FRA5022 LabVIEW Driver

Instruction Manual

NF Corporation

DA00017773-004

FRA5022 LabVIEW Driver

Instruction Manual

— Preface —

Thank you very much for purchasing our FRA5022 frequency response analyzers.
FRA5022 LabVIEW Driver is a LabVIEW instrument driver exclusive for FRA5022.

- **Before Reading This Manual**

  This manual is provided as a PDF file. To view the file, Acrobat Reader 5 or later from Adobe Systems, Inc. must be installed on your computer.

- **This Manual has the Following Chapter Organization.**

1. OUTLINE
   This chapter provides a brief overview of FRA5022 LabVIEW Driver.
2. OPERATION vi
   This chapter describes each operation vi.

DISCLAIMER

FRA5022 LabVIEW Driver (hereinafter referred to as “this software”) has been properly tested and inspected by NF Corporation (hereinafter referred to as “we”) before shipment. Should you have any problems with this software, contact us or our dealer.
We shall assume no responsibility, whatsoever, for any damages resulting from the use of this software. Even if this software is defective, we shall be under no obligation to provide any modification or support. Use this software at your own risk.

Contents

1. OUTLINE

This LabVIEW instrument driver is intended for Frequency Response Analyzer FRA5022. This driver allows you to build an application without any reference to the details of FRA5022 program messages.

＊Operation of this driver has been checked in the following environments:

- OS: Windows7/8.1（32bit / 64bit）, Windows10 or later
- VISA: Ver2023Q3

Please note that in some LabVIEW versions, VI may be changed without notice. In this case, please follow the instructions on the screen.

2. OPERATION vi

All FRA5022 operation VIs have an error input and error output. Concatenating error clusters so that an error output is connected to the error input of the subsequent VI establishes error I/O suitable for LabVIEW data flow architecture. If necessary, an application can monitor the error status throughout the cluster chain.
For the connection procedure, refer to the sample applications.
This section describes I/O terminals other than error I/O and VISA sessions.

2.1 VI Tree

NF_FRA5022 VI Tree.vi

VIs in this driver are shown in a diagram.

2.2 Samples

NF_FRA5022_exam_settingaSweepFrequencyRangeAndSweepMeasurement.vi

A sample of sweep frequency range setting and sweep measurement.

Setting the sweep frequency range and starting sweep measurement.

NF_FRA5022_exam_setupAndQuery.vi

A sample of setup and query.

Setting each parameter and outputting the query result.

NF_FRA5022_exam_transferOfMeasurementDataToController1.vi

A sample of measurement data transfer to the controller (1)

Loading measurement data from the FRA.

NF_FRA5022_exam_transferOfMeasurementDataToController2.vi

A sample of measurement data transfer to the controller (2)

Loading SPOT measurement data from the FRA.

[Input] DISP coordinates

0 : GdB, P–F, 1 : G, P–F, 2 : a, b

[Output] Param 1-3

SPOT measurement results

NF_FRA5022 Comm Interface.vi

Specifying the FRA local/remote state (for GPIB only).

[Input] Mode

Local/Locked Remote/Remote

NF_FRA5022 DAtaReaddata.vi

Outputting all the SWEEP measurement results according to the graph format. (settings in the [DISP coordinates])

Depending on the settings of a data memory whose data is to be displayed, two or more sets of data in the above format will be output as follows:

A:	All the data in data memory A
A/B:	Data in memory A normalized with data in memory B within the range where A and B have the same frequency
A&B:	All the data in memory A and then all the data in memory B
B:	All the data in data memory B

[Output] data

SWEEP measurement results

NF_FRA5022 QueryCondition.vi

Querying various parameters.

[Output] CONDITIONS

Measurement parameters

NF_FRA5022 Reset.vi

Initializing the FRA settings.

NF_FRA5022 Revision Query.vi

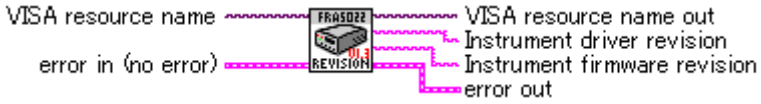
Querying the version of FRA firmware.

[Output] Instrument driver revision

The corresponding version of LabVIEW driver

[Output] Instrument firmware revision

FRA firmware version



NF_FRA5022 SetupCondition.vi

Setting various parameters.

[Input] CONDITION

Measurement parameters

NF_FRA5022 SWeepMeasure.vi

Controlling measurement such as SWEEP.

[Input] measure_operation

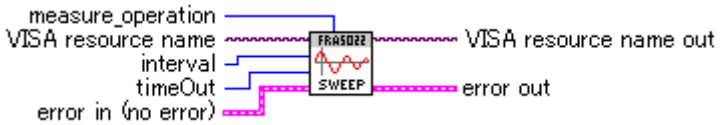
STOP | HOLD | SPOT | UP | DOWN

[Input] interval

Interval time of status byte reading [unit ms]

[Input] timeout

Status byte loading timeout [unit ms]



2.3 Initializing VISA

NF_FRA5022 Initialize.vi

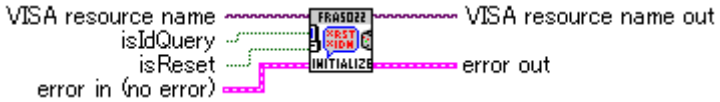
Opening the FRA interface. Initializing FRA at the same time.

