Chapter 1 Communication Interface Introduction

1.1 RS232C Interface Introduction

The Protocol we used is not the full standard RS232C protocol,we use the subset of the full RS232 protocol.as table1-1.

Function	Code	Connector Pin Number
Transmitted Data	TXD	2
Received Data	RXD	3
Signal Ground Common	GND	5

table1-1.

Communication with a computer

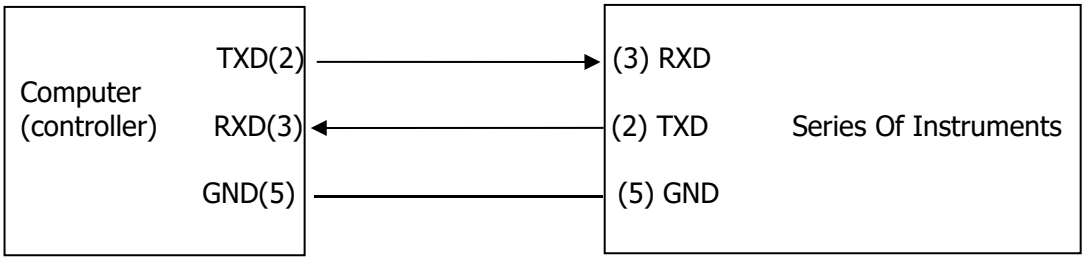


Figure 1-1 Serial port connection

Chapter 2 Command Reference

2.1 Introduction

It is recommended that the customer use the SCPI format command ,which is more complete with the instrument's functional support.

Chapter 3 SCPI

3.1 SCPI Command Introduction

When the SCPI (Standard Commands for Programmable Instruments)command is selected, the instrument also supports part of the GPIB common command.

3.2 GPIB Common Command Introduction

1. *RST

Function: Restore the instrument to factory settings.

2. *IDN?

Function: Query information for four fields(separated by commas).
Return value, Company, Instrument model, Version number

3. *TRG

Function: The instrument will be triggered in external trigger mode(EXT)

4. *FETC?

Function: Cooperate with TRG to query test data manually. This command is not required if the auto send data function is on.

5. *SAV

Function: Save file

Parameter： <numeric_value>，[string]

Description：<numeric_value> is the internal file serial number of 1~105.
[string]， A string with a maximum length of 10， for naming files and automatically naming then with serial numbers when omitted.

Example： *SAV 1，“AB”

Note：This instruction is not prompted when overwriting existing file records.

6. *RCL

Function: Call an existing file record.

Parameter： <numeric_value>.

Description：<numeric_value> is the internal file serial number of 1~105.

Example： *RCL 1

3.3 SCPI Commands Are Tree Structured

The top of the instruction of the tree structure is the root command, or root for short. If you want to reach the underlying instruction, you must follow a specific path to reach it.

Command Terminator :The terminator entered by the command,such as NL (newline character,ASCII code 10)

: A colon is used to separate the higher level commands and the lower level commands.

; The semicolon can be used as a separator to execute multiple commands on a single line.

? A question mark is used to generate a query for the command in front of it.

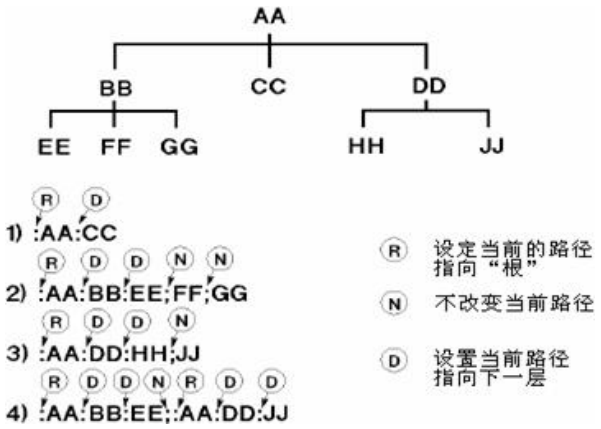
, Comma is used to separate the muti-parameters in the command.

White space is used to separate the command and the parameter. An instruction comment indicates a space with ς

“ ” Double quotation marks indicate that the enclosed test is string data.

* Asterisk is used to indicate that the command followed is a common command.

The following diagram shows how to use a colon, semicolon to the bottom of the bottom of the instruction.



