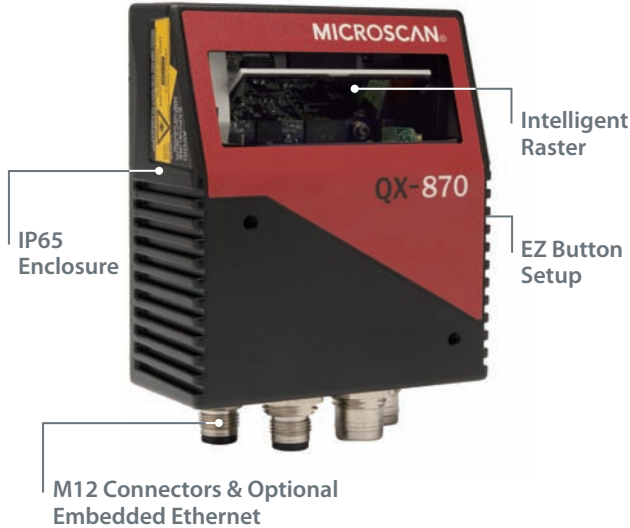


Laser Barcode Reader

QX-870 series

Industrial Raster Laser Barcode Reader



The QX-870 laser barcode reader 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 barcode reader for any industrial application.

QX-870: At a Glance

- Scans / second: 300 to 1400
- Read Range: 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 OMRON 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.



Quick Connect System

- Plug and play setup
- Single or multi-reader solutions

X-Mode Technology

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

High Performance

Aggressive decoding capabilities allow reliable reading of barcodes out to 762 mm, at up to a 254 mm beam width.

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

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.

QX-870: Available Codes

Linear



Stacked

MicroPDF



PDF417



GS1 Databar



Please see the Ratings and Specifications for a complete list of supported symbologies.

QX-870

Ordering Information

Laser Barcode Readers

Scan mode	Read range	Interface	Model
Sweeping Raster	Low Density	Serial *	FIS-0870-0004G
	Medium Density		FIS-0870-0005G
	High Density		FIS-0870-0006G
	Low Density / Plastic Window		FIS-0870-0007G
Sweeping Raster	Low Density	Serial * and Ethernet	FIS-0870-1004G
	Medium Density		FIS-0870-1005G
	High Density		FIS-0870-1006G

* Supports RS-232, RS-422, or RS-485.

Accessories

Type	Model
QX-1 Interface Device	98-000103-02
QX Cordset, Common, M12 12-pin Socket (Screw-On) to M12 12-pin Plug (Screw-On), 3 m	61-000148-02
QX Cordset, Common, M12 12-pin Socket (Screw-On) to M12 12-pin Plug (Screw-On), 1 m	61-000162-02
QX Cordset, Host, Serial, M12 12-pin Socket (Screw-On) to DB-9 Socket, 1 m	61-000153-02
QX Cordset, Host, Serial, M12 12-pin Socket (Screw-On) to DB-9 Socket, 3 m	61-000164-02
QX Cordset, Host, Serial, M12 12-pin Plug (Screw-On) to DB-9 Socket, 1 m	61-000152-02
QX Cordset, Host, Serial, M12 12-pin Plug (Screw-On) to DB-9 Socket, 3 m	61-000165-02
QX Cordset, Host, Ethernet, M12 8-pin Plug (Screw-On) to RJ45, 1 m	61-000160-03
QX Cordset, M12 12-pin Plug to M12 12-pin Socket to DB-25 Plug Turck Connectors	61-000172-02
QX Cordset, M12 12-pin Plug & M12 12-pin Socket to MS-Connect 210, RS-232, 2 m	61-000158-03
QX Cordset, M12 12-pin Plug (Screw-On) to Flying Leads, 3 m	61-000166-02
QX Cordset, M12 12-pin Plug & Socket to IB-131, RS-232, 2 m	61-000159-03
QX Cordset, M12 12-pin Socket to IB-131, RS-232 / RS-485, 2 m	61-000159-04
Photoelectric Sensor, M12, 4-pin Plug, NPN output, Cable length 2m	99-9000016-01

Power Supplies

Type	Model
Power Supply, 100-240 VAC, +24 VDC, M12 12-pin Socket	97-000012-01
Power Supply, 100-240 VAC, +24 VDC, M12 12-Pin Plug	97-000012-04

Note: Do not use the power supplies or power supply cords indicated in this catalog with any other electric or electronic equipment.
When using the QX-870 Series, please use the power supply and power supply cord indicated in this catalog.

