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1.Summary

These programs can change the setting of POWER HiTESTER and read from POWER HiTESTER through GPIB or RS232. This program is divided into some VI according to function. In this version, the program can deal with all control commands of POWER HiTESTER(If the function of control commands is the same, deal with one command of them).

2.Prerequisite condition

The following is the prerequisite condition of using these programs

- Know LabVIEW

3.How to use driver

Search for the Vi(driver) which deals with the control command of Power Hitester from program library, connect the VISA session which was opened. Set the Set/query, when performing setting, it is necessary to select the right parameters

Almost all of the drivers have 3 common inputs and 2 common outputs as the following
The details of common inputs and common outputs is described in the chapter 4-2.

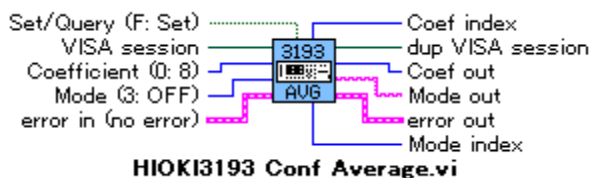
input

VISA session	on the top-left
Set/Query (F: Set)	next to VISA session
error in (no error)	on the bottom-left

output

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

Example: HIOKI3193 Conf Average.



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4.Direction for driver use

4-1. Sort of Vi

The following is about drivers which are in program library.

No.	Category	Name	Function
1	Initialize	HIOKI3193 Initialize.vi	Opens the VISA session, Initializes the interface and the 3193 unit.
2	Getting Started	HIOKI3193 Demo Meas-Power1.vi	They are application program for 3193 unit. Refer to application program manual to get the procedures of using them.
3		HIOKI3193 Demo Meas-Power2.vi	
4	Application Example	HIOKI3193 App Set Power.vi	They are sample programs, which are made up of some drivers in the program library and were utilized in the application program.
5		HIOKI3193 App Read Item4.vi	
6	Configure	HIOKI3193 Conf Aout.vi	Sets or queries the items of D/A output.
7		HIOKI3193 Conf Average.vi	Sets the averaging or attenuation coefficient or averaging mode, or queries the setting.
8		HIOKI3193 Conf Calculate.vi	Sets the specified efficiency formula, or queries the setting.
9		HIOKI3193 Conf Coupling.vi	Sets or queries the coupling mode of the specified input unit.
10		HIOKI3193 Conf Current.vi	Sets the items about current, or queries the setting.
11		HIOKI3193 Conf Data.vi	Sets or queries output items.
12		HIOKI3193 Conf Displtem.vi	Sets the items about screen display, or queries the setting.
13		HIOKI3193 Conf DispMode.vi	Sets the items about screen display, or queries the setting.
14		HIOKI3193 Conf External.vi	Sets or queries voltage range, scaling value, units and input type.
15		HIOKI3193 Conf Frequency.vi	Sets or queries items about frequency measurement.

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4-1. Sort of Vi(continuation)

No.	Category	Name	Function
16	Configure	HIOKI3193 Conf Header.vi	Sets or queries the headers.
17		HIOKI3193 Conf Integrate.vi	Sets or queries the items about integration.
18		HIOKI3193 Conf Interval.vi	
19		HIOKI3193 Conf LPF.vi	Sets or queries the items about the low-pass filter.
20		HIOKI3193 Conf Math.vi	Sets or queries the calculation.
21		HIOKI3193 Conf Measure.vi	Sets or queries output items for measurement
22		HIOKI3193 Conf Mode.vi	Sets or queries the wiring mode.
23		HIOKI3193 Conf Peakhold.vi	Sets or queries the peak value hold function.
24		HIOKI3193 Conf PHF.vi	Sets or queries the phase polarity discrimination filter for the specified channel.
25		HIOKI3193 Conf Response.vi	Sets or queries the response speed.
26		HIOKI3193 Conf RS232C.vi	Sets of queries items about RS232C.
27		HIOKI3193 Conf RTC.vi	Sets or queries the sampling count.
28		HIOKI3193 Conf Scale.vi	Sets or queries the items about ratios of PT, CT, SC.
29		HIOKI3193 Conf STime.vi	Sets or queries items for the real time control.
30		HIOKI3193 Conf Timer.vi	Sets the items for the timer control.

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4-1. Sort of Vi(continuation)

No.	Category	Name	Function
31	Configure	HIOKI3193 Conf Transmit.vi	Sets or queries the items about response messages.
32		HIOKI3193 Conf Voltage.vi	Sets the items about voltage.
33		HIOKI3193 Conf WavePeak.vi	Sets or queries the waveform peak measurement function.
34	Action/ Status	HIOKI3193 CLS.vi	Clear the status byte register and the event registers.
35		HIOKI3193 ESE.vi	Sets or queries the standard even status enable register.
36		HIOKI3193 ESR.vi	Queries the even status register.
37		HIOKI3193 IDN.vi	Query the device ID.
38		HIOKI3193 OPC.vi	Performs an SRQ request, after all action has been completed during execution, queries whether or not all action has been completed during execution.
39		HIOKI3193 OPT.vi	Queries the device option provision.
40		HIOKI3193 SRE.vi	Sets or queries the service request enable register.
41		HIOKI3193 STB.vi	Queries the status byte register.
42		HIOKI3193 TRG.vi	Request for sampling.
43		HIOKI3193 TST.vi	Causes the 3193 to perform the self test, and returns the result thereof.
44		HIOKI3193 WAI.vi	Waits until sampling is fully completed.

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4-1. Sort of Vi(continuation)




No.	Category	Name	Function
45	Action/ Status	HIOKI3193 FD.vi	Saves data on a floppy disk.
46		HIOKI3193 Hold.vi	Sets or queries the holding screen displays.
47		HIOKI3193 Key Lock.vi	Sets or queries the key lock.
48		HIOKI3193 Language.vi	Sets or queries the language to be displayed.
49		HIOKI3193 Print.vi	Feeds paper, outputs the screen, prints setting in HELP mode, executes manual printing.
50		HIOKI3193 Start Stop.vi	Starts or stops all of the various timer settings at the beginning of a cycle.
51	Data	HIOKI3193 Measure.vi	Queries the specified data.
52	Utility	HIOKI3193 Reset.vi	Initializes the setting.
53		HIOKI3193 BackLight.vi	Sets LCD back light, or queries LCD back light setting.
54		HIOKI3193 Beeper.vi	Sets the beep sound, or queries the setting.
55		HIOKI3193 Clock.vi	Sets or queries the real time(system clock).
56		HIOKI3193 Demag.vi	Degauss and zero-adjust current of each input units.
57	Close	HIOKI3193 Close.vi	Closes the VISA session.

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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
Set/Query (F: Set) *1*2		Selects the setting mode or querying mode. Valid range: False(=Set: Default), True(=Query).
error in (no error)		The input of error(refer to the manual of LabVIEW to get details). Initialized value: no error.

*1 If the driver has only setting function or querying function, there is not Set/Query switch.

In this version there are some drivers which have not reading function

*2 When using querying function, it is necessary to set response header to OFF.

4-2-2. The common output of driver

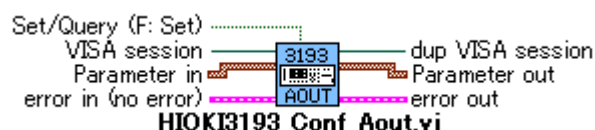
Name	Data type	Explanation
dup VISA Session		The copy of VISA session.
error out		The output of error(refer to the manual of LabVIEW to get details).

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4-3. Details of Vi

4-3-1. HIOKI3193 Conf Aout.vi

Sets or queries the items of D/A output.



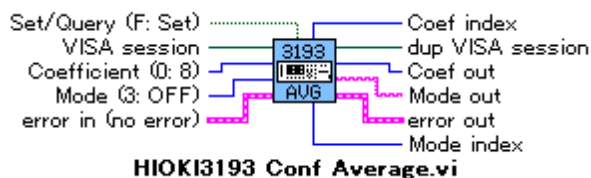
Name	Data type	Explanation
Parameter in		<p>Sets the items of D/A output.</p> <p>Valid range: Item: 0(=U: Default), 1(=1), 2(=P), 3(=S), 4(=Q), 5(=PF), 6(=DEG), 7(=PK), 8(=PIH), 9(=MIH), 10(=IH), 11(=PWP), 12(=MWP), 13(=WP), 14(=FA*1), 15(=FB*1), 16(=FC*1), 17(=LF), 18(=EFF1*1), 19(=EFF2*1), 20(=EFF3*1), 21(=EXTA*1), 22(=EXTB*1), 23(=PM*1).</p> <p>Ch: 0(=1: Default), 1(=2), 2(=3), 3(=4), 4(=5), 5(=6), 6(=12), 7(=34), 8(=56), 9(=123), 10(=456), 11(=45).</p>
Parameter out		<p>The results of querying the items of D/A output.</p> <p>Output range: Item: 0(=U), 1(=1), 2(=P), 3(=S), 4(=Q), 5(=PF), 6(=DEG), 7(=PK), 8(=PIH), 9(=MIH), 10(=IH), 11(=PWP), 12(=MWP), 13(=WP), 14(=FA*1), 15(=FB*1), 16(=FC*1), 17(=LF), 18(=EFF1*1), 19(=EFF2*1), 20(=EFF3*1), 21(=EXTA*1), 22(=EXTB*1), 23(=PM*1).</p> <p>Ch: 0(=1), 1(=2), 2(=3), 3(=4), 4(=5), 5(=6), 6(=12), 7(=34), 8(=56), 9(=123), 10(=456), 11(=45).</p>

*1 The setting of Ch is ignored.