If a command is sent ：AA：BB：EE；FF；GG

Equivalent to sending the following three instruction
: AA：BB：EE
:AA：BB：FF
:AA：BB：GG

3.4 Command Parameters

- **Character Data and String Data**
  Character data consists of ASCII characters. String data consists of ASCII characters enclosed by double quotes(“ ”).

- **Numeric Data**
  Integer (NR1), fixed point (NR2), or floating point (NR3). The available range for numeric data is ±9.9E37.
  Examples for NR1:
  123
  +123
  -123

  Examples for NR2:
  12.3
  +1.234
  -123.4

  Examples for NR3:
  12.3E+5
  123.4E-56

3.5 Command Description

3.5.1 SPEED Command

1. :SPEED
Function： Query or set test speed.
Parameter： FAST | MEDium | SLOW
Return Format： FAST | MEDium | SLOW

3.5.2 DISPlay Command

1 . :DISPlay:PAGE
FUNCtion： Query or set the displayed function page.
PARAmeter： MEASurement
BNUMber
MSETup
SYSTem
Return Format： < MEAS DISP > | < BIN DISP > | < MEAS SETUP > | < SYSTEM SETUP > | < ABOUT > | < INTER FILE LIST >

2. :DISPlay:RFONt
FUNCtion： Query or set fort size or display switch.
PARAmeter： LARGe
TINY
OFF
ON
Return Format：OFF | LARGE | TINY

3. :DISPlay
FUNCtion： Query or set the display format of the measurement results.
PARAmeter： DIRect
PERcent
ABSolute
Return Format：DIRECT | PERCENT | ABSOLUTE

3.5.3 FREQuency Command

1. : FREQuency
FUNCtion： Query or set the signal source frequency.
PARAmeter：50 | 60 |100 | 120 | 1k | 10k
Return Format：50 | 60 |100 | 120 | 1k | 10k

3.5.4 LEVel Command

1. : LEVel
FUNCtion： Query or set the oscillator’s output voltage level.

PARAmeter： 0.1V | 0.3V | 1.0V
Return Format：0.1V | 0.3V | 1.0V

3.5.5 PARAmeter Command

1. : PARAmeter
FUNCtion：Query or set measurement parameter
PARAmeter：cd | lq | rq | rd | rx | zd | zr
Return Forma：cd | lq | rq | rd | rx | zd | zr

3.5.6 EQUivalent Command

1. :EQUivalent
FUNCtion： Query or set the equivalent circuit mode for measurement.
PARAmeter： SERial | PARallel
Return Forma： SERIAL | PARALLEL

3.5.7 SRESistor Command

1. : SRESistor
FUNCtion： Query or set the signal source output resistor.
PARAmeter：30 | 100
Return Forma：30 | 100

3.5.8 RANGe Command

1. : RANGe
FUNCtion：Query or set the ranging mode
PARAmeter：AUTO | HOLD |0| 1|2|3|4|5
Return Forma：AUTO-<n> | HOLD-<n> n=(0 to 5）Set the current measurement range.

3.5.9 TRIGger Command

1. : TRIGger
FUNCtion： Query or set the trigger mode and trigger a measurement .
PARAmeter： INTernal
EXTernal
IMMediate
Return Forma：INTERNAL | EXTERNAL
2. : TRIGger:DELay
FUNCtion： Query or set the trigger delay time
PARAmeter：0~6000（ms）
Return Forma：0~6000

3.6.0 CORRection Command

1. : CORRection
FUNCtion： Executes the OPEN or SHORt correction.
PARAmeter：OPEN
OPEN_ALL
SHORt
SHORt_ALL

3.6.1 COMParator Command

1. : COMParator[:STATe]
FUNCtion：Query or set the comparator function to ON or OFF.
PARAmeter：ON | OFF | 1 | 0
Return Forma：1 | 0
2. : COMParator:Auxiliary BIN
FUNCtion：Query or set the Auxiliary BIN function to ON or OFF.
PARAmeter：ON | OFF | 1 | 0
Return Forma：1 | 0
3. : COMParator:BIN CLEar
FUNCtion：Clear all <low limit> <high limit> .
4. : COMParator:COUNt[:STATe]
FUNCtion：Query or set the count of each bin to ON or OFF.
PARAmeter：ON | OFF | 1 | 0
Return Forma：1 | 0
5. : COMParator:COUNt:DATA
FUNCtion：Query the count of each bin
Return Forma：<NG>，<P1>，<P2>，<P3>，<AUX>
Description: 0~999999(NR1)
6. : COMParator:COUNt:CLEar
FUNCtion：Clear the count of each bin