Mounting and Connectors

Type	Model
Mounting Plate Kit for QX-830 / QX-870	98-500006-01
Right Angle Mirror Kit for QX-830	98-200026-02
Mounting Arm / Adapter Kit for QX-830 / QX-870, 152 mm (6 inches)	98-000016-01
Mounting Arm Extension Kit for all code readers, 152 mm (6 inches)	98-000037-01
L-Bracket Kit for QX Series	98-000148-01
Mounting Stand Base Plate Kit	98-000054-01

Ratings and Specifications

Applicable codes	Standard	Code 39, Codabar, Code 93, Interleaved 2 of 5, Code 128, PDF417, Micro PDF417, Pharmacode, UPC, GS1 Databar
	Application standards	UCC / EAN-128, AIAG
Reading performance	Mirror type	Rotating, 10-faceted
	Scan rate	Adjustable from 300 to 1,400 scans/s, default=500
	Scan width angle	60° (typ.)
	Pitch	±50° max.
	Skew	±40° max.
	Label contrast	25% min. absolute dark to light differential at 655 nm wavelength
Communications	Interface	RS-232 / 422 / 485 and / or Ethernet*
	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
I / O specifications	Input 1 / Trigger / New Master	Bi-directional optoisolated 4.5 to 28 V rated (13 mA at 24 VDC)
	Outputs (1, 2 & 3)	Optoisolated, 1 to 28 V rated, (I _{CE} <100 mA at 24 VDC, current limited by user)
Power requirement		10 to 28 VDC, 200 mV p-p max. ripple, 270 mA at 24 VDC (typ.)
Laser light	Type	Laser diode
	Output wavelength	655 nm nominal
	Beam divergence	0.4 mrad (typ.)
	Pulse time	40 to 186 µs
	Maximum output	1.75 mW
	Operating life	50,000 hours at 25°C
	Safety class	Visible laser: IEC 60825-1 Class 2
Environmental specifications	Ambient temperature range	Operating: 0 to 50°C, Storage: -40 to 75°C
	Ambient humidity range	Up to 90% (with no icing or condensation)
	Degree of protection	IP65
Weight		Approx. 453 g
Dimensions		109 x 45 x 95 mm (H x D x W)
Safety standards		FCC, UL/c UL, CE, CB, KC, RCM, BIS
Material		Aluminum diecast

* Depends on model. See Ordering Information for details.

