Specifications for XL Clotting Series LIS Interface

Rev 1

2015/12/23

1. Command format

		Length(Byte)
Start	0x02	1
Command		1
Space	0x20	1
Data		The length depends on the instruction
End	0x03	1

2. Commands

2.1. Query test items

Machine computer uses this command to query the sample test items to LIS host computer.

		Length(Byte)
Start	0x02	1
Command	"1"	1
Space	0x20	1
data		Indefinite length, depends on the bar code's types used by the customers
End	0x03	1

2.2. Return test items

LIS host uses this command to send sample's test items

		Length(Byte)
Start	0x02	1
Command	"2"	1
Space	0x20	1
Bar code		Indefinite length
Space	0x20	
Item name 1		Indefinite length, please refer to Table 1
Space	0x20	1
Item name 2		
…		
Space	0x20	1

Item name M		
End	0x03	1

Table 1 Names of test items

Item code	Item name
1	PT
2	FIB
3	APTT
4	TT
5	DD
6	FDP
7	ATIII
8	II
9	V
10	VII
11	X
12	VIII
13	IX
14	XI
15	XII

2.3. **Result output**

		Length(Byte)
Start	0x02	1
Command	“3”	1
Space	0x20	1
Bar code		Indefinite length, depends on the bar code’s types used by the customers
Line break	0x0A	1
Item name 1		Indefinite length, please refer to Table 2
Tab	0x09	1
Item result 1		Indefinite length
Tab	0x09	1
Unit 1		Indefinite length
Tab	0x09	1
Lower limit of reference range 1		Indefinite length
Tab	0x09	1
Upper limit of reference range 1		Indefinite length

Line break	0x0A	1
Item name 2		Indefinite length, please refer to Table 2
Tab	0x09	1
Item result 2		Indefinite length
Tab	0x09	1
Unit 2		Indefinite length
Tab	0x09	1
Lower limit of reference range 2		Indefinite length
Tab	0x09	1
Upper limit of reference range 2		Indefinite length
line break	0x0A	1
…		
Item name M		Indefinite length, please refer to Table 2
Tab	0x09	1
Item result M		Indefinite length
Tab	0x09	1
Unit M		Indefinite length
Tab	0x09	1
lower limit of reference range M		Indefinite length
Tab	0x09	1
Upper limit of reference range M		Indefinite length
Line break	0x0A	1
End	0x03	1

* Tab: it can be made in different values through options, refer to 3.1

Table 2 Item names of test results

Item code	item name	illustrate
1	PT-S	Prothrombin time
2	PT-OD	Absorbency
3	PT-%	Activated degree
4	PTR	PTR
5	PT-INR	International standardization ratio
6	FIB-S	FIB time
7	FIB-OD	Absorbency
8	FIB	Fibrinogen
9	APTT	Activation partial thrombin time
10	TT	Thrombin time

11	DD-T	DD-T
12	DD-OD	Absorbency
13	DD	DD
14	FDP-T	FDP-T
15	FDP-OD	Absorbency
16	FDP	FDP
17	AT-T	AT-T
18	AT-OD	Absorbency
19	ATIII	ATIII
20	II-T	Factor II time
21	II-%	Factor II activity
22	V-T	Factor V time
23	V-%	Factor V activity
24	VII-T	Factor VII time
25	VII-%	Factor VII activity
26	X-T	Factor X time
27	X-%	Factor X activity
28	VIII-T	Factor VIII time
29	VIII-%	Factor VIII activity
30	IX-T	Factor IX time
31	IX-%	Factor IX activity
32	XI-T	Factor XI time
33	XI-%	Factor XI activity
34	XII-T	Factor XII time
35	XII-%	Factor XII activity

2.4. **Output quality control data**

		Length(Byte)
Start	0x02	1
Command	“4”	1
Space	0x20	1
File number for Quality control		Indefinite length
Space	0x20	1
Batch number		Indefinite length
Space	0x20	1
Item name		Indefinite length, please refer to Table 2
Space	0x20	1
Unit		Indefinite length
Space	0x20	1

Average value		Indefinite length
Space	0x20	1
SD		Indefinite length
Space	0x20	1
data points	*N*	Indefinite length
line break	0x0A	1
Date for data points 1	YYYY-MM-DD	10
Space	0x20	1
Time for data points 1	HH:MM:SS	8
Space	0x20	1
Data 1		Indefinite length
Line break	0x0A	1
…		
Date for data points N	YYYY-MM-DD	10
Space	0x20	1
Time for data points 1	HH:MM:SS	8
Space	0x20	1
Data N		Indefinite length
Line break	0x0A	1
End	0x03	1

3. Operating instructions

3.1. Settings

Before the LIS data available, do some settings as the following steps：

1 Click the "Setting", and enter into the Setting interface, find the "LIS".

2 Select the "Export text" In the table, click "Enable" button on the right side, and make "Export text" status shown as "Enabled".

3 Select the check button "Auto output after verification" at the bottom, then the selected inspection results will be marked as "Verified", at the same time, the result can be uploaded to the LIS host.

4 Click on the "Options" button on the right side or double-click the form of "Export text", enter into the "Export text" setting interface.

5 Select the items of group of "Field separator" according to the needs, the default is "Tab", and the separator affects the "Tab" in section 2.3 only.

6 Select the item of group of "Output fields" according to the needs, the selected field names and values will be output together, with the section 2.3 affected only.

7 If you select "Insert a blank line between basic information and results", a blank line will be output after the selected basic information outputted in the previous step, and then output the

measured results.

8 Choose from "Interface" at the bottom.

3.2. Sample Input

1. In the test interface, click the "Sample" for entering sample input interface.
2. Confirm the location and sample number for next sample, and then set the focus on "Patient No" and scan the bar code. According to the different ways of interface, the process is also different:
   - Text file

   Search for the file named as "*barcode*.txt" in "Output Directory", and read test items and delete files according to the format 2.2. The file is only including commands and data, exclusive of the start and end characters.
   - TCP/IP or Serial Port

   Send commands in 2.1, and wait for receiving commands in 2.2.
3. If it's successful to get the test items, then add samples to test.

3.3. Upload the test data

1. Enter into the "Result" interface, select the sample needed to transmit:
   - Click the drop-down arrow next to the "Print", select "Output" from the pull-down menu.

   or
   - Click on the "Audit", if the "Auto output after verification" has been selected in the "setting".
2. When the interface method is setting to "Text file", the file named "*date-sample number*.txt" will be generated in the "Output Directory". The file only includes commands and data, exclusive of the start and end characters.
3. For other interface methods, output according to the commands in 2.3.

3.4. Upload the quality control data

1. Enter into the interface of "QC", Click the drop-down arrow next to the "Print", select "Output" from the pull-down menu.
2. When the interface method is setting to "Text file", the file named "QC*file no.-item name*.txt" will be generated in the "Output Directory". The file only includes commands and data, exclusive of the start and end characters.
4. For other interface methods, output according to the commands in 2.3.