



**PW8001 Power Analyzer
Driver Function
User's Manual
(Function Manual)**

Revision History

Edition	Contents	Reviser	Date
1.00	First Edition	HIOKI	2022/04/05
1.20	Added in conjunction with PW8001V1.50 release	HIOKI	2022/12/16

Contents

1. Overview	6
2. Precondition	6
3. Driver Explanation.....	7
3.1 Driver Common Input & Output.....	7
3.1.1 Input Items.....	7
3.1.2 Output Items	7
3.2 Standard Command	8
3.2.1 HIOKI PW8001 Initialize RS-232C.vi.....	8
3.2.2 HIOKI PW8001 Initialize LAN.vi	9
3.2.3 HIOKI PW8001 Initialize GP-IB.vi.....	10
3.2.4 HIOKI PW8001 Close.vi	11
3.2.5 HIOKI PW8001 CLS.vi	12
3.2.6 HIOKI PW8001 ESR.vi.....	13
3.2.7 HIOKI PW8001 IDN.vi	15
3.2.8 HIOKI PW8001 OPC.vi	16
3.2.9 HIOKI PW8001 OPT.vi	17
3.2.10 HIOKI PW8001 RST.vi.....	18
3.2.11 HIOKI PW8001 TRG.vi.....	19
3.2.12 HIOKI PW8001 WAI.vi.....	20
3.2.13 HIOKI PW8001 Read_Write.vi	21
3.3 Device-specific Event Status Register	22
3.3.1 HIOKI PW8001 ESE0-3.vi.....	22
3.3.2 HIOKI PW8001 ESR0-3.vi.....	24
3.4 Simple Command	25
3.4.1 HIOKI PW8001 Demag.vi.....	25
3.4.2 HIOKI PW8001 Hold.vi.....	26
3.4.3 HIOKI PW8001 Conf MATH.vi.....	27
3.4.4 HIOKI PW8001 Conf RATE.vi	28
3.4.5 HIOKI PW8001 Conf Source.vi.....	29
3.5 D/A Output Option.....	30
3.5.1 HIOKI PW8001 Conf Aout General.vi.....	30
3.5.2 HIOKI PW8001 Conf Aout CH.vi.....	31
3.6 Averaging Mode.....	32
3.6.1 HIOKI PW8001 Conf Averaging.vi.....	32
3.7 Efficiency and Loss Calculation.....	33
3.7.1 HIOKI PW8001 Conf Efficiency.vi.....	33
3.7.2 HIOKI PW8001 Conf Efficiency Mode.vi	34
3.8 CAN Output.....	35
3.8.1 HIOKI PW8001 Conf CAN Communication CAN.vi	35
3.8.2 HIOKI PW8001 Conf CAN Communication CAN FD.vi	36
3.8.3 HIOKI PW8001 Conf CAN Communication CAN.vi	37
3.8.4 HIOKI PW8001 Conf CAN Database.vi.....	38
3.8.5 HIOKI PW8001 Conf CAN Output Continue.vi	39
3.8.6 HIOKI PW8001 Conf CAN Output OFF.vi	40
3.8.7 HIOKI PW8001 CAN Status.vi	41
3.9 Calendar and Clock.....	42
3.9.1 HIOKI PW8001 Conf Clock.vi	42
3.10 Δ -Y Calculation	43

3.10.1	HIOKI PW8001 Conf Deltay.vi.....	43
3.11	Time Control.....	44
3.11.1	HIOKI PW8001 Conf RealTime All.vi.....	44
3.11.2	HIOKI PW8001 Conf RealTime Each.vi.....	45
3.11.3	HIOKI PW8001 Conf Timer All.vi.....	46
3.11.4	HIOKI PW8001 Conf Timer Each.vi.....	47
3.12	Current Input.....	48
3.12.1	HIOKI PW8001 Conf Current.vi.....	48
3.13	Screen Display.....	51
3.13.1	HIOKI PW8001 Display Key.vi.....	51
3.13.2	HIOKI PW8001 Conf Display Page.vi.....	52
3.14	Motor Analysis Option.....	53
3.14.1	HIOKI PW8001 Motor Exist.vi.....	53
3.14.2	HIOKI PW8001 Motor ZeroAdjust.vi.....	54
3.14.3	HIOKI PW8001 Conf Motor Z Slope.vi.....	55
3.14.4	HIOKI PW8001 Conf Motor Analog LPF.vi.....	56
3.14.5	HIOKI PW8001 Conf Motor Analog Range.vi.....	57
3.14.6	HIOKI PW8001 Conf Motor Comp Speed.vi.....	58
3.14.7	HIOKI PW8001 Conf Motor Comp Torque.vi.....	59
3.14.8	HIOKI PW8001 Conf Motor Freq.vi.....	60
3.14.9	HIOKI PW8001 Conf Motor Freq Range.vi.....	61
3.14.10	HIOKI PW8001 Conf Motor Analog Mode.vi.....	62
3.14.11	HIOKI PW8001 Conf Motor Pulse PNF.vi.....	63
3.14.12	HIOKI PW8001 Conf Motor Pulse Speed.vi.....	64
3.14.13	HIOKI PW8001 Conf Motor Analog Speed.vi.....	65
3.14.14	HIOKI PW8001 Conf Motor Torque.vi.....	66
3.14.15	HIOKI PW8001 Conf Motor Source.vi.....	67
3.14.16	HIOKI PW8001 Conf Motor Wiring.vi.....	68
3.15	Setting Frequency.....	69
3.15.1	HIOKI PW8001 Conf Frequency.vi.....	69
3.16	Harmonic Measurement.....	70
3.16.1	HIOKI PW8001 Conf Harmonic.vi.....	70
3.17	Integration.....	71
3.17.1	HIOKI PW8001 Conf Integ Control.vi.....	71
3.17.2	HIOKI PW8001 Conf Integrate.vi.....	72
3.17.3	HIOKI PW8001 Integrate Reset.vi.....	73
3.17.4	HIOKI PW8001 Integrate Start.vi.....	74
3.17.5	HIOKI PW8001 Integrate Stop.vi.....	75
3.17.6	HIOKI PW8001 Integrate Status.vi.....	76
3.18	Lowpass Filter.....	77
3.18.1	HIOKI PW8001 Conf LPF.vi.....	77
3.19	Measured Value Acquisition.....	78
3.19.1	HIOKI PW8001 Measure with Item.vi.....	78
3.19.2	HIOKI PW8001 Measure with Noltem.vi.....	79
3.19.3	HIOKI PW8001 Measure 10ms with Item.vi.....	80
3.19.4	HIOKI PW8001 Measure 10ms with Noltem.vi.....	81
3.19.5	HIOKI PW8001 Measure 1ms with Noltem.vi.....	82
3.19.6	HIOKI PW8001 Measure 1ms Item Name.vi.....	83
3.19.7	HIOKI PW8001 Measure Harmonic with Item.vi.....	84
3.19.8	HIOKI PW8001 Measure Harmonic with Noltem.vi.....	85
3.19.9	HIOKI PW8001 Conf MeasureItem AllClear.vi.....	86

