Miscellaneous Command Group

Miscellaneous Overview

Miscellaneous commands do not fit into other categories.

Several commands and queries are common to all 488.2–1987 devices on the GPIB bus. The 488.2–1987 standard defines these commands. The common commands begin with an asterisk (*) character.

Miscellaneous Commands

Command	Description
*DDT?	Returns the commands that are executed by the group execute trigger
*DDT	Sets the commands that will be executed by the group execute trigger
*IDN?	Returns the oscilloscope identification code
*LRN?	Returns a listing of oscilloscope settings
*TRG	Performs the group execute trigger (GET)
*TST?	Tests the GPIB interface and returns status
AUTOSet EXECute	Adjusts vertical, horizontal and trigger controls to provide a stable display of the selected waveform
AUXout?	Returns the auxiliary out setup
AUXout:EDGE?	Returns the polarity of the trigger output signal
AUXout:EDGe	Sets the polarity of the trigger output signal
AUXout:SOUrce?	Returns the trigger source at the BNC connection
AUXout:SOUrce	Sets the trigger source at the BNC connection
BELl	In previous TDS models, beeped the audio indicator. Provided for backward compatibility.
CMDBatch?	Returns the state of command batching
CMDBatch	Turns command batching on or off
DATe?	Returns the date that the oscilloscope can display
DATe	Sets the date that the oscilloscope can display
HDR?	Returns the Response Header Enable State
HDR	Sets the Response Header Enable State
HEADer?	Returns the Response Header Enable State
HEADer	Sets the Response Header Enable State
ID?	Returns identifying information about the instrument and its firmware
LOCK?	Query front panel lock state
LOCK	Sets the front panel lock state
NEWpass	Changes the password for user protected data
PASSWord	Provides access for changing user protected data
REM	Specifies a comment, which is ignored by the oscilloscope
SET?	Returns a listing of oscilloscope settings
TIMe?	Returns the time displayed by the oscilloscope
TIMe	Sets the time displayed by the oscilloscope
UNLock	Unlocks front panel
VERBose?	Returns verbose state
VERBose	Sets verbose state

*DDT

Description

This command allows you to specify a command or a list of commands that are executed when the oscilloscope receives a *TRG command or the GET GPIB interface message. Define Device Trigger (*DDT) is a special alias that the *TRG command uses.

Group

Miscellaneous

Related Commands

ALIas (see page 33), *TRG (see page 279)

Syntax 1

```
*DDT {<Block>|<Qstring>}
```

Syntax 2

```
*DDT?
```

Arguments

- `<Block>`

  This is a complete sequence of program messages. The messages can contain only valid commands that must be separated by semicolons and must follow all rules for concatenating commands. The sequence must be less than or equal to 80 characters. The format of this argument is always returned as a query.

- `<QString>`

  This is a complete sequence of program messages. The messages can contain only valid commands that must be separated by semicolons and must follow all rules for concatenating commands. The sequence must be less than or equal to 80 characters.

Example

```
*DDT #OACQUIRE:STATE RUN
```

This command specifies that the acquisition system will be started each time a *TRG command is sent.

*IDN?

Description

This query-only command returns the oscilloscope identification code.

Group

Miscellaneous

Related Commands

ID? (see page 290)

Syntax

```
IDN?
```

Example

```
*IDN?
```

This query might return `:TEKTRONIX,TDS7104,0,CF:91.1CT FV:01.00.912`, indicating the oscilloscope model number, configured number, and firmware version number.

*LRN?

Description

This query-only command returns the commands that list the oscilloscope settings (except for configuration information for the calibration values), allowing you to record or "learn" the current oscilloscope settings. You can use these commands to return the oscilloscope to the state it was in when you made the *LRN? query.

Group

Miscellaneous

Related Commands

SET?

