HT3545 Resistance Meter

Communication Interface Operation Manual

Simplified Chinese version
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The first version Rev1.0.0

6.1 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 (,)

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

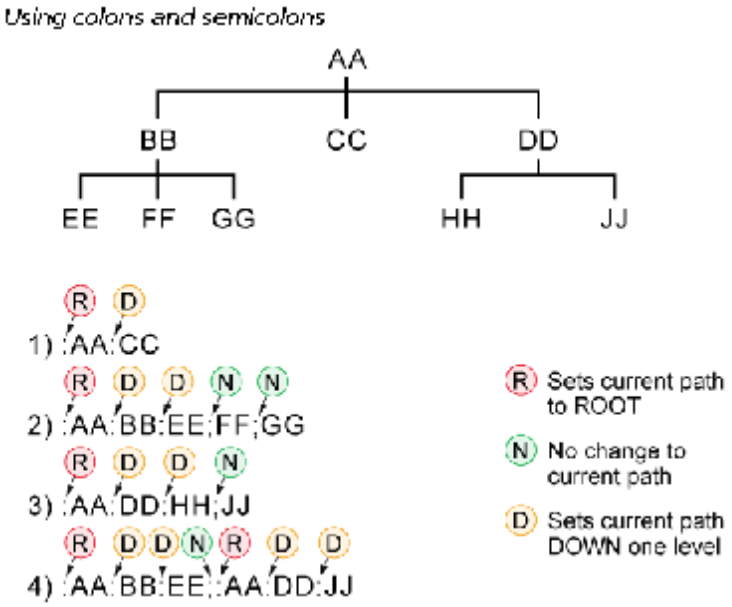

Figure 6.1 SCPI command tree

6.2 SCPI Subsystem

1. ***IDN?**
Function: Query version number
Example: Send: *IDN? Return: HOPETECH, HT3545, V1.0

2. *TRG
Function: Trigger instrument test and return the result. After sending, the instrument automatically enters external triggering
Example:
Send *TRG
Return 001.00000E-03

3. FETCh?
Function: Return test results without changing the trigger mode of the instrument
Example:
Send FETCh?
Return 001.00000E-03

4. SAMPLE:RATE
Function: Set or query test speed
Example:
Send SAMPle:RATE 0
No return, set the current speed to fast
Send SAMPle:RATE?
Return 0 (fast) 1 (medium speed) 2 (slow speed 1) 3 (slow speed 2)

5 RESsistance:RANGe
Function: Set or query resistance range
Example:
Send RESsistance:RANGe 0
No return, set the current range to 10mΩ range
Send RESsistance:RANGe?
Return 0(10m) 1(100m) 2(1000m) 3(10Ω) 4(100Ω) 5(1000Ω) 6(10k) 7(100k), 8(1000k) 9(10M) 10(100M)

6 RESsistance:LP:RANGe
Function: Set or query the resistance range of low current mode
Example:
Send RESsistance:LP:RANGe 0
No return, set the current range to 10mΩ range
Send RESsistance:LP:RANGe?
Return 0(10m) 1(100m) 2(1000m)

7 RESsistance:RANGE:AUTO
Function: Set or query resistance range automatically

Example:
Send RESsistance:RANGe:AUTO 1
No return, automatic range setting
Send RESsistance:RANGe:AUTO?
Return 0 (automatic range) 1 (manual range)

8 TRIGger:SOURce

Function: Set or query trigger mode
Example:
Send TRIGger:SOURce 1
No return sets trigger mode to external
Send TRIGger:SOURce?
Return 0 (automatic trigger) 1 (external trigger)

9 CALCulate:COMP:STATe {0|1}

Function: Set or query whether the comparator is turned on
Example:
Send CALCulate:COMP:STATe 1 to turn on the comparator

10. RESsistance: PRECision {0|1}

Function: Set or query whether the precise measurement of 100M resistance is turned on
Example:
Send RESsistance:PRECision 1 to open 100M precise measurement
Send RESsistance:PRECision?
Return 0 or 1

11. RESsistance:OVC {0|1}

Function: Set or query whether OVC is turned on
Example:
Send RESsistance:OVC 1 to turn on the OVC function
Send RESsistance:OVC? Check whether OVC is turned on

12. RESsistance:CIMProve {0|1}

Function: Set or query whether the contact improvement function is turned on
Example:
Send RESsistance:CIMProve 1 to turn on contact improvement
Send RESsistance:CIMProve? to query the contact improvement function

13. RESsistance:CONTactcheck {0|1}

Function: Set or query the contact detection function
Example:
Send RESsistance:CONTactcheck 1 to turn on the contact detection function
Send RESsistance:CONTactcheck? to query the contact detection function

14. TRIGger:SOURce {0|1}

Function: Upgrade or query trigger mode 0: internal trigger, 1: external trigger

Example: Send TRIGger:SOURce 0 to set it as internal trigger
Send TRIGger:SOURce? to query the trigger mode

