MS-Q QUADRUS™ HAND HELD IMAGER

The MS-Q Quadrus™ imagers are optimized to read bar codes and 2D symbols that use direct part mark methods (DPM). It is the most aggressive hand held imager available for decoding symbols on low contrast substrates such as metal, plastic, rubber, and glass with marking methods such as dot peen and laser/chemical etch.

Containing custom optics and Microscan's Quadrus decode algorithms, the MS-Q combines the decoding power of Microscan's popular smart camera Quadrus EZ™ into a portable hand held device.

QUADRUS™ IMAGER FOR DIRECT MARK READING

Optical Options:

The MS-Q Quadrus™ hand held imager is available in two optical options:

- The high resolution version is custom designed to optimize resolution for reading small 2D symbols in direct part mark applications.
- The standard resolution version is suitable for reading all printed bar code methods plus many applications with directly marked symbols.

Applications:

Automotive and aerospace industries are actively tracing all parts with bar codes or 2D symbols. The most common practices are to permanently imprint a Data Matrix or bar code symbol directly into the metal component surfaces.

Electronics manufacturers now track virtually all printed circuit boards and most components by small bar codes or Data Matrix symbols, typically marked by laser or etched methods.

The MS-Q Quadrus™ imager is ideal for any application to track parts with marked with bar codes or 2D symbols.

Ease of Use:

All MS-Q imagers feature point-and-click targeting with a red laser spot to quickly center the symbol in the field of view. Beeper, vibrator, and multi-purpose LEDs provide real-time feedback to signal successful decoding.

System Integration:

All MS-Q imagers are available in 3 configuration options that provide effortless connectivity:

- **Batch:** A wireless way to collect thousands of decoded symbols for later download, capable of performing more than 4000 reads from a single battery charge and buffer a minimum of 1 MB of data in non-volatile memory.*
- **Cabled:** Cabled units can be connected in two ways: USB and RS-232.
- **Bluetooth:** Wireless data transmission using Bluetooth™ class 1 radio with a 328' (100 m) operating range.

*For batch and Bluetooth options a 1300 mA Lithium-Ion battery is included.

Symbologies:

The MS-Q Quadrus™ imagers read the following codes:

- Data Matrix (ECC 0-200)
- PDF417 *
- UCC Composite *
- Standard Linear Bar Codes *

*Available in Q2 2004

MS-Q Accessories:

- Long-life 1300 mA lithium-Ion battery
- Bluetooth modem (serial gateway) with 328' (100 m) operating range
- Two-bay battery charger
- RS-232 kit

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MS-Q QUADRUS™ IMAGER FOR DIRECT PART MARK READING

Specifications and Options

IMAGER MECHANICAL

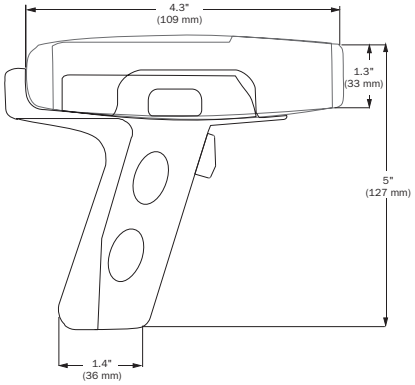
Height: 1.3" (33 mm)
Width: 1.8" (46 mm)
Depth: 4.3" (109 mm)
Weight: 2.5 oz. (71.5 g),
not including cable

HANDLE MECHANICAL

Height: 3.8" (96.5 mm)
Width: 1.2" (30mm)
Depth: 1.4" (36 mm)
Weight: 1.2 oz. (59.8 g)

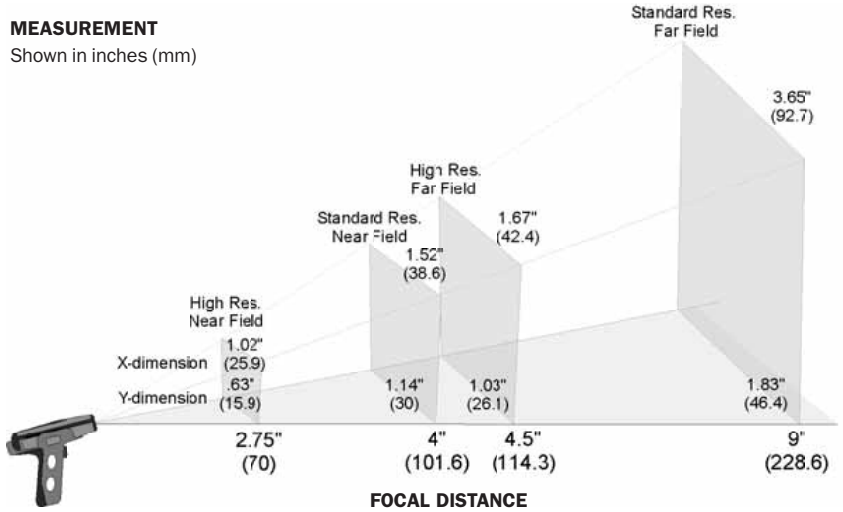
ADDITIONAL PHYSICAL CHARACTERISTICS

Battery Weight: 2.1 oz. (59.5 g)
Battery Blank: .5 oz. (13.6 g)
Cable Length: 6' (1.8 m)



NEAR/FAR FIELD FOCAL DISTANCE COMPARISON CHART

MEASUREMENT
Shown in inches (mm)



ENVIRONMENTAL

Operating Temperature: 0° to 40°C (32° to 104°F)
Storage Temperature: -20° to 60° C (-4 to 140°F)
Humidity: 5 to 90% (non-condensing)

