**仪器接口程序说明文档**

1. **接口说明**

|  |  |  |  |
| --- | --- | --- | --- |
| 仪器厂商 | 罗氏 | 适用型号 | **8000** |
| 通讯方式 | **双向** | 仪器类型 | 生化 |
| 程序名称 | MI.MIFCOBASE602 | | |
| 附件 | 仪器通讯协议（8000 HostInterface Manual v15 .pdf）  接口源码（8000-602M-0103.txt） | | |

1. **连接说明**

**连接方式：**串口 ~~串口线接仪器主机/~~串口线接仪器配备电脑

**是否支持其他连接方式**：~~网口，读文本，读数据库~~

**3.串口盒子设定参数**

**1）串口盒子型号及线序**

**MOXA 5410**

RS232 母对母 23交叉5直连

**2）盒子及仪器设定参数**

|  |  |  |  |
| --- | --- | --- | --- |
| 序号 | 选项中文名称 | 选项英文名称 | 设置 |
| 1 | 波特率 | Baud | 9600 |
| 2 | 数据位 | Code | 8 |
| 3 | 停止位 | Stop Bit | 1 |
| 4 | 奇偶校验 | Parity Bit | None |
| 5 | 模式 | Mode | RS232 |
| 6 | 流量控制 | Flow | None |

**4.仪器参数设定说明（保留仪器设置图片存档）**

仪器上设置：见附件

仪器管理设置：

**5.仪器数据传输说明**

1）仪器自动传输结果：支持

2）手工传输结果：支持

**手动传输操作图片**

**6．修改记录**

|  |  |  |  |
| --- | --- | --- | --- |
| 序号 | 日期 | 操作人 | 说明 |
| 1 | 2016-5-25 | 刘彬 |  |

1. **数据格式：**

**1H|\^&|458789||cobas□8000^1.05|||||host|RSUPL|P|1|20161228085728|【13】P|1||||^||||【13】O|1|1612270429|0^50067^2^^S1^SC^not|^^^49^1\^^^50^1\^^^51^1\^^^54^1\^^^55^1\^^^63^1\^^^67^1\^^^68^1\^^^91^1\^^^148^1\^^^155^1\^^^169^1|R|20161228083221|2016122808【23】01【13】 22804||||N||||1||||||||||F|【13】C|1|I|^^^^|G|【13】R|1|^^^49/1/not|3.28|ng/mL|^TECH\^NORM\^CRIT\^USER|||F||1^SYSTEM|20161228083509|20161228085338|e602^1^MU1#e602#1#1^3^0|【13】C|1|I|0|I|【13】R|2|^^^50/1/not|3.34|ng/mL|^TECH\^NORM\^CRIT\^USER|||F||1^SYSTEM|201【23】C9【13】361228083530|20161228085358|e602^2^MU1#e602#1#2^4^0|【13】C|1|I|0|I|【13】L|1|N|【13】【3】83【13】**

**8.接口程序**

/// 名称: MI.MIFCOBASE602

/// 描述: Cobas 8000 仪器接口 New Mode

/// 通讯方式：双向

/// 编写者:liuzf

/// 编写日期: 20150827

/// 修改：添加标本流水号传输给仪器 BinL 20161228

MIFCOBASE602(MachID) //仪器结果

s MachID=$g(MachID)

S ^TMPMACH10(MachID,104)=$H

i '$l(MachID) q

s ItemDeli=$li(^dbo.BTMIMachineParameterD(MachID),12) //项目分隔符

s ResultDeli=$li(^dbo.BTMIMachineParameterD(MachID),13) //结果分隔符

s AntDeli=$li(^dbo.BTMIMachineParameterD(MachID),14) //抗生素分隔符

s SenDeli=$li(^dbo.BTMIMachineParameterD(MachID),15) //药敏结果分隔符

s Port="|TCP|"\_$li(^dbo.BTMIMachineParameterD(MachID),17) //端口号

//控制字符

s stx=$c(2),etx=$c(3),ack=$c(6),enq=$c(5),eot=$c(4),lf=$c(10),cr=$c(13),nak=$c(21),etb=$c(23)

//s stx="[",etx="]"

s AllRecord=""

S ^TMPMACH10(MachID,102)=$H

i $$Start^MI.MIF000(MachID) q

f d Main i $$Stop^MI.MIF000(MachID) q

c Port

q

Main

SET $ZTRAP="ERR"

r \*R:10 e d q

.d ORDER

i $c(R)=-1 w nak,\*-3

i $c(R)'=enq q

d Trace^MI.MIF000(MachID,"ENQ","H<--M")

d ACK

f r \*R:10 q:$c(R)=eot q:R=-1 d

.i $c(R)'=stx q

.s record=$$Read^MI.MIF000(MachID,"",lf) q:'$l(record)

