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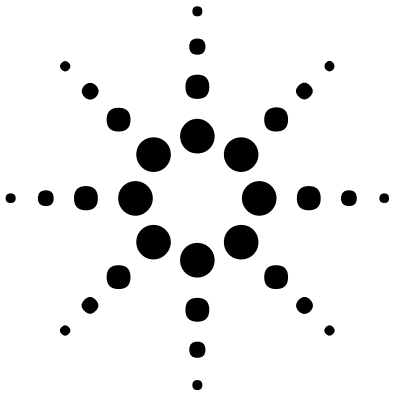
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Agilent E8305A

Plug&Play Help Content



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Any adjustment, maintenance, or repair of this product must be performed by qualified personnel. Contact your customer engineer through your local Agilent Technologies Service Center.

Safety Summary

The following general safety precautions must be observed during all phases of operation of this instrument. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the instrument. Agilent Technologies Inc. assumes no liability for the customer's failure to comply with these requirements.

General

This product is a Safety Class 1 instrument (provided with a protective earth terminal). The protective features of this product may be impaired if it is used in a manner not specified in the operation instructions.

All Light Emitting Diodes (LEDs) used in this product are Class 1 LEDs as per IEC 60825-1.

Environmental Conditions

This instrument is intended for indoor use in an installation category II, pollution degree 2 environment. It is designed to operate at a maximum relative humidity of 95% and at altitudes of up to 2000 meters. Refer to the specifications tables for the ac mains voltage requirements and ambient operating temperature range.

Before Applying Power

Verify that the product is set to match the available line voltage, the correct fuse is installed, and all safety precautions are taken. Note the instrument's external markings described under “Safety Symbols” on page 5.

Ground the Instrument

To minimize shock hazard, the instrument chassis and cover must be connected to an electrical protective earth ground. The instrument must be connected to the ac power mains through a grounded power cable, with the ground wire firmly connected to an electrical ground (safety ground) at the power outlet. Any interruption of the protective (grounding) conductor or disconnection of the protective earth terminal will cause a potential shock hazard that could result in personal injury.

Fuses

Only fuses with the required rated current, voltage, and specified type (normal blow, time delay, etc.) should be used. Do not use repaired fuses or short-circuited fuse holders. To do so could cause a shock or fire hazard.

Do Not Operate in an Explosive Atmosphere

Do not operate the instrument in the presence of flammable gases or fumes.

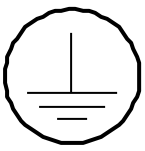
Do Not Remove the Instrument Cover

Operating personnel must not remove instrument covers. Component replacement and internal adjustments must be made only by qualified service personnel.

Instruments that appear damaged or defective should be made inoperative and secured against unintended operation until they can be repaired by qualified service personnel.

Safety Symbols


Caution (refer to accompanying documents)


Protective earth (ground) terminal In the manuals:

The **WARNING** sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a WARNING sign until the indicated conditions are fully understood and met.

The **CAUTION** sign denotes a hazard. It calls attention to an operating procedure, or the like, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the product. Do not proceed beyond a CAUTION sign until the indicated conditions are fully understood and met.

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Overview

Instrument Overview

The Agilent E8305A Pulse/Pattern Generator is a C-size, 1 slot, register-based instrument, providing the following key features:

- Dual Channel Pulse Generator
- Frequency range up to 250 MHz
- 1ps timing resolution (best case for PLL)
- 0.1V to 5V output amplitude within a ± 5V window
- Variable slopes from 1.5ns to 200 µs
- Pseudo differential outputs (only one output at a time can be used)
- 16kbit pattern per channel

Programming the E8305A

Driver Function - Description

This describes the functions that are implemented in the instrument driver, which offer an easy access to the instrument’s abilities.

For more information and a detailed description about a particular function, please refer to the Driver Function Reference sorted in alphabetical or hierarchical order.

To avoid drivers that are too complex, the number of functions are kept to a minimum, but they cover the most important number of the instrument's commands. With the set of "passthrough" functions, it is comfortably possible, to program additional sequences with the intention to create an elegant instrument application.

Function Types

The driver design includes the following types of functions:

- Functions required by VXI*plug&play* specification
- Standard functions
- Status Functions
- Command Passthrough Functions
- Mode Functions
- Timing Functions
- Level Functions
- Pattern Functions
- Setting Functions
- Limit Functions
- Configuration Functions
- Output Functions
- Arming Functions

Function Name Design

Refer to the common rules for ‘C’ function names.

Additionally to these rules, all function names begin with the instrument name followed by an underbars, here: hpe8305a_. After the underbars an alphanumeric sequence describes the ability of the function, e.g.: hpe8305a_doSomething( ).

Functions that query the instrument for a response end with "_Q" e.g. hpe8305a_operEvent_Q.

The function parameters are enclosed into brackets at the end of the function name

"C" Function Parameters

The first parameter for all functions is identified as 'instrumentHandle' and must be the resource handle returned by hpe8305a_init function call.

- The maximum number of parameters is limited to 8.
- Only VISA data types are used for the function parameter types.
- Memory for arrays and strings must be allocated in the calling program. It may not be allocated in the driver.

Parameter Data-Types

- ViInt8: 16-bit integers, signed or unsigned.
- ViInt16: 16-bit integers, signed or unsigned.
- ViInt32: 32-bit integers, signed or unsigned.
- ViReal64: 64-bit real numbers
- ViChar: ASCII characters
- ViString: ASCII null-terminated strings
- ViByte: Bytes & byte arrays (non-ASCII buffers)
- ViBoolean: Enumeration (implemented as a 16-bit integer).

Building your own Example using Visual C++ 5.0

The following instructions assume that Microsoft Visual C++ 5.0 is used to create an own "C" application.

Create a Workspace

- Start Microsoft Visual C++ 5.0
- Select menu command: **File** | **New**.
  This opens the "**new**" dialog.
- Select the "**Workspaces**" tab.
- Enter the "**Workspace name**" e.g. "firstSteps".
- Enter the "**Location**" or use the "…" tab to browse to the right location.
  Consider that Visual C++ creates an own folder with the specified name.
- Select the **O.K.** Button.
  Visual C creates now the new workspace.

Create a Project

- Select menu command: **File** | **New**.
  This opens the "**new**" dialog.
- If not displayed, select the "**Projects**" tab.
- Select the **"Win32 Console Application**" entry.
- Enter the "**Project name**" e.g. "hpe8305aExample".

- Select the button “Add to current workspace”.
- Enter the ”**Location**” or use the “…” tab to browse to the right location. Consider that Visual C++ creates an own folder with the specified name.
- If not, select the button “**Win32**” in the “**Platforms**” field.
- Select the **O.K.** Button.
  Visual C++ creates now the new project and displays it on the workspace.
- Select menu command: **Project** | **Add To Project** | **Files**.
  This opens the “**Insert Files into Projects**” dialog.
- Navigate to the `<installation drive:>\Vxipnp\WinNT\hpe8305a\example` folder.
- Select the “hpe8305aExample.c” file.
- Select the **O.K.** button..
  Visual C adds now the “hpe8305aExample.c” source file to the project.

Do Project Settings

- Select menu command: **Project** | **Settings**.
  This opens the “**Project Settings**” dialog.
- Select from “**Settings For**” dropdown list the “**All Configurations**” entry.
- Select the “**C/C++**” tab.
- Select from “**Category**” dropdown list the “**Preprocessor**” entry.
- Add in the “**Additional Include Directory**” field the search-path for the VISA include folder (`<installation drive:>\Vxipnp\WinNT\include`) and the path to the example’s header file (`<installation drive:>\Vxipnp\WinNT\hpe8305a\example`).
  The two paths are separated by comma. It is recommended to use relative paths instead of absolute paths.
- Select the “**Link**” tab.
- Select from “**Category**” dropdown list the “**Input**” entry.
- Add in the “**Object/Library module**” field the entry for the driver library named “hpe83xxx.lib”.
- Add in the “**Additional library path**” field the entry for the driver library search path (`<installation drive:>\Vxipnp\WinNT\lib\msc`). It is recommended to use relative paths instead of absolute paths.
- Select the **O.K.** button

Test the Working Environment

- Before compiling, make sure that the resource description is set up correctly for your device.

  The resource description for this example is defined at the top of the hpe8305aExample.c as shown below.

  ```
  #define INSTRUMENT_RESOURCE_DESCRIPTION "GPIB-VXI0::105::INSTR"
  ```

  Change this line as required for your configuration.

  The environment is correctly organized, when the compiler builds the test program without any compiler or linker errors.
- Select menu command: **Build**| **Rebuild All** to start the Visual C++ compiler.
- Select menu command: **Build**| **Execute** to start execution of the test program.

Reference Information

Function Reference (Hierarchical)

Initialize	hpe8305a_init( )
Configuration Functions	
Operation Mode	
Pulse Mode	
Select Single or Double Pulse	hpe8305a_modePulseType( )
Query Pulse Type	hpe8305a_modePulseType_Q( )
Continuous Mode	
Generate Pulses	hpe8305a_modeContinuousPulses( )
Generate Bursts	hpe8305a_modeContinuousBurst( )
Generate Pattern	hpe8305a_modeContinuousPattern( )
Triggered Mode	
Generate Pulses	hpe8305a_modeTriggeredPulses( )
Generate Bursts	hpe8305a_modeTriggeredBurst( )
Generate Pattern	hpe8305a_modeTriggeredPattern( )
Gated Mode	
Generate Pulses	hpe8305a_modeGatedPulses( )
Generate Bursts	hpe8305a_modeGatedBurst( )
Generate Pattern	hpe8305a_modeGatedPattern( )
External-Width Mode	
Generate Pulses determined by external Signal	hpe8305a_modeExternalWidth( )
Settings	
Store Setting into internal Memory	hpe8305a_settingStore( )
Recall Setting from internal Memory	hpe8305a_settingRecall( )
Store Setting into file	hpe8305a_settingFile( )
Recall Setting form file	hpe8305a_settingFile_Q( )
Timing-System	
Period	
Set Period	hpe8305a_timePeriod( )
Query Period	hpe8305a_timePeriod_Q( )
Frequency	
Set Frequency	hpe8305a_timeFrequency( )
Query Frequency	hpe8305a_timeFrequency_Q( )
Delay	
Set Delay	hpe8305a_timeDelay( )
Query Delay	hpe8305a_timeDelay_Q( )
Select Delay Hold Mode	hpe8305a_timeDelayHold( )
Query Delay Hold Mode	hpe8305a_timeDelayHold_Q( )
Double-Delay	
Set Double Delay	hpe8305a_timeDelayDouble( )

Query Double Delay	hpe8305a_timeDelayDouble_Q( )
Select Double Delay Hold-Mode	hpe8305a_timeDelayDoubleHold( )
Query Double Delay Hold-Mode	hpe8305a_timeDelayDoubleHold_Q( )

Width

Set Width	hpe8305a_timeWidth( )
Query Width	hpe8305a_timeWidth_Q( )
Set Duty-Cycle	hpe8305a_timeWidthDutyCycle( )
Query Duty-Cycle	hpe8305a_timeWidthDutyCycle_Q( )
Set Trailing-Delay	hpe8305a_timeWidthTrailingDelay( )
Query Trailing-Delay	hpe8305a_timeWidthTrailingDelay_Q( )
Select Width Hold Mode	hpe8305a_timeWidthHold( )
Query Width Hold Mode	hpe8305a_timeWidthHold_Q( )

Transition-Times

Leading-Edge

Set Leading-Edge	hpe8305a_timeEdgeLeading( )
Query Leading-Edge	hpe8305a_timeEdgeLeading_Q( )

Trailing-Edge

Set Trailing Edge	hpe8305a_timeEdgeTrailing( )
Query Trailing Edge	hpe8305a_timeEdgeTrailing_Q( )
Select Trailing Edge Coupling-Mode	hpe8305a_timeEdgeTrailingCoupling( )
Query Trailing Edge Coupling-Mode	hpe8305a_timeEdgeTrailingCoupling_Q( )

Edge-Hold-Mode

Select Hold Mode for Edges	hpe8305a_timeEdgeHold( )
Query Hold Mode for Edges	hpe8305a_timeEdgeHold_Q( )

Pattern-Generation

Select Data Format	hpe8305a_modePatternDataFormat ( )
Query Data Format	hpe8305a_modePatternDataFormat_Q( )
Download Pattern into Instrument	hpe8305a_patternDataDownloadBuffer( )
Query Pattern from Instrument	hpe8305a_patternDataDownloadBuffer_Q( )
Download File into Instrument	hpe8305a_patternDataDownloadFile( )
Query Pattern from Instrument into File	hpe8305a_patternDataDownloadFile_Q( )
Set Pattern Data via PRBS polynomial	hpe8305a_patternDataPRBS( )
Set Pattern Data via divider	hpe8305a_patternDataPreset( )
Set Update Mode	hpe8305a_patternUpdate( )
Query Update Mode	hpe8305a_patternUpdate_Q( )

Output

Channels

State

Activate/Deactivate Normal Outputs	hpe8305a_outputStateNormal( )
Query Active State Normal Outputs	hpe8305a_outputStateNormal_Q( )
Activate/Deactivate Complement Outputs	hpe8305a_outputStateComplement( )
Query Active State Complement Outputs	hpe8305a_outputStateComplement_Q( )

Polarity

Select Output Polarity	hpe8305a_outputPolarity( )
Query Output Polarity	hpe8305a_outputPolarity_Q( )

Load Compensation

Set Output Load Compensation	hpe8305a_configOutputLoadCompensation( )
Query Output Load Compensation	hpe8305a_configOutputLoadCompensation_Q( )

Output Levels

Set High/Low Level	hpe8305a_levelHighLow( )
Query High/Low Level	hpe8305a_levelHighLow_Q( )
Set Offset/Amplitude	hpe8305a_levelOffsetAmplitude( )
Query Offset/Amplitude	hpe8305a_levelOffsetAmplitude_Q( )

Output Limits

Set Voltage/Ampere Limits	hpe8305a_limit( )
Query Voltage/Ampere Limits	hpe8305a_limit_Q( )
Select Active State for Limits	hpe8305a_limitState( )
Query Active State for Limits	hpe8305a_limitState_Q( )

Trigger-Output

VXI-Backplane

Activate/Deactivate Trigger-Lines	hpe8305a_outputEnableVxiTrigger( )
Query Trigger-Lines	hpe8305a_outputEnableVxiTrigger_Q( )

Front-Panel

Set Trigger Out Level	hpe8305a_configTriggerOutLevel( )
Query Trigger Out Level	hpe8305a_configTriggerOutLevel_Q( )
Select Source for Trigger Out	hpe8305a_configTriggerOutSource( )
Query Source for Trigger Out	hpe8305a_configTriggerOutSource_Q( )

Input

Set Clock Input Threshold Impedance	hpe8305a_configInputClock( )
Query Clock Input Threshold Impedance	hpe8305a_configInputClock_Q( )
Set External Input Threshold Impedance	hpe8305a_configInputExternal( )
Query External Input Threshold Impedance	hpe8305a_configInputExternal_Q( )

PLL-Reference

Select PLL Reference	hpe8305a_configPllReference( )
Query PLL Reference	hpe8305a_configPllReference_Q( )

Internal Arming

Set Arming Frequency	hpe8305a_armFrequency( )
Query Arming Frequency	hpe8305a_armFrequency_Q( )
Set Arming Period	hpe8305a_armPeriod( )
Query Arming Period	hpe8305a_armPeriod_Q( )

Action Functions

Measure Period at Clock Input	hpe8305a_timePeriodMeasure( )
Measure Frequency at Clock Input	hpe8305a_timeFrequencyMeasure( )
Start Calibration of the Timing-System	hpe8305a_timeCalibration( )

