

METROLOGIC INSTRUMENTS, INC. MX009 USB Converter Configuration Guide



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TABLE OF CONTENTS

Introduction

How does the MX009 USB Cable Operate?	1
What is the difference between USB Keyboard Emulation and	
USB Serial Emulation?	1
How is the MX009 Configured for USB Keyboard Emulation?	2
How is the MX009 Configured for USB Serial Emulation?	3
MX009 USB Cable Options	4
Part Number Designation and Accessories	5
Cable Installation	6
Labels	7
Configuring for USB Keyboard Emulation (MX009-2xx7x)	
PowerLink Compatible Scanners	8
MS6720, MS860, and Tech Series	11
Configuring For USB Serial Emulation (MX009-2xx8x)	
PowerLink Compatible Scanners	16
MS6720, MS860, and Tech Series	17
Troubleshooting Guide	19
Specifications	20
Cable Information	21
Limited Warranty	22
Notices	23
Patent Information	24
Additional Bar Codes	25
Contact Information and Office Locations	30



INTRODUCTION

Metrologic's MX009 USB Cable is a device that converts serial RS232 formatted data to either USB Keyboard or USB Serial communication protocol. The MX009 can be used with all Metrologic products equipped with an RS232 interface, as well as all versions of Metrologic PowerLink compatible scanners.



All versions of Metrologic's PowerLink compatible scanners are equipped with RS232 transmit and receive communication lines.

How does the MX009 USB cable operate?

The scanner transmits scanned data via RS232 communication to the MX009. The MX009 then converts the data from RS232 to either USB Keyboard or USB Serial data. The MX009 will only function with Metrologic scanners that are equipped with RS232 communication capabilities. All PowerLink compatible scanners are equipped with the ability to communicate RS232 independent of the interface purchased. For a list of Metrologic PowerLink compatible scanners, refer to page 5.



Some older Metrologic scanners may not be used with an MX009 since they have only one interface available. For example, the MS951 with OCIA interface will not function with an MX009 because it does not have RS232 capabilities.

WHAT IS THE DIFFERENCE BETWEEN USB KEYBOARD EMULATION AND USB SERIAL EMULATION?

When the MX009 is set-up for Keyboard Emulation, the scanned data will appear in the active PC application as if the keys were pressed on the PC's keyboard.

When the MX009 is set-up to communicate as a USB Serial device, the data emulates serial (RS232) data through the use of a Metrologic developed driver. The device will then work with existing serial (RS232) applications.

The drivers can be downloaded at:

For Windows 2000/XP Operating Systems ftp://ftp.metrologic.com/pub/download/software/mtlgpos.zip

For Windows 98 (Second Edition) Operating System ftp://ftp.metrologic.com/pub/download/software/mtlgpos98.zip

The MX009 leaves the factory set for either USB Keyboard Emulation or USB Serial Emulation. *Refer to pages 8 - 18* of this manual to determine the set-up of your MX009.

How is the MX009 configured for USB Keyboard Emulation?

This guide contains the configuration bar codes necessary to ensure that the scanner communicates properly with the MX009. The scanner communicates using RS232 protocol. The default (RS232) settings of the scanner are as follows:

- For Non-PowerLink Scanners
 9600 baud, 7 data bits, 2 stop bits and space parity
- For PowerLink Scanners
 9600 baud, 8 data bits, 1 stop bits and no parity

In addition, the scanner uses ACK/NAK and XON/XOFF software handshaking, and the data transmission ends with both *carriage return* and *line feed* suffixes.

On non-PowerLink scanners, the 1st and 2nd prefixes are used to set the country of the keyboard.

NOTE #1

Please note, some of the older Metrologic products allow for a maximum of 2 prefixes. Because 2 prefixes are required for setting the country, custom prefixes cannot be set on these products. Please refer to the scanner configuration guide for the number of configurable prefixes available on your product.

Example #1: MS951, German Keyboard, Bar Code = 012345, No custom prefixes available.

Configuration: <Ctl-V> <D> <012345> <CR><LF>
Pref #1 Pref #2 Data Terminators

Data Transmitted = 012345<CR>

Prefixes #1 and #2 specify the German keyboard and the <CR> <LF> terminators are needed by the MX009 for framing the data. Only 2 custom prefixes are available on the MS951*, MS6720, MS700, MS860, Tech Series, IS4120* and IS4220*.

