HT3544X　Multi-channel Resistance Tester Communication Interface User Manual

English version
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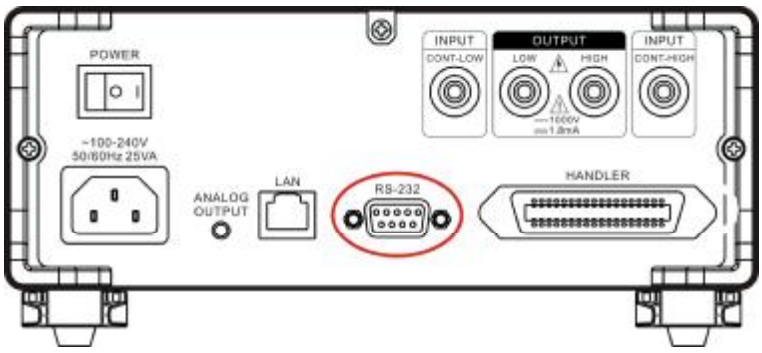
HT3544X has two communication modes RS232C and LAN (network protocol using TCP protocol) communication. Both RS232C and LAN adopt the SCPI protocol.

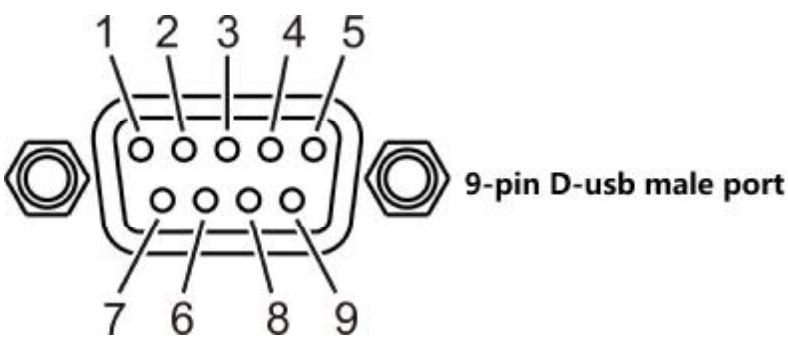
It is forbidden to connect the instrument communication port with its test port, otherwise the instrument will be damaged.

7.1 RS232C communication mode

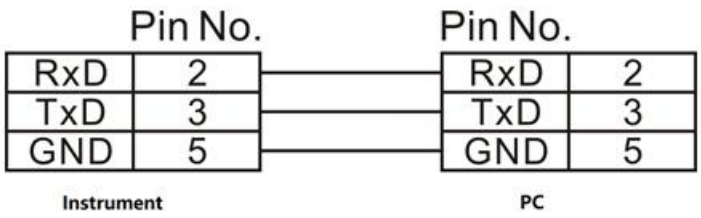
RS232C communication adopts 3-wire communication mode

Interface and cable





Connection method



7.3 SCPI Commands

7.3.1 Common commands

Instrument commands are divided into two types: common command and SCPI command (Standard Commands for Programmable Instruments). Common command defined by the IEEE488.2-1987 standard. These commands are to be used with all instruments, but this instrument does not support all common commands. SCPI command is a tree structure.

1. ***IDN?** command

   Function: Query version number

   Example: Send: *IDN? Return: HOPETECH, HT3544, V1.0.0

7.3.2 SCPI Command Structure

The commands at the top of the command tree are called "root command" or simply "root." To access lower-level commands in the tree, you need to specify a specific path.

Command terminator: command input terminator, such as NL (newline character, ASCII code 10)

Colon (:)

A colon is the level of command, means to lower the level of the current command

Semicolon (;)

A semicolon indicates the beginning of multiple commands

Question mark (?)

A question mark (?) indicates query

Comma (,)

A comma is a separator of multiple parameters.

Spaces ()

A space is a separator between command and parameter

The following figure 6.1shows an example of how to use colons and semicolons to efficiently access commands in the command tree.

