

HP33120A- IVI Driver per LabVIEW 6

- Aquest document conté les descripcions d'algunes funcions d'ús habitual del Driver
- Les descripcions s'han simplificat i particularitzat pel l'ús al laboratori d'Instrumentació Electrònica
- Les variables **error_in** i **error_out**  només es descriuen per la funció de inicialització
- Per una referència completa de cada funció cal imprimir la documentació de la funció des de LabVIEW

hp33120a Initialize With Options.vi

This VI performs the following initialization actions:

- Creates a new IVI instrument driver and optionally sets the initial state of the following session properties:

hp33120a>>Inherent IVI Settings>>User Options>>Range Check
hp33120a>>Inherent IVI Settings>>User Options>>Query Instrument Status
hp33120a>>Inherent IVI Settings>>User Options>>Cache
hp33120a>>Inherent IVI Settings>>User Options>>Simulate
hp33120a>>Inherent IVI Settings>>User Options>>Record Value Coercions

- Opens a session to the specified device using the interface and address you specify for the Resource Name parameter.

- If the ID Query parameter is set to TRUE, this VI queries the instrument ID and checks that it is valid for this instrument driver.

- If the Reset parameter is set to TRUE, this VI resets the instrument to a known state.

- Sends initialization commands to set the instrument to the state necessary for the operation of the instrument driver.

- Returns an instrument handle that you use to identify the instrument in all subsequent instrument driver VI calls.

Note:

(1) This VI creates a new session each time you invoke it. Although you can open more than one IVI session for the same resource, it is best not to do so. You can use the same session in multiple program threads.

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option string ("Simulate=0,...
resource name ("GPIB0::14:...
id query (True)
reset device (True)
error in (no error)



instrument handle
error out

Controls and Indicators

 **resource name ("GPIB0::14::INSTR")** Pass the resource name of the device to initialize.

Refer to the following table below for the exact grammar to use for this parameter. Optional fields are shown in square brackets ([]).

Syntax

GPIB[board]::<primary address>::secondary address::INSTR

If you do not specify a value for an optional field, the following values are used:

Optional Field - Value

board - 0

secondary address - none (31)

The following table contains example valid values for this parameter.

"Valid Value" - Description

"GPIB::22::INSTR" - GPIB board 0, primary address 22 no
secondary address

"GPIB::22::5::INSTR" - GPIB board 0, primary address 22
secondary address 5

"GPIB1::22::5::INSTR" - GPIB board 1, primary address 22
secondary address 5

Default Value: "GPIB0::14::INSTR"

id query (True) Specify whether you want the instrument driver to perform an ID Query.

Valid Range:

TRUE (1) - Perform ID Query (Default Value)

FALSE (0) - Skip ID Query

When you set this parameter to `TRUE`, the driver verifies that the instrument you initialize is a type that this driver supports.

Circumstances can arise where it is undesirable to send an ID Query command string to the instrument. When you set this parameter to FALSE, the VI initializes the instrument without performing an ID Query.

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reset device (True) Specify whether you want the to reset the instrument during the initialization procedure.

Valid Range:

TRUE (1) - Reset Device (Default Value)

FALSE (0) - Don't Reset

option string ("Simulate=0,RangeCheck=1,QueryInstrStatus=1,Cache=1") You can use this control to set the initial value of certain properties for the session. The following table lists the properties and the name you use in this parameter to identify the property.