3.19.10	HIOKI PW8001 Conf MeasureItem U.vi.....	87
3.19.11	HIOKI PW8001 Conf MeasureItem I.vi.....	88
3.19.12	HIOKI PW8001 Conf MeasureItem P.vi.....	89
3.19.13	HIOKI PW8001 Conf MeasureItem Integrate.vi.....	90
3.19.14	HIOKI PW8001 Conf MeasureItem Motor.vi.....	91
3.19.15	HIOKI PW8001 Conf MeasureItem Efficiency.vi.....	92
3.19.16	HIOKI PW8001 Conf MeasureItem UDF.vi.....	93
3.19.17	HIOKI PW8001 Conf MeasureItem Harmonic AllClear.vi.....	94
3.19.18	HIOKI PW8001 Conf MeasureItem Harmonic.vi.....	95
3.20	Phase Zero Adjustment.....	96
3.20.1	HIOKI PW8001 Phase ZeroAdjust Set.vi.....	96
3.20.2	HIOKI PW8001 Phase ZeroAdjust Reset.vi.....	97
3.20.3	HIOKI PW8001 Phase Adjust Value.vi.....	98
3.21	Scaling.....	99
3.21.1	HIOKI PW8001 Conf Scale.vi.....	99
3.22	Acquisition of Sensor Information.....	100
3.22.1	HIOKI PW8001 Sensor.vi.....	100
3.23	Trigger.....	101
3.23.1	HIOKI PW8001 Conf Trigger General.vi.....	101
3.23.2	HIOKI PW8001 Conf Trigger Level.vi.....	102
3.24	User-defined Formulas.....	103
3.24.1	HIOKI PW8001 Conf UDF.vi.....	103
3.25	Voltage Input.....	105
3.25.1	HIOKI PW8001 Conf Voltage.vi.....	105
3.26	Regarding Waveforms.....	107
3.26.1	HIOKI PW8001 Measure Wave_CH.vi.....	107
3.26.2	HIOKI PW8001 Measure Wave_LOGIC.vi.....	108
3.26.3	HIOKI PW8001 Conf Wave Length.vi.....	109
3.26.4	HIOKI PW8001 Wave State.vi.....	110
3.27	Wiring Settings.....	111
3.27.1	HIOKI PW8001 Conf Wiring.vi.....	111
3.28	Screenshot.....	112
3.28.1	HIOKI PW8001 ScreenShot.vi.....	112
4.	DATA Structure.....	113
4.1	Parameters for normal measurement items.....	113
4.2	List and Order of Direct Specification Items for HIOKI PW8001 Measure.vi.....	115
4.2.1	Statuses.....	115
4.2.2	Integrated Elapsed Time (Etime).....	115
4.3	Channel Statuses (Status1, Status2, Status3, Status4, Status5, Status6, Status7, Status8).....	116
4.4	Status of Motor Channel (StatusM).....	117
4.5	List and Order of Direct Specification Items for HIOKI PW8001 Measure Harmonic.vi.....	118
4.6	Harmonic Status (HRMStatus).....	120

1. Overview

This program can change the settings and query the power analyzer (hereinafter, measurement device) from the computer using the TCP/IP, RS232C and GPIB.

The program is divided into multiple Vi according to the functions.

This LabVIEW driver was created for firmware version 1.50 of the PW8001. Operation may differ from earlier or later versions. Please refer to the instruction manual of the PW8001 for the operation of the latest firmware version.

2. Precondition

The following requirement needs to be met when using this program.

- NI-VISA
Download and install the installer from the NI home page.
- Experience in program development using LabVIEW





Note:

To use this LabVIEW driver from the block diagram palette, put the decompressed folder ("HIOKI_PW8001" folder) in the "(LabVIEW installation folder) \ instr.lib" folder. For example, the specified folder is "C: \ Program Files (x86) \ National Instruments \ LabVIEW 2021 \ instr.lib".



3. Driver Explanation

3.1 Driver Common Input & Output

3.1.1 Input Items

Name	Data Type	Explanation
VISA Resource		TCP/IP, RS232C, GPIB Connection ID
Set/Query		Specify whether to set the program operating mode to the set mode for the device, or to query the settings of the device. Input Range: False (Set: Default), True (Query)
Error Out		After sending the driver command, send the *ESR Command automatically and acquires error information. When an error occurs, input to error out. Input Range: False (Off: Default), True (On)
error in		Please refer the LabVIEW online reference's section on error report for a detailed explanation on error input. Default Value: no error

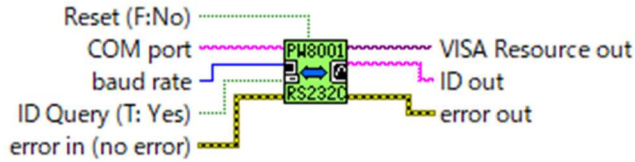
3.1.2 Output Items

Name	Data Type	Explanation
VISA Resource out		TCP/IP, RS232C, GPIB Connection ID
error out		Please refer the LabVIEW online reference's section on error report for a detailed explanation on error output. When PW8001 cannot be set properly, output error code (1300). Errors may be caused by <ul style="list-style-type: none"> Integration or HOLD/PEAK HOLD mode Restrictions imposed by wiring mode Restrictions imposed by the availability of options affected by other settings for others Please confirm with the PW8001 instruction manual.

3.2 Standard Command

3.2.1 HIOKI PW8001 Initialize RS-232C.vi

Starts the RS232C communication with the PW8001 device.
This VI is selectable from “HIOKI PW8001 Initialize.vi”.



Input

Name	Data Type	Explanation
ID Query (T: Yes)		Output the connection device's ID.
Reset (F: No)		Send the RST command to the connection device and reset the settings.
COMPort		Specify the COM Port number. The default setting is 1.
baud rate		Specify the communication baud rate.

Output

Name	Data Type	Explanation
ID		Return the device's ID. Valid when the ID Query is True.

3.2.2 HIOKI PW8001 Initialize LAN.vi

Starts the LAN communication with the PW8001 device.
This VI is selectable from “HIOKI PW8001 Initialize.vi”.



Input

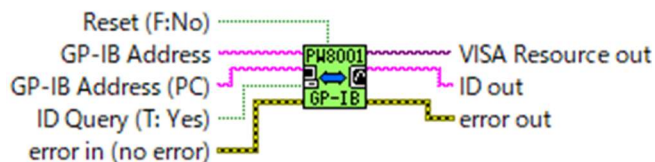
Name	Data Type	Explanation
ID Query (T:Yes)		Output the connection device's ID.
Reset (T:Yes)		Send the RST command to the connection device and reset the settings.
IPAddress		Specify the PW8001 IP Address. The default setting is 192.168.1.1.

Output

Name	Data Type	Explanation
ID		Return the device's ID. Valid when the ID Query is True.

3.2.3 HIOKI PW8001 Initialize GP-IB.vi

Starts the GPIB communication with the PW8001 device.
This VI is selectable from “HIOKI PW8001 Initialize.vi”.