.d Trace^MI.MIF000(MachID,record,"H<--M")

.d ACK

.s record=$e(record,1,$l(record)-1)

.i $l(record,etb)>1 s AllRecord=$g(AllRecord)\_$p($e(record,2,$l(record)-1),etb,1)

.i $l(record,etx)>1 s AllRecord=$g(AllRecord)\_$p($e(record,2,$l(record)-1),etx,1)

.d Result

d Trace^MI.MIF000(MachID,$s($c(R)=eot:"EOT",1:R),"H<--M")

d ORDER

q

Last ; file result if exist

i $l(epis),$l(result) d Save^MI.MIF000(MachID,epis,result,date,time,QC)

s (epis,result,date,time,QC)=""

q

Result

//s num=$o(^TMP(mi,""),-1)+1

//s ^TMP(mi,num)=AllRecord

s headstr=""

f k=1:1:$l(AllRecord,cr) d

.s record=$p(AllRecord,cr,k)

.i $e(record,1)="H" d q

..s (sample,epis,surname,rec,res,result,date,time,QC,ResF)=""

..s headstr="1"\_record

.i $e(record,1)="Q" d q

..;Q|1|^^ 55163517^0^5066^1^^S1^SC||ALL||||||||A

..S sampleID=$P($P(record,"|",3),"^",3)

..S sampleInfo=$P($P(record,"|",3),"^",4,9)

..S labno=$TR(sampleID," \*")

..s rack=$tr($p($p(record,"|",3),"^",5)," ")

..s pos=$tr($p($p(record,"|",3),"^",6)," ")

..s retVal=$$ReceiveLabno^MI.MIF000(MachID,labno,rack\_pos)

..i retVal'=1 Quit

..i $l(labno) S ^TMP($zn,$j,"ENQ",labno)=sampleID\_$C(2)\_sampleInfo\_$c(2)\_rack\_$c(2)\_pos //

.i $e(record,1)="O" d q

..;-------双向取条码号---

..s epis=$tr($p($p(record,"|",3),"^",1)," ")

..i '$l(epis) s epis=$tr($p($p(record,"|",4),"^",1)," ")

. ; result record

.i $e(record,1)="C" d q

..;-------存储结果标识---C|1|I|27^Technical□limit□over□(lower)|I|【13】

..s ResF=$tr($p($p($p(record,"|",4),"^",2),"(",2)," "")")

..i ResF="lower" d q

...s res="<"\_res

...i $l(code),$l(res) s result=result\_code\_ResultDeli\_res\_ItemDeli

..s ResF=""

.i $e(record,1)="R" d q

..;R|1|^^^50/1/not|3.38|ng/ml||N||F|||||E11

..;R|2|^^^64//not|2.00|IU/L||LL||F|||||E22

..s code=$p($p($p(record,"|",3),"^",4),"/",1)

..s res=$p(record,"|",4)

..i res["^" s res=$p(res,"^",2)

..s res=$tr(res," ")

..//i $l(code),$l(res) s result=result\_code\_ResultDeli\_res\_ItemDeli

.; last record

.i $e(record,1)="L" d Last

i $l(AllRecord) s AllRecord=$p(AllRecord,cr,$l(AllRecord,cr))

q

ORDER ;ORDER LIST ^TMP($zn,$j,"ENQ",epis

i '$d(^TMP($zn)) q

i '$d(^TMP($zn,$j)) q

s labno="" f s labno=$o(^TMP($zn,$j,"ENQ",labno)) q:labno="" d

.s requestData=^(labno)

.s sampleID=$P(requestData,$C(2),1)

.s sampleInfo=$P(requestData,$C(2),2)

.s $p(headstr,"|",11)="TSDWN^REPLY"

.s headstr=headstr\_cr

.//20140403

.s rackid=$p(requestData,$c(2),3)

.s posid=$p(requestData,$c(2),4)

.///保存位置号20110621 huhm

.//d SetTSMachPos^MIF000(mi,labno,rackid,posid)

.d ScanOne^MI.MIF000(MachID,labno)

.s patstr=$$PATDET(labno)\_cr

.s tcx="",episx=labno

.//s ^TMP("MIFTESTCODE",$j,MachID,labno,49)=""

