Industrial Raster Laser Scanner

The QX-870 laser scanner partners the latest technologies in barcode reading and connectivity into an easy to use solution for barcode track, trace and control applications. Simple to set up and deploy, it features a programmable sweeping raster to read multiple codes, in varying locations, even if they are damaged or mis-aligned.

With plug and play setup and the most aggressive decode algorithms available, the QX-870 an ideal laser scanner for any industrial application.

### QX-870: At a Glance

- Scans/second: 300 to 1400
- Read Range: 1 to 30” (25 to 762 mm)
- Optional Embedded Ethernet TCP/IP & EtherNet/IP
- IP65 Enclosure

**ESP® Easy Setup Program:** Single-point software solution provides quick and easy setup and configuration of all Microscan readers.

**EZ Button:** This performs reader setup and configuration with no computer required.

**Visible Indicators:** Performance indicators include “good read” green flash and LEDs.

**Sweeping Raster:** This programmable feature enables the reader for multiple symbols at varying distances and locations.

**QX Platform:** Quick Connect system and X-Mode technology combine to provide simple connectivity, networking, and high performance decoding.

For more information on this product, visit www.microscan.com.

### QX-870: Available Codes

**Linear**
- All Standard

**Stacked**
- MicroPDF
- PDF417
- GS1 Databar

### Quick Connect System

- M12 Ultra-Lock™ connectors and cordsets
- Plug and play setup
- Single or multi-scanner solutions

### X-Mode Technology

- Decodes damaged, poorly printed, or mis-aligned codes
- Ensures high read rates and throughput

### High Performance

Aggressive decoding capabilities allow reliable reading of barcodes out to 30” (762 cm), at up to a 10” (25.4 cm) beam width.

### Intelligent Raster

In addition to sweep angle and speed controls, the QX-870 features a programmable raster with intelligent auto framing technology. Advanced software will automatically frame the raster height and width of the laser to match the barcode, allowing selective targeting of codes within a single read cycle.

### Ethernet Protocols

The QX-870 includes optional embedded Ethernet TCP/IP and EtherNet/IP for high speed communication.

### Application Examples

- Any industrial environment from light to heavy duty
- Automotive assembly
- Packaging and sortation
- Electronics production
- Embedded within machinery
**QX-870 Industrial Raster Laser Scanner**

**Specifications and Options**

**MECHANICAL**

- **Height**: 4.29” (109 mm)  
- **Width**: 3.74” (95 mm)  
- **Depth**: 1.76” (45 mm)  
- **Weight**: 16 oz. (453 g)

**ENVIRONMENTAL**

- **Enclosure**: IP65 rated  
- **Operating temperature**: 0° to 50°C (32° to 122°F)  
- **Storage temperature**: -50° to 75°C (-63° to 167°F)  
- **Humidity**: Up to 90% (non-condensing)

**EMISSIONS**

- **Heavy industrial**: EN 55022:2005  
- **EN 61000-6-2:2005**

**COMMUNICATION INTERFACE**

- **Interface**: RS-232/422/485 and/or Ethernet

**SYMBOLS**

- **Standard offering**: Code 39, Codabar, Code 93, Interleaved 2 of 5, Code 128, PDF417, Micro PDF417, Pharmacode, UPC, GS1 Databar  
- **Applications standards**: ECC / EAN-128, AIAG

**LASER LIGHT**

- **Type**: Laser diode  
- **Output wavelength**: 655 nm

**ELECTRICAL**

- **Power requirement**: 10–28 VDC, 200 mA p-p max ripple, 270mA at 24 VDC (typ.)

**READ RANGES**

**LOW DENSITY RANGE DATA**

<table>
<thead>
<tr>
<th>Narrow-bar-width</th>
<th>Read Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.015&quot; (0.381 mm)</td>
<td>10 to 12&quot; (254 to 305 mm)</td>
</tr>
<tr>
<td>0.010&quot; (0.254 mm)</td>
<td>7 to 10&quot; (178 to 254 mm)</td>
</tr>
<tr>
<td>0.005&quot; (0.127 mm)</td>
<td>4 to 5.0&quot; (102 to 127 mm)</td>
</tr>
</tbody>
</table>

