

Command Programming Manual

V2.3

Version Information

Version	Update content	Update time
V2.0	Original Version	2017-6-1

V2.1	Update read and close instructions	2018-6-9
V2.2	Update green and red indicator light flashing commands, modify sample content and suffix setting commands	2019-9-10
V2.3	Add Aztec enable and disable commands	2020-3.18

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1. Overview

This manual setting instruction is applicable to the XL-2303 2D scanner produced by SUNLUX. The purpose is to let the user quickly master the scanner, so that the scanner can be controlled by the corresponding commands. This document is intended for application software development engineers and users who want to learn more about the device.

This document lists the main functions of the scanner, including barcode reading, barcode support, command setup, advanced functions, etc.

2. Syntactic Structure

2.1. Interface Parameters



RS232 Serial Interface



USB Virtual Serial Port

(Virtual serial port may need to install extra driver)

(Using virtual serial port control has equal effect)

(Virtual serial port is not affected by baud rate)

Command Interface: serial port (TTL)

Serial port baud rate: default 9600 (can be changed by setting code)

Data bit: 8 bits

Stop bit: 1 bit

Check bit: NONE

2.2. Control Commands

Command Prefix	Instruction 1	Separator	...	Instruction n	Separator
R	xxxxx	;	...		;

Description:

Single control command: Command Prefix+Instruction+Separator

For example: set the manual read mode command: **RDC000;**

You can also send multiple instructions in batches, each of which must end with a semicolon terminator.

For example: the command set to manual read mode and baud rate set to 9600: **RDC000;**
RBA030;

2.3. Command Response

For each command, there will be corresponding reply frame data. The reply format is as follows:

Correct response: 0x06 ACK

Error response: 0x07 NAK

3. Parameter Command List

For example, setting the prefix 'ST'

Turn on the prefix, set the custom prefix, add '=' and data 'ST'

- Command step: RDF010 RDA000 = 'ST'
- Send instruction: RDF010; RDA000; = 'ST'

For example, setting the suffix 'ED'

Turn on the suffix, set the custom suffix, add '=' and 'ED'

- Command step:

RDG010; -> opens the suffix

RDB000; -> custom suffix

= -> equal

'ED' -> suffix data

- Send instruction: RDG010; RDB000; ='ED'

- Returns the result: 0x06

There are two command types. One is the command that directly sets the value of the register variable, such as setting the baud rate and setting the keyboard language. The other category is commands that require parameters, such as setting the prefix, setting the suffix, setting the minimum read length, etc., they all require parameters. Parameter set by decimal numeric form.

Read Command	0x1b 0x51
Stop Read Command	0x1b 0x50

Command Parameter Setting List

No.	Item	Function	Default	Command
1	Quick Function	Restore defaults		RAB000
2		Enable all barcodes		RAB020
3		Disable all barcodes		RAB010
4		Enable all 1D barcodes		RAB040
5		Disable all 1D barcodes		RAB030
6		Enable all 2D barcodes		RAB060
7		Disable all 2D barcodes		RAB050
8		Version information display		RAD001
9	Interface Selection	RS-232		RJA000
10		USB-KBW	*	RJA020
11		USB-VCP		RJA060
12	Scan Mode	Manual trigger	*	RDC000

13		Automatic induction trigger		RDC010
14		Continuous scan		RDC020
15		Single continuous automatic scan		RDC030
16	Sensitivity	Low sensitive		RDM000
17		Common sensitive	*	RDM010
18		High sensitive		RDM020
19	Language Setting	English	*	RJD200
20		Japanese		RJD201
21		Brazilian		RJD202
22		Czech		RJD203
23		Denmark		RJD204
24		Swedish		RJD205
25		French		RJD206
26		Italian		RJD207
27		Norway		RJD208
28		Spain		RJD209
29		Slovakia		RJD210
30		Turkey		RJD211
31		UK		RJD212
32		German		RJD213
33		Greece		RJD214
34		Hungary		RJD215
35	Caps lock	Caps lock ON	*	RJD010
36		Caps lock OFF		RJD020
37	Number lock	Number lock ON		RJD110
38		Number lock OFF	*	RJD120
39	Unknown character prompt	Enable unknown character prompt		RJD030
40		Disable unknown character prompt	*	RJD031
41	Characters delay	Close	*	RJD050
42		20ms		RJD051
43		40ms		RJD052
44	ALT Keyboard	Disable ALT Keyboard	*	RJD060