[Input] isIdQuery

Is the model name queried?

[Input] isReset

Is reset to be conducted?



2.4 Closing VISA

NF_FRA5022 Close.vi

Closing the FRA interface.

2.5 CALibration

NF_FRA5022_dvr_qCALibrationALL.vi

Conducting self-calibration.

[Output] Param1

0: No error, 1: Error occurrence

2.6 DISPlay

NF_FRA5022_dvr_sDISPlayCOORdinates.vi

Setting graph and other data display formats.

[Input] coordinates

Graph axes (measurement value display format) 0: GdB, P–F, 1: G, P–F, 2: a, b

NF_FRA5022_dvr_qDISPlayCOORdinates.vi

Querying graph and other data display formats.

[Output] coordinates

Graph axes (measurement value display format) 0: GdB, P–F, 1: G, P–F, 2: a, b

NF_FRA5022_dvr_sDISPlayDATAMEMory.vi

Setting a data memory display.

[Input] data_memory

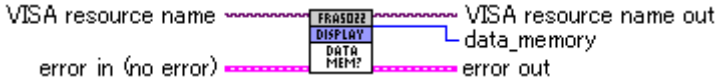
Data memory 0: A, 1: B, 2: A&B, 3: A/B

NF_FRA5022_dvr_qDISPlayDATAMEMory.vi

Querying a data memory display.

[Output] data_memory

Data memory 0: A, 1: B, 2: A&B, 3: A/B



NF_FRA5022_dvr_sDISPlayDATASTORe.vi

Copying the latest measurement data (contents of data memory A) to data memory B.

NF_FRA5022_dvr_sDISPlayPHASeMINimum.vi

Setting the lower phase limit for spot measurement.

[Input] spot_phase_min

Lower phase limit from −360.0 to 0.0 [unit deg]

NF_FRA5022_dvr_qDISPlayPHASeMINimum.vi

Querying the lower phase limit for spot measurement.

[Output] spot_phase_min

Lower phase limit from −360.0 to 0.0 [unit deg]

NF_FRA5022_dvr_sDISPlayWINDowSCALeMODE.vi

Setting the graph display area to Auto or Manual.

[Input] scale

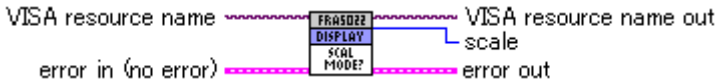
Display area 0: Auto, 1: Manual

NF_FRA5022_dvr_qDISPlayWINDowSCALeMODE.vi

Querying the graph display area to Auto or Manual.

[Output] scale

Display area 0: Auto, 1: Manual



NF_FRA5022_dvr_sDISPlayWINDowTRACeGAINMAXimum.vi

Setting the upper gain limit (unit dB) in the graph.

[Input] gain_max

Upper gain limit from −179.9 to 180.0 [unit dB]

NF_FRA5022_dvr_qDISPlayWINDowTRACeGAINMAXimum.vi

Querying the upper gain limit (unit dB) in the graph.

[Output] gain_max

Upper gain limit from −179.9 to 180.0 [unit dB]

NF_FRA5022_dvr_sDISPlayWINDowTRACeGAINMINimum.vi

Setting the lower gain limit (unit dB) in the graph.

[Output] gain_min

Lower gain limit from −180.0 to 179.9 [unit dB]

NF_FRA5022_dvr_qDISPlayWINDowTRACeGAINMINimum.vi

Querying the lower gain limit (unit dB) in the graph.

[Output] gain_min

Lower gain limit from −180.0 to 179.9 [unit dB]

NF_FRA5022_dvr_sDISPlayWINDowTRACePHASeMAXimum.vi

Setting the upper phase limit in the graph.

[Input] phase_max

Upper phase limit from −359.9 to 360.0 [unit deg]

NF_FRA5022_dvr_qDISPlayWINDowTRACePHASeMAXimum.vi

Querying the upper phase limit in the graph.

[Output] phase_max

Upper phase limit from −359.9 to 360.0 [unit deg]

NF_FRA5022_dvr_sDISPlayWINDowTRACePHASeMINimum.vi

Setting the lower phase limit in the graph.

[Input] phase_min

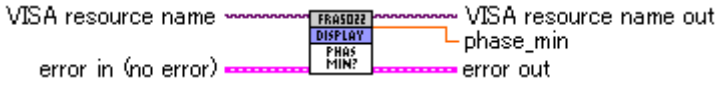
Lower phase limit from −360.0 to 359.9 [unit deg]

NF_FRA5022_dvr_qDISPlayWINDowTRACePHASeMINimum.vi

Querying the lower phase limit in the graph.