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4-3-2. HIOKI3193 Conf Average.vi

Sets the averaging or attenuation coefficient or averaging mode, or queries the setting.

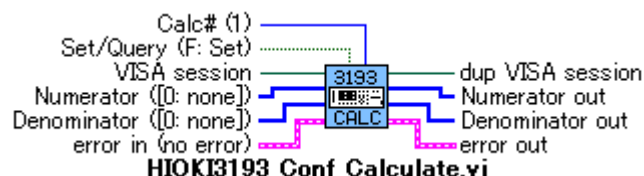


Name	Data type	Explanation
Coefficient		Sets the averaging or attenuation coefficient. Valid range: 0(=8: Default), 1(=16), 2(=32), 3(=64).
Mode		Sets the averaging mode. Valid range: 0(=TIM), 1(=LIN), 2(=EXP), 3(=OFF: Default).
Coef out		The result(value) of querying the averaging or attenuation coefficient. Output range: 0, 8, 16, 32, 64. Note: 0 means the failure of querying.
Coef index		The result(index) of querying the averaging or attenuation coefficient. Output range: -1, 0(=8), 1(=16), 2(=32), 3(=64). Note: -1 means the failure of querying.
Mode out		The result(characters) of querying the averaging mode. Output range: ""(NULL), TIM, LIN, EXP, OFF. Note: ""(NULL) means the failure of querying.
Mode index		The result(index) of querying the averaging mode. Output range: -1, 0(=TIM), 1(=LIN), 2(=EXP), 3(=OFF). Note: -1 means the failure of querying.

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4-3-3. HIOKI3193 Conf Calculate.vi

Sets the specified efficiency formula, or queries the setting.

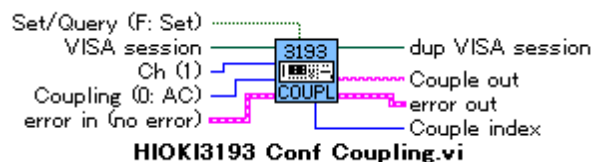






Name	Data type	Explanation
Calc#		Sets the formula for calculation. Valid range: 1(Default)~3.
Numerator		Sets items for the numerator in the specified efficiency formula, Up to four items can be selected. Valid range: 0(=none), 1(=P1), 2(=P2), 3(=P3), 4(=P4), 5(=P5), 6(=P6), 7(=P12), 8(=P34), 9(=P56), 10(=P123), 11(=P456), 12(=P45), 13(=PM).
Denominator		Sets items for the denominator in the specified efficiency formula, Up to four items can be selected. Valid range: 0(=none: default), 1(=P1), 2(=P2), 3(=P3), 4(=P4), 5(=P5), 6(=P6), 7(=P12), 8(=P34), 9(=P56), 10(=P123), 11(=P456), 12(=P45), 13(=PM).
Numerator out		The result of querying the setting of items for the numerator in the specified efficiency formula Output range: 0(=none), 1(=P1), 2(=P2), 3(=P3), 4(=P4), 5(=P5), 6(=P6), 7(=P12), 8(=P34), 9(=P56), 10(=P123), 11(=P456), 12(=P45), 13(=PM).
Denominator out		The result of querying the setting of items for the denominator in the specified efficiency formula Output range: 0(=none), 1(=P1), 2(=P2), 3(=P3), 4(=P4), 5(=P5), 6(=P6), 7(=P12), 8(=P34), 9(=P56), 10(=P123), 11(=P456), 12(=P45), 13(=PM).

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4-3-4. HIOKI3193 Conf Coupling.vi

Sets or queries the coupling mode of the specified input unit.

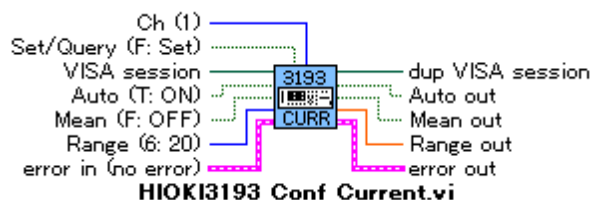


Name	Data type	Explanation
Ch		Selects the input unit Valid range: 1(Default)~6.
Coupling		Sets the coupling mode. Valid range: 0(=AC: Default), 1(=DC), 2(=ACDC).
Couple out		The result(characters) of querying the coupling mode. Output: ""(NULL), AC, DC, ACDC. Note: ""(NULL) means the failure of querying.
Couple index		The result(index) of querying the input unit. Output: -1, 0(=AC), 1(=DC), 2(=ACDC). Note: -1 means the failure of querying.

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4-3-5. HIOKI3193 Conf Current.vi

Sets the items about current, or queries the setting.

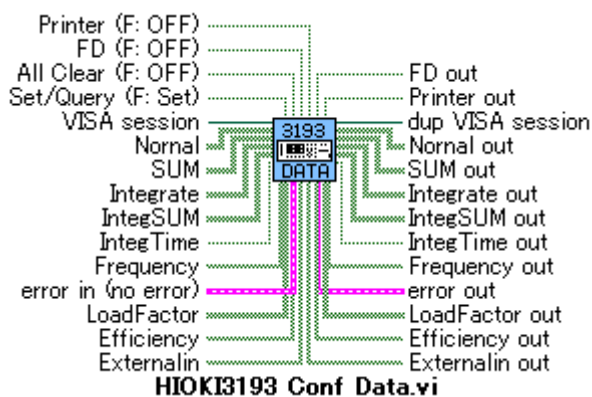


Name	Data type	Explanation
Ch		Selects the input unit Valid range: 1(Default)~6.
Auto		Sets the current auto ranging. Valid range: False(=OFF), True(=ON: Default).
Mean		Sets the rectifier type of current ranging. Valid range: False(=OFF: Default), True(=ON).
Range		Sets the current ranging. Valid range: 0(=0.2), 1(=0.5), 2(=1), 3(=2), 4(=5), 5(=10), 6(=20), 7(=50), 8(=100), 9(=200), 10(=500). Note: It is valid only if “Auto” is on OFF.
Auto out		The result of querying the current auto ranging. Output range: False(=OFF), True(=ON).
Mean out		The result of querying the rectifier type of current ranging. Output range: False(=OFF), True(=ON).
Range out		The result of querying the current ranging. Output range: 0.2~500.

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4-3-6. HIOKI3193 Conf Data.vi

Sets or queries output items.



Name	Data type	Explanation
All Clear		Clears the all output items *1 Valid range: False(=OFF: Default), True(=ON).
FD Printer		Sets the output operation on a FDD, or sets the output on a printer. Valid range: False(=OFF: Default), True(=ON).
Normal SUM Integrate IntegSUM LoadFactor		Sets the output items *2 Normal: 2D array(8*6) SUM: 2D array(7*6) Integrate: 2D array(6*6) IntegSUM: 2D array(3*6) IntegTime: False/True *1
Frequency Efficiency Externalin		Frequency: 1D array(3) LoadFactor: 2D array(2*6) Efficiency: 1D array(3) Externalin: 1D array(3)
IntegTime		Valid range: False(=OFF: Default), True(=ON).
FD out Printer out		The result of querying the output operation on a FDD or the output on a printer. Output range: False(=OFF), True(=ON).
Normal out SUM out Integrate out IntegSUM out LoadFactor out Frequency out Efficiency out Externalin out IntegTime out	 	The result of querying the setting of output items. Output range: False(=OFF), True(=ON).

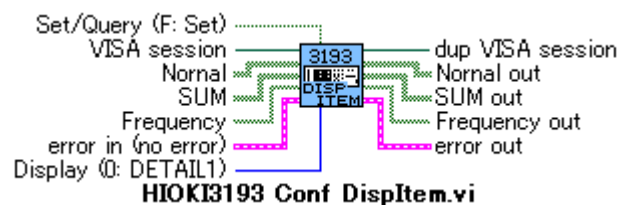
*1 IntegTime has a output as the case maybe, after performing the “All Clear”.

*2 It is ignored if the “All Clear” is selected.