^{*} Discontinued Models

• How is the MX009 configured for USB Serial Emulation?

This guide contains the configuration bar codes necessary to ensure that the scanner communicates properly with the MX009. The scanner communicates using RS232 protocol. The default (RS232) settings of the scanner are as follows:

- For Non-PowerLink Scanners
 9600 baud, 7 data bits, 2 stop bits and space parity
- For PowerLink Scanners
 9600 baud, 8 data bits, 1 stop bits and no parity

In addition, the scanner uses ACK/NAK and XON/XOFF software handshaking, and the data transmission ends with both *carriage return* and *line feed* suffixes.

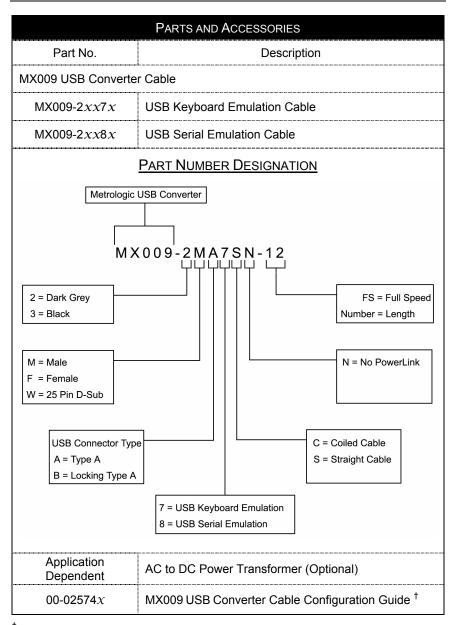
NOTE #2

When using USB Serial, special prefixes are not required.

MX009 USB CABLE OPTIONS

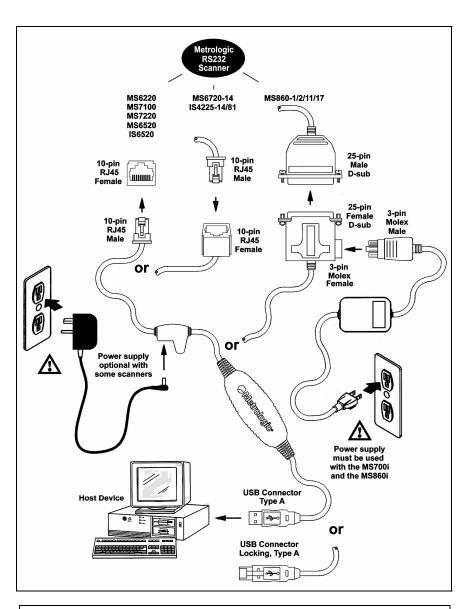
					0		
	PART NUMBER		CONNECTOR TYPE		COMPATIBLE SCANNER MODELS		
LES		STRAIGHT COILED	USB End	SCANNER END	Discontinued scanner models are shown in grey.		
CABLI	MX009-2MA7	S	Type A	10-pin RJ45	All versions of the: MS6220, MS6520, IS6520, MS7100, MS7220,		
TION		С	1) 0 / 1	Male		MS9500, MS3580 and IS3580	
⋖	MX009-2FA7	S	Type A	10-pin RJ45	MS6720-14, IS4225-14, IS4225-81		
EMUL,	WA009-21 A7	С	Туре А	Female	MS951-14, MS961-14, IS4220-14, IS4220-81		
YBOARD	MX009-2WA7	S	Type A	25-pin D-Sub Female	MS860-1, MS860-2, MS860-11, MS860-17 MS700-1, MS700-2, MS700-11, MS700-17		
KEYE	MX009-2MB7	S	Locking	10-pin RJ45 Male	All versions of the:		
USB	WIXUU9-ZIVIB1	С	Type A				MS6220, MS6520, IS6520, MS7100, MS7220, MS9500, MS3580 and IS3580
	MX009-2FB7	S	Locking	10-pin RJ45	MS6720-14, IS4225-14, IS4225-81		
600X	W/X003-21 D7	С	Type A	Female	MS951-14, MS961-14, IS4220-14, IS4220-81		
Σ	MX009-2WB7	Ø	Locking Type A	25-pin D-Sub Female	MS860-1, MS860-2, MS860-11, MS860-17, MS700-1, MS700-2, MS700-11, MS700-17		