[Output] phase_min

Lower phase limit from −360.0 to 359.9 [unit deg]



2.7 INPut[1|2]

NF_FRA5022_dvr_sINPutVOLTageOVERloadLEVel.vi

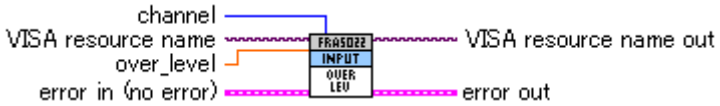
Setting the detection level of excessive input.

[Input] channel

1: CH1, 2: CH2

[Input] over_level

Detection level from 0.01 to 19.99 [unit Vrms]



NF_FRA5022_dvr_qINPutVOLTageOVERloadLEVel.vi

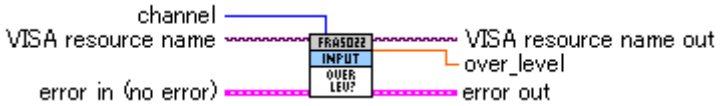
Querying the detection level of excessive input.

[Input] channel

1: CH1, 2: CH2

[Output] over_level

Detection level from 0.01 to 19.99 [unit Vrms]



NF_FRA5022_dvr_sINPutVOLTageOVERloadRESPonse.vi

Setting an action to be taken when excessive input is detected.

[Input] over_response

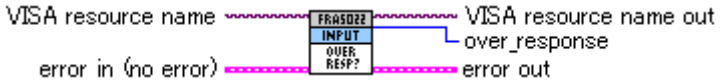
0: Lamp, 1: Beep, 2: Hold, 3: Off

NF_FRA5022_dvr_qINPutVOLTageOVERloadRESPonse.vi

Querying an action to be taken when excessive input is detected.

[Output] over_response

0: Lamp, 1: Beep, 2: Hold, 3: Off



2.8 MEASure

NF_FRA5022_dvr_sMEASureDELayTIME.vi

Setting measurement delay time.

[Input] delay

Measurement delay time from 0.00 to 999.99 [unit s]

NF_FRA5022_dvr_qMEASureDELayTIME.vi

Querying measurement delay time.

[Output] delay

Measurement delay time from 0.00 to 999.99 [unit s]

NF_FRA5022_dvr_sMEASureINTegrateCYCle.vi

Setting the integration cycle.

[Input] integ_cycle

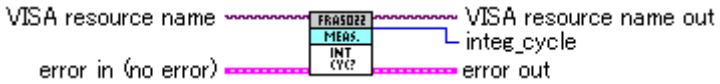
Integration cycle from 1 to 999 [unit cycle]

NF_FRA5022_dvr_qMEASureINTegrateCYCle.vi

Querying the integration cycle.

[Output] integ_cycle

Integration cycle from 1 to 999 [unit cycle]



NF_FRA5022_dvr_sMEASureINTegrateTIME.vi

Setting integration time.

[Input] integ_time

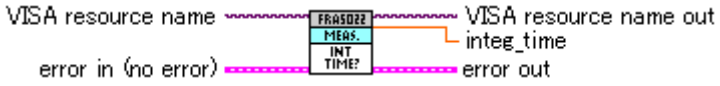
Integration time from 0.01 to 999.99 [unit s]

NF_FRA5022_dvr_qMEASureINTegrateTIME.vi

Querying integration time.

[Output] integ_time

Integration time from 0.01 to 999.99 [unit s]



NF_FRA5022_dvr_sMEASureMODE.vi

Setting the measurement mode.

[Input] mode

Measurement mode　0: CH2/CH1, 1: CH2/OSC

NF_FRA5022_dvr_qMEASureMODE.vi

Querying the measurement mode.

[Output] mode

Measurement mode　0: CH2/CH1, 1: CH2/OSC

NF_FRA5022_dvr_sMEASureSPOTREPeat.vi

Setting whether or not spot measurement is repeated.

[Input] spot_repeat

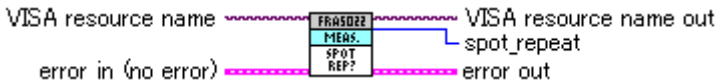
Repetition setting OFF | 0: not repeated, ON | 1: repeated

NF_FRA5022_dvr_qMEASureSPOTREPeat.vi

Querying whether or not spot measurement is repeated.

[Output] spot_repeat

Repetition setting OFF | 0: not repeated, ON | 1: repeated



2.9 MEMory

NF_FRA5022_dvr_sMEMoryCOPY.vi

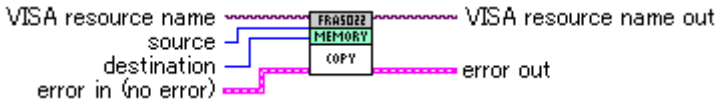
Copying the contents of a setting memory to another.

[Input] source

Source memory number from 0 to 9

[Input] destination

Destination memory number from 0 to 9



NF_FRA5022_dvr_sMEMoryDELete.vi

Clearing the contents of a specified setting memory to the default.

