



KP2201 Imager Barcode Scanner User Manual



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Safety information

Carefully read the general information regarding safety before using the device for the first time. An improper use of the device could damage the device or cause harm to both people and things.

CE certification

The device conforms to **European Directive 1999/5/EC**.



Disposal (RAEE)



The barred mobile container present on the product, the documentation or the packaging indicates the necessity, within the European Union, of a separate collection for expired electric and electronic products, including the batteries and the accumulators.

The user should, therefore, take the equipment at the end of its useful life separate waste collection of electronic and electrical waste, or return it to the dealer.

Do not dispose of these products in unsorted municipal refuse. Return the product to an authorized collection center to avoid damage to the environment or human health caused by uncontrolled disposal of waste and to promote the sustainable re cycling of materials

Improper disposal of the product by the user entails the application of administrative sanctions provided by law

RoHS

This device and all its components, subcomponents and consumables were produced in accordance with European directive 2002/95/EC also known as RoHS (Restrictions on the use of certain Hazardous Substances). This directive serves to reduce the polluting substances used in electronic devices.

Antistatic devices



Before working on the device, it is necessary to apply the correct antistatic procedures to avoid possible damage by ESD (Electrostatic Discharge) on the internal circuitry.

Label

The product label is showed below



Symbology used in the definitions table:

Symbol/Text	Description
	Notified potential danger or possible malfunctioning
	Instructions that must be followed in order to guarantee the device functions correctly

Technical Assistance

If you have a technical question regarding the product's installation or detect a problem with the device's operation send an email to technical support at

[email: support@kaptur-id.com.com](mailto:support@kaptur-id.com.com).

Before returning any materials for any reason it is necessary to send an email to technical support at Kaptur at the above address which includes the following information:

- Model
- Serial number
- Detailed and complete description of the malfunction
- Your company information
- The reference person within your company

In response to your mail you will receive an RMA number (Returned Material Authorization) which authorizes the material's return.

The device must be returned in a protective antistatic bag and adequately packaged to ensure that the product is well protected during transport.



In case you have bought the product from Distributor channel please contact them for the first assistance .



Returning a device to Kaptur without adequate packaging will result in the nullification of the product warranty.

Getting Started

Packaging Information



Inside the standard packaging you will find: A Barcode Reader, a flexible stand (optional), the Quick Guide

Part of the scanner

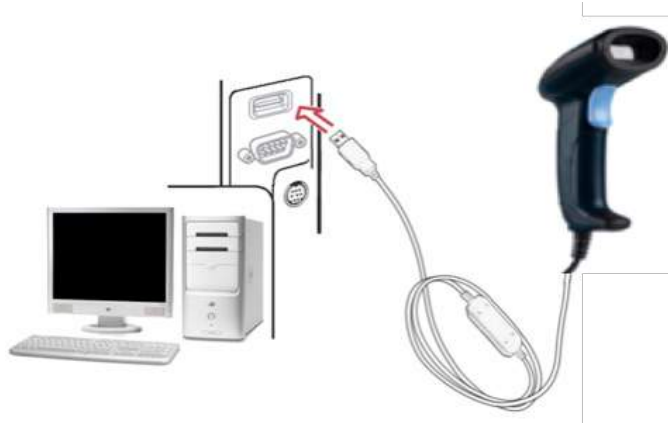


Use a piece of dry and soft cloth when cleaning the scanner. Be careful and do not scrap the reading windows.

Installation

Connect Scanner to computer

1. Switch Off the Computer
2. Refer to the below pictures, connect the USB Cable to the computer
3. Ensure that all the connection are secure
4. Switch on the Computer. If installation is correct the LED ① will lights Up and the Buzzer ⑤ will emit a beep.



Disconnect Scanner from Computer

1. Switch Off the computer and unplug the USB Cable

Setting

To configure the device, it is sufficient to read the setting barcode. If the configuration code is read the scanner will emit a dual high frequency beep

Restore factory default setting

To reset the parameter to factory default. Use this code carefully and only if you are not sure how is configured the scanner.



