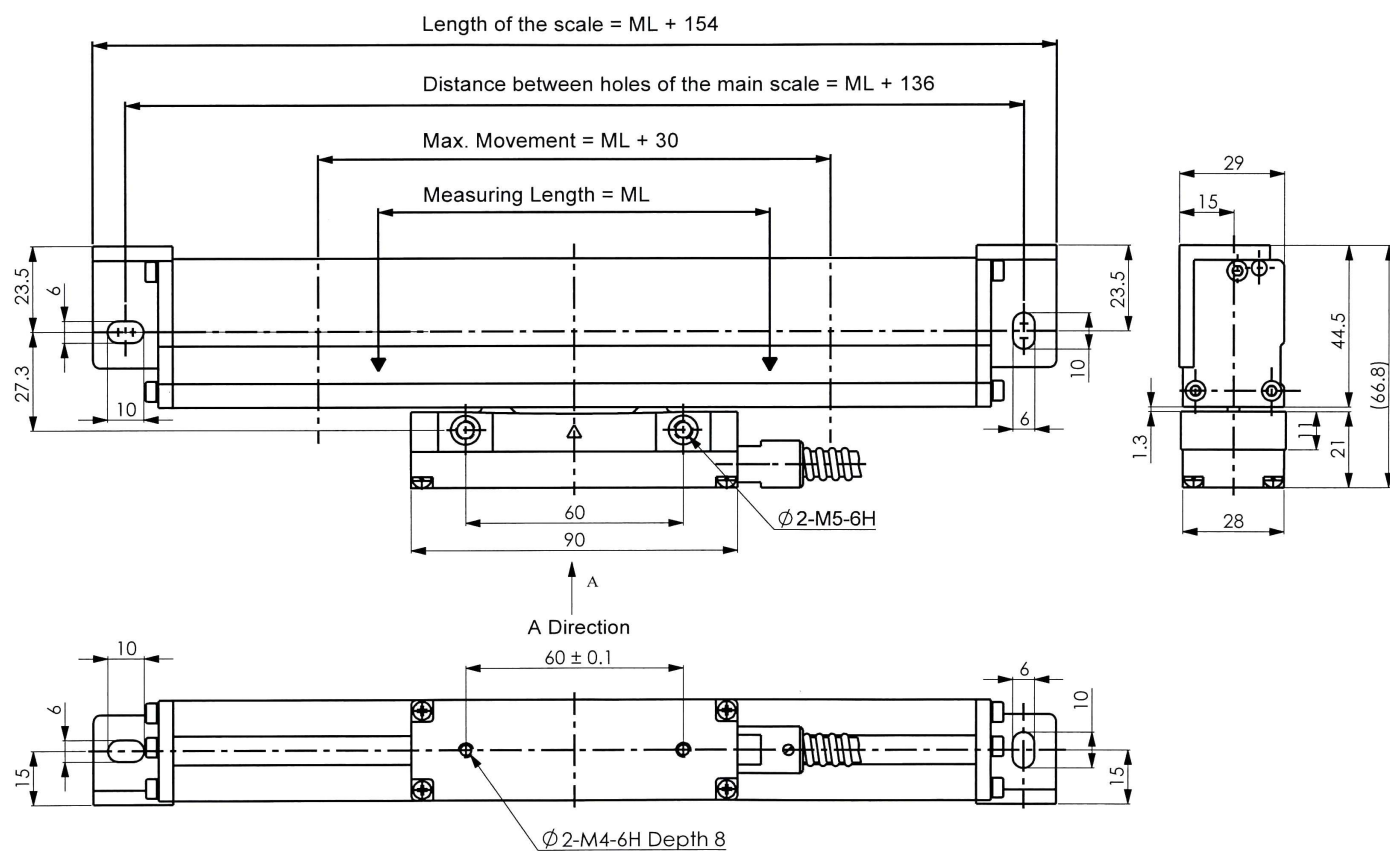
■ Connector

15 PD Connector	
PIN No.	Signal
1	+ 5V
2	0 V
3	A
4	B
5	RI

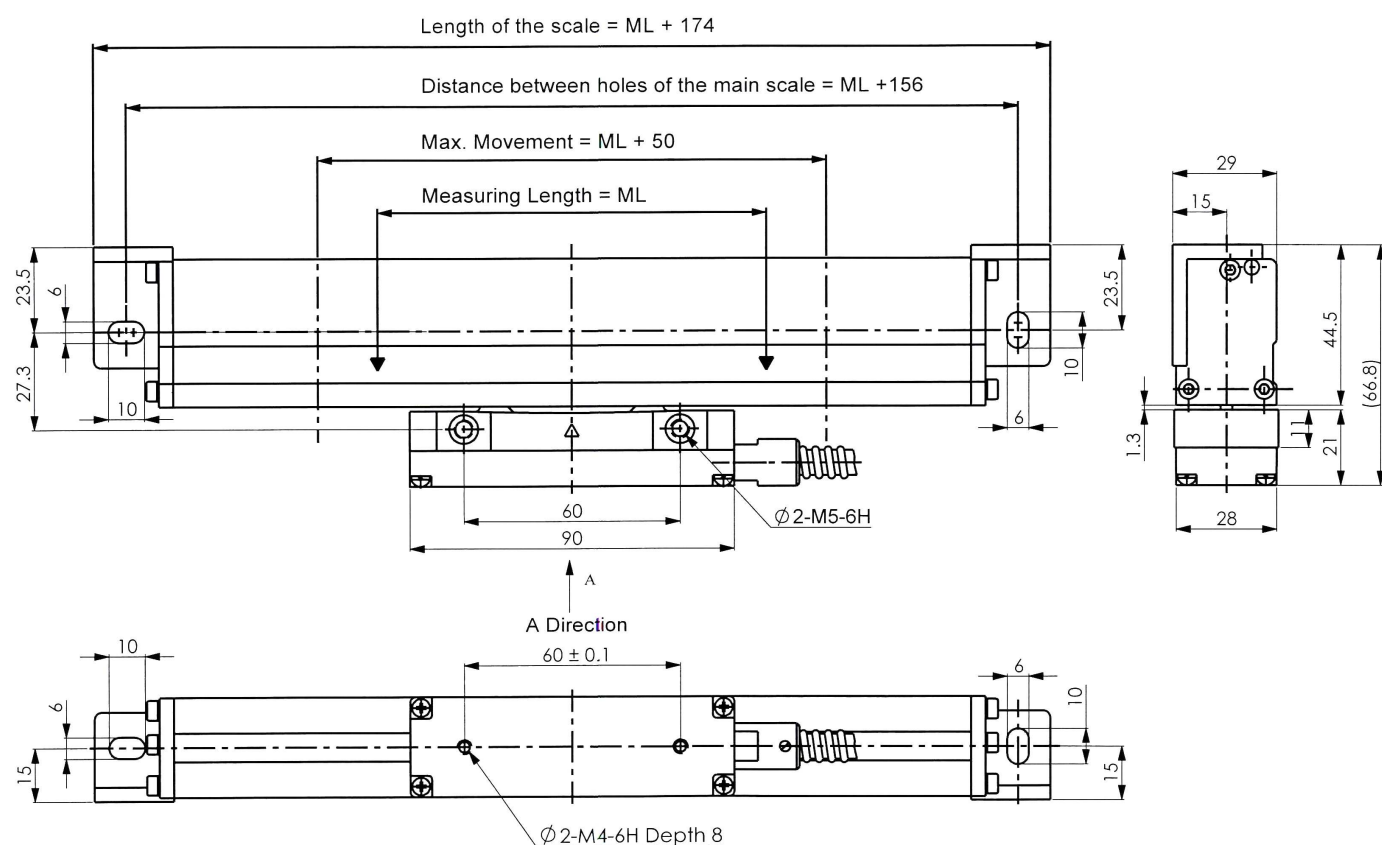




■ Installation for measuring length $ML \leq 900\text{mm}$



■ Installation for measuring length $ML > 900\text{mm}$





CARMAR TECHNOLOGY CO., LTD.