[Input] setting_memory

Memory number from 0 to 9

NF_FRA5022_dvr_sMEMorySTATe.vi

Setting whether the contents of a setting memory can be modified.

[Input] setting_memory

Memory number from 0 to 9

[Input] lock

Modification 0: Free, 1: Lock

NF_FRA5022_dvr_qMEMorySTATe.vi

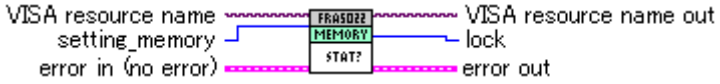
Querying whether the contents of a setting memory can be modified.

[Input] setting_memory

Memory number from 0 to 9

[Output] lock

Modification 0: Free, 1: Lock



NF_FRA5022_dvr_sMEMoryTITle.vi

Setting the title of a setting memory.

[Input] setting_memory

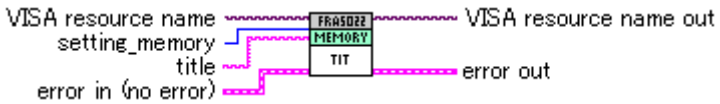
Memory number from 0 to 9

[Input] title

Title of up to 18 one-byte characters

Any characters that you can enter with the panel can be used.

You can enter lower-case characters, which will be converted into upper-case characters for the title setting.



NF_FRA5022_dvr_qMEMoryTITle.vi

Querying the title of a setting memory.

[Input] setting_memory

Memory number from 0 to 9

[Output] title

Title of up to 18 one-byte characters

2.10 SENSe

NF_FRA5022_dvr_qSENSeDATASWEepDATA.vi

Outputting all the sweep measurement results according to the settings of graph axes. (the display format of measurement values)

Depending on the data memory display settings, two or more sets of data will be output as follows:

[Output] data

A: All the data in data memory A

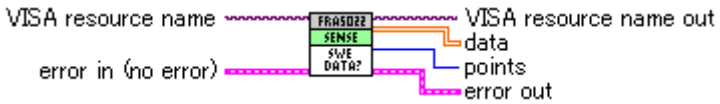
A/B: The data in data memory A that corresponds to the measurement frequency point within the range where the sweep frequency range for data memory A overlaps with that for data memory B

A&B: All the data in data memory A and then all the data in data memory B

B: All the data in data memory B

[Output] points

Data points read out



NF_FRA5022_dvr_qSENSeDATASWEepPOINt.vi

Outputting the number of measurement points in the SWEEP measurement results of the displayed data memory.

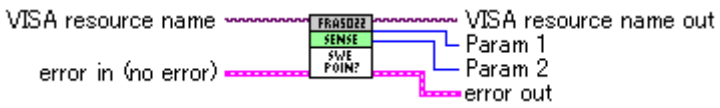
[Output] Param1 Param2

A: The number of measurement points for data memory A

A/B: The number of measurement points for data memory A within the range where A and B have the same frequency

A&B: The number of measurement points for data memory A (Param1) and that for data memory B (Param 2)

B: The number of measurement points for data memory B

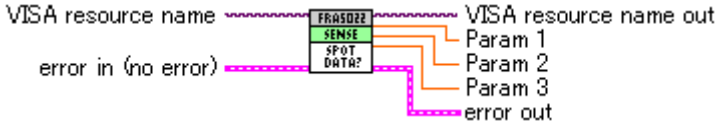


NF_FRA5022_dvr_qSENSeDATASPOTDATA.vi

Outputting spot measurement results according to the settings of graph axes. (the display format of measurement values)

[Output] Param1 Param2 Param3

Frequency, gain, phase or frequency, a, b



NF_FRA5022_dvr_sSENSeDATASPOTLIMitGAINMAXimum.vi

Setting the upper limit of passing spot measurement gain.

[Input] gain_upper_limit

Upper limit of passing gain: from −199.99 to 199.99 [unit dB]

NF_FRA5022_dvr_qSENSeDATASPOTLIMitGAINMAXimum.vi

Querying the upper limit of passing spot measurement gain.

[Output] gain_upper_limit

Upper limit of passing gain: from −199.99 to 199.99 [unit dB]

NF_FRA5022_dvr_sSENSeDATASPOTLIMitGAINMINimum.vi

Setting the lower limit of passing spot measurement gain.

[Input] gain_lower_limit

Lower limit of passing gain: from −199.99 to 199.99 [unit dB]

NF_FRA5022_dvr_qSENSeDATASPOTLIMitGAINMINimum.vi

Querying the lower limit of passing spot measurement gain.

[Output] gain_lower_limit

Lower limit of passing gain: from −199.99 to 199.99 [unit dB]

NF_FRA5022_dvr_sSENSeDATASPOTLIMitPHASeMAXimum.vi

Setting the upper limit of passing spot measurement phase.

[Input] phase_upper_limit

Upper limit of passing phase: from −360.00 to 360.00 [unit deg]

NF_FRA5022_dvr_qSENSeDATASPOTLIMitPHASeMAXimum.vi

Querying the upper limit of passing spot measurement phase.

