



Manual del usuario
2D Image Handfree USB Scanner

NS-LC200D



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1 Getting Started

1.1 Introduction

With leading image intelligent recognition algorithm, 3206 bar code recognize-read module developed a set of advanced bar code read algorithms for smaller and higher version bar code recognition and read.

The module combines image intelligent recognition algorithm and its chip design technology, dramatically simplifies development difficulties of bar code recognition and read products.

1.2 About the Manual

This manual mainly provides 3206 set commands. Users can modify 3206 communication interface parameters, recognize-read mode, prompt, and other functions. In most cases, users could use 3206 directly without modifications. There lists 3206 default functions and parameters in the appendix for reference.

1.3 Set Code Enable/Disable

Enable set code, scan set code to configure recognize read engine parameters.



* Enable set code



Disable set code

Output set code content



Output set code content



* Do not output set code content

1.4 Restore Factory Settings

This selection erases all your settings and resets the engine to the original factory defaults. Scan the Restore factory settings barcode. This will erase all previous settings and return to the engine's factory default settings.



Restore factory settings

2 Communication Interface

3206 provides TTL-232 serial communication interface and USB interface to communicate with Host.

2.1 Serial Communication Interface

Serial communication interface is frequent used to connect engine to Host devices. While engine is connected with Host via serial port line, by default, the system is under serial communication mode. While using serial communication interface, parameters of both engine and Host device must be completely matched for smooth communication and correct contents.



Serial output

Engine serial communication interface uses TTL-232 which is compatible with most system structures. If it is needed to use RS-232 structure, external change-over circuit is needed.

Default serial communication parameters as shown in Table 2-1. Baud rate is able to be modified by serial command.

Parameter	Default
Serial communication type	Standard TTL-232
Baud rate	9600
Parity Type	None
Data bit	8
Stop bit	1
Hardware fluidic control	None

2.1.1 Baud Rate Set

The unit of Baud Rate is bits per second (bps). The selectable configuration parameters are shown in the table below.



1200



2400



4800



*9600



14400



19200



38400



57600



115200

2.1.2 Check

There are three kinds of checksum, including no-checksum, odd checksum and even checksum.



* No check



Odd parity



Even parity

2.2 USB HID-KBW

While module is connected with Host via USB cable, scan USB HIDKBW set code to configure module to standard keyboard input mode.



* USB HIDKBW

2.2.1 Delay setting between keys

The key time interval during continuous key operation of the virtual keyboard. The interval time is from the last key release to the next key press. The setting range of the delay between keys is 0~75ms, and the default delay between keys is 2ms.



* Default delay



No delay



Short delay



Long delay



Custom delay

2.2.2 Case Conversion Control

Through the following set code configuration, A~Z letter case conversion can be realized.



* Normal output



Reverse case



All caps



All lowercase

2.3 USB virtual serial port



Switch to USB virtual serial port

2.4 USB HID-POS



Switch to HID-POS virtual serial port

Protocol format:

- vid: 0x26f1
- pid: 0x8803

Host send data format:

Byte	Content
0	Message ID (0x04)
1	Valid data length
2-61	Data
62	0x00, RFU
63	0x00(No data behind) 0x01(There is data behind)

Device send data format

Byte	Content
0	Message ID (0x02)
1	Valid data length
2-57	Data
58-62	0x00, RFU
63	0x00(No data behind) 0x01(There is data behind)

3 Recognize-Read Mode

3.1 Trigger Mode

Trigger mode is default recognize-read mode. Under the mode, after trigger key's been pressed, engine starts to read, after read success and output, or trigger key's been released to stop reading.



*Trigger Mode

3.1.1 Single recognize-read duration

Under the mode, the parameter means the max duration allowed for engine to acquire and recognize before read success. Default duration is 3.0s.



*3000ms



5000ms

3.1.2 Same Recognize-read interval duration

The parameter means interval duration between the adjacent 2 read with the same value.