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Reset	hpe8305a_reset( )
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Error Message	hpe8305a_error_message( )
Revision Query	hpe8305a_revision_query( )
Set Timeout	hpe8305a_timeOut( )
Query Timeout	hpe8305a_timeOut_Q( )
Set Error Query Detect	hpe8305a_errorQueryDetect( )
Query Error Query Detect	hpe8305a_errorQueryDetect_Q( )
Device Clear	hpe8305a_dcl( )

Status Functions

Operation Complete	hpe8305a_opc_Q( )
Read Status Byte	hpe8305a_readStatusByte_Q( )
Read Operation Event Status Register	hpe8305a_operEvent_Q( )
Read Operation Condition Register	hpe8305a_operCond_Q( )
Read Questionable Event Register	hpe8305a_quesEvent_Q( )
Read Questionable Condition Register	hpe8305a_quesCond_Q( )

Command Passthrough Functions

Send SCPI	hpe8305a_cmd( )
Send SCPI and String	hpe8305a_cmdString( )
Send SCPI, request String	hpe8305a_cmdString_Q( )
Send SCPI and Real-Number	hpe8305a_cmdReal( )
Send SCPI, request Real-Number	hpe8305a_cmdReal64_Q( )
Send SCPI and signed Integer	hpe8305a_cmdInt( )
Send SCPI, request signed 16bit Integer	hpe8305a_cmdInt16_Q( )
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Send SCPI and unsigned Integer	hpe8305a_cmdUInt( )
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Send SCPI, request unsigned 32bit Integer	hpe8305a_cmdUInt32_Q( )

Send SCPI and 8bit integer Array	hpe8305a_cmdInt8Arr( )
Send SCPI, request 8bit integer Array	hpe8305a_cmdInt8Arr_Q( )

Transaction Functions

Cancel Transaction Mode	hpe8305a_transactionCancel( )
Finish Transaction and send buffered Commands	hpe8305a_transactionFinish( )
Determine transaction in progress And command buffer size	hpe8305a_transaction_Q( )
Start transaction	hpe8305a_transactionStart( )

Close

hpe8305a_close( )

Function Reference (Alphabetical)

hpe8305a_armFrequency( )

Syntax	hpe8305a_armFrequency(instrumentHandle,frequencyValue)
Description	This function sets the frequency of the PLL (INTernal2) when it is used as the :ARM:SOURce for internal triggering of pulses, bursts or patterns. If you are using the PLL as :TRIGger:SOURce use function hpe8305a_timeFrequency( ) to set the pulse frequency.
SCPI Commands	:ARM:FREQuency <frequencyValue>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	FrequencyValue
Description	Provide value to set frequency of PLL on.
Direction	IN
Type	ViReal64

hpe8305a_armFrequency_Q( )

Syntax	hpe8305a_armFrequency_Q(instrumentHandle,frequencyValue)
Description	This function requests the actual used frequency of the PLL (INTernal2) from the instrument, when it is used as the :ARM:SOURce for internal triggering of pulses, bursts or patterns. If you are using the PLL as :TRIGger:SOURce, use function hpe8305a_timeFrequency_Q( )to request the pulse frequency.
SCPI Commands	:ARM:FREQuency?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	FrequencyValue
Description	Provide variable to report the requested frequency of PLL to.
Direction	OUT
Type	ViReal64*

hpe8305a_armPeriod( )

Syntax	hpe8305a_armPeriod(instrumentHandle,periodValue)
Description	This function sets the period of the PLL (INTernal2) when it is used as the :ARM:SOURce for internal triggering of pulses, bursts or patterns. If you are using the PLL as :TRIGger:SOURce, use function hpe8305a_timePeriod( ) to set the pulse-period.
SCPI Commands	:ARM:PERiod <periodValue>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	PeriodValue
Description	Provide value to set period of PLL on.
Direction	IN
Type	ViReal64

hpe8305a_armPeriod_Q( )

Syntax	hpe8305a_armPeriod_Q(instrumentHandle,periodValue)
Description	This function requests the actual used period of the PLL (INTernal2) from the instrument, when it is used as the :ARM:SOURce for internal triggering of pulses, bursts or patterns. If you are using the PLL as :TRIGger:SOURce, use function hpe8305a_timePeriod_Q( )to request the pulse-period.
SCPI Commands	:ARM:PERiod?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	PeriodValue
Description	Provide variable to report the requested period of PLL to.
Direction	OUT
Type	ViReal64*

hpe8305a_close( )

Syntax	hpe8305a_close(instrumentHandle)
Description	Closes the VISA session associated with the instrument handle and frees all resources associated with that session. This typically will be the last call to the driver from the test program.

SCPI Commands	No instrument communication is associated with this function.

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

hpe8305a_cmd( )

Syntax	hpe8305a_cmd(instrumentHandle,SendStringCommand)
Description	This routine allows the user to send an arbitrary command string. No result from Instrument is returned.
SCPI Commands	N/A

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	SendStringCommand
Description	The arbitrary command string to be sent to the instrument.
Direction	IN
Type	ViString
Range	The command string is limited to 256 characters.

hpe8305a_cmdInt( )

Syntax	hpe8305a_cmdInt(instrumentHandle,SendIntegerCommand,SendInteger)
Description	This routine allows the user to send an arbitrary command string, followed by a single signed integer parameter. A white space character is sent between the command string and the parameter. No result from Instrument is returned.
SCPI Commands	N/A

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	SendIntegerCommand
Description	The arbitrary command string to be sent to the instrument.
Direction	IN
Type	ViString
Range	The sendIntegerCommand is limited to 256 characters.

Name	SendInteger
Description	The signed integer to be sent to the instrument at the end of the instrument command.
Direction	IN
Type	ViInt32
Range	ViInt16 or ViInt32

hpe8305a_cmdInt16_Q( )

Syntax	hpe8305a_cmdInt16_Q(instrumentHandle,queryI16Command,i16Result)
Description	This routine allows the user to send an arbitrary command string, and returns a single signed 16-bit integer parameter. Non-integer numbers will be rounded.
SCPI Commands	N/A

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	queryI16Command
Description	The arbitrary query command string to be sent to the instrument.
Direction	IN
Type	ViString
Range	The queryI16Command is limited to 256 characters.

Name	i16Result
Description	The signed integer returned from the instrument.
Direction	OUT
Type	ViPInt16

hpe8305a_cmdInt32_Q( )

Syntax	hpe8305a_cmdInt32_Q(instrumentHandle,queryI32Command,i32Result)
Description	This routine allows the user to send an arbitrary command string, and returns a single signed 32-bit integer parameter. Non-integer numbers will be rounded.
SCPI Commands	N/A

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	queryI32Command

Description	The arbitrary query command string to be sent to the instrument.
Direction	IN
Type	ViString
Range	The queryI32Command is limited to 256 characters.

Name	i32Result
Description	The signed integer returned from the instrument.
Direction	OUT
Type	ViPInt32

hpe8305a_cmdInt8Arr( )

Syntax	hpe8305a_cmdInt8Arr(instrumentHandle,sendI8ArrayCommand,sendI8Array,sendI8ArraySize)
Description	This routine allows the user to send an arbitrary command string and as a parameter an array of 8-bit integer numbers. This can be used when the command-strings parameter is an array in the form a binary block data (starts with '#') as defined in IEEE488.2. No result from Instrument is returned.
SCPI Commands	N/A

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	sendI8ArrayCommand
Description	The arbitrary command string to be sent to the instrument.
Direction	IN
Type	ViString
Range	The sendI8ArrayCommand is limited to 256 characters.

Name	sendI8Array
Description	Data to be send to the instrument.
Direction	IN
Type	ViInt8 sendI8Array[ ]

Name	sendI8ArraySize
Description	Numbers of valid elements inside the Array to be send to the instrument.
Direction	IN
Type	ViInt32

hpe8305a_cmdInt8Arr_Q( )

Syntax	hpe8305a_cmdInt8Arr_Q(instrumentHandle,QueryI8ArrayCommand,i8ArraySize,i8ArrayResult,i8ArrayCount)
Description	This routine allows the user to send an arbitrary command string, and returns an array of 8-bit integer numbers. This can be used when the instrument returns an array in the form

	of a string, but when it returns the array as a binary block data (starts with '#') as defined in IEEE488.2
SCPI Commands	N/A

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession
Name	queryI8ArrayCommand
Description	The arbitrary query command string to be sent to the instrument.
Direction	IN
Type	ViString
Range	The queryI8ArrayCommand is limited to 256 characters.
Name	i8ArraySize
Description	The number of elements allocated by the user to the results array.
Direction	IN
Type	ViInt32
Name	i8ArrayResult
Description	Array of 8-bit integers – result returned by the instrument.
Direction	OUT
Type	ViInt8 i8ArrayResult[ ]
Name	i8ArrayCount
Description	The actual number of valid elements returned by the instrument.
Direction	OUT
Type	ViPInt32

hpe8305a_cmdReal( )

Syntax	hpe8305a_cmdReal(instrumentHandle,SendRealCommand,SendReal)
Description	This routine allows the user to send an arbitrary command string, followed by a single floating point parameter. A white space character is sent between the command string and the parameter. No result from Instrument is returned.
SCPI Commands	N/A

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession
Name	SendRealCommand
Description	The arbitrary command string to be sent to the instrument.
Direction	IN
Type	ViString

Range	The sendRealCommand is limited to 256 characters.

Name	SendReal
Description	The real number to be sent to the instrument at the end of the instrument command.
Direction	IN
Type	ViReal64
Range	ViReal32

hpe8305a_cmdReal64_Q( )

Syntax	hpe8305a_cmdReal64_Q(instrumentHandle,QueryRealCommand,RealResult)
Description	This routine allows the user to send an arbitrary command string, and returns a single 64-bit floating-point parameter.
SCPI Commands	N/A

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	QueryRealCommand
Description	The arbitrary query command string to be sent to the instrument.
Direction	IN
Type	ViString
Range	The queryRealCommand is limited to 256 characters.

Name	RealResult
Description	The real returned from the instrument. A non-numeric instrument response returns zero in result, in case of underflow undefined.
Direction	OUT
Type	ViPReal64
Range	ViReal32

hpe8305a_cmdString( )

Syntax	hpe8305a_cmdString(instrumentHandle,SendStringCommand,SendString)
Description	This routine allows the user to send an arbitrary command string and a parameter in form of a single string. A white space character is sent between the command string and the parameter. No result from Instrument is returned.
SCPI Commands	N/A

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	SendStringCommand
Description	The arbitrary command string to be sent to the instrument.
Direction	IN
Type	ViString
Range	The command string is limited to 256 characters.

Name	SendString
Description	String-Parameter of the command string to be sent to the instrument.
Direction	IN
Type	ViString
Range	The send string is limited to 256 characters.

hpe8305a_cmdString_Q( )

Syntax	hpe8305a_cmdString_Q(instrumentHandle,QueryStringCommand,StringSize,StringResult)
Description	This routine allows the user to send an arbitrary command string, and returns a single string parameter.
SCPI Commands	N/A

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	QueryStringCommand
Description	The arbitrary query command string to be sent to the instrument.
Direction	IN
Type	ViString
Range	The command string is limited to 256 characters.

Name	StringSize
Description	The size of the char array passed to the function to hold the string returned by the instrument
Direction	IN
Type	ViInt32

Name	StringResult
Description	The string returned by the instrument. It will be null terminated.
Direction	OUT
Type	ViChar stringResult[ ]
Range	The numbers of characters of stringResult is limited to the quantity of the specified StringSize.

hpe8305a_cmdUInt( )

Syntax	hpe8305a_cmdUInt(instrumentHandle,SendUIntegerCommand,SendUInteger)

Description	This routine allows the user to send an arbitrary command string, followed by a single unsigned integer parameter. A white space character is sent between the command string and the parameter. No result from Instrument is returned.
SCPI Commands	N/A

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	SendUIntegerCommand
Description	The arbitrary command string to be sent to the instrument.
Direction	IN
Type	ViString
Range	The sendUIntegerCommand is limited to 256 characters.

Name	SendUInteger
Description	The unsigned integer to be sent to the instrument at the end of the instrument command.
Direction	IN
Type	ViUInt32
Range	ViUInt16 or ViUInt32

hpe8305a_cmdUInt16_Q( )

Syntax	hpe8305a_cmdUInt16_Q(instrumentHandle,QueryUI16Command,Ui16Result)
Description	This routine allows the user to send an arbitrary command string, and returns a single unsigned 16-bit integer parameter. Non-integer numbers will be rounded.
SCPI Commands	N/A

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	queryUI16Command
Description	The arbitrary query command string to be sent to the instrument.
Direction	IN
Type	ViString
Range	The queryUI16Command is limited to 256 characters.

Name	ui16Result
Description	The unsigned integer returned from the instrument.
Direction	OUT
Type	ViPUInt16

hpe8305a_cmdUInt32_Q( )

Syntax	hpe8305a_cmdUInt32_Q(instrumentHandle,QueryUI32Command,Ui32Result)
Description	This routine allows the user to send an arbitrary command string, and returns a single unsigned 32-bit integer parameter. Non-integer numbers will be rounded.
SCPI Commands	N/A

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	QueryUI32Command
Description	The arbitrary query command string to be sent to the instrument.
Direction	IN
Type	ViString
Range	The queryUI32Command is limited to 256 characters.

Name	Ui32Result
Description	The unsigned integer returned from the instrument.
Direction	OUT
Type	ViPUInt32

hpe8305a_configInputClock( )

Syntax	hpe8305a_configInputClock(instrumentHandle,inputClockThreshold,inputClockImpedance)
Description	This function configures the triggering threshold AND the input impedance of the CLOCK-IN connector. Note that only two settings are available for the impedance.
SCPI Commands	:TRIGger:LEVel <inputClockThreshold> :TRIGger:IMPedance <inputClockImpedance>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	InputClockThreshold
Description	Provide value to set threshold-level of clock-input on.
Direction	IN
Type	ViReal64

Name	InputClockImpedance
Description	Provide value to set the impedance-value of clock-input on.
Direction	IN
Type	ViReal64
Range	50 Ohm or 10kOhm

hpe8305a_configInputClock_Q( )

Syntax	hpe8305a_configInputClock_Q(instrumentHandle,inputClockThreshold,inputClockImpedance)
Description	This function requests the actual used configuration of the triggering threshold AND the input impedance of the CLOCK-IN connector from the instrument.
SCPI Commands	:TRIGger:LEVel? :TRIGger:IMPedance?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession
Name	InputClockThreshold
Description	Requests the threshold-level of the clock-input.
Direction	OUT
Type	ViReal64*
Name	InputClockImpedance
Description	Requests the impedance of the clock-input.
Direction	OUT
Type	ViReal64*
Range	50 Ohm or 10kOhm

hpe8305a_configInputExternal( )

Syntax	hpe8305a_configInputExternal(instrumentHandle,inputExternalThreshold,inputExternalImpedance)
Description	This function configures the triggering threshold AND the input impedance of the EXT-INPUT connector. Note that only two settings are available for the impedance.
SCPI Commands	:ARM:LEVel <inputExternalThreshold> :ARM:IMPedance <inputExternalImpedance>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession
Name	InputExternalThreshold
Description	Provide value to set threshold-level of external-input on.
Direction	IN
Type	ViReal64
Name	InputExternalImpedance

Description	Provide value to set the impedance-value of external-input on.
Direction	IN
Type	ViReal64
Range	50 Ohm or 10kOhm

hpe8305a_configInputExternal_Q( )

Syntax	hpe8305a_configInputExternal_Q(nstrumentHandle,inputExternalThreshold,inputExternalImpedance)
Description	This function requests the actual used configuration of the triggering threshold AND the input impedance of the EXT-INPUT connector from the instrument.
SCPI Commands	:ARM:LEVel? :ARM:IMPedance?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	InputExternalThreshold
Description	Provide variable to report the requested threshold-level of external-input to.
Direction	OUT
Type	ViReal64*