[Output] phase_upper_limit

Upper limit of passing phase: from −360.00 to 360.00 [unit deg]

NF_FRA5022_dvr_sSENSeDATASPOTLIMitPHASeMINimum.vi

Setting the lower limit of passing spot measurement phase.

[Input] phase_lower_limit

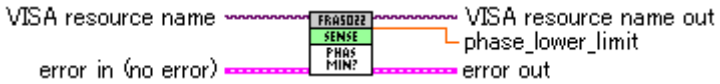
Lower limit of passing phase: from −360.00 to 360.00 [unit deg]

NF_FRA5022_dvr_qSENSeDATASPOTLIMitPHASeMINimum.vi

Querying the lower limit of passing spot measurement phase.

[Output] phase_lower_limit

Lower limit of passing phase: from −360.00 to 360.00 [unit deg]



NF_FRA5022_dvr_qSENSeDATASPOTLIMitREPort.vi

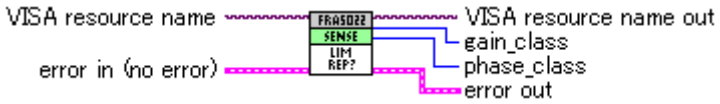
Querying the spot measurement pass/fail results.

[Output] gain_class

Gain pass/fail result

[Output] phase_class

Phase pass/fail result



2.11 SOURce

NF_FRA5022_dvr_sSOURceFREQuencyIMMediate.vi

Setting oscillator frequency.

[Input] freq_current

Oscillator frequency 0.10E−03 to 100.00E+03 [unit Hz]

NF_FRA5022_dvr_qSOURceFREQuencyIMMediate.vi

Querying oscillator frequency.

[Output] freq_current

Oscillator frequency 0.10E−03 to 100.00E+03 [unit Hz]

NF_FRA5022_dvr_sSOURceSWEepMEASure.vi

Specifying sweep/spot measurement operations.

[Input] measure_operation

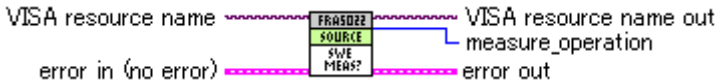
Measurement operations: STOP | HOLD | SPOT | UP | DOWN

NF_FRA5022_dvr_qSOURceSWEepMEASure.vi

Querying the status of sweep/spot measurement operations.

[Output] measure_operation

Measurement operations: STOP | HOLD | SPOT | UP | DOWN

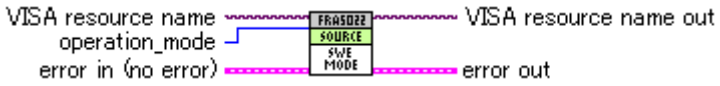


NF_FRA5022_dvr_sSOURceSWEepMODE.vi

Setting the sweep operation mode.

[Input] operation_mode

Operation mode: AUTO | MANual

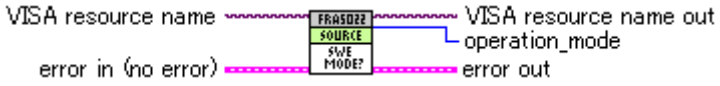


NF_FRA5022_dvr_qSOURceSWEepMODE.vi

Querying the sweep operation mode.

[Output] operation_mode

Operation mode: AUTO | MANual

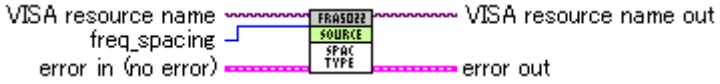


NF_FRA5022_dvr_sSOURceSWEepSPACingTYPE.vi

Setting the frequency axis type for sweep measurement.

[Input] freq_spacing

Frequency axis type: LINear | LOGarithmic

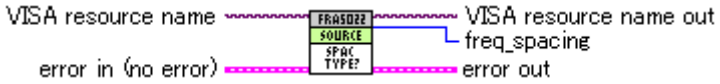


NF_FRA5022_dvr_qSOURceSWEepSPACingTYPE.vi

Querying the frequency axis type for sweep measurement.

[Output] freq_spacing

Frequency axis type: LINear | LOGarithmic



NF_FRA5022_dvr_sSOURceSWEepSPACingPOINt.vi

Setting frequency points for sweep measurement.

[Input] freq_points

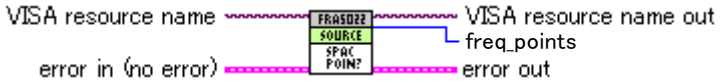
Frequency points from 3 to 1000

NF_FRA5022_dvr_qSOURceSWEepSPACingPOINt.vi

Querying frequency points for sweep measurement.

[Output] freq_points

Frequency points from 3 to 1000



NF_FRA5022_dvr_sSOURceSWEepLEVelMAXimum.vi

Setting the upper limit of frequency for sweep measurement.

[Input] freq_max

Upper limit of frequency from 0.11E−03 to 100.00E+03 [unit Hz]

NF_FRA5022_dvr_qSOURceSWEepLEVelMAXimum.vi

Querying the upper limit of frequency for sweep measurement.