Input

Name	Data Type	Explanation
ID Query (T:Yes)	TF	Output the connection device's ID.
Reset (F: No)	TF	Send the RST command to the connection device and reset the settings.
GP-IBAddress	abc	Specify the PW8001 GPIB Address. The default setting is 1.
GP-IBAddress (PC)	abc	Specify the PC GPIB Address. The default setting is 0.

Output

Name	Data Type	Explanation
ID	abc	Return the device's ID. Valid when the ID Query is True.

3.2.4 HIOKI PW8001 Close.vi

Disconnects the communication with the PW8001 device.



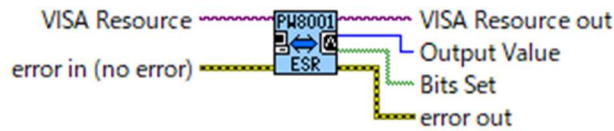
3.2.5 HIOKI PW8001 CLS.vi

Clears Standard Event Status Register (SESR) and Device-specific Event Status Registers (ESR0 through ESR3).




3.2.6 HIOKI PW8001 ESR.vi

Returns the content of SESER as a value and clears it.



Output

Name	Data Type	Explanation
Bits Set	[TF]	<p>Outputs the query results of the event register in Boolean Array.</p> <p>bit7(PON): Power-On Flag Set to "1" when the power is turned on, or upon recovery from an outage.</p> <p>bit6(URQ): User Request Unused</p> <p>bit5(CME): Command Error (The command to the message terminator is ignored.) This bit is set to "1" when a received command contains a syntactic or semantic error:</p> <ul style="list-style-type: none"> • Program header error • Incorrect number of data parameters • Invalid parameter format • Received a command not supported by the instrument <p>bit4(EXE): Execution Error This bit is set to "1" when a received command cannot be executed for some reason.</p> <ul style="list-style-type: none"> • The specified data value is outside of the set range. • The specified data cannot be set (e.g. optional setting with option unimplemented). • Execution is prevented by some other operation being performed. <p>bit3(DDE): Device-dependent Error This bit is set to "1" when a command cannot be executed due to some reason other than a command error, a query error or an execution error.</p> <ul style="list-style-type: none"> • Internal error <p>bit2(QYE): Query Error (the output queue is cleared) This bit is set to "1" when a query error is detected by the output queue control.</p> <ul style="list-style-type: none"> • When the data overflows the output queue. • When the next command is received while there is data in the output queue. <p>bit1(RQC): Control Request Unused</p> <p>bit0(OPC): Operation Complete</p>

		This bit is set to "1" in response to an *OPC command. It indicates the completion of operations of all messages up to the *OPC command.
Output Value		Outputs the query results of the event register as numerical values.

3.2.7 HIOKI PW8001 IDN.vi

Queries the Device ID.



Output

Name	Data Type	Explanation
IDN		Outputs the query results. Output Items: <HIOKI>, <Model name>, <Serial No.>, <Software version>

3.2.8 HIOKI PW8001 OPC.vi

After the command before *OPC command from the commands sent is completed, "1" is stored in the output queue.



Output


Name	Data Type	Explanation
OPC		Returns 1.

3.2.9 HIOKI PW8001 OPT.vi

Queries the options available on the instrument.



Output

Name	Data Type	Explanation
OPT		Outputs the query results of the options. Output Items: <CH1 Module model number>, <CH1 Sensor type>, ... , <CH8 Module model number>, <CH8 Sensor type>, <Motor option>, <D/A output or CAN output option>, <Optical synchronization option>

3.2.10 HIOKI PW8001 RST.vi

Executes system reset to return to the instrument's factory setting.

- Language and communication settings are not initialized.



3.2.11 HIOKI PW8001 TRG.vi

Perform a one-time measurement in the hold state or the peak hold state.



3.2.12 HIOKI PW8001 WAI.vi

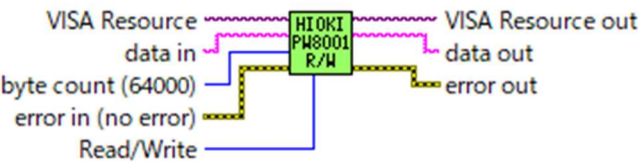
Waits until the next refresh is completed.






3.2.13 HIOKI PW8001 Read_Write.vi

Sends and receives the command(Sets and reads the data) for PW8001.


No commands after *WAI are run until the next measurement data update completes.



Input

Name	Data Type	Explanation
Read/Write (0: Read)		Set the Read/Write mode. Input Range: 0 (Read: Default), 1 (Write) Note: Read: Acquires data. Write: Writes in data.
byte count (64000)		Set the data reading bytes of Read mode.
data in		Set the sending data to PW8001 of Write mode.

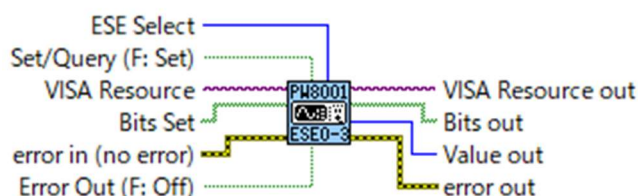
Output

Name	Data Type	Explanation
data out		Output the received data to PW8001 of Read mode.

3.3 Device-specific Event Status Register

3.3.1 HIOKI PW8001 ESE0-3.vi

Sets enable setting of Device-specific "Event Status Register 0 through 3 (ESR0 through 3) " to "ESER0 through 3" .





Input

Name	Data Type	Explanation
ESESelect		Sets Event Status Register. Input Range: 0 (ESE0: Default), 1 (ESE1), 2 (ESE2), 3 (ESE3)
Bits Set		Sets enable setting of Event Status Register. Input Range: <div>ESE0</div> <div>Bit 7: DS : Data update</div> <div>Bit 6: UCU : Calculation unavailable (Measured data is invalid as immediately after range change).</div> <div>Bit 5: ZP : Power calculation (synchronized source) with forced zero-cross</div> <div>Bit 4: ZI : Current frequency with forced zero-cross</div> <div>Bit 3: ZU : Voltage frequency with forced zero-cross</div> <div>Bit 2: DP : Power calculation (synchronized source) without data update</div> <div>Bit 1: DI : Current frequency without data update</div> <div>Bit 0: DU : Voltage frequency without data update</div> <div>ESE1</div> <div>Bit 7: PU8 : CH8 voltage peak exceeded</div> <div>Bit 6: PU7 : CH7 voltage peak exceeded</div> <div>Bit 5: PU6 : CH6 voltage peak exceeded</div> <div>Bit 4: PU5 : CH5 Voltage peak exceeded</div> <div>Bit 3: PU4 : CH4 voltage peak exceeded</div> <div>Bit 2: PU3 : CH3 voltage peak exceeded</div> <div>Bit 1: PU2 : CH2 voltage peak exceeded</div> <div>Bit 0: PU1 : CH1 voltage peak exceeded</div> <div>ESE2</div> <div>Bit 7: PI8 : CH8 current peak exceeded</div> <div>Bit 6: PI7 : CH7 current peak exceeded</div> <div>Bit 5: PI6 : CH6 current peak exceeded</div> <div>Bit 4: PI5 : CH5 current peak exceeded</div> <div>Bit 3: PI4 : CH4 current peak exceeded</div> <div>Bit 2: PI3 : CH3 current peak exceeded</div> <div>Bit 1: PI2 : CH2 current peak exceeded</div> <div>Bit 0: PI1 : CH1 current peak exceeded</div> <div>ESE3</div> <div>Bit 7: - : Unused</div> <div>Bit 6: - : Unused</div>