Syntax

```
*LRN?
```

Example

```
*LRN?
```

This query might return the following response:

```
:ACQUIRE:STOPAFTER RUNSTOP;STATE 1;MODE SAMPLE;NUMENV
10;NUMAVG 16;REPET 1;:FASTACQ:STATE 1;:APPLICATION
:GPKNOB1:ACTIVE 0;:APPLICATION:GPKNOB2:ACTIVE 0;
:APPLICATION:WINDOW:HEIGHT 0;WIDTH 0;:APPLICATION
:SCOPEAPP:STATE NOTRUNNING;WINDOW FULLSCREEN;
:APPLICATION:EXTAPP:STATE NOTRUNNING;:AUXOUT:SOURCE
ATRIGGER;EDGE FALLING;:CMDBATCH 1;:HEADER 0;:LOCK
NONE;:VERBOSE 1;:ALIAS:STATE 0;:DISPLAY:CLOCK 1
;COLOR:PALETTE NORMAL;MATHCOLOR DEFAULT;REFCOLOR
DEFAULT;:DISPLAY:FILTER SINX;FORMAT YT;GRATICULE
FULL;INTENSITY:WAVEFORM 60.0000;AUTOBRIGHT 1
;SCREENSAVER 1;SCREENSAVERDELAY 28800;:DISPLAY
:PERSISTENCE OFF;STYLE VECTORS;TRIGBAR SHORT;TRIGT 1
;VARPERSIST 500.0000E-3;:HARDCOPY:FILENAME "";FORMAT
BMP;LAYOUT PORTRAIT;PALETTE HARDCOPY;PORT FILE;
:HORIZONTAL:DELAY:MODE 1;POSITION 50.0000;TIME
0.0000;:HORIZONTAL:MAIN:SCALE 200.0000E-9;POSITION
50.0000;:HORIZONTAL:RECORDLENGTH 2500;ROLL AUTO
;FASTFRAME:STATE 0;LENGTH 2500;COUNT 2;SELECTED:CH1 2
;CH2 2;CH3 2;CH4 2;MATH1 2;MATH2 2;MATH3 2;MATH4 2
;REF1 2;REF2 2;REF3 2;REF4 2;:HORIZONTAL:FASTFRAME
:REF:SOURCE CH1;FRAME 1;:HORIZONTAL:FASTFRAME:TRACK
LIVE;:DIAG:LEVEL SUBSYS;:TRIGGER:A:MODE AUTO;TYPE
EDGE;LEVEL 0.0000;HOLDOFF:BY DEFAULT;TIME 250.0000E-9;
:TRIGGER:A:EDGE:SOURCE CH1;COUPLING DC;SLOPE RISE;
:TRIGGER:A:LOGIC:CLASS PATTERN;FUNCTION AND;WHEN TRUE
;THRESHOLD:CH1 1.4000;CH2 1.4000;CH3 1.4000;CH4 1.4000;
:TRIGGER:A:LOGIC:INPUT:CH1 HIGH;CH2 X;CH3 X;:TRIGGER:A
:LOGIC:PATTERN:INPUT:CH4 X;:TRIGGER:A:LOGIC:PATTERN
:WHEN TRUE;WHEN:LESSLIMIT 5.0000E-9;MORELIMIT 5.0000E-9;
:TRIGGER:A:LOGIC:SETHOLD:CLOCK:EDGE RISE;THRESHOLD 1.4000
;SOURCE CH2;:TRIGGER:A:LOGIC:SETHOLD:DATA:THRESHOLD
1.4000;SOURCE CH1;:TRIGGER:A:LOGIC:SETHOLD:HOLDTIME
2.0000E-9;SETTIME 3.0000E-9;:TRIGGER:A:LOGIC:STATE:INPUT
:CH4 RISE;:TRIGGER:A:LOGIC:STATE:WHEN TRUE;:TRIGGER:A
:PULSE:CLASS GLITCH;SOURCE CH1;GLITCH:WIDTH 2.0000E-9
;TRIGIF ACCEPT;POLARITY POSITIVE;:TRIGGER:A:PULSE:RUNT
:POLARITY POSITIVE;THRESHOLD:HIGH 1.2000;LOW 800.0000E-3;
:TRIGGER:A:PULSE:RUNT:WHEN OCCURS;WIDTH 2.0000E-9;
:TRIGGER:A:PULSE:TRANSITION:DELTATIME 2.0000E-9;POLARITY
 POSITIVE;THRESHOLD:HIGH 1.2000;LOW 800.0000E-3;:TRIGGER
:A:PULSE:TRANSITION:WHEN SLOWERTHAN;:TRIGGER:A:PULSE
:WIDTH:LOWLIMIT 2.0000E-9;HIGHLIMIT 2.0000E-9;WHEN WITHIN
;POLARITYPOSITIVE;:TRIGGER:A:PULSE:TIMEOUT:POLARITY
STAYSHIGH;TIME 2.0000E-9;:TRIGGER:B:STATE 0;TYPE EDGE
;LEVEL 0.0000;BY EVENTS;EDGE:SOURCE CH1;SLOPE RISE
;COUPLING DC;:TRIGGER:B:TIME 16.0000E-9;EVENTS:COUNT 2;
:MATH1:DEFINE " ";NUMAVG 2;SCALE 1.0000;POSITION 0.0000
;LABEL:NAME "";XPOS 5;YPOS 65;:MATH1:SPECTRAL:MAG DB
```

