RIGOL

# Programming Guide

## DM3000 Digital Multimeter

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RIGOL Technologies, Inc.

# Guaranty and Declaration

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# In This Manual

This manual provides guidance for the remote control of DM3000 series digital multimeters. We believe that this manual's readers have read the **User's Guide** of **RIGOL** DM3000 series multimeters and have been familiar with operations about the **RIGOL** DM3000 series multimeters.

The manual contains four parts:

**Chapter 1**
This chapter introduces you how to use SCPI commands to control the DM3000 series multimeters via remote interfaces.

**Chapter 2**
This chapter gives detailed information on each command supported by DM3000 series multimeters.

**Chapter 3**
This chapter lists the commands which are compatible with **RIGOL** DM3000 series multimeters.

**Index**
The Appendix lists all of the commands alphabetically in favor of quick reference.

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# Chapter 1 Programming Overview

This chapter guides you how to properly use **RIGOL** DM3000 series digital multimeters to achieve measurement operations by remote controls.

The chapter includes:

- Programming Introduction
- Symbol Description
- Parameter Type
- Commands Introduction

# Programming Introduction

This part introduces the basic programming operations. These programming commands provide methods for controlling the multimeter via remote interfaces. The basic operations that you can do upon a computer and multimeter include:

- Setup the multimeter.
- Measure.
- Receive data (equipment working condition or measurement results) from the multimeter.

A computer can communicate with a multimeter through an interface such as USB, GPIB or RS-232. For detailed communications about these interfaces, please refer to the **User's Guide** of this product. The command words are sent and identified by ASCII strings so that users can control and do secondary development easily.

# Symbol Description

### 1. Colon :

A command usually begins with a colon (**:**) which is also used to separate the command keyword from a lower-level keyword.

### 2. Question Mark ?

A command followed by a question mark (?) is used to query the function under this command. A query command usually has different data, and these data are separated by a space. However some commands do not have any data.

### 3. Comma ,

A "," is a used to separate different type of parameters that contained in a command, such as:
:DATAlog:CONFigure:FUNCtion {<DCV|DCI|RESistance|FRESistance>,<range>}

### 4. Braces { }

The contents enclosed in braces are parameters. If the parameters enclosed in braces are separated by a vertical line (|), only one element can be selected at a time. For example, {ON|OFF} indicates that either ON or OFF can be used.

### 5. Triangle Brackets < >

An item enclosed in (< >) should be an effective value and this value is used as a parameter.

### 6. Square brackets [ ]

The parameters or command keywords that enclosed in square bracket ([ ]) are optional or could be ignored. The square bracket ([ ]) will not be placed at an actual command. If none of the parameters are specified, the system will use a default. For example:
CONFigure[:VOLTage][:DC] [{<range>|AUTO|MIN|MAX|DEF}[,{<resolution>|MIN|MAX|DEF}]]
In this command, there are many square brackets, if you set all of the parameters to their defaults, the command could be abbreviated to
CONFigure

# Parameter Type

**1. MIN|MAX|DEF**

A MIN or MAX or DEF is usually used in a command to replace some parameters. For example, in the command "**:MEASure:VOLTage:DC {0|1|2|3|4|MIN|MAX|DEF}**"

In this command, MIN equals to 0, MAX equals to 4 and DEF equals to 2. For more details please refer to "**:MEASure:VOLTage:DC**".

**2. Consecutive Integer Parameter**

The parameters can be any integers within the effective range. Please do not use a decimal format for parameters, or else an error may occur. For example, in the command "**:SYSTem:DISPlay:BRIGht**", the parameter can be any integers within 0 and 255.

**3. Consecutive Real Number Parameter**

The parameters can be any values within the effective range under the precision requirements. For example, in the command "**:CALCulate:NULL:OFFSet**", the parameter value can reach the seventh decimal place.

**4. Discrete Parameters**

The parameters should be an option listed in a command. For example, in the command "**:MEASure:VOLTage:AC**", the parameter can only be 0, 1, 2, 3 or 4.

**5. Boolean Parameters**

The parameters should be ON (1) or OFF (0). For example, in the command "**:SYSTem:BEEPer:STATe**", the parameter can only be ON (1) or OFF (0).

**6. ASCII Character string**

The parameter should be a composition of ASCII characters. For example, in the command "**:SYSTem:CLOCk:DATE**", the parameter is a string in date format.

# Commands Introduction

To meet the different requirements from users, DM3000 provides **RIGOL** commands and two other command systems that are compatible with our products.

- **RIGOL** DM3000 commands
- Compatible Agilent commands
- Compatible Fluke commands

The DM3000 series use the **ROGOL** commands as defaults. To change the commands type, please send the **CMDSet** command as follows:

CMDSet {RIGOL|AGILENT|FLUKE}
CMDSet?

# Chapter 2 Command System

In **RIGOL** DM3000 series digital multimeters commands, all the command parameters and the return values are ASCII characters and case-insensitive, you can use any kind of them.

**RIGOL** DM3000 series digital multimeters include the following command systems:

- Common Commands
- :FUNCtion Commands
- :MEAsure Commands
- :RESOlution Commands
- :SYSTem Commands
- :UTILity Commands
- :TRIGger Commands
- :CALCulate Commands
- :DATAlog Commands
- :SCAN Commands

# Common Commands

The commands are used to query the basic information of the meter or do some common operations, including:

- *CLS
- *IDN?
- *RST
- CMDSet

| **1. *CLS** | |
|---|---|
| Syntax | *CLS |
| Function | Clears values from all of the Event Registers and the Error Queue. |
| | |
| **2. *IDN?** | |
| Syntax | *IDN? |
| Function | Queries the equipment ID and returns at least 35 characters such as:<br>Rigol Technologies,DM3064,DM3A083100011,03.12.00.03.09.00 |
| | |
| **3. *RST** | |
| Syntax | *RST |
| Function | Resets the instrument and restores it into factory defaults. |
| | |
| **4. CMDSet** | |
| Syntax | CMDSet?<br>CMDSet {RIGOL\|AGILENT\|FLUKE} |
| Function | Specifies the commands type for the instrument.<br>The query returns RIGOL, AGILENT or FLUKE. |
| Default | RIGOL |
| **NOTE: The query usually returnes values without double quotation marks unless where noted in this manual.** | |

# :FUNCtion Commands

The commands are used to enable common measurement functions and have the same functions as the corresponding measurement buttons on the DM3000 front panel. The commands mainly include:

- :FUNCtion?
- :FUNCtion:VOLTage:DC
- :FUNCtion:VOLTage:DC:RATIo
- :FUNCtion:VOLTage:AC
- :FUNCtion:CURRent:DC
- :FUNCtion:CURRent:AC
- :FUNCtion:RESistance
- :FUNCtion:FRESistance
- :FUNCtion:FREQuency
- :FUNCtion:PERiod
- :FUNCtion:CONTinuity
- :FUNCtion:DIODe
- :FUNCtion:CAPacitance

| **1. :FUNCtion?** | |
|---|---|
| Syntax | :FUNCtion? |
| Function | The query returns the measurement function currently used by the meter such as DCV. |
| | |
| **2. :FUNCtion:VOLTage:DC** | |
| Syntax | :FUNCtion:VOLTage:DC |
| Function | Turns on the DC voltage measurement function. |
| Explanation | The query returns DCV if you send **:FUNCtion?**. |
| | |
| **3. :FUNCtion:VOLTage:DC:RATIo** | |
| Syntax | :FUNCtion:VOLTage:DC:RATIo |
| Function | Turns on the ratio measurement for DC voltage measurerments. |
| Explanation | The query returns RATIO if you send **:FUNCtion?**. |
| | |
| **4. :FUNCtion:VOLTage:AC** | |
| Syntax | :FUNCtion:VOLTage:AC |
| Function | Turns on the AC voltage measurement function. |
| Explanation | The query returns ACV if you send **:FUNCtion?**. |
| | |
| **5. :FUNCtion:CURRent:DC** | |
| Syntax | :FUNCtion:CURRent:DC |
| Function | Turns on the DC current measurement function. |
| Explanation | The query returns DCI if you send **:FUNCtion?**. |
| | |
| **6. :FUNCtion:CURRent:AC** | |
| Syntax | :FUNCtion:CURRent:AC |
| Function | Turns on the AC current measurement function. |
| Explanation | The query returns ACI if you send **:FUNCtion?**. |
| | |
| **7. :FUNCtion:RESistance** | |
| Syntax | :FUNCtion:RESistance |
| Function | Turns on the resistance measurement function. |
| Explanation | The query returns 2WR if you send **:FUNCtion?**. |
| | |
| **8. :FUNCtion:FRESistance** | |

| | |
|---|---|
| Syntax | :FUNCtion:FRESistance |
| Function | Turns on the 4-wire resistance measurement function. |
| Explanation | The query returns 4WR if you send **:FUNCtion?**. |
| | |
| **9. :FUNCtion:FREQuency** | |
| Syntax | :FUNCtion:FREQuency |
| Function | Turns on the frequency measurement function. |
| Explanation | The query returns FREQ if you send **:FUNCtion?**. |
| | |
| **10. :FUNCtion:PERiod** | |
| Syntax | :FUNCtion:PERiod |
| Function | Turns on the period measurement function. |
| Explanation | The query returns PERI if you send **:FUNCtion?**. |
| | |
| **11. :FUNCtion:CONTinuity** | |
| Syntax | :FUNCtion:CONTinuity |
| Function | Turns on the continuity measurement function. |
| Explanation | The query returns CONT if you send **:FUNCtion?**. |
| | |
| **12. :FUNCtion:DIODe** | |
| Syntax | :FUNCtion:DIODe |
| Function | Turns on the diode measurement function. |
| Explanation | The query returns DIODE if you send **:FUNCtion?**. |
| | |
| **13. :FUNCtion:CAPacitance** | |
| Syntax | :FUNCtion:CAPacitance |
| Function | Turns on the capacitance measurement function. |
| Explanation | The query returns CAP if you send **:FUNCtion?**. |

# :MEAsure Commands

The commands are used to set the basic measurement functions and have the same functions as the corresponding measurement buttons on the DM3000 front panel. The commands mainly include:

- :MEASure?
- :MEASure
- :MEASure:VOLTage:DC?
- :MEASure:VOLTage:DC
- :MEASure:VOLTage:DC:RANGe?
- :MEASure:VOLTage:DC:IMPEdance
- :MEASure:VOLTage:DC:DIGIt
- :MEASure:VOLTage:DC:RATIo?
- :MEASure:VOLTage:DC:RATIo:DIGIt
- :MEASure:VOLTage:AC?
- :MEASure:VOLTage:AC
- :MEASure:VOLTage:AC:RANGe?
- :MEASure:VOLTage:AC:FILTer
- :MEASure:VOLTage:AC:DIGIt
- :MEASure:VOLTage:AC:FREQuency?
- :MEASure:VOLTage:AC:FREQuency:DISPlay
- :MEASure:VOLTage:AC:FREQuency:HIDE
- :MEASure:VOLTage:AC:FREQuency:STATe?
- :MEASure:CURRent:DC?
- :MEASure:CURRent:DC
- :MEASure:CURRent:DC:RANGe?
- :MEASure:CURRent:DC:DIGIt
- :MEASure:CURRent:AC?
- :MEASure:CURRent:AC
- :MEASure:CURRent:AC:RANGe?
- :MEASure:CURRent:AC:DIGIt
- :MEASure:CURRent:AC:FREQuency?
- :MEASure:CURRent:AC:FREQuency:DISPlay
- :MEASure:CURRent:AC:FREQuency:HIDE
- :MEASure:CURRent:AC:FREQuency:STATe?
- :MEASure:RESistance?
- :MEASure:RESistance
- :MEASure:RESistance:RANGe?
- :MEASure:RESistance:DIGIt
- :MEASure:FRESistance?
- :MEASure:FRESistance
- :MEASure:FRESistance:RANGe?
- :MEASure:FRESistance:DIGIt
- :MEASure:FREQuency?
- :MEASure:FREQuency
- :MEASure:FREQuency:RANGe?
- :MEASure:FREQuency:DIGIt
- :MEASure:PERiod?
- :MEASure:PERiod
- :MEASure:PERiod:RANGe?
- :MEASure:PERiod:DIGIt
- :MEASure:CONTinuity?
- :MEASure:CONTinuity
- :MEASure:DIODe?
- :MEASure:DIODe:DIGIt
- :MEASure:CAPacitance?
- :MEASure:CAPacitance
- :MEASure:CAPacitance:RANGe?
- :MEASure:CAPacitance:DIGIt

| **1. :MEASure?** | |
|---|---|
| Syntax | :MEASure? |
| Function | Queries whether the current measurement has been completed. If completed, the query returns TRUE, or else returns FALSE. |
| | |
| **2. :MEASure** | |
| Syntax | :MEASure {AUTO\|MANU} |
| Function | Sets the measurement mode to Auto or Manual. |
| Default | AUTO |
| | |
| **3. :MEASure:VOLTage:DC?** | |
| Syntax | :MEASure:VOLTage:DC? |
| Function | The query returns the current DC voltage in the form of scientific notation such as +2.53021747E-04, the unit is V. |
| | |
| **4. :MEASure:VOLTage:DC** | |
| Syntax | :MEASure:VOLTage:DC {0\|1\|2\|3\|4\|MIN\|MAX\|DEF} |
| Function | Sets the DC voltage measurement range. |
| Explanation | • The measurement mode will change to "Manual" while you set the range.<br>• Different parameters have different ranges: |
| Example | Setting the range to minimum:<br>:MEASure:VOLTage:DC 0 or<br>:MEASure:VOLTage:DC MIN |
| | |
| **5. :MEASure:VOLTage:DC:RANGe?** | |
| Syntax | :MEASure:VOLTage:DC:RANGe? |
| Function | Queries the current DC voltage range. |

| Parameter | Range |
|---|---|
| 0 | 200 mV |
| 1 | 2 V |
| 2 | 20 V |
| 3 | 200 V |
| 4 | 1000 V |
| MIN | 200 mV |
| MAX | 1000 V |
| DEF | 20 V |

| | |
|---|---|
| | The query returns 0, 1, 2, 3 or 4. |
| Explanation | The DCV function must be specified at least one time before using this command. |

**6. :MEASure:VOLTage:DC:IMPEdance**

| | |
|---|---|
| Syntax | :MEASure:VOLTage:DC:IMPEdance?<br>:MEASure:VOLTage:DC:IMPEdance {10M\|10G} |
| Function | Sets the DC impedance to 10MΩ or >10GΩ.<br>The query returns 10M or 10G. |
| Explanation | ">10G" is available only in ranges of 200mV, 2V, 20V of the DC voltage. |