Raster Mirror Performance

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

PIN ASSIGNMENTS*

Connector A (Serial)
M12 12-pin plug

Pin Assignment

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

Connector B (Serial)
M12 12-pin socket

Pin Assignment

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

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

Pin Assignment

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

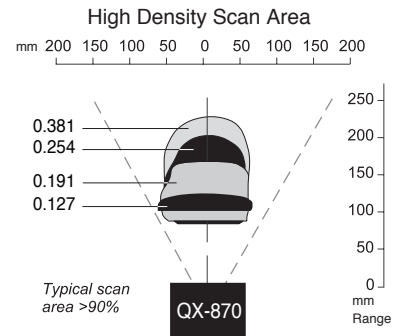
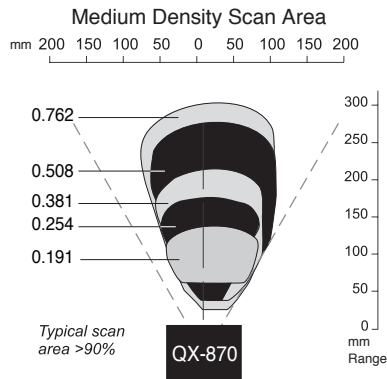
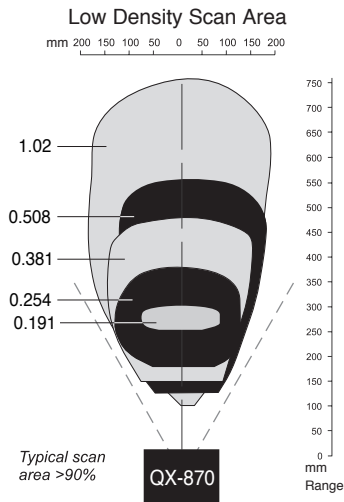
1	Power
2	Trigger
3	Ground
4	Input

*Note: Detailed connector pinout information is available in the User's Manual.

QX-870

Read Ranges*

(Unit: mm)



Narrow-bar-width	Read range
0.191 mm	254 to 305 mm
0.254 mm	178 to 381 mm
0.381 mm	152 to 483 mm
0.508 mm	127 to 558 mm
1.02 mm	102 to 762 mm

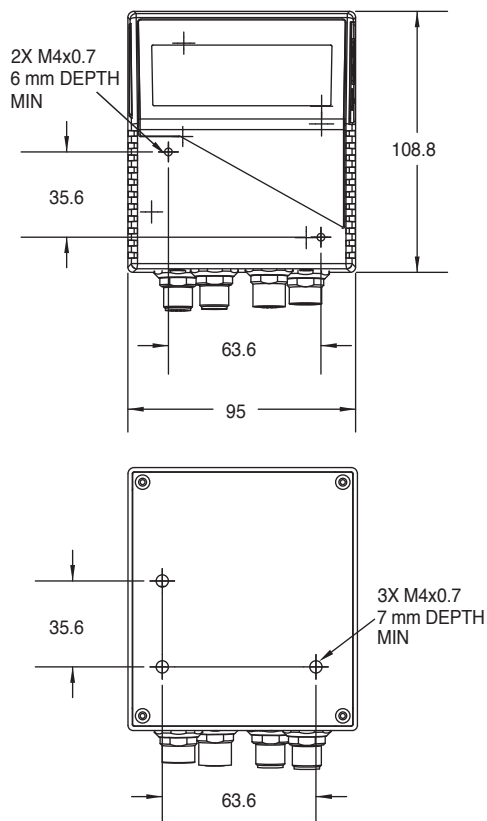
Narrow-bar-width	Read range
0.191 mm	64 to 140 mm
0.254 mm	38 to 178 mm
0.381 mm	38 to 216 mm
0.508 mm	38 to 280 mm
0.762 mm	25 to 304 mm

Narrow-bar-width	Read range
0.084 mm	Contact OMRON.
0.127 mm	102 to 127 mm
0.191 mm	89 to 171 mm
0.254 mm	82 to 203 mm
0.381 mm	82 to 228 mm

* Ranges based on a Grade A, Code 39 label, at 500 scans per second. Data subject to change.

Dimensions

(Unit: mm)

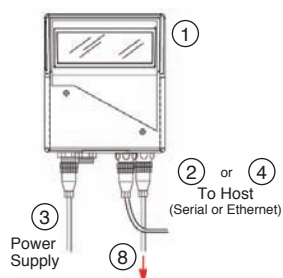


Laser Label Indications

This warning label is attached to the laser barcode reader. Never remove this label or place objects in front of it.

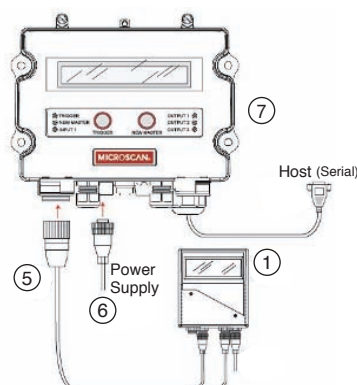
System Configurations

Stand Alone Configurations



Important: Ethernet or Serial connectivity is reader dependent. See FISes for the appropriate reader model.