Name	InputExternalImpedance
Description	Provide variable to report the requested impedance-value of external-input to.
Direction	OUT
Type	ViReal64*
Range	50 Ohm or 10kOhm

hpe8305a_configOutputLoadCompensation( )

Syntax	hpe8305a_configOutputLoadCompensation(instrumentHandle,channel,loadCompensation)
Description	This function configures the expected load impedance of the device-under-test at the OUTPUT connectors. If you have a non-50 W load, the output levels at the device-under-test will not be the levels you program or set via the frontpanel unless you set the expected load using this function. Note: with the HP 81112A 3.8V/330MHz output channels it is not possible to set load impedance, it expects 50 W loads.
SCPI Commands	:OUTPut[1|2]:IMPedance:EXTernal <loadCompensation>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	LoadCompensation
Description	Provide value to set the load-compensation of selected channel.
Direction	IN
Type	ViReal64
Range	100mOhm - 1MOhm

hpe8305a_configOutputLoadCompensation_Q( )

Syntax	hpe8305a_configOutputLoadCompensation_Q(instrumentHandle,channel,loadCompensation)
Description	This function requests the actual configured load impedance expected at the OUTPUT connectors. Note: with the HP 81112A 3.8V/330MHz output channels it is not possible to set load impedance, it expects 50 W loads.
SCPI Commands	:OUTPut[1|2]:IMPedance:EXTernal?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	LoadCompensation
Description	Reports value of the used load-compensation of selected channel.
Direction	OUT
Type	ViReal64*
Range	100mOhm - 1MOhm.

hpe8305a_configPllReference( )

Syntax	hpe8305a_configPllReference(instrumentHandle,pllSourceSelect,pllExternalFrequencyValue)

Description	This function sets the reference source for the PLL, and when selected the external reference (CLOCK-IN connector) this function also sets the expected reference frequency.
SCPI Commands	[:SOURce]:ROSCillator:SOURce INTernal1 [:SOURce]:ROSCillator:SOURce INTernal2 [:SOURce]:ROSCillator:SOURce EXTernal [:SOURce]:ROSCillator:EXTernal:FREQuency <value>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	PllSourceSelect
Description	Select source of the PLL.
Direction	IN
Type	ViUInt16
Range	HPE8305A_PLL_SOURCE_INTERNAL_1: Lock the PLL to its internal reference. HPE8305A_PLL_SOURCE_INTERNAL_2: Lock the PLL to reference on VXI-backplane. HPE8305A_PLL_SOURCE_CLOCK_IN: Lock the PLL to a reference signal at the CLOCK-IN connector.

Name	PllExternalFrequencyValue
Description	Provide value of reference frequency expected at clock-input for the internal PLL.
Direction	IN
Type	ViReal64
Range	5MHz or 10 MHz
Note	When PLL is locked to internal source, this parameter is ignored, since the internal frequency is not variable.

hpe8305a_configPllReference_Q( )

Syntax	hpe8305a_configPllReference_Q(instrumentHandle,pllSourceSelect,pllExternalFrequency Value)
Description	This function requests the actual used reference source for the PLL, and when selected the external reference (CLOCK-IN connector) this function also requests the expected reference frequency.
SCPI Commands	[:SOURce]:ROSCillator:SOURce? [:SOURce]:ROSCillator:EXTernal:FREQuency?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	PllSourceSelect
Description	Report the actual source of the PLL.

Direction	OUT
Type	ViUInt16*
Range	HPE8305A_PLL_SOURCE_INTERNAL_1
	HPE8305A_PLL_SOURCE_INTERNAL_2
	HPE8305A_PLL_SOURCE_CLOCK_IN

Name	PllExternalFrequencyValue
Description	Reports the frequency depending on pllSourceSelect
	HPE8305A_PLL_SOURCE_INTERNAL_XXX: Zero is reported, since the internal frequency is not variable.
	HPE8305A_PLL_SOURCE_CLOCK_IN: Reference-frequency provided at clock-input is reported.
Direction	OUT
Type	ViReal64*
Range	5MHz or 10 MHz or 0

hpe8305a_configTriggerOutLevel( )

Syntax	hpe8305a_configTriggerLevel(instrumentHandle,triggerLevel)
Description	This function sets the output levels at the TRIGGER-OUT connector.
SCPI Commands	[:SOURce]:PULSe:TRIGger[1]:VOLTage TTL
	[:SOURce]:PULSe:TRIGger[1]:VOLTage ECL

Parameters:

Name	InstrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	TriggerLevel
Description	Select the level of selected trigger output.
Direction	IN
Type	ViUInt16
Range	HPE8305A_TTL
	HPE8305A_ECL

hpe8305a_configTriggerOutLevel_Q( )

Syntax	hpe8305a_configTriggerLevel_Q(instrumentHandle,triggerLevel)
Description	This functions requests the actual used output levels at the TRIGGER-OUT connector from the instrument.
SCPI Commands	[:SOURce]:PULSe:TRIGger[1]:VOLTage?

Parameters:

Name	InstrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	TriggerLevel
Description	Requests the actual level of selected output.
Direction	OUT
Type	ViUInt16*
Range	HPE8305A_TTL HPE8305A_ECL

hpe8305a_configTriggerOutSource( )

Syntax	hpe8305a_configTriggerOutSource(instrumentHandle,triggerSource)
Description	This functions sets the source for TRIGGER-OUT connector.
SCPI Commands	[:SOURce]:PULSe:TRIGger:SOURce TRIGger1 | TRIGger2 [:SOURce]:PULSe:TRIGger:SOURce:AUTO ON | OFF

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	TriggerSource
Description	Select the actual used source.
Direction	IN
Type	ViUInt16
Range	HPE8305A_COUPLING_OPERATION_MODE HPE8305A_TRIGGER_SOURCE_1 HPE8305A_TRIGGER_SOURCE_2

hpe8305a_configTriggerOutSource_Q( )

Syntax	hpe8305a_configTriggerOutSource_Q(instrumentHandle,triggerSource)
Description	This function requests the actual used source of TRIGGER-OUT from the instrument.
SCPI Commands	[:SOURce]:PULSe:TRIGger:SOURce? [:SOURce]:PULSe:TRIGger:SOURce:AUTO?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	triggerSource
Description	Requests the actual source of the trigger-output.
Direction	OUT
Type	ViUInt16*

Range	HPE8305A_COUPLING_OPERATION_MODE HPE8305A_TRIGGER_SOURCE_1 HPE8305A_TRIGGER_SOURCE_2

hpe8305a_dcl( )

Syntax	hpe8305a_dcl(instrumentHandle)
Description	Send a device clear message to the instrument, which, in turn clears all input and output, buffers, clears any pending operations, and places the instrument parser into a state where it is ready to accept input. This routine does not generate any unique error conditions beyond those returned by VISA (i.e. timeout, query interrupted, etc.).
SCPI Commands	*CLS

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

hpe8305a_error_message( )

Syntax	hpe8305a_error_message(instrumentHandle,StatusCode,Message)
Description	Returns a text string for an error number. The error may be returned either by VISA functions or generated within the driver.
SCPI Commands	No instrument communication is associated with this function.

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	StatusCode
Description	The error return value from an instrument driver function.
Direction	IN
Type	ViStatus

Name	Message
Description	Error message string.
Direction	OUT
Type	ViPString
Range	Message is limited to 256 characters.

hpe8305a_error_query( )

Syntax	hpe8305a_error_query(instrumentHandle,ErrorCode,ErrorMessage)

Description	Queries the instrument for errors and reports the top error in the instrument's error queue. This function will get the error number and the detailed error message from the instrument.
SCPI Commands	:SYST:ERR?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	ErrorCode
Description	An instrument error code.
Direction	OUT
Type	ViPInt32

Name	ErrorMessage
Description	An instrument error message string.
Direction	OUT
Type	ViPString
Range	ErrorMessage is limited to 256 characters.

hpe8305a_errorQueryDetect( )

Syntax	hpe8305a_errorQueryDetect(instrumentHandle,SetErrorQueryDetect)
Description	This routine is an internal driver routine. It does not perform I/O with the instrument. Instead it sets a flag, detectError which, if true, instructs a centralised error handling routine in the driver to non-destructively query the instrument for the presence of errors. The method of querying the instrument is somewhat instrument dependent. In IEEE 488.2 compliant instruments this is accomplished by querying the instrument's event status register and examining the four bits relating to instrument errors. However, it must be noted that the event status register is read destructive. Other bits in the register which may matter in the driver's operation, such as operation complete should be preserved until the next explicit query of the register, or until a *CLS command is received.
SCPI Commands	No instrument communication is associated with this function.

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	SetErrorQueryDetect
Description	Value, on which the detectError flag is intended to be set.
Direction	IN
Type	ViBoolean
Range	VI_TRUE → enable automatic instrument error querying VI_FALSE → disable automatic instrument error querying

hpe8305a_errorQueryDetect_Q( )

Syntax	hpe8305a_errorQueryDetect_Q(instrumentHandle,ErrorQueryDetect)
Description	Queries the error query detect flag.
	For further information see also:hpe8305a_errorQueryDetect( )
SCPI Commands	No instrument communication is associated with this function.

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	ErrorQueryDetect
Description	Value, which represents the state of the driver internal detectError flag.
Direction	OUT
Type	ViPBoolean
Range	VI_TRUE → automatic instrument error querying is enabled
	VI_FALSE → automatic instrument error querying is disabled

hpe8305a_init( )

Syntax	hpe8305a_init(ResourceName,IDQuery,ResetDevice,instrumentHandle)
Description	Initialises the instrument session and returns a valid instrument handle. This will always be the first function to be executed to control an instrument.
SCPI Commands	*RST; *IDN?

Parameters:

Name	ResourceName
Description	Unique symbolic name of a resource, which is the instrument's VISA address, for example: "GPIB0::20::INSTR"
Direction	IN
Type	ViRsrc
Range	For further information see also: HP-VISA - User's Guide
	Chapter: HP VISA Language Reference
	Command: viOpen
	Theme: Address String Grammar for rsrcName Parameter

Name	IDQuery
Description	hpe8305a_init can also optionally verify the instrument's identity. The instrument is identified using the response to the "*IDN?" query up to the Model Number. The firmware revision and the model version number are not considered. On that way the driver can make sure it is talking to the right instrument.
Direction	IN
Type	ViBoolean
Range	VI_TRUE → validate instrument identity
	VI_FALSE → do not validate instrument identity

Name	ResetDevice

Description	hpe8305a_init( ) can also optionally reset the instrument.
Direction	IN
Type	ViBoolean
Range	VI_TRUE → perform an instrument reset VI_FALSE → do not perform an instrument reset

Name	instrumentHandle
Description	Pointer to Instrument Handle. The instrument handle returned has to be used as the first parameter in all other driver functions.
Direction	OUT
Type	ViPSession
Range	Returns VI_NULL if the init fails.

hpe8305a_levelHighLow( )

Syntax	hpe8305a_levelHighLow(instrumentHandle,channel,levelUnit,levelValueHigh,levelValueLow)
Description	This function programs the high-level and low-level in current or voltage of the OUTPUT signal. This enables either of the voltage or the current subsystems for the specified channel. The available current range is limited by the combination of: Specified current or voltage limits: hpe8305a_limit( ) Actual OUTPUT Impedance setting: hpe8305a_configOutputImpedance( ) Actual Expected Load impedance setting: hpe8305a_configOutputLoadCompensation( )
SCPI Commands	[:SOURce]:HOLD[1|2] VOLT | CURR [:SOURce]:CURRent[1|2]:LEVel:HIGH <value> [:SOURce]:CURRent[1|2]:LEVel:LOW <value> [:SOURce]:VOLTage[1|2]:LEVel:HIGH <value> [:SOURce]:VOLTage[1|2]:LEVel:LOW <value>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	LevelUnit
Description	Select the unit of the level-values.
Direction	IN
Type	ViUInt16

Range	HPE8305A_LEVELS_VOLT
	HPE8305A_LEVELS_AMPERE

Name	LevelValueHigh
Description	Provide value to set high-level on.
Direction	IN
Type	ViReal64

Name	LevelValueLow
Description	Provide value to set low-level on.
Direction	IN
Type	ViReal64

hpe8305a_levelHighLow_Q( )

Syntax	hpe8305a_levelHighLow_Q(instrumentHandle,channel,levelUnit,levelValueHigh,levelValueLow)
Description	This function requests the actual used high-level and low-level in current or voltage of the OUTPUT signal from the instrument.
SCPI Commands	[:SOURce]:HOLD[1|2]?
	[:SOURce]:CURRent[1|2]:LEVel:HIGH?
	[:SOURce]:CURRent[1|2]:LEVel:LOW?
	[:SOURce]:VOLTage[1|2]:LEVel:HIGH?
	[:SOURce]:VOLTage[1|2]:LEVel:LOW?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1
	HPE8305A_CHANNEL_2

Name	LevelUnit
Description	Reports the actual used unit for the level-values.
Direction	OUT
Type	ViUInt16*
Range	HPE8305A_LEVELS_VOLT
	HPE8305A_LEVELS_AMPERE

Name	LevelValueHigh
Description	Reports the value of the actual used high-level.
Direction	OUT

Type	ViReal64*
Name	LevelValueLow
Description	Reports the value of the actual used low-level.
Direction	OUT
Type	ViReal64*

hpe8305a_levelOffsetAmplitude( )

Syntax	hpe8305a_levelOffsetAmplitude(instrumentHandle,channel,levelUnit,levelValueOffset,levelValueAmplitude)
Description	This function programs the offset-level and the amplitude-level in current or voltage of the OUTPUT signal. . This enables either of the voltage or the current subsystems for the specified channel. The available current range is limited by the combination of: Specified ampere or voltage limits: hpe8305a_limit( ) Actual OUTPUT Impedance setting: hpe8305a_configOutputImpedance( ) Actual Expected Load impedance setting: hpe8305a_configOutputLoadCompensation( )
SCPI Commands	[:SOURce]:HOLD[1|2] VOLT | CURR [:SOURce]:CURRent[1|2]:LEVel:AMPLitude <value> [:SOURce]:CURRent[1|2]:LEVel:OFFSet <value> [:SOURce]:VOLTage[1|2]:LEVel:AMPLitude <value> [:SOURce]:VOLTage[1|2]:LEVel:OFFSet <value>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession
Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2
Name	LevelUnit
Description	Select the unit of the level-values.
Direction	IN
Type	ViUInt16
Range	HPE8305A_LEVELS_VOLT HPE8305A_LEVELS_AMPERE
Name	LevelValueOffset
Description	Provide value to set offset on.
Direction	IN

Type	ViReal64

Name	LevelValueAmplitude
Description	Provide value to set amplitude on.
Direction	IN
Type	ViReal64

hpe8305a_levelOffsetAmplitude_Q( )

Syntax	hpe8305a_levelOffsetAmplitude_Q(instrumentHandle,channel,levelUnit,levelValueOffset,levelValueAmplitude)
Description	This function requests the actual used offset-level and the amplitude-level in current or voltage of the OUTPUT signal from the instrument.
SCPI Commands	[:SOURce]:HOLD[1|2]? [:SOURce]:CURRent[1|2]:LEVel:AMPLitude? [:SOURce]:CURRent[1|2]:LEVel:OFFSet? [:SOURce]:VOLTage[1|2]:LEVel:AMPLitude? [:SOURce]:VOLTage[1|2]:LEVel:OFFSet?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	LevelUnit
Description	Reports the actual used unit for the level-values.
Direction	OUT
Type	ViUInt16*
Range	HPE8305A_LEVELS_VOLT HPE8305A_LEVELS_AMPERE

Name	LevelValueOffset
Description	Reports the value of the actual used offset.
Direction	OUT
Type	ViReal64*

Name	LevelValueAmplitude
Description	Reports the value of the actual used amplitude.
Direction	OUT
Type	ViReal64*

hpe8305a_limit( )