45		Enable ALT Keyboard		RJD061
46	Shift function	Shift lock close	*	RJD070
47		Shift lock open		RJD080
48	Baud rate	1200		RBA000
49		2400		RBA010
50		4800		RBA020
51		9600	*	RBA030
52		19200		RBA040
53		38400		RBA050
54		57600		RBA060
55		115200		RBA070
56	Parity bit	NONE	*	RBB000
57		Even parity check		RBB010
58		Odd parity check		RBB020
59	Stop bit	1 bit	*	RBC000
60		2 bits		RBC010
61	Data bit	7 bits		RBD020
62		8 bits	*	RBD030
63	Control flow	cts/rts close	*	RBE000
64		cts/rts open		RBE010
65	Prefix and Suffix	Disable prefix	*	RDF00
66		Enable prefix		RDF010
67		Prefix setting		RDA000
68		Disable suffix		RDJ000
69		Enable suffix	*	RDG010
70		Suffix setting		RDB000
71		Set suffix to 0D	*	RDK010
72		Set suffix to 0D 0A		RDK020
73		Set suffix to TAB		RDK030
74		Set suffix to HOME		RDK040
75	Change Case	No change	*	RJD040
76		Force to caps lock		RJD041
77		Force to low case		RJD042

78	AIM	Disable AIM	*	RDI000
79		Enable AIM		RDI030
80	Stating up sound	Close		RCE000
81		Open	*	RCE001
82	Decoded prompt sound	Close		RCD000
83		Open	*	RCD010
84		High pitch	*	RCD030
85		Middle pitch		RCD031
86		Low pitch		RCD032
87	Decoded prompt type	Type 1	*	RCD020
88		Type 2		RCD021
89		Type 3		RCD022
90	Illuminating light	Keep lighting		RCA000
91		Flicker	*	RCA010
92		None		RCA020
93	Aiming light	Flicker mode	*	RCB000
94		Keep lighting		RCB010
95		None		RCB020
96	Indicator light	Green light flashes once		RCF000
97		Red light flashes at 4HZ for 2 seconds		RCF001
98	Scan delay	Once read delay		RDN000
99		Same barcode delay		RDN010
100		Cancel delay	*	RDN020
101	Same code decoding delay	Disable same code delay	*	RDN040
102		Enable same code delay		RDN050
103		Delay parameter setting		RDN060
104	Reverse barcode reading	Only black barcodes	*	RAB260
105		Only white barcodes		RAB261
106		Both read black and white barcodes		RAB262
107	Code 128	Disable EAN 128		REM010
108		Enable EAN 128	*	REM020
109		Disable Code 128		REA010
110		Enable Code 128	*	REA020

111		Code 128 minimum length set	1	REA030
112		Code 128 maximum length set	80	REA040
113	EAN 8	Disable		REB010
114		Enable	*	REB020
115		Do not transfer parity bit		REB030
116		Transfer parity bit	*	REB040
117		Expand to EAN13		REB090
118		Do not expand to EAN13	*	REB100
119		Disable adden2	*	REB050
120		Enable adden2		REB060
121		Disable adden5	*	REB070
122		Enable adden5		REB080
123	EAN 13	Disable ISBN	*	REQ010
124		Enable ISBN		REQ020
125		ISBN 13 DIGTAL	*	REQ030
126		ISBN 10 DIGTAL		REQ040
127		Disable EAN 13		REC010
128		Enable EAN 13	*	REC020
129		EAN 13 Do not transfer parity bit		REC030
130		EAN 13 Transfer parity bit	*	REC040
131		Disable EAN 13 ADDEN2	*	REC050
132		Enable EAN 13 ADDEN2		REC060
133		Disable EAN 13 ADDEN5	*	REC070
134		Enable EAN 13 ADDEN5		REC080
135	UPC-E	Disable		RED010
136		Enable	*	RED020
137		Do not transfer parity bit		RED030
138		Transfer parity bit	*	RED040
139		Do not transfer leading code	*	RED090
140		Transfer leading code		RED100
141		Do not convert to UPC-A	*	RED110
142		Convert to UPC-A		RED120
143		Disable UPC-E ADDEN2	*	RED050

