



*MC 959x^{EX}-NI
for Class I, II, III, Div. 2*

Features

- Option of WWAN-GSM-HSDPA/CDMA-EVDO
- GPS
- WLAN radio standard IEEE 802.11 a/b/g Tri-mode radio standard
- Comprehensive voice-over IP support
- Various barcode applications with different scan engines
- Option of a 3-megapixels camera
- Easy battery changing
- Expanded storage capacity due to replaceable Micro SD card
- Various keypad variants
- Compatibility with the MC959x from Motorola

Description

The MC 959x^{EX}-NI offers the characteristic features of the robust MC 9090^{EX} mobile computer series and numerous new capabilities in addition. These were modified specially for use in UL Classes I, II, III, Div. 2 hazardous areas.

The result is a device which sets new standards both in technology and in design: it is an innovative product with an unsurpassed selection of functions which take mobile computing innovation to a completely new level.

The MC 959x^{EX}-NI offers a more robust design, extended options for data capture, more intelligent functions, greater processing power and better ergonomics.

Thanks to the ergonomically mounted scan triggers on the MC 959x^{EX}-NI, data can be captured easily in one-hand operation.

Several technologies are available for data communication with other systems and company divisions.

- Wireless WAN (WWAN)
- Wireless LAN (WLAN)
- Wireless PAN (WPAN) (Bluetooth)
- IrDA connection

These modules, which are integrated in the device, allow a seamless transmission of voice and data and are easy to integrate into the company's network.

Further advantages when using it are its robust construction, easy-to-read 3.7" VGA colour display with touch technology and a high-performance lithium ion battery.

In the MC 959x^{EX}-NI, the Marvell PXA320 processor with 806 MHz ensures fast process execution and the Microsoft® Windows Mobile® 6.5 operating system in conjunction with the Enterprise Mobility Developer Kit (EMDK) from Motorola facilitates an easy development of applications.

256 MB RAM integrated in the device and 1 GB flash memory are available for storing user-defined applications and data. For larger applications and volumes of data, offers micro SD memory cards.

Market	Applications	Users
Automobile industry Automobile industry (suppliers of paintwork, for paint shops, etc.)	Material flow monitoring Production control Supplier chain management	Dispatch, receiving and stock management departments Personnel who have been instructed on the handling of potentially explosive substances
Food and beverages Suppliers of aromatic substances, etc.	Incoming/outgoing goods, inventory management Safety tests	Maintenance and repair Personnel who have been instructed on work in potentially explosive substances.
Petrochemicals from production through further processing to delivery	Spare parts tracking Maintenance/repair work	Production area Personnel who have been instructed on the handling of potentially explosive substances.
Pharmaceuticals (suppliers of the individual components required for the production of e. g. medication)	Workshop communication Conformity verification Task allocation	



Mobile Computer MC 959^{ex}-NI for Class I, II, III, Div. 2

The MC 959^{ex}-NI Mobile Computer recognises the following bar codes with the 1D Standard Range Scan Engine or the 1D/2D Imager Engine:

1D codes:

Code 11	Interleaved 2 of 5
Code 39	MSI
Code 93	UPCA
Code 128	UPCE
Codabar	UPC/EAN supplementals
Coupon Code	Trioptic 39
Chinese 2 of 5	RSS-14
Discrete 2 of 5	RSS Expanded
EAN-8	RSS Limited
EAN-13	Webcode

2D codes: (only 1D/2D Imager Engine)

Aztec	(Macro) Micro PDF-417
Australian 4-state	Micro PDF-417
Canadian 4-state	microQR
Composite AB	Maxi Code
Composite C	QR Code
Chinese 2 of 5	TLC39
Data Matrix	UK 4-state
Dutch Kix	US Planet
Japanese 4-state	US Postnet
Macro PDF-417	USPS 4-state (US4CB)

➔ Explosion protection

Ex protection type

Class I, II, III Div. 2
Group A, B, C, D, F and G T6

Certification

UL File E321557 Vol. 1 Sec. 2

➔ Technical data

■ Physical features

Dimensions (height x width x depth)

234 cm x 89 cm x 51 cm
9.2 inch x 3.5 inch x 2 inch

Weight (including battery)

623 g (approx. 22 oz.)