LS series specifications

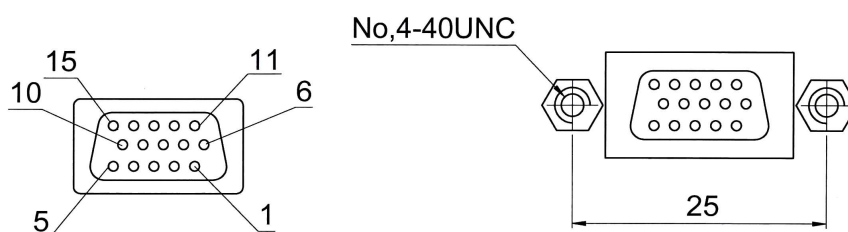
Grating pitch	20 μ m
Resolution	0.005 mm , 0.001 mm , 0.0005 mm (option)
Measuring length (ML)	50 mm ~ 1,000mm
Output signal	5V, TTL square wave (std.) ; RS422 (option)
Accuracy	$\pm (5 + L/200) \mu$ m ; L: measuring length (mm)
Max. Response Speed	50 m/min (1 μ m resolution)
Signal Cable	3.5 m
Working temperature	0°C ~ +40°C
Storage temperature	-20°C ~ +50°C

Model

Resolution\ML	50mm	100mm	150mm	200mm	250mm	300mm	350mm
0.005mm	LS50-0050	LS50-0100	LS50-0150	LS50-0200	LS50-0250	LS50-0300	LS50-0350
0.001mm	LS10-0050	LS10-0100	LS10-0150	LS10-0200	LS10-0250	LS10-0300	LS10-0350
Resolution\ML	400mm	450mm	500mm	600mm	700mm	800mm	900mm
0.005mm	LS50-0400	LS50-0450	LS50-0500	LS50-0600	LS50-0700	LS50-0800	LS50-0900
0.001mm	LS10-0400	LS10-0450	LS10-0500	LS10-0600	LS10-0700	LS10-0800	LS10-0900
Resolution\ML	1,000mm						
0.005mm	LS50-1000						
0.001mm	LS10-1000						

Connector

15 PD Connector	
PIN No.	Signal
1	+ 5V
2	0 V
3	A
4	B
5	RI

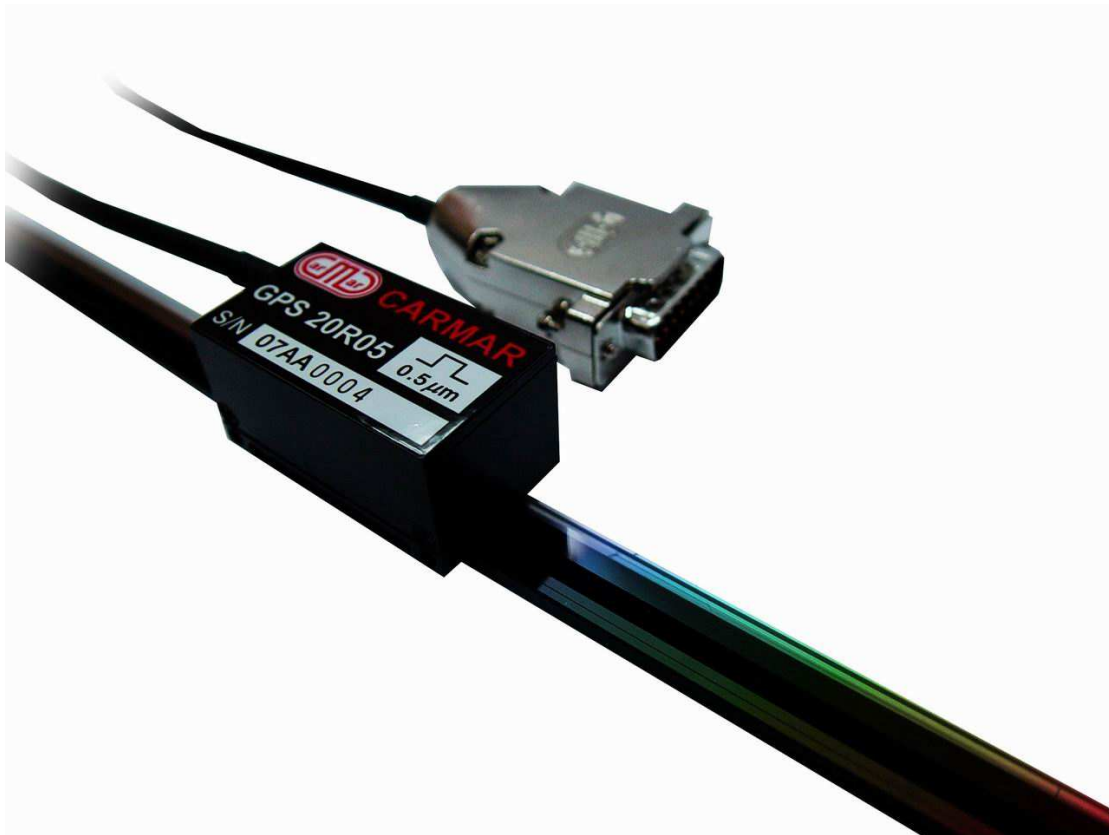




CARMAR TECHNOLOGY CO., LTD.