[Output] freq_max

Upper limit of frequency from 0.11E−03 to 100.00E+03 [unit Hz]

NF_FRA5022_dvr_sSOURceSWEepLEVelMINimum.vi

Setting the lower limit of frequency for sweep measurement.

[Input] freq_min

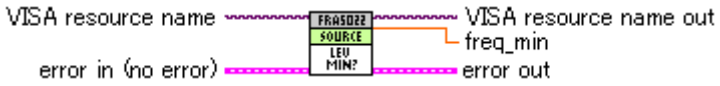
Lower limit of frequency from 0.10E−3 to 99.999E+03 [unit Hz]

NF_FRA5022_dvr_qSOURceSWEepLEVelMINimum.vi

Querying the lower limit of frequency for sweep measurement.

[Output] freq_min

Lower limit of frequency from 0.10E−3 to 99.999E+03 [unit Hz]

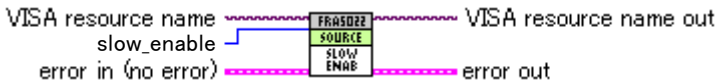


NF_FRA5022_dvr_sSOURceVOLTageSLOWENABle.vi

Setting whether or not SLOW output from the oscillator is enabled.

[Input] slow_enable

SLOW output: Quick only | Slow enable

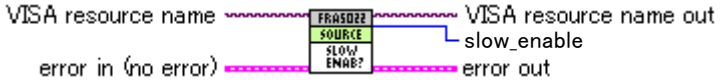


NF_FRA5022_dvr_qSOURceVOLTageSLOWENABle.vi

Querying whether or not SLOW output from the oscillator is enabled.

[Output] slow_enable

SLOW output: Quick only | Slow enable



NF_FRA5022_dvr_sSOURceVOLTageSLOWSTATe.vi

Setting the change speed of oscillator output.

[Input] change_speed

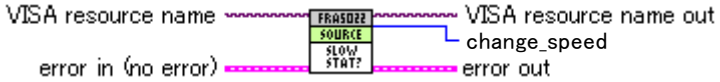
Change speed: Quick | Slow

NF_FRA5022_dvr_qSOURceVOLTageSLOWSTATe.vi

Querying the change speed of oscillator output.

[Output] change_speed

Change speed: Quick | Slow



NF_FRA5022_dvr_sSOURceVOLTageOUTPutSTATe.vi

Setting the oscillator's ON/OFF state.

[Input] output_state

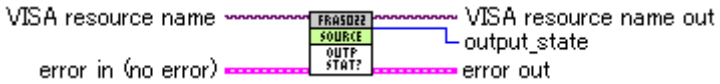
Output state 0: AC/DC OFF, 1: AC OFF, 2: AC/DC ON

NF_FRA5022_dvr_qSOURceVOLTageOUTPutSTATe.vi

Querying the oscillator's ON/OFF state.

[Output] output_state

Output state 0: AC/DC OFF, 1: AC OFF, 2: AC/DC ON

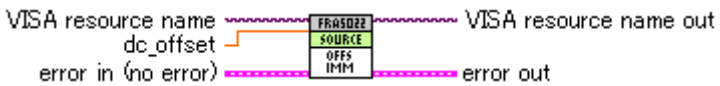


NF_FRA5022_dvr_sSOURceVOLTageOFFSetIMMediate.vi

Setting the oscillator's DC bias.

[Input] dc_offset

DC bias from −10.00 to 10.00 [unit V]

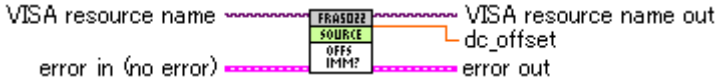


NF_FRA5022_dvr_qSOURceVOLTageOFFSetIMMediate.vi

Querying the oscillator's DC bias.

[Output] dc_offset

DC bias from −10.00 to 10.00 [unit V]



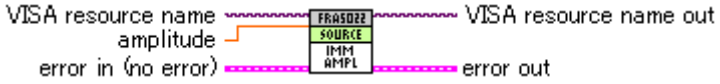
NF_FRA5022_dvr_sSOURceVOLTageLEVelIMMediateAMPLitude.vi

Setting the oscillator's AC amplitude.

[Input] amplitude

AC amplitude from 0.000 to 7.07 [unit Vrms] | from 0.000 to 10.00 [unit Vpk]

The set value will be interpreted as the value of display unit specified with NF_FRA5022_dvr_sSOURceROSCillatorVOLTageUNIT.vi. With this vi, no suffix can be specified together with a numeric value.

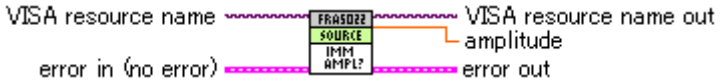


NF_FRA5022_dvr_qSOURceVOLTageLEVelIMMediateAMPLitude.vi

Querying the oscillator's AC amplitude.