RESET TO FACTORY DEFAULTS



These are the most common settings. If more settings are required please contact the manufacturer. The factory default settings are indicated with "Default"

Interface configuration

The scanner has been configured in factory with the USB HID enabled. If it is necessary to change the interface scan one of the below codes

USB HID interface

To configure the scanner in USB HID operating mode scan the below code



Enable USB HID (Default)

Language keyboard Setting

The scanner supports different national keyboard layouts. Commonly an appropriate encoding system must be selected.

It is possible to configure the scanner for different keyboard layout just reading the below programming code.



US Keyboard (Default)



French Keyboard



Hungarian Keyboard



Italian Keyboard



Japan Keyboard



Spanish Keyboard



Czech Keyboard



Germany Keyboard

Inter-character delay

This delay is inserted after each data character transmitted. By selecting, the user can change the output speed of the scanner to match the speed of the host USB communication port.



1 msec delay (Default)



5 msec delay



3 msec delay



10 msec delay

USB Virtual COM

By setting, the scanner emulates a regular COM port. If a Microsoft Windows PC is connected to the scanner, a driver is required to be installed. The driver will use the next available COM Port number. The driver and the installation guide can be found in the software package provided on the manufacturer website. A Window terminal emulator software is recommended to display the barcode data in text format.

To configure the scanner in USB Virtual COM mode. No other settings are necessary after this selection.

Note:

Driver have to be installed on Windows PC



Enable USB Virtual COM

Scan Reading Mode

Select one of the below codes to select the reading mode

Trigger mode

In this configuration the device starts when the trigger button is pressed and stay on until the trigger is released, or until a valid read has been successfully made.



Trigger Mode (Default)

Continuous mode

In this configuration the device start reading in continuous mode when the trigger button is pressed. The device stop at the second presson of the Trigger. *After the read of the configuration code the device enters in reading mode. To stop it just press the trigger button.*



Continuous Mode

Same Barcode Reading

When in Continuous Mode to avoid multiple reading of same bar code is it possible to set the function “Same barcode Time out”. In this way if the read barcode is the same of the previous the good read is performed after the expired time.



Same Barcode Time Out Enable (Default)

No Time out on Same barcode reading



When the Same Barcode Time out is enabled, the delay can be programmed to:



0.5sec time out (Default)

1sec time out



3sec time out

5sec time out



Infinite time out. Use this settings if is necessary avoid the reading of the same barcode

Presentation Mode

In this mode the device monitors the brightness of the surrounding area. When the scene changes the device start to detect and read a valid code.



Presentation Mode

After a successful reading the device enter in brightness monitor before start to detect and read a valid barcode. The brightness monitor time out can set reading the below code.



No time out



0.5sec time out



1sec time out (Default)



1.5sec time out



2sec time out

Same Barcode Reading

When in Presentation Mode the multiple reading of same bar code is enabled. To set the delay on reading use the same settings of continuous reading

Lighting and Aiming

Lighting

The device provides auxiliary lighting to improve the reading in dark conditions.



Turn on Light during reading operation (Default)



Auxiliary light always ON



Auxiliary light always OFF

Aiming

Red aiming light is projected by the device on the reading are to best detect the barcode.



Project Aiming light during reading operation (Default)



Aiming light always ON



Aiming light always OFF

Buzzer Setup

On the device there is buzzer to indicate the successful of reading and programming operation.

