

## Appendix B: Supplement for User Manual UL Class I Division 1 UL Classes I, II, III Division 1

### Mobile Computer

MC 9090<sup>ex</sup> RFID / LF

MC 9090<sup>ex</sup> RFID / HF

MC 9090<sup>ex</sup> RFID / UHF

Type 17-A129-R.../H.....



Version 1.00  
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Technical data subject to change without notice!

# Table of Contents

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<b>1</b>	<b>Product Description</b>	<b>4</b>
<b>2</b>	<b>Safety Instructions</b>	<b>5</b>
2.1	Electromagnetic Fields	5
2.1.1	International	5
2.1.2	US and Canada	5
2.2	Warnings for Use of Wireless Devices	6
2.2.1	Radio Frequency Interference Requirements - FCC	6
2.2.2	Radio Frequency Interference Requirements - Canada	6
<b>3</b>	<b>Technical Data</b>	<b>7</b>
3.1	RFID / LF Internal Module	7
3.1.1	Explosion Protection	7
3.1.2	General Data	7
3.1.3	Radio Data Transmission RFID / LF Internal Module	7
3.1.4	Standards Supported by Firmware	8
3.2	RFID / LF External Module	9
3.2.1	Explosion Protection	9
3.2.2	General Data	9
3.2.3	Radio Data Transmission RFID / LF External Module	9
3.2.4	Standards Supported by Software	10
3.3	RFID / HF External Module	10
3.3.1	Explosion Protection	10
3.3.2	General Data	10
3.3.3	Radio Data Transmission RFID / HF External Module	11
3.3.4	Standards Supported by Firmware	11
3.4	RFID / UHF External Modul	12
3.4.1	Explosion Protection	12
3.4.2	General Data	12
3.4.3	Radio Data Transmission RFID / UHF External Module	12
3.5	RFID / UHF External Module + External Antenna	13
3.5.1	Explosion Protection	13
3.5.2	General Data	13
3.5.3	Radio Data Transmission RFID / UHF External Module + External Antenna	13
3.6	Notes re. Directives and Standards, Marking and In-Process Inspections	14
3.6.1	Product Marking Mobile Computer MC 9090 <sup>ex</sup> RFID / LF internal (UL Class I Division 1)	14
3.6.2	Product Marking Mobile Computer MC 9090 <sup>ex</sup> RFID / LF / HF / UHF external (UL Class I Division 1)	16

<b>4</b>	<b>Commissioning</b> .....	<b>19</b>
4.1	MC 9090 <sup>ex</sup> Manual and Software for Windows Mobile from Motorola .....	19
4.2	MC9090 <sup>ex</sup> RFID Documentation from BARTEC .....	19
4.3	MC9090 <sup>ex</sup> RFID Software.....	19
<b>5</b>	<b>Additional Information</b> .....	<b>20</b>
5.1	Order Numbers MC9090 <sup>ex</sup> (UL Class I Division 1).....	20
5.2	Order Numbers MC9090 <sup>ex</sup> (UL Classes I, II, III Division 1) .....	21

**Appendix - EC Declaration of Conformity and Type Examination Certificate**

# 1 Product Description

The MC 9090<sup>ex</sup> RFID mobile computer is a compact portable device and is designed by BARTEC specially for use in hazardous areas. Accordingly the extensive communication options, already standard in other areas, are available to the user in hazardous areas also.



The MC 9090<sup>ex</sup> RFID mobile computer is available in two versions, with pistol grip (MC9090<sup>ex</sup> Gun) and without (MC9090<sup>ex</sup> Brick). In these versions the MC9090<sup>ex</sup> is a compact unit for scanning bar codes and RFID tags reliably.

The scan trigger is ideally positioned on the device, which allows bar codes and RFID tags to be captured easily. The integrated radio module ensures a real-time exchange of data with the host system.

The MC 9090<sup>ex</sup> RFID combines the advantages of the Microsoft Pocket PC Platform with the strengths of the Intel® XScale™ PXA270 processor with 624 MHz.