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4-3-7. HIOKI3193 Conf DispItem.vi

Sets the items about screen display, or queries the setting.

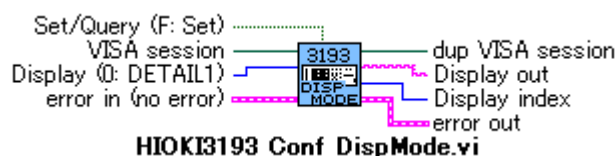


Name	Data type	Explanation
Display		Selects the display screen. Valid range: 0(=DETAIL1: Default) ~5(=DETAIL6), 6(=MAGNIFY1) ~11(MAGNIFY6), 12(=SELECT4), 13(SELECT8), 14(=SELECT16).
Normal SUM Frequency		Sets the items for the display screen. Normal: 2D array(8*6) SUM: 2D array(7*6) Frequency: 1D array(3) Valid range: False(=OFF: Default), True(=ON).
Normal out SUM out Frequency out		The result of querying the items for display screen. Output range: False(=OFF), True(=ON).

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4-3-8. HIOKI3193 Conf DispMode.vi

Sets the items about screen display, or queries the setting.

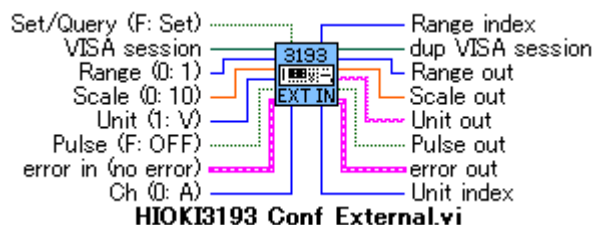


Name	Data type	Explanation
Display		Selects the display screen. Valid range: 0(=DETAIL1: Default) ~5(=DETAIL6), 6(=MAGNIFY1) ~11(MAGNIFY6), 12(=SELECT4), 13(SELECT8), 14(=SELECT16).
Display out		The result(characters) of querying the display screen. Output range: ""(NULL), DETAIL1~6, MAGNIFY1~6, SELECT4, SELECT8, SELECT16. Note: ""(NULL) means the failure of querying.
Display index		The result(characters) of querying the display screen. Output range: -1, 0(=DETAIL1) ~5(=DETAIL6), 6(=MAGNIFY1) ~11(=MAGNIFY6), 12(=SELECT4), 13(=SELECT8), 14(=SELECT16). Note: -1 means the failure of querying.

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4-3-9. HIOKI3193 Conf External.vi







Sets or queries voltage range, scaling value, units and input type.



Name	Data type	Explanation
Ch		Selects the channel. Valid range: 0(=chA: Default), 1(=chB).
Range		Sets the voltage range. Valid range: 0(=1V: Default), 1(=5V), 2(=10V).
Scale		Sets the scaling value. Valid range: 0.0001 – 99999.
Unit		Sets the units for channel. Valid range: 0(=OFF), 1(=V: Default), 2(=Nm), 3(=mNm), 4(=kNm), 5(=kgfm), 6(=kgfcm), 7(=r/min), 8(=Hz).
Pulse		Sets the input type for channel B. Valid range: False(=OFF: Default), True(=ON).

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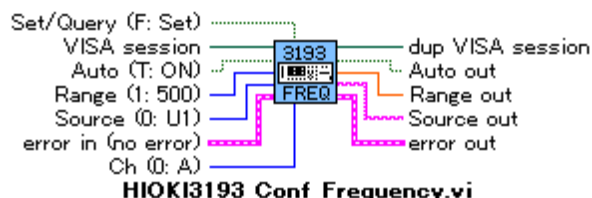
4-3-9. HIOKI3193 Conf External.vi(continuation)

Name	Data type	Explanation
Range out		The result(value) of querying the voltage range. Output range: 0, 1, 5, 10. Note: 0 means the failure of querying.
Range index		The result(index) of querying the voltage range. Output range: -1, 0(=1V), 1(=5V), 2(=10V). Note: -1 means the failure of querying.
Scale out		The result of querying the scaling value. Output range: 0.0001 – 99999.
Unit out		The result(characters) of querying the units for channel. Output range: “(NULL), OFF, V, Nm, mNm, kNm, kgfm, kgfcm, rpm, Hz. Note: “(NULL) means the failure of querying.
Unit index		The result(index) of querying the units for channel. Output range: -1, 0(=OFF), 1(=V), 2(=Nm), 3(=mNm), 4(=kNm), 5(=kgfm), 6(=kgfcm), 7(=rpm), 8(=Hz). Note: -1 means the failure of querying.
Pulse		The result of querying the input type for channel B. Output range: False(=OFF), True(=ON).

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4-3-10. HIOKI3193 Conf Frequency.vi

Sets or queries items about frequency measurement.

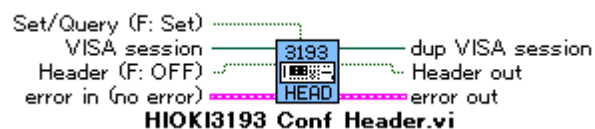




Name	Data type	Explanation
Auto		Sets the auto ranging of the frequency measurement. Valid range: False(=OFF), True(=ON: Default).
Range		Sets the frequency range: Valid range: 0(=50), 1(=500: Default), 2(=5E+3), 3(=5E+4), 4(=2E+6). Note: It is valid when the “Auto” is on OFF.
Source		Sets the channel source of the frequency measurement. Valid range: 0(=U1: Default), 1(=U2), 2(=U3), 3(=U4), 4(=U5), 5(=U6), 6(=I1), 7(=I2), 8(=I3), 9(=I4), 10(=I5), 11(=I6).
Ch		Selects the channel. Valid range: 0(=chA: Default), 1(=chB), 2(=chC).
Auto out		The result of querying the auto ranging of the frequency measurement. Output range: False(=OFF), True(=ON).
Range out		The result of querying the frequency range. Output range: 50 - 2E+6.
Source out		The result of querying the channel source of the frequency measurement. Output range: U1~U6, I1~I6.

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4-3-11. HIOKI3193 Conf Header.vi

Sets or queries the headers.

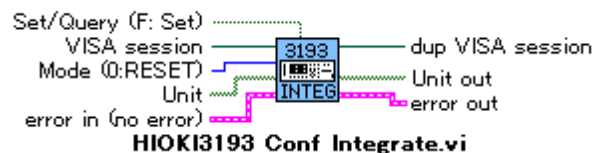


Name	Data type	Explanation
Header		Sets the headers Valid range: False(=OFF: Default), True(=ON).
Header out		The result of querying the setting of headers. Output range: False(=OFF), True(=ON).

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4-3-12. HIOKI3193 Conf Integrate.vi

Sets or queries the items about integration.

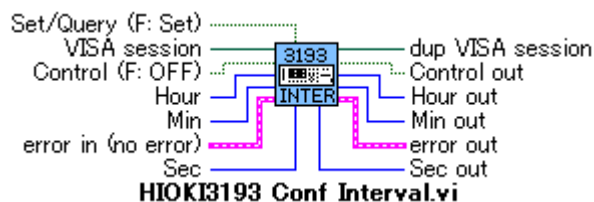






Name	Data type	Explanation
Mode		Selects the mode. Valid range: 0(=RESET: Default), 1(=START), 2(=STOP).
Unit in		Sets channels. Valid range: False(=OFF: Default), True(=ON). Note: It is ignored if the “Node” is 0.
Unit out		The result of querying the channels. Output range: False(=OFF), True(=ON).

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4-3-13. HIOKI3193 Conf Interval.vi

Sets or queries the items about interval time.

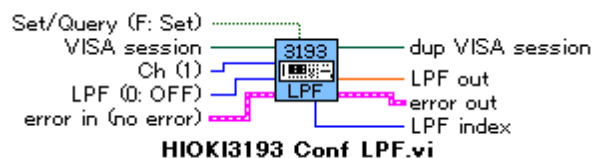






Name	Data type	Explanation
Control		Sets the interval time control Valid range: False(=OFF; Default), True(=ON).
Hour Min Sec		Sets the interval time. Valid range: Hour: 0~99, Min: 0~59, sec: 0~50.
Control out		The result of querying the interval time control. Output range: False(=OFF), True(=ON).
Hour out Min out Sec out		The result of querying the interval time. Output range: Hour: 0~99, Min: 0~59, sec: 0~50.

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4-3-14. HIOKI3193 Conf LPF.vi

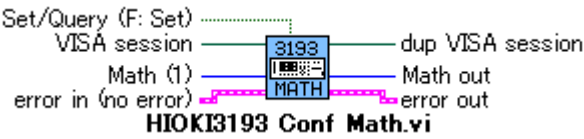
Sets or queries the items about the low-pass filter.