*Disable interval



Enable interval



Infinite



1000ms



1500ms



3000ms

3.2 Sensor Mode

After setting, engine starts to detect brightness of the ambient environment without being triggered. While scene changes, engine holds until the set image stabilized and starts to read. After read success and output or single read timeout, engine holds for a while (duration to be set) and restarts to detect. Engine keeps a circulating operation like this, unless: during reading, users do not scan bar code, engine pauses automatically and enters to a detection status. Under the mode, engine starts to read after the trigger key's been pressed as well, while read success and output or the trigger key's been released, engines continues to detect brightness of ambient environment.



Sensor mode

3.2.1 Single recognize-read duration

Under the mode, the parameter means the max duration allowed for engine to acquire and recognize before read success. Default duration is 3.0s.



*3000ms



5000ms

3.2.2 Same Recognize-read interval duration

The parameter means interval duration between the adjacent 2 read with the same value.



*Disable interval



Enable interval



Infinite



1000ms



1500ms



3000ms

3.2.3 Image stabilization duration

Under the mode, with the detected changing scene, engine needs to hold until image stabilized before detecting the scene. Default duration is 60ms.



*60ms



500ms



1000ms

3.3 Continuous Mode

After finish setting, engine starts to read without been triggered, after read success and output or single read, engine holds for a while (duration to be set) and starts next read automatically. Engine keeps a circulating operation like this, unless: during reading, users can single click trigger key to manually pause reading. Single click trigger key one more time and engine will continue reading as mentioned above.



Continuous mode

3.3.1 Single recognize-read duration

Under the mode, the parameter means the max duration allowed for engine to acquire and recognize before read success. Default duration is 3.0s.



*3000ms



5000ms

3.3.2 Recognize-read interval duration

The parameter means interval duration between the adjacent 2 read, which is after the last read (read success or not), engine enters a do-not-read interval until next read. Default duration is 1.0s.



500ms



*1000ms



2000ms



0ms

3.3.3 Same Recognize-read interval duration

The parameter means interval duration between the adjacent 2 read with the same value.



*Disable interval



Enable interval



Infinite



1000ms



1500ms



3000ms

4 Lighting and Aiming

4.1 Lighting

Light is auxiliary lighting for recognition and read, light beam on the target helps with the read performance and weak environmental lighting adaptability. Users can set status according to the application environment as below:

Normal (default setting): Light on while it is shooting for recognition and read, otherwise off.

Constant light: Constant light while read engine is on.

No lighting: No lighting in any circumstances.



* Normal



No lighting



Constant light

4.2 Aiming

Aiming light beam helps users to find the best read distance. Users can select any of the following mode according to applications environment.

Normal (default setting): Aiming while the engine is shooting for recognition and read only.

Constant light: Constant light while read engine is powered on.

No aiming: No light beam in any circumstances.



* Normal



No aiming



Constant light

5 Prompt Output

5.1 All Alert Tone

Read “Enable mute” to disable all alert tone. Read “Disable mute” to disable mute.



Enable mute



* Disable mute

5.2 Power-on Alert Tone

Read “Disable power-on alert tone” to disable power-on alert tone ringing, read “Enable power-on alert tone” to resume power-on alert tone.



* Enable power-on alert tone



Disable power-on alert tone

5.3 Read Success Alert Tone

Read “Disable decode success alert tone” to disable code read success alert tone ringing, read “Enable decode success alert tone” to resume code read success alert tone.



* Enable read success alert tone



Disable read success alert tone

5.4 Set Code Read Success Alert Tone

Read “Disable set code read success alert tone” to disable set code read success alert tone ringing, read “Enable set code read success alert tone” to resume set code read success alert tone.



* Enable set code read success alert tone



Disable set code read success alert tone

5.5 LED for successful reading



*Enable



Disable

6 Data editing

Recognized data needs to be distinguished in many applications.

6.1 Comprehensive settings



Enable all information to be added



Disable all information to be added

6.2 Prefix

6.2.1 Add prefix

The prefix is a character string that can be customized and modified by the user before decoding the information.



Enable prefix



*Disable prefix

6.2.2 Modify prefix

Read the "modify prefix content" setting code, and combine the read data code to modify the prefix content. Use 2 hexadecimal values for each prefix character, and the prefix allows up to 16 characters.



