Errata

Title & Document Type: 54600A/54601A Oscilloscope Programmer's Quick Reference

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HP References in this Manual

This manual may contain references to HP or Hewlett-Packard. Please note that Hewlett-Packard's former test and measurement, semiconductor products and chemical analysis businesses are now part of Agilent Technologies. We have made no changes to this manual copy. The HP XXXX referred to in this document is now the Agilent XXXX. For example, model number HP8648A is now model number Agilent 8648A.

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HP 54600A and
HP 54601A
Oscilloscopes

Programmer's
Quick Reference
## Error Messages

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Programmer's Quick Reference

Introduction

The following section lists the commands and queries with their corresponding arguments and returned formats. The arguments for each command list the minimum argument required. The part of the command or query listed in uppercase letters refers to the short form of that command or query. The long form is the combination of uppercase and lowercase letters.

Conventions

The following conventions are used in this section:

<> Angular brackets enclose words or characters that symbolize a program code parameter or an HP-IB command.

:= "is defined as." For example, <A> := <B> indicates that <A> can be replaced by <B> in any statement containing <A>.

| "or." Indicates a choice of one element from a list. For example, <A> | <B> indicates <A> or <B> but not both.

... An ellipsis (trailing dots) indicate that the preceding element may be repeated one or more times.

[] Square brackets indicate that the enclosed items are optional.

{} When several items are enclosed by braces, one, and only one of these elements may be selected.

Suffix Multipliers

The suffix multipliers available for arguments are:

\[ \begin{align*}
    \text{EX} & := 1\text{E18} & \text{M} & := 1\text{E-3} \\
    \text{PE} & := 1\text{E15} & \text{U} & := 1\text{E-6} \\
    \text{T} & := 1\text{E12} & \text{N} & := 1\text{E-9} \\
    \text{G} & := 1\text{E9} & \text{P} & := 1\text{E-12} \\
    \text{MA} & := 1\text{E6} & \text{F} & := 1\text{E-15} \\
    \text{K} & := 1\text{E3} & \text{A} & := 1\text{E-18}
\end{align*} \]

For more information on specific commands or queries, refer to the Programmer's Reference.
*CLS  (Clear Status)  command
   Command Syntax:  "CLS"

*ESE  (Event Status Enable)  command/query
   Command Syntax:  "ESE {0 to 255}"
   Query Syntax:  "ESE?"
   Returned Format:  {integer, 0 to 255}<NL>

*ESR  (Event Status Register)  query
   Query Syntax:  "ESR?"
   Returned Format:  {integer, 0 to 255}<NL>

*IDN  (Identification Number)  query
   Query Syntax:  "IDN?"
   Returned Format:  "HEWLETT-PACKARD, 54600A, 0, X,X<NL>"

*LRN  (Learn)  query
   Query Syntax:  "LRN?"
   Returned Format:  "SYSTEM SE:Tup #600000121<learn string><NL>"

*OPC  (Operation Complete)  command/query
   Command Syntax:  "OPC"
   Query Syntax:  "OPC?"
   Returned Format:  !<NL>

*OPT  (Option)  query
   Query Syntax:  "OPT?"
   Returned Format:  0<NL>

*RCL  (Recall)  command
   Command Syntax:  "RCL (1 to 16)"

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HP 54600A/54601A
Oscilloscopes
**RST**  (Reset)  command
Command Syntax:  *RST

**SAV**  (Save)  command
Command Syntax:  *SAV (1 to 16)

**SRE**  (Service Request Enable)  command/query
Command Syntax:  *SRE (0 to 255)
Query Syntax:  *SRE?
Returned Format:  <mask><NL>
Where:  <mask> := sum of all bits set - integer, 0 to 255

**STB**  (Status Byte)  query
Query Syntax:  *STB?
Returned Format:  (integer, 0 to 255)<NL>

**TRG**  (Trigger)  command
Command Syntax:  *TRG

**TST**  (Test)  query
Query Syntax:  *TST?
Returned Format:  (0 or non-zero value)<NL>
Where:  0 := test passed
        non-zero := test failed

