CLINILOG
ONLINE PROTOCOL

- RS232C Version -

A&T Corporation

《Index》

〔1〕 Summary

This protocol describes the communication protocol between Lab Automation System (LAS) “CLINILOG Ver.2” and Lab Information System (LIS).

The communication between LIS and LAS is via a Control PC of CLINILOG Ver.2.

* This protocol may be amended time to time without any prior notice.

〔2〕 Limitation of Responsibility

A&T or its representative will have the limitation of responsibility until the RS232C Connector of CLINILOG Control PC.

〔3〕 Hardware Specification

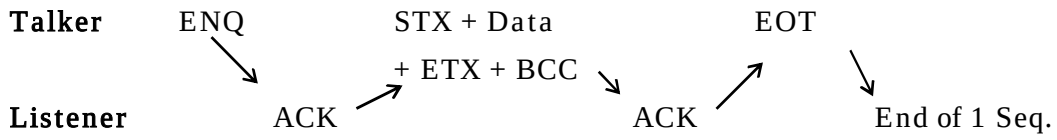
Communication will be done via an Interface Board for RS232C which mounted in expansion slot of PC. Since the In/Out-put by Current Loop is not available, LIS must consider some kinds of Converter like a long cable more than 10m might be required.

Method of Synchronous ;	Asynchronous
Length of Bit ;	8 Bit (7 Bit)
Parity ;	none (odd/even)
Stop Bit ;	1 Bit (1.5 / 2)
Flow Control ;	Yes (RTS, CTS)
Check Code ;	BCC (From the next character of STX to ETX)
Speed ;	4800BPS (1200 / 2400 / 9600)

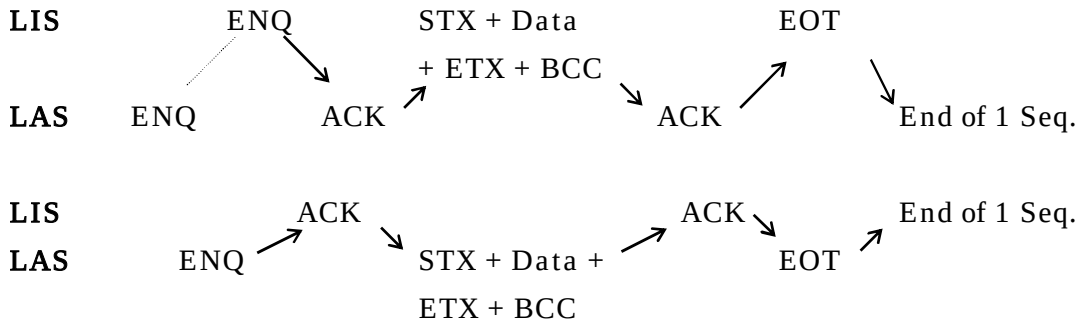
- ✧ Length of Bit, Parity and Stop Bit are changeable by Parameter.

[4] Communication Protocol and Method

1. "Talker" will acquire the Line by sending ENQ.
2. Communication will be started by STX and ended by ETX. Then, BCC will be added in the last.
3. With receiving ACK from Listener, Talker will send EOT and release the Line.



In case of collision of ENQ, LAS will send data after receiving EOT from LIS.



*To prevent any collision, it is recommended to have separate line for communication on Request (Order) and Result.

[5] Format

Communication Format 5 classifications as follows.

1. Order Inf. : Order Inf. From LIS to LAS
   - Must be sent prior to the sample loaded in Start Stocker.

2. Result Inf. : Result from LAS to LIS
   - By 1) Each Analyzer (Real-time) and 2) Sample (Batch) are available. LIS must be applied for both methods.