Syntax	hpe8305a_limit(instrumentHandle,channel,limitsVoltageHighLevel,limitsVoltageLowLevel,limitsCurrentHighLevel,limitsCurrentLowLevel)
Description	This function sets all level limits. Use hpe8305a_limitState( ) to switch on or off limiting. Then the level cannot be set outside the programmed limit range. Note: The current is NOT limited by the OUTPUT hardware, this is only a software limit.
SCPI Commands	[:SOURce]:CURRent[1|2]:LIMit:HIGH|LOW <value>
	[:SOURce]:VOLTage[1|2]:LIMit:HIGH|LOW <value>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL
	HPE8305A_CHANNEL_1
	HPE8305A_CHANNEL_2

Name	LimitsVoltageHighLevel
Description	Provide value to set the High-Level of Voltage-Limits on.
Direction	IN
Type	ViReal64

Name	LimitsVoltageLowLevel
Description	Provide value to set the low-level of Voltage-Limits on.
Direction	IN
Type	ViReal64

Name	LimitsCurrentHighLevel
Description	Provide value to set the High-Level of Current-Limits on.
Direction	IN
Type	ViReal64

Name	LimitsCurrentLowLevel
Description	Provide value to set the low-level of Current-Limits on.
Direction	IN
Type	ViReal64

hpe8305a_limit_Q( )

Syntax	hpe8305a_limit_Q(instrumentHandle,channel,limitsVoltageHighLevel,limitsVoltageLowLevel, limitsCurrentHighLevel,limitsCurrentLowLevel)
Description	This function requests the actual used limit values from the instrument. Use hpe8305a_limitState_Q( ) to request whether limits are active or not.
SCPI Commands	[:SOURce]:CURRent[1|2]:LIMit:HIGH|LOW? [:SOURce]:VOLTage[1|2]:LIMit:HIGH|LOW?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	LimitsVoltageHighLevel
Description	Reports the actual used High-Level of the Voltage-Limits from the instrument.
Direction	OUT
Type	ViReal64*

Name	LimitsVoltageLowLevel
Description	Reports the actual used low-level of the Voltage-Limits from the instrument.
Direction	OUT
Type	ViReal64*

Name	LimitsCurrentHighLevel
Description	Reports the actual used High-Level of the Current-Limits from the instrument.
Direction	OUT
Type	ViReal64*

Name	LimitsCurrentLowLevel
Description	Reports the actual used low-level of the Current-Limits from the instrument.
Direction	OUT
Type	ViReal64*

hpe8305a_limitState( )

Syntax	hpe8305a_limitState(instrumentHandle,channel,limitEnable)
Description	This function switches the output limits for the specified channels on or off. When you switch on the output limits, the output-levels cannot be programmed beyond the programmed limits, until you switch off the output-limits. The limits apply whether you program High/Low levels or Amplitude/Offset levels. Note: The current and voltage limits are always enabled/disabled together, not independently.

	Note: The current is NOT limited by the OUTPUT hardware, this is only a software limit.
SCPI Commands	[:SOURce]:CURRent[1|2]:LIMit:STATe ON | OFF
	[:SOURce]:VOLTage[1|2]:LIMit:STATe ON | OFF

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL
	HPE8305A_CHANNEL_1
	HPE8305A_CHANNEL_2

Name	LimitEnable
Description	Output-limits enabled or disabled. With Limits ON the output-levels cannot be set outside the limits.
Direction	IN
Type	ViUInt16
Range	HPE8305A_LIMITS_ENABLE_OFF
	HPE8305A_LIMITS_ENABLE_ON

hpe8305a_limitState_Q( )

Syntax	hpe8305a_limitState_Q(instrumentHandle,channel,limitEnable)
Description	This function requests from the instrument whether the output limits for the specified channel is switched on or off.
SCPI Commands	[:SOURce]:CURRent[1|2]:LIMit:STATe?
	[:SOURce]:VOLTage[1|2]:LIMit:STATe?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1
	HPE8305A_CHANNEL_2

Name	LimitEnable
Description	Reports whether output-limits are enabled or disabled. With Limits ON the output-levels

	cannot be set outside the limits.
Direction	OUT
Type	ViUInt16*
Range	HPE8305A_LIMITS_ENABLE_OFF
	HPE8305A_LIMITS_ENABLE_ON

hpe8305a_modeContinuousBurst( )

Syntax	hpe8305a_modeContinuousBurst(instrumentHandle,burstLength,pulsePeriodSource,externalClockEdge)
Description	This function configures the instrument mode into continuous-Burst.
	A burst of pulse-periods is repeated continuously.
	The output signal is the same as in continuous-pulses-mode, but the trigger-out now marks the beginning and end of each burst.
	Trigger-out marks each pulse-period.
	Trigger-out rises at the start of the first pulse-period in a burst and falls at the start of the last pulse-period.
	To set the instrument completely to the desired mode use additionally hpe8305a_modePulseType( ).
SCPI Commands	:TRIGGer:COUNt <burstLength>; :DIGital:PATTern OFF
	:TRIGger:SOURce IMM | INT2 | EXT2
	:TRIGger:SLOPe POS | NEG
	:ARM:SOURce IMM; :ARM:EWIDTh[:STATe] OFF

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	BurstLength
Description	Provide value to set burstLength on (number of pulse-periods per burst).
Direction	IN
Type	ViUInt32
Range	2 to 65536

Name	PulsePeriodSource
Description	Select source of pulse-period
Direction	IN
Type	ViUInt16
Range	HPE8305A_INTERNAL_OSCILLATOR
	HPE8305A_INTERNAL_PLL
	HPE8305A_CLOCK_INPUT

Name	ExternalClockEdge
Description	Synchronize the Pulse-period to rising or falling edge at CLK-IN
Direction	IN
Type	ViUInt16
Range	HPE8305A_FALLING

HPE8305A_RISING

HPE8305A_UNTOUCHED

hpe8305a_modeContinuousPattern( )

Syntax	hpe8305a_modeContinuousPattern(instrumentHandle,pulsePeriodSource,externalClockEdge)
Description	This function configures the instrument mode into Continuous-Pattern. A pattern of pulses is repeated continuously. Trigger-out marks each pulse-period. Trigger-out is bit programmable, like the outputs. To set the instrument completely to the desired mode use additionally hpe8305a_modePatternDataFormat( ).
SCPI Commands	:TRIGger:SOURce IMM | INT2 | EXT2 :TRIGger:SLOPe POS | NEG :ARM:SOURce IMM :ARM:EWIDth[:STATe] OFF :DIGital:PATTern ON

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	PulsePeriodSource
Description	Select source of pulse-period
Direction	IN
Type	ViUInt16
Range	HPE8305A_INTERNAL_OSCILLATOR HPE8305A_INTERNAL_PLL HPE8305A_CLOCK_INPUT

Name	ExternalClockEdge
Description	Synchronize the Pulse-period to the rising or falling edge at CLK-IN.
Direction	IN
Type	ViUInt16
Range	HPE8305A_FALLING HPE8305A_RISING HPE8305A_UNTOUCHED

hpe8305a_modeContinuousPulses( )

Syntax	hpe8305a_modeContinuousPulses(instrumentHandle,pulsePeriodSource,externalClockEdge)
Description	This function configures the instrument mode into Continuous-Pulses. Pulse-periods are generated continuously.

Trigger-out marks each pulse-period.

To set the instrument completely to the desired mode use additionally hpe8305a_modePulseType( ).

SCPI Commands :TRIGger:SOURce IMM | INT2 | EXT2

:TRIGger:SLOPe POS | NEG

:TRIGger:COUNt 1

:ARM:SOURce IMM

:ARM:EWIDth[:STATe] OFF

:DIGital:PATTern OFF

Parameters:

Name instrumentHandle

Description Instrument Handle returned from hpe8305a_init( ).

Direction IN

Type ViSession

Name PulsePeriodSource

Description Select source of pulse-period.

Direction IN

Type ViUInt16

Range HPE8305A_INTERNAL_OSCILLATOR

HPE8305A_INTERNAL_PLL

HPE8305A_CLOCK_INPUT

Name ExternalClockEdge

Description Synchronize the Pulse-period to rising or falling edge at CLK-IN.

Direction IN

Type ViUInt16

Range HPE8305A_FALLING

HPE8305A_RISING

HPE8305A_UNTOUCHED

hpe8305a_modeExternalWidth( )

Syntax hpe8305a_modeExternalWidth(instrumentHandle,triggerSource)

Description This function configures the instrument mode into External-Width.

The pulse-width is determined by an external signal.

The period, delay, and width of the output pulse are not programmable in this mode as they are determined by the external signal.

To set the instrument completely to the desired mode use additionally hpe8305a_configInputExternal( ).

SCPI Commands :ARM:EWIDth[:STATe] ON

:ARM:SOUR EXT | MAN

Parameters:

Name instrumentHandle

Description Instrument Handle returned from hpe8305a_init( ).

Direction IN

Type ViSession

Name	TriggerSource
Description	Select source of trigger.
Direction	IN
Type	ViUInt16
Range	HPE8305A_EXTERNAL_INPUT HPE8305A_MANUAL HPE8305A_VXI_ECL_0, HPE8305A_VXI_ECL_1, HPE8305A_VXI_TTL_0 - HPE8305A_VXI_TTL_7

hpe8305a_modeGatedBurst( )

Syntax	hpe8305a_modeGatedBurst(instrumentHandle,burstLength,pulsePeriodSource,externalClockEdge,gateSource,gateLevel)
Description	This function configures the instrument mode into gated-Burst. An active level at the selected arming source gates bursts of pulse-periods. Trigger-out rises at start of first pulse-period in burst and falls at start of last pulse-period. To set instrument completely to desired mode use additionally hpe8305a_modePulseType( ).
SCPI Commands	:TRIGGer:COUNt <burstLength>; :ARM:EWIDth[:STATe] OFF; :ARM:SENSe LEVel :TRIGger:SOURce IMM | INT2 | EXT2; :TRIGger:SLOPe NEG | POS :ARM:SOURce EXT | MAN; :ARM:SLOPe NEG | POS | EITH; :DIGital:PATTern OFF

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	BurstLength
Description	Provide value to set burstLength on.
Direction	IN
Type	ViUInt32
Range	2 - 65536

Name	PulsePeriodSource
Description	Select source of pulse-period
Direction	IN
Type	ViUInt16
Range	HPE8305A_INTERNAL_OSCILLATOR HPE8305A_INTERNAL_PLL HPE8305A_CLOCK_INPUT

Name	ExternalClockEdge
Description	Synchronize the Pulse-period to rising or falling edge at CLK-IN.
Direction	IN
Type	ViUInt16
Range	HPE8305A_FALLING

	HPE8305A_RISING
	HPE8305A_UNTOUCHED

Name	GateSource
Description	Select source of trigger.
Direction	IN
Type	ViUInt16
Range	HPE8305A_EXTERNAL_INPUT
	HPE8305A_MANUAL
	HPE8305A_VXI_ECL_0, HPE8305A_VXI_ECL_1, HPE8305A_VXI_TTL_0 - HPE8305A_VXI_TTL_7

Name	GateLevel
Description	Select slope of trigger.
Direction	IN
Type	ViUInt16
Range	HPE8305A_LOW_LEVEL
	HPE8305A_HIGH_LEVEL
	HPE8305A_ALWAYS
	HPE8305A_UNTOUCHED

hpe8305a_modeGatedPattern( )

Syntax	hpe8305a_modeGatedPattern(instrumentHandle,pulsePeriodSource,externalClockEdge,gateSource,gateLevel)
Description	This function configures the instrument mode into Gated-Pattern.
	An active level at the selected arming source gates a pattern of pulses.
	Trigger-out is bit programmable, like the outputs.
	To set the instrument completely to the desired mode use additionally hpe8305a_modePatternDataFormat( ).
SCPI Commands	:TRIGger:SOURce IMM | INT2 | EXT2
	:TRIGger:SLOPe NEG | POS
	:ARM:SOURce EXT | MAN
	:ARM:SLOPe NEG | POS | EITH
	:ARM:EWIDth:[STATe] OFF; :DIGital:PATTern ON; :ARM:SENSe LEVel

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	PulsePeriodSource
Description	Select source of pulse-period.
Direction	IN
Type	ViUInt16
Range	HPE8305A_INTERNAL_OSCILLATOR
	HPE8305A_INTERNAL_PLL

HPE8305A_CLOCK_INPUT

Name	ExternalClockEdge
Description	Synchronize the Pulse-period to rising or falling edge at CLK-IN.
Direction	IN
Type	ViUInt16
Range	HPE8305A_FALLING HPE8305A_RISING HPE8305A_UNTOUCHED

Name	GateSource
Description	Select source of trigger.
Direction	IN
Type	ViUInt16
Range	HPE8305A_EXTERNAL_INPUT HPE8305A_MANUAL HPE8305A_VXI_ECL_0, HPE8305A_VXI_ECL_1, HPE8305A_VXI_TTL_0 - HPE8305A_VXI_TTL_7

Name	GateLevel
Description	Select slope of trigger.
Direction	IN
Type	ViUInt16
Range	HPE8305A_LOW_LEVEL HPE8305A_HIGH_LEVEL HPE8305A_ALWAYS HPE8305A_UNTOUCHED

hpe8305a_modeGatedPulses( )

Syntax	hpe8305a_modeGatedPulses(instrumentHandle,pulsePeriodSource,externalClockEdge,gateSource,gateLevel)
Description	This function configures the instrument mode into Gated-Pulses. An active level at the selected arming source gates pulse-periods. Trigger-out marks each pulse-period. To set the instrument completely to the desired mode use additionally hpe8305a_modePulseType( ).
SCPI Commands	:TRIGger:SOURce IMM | INT2 | EXT2; :TRIGger:SLOPe NEG | POS :ARM:SOURce EXT | MAN; :ARM:SLOPe NEG | POS | EITH; :TRIGger:COUNt 1; :ARM:EWIDth[:STATe] OFF :DIGital:PATTern OFF; :ARM:SENSe LEVel

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	pulsePeriodSource
Description	Select source of pulse-period.
Direction	IN
Type	ViUInt16
Range	HPE8305A_INTERNAL_OSCILLATOR HPE8305A_INTERNAL_PLL HPE8305A_CLOCK_INPUT

Name	externalClockEdge
Description	Synchronize the Pulse-period to rising or falling edge at CLK-IN.
Direction	IN
Type	ViUInt16
Range	HPE8305A_FALLING HPE8305A_RISING HPE8305A_UNTOUCHED

Name	gateSource
Description	Select source of trigger.
Direction	IN
Type	ViUInt16
Range	HPE8305A_EXTERNAL_INPUT HPE8305A_MANUAL HPE8305A_VXI_ECL_0, HPE8305A_VXI_ECL_1, HPE8305A_VXI_TTL_0 - HPE8305A_VXI_TTL_7

Name	gateLevel
Description	Select slope of trigger.
Direction	IN
Type	ViUInt16
Range	HPE8305A_LOW_LEVEL HPE8305A_HIGH_LEVEL HPE8305A_ALWAYS HPE8305A_UNTOUCHED

hpe8305a_modePatternDataFormat( )

Syntax	hpe8305a_modePatternDataFormat (instrumentHandle,Channel,DataFormat)
Description	This function selects, whether the provided channel works with the data-format: NRZ (no return to zero): a leading edge is generated for a 0->1 data transition, a trailing edge is generated for a 1->0 data transition. RZ (return to zero): A single pulse is generated in each pulse-period with pattern-data TRUE, no single pulse is generated in each pulse-period with pattern-data FALSE. To put the instrument completely to a desired pattern-mode use also the functions: modeContinuousPattern( ) or modeTriggeredPattern( ) or modeGatedPattern( )

SCPI Commands :DIGital[:STIMulus]:SIGNal[1|2]:FORMat RZ | NRZ

Parameters:

Name instrumentHandle
Description Instrument Handle returned from hpe8305a_init( ).
Direction IN
Type ViSession

Name channel
Description Select channel-number.
Direction IN
Type ViUInt16
Range HPE8305A_CHANNEL_ALL
HPE8305A_DATA_CHANNEL_1
HPE8305A_DATA_CHANNEL_2

Name DataFormat
Description Select data-format for selected channel.
Direction IN
Type ViUInt16
Range HPE8305A_NRZ
HPE8305A_RZ

hpe8305a_modePatternDataFormat_Q( )

Syntax hpe8305a_modePatternDataFormat_Q(instrumentHandle,channel,dataFormat)
Description Use this function to find out whether the data-format of the selected channel is NRZ (non-return to zero) or RZ (return to zero).
SCPI Commands :DIGital[:STIMulus]:SIGNal[1|2]:FORMat?