Name	Data type	Explanation
Ch		Sets the input unit. Valid range: 1(Default) ~ 6.
LPF		Sets the cut-off frequency of the low-pass filter. Valid range: 0(=OFF: Default), 1(=500), 2(=5E+3), 3(=3E+5).
LPF out		The result(value) of querying the the low-pass filter. Output range: 0(OFF) ~ 3E+5.
LPF index		The result(index) of querying the the low-pass filter. Output range: -1, 0(=OFF), 1(=500), 2(=5E+3), 3(=3E+5). -1 means the failure of querying.

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	3193 POWER HiTESTER	24
BACKGROUND	Explanation for driver	

4-3-15. HIOKI3193 Conf Math.vi
 Sets or queries the calculation.

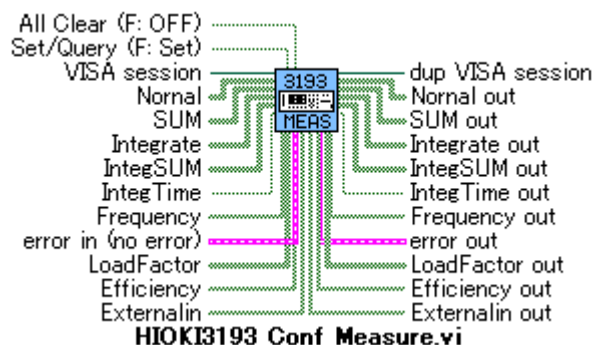


Name	Data type	Explanation
Math		Sets the calculation for apparent power and reactive power. Valid range: 1(Default) ~ 3.
Math out		The result of querying the calculation. Output range: 0, 1 ~ 3. Note: 0 means the failure of querying.

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4-3-16. HIOKI3193 Conf Measure.vi

Sets or queries output items for measurement.



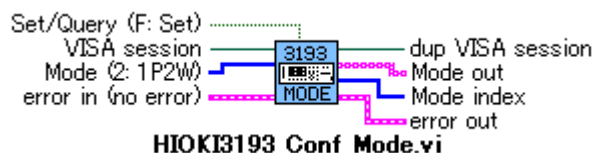
Name	Data type	Explanation
All Clear		Clears the all output items Valid range: False(=OFF: Default), True(=ON).
Normal SUM Integrate IntegSUM LoadFactor		Sets the output items *1 Normal: 2D array(8*6) SUM: 2D array(7*6) Integrate: 2D array(6*6) IntegSUM: 2D array(3*6) IntegTime: False/True
Frequency Efficiency Externalin		Frequency: 1D array(3) LoadFactor: 2D array(2*6) Efficiency: 1D array(3) Externalin: 1D array(3)
IntegTime		Valid range: False(=OFF: Default), True(=ON).
Normal out SUM out Integrate out IntegSUM out LoadFactor out Frequency out Efficiency out Externalin out IntegTime out	 	The result of querying the setting of output items. Output range: False(=OFF), True(=ON).

*1: refer to 「6.The order of output data」 to get the order of data

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4-3-17. HIOKI3193 Conf Mode.vi

Sets or queries the wiring mode.



Name	Data type	Explanation
Mode		Sets the wiring mode. *4 Valid range: 0(=none) *1, 1(<—— *2), 2(=1P2W *3), 3(=1P3W), 4(=3P3W), 5(=3V3A), 6(=3P4W).
Mode out		The result(Character) of querying the wiring mode. Output: Refer to “Mode”. Note: “”(NULL) means the failure of the querying.
Mode index		The result(index) of querying the wiring mode. Output range: -1, 0~6. Note: -1 means the failure of the querying.

*1 0(none) is specified if the unit is not installed.

*2 <—— is specified for combination units(1P3W and 3P3W need 2 channels, 3V3A and 3P4W need 3 channels. Refer to 3193 manual to get details.).

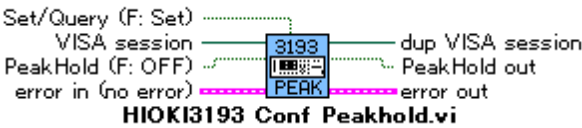
*3 Input units not specified are all treated as 1P2W.



*4 Refer to 3193 manual to get details of wiring mode.

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BACKGROUND	Explanation for driver	

4-3-18. HIOKI3193 Conf Peakhold.vi

Sets or queries the peak value hold function.

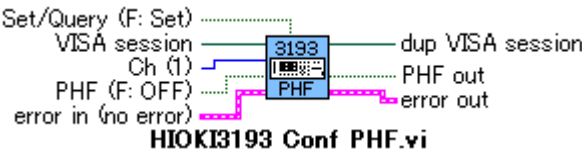





Name	Data type	Explanation
PeakHold		Sets the peak value hold function. Valid range: False(=OFF: Default), True(=ON).
PeakHold out		The result of querying the peak value hold function. Output range: False(=OFF), True(=ON).

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4-3-19. HIOKI3193 Conf PHF.vi

Sets or queries the phase polarity discrimination filter for the specified channel.

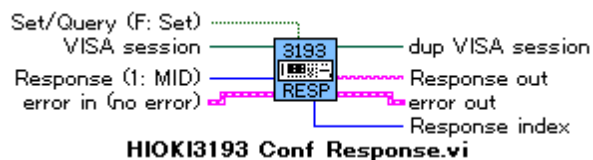


Name	Data type	Explanation
Ch		Specifies the channel. Valid range: 1(Default) – 6.
PHF		Sets the phase polarity discrimination filter. Valid range: False(=OFF: Default), True(=ON).
PHF out		The result of querying of the phase polarity discrimination filter. Output range: False(=OFF), True(=ON).

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4-3-20. HIOKI3193 Conf Response.vi

Sets or queries the response speed.

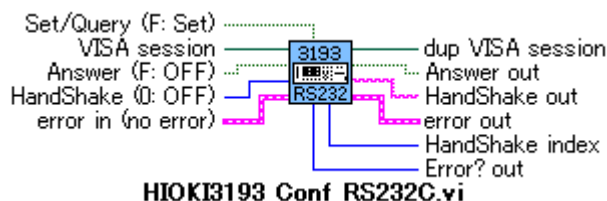


Name	Data type	Explanation
Response		Sets the response speed. Valid range: 0(=FAST), 1(=MID: Default), 2(=SLOW).
Response out		The result(characters) of querying the response speed. Output: ""(NULL), FAST, MID, SLOW. Note: ""(NULL) means the failure of querying.
Response index		The result(index) of querying the response speed. Output: -1, 0(=FAST), 1(=MID), 2(=SLOW). Note: -1 means the failure of querying.

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4-3-21. HIOKI3193 Conf RS232C.vi

Sets of queries items about RS232C.

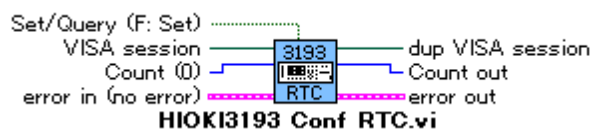




Name	Data type	Explanation
Answer		Sets whether or not the execution confirmation message. Valid range: False(=OFF: default), True(=ON).
HandShake		Sets the RS-232C communications handshake. Valid range: 0(=OFF: Default), 1(=X), 2(=HARD).
Answer out		The result of querying whether or not the execution confirmation message are enabled. Output range: False(=OFF), True(=ON).
HandShake out		The result(characters) of querying the setting for the RS-232C communications handshake. Output range: ""(NULL), OFF, X, HARD. Note: ""(NULL) means the failure of querying.
HandShake index		The result(index) of querying the setting for the RS-232C communications handshake. Output range: -1, 0(=OFF), 1(=X), 2(=HARD). Note: -1 means the failure of querying.
Error? Out		Queries whether or not the RS-232C communications error information are enabled. Output range: 0 ~ 7. Bit0: Parity error. Bit1: Framing error. Bit2: Overrun error

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4-3-22. HIOKI3193 Conf RTC.vi

Sets or queries the sampling count.



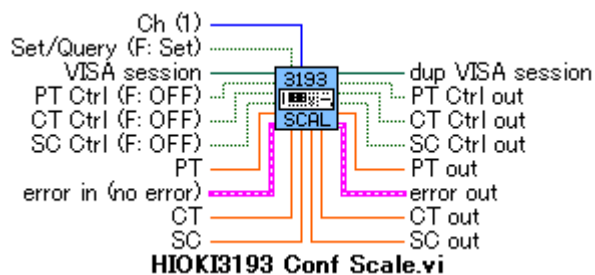
Name	Data type	Explanation
Count		Sets the sampling count. Valid range: 0(Default) – 100000. *1
Count out		The result of querying the sampling count. Output range: 0 – 100000.

*1 The 3193 unit has no warrant for running correctly if the sampling count is specified over 10,000.

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4-3-23. HIOKI3193 Conf Scale.vi

Sets or queries the items about ratios of PT, CT, SC.



