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1.Summary

These drivers can change the setting of 3522/3532 LCR HiTESTER and read from 3522/3532 LCR HiTESTER through GPIB or RS232. In this version, the program can deal with all control commands of 3522/3532 LCR HiTESTER (except ":ERRor?", ":USER:IDENtity" and ":USER:IDENtity?").

2.Prerequisite condition

The following is the prerequisite condition of using these programs

- Has LabVIEW knowledge
- It is necessary to set delimiter to CR+LF in case of RS-232C communication

3.How to use driver

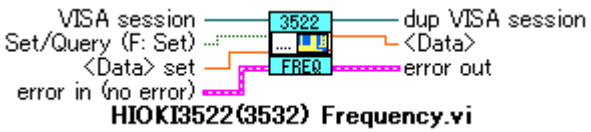
Searchs for the VI(driver) which deals with the control command of 3522/3532 LCR HiTESTER from program library, Connects the VISA session opened. Sets the Set/query, It is necessary to select the right parameters when performing setting, It is necessary to set header to OFF when performing querying.

All of the drivers have 2 common inputs and 2 common outputs as the following The details of common inputs and common outputs is described in the chapter 4-2.

input
VISA session on the top-left
error in (no error) on the bottom-left

output
dup VISA session on the top-right
error out on the bottom-right

Example: HIOKI3522(3532) Frequency.vi



4. Direction for driver use

4-1. Kind of VI

The following is about drivers which are in program library.

No.	Name	Function
1	HIOKI3522(3532) CLS.vi	Clears the status byte register and the event registers.
2	HIOKI3522(3532) ESE.vi	Sets or queries the standard event status enable register(SESER) (GP-IB only).
3	HIOKI3522(3532) ESR.vi	Reads out the contents of the standard event status register (SESR)
4	HIOKI3522(3532) IDN.vi	Queries manufacture's name, model name, and software version
5	HIOKI3522(3532) OPC.vi	Issues service request(SRQ) after execution, or queries execution completion.(GPIB only).
6	HIOKI3522(3532) RST.vi	Performs device initial setting..
7	HIOKI3522(3532) SRE.vi	Sets or queries the service request enable register (SRER). (GP-IB only)
8	HIOKI3522(3532) STB.vi	Queries the status byte register.(GPIB only)
9	HIOKI3522(3532) TRG.vi	Performs measurement once in external trigger mode.
10	HIOKI3522(3532) TST.vi	Perform the self test of the unit, and queries the result.
11	HIOKI3522(3532) WAI.vi	Waits until all executions are fully completed
12	HIOKI3522(3532) Averaging.vi	Sets or queries the number of measurement times for averaging.
13	HIOKI3522 Bias.vi	Sets or queries the mode of the external DC bias function. (3522 only)
14	HIOKI3522(3532) Beeper COMP.vi	Sets or queries the comparator function
15	HIOKI3522(3532) Beeper Key.vi	Sets or queries the mode of the beep sound for key input.
16	HIOK3532 Cable.vi	Sets or queries the cable length. (3532 only)

No.	Name	Function
17	HIOKI3522(3532) Comparator.vi	Sets or queries the comparator function
18	HIOKI3522(3532) Comparator Flimit Abs.vi	Sets or queries the lower and upper limit values for the first comparator parameter as absolute values.
19	HIOKI3522(3532) Comparator Flimit Per.vi	Sets or queries the lower and upper limit values for first comparator parameter as percentage.
20	HIOKI3522(3532) Comparator Flimit mode.vi	Sets or queries the first parameter setting mode for the comparator.
21	HIOKI3522(3532) Comparator Slimit Abs.vi	Sets or queries the lower and upper limit values for the second comparator parameter as absolute values.
22	HIOKI3522(3532) Comparator Slimit Per.vi	Sets or queries the lower and upper limit values for the second comparator parameter as percentage.
23	HIOKI3522(3532) Comparator Slimit mode.vi	Sets or queries the second parameter setting mode for the comparator.
24	HIOKI3522(3532) Correction Data.vi	Queries the open circuit and short circuit compensation values.
25	HIOKI3522(3532) Correction Open.vi	Sets or queries the open circuit compensation function
26	HIOKI3522(3532) Correction Short.vi	Sets or queries the short circuit compensation function.
27	HIOKI3522(3532) Display Monitor.vi	Sets or queries the voltage and current monitored parameters.
28	HIOKI3522(3532) ESE0.vi	Sets or reads out event status enable register 0 (ESER0). (GPIB only)
29	HIOKI3522(3532) ESE1.vi	Sets or reads out event status enable register 1 (ESER1). (GPIB only)
30	HIOKI3522(3532) ESR0.vi	Read out event status register 0(ESR0).
31	HIOKI3522(3532) ESR1.vi	Read out event status register 1(ESR1).
32	HIOKI3522(3532) Frequency.vi	Sets or queries the test frequency.
33	HIOKI3522(3532) Header.vi	Sets or queries the mode of headers for response message.
34	HIOKI3522(3532) Level.vi	Sets or queries the signal level
35	HIOKI3522(3532) Level Ccurrent.vi	Sets or queries the constant current value.
36	HIOKI3522(3532) Level Cvoltage.vi	Sets or queries the constant voltage value.
37	HIOKI3522(3532) Level Voltage.vi	Sets or queries the open circuit voltage value.
38	HIOKI3522(3532) Limiter.vi	Sets or queries the limit value setting function.

No.	Name	Function
39	HIOKI3522(3532) Limiter Current.vi	Sets or queries the current limit value
40	HIOKI3522(3532) Limiter Voltage.vi	Sets or queries the voltage limit value.
41	HIOKI3522(3532) Load.vi	Loads the test conditions of the specified panel number.
42	HIOKI3522(3532) Measure Item.vi	Sets or queries the test parameter for response of the :MEASure? query during normal testing..
43	HIOKI3522(3532) Measure.vi	Queries the measured data items.
44	HIOKI3522(3532) Parameter.vi	Sets or queries the parameter to be displayed.
45	HIOKI3522(3532) Parameter Digit.vi	Sets or queries the number of displayed digits for the test parameter.
46	HIOKI3522(3532) Range.vi	Sets or queries the test range.
47	HIOKI3522(3532) Range Auto.vi	Sets or queries the auto-range function.
48	HIOKI3522(3532) Save.vi	Saves the test conditions in specified panel number, or queries the panel number saved.
49	HIOKI3522(3532) Scale.vi	Sets or queries the scaling function.
50	HIOKI3522(3532) Scale Fvalue.vi	Sets or queries the first parameters(a and b) in scaling function.
51	HIOKI3522(3532) Scale Svalue.vi	Sets or queries the second parameters (a and b) in the scaling function.
52	HIOKI3522(3532) Speed.vi	Sets or queries the testing speed.
53	HIOKI3522(3532) Transmit Terminator.vi	Sets or queries the data terminator for response message. (GPIB only)
54	HIOKI3522(3532) Trigger.vi	Sets or queries the type of trigger
55	HIOKI3522(3532) Trigger Delay.vi	Sets or queries the trigger delay time.