;PHASE DEGREES;GATEPOS -800.0000E-12;GATEWIDTH 1.9992E-6
;REFLEVEL 20.0000;REFLEVELOFFSET 223.6000E-3;SPAN
600.0000E+6;CENTER 325.0000E+6;RESBW 1.0004E+6;WINDOW
GAUSSIAN;SUPPRESS -35000.0000E-3;UNWRAP 0;LOCK 0;
:MATH2:DEFINE " ";NUMAVG 2;SCALE 1.0000;POSITION 0.0000
;LABEL:NAME "";XPOS 5;YPOS 80;:MATH2:SPECTRAL:MAG DB
;PHASE DEGREES;GATEPOS -800.0000E-12;GATEWIDTH 1.9992E-6
;REFLEVEL 20.0000;REFLEVELOFFSET 223.6000E-3;SPAN
600.0000E+6;CENTER 325.0000E+6;RESBW 1.0004E+6;WINDOW
GAUSSIAN;SUPPRESS -35000.0000E-3;UNWRAP 0;LOCK 0;
:MATH3:DEFINE " ";NUMAVG 2;SCALE 1.0000;POSITION 0.0000
;LABEL:NAME "";XPOS 5;YPOS 95;:MATH3:SPECTRAL:MAG DB
;PHASE DEGREES;GATEPOS -800.0000E-12;GATEWIDTH 1.9992E-6
;REFLEVEL 20.0000;REFLEVELOFFSET 223.6000E-3;SPAN
600.0000E+6;CENTER 325.0000E+6;RESBW 1.0004E+6;WINDOW
GAUSSIAN;SUPPRESS -35000.0000E-3;UNWRAP 0;LOCK 0;
:MATH4:DEFINE " ";NUMAVG 2;SCALE 1.0000;POSITION 0.0000
;LABEL:NAME "";XPOS 5;YPOS 110;:MATH4:SPECTRAL:MAG DB
;PHASE DEGREES;GATEPOS -800.0000E-12;GATEWIDTH 1.9992E-6
;REFLEVEL 20.0000;REFLEVELOFFSET 223.6000E-3
;SPAN 600.0000E+6;CENTER 325.0000E+6;RESBW 1.0004E+6
;WINDOW GAUSSIAN;SUPPRESS -35000.0000E-3;UNWRAP 0;LOCK 0
;:HISTOGRAM:BOXPCNT 30.0000,25.1000,70.0000,75.2000
;DISPLAY LINEAR;STATE 0;FUNCTION HORIZONTAL;SIZE 2.0000
;SOURCE CH1;:CH1:BANDWIDTH 1.0000E+9;COUPLING DC;DESKEW
0.0000;OFFSET 0.0000;POSITION 0.0000;SCALE 100.0000E-3
;TERMINATION 1.0000E+6;PROBEFUNC:EXTATTEN 1.0000
;EXTUNITS "None";:CH1:LABEL:NAME "";XPOS 5;YPOS 5;
:CH2:BANDWIDTH 1.0000E+9;COUPLING DC;DESKEW 0.0000
;OFFSET 0.0000;POSITION 0.0000;SCALE 100.0000E-3
;TERMINATION 1.0000E+6;PROBEFUNC:EXTATTEN 1.0000
;EXTUNITS "None";:CH2:LABEL:NAME "";XPOS 5;YPOS 20;
:CH3:BANDWIDTH 1.0000E+9;COUPLING DC;DESKEW 0.0000
;OFFSET 0.0000;POSITION 0.0000;SCALE 100.0000E-3
;TERMINATION 1.0000E+6;PROBEFUNC:EXTATTEN 1.0000
;EXTUNITS "None";:CH3:LABEL:NAME "";XPOS 5;YPOS 35;
:CH4:BANDWIDTH 1.0000E+9;COUPLING DC;DESKEW 0.0000
;OFFSET 0.0000;POSITION 0.0000;SCALE 100.0000E-3
;TERMINATION 1.0000E+6;PROBEFUNC:EXTATTEN 1.0000
;EXTUNITS "None";:CH4:LABEL:NAME "";XPOS 5;YPOS 50;
:SELECT:CH1 1;CH2 0;CH3 0;CH4 0;MATH1 0;MATH2 0
;MATH3 0;MATH4 0;REF1 0;REF2 0;REF3 0;REF4 0;CONTROL
CH1;:CURSOR:STATE OFF;FUNCTION VBARS;MODE INDEPENDENT
;SOURCE CH1;VBARS:UNITS SECONDS;POSITION1 -800.0000E-9
;POSITION2 800.0000E-9;:CURSOR:HBARS:POSITION1
300.0000E-3;POSITION2 -300.0000E-3;:CURSOR:PAIRED
:POSITION1 -800.0000E-9;POSITION2 800.0000E-9;:CURSOR
:SPLIT:POSITION1 -800.0000E-9;POSITION2 800.0000E-9
;SOURCE2 CH1;UNITS BASE;MEASUREMENT:GATING OFF;METHOD
HISTOGRAM;IMMED:TYPE UNDEFINED;SOURCE1 CH1;SOURCE2 CH1
;DELAY:EDGE1 RISE;EDGE2 RISE;DIRECTION FORWARDS;
:MEASUREMENT:MEAS1:STATE 0;TYPE UNDEFINED;SOURCE1 CH1
;SOURCE2 CH1;DELAY:EDGE1 RISE;EDGE2 RISE;DIRECTION
FORWARDS;:MEASUREMENT:MEAS2:STATE 0;TYPE UNDEFINED
;SOURCE1 CH1;SOURCE2 CH1;DELAY:EDGE1 RISE;EDGE2 RISE
;DIRECTION FORWARDS;:MEASUREMENT:MEAS3:STATE 0
;TYPE UNDEFINED;SOURCE1 CH1;SOURCE2 CH1;DELAY:EDGE1
RISE;EDGE2 RISE;DIRECTION FORWARDS;:MEASUREMENT:MEAS4
:STATE 0;TYPE UNDEFINED;SOURCE1 CH1;SOURCE2 CH1
;DELAY:EDGE1 RISE;EDGE2 RISE;DIRECTION FORWARDS;
:MEASUREMENT:MEAS5:STATE 0;TYPE UNDEFINED;SOURCE1 CH1
;SOURCE2 CH1;DELAY:EDGE1 RISE;EDGE2 RISE;DIRECTION
FORWARDS;:MEASUREMENT:MEAS6:STATE 0;TYPE UNDEFINED
;SOURCE1 CH1;SOURCE2 CH1;DELAY:EDGE1 RISE;EDGE2 RISE
;DIRECTION FORWARDS;:MEASUREMENT:MEAS7:STATE 0;TYPE
UNDEFINED;SOURCE1 CH1;SOURCE2 CH1;DELAY:EDGE1 RISE
;EDGE2 RISE;DIRECTION FORWARDS;:MEASUREMENT:MEAS8
:STATE 0;TYPE UNDEFINED;SOURCE1 CH1;SOURCE2 CH1;DELAY
:EDGE1 RISE;EDGE2 RISE;DIRECTION FORWARDS;:MEASUREMENT
:REFLEVEL:METHOD PERCENT;ABSOLUTE:HIGH 0.0000;LOW 0.0000
;MID1 0.0000;MID2 0.0000;:MEASUREMENT:REFLEVEL:PERCENT

```
:HIGH 90.0000;LOW 10.0000;MID1 50.0000;MID2 50.0000;
:MEASUREMENT:STATISTICS:MODE OFF;WEIGHTING 32;:ZOOM
:MODE 0;GRATICULE:SIZE 50;:ZOOM:HORIZONTAL:LOCK ALL;
:ZOOM:CH1:HORIZONTAL:POSITION 50.0000;SCALE 2;:ZOOM
:CH1:VERTICAL:POSITION 0.0000;SCALE 1.0000;:ZOOM:CH2
:HORIZONTAL:POSITION 50.0000;SCALE 2;:ZOOM:CH2:VERTICAL
:POSITION 0.0000;SCALE 1.0000;:ZOOM:CH3:HORIZONTAL
:POSITION 50.0000;SCALE 2;:ZOOM:CH3:VERTICAL:POSITION
0.0000;SCALE 1.0000;:ZOOM:CH4:HORIZONTAL:POSITION
50.0000;SCALE 2;:ZOOM:CH4:VERTICAL:POSITION 0.0000
;SCALE 1.0000;:ZOOM:MATH1:HORIZONTAL:POSITION 50.0000
;SCALE 2;:ZOOM:MATH1:VERTICAL:POSITION 0.0000;SCALE
1.0000;:ZOOM:MATH2:HORIZONTAL:POSITION 50.0000;SCALE 2;
:ZOOM:MATH2:VERTICAL:POSITION 0.0000;SCALE 1.0000;
:ZOOM:MATH3:HORIZONTAL:POSITION 50.0000;SCALE 2;:ZOOM
:MATH3:VERTICAL:POSITION 0.0000;SCALE 1.0000;:ZOOM
:MATH4:HORIZONTAL:POSITION 50.0000;SCALE 2;:ZOOM:MATH4
:VERTICAL:POSITION 0.0000;SCALE 1.0000;:ZOOM:REF1
:HORIZONTAL:POSITION 50.0000;SCALE 2;:ZOOM:REF1:VERTICAL
:POSITION 0.0000;SCALE 1.0000;:ZOOM:REF2:HORIZONTAL
:POSITION 50.0000;SCALE 2;:ZOOM:REF2:VERTICAL:POSITION
0.0000;SCALE 1.0000;:ZOOM:REF3:HORIZONTAL:POSITION
50.0000;SCALE 2;:ZOOM:REF3:VERTICAL:POSITION 0.0000
;SCALE 1.0000;:ZOOM:REF4:HORIZONTAL:POSITION 50.0000
;SCALE 2;:ZOOM:REF4:VERTICAL:POSITION 0.0000;SCALE
1.0000;:REF1:LABEL:NAME "";XPOS 5;YPOS 125;:REF1:SCALE
1.0000;POSITION 0.0000;:REF2:LABEL:NAME "";XPOS 5;YPOS
140;:REF2:SCALE 1.0000;POSITION 0.0000;:REF3:LABEL:NAME
"";XPOS 5;YPOS 155;:REF3:SCALE 1.0000;POSITION 0.0000;
:REF4:LABEL:NAME "";XPOS 5;YPOS 170;:REF4:SCALE 1.0000
;POSITION 0.0000;:DATA:DESTINATION REF1;ENCDG RIBINARY
;SOURCE CH1;START 1;STOP 500;WIDTH 8
```