	PART NUME	BER	CONNECTOR TYPE		COMPATIBLE SCANNER MODELS
		STRAIGHT	USB	SCANNER	Discontinued scanner models are shown in grey.
ES		COILED	END	END	are snown in grey.
CABLES	MX009-2MA8	S	Type A	10-pin RJ45	All versions of the: MS6220, MS6520, IS6520, MS7100, MS7220,
	WX009-ZWA0	С	Туре А	Male	MS9500, MS3580 and IS3580
E MULATION	MX009-2FA8	S	Type A	10-pin RJ45	MS6720-14, IS4225-14, IS4225-81
MUL,	WX009-21 A0	С	Туре А	Female	MS951-14, MS961-14, IS4220-14, IS4220-81
SERIAL EI	MX009-2WA8	S	Type A	25-pin D-Sub Female	MS860-1, MS860-2, MS860-11, MS860-17 MS700-1, MS700-2, MS700-11, MS700-17
	MX009-2MB8	S	Locking	10-pin RJ45	All versions of the:
USB	WIXUU9-ZIVIBO	С	Type A	Male	MS6220, MS6520, IS6520, MS7100, MS7220, MS9500, MS3580 and IS3580
00XW	MX009-2FB8 -	S S	Locking	10-pin RJ45	MS6720-14, IS4225-14, IS4225-81
MX		С	Type A	Female	MS951-14, MS961-14, IS4220-14, IS4220-81
	MX009-2WB8 S		Locking Type A	25-pin D-Sub Female	MS860-1, MS860-2, MS860-11, MS860-17 MS700-1, MS700-2, MS700-11, MS700-17



^T Available for download on Metrologic's website, www.metrologic.com.

To order additional items, contact the dealer, distributor or call Metrologic's Customer Service Department at 1-800-METRO or 1-800-436-3876.





Make sure the AC input requirements of the power supply match the AC outlet. The outlet should be near the equipment and easily accessible. Each MX009 has CE, UL and caution information embedded in the back of the case. The following is an example of embedded information.

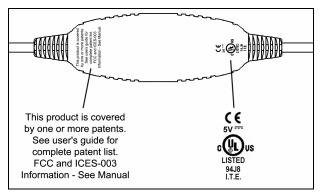


Figure 1.

Each MX009 will also have a flag tag attached to the cable with the date of manufacture, model number, and serial number.

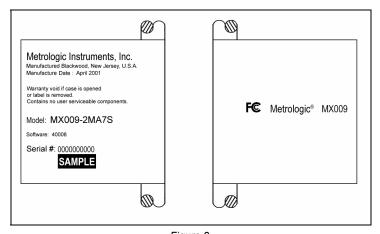


Figure 2.

^{**} Illustrations shown are not actual size.

PowerLink Compatible Scanners

These Metrologic Scanners, used with the MX009 Cable **must** be reconfigured using the following bar codes before the MX009 can communicate properly with a host system.

- MS9500 Voyager[®] Series
- MS7100 Orbit[®]
- MS7220 Argusscan[®]
- MS6520 Cubit[®]
- IS6520 Cubit[®]

- MS6220 Pulsar[®]
- MS3580 QuantumT™
- IS3480 QuantumE™
- IS4225 ScanGlove™
- All MetroSelect Compatible Scanners

Note: Configuration for USB Keyboard Emulation must be completed before enabling/disabling any additional features documented in the configuration guide provided with the scanner.

Important: When enabling/disabling additional features do <u>not</u> scan the *Recall Defaults* bar code. If the Recall Defaults bar code is scanned, all USB Keyboard Emulation configurations will be lost and the process will have to be restarted.

Scan the following bar codes in numbered sequence.

1.



2.



3.



4. Scan the appropriate bar code below to set USB Keyboard Emulation to the country keyboard required (*defaults to USA*).























5. ENTER/EXIT CONFIGURATION MODE

MS6720, MS860, AND TECH SERIES

These Metrologic Scanners, used with the MX009 Cable **must** be reconfigured using the following bar codes before the MX009 can communicate properly with a host system.