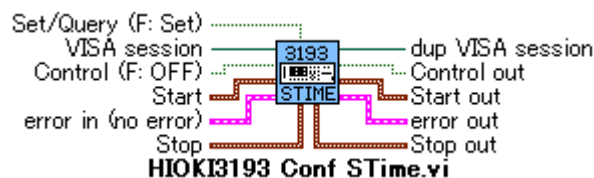
Name	Data type	Explanation
Ch	I32	Specifies the channel. Valid range: 1(Default) ~ 6.
PT Ctrl CT Ctrl SC Ctrl	TF	Sets the scaling function of PT, CT, SC ratios. Valid range: False(=OFF: Default), True(=ON).
PT CT SC	DBL	Sets ratios of PT, CT, SC. Valid range: 0.0001 – 10000. *1
PT Ctrl out CT Ctrl out SC Ctrl out	TF	The result of querying the setting of scaling function of PT, CT, SC ratios. Output range: False(=OFF), True(=ON).
PT out CT out SC out	DBL	The result of querying the ratios of PT, CT, SC. Output range: 0.0001 – 10000.





*1 Up to 5 figures is valid for 3193 unit .

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4-3-24. HIOKI3193 Conf STime.vi

Sets or queries items for the real time control.

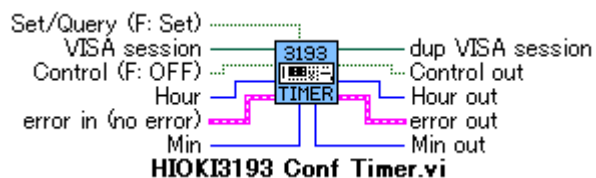


Name	Data type	Explanation
Control		Sets the real time control. Valid range: False(=OFF: Default), True(ON).
Start Stop		Sets the start time and stop time of the real time stop. Valid range: Year: 0~99 Month: 1~12 Day: 1~31 Hour: 0~23 Min: 0~59
Control out		The result of querying the real time control. Output range: False(=OFF), True(ON).
Start out Stop out		The results of querying the start time and stop time of the real time stop. Output range: Year: 0~99 Month: 1~12 Day: 1~31 Hour: 0~23 Min: 0~59

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4-3-25. HIOKI3193 Conf Timer.vi

Sets the items for the timer control.

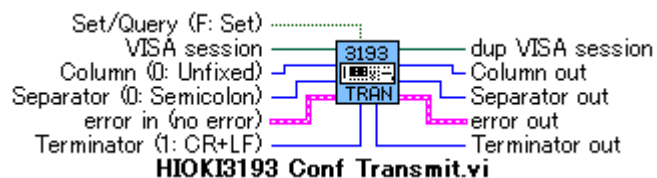








Name	Data type	Explanation
Control		Sets the timer control. Valid range: False(=OFF: Default), True(=ON).
Hour Min		Specifies the timer. Valid range: Hour: 0-10000 Min: 0-59.
Control out		Queries the timer control. Output range: False(=OFF:), True(=ON).
Hour out Min out		The result of querying the timer. Output range: Hour: 0-10000 Min: 0-59.

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4-3-26. HIOKI3193 Conf Transmit.vi

Sets or queries the items about response messages.

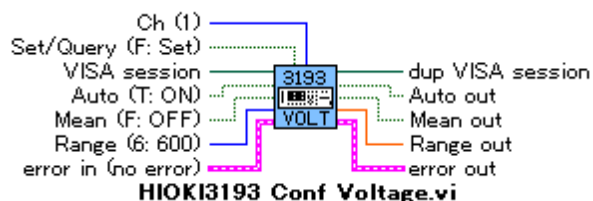


Name	Data type	Explanation
Column		Selects the numerical data format. Valid range: 0(default), 1. 0: The leading zero is omitted from the mantissa of NR3 numeric data. 1: The number of NR3 numeric data id constant.
Separator		Sets the message unit separator for response messages. Valid range: 0(=semicolon: Default), 1(=comma).
Terminator		Sets the data terminator for response message. Valid range: 0(=LF), 1(CR+LF).
Column out		The result of querying the numerical data format. Output range: 0, 1. 0: The leading zero is omitted from the mantissa of NR3 numeric data. 1: The number of NR3 numeric data id constant.
Separator out		The result of querying the message unit separator for response messages. Valid range: 0(=semicolon), 1(=comma).
Terminator out		The result of querying the data terminator for response message. Output range: 0(=LF), 1(CR+LF).

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4-3-27. HIOKI3193 Conf Voltage.vi

Sets the items about voltage.

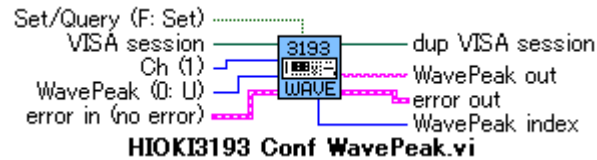


Name	Data type	Explanation
Ch		Specifies the channel. Valid range: 1(Default) – 6.
Auto		Sets the voltage auto ranging. Valid range: False(=OFF), True(=ON: Default).
Mean		Sets the rectifier type of the voltage range. Valid range: False(=OFF: Default), True(=ON).
Range		Sets the voltage range. Valid range: 0(=6), 1(=15), 2(=30), 3(=60), 4(=150), 6(=600: Default), 7(=1000). Note: It is valid only when “Auto” is on OFF.
Auto out		The result of querying the voltage auto ranging. Output range: False(=OFF), True(=ON).
Mean out		The result of querying the rectifier type of the voltage range. Valid range: False(=OFF), True(=ON).
Range out		The result of querying the voltage range. Output range: 6~1000.

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4-3-28. HIOKI3193 Conf WavePeak.vi

Sets or queries the waveform peak measurement function.

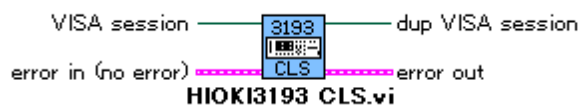


Name	Data type	Explanation
Ch		Specifies the input unit. Valid range: 1(Default) ~ 6.
WavePeak		Sets the waveform peak measurement function. Valid range: 0(=U: default), 1(=I).
WavePeak out		The result(characters) of querying the waveform peak measurement function. Output range: ""(NULL), U, I. Note: ""(NULL) means the failure of querying.
WavePeak index		The result(index) of querying the waveform peak measurement function. Output range: -1, 0(=U), 1(=I). Note: -1 means the failure of querying.

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4-3-29. HIOKI3193 CLS.vi

Clear the status byte register and the event registers.

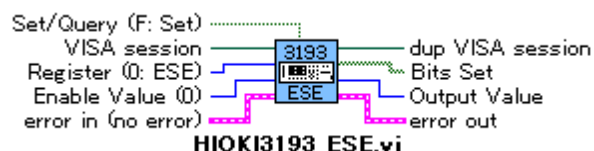


Name	Data type	Explanation
		There is no input and no output except common inputs and common outputs

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4-3-30. HIOKI3193 ESE.vi

Sets or queries the standard even status enable register.

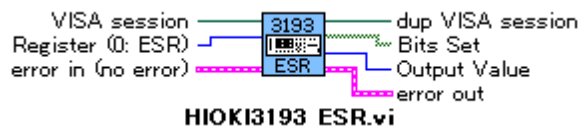


Name	Data type	Explanation
Register		Sets the register. Valid range: 0(ESE: Default), 1(=ESE0), 2(=ESE1), 3(=ESE2), 4(=ESE11), 5(=ESE12), 6(=ESE13), 7(=ESE14), 8(=ESE15), 9(=ESE16), 10(=ESE21), 11(=ESE22), 12(=ESE23), 13(=ESE24), 14(=ESE25), 15(=ESE26), 16(=ESEF).
Enable Value		Selects foe register. Valid range: 0(Default)~255.
Bits Set		The results(array of bit) of querying the register. Output range: False(=0), True(=1).
Output Value		The results(value) of querying the register. Output range: 0~255.

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4-3-31. HIOKI3193 ESR.vi

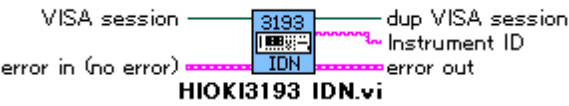
Queries the even status register.



Name	Data type	Explanation
Register		Sets the register. Valid range: 0(ESR: Default), 1(=ESR0), 2(=ESR1), 3(=ESR2), 4(=ESR11), 5(=ESR12), 6(=ESR13), 7(=ESR14), 8(=ESR15), 9(=ESR16), 10(=ESR21), 11(=ESR22), 12(=ESR23), 13(=ESR24), 14(=ESR25), 15(=ESR26), 16(=ESEF).
Bits Set		The results(bit array) of querying the register. Output range: False(=0), True(=1).
Output Value		The results(value) of querying the register. Output range: 0~255.