4-2. The common input and common output of drivers

All of the drivers have common inputs and outputs. The following is the explanation.

4-2-1. The common input of driver.

Name	Data type	Explanation
VISA Session		VISA session
error in (no error)		The input of error (refer to the manual of LabVIEW for details). Initialized value: no error.

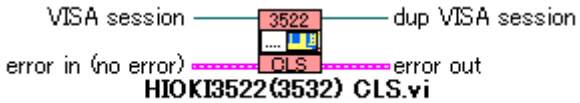
4-2-2. The common output of driver

Name	Data type	Explanation
dup VISA Session		The copy of VISA session.
error out		The output of error (refer to the manual of LabVIEW for details).

4-3. Details of VI

4-3-1. HIOKI3522(3532) CLS.vi

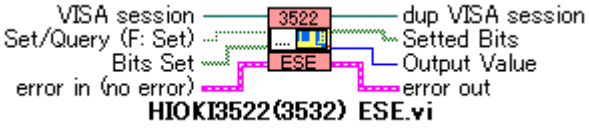
Clears the status byte register and the event registers.



Name	Data type	Explanation
		There is no input and output except common inputs and common outputs

4-3-2. HIOKI3522(3532) ESE.vi

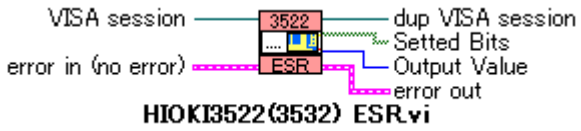
Sets or queries the standard event status enable register(SESER).
(GP-IB only)



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
Bits Set	[TF]	The array of bit for setting Valid range: False(=0), True(=1)
Setted Bits	[TF]	The result(bit array) of querying the SESER Output range: False(=0) True(=1)
Output Value	I32	The result(value) of querying the SESER Output range: 0 - 255

4-3-3. HIOKI3522(3532) ESR.vi

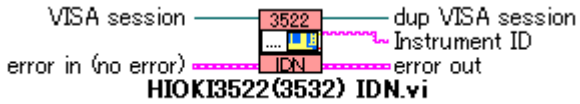
Reads out the contents of the standard event status register (SESR).



Name	Data type	Explanation
Setted Bits	[TF]	The result(bit array) of querying the SESR Output range: False(=0) True(=1)
Output Value	I32	The result(value) of querying the SESR Output range: 0 - 255

4-3-4. HIOKI3522(3532) IDN.vi

Queries manufacture's name,model name, and software version.

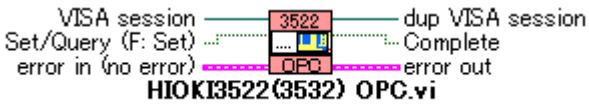


Name	Data type	Explanation
Instrument ID	abc	The result of quering manufacture's name,model name, and software version *

* First field Manufacture's name
Second field Model name
Third Serial number (Not used - always zero)
Fourth field Software version

4-3-5. HIOKI3522(3532) OPC.vi

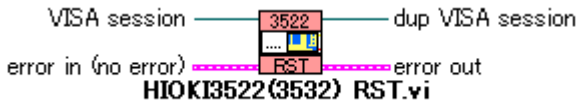
Issues service request(SRQ) after execution, or queries execution completion. (GPIB only).



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
Complete	TF	The result of querying Output range: False(=All action has not been completed during execution, or, error) True(=All action has not been completed during execution)

4-3-6. HIOKI3522(3532) RST.vi

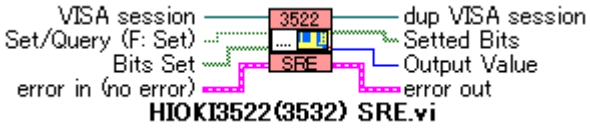
Performs device initial setting..



Name	Data type	Explanation
		There is no input and output except common inputs and common outputs

4-3-7. HIOKI3522(3532) SRE.vi

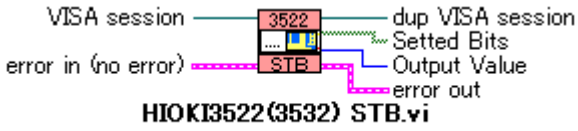
Sets or queries the service request enable register (SRER). (GP-IB only)



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
Bits Set	[TF]	The array of bit for setting Valid range: False(=0), True(=1)
Setted Bits	[TF]	The result(bit array) of querying the SRER Output range: False(=0) True(=1)
Output Value	I32	The result(value) of querying the SRER Output range: 0 - 255

4-3-8. HIOKI3522(3532) STB.vi

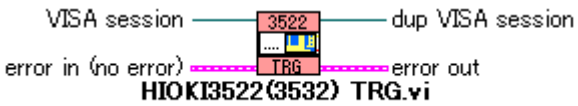
Queries the status byte register.(GPIB only)



Name		Data type
Setted Bits	[TF]	The result(bit array) of querying the STB Output range: False(=0) True(=1)
Output Value	I32	The result(value) of querying the STB

4-3-9. HIOKI3522(3532) TRG.vi

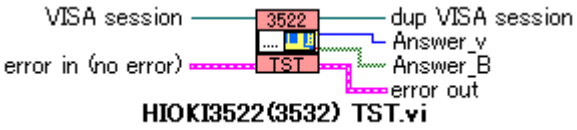
Performs measurement once in external trigger mode.



Name	Data type	Explanation
		There is no input and output except common inputs and common outputs

4-3-10. HIOKI3522(3532) TST.vi

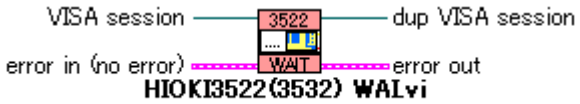
Perform the self test of the unit, and queries the result.