3.6.2 LIMit Command

1. : LIMit:NOMinal
FUNCtion：Query or set the nominal value
PARAmeter：<value>
Return Forma：<value>
Description: Where,
<value> NR3 format nominal value

2. : LIMit:BIN <n> <low limit>,<high limit>
FUNCtion： Query or set the low/high limit values of each BIN for the comparator function tolerance mode.
PARAmeter： <n> 1 to 3 (NR1), BIN number
<low limit> ,<high limit> -100~100 (NR3)
Return Forma： <low limit>,<high limit>

Description: If the low/high limit values is not set, the return value value is the “9.9999e+37”.
3. : LIMit:SECondary <low limit>,<high limit>
FUNCtion： Query or set the low/high limit values of the secondary parameters for comparator function.
PARAmeter：<low limit> <high limit> (NR3)

Return Forma：<low limit>,<high limit>

Description: If the low/high limit values are not set, the return value is the “9.9999e+37”.

3.6.3 HANDLER Command

1. :HANDler:MODE
FUNCtion：Query or set the output mode of the handler
PARAmeter： CLEAr | HOLD | PULSe
Return Forma：CLEAr | HOLD | PULSe
Description: CLEAr | HOLD | PULSe
2. : HANDler:PULSe
FUNCtion： Query or set the Pulse Width
PARAmeter： <numeric_value> | MIN | MAX
Return Forma：<numeric_value>
Description: <numeric_value> 1~9999ms
3. : HANDler: EDGE
FUNCtion： Query or set the trigger edge
PARAmeter： RISing| FALLing
Return Forma： RISing| FALLing
Description: RISing| FALLing

3.6.4 CALCULATE Command

1. :CALCulate:AVERage
FUNCtion： Query or set the average number of times.
PARAmeter： 1~255
Return Forma： 1~255
2. :CALCulate:LIMit:BEEPer:SOURce
FUNCtion：Query or set the sound source
PARAmeter： MASTer
EARPHone
ALL
Return Forma：MASTER | EARPHONE | ALL
3. :CALCulate:LIMit:BEEPer:PASS
FUNCtion： Query or set the beep alarm function when the comparision is qualified.
PARAmeter： OFF
LONG
SHORT
TwoSHORT

Return Forma：OFF | LONG | SHORT | TWOSHORT

4．:CALCulate:LIMit:BEEPer:FAIL

FUNCtion： Query or set the beep alarm function when the comparision is not qualified.

PARAmeter： OFF
LONG
SHORT
TwoSHORT

Return Forma：OFF | LONG | SHORT | TWOSHORT

3.6.5 SYSTem Command

1．:SYSTem:BEEPer[:STATe]

FUNCtion：Query or set the key sound status.

PARAmeter： OFF | 0
ON | 1

Return Forma：0 | 1

3.6.5 SYSTem:SAVE

FUNCtion：save file

PARAmeter：<numeric_value>，[string]

Description:<numeric_value> is the internal file serial number of 1~105.

[string]， A string with a maximum length of 10， for naming files and automatically naming then with serial numbers when omitted.

Example： *SAV 1，“AB”

Note： This instruction is not prompted when overwriting existing file records.

3.6.6 :SYSTem:LOAD

FUNCtion：Call an existing file record

PARAmeter：<numeric_value>

Description:<numeric_value> is the internal file serial number of 1~105.

Example：SYST:LOAD 1

3.6.7 :SYSTem:RESet

FUNCtion：system setup reset

3.6.8 :PRINt Command

1．:PRINt

FUNCtion：Query or set the automatic data transfer function.

PARAmeter： OFF | 0
ON | 1

Return Forma： 0 | 1

Description: After automatic transmission is allowed,the instrument automatically sends the measurement data in the following format each time after the measurement is completed.
<A>,<B>,<COMP>
<A>Primary parameter，<B>Secondary parameter，<COMP>Sorting results 0~5