Open Type Linear Scale

GPS 20R series
GPS 40R series



Special features:

- ☐ Non-contact measurement
- ☐ Easy mounting with large mounting tolerances
- ☐ High speed response
- ☐ Integrated interpolation ASIC electronics in the scanning head
- ☐ Build-in real RI signal



GPS 20R series specifications

Grating pitch	20 μ m
Resolution	0.005 mm , 0.001 mm , 0.0005 mm
Measuring length (ML)	50 mm ~ 1,100mm
Output signal	5V TTL square wave line-driven signals with integral interpolation
Accuracy	$\pm 3 \mu$ m/m
Max. output frequency response	500 kHz (> 240 m/min at 1 μ m resolution)
Signal Cable	3.5 m
Working temperature	0°C ~ +40°C
Storage temperature	-20°C ~ +50°C
Material of grating scale	Glass scales with adhesive tape

■ Model

Resolution\ML	50mm	100mm	150mm	200mm
0.005mm	GPS 20R50-0050	GPS 20R50-0100	GPS 20R50-0150	GPS 20R50-0200
0.001mm	GPS 20R10-0050	GPS 20R10-0100	GPS 20R10-0150	GPS 20R10-0200
0.0005mm	GPS 20R05-0050	GPS 20R05-0100	GPS 20R05-0150	GPS 20R05-0200
Resolution\ML	250mm	300mm	350mm	400mm
0.005mm	GPS 20R50-0250	GPS 20R50-0300	GPS 20R50-0350	GPS 20R50-0400
0.001mm	GPS 20R10-0250	GPS 20R10-0300	GPS 20R10-0350	GPS 20R10-0400
0.0005mm	GPS 20R05-0250	GPS 20R05-0300	GPS 20R05-0350	GPS 20R05-0400
Resolution\ML	450mm	500mm	600mm	700mm
0.005mm	GPS 20R50-0450	GPS 20R50-0500	GPS 20R50-0600	GPS 20R50-0700
0.001mm	GPS 20R10-0450	GPS 20R10-0500	GPS 20R10-0600	GPS 20R10-0700
0.0005mm	GPS 20R05-0450	GPS 20R05-0500	GPS 20R05-0600	GPS 20R05-0700
Resolution\ML	800mm	900mm	1,000mm	1,100mm
0.005mm	GPS 20R50-0800	GPS 20R50-0900	GPS 20R50-1000	GPS 20R50-1100
0.001mm	GPS 20R10-0800	GPS 20R10-0900	GPS 20R10-1000	GPS 20R10-1100
0.0005mm	GPS 20R05-0800	GPS 20R05-0900	GPS 20R05-1000	GPS 20R05-1100



GPS 40R series specifications

Grating pitch	40 μ m
Resolution	0.005 mm · 0.001 mm
Measuring length (ML)	50 mm ~ 3,000mm
Output signal	5V TTL square wave line-driven signals with integral interpolation
Accuracy	$\pm$ 5 μ m/m
Max. output frequency response	500 kHz (> 240 m/min at 1 μ m resolution)
Signal Cable	3 m for ML < 1,200mm 5 m for 1,200mm $\leq$ ML
Working temperature	0°C ~ +40°C
Storage temperature	-20°C ~ +50°C
Material of grating scale	Glass scales with adhesive tape

