MicroCC-20Plus COM Transport Protocols V1.2

2009-3-6

1. Communication setting

Baud rate: 115200
data digit: 8
calibration digit: None
stop digit: 1

2. QC data

L-J QC

(1) QC Setting

Parameter	**Date type**	**Value**	**Parameter Division Symbol**	**Remark**
Head	Character	“LJS”	,	
Document No.	Character	Number from 1 to 20	,	
Batch No.	Character		,	
Valid period	Character		,	Format: Year-Month-Date 0000-00-00
WBC Reference Value	Character	Floating Point	,	Same unit for Reference Value and Deviation Value
WBC Deviation Value	Character	Floating Point	,	
WBC unit	Character	Character String	,	
LYM# Reference Value	Character	Floating Point	,	
LYM# Deviation Value	Character	Floating Point	,	
LYM# unit	Character	Character String	,	
◦◦◦				
◦◦◦				
P-LCR Reference Value	Character	Floating Point	,	
P-LCR Deviation Value	Character	Floating Point	,	
P-LCR unit	Character	Character String	,	
Check Sum	Character	Integer	,	

End Sign	Character	TRANSFER FINISH		

(2) QC List

Parameter	**Date type**	**Value**	**Parameter Division Symbol**	**Remark**
Head	Character	“LJR”	,	one record format
Document No.	Character	Number from 1 to 20	,	
Testing Date	Character		,	Format: Year-Month-Date0000-00-00
Testing Time	Character		,	Format: Hour:Minute:Second 00:00:00
Parameter Name	Character	Transfer Sequence：WBC,LYM#,MON#, GRA#, LYM%, MON%, GRA%, RBC, HGB, MCHC, MCH, MCV, RDW-CV, RDW-SD, HCT, PLT, MPV, PDW, PCT, P-LCR	,	
Result	Character	Floating Point	,	If value is -2, that means this item is without QC
Check Sum	Character	Integer	,	
End Sign	Character	TRANSFER FINISH		

X-B QC

(1) QC Setup

Parameter	**Date type**	**Value**	**ParameterDivision Symbol**	**Remark**
Head	Character	“XBS”	,	
Group of Sample	Character	20-200	,	
Reference Value	Character	Floating Point	,	Parameters transfer sequence: WBC,LYM#,MON#, GRA#, LYM%, MON%, GRA%, RBC, HGB, MCHC, MCH, MCV,

				RDW-CV, RDW-SD, HCT, PLT, MPV, PDW, PCT, P-LCR
Deviation Value	Character	Floating Point	,	Parameters transfer sequence: WBC,LYM#,MON#, GRA#, LYM%, MON%, GRA%, RBC, HGB, MCHC, MCH, MCV, RDW-CV, RDW-SD, HCT, PLT, MPV, PDW, PCT, P-LCR Transferred with Reference Value together
Unit	Character	Character String	,	Same unit for Reference Value and Deviation Value
Check Sum	Character	Integer	,	
End Sign	Character	TRANSFER FINISH		

(2) QC List

Parameter	**Date type**	**Value**	**Parameter Division Symbol**	**Remark**
Head	Character	“XBR”	,	one record format
Testing Date	Character		,	Format: Year-Month-Date0000-00-00
Testing Time	Character		,	Format: Hour:Minute:Second 00:00:00
Parameter Name	Character	Transfer Sequence：WBC,LYM#,MON#, GRA#, LYM%, MON%, GRA%, RBC, HGB, MCHC, MCH, MCV, RDW-CV,	,	

		RDW-SD, HCT, PLT, MPV, PDW, PCT, P-LCR		
Result	Character	Floating Point	,	If value is -2, that means this item is without QC
Check Sum	Character	Integer	,	
End Sign	Character	TRANSFER FINISH		

X-R QC

(1) QC Setup

Parameter	**Date type**	**Value**	**ParameterDivision Symbol**	**Remark**
Head	Character	“XRS”	,	
Document No.	Character	Number from 1 to 20	,	
Batch No.	Character		,	
Valid period	Character		,	Format: Year-Month-Date0000-00-00
Number of Group	Character	Integer	,	
Samples of each group	Character	Integer	,	
Parameter Unit	Character	Character String	,	20 Parameter Units Transfer Sequence：WBC,LYM#,MON#, GRA#, LYM%, MON%, GRA%, RBC, HGB, MCHC, MCH, MCV, RDW-CV, RDW-SD, HCT, PLT, MPV, PDW, PCT, P-LCR
Check Sum	Character	Integer	,	
End Sign	Character	TRANSFER FINISH		

(2) QC List

Parameter	**Date type**	**Value**	**Parameter Division Symbol**	**Remark**
Head	Character	“LJR”	,	one record format
Document No.	Character	Number from 1 to 20	,	
Testing Date	Character		,	Format: Year-Month-Date0