CE STANDARDS

Immunity: EN 55024
ESD: EN 61000-4-2 **Radiated RF:** EN61000-4-3
Keyed Carrier: ENV50204 **EFT:** EN61000-4-4
Conducted RF: EN61000-4-6,
Emissions: EN55022, Class B Radiated,
Class B Conducted

LIGHT COLLECTION OPTIONS

Sensor: CMOS, progressive scan, 1.33 MP (1024 by 1280), 256 gray scale
Standard Resolution Field of View:
Near: 21.5° horizontal by 16.2° vertical
Far: 22.9° horizontal by 11.6° vertical
High Resolution Field of View:
Near & Far: 21° horizontal by 13° vertical
Standard Resolution Focal Point:
Near: 4"(101.6 mm)
Far: 9" (228.6 mm)
High Resolution Focal Point:
Near: 2.75"(70 mm)
Far: 4.5" (115 mm)
Sensor Array:
Near Field: 1024 by 640 (default)
Far Field: 1024 by 640 (default)

SYMBOLOGY TYPES

Linear Bar Codes: Code 39, Code 128, I2 of 5, RSS, and UPC/EAN (available Q2 2004)
Stacked Symbologies: PDF417, UCC Composite (available Q2 2004)
2D Symbologies: Data Matrix (ECC 0-200)

READ PARAMETERS

Pitch: ±60° (front to back) **Skew**: ±60° **Tilt**: 360°
Focal Range: 1 to 20" (25 to 508 mm)
Rotational Tolerance: ±180°
Print Contrast Resolution: 25 percent (bar codes); 35 percent (PDF417); absolute dark/light reflectance differential, measure at 650 nm.
Target Beam: Visible Laser Diode at 630 nm. Class 2
Ambient Light Immunity: Sunlight: Up to 9,000 ft-candles 96,890 lux
Shock: Withstands multiple drops of 6.5' (2 meters) to concrete

READ RANGES

Narrow Bar-Width	Read Range Distance
.005" (.127 mm)	1.75 to 2.5" (44.4 to 63.5 mm)
.0075" (.191 mm)	1.75 to 4" (44.4 to 101.6 mm)
.010" (.254 mm)	1.75 to 4.75" (44.4 to 102.6 mm)
.015" (.381 mm)	1.75 to 6" (44.4 to 152.3 mm)
.020" (.508 mm)	1.75 to 6.5" (44.4 to 165.1 mm)

MS-Q is set to continuous capture mode for above results.

INDICATORS

LED Indicators: Memory status, Battery power, Successful decode, and Connection status
Programmable Indicators: Beeper or Vibrate option; communicates scanner operation and communication functions to user

IMAGE OUTPUT OPTIONS

Format: Jpeg, Raw (uncompressed)
Time Stamp: Interval logging

COMMUNICATION PROTOCOLS

Standard Interface: USB
Optional Interface: RS-232, Bluetooth Class 1 Radio at 328' (100 m)

ELECTRICAL

Power Requirements: 5 VDC (mA)
Typical: 310 **Peak:** 310 **Sleep:** 3

Bluetooth Radio at 295' (90 m) away (mA):
Typical: 280 **Peak:** 350 **Idle:** 96 **Sleep:** 3

Bluetooth Radio at 33' (10 m) away (mA):
Typical: 260 **Peak:** 350 **Idle:** 96 **Sleep:** 3
Battery Life: Battery with radio will support 4000 read/transmits per charge including 8 hours of standby interval.

SAFETY CERTIFICATIONS

Designed for: FCC, CE

ISO CERTIFICATION

ISO 9001/Cert. No. 00-1047

FIELD OF VIEW, STANDARD RESOLUTION

Near Field of View	
Distance (inches/mm)	**Field of View Size** (1024 x 640 pixel, Default)
4" (101.6)	1.52 X 1.14" (38.6 x 30 mm)
Far Field of View	
9" (228.6)	3.65 X 1.83" (92.7 x 46.4 mm)

FIELD OF VIEW, HIGH RESOLUTION

Near Field of View	
Distance inches/mm	**Field of View Size** (1024 x 640 pixel, Default)
2" (50.8)	.74 X .46" (18.8 x 11.6 mm)
2.5" (63.5)	.93 X .57" (23.5 x 14.5 mm)
2.75" (69.9)	1.02 X .63" (25.9 x 15.9 mm)
3" (76.2)	1.11 X .68" (28.3 x 17.4 mm
3.5" (88.9)	1.3 X .80" (33 x 20.3 mm)
4" (101.6)	1.48 x .91" (37.7 x 23.2 mm)
Far Field of View	
2" (50.8)	.74 X .46" (18.8 x 11.6 mm)
2.5" (63.5)	.93 X .57" (23.5 x 14.5 mm)
3" (76.2)	1.11 X .68" (28.2 x 17.4 mm)
3.5" (88.9)	1.3 X .80" (32.9 x 20.3 mm)
4" (101.6)	1.48 X .91" (37.6 x 23.2 mm)
4.5" (114.3)	1.67 X 1.03" (42.4 x 26.1
5" (127)	1.85 X 1.14" (47.1 x 28.9 mm)
5.5" (139.7)	2.04 X 1.25" (51.8 x 31.8 mm)
6" (152.7)	2.22 X 1.37" (56.5 x 34.7 mm)
6.5" (165.1)	2.41 X 1.48" (61.2 x 37.6 mm)

MICROSCAN

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Specifications subject to change, 02/04 - Base A