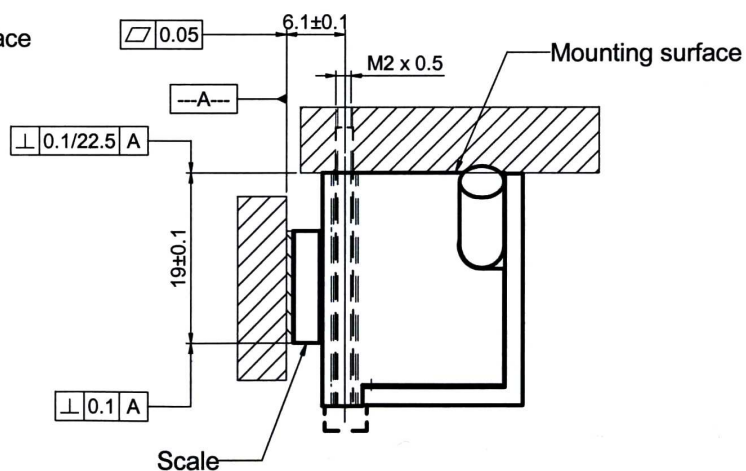
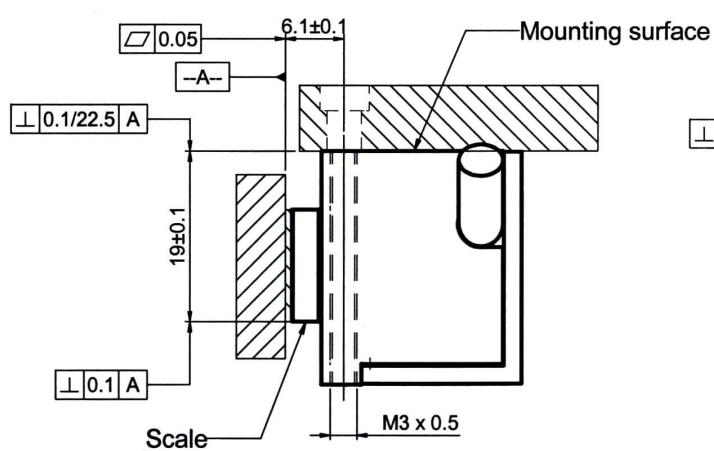
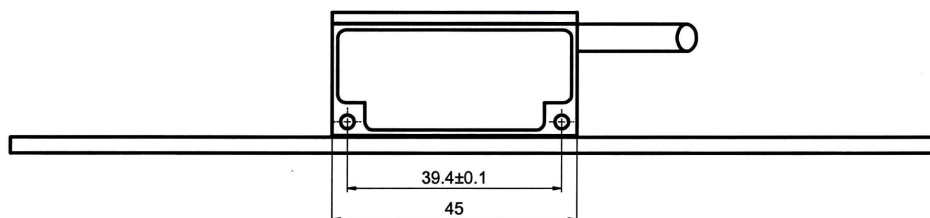
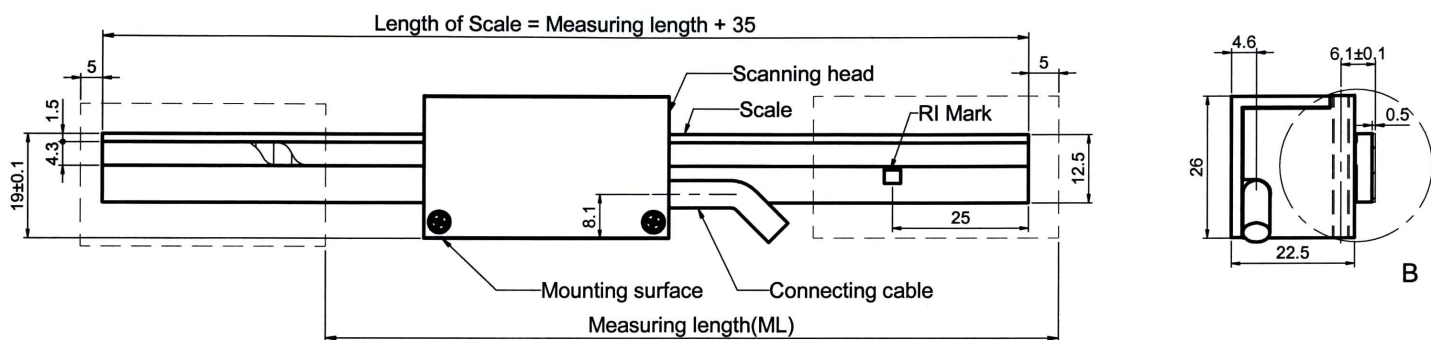
■Model