Sound at Power On



Enable the double beep when the device is powered on (Default)



No beep at power on

Buzzer tone

The buzzer can be set to emit diffent tone frequency



Low frequency



Mid frequency (Default)



High frequency

Success Read Tone



At success read the Buzzer will emit a sound (Default)



At success read the Buzzer will be mute

Successful read tone duration

The time of successful read can be set reading the below code



30 msec



90 msec



60 msec (Default)



120msec

Data Editing

In some application it is necessary to edit the output of data read in order to optimize the process of the read data. The possible editing are:

- ADD PREFIX
- ADD SUFFIX
- ADD Barcode Type ID
- ADD Termination Character

The structure of the transmitted code will be

<i>Prefix</i>	<i>Barcode Type ID</i>	<i>Barcode Value</i>	<i>Suffix</i>	<i>Termination Character</i>
---------------	------------------------	----------------------	---------------	------------------------------



Prefix and Suffix can be max 15 ASCII characters
For the ASCII Table refer to the chapter relative chapter

Add Prefix

Prefix is a string that is customizable by the user. The sting will be added before the data



Enable Prefix



Disable Prefix (Default)



Program / Modify Prefix



Save Prefix



If Prefix is disabled (as per Default Configuration) the scanned doesn't sent out it also if programmed.
Be sure to enable Prefix after having programmed it.

In order to add the Prefix or Suffix proceed as indicate below

1. Scan the barcode "Modify Prefix"
2. Check the ASCII table and get the ASCII Code for the Character to add
3. Scan the barcode of ASCII
4. Scan the barcode Save Prefix or Suffix

Example: Add character "+" as prefix

On the ASCII Table the character "+" is equal to 2B



Program / Modify Prefix



Scan value 2 on ASCII Table



Scan Value B on ASCII Table



Save Prefix or Suffix



Enable Prefix

Add Suffix

Prefix is a string that is customizable by the user. The sting will be added after the data



Enable Suffix



Disable Suffix (Default)



Program / Modify Suffix



Save Suffix



If Suffix is disabled (as per Default Configuration) the scanned doesn't sent out it also if programmed. Be sure to enable Suffix after having programmed it.

In order to add the Prefix or Suffix proceed as indicate below

1. Scan the barcode "Modify Prefix"
2. Check the ASCII table and get the ASCII Code for the Character to add
3. Scan the barcode of ASCII
4. Scan the barcode Save Prefix or Suffix

Example: Add character "*" as Suffix

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On the ASCII Table the character “+” is equal to 2A



Program / Modify Suffix

Scan value 2 on ASCII Table



Scan Value A on ASCII Table

Save Prefix or Suffix



Enable Prefix

Code extraction

In this guide you can find the instruction how to extract a part of the read code as:

1. Read Barcode and skip n characters from the left of code (beginning of code)
*Example the code is **1234**567890ABDCEF and data to be returned is 1234*
2. Read Barcode and return n characters from the right of code (end of code of code)
*Example the code is 1234567890AB**DCEF** and data to be returned is DCEF*
3. Read Barcode and return n characters from the center of code
*Example the code is 123456**7890**ABDCEF and data to be returned is 7890*

The configuration bar code to enable these functionalities are:



Return the entire code read (Default)

Enable Return data from Left



Enable Return data from Right



Return Data from Center



Before enable the functionality LEFT – RIGHT – CENTER it is necessary to set the n character to skip

Return Characters from Left

To configure the scanner to return the n characters from left it is necessary to read the below bar code and in sequence (from ascii table) the number of characters



Configure number of Character to return from LEFT



The value of number of characters to return is in HEX format. Example if the characters are 9 the Hex value is 0A. In this case scan from ASCII table the value 0 and A

Example the code is: *3CRA3074862 01100493. 0100005000000070LT. AKL.*

STANDARD. 1W



and data to be returned is ***“3CRA3074862 01”***, so the number of characters to skip are 14 (Hex 0x0E). Proceed as below



Configure number of Character to return from LEFT

“0 (zero)” from ASCII Table



“E” from ASCII Table



Save data



Enable Return data from LEFT



Return Characters from Right

To configure the scanner to return the n characters from right it is necessary to read the below bar code and in sequence (from ascii table) the number of characters



Configure number of Character to return from RIGHT



The value of number of characters to return is in Hex format. Example if the characters are 10 the Hex value is 0x0A. In this case scan from ASCII table the value 0 and A

Example the code is: 3CRA3074862 01100493. 0100005000000070LT. AKL.