		Bit 5: - : Unused Bit 4: - : Unused Bit 3: RG : CHG overload Bit 2: RE : CHE overload Bit 1: RC : CHC overload Bit 0: RA : CHA overload
--	--	--

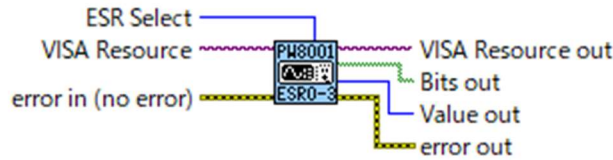
Output

Name	Data Type	Explanation
Bits out		Outputs the query results of setting of Event Status Register in boolean array.
Output Value		Outputs the query results of setting of Event Status Register as numerical values.


3.3.2 HIOKI PW8001 ESR0-3.vi

Reads the content of Device-specific Event Status Register in a value.



- When "HIOKI PW8001 ESR0-3.vi" is executed, the content of the specified Device-specific Event Status Register is cleared.



Input

Name	Data Type	Explanation
ESRSelect		Sets Event Status Register. Input Range: 0 (ESR0: Default), 1 (ESR1), 2 (ESR2), 3 (ESR3)

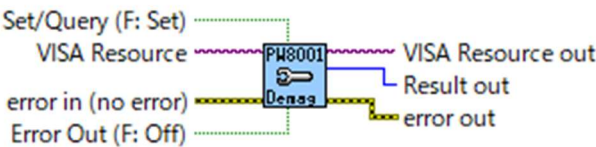
Output

Name	Data Type	Explanation
Bits out		Outputs the query results of setting of Device-specific Event Status Register in boolean array.
Output Value		Outputs the query results of Device-specific Event Status Register as numerical values.


3.4 Simple Command

3.4.1 HIOKI PW8001 Demag.vi

Executes zero adjustment.

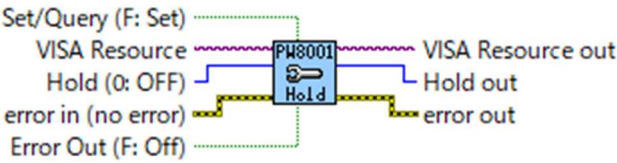


Output


Name	Data Type	Explanation
Result out		<p>Outputs the query results of the zero adjust.</p> <p>Output Range:</p> <p>OK (0) : Normal complete</p> <p>BUSY (1) : Demagnetization being executed</p> <p>YET (2) : Not executed yet before start</p> <p>ERROR (3) : Zero adjustment failure</p> <p>Note:</p> <p>The zero adjust takes more than 30 seconds to execute and in that period, you may get an execution command.</p>

3.4.2 HIOKI PW8001 Hold.vi


Sets and reads the Hold Status.



Input

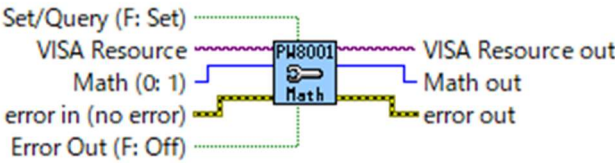
Name	Data Type	Explanation
Hold (0: Off)		Sets hold state. Input Range: 0 (OFF: Default), 1 (ON), 2 (PEAK) Note Use "HIOKI PW8001 TRG.vi" in the hold state or the peak hold state to update the data.

Output

Name	Data Type	Explanation
Hold out		Outputs the query results of hold state. Output Value: 0 (OFF), 1 (ON), 2 (PEAK)

3.4.3 HIOKI PW8001 Conf MATH.vi

Sets and reads formulas for apparent power, reactive power and power factor of three-phase power.



Input

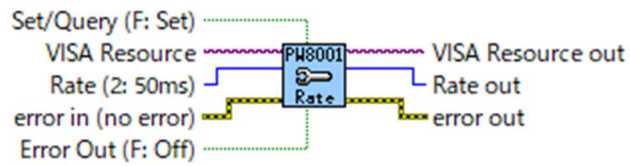
Name	Data Type	Explanation
Math (0: 1)		<p>Sets formulas for apparent power, reactive power and power factor of three-phase power.</p> <p>Input Range: 0 (1: Default), 1 (2), 2 (3)</p> <p>Note:</p> <ul style="list-style-type: none"> 1 TYPE1 : Compatible with the respective TYPE1 of PW3390, 3193, and 3390 2 TYPE2 : Compatible with the respective TYPE2 of 3192 and 3193 3 TYPE3 : The sign of the active power is added to the absolute values of the power factor and power phase angle of TYPE1

Output

Name	Data Type	Explanation
Math out		<p>Outputs the query results of formulas for apparent power, reactive power and power factor of three-phase power.</p> <p>Output Value: 0 (1), 1 (2), 2 (3)</p>

3.4.4 HIOKI PW8001 Conf RATE.vi

Sets and reads a data refresh rate.



Input

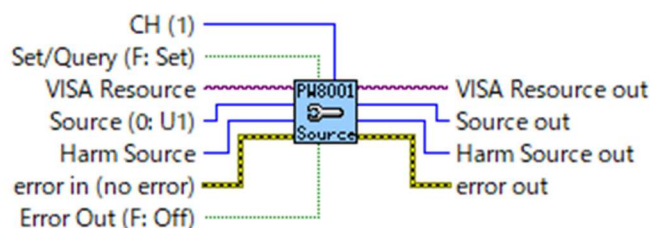
Name	Data Type	Explanation
Rate (2: 50ms)		Sets a data refresh rate. Input Range: 0 (1ms), 1 (10ms), 2 (50ms: Default), 3 (200ms)

Output

Name	Data Type	Explanation
Rate out		Outputs the query results of data refresh rate. Output Value: 0 (1ms), 1 (10ms), 2 (50ms), 3 (200ms)

3.4.5 HIOKI PW8001 Conf Source.vi

Sets and reads a synchronization source.



Input

Name	Data Type	Explanation
CH (1)		Specifies the channel. Input Range: 1 (Default) to 8
Source (0: U1)		Sets a synchronization source for the specified channel. Input Range: 0 (U1: Default), 1 (U2), 2 (U3), 3 (U4), 4 (U5), 5 (U6), 6 (U7), 7 (U8), 8 (I1), 9 (I2), 10 (I3), 11 (I4), 12 (I5), 13 (I6), 14 (I7), 15 (I8), 16 (DC), 17 (Ext1), 18 (Ext2), 19 (Ext3), 20 (Ext4), 21 (Zph1), 22 (Zph3), 23 (CHB), 24 (CHD), 25 (CHF), 26 (CHH) Note: Setting for other channel combined with measurement line will be changed. Depending on the availability of the motor analysis option and the motor wiring state, the items related to the motor may not be available for the synchronization source setting.
Harm Source		Sets the harmonics synchronization source for the specified channel. Input Range: 0 (Zph1: Default), 1 (Zph3), 2 (Ext1), 3 (Ext3) Note: When Zph1 is selected for the synchronization source, only Zph1 and Ext1 can be set. When Zph3 is selected, only Zph3 and Ext3 can be set.