Name	Data type	Explanation
Answer_v	I32	The result(value) of self test Output range: 0 - 15
Answer_B	[TF]	The result(bit array) of self test Output range: False(=0) True(=1) bit0 a ROM error occurred bit1 a RAM error occurred bit2 an I/O error occurred bit3 an interrupt error occurred bit4 unused bit5 unused bit6 unused bit7 unused

4-3-11. HIOKI3522(3532) WAI.vi

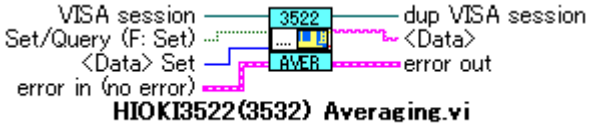
Waits until all executions are fully completed



Name	Data type	Explanation
		There is no input and output except common inputs and common outputs

4-3-12. HIOKI3522(3532) Averaging.vi

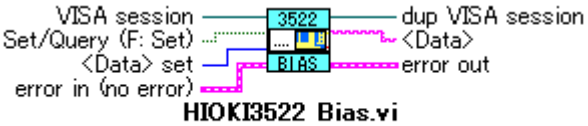
Sets or queries the number of measurement times for averaging.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> Set		Specifies the measurement times for averaging 0(=OFF:Defasult), 1(=2), 2(=4), 3(=16), 4(=32), 5(=64)
<Data>	abc	The result of querying the measurement times for averaging

4-3-13. HIOKI3522 Bias.vi

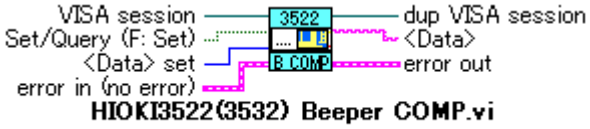
Sets or queries the mode of the external DC bias function. (3522 only)



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> Set		Specifies the mode of the external DC bias function Valid range: 0(=ON:Default), 1(=OFF)
<Data>	abc	The result of querying the mode of the external DC bias function

4-3-14. HIOKI3522(3532) Beeper COMP.vi

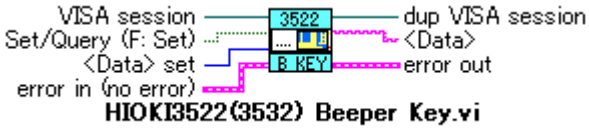
Sets or queries the beep sound for the comparator.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> Set		Specifies the mode of the comparator function Valid range: 0(=IN:Default), 1(=NG), 2(=OFF)
<Data>	abc	The result of querying the mode of the comparator function

4-3-15. HIOKI3522(3532) Beeper Key.vi

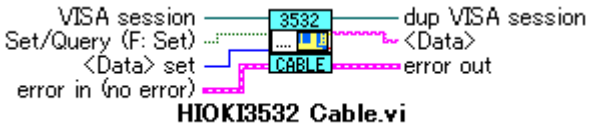
Sets or queries the mode of the beep sound for key input.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> Set		Specifies the mode of the beep sound for key input Valid range: 0(=ON:Default), 1(=OFF)
<Data>	abc	The result of querying the mode of the beep sound for key input

4-3-16. HIOK3532 Cable.vi

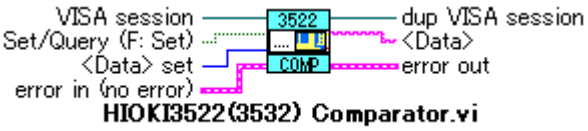
Sets or queries the cable length. (3532 only)



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> Set		Specifies the cable length Valid range: 0(=0m:Default), 1(=1m)
<Data>	abc	The result of querying the cable length

4-3-17. HIOKI3522(3532) Comparator.vi

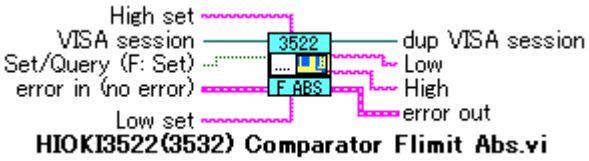
Sets or queries the comparator function.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> Set		Specifies the mode of the comparator function Valid range: 0(=ON:Default), 1(=OFF)
<Data>	abc	The result of querying the mode of the comparator function

4-3-18. HIOKI3522(3532) Comparator Flimit Abs.vi

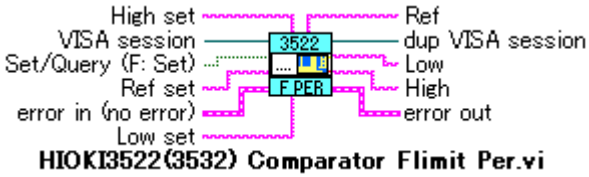
Sets or queries the lower and upper limit values for the first comparator parameter as absolute values.



Name	Data type	Explanation
High set	abc	Inputs the upper limit value (OFF or NR3)
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
Low set	abc	Inputs the lower limit value (OFF or NR3)
Low	abc	The result of querying the lower limit value
High	abc	The result of querying the uppert value

4-3-19. HIOKI3522(3532) Comparator Flimit Per.vi

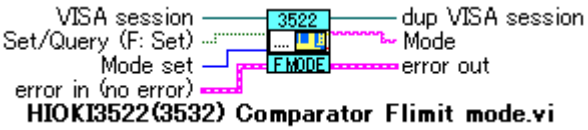
Sets or queries the lower and upper limit values for first comparator parameter as percentage.



Name	Data type	Explanation
High set	abc	Inputs the upper limit value (OFF or NR1)
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
Ref set	abc	Inputs reference value(NR3)
Low set	abc	Inputs the lower limit value(OFF or NR1)
Ref	abc	The result of querying the reference value
Low	abc	The result of querying the lower limit value
High	abc	The result of querying the upper value

4-3-20. HIOKI3522(3532) Comparator Flimit mode.vi

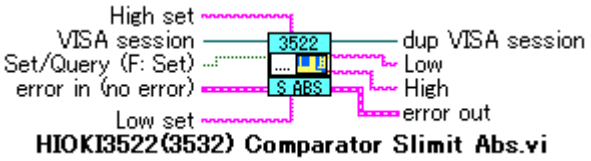
Sets or queries the first parameter setting mode for the comparator.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
Mode Set		Specifies the first parameter setting mode for the comparator Valid range: 0(=ABSOLUTE), 1(=PERCENT)
Mode	abc	The result of querying the first parameter setting mode for the comparator

4-3-21. HIOKI3522(3532) Comparator Slimit Abs.vi

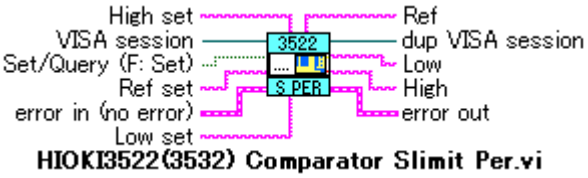
Sets or queries the lower and upper limit values for the second comparator parameter as absolute values.



Name	Data type	Explanation
High set	abc	Inputs the upper limit value (OFF or NR3)
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
Low set	abc	Inputs the lower limit value (OFF or NR3)
Low	abc	The result of querying the lower limit value
High	abc	The result of querying the upper value

4-3-22. HIOKI3522(3532) Comparator Slimit Per.vi

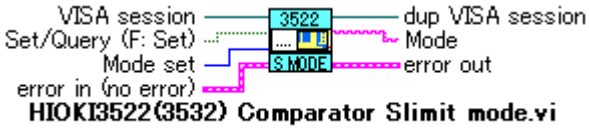
Sets or queries the lower and upper limit values for the second comparator parameter as percentage.