**7. :MEASure:VOLTage:DC:DIGIt**

| | |
|---|---|
| Syntax | :MEASure:VOLTage:DC:DIGIt?<br>:MEASure:VOLTage:DC:DIGIt {INC\|DEC\|5\|6\|7} |
| Function | Sets the display digit for DC voltage measurement values.<br>The query returns 5, 6 or 7. |
| Explanation | ● DEC and INC settings are invalid when the display digits are 5 and 7, respectively.<br>● Each parameter has its own meaning: |
| Example | Setting the display digit to 7:<br>:MEASure:VOLTage:DC:DIGIt 7<br>Decreasing the display digit by one bit:<br>:MEASure:VOLTage:DC:DIGIt DEC |

| Parameter | Explanation |
|---|---|
| INC | increase the digit |
| DEC | decrease the digit |
| 5 | the digit is 5 |
| 6 | the digit is 6 |
| 7 | the digit is 7 |

**8. :MEASure:VOLTage:DC:RATIo?**

| | |
|---|---|
| Syntax | :MEASure:VOLTage:DC:RATIo? |
| Function | The query returns the ratio of DC voltages in two circuits in the form of scientific notation such as +1.74214858E-01. |
| Explanation | The instrument should input two DC voltages at the same time. |

| **9. :MEASure:VOLTage:DC:RATIo:DIGIt** | |
|---|---|
| Syntax | :MEASure:VOLTage:DC:RATIo:DIGIt?<br>:MEASure:VOLTage:DC:RATIo:DIGIt {INC\|DEC\|5\|6\|7} |
| Function | Sets the display digit for the ratio of DC voltages in two circuits.<br>The query returns 5, 6 or 7. |
| Explanation | Refer to the **"Explanation"** in **:MEASure:VOLTage:DC:DIGIt**. |
| Example | Setting the ratio display digit to 7:<br>:MEASure:VOLTage:DC:RATIo:DIGIt 7<br>Decreasing the display digit by one bit:<br>:MEASure:VOLTage:DC:RATIo:DIGIt DEC |

| **10. :MEASure:VOLTage:AC?** | |
|---|---|
| Syntax | :MEASure:VOLTage:AC? |
| Function | The query returns the AC current measurement value in the form of scientific notation such as +6.59000527E-03, the unit is V. |

| **11. :MEASure:VOLTage:AC** | |
|---|---|
| Syntax | :MEASure:VOLTage:AC {0\|1\|2\|3\|4\|MIN\|MAX\|DEF} |
| Function | Sets the measurement range of AC voltage. |
| Explanation | Each parameter has its own range: |

| Parameter | Range |
|---|---|
| 0 | 200 mV |
| 1 | 2 V |
| 2 | 20 V |
| 3 | 200 V |
| 4 | 750 V |
| MIN | 200 mV |
| MAX | 750 V |
| DEF | 20 V |

| | |
|---|---|
| Example | Setting the range to minimum:<br>:MEASure:VOLTage:AC 0 or<br>:MEASure:VOLTage:AC MIN |

| **12. :MEASure:VOLTage:AC:RANGe?** | |
|---|---|
| Syntax | :MEASure:VOLTage:AC:RANGe? |
| Function | Queries the measurement range of AC voltage.<br>The query returns 0, 1, 2, 3 or 4. |

| | |
|---|---|
| **13. :MEASure:VOLTage:AC:FILTer** | |
| Syntax | :MEASure:VOLTage:AC:FILTer?<br>:MEASure:VOLTage:AC:FILTer {SLOW\|MID\|FAST} |
| Function | Sets the speed of AC voltage filter.<br>The query returns slow, mid or fast. |
| Default | FAST |
| | |
| **14. :MEASure:VOLTage:AC:DIGIt** | |
| Syntax | :MEASure:VOLTage:AC:DIGIt?<br>:MEASure:VOLTage:AC:DIGIt {INC\|DEC\|5\|6\|7} |
| Function | Sets the display digit of AC voltage.<br>The query returns 5, 6 or 7. |
| Explanation | Refer to the "**Explanation**" in **:MEASure:VOLTage:DC:DIGIt**. |
| Example | Setting the AC voltage display digit to 7:<br>:MEASure:VOLTage:AC:DIGIt 7<br>Decreasing the display digit by one bit:<br>:MEASure:VOLTage:AC:DIGIt DEC |
| | |
| **15. :MEASure:VOLTage:AC:FREQuency?** | |
| Syntax | :MEASure:VOLTage:AC:FREQuency? |
| Function | The query returns current AC voltage measurement frequency in the form of scientific notation such as +5.30803456e+02, the unit is Hz. |
| Explanation | The meter should work under the AC voltage measurement while you use this command. |
| | |
| **16. :MEASure:VOLTage:AC:FREQuency:DISPlay** | |
| Syntax | :MEASure:VOLTage:AC:FREQuency:DISPlay |
| Function | Displays the frequency on the secondary screen while measuring AC voltage. |
| | |
| **17. :MEASure:VOLTage:AC:FREQuency:HIDE** | |
| Syntax | :MEASure:VOLTage:AC:FREQuency:HIDE |
| Function | Hides the frequency on the secondary screen while measuring AC voltage. |
| Explanation | The command is valid only when the frequency is displayed on the |

| | |
|---|---|
| | secondary screen and the meter is measuring AC voltage. |
| | |
| **18. :MEASure:VOLTage:AC:FREQuency:STATe?** | |
| Syntax | :MEASure:VOLTage:AC:FREQuency:STATe? |
| Function | Queries whether the frequency was displayed on the secondary screen while measuring AC voltage.<br>The query returns DISPLAY or HIDE. |
| | |
| **19. :MEASure:CURRent:DC?** | |
| Syntax | :MEASure:CURRent:DC? |
| Function | The query returns the DC current measurement value in the form of scientific notation such as -3.74725404E-06, the unit is A. |
| | |
| **20. :MEASure:CURRent:DC** | |
| Syntax | :MEASure:CURRent:DC {0\|1\|2\|3\|4\|MIN\|MAX\|DEF} |
| Function | Sets the measurement range of DC current. |
| Explanation | ● The measurement mode will change to "Manual" while you set the range.<br>● Each parameter has its own range: |
| Example | Setting the measurement range of DC current to maximum:<br>:MEASure:CURRent:DC 4 or<br>:MEASure:CURRent:DC MAX |
| | |
| **21. :MEASure:CURRent:DC:RANGe?** | |
| Syntax | :MEASure:CURRent:DC:RANGe? |
| Function | Queries the measurement range of DC current.<br>The query returns 0, 1, 2, 3 or 4. |
| | |

| Parameter | Range |
|---|---|
| 0 | 2 mA |
| 1 | 20 mA |
| 2 | 200 mA |
| 3 | 1 A |
| 4 | 10 A |
| MIN | 2 mA |
| MAX | 10 A |
| DEF | 200 mA |

| **22. :MEASure:CURRent:DC:DIGIt** | |
|---|---|
| Syntax | :MEASure:CURRent:DC:DIGIt?<br>:MEASure:CURRent:DC:DIGIt {INC\|DEC\|5\|6\|7} |
| Function | Sets the display digit for DC current measurement values.<br>The query returns 5, 6 or 7. |
| Explanation | Refer to the **"Explanation"** in **:MEASure:VOLTage:DC:DIGIt**. |
| Example | Setting the display digit to 7:<br>:MEASure:CURRent:DC:DIGIt 7<br>Decreasing the display digit by one bit:<br>:MEASure:CURRent:DC:DIGIt DEC |

| **23. :MEASure:CURRent:AC?** | |
|---|---|
| Syntax | :MEASure:CURRent:AC? |
| Function | The query returns the measured AC current value in the form of scientific notation such as +4.29493009E-05, the unit is A. |

| **24. :MEASure:CURRent:AC** | |
|---|---|
| Syntax | :MEASure:CURRent:AC {0\|1\|2\|3\|MIN\|MAX\|DEF} |
| Function | Sets the measurement range of AC current. |
| Explanation | ● The measurement mode will change to "Manual" while you set the range.<br>● Each parameter has its own range: |
| Example | Setting the measurement range of AC current to the maximum:<br>:MEASure:CURRent:AC 3 or<br>:MEASure:CURRent:AC MAX |

| Parameter | Range |
|---|---|
| 0 | 20 mA |
| 1 | 200 mA |
| 2 | 2 A |
| 3 | 10 A |
| MIN | 20 mA |
| MAX | 10 A |
| DEF | 200 mA |

| **25. :MEASure:CURRent:AC:RANGe?** | |
|---|---|
| Syntax | :MEASure:CURRent:AC:RANGe? |
| Function | Queries the measurement range of AC current. |

| | |
|---|---|
| | The query returns 0, 1, 2 or 3. |
| | |
| **26. :MEASure:CURRent:AC:DIGIt** | |
| Syntax | :MEASure:CURRent:AC:DIGIt?<br>:MEASure:CURRent:AC:DIGIt {INC\|DEC\|5\|6\|7} |
| Function | Sets the display digit for AC current measurement values. |
| Explanation | Refer to the **"Explanation"** in **:MEASure:VOLTage:DC:DIGIt**. |
| Example | Setting the display digit to 7:<br>:MEASure:CURRent:AC:DIGIt 7<br>Decreasing the display digit by one bit:<br>:MEASure:CURRent:AC:DIGIt DEC |
| | |
| **27. :MEASure:CURRent:AC:FREQuency?** | |
| Syntax | :MEASure:CURRent:AC:FREQuency? |
| Function | The query returns the frequency currently measured by AC current in the form of scientific notation such as +5.30803456e+02, the unit is Hz. |
| Explanation | The meter should work under the AC current measurement while you use this command. |
| | |
| **28. :MEASure:CURRent:AC:FREQuency:DISPlay** | |
| Syntax | :MEASure:CURRent:AC:FREQuency:DISPlay |
| Function | Displays the frequency on the secondary screen (lower left) while measuring AC current. |
| | |
| **29. :MEASure:CURRent:AC:FREQuency:HIDE** | |
| Syntax | :MEASure:CURRent:AC:FREQuency:HIDE |
| Function | Hides the frequency on the secondary screen while measuring AC current. |
| Explanation | The command is valid only when the frequency is displayed on the secondary screen and the meter is measuring AC current. |
| | |
| **30. :MEASure:CURRent:AC:FREQuency:STATe?** | |
| Syntax | :MEASure:CURRent:AC:FREQuency:STATe? |
| Function | Queries whether the frequency was displayed on the secondary screen while measuring AC current.<br>The query returns DISPLAY or HIDE. |

| | |
|---|---|
| **31. :MEASure:RESistance?** | |
| Syntax | :MEASure:RESistance? |
| Function | The query returns the 2-wire resistance measurement value in the form of scientific notation such as +8.366031E+03, the unit is Ω. |
| | |
| **32. :MEASure:RESistance** | |
| Syntax | :MEASure:RESistance {0\|1\|2\|3\|4\|5\|6\|MIN\|MAX\|DEF} |
| Function | Sets the measurement range of 2-wire resistance. |
| Explanation | ● The measurement mode will change to Manual while you set the range.<br>● Each parameter has its own range: |

| Parameter | Range |
|---|---|
| 0 | 200 Ω |
| 1 | 2 kΩ |
| 2 | 20 kΩ |
| 3 | 200 kΩ |
| 4 | 1 MΩ |
| 5 | 10 MΩ |
| 6 | 100 MΩ |
| MAX | 100 MΩ |
| MIN | 200 Ω |
| DEF | 200 kΩ |

| | |
|---|---|
| Example | Setting the measurement range of 2-wire resistance to maximum:<br>:MEASure:RESistance 6 or<br>:MEASure:RESistance MAX |
| | |
| **33. :MEASure:RESistance:RANGe?** | |
| Syntax | :MEASure:RESistance:RANGe? |
| Function | Queries the current measurement range of 2-wire resistance<br>The query returns 0, 1, 2, 3, 4, 5 or 6. |
| | |
| **34. :MEASure:RESistance:DIGIt** | |
| Syntax | :MEASure:RESistance:DIGIt?<br>:MEASure:RESistance:DIGIt {INC\|DEC\|5\|6\|7} |
| Function | Sets the display digit for 2-wire resistance measurement values.<br>The query returns 5, 6 or 7. |

| | |
|---|---|
| Explanation | Refer to the **"Explanation"** in **:MEASure:VOLTage:DC:DIGIt**. |
| Example | Setting the display digit to 7:<br>:MEASure:RESistance:DIGIt 7<br>Decreasing the display digit by one bit:<br>:MEASure:RESistance:DIGIt DEC |
| | |
| **35. :MEASure:FRESistance?** | |
| Syntax | :MEASure:FRESistance? |
| Function | The query returns the 4-wire resistance measurement values in the form of scientific notation such as +2.366031E+03, the unit is Ω. |
| | |
| **36. :MEASure:FRESistance** | |
| Syntax | :MEASure:FRESistance {0\|1\|2\|3\|4\|5\|6\|MIN\|MAX\|DEF} |
| Function | Sets the measurement range of 4-wire resistance. |
| Explanation | • Refer to the "**Explanation**" in **:MEASure:RESistance**.<br>• The "DEF" is 3. |
| Example | Setting the measurement range of 4-wire resistance to maximum:<br>:MEASure:FRESistance 6 or<br>:MEASure:FRESistance MAX |
| | |
| **37. :MEASure:FRESistance:RANGe?** | |
| Syntax | :MEASure:FRESistance:RANGe? |
| Function | Queries the measurement range of 4-wire resistance.<br>The query returns 0, 1, 2, 3, 4, 5 or 6. |
| | |
| **38. :MEASure:FRESistance:DIGIt** | |
| Syntax | :MEASure:FRESistance:DIGIt?<br>:MEASure:FRESistance:DIGIt {INC\|DEC\|5\|6\|7} |
| Function | Sets the display digit for 4-wire resistance measurement values.<br>The query returns 5, 6 or 7. |
| Explanation | Refer to the **"Explanation"** in **:MEASure:VOLTage:DC:DIGIt**. |
| Example | Setting the display digit to 7:<br>:MEASure:FRESistance:DIGIt 7<br>Decreasing the display digit by one bit:<br>:MEASure:FRESistance:DIGIt DEC |
| | |
| **39. :MEASure:FREQuency?** | |