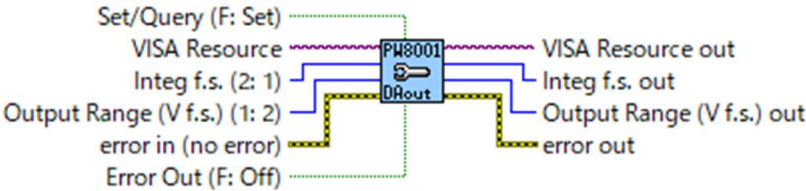
Output

Name	Data Type	Explanation
Source out		Outputs the query results of the synchronization source for the specified channel. Output Value: 0 (U1), 1 (U2), 2 (U3), 3 (U4), 4 (U5), 5 (U6), 6 (U7), 7 (U8), 8 (I1), 9 (I2), 10 (I3), 11 (I4), 12 (I5), 13 (I6), 14 (I7), 15 (I8), 16 (DC), 17 (Ext1), 18 (Ext2), 19 (Ext3), 20 (Ext4), 21 (Zph1), 22 (Zph3), 23 (CHB), 24 (CHD), 25 (CHF), 26 (CHH)
Harm Source out		Outputs the query results of the harmonics synchronization source for the specified channel. Output Value: 0 (Zph1), 1 (Zph3), 2 (Ext1), 3 (Ext3)

3.5 D/A Output Option

3.5.1 HIOKI PW8001 Conf Aout General.vi

Sets and reads the general settings related to D/A Output.



Input

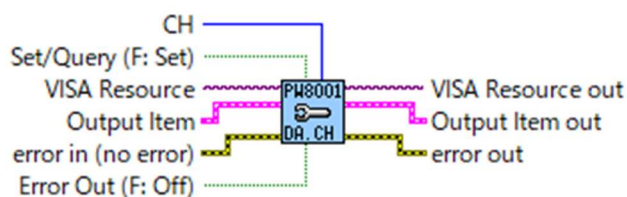
Name	Data Type	Explanation
Integ f.s. (2: 1)		Sets full-scale D/A output integration coefficient. Input Range: 0 (1/10), 1 (1/2), 2 (1: Default), 3 (5), 4 (10), 5 (50), 6 (100), 7 (500), 8 (1000), 9 (5000), 10 (10000)
Output Range (V f.s.) (1: 2)		Sets full-scale D/A waveform output. Input Range: 0 (1), 1 (2: Default)

Output



Name	Data Type	Explanation
Integ f.s.out		Outputs the query results of full-scale D/A output integration coefficient. Output Value: 0 (1/10), 1 (1/2), 2 (1), 3 (5), 4 (10), 5 (50), 6 (100), 7 (500), 8 (1000), 9 (5000), 10 (10000)
Output Range (V f.s.) out		Outputs the query results of full-scale D/A waveform output. Output Value: 0 (1), 1 (2),

3.5.2 HIOKI PW8001 Conf Aout CH.vi


Sets and reads the functions related to D/A Output.



Input

Name	Data Type	Explanation
CH		Specifies the channel. Input Range: 1 (Default) to 20
Output Item		Sets the D/A Output Items. Type Input Range: 0 (WAVE: Default), 1 (TREND) Wave Item Input Range: 0 (U1), 1 (I1), 2 (U2), 3 (I2), 4 (U3), 5 (I3), 6 (U4), 7 (I4), 8 (U5), 9 (I5), 10 (U6), 11 (I6), 12 (U7), 13 (I7), 14 (U8), 15 (I8) Trend Item Parameter Input Range: 0 (Urms: Default), 1 (Umn), 2 (Uac), 3 (Udc), 4 (Ufnd), 5 (Upk+), 6 (Upk-), 7 (Uthd), 8 (Urf), 9 (Uunb), 10 (Irms), 11 (Imn), 12 (Iac), 13 (Idc), 14 (Ifnd), 15 (Ipk+), 16 (Ipk-), 17 (Ithd), 18 (Irf), 19 (Iunb), 20 (P), 21 (Pfnd), 22 (S), 23 (Sfnd), 24 (Q), 25 (Qfnd), 26 (PF), 27 (PFnd), 28 (DEG U), 29 (DEG I), 30 (DEG), 31 (fU), 32 (fl), 33 (lh+), 34 (lh-), 35 (lh), 36 (WP+), 37 (WP-), 38 (WP), 39 (EFF), 40 (Loss), 41 (Tq), 42 (Spd), 43 (Pm), 44 (Slip), 45 (CH), 46 (OFF) CH Input Range: 0 (1: Default), 1 (2), 2 (3), 3 (4), 4 (5), 5 (6), 6 (7), 7 (8), 8 (12), 9 (23), 10 (34), 11 (45), 12 (56), 13 (67), 14 (78), 15 (123), 16 (234), 17 (345), 18 (456), 19 (567), 20 (678), 21 (A), 22 (B), 23 (C), 24 (D), 25 (E), 26 (F), 27 (G), 28 (H)

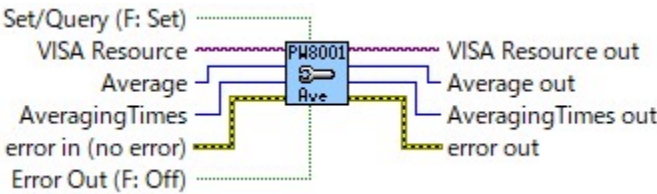
Output

Name	Data Type	Explanation
Output Item out		Outputs the query results of the D/A Output Items.

3.6 Averaging Mode

3.6.1 HIOKI PW8001 Conf Averaging.vi

Sets and reads the average.



Input

Name	Data Type	Explanation
Average		<p>Sets the average.</p> <p>Input Range: 0 (OFF: Default), 1 (MOV), 2 (FAST), 3 (MID), 4 (SLOW)</p> <p>Note: MOV: Movement average FAST: Exponential average (response speed: FAST) MID: Exponential average (response speed: MID) SLOW: Exponential average (response speed: SLOW)</p> <p>The averaging process will start again when the average setting is changed.</p>
AveragingTimes		<p>Sets number of averaging times for movement average.</p> <p>Input Range: 0 (8: Default), 1 (16), 2 (32), 3 (64)</p>

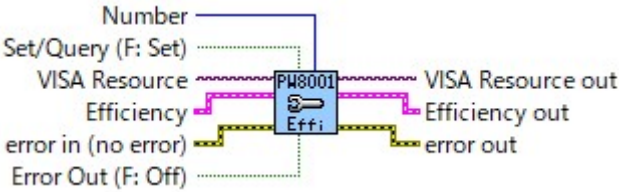
Output

Name	Data Type	Explanation
Average out		Outputs the query results of the average.
AveragingTimes out		Outputs the averaging times for movement average.



