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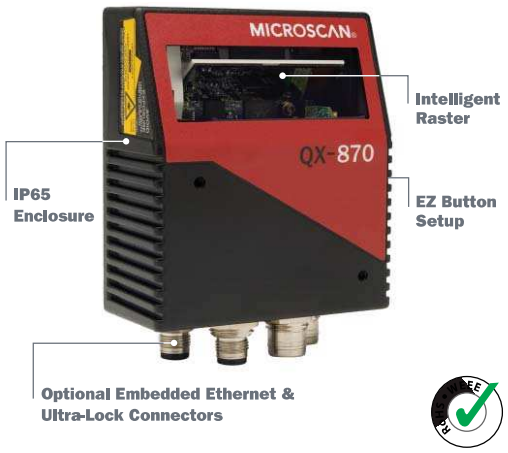
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# QX-870




# 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 mm), at up to a 10" (254 mm) 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

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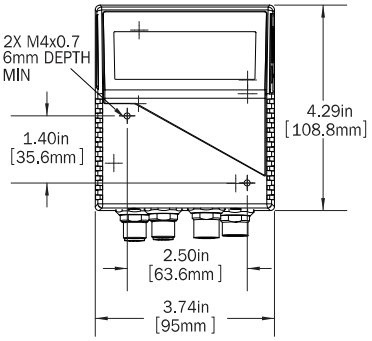
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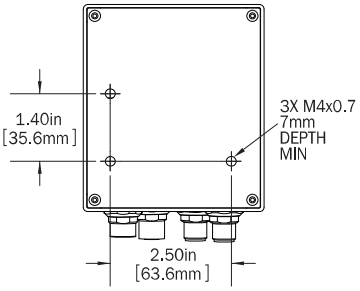
# QX–870 Industrial Raster Laser Scanner

## 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 (-58° to 167° F )
**Humidity:** Up to 90% (non-condensing)

### EMISSIONS

**Heavy Industrial:** EN 61000-6-2:2005
**Radiated Emissions:** EN 55022:2006 Class A 30-1000 MHz
**Conducted Emissions:** EN 55022:2006 Class A .15-30 MHz

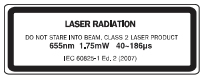
### COMMUNICATION INTERFACE

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

### SYMBOLOGIES

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

### LASER LIGHT




**Type:** Laser diode
**Output Wavelength:** 655 nm nominal
**Operating Life:** 50,000 hours @ 25° C
**Safety Class:** Visible laser: Class 2

### ELECTRICAL

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

### READ RANGES[1]

#### LOW DENSITY RANGE DATA

| Narrow-bar-width | Read Range |
|---|---|
| .0075" (0.191 mm) | 10 to 12" (254 to 305 mm) |
| .010" (0.254 mm) | 7 to 16" (178 to 406 mm) |
| .015" (0.381 mm) | 6 to 19" (152 to 483 mm) |
| .020" (0.508 mm) | 5 to 22" (127 to 558 mm) |
| .040" (1.02 mm) | 4 to 30" (102 to 762 mm) |

#### MEDIUM DENSITY RANGE DATA

| | |
|---|---|
| .0075" (0.191 mm) | 2.5 to 5.5" (64 to 140 mm) |
| .010" (0.254 mm) | 1.5 to 7.0" (38 to 178 mm) |
| .015" (0.381 mm) | 1.5 to 8.5" (38 to 216 mm) |
| .020" (0.508 mm) | 1.5 to 11" (38 to 280 mm) |
| .030" (0.762 mm) | 1.0 to 12" (25 to 304 mm) |

#### HIGH DENSITY RANGE DATA

| | |
|---|---|
| .0033" (0.084 mm) | Call Microscan |
| .005" (0.127 mm) | 4 to 5.0" (102 to 127 mm) |
| .0075" (0.191 mm) | 3.5 to 6.75" (89 to 171 mm) |
| .010" (0.254 mm) | 3.25 to 8" (82 to 203 mm) |
| .015" (0.381 mm) | 3.25 to 9" (82 to 228 mm) |

[1]Ranges based on a Grade A, Code 39 label. If your read range falls outside the above ranges, please call Microscan. Data subject to change.

### 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
**Raster Mirror Performance:**

| Raster sweep angle | Maximum sweeps per second |
|---|---|
| 1°–10° | 80 |
| 11°–20° | 60 |
| 21°–34° (max.) | 40 |
| 35°–36° (max.) | 20 |

### 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[2]

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

| Pin | Assignment |
|---|---|
| 9 | Host RxD |
| 10 | Host TxD |
| 2 | Power |
| 7 | Ground |
| 1 | Trigger |
| 8 | Input Common |
| 3 | Default |
| 4 | New Master |
| 5 | Output 1 |
| 11 | Output 2 |
| 6 | Output 3 |
| 12 | Output Common |

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

| Pin | Assignment |
|---|---|
| 9 | TxD/RTS |
| 10 | RxD/CTS |
| 2 | Power |
| 7 | Ground |
| 1 | Trigger |
| 8 | Input Common |
| 3 | Terminated |
| 4 | Input 1 |
| 5 | 422/485 TxD (+) |
| 11 | 422/485 TxD (–) |
| 6 | 422/485 RxD (+) |
| 12 | 422/485 RxD (–) |

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

| Pin | Assignment |
|---|---|
| 9 | N/C |
| 10 | N/C |
| 2 | Power |
| 7 | Ground |
| 1 | N/C |
| 8 | N/C |
| 3 | N/C |
| 4 | N/C |
| 5 | 422/485 TxD (+) |
| 11 | 422/485 TxD (–) |
| 6 | 422/485 RxD (+) |
| 12 | 422/485 RxD (–) |

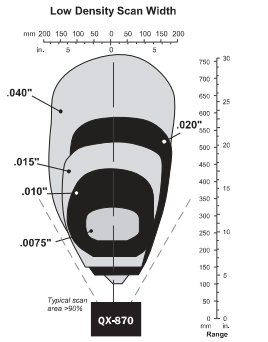
**Connector B (Ethernet)**
***M12 8-pin socket:***

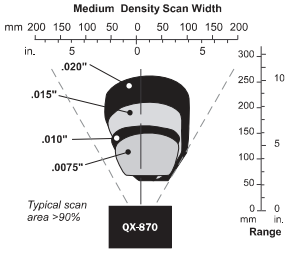
| Pin | Assignment |
|---|---|
| 1 | Terminated |
| 2 | Terminated |
| 3 | Terminated |
| 4 | TX (–) |
| 5 | RX (+) |
| 6 | TX (+) |
| 7 | Terminated |
| 8 | RX (–) |

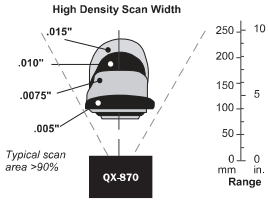
**Connector T (Trigger)**
***M12 4-pin socket:***

| Pin | Assignment |
|---|---|
| 1 | + 10 to 28 V |
| 2 | Trigger/New Master/ Input 1 Common |
| 3 | Ground |
| 4 | Trigger |

[2]Note: Detailed connector pinout information is available in the User's Manual.




Note: Data subject to change.

### 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, ($I_{CE}$ <100 mA at 24 VDC, current limited by user)

### SAFETY CERTIFICATIONS

CDRH, FCC, CE, CB, BSMI (compliant)

### ROHS/WEEE COMPLIANT

### ISO CERTIFICATION

Certified ISO 9001:2008 Quality Management System

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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. Free extended 3 year warranty upon online product registration.

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