| | |
|---|---|
| Syntax | :MEASure:FREQuency? |
| Function | The query returns the frequency measurement value in the form of scientific notation such as +8.485240e-05, the unit is Hz. |
| | |
| **40. :MEASure:FREQuency** | |
| Syntax | :MEASure:FREQuency {0\|1\|2\|3\|4\|MIN\|MAX\|DEF} |
| Function | Sets the voltage range of input signal for frequency measurements. |
| Explanation | • For meanings in each range, please refer to the "**Explanation**" in **:MEASure:VOLTage:AC**.<br>• The frequency ranges from 3 Hz to 300 kHz.<br>• The "DEF" is 2. |
| Example | Setting the voltage range of the frequency measurement to maximum:<br>:MEASure:FREQuency 4 or<br>:MEASure:FREQuency MAX |
| | |
| **41. :MEASure:FREQuency:RANGe?** | |
| Syntax | :MEASure:FREQuency:RANGe? |
| Function | Queries the AC voltage range currently used by frequency measurements.<br>The query returns 0, 1, 2, 3 or 4. |
| | |
| **42. :MEASure:FREQuency:DIGIt** | |
| Syntax | :MEASure:FREQuency:DIGIt?<br>:MEASure:FREQuency:DIGIt {INC\|DEC\|5\|6\|7} |
| Function | Sets the display digit for frequency measurement values.<br>The query returns 5, 6 or 7. |
| Explanation | Refer to the **"Explanation"** in **:MEASure:VOLTage:DC:DIGIt**. |
| Example | Setting the display digit to 7:<br>:MEASure:FREQuency:DIGIt 7<br>Decreasing the display digit by one bit:<br>:MEASure:FREQuency:DIGIt DEC |
| | |
| **43. :MEASure:PERiod?** | |
| Syntax | :MEASure:PERiod? |
| Function | The query returns the period measurement value in the form of scientific notation such as +2.77679688E-03, the unit is s. |

| | |
|---|---|
| **44. :MEASure:PERiod** | |
| Syntax | :MEASure:PERiod {0\|1\|2\|3\|4\|MIN\|MAX\|DEF} |
| Function | Sets the period measurement range. |
| Explanation | ● For meanings in each range, please refer to the "**Explanation**" in **:MEASure:VOLTage:AC**.<br>● The period measurement ranges from 3.3 us to 0.33 s.<br>● The "DEF" is 2. |
| Example | Setting the period measurement range to maximum:<br>:MEASure:PERiod 4 or<br>:MEASure:PERiod MAX |
| | |
| **45. :MEASure:PERiod:RANGe?** | |
| Syntax | :MEASure:PERiod:RANGe? |
| Function | Queries the AC voltage range currently used by period measurements.<br>The query returns 0, 1, 2, 3 or 4. |
| | |
| **46. :MEASure:PERiod:DIGIt** | |
| Syntax | :MEASure:PERiod:DIGIt?<br>:MEASure:PERiod:DIGIt {INC\|DEC\|5\|6\|7} |
| Function | Sets the display digit for the period measurement values.<br>The query returns 5, 6 or 7. |
| Explanation | Refer to the **"Explanation"** in **:MEASure:VOLTage:DC:DIGIt**. |
| Example | Setting the display digit to 7:<br>:MEASure:PERiod:DIGIt 7<br>Decreasing the display digit one bit:<br>:MEASure:PERiod:DIGIt DEC |
| | |
| **47. :MEASure:CONTinuity?** | |
| Syntax | :MEASure:CONTinuity? |
| Function | The query returns the resistance that connected to the meter under the continuity measurement in the form of scientific notation such as +8.888000e+03, the unit is Ω. |
| | |
| **48. :MEASure:CONTinuity** | |
| Syntax | :MEASure:CONTinuity {*<value>*\|MIN\|MAX\|DEF} |

| | |
|---|---|
| Function | Sets the short-circuit resistance for continuity measurements. |
| Explanation | ● *<value>* ranges from 1 to 2000, the unit is Ω.<br>● The "DEF" is 10. |
| Example | Setting the short-circuit resistance to 1 kΩ:<br>:MEASure:CONTinuity 1000 |

| **49. :MEASure:DIODe?** | |
|---|---|
| Syntax | :MEASure:DIODe? |
| Function | The query returns the voltage across the diode terminals in the form of scientific notation such as -8.88800000E+03, the unit is V. |
| Explanation | The beeper will buzz when $0.1V \leq V_{MEASured} \leq 2.4$ V during the diode measurement. |

| **50. :MEASure:DIODe:DIGIt** | |
|---|---|
| Syntax | :MEASure:DIODe:DIGIt?<br>:MEASure:DIODe:DIGIt {INC\|DEC\|5\|6\|7} |
| Function | Sets the display digit for diode measurement values.<br>The query returns 5, 6 or 7. |
| Explanation | Refer to the **"Explanation"** in **:MEASure:VOLTage:DC:DIGIt**. |
| Example | Setting the display digit to 7:<br>:MEASure:DIODe:DIGIt 7<br>Decreasing the display digit by one bit:<br>:MEASure:DIODe:DIGIt DEC |

| **51. :MEASure:CAPacitance?** | |
|---|---|
| Syntax | :MEASure:CAPacitance? |
| Function | The query returns the capacitance measurement values in the form of scientific notation such as +1.19195857E-09, the unit is F. |

| **52. :MEASure:CAPacitance** | |
|---|---|
| Syntax | :MEASure:CAPacitance {0\|1\|2\|3\|4\|5\|MIN\|MAX\|DEF} |
| Function | Sets the range for capacitance measurements. |
| Explanation | ● The measurement mode will changes to "Manual" while you set the range.<br>● Each parameter has its own range: |

| Parameter | Range |
|---|---|
| 0 | 2 nF |

| | | |
|---|---|---|
| | 1 | 20 nF |
| | 2 | 200 nF |
| | 3 | 2 uF |
| | 4 | 20 uF |
| | 5 | 200 uF |
| | MIN | 2 nF |
| | MAX | 200 uF |
| | DEF | 200 nF |
| Example | Setting the capacitance range to maximum:<br>:MEASure:CAPacitance 5 or<br>:MEASure:CAPacitance MAX | |

| | |
|---|---|
| | |
| **53. :MEASure:CAPacitance:RANGe?** | |
| Syntax | :MEASure:CAPacitance:RANGe? |
| Function | Queries the capacitance measurement range.<br>The query returns 0, 1, 2, 3, 4 or 5. |
| | |
| **54. :MEASure:CAPacitance:DIGIt** | |
| Syntax | :MEASure:CAPacitance:DIGIt?<br>:MEASure:CAPacitance:DIGIt {INC\|DEC\|5\|6\|7} |
| Function | Sets the display digit for capacitance measurements.<br>The query returns 5, 6 or 7. |
| Explanation | Refer to the **"Explanation"** in **:MEASure:VOLTage:DC:DIGIt**. |
| Example | Setting the display digit to 7:<br>:MEASure: CAPacitance:DIGIt 7<br>Decreasing the display digit by one bit:<br>:MEASure: CAPacitance:DIGIt DEC |

# :RESOlution Commands

The commands are used to set the reading precisions for different measurement functions supported by DM3000, including:

- :RESOlution:VOLTage:DC
- :RESOlution:VOLTage:DC:RATIo
- :RESOlution:VOLTage:AC
- :RESOlution:CURRent:DC
- :RESOlution:CURRent:AC
- :RESOlution:RESistance
- :RESOlution:FRESistance
- :RESOlution:CAPacitance

<table>
<tr><th colspan="2">1. :RESOlution:VOLTage:DC</th></tr>
<tr><td>Syntax</td><td>:RESOlution:VOLTage:DC?<br>:RESOlution:VOLTage:DC {0|1|2|MIN|MAX|DEF}</td></tr>
<tr><td>Function</td><td>Sets the reading resolution for DC voltage measurements.<br>The query returns 0, 1 or 2.</td></tr>
<tr><td>Explanation</td><td>● The DC voltage measurement function must be enabled before using this command.<br>● Each parameter has its own reading resolution:
<table>
<tr><th>Value</th><th>Reading resolution</th></tr>
<tr><td>0</td><td>4 ½ digits</td></tr>
<tr><td>1</td><td>5 ½ digits</td></tr>
<tr><td>2</td><td>6 ½ digits</td></tr>
<tr><td>MAX</td><td>6 ½ digits</td></tr>
<tr><td>MIN</td><td>4 ½ digits</td></tr>
<tr><td>DEF</td><td>5 ½ digits</td></tr>
</table></td></tr>
<tr><td>Example</td><td>Setting the reading resolution of DC voltage measurement to 5 ½:<br>:RESOlution:VOLTage:DC 1</td></tr>
<tr><td colspan="2"></td></tr>
<tr><th colspan="2">2. :RESOlution:VOLTage:DC:RATIo</th></tr>
<tr><td>Syntax</td><td>:RESOlution:VOLTage:DC:RATIo?<br>:RESOlution:VOLTage:DC:RATIo {0|1|2|MIN|MAX|DEF}</td></tr>
<tr><td>Function</td><td>Sets the reading resolution of ratio measurement for DC voltage measurements.<br>The query returns 0, 1 or 2.</td></tr>
<tr><td>Explanation</td><td>● The ratio measurement of DC voltage measurement function must be enabled before using this command.<br>● For the reading resolution of each parameter, please refer to the "Explanation" in :RESOlution:VOLTage:DC.<br>● The "DEF" is 1.</td></tr>
<tr><td>Example</td><td>Setting the reading resolution of ratio measurement under DC voltage measurements to 5 ½:<br>:RESOlution:VOLTage:DC:RATIo 1</td></tr>
<tr><td colspan="2"></td></tr>
<tr><th colspan="2">3. :RESOlution:VOLTage:AC</th></tr>
<tr><td>Syntax</td><td>:RESOlution:VOLTage:AC?<br>:RESOlution:VOLTage:AC {0|1|2|MIN|MAX|DEF}</td></tr>
<tr><td>Function</td><td>Sets the reading resolution for AC voltage measurements.</td></tr>
</table>

<table>
<tr><td></td><td>The query returns 0, 1 or 2.</td></tr>
<tr><td>Explanation</td><td>
<ul>
<li>The AC voltage measurement function must be enabled before using this command.</li>
<li>The "DEF" is 1.</li>
<li>Each parameter has its own reading resolution:</li>
</ul>
<table>
<tr><th>Range</th><th>Reading resolution</th></tr>
<tr><td>0</td><td>3 ½ digits</td></tr>
<tr><td>1</td><td>4 ½ digits</td></tr>
<tr><td>2</td><td>5 ½ digits</td></tr>
<tr><td>MAX</td><td>5 ½ digits</td></tr>
<tr><td>MIN</td><td>3 ½ digits</td></tr>
<tr><td>DEF</td><td>4 ½ digits</td></tr>
</table>
</td></tr>
<tr><td>Example</td><td>Setting the reading resolution of AC voltage measurement to 5 ½:<br>:RESOlution:VOLTage:AC 2</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td colspan="2">4. :RESOlution:CURRent:DC</td></tr>
<tr><td>Syntax</td><td>:RESOlution:CURRent:DC?<br>:RESOlution:CURRent:DC {0|1|2|MIN|MAX|DEF}</td></tr>
<tr><td>Function</td><td>Sets the reading resolution for DC current measurements.<br>The query returns 0, 1 or 2.</td></tr>
<tr><td>Explanation</td><td>
<ul>
<li>The DC current measurement function must be enabled before using this command.</li>
<li>For the reading resolution of each parameter, please refer to the "Explanation" in :RESOlution:VOLTage:DC.</li>
<li>The "DEF" is 1.</li>
</ul>
</td></tr>
<tr><td>Example</td><td>Setting the reading resolution of DC current measurement to 5 ½:<br>:RESOlution:CURRent:DC 1</td></tr>
<tr><td colspan="2"></td></tr>
<tr><td colspan="2">5. :RESOlution:CURRent:AC</td></tr>
<tr><td>Syntax</td><td>:RESOlution:CURRent:AC?<br>:RESOlution:CURRent:AC {0|1|2|MIN|MAX|DEF}</td></tr>
<tr><td>Function</td><td>Sets the reading resolution for AC voltage measurements.<br>The query returns 0, 1 or 2.</td></tr>
<tr><td>Explanation</td><td>
<ul>
<li>The AC voltage measurement function must be enabled before using this command.</li>
<li>For the reading resolution of each parameter, please refer to "Explanation" in :RESOlution:VOLTage:AC.</li>
</ul>
</td></tr>
</table>

| | |
|---|---|
| | ● The "DEF" is 1. |
| Example | Setting the AC voltage measurement the reading resolution to 5 ½:<br>:RESOlution:CURRent:AC 2 |
| | |
| **6. :RESOlution:RESistance** | |
| Syntax | :RESOlution:RESistance?<br>:RESOlution:RESistance {0\|1\|2\|MIN\|MAX\|DEF} |
| Function | Sets the reading resolution for 2-wire resistance measurements.<br>The query returns 0, 1 or 2. |
| Explanation | ● The 2-wire resistance measurement function must be enabled before using this command.<br>● For the reading resolution of each parameter, please refer to the "**Explanation**" in **:RESOlution:VOLTage:DC**.<br>● The "DEF" is 1. |
| Example | Setting the reading resolution of 2-wire resistance measurement to 5 ½:<br>:RESOlution:RESistance 1 |
| | |
| **7. :RESOlution:FRESistance** | |
| Syntax | :RESOlution:FRESistance?<br>:RESOlution:FRESistance {0\|1\|2\|MIN\|MAX\|DEF} |
| Function | Sets the reading resolution for 4-wire resistance measurements.<br>The query returns 0, 1 or 2. |
| Explanation | ● The 4-wire resistance measurement function must be enabled before using this command.<br>● For the reading resolution of each parameter, please refer to the "**Explanation**" in **:RESOlution:VOLTage:DC**.<br>● The "DEF" is 1. |
| Example | Setting the reading resolution of 4-wire resistance measurement to 5 ½:<br>:RESOlution:FRESistance 1 |
| | |
| **8. :RESOlution:CAPacitance** | |
| Syntax | :RESOlution:CAPacitance?<br>:RESOlution:CAPacitance {0\|1\|2\|MIN\|MAX\|DEF} |
| Function | Sets the reading resolution for capacitance measurements.<br>The query returns 0, 1 or 2. |

| | |
|---|---|
| Explanation | ● The capacitance measurement function must be enabled before using this command.<br>● For the reading resolution of each parameter, please refer to the "**Explanation**" in **:RESOlution:VOLTage:DC**.<br>● The "DEF" is 1. |
| Example | Setting the reading resolution of capacitance measurement to 5 ½:<br>:RESOlution:CAPacitance 1 |

# :SYSTem Commands

The commands are used to set the system parameters about the meter, including:

- :SYSTem:BEEPer
- :SYSTem:BEEPer:STATe
- :SYSTem:CONFigure:POWEron
- :SYSTem:CONFigure:DEFault
- :SYSTem:LANGuage
- :SYSTem:CLOCk:STATe
- :SYSTem:CLOCk:DATE
- :SYSTem:CLOCk:TIME
- :SYSTem:FORMat:DECImal
- :SYSTem:FORMat:SEPArate
- :SYSTem:DISPlay:BRIGht
- :SYSTem:DISPlay:CONTrast
- :SYSTem:DISPlay:INVErt
- :SYSTem:MACAddr?
- :SYSTem:LANSerial?
- :SYSTem:EDITion?
- :SYSTem:TYPE?
- :SYSTem:SERIal?
- :SYSTem:SCANserial?
- :SYSTem:OPENtimes?
- :SYSTem:ERRor?
- :SYSTem:VERSion?