3.7 Efficiency and Loss Calculation

3.7.1 HIOKI PW8001 Conf Efficiency.vi


Sets and reads the efficiency and loss formulas.



Input

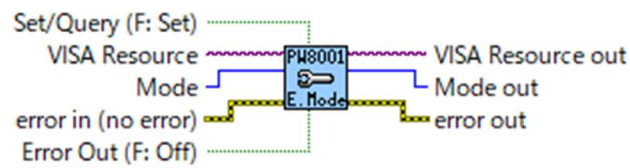
Name	Data Type	Explanation
Number		Specifies the number. Input Range: 1 (Default) to 4
Efficiency		Sets Pin and Pout items for efficiency and loss formulas. Pin, Pout Input Range: 0 (OFF), 1 (P1: Default), 2 (P2), 3 (P3), 4 (P4), 5 (P5), 6 (P6), 7 (P7), 8 (P8), 9 (P12), 10 (P23), 11 (P34), 12 (P45), 13 (P56), 14 (P67), 15 (P78), 16 (P123), 17 (P234), 18 (P345), 19 (P456), 20 (P567), 21 (P678), 22 (Pfnd1), 23 (Pfnd2), 24 (Pfnd3), 25 (Pfnd4), 26 (Pfnd5), 27 (Pfnd6), 28 (Pfnd7), 29 (Pfnd8), 30 (Pfnd12), 31 (Pfnd23), 32 (Pfnd34), 33 (Pfnd45), 34 (Pfnd56), 35 (Pfnd67), 36 (Pfnd78), 37 (Pfnd123), 38 (Pfnd234), 39 (Pfnd345), 40 (Pfnd456), 41 (Pfnd567), 42 (Pfnd678), 43 (Pm1), 44 (Pm2), 45 (Pm3), 46 (Pm4)

Output

Name	Data Type	Explanation
Efficiency out		Outputs the query results of Pin and Pout items for efficiency and loss formulas.

3.7.2 HIOKI PW8001 Conf Efficiency Mode.vi

Sets and reads the calculation mode for efficiency and loss calculations.



Input

Name	Data Type	Explanation
Mode		<p>Sets calculation mode for efficiency and loss calculations. Input Range: 0 (FIXED: Default), 1 (AUTO)</p> <p>Note FIXED: Normal Mode AUTO: Auto Mode</p>

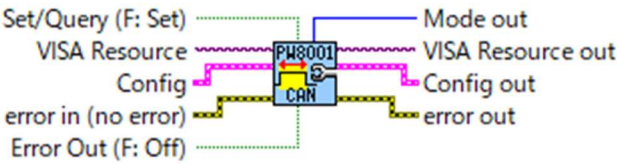
Output

Name	Data Type	Explanation
Mode out		Outputs the query results of calculation mode for efficiency and loss calculations.


3.8 CAN Output

3.8.1 HIOKI PW8001 Conf CAN Communication CAN.vi



Sets and reads the communication settings of the CAN protocol.
This VI is selectable from “HIOKI PW8001 Conf CAN Communication.vi”.



Input

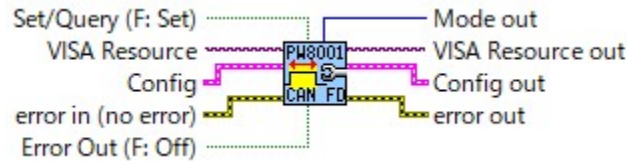
Name	Data Type	Explanation
Config		<p>Sets the communication settings of the CAN protocol.</p> <p>Speed (bps) Sets the transmission speed. Input Range: 0 (125k), 1 (250k), 2 (500k : Default), 3 (1M)</p> <p>Sampling Point (%) Sets the sampling point. Input Range: 0.0 - 99.9</p> <p>Terminal Resist Set the terminal resistor. Input Range: False (OFF), True (ON: Default)</p>

Output


Name	Data Type	Explanation
Mode out		<p>Outputs the query results of the CAN mode. Output Range: 0 (CAN), 1 (CAN FD (ISO)), 2 (CAN FD (nonISO))</p>
Config out		<p>Outputs the query results of the communication settings of the CAN protocol.</p>

3.8.2 HIOKI PW8001 Conf CAN Communication CAN FD.vi



Sets and reads the communication settings of the CAN FD (ISO compliant) protocol.
This VI is selectable from “HIOKI PW8001 Conf CAN Communication.vi”.



Input

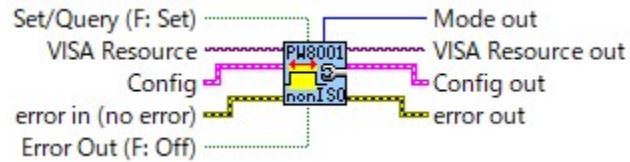
Name	Data Type	Explanation
Config		<p>Sets the communication settings of the CAN FD protocol.</p> <p>Arbitration Speed (bps) Sets the transmission speed of the arbitration field. Input Range: 0 (500k: Default), 1 (1M)</p> <p>Arbitration Sampling Point (%) Sets the sampling point for the arbitration field. Input Range: 0.0 - 99.9</p> <p>Data Speed (bps) Sets the transmission speed of the data field. Input Range: 0 (500k), 1 (1M), 2 (2M: Default), 3 (4M)</p> <p>Data Sampling Point (%) Sets the sampling point for the arbitration field. Input Range: 0.0 - 99.9</p> <p>Terminal Resist Set the terminal resistor. Input Range: False (OFF), True (ON: Default)</p>

Output


Name	Data Type	Explanation
Mode out		<p>Outputs the query results of the CAN mode. Output Range: 0 (CAN), 1 (CAN FD (ISO)), 2 (CAN FD (nonISO))</p>
Config out		<p>Outputs the query results of the communication settings of the CAN FD protocol.</p>

3.8.3 HIOKI PW8001 Conf CAN Communication CAN.vi



Sets and reads the communication settings of the CAN FD (ISO non-compliant) protocol.
This VI is selectable from “HIOKI PW8001 Conf CAN Communication.vi”.



Input

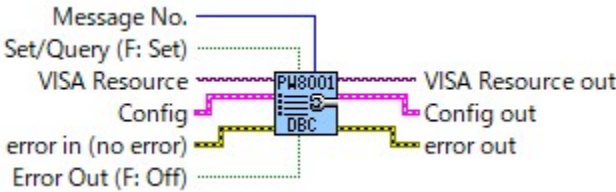
Name	Data Type	Explanation
Config		<p>Sets the communication settings of the CAN FD protocol.</p> <p>Arbitration Speed (bps) Sets the transmission speed of the arbitration field. Input Range: 0 (500k: Default), 1 (1M)</p> <p>Arbitration Sampling Point (%) Sets the sampling point for the arbitration field. Input Range: 0.0 - 99.9</p> <p>Data Speed (bps) Sets the transmission speed of the data field. Input Range: 0 (500k), 1 (1M), 2 (2M: Default), 3 (4M)</p> <p>Data Sampling Point (%) Sets the sampling point for the arbitration field. Input Range: 0.0 - 99.9</p> <p>Terminal Resist Set the terminal resistor. Input Range: False (OFF), True (ON: Default)</p>

Output



Name	Data Type	Explanation
Mode out		<p>Outputs the query results of the CAN mode. Output Range: 0 (CAN), 1 (CAN FD (ISO)), 2 (CAN FD (nonISO))</p>
Config out		<p>Outputs the query results of the communication settings of the CAN FD nonISO protocol.</p>

3.8.4 HIOKI PW8001 Conf CAN Database.vi


Sets and reads the CAN database.