Parameters:

Name instrumentHandle
Description Instrument Handle returned from hpe8305a_init( ).
Direction IN
Type ViSession

Name Channel
Description Select channel-number.
Direction IN
Type ViUInt16
Range HPE8305A_DATA_CHANNEL_1
HPE8305A_DATA_CHANNEL_2

Name DataFormat
Description Requests the actual data-format of selected channel.
Direction OUT
Type ViUInt16*
Range HPE8305A_NRZ

HPE8305A_RZ

hpe8305a_modePulseType( )

Syntax	hpe8305a_modePulseType(instrumentHandle,channel,pulseType)
Description	This function selects, whether the provided channel generatesa single pulse per period or a double pulse per period. To put the instrument completely to a desired pulse-mode or burst-mode use also the functions: modeContinuousPulses( ) or modeContinuousBurst( ) modeTriggeredPulses( ) or modeTriggeredBurst( ) modeGatedPulses( ) or modeGatedBurst( ) Use also function hpe8305a_timeDoubleDelay( ) to adjust the delay between the leading edges of the first and second pulse.
SCPI Commands	[:SOURce]:PULSe:DOUBle[1|2][:STATe] OFF | ON

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	PulseType
Description	Select pulse-type of selected channel.
Direction	IN
Type	ViUInt16
Range	HPE8305A_SINGLE_PULSES HPE8305A_DOUBLE_PULSES

hpe8305a_modePulseType_Q( )

Syntax	hpe8305a_modePulseType_Q(instrumentHandle,Channel,PulseType)
Description	Use this function to find out whether the pulse-type of the selected channel is single-pulses or double pulses.
SCPI Commands	[:SOURce]:PULSe:DOUBle[1|2][:STATe]?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN

Type	ViSession
Name	channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2
Name	pulseType
Description	Requests the actual pulse-type of selected channel.
Direction	OUT
Type	ViUInt16*
Range	HPE8305A_SINGLE_PULSES HPE8305A_DOUBLE_PULSES

hpe8305a_modeTriggeredBurst( )

Syntax	hpe8305a_modeTriggeredBurst(instrumentHandle,burstLength,pulsePeriodSource,externalClockEdge,triggerSource,triggerSlope,pllPeriodFrequencyFormat,pllPeriodFrequencyValue)
Description	This function configures the instrument mode into triggered-Burst. A burst of pulse-periods is triggered by an active edge at the selected arming source. Trigger-out rises at start of first pulse-period in burst and falls at start of last pulse-period. To set instrument completely to desired mode use additionally hpe8305a_modePulseType( ).
SCPI Commands	:TRIGger:COUNt <burstLength>; :TRIGger:SOURce IMM | INT2 | EXT2 :TRIGger:SLOPe POS | NEG; :ARM:SOURce INT2 | EXT | MAN :ARM:SLOPe NEG | POS | EITH ARM:EWIDth[:STATe] OFF; :ARM:SENSe EDGE :ARM:PERiod <value>; :ARM:FREQuency <value>; :DIGital:PATTern OFF

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession
Name	BurstLength
Description	Provide value to set burstLength on.
Direction	IN
Type	ViUInt32
Range	2 - 65536
Name	pulsePeriodSource
Description	Select source of pulse-period.
Direction	IN
Type	ViUInt16
Range	HPE8305A_INTERNAL_OSCILLATOR

	HPE8305A_INTERNAL_PLL
	HPE8305A_CLOCK_INPUT

Name	externalClockEdge
Description	Synchronize the Pulse-period to rising or falling edge at CLK-IN.
Direction	IN
Type	ViUInt16
Range	HPE8305A_FALLING
	HPE8305A_RISING
	HPE8305A_UNTOUCHED

Name	TriggerSource
Description	Select source of trigger
Direction	IN
Type	ViUInt16
Range	HPE8305A_INTERNAL_PLL
	HPE8305A_EXTERNAL_INPUT
	HPE8305A_MANUAL
	HPE8305A_VXI_ECL_0, HPE8305A_VXI_ECL_1, HPE8305A_VXI_TTL_0 … HPE8305A_VXI_TTL_7

Name	TriggerSlope
Description	Select slope of trigger.
Direction	IN
Type	ViUInt16
Range	HPE8305A_FALLING
	HPE8305A_RISING
	HPE8305A_BOTH
	HPE8305A_UNTOUCHED

Name	PllPeriodFrequencyFormat
Description	Select the format of PLL-period or PLL-frequency setting.
Direction	IN
Type	ViUInt16
Range	HPE8305A_VALUE_IS_PERIOD
	HPE8305A_VALUE_IS_FREQUENCY
	HPE8305A_UNTOUCHED

Name	pllPeriodFrequencyValue
Description	Provide value to set PLL-period or PLL-frequency on.
Direction	IN
Type	ViReal64

hpe8305a_modeTriggeredPattern( )

Syntax	hpe8305a_modeTriggeredPattern(instrumentHandle,pulsePeriodSource,externalClockEdge, triggerSource,triggerSlope,pllPeriodFrequencyFormat,pllPeriodFrequencyValue)

Description	This function configures the instrument mode into Triggered-Pattern. A pattern of pulses is triggered by active edge form selected arming source. Trigger-out is bit programmable, like the outputs. To set instrument completely to desired mode use hpe8305a_modePatternDataFormat( ).
SCPI Commands	:TRIGger:SOURce IMM | INT2 | EXT2; :TRIGger:SLOPe NEG | POS :DIGital:PATTern ON; :ARM:SOURce INT2 | EXT | MAN ARM:SLOPe NEG | POS | EITH; ARM:SENSe EDGE :ARM:PERiod <value>; :ARM:FREQuency <value> ARM:EWIDth[:STATe] OFF

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	PulsePeriodSource
Description	Select source of pulse-period.
Direction	IN
Type	ViUInt16
Range	HPE8305A_INTERNAL_OSCILLATOR HPE8305A_INTERNAL_PLL HPE8305A_CLOCK_INPUT

Name	ExternalClockEdge
Description	Synchronize the Pulse-period to the rising or falling edge at CLK-IN
Direction	IN
Type	ViUInt16
Range	HPE8305A_FALLING HPE8305A_RISING HPE8305A_UNTOUCHED

Name	TriggerSource
Description	Select source of trigger
Direction	IN
Type	ViUInt16
Range	HPE8305A_INTERNAL_PLL HPE8305A_EXTERNAL_INPUT HPE8305A_MANUAL HPE8305A_VXI_ECL_0, HPE8305A_VXI_ECL_1, HPE8305A_VXI_TTL_0 … HPE8305A_VXI_TTL_7

Name	TriggerSlope
Description	Select slope of trigger.
Direction	IN
Type	ViUInt16
Range	HPE8305A_FALLING HPE8305A_RISING HPE8305A_BOTH

HPE8305A_UNTOUCHED

Name	PllPeriodFrequencyFormat
Description	Select the format of PLL-period or PLL-frequency setting.
Direction	IN
Type	ViUInt16
Range	HPE8305A_VALUE_IS_PERIOD
	HPE8305A_VALUE_IS_FREQUENCY
	HPE8305A_UNTOUCHED

Name	pllPeriodFrequencyValue
Description	Provide value to set PLL-period or PLL-frequency on.
Direction	IN
Type	ViReal64

hpe8305a_modeTriggeredPulses( )

Syntax	hpe8305a_modeTriggeredPulses(instrumentHandle,triggerSource,triggerSlope)
Description	This function configures the instrument mode into Triggered-Pulses.
	Single pulse-periods are triggered by an active edge at the selected arming source.
	Trigger-out marks each pulse-period.
	To set the instrument completely to the desired mode use additionally hpe8305a_modePulseType( ).
SCPI Commands	:ARM:SOURce EXT | MAN; :ARM:SLOPe NEG | POS | EITH
	:TRIGger:SOURce IMM; :TRIGger:COUNt 1; :ARM:EWIDth[:STATe] OFF
	:DIGital:PATTern OFF; :ARM:SENSe EDGE

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	TriggerSource
Description	Select source of trigger.
Direction	IN
Type	ViUInt16
Range	HPE8305A_EXTERNAL_INPUT
	HPE8305A_MANUAL
	HPE8305A_VXI_ECL_0, HPE8305A_VXI_ECL_1, HPE8305A_VXI_TTL_0 … HPE8305A_VXI_TTL_7

Name	TriggerSlope
Description	Select slope of trigger at the EXT-Input.
Direction	IN
Type	ViUInt16
Range	HPE8305A_FALLING
	HPE8305A_RISING

HPE8305A_BOTH

HPE8305A_UNTOUCHED

hpe8305a_opc_Q( )

Syntax	hpe8305a_opc_Q(instrumentHandle,InstrumentReady)
Description	Returns the response to the "*OPC?" from the instrument. Typically the instrument waits for the completion of the current operation and returns "1" when finished.
SCPI Commands	*OPC?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	InstrumentReady
Description	Returns the state whether there are some pending operations.
Direction	OUT
Type	ViPBoolean
Range	VI_TRUE → pending operations are complete
	VI_FALSE → pending operations are not complete

hpe8305a_operCond_Q( )

Syntax	hpe8305a_operCond_Q(instrumentHandle,OperationConditionRegister)
Description	Returns the contents of the instrument's operation condition register. This routine is only required for IEEE 488.2 instruments.
SCPI Commands	:STAT:OPER:COND?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	OperationConditionRegister
Description	Returns the contents of the operation condition register.
Direction	OUT
Type	ViPInt32

hpe8305a_operEvent_Q( )

Syntax	hpe8305a_operEvent_Q(instrumentHandle,OperationEventRegister)
Description	Returns the contents of the instrument's operation event status register. This routine is only required for IEEE 488.2 instruments. Note that if the user makes this call, automatic error

	detection (hpe8305a_errorQueryDetect_Q) may miss an instrument error or other event that is automatically handled in the driver.
SCPI Commands	:STAT:OPER:EVEN?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession
Name	OperationEventRegister
Description	Returns the contents of the operation event register.
Direction	OUT
Type	ViPInt32

hpe8305a_outputEnableVxiTrigger( )

Syntax	hpe8305a_outputEnableVxiTrigger(instrumentHandle,triggerLine)
Description	This function switches the trigger-lines on the VXI-backplane on or off.
SCPI Commands	:OUTPut[1|2]:TTLTrg<n>|ECLTrg<n>[:STATe] ON|OFF|0|1

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession
Name	TriggerLine
Description	Selects the VXI-trigger-line, which should be used after the function call. The trigger-line used up to now is switched off automatically. To use no trigger-line use parameter HPE8305A_VXI_TRG_NONE.
Direction	IN
Type	ViUInt16
Range	HPE8305A_VXI_ECL_0 HPE8305A_VXI_ECL_1 HPE8305A_VXI_TTL_0 HPE8305A_VXI_TTL_1 HPE8305A_VXI_TTL_2 HPE8305A_VXI_TTL_3 HPE8305A_VXI_TTL_4 HPE8305A_VXI_TTL_5 HPE8305A_VXI_TTL_6 HPE8305A_VXI_TTL_7 HPE8305A_VXI_TRG_NONE

hpe8305a_outputEnableVxiTrigger_Q( )

Syntax	hpe8305a_outputEnableVxiTrigger_Q(instrumentHandle,triggerLine)
Description	This function requests the actual used VXI-trigger-line from the instrument
SCPI Commands	:OUTPut[1|2]:TTLTrg<n>|ECLTrg<n>?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	TriggerLine
Description	Reports which trigger-line is switched on, or reports HPE8305A_VXI_TRG_NONE when all switched off.
Direction	OUT
Type	ViUInt16*
Range	HPE8305A_VXI_ECL_0 HPE8305A_VXI_ECL_1 HPE8305A_VXI_TTL_0 HPE8305A_VXI_TTL_1 HPE8305A_VXI_TTL_2 HPE8305A_VXI_TTL_3 HPE8305A_VXI_TTL_4 HPE8305A_VXI_TTL_5 HPE8305A_VXI_TTL_6 HPE8305A_VXI_TTL_7 HPE8305A_VXI_TRG_NONE

hpe8305a_outputPolarity( )

Syntax	hpe8305a_outputPolarity(instrumentHandle,channel,outputStatePolarity)
Description	This function switches the polarity of normal and complement Output's between inverted-mode and non-inverted-mode.
SCPI Commands	:OUTPut[1|2]:POLarity NORM | INV

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

ame	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	OutputStatePolarity
Description	Select whether selected normal AND Complement output to work in inverted or not inverted mode.
Direction	IN
Type	ViUInt16
Range	HPE8305A_OUTPUT_POLARITY_NORMAL
	HPE8305A_OUTPUT_POLARITY_INVERTED

hpe8305a_outputPolarity_Q( )

Syntax	hpe8305a_outputPolarity_Q(instrumentHandle,channel,outputStatePolarity)
Description	This function requests from the instrument, whether the desired output's polarity is switched to normal-mode or to complement-mode.
SCPI Commands	:OUTPut[1|2]:POLarity?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1
	HPE8305A_CHANNEL_2

Name	OutputStatePolarity
Description	Reports whether selected normal AND Complement-Output actual works in inverted or not inverted mode.
Direction	OUT
Type	ViUInt16*
Range	HPE8305A_OUTPUT_POLARITY_NORMAL
	HPE8305A_OUTPUT_POLARITY_INVERTED

hpe8305a_outputStateComplement( )

Syntax	hpe8305a_outputStateComplement(instrumentHandle,channel,outputComplementState)
Description	This function switches the complement Output's on or off.
SCPI Commands	:OUTPut[1|2]:COMPlement:STATe OFF | ON

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	OutputComplementState
Description	Select whether selected complement output to switch on or off.
Direction	IN
Type	ViUInt16
Range	HPE8305A_OUTPUT_COMPLEMENT_OFF HPE8305A_OUTPUT_COMPLEMENT_ON

hpe8305a_outputStateComplement_Q( )

Syntax	hpe8305a_outputStateComplement_Q(instrumentHandle,channel,outputComplementState)
Description	This function requests from the instrument, whether the desired complement OUTPUT is switched on or off.
SCPI Commands	:OUTPut[1|2]:COMPlement:STATe?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	OutputComplementState
Description	Reports whether selected complement output is switched on or off.
Direction	OUT
Type	ViUInt16*
Range	HPE8305A_OUTPUT_COMPLEMENT_OFF HPE8305A_OUTPUT_COMPLEMENT_ON

hpe8305a_outputStateNormal( )

Syntax	hpe8305a_outputStateNormal(instrumentHandle,channel,outputNormalState)

Description	This function switches the normal Output's on or off.
SCPI Commands	:OUTPut[1|2]:NORMal:STATe OFF | ON

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	OutputNormalState
Description	Selects whether selected normal output to switch on or off.
Direction	IN
Type	ViUInt16
Range	HPE8305A_OUTPUT_NORMAL_OFF HPE8305A_OUTPUT_NORMAL_ON

hpe8305a_outputStateNormal_Q( )