Modify prefix content

Example: Set the custom prefix to "CODE":

1. Check the character table to get the hexadecimal values corresponding to the 4 characters of "CODE": 43, 4F, 44, 45;
2. Read the "Enable Setting Code" (if it is already turned on, you can ignore it);
3. Read the "modify prefix content" setting code;
4. Read the following data code: "4" "3" "4" "F" "4" "4" "4" "5";
5. Read the "Save" setting code;

6.3 Suffix

6.3.1 Add suffix

The suffix is a character string that can be customized and modified by the user after decoding the information.



Enable suffix

* Disable suffix

6.3.2 Modify suffix

Read the "modify suffix content" setting code, and combine the read data code to modify the suffix content. Use 2 hexadecimal values for each suffix character, and the suffix allows up to 16 characters.



Modify the suffix content

7 Barcode symbol parameters

7.1 Global operations

7.1.1 Operations on all symbol types

Reading the following setting codes will operate on all supported symbol types, enable or disable reading. After enable reading all types, only QR setting codes are allowed.



Enable all types



Disable all types



Restore default types

7.1.2 Operations on all 1D bar code types

Read the following setting codes, and only perform unified operations on all 1D bar code symbol types, or all allow reading, or all prohibit reading.



Enable all 1D barcode types



Disable all 1D barcode types

7.1.3 Operations on all 2D bar code types

Read the following setting codes, and only perform unified operations on all 2D bar code symbol types, or all allow reading, or all prohibit reading.



Enable all 2D barcode types



Disable all 2D barcode types

7.1.4 Restore the default types



Restore the default types

7.2 Inverted color code setting

7.2.1 Operations on all inverse color codes



Enable inverse color code



* Disable inverse color code

7.2.2 Operations on 1D inverse color codes



Enable 1D inverse color code



* Disable 1D inverse color code

7.2.3 Operations on 2D inverse color codes



Enable PDF417 inverse color code



* Disable PDF417 inverse color code



Enable DM inverse color code



* Disable DM inverse color code



Enable QR inverse color code



* Disable QR inverse color code



Enable Micro PDF417 inverse color code



* Disable Micro PDF417 inverse color code



Enable Aztec inverse color code



* Disable Aztec inverse color code

7.3 Code 128

7.3.1 Restore default settings



Restore default settings of Code 128

7.3.2 Enable/Disable Code 128



*Enable Code 128



Disable Code 128

7.4 EAN-8

7.4.1 Restore default settings



Restore default settings of EAN8

7.4.2 Enable/Disable EAN-8



* Enable EAN-8



Disable EAN-8

7.4.3 Output check

The EAN-8 barcode data is fixed at 8 bytes, and the last byte is the checksum.



* Output check



Do not output check

7.4.4 Extension code



*Disable 2-digit extension code



Enable 2-digit extension code



* Disable 5-digit extension code



Enable 5-digit extension code

7.5 EAN-13

7.5.1 Restore default settings



Restore default settings of EAN-13

7.5.2 Enable/Disable EAN-13



* Enable EAN-13



Disable EAN-13

7.5.3 Output check



* Output check



Do not output check

7.5.4 Extension code



* Disable 2-digit extension code



Enable 2-digit extension code



* Disable 5-digit extension code



Enable 5-digit extension code

7.5.5 EAN13 convert to ISBN

Other configurations are the same as EAN13.



*Disable EAN13 convert to ISBN



Enable EAN13 convert to ISBN

7.5.6 EAN13 convert to ISSN

Other configurations are the same as EAN13.