Input

Name	Data Type	Explanation
Message No.		Specifies the CAN message number. Input Range: 1 (Default) to 32
Config		Sets the CAN database of the specified message number. Format Set the message format. Input Range: 0 (STD: Default), 1 (EXT) Note This is a common setting for all CAN message numbers. STD: Standard format EXT: Extension format Message ID (0x) Sets the ID of the specified message in hexadecimal. Output Items Sets the output items.

Output

Name	Data Type	Explanation
Config out		Outputs the query results of the CAN database of the specified message number.

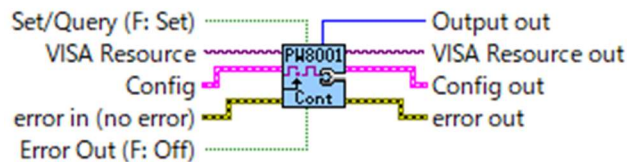
3.8.5 HIOKI PW8001 Conf CAN Output Continue.vi

Sets CAN output to continuous output mode or reads the current CAN output mode.
This VI is selectable from “HIOKI PW8001 Conf CAN Output.vi”.


Note

While the output mode is set to other than OFF, the CAN interface is activated.



At this time, if the CAN bus is connected to the CAN bus with improper CAN communication settings, it may cause an error.



Input

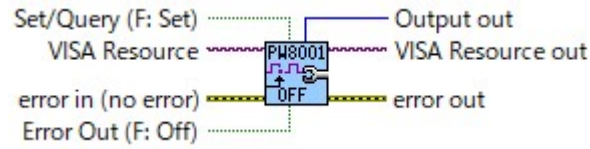
Name	Data Type	Explanation
Config		<p>Sets the CAN Interval output mode.</p> <p>Interval Sets the output interval. Input Range: 0 (1ms), 1 (10ms), 2 (50ms: Default), 3 (100ms), 4 (200ms), 5 (500ms), 6 (1s), 7 (5s), 8 (10s), 9 (15s), 10 (30s), 11 (1min), 12 (5min), 13 (10min), 14 (15min), 15 (30min), 16 (60min)</p> <p>Count Sets the count of outputs.</p> <p>Infinite Outputs infinite times. Input Range: False (OFF), True (ON: Default)</p> <p>Count (Valid when Infinite: OFF) Sets the count of outputs. Input Range: 0 - 10000</p>

Output


Name	Data Type	Explanation
Output out		<p>Outputs the query results of CAN output mode. Output Range: 0 (OFF), 1 (Continue)</p>
Config out		Outputs the query results of the CAN Interval output mode.

3.8.6 HIOKI PW8001 Conf CAN Output OFF.vi

Sets CAN output to off mode or reads the current CAN output mode.
This VI is selectable from “HIOKI PW8001 Conf CAN Output.vi”.

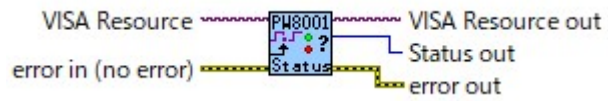


Output


Name	Data Type	Explanation
Output out		Outputs the query results of CAN output mode. Output Range: 0 (OFF), 1 (Continue)

3.8.7 HIOKI PW8001 CAN Status.vi

Reads the CAN output status.



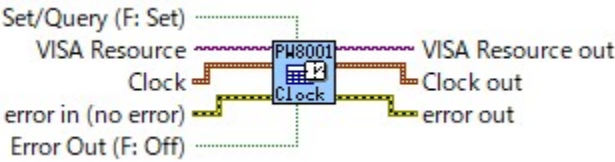
Output

Name	Data Type	Explanation
Status out		Outputs the query results of CAN output status. Output Range: 0 (NONE), 1 (SETUP_ERR), 2 (READY), 3 (OK), 4 (WARNING), 5 (SEND_ERR), 6 (BUS_OFF)


3.9 Calendar and Clock

3.9.1 HIOKI PW8001 Conf Clock.vi


Sets and reads time for the clock in the instrument.



Input

Name	Data Type	Explanation
Clock		Sets time for the clock. Year Input Range: 2020 to 2099 Month Input Range: 1 to 12 Day Input Range: 1 to 31 Hour Input Range: 0 to 23 Minute Input Range: 0 to 59 Second Input Range: 0 to 59

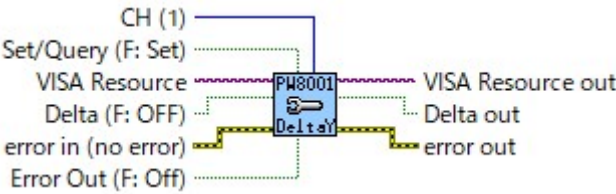
Output

Name	Data Type	Explanation
Clock out		Outputs the query results of the time for the clock.

3.10 Δ -Y Calculation

3.10.1 HIOKI PW8001 Conf Deltay.vi

Sets and reads Δ - Y calculation.



Input

Name	Data Type	Explanation
CH (1)		Specifies the channel. Input Range: 1 (Default) to 8
Delta (F: OFF)		Sets for Δ - Y calculation. Input Range: False (OFF: Default), True (ON) Note: ON: Execute Δ -Y calculation. OFF: Does not execute Δ -Y calculations.

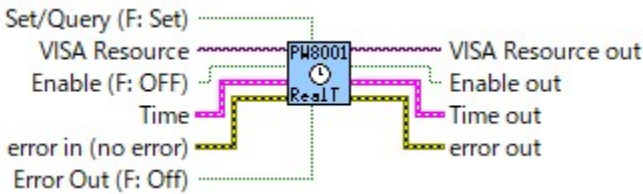
Output

Name	Data Type	Explanation
Delta out		Outputs the query results of Δ - Y calculation.



3.11 Time Control

3.11.1 HIOKI PW8001 Conf RealTime All.vi



Sets and reads the real-time control for all wiring integration.
This VI is selectable from “HIOKI PW8001 Conf RealTime.vi”.



Input

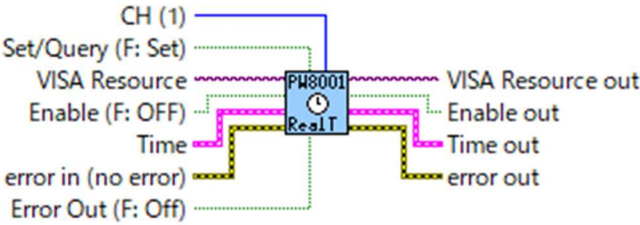
Name	Data Type	Explanation
Enable (F: OFF)		Sets the real-time control for all wiring integration. Input Range: False (OFF: Default), True (ON)
Time		Sets time for the start and stop time. Start, Stop Year Input Range: 2020 to 2099 Month Input Range: 1 to 12 Day Input Range: 1 to 31 Hour Input Range: 0 to 23 Minute Input Range: 0 to 59

Output

Name	Data Type	Explanation
Enable out		Outputs the query results of the real-time control.
Time out		Outputs the query results of the start and stop time.