				000-00-00
Testing Time	Character		,	Format: Hour:Minute:Second 00:00:00
Parameter Name	Character	Transfer Sequence：WBC,LYM#,MON#, GRA#, LYM%, MON%, GRA%, RBC, HGB, MCHC, MCH, MCV, RDW-CV, RDW-SD, HCT, PLT, MPV, PDW, PCT, P-LCR	,	
Result	Character	Floating Point	,	
Check Sum	Character	Integer	,	
End Sign	Character	TRANSFER FINISH		

Sample Data

Parameter	**Date type**	**Value**	**Parameter Division Symbol**	**Remark**
Head	Character	“R”	,	
No.	Character		,	Max. 99999999
Testing Date	Character		,	Format: Year-Month-Date0 000-00-00
Testing Time	Character		,	Format: Hour:Minute:Second 00:00:00
Name	Character		,	
Gender	Character	“Male” “Female”	,	
Age	Character		,	3-digit
Age Record	Character	“Year” ”Month” ”Day”	,	
Sample Type	Character	“anti-coagulating whole blood” “anti-coagulating peripheral blood” “pre-diluted peripheral	,	

		blood”		
Reference Value	Character	“General” “Adult male” “Adult female” “14-18 years” “6-13 years” “3-6 years” “2 months-3 years” “8 days-1 month” “the 1st week” “user-defined”	,	
Medical No.	Character		,	
Bed No.	Character		,	
Department	Character		,	
Sender	Character		,	
Analyst	Character		,	
Checker	Character		,	
Item	Character		,	WBC,LYM#,MON#, GRA#, LYM%, MON%, GRA%, RBC, HGB, MCHC, MCH, MCV, RDW-CV, RDW-SD, HCT, PLT, MPV, PDW, PCT, P-LCR
Result	Character	Floating Point(float)	,	
Unit	Character		,	Parameter Unit
Check Sum	Character	Integer	,	Character Sum
End Sign	Character	TRANSFER FINISH		

Base data ＋Histogram data

(1) WBC Histogram

Parameter	**Date type**	**Value**	**Parameter Division Symbol**	**Remark**
Head	Character	“W”	,	
No.	Character		,	Max.99999999
Testing Date	Character		,	2009-03-06
Type	Character	1	,	
Symbol Line 1	Character	Single Precision Floating Point	,	Volume Count

Symbol Line 2	Character	Single Precision Floating Point	,	Volume Count
Symbol Line 3	Character	Single Precision Floating Point	,	Volume Count
Symbol Line 4	Character	Single Precision Floating Point	,	Volume Count
Channel Data	Character	Single Precision Floating Point	,	Total: 256 data division symbol “,” is used
Check Sum	Character	Integer		Character Sum

(2) RBC Histogram

Parameter	**Date type**	**Value**	**ParameterDivision Symbol**	**Remark**
Head	Character	“W”	,	
No.	Character		,	Max. 8 Characters
Testing Date	Character		,	2009-03-06
Type	Character	2	,	
Symbol Line 1	Character	Single PrecisionFloating Point	,	Volume Count
Symbol Line 2	Character	Single PrecisionFloating Point	,	Volume Count
Channel Data	Character	Single PrecisionFloating Point	,	Total: 256 data division symbol “,” is used
Check Sum	Character	Integer		Character Sum

(3) PLT Histogram

Parameter	**Date type**	**Value**	**ParameterDivision Symbol**	**Remark**
Head	Character	“W”	,	
No.	Character		,	Max. 8 Characters
Testing Date	Character		,	2009-03-06
Type	Character	3	,	
Symbol Line 1	Character	Single PrecisionFloating Point	,	Volume Count
Symbol Line 2	Character	Single PrecisionFloating	,	Volume Count

		Point		
Channel Data	Character	Single PrecisionFloating Point	,	Total: 128 data division symbol “,” is used, keep conformity with last two histograms ， send 256 characters ， use ”,” if there is no value.
Check Sum	Character	Integer	,	Character Sum

Channel Data of Histogram + Sign of Histogram

Head	Character	“M”	,	
Sign	Character	Combination of multi-sign	,	Show abnormal cell distribution, like LF1，PF1.
End Sign	Character	TRANSFER FINISH		Show one sample record be transferred

Date of Normal and Abnormal

Head	Character	“Normal”	,	
Assortment			,	
Item	Character		,	
Unit			,	
Lower limit of reference range	Character		,	
Higher limit of reference range	Character		,	
Check Sum	Character	Integer	,	Character Sum
End Sign	Character	TRANSFER FINISH		

Head	Character	“Panic”	,	
Assortment			,	
Item	Character		,	
Unit			,	
Lower limit of abnormal data	Character		,	
Higher limit of abnormal data	Character		,	
Check Sum	Character	Integer	,	Character Sum
End Sign	Character	TRANSFER FINISH		