*TRG

Description

This command (no query form) performs the group execute trigger on commands defined by *DDT.

Group

Miscellaneous

Related Commands

*DDT (see page 274)

Syntax

```
*TRG
```

Example

```
*TRG
```

This command immediately executes all commands that have been defined by *DDT.

*TST?

Description

This query-only command tests (self-test) the GPIB interface and returns a 0.

Group

Miscellaneous

Syntax

```
*TST?
```

Example

```
*TST?
```

This query always returns `0`.

AUTOSet EXECute

Description

This command causes the digitizing oscilloscope to adjust its vertical, horizontal, and trigger controls to provide a stable display of the selected waveform. This is equivalent to pressing the front-panel **AUTOSET** button. For a detailed description of autoset functionality, see *Autoset* in the index of your oscilloscope online help.

Group

Miscellaneous

Syntax

```
AUTOSet EXECute
```

Argument

- `EXECute`

  This autosets the displayed waveform.

Example

```
AUTOSet EXECute
```

This command adjusts the vertical, horizontal, and trigger controls to provide a stable display of the selected waveform.

AUXout?

Description

This query-only command returns the auxiliary out setup. This query command is equivalent to selecting AUX OUT Configuration from the Utilities menu and then viewing the current settings.

Group

Miscellaneous

Related Commands

AUXout:EDGe (see page 283), AUXout:SOUrce (see page 284)

Syntax

```
AUXout?
```

Example

```
AUXout?
```

This query might return `:AUXOUT:SOURCE ATRIGGER;EDGE RISING`, indicating that the source at the BNC connector is set to the A trigger and that the polarity is set to the rising edge of the trigger output signal.

AUXout:EDGE

Description

This command sets or queries the direction in which the trigger output signal transitions when a trigger occurs. This command is equivalent to selecting AUX OUT Configuration from the Utilities menu and then clicking the desired Polarity setting.

Group

Miscellaneous

Related Commands

AUXout? (see page 282), AUXout:SOUrce (see page 284)

Syntax 1

```
AUXout:EDGE {RISing|FALling}
```

Syntax 2

```
AUXout:EDGE?
```

Arguments

- `RISing`

  This sets the polarity to the rising edge of the trigger output signal.

- `FALling`

  This sets the polarity to the falling edge of the trigger output signal.

Example 1

```
AUXout:EDGE RISing
```

This command sets the polarity to the rising edge of the trigger output signal.

Example 2

```
AUXout:EDGE?
```

This query might return `:AUXOUT:EDGE RISING`, indicating that the polarity is set to the rising edge of the trigger output signal.

AUXout:SOUrce

Description

This command sets or queries the trigger source at the BNC connection. This command is equivalent to selecting AUX OUT Configuration from the Utilities menu and then selecting the desired Configuration setting.

Group

Miscellaneous

Related Commands

AUXout? (see page 282), AUXout:EDGe (see page 283)

Syntax 1

```
AUXout:SOUrce {ATRIGger|BTRIGger}
```

Syntax 2

```
AUXout:SOUrce?
```

Arguments

- `ATRIGger`

  This sets the source at the BNC connector to the main trigger.

- `BTRIGger`

  This sets the source at the BNC connector to the delayed trigger.

Example

```
AUXout:SOUrce?
```

This query might return `:AUXOUT:SOURCE ATRIGGER`, indicating that the source at the BNC connector is set to the A trigger.

BELI

Description

This command was previously used to beep an audio indicator and is provided for backward compatibility.

Group

Miscellaneous

Syntax

```
BEL1
```

Example

```
BEL1
```

This command is accepted but does nothing.

CMDBatch

Description

This command sets or queries the state of command batching. By batching commands, database transactions can be optimized, increasing command throughput. Also, batching allows for ALL commands in an individual batch to be order independent and accomplish the same result as if the commands were coupled.

The Batch state is persistent and will be saved across power cycles, but will not be saved and recalled as part of a setup. In a setup scenario, the factory initial value is enabled.

Group

Miscellaneous

Syntax 1

```
CMDBatch {OFF|ON|<NR1>}
```

Syntax 2

```
CMDBatch?
```

Arguments

- `OFF`

  This turns command batching off.

- `ON`

  This turns command batching on.

- `<NR1>`

  A 0 turns command batching off; any other value turns command batching on.

Example 1

```
CMDBatch OFF
```

This command disables command batching.

Example 2

```
CMDBatch?
```

This query might return `:CMDBATCH 1`, indicating that command batching is turned on.

DATe

Description

This command sets or queries the date that the oscilloscope can display. This command is equivalent to selecting Set Date & Time from the Utilities menu and then setting the fields in the Date group box.

Group

Miscellaneous

Related Commands

TIMe (see page 298)

Syntax 1

```
DATe <Qstring>
```

Syntax 2

```
DATe?
```

Argument

- `<QString>`

  This is a date in the form "yyyy-mm-dd" where yyyy refers to a four-digit year number, mm refers to a two-digit month number from 01 to 12, and dd refers to a two-digit day number in the month.