**MEDIUM DENSITY RANGE DATA**

<table>
<thead>
<tr>
<th>Narrow-bar-width</th>
<th>Read Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.020&quot; (0.508 mm)</td>
<td>5 to 22&quot; (127 to 558 mm)</td>
</tr>
<tr>
<td>0.015&quot; (0.381 mm)</td>
<td>4 to 30&quot; (102 to 762 mm)</td>
</tr>
</tbody>
</table>

**HIGH DENSITY RANGE DATA**

<table>
<thead>
<tr>
<th>Narrow-bar-width</th>
<th>Read Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.025&quot; (0.635 mm)</td>
<td>3 to 8&quot; (76 to 203 mm)</td>
</tr>
<tr>
<td>0.015&quot; (0.381 mm)</td>
<td>2 to 5.5&quot; (51 to 139 mm)</td>
</tr>
</tbody>
</table>

**SCANNING PARAMETERS**

- **Mirror type**: Rotating, 10-faceted  
- **Scan rate**: Adjustable from 300 to 1400 scans/sec.  
- **Scan width angle**: Typically 60°  
- **Pitch**: ±50° max.  
- **Skew**: ±40° max.  
- **Label contrast**: 25% min. absolute dark to light differential at 655 nm wavelength

**PROTOCOLS**

- **Point-to-Point, Point-to-Point w/RTS/CTS, Point-to-Point w/XON/XOFF, Point-to-Point w/RTS & CTS & XON/XOFF, Multidrop, Daisy Chain, User-Defined Multidrop, Ethernet TCP/IP, EtherNet/IP**

**PIN ASSIGNMENTS**

**Connector A (Serial M12 12-pin plug):**

- **Pin Assignment**
  - 1: +10 to 28 V  
  - 2: Trigger/New Master  
  - 3: Input Common  
  - 4: N/C  
  - 5: Port 4 RX (+)  
  - 6: Port 4 TX (+)  
  - 7: Ground  
  - 8: Port 1 RTS/Port 1 TDS  
  - 9: Port 2 TxD  
  - 10: Port 2 RX  
  - 11: 422/485 TxD (–)  
  - 12: 422/485 RxD (–)

**Connector B (Serial M12 12-pin socket):**

- **Pin Assignment**
  - 1: +10 to 28 V  
  - 2: Trigger/New Master  
  - 3: Input Common  
  - 4: Ground  
  - 5: CRT  
  - 6: CRT  
  - 7: CRT  
  - 8: CRT  
  - 9: CRT  
  - 10: CRT  
  - 11: CRT  
  - 12: CRT

**Connector P/M (Serial M12 12-pin plug):**

- **Pin Assignment**
  - 1: +10 to 28 V  
  - 2: Input Common  
  - 3: New Master  
  - 4: N/C  
  - 5: Port 3 422/485 TxD (+)  
  - 6: Port 3 422/485 RxD (+)  
  - 7: Ground  
  - 8: Terminal  
  - 9: Terminal  
  - 10: Terminal  
  - 11: Terminal  
  - 12: Terminal

**Connector B (Ethernet M12 12-pin socket):**

- **Pin Assignment**
  - 1: +10 to 28 V  
  - 2: Trigger/New Master  
  - 3: Input Common  
  - 4: Ground  
  - 5: CRT  
  - 6: CRT  
  - 7: CRT  
  - 8: CRT  
  - 9: CRT  
  - 10: CRT  
  - 11: CRT  
  - 12: CRT

**DISCRETE I/O**

- **Input 1**: (Trigger/New Master): Optoisolated, 4.5–28V rated, (13 mA at 24 VDC) New Master is (–) to signal ground
- **Outputs 1, 2 & 3**: Optoisolated, 1–28V rated, (Iₒ < 100 mA at 24 VDC, current limited by user)

**SAFETY CERTIFICATIONS**

- **CDRH, FCC, UL/cUL, CE, CB, BSMI (compliant)**

**ROHS/WEEEE COMPLIANT**

- **ISO CERTIFICATION**
  - Issued by TÜV USA Inc, Member of TÜV NORD Group, Cert No. 06–1080
  - ©2009 Microscan System, Inc. SF0588 02/09

**PRODUCT INFORMATION:**

- **Read Range and other performance data is determined using high quality Grade A symbols per ISO/IEC 15415 and ISO/IEC 15416 in a 25°C environment. For application-specific Read Range results, testing should be performed with symbols used in the actual application. Microscan Applications Engineering is available to assist with evaluations. Results may vary depending on symbol quality. Warranty—One year limited warranty on parts and labor. Extended warranty available.**