- **SSETup:** indicates the setup saving.
- **AMEasure:** indicates all measurement.
- **SRESet:** indicates statistics reset.
- **RECord:** indicates waveform recording.
- **SSAVe:** indicates saving group.

**Return Format**

The query returns SIM, SWAV, SSET, AME, REC, SSAV, or SRES.

**Example**

```
:QUICk:OPERation SWAVe        /*Sets the type of the shortcut key to
"save waveform".*/
:QUICk:OPERation?              /*The query returns SWAV.*/
```

# 3.19 :RECord Commands

The **:RECord** commands are used to set and query the parameters related to the waveform recording mode and frames.

Waveform recording/playing function allows you to record and play the waveforms, enabling you to analyze the waveforms better.

## 3.19.1 :RECord:WRECord:ENABle

**Syntax**

**:RECord:WRECord:ENABle** <*bool*>

**:RECord:WRECord:ENABle?**

**Description**

Enables or disables the waveform recording function; or queries the on/off status of the waveform recording function.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <bool> | Bool | {{1\|ON}\|{0\|OFF}} | 0\|OFF |

**Remarks**

N/A

**Return Format**

The query returns 0 or 1.

**Example**

```
:RECord:WRECord:ENABle ON    /*Enables the waveform recording
function.*/
:RECord:WRECord:ENABle?      /*The query returns 1.*/
```

## 3.19.2 :RECord:ENABle

**Syntax**

**:RECord:ENABle** <*bool*>

**:RECord:ENABle?**

**Description**

Enables or disables the waveform recording function; or queries the on/off status of the waveform recording function.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <bool> | Bool | {{1\|ON}\|{0\|OFF}} | 0\|OFF |

**Remarks**

This command exists for backwards compatibility. Use the command *:RECord:WRECord:ENABle*.

**Return Format**

The query returns 0 or 1.

**Example**

```
:RECord:ENABle ON    /*Enables the waveform recording function.*/
:RECord:ENABle?      /*The query returns 1.*/
```

## 3.19.3 :RECord:WRECord:OPERate

**Syntax**

**:RECord:WRECord:OPERate** <*operate*>

**:RECord:WRECord:OPERate?**

**Description**

Sets to start the waveform recording, or queries whether the waveform recording starts or stops.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <operate> | Discrete | {RUN\|STOP} | STOP |

**Remarks**

N/A

**Return Format**

The query returns RUN or STOP.

**Example**

```
:RECord:WRECord:OPERate RUN    /*Sets to start recording
waveforms.*/
:RECord:WRECord:OPERate?      /*The query returns RUN.*/
```

## 3.19.4 :RECord:STARt

**Syntax**

**:RECord:STARt** <*bool*>

**:RECord:STARt?**

**Description**

Sets to start the waveform recording, or queries whether the waveform recording starts or stops.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <bool> | Bool | {{1\|ON}\|{0\|OFF}} | 0\|OFF |

**Remarks**

This command exists for backwards compatibility. Use the command *:RECord:WRECord:OPERate*.

**Return Format**

The query returns 1 or 0.

**Example**

```
:RECord:STARt ON    /*Sets to start recording the waveforms.*/
:RECord:STARt?      /*The query returns 1.*/
```

## 3.19.5 :RECord:WRECord:FRAMes

**Syntax**

**:RECord:WRECord:FRAMes** <*value*>

**:RECord:WRECord:FRAMes?**

**Description**

Sets or queries the number of frames for waveform recording.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <value> | Integer | 1 to the maximum number of frames that can be recorded currently | 1,000 |

**Remarks**

N/A

**Return Format**

The query returns an integer ranging from 1 to the maximum number of frames that can be recorded currently.

**Example**

```
:RECord:WRECord:FRAMes 300     /*Sets the number of recorded frames
to 300.*/
:RECord:WRECord:FRAMes?        /*The query returns 300.*/
```

## 3.19.6 :RECord:FRAMes

**Syntax**

**:RECord:FRAMes** <*value*>

**:RECord:FRAMes?**

**Description**

Sets or queries the number of frames for waveform recording.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <value> | Integer | 1 to the maximum number of frames that can be recorded currently | 1,000 |

**Remarks**

This command exists for backwards compatibility. Use the command *:RECord:WRECord:FRAMes*.

**Return Format**

The query returns an integer ranging from 1 to the maximum number of frames that can be recorded currently.

**Example**

```
:RECord:FRAMes 300     /*Sets the number of recorded frames to 300.*/
:RECord:FRAMes?        /*The query returns 300.*/
```

## 3.19.7 :RECord:WRECord:FRAMes:MAX

**Syntax**

**`:RECord:WRECord:FRAMes:MAX`**

**Description**

Sets the number of recorded frames to the maximum number of frames.

**Parameter**

N/A

**Remarks**

N/A

**Return Format**

N/A

**Example**

```
:RECord:WRECord:FRAMes:MAX   /*Sets the number of recorded frames
to the maximum number of frames.*/
```

## 3.19.8 :RECord:WRECord: FMAX?

**Syntax**

**`:RECord:WRECord: FMAX?`**

**Description**

Queries the maximum number of frames that can be recorded currently.