The large, easy-to-read 1/4 VGA colour display is equipped with touchscreen technology. The device works with the IEEE802.11 a/b/g (direct sequence) radio standard.

## 2 Safety Instructions

### 2.1 Electromagnetic Fields

#### 2.1.1 International

The device complies with internationally recognised standards covering human exposure to electromagnetic fields from radio devices.

#### Reducing RF Exposure - Use Properly

Only operate the device in accordance with the instructions supplied.

#### 2.1.2 US and Canada

#### Portable Devices

.



The Mobile Computer must be switched off before it may be carried on the body.

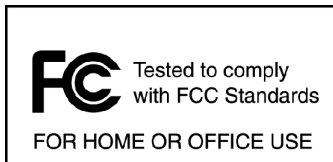
#### Co-Location Statement

To comply with the FCC RF exposure compliance requirement, the antenna used for this transmitter must not be co-located or operating in conjunction with any other transmitter/antenna except those already approved in this filing.

## 2.2 Warnings for Use of Wireless Devices

Please observe all warning notices with regard to the usage of wireless devices.

### 2.2.1 Radio Frequency Interference Requirements - FCC



**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ➔ Reorient or relocate the receiving antenna.
- ➔ Increase the separation between the equipment and receiver.
- ➔ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ➔ Consult the dealer or an experienced radio/TV technician for help.

### FCC Note according to 15.21

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### Radio Transmitters (Part 15)

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

### 2.2.2 Radio Frequency Interference Requirements - Canada

This Class B digital apparatus complies with Canadian ICES-003.  
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

### Radio Transmitters

This device complies with RSS 210 of Industry & Science Canada. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Label Marking: The Term "IC:" before the radio certification only signifies that "Industry Canada" technical specifications were met.

## 3 Technical Data

### 3.1 RFID / LF Internal Module

#### 3.1.1 Explosion Protection

Types	:	17-A129-R*04/H*****
Ex Protection Type	:	Class I Division 1 Groups C und D
Certification	:	UL File E226123

Types	:	17-A169-R*04/H*****
Ex Protection Type	:	Class I Division 1 Groups C and D Class II Division 1 Groups F and G Class III Division 1
Certification	:	UL File E226123

#### 3.1.2 General Data

Ambient Temperature	:	-20 °C to +40 °C	-4 °F to +104 °F
Weight including battery	:	MC9090 <sup>ex</sup> - K approx. 700 g	approx. 24 oz
	:	MC9090 <sup>ex</sup> - G approx. 830 g	approx. 29 oz

#### 3.1.3 Radio Data Transmission RFID / LF Internal Module

Nominal writing distance	:	approx. 5 cm	approx. 1.9 inch
Antenna	:	Integrated in the device as ferrite antenna or air coil antenna	
Frequency range	:	125/134 kHz	
Transmitting power	:	100 mW ±2dB	

### 3.1.4 Standards Supported by Firmware

Firmware Version Btrw-rw.V.1.40.frm	Firmware Version Btrw-hdx.V.1.40.frm	Firmware Version Btrw-ti.V.1.40.frm
HITAG S 256	HDX -RO	EM 4450/4550
HITAG S 2 kbit	HDX (Multipage)	EM4xxx(UNIQUE)
HITAG 1	EM4xxx(UNIQUE)	FDX-B
HITAG 2	FDX-B	BDE
Q5	BDE	ISO 11784/5 ISO Animal
ATA5567	ISO 11784/5 ISO Animal	
EM4305		



## 3.2 RFID / LF External Module

### 3.2.1 Explosion Protection

Types	:	17-A129-R**1/H*****
Ex Protection Type	:	Class I Division 1 Groups C and D
Certification	:	UL File E226123

Types	:	17-A169-R**1/H*****
Ex Protection Type	:	Class I Division 1 Groups C and D Class II Division 1 Groups F and G Class III Division 1
Certification	:	UL File E226123