Syntax	hpe8305a_outputStateNormal_Q(instrumentHandle,channel,outputNormalState)
Description	This function requests from the instrument, whether the desired normal OUTPUT is switched on or off.
SCPI Commands	:OUTPut[1|2]:NORMal:STATe?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	OutputNormalState
Description	Reports whether selected normal output is switched on or off.
Direction	OUT
Type	ViUInt16*

Range	HPE8305A_OUTPUT_NORMAL_OFF HPE8305A_OUTPUT_NORMAL_ON

hpe8305a_patternDataDownloadBuffer( )

Syntax	hpe8305a_patternDataDownloadBuffer(instrumentHandle,channel,dataBuffer,patternLength)
Description	This function sets the pattern provided by the user in a data-buffer to one or all channels starting from Bit 1. The <IEEE-data> are an arbitrary block of program data as defined in IEEE 488.2 7.7.6.2, for example: #1541213 # Start of block 1 Length of the length of the data 5 Length of the data 41213 5 bytes of data Note: the data provided in the data-buffer must not contain the header like described before. Only the raw pattern-data are needed – the IEEE conform header is added automatically by this function.
SCPI Commands	:DIGital[:STIMulus]:PATTern:DATA[1|2|3] <IEEE-data>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_DATA_CHANNEL_ALL → data of all channels added binary HPE8305A_DATA_CHANNEL_1 HPE8305A_DATA_CHANNEL_2 HPE8305A_DATA_CHANNEL_3

Name	DataBuffer
Description	Pointer to the buffer containing the data to transfer into the instrument. Every pattern-bit uses one byte within the buffer.
Direction	IN
Type	ViUInt8*

Name	PatternLength
Description	Length of the provided pattern, that means also size of the provided buffer in bytes.
Direction	IN Length of the Provided pattern, that means also size of the Provided buffer in bytes.
Type	ViUInt32

hpe8305a_patternDataDownloadBuffer_Q( )

Syntax	hpe8305a_patternDataDownloadBuffer_Q(instrumentHandle,channel,dataBuffer,patternLengthReturned,bufferSize,convertBinaryToAscii)

Description	This function requests the actual used pattern from one instruments channels starting from Bit 1 and writes this data into the specified memory-buffer. The <IEEE-data> are an arbitrary block of program data as defined in IEEE 488.2 7.7.6.2, for example: #1541213 # Start of block 1 Length of the length of the data 5 Length of the data 41213 5 bytes of data Note: the data provided in the data-buffer do not contain the header like described before. Only the raw pattern-data are supported - the IEEE conform header is removed automatically by this function.
SCPI Commands	:DIGital[:STIMulus]:PATTern:DATA[1|2|3]?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_DATA_CHANNEL_ALL → data of all channels added binary HPE8305A_DATA_CHANNEL_1 HPE8305A_DATA_CHANNEL_2 HPE8305A_DATA_CHANNEL_3

Name	DataBuffer
Description	Pointer to the buffer to write the requested instrument data to. Every pattern-bit uses one byte within the buffer.
Direction	OUT
Type	ViUInt8*

Name	PatternLengthReturned
Description	Quantity of valid bytes returned by the instrument and written into the specified buffer.
Direction	OUT
Type	ViUInt32*

Name	BufferSize
Description	Size of the provided buffer in bytes.
Direction	IN
Type	ViUInt32

Name	ConvertBinaryToAscii
Description	The expected data to read from the instrument will have binary format and need to be transformed into ASCII-format, before written into the provided buffer.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CONVERT_OFF HPE8305A_CONVERT_ON

hpe8305a_patternDataDownloadFile( )

Syntax	hpe8305a_patternDataDownloadFile(instrumentHandle,channel,fileName)
Description	This function sets the pattern provided by the user in a file to one or all channels starting from Bit 1. The <IEEE-data> are an arbitrary block of program data as defined in IEEE 488.2 7.7.6.2, for example: #1541213 # Start of block 1 Length of the length of the data 5 Length of the data 41213 5 bytes of data Note: the data provided in the file must not contain the header like described before. Only the raw pattern-data are needed - the IEEE conform header is added automatically by this function. It is possible to generate such a file with a text-editor. Remarks are allowed and initiated by the pound sign >#<. Every char after this sign is ignored until the new line begins. See the results of function hpe8305a_patternDataDownloadFile_Q( ) for an example.
SCPI Commands	:DIGital[:STIMulus]:PATTern:DATA[1|2|3] <IEEE-data>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_DATA_CHANNEL_ALL → data of all channels added binary HPE8305A_DATA_CHANNEL_1 HPE8305A_DATA_CHANNEL_2 HPE8305A_DATA_CHANNEL_3

Name	FileName
Description	File containing the data to transfer into the instrument. Every pattern-bit uses one byte within the file.
Direction	IN
Type	ViString

hpe8305a_patternDataDownloadFile_Q( )

Syntax	hpe8305a_patternDataDownloadFile_Q(instrumentHandle,channel,fileName,convertBinaryToAscii)
Description	This function request the actual used pattern from one instruments Channels starting from Bit 1 and writes the requested data into the specified file. The <IEEE-data> are an arbitrary block of program data as defined in IEEE 488.2 7.7.6.2, for example: #1541213: # Start of block 1 Length of the length of the data 5 Length of the data 41213 5 bytes of data

Note: the data provided by this function in the file do not contain the header like described before. Only the raw pattern-data are supported - the IEEE conform header is removed automatically by this function.

It is possible to generate such a file also with a text-editor. Remarks are allowed and initiated by the pound sign >#<. Every char after this sign is ignored until the new line begins. The results of this function may be used as a base for further development of pattern-files or own new creations.

SCPI Commands :DIGital[:STIMulus]:PATTern:DATA[1|2|3]?

Parameters:

Name instrumentHandle
Description Instrument Handle returned from hpe8305a_init( ).
Direction IN
Type ViSession

Name Channel
Description Select channel-number.
Direction IN
Type ViUInt16
Range HPE8305A_DATA_CHANNEL_ALL → data of all channels added binary
HPE8305A_DATA_CHANNEL_1
HPE8305A_DATA_CHANNEL_2
HPE8305A_DATA_CHANNEL_3

Name FileName
Description File to write to the data transferred out of the instrument. Every pattern-bit uses one byte within the file.
Direction OUT
Type ViString

Name ConvertBinaryToAscii
Description The expected data to read from the instrument will have binary format and need to be transformed into ASCII-format, before written into the provided file.
Direction IN
Type ViUInt16
Range HPE8305A_CONVERT_OFF
HPE8305A_CONVERT_ON

hpe8305a_patternDataPRBS( )

Syntax hpe8305a_patternDataPRBS(instrumentHandle,channel,polynomExponent,patternLength)
Description This function sets up PRBS data starting from bit 1.
SCPI Commands :DIGital[:STIMulus]:PATTern:PRBS[1|2|3] <polynomExponent>,<patternLength>

Parameters:

Name instrumentHandle
Description Instrument Handle returned from hpe8305a_init( ).
Direction IN
Type ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_DATA_CHANNEL_ALL → all channels contain same PRBS HPE8305A_DATA_CHANNEL_1 HPE8305A_DATA_CHANNEL_2 HPE8305A_DATA_CHANNEL_3

Name	PolynomExponent
Description	Exponent of the PRBS (pseudo random bit stream) polynom: $2^{(n-1)}$.
Direction	IN
Type	ViUInt16
Range	7 - 12.

Name	PatternLength
Description	Length of the randomized generated pattern. Determines how many bits of the PRBS sequence are used. If <patternLength> is longer than the PRBS, the PRBS is repeated as necessary to achieve the required length.
Direction	IN
Type	ViUInt32

hpe8305a_patternDataPreset( )

Syntax	hpe8305a_patternDataPreset(instrumentHandle,channel,patternDivider,patternLength)
Description	This function sets up clock data starting from bit 1 with value 1. The parameter <patternDivider> is used as the divider to generate a CLOCK%patternDivider sequence (squarewave if NRZ data is selected). The parameter <patternLength> determines the length of the sequence. PatternDivider = 0 special Case! Then sequence defined by <length> is filled with zeros. PatternDivider = 1 special Case! Then sequence is filled with ones. PatternDivider=2 Sequence = 101010101010101.... PatternDivider=3 Sequence = 100100100100100.... PatternDivider=4 Sequence = 110011001100110.... PatternDivider=5 Sequence = 110001100011000.... PatternDivider=6 Sequence = 111000111000111.... Note: To produce a CONTINUOUS squarewave the pattern length must be a multiple of the selected divider.
SCPI Commands	:DIGital[:STIMulus]:PATTern:PRESet[1|2|3] <patternDivider>,<patternLength>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.

Direction	IN
Type	ViUInt16
Range	HPE8305A_DATA_CHANNEL_ALL → all channels contain same sequence
	HPE8305A_DATA_CHANNEL_1
	HPE8305A_DATA_CHANNEL_2
	HPE8305A_DATA_CHANNEL_3

Name	PatternDivider
Description	Period of the generated pattern results of provided value multiplied with the actual used pulse-period ($^{Clock}/_{n}$).
Direction	IN
Type	ViUInt32

Name	PatternLength
Description	Length of the pattern to generate automatically.
Direction	IN
Type	ViUInt32

hpe8305a_patternUpdate( )

Syntax	hpe8305a_patternUpdate(instrumentHandle,patternUpdateMode)
Description	This function sets the instrument's parameter for updating the pattern. "Update" means the automatic updating of the pattern generating hardware following a hpe8305a_patternDataDownloadXXX( ) function-call. Disable the automatic updating if you want to set up new pattern data in the instrument without affecting the pattern, which is currently being generated. You can then update the hardware with the new pattern data by calling hpe8305a_patternUpdate(iHandle, HPE8305A_UPDATE_ONCE).
SCPI Commands	:DIGital[:STIMulus]:PATTern:UPDate OFF | ON | ONCE

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	PatternUpdateMode
Description	Select pattern update mode.
Direction	IN
Type	ViUInt16
Range	HPE8305A_UPDATE_OFF
	HPE8305A_UPDATE_ONCE
	HPE8305A_UPDATE_CONTINUOUS

hpe8305a_patternUpdate_Q( )

Syntax	hpe8305a_patternUpdate_Q(instrumentHandle,patternUpdateMode)
Description	This function requests the actual used parameter for pattern updates. "Update" means the automatic updating of the pattern generating hardware following a

	hpe8305a_patternDataDownloadX( ) function-call.
SCPI Commands	:DIGital[:STIMulus]:PATTern:UPDate?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	PatternUpdateMode
Description	Reports the selected pattern update mode from the instrument.
Direction	OUT
Type	ViUInt16*
Range	HPE8305A_UPDATE_OFF
	HPE8305A_UPDATE_CONTINUOUS

hpe8305a_quesCond_Q( )

Syntax	hpe8305a_quesCond_Q(instrumentHandle,QuestionableConditionRegister)
Description	Returns the contents of the instrument's data questionable condition register. This routine is only required for IEEE 488.2 instruments.
SCPI Commands	:STAT:QUES:COND?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	QuestionableConditionRegister
Description	Returns the contents of the questionable condition register.
Direction	OUT
Type	ViPInt32

hpe8305a_quesEvent_Q( )

Syntax	hpe8305a_quesEvent_Q(instrumentHandle,QuestionableEventRegister)
Description	Returns the contents of the instrument's data questionable status register. This routine is only required for IEEE 488.2 instruments.
SCPI Commands	:STAT:QUES:EVEN

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	QuestionableEventRegister

Description	Returns the contents of the questionable event register.
Direction	OUT
Type	ViPInt32

hpe8305a_readStatusByte_Q( )

Syntax	hpe8305a_readStatusByte_Q(instrumentHandle,StatusByte)
Description	Returns the instrument's primary status byte.
SCPI Commands	:*STB

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	StatusByte
Description	Returns the contents of the status byte.
Direction	OUT
Type	ViPInt16

hpe8305a_reset( )

Syntax	hpe8305a_reset(instrumentHandle)
Description	Returns the instrument to a known state.
SCPI Commands	*RST

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

hpe8305a_revision_query( )

Syntax	hpe8305a_revision_query(instrumentHandle,InstrumentDriverRevision,FirmwareRevision)
Description	Queries the instrument and driver for the current revision number.
SCPI Commands	*IDN?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	InstrumentDriverRevision

Description	The instruments firmware revision is obtained from the response to the *IDN? command.
Direction	OUT
Type	ViPString
Range	InstrumentDriverRevision is limited to 256 characters.

Name	FirmwareRevision
Description	The driver revision is hard coded in the driver, and has a pattern like A.06.01.
Direction	OUT
Type	ViPString
Range	FirmwareRevision is limited to 256 characters.

hpe8305a_self_test( )

Syntax	hpe8305a_self_test(instrumentHandle,SelfTestResult,SelfTestMessage)
Description	Performs a self-test of the instrument and returns the self-test result and a text error message.
SCPI Commands	*TST?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	SelfTestResult
Description	Self-test result – identify number.
Direction	OUT
Type	ViPInt16

Name	SelfTestMessage
Description	Self-test status message string.
Direction	OUT
Type	ViPString
Range	SelfTestMessage is limited to 256 characters.

hpe8305a_settingFile( )

Syntax	hpe8305a_settingFile(instrumentHandle,settingSourceFileName)
Description	Instrument set-up-information, stored in a special data-file, is transferred to the instrument. This set-up-information includes all parameter and mode settings, but does not include the contents of the instrument setting memories and the status group registers. The data format of the file is binary should not be edited.
SCPI Commands	:SYST:SET

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN

Type	ViSession
Name	settingSourceFileName
Description	Complete string containing the name of the setting-file.
Direction	IN
Type	ViString

hpe8305a_settingFile_Q( )

Syntax	hpe8305a_settingFile_Q(instrumentHandle,settingDestinationFileName)
Description	Instrument set-up-information are requested from the instrument and stored in a special data-file. This set-up-information includes all parameter and mode settings, but does not include the contents of the instrument setting memories and the status group registers. The data format of the file is binary should not be edited.
SCPI Commands	:SYST:SET?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession
Name	settingDestinationFileName
Description	Complete string containing the name of the setting-file.
Direction	IN
Type	ViString

hpe8305a_settingRecall( )

Syntax	hpe8305a_settingRecall (instrumentHandle,settingNumber)
Description	The stored instrument set-up-information is transferred from the internal memory and used as the actual setting. There may be 10 different settings stored. This set-up-information includes all parameter and mode settings, but does not include the status group registers.
SCPI Commands	*RCL

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession
Name	settingNumber
Description	Select the setting-number describing the desired stored setting.
Direction	IN
Type	ViUInt16
Range	HPE8305A_SETTING_DEFAULT
	HPE8305A_SETTING_1

HPE8305A_SETTING_2
HPE8305A_SETTING_3
HPE8305A_SETTING_4
HPE8305A_SETTING_5
HPE8305A_SETTING_6
HPE8305A_SETTING_7
HPE8305A_SETTING_8
HPE8305A_SETTING_9

hpe8305a_settingStore( )

Syntax	hpe8305a_settingStore(instrumentHandle,settingNumber)
Description	The actual instrument set-up-information is transferred to the instruments internal memory (RAM). There are 10 different settings storable. This set-up-information includes all parameter and mode settings, but does not include the status group registers. The stored setting is hold in the memory until the instrument is power-cycled.
SCPI Commands	*SAV

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	settingNumber
Description	Select the setting-number to store the setting to.
Direction	IN
Type	ViUInt16
Range	HPE8305A_SETTING_1 HPE8305A_SETTING_2 HPE8305A_SETTING_3 HPE8305A_SETTING_4 HPE8305A_SETTING_5 HPE8305A_SETTING_6 HPE8305A_SETTING_7 HPE8305A_SETTING_8 HPE8305A_SETTING_9

hpe8305a_timeCalibration ( )