[Output] amplitude

AC amplitude from 0.000 to 7.07 [unit Vrms] | from 0.000 to 10.00 [unit Vpk]



NF_FRA5022_dvr_sSOURceVOLTageUNIT.vi

Setting the display unit and response unit of the oscillator's AC amplitude.

[Input] amplitude_unit

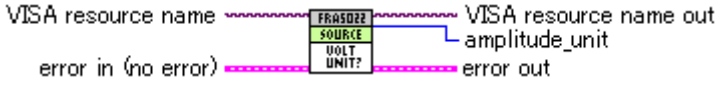
Unit of AC amplitude: VRMS | VPK

NF_FRA5022_dvr_qSOURceVOLTageUNIT.vi

Querying the display unit and response unit of the oscillator's AC amplitude.

[Output] amplitude_unit

Unit of AC amplitude: VRMS | VPK



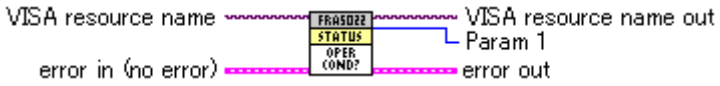
2.12 STATus

NF_FRA5022_dvr_qSTATusOPERationCONDition.vi

Querying the operation condition register (OPCR).

[Output] param1

Content of the register from 0 to 65535



NF_FRA5022_dvr_sSTATusOPERationENABle.vi

Setting the operation event enable register (OPEE).

[Input] opee

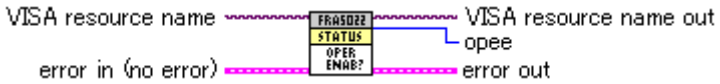
Content of the register from 0 to 65535

NF_FRA5022_dvr_qSTATusOPERationENABle.vi

Querying the operation event enable register (OPEE).

[Output] opee

Content of the register from 0 to 65535



NF_FRA5022_dvr_qSTATusOPERationEVENt.vi

Querying the operation event register (OPER).

[Input] Param1

Content of the register from 0 to 65535

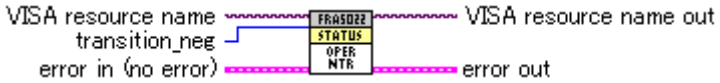
NF_FRA5022_dvr_sSTATusOPERationNTRansition.vi

Setting the operation transition filter.

OPER is set as below by bit according to the filter setting.

[Input] transition_neg

Negative transition filter from 0 to 65535



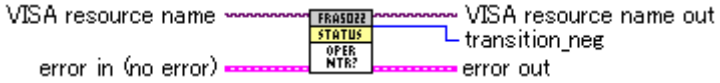
NF_FRA5022_dvr_qSTATusOPERationNTRansition.vi

Querying the operation transition filter.

OPER is set as below by bit according to the filter setting.

[Output] transition_neg

Negative transition filter from 0 to 65535



NF_FRA5022_dvr_sSTATusOPERationPTRansition.vi

Setting the operation transition filter.

OPER is set as below by bit according to the filter setting.

[Input] transition_pos

Positive transition filter from 0 to 65535

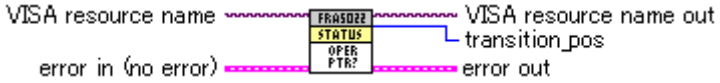
NF_FRA5022_dvr_qSTATusOPERationPTRansition.vi

Querying the operation transition filter.

OPER is set as below by bit according to the filter setting.

[Output] transition_pos

Positive transition filter from 0 to 65535



Relationship of positive and negative transition fitlers and operation event

NTR	PTR	OPER
0	0	Even when OPCR changes, OPER is not set to 1.
0	1	When OPCR changes from 0 to 1, OPER is set to 1.
1	0	When OPCR changes from 1 to 0, OPER is set to 1.
1	1	When OPCR changes, OPER is set to 1.

NF_FRA5022_dvr_sSTATusOVERloadENABle.vi

Setting the overload event enable register (OVEE).

[Input] ovee

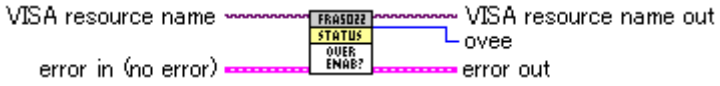
Content of the register from 0 to 65535

NF_FRA5022_dvr_qSTATusOVERloadENABle.vi

Querying the overload event enable register (OVEE).

[Output] ovee

Content of the register from 0 to 65535

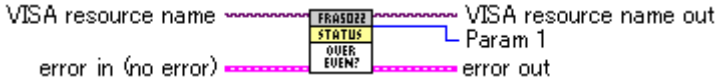


NF_FRA5022_dvr_qSTATusOVERloadEVENt.vi

Querying the overload event register (OVER).

[Output] Param1

Content of the register from 0 to 65535



2.13 SYSTem

NF_FRA5022_dvr_qSYSTemERRor.vi

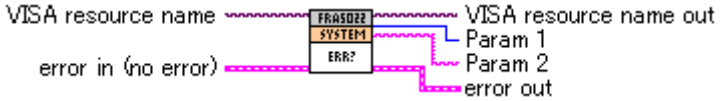
Querying the error status.