Example 1

```
DATE "2000-01-24"
```

This command specifies that the date is set to January 24, 2000.

Example 2

```
DATE?
```

This query might return `:DATE 2000-01-24`, indicating the current date is set to January 24, 2000.

HDR

Description

This command is identical to the HEADer query and is included for backward compatibility purposes.

Group

Miscellaneous

Related Commands

HEADer (see page 289), VERBose (see page 300)

Syntax 1

```
HDR {OFF|ON|<NR1>}
```

Syntax 2

```
HDR?
```

Arguments

- `OFF`

  This sets the Response Header Enable State to false. This causes the oscilloscope to omit headers on query responses, so that only the argument is returned.

- `ON`

  This sets the Response Header Enable State to true. This causes the oscilloscope to include headers on applicable query responses. You can then use the query response as a command.

- `<NR1>`

  A 0 sets the Response Header Enable State to false; any other value sets this state to true, which causes the oscilloscope to omit headers on query responses.

Example 1

```
HDR OFF
```

This command specifies that the oscilloscope omits headers on query responses, so that only the argument is returned.

Example 2

```
HDR?
```

This query might return `:HEADER 1`, indicating that the oscilloscope is including headers on applicable query responses.

HEADer

Description

This command sets or queries the Response Header Enable State that causes the oscilloscope to either include or omit headers on query responses.

Note: This command does not affect IEEE Std 488.2-1987 Common Commands (those starting with an asterisk); they never return headers.

Group

Miscellaneous

Related Commands

HDR (see page 288), VERBose (see page 300)

Syntax 1

```
HEADer {OFF|ON|<NR1>}
```

Syntax 2

```
HEADer?
```

Arguments

- `OFF`

  This sets the Response Header Enable State to false. This causes the oscilloscope to omit headers on query responses, so that only the argument is returned.

- `ON`

  This sets the Response Header Enable State to true. This causes the oscilloscope to include headers on applicable query responses. You can then use the query response as a command.

- `<NR1>`

  A 0 sets the Response Header Enable State to false; any other value sets this state to true, which causes the oscilloscope to omit headers on query responses.

Example 1

```
HEADer OFF
```

This command specifies that the oscilloscope omits headers on query responses, so that only the argument is returned.

Example 2

```
HEADer?
```

This query might return `:HEADER 1`, indicating that the oscilloscope is including headers on applicable query responses.

ID?

Description

This query-only command returns identifying information about the oscilloscope and related firmware.

Group

Miscellaneous

Related Commands

IDN? (see page 275)

Syntax

```
ID?
```

Example

```
ID?
```

This query might return `:TEK/TDS7104,CF:91.1CT,FV:01.00.912`, indicating the oscilloscope model number, configured format, and firmware version number.

LOCk

Description

This command enables or disables all front panel buttons and knobs, including the touch screen. There is no front panel equivalent.

Group

Miscellaneous

Related Commands

UNLock (see page 299)

Syntax 1

```
LOCk {ALL|NONe}
```

Syntax 2

```
LOCk?
```

Arguments

- `ALL`

  This disables all front panel controls.

- `NONe`

  This enables all front panel controls. This is equivalent to the UNLock ALL command.

  Note: If the oscilloscope is in the Remote With Lockout State (RWLS), the LOCk NONe command has no effect. For more information, see the ANSI/IEEE Std 488.1-1987 Standard Digital Interface for Programmable Instrumentation, section 2.8.3 on RL State Descriptions.

Example 1

```
LOCk ALL
```

This command locks the front panel controls.

Example 2

```
LOCk?
```

This query might return `:LOCK NONE`, indicating that the front panel controls are enabled by this command.

NEWpass

Description

This command (no query form) changes the password that enables access to password protected data. The PASSWord command must be successfully executed before using this command or an execution error will be generated.

Group

Miscellaneous

Related Commands

PASSWord (see page 293), *PUD (see page 324)

Syntax

```
NEWpass <QString>
```

Argument

- `<Qstring>`

  This is the new password, which can contain up to 10 characters.

Example

```
NEWpass "mypassword"
```

This command creates a new password for accessing your protected data.

PASSWord

Description

This command (no query form) enables the *PUD and NEWpass set commands. Sending PASSWord without any arguments disables these same commands. Once the password is successfully entered, the *PUD and NEWpass commands are enabled until the oscilloscope is powered off, or until the FACtory command, the PASSWord command with no arguments, or the *RST command is issued.

To change the password, you must first enter the valid password with the PASSWord command and then change to your new password with the NEWpass command. Remember that the password is case sensitive.

Group

Miscellaneous

Related Commands

NEWpass (see page 292), *PUD (see page 324)

Syntax

```
PASSWord <QString>
```

Argument

- `<QString>`

  This is the password, which can contain up to 10 characters. The factory default password is "XYZZY" and is always valid.

Example 1

```
PASSWord "XYZZY"
```

This command enables the *PUD and NEWPass set commands.

Example 2

```
PASSWord
```

This command disables the *PUD and NEWPass set commands. You can still use the query version of *PUD.

REM

Description

This command (no query form) embeds a comment within GPIB programs as a means of internally documenting the programs. The oscilloscope ignores these embedded comment lines.

Group

Miscellaneous

Related Commands

NEWpass (see page 292), *PUD (see page 324)

Syntax

```
REM <QString>
```

Argument

- `<QString>`

  This is a string that can contain a maximum of 80 characters.

Example

```
REM "This is a comment"
```

The oscilloscope ignores this comment string.

SET?

Description

This query-only command returns the commands that list the oscilloscope settings, except for configuration information for the calibration values. You can use these commands to return the oscilloscope to the state it was in when you made the SET? query. This command is identical to the *LRN? command.

Group

Miscellaneous

Related Commands

HEADer (see page 289), *LRN? (see page 276), VERBose (see page 300)

Syntax

```
SET?
```

Note: The SET? query always returns command headers, regardless of the setting of the HEADer command. This is because the returned commands are intended to be sent back to the oscilloscope as a command string. The VERBose command can still be used to specify whether the returned headers should be abbreviated or full-length.