15. TRIGger:DELay

Function: Set or query trigger delay, unit ms
Example:
Send TRIGger:DELay 10 to set the trigger delay to 10ms
Send TRIGger:DELay? to query the trigger delay

16.CALCulate:AVERage 0-10

Function: Set or query the average number of times
Example:
Send CALCulate:AVERage 2 to set the average number to 2 times
Send CALCulate:AVERage? to query the average number of times

17. CALCulate:COMP:STATe {0|1}

Function: Set or query the comparator status
Example:
Send CALCulate:COMP:STATe 1 to turn on the comparator
Send CALCulate:COMP:STATe? to query the comparator status

18. CALCulate:COMP:BEEPer {0|1|2|3|4}

Function: Set or query the beep, 0: beep off, 1: pass beep, 2: fail beep, 3: pass beep once, 4: fail beep once
Example:
Send CALCulate:COMP:BEEPer 1 to turn on the pass beep
Send CALCulate:COMP:BEEPer? to check whether beeping is on

19. CALCulate:LIMit:UPPer

Function: Set or query the upper limit value
Example:
Send CALCulate:LIMit:UPPer 1.0 to set the upper limit to 1Ω
Send CALCulate:LIMit:UPPer? to query the upper limit value

20.CALCulate:LIMit:LOWer

Function: Set or query the lower limit value
Example:
Send CALCulate:LIMit:LOWer 0.1 to set the lower limit to 0.1Ω
Send CALCulate:LIMit:LOWer? to query the lower limit value

21. CALCulate:LIMit:REFerence

Function: Set or query the standard value of the comparator
Example:
Send CALCulate:LIMit:REFerence 1.0 to set the standard value to 1Ω
Send CALCulate:LIMit:REFerence? to query the comparator standard value

22. CALCulate:LIMit:PERCent

Function: Set or query the comparator percentage value

Example:

Send CALCulate:LIMit:PERCent 10.0 to set the percentage value to 10%

Send CALCulate:LIMit:PERCent? to query the percentage value

23. CALCulate:LIMit:RESult?

Function: Query comparator results

Return 0: comparator closed, 1: qualified, 2: **upper limit exceeded, 3: below the lower limit**

24.CALCulate:BIN:UPPer

Function: Set or query the upper limit value of multi-level comparator

Example:

Send CALCulate:BIN:UPPer 1,1.0 to set the upper limit of the first level of multi-level comparator to 1Ω

Send CALCulate:BIN:UPPer? 1 to query the upper limit value of the first level of multi-level comparator

25.CALCulate:BIN:LOWer

Function: Set or query the lower limit value of multi-level comparator

Example:

Send CALCulate:BIN:LOWer 1,1.0 to set the lower limit of the first level of multi-level comparator to 1Ω

Send CALCulate:BIN:LOWer? 1 to query the lower limit value of the first level of multi-level comparator

26.CALCulate:BIN:REFerence

Function: Set or query the reference value for multi-level comparator

Example:

Send CALCulate:BIN:REFerence 1,1.0 to set the reference value of the first level of multi-level comparator to 1Ω

Send CALCulate:BIN:REFerence? 1 to query the reference value of the first level of multi-level comparator

27.CALCulate:BIN:PERCent

Function: Set or query the reference value for multi-level comparator

Example:

Send CALCulate:BIN:PERCent 1,10.0 to set the percentage value of the first level of multi-level comparator to 10%

Send CALCulate:BIN:PERCent? 1 to query the percentage value of the first level of multi-level comparator

28.CALCulate:BIN:RESult?

Function: Query multi-level comparator results

29. TEMP?

Function: Query temperature value

Measured resistance value data format

		Normal test value	**Over range**	**Measurement failed**
0	1mΩ	±□□.□□□□□E-03	+10.00000E+19	+10.00000E+29

1	10mΩ	±□□□.□□□□E-03	+10.00000E+18	+10.00000E+28
2	100mΩ	±□□□.□□□□E-03	+10.00000E+17	+10.00000E+27
3	1Ω	±□□.□□□□□E+00	+10.00000E+19	+10.00000E+29
4	10Ω	±□□□.□□□□E+00	+10.00000E+18	+10.00000E+28
5	100Ω	±□□□.□□□□E+00	+10.00000E+17	+10.00000E+27
6	1000Ω	±□□.□□□□□E+03	+10.00000E+19	+10.00000E+29
7	10kΩ	±□□□.□□□□E+03	+10.00000E+18	+10.00000E+28
8	100kΩ	±□□□.□□□□E+03	+10.00000E+17	+10.00000E+27
9	1000kΩ	±□□.□□□□□E+06	+10.00000E+19	+10.00000E+29
10	10MΩ	±□□□.□□□□E+06	+10.00000E+18	+10.00000E+28
11	100MΩ	±□□□.□□□□E+06	+10.00000E+17	+10.00000E+27