**WAI**  (Wait)  command
Command Syntax:  *WAI

::ACQ::COMPLETE  command/query
Command Syntax:  ::ACQ::COMPLETE (0 to 100)
Query Syntax:  ::ACQ::COMPLETE?
Returned Format:  (integer, 0 to 100)<NL>
:ACQuire:COUNt  
command/query
Command Syntax: :ACQuire:COUNt \{8 \ | \ 64 \ | \ 256\}  
Query Syntax: :ACQuire:COUNt?  
Returned Format: \{6 \ | \ 64 \ | \ 256\}+NL>

:ACQuire:POINts  
query
Query Syntax: :ACQuire:POINts?  
Returned Format: \{integer, \ 1 \ to \ \{4000\}\}+NL>

:ACQuire:Setup  
query
Query Syntax: :ACQuire:Setup?  
Returned Format: \{string\}+NL>

:ACQuire:TYPE  
command/query
Command Syntax: :ACQuire:TYPE \{NORMAL \ | \ AVERAGE \ | \ PEAK\}  
Query Syntax: :ACQuire:TYPE?  
Returned Format: \{NORMAL \ | \ AVERAGE \ | \ PEAK\}+NL>

:ASTore  
command
Command Syntax: :ASTore

:AUToscale  
command
Command Syntax: :AUToscale

:BLANK  
command
Command Syntax: :BLANK \{CHANNEL\{1 \ | \ 2 \ | \ 3 \ | \ 4\}\}+NL>

:CHANnel1 \ | \ 2 \ } :BWLimit  
command/query
Command Syntax: :CHANnel1 \ | \ 2 \ :BWLimit \{ON \ | \ OFF\}  
Query Syntax: :CHANnel1 \ | \ 2 \ :BWLimit?  
Returned Format: \{ON \ | \ OFF\}+NL>

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HP 54600A/54601A
Oscilloscopes
:CHANnel{1 | 2 | 3 | 4}:COUPling

Command Syntax: :CHANnel{1 | 2 | 3 | 4}:COUPling {AC | DC | GND} | {3 | 4}:COUPling {DC | GND}
Query Syntax: :CHANnel{1 | 2 | 3 | 4}:COUPling?
Returned Format: AC | DC | GND | NL> for Channels 1 and 2
DC | GND | NL> for Channels 3 and 4

:CHANnel{1 | 2}:INVert

Command Syntax: :CHANnel{1 | 2}:INVert {ON | OFF}
Query Syntax: :CHANnel{1 | 2}:INVert?
Returned Format: {ON | OFF}

:CHANnel:MATH

Command Syntax: :CHANnel:MATH {OFF | PLUS | SUBtract}
Query Syntax: :CHANnel:MATH?
Returned Format: {OFF | PLUS | SUB}

:CHANnel{1 | 2 | 3 | 4}:OFFSet

Command Syntax: :CHANnel{1 | 2 | 3 | 4}:OFFSet <offset value>
Query Syntax: :CHANnel{1 | 2 | 3 | 4}:OFFSet?
Returned Format: <exponential, offset value>NL>

:CHANnel{1 | 2 | 3 | 4}:PROBe

Command Syntax: :CHANnel{1 | 2 | 3 | 4}:PROBe {XI | X10 | X100}
Query Syntax: :CHANnel{1 | 2 | 3 | 4}:PROBe?
Returned Format: {XI | X10 | X100}NL>

:CHANnel{1 | 2 | 3 | 4}:RANGE

Command Syntax: :CHANnel{1 | 2}:RANGE<full-scale range> | {3 | 4}:RANGE {HIGH | LOW}
Query Syntax: :CHANnel{1 | 2 | 3 | 4}:RANGE?
Returned Format: <exponential full-scale range>NL> for Channels 1 and 2
{HIGH | LOW}NL> for Channels 3 and 4
:CHAnnel{1 | 2 | 3 | 4}:SETup
  Query Syntax: :CHAnnel{1 | 2 | 3 | 4}:SETup?
  Returned Format: <string><NL>