### 3.2.2 General Data

Ambient Temperature	:	-20 °C to +40 °C	-4 °F to +104 °F
Dimensions (length x width x height)	:	MC9090 <sup>ex</sup> - K 231 x 91 x 105 mm	9.1 " x 3.6 " x 4.1 " (inches)
		MC9090 <sup>ex</sup> - G 231 x 91 x 193 mm	9.1 " x 3.6 " x 7.6 "
Weight including battery (UL)	:	MC9090 <sup>ex</sup> - K approx. 1040 g	approx. 40 oz
		MC9090 <sup>ex</sup> - G approx. 1170 g	approx. 41 oz

### 3.2.3 Radio Data Transmission RFID / LF External Module

Nominal writing distance	:	approx. 5 cm	approx. 1.9 "
Antenna	:	Integrated in the device as ferrite antenna or air coil antenna	
Frequency range	:	125/134 kHz	
Transmitting power	:	100 mW ±2dB	

### 3.2.4 Standards Supported by Software

Firmware Version Btrw-rw.V.1.40.frm	Firmware Version Btrw-hdx.V.1.40.frm	Firmware Version Btrw-ti.V.1.40.frm
HITAG S 256	HDX -RO	EM 4450/4550
HITAG S 2 kbit	HDX (Multipage)	EM4xxx(UNIQUE)
HITAG 1	EM4xxx(UNIQUE)	FDX-B
HITAG 2	FDX-B	BDE
Q5	BDE	ISO 11784/5 ISO Animal
ATA5567	ISO 11784/5 ISO Animal	
EM4305		

## 3.3 RFID / HF External Module

### 3.3.1 Explosion Protection

Types : 17-A129-R\*\*2/H\*\*\*\*\*  
 Ex Protection Type : Class I Division 1 Groups C and D  
 Certification : UL File E226123

Types : 17-A169-R\*\*2/H\*\*\*\*\*  
 Ex Protection Type : Class I Division 1 Groups C and D  
 Class II Division 1 Groups F and G  
 Class III Division 1  
 Certification : UL File E226123

### 3.3.2 General Data

Ambient Temperature : -20 °C to +40 °C      -4 °F to +104 °F  
 Dimensions (length x width x height) : MC9090<sup>ex</sup> –K  
 231 x 91 x 105 mm      9.1 “ x 3.6 “ x 4.1 “  
 MC9090<sup>ex</sup> –G  
 231 x 91 x 193 mm 9.1 “ x 3.6 “ x 7.6 “  
 Weight including battery (UL) : MC9090<sup>ex</sup> –K  
 approx. 1040 g      approx. 40 oz  
 MC9090<sup>ex</sup> –G  
 approx. 1170 g      approx. 41 oz

### 3.3.3 Radio Data Transmission RFID / HF External Module

<b>Supported standards</b>	:	HF ISO 15693 HF ISO 14443
<b>Nominal reading range</b>	:	HF ISO 15693 approx. 7 cm to 12 cm      approx. 2.75 " to 4.72 " HF ISO 14443 approx. 1 cm to 6 cm      approx. 0.4 " to 2.36 " (with tags in cheque card format)
<b>Nominal writing distance</b>	:	HF ISO 15693 approx. 7 cm to 12 cm      approx. 2.75 " to 4.72 " HF ISO 14443 approx. 1 cm to 6 cm      approx. 0.4 " to 2.36 " (with tags in cheque card format)
<b>Antenna</b>	:	Integrated
<b>Frequency range</b>	:	13.56 MHz
<b>Transmitting power</b>	:	250 mW $\pm$ 2dB

### 3.3.4 Standards Supported by Firmware

ISO14443-A-compatible	ISO14443-B-compatible	ISO15693-compatible
e.g. mifare, mifare Ultra Light, my-d proximity		e.g. I-Code SLI, Tag-IT HFI, my-d vicinity, STM LRI512
<b>I-Code 1 (optional)</b>		

## 3.4 RFID / UHF External Modul

### 3.4.1 Explosion Protection

**Types** : 17-A129-R\*\*3/H\*\*\*\*\*  
**Ex Protection Type** : Class I Division 1 Groups C and D  
**Certification** : UL File E226123