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4-3-32. HIOKI3193 IDN.vi
 Query the device ID.

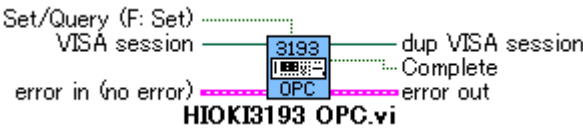



Name	Data type	Explanation
Instrument ID		<p>The result of querying device ID.</p> <p>Output: refer to manual of 3193.</p> <p>Note: ""(NULL) means the failure of querying.</p>

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4-3-33. HIOKI3193 OPC.vi

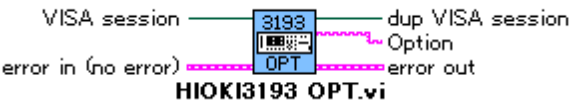
Performs an SRQ request, after all action has been completed during execution,queries whether or not all action has been completed during execution.



Name	Data type	Explanation
Complete		<p>The result of querying whether or not all action has been completed during execution.</p> <p>Output range:</p> <p>False(= not all action has been completed during execution, or, error)</p> <p>True(= all action has been completed during execution).</p>

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4-3-34. HIOKI3193 OPT.vi
Queries the device option provision.

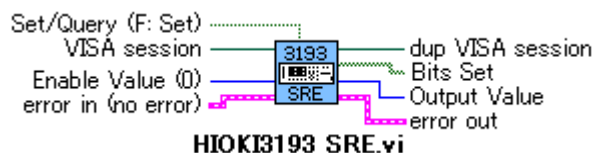


Name	Data type	Explanation
Option		The result of querying the device option provision. Output: refer to manual of 3193. Note: ""(NULL) means the failure of querying.

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4-3-35. HIOKI3193 SRE.vi

Sets or queries the service request enable register.

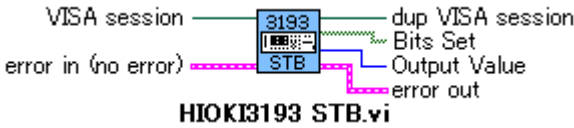


Name	Data type	Explanation
Enable Value	I32	Selects the value for the service request enable register. Valid range: 0(Default) ~255.
Bits Set	[TF]	The result(bit array) of querying the service request enable register. Output range: False(=0), True(=1).
Output Value	I32	The result(value) of querying the service request enable register. Output: 0~255.

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4-3-36. HIOKI3193 STB.vi

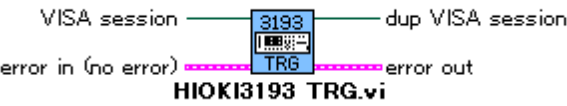
Queries the status byte register.



Name	Data type	Explanation
Bits Set	[TF]	The result(bit array) of querying the status byte register. Output range: False(=0), True(=1).
Output Value	I32	The result(value) of querying the status byte register. Output: 0~255.

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4-3-37. HIOKI3193 TRG.vi
Request for sampling.

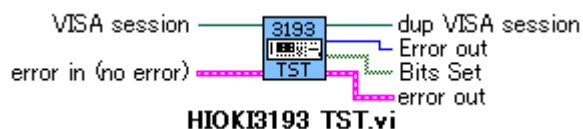


Name	Data type	Explanation
		There is no input and no output except common inputs and common outputs

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4-3-38. HIOKI3193 TST.vi

Causes the 3193 to perform the self test, and returns the result thereof.



Name	Data type	Explanation
Error out	I32	The result(value) of the self test. Output: 0~31.
Bits Set	[TF]	The result(bit array) of the self test. Output range: False(=0), True(=1). Bit0: ROM error Bit1: RAM error Bit2: Input unit error Bit3: RTC error Bit4: Printer error

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4-3-39. HIOKI3193 WAI.vi

Waits until sampling is fully completed.

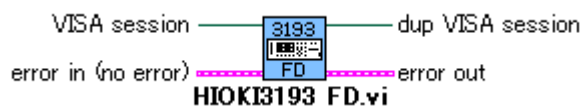


Name	Data type	Explanation
		There is no input and no output except common inputs and common outputs

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4-3-40. HIOKI3193 FD.vi

Saves data on a floppy disk.

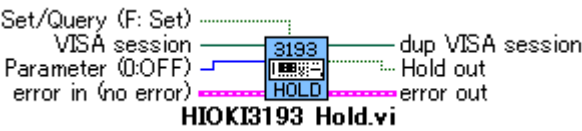


Name	Data type	Explanation
		There is no input and no output except common inputs and common outputs

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4-3-41. HIOKI3193 Hold.vi

Sets or queries the holding screen displays.

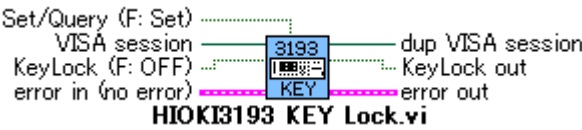


Name	Data type	Explanation
Parameter		Selects the parameter for holding the screen displays. Valid range: 0(=OFF: Default), 1(=ON), 2(=None).
Hold		The result of querying the holding screen displays. Output range: False(=OFF), True(=ON).

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4-3-42. HIOKI3193 Key Lock.vi

Sets or queries the key lock.

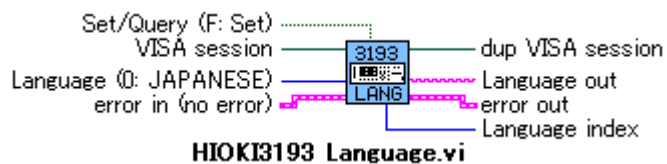


Name	Data type	Explanation
KeyLock		Sets the key lock. Valid range: False(=OFF: Default), True(=ON).
KeyLock out		The result of querying the key lock. Output range: False(=OFF), True(=ON).

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4-3-43. HIOKI3193 Language.vi

Sets or queries the language to be displayed.

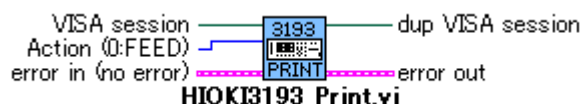



Name	Data type	Explanation
Language		Sets the language to be displayed. Valid range: 0(=JAPANESE), 1(=ENGLISH).
Language out		The result(characters) of querying the language to be displayed. Output range: ""(NULL), JAPANESE, ENGLISH. Note: ""(NULL) means the failure of querying.
Language index		The result(index) of querying the language to be displayed. Output range: -1, 0(=JAPANESE), 1(ENGLISH). Note: -1 means the failure of querying.

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4-3-44. HIOKI3193 Print.vi

Feeds paper, outputs the screen, prints setting in HELP mode, executes manual printing.



Name	Data type	Explanation
Action		<p>Sets the mode.</p> <p>Valid range: 0(=FEED: Default), 1(=HCOPY), 2(=HELP), 3(=MANUAL).</p> <p>Note:</p> <p>0 is the mode for feeding paper.</p> <p>1 is the mode for outputting the screen displays.</p> <p>2 is the mode for printing setting in HELP mode.</p> <p>3 is the mode for executing manual printing.</p>

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4-3-45. HIOKI3193 Start Stop.vi

Starts or stops all of the various timer settings at the beginning of a cycle.

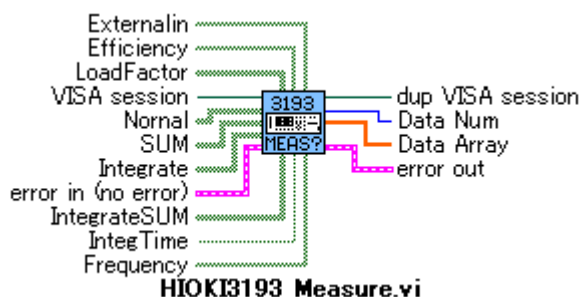






Name	Data type	Explanation
Action		<p>Sets the mode.</p> <p>Valid range: 0(=START: Default), 1(=STOP).</p> <p>0: Starts all of the various timer settings at the beginning of a cycle.</p> <p>1: Stops all of the various timer settings at the beginning of a cycle.</p>

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4-3-46. HIOKI3193 Measure.vi

Queries the specified data.



Name	Data type	Explanation
Normal SUM Integrate IntegrateSUM IntegTime *1 Frequency LoadFactor Efficiency Externalin	 	1) Default mode: If no parameters are specified, then this mode is used. Default item data is specified by HIOK3193 Conf Measure.vi. 2) Data(parameter) specification mode. If one or more parameters are specified, then this mode is used. The output items is the same as the ones of HIOK3193 Conf Measure.vi, refer to HIOK3193 Conf Measure.vi to get the output items information.
Data Num		The number of output data. Output range: 0 - .
Data Array		The output data. *2 refer to the 3193 manual to get details.

*1 The time for integration is outputted to three items(hour,minute,second).