MS6720

MS860

Tech Series

Note: Configuration for USB Keyboard Emulation must be completed before enabling/disabling any additional features documented in the configuration guide provided with the scanner.

Important: When enabling/disabling additional features do not scan the Recall Defaults bar code. If the Recall Defaults bar code is scanned, all USB Keyboard Emulation configurations will be lost and the process will have to be restarted.

Scan the following bar codes in numbered sequence.

1.



2.



3.



4.



5.



6.



7.



8.



9. Scan **one** of the following bar codes to set Keyboard Emulation.

























CONFIGURING FOR USB SERIAL EMULATION (MX009-2xx8x)

PowerLink Compatible Scanners

These Metrologic scanners **must** be reconfigured using the following bar codes before the MX009 can communicate properly with the host system.

- MS9500 Voyager Series
- MS7100 Orbit
- MS7220 Argusscan
- MS6520 Cubit
- IS6520 Cubit

- MS6220 Pulsar
- MS3580 QuantumT
- IS3480 QuantumE
- IS4225 ScanGlove
- All MetroSelect Compatible Scanners

Note: Configuration for USB Serial Emulation must be completed before enabling/disabling any additional features documented in the configuration guide provided with the scanner.

Important: When enabling/disabling additional features do <u>not</u> scan the *Recall Defaults* bar code. If the *Recall Defaults* bar code is scanned, all USB Serial Emulation configurations will be lost and the process will have to be restarted.

Scan the following bar codes in numbered sequence.

1.



2.



3.



4.



CONFIGURING FOR USB SERIAL EMULATION (MX009-2xx8x)

MS6720, MS860, AND TECH SERIES

These Metrologic scanners **must** be reconfigured using the following bar codes before the MX009 can communicate properly with a host system.

MS6720

MS860

Tech Series

Note: Configuration for USB Serial Emulation must be completed before enabling/disabling any additional features documented in the configuration guide provided with the scanner.

Important: When enabling/disabling additional features do <u>not</u> scan the *Recall Defaults* bar code. If the *Recall Defaults* bar code is scanned, all USB Serial Emulation configurations will be lost and the process will have to be restarted.

Scan the following bar codes in numbered sequence.

1.



2.



3.



4.



5.



6.



TROUBLESHOOTING GUIDE

The following guide is for reference purposes only. Contact a Metrologic representative at 1-800-ID-METRO or 1-800-436-3876 to preserve the limited warranty terms on page 22.

Test Bar Code

Scanning the following bar code will transmit the encoded characters followed by the software number of the MX009.



SYMPTOMS	Possible Cause(s)	SOLUTION
No LEDs, beep or laser	No Power is being supplied to the scanner	Make sure the cable is plugged into the scanner. Check the transformer (if one is supplied), the outlet and power strip.
No LEDs, beep, or laser	No power is being supplied from the USB port.	The MX009 requests 100mA from the USB port. If the USB port cannot supply this, a notification window will appear on the screen.
After scanning a bar code, the Red and Green LEDs are on, but no data is being transmitted to the host.	The scanner is not programmed properly for communication to the MX009.	Re-program the scanner using the appropriate codes for your scanner model (Refer to pages 8-18).
USB Keyboard Emulati	on	
After scanning a bar code, the scanner beeps, but the characters appear incorrectly in your application.	The scanner is not programmed correctly. The incorrect country has been selected.	Re-program the scanner using the appropriate codes for your scanner model (Refer to pages 8-18).
The scanner powers up, but does not scan and/or beep.	Scanning a particular bar code symbology that is not enabled.	UPC/EAN, Code 39, Interleaved 2 of 5, Code 93, Code 128 and Codabar are enabled by default. Verify that the type of bar code being read is enabled.

	MX009 USB Converter Cable Specifications
MECHANICAL	
Dimensions:	80.4 mm (3.2") L x 32.4 mm (1.3") W x 18.7 mm (0.7") H
Weight:	160 g (0.35 lb)
Termination:	10-pin modular RJ45 Male to USB 10-pin modular RJ45 Female to USB. 25-pin Female D-Sub to USB
Cable:	Straight or Coiled
ELECTRICAL	
Input Voltage:	5.0 VDC ± 0.25V
EMC:	FCC, ICES-003 & EN 55022 Class B
ENVIRONMENTAL	
Temperature:	Operating: 0°C to 40°C (32°F to 104°F)
remperature.	Storage: -40°C to 60°C (-40°F to 140°F)
Humidity:	5% to 95% relative humidity, non condensing
Contaminants:	Sealed to resist airborne particulate contaminants
Ventilation:	None required

Specifications subject to change without notice.