Name	Data type	Explanation
High set	abc	Inputs the upper limit value (OFF or NR1)
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
Ref set	abc	Inputs reference value(NR3)
Low set	abc	Inputs the lower limit value(OFF or NR1)
Ref	abc	The result of querying the reference value
Low	abc	The result of querying the lower limit value
High	abc	The result of querying the upper value

4-3-23. HIOKI3522(3532) Comparator Slimit mode.vi

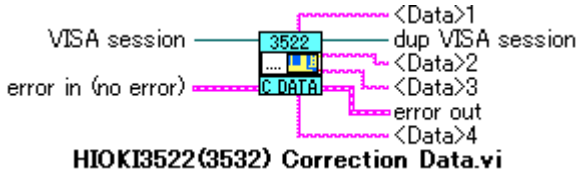
Sets or queries the second parameter setting mode for the comparator.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
Mode Set		Specifies the first parameter setting mode for the comparator Valid range: 0(=ABSOLUTE), 1(=PERCENT)
Mode	abc	The result of querying the first parameter setting mode for the comparator

4-3-24. HIOKI3522(3532) Correction Data.vi

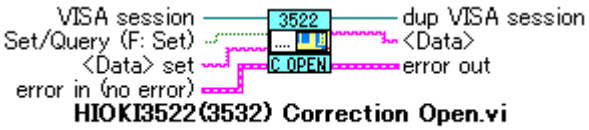
Queries the open circuit and short circuit compensation values.



Name	Data type	Explanation
<Data>1	abc	The result of querying the residual impedance of short circuit compensation
<Data>2	abc	The result of querying the phase angle of short circuit compensation
<Data>3	abc	The result of querying the residual impedance of open circuit compensation
<Data>4	abc	The result of querying the phase angle of open circuit compensation

4-3-25. HIOKI3522(3532) Correction Open.vi

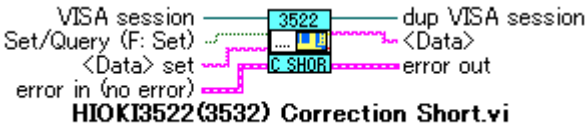
Sets or queries the open circuit compensation function



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> Set	abc	Specifies the open circuit compensation function(OFF, ALL, NR3)
<Data>	abc	The result of querying the open circuit compensation function

4-3-26. HIOKI3522(3532) Correction Short.vi

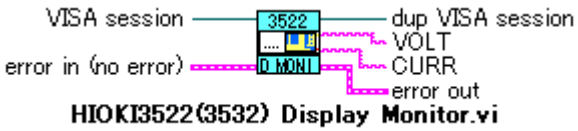
Sets or queries the short circuit compensation function.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> Set	abc	Specifies the short circuit compensation function(OFF, ALL, NR3)
<Data>	abc	The result of querying the short circuit compensation function

4-3-27. HIOKI3522(3532) Display Monitor.vi

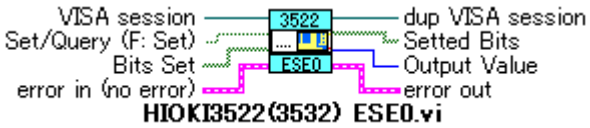
Sets or queries the voltage and current monitored parameters.



Name	Data type	Explanation
VOLT	abc	The result of querying the voltage monitor parameter
CURR	abc	The result of querying the current monitor parameter

4-3-28. HIOKI3522(3532) ESE0.vi

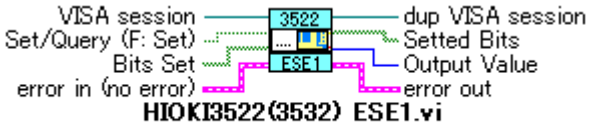
Sets or reads out event status enable register 0 (ESER0). (GPIB only)



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
Bits Set	[TF]	The array of bit for setting Valid range: False(=0), True(=1)
Setted Bits	[TF]	The result(bit array) of querying the ESER0 Output range: False(=0) True(=1)
Output Value	I32	The result(value) of querying the ESER0 Output range: 0 - 255

4-3-29. HIOKI3522(3532) ESE1.vi

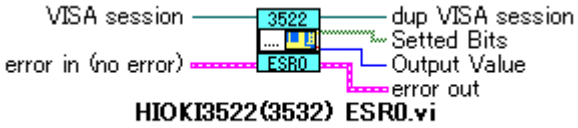
Sets or reads out event status enable register 1 (ESER1). (GPIB only)



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
Bits Set	[TF]	The array of bit for setting Valid range: False(=0), True(=1)
Setted Bits	[TF]	The result(bit array) of querying the ESER1 Output range: False(=0) True(=1)
Output Value	I32	The result(value) of querying the ESER1 Output range: 0 - 255

4-3-30. HIOKI3522(3532) ESR0.vi

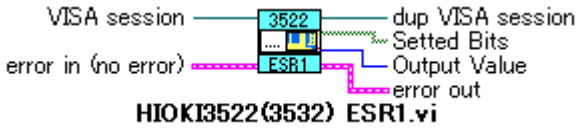
Read out event status register 0(ESR0).



Name	Data type	Explanation
Setted Bits	[TF]	The result(bit array) of querying the ESR0 Output range: False(=0) True(=1)
Output Value	I32	The result(value) of querying the ESR0 Output range: 0 - 255

4-3-31. HIOKI3522(3532) ESR1.vi

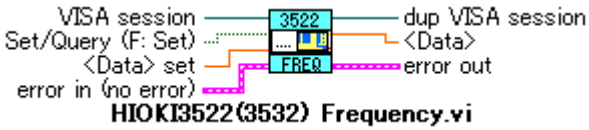
Read out event status register 1(ESR1).



Name	Data type	Explanation
Setted Bits	[TF]	The result(bit array) of querying the ESR1 Output range: False(=0) True(=1)
Output Value	I32	The result(value) of querying the ESR1 Output range: 0 - 255

4-3-32. HIOKI3522(3532) Frequency.vi

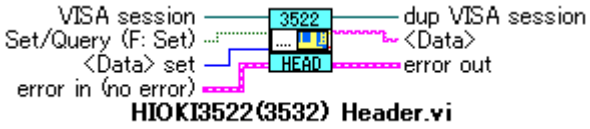
Sets or queries the test frequency.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> set	DBL	Specifies the test frequency Valid range: 3522: 0 - 100.0E+03 3532: 42.0E+00 - 5.000E+06
<Data>	DBL	The result of querying the test frequency

4-3-33. HIOKI3522(3532) Header.vi

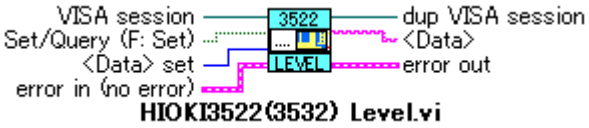
Sets or queries the mode of headers for response message.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> Set		Specifies the mode Valid range: 0(=ON), 1(=OFF:Default)
<Data>	abc	The result of querying the mode of headers for response message