144		Enable UPC-E ADDEN2		RDE060
145		Disable UPC-E ADDEN5	*	RED070
146		Enable UPC-E ADDEN5		RDE080
147	UPC-A	Disable		REE010
148		Enable	*	REE020
149		Do not transfer parity bit		REE030
150		Transfer parity bit	*	REE040
151		Do not transfer leading digit 0	*	REE090
152		Transfer leading digit and country code		REE100
153		Do not transfer leading digit and country code		REE180
154		Disable UPC-A ADDEN2	*	REE050
155		Enable UPC-A ADDEN2		REE060
156		Disable UPC-A ADDEN5	*	REE070
157		Enable UPC-A ADDEN5		REE080
158	Interleave 25	Disable	*	REF010
159		Enable		REF020
160		Allowable minimum length	4	REF030
161		Allowable maximum length	80	REF040
162		No parity check	*	REF050
163		Parity check, do not transfer parity bit		REF060
164		Parity check, transfer parity bit		REF070
165	MATRIX 25	Disable	*	REG010
166		Enable		REG020
167		Allowable minimum length	4	REG030
168		Allowable maximum length	80	REG040
169		No parity check	*	REG050
170		Parity check, do not transfer parity bit		REG060
171		Parity check, transfer parity bit		REG070
172	CODE 39	Disable		REI010
173		Enable	*	REI020
174		Allowable minimum length	1	REI030
175		Allowable maximum length	48	REI040
176		No parity check	*	REI050

177		Parity check, do not transfer parity bit		REI060
178		Parity check, transfer parity bit		REI070
179		Do not transfer Start-stop digit	*	REI080
180		Transfer Start-stop digit		REI090
181		Standard code 39		REI100
182		Full ASCII code 39		REI110
183	CODE 32	Enable code 32		REI120
184		Disable code 32	*	REI130
185		Enable leading code		REI140
186		Disable leading code	*	REI150
187	CODABAR	Disable		REJ010
188		Enable	*	REJ020
189		Allowable shortest length	2	REJ030
190		Allowable longest length	60	REJ040
191		No parity check	*	REJ050
192		Parity check, do not transfer parity bit		REJ060
193		Parity check, transfer parity bit		REJ070
194		Do not transfer Start-stop digit		REJ080
195		Transfer Start-stop digit	*	REJ090
196		Start-stop digit ABCD	*	REJ100
197		Start-stop digit ABCD/TN*E		REJ110
198		Start-stop digit caps lock	*	REJ120
199		Start-stop digit low case		REJ130
200	CODE 93	Disable		REK010
201		Enable	*	REK020
202		Allowable shortest length	1	REK030
203		Allowable longest length	48	REK040
204		No parity check		REK050
205		Parity check, do not transfer parity bit	*	REK060
206		Parity check, transfer parity bit		REK070
207	RSS	Disable		REN010
208		Enable	*	REN020
209		Do not send AI digit		REN050

210		Send AI digit	*	REN060
211	Industry 25	Disable	*	RER010
212		Enable		RER020
213		Allowable shortest length	6	RER030
214		Allowable longest length	48	RER040
215		No parity check	*	RER050
216		Parity check, do not transfer parity bit		RER060
217		Parity check, transfer parity bit		RER070
218	Standard 25	Disable	*	RES010
219		Enable		RES020
220		Allowable shortest length	6	RES030
221		Allowable longest length	48	RES040
222		No parity check	*	RES050
223		Parity check, do not transfer parity bit		RES060
224		Parity check, transfer parity bit		RES070
225	Plessey	Disable	*	RET010
226		Enable		RET020
227		Allowable shortest length	4	RET030
228		Allowable longest length	48	RET040
229		No parity check	*	RET050
230		Parity check, do not transfer parity bit		RET060
231		Parity check, transfer parity bit		RET070
232	MSI	Disable		REU010
233		Enable	*	REU020
234		Allowable shortest length	4	REU030
235		Allowable longest length	48	REU040
236		No parity check		REU050
237		MOD10 parity check	*	REU060
238		MOD10/10 parity check		REU070
239		MODE10/11 parity check		REU080
240		Parity check, do not transfer parity bit		REU090
241		Parity check, transfer parity bit	*	REU100
242	QR	Disable		RFC010