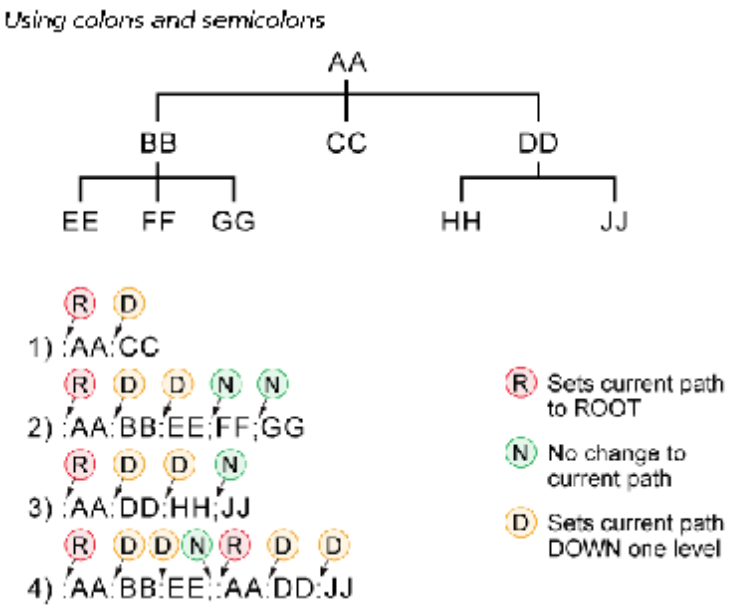


Figure 6.1 SCPI command tree

7.4 SCPI Subsystem

Data Format

NR1: integer (example: +12, -23, 34)

NR2: real numbers (example: +1.23, -23.45, 3.456)

NR3: Floating point scientific notation (example: +1.0E-2, -2.3E+4)

1. TRG

Function: trigger test

Single channel mode Return: resistance value, temperature value, range

Multi-channel mode Return: channel number, resistance value, judgment

2. MODE

Function: turn off/on broadcast mode

Return: none

Setting value: ON (open), OFF (closed)

Example
MODE?
Function: query broadcast mode
Return: ON (open), OFF (closed)

3. FUNCtion:TERMinal
Function: switch single/multiple mode
Return: none
Setting value: FRONT (single channel), MUX (multiple channel)

Example
FUNCtion:TERMinal?
Function: query single/multiple mode
Return: FRONT (single channel), MUX (multiple channels)

4. FUNCtion: RATE
Function: set test speed
Returns: None
Setting value: FAST (fast), MED (medium speed), SLOW (slow speed)

Example
FUNCtion:RATE?
Function: query test speed
Return: FAST (fast), MED (medium), SLOW (slow)

5. FUNCtion: DELAY
Function: set measurement delay
Return: none
Setting value: 0ms~999ms

Example
FUNCtion: DELAY?
Function: query test delay
Return: 0mS~999mS

6. FUNCtion: OVC
Function: Turn on and off OVC function
Return: none
Setting value: ON (open), OFF (closed)

Example
FUNCtion:OVC?
Function: query OVC status
Return: ON (open), OFF (closed)

7. FUNCtion: 300MA

Function: open/close 300MA
Return: none
Setting value: ON (open), OFF (closed)

Example
FUNCtion: 300MA?
Function: query 300MA status
Return: ON (open), OFF (close)

8. MUX:Channel:ONOFF
Function: Open and close the test channel
Format: MUX:Channel:ONOFF channel number,ON|OFF

Example
MUX:Channel:ONOFF? channel number
Function: return whether the channel is open

9. MUX:Channel:RANGe
Function: set the channel range
Format: MUX:Channel:RANGe channel number, range number

Example
MUX:Channel:RANGe? channel number
Function: return channel range

10. MUX:Channel:UPPer:ONOFF
Function: Set whether the upper limit of the channel is enabled
Format: MUX:Channel:UPPer:ONOFF channel number,ON|OFF

Example
MUX:Channel:UPPer:ONOFF? channel number
Function: Returns whether the upper limit of the channel is enabled

11. MUX:Channel:UPPer:VALue
Function: set the upper limit of the channel
Format: MUX:Channel:UPPer:VALue channel number, upper limit value (0-32000)

Example
MUX:Channel:UPPer:VALue? channel number
Function: return the upper limit value of the channel

12. MUX:Channel:LOWer:ONOFF
Function: Set whether the lower limit of the channel is enabled
Format: MUX:Channel:LOWer:ONOFF channel number,ON|OFF

Example

MUX:Channel:LOWer:ONOFF? channel number
Function: returns whether the lower limit of the channel is enabled

13. MUX:Channel:LOWer:VALue
Function: set the lower limit of the channel
Format: MUX:Channel:LOWer:VALue channel number, lower limit value (0-32000)

Example
MUX:Channel:LOWer:VALue? channel number
Function: Return the lower limit value of the channel