Example

```
SET?
```

This query might return the following response:

```
:ACQUIRE:STOPAFTER RUNSTOP;STATE 1;MODE SAMPLE;NUMENV
10;NUMAVG 16;REPET 1;:FASTACQ:STATE 1;:APPLICATION
:GPKNOB1:ACTIVE 0;:APPLICATION:GPKNOB2:ACTIVE 0;
:APPLICATION:WINDOW:HEIGHT 0;WIDTH 0;:APPLICATION
:SCOPEAPP:STATE NOTRUNNING;WINDOW FULLSCREEN;
:APPLICATION:EXTAPP:STATE NOTRUNNING;:AUXOUT:SOURCE
ATRIGGER;EDGE FALLING;:CMDBATCH 1;:HEADER 0;:LOCK
NONE;:VERBOSE 1;:ALIAS:STATE 0;:DISPLAY:CLOCK 1
;COLOR:PALETTE NORMAL;MATHCOLOR DEFAULT;REFCOLOR
DEFAULT;:DISPLAY:FILTER SINX;FORMAT YT;GRATICULE
FULL;INTENSITY:WAVEFORM 60.0000;AUTOBRIGHT 1
;SCREENSAVER 1;SCREENSAVERDELAY 28800;:DISPLAY
:PERSISTENCE OFF;STYLE VECTORS;TRIGBAR SHORT;TRIGT 1
;VARPERSIST 500.0000E-3;:HARDCOPY:FILENAME "";FORMAT
BMP;LAYOUT PORTRAIT;PALETTE HARDCOPY;PORT FILE;
:HORIZONTAL:DELAY:MODE 1;POSITION 50.0000;TIME
0.0000;:HORIZONTAL:MAIN:SCALE 200.0000E-9;POSITION
50.0000;:HORIZONTAL:RECORDLENGTH 2500;ROLL AUTO
;FASTFRAME:STATE 0;LENGTH 2500;COUNT 2;SELECTED:CH1 2
;CH2 2;CH3 2;CH4 2;MATH1 2;MATH2 2;MATH3 2;MATH4 2
;REF1 2;REF2 2;REF3 2;REF4 2;:HORIZONTAL:FASTFRAME
:REF:SOURCE CH1;FRAME 1;:HORIZONTAL:FASTFRAME:TRACK
LIVE;:DIAG:LEVEL SUBSYS;:TRIGGER:A:MODE AUTO;TYPE
EDGE;LEVEL 0.0000;HOLDOFF:BY DEFAULT;TIME 250.0000E-9;
:TRIGGER:A:EDGE:SOURCE CH1;COUPLING DC;SLOPE RISE;
:TRIGGER:A:LOGIC:CLASS PATTERN;FUNCTION AND;WHEN TRUE
;THRESHOLD:CH1 1.4000;CH2 1.4000;CH3 1.4000;CH4 1.4000;
:TRIGGER:A:LOGIC:INPUT:CH1 HIGH;CH2 X;CH3 X;:TRIGGER:A
:LOGIC:PATTERN:INPUT:CH4 X;:TRIGGER:A:LOGIC:PATTERN
:WHEN TRUE;WHEN:LESSLIMIT 5.0000E-9;MORELIMIT 5.0000E-9;
:TRIGGER:A:LOGIC:SETHOLD:CLOCK:EDGE RISE;THRESHOLD 1.4000
;SOURCE CH2;:TRIGGER:A:LOGIC:SETHOLD:DATA:THRESHOLD
1.4000;SOURCE CH1;:TRIGGER:A:LOGIC:SETHOLD:HOLDTIME
2.0000E-9;SETTIME 3.0000E-9;:TRIGGER:A:LOGIC:STATE:INPUT
:CH4 RISE;:TRIGGER:A:LOGIC:STATE:WHEN TRUE;:TRIGGER:A
:PULSE:CLASS GLITCH;SOURCE CH1;GLITCH:WIDTH 2.0000E-9
;TRIGIF ACCEPT;POLARITY POSITIVE;:TRIGGER:A:PULSE:RUNT
:POLARITY POSITIVE;THRESHOLD:HIGH 1.2000;LOW 800.0000E-3;
:TRIGGER:A:PULSE:RUNT:WHEN OCCURS;WIDTH 2.0000E-9;
:TRIGGER:A:PULSE:TRANSITION:DELTATIME 2.0000E-9;POLARITY
 POSITIVE;THRESHOLD:HIGH 1.2000;LOW 800.0000E-3;:TRIGGER
:A:PULSE:TRANSITION:WHEN SLOWERTHAN;:TRIGGER:A:PULSE
:WIDTH:LOWLIMIT 2.0000E-9;HIGHLIMIT 2.0000E-9;WHEN WITHIN
;POLARITYPOSITIVE;:TRIGGER:A:PULSE:TIMEOUT:POLARITY
```

```
STAYSHIGH;TIME 2.0000E-9;:TRIGGER:B:STATE 0;TYPE EDGE
;LEVEL 0.0000;BY EVENTS;EDGE:SOURCE CH1;SLOPE RISE
;COUPLING DC;:TRIGGER:B:TIME 16.0000E-9;EVENTS:COUNT 2;
:MATH1:DEFINE " ";NUMAVG 2;SCALE 1.0000;POSITION 0.0000
;LABEL:NAME "";XPOS 5;YPOS 65;:MATH1:SPECTRAL:MAG DB
;PHASE DEGREES;GATEPOS -800.0000E-12;GATEWIDTH 1.9992E-6
;REFLEVEL 20.0000;REFLEVELOFFSET 223.6000E-3;SPAN
600.0000E+6;CENTER 325.0000E+6;RESBW 1.0004E+6;WINDOW
GAUSSIAN;SUPPRESS -35000.0000E-3;UNWRAP 0;LOCK 0;
:MATH2:DEFINE " ";NUMAVG 2;SCALE 1.0000;POSITION 0.0000
;LABEL:NAME "";XPOS 5;YPOS 80;:MATH2:SPECTRAL:MAG DB
;PHASE DEGREES;GATEPOS -800.0000E-12;GATEWIDTH 1.9992E-6
;REFLEVEL 20.0000;REFLEVELOFFSET 223.6000E-3;SPAN
600.0000E+6;CENTER 325.0000E+6;RESBW 1.0004E+6;WINDOW
GAUSSIAN;SUPPRESS -35000.0000E-3;UNWRAP 0;LOCK 0;
:MATH3:DEFINE " ";NUMAVG 2;SCALE 1.0000;POSITION 0.0000
;LABEL:NAME "";XPOS 5;YPOS 95;:MATH3:SPECTRAL:MAG DB
;PHASE DEGREES;GATEPOS -800.0000E-12;GATEWIDTH 1.9992E-6
;REFLEVEL 20.0000;REFLEVELOFFSET 223.6000E-3;SPAN
600.0000E+6;CENTER 325.0000E+6;RESBW 1.0004E+6;WINDOW
GAUSSIAN;SUPPRESS -35000.0000E-3;UNWRAP 0;LOCK 0;
:MATH4:DEFINE " ";NUMAVG 2;SCALE 1.0000;POSITION 0.0000
;LABEL:NAME "";XPOS 5;YPOS 110;:MATH4:SPECTRAL:MAG DB
;PHASE DEGREES;GATEPOS -800.0000E-12;GATEWIDTH 1.9992E-6
;REFLEVEL 20.0000;REFLEVELOFFSET 223.6000E-3
;SPAN 600.0000E+6;CENTER 325.0000E+6;RESBW 1.0004E+6
;WINDOW GAUSSIAN;SUPPRESS -35000.0000E-3;UNWRAP 0;LOCK 0
;:HISTOGRAM:BOXPCNT 30.0000,25.1000,70.0000,75.2000
;DISPLAY LINEAR;STATE 0;FUNCTION HORIZONTAL;SIZE 2.0000
;SOURCE CH1;:CH1:BANDWIDTH 1.0000E+9;COUPLING DC;DESKEW
0.0000;OFFSET 0.0000;POSITION 0.0000;SCALE 100.0000E-3