4-3-34. HIOKI3522(3532) Level.vi

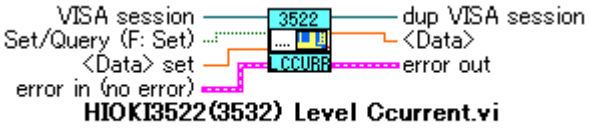
Sets or queries the test signal level.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> Set		Specifies the mode Valid range: 0(=V:Default), 1(=CV), 2(=CC)
<Data>	abc	The result of querying the test signal level

4-3-35. HIOKI3522(3532) Level Ccurrent.vi

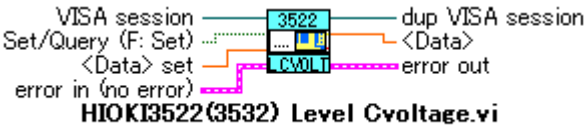
Sets or queries the constant current value.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> set	DBL	Specifies the constant current value Valid range: 3522: 0.01E-03 - 99.99E-3 3532: 0.01E-03 - 99.99E-3 (frequency 42Hz - 1MHz) 0.01E-03 - 20.00E-3 (frequency 1.001MHz - 5MHz)
<Data>	DBL	The result of querying the constant current value

4-3-36. HIOKI3522(3532) Level Cvoltage.vi

Sets or queries the constant voltage value.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> set	DBL	Specifies the constant voltage value Valid range: 3522: 0.010 - 5.000 3532: 0.010 - 5.000 (frequency 42Hz - 1MHz) 0.010 - 1.000 (frequency 1.001MHz - 5MHz)
<Data>	DBL	The result of querying the constant voltage value

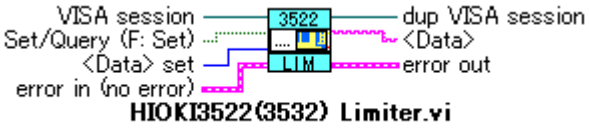
4-3-37. HIOKI3522(3532) Level Voltage.vi

Sets or queries the open circuit voltage value.

Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> set	DBL	Specifies the open circuit voltage value Valid range: 3522: 0.010 - 5.000 3532: 0.010 - 5.000 (frequency 42Hz - 1MHz) 0.010 - 1.000 (frequency 1.001MHz - 5MHz)
<Data>	DBL	The result of querying the open circuit voltage value

4-3-38. HIOKI3522(3532) Limiter.vi

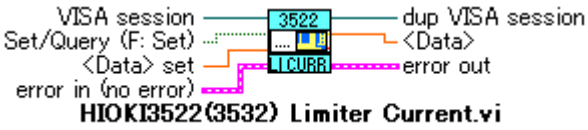
Sets or queries the limit value setting function.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> Set		Specifies the mode Valid range: 0(=ON:Default), 1(=OFF)
<Data>	abc	The result of querying the limit setting function

4-3-39. HIOKI3522(3532) Limiter Current.vi

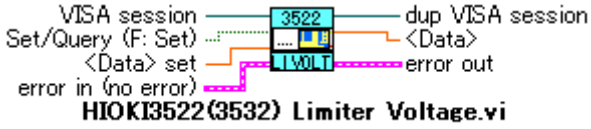
Sets or queries the current limit value.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> set	DBL	Specifies the current limit value Valid range: 0.01E-03 - 99.99E-03
<Data>	DBL	The result of querying the current limit value

4-3-40. HIOKI3522(3532) Limiter Voltage.vi

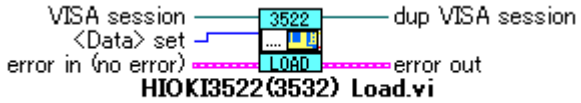
Sets or queries the voltage limit value.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> set	DBL	Specifies the voltage limit value Valid range: 0.010 - 5.000
<Data>	DBL	The result of querying the voltage limit value

4-3-41. HIOKI3522(3532) Load.vi

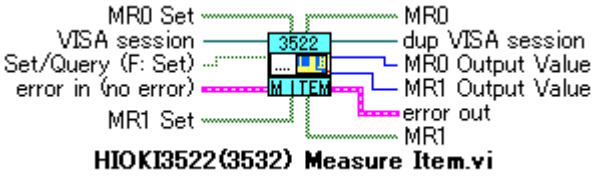
Loads the test conditions of the specified panel number.



Name	Data type	Explanation
<Data> set	I32	Specifies the panel number

4-3-42. HIOKI3522(3532) Measure Item.vi

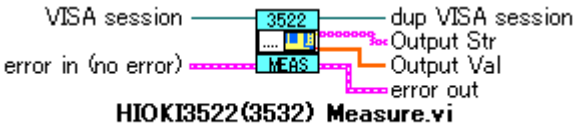
Sets or queries the test parameter for response of the :MEASure? query during normal testing..



Name	Data type	Explanation
MR0 Set	[TF]	Sets the measurement register 0 (MR0) bit0:Z bit1:Y bit2:θ bit3:Cs bit4:Cp bit5:D bit6: Ls bit7:Lp
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
MR1 Set	[TF]	Sets the measurement register 1 (MR1) bit0:Q bit1:Rs bit2:G bit3:Rp bit4:X bit5:B bit6: Unused bit7:Unused
MR0	[TF]	The result(bit array) of querying the MR0 bit0:Z bit1:Y bit2:θ bit3:Cs bit4:Cp bit5:D bit6: Ls bit7:Lp
MR0 Output Value	I32	The result(value) of querying the MR0
MR1 Output Value	I32	The result(value) of querying the MR1
MR1	[TF]	The result(bit array) of querying the MR1 bit0:Q bit1:Rs bit2:G bit3:Rp bit4:X bit5:B bit6: Unused bit7:Unused

4-3-43. HIOKI3522(3532) Measure.vi

Queries the measured data items.

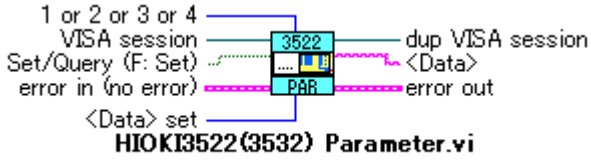


Name	Data type	Explanation
Output Str	[abc]	The result(character stings) of querying the measured data items *
Output Val	[DBL]	The result(values) of querying the measured data items *

* Refers to 3532/3522 LCR HiTESTER manual for detailed information.

4-3-44. HIOKI3522(3532) Parameter.vi

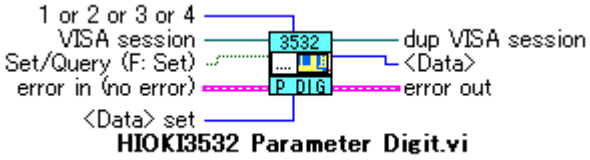
Sets or queries the parameter to be displayed.