**Parameter**

N/A

**Remarks**

N/A

**Return Format**

The query returns an integer. The maximum number of frames that can be recorded currently is determined by the current memory depth.

**Example**

```
N/A
```

## 3.19.9 :RECord:WRECord:FINTerval

**Syntax**

**:RECord:WRECord:FINTerval** <*interval*>

**:RECord:WRECord:FINTerval?**

**Description**

Sets or queries the time interval between frames in waveform recording.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <interval> | Real | 10 ns to 1 s | 10 ns |

**Remarks**

N/A

**Return Format**

The query returns the time interval in scientific notation. The unit is s.

**Example**

```
:RECord:WRECord:FINTerval 1 /*Sets the time interval between frames
in waveform recording to 1 s.*/
:RECord:WRECord:FINTerval? /*The query returns 1.000000E0.*/
```

## 3.19.10 :RECord:WRECord:PROMpt

**Syntax**

**:RECord:WRECord:PROMpt** <*bool*>

**:RECord:WRECord:PROMpt?**

**Description**

Sets or queries the on/off status of the beeper when the recording is completed.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <bool> | Bool | {{1\|ON}\|{0\|OFF}} | 1\|ON |

**Remarks**

N/A

**Return Format**

The query returns 0 or 1.

**Example**

```
:RECord:WRECord:PROMpt ON    /*Enables the beeper when the
recording is completed.*/
:RECord:WRECord:PROMpt?       /*The query returns 1.*/
```

## 3.19.11 :RECord:WREPlay:FCURrent

**Syntax**

**:RECord:WREPlay:FCURrent** <*value*>

**:RECord:WREPlay:FCURrent?**

**Description**

Sets or queries the current frame in waveform playing.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <value> | Integer | 1 to the maximum number of frames recorded | The maximum number of frames recorded |

**Remarks**

N/A

**Return Format**

The query returns an integer.

**Example**

```
:RECord:WREPlay:FCURrent 300    /*Sets the current frame for
waveform playing to 300.*/
:RECord:WREPlay:FCURrent?      /*The query returns 300.*/
```

## 3.19.12 :RECord:CURRent

**Syntax**

**:RECord:CURRent** <*value*>

**:RECord:CURRent?**

**Description**

Sets or queries the current frame in waveform playing.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <value> | Integer | 1 to the maximum number of frames recorded | The maximum number of frames recorded |

**Remarks**

This command exists for backwards compatibility. Use the command *:RECord:WREPlay:FCURrent*.

**Return Format**

The query returns an integer.

**Example**

```
:RECord:CURRent 300    /*Sets the current frame for waveform
playing to 300.*/
:RECord:CURRent?      /*The query returns 300.*/
```

## 3.19.13 :RECord:WREPlay:FCURrent:TIME?

**Syntax**

**:RECord:WREPlay:FCURrent:TIME?**

**Description**

Queries the time stamp of the current frame in waveform playing.

**Parameter**

N/A

**Remarks**

N/A

**Return Format**

Queries the time stamp of the current frame in strings in waveform playing.

**Example**

```
N/A
```

## 3.19.14 :RECord:WREPlay:FSTart

**Syntax**

**:RECord:WREPlay:FSTart** <*start*>

**:RECord:WREPlay:FSTart?**

**Description**

Sets or queries the start frame in waveform playback.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <start> | Integer | 1 to the maximum number of frames that can be played back currently | - |

**Remarks**

N/A

**Return Format**

The query returns the start frame in integer.

**Example**

```
:RECord:WREPlay:FSTart 10     /*Sets the start frame in waveform
playing to 10.*/
:RECord:WREPlay:FSTart?       /*The query returns 10.*/
```

## 3.19.15 :RECord:WREPlay:FEND

**Syntax**

**:RECord:WREPlay:FEND** <*end*>

**:RECord:WREPlay:FEND?**

**Description**

Sets or queries the end frame in waveform playback.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <end> | Integer | 1 to the maximum number of frames recorded | - |

**Remarks**

N/A

**Return Format**

The query returns the end frame in integer.

**Example**

```
:RECord:WREPlay:FEND 346    /*Sets the end frame for waveform
playing to 346.*/
:RECord:WREPlay:FEND?      /*The query returns 346.*/
```

## 3.19.16 :RECord:WREPlay:FMAX?

**Syntax**

**:RECord:WREPlay:FMAX?**

**Description**

Queries the maximum number of frames that can be played back currently.

**Parameter**

N/A

**Remarks**

N/A

**Return Format**

The query returns an integer ranging from 0 to the number of frames that have been recorded currently.

**Example**

```
N/A
```

## 3.19.17 :RECord:WREPlay:FINTerval

**Syntax**

**:RECord:WREPlay:FINTerval** <*interval*>

**:RECord:WREPlay:FINTerval?**

**Description**

Sets or queries the time interval between frames in waveform playback.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <interval> | Real | 1 ms to 1 s | - |

**Remarks**

N/A

**Return Format**

The query returns the time interval in scientific notation. The unit is s.