CABLE INFORMATION

	Scanner Connector End	USB Connector End			
1 10 10-Pin RJ45 Male		4 □ → □ Type A		or	Locking Type A
Pin	Function	MX009-	2MA7x and		MX009-2MB7x and
1	Ground	MX00	MX009-2MA8x		MX009-2MB8x
2	TXD	y = C (opiled) o		or S (Straight) cable
3	RXD	^-	· C (colled) () 0 10	Straight) cable
4	RTS	Pin	Function		
5	CTS	1	Vbus		
6	DTR/LP	2	D-		
7	Reserved	3	D+		
8	LP Data	4	Ground		
9	+5 VDC From Transformer				
10	SHD/GND				

	Scanner Connector End	USB Connector End			
1 10 10 10 10 10-Pin RJ45 Female		Type A		or	1 Locking Type A
Pin	Function	MX009-	2FA7x and		MX009-2FB7x and
1	Ground	MX009-2FA8x			MX009-2FB8x
2	TXD	v -	C (coiled)	or S (Straight) cable
3	RXD	^ -	· C (colled)	01 3 (Straight) cable
4	RTS	Pin Function			
5	CTS	1	Vbus		
6	DTR/LP SRC	2	D-		
7	Reserved	3	D+		
8	LP Data	4	Ground		
9	+5 VDC From Transformer				
10	SHD/GND				

	Scanner Connector End	USB Connector End			
1 13		Type A		or	1 Locking Type A
Pin**	Function	MX009-2WA7x and			MX009-2WB7x and
2	RS232 Receive	MX009-2WA8x			MX009-2WB8x
3	3 RS232 Transmit		y = C (soiled) or S (Straight) soble		
7	Signal Ground	x = C (coiled) or S (Straight) cable		Straight) Cable	
13	Earth Ground	Pin	Function		
14	Power GND #1	1	Vbus		
19	Power In	2	D-		
25	Power GND #2	3	D+		
** Pin:	s not shown are "No Connect".	4	Ground		

I IMITED WARRANTY

The MX009 USB converter cables are manufactured by Metrologic at its Blackwood, New Jersey, U.S.A. facility and at its Suzhou, China facility. The MX009 USB converter cables have a two (2) year limited warranty from the date of manufacture. Metrologic warrants and represents that all MX009 USB converter cables are free of all defects in material, workmanship and design, and have been produced and labeled in compliance with all applicable U.S. Federal, state and local laws, regulations and ordinances pertaining to their production and labeling.

This warranty is limited to repair, replacement of product or refund of product price at the sole discretion of Metrologic. Faulty equipment must be returned to one of the following Metrologic repair facilities: Blackwood, New Jersey, USA; Madrid, Spain; or Suzhou, China. To do this, contact the appropriate Metrologic Customer Service/Repair Department to obtain a Returned Material Authorization (RMA) number.

In the event that it is determined the equipment failure is covered under this warranty, Metrologic shall, at its sole option, repair the Product or replace the Product with a functionally equivalent unit and return such repaired or replaced Product without charge for service or return freight, whether distributor, dealer/reseller, or retail consumer, or refund an amount equal to the original purchase price.

This limited warranty does not extend to any Product which, in the sole judgment of Metrologic, has been subjected to abuse, misuse, neglect, improper installation, or accident, nor any damage due to use or misuse produced from integration of the Product into any mechanical, electrical or computer system. The warranty is void if the case of Product is opened by anyone other than Metrologic's repair department or authorized repair centers.