| **1. :SYSTem:BEEPer** | |
|---|---|
| Syntax | :SYSTem:BEEPer |
| Function | Causes the beeper buzz once. This command is usually used to test if the beeper works normally. |
| Explanation | Please turn on the beep before sending this command. |
| | |
| **2. :SYSTem:BEEPer:STATe** | |
| Syntax | :SYSTem:BEEPer:STATe?<br>:SYSTem:BEEPer:STATe {ON\|OFF\|1\|0} |
| Function | Sets the beeper state.<br>The query returns ON or OFF. |
| Default | ON |
| | |
| **3. :SYSTem:CONFigure:POWEron** | |
| Syntax | :SYSTem:CONFigure:POWEron {LAST\|DEF} |
| Function | Sets the power-on configurations.<br>The query returns LAST or DEF. |
| Default | DEF |
| | |
| **4. :SYSTem:CONFigure:DEFault** | |
| Syntax | :SYSTem:CONFigure:DEFault |
| Function | Restores the meter into defaults. |
| | |
| **5. :SYSTem:LANGuage** | |
| Syntax | :SYSTem:LANGuage?<br>:SYSTem:LANGuage {CHinese\|ENglish} |
| Function | Sets the display language.<br>The query returns CHINESE or ENGLISH. |
| Default | CHinese |
| | |
| **6. :SYSTem:CLOCk:STATe** | |
| Syntax | :SYSTem:CLOCk:STATe?<br>:SYSTem:CLOCk:STATe {HIDE\|DISPLay \|1\|0} |
| Function | Sets the clock state.<br>"DISPLay" and "1" denote to display the clock on the meter interface; "HIDE" and "0" denote to hide the clock.<br>The query returns DISPLAY or HIDE. |

| | |
|---|---|
| Default | DISPLay |
| | |
| **7. :SYSTem:CLOCk:DATE** | |
| Syntax | :SYSTem:CLOCk:DATE?<br>:SYSTem:CLOCk:DATE *<value>* |
| Function | Sets the system date by "yyyy-mm-dd".<br>The query returns the current system date. |
| Explanation | *<value>* ranges from 2000-00-00 to 2026-12-31. |
| | |
| **8. :SYSTem:CLOCk:TIME** | |
| Syntax | :SYSTem:CLOCk:TIME?<br>:SYSTem:CLOCk:TIME *<value>* |
| Function | Sets the embedded clock time by "hh-mm-ss".<br>The query returns the current meter time. |
| Explanation | *<value>* ranges from 00-00-00 to 23-59-59. |
| | |
| **9. :SYSTem:FORMat:DECImal** | |
| Syntax | :SYSTem:FORMat:DECImal?<br>:SYSTem:FORMat:DECImal {COMMA\|DOT} |
| Function | Sets the display format of the decimal used by meter.<br>The query returns COMMA or DOT. |
| Explanation | ● COMMA: displays the decimal point with a comma "," and changes the "," used before to "·".<br>● DOT: displays the decimal point with a "·" and changes the "·" used before to ",".<br>● As this command will change the data separator format, please use with care. |
| Default | DOT |
| | |
| **10. :SYSTem:FORMat:SEPArate** | |
| Syntax | :SYSTem:FORMat:SEPArate?<br>:SYSTem:FORMat:SEPArate {ON\|NONE\|SPACE} |
| Function | Sets the display format of system data separator.<br>The query returns ON, NONE or SPACE. |
| Explanation | ● ON: displaying the data separator.<br>● NONE: not displaying the data separator.<br>● SPACE: using a space as the data separator. |

| | |
|---|---|
| Default | ON |
| | |
| **11. :SYSTem:DISPlay:BRIGht** | |
| Syntax | :SYSTem:DISPlay:BRIGht?<br>:SYSTem:DISPlay:BRIGht *<value>* |
| Function | Sets the screen brightness.<br>The query returns an integer such as 30. |
| Explanation | *<value>* is an integer ranging from 0 to 32. |
| Default | 22 |
| | |
| **12. :SYSTem:DISPlay:CONTrast** | |
| Syntax | :SYSTem:DISPlay:CONTrast?<br>:SYSTem:DISPlay:CONTrast *<value>* |
| Function | Sets the screen contrast.<br>The query returns an integer such as 30. |
| Explanation | *<value>* is an integer ranging from 0 to 32. |
| Default | 19 |
| | |
| **13. :SYSTem:DISPlay:INVErt** | |
| Syntax | :SYSTem:DISPlay:INVErt |
| Function | Inverts the display color. |
| | |
| **14. :SYSTem:MACAddr?** | |
| Syntax | :SYSTem: MACAddr? |
| Function | Queries the MAC address.<br>The query returns by "XX-XX-XX-XX-XX-XX", such as:<br>00-01-02-03-04-05. |
| | |
| **15. :SYSTem:LANSerial?** | |
| Syntax | :SYSTem:LANSerial? |
| Function | Queries the interface state.<br>The query returns None (not installed) or Installed. |
| | |
| **16. :SYSTem:EDITion?** | |
| Syntax | :SYSTem:EDITion? |
| Function | The query returns the software edition of the instrument by a string such as 03.12.00.03.09.00.02. |

| | |
|---|---|
| | |
| **17. :SYSTem:TYPE?** | |
| Syntax | :SYSTem:TYPE? |
| Function | The query returns the instrument type by a string such as DM3064. |
| | |
| **18. :SYSTem:SERIal?** | |
| Syntax | :SYSTem:SERIal? |
| Function | The query returns the instrument serial number by a string such as DM3A083100011. |
| | |
| **19. :SYSTem:SCANserial?** | |
| Syntax | :SYSTem:SCANserial? |
| Function | The query returns the serial number of the scan module inside the instrument by a string. If the meter does not install any scan module, the query returns NONE. |
| | |
| **20. :SYSTem:OPENtimes?** | |
| Syntax | :SYSTem:OPENtimes? |
| Function | The query returns the number of power-on such as 61. |
| | |
| **21. :SYSTem:ERRor?** | |
| Syntax | :SYSTem:ERRor? |
| Function | The query returns the error queue. If there is no error information, the query returns: 0, "No error" (with quotation marks). |
| | |
| **22. :SYSTem:VERSion?** | |
| Syntax | :SYSTem:VERSion? |
| Function | The query returns the version number of SCPI commands: 1999.0. |

# :UTILity Commands

The commands are used to configure the communications of the meter and execute self-test. Before any communications, make sure that the related communication interface has been connected stably, otherwise it may cause anomalies or errors. The commands mainly include:

- :UTILity:INTErface:LAN:DHCP
- :UTILity:INTErface:LAN:AUTOip
- :UTILity:INTErface:LAN:MANUip
- :UTILity:INTErface:LAN:IP
- :UTILity:INTErface:LAN:MASK
- :UTILity:INTErface:LAN:GATEway
- :UTILity:INTErface:LAN:DNS
- :UTILity:INTErface:GPIB:ADDRess
- :UTILity:INTErface:RS232:BAUD
- :UTILity:INTErface:RS232:PARIty
- :UTILity:INTErface:USB:ID?

| **1. :UTILity:INTErface:LAN:DHCP** | |
|---|---|
| Syntax | :UTILity:INTErface:LAN:DHCP?<br>:UTILity:INTErface:LAN:DHCP {ON\|OFF\|1\|0} |
| Function | Turns on or off the DHCP settings.<br>The query returns ON or OFF. |
| Default | ON |
| | |
| **2. :UTILity:INTErface:LAN:AUTOip** | |
| Syntax | :UTILity:INTErface:LAN:AUTOip?<br>:UTILity:INTErface:LAN:AUTOip {ON\|OFF\|1\|0} |
| Function | Turns on or off the IP settings.<br>The query returns ON or OFF. |
| Default | ON |
| | |
| **3. :UTILity:INTErface:LAN:MANUip** | |
| Syntax | :UTILity:INTErface:LAN:MANUip?<br>:UTILity:INTErface:LAN:MANUip {ON\|OFF\|1\|0} |
| Function | Turns on or off the Manual IP settings. |
| Default | ON |
| | |
| **4. :UTILity:INTErface:LAN:IP** | |
| Syntax | :UTILity:INTErface:LAN:IP?<br>:UTILity:INTErface:LAN:IP *<ip_address>* |
| Function | Defines the IP address of the meter. |
| Explanation | • The format of *<ip_address>* is "nnn.nnn.nnn.nnn". The first "nnn" ranges from 0 to 223 (except 127) and the others range from 0 to 255.<br>• The IP address configuration type should be Manual and both DHCP and Auto Ip should be disabled while you use this command. |
| Default | 168.254.0.238 |
| | |
| **5. :UTILity:INTErface:LAN:MASK** | |
| Syntax | :UTILity:INTErface:LAN:MASK?<br>:UTILity:INTErface:LAN:MASK *<ip_address>* |
| Function | Defines the subnet mask of the network that currently connected to the meter. |

| | |
|---|---|
| Explanation | ● The format of *<ip_address>* is "nnn.nnn.nnn.nnn" and all "nnn" range from 0 to 255.<br>● The IP address configuration type should be Manual and both DHCP and Auto Ip should be disabled while you use this command. |
| Default | 255.255.255.0 |
| | |
| **6. :UTILity:INTErface:LAN:GATEway** | |
| Syntax | :UTILity:INTErface:LAN:GATEway?<br>:UTILity:INTErface:LAN:GATEway *<ip_address>* |
| Function | Defines the gate way of the network that currently connected to the meter. |
| Explanation | ● The format of *<ip_address>* is "nnn.nnn.nnn.nnn". The first "nnn" ranges from 0 to 223 (except 127) and the others range from 0 to 255.<br>● The IP address configuration type should be Manual and both DHCP and Auto IP should be disabled while you use this command. |
| Default | 172.16.3.1 |
| | |
| **7. :UTILity:INTErface:LAN:DNS** | |
| Syntax | :UTILity:INTErface:LAN:DNS?<br>:UTILity:INTErface:LAN:DNS *<ip_address>* |
| Function | Defines the gate DNS server address of the network that currently connected to the meter. |
| Explanation | ● The format of *<ip_address>* is "nnn.nnn.nnn.nnn". The first "nnn" ranges from 0 to 223 (except 127) and the others range from 0 to 255.<br>● The IP address configuration type should be Manual and both DHCP and Auto IP should be disabled while you use this comand. |
| Default | 0.0.0.0 |
| | |
| **8. :UTILity:INTErface:GPIB:ADDRess** | |
| Syntax | :UTILity:INTErface:GPIB:ADDRess?<br>:UTILity:INTErface:GPIB:ADDRess *<value>* |
| Function | Sets the GPIB address of the meter. |

| | |
|---|---|
| Explanation | *<value>* is an integer ranging from 1 to 30. |
| Default | 7 |
| | |
| **9. :UTILity:INTErface:RS232:BAUD** | |
| Syntax | :UTILity:INTErface:RS232:BAUD?<br>:UTILity:INTErface:RS232:BAUD<br>{1200\|2400\|4800\|9600\|19200\|38400\|57600\|115200} |
| Function | Sets the baud rate for RS232.<br>The query returns 1200, 2400, 4800, 9600, 19200, 38400, 57600 or 115200. |
| Default | 9600 |
| | |
| **10. :UTILity:INTErface:RS232:PARIty** | |
| Syntax | :UTILity:INTErface:RS232:PARIty?<br>:UTILity:INTErface:RS232:PARIty {NONE\|ODD\|EVEN} |
| Function | Sets the parity check type for RS232.<br>The query returns NONE_8BIT, ODD_7BIT or EVEN_7BIT. |
| Explanation | ● NONE: no parity, 8 data bits.<br>● ODD: odd parity, 7 data bits.<br>● EVEN: even parity, 7 data bits. |
| Default | NONE |
| | |
| **11. :UTILity:INTErface:USB:ID?** | |
| Syntax | :UTILity:INTErface:USB:ID? |
| Function | The query returns the ID information of the USB interface, such as usb0::1ab1::09c4. |

# :TRIGger Commands

The commands are used to set the trigger system parameters, including:

- :TRIGger:SOURce
- :TRIGger:AUTO:INTErval
- :TRIGger:AUTO:HOLD
- :TRIGger:AUTO:HOLD:SENSitivity
- :TRIGger:SINGle
- :TRIGger:SINGle:TRIGger
- :TRIGger:EXT
- :TRIGger:VMComplete:POLAr
- :TRIGger:VMComplete:PULSewidth

| **1. :TRIGger:SOURce** | |
|---|---|
| Syntax | :TRIGger:SOURce?<br>:TRIGger:SOURce {AUTO\|SINGLE\|EXT} |
| Function | Specifies a trigger source for measurements from AUTO, SINGLE or EXT.<br>The query returns AUTO, SINGLE or EXT. |
| Default | AUTO |

| **2. :TRIGger:AUTO:INTErval** | |
|---|---|
| Syntax | :TRIGger:AUTO:INTErval?<br>:TRIGger:AUTO:INTErval *<value>* |
| Function | Sets the display interval for the meter. The default unit is ms.<br>The query returns an interval in ms. |
| Explanation | Different reading resolutions have different *<value>* ranges: |

| Reading resolution | <value> | Default |
|---|---|---|
| 4½ | 30 ms - 7000 ms | 30 ms |
| 5½ (ACV/ACI, 4½) | 200 ms - 7000 ms | 200 ms |
| 6½ (ACV/ACI, 5½) | 400 ms - 7000 ms | 400 ms |

| | |
|---|---|
| Example | Setting the interval to1000 ms:<br>:TRIGger:AUTO:INTErval 1000<br>The query returns 1000ms. |

| **3. :TRIGger:AUTO:HOLD** | |
|---|---|
| Syntax | :TRIGger:AUTO:HOLD?<br>:TRIGger:AUTO:HOLD {ON\|OFF\|1\|0} |
| Function | Turns on or off the auto trigger hold function.<br>The query returns ON or OFF. |
| Default | OFF |

| **4. :TRIGger:AUTO:HOLD:SENSitivity** | |
|---|---|
| Syntax | :TRIGger:AUTO:HOLD:SENSitivity?<br>:TRIGger:AUTO:HOLD:SENSitivity {0\|1\|2\|3\|MIN\|MAX\|DEF} |
| Function | Sets the sensitivity for auto trigger hold function.<br>The query returns 0, 1, 2 or 3. |
| Explanation | Each parameter has its own sensitivity: |

| Value | Sensitivity |
|---|---|
| 0 | 0.01% |

| | | |
|---|---|---|
| | 1 | 0.1% |
| | 2 | 1% |
| | 3 | 10% |
| | MAX | 10% |
| | MIN | 0.01% |
| | DEF | 0.1% |

| **5. :TRIGger:SINGle** | |
|---|---|
| Syntax | :TRIGger:SINGle?<br>:TRIGger:SINGle {*<value>*\|MIN\|MAX\|DEF} |
| Function | Sets the number of samples for single trigger. |
| Explanation | ● *<value>* ranges from 1 to 1000.<br>● The "DEF" is 1. |

| **6. :TRIGger:SINGle:TRIGger** | |
|---|---|
| Syntax | :TRIGger:SINGle:TRIGger |
| Function | Executes a single trigger. |

| **7. :TRIGger:EXT** | |
|---|---|
| Syntax | :TRIGger:EXT?<br>:TRIGger:EXT {RISE\|FALL} |
| Function | Specifies an external trigger type from RISE or FALL.<br>The query returns RISE or FALL. |
| Default | RISE |

| **8. :TRIGger:VMComplete:POLAr** | |
|---|---|
| Syntax | :TRIGger:VMComplete:POLAr?<br>:TRIGger:VMComplete:POLAr {POSitive\|NEGative} |
| Function | Sets the VMC output polarity at the rear panel.<br>The query returns POSITIVE or NEGATIVE. |
| Default | POSitive |

| **9. :TRIGger:VMComplete:PULSewidth** | |
|---|---|
| Syntax | :TRIGger:VMComplete:PULSewidth?<br>:TRIGger:VMComplete:PULSewidth *<value>* |
| Function | Sets the VMC output pluse width at the rear panel. The default unit is ms. |