Resolution\ML	50mm	100mm	150mm	200mm
0.005mm	GPS 40R50-0050	GPS 40R50-0100	GPS 40R50-0150	GPS 40R50-0200
0.001mm	GPS 40R10-0050	GPS 40R10-0100	GPS 40R10-0150	GPS 40R10-0200
Resolution\ML	250mm	300mm	350mm	400mm
0.005mm	GPS 40R50-0250	GPS 40R50-0300	GPS 40R50-0350	GPS 40R50-0400
0.001mm	GPS 40R10-0250	GPS 40R10-0300	GPS 40R10-0350	GPS 40R10-0400
Resolution\ML	450mm	500mm	600mm	700mm
0.005mm	GPS 40R50-0450	GPS 40R50-0500	GPS 40R50-0600	GPS 40R50-0700
0.001mm	GPS 40R10-0450	GPS 40R10-0500	GPS 40R10-0600	GPS 40R10-0700
Resolution\ML	800mm	900mm	1,000mm	1,100mm
0.005mm	GPS 40R50-0800	GPS 40R50-0900	GPS 40R50-1000	GPS 40R50-1100
0.001mm	GPS 40R10-0800	GPS 40R10-0900	GPS 40R10-1000	GPS 40R10-1100
Resolution\ML	1,200mm	1,300mm	1,400mm	1,500mm
0.005mm	GPS 40R50-1200	GPS 40R50-1300	GPS 40R50-1400	GPS 40R50-1500
0.001mm	GPS 40R10-1200	GPS 40R10-1300	GPS 40R10-1400	GPS 40R10-1500
Resolution\ML	1,600mm	1,800mm	2,000mm	2,200mm
0.005mm	GPS 40R50-1600	GPS 40R50-1800	GPS 40R50-2000	GPS 40R50-2200
0.001mm	GPS 40R10-1600	GPS 40R10-1800	GPS 40R10-2000	GPS 40R10-2200
Resolution\ML	2,600mm	2,800mm	3,000mm	
0.005mm	GPS 40R50-2600	GPS 40R50-2800	GPS 40R50-3000	
0.001mm	GPS 40R10-2600	GPS 40R10-2800	GPS 40R10-3000	

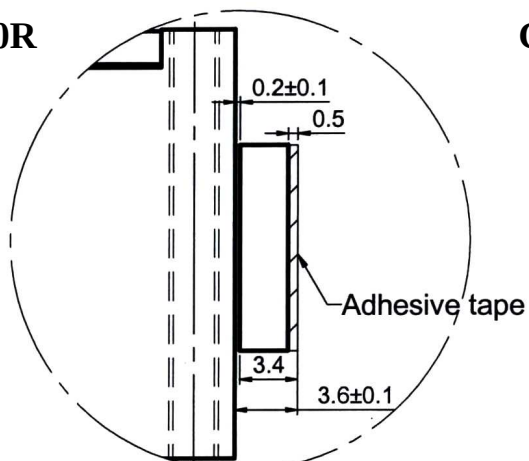


CARMAR TECHNOLOGY CO., LTD.

□ Dimensions and mounting tolerances

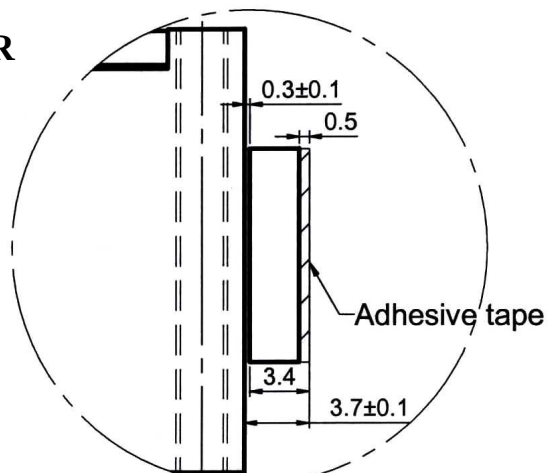


GPS 20R



Detail B

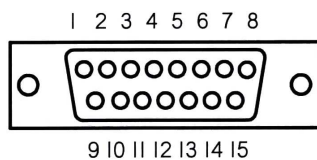
GPS 40R



Detail B



❑ Connector pin outs



PIN No.	1	2	3	4	5	6	7	8
Signal	NC	GND	Err-	Z-	B-	A-	+5V	+5V

PIN No.	9	10	11	12	13	14	15	Case
Signal	GND	NC	Err+	Z+	B+	A+	Inner Shield	Outer Shield



CARMAR TECHNOLOGY CO., LTD.

CARMAR TECHNOLOGY CO., LTD
No.6, 23rd Road., Taichung Industrial Park,
Taichung City 408, Taiwan (R.O.C.)
TEL: 886-4-23592289
FAX: 886-4-23598060
E-mail: carmar.tech@msa.hinet.net
<http://www.carmar-tech.com/>