MS-Connect 210

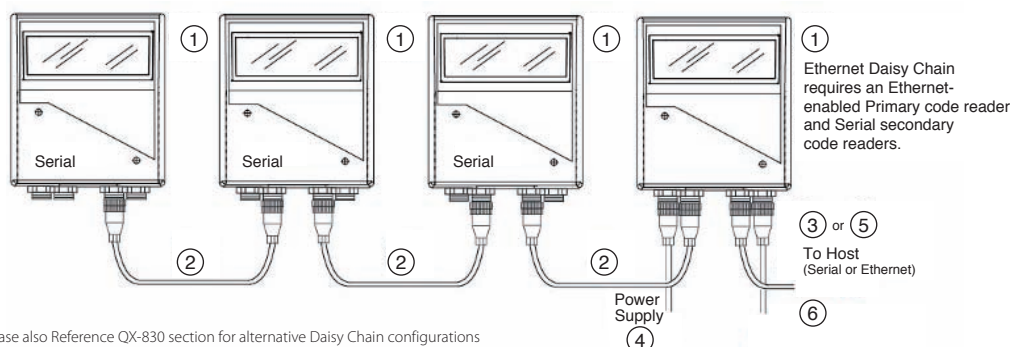


No.	Type	Model
1	QX-870 Laser Barcode Reader	FIS-0870-□□□□G
2	QX Cordset, Host, Serial, M12 12-Pin Plug (Screw-On)-to-DB-9 Socket, 1 m.	61-000152-02 ^{*1}
3	Power Supply, 100-240VAC, +24VDC, M12 12-Pin Socket	97-000012-01
4	QX Cordset, Host, Ethernet, M8 8-Pin Plug (Screw-On)-to-RJ45, 1 m.	61-000160-03 ^{*1}
5	QX Cordset, M12 12-Pin Plug & M12 12-Pin Socket-to-MS-Connect 210 (RS-232), 2 m.	61-000158-03
6	Power Supply, 100-240VAC, +24VDC, TRK 3-Pin, U.S. / Euro Plug)	97-000012-02
7	Connectivity Box	FIS-0210-0001G ^{*2}
8	Photoelectric Sensor, M12, 4-pin Plug, NPN output, Cable length 2m	99-9000016-01
-	Kit, 6 in. Mounting Arm / Adapter, QX-830, QX-870	98-000016-01
-	Kit, Mounting Stand Base Plate	98-000054-01

*1. Cordsets available in multiple lengths

*2. Refer to MS-Connection page for complete listing of MS-Connection 210 options

Daisy Chain Configurations



Please also Reference QX-830 section for alternative Daisy Chain configurations

No.	Type	Model
1	QX-870 Laser Barcode Reader	FIS-0870-□□□□G
2	QX Cordset, Common, M12 12-Pin Socket (Screw-On)-to-M12 12-Pin Plug (Screw-On), 1 m.	61-000162-02 [*]
3	QX Cordset, Host, Serial, M12 12-Pin Plug (Screw-On)-to-DB-9 Socket, 1 m.	61-000152-02 [*]
4	Power Supply, 100-240VAC, +24VDC, M12 12-Pin Socket	97-000012-01
5	QX Cordset, Host, Ethernet, M8 8-Pin Plug (Screw-On)-to-RJ45, 1 m.	61-000160-03 [*]
6	Photoelectric Sensor, M12, 4-pin Plug, NPN output, Cable length 2m	99-9000016-01
-	Kit, 6 in. Mounting Arm / Adapter, QX-830, QX-870	98-000016-01
-	Kit, Mounting Stand Base Plate	98-000054-01

* Cordsets available in multiple lengths

Related Manuals

Man.No.	Model	Manual
84-000870	QX-870	Industrial Raster Scanner User's Manual

MEMO

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