Name	Data type	Explanation
1 or 2 or 3 or 4		Specifies the parameter number
Set/Query(F:Set)		Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> set		Specifies the parameter 0(=Z:Default), 1(=Y), 2(=PHASE), 3(=CS), 4(=CP), 5(=D), 6(=LS), 7(=LP), 8(=Q), 9(=RS), 10(=G), 11(=RP), 12(=X), 13(=B), 14(=OFF)
<Data>		The result of querying the parameter to be display

4-3-45. HIOKI3522(3532) Parameter Digit.vi

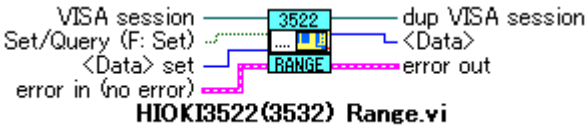
Sets or queries the number of displayed digits for the test parameter.



Name	Data type	Explanation
1 or 2 or 3 or 4		Specifies the parameter number
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> set	I32	Specifies the number of displayed digits for the test parameter
<Data>	I32	The result of querying the number of displayed digits for the test parameter

4-3-46. HIOKI3522(3532) Range.vi

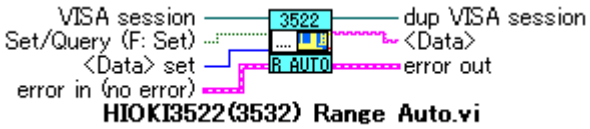
Sets or queries the test range.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> set	I32	Specifies the test range
<Data>	I32	The result of querying the test range

4-3-47. HIOKI3522(3532) Range Auto.vi

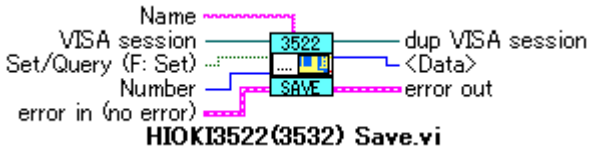
Sets or queries the auto-range function.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> set		Specifies the mode Valid range: 0(=ON:Default), 1(=OFF)
<Data>	abc	The result of querying the auto-range function

4-3-48. HIOKI3522(3532) Save.vi

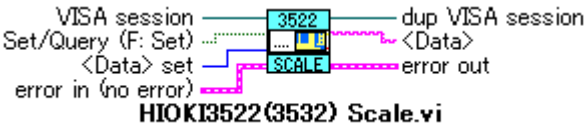
Saves the test conditions in specified panel number, or queries the panel number saved.



Name	Data type	Explanation
Name	abc	Inputs a saving name Character: 1-20
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
Number		Specifies the panel number Valid range: 1-30
<Data>	I32	The result of querying the panel number saved (1=save, 0=not save)

4-3-49. HIOKI3522(3532) Scale.vi

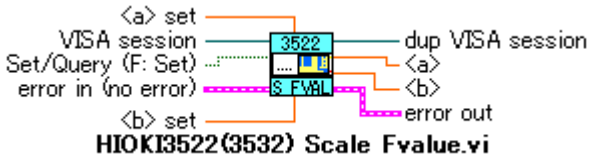
Sets or queries the scaling function.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> set		Specifies the mode Valid range: 0(=ON:Default), 1(=OFF)
<Data>	abc	The result of querying the scaling function

4-3-50. HIOKI3522(3532) Scale Fvalue.vi

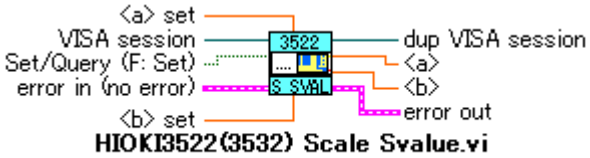
Sets or queries the first parameters(a and b) in scaling function.



Name	Data type	Explanation
<a> set	DBL	Specifies the first parameter a
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<b> set	DBL	Specifies the first parameter b
<a>	DBL	The result of querying the first parameter a
<b>	DBL	The result of querying the first parameter b

4-3-51. HIOKI3522(3532) Scale Svalue.vi

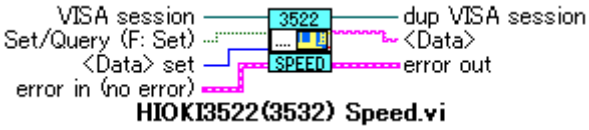
Sets or queries the second parameters (a and b) in the scaling function.



Name	Data type	Explanation
<a> set	DBL	Specifies the second parameter a
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<b> set	DBL	Specifies the second parameter b
<a>	DBL	The result of querying the second parameter a
<b>	DBL	The result of querying the second parameter b

4-3-52. HIOKI3522(3532) Speed.vi

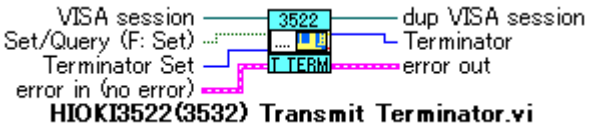
Sets or queries the testing speed.



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> set		Specifies the mode Valid range: 0(=FAST:Default), 1(=NORMAL), 2(=SLOW), 3(=SLOW2)
<Data>	abc	The result of querying the testing speed

4-3-53. HIOKI3522(3532) Transmit Terminator.vi

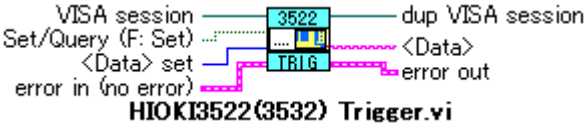
Sets or queries the data terminator for response message. (GPIB only)



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
Terminator Set		Specifies the mode Valid range: 0(=LF+EOI:Default), 1(=CR,,LF+EOI)
Terminator	I32	The result of querying the data terminator for response message 0(=LF+EOI), 1(=CR,,LF+EOI)

4-3-54. HIOKI3522(3532) Trigger.vi

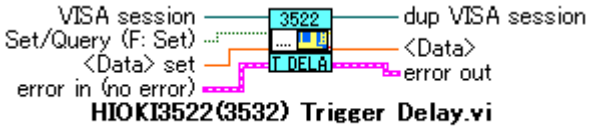
Sets or queries the type of trigger



Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> set		Specifies the type Valid range: 0(=INTERNAL:Default), 1(=EXTERNAL)
<Data>	abc	The result of querying the type of trigger

4-3-55. HIOKI3522(3532) Trigger Delay.vi

Sets or queries the trigger delay time.