Display

3.7" VGA colour display (TFT) with
640 x 480 pixels

Touchscreen

analog-resistive touchscreen made of
polycarbonate

Display backlighting

LED technology

Keyboard options modular

- alpha keypad
- numeric (telephony version)
- numeric (calculator version)
- alphanumeric

Notifications

Programmable LEDs
Audio notifications
Vibrator alert

Performance characteristics

CPU Marvell PXA320 at 806 MHz

Operating system Windows Mobile® 6.5
(Classic and Professional)

Memory

256 MB RAM/1 GB Flash
with the option of expansion with
Micro SD card/ up to 16 GB

■ User environment

Operating temperature

-20 °C to +50 °C (-4 °F to +122 °F)

Storage temperature

-40 °C to +70 °C at 95 % RH
(-40 °F to +158 °F at 95 % RH)

Protection class

IP 67

Air humidity

5 to 95 %, non-condensing

Light immunity

Readability

Incandescent lamps	4,844 lux
Sunlight	86,111 lux
Fluorescent lamps	4,844 lux

■ Battery

Capacity

Rechargeable lithium ion battery
4800 mAh at 3.7 V and state
of charge and health indicators

Standby time

150 hours

Talk time

8 hours (minimum/suspend mode)

■ Voice and data communication over wireless WAN

WWAN wireless module GPS

option of GSM-HSDPA or CDMA-EVDO

Integrated stand-alone or assisted GPS
(A-GPS) through SUPL;
SiRFstarIII GSC3f/L chip set

■ Voice and data communication over wireless LAN

WLAN wireless module

Tri-mode IEEE® 802.11a/b/g



Supported data transmission rates

1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48
and 54 Mbps

Operating channels

Channels 8 - 165 (5040 - 5825 MHz)
Channels 1 - 13 (2412 - 2472 MHz)
Channel 14 (2484 MHz) Japan only

The actual operating channels and frequencies depend on the applicable rules and certification authorities.

Security

WPA2, WEP (40 or 128 bits), TKIP, TLS,
TTLS (MS-CHAP), TTLS (MS-CHAP Ver. 2),
TTLS (CHAP), TTLS-MD5, TTLS-PAP,
PEAP-TLS, PEAP (MS-CHAPv2), AES
LEAP, CCXv4 certification, FIPS-140-2
certification

Antenna

internal

Interactive Sensor Technology

Motion sensor

Three-axis accelerometer for motion-sensing applications for dynamic screen orientation, power monitoring and free-fall detection.

■ Data capture options

Available options

1D Laser scanner
1D/2D Imager
1D Laser scanner and camera
1D/2D Imager and camera

■ Colour camera

Resolution

3 megapixels

Illumination

Flash (user-controllable)

Lens

Autofocus

■ 1D Laser scanner (SE950)

Range on 100 % UPC-A

60 cm

Resolution

4 mm minimum width

Roll

± 35° from the vertical

Pitch angle

± 65° from normal

Skew tolerance

± 50° from normal

Ambient light immunity

107,640 lux

Scan rate

104 (± 12) scans/sec. (bi-directional)

Scan angle

47° ± 3° standard

35° ± 3° reduced

■ 1D/2D Imager (SE4500SR)

Focal distance

From the centre of the scan window:
SR - 19 cm

Sensor resolution

752 x 480 pixels

Field of view

Horizontal 40°

Vertical 25°

Skew tolerance

± 60°

Pitch tolerance

± 60°

Roll tolerance

360°

Ambient light immunity

96,900 lux

Aiming LED (VLD)

655 ± 10 Nm laser

Illumination element (LED)

625 ± 5 Nm LEDs (2 x)



Selection chart MC 9590^{ex}-NI without WWAN

Data capture	Code no.	Version Keyboard	Code no.
SE950 1D Laser Scan Engine	A	Alpha Numeric Primary Wide	B
SE4500 1D/2D Imager	B	Alpha Primary	C
SE950 1D Laser with camera	C	Numeric Telephony	D
SE4500 1D/2D Imager with camera	D	Numeric Calculator	E

➔ **Complete order no. B7-A292-0** **OD/A** **100000**
MC 9590^{ex}-NI without WWAN including lithium ion battery (1 battery).
 Please insert correct code.

Selection chart MC 9596^{ex}-NI with GSM-HSDPA

Data capture	Code no.	Version Keyboard	Code no.
SE950 1D Laser Scan Engine	A	Alpha Numeric Primary Wide	B
SE4500 1D/2D Imager	B	Alpha Primary	C
SE950 1D Laser with camera	C	Numeric Telephony	D
SE4500 1D/2D Imager with camera	D	Numeric Calculator	E

➔ **Complete order no. B7-A292-6** **AE/A** **100000**
MC 9596^{ex}-NI with GSM-HSDPA including lithium ion battery (1 battery).
 Please insert correct code.

Selection chart MC 9598^{ex}-NI with CDMA-EVDO

Data capture	Code no.	CDMA-EVDO	Code no.	Version Keyboard	Code no.
SE950 1D Laser Scan Engine	A	Verizon	B	Alpha Numeric Primary Wide	B
SE4500 1D/2D Imager	B			Alpha Primary	C
SE950 1D Laser with camera	C	Sprint	C	Numeric Telephony	D
SE4500 1D/2D Imager with camera	D			Numeric Calculator	E

➔ **Complete order no. B7-A292-8** **E/A** **100000**
MC 9598^{ex}-NI with CDMA-EVDO including lithium ion battery (1 battery).
 Please insert correct code.