**Types** : 17-A169-R\*\*3/H\*\*\*\*\*  
**Ex Protection Type** : Class I Division 1 Groups C and D  
Class II Division 1 Groups F and G  
Class III Division 1  
**Certification** : UL File E226123

### 3.4.2 General Data

**Ambient temperature** : -20 °C to +40 °C      -4 °F to +104 °F  
**Dimensions (length x width x height)** : MC9090<sup>ex</sup> –K      231 x 91 x 105 mm      9.1" x 3.6" x 4.1"  
MC9090<sup>ex</sup> –G      231 x 91 x 193 mm      9.1" x 3.6" x 7.6"  
**Weight including battery (UL)** : MC9090<sup>ex</sup> –K      approx. 1040 g      approx. 40 oz  
MC9090<sup>ex</sup> –G      approx. 1170 g      approx. 41 oz

### 3.4.3 Radio Data Transmission RFID / UHF External Module

**Supported standards** : EPC Class 1 Gen 2 Tag  
**Nominal reading range** : approx. 30 cm to 50 cm      approx. 11.8" to 19.6"  
**Nominal writing range** : approx. 30 cm to 50 cm      approx. 11.8" to 19.6"  
**Antenna** : Integrated  
**Frequency range** : 902.0 to 928.0 MHz (FCC CFR 47 Part 15.247) for USA  
**Transmitting power** : 200 mW ±2dB

## 3.5 RFID / UHF External Module + External Antenna

### 3.5.1 Explosion Protection

Types	:	17-A129-R**5/H*****
Ex Protection Type	:	Class I Division 1 Groups C and D
Certification	:	UL File E226123

Types	:	17-A169-R**5/H*****
Ex Protection Type	:	Class I Division 1 Groups C and D Class II Division 1 Groups F and G Class III Division 1
Certification	:	UL File E226123

### 3.5.2 General Data

Ambient Temperature	:	-20 °C to +40 °C	-4 °F to +104 °F
Dimensions (length x width x height)	:	MC9090 <sup>ex</sup> –K 231 x 119 x 105 mm	9.1" x 4.7" x 4.1"
		MC9090 <sup>ex</sup> –G 231 x 119 x 193 mm	9.1" x 4.7" x 7.6"
Weight including battery (UL)	:	MC9090 <sup>ex</sup> –K approx. 1040 g	approx. 40 oz
		MC9090 <sup>ex</sup> –G approx. 1170 g	approx. 41 oz

### 3.5.3 Radio Data Transmission RFID / UHF External Module + External Antenna

Supported standards	:	EPC Class 1 Gen 2 Tag
Nominal Reading Range	:	approx. 150 cm      approx. 59"
Nominal Writing range	:	approx. 30 cm to 50 cm      approx. 11.8" to 19.6"
Antenna	:	external (UPM Raflatac)
Frequency range	:	902.0 to 928.0 MHz (FCC CFR 47 Part 15.247) for USA
Transmitting power	:	200 mW ±2dB

### 3.6 Notes re. Directives and Standards, Marking and In-Process Inspections

#### 3.6.1 Product Marking Mobile Computer MC 9090<sup>ex</sup> RFID / LF internal (UL Class I Division 1)

MC 9090<sup>ex</sup> RFID / LF internal



**A** Laser Warning

No Scan Engine available!

**B** FCC Testmark

THIS CLASS B  
DIGITAL APPARATUS  
COMPLIES WITH CANADIAN  
ICES-003. CET APPAREIL  
NUMERIQUE DE LA CLASSE B  
EST CONFORME À LA NORME  
NMB-003 DU CANADA.



WARNING: SUBSTITUTION OF PARTS MAY IMPAIR INTRINSIC SAFETY.  
TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE  
ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING. READ,  
UNDERSTAND AND ADHERE TO THE OPERATIONAL MANUAL.

**C** CE and Ex protection type

See type label

**MC 9090<sup>ex</sup> RFID / LF internal**

Typ: 17-A129-...

Class I Division 1, Groups C and D

Typ: 17-A169-...