STANDARD. 1W



and data to be returned is "**STANDARD. 1W**", so the number of characters to skip are 15 (HEX 0F). Proceed as below



Configure number of Character to return from RIGHT

"0 (zero)" from ASCII Table



"F" from ASCII Table

Save data



Enable Return data from RIGHT

Return Characters from Center

To configure the scanner to return the n characters from center right it is necessary to define the number to skip from left and to skip from right.



In this case the configuration barcode “Configure number of Character to return from LEFT” define the number of character to skip left, and the “Configure number of Character to return from RIGHT” define the character to skip from right
It is important to save the configuration value readed

Example the code is: 3CRA3074862 01100493. 0100005000000070LT. AKL.

STANDARD. 1W



and data to be returned is “100493”, so the number of characters to skip from left are 14 (Hex 0x0E), and the characters to skip(delete) from RIGHT are 67 (Hex 0x43) Proceed as below



Configure number of Character to return from LEFT

“0 (zero)” from ASCII Table



“E” from ASCII Table

Save data



Configure number of Character to return from RIGHT

“4” from ASCII Table



“3” from ASCII Table

Save data



Enable Return data from Center

Save and Cancel programmed Value

After reading the data code, you scan the Save setting code to save the read data. If during the reading operation a wrong code has been read, is it possible to cancel it.

For example, If the data read are ABCD

- Cancel the LAST read data will delete the last read "D",
- Cancel ALL the string read data will cancel the read data "ABCD",
- Cancel the modification settings, the read data "ABCD" will be canceled, and the modification setting will be exited. The previous value, if any, won't be modified



Save data

Cancel the last read data



Cancel all the read data



Cancel the modification settings



Add Barcode Type ID

The Barcode Type ID can be transmitted if is necessary to identify the type of readed barcode



ADD Barcode Type ID

DO NOT ADD Barcode Type ID (Default)



Bar code type	Corresponding characters
<u>EAN-13</u>	<i>d</i>
EAN-8	d
UPC-A	c
UPC-E0	c
UPC-E1	c
Code 128	j
Code 39	b
Code 93	i
Codabar	a
Interleaved 2 of 5	e
Industrial 2 of 5	D
Matrix 2 of 5	v
Code 11	H
MSI-Plessey	m
GS1 Databar(RSS-14)	R
GS1 Databar Limited (RSS)	R
GS1 Databar Expanded (RSS)	R
QR Code	Q
Data Matrix	u
PDF 417	r

Add Terminator Character

It is possible to add a terminator at the end of the transmission of the code readed. The selection can be “None” - “Return (CR)” - “TAB” - “Return/Line Feed (CR/LF)”.



None



TAB



CR (Default)



CR / LF

Symbologies Selection

All the symbology indicated on the table 1 are enabled as default parameter. Is it possible to enable/disable every single code just reading the relative configuration code.
To increase the speed on decoding time in some case it is necessary to disable the 2D Symbology.

Is it possible to Enable / Disable in block all the supported Barcodes. After having disabled all the barcode it is possible enable the single standard reading the relative code to enable it.