Syntax	hpe8305a_timeCalibration(instrumentHandle)
Description	This function recalibrate the timing system. The timing-circuits for VCO-period, delay and width are calibrated in reference to the internal PLL-reference. When the device is switched off and on again, the factory calibration data are activated again. The function returns, whether the desired calibration has passed.
SCPI Commands	:CALibration[:ALL] :CALibration[:ALL]?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

hpe8305a_timeDelay( )

Syntax	hpe8305a_timeDelay(instrumentHandle,channel,delayUnit,delayValue)
Description	This function sets the instruments delay parameter. "Delay" means the delay of the pulse's leading edge within the pulse-period. There are four different units for the value of delay available. HPE8305A_UNIT_SEC (second) HPE8305A_UNIT_PCT (percent) HPE8305A_UNIT_DEG HPE8305A_UNIT_RAD Use also function hpe8305a_modePulseType( ) to activate the desired pulse-type in the instrument.
SCPI Commands	[:SOURce]:PULSe:DELay[1|2]:UNIT SEC | PCT | DEG | RAD [:SOURce]:PULSe:DELay[1|2] <value>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	DelayUnit
Description	Select the unit for provided value of delay.
Direction	IN
Type	ViUInt16
Range	HPE8305A_UNIT_SEC (second) HPE8305A_UNIT_PCT (percent) HPE8305A_UNIT_DEG HPE8305A_UNIT_RAD

Name	DelayValue
Description	Provide value to set delay on.
Direction	IN
Type	ViReal64

hpe8305a_timeDelay_Q( )

Syntax	hpe8305a_timeDelay_Q(instrumentHandle,channel,delayUnit,delayValue)
Description	This function requests the delay parameter from the instrument. "Delay" means the delay of the pulse's leading edge within the pulse-period.
	There are four different units for the value of delay available.
	HPE8305A_UNIT_SEC (second)
	HPE8305A_UNIT_PCT (percent)
	HPE8305A_UNIT_DEG
	HPE8305A_UNIT_RAD
	Use also function hpe8305a_modePulseType_Q( ) to request the actual used pulse-type from the instrument.
SCPI Commands	[:SOURce]:PULSe:DELay[1|2]:UNIT?
	[:SOURce]:PULSe:DELay[1|2]?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1
	HPE8305A_CHANNEL_2

Name	DelayUnit
Description	Reports the actual used unit for actual used value of delay.
Direction	OUT
Type	ViUInt16*
Range	HPE8305A_UNIT_SEC (second)
	HPE8305A_UNIT_PCT (percent)
	HPE8305A_UNIT_DEG
	HPE8305A_UNIT_RAD

Name	DelayValue
Description	Reports the actual used delay value.
Direction	OUT
Type	ViReal64*

hpe8305a_timeDelayDouble( )

Syntax	hpe8305a_timeDelayDouble(instrumentHandle,channel,doubleDelayUnit,doubleDelayValue)
Description	This function sets the instrument's double-delay parameter. "Double-Delay" means the delay between the leading edges of the two pulses in double-pulse mode The first pulse always starts at the start of the pulse-period.

There are two different units for the value of double-delay available.

HPE8305A_UNIT_SEC (second)

HPE8305A_UNIT_PCT (percent)

Use also function hpe8305a_modePulseType( ) to activate the desired pulse-type in the instrument.

SCPI Commands [:SOURce]:PULSe:DOUBle[1|2]:DELay:UNIT SEC | PCT

[:SOURce]:PULSe:DOUBle[1|2]:DELay <value>

Parameters:

Name instrumentHandle

Description Instrument Handle returned from hpe8305a_init( ).

Direction IN

Type ViSession

Name channel

Description Select channel-number.

Direction IN

Type ViUInt16

Range HPE8305A_CHANNEL_ALL

HPE8305A_CHANNEL_1

HPE8305A_CHANNEL_2

Name doubleDelayUnit

Description Select the unit for provided value of double-delay.

Direction IN

Type ViUInt16

Range HPE8305A_UNIT_SEC (second)

HPE8305A_UNIT_PCT (percent)

Name doubleDelayValue

Description Provide value to set double-delay on.

Direction IN

Type ViReal64

hpe8305a_timeDelayDouble_Q( )

Syntax hpe8305a_timeDelayDouble_Q(instrumentHandle,channel,doubleDelayUnit,doubleDelayValue)

Description This function requests the double-delay parameter from the instrument. "Double-Delay" means the delay between the leading edges of the two pulses in double-pulse mode The first pulse always starts at the start of the pulse-period.

There are two different units for the value of double-delay available.

HPE8305A_UNIT_SEC (second)

HPE8305A_UNIT_PCT (percent)

Use also function hpe8305a_modePulseType_Q( ) to request the actual used pulse-type from the instrument.

SCPI Commands [:SOURce]:PULSe:DOUBle[1|2]:DELay:UNIT?

[:SOURce]:PULSe:DOUBle[1|2]:DELay?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	doubleDelayUnit
Description	Reports the actual used unit for actual used value of double-delay.
Direction	OUT
Type	ViUInt16*
Range	HPE8305A_UNIT_SEC (second) HPE8305A_UNIT_PCT (percent)

Name	doubleDelayValue
Description	Report the actual used value double-delay is set on.
Direction	OUT
Type	ViReal64*

hpe8305a_timeDelayDoubleHold( )

Syntax	hpe8305a_timeDelayDoubleHold(instrumentHandle,channel,doubleDelayHoldMode)
Description	This function sets the instrument's double-delay parameter. "Double-Delay" means the delay between the leading edges of the two pulses in double-pulse mode The first pulse always starts at the start of the pulse-period. There are two delay hold-modes available. HPE8305A_HOLD_ABSOLUTE is the absolute delay from the start of a pulse-period to the start of the leading edge of the pulse. The absolute delay is independent of the pulse-period so the leading edge does not move relative to the start of the period if you change the period. HPE8305A_HOLD_RATIO is the delay from the start of the pulse-period to the start of the leading edge expressed as a percentage of the pulse-period. In this format if you change the period, the leading edge moves relative to the start of the period in order to maintain the phase delay. Use also function hpe8305a_modePulseType( ) to activate the desired pulse-type in the instrument.
SCPI Commands	[:SOURce]:PULSe:DOUBle[1|2]:DELay:HOLD TIME | PRATio

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	doubleDelayHoldMode
Description	Select the hold-mode for double-delay.
Direction	IN
Type	ViUInt16
Range	HPE8305A_HOLD_ABSOLUTE HPE8305A_HOLD_RATIO

hpe8305a_timeDelayDoubleHold_Q( )

Syntax	hpe8305a_timeDelayDoubleHold_Q(instrumentHandle,channel,doubleDelayHoldMode)
Description	This function requests the double-delay parameter from the instrument. "Double-Delay" means the delay between the leading edges of the two pulses in double-pulse mode The first pulse always starts at the start of the pulse-period. There are two delay hold-modes available. HPE8305A_HOLD_ABSOLUTE is the absolute delay from the start of a pulse-period to the start of the leading edge of the pulse. The absolute delay is independent of the pulse-period so the leading edge does not move relative to the start of the period if you change the period. HPE8305A_HOLD_RATIO is the delay from the start of the pulse-period to the start of the leading edge expressed as a percentage or in degrees (360° = 1 pulse-period) of the pulse-period. In this format if you change the period, the leading edge moves relative to the start of the period in order to maintain the percentage delay or the phase delay. Use also function hpe8305a_modePulseType_Q( ) to request the actual used pulse-type from the instrument.
SCPI Commands	[:SOURce]:PULSe:DOUBle[1|2]:DELay:HOLD?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	doubleDelayHoldMode
Description	Reports the actual used hold-mode for double-delay.

Direction	OUT
Type	ViUInt16*
Range	HPE8305A_HOLD_ABSOLUTE
	HPE8305A_HOLD_RATIO

hpe8305a_timeDelayHold( )

Syntax	hpe8305a_timeDelayHold(instrumentHandle,channel,delayHoldMode)
Description	This function sets the instruments delay parameter. "Delay" means the delay of the pulse's leading edge within the pulse-period.
	There are two delay hold-modes available.
	HPE8305A_HOLD_ABSOLUTE is the absolute delay from the start of a pulse-period to the start of the leading edge of the pulse. The absolute delay is independent of the pulse-period so the leading edge does not move relative to the start of the period if you change the period.
	HPE8305A_HOLD_RATIO is the delay from the start of the pulse-period to the start of the leading edge expressed as a percentage or in degrees (360° = 1 pulse-period) of the pulse-period. In this format if you change the period, the leading edge moves relative to the start of the period in order to maintain the percentage delay or the phase delay.
	Use also function hpe8305a_modePulseType( ) to activate the desired pulse-type in the instrument.
SCPI Commands	[:SOURce]:PULSe:DELay[1|2]:HOLD TIME | PRATio

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL
	HPE8305A_CHANNEL_1
	HPE8305A_CHANNEL_2

Name	DelayHoldMode
Description	Select the hold-mode for delay.
Direction	IN
Type	ViUInt16
Range	HPE8305A_HOLD_ABSOLUTE
	HPE8305A_HOLD_RATIO

hpe8305a_timeDelayHold_Q( )

Syntax	hpe8305a_timeDelayHold_Q(instrumentHandle,channel,delayHoldMode)

Description	This function requests the delay parameter from the instrument. "Delay" means the delay of the pulse's leading edge within the pulse-period. There are two delay hold-modes available. HPE8305A_HOLD_ABSOLUTE is the absolute delay from the start of a pulse-period to the start of the leading edge of the pulse. The absolute delay is independent of the pulse-period so the leading edge does not move relative to the start of the period if you change the period. HPE8305A_HOLD_RATIO is the delay from the start of the pulse-period to the start of the leading edge expressed as a percentage or in degrees (360° = 1 pulse-period) of the pulse-period. In this format if you change the period, the leading edge moves relative to the start of the period in order to maintain the percentage delay or the phase delay. Use also function hpe8305a_modePulseType_Q( ) to request the actual used pulse-type from the instrument.
SCPI Commands	[:SOURce]:PULSe:DELay[1|2]:HOLD?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	DelayHoldMode
Description	Reports the actual used hold-mode for delay.
Direction	OUT
Type	ViUInt16*
Range	HPE8305A_HOLD_ABSOLUTE HPE8305A_HOLD_RATIO

hpe8305a_timeEdgeHold( )

Syntax	hpe8305a_timeEdgeHold(instrumentHandle,channel,edgeHoldMode)
Description	This function sets the instrument's edge-hold parameter. Note: this hold mode is valid for leading edge and trailing edge in one time. There are two hold-modes for edge available: HPE8305A_HOLD_ABSOLUTE The absolute transition-time measured from 10% to 90% of pulse amplitude. In this format the edge is independent of the pulse-width. HPE8305A_HOLD_RATIO The absolute transition-time expressed as a percentage of pulse-width. In this format if you adjust the pulse-width, the transition-time is adjusted to maintain the edge-time as a percentage of the width. You cannot have the width format set to duty-cycle and the leading/ trailing-edge format set to percentage of width at the same time.
SCPI Commands	[:SOURce]:PULSe:TRANsition[1|2]:HOLD TIME | WRATio

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	edgeHoldMode
Description	Select the actual hold-mode for leading and trailing edge.
Direction	IN
Type	ViUInt16
Range	HPE8305A_HOLD_ABSOLUTE HPE8305A_HOLD_RATIO

hpe8305a_timeEdgeHold_Q( )

Syntax	hpe8305a_timeEdgeHold_Q(instrumentHandle,channel,edgeHoldMode)
Description	This function requests the edge-hold parameter from the instrument. Note: this hold mode is valid for leading edge and trailing edge in one time. There are two hold-modes for edge available: HPE8305A_HOLD_ABSOLUTE The absolute transition-time measured from 10% to 90% of pulse amplitude. In this format the edge is independent of the pulse-width. - HPE8305A_HOLD_RATIO The absolute transition-time expressed as a percentage of pulse-width. In this format if you adjust the pulse-width, the transition-time is adjusted to maintain the edge-time as a percentage of the width. You cannot have the width format set to duty-cycle and the leading/ trailing-edge format set to percentage of width at the same time.

SCPI Commands	[:SOURce]:PULSe:TRANsition[1|2]:HOLD?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	EdgeHoldMode
Description	Reports the actual used hold-mode for leading and trailing edge.
Direction	OUT
Type	ViUInt16*
Range	HPE8305A_HOLD_ABSOLUTE HPE8305A_HOLD_RATIO

hpe8305a_timeEdgeLeading( )

Syntax	hpe8305a_timeEdgeLeading(instrumentHandle,channel,leadingEdgeUnit,leadingEdgeValue)
Description	This function sets the instrument's leading-edge parameter. "Leading Edge" means the transition-time of the pulse, measured from 10% to 90% of pulse amplitude. Note: The value of leading edge is independently programmable within certain ranges only. Use also function hpe8305a_timeEdgeHold( ) to select the hold mode. Note: the hold mode is set for leading edge and trailing edge in one time.
SCPI Commands	[:SOURce]:PULSe:TRANsition[1|2]:UNIT SEC | PCT [:SOURce]:PULSe:TRANsition[1|2]:LEADing <value>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	LeadingEdgeUnit

Description	Select the unit for provided value of leading edge.
Direction	IN
Type	ViUInt16
Range	HPE8305A_UNIT_SEC (second) HPE8305A_UNIT_PCT (percent)

Name	LeadingEdgeValue
Description	Provide value to set leading edge on.
Direction	IN
Type	ViReal64

hpe8305a_timeEdgeLeading_Q( )

Syntax	hpe8305a_timeEdgeLeading_Q(instrumentHandle,channel,leadingEdgeUnit,leadingEdgeValue)
Description	This function requests the leading-edge parameter from the instrument. "Leading Edge" means the transition-time of the pulse, measured from 10% to 90% of pulse amplitude. Use also function hpe8305a_timeEdgeHold_Q( ) to request the actual used hold mode from the instrument. Note: this hold mode is valid for leading edge and trailing edge in one time.
SCPI Commands	[:SOURce]:PULSe:TRANsition[1|2]:UNIT? [:SOURce]:PULSe:TRANsition[1|2]:LEADing?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	LeadingEdgeUnit
Description	Reports the actual used unit for actual used value of leading edge.
Direction	OUT
Type	ViUInt16*
Range	HPE8305A_UNIT_SEC (second) HPE8305A_UNIT_PCT (percent)

Name	LeadingEdgeValue
Description	Reports the actual used value leading edge is set on.
Direction	OUT
Type	ViReal64*

hpe8305a_timeEdgeTrailing( )

Syntax	hpe8305a_timeEdgeTrailing(instrumentHandle,channel,trailingEdgeUnit,trailingEdgeValue)
Description	This function sets the instrument's trailing-edge parameter. "Trailing-Edge" means the transition-time of the pulse, measured from 90% to 10% of pulse amplitude. Note: The value of trailing edge is independently programmable within certain ranges only. Use also function hpe8305a_timeEdgeHold( ) to select the hold mode. Note: the hold mode is set for leading edge and trailing edge in one time. Use also function hpe8305a_timeEdgeTrailingCoupling( ) to specify the coupling mode between trailing-edge and leading-edge.
SCPI Commands	[:SOURce]:PULSe:TRANsition[1|2]:UNIT SEC | PCT [:SOURce]:PULSe:TRANsition[1|2]:TRAiling <value>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	TrailingEdgeUnit
Description	Select the unit for provided value of trailing edge.
Direction	IN
Type	ViUInt16
Range	HPE8305A_UNIT_SEC (second) HPE8305A_UNIT_PCT (percent)

Name	TrailingEdgeValue
Description	Provide value to set trailing edge on.
Direction	IN
Type	ViReal64

hpe8305a_timeEdgeTrailing_Q( )

Syntax	hpe8305a_timeEdgeTrailing_Q(instrumentHandle,channel,trailingEdgeUnit,trailingEdgeValue)
Description	This function requests the trailing-edge parameter from the instrument. "Trailing-Edge" means the transition-time of the pulse, measured from 90% to 10% of pulse amplitude. Use also function hpe8305a_timeEdgeHold_Q( ) to request the actual used hold mode from the instrument. Note: this hold mode is valid for leading edge and trailing edge in one time. Use also function hpe8305a_timeEdgeTrailingCoupling( ) to request the actual used coupling mode between trailing edge and leading edge from the instrument.