Class I Division 1 Groups C and D  
Class II Division 1 Groups F and G  
Class III Division 1

**D** Laser Warning

No Scan Engine available!

**E**

**Type label**

TYPE: 17-A129-RK04JJFA600  
 CL I DIV 1 GP C,D T4 Exia MAX.AMB. 50°C  
 E,D,P,EQ. FOR USE IN HAZ LOC  
 MFD: APRIL, 2009 S/N: 100~



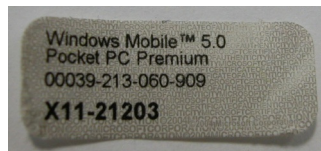
MODEL: MC9090 RFID-LF intern  
 MADE IN MEXICO 11-16V=2A  
 ASSEMBLED IN GERMANY  
 INTRINSICALLY SAFE WHEN USED WITH  
 BATT. P/N 17-A1Z0-0002 AND HEADSETS  
 P/N 17-28BE-F004 OR P/N 17-28BE-F005  
 AND SD-MEM.CARD P/N 17-28BE-F006  
 WARNING: CHARGE BATTERY ONLY IN  
 AN AREA KNOWN TO BE NON-HAZ.  
 SEE REGULATORY GUIDE FOR PATENT  
 AND RADIO INFORMATION  
 Contains FCC ID TBUMC9090ex  
 FCC ID TBURFIDL  
 Contains IC: 5736C-MC9090ex  
 IC: 5736C-RFIDL  
 BARTEC GmbH  
 97980 BAD MERGENTHEIM  
 Germany



**F**

**Labels in battery compartment**

Licence sticker for Windows Mobile™ 5.0 Premium operating system



- Label contains details on the Motorola device before it was modified by BARTEC Gmt
- CE sign and notified body used by Motorola
  - Manufacturer Motorola (formerly Symbol Technologies Incorporation)
  - Type number (part)
  - Serial number ((S) S/N)

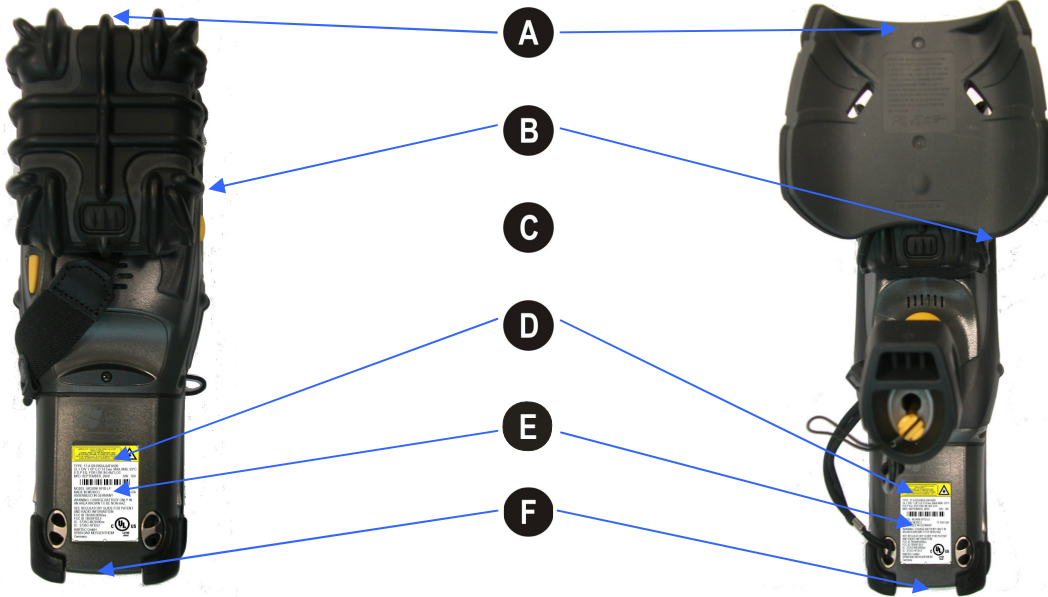
Important: you will need to be able to quote type number and serial number if you mak enquiries directly to the Technical Support department at Motorola.