;TERMINATION 1.0000E+6;PROBEFUNC:EXTATTEN 1.0000
;EXTUNITS "None";:CH1:LABEL:NAME "";XPOS 5;YPOS 5;
:CH2:BANDWIDTH 1.0000E+9;COUPLING DC;DESKEW 0.0000
;OFFSET 0.0000;POSITION 0.0000;SCALE 100.0000E-3
;TERMINATION 1.0000E+6;PROBEFUNC:EXTATTEN 1.0000
;EXTUNITS "None";:CH2:LABEL:NAME "";XPOS 5;YPOS 20;
:CH3:BANDWIDTH 1.0000E+9;COUPLING DC;DESKEW 0.0000
;OFFSET 0.0000;POSITION 0.0000;SCALE 100.0000E-3
;TERMINATION 1.0000E+6;PROBEFUNC:EXTATTEN 1.0000
;EXTUNITS "None";:CH3:LABEL:NAME "";XPOS 5;YPOS 35;
:CH4:BANDWIDTH 1.0000E+9;COUPLING DC;DESKEW 0.0000
;OFFSET 0.0000;POSITION 0.0000;SCALE 100.0000E-3
;TERMINATION 1.0000E+6;PROBEFUNC:EXTATTEN 1.0000
;EXTUNITS "None";:CH4:LABEL:NAME "";XPOS 5;YPOS 50;
:SELECT:CH1 1;CH2 0;CH3 0;CH4 0;MATH1 0;MATH2 0
;MATH3 0;MATH4 0;REF1 0;REF2 0;REF3 0;REF4 0;CONTROL
CH1;:CURSOR:STATE OFF;FUNCTION VBARS;MODE INDEPENDENT
;SOURCE CH1;VBARS:UNITS SECONDS;POSITION1 -800.0000E-9
;POSITION2 800.0000E-9;:CURSOR:HBARS:POSITION1
300.0000E-3;POSITION2 -300.0000E-3;:CURSOR:PAIRED
:POSITION1 -800.0000E-9;POSITION2 800.0000E-9;:CURSOR
:SPLIT:POSITION1 -800.0000E-9;POSITION2 800.0000E-9
;SOURCE2 CH1;UNITS BASE;MEASUREMENT:GATING OFF;METHOD
HISTOGRAM;IMMED:TYPE UNDEFINED;SOURCE1 CH1;SOURCE2 CH1
;DELAY:EDGE1 RISE;EDGE2 RISE;DIRECTION FORWARDS;
:MEASUREMENT:MEAS1:STATE 0;TYPE UNDEFINED;SOURCE1 CH1
;SOURCE2 CH1;DELAY:EDGE1 RISE;EDGE2 RISE;DIRECTION
FORWARDS;:MEASUREMENT:MEAS2:STATE 0;TYPE UNDEFINED
;SOURCE1 CH1;SOURCE2 CH1;DELAY:EDGE1 RISE;EDGE2 RISE
;DIRECTION FORWARDS;:MEASUREMENT:MEAS3:STATE 0
;TYPE UNDEFINED;SOURCE1 CH1;SOURCE2 CH1;DELAY:EDGE1
RISE;EDGE2 RISE;DIRECTION FORWARDS;:MEASUREMENT:MEAS4
:STATE 0;TYPE UNDEFINED;SOURCE1 CH1;SOURCE2 CH1
;DELAY:EDGE1 RISE;EDGE2 RISE;DIRECTION FORWARDS;
:MEASUREMENT:MEAS5:STATE 0;TYPE UNDEFINED;SOURCE1 CH1
;SOURCE2 CH1;DELAY:EDGE1 RISE;EDGE2 RISE;DIRECTION
FORWARDS;:MEASUREMENT:MEAS6:STATE 0;TYPE UNDEFINED
;SOURCE1 CH1;SOURCE2 CH1;DELAY:EDGE1 RISE;EDGE2 RISE
;DIRECTION FORWARDS;:MEASUREMENT:MEAS7:STATE 0;TYPE
UNDEFINED;SOURCE1 CH1;SOURCE2 CH1;DELAY:EDGE1 RISE
```

```
;EDGE2 RISE;DIRECTION FORWARDS;:MEASUREMENT:MEAS8
:STATE 0;TYPE UNDEFINED;SOURCE1 CH1;SOURCE2 CH1;DELAY
:EDGE1 RISE;EDGE2 RISE;DIRECTION FORWARDS;:MEASUREMENT
:REFLEVEL:METHOD PERCENT;ABSOLUTE:HIGH 0.0000;LOW 0.0000
;MID1 0.0000;MID2 0.0000;:MEASUREMENT:REFLEVEL:PERCENT
:HIGH 90.0000;LOW 10.0000;MID1 50.0000;MID2 50.0000;
:MEASUREMENT:STATISTICS:MODE OFF;WEIGHTING 32;:ZOOM
:MODE 0;GRATICULE:SIZE 50;:ZOOM:HORIZONTAL:LOCK ALL;
:ZOOM:CH1:HORIZONTAL:POSITION 50.0000;SCALE 2;:ZOOM
:CH1:VERTICAL:POSITION 0.0000;SCALE 1.0000;:ZOOM:CH2
:HORIZONTAL:POSITION 50.0000;SCALE 2;:ZOOM:CH2:VERTICAL
:POSITION 0.0000;SCALE 1.0000;:ZOOM:CH3:HORIZONTAL
:POSITION 50.0000;SCALE 2;:ZOOM:CH3:VERTICAL:POSITION
0.0000;SCALE 1.0000;:ZOOM:CH4:HORIZONTAL:POSITION
50.0000;SCALE 2;:ZOOM:CH4:VERTICAL:POSITION 0.0000
;SCALE 1.0000;:ZOOM:MATH1:HORIZONTAL:POSITION 50.0000
;SCALE 2;:ZOOM:MATH1:VERTICAL:POSITION 0.0000;SCALE
1.0000;:ZOOM:MATH2:HORIZONTAL:POSITION 50.0000;SCALE 2;
:ZOOM:MATH2:VERTICAL:POSITION 0.0000;SCALE 1.0000;
:ZOOM:MATH3:HORIZONTAL:POSITION 50.0000;SCALE 2;:ZOOM
:MATH3:VERTICAL:POSITION 0.0000;SCALE 1.0000;:ZOOM
:MATH4:HORIZONTAL:POSITION 50.0000;SCALE 2;:ZOOM:MATH4
:VERTICAL:POSITION 0.0000;SCALE 1.0000;:ZOOM:REF1
:HORIZONTAL:POSITION 50.0000;SCALE 2;:ZOOM:REF1:VERTICAL
:POSITION 0.0000;SCALE 1.0000;:ZOOM:REF2:HORIZONTAL
:POSITION 50.0000;SCALE 2;:ZOOM:REF2:VERTICAL:POSITION
0.0000;SCALE 1.0000;:ZOOM:REF3:HORIZONTAL:POSITION
50.0000;SCALE 2;:ZOOM:REF3:VERTICAL:POSITION 0.0000
;SCALE 1.0000;:ZOOM:REF4:HORIZONTAL:POSITION 50.0000
;SCALE 2;:ZOOM:REF4:VERTICAL:POSITION 0.0000;SCALE
1.0000;:REF1:LABEL:NAME "";XPOS 5;YPOS 125;:REF1:SCALE
1.0000;POSITION 0.0000;:REF2:LABEL:NAME "";XPOS 5;YPOS
140;:REF2:SCALE 1.0000;POSITION 0.0000;:REF3:LABEL:NAME
"";XPOS 5;YPOS 155;:REF3:SCALE 1.0000;POSITION 0.0000;
:REF4:LABEL:NAME "";XPOS 5;YPOS 170;:REF4:SCALE 1.0000
;POSITION 0.0000;:DATA:DESTINATION REF1;ENCDG RIBINARY
;SOURCE CH1;START 1;STOP 500;WIDTH 8
```