Enable & Disable all Barcodes



Enable All Barcode (Default)



Disable All Barcodes

Symbology Selection and configurations

EAN 13



Enable EAN13 (Default)



Disabled EAN13

EAN 8



Enable EAN8 (Default)



Disabled EAN8

UPC A



Enable UPC A(Default)



Disabled UPC A

UPC E0



Enable UPC E0(Default)



Disabled UPC E0

UPC E1



Enable UPC E1(Default)



Disabled UPC E1

Code 128



Enable Code 128 (Default)



Disable Code 128

Code 39



Enable Code 39 (Default)



Disable Code 39

Code32



Code 32 Enable



Code 32 Disabled (Default)

Code 93



Enable Code 93 (Default)



Disable Code 93

Codebar



Enable Codebar(Default)



Disable Codebar

QR Code



Enable QR Code (Default)



Disable QR Code

Interleaved 2 of 5



Enable Interleaved 2 of 5(Default)



Disable Interleaved 2 of 5

Industrial 25



Enable Industrial 25(Default)



Disable Industrial 25

Matrix 2 of 5



Enable Matrix 2 of 5(Default)



Disable Matrix 2 of 5

Code 11



Enable Code 11(Default)



Disable Code 11

MSI



Enable MSI (Default)



Disable MSI

Datamatrix



Enable Datamatrix (Default)



Disable Datamatrix

PDF417



Enable PDF417 (Default)



Disable PDF417

AZTEC



Enable Aztec (Default)



Disable Aztec

Hanhix



Enable Hanhix (Default)



Disable Hanhix

MicroPDF



Enable MicroPDF (Default)



Disable MicroPDF

User and factory default settings

User Default Settings

In addition to the FACTORY SETTINGS, users can also save their frequently used configuration as the USER DEFAULT SETTINGS. After having completed the customized settings just read the Save the current settings as the user default settings.

If the user default setting information is already saved, the new configuration will replace the previous one

The read-reading module can be switched to the user default setting information by scanning Restore user default settings



Save the current setting as the user default



Recall user default settings

Restore factory default setting

To reset the parameter to factory refault. Use this code carefully and only if you are not sure how is configured the scanner.



RESET TO FACTORY DEFAULTS

Appendix

ASCII Table

#	0	1	2	3	4	5	6	7
0	NUL	DLE	SP	0	@	P	`	p
1	SOH	DC1	!	1	A	Q	a	q
2	STX	DC2	"	2	B	R	b	r
3	ETX	DC3	#	3	C	S	c	s
4	EOT	DC4	\$	4	D	T	d	t
5	ENQ	NAK	%	5	E	U	e	u
6	ACK	SYN	&	6	F	V	f	v
7	BEL	ETB	'	7	G	W	g	w
8	BS	CAN	(	8	H	X	h	x
9	HT	EM	)	9	I	Y	i	y
A	LF	SUB	*	:	J	Z	j	z
B	VT	ESC	+	;	K	[	k	{
C	FF	FS	,	<	L	\	l	
D	CR	GS	-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL



To have the right code select the column and that the row.
Example: To value of the "A" is 41 Column 4 Row 1 - the value of "+" is 2B Column 2 Row B
Use the ASCII Code Value to set the value

Programming ASCII Code



Technical specifications

Input voltage	5 VDC $\pm$ 0.25V
Current	190 mA (Operating.)
Standby current	10mA
2D Imager	Area Image (640 x 480 pixel array)
Decoding rate	200 times/sec
Scanning angle	$\pm 75^\circ$, $\pm 65^\circ$, $\pm 360^\circ$ (Skew, Pitch, Roll)
Print contrast	25% minimum reflection difference
Decode capability	UPC-A, UPC-E, UPC-E1, EAN-13, EAN-8, ISBN (Bookland EAN), ISSN, Code 39, Code 39 full ASCII, Code 32, Trioptic Code 39, Interleaved 2 of 5, Industrial 2 of 5 (Discrete 2 of 5), Matrix 2 of 5, Codabar (NW7), Code 128, UCC/EAN 128, ISBT 128, Code 93, Code 11 (USD-8)
Indicator	Beeper, LED
Interface supported	USB Keyboard, USB virtual COM
Operating mode	Hand-held, Auto-detection (Optional)
Dimensions	Height x Width x Depth - 99 x 60 x 170mm
Weight	30g, without cable
Cable	Straight 1.5m
Case material	PC+TPU
Temperature	Operating -5 $^\circ$ to 65 $^\circ$ C Storage -20 $^\circ$ to 70 $^\circ$ C
Humidity	5% to 95% (non-condensing)
Program upgrade	Online
Safety	EMC: EN55022, EN55024 Electrical Safety: EN60950 Drop resistance: Multiple Drop 2m Protection: IP52

Supported Barcode & Default setting for each barcode

The table indicate the supported barcode as the Enabled barcode at factory default.