3.6.2 Product Marking Mobile Computer MC 9090<sup>ex</sup> RFID / LF / HF / UHF external (UL Class I Division 1)

MC 9090<sup>ex</sup> RFID / LF / HF / UHF external

MC 9090<sup>ex</sup> RFID / LF / HF / UHF external



**A**

**Laser Warning**

CAUTION - CLASS 3R LASER LIGHT WHEN OPEN. AVOID DIRECT EYE EXPOSURE.  
 ATTENTION - LUMIÈRE LASER DE CLASSE 3R, EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.  
 VORSICHT - LASERLICHT KLASSE 3R, WENN ABDECKUNG GEÖFFNET. DIREKTE BESTRAHLUNG DER AUGEN VERMEIDEN.

**B**

**Laser and FCC Testmark**

MC 9090<sup>ex</sup> RFID / LF / HF / UHF external

<p>COMPLIES WITH                  21CFR1040.10 AND 1040.11                  EXCEPT FOR DEVIATIONS                  PURSUANT TO LASER                  NOTICE No. 50 DATED                  JULY 26, 2001 AND IEC                  60825-1:1993 + A2:2001                  EN62425-1:1994 + A1:1996 + A2:2001</p>	<p>INTRINSICALLY SAFE WHEN USED WITH                  BATT. P/N 17-A120-0002 AND HEADSETS                  P/N 17-28BE-F004 OR P/N 17-28BE-F005                  AND SD-MEM CARD P/N 17-28BE-F006</p>	<p>THIS CLASS B DIGITAL                  APPARATUS COMPLIES                  WITH CANADIAN                  ICES-003. CET APPAREIL                  NUMÉRIQUE DE LA                  CLASSE B EST                  CONFORME À LA NORME                  NMB-003 DU CANADA</p>
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**FC** WARNING: SUBSTITUTION OF PARTS MAY IMPAIR INTRINSIC SAFETY. TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING. READ, UNDERSTAND AND ADHERE TO THE OPERATIONAL MANUAL.  
 AVOID EXPOSURE. LASER LIGHT IS EMITTED FROM THIS APERTURE.

**C**

**CE and Ex protection type**

See type label

MC 9090<sup>ex</sup> RFID / LF / HF / UHF external

Typ: 17-A129-...

Class I Division 1, Groups C and D

Typ: 17-A169-...

Class I Division 1 Groups C and D  
 Class II Division 1 Groups F and G  
 Class III Division 1



**D**

**Laser Warning**

MC 9090<sup>ex</sup> RFID / LF / HF / UHF external



**E**

**Type label**

MC 9090<sup>ex</sup> RFID / LF / HF / UHF external



**F**

**Labels in battery compartment**

Licence sticker for Windows Mobile™ 5.0 Premium operating system



Label contains details on the Motorola device before it was modified by BARTEC GmbH.

- CE sign and notified body used by Motorola
- Manufacturer Motorola (formerly Symbol Technologies Incorporation)
- Type number (part)
- Serial number ((S) S/N)

Important: you will need to be able to quote type number and serial number if you make enquiries directly to the Technical Support department at Motorola.

MC 9090 <sup>ex</sup> RFID/LF/HF/UHF external

**CE** 0982

Symbol Tech INC., N.Y. 11742  
Part: MC9090-KU0HJAF6WR  
(S)S/N: 7064000500869

## 4 Commissioning

### 4.1 MC 9090<sup>ex</sup> Manual and Software for Windows Mobile from Motorola

Link:

<http://support.symbol.com/support/product/manuals.do>

Mobile Computers

MC9090 WM

List of the available manuals and software downloads for the standard Motorola versions

### 4.2 MC9090<sup>ex</sup> RFID Documentation from BARTEC

Use the following link to access the available documentation and downloads.

If you have any further questions, please contact us directly under [info@BARTEC.de](mailto:info@BARTEC.de).