<table>
<tr><td></td><td>The query returns the pulse width in ms.</td></tr>
<tr><td>Explanation</td><td>Different reading resolutions have different <value> range:
<table>
<tr><th>Reading resolution</th><th><value></th></tr>
<tr><td>4½</td><td>1 ms - 29 ms</td></tr>
<tr><td>5½ (ACV/ACI, 4½)</td><td>1 ms - 199 ms</td></tr>
<tr><td>6½ (ACV/ACI, 5½)</td><td>1 ms - 399 ms</td></tr>
</table>
</td></tr>
<tr><td>Example</td><td>Setting the pluse to 100 ms:<br>:TRIGger:VMComplete:PULSewidth 100<br>The query returns 100ms.</td></tr>
</table>

# :CALCulate Commands

The commands are used to set the calculation parameters of the instrument, including：

- :CALCulate:FUNCtion
- :CALCulate:STATistic:MIN?
- :CALCulate:STATistic:MAX?
- :CALCulate:STATistic:AVERage?
- :CALCulate:STATistic:COUNt?
- :CALCulate:STATistic:STATe
- :CALCulate:NULL:STATe
- :CALCulate:NULL:OFFSet
- :CALCulate:DB:STATe
- :CALCulate:DB?
- :CALCulate:DB:REFErence
- :CALCulate:DBM:STATe
- :CALCulate:DBM?
- :CALCulate:DBM:REFErence
- :CALCulate:LIMIt:STATe
- :CALCulate:LIMIt?
- :CALCulate:LIMIt:LOWEr
- :CALCulate:LIMIt:UPPEr

**1. :CALCulate:FUNCtion**

| | |
|---|---|
| Syntax | :CALCulate:FUNCtion?<br>:CALCulate:FUNCtion<br>{NONE\|NULL\|DB\|DBM\|MIN\|MAX\|AVERAGE\|TOTAL\|LIMIT} |
| Function | Specifies a calculation type.<br>The query returns the current calculation type such as NULL. |
| Explanation | Each parameter has its own sensitivity: |

| Value | Explanation |
|---|---|
| NONE | turn off the calculation |
| NULL | NULL calculation |
| DB | dB calculation |
| DBM | dBm calculation |
| MIN | minimum calculation |
| MAX | maximum calculation |
| AVERAGE | average calculation |
| TOTAL | total calculation |
| LIMIT | limit calculation |

| | |
|---|---|
| Default | NONE |

**2. :CALCulate:STATistic:MIN?**

| | |
|---|---|
| Syntax | :CALCulate:STATistic:MIN? |
| Function | The query returns the currently calculated minimum value in the form of scientific notation such as +2.46002004E-04. |

**3. :CALCulate:STATistic:MAX?**

| | |
|---|---|
| Syntax | :CALCulate:STATistic:MAX? |
| Function | The query returns the currently calculated maximum value in the form of scientific notation such as +2.90388033E-04. |

**4. :CALCulate:STATistic:AVERage?**

| | |
|---|---|
| Syntax | :CALCulate:STATistic:AVERage? |
| Function | The query returns the currently calculated average value in the form of scientific notation such as +2.68113537E-04. |

**5. :CALCulate:STATistic:COUNt?**

| | |
|---|---|
| Syntax | :CALCulate:STATistic:COUNt? |
| Function | The query returns the numbers of calculated measurement values in |

| | |
|---|---|
| | the form of scientific notation such as +3.13000000E+02. |
| | |
| **6. :CALCulate:STATistic:STATe** | |
| Syntax | :CALCulate:STATistic:STATe?<br>:CALCulate:STATistic:STATe {ON\|OFF\|1\|0} |
| Function | Turns on or off the statistic funtion.<br>The query returns ON if there is a statistic function enabled currently such as MAX, MIN or Average, or returns OFF if all of the statistic functions are disabled. |
| Default | OFF |
| | |
| **7. :CALCulate:NULL:STATe** | |
| Syntax | :CALCulate:NULL:STATe?<br>:CALCulate:NULL:STATe {ON\|OFF\|1\|0} |
| Function | Turns on or off the Null operation function.<br>The query returns ON or OFF. |
| | |
| **8. :CALCulate:NULL:OFFSet** | |
| Syntax | :CALCulate:NULL:OFFSet?<br>:CALCulate:NULL:OFFSet {*<range>*\|MIN\|MAX\|DEF} |
| Function | Sets the offset for Null operations.<br>The query returns the Null offset off the current measurement function in the form of scientific notation. |
| Explanation | ● The offset is allowed to reach the seventh decimal place.<br>● Different measurements have different setting ranges: |

| Measurement | Range | Default | Unit |
|---|---|---|---|
| DC voltage | ±1200 | 0 | V |
| AC voltage | ±900 | 0 | V |
| DC current | ±12 | 0 | A |
| AC current | ±12 | 0 | A |
| Resistance | ±1.2e+08 | 0 | Ω |
| Capacitance | ±2.4e-04 | 0 | F |
| Frequency | ±3.6e+05 | 0 | HZ |

| | |
|---|---|
| Example | Setting the Null offset for DC voltage measurements to 10.2010031V:<br>:CALCulate:NULL:OFFSet 10.2010031<br>The query returns: +1.02010031e+01. |
| | |

| **9. :CALCulate:DB:STATe** | |
|---|---|
| Syntax | :CALCulate:DB:STATe?<br>:CALCulate:DB:STATe {ON\|OFF\|1\|0} |
| Function | Turns on or off the dB operation function.<br>The query returns ON or OFF. |
| Default | OFF |
| | |
| **10. :CALCulate:DB?** | |
| Syntax | :CALCulate:DB? |
| Function | The query returns the dB measurement value in the form of scientific notation such as -4.14956621e+01. |
| Explanation | dB operation function must be turned on before sending this command. |
| | |
| **11. :CALCulate:DB:REFErence** | |
| Syntax | :CALCulate:DB:REFErence?<br>:CALCulate:DB:REFErence {*<range>*\|MIN\|MAX\|DEF} |
| Function | Sets the reference value for dB operations in dBm.<br>The query returns an integer. |
| Explanation | ● *<range>* is an integer ranging from -120 to +120.<br>● The "DEF" is 0. |
| | |
| **12. :CALCulate:DBM:STATe** | |
| Syntax | :CALCulate:DBM:STATe?<br>:CALCulate:DBM:STATe {ON\|OFF\|1\|0} |
| Function | Turns on or off the dBm operation function.<br>The query returns ON or OFF. |
| Default | OFF |
| | |
| **13. :CALCulate:DBM?** | |
| Syntax | :CALCulate:DBM? |
| Function | The query returns dBm measurement value the in the form of scientific notation such as -4.15457917E+01. |
| Explanation | dBm operation function must be turned on before sending this command. |
| | |
| **14. :CALCulate:DBM:REFErence** | |

| | |
|---|---|
| Syntax | :CALCulate:DBM:REFErence?<br>:CALCulate:DBM:REFErence {*<range>*\|MIN\|MAX\|DEF} |
| Function | Sets the reference resistance for dBm operations in Ω.<br>The query returns an integer. |
| Explanation | ● *<range>* is an integer ranging from 2 to 8000.<br>● The "DEF" is 600. |

| **15. :CALCulate:LIMIt:STATe** | |
|---|---|
| Syntax | :CALCulate:LIMIt:STATe?<br>:CALCulate:LIMIt:STATe {ON\|OFF\|1\|0} |
| Function | Turns on or off the Limit operation function.<br>The query returns ON or OFF. |
| Default | OFF |

| **16. :CALCulate:LIMIt?** | |
|---|---|
| Syntax | :CALCulate:LIMIt? |
| Function | Queries the current Limit operation result.<br>The query returns PASS or FAIL. |
| Explanation | Limit operation function must be turned on before sending this command. |

| **17. :CALCulate:LIMIt:LOWEr** | |
|---|---|
| Syntax | :CALCulate:LIMIt:LOWEr?<br>:CALCulate:LIMIt:LOWEr {*<range>*\|MIN\|DEF} |
| Function | Sets the lower value for Limit operations.<br>The query returns the lower value of Limit operation in the form of scientific notation. |
| Explanation | ● The lower value should be lower than upper value, for more details refer to **:CALCulate:LIMIt:UPPEr**.<br>● Different measurements have different setting ranges: |

| Measurement | Range | Default | Unit |
|---|---|---|---|
| DC voltage | ±1200 | 0 | V |
| AC voltage | 0 - 900 | 0 | V |
| DC current | ±12 | 0 | A |
| AC current | 0 - 12 | 0 | A |
| Resistance | 0 - 1.2e+08 | 0 | Ω |
| Capacitance | 0 - 2.4e-04 | 0 | F |

| | | | | |
|---|---|---|---|---|
| | Frequency | 3 - 3.0e+05 | 3 | Hz |
| | Period | 3.0e-06 - 3.0e-01 | 3.0e-06 | s |
| | Ratio | ±1.0e+09 | -1.0e+09 | |

**18. :CALCulate:LIMIt:UPPEr**

| | |
|---|---|
| Syntax | :CALCulate:LIMIt:UPPEr?<br>:CALCulate:LIMIt:UPPEr {*<range>*\|MAX\|DEF} |
| Function | Sets the upper value for Limit operations.<br>The query returns the upper value of Limit operation in the form of scientific notation. |
| Explanation | ● The upper value should be greater than lower value, for more details refer to **:CALCulate:LIMIt:LOWEr**.<br>● *<range>* is decided by the current measurement type, for more details, please refer to the following table. |

| **Measurement** | **Range** | **Default** | **Unit** |
|---|---|---|---|
| DC voltage | ±1200 | 1 | V |
| AC voltage | 0 - 900 | 1 | V |
| DC current | ±12 | 1 | A |
| AC current | 0 - 12 | 1 | A |
| Resistance | 0 - 1.2e+08 | 1 | Ω |
| Capacitance | 0 - 2.4e-04 | 1 | F |
| Frequency | 3 - 3.0e+05 | 3.0e+05 | Hz |
| Period | 3.0e-06 - 3.0e-01 | 3.0e-01 | s |
| Ratio | ±1.0e+09 | 0 | |

# :DATAlog Commands

The commands are used to set the datalog parameters of the instrument, including:

- :DATAlog:CONFigure?
- :DATAlog:CONFigure:FUNCtion
- :DATAlog:CONFigure:STARtmode
- :DATAlog:CONFigure:STARtmode:AUTO
- :DATAlog:CONFigure:STARtmode:EXTern
- :DATAlog:CONFigure:STARtmode:DELAytime
- :DATAlog:CONFigure:STOPmode:TIME
- :DATAlog:CONFigure:STOPmode:NUMber
- :DATAlog:CONFigure:RATE
- :DATAlog:RUN
- :DATAlog:RUN?
- :DATAlog:STOP
- :DATAlog:DATA?

**NOTE:** The commands are only available for DM3054 and DM3064 whose software version is equal to or later than 03.12.00.03.04.00.07.

| **1. :DATAlog:CONFigure?** | |
|---|---|
| Syntax | :DATAlog:CONFigure? |
| Function | The query returns the configuration information of the current data acquisition task including a combination of the measurement item and range that separated by a comma "," such as DCV,0. |
| Explanation | ● The Datalog function must be turned on before sending this command.<br>● The returnd measurement items should be DCV, DCI, RES or FRES.<br>● For the range of returned values please refer to the the "**Explanation**" in **:MEASure** commands. |
| | |
| **2. :DATAlog:CONFigure:FUNCtion** | |
| Syntax | :DATAlog:CONFigure:FUNCtion?<br>:DATAlog:CONFigure:FUNCtion<br>{<DCV\|DCI\|RESistance\|FRESistance>,<range>} |
| Function | Sets the measurement item that needs to acquire data and its range. |
| Explanation | The lower value of *<range>* is 0. The upper value is decided by the used measurement function:<br>DCV and DCI: 4;<br>RESistance and FRESistance: 6. |
| Example | Setting the DC voltage measurement and using 20 V as its range:<br>:DATAlog:CONFigure:FUNCtion DCV,2<br>The query returns : DCV,2. |
| | |
| **3. :DATAlog:CONFigure:STARtmode?** | |
| Syntax | :DATAlog:CONFigure:STARtmode? |
| Function | Queries the start mode of Datalog function.<br>The query returns AUTO or EXTERN. |
| | |
| **4. :DATAlog:CONFigure:STARtmode:AUTO** | |
| Syntax | :DATAlog:CONFigure:STARtmode:AUTO |
| Function | Sets the start mode of Datalog function to Auto. |
| Explanation | The meter will start the data acquisition automatically when the specified delay time arrives if a delay time is specified by **:DATAlog:CONFigure:STARtmode:DELAytime**, or else directly acquire data once the command is received. |

| | |
|---|---|
| **5. :DATAlog:CONFigure:STARtmode:EXTern** | |
| Syntax | :DATAlog: CONFigure:STARtmode:EXTern |
| Function | Sets the start type of Datalog to External. |
| Explanation | The meter will not start the data acquisition unit a trigger signal is received after you send this command. |
| | |
| **6. :DATAlog:CONFigure:STARtmode:DELAytime** | |
| Syntax | :DATAlog:CONFigure:STARtmode:DELAytime?<br>:DATAlog:CONFigure:STARtmode:DELAytime *<value>* |
| Function | Sets the delay time for Auto Datalog in s.<br>The query returns an integer. |
| Explanation | *<value>* is an integer ranging from 0 to 3600. |
| | |
| **7. :DATAlog:CONFigure:STOPmode:TIME** | |
| Syntax | :DATAlog:CONFigure:STOPmode:TIME?<br>:DATAlog:CONFigure:STOPmode:TIME *<value>* |
| Function | Sets the time for data acquisitions.<br>The query returns an integer. |
| Explanation | *<value>* is an integer ranging from 1 to 2517. |
| | |
| **8. :DATAlog:CONFigure:STOPmode:NUMber** | |
| Syntax | :DATAlog:CONFigure:STOPmode:NUMber?<br>:DATAlog:CONFigure:STOPmode:NUMber *<value>* |
| Function | Sets the number for data acquisitions.<br>The query returns an integer. |
| Explanation | *<value>* is an integer ranging from 1 to 2097151. |
| | |
| **9. :DATAlog:CONFigure:RATE** | |
| Syntax | :DATAlog:CONFigure:RATE?<br>:DATAlog:CONFigure:RATE *<range>* |
| Function | Sets the sample rate for data acquisitions. |
| Explanation | *<range>* ranges from 1 to 13 and different ranges have different sample rates and return values: |

