

MC 959 X

DATASHEET

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MC 959x^{ex}-NI for ATEX/IECEX Zone 2 and 22

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 MC95xx
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 by BARTEC for use in ATEX/IECEX Zone 2 and 22 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, BARTEC offers micro SD memory cards.

Market	Applications	Users
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	Maintenance and repair Personnel who have been instructed on work in potentially explosive substances.
Petrochemicals from production through further processing to delivery	Safety tests 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	



The MC 959x^{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 ATEX

- II 3G Ex ic IIC T6 Gc
- II 3D Ex ic IIIC T90°C Dc

Certification

EPS 13 ATEX 1588 X

Ex protection type IECEx

- Ex ic IIC T6 Gc
- Ex ic IIIC T90°C Dc

Certification

EPS13.0028X

Technical data

Physical features

Dimensions (length x width x depth)

- 234 mm x 89 mm x 51 mm
- 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

- alphanumeric keypad
- Alpha keypad
- numeric keypad (Phone)
- numeric keypad (Calculator)

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 32 GB

User environment

Operating temperature

- 20 °C to +50 °C (-4 °F to +122 °F)

Storage temperature (at 95 % RH)

- 40 °C to +70 °C
- 40 °F to +158 °F

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 GSC31/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 lasers

Illumination element (LED)

625 ± 5 Nm LEDs (2 x)



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

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- Wireless LAN (WLAN)
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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, BARTEC offers micro SD memory cards.

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



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

1D codes:

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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

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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)



RFID Snap-on Module for Mobile Computer MC 959x^{ex}-NI series

Features

- Innovative addition to the MC 959x^{ex}-NI
- Power is supplied by the MC 959x^{ex}-NI

Description

The module can be simply plugged onto the cradle contacts of the MC 959x^{ex}-NI. The scan trigger is ergonomically mounted on the mobile computer, permitting simple recording of various RFID standards in the frequency ranges LF, HF or UHF with single-handed operation.

No extra power supply is required for the RFID module. An SDK is available for application development using the programming languages C and .Net as Open Source Code, including demo.

Explosion protection

Ex protection type ATEX Zone 2/22

- Ex II 3G Ex ic IIC T5 Gc
- Ex II 3D Ex ic IIIC T90 °C Dc

Certification

EPS 13 ATEX 1588 X

Ex protection type IECEx Zone 2/22

- Ex ic IIC T6 Gc
- Ex ic IIIC T90 °C Dc

Certification

EPS13.0028X

Ex protection type UL Division 2

- Class I Div. 2 Group A, B, C and D
- Class II Div. 2 Group F and G
- Class III T5

Certification

UL File E321557 Vol. 1 Sec. 2

Supported RFID standards

LF Reader: Type B7-A2Z0-0020

HITAG S256	ISO 117845
HITAG S 2 kb	ISO Animal
HITAG 1	ISO 11784/5
HITAG 2	EM 4450/4550
Q5	EM4xxx (UNIQUE)
ATA5567	HDX-RO
EM4305	HDX (Multipage)
BDE	FDX-B

HF Reader: Type B7-A2Z0-0021

ISO 14443 (e. g. Mifare Ultralight)
ISO 15693

UHF EU and US Reader: Type B7-A2Z0-0022, B7-A2Z0-0023

EPC Gen 2

Technical data

Dimensions (length x width x height)

80 mm x 61 mm x 31 mm
3.15 inch x 2.4 inch x 1.22 inch

Weight

approx. 75 g
approx. 0.165 oz

Ambient temperature

-20 °C to +50 °C (-4 °F to +122 °F)

Storage temperature

-40 °C to +70 °C (-40 °F to +158 °F)

Air humidity

5 % to 95 % (non-condensing)

Protection class

IP 54

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■ LF module

Reading range up to approx. 5 cm (1.9 inch)

Frequency range

125/134 KHz

■ HF module

Reading range HF ISO 15693:
approx. 6 cm (approx. 2.36 inch)

Reading range HF ISO 14443:
approx. 6 cm (approx. 2.36 inch)

Frequency range

13.56 MHz

■ UHF module

Reading range up to approx. 30 cm
(ca. 11.8 inch)

Frequency range

865.6 to 867.5 MHz (Europe)
902 to 928 MHz (North America)

Application development







Software Development Kit (SDK) for
programming languages C and .Net for the
Windows Mobile operating system

Selection chart Accessories for MC 959^{ex}-NI series

Illustration	Description	
	Spare battery for MC 959^{ex} for ATEX Zone 2 and Zone 22 UL Class I, II, III Division 2 Groups A, B, C, D, F and G 3.7 V/4800 mAh, Li-ion battery	
	Trigger handle for ATEX Zone 2 and Zone 22 UL Class I, II, III Division 2 Groups A, B, C, D, F and G Operation temperature -15 °C to +50 °C <ul style="list-style-type: none">- Simple installation- Interlock mechanism locks the handle in place and enables dismantling without tools- Camera of the MC 959^{ex}-NI can still be used with mounted handle- MC 959^{ex}-NI can be used in Motorola Docking stations with mounted handle- Handle trigger is controlled using a robust mechanism	
	Special tool for the battery latch release for ATEX Zone 2 and Zone 22	
	Expanded Memory certified ATP Industrial Grade Micro SD Card with <ul style="list-style-type: none">1 GB2 GB4 GB8 GB	
	Keypad with overlay (green) for ATEX Zone 2 and Zone 22 UL Class I, II, III Division 2 Groups A, B, C, D, F and G <ul style="list-style-type: none">- keypad with 52 keys, alphanumeric- keypad with 40 keys, alpha- keypad with 26 keys, numeric, telephony- keypad with 26 keys, numeric, calculator	
	Leather Holster for MC 959 ^{ex} -NI <ul style="list-style-type: none">- without keypad protection foil with 2 ears to hang it on a belt or a shoulder belt- with keypad protection foil with 2 ears to hang it on a belt or a shoulder belt	
	Protective display foil 5 pcs per package	



Selection chart Accessories for MC 959^{ex}-NI series

Illustration	Description	
	Single Slot USB Cradle Set for non-hazardous area Docking station for communication with PC - for charging the unit - for data synchronization - for software installation - including power supply Required components please ordered separately: - Micro USB-Active Sync cable Cradle <-> PC - AC line cord, 3 wired, according to operating conditions Version EU Version US	
	Single Slot Charging Station for non-hazardous area no communication with the PC possible - including power supply Required components please ordered separately: - AC line cord, 3 wired, according to operating conditions Version EU Version US	
	4-Slot Charging Station for non-hazardous area - for spare battery - without accessories - for charging of the MC 959 ^{ex} battery Required components please ordered separately: - Power supply for 4-slot charger - AC line cord, 3 wired, according to operating conditions Version EU Version US	
	4-Slot Ethernet Cradle for non-hazardous area - including 4-slot Ethernet Cradle Required components please ordered separately: - Power supply - Connection cable from power supply to cradle - Mounting bracketfor desk mounting - Mounting bracketfor for wall mounting - AC line cord, 3 wired, according to operating conditions Version EU Version US	
	Wall Mounting Bracket - for 4-slot charger/4-slot Ethernet Cradle	
	Desk Mounting Bracket - for 4-slot charger	
	Spare Stylus 3 pcs per package	
	Spare Hand Strap 5 pcs per package	

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