* Disable EAN13 convert to ISSN



Enable EAN13 convert to ISSN

7.6 UPCEO

7.6.1 Restore default settings



Restore default settings of UPCEO

7.6.2 Enable/Disable UPCEO



* Enable UPCEO



Disable UPCEO

7.6.3 Output check



* Output check



Do not output check

7.6.4 Output system code



* Output system code



Do not output system code

7.6.5 Extension code



* Disable 2-digit extension code



Enable 2-digit extension code



* Disable 5-digit extension code



Enable 5-digit extension code

7.7 UPCE1

7.7.1 Restore default settings



Restore default settings of UPCE1

7.7.2 Enable/Disable UPCE1



* Enable UPCE1



Disable UPCE1

7.7.3 Output check



* Output check



Do not output check

7.7.4 Output system code



* Output system code



Do not output system code

7.7.5 Extension code



* Disable 2-digit extension code



Enable 2-digit extension code



* Disable 5-digit extension code



Enable 5-digit extension code

7.8 UPCA

7.8.1 Restore default settings



Restore default settings of UPCA

7.8.2 Enable/Disable UPCA



* Enable UPCA



Disable UPCA

7.8.3 UPCA convert to EAN13



*Enable



Disable

7.8.4 Output check



* Output check



Do not output check

7.8.5 Output system code



* Output system code



Do not output system code

7.8.6 Extension code



* Disable 2-digit extension code



Enable 2-digit extension code



* Disable 5-digit extension code



Enable 5-digit extension code

7.9 Interleaved 2 of 5

7.9.1 Restore default settings



Restore default settings of InterLeaved25

7.9.2 Enable/Disable InterLeaved25



* Enable InterLeaved25



Disable InterLeaved25

7.9.3 Output check



*Do not check



Check but do not output check code



Check and output check code

7.10 Matrix 2 of 5

7.10.1 Restore default settings



Restore default settings of Matrix 25

7.10.2 Enable/Disable Matrix 25



Enable Matrix 25



* Disable Matrix 25

7.10.3 Output check



* Do not check



Check but do not output check code



Check and output check code

7.11 Industrial 2 of 5

7.11.1 Restore default settings



Restore default settings of Industrial 25

7.11.2 Enable/Disable Industrial 25



Enable Industrial 25



* Disable Industrial 25

7.11.3 Output check



* Do not check



Check but do not output check code



Check and output check code

7.12 IATA 2 of 5

7.12.1 Restore default settings



Restore default settings of IATA 25

7.12.2 Enable/Disable IATA 25



Enable IATA 25



*Disable IATA 25

7.12.3 Output check



*Do not check



Check but do not output check code



Check and output check code

7.13 Code 39

7.13.1 Restore default settings



Restore default settings of Code 39

7.13.2 Enable/Disable Code 39



*Enable Code 39



Disable Code 39

7.13.3 Output start character and stop character



Output start character and stop character



* Do not output start character and stop character

7.13.4 Output check



* Do not check



Check but do not output check code



Check and output check code

7.13.5 Enable/Disable Code32



*禁止 Code32



使能 Code32

7.14 Codabar

7.14.1 Restore default settings



Restore default settings of Codabar

7.14.2 Enable/Disable Codabar



*Enable Codabar



Disable Codabar

7.14.3 Output check



* Do not check



Check modulus 10 and output check code



Check modulus 10 but do not output check code



Check modulus 16 and output check code



Check modulus 16 but do not output check code

7.15 Code 93

7.15.1 Restore default settings



Restore default settings of Code 93

7.15.2 Enable/Disable Code 93



*Enable Code 93



Disable Code 93

7.16 Code 11

7.16.1 Restore default settings



Restore default settings of Code 11

7.16.2 Enable/Disable Code 11



Enable Code 11



*Disable Code11

7.17 MSI Plessey

7.17.1 Restore default settings



Restore default settings of MSI Plessey

7.17.2 Enable/Disable MSI Plessey



Enable MSI Plessey



*Disable MSI Plessey

7.17.3 MSI check