| **<range>** | **Sample rate** | **Return value** |
|---|---|---|
| 1 | 1/10 m | 1/10 MIN |
| 2 | 1/5 m | 1/5 MIN |

| | | |
|---|---|---|
| 3 | 1/m | 1/MIN |
| 4 | 1/10 s | 1/10 SEC |
| 5 | 1/s | 1/SEC |
| 6 | 10/s | 10/SEC |
| 7 | 50/s | 50/SEC |
| 8 | 100/s | 100/SEC |
| 9 | 833/s | 833/SEC |
| 10 | 1 k/s | 1000/SEC |
| 11 | 5 k/s | 5000/SEC |
| 12 | 10 k/s | 10000/SEC |
| 13 | 50 k/s | 50000/SEC |

| **10. :DATAlog:RUN** | |
|---|---|
| Syntax | :DATAlog:RUN |
| Function | Executes the configured data acquisitions. |

| **11. :DATAlog:RUN?** | |
|---|---|
| Syntax | :DATAlog:RUN? |
| Function | Queries if the meter is running under the data acquisition.<br>The query returns RUN or STOP. |

| **12. :DATAlog:STOP** | |
|---|---|
| Syntax | :DATAlog:STOP |
| Function | Stops the data acquisition. |

| **13. :DATAlog:DATA?** | |
|---|---|
| Syntax | :DATAlog:DATA? *<value1>,<value2>* |
| Function | The query returns the acquired data with a specified number and quantity in the memory. |
| Explanation | ● The acquired data are saved from number 1 after the start of acquisition.<br>● *<value1>* defines the start number of returned data.<br>● *<value2>* defines the data quantity (within 1 and 100) to be returned. |
| Example | The query returns three data from number 2:<br>:DATAlog:DATA? 2,3<br>The query returns |

| | |
|---|---|
| | -7.03334892e-02,-7.45058149e-02,-7.24196520e-02. |

# :SCAN Commands

The commands are used to set the scan parameters for the instrument, including:

- :SCAN:PROJect?
- :SCAN:PROJect:CREAte
- :SCAN:PROJect:CURRently:CYCLe?
- :SCAN:TASK:ADD
- :SCAN:TASK:DELEte
- :SCAN:TASK:INTErval
- :SCAN:TASK:LIST?
- :SCAN:RUN?
- :SCAN:RUN
- :SCAN:STOP
- :SCAN:DATA?
- :SCAN:CARDid?

**NOTE:** The commands are only available for DM3054 and DM3064 whose software version is equal to or later than 03.12.00.03.04.00.07.

| **1. :SCAN:PROJect?** | |
|---|---|
| Syntax | :SCAN:PROJect? |
| Function | Queries the name of created scan project. |
| | |
| **2. :SCAN:PROJect:CREAte** | |
| Syntax | :SCAN:PROJect:CREAte?<br>:SCAN:PROJect:CREAte *<name>* |
| Function | Creates a scan project with a specified name.<br>Queries if a task has been created for the current scan project. The query returns True if an available task is existed, or else returns False. |
| Explanation | *<name>* should be a value that was composed of letters a - z, A - Z and numbers within 0 and 9 and within 15 characters. |
| | |
| **3. :SCAN:PROJect:CURRently:CYCLe?** | |
| Syntax | :SCAN:PROJect:CURRently:CYCLe? |
| Function | Queries the number of cycles of the current scan project.<br>The query returns an integer. |
| Explanation | For the details setting method please refer to **:SCAN:RUN**. |
| | |
| **4. :SCAN:TASK:ADD** | |
| Syntax | :SCAN:TASK:ADD<br>{<TaskNum>,<Channel>,<Function>,<Range>,<Resolution>,<SampleNum>,<Delay>} |
| Function | Adds a task for the current scan project. |
| Explanation | ● <TaskNum> denotes the task number from 0 to 99.<br>If no tasks are added before this number of task, the meter will automatically use the current configurations to fill these spaces.<br><Channel> denotes the scan channel currently used by this task and ranges from 1 to 16. Thereinto, DCV, ACV, 2WR, FREQ, PERI, CAP and DIODE can use channel 1 to channel 12; while, DCI and ACI can use channel 13 to channel 16.<br>● <Function> denotes the measurement function currently used by this task and can be:<br>DCV\|ACV\|DCI\|ACI\|resistance\|DIODe\|CAPacitance\|period\|frequency.<br>● <Range>: denotes the measurement range of the current task, |

| | |
|---|---|
| | <Range> can be AUTO\|0\|1\|2\|3\|4\|5\|6, AUTO denotes using auto range measurement, for more details about parameter 0 to 6, please refer to the "**Explanation**" in **:MEASure** commands.<br><Resolution>: denotes the measurement reading resolution of the current task and can be 0\|1\|2.<br>● <SalmpleNum> denotes the number of samples specified by the current task and ranges from 1 to 100.<br>● <Delay> denotes the interval among samples of the current task and ranges from 0 to 360000, the default unit is s. |
| Example | :SCAN:TASK:ADD 2,5,DCV,2,1,25,10 |
| | |
| **5. :SCAN:TASK:DELEte** | |
| Syntax | :SCAN:TASK:DELEte <TasNum> |
| Function | Deletes the task specified by <TasNum>. |
| Explanation | <TasNum> ranges from 0 to the maximum task number in current scan project. |
| | |
| **6. :SCAN:TASK:INTErval** | |
| Syntax | :SCAN:TASK:INTErval <time> |
| Function | Sets the tasks interval under a scan project, the default unit is s. |
| Explanation | <time> ranges from 0 to 3600. |
| | |
| **7. :SCAN:TASK:LIST?** | |
| Syntax | :SCAN:TASK:LIST? |
| Function | The query returns the created scan task information such as:<br>00:CH05,DCV,3,1,25;01:CH05,DCV,3,1,25;02:CH05,DCV,3,1,25;<br>If no tasks are available under the current scan project, the query returns NULL. |
| | |
| **8. :SCAN:RUN?** | |
| Syntax | :SCAN:RUN? |
| Function | Queries the running state of the current scan task.<br>The query returns RUN or STOP. |
| | |
| **9. :SCAN:RUN** | |
| Syntax | :SCAN:RUN <Cycles> |
| Function | Sets the number of cycles for a scan task and executes this task. |

| | |
|---|---|
| Explanation | <Cycles> ranges from 1 to 10000. |
| | |
| **10. :SCAN:STOP** | |
| Syntax | :SCAN:STOP |
| Function | Stops the current scan task. |
| | |
| **11. :SCAN:DATA?** | |
| Syntax | :SCAN:DATA? *<value1>,<value2>* |
| Function | The query returns the scan data with a specified number and quantity in the memory. |
| Explanation | • The scan data are saved from number 1 after the start of scan.<br>• *<value1>* defines the start number of returned data.<br>• *<value2>* defines the data quantity (within 1 and 100) to be returned. |
| Example | Queries the three data from number 2:<br>:SCAN:DATA? 2,3<br>The query returns:<br>1.36941690e-02, 1.36941690e-02, 1.36941690e-02 |
| | |
| **12. :SCAN:CARDid?** | |
| Syntax | :SCAN:CARDid? |
| Function | Queries the installed scan board ID number.<br>The query returns NONE if no boards are installed. |

# Chapter 3 Commands Compatibility

The DM3000 series digital multimeter not only supports **RIGOL** commands system, but also have been compatible with Agilent and Fluke multimeter's some remote control commands. If users have been familiar with Agilent and Fluke's commands, you can operate **RIGOL** DM3000 conveniently.

This chapter lists Agilent and Fluke's some commands that **RIGOL** DM3000 series digital multimeter supports, and it makes easy to find commands for users. For the detailed meaning of commands and operation methods, please refer to related companies' commands introduction.

- Agilent Commands Compatibility
- Fluke Commands Compatibility

# Agilent Commands Compatibility

The following table lists the commands of Agilent that supported by **RIGOL** DM3000 series digital multimeters.

Before using the commands, please select the Agilent commands by **CMDSet** command - CMDSet AGILENT. For more details on this command, please refer to the "Commands Introduction" in Chapter 1.

**NOTE:** The contents in item "Function" from the table below refer to application of Agilent Commands in **RIGOL** DM3000 series digital multimeters.

| Agilent Commands | Function |
|---|---|
| CALCulate:AVERage:AVERage? | Queries the calculated average of all data. |
| CALCulate:AVERage:CLEar | Restores the setting values of all math functions under the current measurement function to the defaults. |
| CALCulate:AVERage:COUNt? | Queries the number of the calculated data. |
| CALCulate:AVERage:MAXimum? | Queries the maximum of the calculated data. |
| CALCulate:AVERage:MINimum? | Queries the minimum of the calculated data. |
| CALCulate:AVERage:PTPeak? | Queries the peak value of the calculated data. |
| CALCulate:AVERage:SDEViation? | Queries the standard deviation of the calculated data. |
| CALCulate:DB:REFerence? {MINimun\|MAXimun}<br>CALCulate:DB:REFerence {<value>\|MINimum\|MAXimum} | Query and set the dB reference value. |
| CALCulate:DBM:REFerence? {MINimun\|MAXimun}<br>CALCulate:DBM:REFerence {<value>\|MINimum\|MAXimum} | Query and set the dBm reference value. |
| CALCulate:FUNCtion?<br>CALCulate:FUNCtion {NULL\|DB\|DBM\|AVERage\|LIMit} | Query and set the calculation function. |
| CALCulate:LIMit:LOWer? {MINimum\|MAXimum}<br>CALCulate:LIMit:LOWer | Query and set the lower limit of the current measurement function. |

| | |
|---|---|
| {<value>\|MINimum} | |
| CALCulate:LIMit:UPPer? {MINimum\|MAXimum}<br>CALCulate:LIMit:UPPer {<value>\|MAXimum} | Query and set the upper limit of the current measurement function. |
| CALCulate:NULL:OFFSet? {MINimum\|MAXimum}<br>CALCulate:NULL:OFFSet {<value>\|MINimum\|MAXimum} | Query and set the offset of the NULL. |
| CALCulate:STATe? | Query the state of the calculation. |
| CONFigure? | Queries the current configurations of the instrument. |
| CONFigure:CAPacitance [{<range>\|AUTO\|MIN\|MAX\|DEF} [,{<resolution>\|MIN\|MAX\|DEF}]] | Restores all of the capacitance measurement parameters and trigger parameters to their defaults, and then configure the meter for capacitance measurements. |
| CONFigure:CONTinuity | Restores all of the continuity measurement parameters and trigger parameters to the defaults, and then configures the meter for continuity measurements. |
| CONFigure:CURRent:AC [{<range>\|AUTO\|MIN\|MAX\|DEF} [,{<resolution>\|MIN\|MAX\|DEF}]] | Restores all of the AC current measurement parameters and trigger parameters to the defaults, and then configures the meter for AC current measurements. |
| CONFigure:CURRent[:DC] [{<range>\|AUTO\|MIN\|MAX\|DEF} [,{<resolution>\|MIN\|MAX\|DEF}]] | Restores all of the DC current measurement parameters and trigger parameters to the defaults, and then configures the meter for DC current measurements. |
| CONFigure:DIODe | Restores all of the diode measurement parameters and trigger parameters to the defaults, and then configures the meter for diode measurements. |
| CONFigure:FREQuency [{<range>\|MIN\|MAX\|DEF} [,{<resolution>\|MIN\|MAX\|DEF}]] | Restores all of the frequency measurement parameters and trigger parameters to the defaults, and then configures the meter for frequency measurements. |
| CONFigure:FRESistance [{<range>\|AUTO\|MIN\|MAX\|DEF} | Restores all of the 4-wire resistance measurement parameters and trigger parameters to the defaults, |

| | |
|---|---|
| [,{<resolution>\|MIN\|MAX\|DEF}]] | and then configures the meter for 4-wire resistance measurements. |
| CONFigure:PERiod [{<range>\|MIN\|MAX\|DEF} [,{<resolution>\|MIN\|MAX\|DEF}]] | Restores all of the period measurement parameters and trigger parameters to the defaults, and then configures the meter for period measurements. |
| CONFigure:RESistance [{<range>\|AUTO\|MIN\|MAX\|DEF} [,{<resolution>\|MIN\|MAX\|DEF}]] | Restores all of the 2-wire resistance measurement parameters and trigger parameters to the defaults, and then configures the meter for 2-wire resistance measurements. |
| CONFigure[:VOLTage]:AC [{<range>\|AUTO\|MIN\|MAX\|DEF} [,{<resolution>\|MIN\|MAX\|DEF}]] | Restores all of the AC voltage measurement parameters and trigger parameters to the defaults, and then configures the meter for AC voltage measurements. |
| CONFigure[:VOLTage][:DC] [{<range>\|AUTO\|MIN\|MAX\|DEF}[,{<resolution>\|MIN\|MAX\|DEF}]] | Restores all of the DC voltage measurement parameters and trigger parameters to the defaults, and then configures the meter for DC voltage measurements. |
| DATA:COPY | Saves the measurement history data into the "File 10" under the "MeasData" in the nonvolatile memory of the instrument with the name of "MeasData".<br>To view these data, press "Save" and go to "**MeasData** - **File 10**". |
| DATA:DELete NVMEM | Deletes the data saved in the nonvolatile memory by command "DATA:COPY". |
| DATA:LAST? | Queries the latest measurement results. |
| DATA:POINts? [{RDG_STORE\|MNMEM}] | Queries the number of the current value. This number corresponds to the number of the measurement shown in the measurement history. |
| FETCh? | Queries readings from the instrument's output buffer where you can read them into your computer. |
| FETCh:CURRent:AC:PTPeak? | Queries the difference between the highest and lowest transient current levels detected in the most recent AC current measurement. |
| FETCh:CURRent[:DC]:PEAK:MAXimum? | Queries the highest transient current levels detected in the most recent DC current measurement. |