Name	Property Defined	Constant
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RangeCheck      hp33120a>>Inherent IVI Settings>>User Options>>Range Check
QueryInstrStatus hp33120a>>Inherent IVI Settings>>User Options>>Query Instrument
Status
Cache           hp33120a>>Inherent IVI Settings>>User Options>>Cache
Simulate        hp33120a>>Inherent IVI Settings>>User Options>>Simulate
RecordCoercions hp33120a>>Inherent IVI Settings>>User Options>>Record Value
Coercions

```

The format of this string is, "AttributeName=Value" where AttributeName is the name of the property and Value is the value to which the property will be set. To set multiple properties, separate their assignments with a comma.

If you pass NULL or an empty string for this parameter and a VISA resource descriptor for the Resource Name parameter, the session uses the default values for the properties. The default values for the properties are shown below:

Property Name	Default Value
RangeCheck	TRUE
QueryInstrStatus	TRUE
Cache	TRUE
Simulate	FALSE
RecordCoercions	FALSE

If you pass NULL or an empty string for this parameter and a virtual instrument or logical name for the Resource Name parameter, the session uses the values that you configure for virtual instrument or logical name with the IVI Configuration utility.

You can override the values of the properties by assigning a value explicitly in a string you pass for this parameter. You do not have to specify all of the properties and may leave any of them out. If you do not specify one of the properties, its default value or the value that you configure with the IVI Configuration utility will be used.

The following are the valid values for ViBoolean properties:

True: 1, True, or TRUE
False: 0, False, or FALSE

Default Value:

"Simulate=0,RangeCheck=1,QueryInstrStatus=1,Cache=1"



error in (no error) The **error in** cluster can accept error information wired from VIs previously called. Use this information to decide if any functionality should be bypassed in the event of errors from other VIs.

The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.



status The **status** boolean is either TRUE (X) for an error, or FALSE (checkmark) for no error or a warning.

The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.

 **code** The **code** input identifies the error or warning.

The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.

 **source** The **source** string describes the origin of the error or warning.

The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.

 **instrument handle** Returns an instrument handle that you use to identify the instrument in all subsequent instrument driver VI calls.

Notes:

(1) This VI creates a new session each time you invoke it. This is useful if you have multiple physical instances of the same type of instrument.

(2) Avoid creating multiple concurrent sessions to the same physical instrument. Although you can create more than one IVI session for the same resource, it is best not to do so. A better approach is to use the same IVI session in multiple execution threads.

 **error out** The **error out** cluster passes error or warning information out of a VI to be used by other VIs.

The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.

 **status** The **status** boolean is either TRUE (X) for an error, or FALSE (checkmark) for no error or a warning.

The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.

 **code** The **code** input identifies the error or warning.

The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.

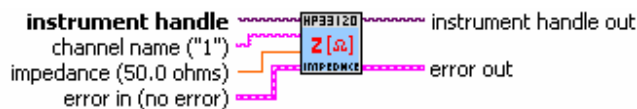
 **source** The **source** string describes the origin of the error or warning.

The pop-up option **Explain Error** (or Explain Warning) gives more information about the error displayed.

hp33120a Configure Output Impedance.vi

This VI configures the output impedance for the channel you specify.

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instrument handle The ViSession handle that you obtain from the hp33120a_init or hp33120a_InitWithOptions function. The handle identifies a particular instrument session.

Default Value: None



channel name ("1") Pass the channel name for which you want to set the output impedance.

Valid Values: 1

Default Value: "1"