3. Arrive Confirmation :
   - Rack Information which was loaded at Start Stocker.

4. Aliquot Inf.: Information for Off-Line Aliquot
   - Will be sent when released Aliquot Sample Tray.

5. TS Arrive Inf. :
   - Will be sent when the rack arrived at Terminal Stocker.

【6】 Detail of Communication Format

1. Order Information

STX		1	
Format Type Code	UCHAR	4	“O01,” (O Zero One)
Sample ID	UCHAR	20	right justification
Date of Reception	UCHAR	8	YYYYMMDD
Patient ID	UCHAR	12	right justification
Patient Name (abc)	UCHAR	20	left justification
Patient Name (reserve)	UCHAR	20	left justification
Birthday	UCHAR	8	YYYYMMDD
Sex	UCHAR	1	Male: M / Female: F

Delete Flag	UCHAR	1	Space: Normal / D: Delete
Ward Code	UCHAR	4	XXXX
Ward Name	UCHAR	16	left justification
Order Dept. Code	UCHAR	4	XXXX
Order Dept. Name	UCHAR	16	left justification
Order Dr. Code	UCHAR	4	XXXX
Order Dr. Name	UCHAR	16	left justification

Type of Container	UCHAR	2	01: Tube / 02: Cup / 03: Others
Type of Sample	UCHAR	2	01: Serum / 02: Urine / 03: Others
Height of Container	UCHAR	2	Space
De-Capping	UCHAR	2	00: not need / 01: 78mm / 02: 100mm Tube
Centrifuge	UCHAR	2	00: not need / 01: necessary
STAT Flag	UCHAR	2	00: normal / 01: STAT

Free Comment	UCHAR	32	

#Number of Test	UCHAR	4	XXXX
Item No.(1)	UCHAR	20	XXXXXXXXXXXXXXXXXXXX
Type of Order(1)	UCHAR	2	01: New / 02: Delete / 03: Re-run / 04: Complete
#No. of Add. Inf. (1)	UCHAR	2	XX (00 or 01)*1, 2
Type of Add. Inf. (1)	UCHAR	2	01: Previous Result
Additional Inf. (1)	UCHAR	10	right justification
:			
:			

*2 Item No. (n)	UCHAR	20	
Type of Order(n)	UCHAR	2	
#No. of Add. Inf.(n)	UCHAR	2	01
Type of Add. Inf.(n)	UCHAR	2	01: Previous Result
Additional Inf.(n)	UCHAR	10	Previous Result

:

*1 Item No. (n)	UCHAR	20	
Type of Order(n)	UCHAR	2	
#No. of Add. Inf.(n)	UCHAR	2	00
Type of Add. Inf.(n)	UCHAR	2	Not necessary (delete)
Additional Inf.(n)	UCHAR	10	Not necessary (delete)

ETX	1
BCC	1

2. Result

STS	1		
Format Type Code	UCHAR	4	R02: Analyzer each / R03: Sample each
Type of Sample	UCHAR	2	00: normal 01: control
Sample ID	UCHAR	20	right justification
Rack ID	UCHAR	10	8 digits, right justification
Rack Position	UCHAR	2	01～05 *5-tube rack type
#No. of Analyzer	UCHAR	2	XX
Sample Inf.(cyle)	UCHAR	4	(Space required)
Sample Inf. (Hb)	UCHAR	4	(Space required)
Sample Inf. (Bil)	UCHAR	4	(Space required)
#No. of Items	UCHAR	4	
Item No.(1)	UCHAR	20	right justification
Result (1)	UCHAR	10	
Comment (1)	UCHAR	4	Comment from Analyzer
Dilution Ratio(1)	UCHAR	2	
Confirm Flag(1)	UCHAR	2	00: un-confirmed / 01: Confirmed
:			
Item No.(n)	UCHAR	20	
Result (n)	UCHAR	10	
Comment (n)	UCHAR	4	
Dilution Ratio(n)	UCHAR	2	
Confirm Flag(n)	UCHAR	2	
Length of Free Comment	UCHAR	4	Fixed at 0032
Free Comment	UCHAR	32	
ETX	1		
BCC	1		

3. Arrive Confirmation

STX	1		
Format Type Code	UCHAR	4	“A01,”
Rack ID	UCHAR	10	8 digits, right justification
Sample ID (Position 01)	UCHAR	20	right justification
Sample ID (Position 02)	UCHAR	20	
Sample ID (Position 03)	UCHAR	20	
Sample ID (Position 04)	UCHAR	20	
Sample ID (Position 05)	UCHAR	20	*5-tube rack type
Sample ID (Position 06)	UCHAR	20	
Sample ID (Position 07)	UCHAR	20	
Sample ID (Position 08)	UCHAR	20	
Sample ID (Position 09)	UCHAR	20	
Sample ID (Position 10)	UCHAR	20	*10-tube rack type
ETX	1		
BCC	1		

* In case if there is no sample in Rack, Sample ID will be expressed by full of Space.