Code type	Read enable	Check digit verification	Check digit transmission	Min. code length
UPC-A	V	V	V	(12) ¹
UPC-E	V	V	V	(8) ¹
EAN-13	V	V	V	(13) ¹
EAN-8	V	V	V	(8) ¹
Code 39	V	-	-	4
Code 32	V	-	-	4
Interleaved 2 of 5	V	-	-	4
Codabar	V	-	-	4
Code 128	V	V	-	4
Code 93	V	-	-	4
Industrial 25	V	-	-	4
Matrix 2 of 5	V	-	-	4
Code 11	V	-	-	4
GS1 DataBar	V	-	-	(16) ¹
GS1 DataBar Truncated ²	V	-	-	(16) ¹
GS1 DataBar Limited	V	-	-	(16) ¹
GS1 DataBar Expanded	V	-	-	1
PDF417	V	-	-	1
DataMatrix	V	-	-	1
QR Code	V	-	-	1
Aztec Code	V	-	-	1
Hanxin	V	-	-	1
MicroPDF	V	-	-	1

Notes

¹ Fixed-length barcodes.

² The settings for GS1 DataBar Truncated and GS1 DataBar must be the same.

Troubleshooting

Problem	Possible causes	Possible solutions
Nothing happens when you follow the operating instructions.	No power to the scanner.	Check the system power. Ensure the power supply is connected.
Illumination and aimed red line are on, but the scanner does not decode.	Bar code symbol is unreadable.	Check the symbol to make sure it is not disabled. Try scanning test symbols of the same bar code type.
	Scanner is not programmed for the correct bar code type.	Be sure the scanner is programmed to read the type of bar code you are scanning.
	Distance between scanner and bar code is incorrect.	Move the scanner closer to or further from the bar code.
Scanned data is incorrectly displayed on the host.	Scanner is not programmed to work with the host. Check scanner host type parameters or editing options.	Be sure proper host is selected. For RS-232, ensure the scanner's communication parameters match the host's settings. For a USB-HID keyboard or a keyboard wedge configuration, ensure the system is programmed for the correct keyboard type and language, and the CAPS LOCK key is in the correct state.
Others		Contact your distributor or the manufactory support Centre.

Maintenance

1. Cleaning the exit window is the only maintenance required. A dirty window may affect scanning accuracy.
2. Do not allow any abrasive material to touch the window.
3. Remove any dirt particles with a damp cloth.
4. Wipe the window using a tissue moistened with water.
5. Do not spray water or other cleaning liquids directly into the window.
6. Use a piece of soft and dry cloth when cleaning the scanner.

Test barcode



UPC-A Value 123456790124



UPC-E Value 01234565



UPC-E(1) Value "01234565"



EAN 13 Value 1234567890128



EAN 8 Value 12345670



ISBT/ISSN Value 9781234567897



CODE 39 Value 1234-ABCD



Code Interleaved 2 of 5 Value 0123456784



CODABAR Value A12345678\$B



CODE128 Value A12345678B



UCC ENA128 Value 0101234567890128



Code 93 Value ABC-1234-/+



GS1 DataBar Value 0100123456784444



GS1 DataBar Limited Value 0101234567890128



GS1 DataBar Expanded Value 0112345678901231BCabc



PDF417 Value This is a MicroPDF417 by Kaptur



DataMatrix Value This is a Data Matrix by Kaptur



QR Code Value This is a QR Code by Kaptur



Aztec Value This is an Aztec Code by Kaptur