impedance (50.0 ohms) Pass the impedance value you want the function generator to use. The driver sets the hp33120a>>Basic Operation>>Output Impedance property to this value.

Units: Ohms

Valid Values:

50.0 - 50.0 Ohms impedance
0.0 - Infinite impedance

Default Value: 50.0 (ohms)



instrument handle out The ViSession handle that you obtain from the hp33120a_init or hp33120a_InitWithOptions function. The handle identifies a particular instrument session.

Default Value: None

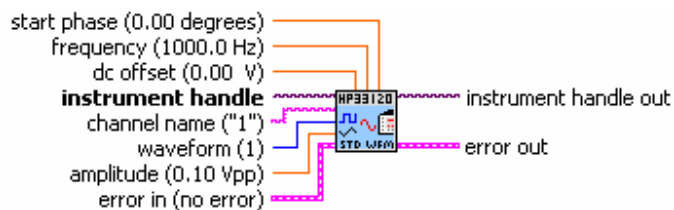
hp33120a Configure Standard Waveform.vi

This VI configures the properties of the function generator that affect standard waveform generation. These properties are the waveform, amplitude, DC offset, frequency, and start phase.

Notes:

(1) You must set the output mode to HP33120A_VAL_OUTPUT_FUNC before calling this VI.

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Controls and Indicators

instrument handle The ViSession handle that you obtain from the hp33120a_init or hp33120a_InitWithOptions function. The handle identifies a particular instrument session.

Default Value: None

channel name ("1") Pass the channel name for which you want to configure a standard waveform.

Valid Values: 1

Default Value: "1"

waveform (1) Pass the standard waveform that you want the function generator to produce. The driver sets the hp33120a>>Standard Function Output>>Waveform property to this value.

Valid Values:

HP33120A_VAL_WFM_SINE - Sinusoid waveform
 HP33120A_VAL_WFM_SQUARE - Square waveform
 HP33120A_VAL_WFM_RAMP_UP - Positive ramp waveform
 HP33120A_VAL_WFM_TRIANGLE - Triangle waveform
 HP33120A_VAL_WFM_DC - Constant voltage
 HP33120A_VAL_WFM_NOISE - random noise waveform

Default Value: HP33120A_VAL_WFM_SINE - Sinusoid waveform output

amplitude (0.10 Vpp) Pass the amplitude of the standard waveform that you want the function generator to produce. This value is the amplitude at the output terminal. The driver sets the hp33120a>>Standard Function Output>>Amplitude property to this value. For example, to produce a waveform ranging from -5.00 to +5.00 volts, set the Amplitude to 10.00 volts.

Units: Volts peak-to-peak (Vpp)

Valid Range: 0.05 - 10.00 (Vpp) (50 Ohm impedance)
 0.10 - 20.00 (Vpp) (Infinite impedance)

Default Value: 0.10 Vpp

Notes:

(1) This parameter does not affect function generator behavior when you set the Waveform parameter to HP33120A_VAL_WFM_DC.



dc offset (0.00 V) Pass the DC offset of the standard waveform that you want the function generator to produce. This value is the offset at the output terminal. The value is the offset from ground to the center of the waveform you specify with the Waveform parameter. The driver sets the hp33120a>>Standard Function Output>>DC Offset property to this value. For example, to configure a waveform with an amplitude of 10.00 volts to range from 0.00 volts to +10.00 volts, set the DC Offset be to 5.00 volts.

Units: Volts (V)

Valid Range: -5.00 - 5.00 V (50 Ohm impedance)
-10.00 - 10.00 V (Infinite impedance)

Default Value: 0.00 V



frequency (1000.0 Hz) Pass the frequency of the standard waveform that you want the function generator to produce. The driver sets the hp33120a>>Standard Function Output>>Frequency property to this value.

Units: Hertz (Hz)

Valid Range: 1.00e-6 - 15.00e+6 (Hz) (Sine, Square waves)
1.00e-6 - 100.0e+3 (Hz) (Triangle, Ramp Up waves)
1.00e-6 - 5.00e+6 (Hz) (All other waves)

Default Value: 1000.0 Hz

Notes:

(1) This parameter does not affect function generator behavior when you set the Waveform parameter to HP33120A_VAL_WFM_DC.



start phase (0.00 degrees) Pass the horizontal offset of the standard waveform you want the function generator to produce. You specify this property in degrees of one waveform cycle. The driver sets the hp33120a>>Standard Function Output>>Start Phase property to this value. A start phase of 180 degrees means output generation begins half way through the waveform. A start phase of 360 degrees offsets the output by an entire waveform cycle, which is identical to a start phase of 0 degrees.

This parameter has no affect on the driver as the only valid value is 0.0 degrees.

Units: Degrees of one cycle

Valid Range: 0.00 (degrees)

Default Value: 0.00 (degrees)



instrument handle out The ViSession handle that you obtain from the hp33120a_init or hp33120a_InitWithOptions function. The handle identifies a particular instrument session.

Default Value: None