THIS LIMITED WARRANTY, EXCEPT AS TO TITLE, IS IN LIEU OF ALL OTHER WARRANTIES OR GUARANTEES, EITHER EXPRESS OR IMPLIED, AND SPECIFICALLY EXCLUDES, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE UNDER THE UNIFORM COMMERCIAL CODE, OR ARISING OUT OF CUSTOM OR CONDUCT. THE RIGHTS AND REMEDIES PROVIDED HEREIN ARE EXCLUSIVE AND IN LIEU OF ANY OTHER RIGHTS OR REMEDIES. IN NO EVENT SHALL METROLOGIC BE LIABLE FOR ANY INDIRECT OR CONSEQUENTIAL DAMAGES, INCIDENTAL DAMAGES, DAMAGES TO PERSON OR PROPERTY, OR EFFECT ON BUSINESS OR PROPERTY, OR OTHER DAMAGES OR EXPENSES DUE DIRECTLY OR INDIRECTLY TO THE PRODUCT, EXCEPT AS STATED IN THIS WARRANTY. IN NO EVENT SHALL ANY LIABILITY OF METROLOGIC EXCEED THE ACTUAL AMOUNT PAID TO METROLOGIC FOR THE PRODUCT. METROLOGIC RESERVES THE RIGHT TO MAKE ANY CHANGES TO THE PRODUCT DESCRIBED HEREIN.

CORPORATE HEADQUARTERS, NORTH AMERICA Metrologic Instruments, Inc. 90 Coles Rd. Blackwood, NJ 08012-4683 Customer Service Department

Tel: 1-800-ID-METRO Fax: 856-228-6673 Email: info@metrologic.com

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Tel: +34 913 751 249 Fax: +34 913 270 437

TESTED TO COMPLY WITH FCC STANDARDS FOR HOME OR OFFICE USE

Notice

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.

Notice

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 instruction, 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

Any unauthorized changes or modifications of this equipment could void the users authority to operate this device.

Notice

This Class B digital apparatus complies with Canadian ICES-003.

Avertissement

Cet appareil numérique de la class B est conforme à la norme NMB-003.

DECLARATION OF CONFORMITY

According to 47 CFR, Part 2 and 15 for Class B Personal Computers and Peripherals; and/or CPU Boards and Power Supplies used with Class B Personal Computers:

We: Metrologic Instruments, Inc.

Located at: 90 Coles Road

Blackwood, NJ 08012

Telephone: 856-228-8100

Declare under sole responsibility that the product identified herein, complies with 47 CFR Part 2 and 15 of the FCC rules as a Class B digital device. Each product marketed is identical to the representative unit tested and found to be in compliant with the standards. Records maintained continue to reflect the equipment being produced can be expected to be within the variation accepted, due to quality production and testing on a statistical basis as required by 47 CFR § 2.909. 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.

Trade Name: METROLOGIC

Type of Product: Bar Code Scanner

Model: MX009 alphanumeric suffix may follow.

PATENT INFORMATION

For patent information, please refer to www.honeywellaidc.com/patents.

ADDITIONAL BAR CODES

Some Metrologic scanners require alternate configuration steps than the steps found on pages 8 - 18. If your scanner was manufactured before May 2002 or does not accept the standard configuration sequences, you may need to use one of the alternate configuration methods listed on the following pages. Contact a Metrologic customer service representative to help determine if your scanner requires one of these methods.

Alternate Configuration for USB Keyboard Emulation (MX009-2xx7x) PowerLink Compatible Scanners

1.



2.



3.



4.



5.



6.



7.



8. Scan the appropriate bar code below to set USB Keyboard Emulation to the country keyboard required.



























Alternate Configuration for USB Serial Emulation (MX009-2xx8x) PowerLink Compatible Scanners

1.



2.



3.



4.



5.



6.



7.

ENTER/EXIT

CONFIGURATION MODE

CONTACT INFORMATION AND OFFICE LOCATIONS

CORPORATE HEADQUARTERS NORTH AMERICA

USA, New Jersey

Metrologic Instruments, Inc.

Tel: 1-800-ID-METRO Fax: 856-228-6673

Email: info@metrologic.com

SOUTH AMERICA AND CENTRAL AMERICA Brazil São Paulo

Metrologic do Brasil Ltda.

Tel: 55-11-5182-8226 Fax: 55-11-5182-8315

Email: info@br.metrologic.com

Outside Brazil São Paulo

Metrologic South America

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Email: info@sa.metrologic.com

ASIAN HEADQUARTERS Asia, Singapore

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