Do not check



Check modulus 10, output check code



Check modulus 10, do not output check code



Check modulus 11, output check code



Check modulus 11, do not output check code



Check modulus 10, 10, output check code



Check modulus 10, 10, do not output check code



Check modulus 11, 10, output check code



Check modulus 11、 10, do not output check code

7.18 PDF 417



*Enable PDF 417



Disable PDF 417

7.19 QR Code



*Enable QR



Disable QR

7.20 Micro QR



Enable Micro QR



*Disable Micro QR

7.21 Data Matrix



*Enable Data Matrix



Disable Data Matrix

7.22 Micro PDF417



Enable Micro PDF417



*Disable Micro PDF417

7.23 Aztec



Enable Aztec



*Disable Aztec

7.24 GS1 DataBar



*Enable GS1 DataBar



Disable GS1 DataBar

7.25 GS1 DataBar Limited



*Enable GS1 DataBar Limited



Disable GS1 DataBar Limited

7.26 GS1 DataBar Expanded



*Enable GS1 DataBar Expanded



Disable GS1 DataBar Expanded

8 Numbers

8.1 Numbers 0~F



0



2



4



6



8



A



C



1



3



5



7



9



B



D



E



F

8.2 Save and cancel



Save



Cancel

9 Software version



Version

Appendix A: Default setting table

Parameter		Default setting	Remarks
Setting code			
Setting code switch		enable	
Send setting code value		disable	
Communication Interface		HID-KWB	
TTL-232	Baud rate	9600	
	Parity Type	None	
	Data bit	8	
	Stop bit	1	
	Hardware fluidic control	None	
HID-KBW	HID-KBW Keyboard layout	American	
	HID-KBW delay between keys	2ms	
	Polling speed	1ms	
Mode parameter			
Default reading mode		Trigger mode	
Trigger Mode	Single reading time	3000ms	1000~3600000ms
	Single recognize-read duration	0	
	Same Recognize-read interval duration	1500ms	
Sensor Mode	Single reading time	3000ms	1000~3600000ms
	Same Recognize-read interval duration	1500ms	0~65535ms
Continuous Mode	Single reading time	3000ms	1000~3600000ms
	Same Recognize-read interval duration	1500ms	0~65535ms
Lighting and Aiming			
Lighting		normal	
Aiming		normal	
Prompt Output			
Power-on Alert Tone		Enable	
Parameter		Default setting	Remarks
Code128			
Enable/Disable		Enable	
EAN-8			
Enable/Disable		Enable	
Output check		Output	
2-digit extension code		Disable	
5-digit extension code		Disable	

EAN-13		
Enable/Disable	Enable	
Output check	Output	
2-digit extension code	Disable	
5-digit extension code	Disable	
EAN13 convert to ISBN	Disable	
EAN13 convert to ISSN	Disable	
Parameter	Default setting	Remarks
UPCE0		
Enable/Disable	Enable	
Output check	Output	
Output system code	Output	
UPCE1		
Enable/Disable	Enable	
Output check	Output	
Output system code	Output	
2-digit extension code	Disable	
5-digit extension code	Disable	
UPCA		
Enable/Disable	Enable	
UPCA convert to EAN13	Disable	
Output check	Output	
2-digit extension code	Disable	
5-digit extension code	Disable	
Output system code	Output	
Interleaved 2 of 5		
Enable/Disable	Enable	
Check	Do not check	
Output check	Do not output	
Matrix 2 of 5		
Enable/Disable	Disable	
Check	Do not check	
Output check	Do not output	
Industrial 2 of 5		
Enable/Disable	Disable	
Check	Do not check	
Output check	Do not output	
IATA25		
Enable/Disable	Disable	
Check	Do not check	
Output check	Do not output	
Parameter	Default setting	Remarks

Code 39		
Enable/Disable	Enable	
Check	Do not check	
Output check	Do not output	
Output start character and stop character	Disable	
Convert to Code 32	Disable	
Codabar		
Enable/Disable	Enable	
Check	Do not check	
Output check	Do not output	
Code 93		
Enable/Disable	Enable	
Code11		
Enable/Disable	Disable	
MSI Plessey		
Enable/Disable	Disable	
PDF417		
Enable/Disable	Enable	
QR		
Enable/Disable	Enable	
Micro QR		
Enable/Disable	Disable	
Data Matrix		
Enable/Disable	Enable	
Micro PDF417		
Enable/Disable	Disable	
Parameter	Default setting	Remarks
Aztec		
Enable/Disable	Disable	
Inverse color code	Disable	
GS1 DataBar		
Enable/Disable	Enable	
GS1 DataBar Limited		
Enable/Disable	Enable	
GS1 DataBar Expanded		
Enable/Disable	Enable	