SCPI Commands	[:SOURce]:PULSe:TRANsition[1|2]:UNIT? [:SOURce]:PULSe:TRANsition[1|2]:TRAiling?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	TrailingEdgeUnit
Description	Reports the actual used unit for actual used value of trailing edge.
Direction	OUT
Type	ViUInt16*
Range	HPE8305A_UNIT_SEC (second) HPE8305A_UNIT_PCT (percent)

Name	TrailingEdgeValue
Description	Reports the actual used value trailing edge is set on.
Direction	OUT
Type	ViReal64*

hpe8305a_timeEdgeTrailingCoupling( )

Syntax	hpe8305a_timeEdgeTrailingCoupling(instrumentHandle,channel,trailingEdgeCoupling)
Description	This function sets the instrument's coupling-mode parameter for automatic coupling of the pulse trailing-edge transition-time to the leading-edge transition-time. Note: this couples the edge-hold, the unit and the value of the trailing edge to the settings of the leading edge. There are two coupling-modes available: - HPE8305A_COUPLING_OFF: The trailing-edge transition time is automatically set to the same value as the leading edge, and is updated automatically each time the leading-edge transition-time changes. - HPE8305A_COUPLING_ON: The trailing-edge transition time is independently programmable. - HPE8305A_COUPLING_ONCE: The trailing-edge transition time is set ONCE to the same value as the leading edge.
SCPI Commands	[:SOURce]:PULSe:TRANsition[1|2]:TRAiling:AUTO OFF | ON | ONCE

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	TrailingEdgeCoupling
Description	Select the coupling mode from trailing edge to leading edge.
Direction	IN
Type	ViUInt16
Range	HPE8305A_COUPLING_OFF HPE8305A_COUPLING_ON HPE8305A_COUPLING_ONCE

hpe8305a_timeEdgeTrailingCoupling_Q( )

Syntax	hpe8305a_timeEdgeTrailingCoupling_Q(instrumentHandle,channel,trailingEdgeCoupling)
Description	This function requests the coupling-mode parameter for automatic coupling of the pulse trailing-edge transition-time to the leading-edge transition-time from the instrument. Note: this couples the edge-hold, the unit and the value of the trailing edge to the settings of the leading edge. There are two coupling-modes available: - HPE8305A_COUPLING_OFF: The trailing-edge transition time is automatically set to the same value as the leading edge, and is updated automatically each time the leading-edge transition-time changes. - HPE8305A_COUPLING_ON: The trailing-edge transition time is independently programmable.
SCPI Commands	[:SOURce]:PULSe:TRANsition[1|2]:TRAiling:AUTO?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	TrailingEdgeCoupling
Description	Reports the actual used coupling mode from trailing edge to leading edge.
Direction	OUT
Type	ViUInt16*
Range	HPE8305A_COUPLING_OFF

HPE8305A_COUPLING_ON

hpe8305a_timeFrequency( )

Syntax	hpe8305a_timeFrequency(instrumentHandle,frequencyValue)
Description	This function sets the instruments frequency of pulses. hpe8305a_timePeriod( ) is complementary to this function. Select the frequency source for the pulse frequency using :TRIGger:SOURce. The currently selected source is programmed by this command. Note that the specified limits and available resolution depend on the selected source. You cannot set the pulse frequency if you have selected the CLOCK-IN connector as the frequency source (:TRIG:SOUR EXT).
SCPI Commands	[:SOURce]:FREQuency[:FIXed] <frequencyValue>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	FrequencyValue
Description	Provide value to set frequency on.
Direction	IN
Type	ViReal64

hpe8305a_timeFrequency_Q( )

Syntax	hpe8305a_timeFrequency_Q(instrumentHandle,frequencyValue)
Description	This function requests the frequency of pulses from the instrument. hpe8305a_timePeriod_Q( ) is complementary to this function.
SCPI Commands	[:SOURce]:FREQuency[:FIXed]?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	FrequencyValue
Description	Provide variable to report the requested frequency to.
Direction	OUT
Type	ViReal64*

hpe8305a_timeFrequencyMeasure( )

Syntax	hpe8305a_timeFrequencyMeasure(instrumentHandle)

Description	This function measure the frequency provided at external CLOCK-Input. hpe8305a_timePeriodMeasure( ) is complementary to this function. If the CLOCK-IN connector is the selected pulse frequency source, you can then read the measured value with hpe8305a_timeFrequency_Q( ).
SCPI Commands	[:SOURce]:FREQuency[:FIXed]:AUTO ONCE

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

hpe8305a_timeOut( )

Syntax	hpe8305a_timeOut(instrumentHandle,SetTimeOut)
Description	This routine is a driver internal routine. It sets the amount of time a driver should wait on I/O, in milliseconds, before returning a timeout error. Note that the default timeout for HP VISA is 2 Seconds. However, it should be set to a value that does not cause timeouts during normal operation. The driver is allowed to override the default and set timeout in certain long routines. Examples include self-test and long measurements. If a routine overrides the standard timeout, it must restore the default timeout value before completing.
SCPI Commands	No instrument communication is associated with this function.

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	SetTimeOut
Description	The period of time which VISA will allow an instrument command to wait before stopping its execution. This value is written into an internal variable.
Direction	IN
Type	ViInt32

hpe8305a_timeOut_Q( )

Syntax	hpe8305a_timeOut_Q(instrumentHandle,TimeOut)
Description	Returns the current setting of the timeout value of the instrument in milliseconds. For further information see also: hpe8305a_timeOut( )
SCPI Commands	No instrument communication is associated with this function.

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	TimeOut
Description	The period of time which VISA will allow an instrument command to wait before stopping its execution. This value is read out of an internal variable.
Direction	OUT
Type	ViPInt32

hpe8305a_timePeriod( )

Syntax	hpe8305a_timePeriod(instrumentHandle,periodValue)
Description	This function sets the instruments pulse-period. hpe8305a_timeFrequency( ) is complementary to this function. Select the period source for the pulse-period using :TRIGger:SOURce. The currently selected source is programmed by this command. Note that the specified limits and available resolution depend on the selected source. You cannot set the pulse-period if you have selected the CLOCK-IN connector as the period source (:TRIG:SOUR EXT).
SCPI Commands	[:SOURce]:PULSe:PERiod

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	PeriodValue
Description	Provide value to set period on.
Direction	IN
Type	ViReal64

hpe8305a_timePeriod_Q( )

Syntax	hpe8305a_timePeriod_Q(instrumentHandle,periodValue)
Description	This function requests the pulse-period from the instrument. hpe8305a_timeFrequency_Q( ) is complementary to this function.
SCPI Commands	[:SOURce]:PULSe:PERiod?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	PeriodValue
Description	Provide variable to report the requested period to.
Direction	OUT
Type	ViReal64*

hpe8305a_timePeriodMeasure( )

Syntax	hpe8305a_timePeriodMeasure(instrumentHandle)
Description	This function measures the period provided at external CLOCK-Input. hpe8305a_timeFrequencyMeasure( ) is complementary to this function. If the CLOCK-IN connector is the selected pulse-period source, you can then read the measured value with hpe8305a_timePeriod_Q( ).
SCPI Commands	[:SOURce]:PULSe:PERiod:AUTO ONCE

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

hpe8305a_timeWidth( )

Syntax	hpe8305a_timeWidth(instrumentHandle,channel,widthValue)
Description	This function sets the instruments width parameter
SCPI Commands	[:SOURce]:PULSe:WIDTh[1|2] <value>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	widthValue
Description	Provide value to set width on.
Direction	IN
Type	ViReal64

hpe8305a_timeWidth_Q( )

Syntax	hpe8305a_timeWidth_Q(instrumentHandle,channel,widthValue)
Description	This function requests the width parameter from the instrument.
SCPI Commands	[:SOURce]:PULSe:WIDTh[1|2]?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	widthValue
Description	Report the actual used value width is set on.
Direction	OUT
Type	ViReal64*

hpe8305a_timeWidthDutyCycle( )

Syntax	hpe8305a_timeWidthDutyCycle(instrumentHandle,channel,dutyCycleValue)
Description	This function sets the instruments duty-cycle parameter
SCPI Commands	[:SOURce]:PULSe:DCYCle[1|2] <value>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	dutyCycleValue
Description	Provide value to set duty-cycle on.
Direction	IN
Type	ViReal64

hpe8305a_timeWidthDutyCycle_Q( )

Syntax	hpe8305a_timeWidth_Q(instrumentHandle,channel,dutyCycleValue)
Description	This function requests the duty-cycle parameter from the instrument.

SCPI Commands [:SOURce]:PULSe:DCYCle[1|2]?

Parameters:

Name instrumentHandle
Description Instrument Handle returned from hpe8305a_init( ).
Direction IN
Type ViSession

Name channel
Description Select channel-number.
Direction IN
Type ViUInt16
Range HPE8305A_CHANNEL_1
HPE8305A_CHANNEL_2

Name dutyCycleValue
Description Report the actual used value duty-cycle is set on.
Direction OUT
Type ViReal64*

hpe8305a_timeWidthHold( )

Syntax hpe8305a_timeWidthHold(instrumentHandle,channel,widthHoldMode)
Description This function sets the instrument's width parameter.

There are three hold-modes for width available.

- HPE8305A_WIDTH
is the absolute pulse-width measured from start of the leading edge to start of the trailing edge. In this format the pulse-width is independent of changes in pulse-period and delay.

- HPE8305A_DUTY_CYCLE
is the pulse-width measured from start of the leading edge to start of the trailing edge expressed as a percentage of the period. In this format if you adjust the period, the absolute width is adjusted to maintain the duty-cycle. You cannot have the width format set to duty-cycle and the leading/trailing-edge format set to percentage of width at the same time.

- HPE8305A_TRAILING_DELAY
is the absolute delay from the start of the pulse-period to the start of the trailing edge. In this format the trailing edge remains fixed relative to the start of the pulse-period if you adjust the pulse-delay (leading-edge delay) or the pulse-period.

SCPI Commands [:SOURce]:PULSe:HOLD[1|2] WIDTh | DCYCle | TDELay

Parameters:

Name instrumentHandle
Description Instrument Handle returned from hpe8305a_init( ).
Direction IN
Type ViSession

Name Channel
Description Select channel-number.
Direction IN
Type ViUInt16
Range HPE8305A_CHANNEL_ALL

HPE8305A_CHANNEL_1
HPE8305A_CHANNEL_2

Name WidthHoldMode
Description Select the hold-mode for width.
Direction IN
Type ViUInt16
Range HPE8305A_WIDTH
HPE8305A_DUTY_CYCLE
HPE8305A_TRAILING_DELAY

hpe8305a_timeWidthHold_Q( )

Syntax hpe8305a_timeWidthHold_Q(instrumentHandle,channel,widthHoldMode)
Description This function requests the width parameter from the instrument.

There are three hold-modes for width available.

- HPE8305A_WIDTH
is the absolute pulse-width measured from start of the leading edge to start of the trailing edge. In this format the pulse-width is independent of changes in pulse-period and delay.

- HPE8305A_DUTY_CYCLE
is the pulse-width measured from start of the leading edge to start of the trailing edge expressed as a percentage of the period. In this format if you adjust the period, the absolute width is adjusted to maintain the duty-cycle. You cannot have the width format set to duty-cycle and the leading/trailing-edge format set to percentage of width at the same time.

- HPE8305A_TRAILING_DELAY
is the absolute delay from the start of the pulse-period to the start of the trailing edge. In this format the trailing edge remains fixed relative to the start of the pulse-period if you adjust the pulse-delay (leading-edge delay) or the pulse-period.

SCPI Commands [:SOURce]:PULSe:HOLD[1|2]?

Parameters:

Name instrumentHandle
Description Instrument Handle returned from hpe8305a_init( ).
Direction IN
Type ViSession

Name Channel
Description Select channel-number.
Direction IN
Type ViUInt16
Range HPE8305A_CHANNEL_1
HPE8305A_CHANNEL_2

Name WidthHoldMode
Description Reports the actual used hold-mode for width.
Direction OUT
Type ViUInt16*
Range HPE8305A_WIDTH
HPE8305A_DUTY_CYCLE
HPE8305A_TRAILING_DELAY

hpe8305a_timeWidthTrailingDelay ( )

Syntax	hpe8305a_timeWidthTrailingDelay(instrumentHandle,channel,trailingDelayValue)
Description	This function sets the instruments trailing-delay parameter
SCPI Commands	[:SOURce]:PULSe:TDELay[1|2] <value>

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	Channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_ALL HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	trailingDelayValue
Description	Provide value to set trailing-delay on.
Direction	IN
Type	ViReal64

hpe8305a_timeWidthTrailingDelay_Q( )

Syntax	hpe8305a_timeWidthTrailingDelay_Q(instrumentHandle,channel,trailingDelayValue)
Description	This function requests the trailing-delay parameter from the instrument.
SCPI Commands	[:SOURce]:PULSe:TDELay[1|2]?

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	channel
Description	Select channel-number.
Direction	IN
Type	ViUInt16
Range	HPE8305A_CHANNEL_1 HPE8305A_CHANNEL_2

Name	trailingDelayValue

Description	Report the actual used value trailing-delay is set on.
Direction	OUT
Type	ViReal64*

hpe8305a_transactionCancel

Syntax	hpe8305a_transactionCancel(instrumentHandle)
Description	This function cancels the transaction mode. The command buffer will not be sent and the allocated buffer will be freed.
SCPI Commands	N/A

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

hpe8305a_transactionFinish

Syntax	hpe8305a_transactionFinish(instrumentHandle)
Description	This function finishes the transaction and send all buffered commands to the device.
SCPI Commands	N/A

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

hpe8305a_transaction_Q

Syntax	hpe8305a_transaction_Q(instrumentHandle,pTransactionInProgress,pCurrBufferlength)
Description	This function determines if a transaction is in progress and the current size of the command buffer.
SCPI Commands	N/A

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Name	pTransactionInProgress
Description	Reports the status of the transaction (running/stopped)
Direction	OUT
Type	ViPBoolean

Name	pCurrBufferlength
Description	Reports the actual size of the buffer
Direction	OUT
Type	ViPUInt32

hpe8305a_transactionStart

Syntax	hpe8305a_transactionStart(instrumentHandle)
Description	This function starts the transaction mode. During that mode all commands will be buffered and stay within the buffer until the transaction mode will be finished with the hpe8305_transactionFinish command. Then all buffered commands will be sent to the device at once. If an error is encountered in an individual call the instrument command(s) will not be buffered. Also zero length buffers will not be sent to the instrument.
SCPI Commands	N/A

Parameters:

Name	instrumentHandle
Description	Instrument Handle returned from hpe8305a_init( ).
Direction	IN
Type	ViSession

Where to find it

Online and User Manual Information

Using the Agilent E8305A Plug&Play driver will require you to use both the online help and the Agilent E8305A Reference Guide. It is assumed that VISA has been installed and properly configured.

On the product CD you will find in the directory: <CD:> \Documentation\E8305a\

E8305A_reference.pdf	Installing the Agilent E8305A SCPI Command Reference
E8305A_help.pdf	Online Help Content

The following documentation will also be installed on your hard disk in the directory:<installation drive:>\Vxipnp\WinNT\hpe8305a\

E8305A_reference.pdf	Installing the Agilent E8305A SCPI Command Reference
E8305A_help.pdf	Online Help Content

The following is not included with this product but may be used as reference information:

VISA Language Information	VISA User's Manual
VEE programming information	VEE User's Manual
General SCPI Reference	SCPI 1995 Volume2: Command Reference

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