TIMe

Description

This command sets or queries the time that the oscilloscope can display. This command is equivalent to selecting Set Time & Date from the Utilities menu and then setting the fields in the Time group box

Group

Miscellaneous

Related Commands

DATe (see page 287)

Syntax 1

```
TIMe <Qstring>
```

Syntax 2

```
TIMe?
```

Argument

- `<QString>`

  This is a time in the form "hh:mm:ss" where hh refers to a two-digit hour number, mm refers to a two-digit minute number from 01 to 60, and ss refers to a two-digit second number from 01 to 60.

Example 1

```
TIME "14:00:00"
```

This command specifies that the time is set to exactly 2:00 p.m..

Example 2

```
DATE?
```

This query might return `:TIME "14:05:17`, indicating the current time is set to 2:05 p.m..

UNLock

Description

This command (no query form) unlocks the front panel. The command is equivalent to LOCk NONe.

Note: If the oscilloscope is in the Remote With Lockout State (RWLS), the UNLock command has no effect. For more information, see the ANSI-IEEE Std 488.1-1987 Standard Digital Interface for Programmable Instrumentation, section 2.8.3 on RL State Descriptions.

Group

Miscellaneous

Related Commands

LOCk (see page 291)

Syntax

```
UNLock ALL
```

Argument

- `ALL`

  This specifies that all front-panel buttons and knobs are unlocked.

Example

```
UNLock ALL
```

This command unlocks all front-panel buttons and knobs.

VERBose

Description

This command sets and queries the Verbose state that controls the length of keywords on query responses. Keywords can be both headers and arguments. This command does not affect IEEE Std 488.2-1987 Common Commands (those starting with an asterisk).

Group

Miscellaneous

Related Commands

HEADer (see page 289), *LRN? (see page 276), SET? (see page 295)

Syntax

`VERBose {OFF|ON|<NR1>}`

Arguments

- `OFF`

  This sets the Verbose State to true, which returns full-length keywords for applicable setting queries.

- `ON`

  This sets the Verbose State to false, which returns minimum-length keywords for applicable setting queries.

- `<NR1>`

  A 0 returns minimum-length keywords for applicable setting queries; any other value returns full-length keywords.

Example 1

```
VERBose ON
```

This command enables the Verbose setting.

Example 2

```
VERBOSE?
```

This query might return `:VERBOSE 0`, indicating that the Verbose state is disabled.