:CHAnnel{1 | 2}:VERNier
  Command Syntax: :CHAnnel{1 | 2}:VERNier {ON | OFF}
  Query Syntax: :CHAnnel:VERNier?
  Returned Format: {ON | OFF}<NL>

:DIgitize
  Command Syntax: :DIgitize CHAnnel{1 | 2 | 3 | 4}, [.CHAnnel{1 | 2 | 3 | 4}]

:DISPlay:COLumn
  Command Syntax: :DISPlay:COLumn {0 to 63}
  Query Syntax: :DISPlay:COLumn?
  Returned Format: {integer, 0 to 63}<NL>

:DISPlay:DATA
  Command Syntax: :DISPlay:DATA #800016257<data>
  Query Syntax: :DISPlay:DATA?
  Returned Format: #800016257<data><NL>

:DISPlay:GRID
  Command Syntax: :DISPlay:GRID {ON | OFF}
  Query Syntax: :DISPlay:GRID?
  Returned Format: {ON | OFF}<NL>

:DISPlay:INVerse
  Command Syntax: :DISPlay:INVerse {ON | OFF}
  Query Syntax: :DISPlay:INVerse?
  Returned Format: {ON | OFF}<NL>

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HP 54600A/54601A
Oscilloscopes
:DISPlay:LINE command

Command Syntax: :DISPlay:LINE <quoted string>

:DISPlay:PIXel command/query

Command Syntax: :DISPlay:PIXel <x>, <y>, <intensity>
Query Syntax: :DISPlay:PIXel? <x>, <y>
Returned Format: <integer, intensity~NL>

:DISPlay:ROW command/query

Command Syntax: :DISPlay:ROW {1 to 20}
Query Syntax: :DISPlay:ROW?
Returned Format: {integer,1 to 20}~NL

:DISPlay:Setup query

Query Syntax: :DISPlay:Setup?
Returned Format: <string>~NL

:DISPlay:SOURce command/query

Command Syntax: :DISPlay:SOURce PMEmory{1 | 2}
Query Syntax: :DISPlay:SOURce?
Returned Format: PMEm{1 | 2}~NL

:DISPlay:TEXT command

Command Syntax: :DISPlay:TEXT BLANK

:DITher command/query

Command Syntax: :DITher {ON | OFF}
Query Syntax: :DITher?
Returned Format: {ON | OFF}~NL

:ERASe command

Command Syntax: :ERASe PMEmory{1 | 2}
:MEASure:ALL

Query Syntax: :MEASure:ALL?
Returned Format: <FREQuency result>,<PERiod result>, <WIDTH result>, <NWIDTH result>, <RISetime result>, <FAlltime result>, <HPP result>, <OUTecycle result>, <VRMS result>, <VMAX result>, <VMIN result>, <VFROM result>, <VFROM result>, <VAMplitude result><NL>

:MEASure:DUTycycle

Command Syntax: :MEASure:DUTycycle
Query Syntax: :MEASure:DUTycycle?
Returned Format: < exponential, dutycycle value><NL>

:MEASure:FALLtime

Command Syntax: :MEASure:FALLtime
Query Syntax: :MEASure:FALLtime?
Returned Format: < exponential, falltime value><NL>

:MEASure:FREQuency

Command Syntax: :MEASure:FREQuency
Query Syntax: :MEASure:FREQuency?
Returned Format: < exponential, Frequency value><NL>

:MEASure:NWIDTH

Command Syntax: :MEASure:NWIDTH
Query Syntax: :MEASure:NWIDTH?
Returned Format: < exponential, negative_width value><NL>

:MEASure:PERiod

Command Syntax: :MEASure:PERiod
Query Syntax: :MEASure:PERiod?
Returned Format: < exponential, period value><NL>
:MEASure:PWDtth
Command Syntax: :MEASure:PWDtth
Query Syntax: :MEASure:PWDtth?
Returned Format: <exponential, positive width value><NL>

:MEASure:RISetime
Command Syntax: :MEASure:RISetime
Query Syntax: :MEASure:RISetime?
Returned Format: <exponential, rise time value><NL>