Link to German homepage:

<http://www.BARTEC.de/>

Link to English homepage:

[http://www.BARTEC.de/index\\_eng.htm](http://www.BARTEC.de/index_eng.htm)

### 4.3 MC9090<sup>ex</sup> RFID Software

The software has been programmed as a demonstration program to test the devices.

The demonstration has been written into Open Source so that every operator with the development tools can view and use the structure.

The DLL files and the demonstration program are available on request as downloads on a password-protected page.

Password can be inquired from BARTEC at [info@BARTEC.de](mailto:info@BARTEC.de).

## 5 Additional Information

### 5.1 Order Numbers MC9090<sup>ex</sup> (UL Class I Division 1)

	1	7	-	A	1	2	9	-	R	_	_	_	/	H	C	_	F	A	_	_	
<b>Version</b>										↓											
MC9090 <sup>ex</sup> –G gun										G											
MC9090 <sup>ex</sup> –K brick										K											
<b>Barcode Scanning</b>											↓										
None (only with LF internal)																					
SE1524 1-D long-range scan engine (only gun)										J											
SE950 1-D standard-range scan engine (only brick)										A											
SE4400 1-D/2-D imager engine										K											
<b>RFID</b>											↓										
LF external module											1										
HF external module											2										
UHF (USA) external module											3										
LF internal module (no scan engine)											4										
UHF (USA) external module + external antenna											5										
<b>Keyboard</b>																↓					
28 keys, numeric																A					
33 keys, numeric																L					
43 keys, alphanumeric																F					
53 keys, alphanumeric																E					
53 keys, alphanumeric with layout for VT emulation																G					
53 keys, alphanumeric with layout for 3270 emulation																H					
53 keys, alphanumeric with layout for 5250 emulation																J					
<b>SD cards</b>																				↓	↓
Without SD card																				0	0
With 512 MB SD card																				0	1
With 1 GB SD card																				0	2
With 2 GB SD card																				0	3

For example: MC 9090<sup>ex</sup> –K RFID/LF without scan engine, internal RFID/LF module, 28 keys and without SD card.

Type 17-A129-RK04/HCAFA600

## 5.2 Order Numbers MC9090<sup>ex</sup> (UL Classes I, II, III Division 1)

	1	7	-	A	1	6	9	-	R	_	_	_	/	H	C	_	F	A	_	_
<b>Version</b>										↓										
MC9090 <sup>ex</sup> –G Gun										<b>G</b>										
MC9090 <sup>ex</sup> –K Brick										<b>K</b>										
<b>Barcode Scanning</b>											↓									
None (only with LF internal)																				
SE1524 1-D long-range scan engine (only gun)											<b>J</b>									
SE950 1-D standard-range scan engine (only brick)											<b>A</b>									
SE4400 1-D/2-D imager engine											<b>K</b>									
<b>RFID</b>												↓								
LF external module												<b>1</b>								
HF external module												<b>2</b>								
UHF (USA) external module												<b>3</b>								
LF internal module (no scan engine)												<b>4</b>								
UHF (USA) external module + external antenna												<b>5</b>								
<b>Keyboard</b>																↓				
28 keys, numeric																<b>A</b>				
33 keys, numeric																<b>L</b>				
43 keys, alphanumeric																<b>F</b>				
53 keys, alphanumeric																<b>E</b>				
53 keys, alphanumeric with layout for VT emulation																<b>G</b>				
53 keys, alphanumeric with layout for 3270 emulation																<b>H</b>				
53 keys, alphanumeric with layout for 5250 emulation																<b>J</b>				
<b>SD cards</b>																			↓	↓
Without SD card																			<b>0</b>	<b>0</b>
With 512 MB SD card																			<b>0</b>	<b>1</b>
With 1 GB SD card																			<b>0</b>	<b>2</b>
With 2 GB SD card																			<b>0</b>	<b>3</b>

For example: MC 9090<sup>ex</sup> –G RFID/UHF with long-range scan engine, external RFID/UHF module, 53 keys and without SD card.

Type 17-A169-RGJ3/HCEFA600