| | |
|---|---|
| FETCh:CURRent[:DC]:PEAK:MINimum? | Queries the lowest transient current levels detected in the most recent DC current measurement. |
| FETCh:CURRent[:DC]:PTPeak? | Queries the difference between the highest and lowest transient current levels detected in the most recent DC current measurement. |
| FETCh:VOLTage:AC:PTPeak? | Queries the difference between the highest and lowest transient voltage levels detected in the most recent AC voltage measurement. |
| FETCh:VOLTage[:DC]:PEAK:MAXimum? | Queries the highest transient voltage levels detected in the most recent DC voltage measurement. |
| FETCh:VOLTage[:DC]:PEAK::MINimum? | Queries the lowest transient voltage levels detected in the most recent DC voltage measurement. |
| FETCh:VOLTage[:DC]:PTPeak? | Queries the difference between the highest and lowest transient voltage levels detected in the most recent DC voltage measurement. |
| [SENSe:]CAPacitance:NULL[:STATe]?<br>[SENSe:]CAPacitance:NULL[:STATe]<br>{ON\|OFF} | Query and set the Null state for capacitance measurements. |
| [SENSe:]CAPacitance:NULL:VALue?<br>[{MIN\|MAX}]<br>[SENSe:]CAPacitance:NULL:VALue<br>{<value>\|MIN\|MAX} | Query and set the Null value for capacitance measurements. |
| [SENSe:]CAPacitance:RANGe:AUTO?<br>[SENSe:]CAPacitance:RANGe:AUTO <mode> | Query and set the automatic range state for capacitance measurements. |
| [SENSe:]CAPacitance:RANGe[:UPPer]?<br>[{MIN\|MAX}]<br>[SENSe:]CAPacitance:RANGe[:UPPer]<br>{<range>\|MIN\|MAX\|DEF} | Query and set the range for capacitance measurements. |
| [SENSe:]CURRent:AC:BANDwidth?<br>[{MIN\|MAX}]<br>[SENSe:]CURRent:AC:BANDwidth<br>{<filter>\|MIN\|MAX\|DEF} | Query the bandwidth for AC current measurements and return the boundary value of the bandwidth: 3, 20 or 200.<br>Set the bandwidth for AC current measurements, <filter> could be 3, 20 or 200. |
| [SENSe:]CURRent:AC:NULL[:STATe]?<br>[SENSe:]CURRent:AC:NULL[:STATe]<br>{ON\|OFF} | Query and set the NULL state for AC current measurements. |

| | |
|---|---|
| [SENSe:]CURRent:AC:NULL:VALue? [{MIN\|MAX}]<br>[SENSe:]CURRent:AC:NULL:VALue {<value>\|MIN\|MAX} | Query and set the NULL value for AC current measurements. |
| [SENSe:]CURRent:AC:PEAK:STATe?<br>[SENSe:]CURRent:AC:PEAK:STATe {ON\|OFF} | Query and set the peak measurement state for AC current measurements. |
| [SENSe:]CURRent:AC:RANGe:AUTO?<br>[SENSe:]CURRent:AC:RANGe:AUTO <mode> | Query and set the automatic range state for AC current measurements. |
| [SENSe:]CURRent:AC:RANGe[:UPPer]? [{MIN\|MAX}]<br>[SENSe:]CURRent:AC:RANGe[:UPPer] {<range>\|MIN\|MAX\|DEF} | Query and set the range for AC current measurements. |
| [SENSe:]CURRent[:DC]:APERture? [{MIN\|MAX}]<br>[SENSe:]CURRent[:DC]:APERture {<second>\|MIN\|MAX\|DEF} | Query and set the aperture time for DC current measurements. |
| [SENSe:]CURRent[:DC]:NPLC? [{MIN\|MAX}]<br>[SENSe:]CURRent[:DC]:NPLC {<PLCs>\|MIN\|MAX\|DEF} | Query and set the interval time in number of power line cycles (PLCs) for dc current measurements. Note that the input value and return value are both multiple of PLC. |
| [SENSe:]CURRent[:DC]:NULL[:STATe]?<br>[SENSe:]CURRent[:DC]:NULL[:STATe] {ON\|OFF} | Query and set the NULL state for DC current measurements. |
| [SENSe:]CURRent[:DC]:NULL:VALue? [{MIN\|MAX}]<br>[SENSe:]CURRent[:DC]:NULL:VALue {<value>\|MIN\|MAX} | Query and set the NULL value for DC current measurements. |
| [SENSe:]CURRent[:DC]:PEAK:STATe?<br>[SENSe:]CURRent[:DC]:PEAK:STATe {ON\|OFF} | Query and set the peak measurement state for DC current measurements. |
| [SENSe:]CURRent[:DC]:RANGe:AUTO?<br>[SENSe:]CURRent[:DC]:RANGe:AUTO <mode> | Query and set the automatic range state for DC current measurements. |
| [SENSe:]CURRent[:DC]:RANGe[:UPPer]? [{MIN\|MAX}]<br>[SENSe:]CURRent[:DC]:RANGe[:UPPer] | Query and set the range for DC current measurements. |

| | |
|---|---|
| {<range>\|MIN\|MAX\|DEF} | |
| [SENSe:]CURRent[:DC]:RESolution? [{MIN\|MAX}]<br>[SENSe:]CURRent[:DC]:RESolution {<resolution>\|MIN\|MAX\|DEF} | Query and set the resolution for DC current measurements. |
| [SENSe:]FREQuency:APERture? [{MIN\|MAX}]<br>[SENSe:]FREQuency:APERture {<second>\|MIN\|MAX\|DEF} | Query and set the aperture time for frequency resistance measurements. |
| [SENSe:]FREQuency:NULL[:STATe]?<br>[SENSe:]FREQuency:NULL[:STATe] {ON\|OFF} | Query and set the NULL state for frequency resistance measurements. |
| [SENSe:]FREQuency:NULL:VALue? [{MIN\|MAX}]<br>[SENSe:]FREQuency:NULL:VALue {<value>\|MIN\|MAX} | Query and set the NULL value for frequency resistance measurements. |
| [SENSe:]FREQuency:RANGe:LOWer? [{MIN\|MAX}]<br>[SENSe:]FREQuency:RANGe:LOWer {<filter>\|MIN\|MAX\|DEF} | Query and set the lower value of AC bandwidth under frequency measurement. The <filter> can be 3, 20 or 200. The "DEF" is 20. |
| [SENSe:]FREQuency:VOLTage:RANGe:AUTO?<br>[SENSe:]FREQuency:VOLTage:RANGe:AUTO <mode> | Query and set the voltage automatic range state for frequency measurements. |
| [SENSe:]FREQuency:VOLTage:RANGe[:UPPer]? [{MIN\|MAX}]<br>[SENSe:]FREQuency:VOLTage:RANGe[:UPPer] {<voltage_range>\|MIN\|MAX\|DEF} | Query and set the voltage range for frequency measurements. |
| [SENSe:]FRESistance:APERture? [{MIN\|MAX}]<br>[SENSe:]FRESistance:APERture {<second>\|MIN\|MAX\|DEF} | Query and set the aperture time for frequency measurements. |
| [SENSe:]FRESistance:NPLC? [{MIN\|MAX}]<br>[SENSe:]FRESistance:NPLC {<PLCs>\|MIN\|MAX\|DEF} | Query and set the aperture time for 4-wire resistance measurements. Note that the input value and return value are both multiple of PLC. |
| [SENSe:]FRESistance:NULL[:STATe]?<br>[SENSe:]FRESistance:NULL[:STATe] | Query and set the NULL state for 4-wire resistance measurements. |

| | |
|---|---|
| {ON\|OFF} | |
| [SENSe:]FRESistance:NULL:VALue?<br>[{MIN\|MAX}]<br>[SENSe:]FRESistance:NULL:VALue<br>{<value>\|MIN\|MAX} | Query and set the NULL value for 4-wire resistance measurements. |
| [SENSe:]FRESistance:RANGe:AUTO?<br>[SENSe:]FRESistance:RANGe:AUTO <mode> | Query and set the automatic range state for 4-wire resistance measurements. |
| [SENSe:]FRESistance:RANGe[:UPPer]?<br>[{MIN\|MAX}]<br>[SENSe:]FRESistance:RANGe[:UPPer]<br>{<range>\|MIN\|MAX\|DEF} | Query and set the range for 4-wire resistance measurements. |
| [SENSe:]FRESistance:RESolution?<br>[{MIN\|MAX}]<br>[SENSe:]FRESistance::RESolution<br>{<resolution>\|MIN\|MAX\|DEF} | Query and set the resolution for 4-wire resistance measurements. |
| [SENSe:]FUNCtion[:ON]?<br>[SENSe:]FUNCtion[:ON] "<function>" | Query and set the current measurement function for the instrument. |
| [SENSe:]MEASure:CAPacitance?<br>[{<range>\|AUTO\|MIN\|MAX\|DEF}<br>[,{<resolution>\|MIN\|MAX\|DEF}]] | Resets all capacitance measurement parameters and trigger parameters to their defaults, and then configures the meter for capacitance measurements and immediately triggers a measurement. The results are sent directly to the instrument output buffer. |
| [SENSe:]MEASure:CONTinuity? | Resets all continuity measurement parameters and trigger parameters to their defaults, and then configures the meter for continuity measurements and immediately triggers a measurement. The results are sent directly to the instrument output buffer. |
| [SENSe:]MEASure:CURRent:AC?<br>[{<range>\|AUTO\|MIN\|MAX\|DEF}<br>[,{<resolution>\|MIN\|MAX\|DEF}]] | Resets all AC current measurement parameters and trigger parameters to their defaults, and then configures the meter for AC current measurements and immediately triggers a measurement. The results are sent directly to the instrument output buffer. |
| [SENSe:]MEASure:CURRent[:DC]?<br>[{<range>\|AUTO\|MIN\|MAX\|DEF} | Resets all DC current measurement parameters and trigger parameters to their defaults, and then |

| | |
|---|---|
| [,{<resolution>\|MIN\|MAX\|DEF}]] | configures the meter for DC current measurements and immediately triggers a measurement. The results are sent directly to the instrument output buffer. |
| [SENSe:]MEASure:DIODe? | Resets all diode measurement parameters and trigger parameters to their defaults, and then configures the meter for diode measurements and immediately triggers a measurement. The results are sent directly to the instrument output buffer. |
| [SENSe:]MEASure:FREQuency?<br>[{<range>\|MIN\|MAX\|DEF}<br>[,{<resolution>\|MIN\|MAX\|DEF}]] | Resets all frequency measurement parameters and trigger parameters to their defaults, and then configures the meter for frequency measurements and immediately triggers a measurement. The results are sent directly to the instrument output buffer. |
| [SENSe:]MEASure:FRESistance?<br>[{<range>\|AUTO\|MIN\|MAX\|DEF}<br>[,{<resolution>\|MIN\|MAX\|DEF}]] | Resets all 4-wire resistance measurement parameters and trigger parameters to their defaults, and then configures the meter for 4-wire resistance measurements and immediately triggers a measurement. The results are sent directly to the instrument output buffer. |
| [SENSe:]MEASure:PERiod?<br>[{<range>\|MIN\|MAX\|DEF}<br>[,{<resolution>\|MIN\|MAX\|DEF}]] | Resets all period measurement parameters and trigger parameters to their defaults, and then configures the meter for period measurements and immediately triggers a measurement. The results are sent directly to the instrument output buffer. |
| [SENSe:]MEASure:RESistance?<br>[{<range>\|AUTO\|MIN\|MAX\|DEF}<br>[,{<resolution>\|MIN\|MAX\|DEF}]] | Resets all 2-wire resistance measurement parameters and trigger parameters to their defaults, and then configures the meter for 2-wire resistance measurements and immediately triggers a measurement. The results are sent directly to the instrument output buffer. |
| [SENSe:]MEASure[:VOLTage]:AC?<br>[{<range>\|AUTO\|MIN\|MAX\|DEF}<br>[,{<resolution>\|MIN\|MAX\|DEF}]] | Resets all AC voltage measurement parameters and trigger parameters to their defaults, and then configures the meter for AC voltage measurements and immediately triggers a measurement. The results are sent directly to the instrument output |

| | |
|---|---|
| | buffer. |
| [SENSe:]MEASure[:VOLTage][:DC]? [{<range>\|AUTO\|MIN\|MAX\|DEF} [,{<resolution>\|MIN\|MAX\|DEF}]] | Resets all DC voltage measurement parameters and trigger parameters to their defaults, and then configures the meter for capacitance measurements and immediately triggers a measurement. The results are sent directly to the instrument output buffer. |
| [SENSe:]MEMory:NSTates? | Queries the total number of memory locations available for state storage. |
| [SENSe:]MEMory:STATe:CATalog? | Queries the names assigned to storage locations. |
| [SENSe:]MEMory:STATe:DELete {0\|1\|2\|3\|4\|5\|6\|7\|8\|9} | Deletes the contents of the specified storage location. |
| [SENSe:]MEMory:STATe:DELete:ALL | Deletes the contents in system configuration of the storage locations. |
| [SENSe:]MEMory:STATe:NAME? {0\|1\|2\|3\|4\|5\|6\|7\|8\|9} | Query and assign the file name of the specified storage location. |
| [SENSe:]MEMory:STATe:RECall:AUTO? [SENSe:]MEMory:STATe:RECall:AUTO <mode> | Query and set the automatic recall state of a specific stored instrument state when power is turned on. |
| [SENSe:]MEMory:STATe:RECall:SELect? [SENSe:]MEMory:STATe:RECall:SELect {0\|1\|2\|3\|4\|5\|6\|7\|8\|9} | Query and set the instrument state at power on if the automatic recall mode is enabled. **NOTE:** The command only can be responded. |
| [SENSe:]MEMory:STATe:VALid? {0\|1\|2\|3\|4\|5\|6\|7\|8\|9} | Queries the specified storage location to determine if a valid state is currently stored in this location. |
| [SENSe:]OUTPut:TRIGger:SLOPe? [SENSe:]OUTPut:TRIGger:SLOPe <slope> | Query and set the trigger mode (edge) of the trigger signal from the meter. |
| [SENSe:]PERiod:APERture? [{MIN\|MAX}] [SENSe:]PERiod:APERture {<second>\|MIN\|MAX\|DEF} | Query and set the aperture time for period measurements. |
| [SENSe:]PERiod:NULL[:STATe]? [SENSe:]PERiod:NULL[:STATe] {ON\|OFF} | Query and set the NULL state for period measurements. |
| [SENSe:]PERiod:NULL:VALue? [{MIN\|MAX}] [SENSe:]PERiod:VALue {<value>\|MIN\|MAX} | Query and set the NULL value for period measurements. |
| [SENSe:]PERiod:VOLTage:RANGe:AUTO? [SENSe:]PERiod:VOLTage:RANGe:AUTO <mode> | Query and set the voltage automatic range state for period measurements. |
| [SENSe:]PERiod:VOLTage:RANGe[:UPPer]? | Query and set the voltage range for period |