:MEASure:SCRatch (Clear Results)
Command Syntax: :MEASure:SCRatch

:MEASure:SHOW
Command Syntax: :MEASure:SHOW (ON | OFF)
Query Syntax: :MEASure:SHOW?
Returned Format: (ON | OFF)<NL>

:MEASure:SOURce
Command Syntax: :MEASure:SOURce CHANNEL {1 | 2 | 3 | 4}
Query Syntax: :MEASure:SOURce?
Returned Format: CH[1 | 2 | 3 | 4]<NL>

:MEASure:TDELtta
Query Syntax: :MEASure:TDELtta?
Returned Format: <exponential, delta time marker><NL>

:MEASure:TSTArt
Command Syntax: :MEASure:TSTArt <start marker time>
Query Syntax: :MEASure:TSTArt?
Returned Format: <exponential, start marker time><NL>
:MEASure:TSTOP

Command Syntax: :MEASure:TSTOP <stop marker time>
Query Syntax: :MEASure:TSTOP?
Returned Format: <exponential, stop marker time><NL>

:MEASure:TVOLT

Query Syntax: :MEASure:TVOLT? <voltage>, <slope>,<occurrence>
Returned Format: <exponential, time of voltage crossing><NL>

:MEASure:VAverage

Command Syntax: :MEASure:VAverage
Query Syntax: :MEASure:VAverage?
Returned Format: <exponential, average voltage><NL>

:MEASure:VBASE

Command Syntax: :MEASure:VBASE
Query Syntax: :MEASure:VBASE?
Returned Format: <exponential, base voltage><NL>

:MEASure:VDELTa

Query Syntax: :MEASure:VDELTa?
Returned Format: <exponential, delta voltage markers><NL>

:MEASure:VMAX

Command Syntax: :MEASure:VMAX
Query Syntax: :MEASure:VMAX?
Returned Format: <exponential, maximum voltage><NL>

:MEASure:VMIN

Command Syntax: :MEASure:VMIN
Query Syntax: :MEASure:VMIN?
Returned Format: <exponential, minimum voltage><NL>
:MEASure:VPP
Command Syntax: :MEASure:VPP
Query Syntax: :MEASure:VPP?
Returned Format: <exponential, peak-to-peak voltage>\n
:MEASure:VRMS (DC RMS) command/query
Command Syntax: :MEASure:VRMS
Query Syntax: :MEASure:VRMS?
Returned Format: <exponential, dc rms voltage>\n
:MEASure:VSTArt command/query
Command Syntax: :MEASure:VSTArt <marker1 voltage>
Query Syntax: :MEASure:VSTArt?
Returned Format: <exponential, marker1 voltage>\n
:MEASure:VSTOP command/query
Command Syntax: :MEASure:VSTOP <marker2 voltage>
Query Syntax: :MEASure:VSTOP?
Returned Format: <exponential, marker2 voltage>\n
:MEASure:VTIME query
Query Syntax: :MEASure:VTIME? <time from trigger>
Returned Format: <exponential, voltage at specified time>\n
:MEASure:VTOP command/query
Command Syntax: :MEASure:VTOP
Query Syntax: :MEASure:VTOP?
Returned Format: <exponential, top voltage>\n
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:MENU

Command Syntax: :MENU {0 to 16}
Query Syntax: :MENU?
Returned Format: {integer, 1 to 16}<NL>
Where: <integer>:
  0 = Clear Menu
  1 = Channel 1
  2 = Channel 2
  3 = Channel 3
  4 = Channel 4
  5 = Math
  6 = Trigger Source
  7 = Trigger Mode
  8 = Trigger Slope
  9 = Multi/Delayed (Horizontal)
 10 = Time Measurements
 11 = Voltage Measurements
 12 = Cursors
 13 = Trace
 14 = Setup
 15 = Display
 16 = Utility

:MERGe

Command Syntax: :MERGe PMEmory(1 | 2)

:PRINT

Query Syntax: :PRINT? [MRes]

:RUN

Command Syntax: :RUN

:STATus

Query Syntax: :STATus? {CHANnel[1 | 2 | 3 | 4] | PMEmory[1 | 2]}
Returned Format: {ON | OFF}<NL>