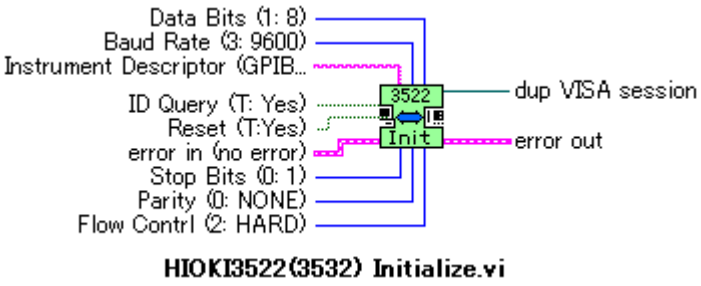


Name	Data type	Explanation
Set/Query(F:Set)	TF	Selects the setting or the querying function Valid range: False(=set: Default), True(=Query)
<Data> set	DBL	Specifies the trigger delay time Valid range: 0-9.99
<Data>	DBL	The result of querying the trigger delay time

4-4. The VI which is not in the program library.

4-4-1. HIOKI3522(3532) Initialize.vi

Opens the VISA session, Initializes the interface and the 3522/3532 LCR HiTESTER unit.

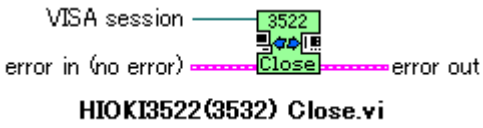


Name	Data type	Explanation
dup VISA session error in error out		The inputs and outputs are the same as the ones of the vi which are in the program library.
Instrument Descriptor (GPIP…	abc	Specifies the resource name of unit. The form: GPIB: GPIB[board number]::primary address[::secondary address][::INSTR] ASRL: ASRL[port Number][::INSTR]
Data Bits(1: 8)		Specifies the length of data(the parameter of serial communication).* Valid Range: 0(=7 bit), 1(=8 bit: Default).
Baud Rate(3: 9600)		Specifies the speed(the parameter of serial communication).* Valid range: 0(=1200), 1(=2400), 2(=4800), 3(=9600: Default).
Stop Bits(0: 1)		Specifies the stop bits(the parameter of serial communication). * Valid range: 0(=1 bit: Default), 1(=2 bits).
Parity(0: NONE)		Specifies the parity(the parameter of serial communication). * Valid range: 0(=NONE), 1(=ODD), 2(=EVEN).
Flow Control(2: HARD)		Specifies the flow control(the parameter of serial communication). * Valid range: 0(=OFF), 1(=X), 2(=HARD: Default).
ID Query	TF	Identifies the ID of unit. Valid range: False, True(Default).
Reset	TF	Resets the unit. Valid range: False, True(Default).

* It is ignored when setting for GBIP.

4-4-2. HIOKI3522(3532) Close.vi

Closes the VISA session.



HIOKI3522(3532) Close.vi

Name	Explanation
dup VISA session error in error out	The inputs and outputs are the same as the ones of the vi which are in the program library.

4-4-3. Wait.vi

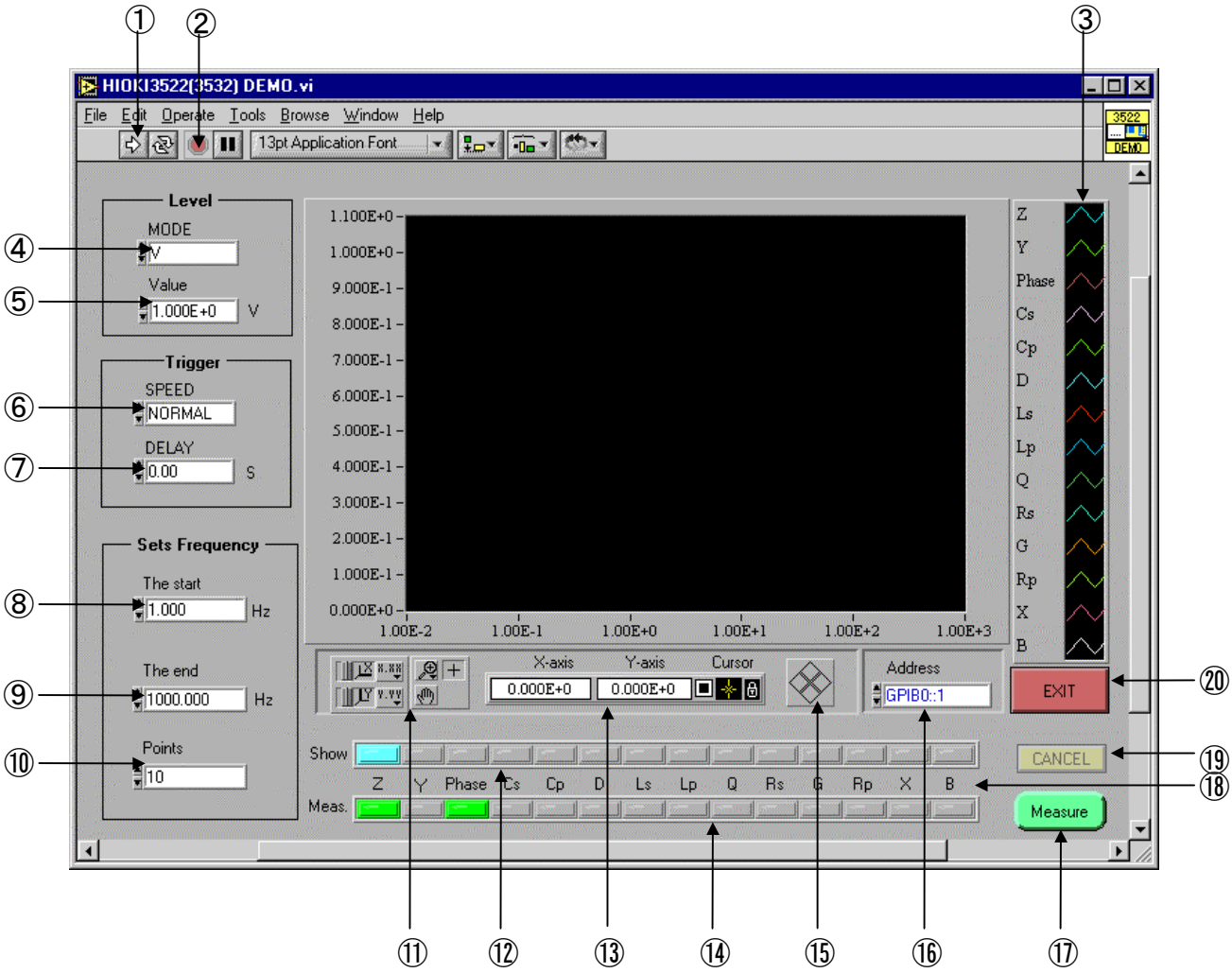
Sets the time for waiting.

Wait.vi

Name	Data type	Explanation
times(ms)	U16	Specifies the time for waiting (Unit : ms)

4-4-4. HIOKI3522(3532) DEMO.vi

It is a demo program for 3522/3532 LCR HiTESTER.