[Output] Param1

Error number from −32768 to +32767

[Output] Param2

Error message

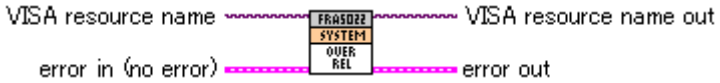


NF_FRA5022_dvr_sSYSTemOVERloadRELease.vi

Clearing an error as with the RESET ERROR key on the front panel.

Examples of errors to be cleared:

- Error of the input signal exceeding the measurable voltage range
- Error of exceeding the user-defined detection level of excessive input
- Output overload error



2.14 Common Commands

NF_FRA5022_dvr_sCommonCLS.vi

Clearing the status of the following:

Standard event status register
Operation event register
Overload event register
Status byte ・・・☞ Note (below)
Error queue

[Note] *CLS command is cleared except for the MAV and RQS bits.

MAV bit can be cleared by clearing the input buffer with device clear.
RQS bit can be cleared by reading the status with a serial poll.

NF_FRA5022_dvr_sCommonESE.vi

Setting the standard event status enable register.

[Input] std_event_enable

Content of the register from 0 to 255

NF_FRA5022_dvr_qCommonESE.vi

Querying the standard event status enable register.

[Output] std_event_enable

Content of the register from 0 to 255

NF_FRA5022_dvr_qCommonESR.vi

Querying the content of the standard event status register.

This query clears all the bits of the standard event status register to 0.

[Output] Param1

Content of the register from 0 to 255

NF_FRA5022_dvr_qCommonIDN.vi

Querying the model name and other information.

[Output] Param1

Manufacturer's name

[Output] Param2

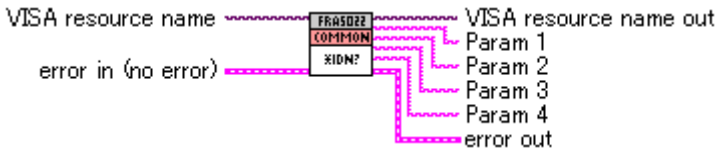
Model name

[Output] Param3

Serial number

[Output] Param4

Firmware version number



NF_FRA5022_dvr_sCommonOPC.vi

Configuring the OPC bit (BIT0) of the standard event status register so that it will be set to 1 when all the overlapped command(s) have been completed.

NF_FRA5022_dvr_qCommonOPC.vi

Returning 1 after all overlapped command(s) are completed. However, executing *OPC? does not clear the OPC bit of the standard event status register. The OPC bit can be cleared using a device clear function, *CLS command, or *RST command.

[Output] Param1

This will be 1 if all the overlapped command(s) have been completed.

NF_FRA5022_dvr_sCommonRCL.vi

Switching the measurement setting to a specified content of a setting memory (recall).

[Input] setting_memory

Memory number from 0 to 9

NF_FRA5022_dvr_sCommonRST.vi

Resetting the device to its factory default.

NF_FRA5022_dvr_sCommonSAV.vi

Copying the active settings to a specified setting memory (save).

[Input] setting_memory

Memory number from 0 to 9

NF_FRA5022_dvr_sCommonSRE.vi

Setting the service request enable register.

[Input] srq_enable

Content of the register from 0 to 255

NF_FRA5022_dvr_qCommonSRE.vi

Querying the service request enable register.

[Output] srq_enable

Content of the register from 0 to 255

NF_FRA5022_dvr_qCommonSTB.vi

Querying the content of the status byte register.

[Output] Param1

Content of the register from 0 to 255

NF_FRA5022_dvr_qCommonTST.vi

Querying the result of self-diagnosis.

[Output] Param1

With FRA5022, this always returns 0.

NF_FRA5022_dvr_sCommonWAI.vi

Making the subsequent commands wait until all the overlapped commands have been completed.

An overlapped command is a type of command that allows the subsequent commands to be executed while it is running. A sequential command is a type of command that does not allow the subsequent commands to be executed until it has been completed. The following commands are overlapped commands.

[:SOURce:]SWEep:MEASure

The others are sequential commands.

If you want to keep the subsequent commands waiting while an overlapped command is running, use the *WAI, *OPC, or *OPC? command. A device clear function clears the waiting state of the subsequent commands caused by the *WAI command.

Example: overlapped command 1; overlapped command 2; *WAI ; the subsequent commands <PMT>

Where PMT is a program message terminator.

WABUN: (DA00016826-005)

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FRA5022 LabVIEW Driver Instruction Manual

NF Corporation

6-3-20, Tsunashima Higashi, Kohoku-ku, Yokohama
223-8508 JAPAN
Phone +81-45-545-8111　Fax +81-45-545-8191
http://www.nfcorp.co.jp/

http://www.nfcorp.co.jp/

NF Corporation

6-3-20, Tsunashima Higashi, Kohoku-ku, Yokohama 223-8508 JAPAN