*2 It has a output only if it is specified,
Refer to 「6.The order of output data」 to get the order.

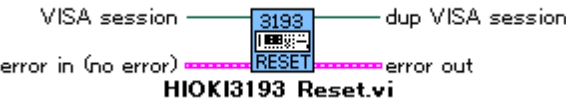
Note:

Set the response header to OFF before using this Vi.

Refer to HIOKI3193 Conf Header.vi to get information about setting

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4-3-47. HIOKI3193 Reset.vi
 Initializes the setting.

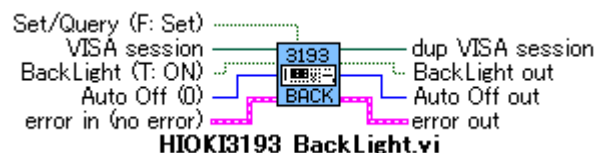


Name	Data type	Explanation
		There is no input and no output except common inputs and common outputs

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4-3-48. HIOKI3193 BackLight.vi

Sets LCD back light, or queries LCD back light setting.

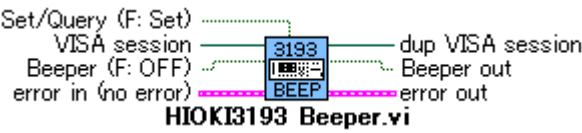




Name	Data type	Explanation
BackLight		Sets the LCD back light. Valid range: False(=OFF), True(=ON: Default).
Auto Off		Sets the automatic LCD backlight off time. Valid range: 0(automatic backlight function is off), 1~99(minutes).
BackLight out		The result of querying the LCD back light setting. Output range: False(=OFF), True(=ON).
Auto Off out		The result of querying the automatic LCD backlight off time setting. Output range: 0~99.

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4-3-49. HIOKI3193 Beeper.vi

Sets the beep sound, or queries the setting.

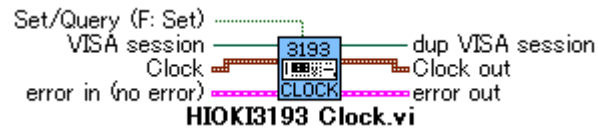


Name	Data type	Explanation
Beeper		Sets the beep sound (enable or disable). Valid range: False(=OFF: Default), True(=ON).
Beeper out		The result of querying the beep sound setting. Output range: False(=OFF), True(=ON).

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4-3-50. HIOKI3193 Clock.vi

Sets or queries the real time(system clock).

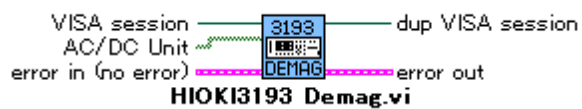


Name	Data type	Explanation
Clock		<p>Sets the real time (system clock).</p> <p>Valid range:</p> <p>Year: 0~99</p> <p>Month: 1~12</p> <p>Day: 1~31</p> <p>Hour: 0~23</p> <p>Min: 0~59</p> <p>Sec: 0</p>
Clock out		<p>The result of querying the real time(system clock).</p> <p>Output:</p> <p>Year: 0~99</p> <p>Month: 1~12</p> <p>Day: 1~31</p> <p>Hour: 0~23</p> <p>Min: 0~59</p> <p>Sec: 0</p>

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4-3-51. HIOKI3193 Demag.vi

Degauss and zero-adjust current of each input units.



Name	Data type	Explanation
AC/DC Unit	[TF]	Sets the unit. Valid range: False(=OFF: Default), True(=ON).

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

The following is the Vi which can be used if need be.

4-4-1. HIOKI3193 Close.vi

Closes the VISA session.

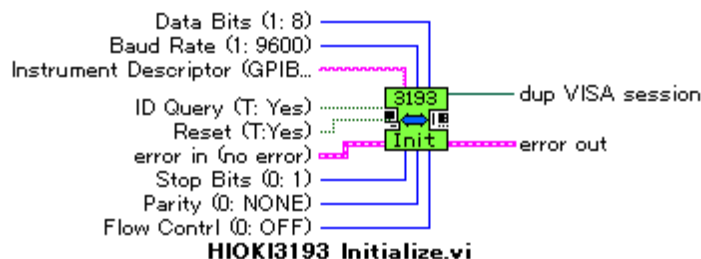


Name	Explanation
VISA session error in error out	The inputs and outputs are the same as the ones of the vi which are in the program library.

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4-4-2. HIOKI3193 Initialize.vi

Opens the VISA session, Initializes the interface and the 3193 unit.



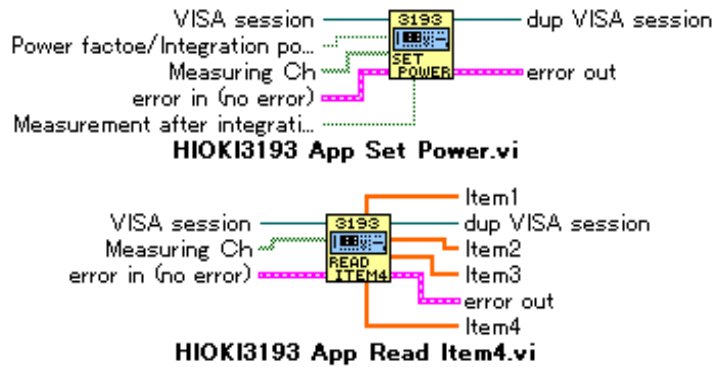
Name	Data type	Explanation
dup VISA session error in error out		The inputs and outputs are the same as the ones of the vi which are in the program library.
Instrument Descriptor		Specifies the resource name of unit. The form: GPIB: GPIB[board number]::primary address[::secondary address][::INSTR] ASRL: ASRL[port Number][::INSTR]
Data Bits	I32	Specifies the length of data(the parameter of serial communication).*1 Valid Range: 0(=7 bit), 1(=8 bit: Default).
Baud Rate	I32	Specifies the speed(the parameter of serial communication).*1 Valid range: 0(=2400), 1(=9600).
Stop Bits	I32	Specifies the stop bits(the parameter of serial communication). *1 Valid range: 0(=1 bit: Default), 1(=2 bits).
Parity	I32	Specifies the parity(the parameter of serial communication). *1 Valid range: 0(=NONE), 1(=ODD), 2(=EVEN).
Flow Control	I32	Specifies the flow control(the parameter of serial communication). *1 Valid range: 0(=OFF: Default), 1(=X), 2(=HARD).
ID Query	TF	Identifies the ID of unit. Valid range: False, True(Default).
Reset	TF	Resets the unit. Valid range: False, True(Default).

*1 It is ignored when setting for GBIP.

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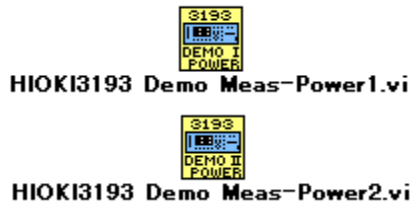
4-4-3. HIOKI3193 App Set Power.vi, App Read Item4.vi

They are sample programs, which are made up of some drivers in the program library and were utilized in the application program(HIOKI3193 Demo Meas-Power1.vi, HIOKI3193 Demo Meas-Power2.vi).



4-4-4. HIOKI3193 DemoMeas-Power1.vi, DemoMeas-Power2.vi

They are application programs for 3193 unit
Refer to application program manual to get the procedures of using them.



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5.Command table

Command name	Vi name	Note
*CLS	HIOKI3193 CLS.vi	
*ESE *ESE? *ESE0 *ESE0? *ESE1 *ESE1? *ESE2 *ESE2? *ESE[ch] *ESE[ch]? *ESEF *ESEF?	HIOKI3193 ESE.vi	
*ESR? *ESR0? *ESR1? *ESR2? *ESR[ch]? *ESRF?	HIOKI3193 ESR.vi	
*IDN?	HIOKI3193 IDN.vi	
*OPC *OPC?	HIOKI3193 OPC.vi	
*OPT?	HIOKI3193 OPT.vi	
*RST	HIOKI3193 Reset.vi	
*SRE *SRE?	HIOKI3193 SRE.vi	
*STB?	HIOKI3193 STB.vi	
*TRG	HIOKI3193 TRG.vi	
*TST?	HIOKI3193 TST.vi	
*WAI	HIOKI3193 WAI.vi	

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5. Command table(continuation)