4. Aliquot Information

STX	1		
Format Type Code	UCHAR	4	XXXX 000A～H or 000a～h
Date of Aliquot	UCHAR	8	YYYYMMDD
Rack Each SEQ	UCHAR	4	XXXX
Position in Rack	UCHAR	4	XXXX
Sample ID	UCHAR	20	right justification
Mother Sample Rack ID	UCHAR	10	8 digits, right justification
Mother Sample Rack Position	UCHAR	4	01～05
ETX		1	
BCC		1	

* Off-line Aliquot performance must be decided between the user and LIS Vendor.

5. TS Arrive Information

STX		1	
Format Type Code	UCHAR	4	“A02,”
TS ID	UCHAR	2	
Tray No.	UCHAR	2	
Date	UCHAR	2	
Tray Each SEQ	UCHAR	4	0001～
Whole SEQ	UCHAR	4	0001～
Rack ID	UCHAR	10	8 digits, right justification
Sample ID (Pos. 01)	UCHAR	20	
Sample ID (Pos. 02)	UCHAR	20	
Sample ID (Pos. 03)	UCHAR	20	
Sample ID (Pos. 04)	UCHAR	20	
Sample ID (Pos. 05)	UCHAR	20	*5-tube rack type
Sample ID (Pos. 06)	UCHAR	20	
Sample ID (Pos. 07)	UCHAR	20	
Sample ID (Pos. 08)	UCHAR	20	
Sample ID (Pos. 09)	UCHAR	20	
Sample ID (Pos. 10)	UCHAR	20	*10-tube rack type
ETX	1		
BCC	1		

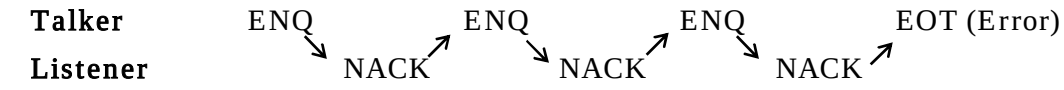
* In case if there is no sample in Rack, Sample ID will be expressed by full of Space.

【7】 About Communication Error

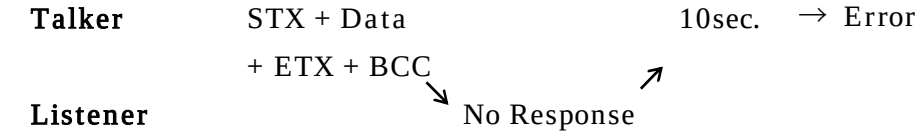
Communication Errors are shown as follows.

1. No response against ENQ

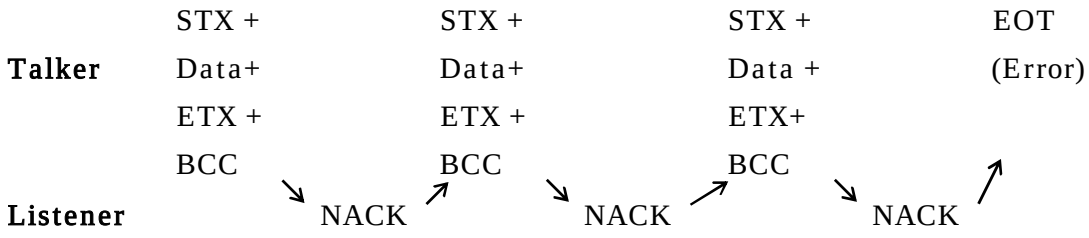
2. NACK against ENQ (including the response except ACK or NACK)



3. No response against Information



4. NACK against Information (including the response except ACK or NACK)



CLINILOG has Error Check Function during the communication and Re-send Function. Therefore, LIS should also be prepared for Re-send capability.