243		Enable	*	RFC020
244		Allowable shortest length	1	RFC030
245		Allowable longest length	MAX	RFC040
246		QR single read	*	RFC070
247		QR only read two		RFC080
248	PDF417	Disable		RFB010
249		Enable	*	RFB020
250		Allowable shortest length	1	RFB030
251		Allowable longest length	MAX	RFB040
252		PDF417 single read	*	RFB070
253		PDF417 only read two		RFB080
254	Data matrix	Disable		RFE010
255		Enable	*	RFE020
256		Allowable shortest length	1	RFE030
257		Allowable longest length	MAX	RFE040
258		DM single read	*	RFE070
259		DM only read two		RFE080
260	Aetec	Disable	*	RFD010
261		Enable		RFD020
262	Data barcode	0		RAA000
263		1		RAA010
264		2		RAA020
265		3		RAA030
266		4		RAA040
267		5		RAA050
268		6		RAA060
269		7		RAA070
270		8		RAA080
271		9		RAA090
272		A		RAA100
273		B		RAA110
274		C		RAA120
275		D		RAA130

276		E		RAA140
277		F		RAA150
278		Save		RAA160

Appendix 1 AIM table

When the AIM function is enabled by setting parameters, the AIM code will be added in front of the corresponding barcode data. The specific AIM ID is as follows:

Barcode Type	AIM ID	Description
Code 128	]C0	Common Code 128
UCC/EAN 128	]C1	FNC1 in the first code word position
(GS1-128)		
AIM 128	]C2	FNC1 in the second code word position
EAN-8	]E4	Common EAN-8 data
	]E4....]E1...	EAN-8 data add 2 bits extra-code
	]E4....]E2...	EAN-8 data add 5 bits extra-code
EAN-13	]E0	Common EAN-13 data
	]E3	EAN-13 data add 2/5 bit extra-code
ISSN	]X5	
ISBN	]X4	
UPC-E	]E0	Common UPC-E data
	]E3	UPC-E data add 2/5 bit extra-code
UPC-A	]E0	Common UPC-A data
	]E3	UPC-A data add 2/5 bit extra-code
Interleaved 2 of 5	]I0	No parity check
	]I1	Parity check and send parity digits
	]I3	Parity check but do not send parity digits
ITF-6	]I1	Send parity digits
	]I3	Do not send parity digits
ITF-14	]I1	Send parity digits
	]I3	Do not send parity digits

Matrix 2 of 5	]X0	Custom
	]X1	No parity check
	]X2	Parity check and send parity digits
	]X3	Parity check but do not send parity digits
Industrial 25	]S0	Current no specific designation
Standard 25	]R0	No parity check
	]R8	MOD 7 Parity check but do not send parity digits
	]R9	MOD 7 Parity check and send parity digits
Code 39	]A0	No parity check, no Full ASCII expanded, all data send as normal
	]A1	MOD 43 parity check, send parity digits
	]A3	MOD 43 parity check, do not send parity digits
	]A4	Full ASCII expanded, no parity check
	]A5	Expanded, MOD43 parity check, send parity digits
	]A7	Expanded, MOD43 parity check, do not send parity digits
Codabar	]F0	Standard packet, no dispose
	]F1	For the administration of blood centers in the USA
	]F2	Parity check and send parity digits
	]F4	Parity check but do not send parity digits
Code 93	]G0	Current no specific designation
Code 11	]H0	MOD11 single parity check and send parity digits
	]H1	MOD11/MOD11 double parity check and send parity digits
	]H3	Parity check but do not send parity digits
	]H9	No parity check
Plessey	]P0	
MSI Plessey	]M0	

Reference Information: ISO/IEC 15424-2008 Information technology - automatic identification and data acquisition technology - data carrier identifier(Includes symbolic identifiers).