:STOP

Command Syntax: :STOP

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HP 54600A/54601A
Oscilloscopes
:SYSTem:DSP

Command Syntax: :SYSTem:DSP <quoted ASCII string>

:SYSTem:ERRor

Query Syntax: :SYSTem:ERRor?
Returned Format: <integer, error number>>

Where:

<error number>:=
+0, No error
-100, Command error (unknown command)
-101, Invalid character
-102, Syntax error
-103, Invalid separator
-104, Data type error
-105, SET not allowed
-108, Parameter not allowed
-109, Missing parameter
-112, Program mnemonic too long
-113, Undefined header
-121, Invalid character in number
-123, Numeric overflow
-124, Too many digits
-128, Numeric data not allowed
-130, Suffix error
-131, Invalid suffix
-138, Suffix not allowed
-140, Character data error
-141, Invalid character data
-144, Character data too long
-148, Character data not allowed
-150, String data error
-151, Invalid string data
-158, String data not allowed
-160, Block data error
-161, Invalid block data
-166, Block data not allowed
-170, Expression error
-171, Invalid expression
-176, Expression data not allowed
-200, Execution error
-211, Trigger ignored
-221, Settings conflict
-222, Data out of range
-223, Too much data
-310, System error
-350, Too many errors
-400, Query error
-410, Query INTERRUPTED
-420, Query INTERRUPTED
-430, Query DEADLOCKED
-440, Query INTERRUPTED

Programmer’s Quick Reference
### :SYStem:KEY

**Command Syntax:** :SYSTem KEY {-1 to 50}

**Query Syntax:** :SYSTem KEY?

**Returned Format:** (integer, -1 to 50)<NL>

**Where:**

\[
\text{<integer> ::= -1 for NO KEY} \quad 21 \text{ for STOP} \quad 43 \text{ for DELAY_CW} \\
0 \text{ for AUTOSCALE} \quad 22 \text{ for ERASE} \quad 44 \text{ for DELAY_CCW} \\
1 \text{ for CH1} \quad 23 \text{ for SOFTKEY_1} \quad 45 \text{ for TRG_LEVEL_CW} \\
2 \text{ for CH2} \quad 24 \text{ for SOFTKEY_2} \quad 46 \text{ for TRG_LEVEL_CCW} \\
3 \text{ for CH3} \quad 25 \text{ for SOFTKEY_3} \quad 47 \text{ for TRG_HOLD_CW} \\
4 \text{ for CH4} \quad 26 \text{ for SOFTKEY_4} \quad 48 \text{ for TRG_HOLD_CCW} \\
5 \text{ for +/-} \quad 27 \text{ for SOFTKEY_5} \quad 49 \text{ for CURSOR_Knob_CCW} \\
6 \text{ for TRG_SRC} \quad 28 \text{ for SOFTKEY_6} \quad 50 \text{ for CURSOR_Knob_CW} \\
7 \text{ for TRG_MODE} \quad 29 \text{ for CH1_VOLT_CW} \\
8 \text{ for TRG_SLOPE} \quad 30 \text{ for CH1_VOLT_CCW} \\
9 \text{ for MAIN/DELAY} \quad 31 \text{ for CH1_POS_CW} \\
10 \text{ for TIME} \quad 32 \text{ for CH1_POS_CCW} \\
11 \text{ for VOLTAGE} \quad 33 \text{ for CH2_VOLT_CW} \\
12 \text{ for CURSORS} \quad 34 \text{ for CH2_VOLT_CCW} \\
13 \text{ for SAVE_TRACE} \quad 35 \text{ for CH2_POS_CW} \\
14 \text{ for SAVE_SETUP} \quad 36 \text{ for CH2_POS_CCW} \\
15 \text{ for DISPLAY} \quad 37 \text{ for CH3_POS_CW} \\
16 \text{ for PRINT/UTILITY} \quad 38 \text{ for CH3_POS_CCW} \\
17 \text{ NA} \quad 39 \text{ for CH3_POS_CW} \\
18 \text{ NA} \quad 40 \text{ for CH4_POS_CCW} \\
19 \text{ for RUN} \quad 41 \text{ for S/DIV_CW} \\
20 \text{ for AUTOSTORE} \quad 42 \text{ for S/DIV_CCW} \\
\]