Appendix B: ASCII Table

Hexadecimal	Decimal	Character	
00	0	NUL	(NULL char)
01	1	SOH	(Start of Header)
02	2	STX	(Start of Text)
03	3	ETX	(End of Text)
04	4	EOT	(End of Transmission)
05	5	ENQ	(Enquiry)
06	6	ACK	(Acknowledgment)
07	7	BEL	(Bell)
08	8	BS	(Backspace)
09	9	HT	(Horizontal Tab)
0a	10	LF	(Line Feed)
0b	11	VT	(Vertical Tab)
0c	12	FF	(Form Feed)
0d	13	CR	(Carriage Return)
0e	14	SO	(Shift Out)
0f	15	SI	(Shift In)
10	16	DLE	(Data Link Escape)
11	17	DC1	(XON) (Device Control 1)
12	18	DC2	(Device Control 2)
13	19	DC3	(XOFF) (Device Control 3)
14	20	DC4	(Device Control 4)
15	21	NAK	(Negative Acknowledgment)
16	22	SYN	(Synchronous Idle)
17	23	ETB	(End of Trans. Block)
18	24	CAN	(Cancel)
19	25	EM	(End of Medium)
1a	26	SUB	(Substitute)
1b	27	ESC	(Escape)
1c	28	FS	(File Separator)
1d	29	GS	(Group Separator)
1e	30	RS	(Request to Send)
1f	31	US	(Unit Separator)
20	32	SP	(Space)
21	33	!	(Exclamation Mark)
22	34	"	(Double Quote)
23	35	#	(Number Sign)
24	36	\$	(Dollar Sign)

Hexadecimal	Decimal	Character
25	37	% (Percent)
26	38	& (Ampersand)
27	39	` (Single Quote)
28	40	((Right / Closing Parenthesis)
29	41) (Right / Closing Parenthesis)
2a	42	* (Asterisk)
2b	43	+ (Plus)
2c	44	, (Comma)
2d	45	- (Minus / Dash)
2e	46	. (Dot)
2f	47	/ (Forward Slash)
30	48	0
31	49	1
32	50	2
33	51	3
34	52	4
35	53	5
36	54	6
37	55	7
38	56	8
39	57	9
3a	58	: (Colon)
3b	59	; (Semi-colon)
3c	60	< (Less Than)
3d	61	= (Equal Sign)
3e	62	> (Greater Than)
3f	63	? (Question Mark)
40	64	@ (AT Symbol)
41	65	A
42	66	B
43	67	C
44	68	D
45	69	E
46	70	F
47	71	G
48	72	H
49	73	I
4a	74	J
4b	75	K
4c	76	L
Hexadecimal	Decimal	Character
4d	77	M

4e	78	N
4f	79	O
50	80	P
51	81	Q
52	82	R
53	83	S
54	84	T
55	85	U
56	86	V
57	87	W
58	88	X
59	89	Y
5a	90	Z
5b	91	[(Left / Opening Bracket)
5c	92	\ (Back Slash)
5d	93] (Right / Closing Bracket)
5e	94	^ (Caret / Circumflex)
5f	95	_ (Underscore)
60	96	' (Grave Accent)
61	97	a
62	98	b
63	99	c
64	100	d
65	101	e
66	102	f
67	103	g
68	104	h
69	105	i
6a	106	j
6b	107	k
6c	108	l
6d	109	m
6e	110	n
6f	111	o
70	112	p
71	113	q
72	114	r
73	115	s
74	116	t
Hexadecimal	Decimal	Character
75	117	u
76	118	v
77	119	w

78	120	x	
79	121	y	
7a	122	z	
7b	123	{	(Left / Opening Brace)
7c	124		(Vertical Bar)
7d	125	}	(Right/Closing Brace)
7e	126	~	(Tilde)
7f	127	DEL	(Delete)