| | |
|---|---|
| [{MIN\|MAX}]<br>[SENSe:]PERiod:VOLTage:RANGe[:UPPer]<br>{<voltage_range>\|MIN\|MAX\|DEF} | measurements. |
| [SENSe:]RESistance:APERture? [MIN\|MAX]<br>[SENSe:]RESistance:APERture<br>{<second>\|MIN\|MAX\|DEF} | Query and set the aperture time for 2-wire resistance measurements. |
| [SENSe:]RESistance:NPLC? [{MIN\|MAX}]<br>[SENSe:]RESistance:NPLC<br>{<PLCs>\|MIN\|MAX\|DEF} | Query and set the aperture time for 2-wire resistance measurements. Note that the input value and return value are both multiple of PLC. |
| [SENSe:]RESistance:NULL[:STATe]?<br>[SENSe:]RESistance:NULL[:STATe]<br>{ON\|OFF} | Query and set the NULL state for 2-wire resistance measurements. |
| [SENSe:]RESistance:NULL:VALue?<br>[{MIN\|MAX}]<br>[SENSe:]RESistance:NULL:VALue<br>{<value>\|MIN\|MAX} | Query and set the NULL value for 2-wire resistance measurements. |
| [SENSe:]RESistance:RANGe:AUTO?<br>[SENSe:]RESistance:RANGe:AUTO <mode> | Query and set the automatic range state for 2-wire resistance measurements. |
| [SENSe:]RESistance:RANGe[:UPPer]?<br>[{MIN\|MAX}]<br>[SENSe:]RESistance:RANGe[:UPPer]<br>{<range>\|MIN\|MAX\|DEF} | Query and set the range for 2-wire resistance measurements. |
| [SENSe:]RESistance:RESolution?<br>[{MIN\|MAX}]<br>[SENSe:]RESistance:RESolution<br>{<resolution>\|MIN\|MAX\|DEF} | Query and set the resolution for 2-wire resistance measurements. |
| [SENSe:]VOLTage:AC:BANDwidth?<br>[{MIN\|MAX}]<br>[SENSe:]VOLTage:AC:BANDwidth<br>{<filter>\|MIN\|MAX\|DEF} | Query the bandwidth for AC voltage measurements and return the bandwidth with one of the three values: 3, 20 or 200.<br>Select the bandwidth for AC voltage measurements from 3, 20 or 200. |
| [SENSe:]VOLTage:AC:NULL[:STATe]?<br>[SENSe:]VOLTage:AC:NULL[:STATe]<br>{ON\|OFF} | Query and set the NULL state for AC voltage measurements. |
| [SENSe:]VOLTage:AC:NULL:VALue?<br>[{MIN\|MAX}]<br>[SENSe:]VOLTage:AC:NULL:VALue | Query and set the NULL value for AC voltage measurements. |

| | |
|---|---|
| {<value>\|MIN\|MAX} | |
| [SENSe:]VOLTage:AC:PEAK:STATe?<br>[SENSe:]VOLTage:AC:PEAK:STATe {ON\|OFF} | Query and set the peak measurement state for AC voltage measurements. |
| [SENSe:]VOLTage:AC:RANGe:AUTO?<br>[SENSe:]VOLTage:AC:RANGe:AUTO <mode> | Query and set the automatic range state for AC voltage measurements. |
| [SENSe:]VOLTage:AC:RANGe[:UPPer]?<br>[{MIN\|MAX}]<br>[SENSe:]VOLTage:AC:RANGe[:UPPer]<br>{<range>\|MIN\|MAX\|DEF} | Query and set the range for AC voltage measurements. |
| [SENSe:]VOLTage[:DC]:APERture?<br>[{MIN\|MAX}]<br>[SENSe:]VOLTage[:DC]:APERture<br>{<second>\|MIN\|MAX\|DEF} | Query and set the aperture time for DC voltage measurements. |
| [SENSe:]VOLTage[:DC]:APERture:ENABle?<br>[SENSe:]VOLTage[:DC]:APERture:ENABle<br>{ON} | Query the state of the aperture time for DC voltage measurements.<br>Set the aperture time for DC voltage measurements as "ON". |
| [SENSe:]VOLTage[:DC]:IMPedance:AUTO?<br><br>[SENSe:]VOLTage[:DC]:IMPedance:AUTO<br>{ON \|1} | Query the input impedance mode for DC voltage measurements.<br>Set the input impedance mode for DC voltage measurements as "ON" or "1".<br>**NOTE:** the DM3000 can only support this command but not for auto input impedance mode. |
| [SENSe:]VOLTage[:DC]:NPLC? [{MIN\|MAX}]<br>[SENSe:]VOLTage[:DC]:NPLC<br>{<PLCs>\|MIN\|MAX\|DEF} | Query and set the aperture time for DC voltage measurements. Note that the input value and return value are both multiple of PLC. |
| [SENSe:]VOLTage[:DC]:NULL[:STATe]?<br>[SENSe:]VOLTage[:DC]:NULL[:STATe]<br>{ON\|OFF} | Query and set the Null state for DC voltage measurements. |
| [SENSe:]VOLTage[:DC]:NULL:VALue?<br>[{MIN\|MAX}]<br>[SENSe:]VOLTage[:DC]:NULL:VALue<br>{<value>\|MIN\|MAX} | Query and set the Null value for DC voltage measurements. |
| [SENSe:]VOLTage[:DC]:PEAK:STATe?<br>[SENSe:]VOLTage[:DC]:PEAK:STATe<br>{ON\|OFF} | Query and set the peak measurement state for DC voltage measurements. |
| [SENSe:]VOLTage[:DC]:RANGe:AUTO? | Query and set the automatic range state for DC |

| | |
|---|---|
| [SENSe:]VOLTage[:DC]:RANGe:AUTO <mode> | voltage measurements. |
| [SENSe:]VOLTage[:DC]:RANGe[:UPPer]? [{MIN\|MAX}]<br>[SENSe:]VOLTage[:DC]:RANGe[:UPPer] {<range>\|MIN\|MAX\|DEF} | Query and set the range for DC voltage measurements. |
| [SENSe:]VOLTage[:DC]:RESolution? [{MIN\|MAX}]<br>[SENSe:]VOLTage[:DC]:RESolution {<resolution>\|MIN\|MAX\|DEF} | Query and set the resolution for DC voltage measurements. |
| SAMPle:TIMer? [{MIN\|MAX}]<br>SAMPle:TIMer {<interval>\|MIN\|MAX} | Query and set the sample interval for timed sampling. |
| SYSTem:BEEPer:STATe?<br>SYSTem:BEEPer:STATe <mode> | Query and set the state of the beeper. |
| SYSTem:BEEPer[:IMMediate] | This command issues a single beep immediately from the instrument. |
| SYSTem:COMMunicate:ENABle? <interface> | This command can do nothing for the DM3000, however you can send it. |
| SYSTem:COMMunicate:ENABle <mode>, <interface> | This command can do nothing for the DM3000; however you can send it. |
| SYSTem:COMMunicate:GPIB[:SELF]:ADDRess?<br>SYSTem:COMMunicate:GPIB[:SELF]:ADDRess {<address>} | Query and set the GPIB address. |
| SYSTem:COMMunicate:LAN:BSTatus? | Queries the LAN interface state of the instrument. |
| SYSTem:COMMunicate:LAN:CONTrol? | This command acquires the number of interfaces that connected to network for Sockets. |
| SYSTem:COMMunicate:LAN:DDNS?<br>SYSTem:COMMunicate:LAN:DDNS <mode> | Query and set the state of the dynamic DNS. |
| SYSTem:COMMunicate:LAN:DHCP?<br>SYSTem:COMMunicate:LAN:DHCP <mode> | Query and set the state of the DHCP. |
| SYSTem:COMMunicate:LAN:DNS?<br>SYSTem:COMMunicate:LAN:DNS "<address>" | Query and set the address of the static DNS. |
| SYSTem:COMMunicate:LAN:GATEway? [{CURRent\|STATic}<br>SYSTem:COMMunicate:LAN:GATEway | Query and set the default gateway of the instrument. |

| | |
|---|---|
| "<address>" | |
| SYSTem:COMMunicate:LAN:HOSTname? [{CURRent\|STATic}]<br>SYSTem:COMMunicate:LAN:HOSTname "<name>" | Query and set the current host name of the instrument. |
| SYSTem:COMMunicate:LAN:IPADdress? [{CURRent\|STATic}]<br>SYSTem:COMMunicate:LAN:IPADdress "<address>" | Query and set the current IP (Internet Protocol) address of the instrument. |
| SYSTem:COMMunicate:LAN:MAC? | Queries the MAC (Media Access Control) address - link layer address. |
| SYSTem:COMMunicate:LAN:SMASk? [{CURRent\|STATic}]<br>SYSTem:COMMunicate:LAN:SMASk "<mask>" | Query and set the current subnet mask of the instrument. |
| SYSTem:LANGuage?<br>SYSTem:LANGuage {EN\|CH} | Query and set the display language (Chinese or English) of the instrument. |
| SYSTem:VERSion? | Queries the standard SCPI (Standard Commands for Programmable Instruments version) number that was used by the instrument. |
| SYSTem:ERRor? | Reads and clears one error from the instrument's error queue. |
| TRIGger:COUNt? [{MIN\|MAX}]<br>TRIGger:COUNt {<count>\|MIN\|MAX\|INFinity} | Query and set the number of triggers of the instrument. |
| TRIGger:DELay? [{MIN\|MAX}]<br>TRIGger:DELay {<second>\|MIN\|MAX\|DEF} | Query and set the delay between the trigger signal and the first measurement. |
| TRIGger:DELay:AUTO?<br>TRIGger:DELay:AUTO {ON\|OFF\|1\|0} | Query and set the state of the auto trigger delay. |
| TRIGger:SLOPe?<br>TRIGger:SLOPe <slope> | Query and set the external trigger type of the instrument. |
| TRIGger:SOURce?<br>TRIGger:SOURce <source> | Query and set the current trigger source of the instrument. |

# Fluke Commands Compatibility

The following table lists the commands of Fluke that supported by **RIGOL** DM3000 series digital multimeters.
Before using these commands, please select the Fluke commands by **CMDSet** command - CMDSet FLUKE. For more details on this command, please refer to the "Commands Introduction" in Chapter 1.

**NOTE:** The contents in item "Function" from the table below refer to application of Fluke Commands in **RIGOL** DM3000 series digital multimeters.
Fluke

| Fluke Commands | Function |
|---|---|
| AAC | Turns on the AC current measurement function. |
| ADC | Turns on the DC current measurement function. |
| VDC | Turns on the AC voltage measurement function. |
| VAC | Turns on the AC voltage measurement function. |
| CONT | Turns on the continuity measurement function. |
| DIODE | Turns on the diode measurement function. |
| FREQ | Turns on the frequency measurement function. |
| FREQ2 | Turns on the frequency measurement function under the secondary display while it is in AC measurement. |
| OHMS | Turns on the resistance measurement function. |
| WIRE2 | Switches to the 2-wire resistance measurement function. |
| WIRE4 | Switches to the 4-wire resistance measurement function. |
| FUNC1? | Queries the current main measurement function. |
| FUNC2? | Query the current measurement function under the secondary display. Note this command is available only for AC measurements. |
| CLR2 | Clears the secondary function. Note that this command is available only when the frequency measurement function is turned on for AC measurements. |
| DB | Turns on the DB measurement function. |
| DBCLR | Exits the DB measurement function. |
| DBREF <value> | Sets the DB reference value. |
| DBREF? | Queries the DB reference value. |
| HOLD | Turns on the Touch Hold function of the meter. |

| | |
|---|---|
| HOLDCLR | Exits the Touch Hold function and restores the meter into normal working. |
| HOLDTHRESH <threshold> | Sets the measurement threshold for HOLD. |
| HOLDTHRESH? | Queries the measurement threshold for HOLD. |
| MAX | Causes the meter to enter MAX modifier with present reading as maximum value. |
| MAXSET <numeric value> | Causes the meter to enter MAX modifier with <numeric value> as maximum value. |
| MIN | Causes the meter to enter MIN modifier with present reading as minimum value. |
| MINSET <numeric value> | Causes the meter to enter MIN modifier with <numeric value> as minimum value. |
| MMCLR | Exits the MIN MAX modifier. The stored minimum and maximum values are lost. |
| MOD? | Queries the numeric value indicating modifiers in use. 1 = MIN, 2 = MAX, 4 = HOLD, 8 = dB, 32 = REL, 64 = COMP.<br>If multiple modifiers are selected, the value returned is equal to the sum of the values of the selected modifiers. If none of the modifiers are selected, the query returns "0". |
| REL | Causes the meter to enter the relative (REL) modifier, using the value shown on the primary display as the relative base. |
| RELCLR | Exits the relative (REL) modifier and returns to the ranging mode. |
| RELSET <relative base> | Causes the meter to enter the relative (REL) modifier, using <relative base> as the relative base. |
| RELSET? | Queries the relative base used by meter. |
| AUTO | Causes the meter to enter the automatic range mode on the primary display. |
| AUTO? | Queries if the meter is in automatic range mode. |
| FIXED | Causes the meter to exit automatic range on the primary display and enter manual ranging. The present range becomes the selected range. |
| RANGE <value range> | Sets the desired range for the current measurement function. |
| RANGE1? | Queries the range of the measurement function used currently. |
| RATE <speed> | Sets the measurement speed. <speed> can be “S, M or F”, which corresponds to three measurement resolutions. <speed> is either "F" (33 readings/second), "M" (5 readings/second), or "S" (2.5 readings/second). |

| | |
|---|---|
| RATE? | Queries the measurement rate. |
| MEAS? | Queries the measurement value currently used by meter. |
| MEAS1? | Queries the voltage value shown on the primary display for AC measurements. This command is equal to "MEAS?" for other measurements. |
| MEAS2? | Queries the frequency value shown on the secondary display for AC measurement. An Execution Error is generated in any other measurements. |
| VAL? | Queries the current measurement value of the meter. |
| VAL1? | Queries the voltage measurement value shown on the primary display for AC measurements. This command is equal to "MEAS?" for other measurements. |
| VAL2? | Queries the frequency value shown on the secondary display for AC measurements. An Execution Error is generated in any other measurements. |
| COMP | Enables the meter to enter compare (COMP) function mode. |
| COMP? | Queries the compare results of the current measurement. The query returns "HI", or "LOW", or "PASS". |
| COMPCLR | Exits the compare (COMP) function and restores the meter into normal working. |
| COMPHI <high value> | Sets the high value of the compare (COMP). |
| COMPLO <low value> | Sets the low value of the compare (COMP). |
| TRIGGER <type> | Sets the trigger type. Note this command is only available for type 1 due to principle of work constraints. If <type> is not type 1, the meter will refuse to execute and an Execution Error will be generated. |
| TRIGGER? | Queries the trigger type. The query returns only "1" due to principle of work constraints. |
| SERIAL? | Queries the instrument serial number. |

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