Appendix 2 CID table

When the CODE ID function is enabled by setting parameters, CID CODE will be added in the front

of corresponding barcode data. The specific CID CODE is as follows:

Barcode Type	CID
UPCA	A
UPCE	B
EAN8	C
EAN13	D
ISSN	E
ISBN	F
CODE 128	G
GS1 128	H
ISBT128	J
CODE 39	K
CODE 93	L
CODE 11	M
ITF 25	N
ITF 6	O
ITF 14	P
MATRIX 25	S
IN 25	U
STANDARD 25	V
CODABAR	W
UK	X
MSI	Y
GS1	Z

Appendix 3 ASCII table

BIN	DEC	HEX	COM
0000 0000	0	0	NUL
0000 0001	1	1	SOH
0000 0010	2	2	STX
0000 0011	3	3	ETX
0000 0100	4	4	EOT

0000 0101	5	5	ENQ
0000 0110	6	6	ACK
0000 0111	7	7	BEL
0000 1000	8	8	BS
0000 1001	9	9	HT
0000 1010	10	0A	LF
0000 1011	11	0B	VT
0000 1100	12	0C	FF
0000 1101	13	0D	CR
0000 1110	14	0E	SO
0000 1111	15	0F	SI
0001 0000	16	10	DLE
0001 0001	17	11	DC1
0001 0010	18	12	DC2
0001 0011	19	13	DC3
0001 0100	20	14	DC4
0001 0101	21	15	NAK
0001 0110	22	16	SYN
0001 0111	23	17	ETB
0001 1000	24	18	CAN
0001 1001	25	19	EM
0001 1010	26	1A	SUB
0001 1011	27	1B	ESC
0001 1100	28	1C	FS
0001 1101	29	1D	GS
0001 1110	30	1E	RS
0001 1111	31	1F	US
0010 0000	32	20	(space)
0010 0001	33	21	!
0010 0010	34	22	"
0010 0011	35	23	#
0010 0100	36	24	\$
0010 0101	37	25	%

0010 0110	38	26	&
0010 0111	39	27	'
0010 1000	40	28	(
0010 1001	41	29)
0010 1010	42	2A	*
0010 1011	43	2B	+
0010 1100	44	2C	,
0010 1101	45	2D	-
0010 1110	46	2E	.
0010 1111	47	2F	/
0011 0000	48	30	0
0011 0001	49	31	1
0011 0010	50	32	2
0011 0011	51	33	3
0011 0100	52	34	4
0011 0101	53	35	5
0011 0110	54	36	6
0011 0111	55	37	7
0011 1000	56	38	8
0011 1001	57	39	9
0011 1010	58	3A	:
0011 1011	59	3B	;
0011 1100	60	3C	<
0011 1101	61	3D	=
0011 1110	62	3E	>
0011 1111	63	3F	?
0100 0000	64	40	@
0100 0001	65	41	A
0100 0010	66	42	B
0100 0011	67	43	C
0100 0100	68	44	D
0100 0101	69	45	E
0100 0110	70	46	F

0100 0111	71	47	G
0100 1000	72	48	H
0100 1001	73	49	I
0100 1010	74	4A	J
0100 1011	75	4B	K
0100 1100	76	4C	L
0100 1101	77	4D	M
0100 1110	78	4E	N
0100 1111	79	4F	O
0101 0000	80	50	P
0101 0001	81	51	Q
0101 0010	82	52	R
0101 0011	83	53	S
0101 0100	84	54	T
0101 0101	85	55	U
0101 0110	86	56	V
0101 0111	87	57	W
0101 1000	88	58	X
0101 1001	89	59	Y
0101 1010	90	5A	Z
0101 1011	91	5B	[
0101 1100	92	5C	\
0101 1101	93	5D]
0101 1110	94	5E	^
0101 1111	95	5F	_
0110 0000	96	60	`
0110 0001	97	61	a
0110 0010	98	62	b
0110 0011	99	63	c
0110 0100	100	64	d
0110 0101	101	65	e
0110 0110	102	66	f
0110 0111	103	67	g

0110 1000	104	68	h
0110 1001	105	69	i
0110 1010	106	6A	j
0110 1011	107	6B	k
0110 1100	108	6C	l
0110 1101	109	6D	m
0110 1110	110	6E	n
0110 1111	111	6F	o
0111 0000	112	70	p
0111 0001	113	71	q
0111 0010	114	72	r
0111 0011	115	73	s
0111 0100	116	74	t
0111 0101	117	75	u
0111 0110	118	76	v
0111 0111	119	77	w
0111 1000	120	78	x
0111 1001	121	79	y
0111 1010	122	7A	z
0111 1011	123	7B	{
0111 1100	124	7C	|
0111 1101	125	7D	}
0111 1110	126	7E	~
0111 1111	127	7F	DEL