Command name	Vi name	Note
:AOUT :AOUT?	HIOKI3193 Conf Aout.vi	
:AVE:COEF :AVE:COEF? :AVE:MODE :AVE:MODE? (:AVE?)	HIOKI3193 Conf Average.vi	
:BACK :BACK? :BACK:AUTO :BACK:AUTO?	HIOKI3193 BackLight.vi	
:BEEP :BEEP?	HIOKI3193 Beeper.vi	
:CALC[ch]:DEN :CALC[ch]:DEN? :CALC[ch]:NUM :CALC[ch]:NUM? (:CALC[ch]?)	HIOKI3193 Conf Calculate.vi	
:CLOCK :CLOCK?	HIOKI3193 Clock.vi	
:COUP[ch] :COUP[ch]?	HIOKI3193 Conf Coupling.vi	
:CURR[ch]:AUTO :CURR[ch]:AUTO? :CURR[ch]:MEAN :CURR[ch]:MEAN? :CURR[ch]:RANG :CURR[ch]:RANG? (:CURR[ch]?)	HIOKI3193 Conf Current.vi	

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5.Command table(continuation)

Command name	Vi name	Note
:DATA:ITEM:ALLC :DATA:ITEM:EFF :DATA:ITEM:EFF? :DATA:ITEM:FD :DATA:ITEM:FD? :DATA:ITEM:FREQ :DATA:ITEM:FREQ? :DATA:ITEM:EXT :DATA:ITEM:EXT? :DATA:ITEM:INTEG :DATA:ITEM:INTEG? :DATA:ITEM:LOAD :DATA:ITEM:LOAD? :DATA:ITEM:NORM :DATA:ITEM:NORM? :DATA:ITEM:PRIN :DATA:ITEM:PRIN? :DATA:ITEM:SUM :DATA:ITEM:SUM? (:DATA:ITEM?) (:DATA?)	HIOKI3193 Conf Data.vi	
:DEMA	HIOKI3193 Demag.vi	
:DISP:DET[ch] :DISP:DET[ch]? :DISP:MAG[ch] :DISP:MAG[ch]? :DISP:SEL[ch] :DISP:SEL[ch]?	HIOKI3193 Conf DisplItem.vi	
:DISP:DET[ch] :DISP:EFF :DISP:EXT :DISP:INTEG[ch] :DISP:MAG[ch] :DISP:SEL[ch] (:DISP?)	HIOKI3193 Conf DispMode.vi	
:EXT[CH]:RANG :EXT[CH]:RANG? :EXT[CH]:SCAL :EXT[CH]:SCAL? :EXT[CH]:UNIT :EXT[CH]:UNIT? :EXT[CH]:PULS :EXT[CH]:PULS? (:EXT[CH]?)	HIOKI3193 Conf External.vi	
:FD:MAN	HIOKI3193 FD.vi	

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5. Command table(continuation)

Command name	Vi name	Note
:FREQ[CH]:AUTO :FREQ[CH]:AUTO? :FREQ[CH]:RANG :FREQ[CH]:RANG? :FREQ[CH]:SOUR :FREQ[CH]:SOUR? (:FREQ[CH]?)	HIOKI3193 Conf Frequency.vi	
:HEAD :HEAD?	HIOKI3193 Conf Header.vi	
:HOLD :HOLD?	HIOKI3193 Hold.vi	
:INTEG:RESE :INTEG:STAR :INTEG:STOP :INTEG?	HIOKI3193 Conf Integrate.vi	
:INTER:CONT :INTER:CONT? :INTER:TIME :INTER:TIME? (:INTER?)	HIOKI3193 Conf Interval.vi	
:KEYL :KEYL?	HIOKI3193 Key Lock.vi	
:LANG :LANG?	HIOKI3193 Language.vi	
:LPF[ch] :LPF[ch]?	HIOKI3193 Conf LPF.vi	
:MATH :MATH?	HIOKI3193 Conf Math.vi	
:MEAS:ITEM:ALLC :MEAS:ITEM:EFF :MEAS:ITEM:EFF? :MEAS:ITEM:EXT :MEAS:ITEM:EXT? :MEAS:ITEM:FREQ :MEAS:ITEM:FREQ? :MEAS:ITEM:INTEG :MEAS:ITEM:INTEG? :MEAS:ITEM:LOAD :MEAS:ITEM:LOAD? :MEAS:ITEM:NORM :MEAS:ITEM:NORM? :MEAS:ITEM:SUM :MEAS:ITEM:SUM? (:MEAS:ITEM) (:MEAS:ITEM?)	HIOKI3193 Conf Measure.vi	

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5. Command table(continuation)

Command name	Vi name	Note
:MEAS?	HIOKI3193 Measure.vi	
:MODE :MODE?	HIOKI3193 Conf Mode.vi	
:PEAK :PEAK?	HIOKI3193 Conf Peakhold.vi	
:PHF[ch] :PHF[ch]?	HIOKI3193 Conf PHF.vi	
:PRIN:FEED :PRIN:HCOP :PRIN:HELP :PRIN:MAN	HIOKI3193 Print.vi	
:RESP :RESP?	HIOKI3193 Conf Response.vi	
:RTC:COUN :RTC:COUN?	HIOKI3193 Conf RTC.vi	
:RS232:ANSW :RS232:ANSW? :RS232:ERR? :RS232:HAND :RS232:HAND? (:RS232?)	HIOKI3193 Conf RS232C.vi	
:SCAL[ch]:CONT :SCAL[ch]:CONT? :SCAL[ch]:CT :SCAL[ch]:CT? :SCAL[ch]:PT :SCAL[ch]:PT? :SCAL[ch]:SC :SCAL[ch]:SC? (:SCAL[ch]?)	HIOKI3193 Conf Scale.vi	
:STAR :STOP	HIOKI3193 Start Stop.vi	
:STIM:CONT :STIM:CONT? :STIM:START :STIM:START? :STIM:STOPT :STIM:STOPT? (:STIM?)	HIOKI3193 STime.vi	
:TIMER:CONT :TIMER:CONT? :TIMER:TIME :TIMER:TIME? (:TIMER?)	HIOKI3193 Conf Timer.vi	

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5. Command table(continuation)

Command name	Vi name	Note
:TRAN:COL :TRAN:COL? :TRAN:SEP :TRAN:SEP? :TRAN:TERM :TRAN:TERM?	HIOKI3193 Conf Transmit.vi	
:VOLT[ch]:AUTO :VOLT[ch]:AUTO? :VOLT[ch]:MEAN :VOLT[ch]:MEAN? :VOLT[ch]:RANG :VOLT[ch]:RANG? (:VOLT[ch]?)	HIOKI3193 Conf Volt.vi	
:WAVE[ch] :WAVE[ch]?	HIOKI3193 WavePeak.vi	

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6.The order of output data.

The following table is the order of outputs read by HIOKI3193 Measure.vi.

The table shows the order of the output in the order of output items(1-30).

In every item, the data is outputted in order of Data1-Data6 only if it is specified,

In this case, the item which can not be measured has no output even if it is selected.

Order Of items	Output items	Data1	Data2	Data3	Data4	Data5	Data6
1	voltage	U1	U2	U3	U4	U5	U6
2	current	I1	I2	I3	I4	I5	I6
3	active power	P1	P2	P3	P4	P5	P6
4	apparent power	S1	S2	S3	S4	S5	S6
5	reactive power	Q1	Q2	Q3	Q4	Q5	Q6
6	power factor	PF1	PF2	PF3	PF4	PF5	PF6
7	phase angle	DEG1	DEG2	DEG3	DEG4	DEG5	DEG6
8	peak value	Pk1	Pk2	Pk3	Pk4	Pk5	Pk6
9	voltage	U12	U34	U56	U123	U456	U45
10	current	I12	I34	I56	I123	I456	I45
11	active power	P12	P34	P56	P123	P456	P45
12	apparent power	S12	S34	S56	S123	S456	S45
13	reactive power	Q12	Q34	Q56	Q123	Q456	Q45
14	power factor	PF12	PF34	PF56	PF123	PF456	PF45
15	phase angle	DEG12	DEG34	DEG56	DEG123	DEG456	DEG45
16	integration current(+)	PIH1	PIH2	PIH3	PIH4	PIH5	PIH6
17	integration current(-)	MIH1	MIH2	MIH3	MIH4	MIH5	MIH6
18	integration current(+,-)	IH1	IH2	IH3	IH4	IH5	IH6
19	integration power(+)	PWP1	PWP2	PWP3	PWP4	PWP5	PWP6
20	integration power(-)	MWP1	MWP2	MWP3	MWP4	MWP5	MWP6
21	integration power(+,-)	WP1	WP2	WP3	WP4	WP5	WP6
22	integration power(+)	PWP12	PWP34	PWP56	PWP123	PWP456	PWP45
23	integration power(-)	MWP12	MWP34	MWP56	MWP123	MWP456	MWP45
24	integration power(+,-)	WP12	WP34	WP56	WP123	WP456	WP45
25	integration time	TIME	-	-	-	-	-
26	frequency	FA	FB	FC	-	-	-
27	load factor	LF1	LF2	LF3	LF4	LF5	LF6
28	load factor	LF12	LF34	LF56	LF123	LF456	LF45
29	efficiency	EFF1	EFF2	EFF3	-	-	-
30	external	EXT1	EXT2	PM	-	-	-