.//s ^TMP("MIFTESTCODE",$j,MachID,labno,50)=""

.s chl="" f s chl=$o(^TMP("MIFTESTCODE",$j,MachID,labno,chl)) q:chl="" d

..s tcx=tcx\_"^^^"\_chl\_"^\"

.s tcx=$e(tcx,1,$l(tcx)-1)

.s SpecimenDR=""

.s VisNumDR=$o(^dbo.RPVisitNumberI("IndexVisitNumber"," "\_labno,""))

.i $l(VisNumDR) s SpecimenDR=$lg(^dbo.RPVisitNumberD(VisNumDR),56)

.S specimenTypeID="1",specimenType="血"

.I $L(SpecimenDR) D

..S specimenType=$lg($g(^dbo.BTSpecimenD(SpecimenDR)),3)

.//标本类型代码,1=血清/血浆,2=尿,3=脑脊液,4=supmt,5=其他

.S specimenID=$S(specimenType["血":1,specimenType["尿":2,specimenType["脑脊液":3,1:1)

.///O|1| CEA-10|0^5012^2^^S1^SC|^^^49^|R||||||N||||1|||||||20140324140016|||F

.S ordstr="O|1|"\_sampleID\_"|"\_sampleInfo\_"|"

.S ordstr=ordstr\_tcx\_"|R||"\_$TR($ZD($P($H,",",1),3),"-")\_$TR($ZT($P($H,",",2),1),":")\_"||||N||||"\_specimenID\_"||||||||||O|||||"\_cr

.S ordstr=ordstr\_"C|1|I|^^^^|G|"

.s endstr="L|1|N"\_cr

.s str=headstr\_patstr\_ordstr\_endstr

.d Send(labno,str)

k ^TMP($zn,$j,"ENQ")

q

PATDET(epis) ; set patient details record

s retstr="P|1"

q retstr

Send(epis,str) ; send list of orders if exists

w enq,\*-3 d Trace^MI.MIF000(MachID,"ENQ","H-->M")

f j=1:1:10 r \*R:1 i $c(R)=ack!($c(R)=enq) q

d Trace^MI.MIF000(MachID,$s($c(R)=ack:"ACK",$c(R)=enq:"ENQ",$c(R)=nak:"NAK",1:R),"H<--M")

i $c(R)=enq q

i $c(R)'=ack w eot,\*-3 d Trace^MI.MIF000(MachID,"EOT","H-->M") q

i $l(str)>241 d

.s str1=$e(str,1,241)

.s ret=$$SEND(str1,1)

.s str2="2"\_$e(str,242,$l(str))

.s ret=$$SEND(str2,0)

e d

.s ret=$$SEND(str,0)

//f j=1:1:10 r \*R:1 i $c(R)=ack!($c(R)=enq) q

//d Trace^MI.MIF000(MachID,$s($c(R)=ack:"ACK",$c(R)=enq:"ENQ",$c(R)=nak:"NAK",1:R),"2H<--M")

w eot,\*-3 d Trace^MI.MIF000(MachID,"EOT","H-->M") q

h 0.2

q

ERR

h 10

s ^TMPMachErr(+MachID,$j)=$ZERROR\_".错误代码:"\_$ECODE

q

SEND(str,flag) ; send string to instrument

i flag=1 d

.s str=str\_etb

.s chsum=$$CHSUM(str)

e d

.s str=str\_etx

.s chsum=$$CHSUM(str)

w stx,str,chsum,cr,lf,\*-3 d Trace^MI.MIF000(MachID,str\_chsum,"H-->M")

f j=1:1:6 r \*R:1 i ($c(R)=ack)!($c(R)=eot) q

i $c(R)=ack d Trace^MI.MIF000(MachID,"ACK","H<--M") q 0

i $c(R)=eot d Trace^MI.MIF000(MachID,"EOT","H<--M") q 0

i $c(R)=-1 w nak,\*-3

d Trace^MI.MIF000(MachID,R,"H<--M")

q 1

CHSUM(x) ; calculate check sum

n (x) s z=0 f y=1:1:$l(x) s z=z+$a(x,y)

s z=$e("0123456789ABCDEF",z#256\16+1)\_$e("0123456789ABCDEF",z#16+1)

q z

///发送回应符到仪器

ACK

h 0.2

s ack=$c(6)

w ack,\*-3 d Trace^MI.MIF000(MachID,"ACK","H-->M")

q

NEXTTRAY(tray)

q tray