CW denotes clockwise rotation of the knob.
CCW denotes counter-clockwise rotation of the knob.
:SYSTem:LOCK command/query
Command Syntax: :SYSTem:LOCK (ON | OFF)
Query Syntax: :SYSTem:LOCK?
Returned Format: (OK | OFF)

:SYSTem:SETup command/query
Command Syntax: :SYSTem:SETup #800000121<setup data string>
Query Syntax: :SYSTem:SETup?
Returned Format: #800000121<setup data string><NL>

:TER (Trigger Event Register) query
Query Syntax: :TER?
Returned Format: (1 | 0)<NL>

:TIMebase:DELay command/query
Command Syntax: :TIMebase:DELay <delay time>
Query Syntax: :TIMebase:DELay?
Returned Format: <exponential, delay time><NL>

:TIMebase:MODE command/query
Command Syntax: :TIMebase:MODE {NORMAL | DELayed | XY}
Query Syntax: :TIMebase:MODE?
Returned Format: (NORMAL | DEL | XY)<NL>

:TIMebase:RANGE command/query
Command Syntax: :TIMebase:RANGE {20 ns to 50 s}
Query Syntax: :TIMebase:RANGE?
Returned Format: (exponential, 20 ns to 50 s)<NL>

:TIMebase:REFERence command/query
Command Syntax: :TIMebase:REFERence {LEFT | CENTER}
Query Syntax: :TIMebase:REFERence?
Returned Format: (LEFT | CENTER)<NL>
:TIMebase:SETup

Query Syntax: :TIMebase:SETup?
Returned Format: <string>\n
:TIMebase:VERNier

Command Syntax: :TIMebase:VERNier {ON | OFF}
Query Syntax: :TIMebase:VERNier?
Returned Format: {ON | OFF}<\n
:TRIGger:COUPling

Command Syntax: :TRIGger:COUPling {AC | DC}
Query Syntax: :TRIGger:COUPling?
Returned Format: {AC | DC}<\n
:TRIGger:HOLDoff

Command Syntax: :TRIGger:HOLDoff <time>
Query Syntax: :TRIGger:HOLDoff?
Returned Format: <time>=<\n  Where: <time> ::= exponential, 40 ns to 320 ms

:TRIGger:LEVEL

Command Syntax: :TRIGger:LEVEL <level>
Query Syntax: :TRIGger:LEVEL?
Returned Format: <exponential, trigger level in volts><\n
:TRIGger:MODE

Command Syntax: :TRIGger:MODE {AUTO1 | AUTO | NORM1 | SING1e | TV}
Query Syntax: :TRIGger:MODE?
Returned Format: {AUTO | AUTO | NORM | SING | TV}<\n
:TRIGger:NREJect

Command Syntax: :TRIGger:NREJect {ON | OFF}
Query Syntax: :TRIGger:NREJect?
Returned Format: {ON | OFF}<\n
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:TRIGger:POLarity
  Command Syntax: .TRIGGER:POLarity {Posi<tab>itive | Negative}
  Query Syntax: .TRIGGER:POLarity?
  Returned Format: [POS | NEG]<-NL>

:TRIGger:REJect
  Command Syntax: .TRIGGER:REJect {Off | LF | HF}
  Query Syntax: .TRIGGER:REJect?
  Returned Format: {Off | LF | HF}<NL>

:TRIGger:Setup
  Query Syntax: .TRIGGER:SETup?
  Returned Format: <string><NL>

:TRIGger:SLOPe
  Command Syntax: .TRIGGER:SLOPe {Positive | Negative}
  Query Syntax: .TRIGGER:SLOPe?
  Returned Format: {POS | NEG}<NL>