**Example**

```
:RECord WREPlay:FINTerval 1 /*Sets the time interval between frames
in waveform playback to 1 s.*/
:RECord:WREPlay:FINTerval? /*The query returns 1.000000E0.*/
```

## 3.19.18 :RECord:WREPlay:MODE

**Syntax**

**:RECord:WREPlay:MODE** <*mode*>

**:RECord:WREPlay:MODE?**

**Description**

Sets the waveform playback mode to Repeat or Single; queries the waveform playback mode.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <mode> | Discrete | {REPeat\|SINGle} | SINGle |

**Remarks**

N/A

**Return Format**

The query returns REP or SING.

**Example**

```
:RECord:WREPlay:MODE REP    /*Sets the playback mode to REP.*/
:RECord:WREPlay:MODE?      /*The query returns REP.*/
```

## 3.19.19 :RECord:WREPlay:DIRection

**Syntax**

**:RECord:WREPlay:DIRection** <*direction*>

**:RECord:WREPlay:DIRection?**

**Description**

Sets or queries the playback direction in waveform playing.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <direction> | Discrete | {FORWard\|BACKward} | FORWard |

**Remarks**

N/A

**Return Format**

The query returns FORW or BACK.

**Example**

```
:RECord:WREPlay:DIRection BACK  /*Sets the direction of waveform
playback to BACK.*/
:RECord:WREPlay:DIRection?  /*The query returns BACK.*/
```

## 3.19.20 :RECord:WREPlay:OPERate

**Syntax**

**:RECord:WREPlay:OPERate** <*operate*>

**:RECord:WREPlay:OPERate?**

**Description**

Enables or disables the waveform playing function; or queries the on/off status of the waveform playing function.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <operate> | Discrete | {RUN\|STOP} | STOP |

**Remarks**

N/A

**Return Format**

The query returns RUN or STOP.

**Example**

```
:RECord:WREPlay:OPERate RUN    /*Sets to play the waveforms.*/
:RECord:WREPlay:OPERate?      /*The query returns RUN.*/
```

## 3.19.21 :RECord:PLAY

**Syntax**

**:RECord:PLAY** <*bool*>

**:RECord:PLAY?**

**Description**

Enables or disables the waveform playing function; or queries the on/off status of the waveform playing function.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <bool> | Bool | {{1\|ON}\|{0\|OFF}} | 0\|OFF |

**Remarks**

This command exists for backwards compatibility. Use the command *:RECord:WREPlay:OPERate*.

**Return Format**

The query returns 1 or 0.

**Example**

```
:RECord:PLAY ON    /*Sets to play the waveforms.*/
:RECord:PLAY?      /*The query returns 1.*/
```

## 3.19.22 :RECord:WREPlay:BACK

**Syntax**

**:RECord:WREPlay:BACK**

**Description**

Plays back the previous frame of waveforms manually.

**Parameter**

N/A

**Remarks**

N/A

**Return Format**

N/A

**Example**

```
:RECord:WREPlay:BACK /*Plays back the previous frame of waveforms
manually.*/
```

## 3.19.23 :RECord:WREPlay:NEXT

**Syntax**

**:RECord:WREPlay:NEXT**

**Description**

Plays back the next frame of waveforms manually.

**Parameter**

N/A

**Remarks**

N/A

**Return Format**

N/A

**Example**

```
:RECord:WREPlay:NEXT /*Plays back the next frame of waveforms
manually.*/
```

## 3.19.24 :RECord:WREPlay:PLAY

**Syntax**

**:RECord:WREPlay:PLAY** <*val*>

**Description**

Sets to play from the start frame or end frame manually.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <val> | Discrete | {FFIRst\|FEND} | FFIRst |

**Remarks**

- **FFIRst:** starts from the start frame.
- **FEND:** starts from the end frame.

**Return Format**

N/A

**Example**

```
:RECord:WREPlay: PLAY FEND /*Sets to play from end frame manually.*/
```

# 3.20 :REFerence Commands

**:REFerence** commands are used to set the reference waveform parameters.

This series oscilloscope provides 10 reference waveform positions (Ref1-Ref10). In the actual test process, you can compare the signal waveform with the reference waveform to locate the failure.

## 3.20.1 :REFerence:SOURce

**Syntax**

**:REFerence:SOURce** <*ref*>,<*chan*>

**:REFerence:SOURce?** <*ref*>

**Description**

Sets or queries the source of the specified reference channel.

**Parameter**

| Name | Type | Range | Default |
|---|---|---|---|
| <ref> | Discrete | {1\|2\|3\|4\|5\|6\|7\|8\|9\|10} | - |
| <chan> | Discrete | {D0\|D1\|D2\|D3\|D4\|D5\|D6\|D7\|D8\|D9\|D10\|D11\|D12\|D13\|D14\|D15\|CHANnel1\|CHANnel2\|CHANnel3\|CHANnel4\|MATH1\|MATH2\|MATH3\|MATH4} | CHANnel1 |

**Remarks**

Only the currently enabled channel can be selected as the source of the specified reference channel.

D0-D15 are only available for the DHO900 series.