No	Function
1	Starts this application program
2	Aborts this application program
3	Sets the color of wave, and so on. Note: It is a standard function of LabVIEW
4	Sets the test signal level mode (V/CV/CC).
5	Specifies the value for test signal mode.
6	Sets the testing speed.
7	Sets the trigger delay time.
8	Specifies the start test frequency.
9	Specifies the end test frequency.
10	Specifies the points for measurement Valid range: 1 - 1000
11	Changes the graph (enlargement, and so on) Note: It is a standard function of LabVIEW
12	Selects the measured item to display on graph.
13	Sets the kind of cursor, and so on. Note: It is a standard function of LabVIEW.
14	Sets the items for measurement
15	Moves the cursor. Note: It is a standard function of LabVIEW.
16	Sets the kind of communication. Note: In case of GPIB communication, it is necessary to set GPIB interface address of 3522/3532 LCR HiTESTER to 1 In case of RS232C communication, it is necessary to set baud rate to 9600, set data length to 8 bits set parity to NONE, set stop bits to 1 bit, and set the delimiters to CR+LF.
17	Starts measurement Note: All buttons are invalid except CANCEL button when measuring.
18	They are the names of items Z: Impedance Y: Admittance Phase: phase angle (θ) Cs: Series equivalent static capacitance Cp: Parallel equivalent static capacitance D: Loss coefficient Ls: Series equivalent inductance Lp: Parallel equivalent inductance Q: Q factor Rs: Series equivalent resistance G: Conductance Rp: Parallel equivalent resistance X: Reactance B: Susceptance Note: It means measured item when the color is red.
19	Cancels measurement.
20	Exits this application program.

5. Command table

Command name	VI name	Note
*CLS	HIOKI3522(3532) CLS.vi	
*ESE *ESE?	HIOKI3522(3532) ESE.vi	
*ESR?	HIOKI3522(3532) ESR.vi	
*IND?	HIOKI3522(3532) IDN.vi	
*OPC *OPC?	HIOKI3522(3532) OPC.vi	
*RST	HIOKI3522(3532) RST.vi	
*SRE *SRE?	HIOKI3522(3532) SRE.vi	
*STB?	HIOKI3522(3532) STB.vi	
*TRG	HIOKI3522(3532) TRG.vi	
*TST?	HIOKI3522(3532) TST.vi	
*WAI	HIOKI3522(3532) WAI.vi	
:AVERaging :AVERaging?	HIOKI3522(3532) Averaging.vi	
:BAIS :BAIS?	HIOKI3522 Bias.vi	
:BEEPer:COMParator :BEEPer:COMParator?	HIOKI3522(3532) Beeper COMP.vi	
:BEEPer:KEY :BEEPer:KEY?	HIOKI3522(3532) Beeper Key.vi	
:CABLe :CABLe?	HIOK3532 Cable.vi	
:COMParator :COMParator?	HIOKI3522(3532) Comparator.vi	
:COMParator:FLIMit:ABSolute :COMParator:FLIMit:ABSolute?	HIOKI3522(3532) Comparator Flimit Abs.vi	
:COMParator:FLIMit:PERcent :COMParator:FLIMit:PERcent?	HIOKI3522(3532) Comparator Flimit Per.vi	
:COMParator:FLIMit:MODE :COMParator:FLIMit:MODE?	HIOKI3522(3532) Comparator Flimit mode.vi	
:COMParator:SLIMit:ABSolute :COMParator:SLIMit:ABSolute?	HIOKI3522(3532) Comparator Slimit Abs.vi	
:COMParator:SLIMit:PERcent :COMParator:SLIMit:PERcent?	HIOKI3522(3532) Comparator Slimit Per.vi	
:COMParator:SLIMit:MODE :COMParator:SLIMit:MODE?	HIOKI3522(3532) Comparator Slimit mode.vi	

5. Command (continuation)

Command name	VI name	Note
:CORRection:DATA?	HIOKI3522(3532) Correction Data.vi	
:CORRection:OPEN :CORRection:OPEN?	HIOKI3522(3532) Correction Open.vi	
:CORRection:SHORt :CORRection:SHORt?	HIOKI3522(3532) Correction Short.vi	
:DISPlay:MONItor?	HIOKI3522(3532) Display Monitor.vi	
:ESE0 :ESE0?	HIOKI3522(3532) ESE0.vi	
:ESE1 :ESE1?	HIOKI3522(3532) ESE1.vi	
:ESR0?	HIOKI3522(3532) ESR0.vi	
:ESR1?	HIOKI3522(3532) ESR1.vi	
:FREQuency :FREQuency?	HIOKI3522(3532) Frequency.vi	
:HEADer :HEADer?	HIOKI3522(3532) Header.vi	
:LEVel :LEVel?	HIOKI3522(3532) Level.vi	
:LEVel:CCURRent :LEVel:CCURRent?	HIOKI3522(3532) Level Ccurrent.vi	
:LEVel:CVOLTage :LEVel:CVOLTage?	HIOKI3522(3532) Level Cvoltage.vi	
:LEVel:VOLTage :LEVel:VOLTage?	HIOKI3522(3532) Level Voltage.vi	
:LIMiter :LIMiter?	HIOKI3522(3532) Limiter.vi	
:LIMiter:CURRent :LIMiter:CURRent?	HIOKI3522(3532) Limiter Current.vi	
:LIMiter:CVOLTage :LIMiter:CVOLTage?	HIOKI3522(3532) Limiter Voltage.vi	
:LOAD	HIOKI3522(3532) Load.vi	
:MEASure:ITEM :MEASure:ITEM?	HIOKI3522(3532) Measure Item.vi	
:MEASure?	HIOKI3522(3532) Measure.vi	
:PARameter* :PARameter*?	HIOKI3522(3532) Parameter.vi	
:PARameter*:DIGit :PARameter*:DIGit?	HIOKI3522(3532) Parameter Digit.vi	

5. Command (continuation)

Command name	VI name	Note
:RANGe :RANGe?	HIOKI3522(3532) Range.vi	
:RANGe:AUTO :RANGe:AUTO?	HIOKI3522(3532) Range Auto.vi	
:SAVE :SAVE?	HIOKI3522(3532) Save.vi	
:SCALe :SCALe?	HIOKI3522(3532) Scale.vi	
:SCALe:FVALue :SCALe:FVALue?	HIOKI3522(3532) Scale Fvalue.vi	
:SCALe:SVALue :SCALe:SVALue?	HIOKI3522(3532) Scale Svalue.vi	
:SPEEd :SPEEd?	HIOKI3522(3532) Speed.vi	
:TRANsmit:TERMinator :TRANsmit:TERMinator?	HIOKI3522(3532) Transmit Terminator.vi	
:TRIGger :TRIGger?	HIOKI3522(3532) Trigger.vi	
:TRIGger:DELAy :TRIGger:DELAy?	HIOKI3522(3532) Trigger Delay.vi	