

# ES4650

## Embedded Image Scanner

**1D/2D**

### Features

- Compact design and plug-and-play interfaces allow easy integration into different host devices
- Read all common 1D/2D barcodes from paper labels and electronic screens
- Megapixel image delivers better performance in decoding hard-to-read barcodes
- Advanced image induction technology ensures rapid induction of barcodes, even through a transparent lens in front of the scanning window
- Support external and serial trigger modes
- Soft white auxiliary lighting and green aiming cursor deliver comfortable and convenient scanning experience

# ES4650 Specifications

## Mechanical & Electrical Characteristics

Dimensions	43.5 mm × 41.0 mm × 19.0 mm (Height × Width × Depth)
Weight	89 g (without cable)
Indicator Interface	Beeper
Interface Supported	RS-232 (3.3 V TTL-level), USB, USB virtual COM
Trigger Mode	Hand-held, Auto-detect, Command
Input Voltage	5±0.25 VDC
Current	Standby: 35mA(RS232); 120mA(USB), Scanning: 500mA @ 5 VDC

## Performance Characteristics

Image Size	1280 × 800 pixels
Scanner Field of View	Horizontal: 41°, Vertical: 28°
Scanning Angles	± 70°, ± 72°, 360° (Skew, Pitch, Roll)
Print Contrast	20% minimum reflective difference
Decoding Capability	1D: UPC-A, UPC-E, UPC-E1, EAN-13, EAN-8, ISBN (Bookland EAN), ISSN, Code 39, Code 39 full ASCII, Code 32, Trioptic Code 39, Interleaved 2 of 5, Industrial 2 of 5, Matrix 2 of 5, Codabar (NW7), Code 128, ISBT 128, Code 93, Code 11 (USD-8), MSI/Plessey, UK/Plessey, UCC/EAN 128 (GS1-128), China Post, China Finance, Telepen, GS1 DataBar (formerly RSS) variants 2D: PDF417, MicroPDF417, QR Code, DataMatrix, Han Xin Code, Aztec Code, GS1 Composite, MicroQR Code, CodaBlock F Code, GM code
Minimum Resolution	HD: 1D (Code 39): 3mil SR: 1D (Code 128): 4mil

		High density series (HD)	Standard range series (SR)
Decoding Depth	3 mil Code 39 (3 chars)	3.5 cm - 9.5 cm	/
	4 mil Code 128 (9 chars)	3.0 cm - 11.5 cm	7.0 cm - 10.5 cm
	13 mil UPC (6 chars)	2.0 cm - 28.0 cm	1.5 cm - 33.0 cm
	20 mil Code 39 (1 char)	2.5 cm - 40.0 cm	2.5 cm - 56.0 cm
	5 mil QR (40 chars)	4.0 cm - 7.5 cm	/
	6.7 mil PDF417 (20 chars)	2.5 cm - 13.5 cm	4.5 cm - 14.0 cm
	10 mil QR (20 chars)	1.0 cm - 15.0 cm	2.0 cm - 15.0 cm
	20 mil QR (20 chars)	1.5 cm - 28.0 cm	2.0 cm - 34.0 cm

## Environmental Characteristics

Temperature	-20°C to 50°C (-4°F to 122°F), operating; -20°C to 70°C (-4°F to 158°F), storage		
Humidity	5% to 95% (non-condensing)		
Mechanical Vibration	IEC60064-2-6: Un-powered scanner withstands a random vibration along each of the X, Y and Z axes for a period of one hour per axis, define as follows:		
	20 Hz to 80 Hz	Ramp up to 0.04 G <sup>2</sup> /Hz at the rate of 3 dB/oct	
	80 Hz to 350 Hz	0.04 G <sup>2</sup> /Hz	
	350 Hz to 2000 Hz	Ramp down at the rate of 3 dB/oct	
Mechanical Shock	IEC60064-2-27: Shock pulse: 0.5 ms, Maximal acceleration: 1500 G, Shock direction & time: ± X-axis, ± Y-axis, ± Z-axis, 3 times for each direction, total of 18 times.		
Safety	Photobiological Safety: EN62471:2008   EMC: EN55022, EN55024		
	ESD Protection: Contact discharge: ± 4 KV, air discharge: ± 8 KV		
	Sealing: IP51   Drop Resistance: Withstands multiple 1.5 m (5 ft.) drops to concrete RF Immunity: IEC61000-4-3, 10 V/m   Artificial Light Immunity: 100,000 Lux		

[Notice]: Specifications are subject to change without notice.

