

**Maximize performance of any optical encoder with ultra-precision scales from VC America Electronics.**

We collaborate with you to design and produce scales that match your encoder, physical, environmental, and accuracy requirements.

See below or click here to [Learn more about our Scale Manufacturing.](#)

Production ready VC America Electronics scales (linear and rotary) eliminate tooling costs, reduce evaluation and design time, and help complete your development cheaper and faster.

Our high-quality scales with smaller and fewer defects result in increased yield and performance.

Sub-micron photolithography creates excellent repeatability and cycle-to-cycle accuracy down to 2 $\mu$ m pitches. Ultra precision patterning results in improved optical performance for all pitches.

Reflective and anti-reflective coatings and track patterns are optimized for requirements, typically 850nm (Near Infra-Red), 650nm (Red LED), or 450nm (Blue).

Substrate materials include:

- Soda-lime glass for precision scales
- Stainless Steel (0.1-0.4mm thick) for ultrathin scales
- Low CTE Glass compositions for ultimate accuracy.

Scale Manufacturing Capabilities			
Scale Materials and sizes	Max Dimension or Diameter (mm)		Thickness (±0.05mm)
Soda-Lime Glass	Φ400mm (rotary) ±0.1mm 425mm (linear) ±0.1mm		0.3 - 6.0 mm
	< 700mm ±0.2mm		1.0 - 6.0 mm
Stainless Steel <sup>1</sup>	Φ 150mm ±0.1mm 200mm (linear) ±0.1mm		0.20 - 0.40 mm
Pitch Tolerances and Track Alignment			
Pitch	20μ-49μ	≥50-80μ	≥80μ
Tolerance Local	±1μ	±2μ	±2μ
Tolerance Total	±2μ	±2μ	±2μ
Track alignment to substrate (glass, SS)	±0.05 mm		
Reflectivity by LED wavelengths	Optimized wavelengths (nm)		
Wavelengths of LED	450nm (Blue)	650nm (Red)	850nm (Near InfraRed)
Reflectivity	50-60%	50-60%	50-60%
	60-70%	60-70%	60-70%
		88%-98%	88%-98%
Multiple LED wavelengths	Optimized reflectivity for 2 or more LED wavelengths when required		
Anti-Reflective (AR)	<5%	<5%	<5%
Anti-Reflective Enhanced (high contrast ratio)	<2%	<2%	<2%
Anti-Reflective (AR) and 50% UV transmissive (UC cure)	Contact <sup>2</sup>	<5%	<5%
<sup>1</sup> Stainless Steel is the Reflective surface. <sup>2</sup> Contact us to review detailed requirements			

For more information:

Check web at [www.vcamericaelectronics.com](http://www.vcamericaelectronics.com)

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