:TRIGger:SOURce
  Command Syntax: .TRIGGER:SOURce {CHANne{1 | 2 | 3 | 4} | EXternal | LINE}
  Query Syntax: .TRIGGER:SOURce?
  Returned Format: {CHAN[1 | 2 | 3 | 4] | EXT | LINE}<NL>

:TRIGger: TVHReject
  Command Syntax: .TRIGGER:TVHReject {ON | OFF}
  Query Syntax: .TRIGGER:TVHReject?
  Returned Format: {ON | OFF}<NL>

:TRIGger: TVMode
  Command Syntax: .TRIGGER:TVMode {FIELD1 | FIELD2 | LINE}
  Query Syntax: .TRIGGER:TVMode?
  Returned Format: {FIELD1 | FIELD2 | LINE}<NL>

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:VIEW

Command Syntax: :VIEW [CHANNEL1 | 2 | 3 | 4] [MEMORY1 | 2]

---

:WAVEform:BYTeeord

Command Syntax: :WAVEform:BYTeeord [LSBFirst | MSBFirst]
Query Syntax: :WAVEform:BYTeeord?
Returned Format: [LSBF | MSBF]<NL>

---

:WAVEform:DATA

Command Syntax: :WAVEform:DATA <binary block data in # format> 
Query Syntax: :WAVEform:DATA?
Returned Format: <binary block data in IEEE 488.2 format><NL>

---

:WAVEform:FORMat

Command Syntax: :WAVEform:FORMat [ASCII | WORD | BYTE]
Query Syntax: :WAVEform:FORMat?
Returned Format: [ASCII | WORD | BYTE]<NL>

---

:WAVEform:POINts

Command Syntax: :WAVEform:POINts [100 | 200 | 250 | 400 | 500 | 800 | 1000 | 2000 | 4000]
Query Syntax: :WAVEform:POINts?
Returned Format: [100 | 200 | 250 | 400 | 500 | 800 | 1000 | 2000 | 4000]<NL>
:WAVeform:PREEmble

Query Syntax: :WAVeform:PREEmble?
Returned Format: <preamble block>-NL>

Where:
<preamble block> ::= <format NR>, <type NR>, <points NR>, <count NR>, <increment NR>, <origin NR>, <reference NR>, <yincrement NR>, <yorigin NR>, <yreference NR>

<format> ::= 0 for ASCII format
1 for BYTE format
2 for WORD format

<type> ::= 0 for AVERAGE type
1 for NORMAL type
2 for PEAK DETECT type

:WAVeform:SOURce

Command Syntax: :WAVeform:SOURce:CHANNEL n (1 | 2 | 3 | 4)
Query Syntax: :WAVeform:SOURce?
Returned Format: CHAN[1 | 2 | 3 | 4]-NL>

:WAVeform:TYPE

Query Syntax: :WAVeform:TYPE?
Returned Format: (NORM | PEAK | AVER)-NL>

:WAVeform:XINCrement

Query Syntax: :WAVeform:XINCrement?
Returned Format: <exponential, x-increment value>-NL>

:WAVeform:XORigin

Query Syntax: :WAVeform:XORigin?
Returned Format: <exponential, x-origin value>-NL>

:WAVeform:XREFERence

Query Syntax: :WAVeform:XREFERence?
Returned Format: <integer, x-reference value>-NL>
<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
<th>Syntax</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>:WAVform:YINCrement</td>
<td>Query</td>
<td>:WAVform:YINCrement?</td>
<td><code>&lt;exponential, y-increment value&gt;</code></td>
</tr>
<tr>
<td>:WAVform:YORigin</td>
<td>Query</td>
<td>:WAVform:YORigin?</td>
<td><code>&lt;exponential, y-origin value&gt;</code></td>
</tr>
<tr>
<td>:WAVform:YREFERENCE</td>
<td>Query</td>
<td>:WAVform:YREFERENCE?</td>
<td><code>&lt;integer, y-reference value&gt;</code></td>
</tr>
</tbody>
</table>
The HP54680A has two identical channel subsystems. The HP54681A channels 1 and 2 are identical and fully attenuated. Channels 3 and 4 are identical and can be set for TV or ST/div with dc or ground coupling.