3.11.2 HIOKI PW8001 Conf RealTime Each.vi

Sets and reads the real-time control for the wiring including the specified channel.
This VI is selectable from “HIOKI PW8001 Conf RealTime.vi”.



Input

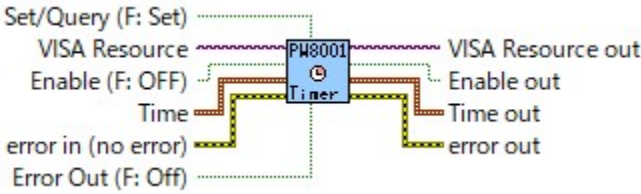
Name	Data Type	Explanation
CH (1)		Specifies the channel. Input Range: 1 (Default) to 8
Enable (F: OFF)		Sets the real-time control for all wiring integration. Input Range: False (OFF: Default), True (ON)
Time		Sets time for the start and stop time. Start, Stop Year Input Range: 2020 to 2099 Month Input Range: 1 to 12 Day Input Range: 1 to 31 Hour Input Range: 0 to 23 Minute Input Range: 0 to 59

Output



Name	Data Type	Explanation
Enable out		Outputs the query results of the real-time control.
Time out		Outputs the query results of the start and stop time.

3.11.3 HIOKI PW8001 Conf Timer All.vi



Sets and reads the timer control for all wiring integration.
This VI is selectable from “HIOKI PW8001 Conf Timer.vi”.



Input

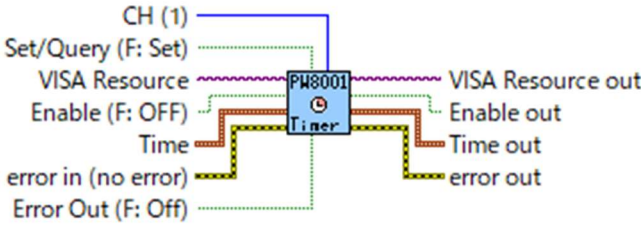
Name	Data Type	Explanation
Enable (F: OFF)		Sets the timer control for all wiring integration. Input Range: False (OFF: Default), True (ON)
Time		Sets time for the timer. Hour Input Range: 0 to 9999 Minute Input Range: 0 to 59 Second Input Range: 0 to 59

Output

Name	Data Type	Explanation
Enable out		Outputs the query results of the timer control.
Time out		Outputs the query results of time for the timer.

3.11.4 HIOKI PW8001 Conf Timer Each.vi

Sets and reads the timer control for the wiring including the specified channel.
This VI is selectable from “HIOKI PW8001 Conf Timer.vi”.



Input

Name	Data Type	Explanation
CH (1)		Specifies the channel. Input Range: 1 (Default) to 8
Enable (F: OFF)		Sets the timer control for all wiring integration. Input Range: False (OFF: Default), True (ON)
Time		Sets time for the timer. Hour Input Range: 0 to 9999 Minute Input Range: 0 to 59 Second Input Range: 0 to 59

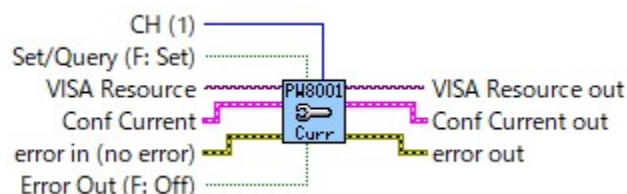
Output

Name	Data Type	Explanation
Enable out		Outputs the query results of the timer control.
Time out		Outputs the query results of time for the timer.

3.12 Current Input

3.12.1 HIOKI PW8001 Conf Current.vi

Sets and reads the functions related to current.




Input

Name	Data Type	Explanation
CH (1)		Sets the Input unit. Input Range: 1 (Default) to 8
ConfCurrent		<p>Sets the each function related to current.</p> <p>Range Auto (F: OFF), Manual (A) (15: 50)</p> <p>Sensor Input (0: Probe1) Rate (27: 100mV/A)</p> <p>Phase Shift Correct (1: OFF), Frequency (kHz) (0.1), Degree (°) (0.0), Mean (F: OFF)</p> <p>Auto Sets the ON/OFF of current auto-range. Input Range: False (OFF: Default), True (ON)</p> <p>Manual (A) Sets a current range. (The unit is [A].) Input Range: 0 (0.04), 1 (0.08), 2 (0.10), 3 (0.20), 4 (0.40), 5 (0.50), 6 (0.80), 7 (1), 8 (2), 9 (4), 10 (5), 11 (8), 12 (10), 13 (20), 14 (40), 15 (50: Default), 16 (80), 17 (100), 18 (200), 19 (400), 20 (500), 21 (800), 22 (1000), 23 (2000), 24 (5000), 25 (10000), 26 (20000), 27 (50000)</p> <p>Note: The range allowed depends on the current sensor type. If a range is set, the auto-range for specified channel becomes OFF. Depending on the combination of lines to be measured, current auto-range settings for other channels combined will be changed.</p> <p>Input Sets type of current sensor terminal. Input Range: 0 (Probe1: Default), 1 (Probe2)</p> <p>Rate Sets a current sensor Probe2 rating.</p>

		<p>Input Range :</p> <p>(Probe 1)</p> <p>0 (1A_AC), 1 (2A_AC), 2 (5A_AC), 3 (10A_AC), 4 (20A_AC), 5 (50A_AC), 6 (100A_AC), 7 (200A_AC), 8 (500A_AC), 9 (1kA_AC), 10 (2kA_AC), 11 (5kA_AC), 12 (1A_ACDC), 13 (2A_ACDC), 14 (5A_ACDC), 15 (10A_ACDC), 16 (20A_ACDC), 17 (50A_ACDC), 18 (100A_ACDC), 19 (200A_ACDC), 20 (500A_ACDC), 21 (1kA_ACDC), 22 (2kA_ACDC), 23 (5kA_ACDC),</p> <p>(Probe 2)</p> <p>24 (0.1mV/A), 25 (1mV/A), 26 (10mV/A), 27 (100mV/A), 28 (1V/A)</p> <p>Note:</p> <p>This setting can be changed only for the channel for which Probe2 is selected for the current sensor terminal.</p> <p>Correct (0: OFF)</p> <p>Sets phase correction formulas for current sensors. Input Range: 0 (OFF: Default), 1 (ON), 2 (AUTO)</p> <p>Note:</p> <p>OFF: Does not perform phase compensation calculation for current sensors ON: Performs the phase compensation calculation for current sensors. AUTO: Performs phase compensation calculation using compensation values saved in the current sensor.</p> <p>Frequency</p> <p>Sets phase correction frequency for current sensors. (The unit is [kHz].) Input Range: 0.1 to 5000.0 (0.1: Default)</p> <p>Degree</p> <p>Sets phase correction angle for current sensors. (The unit is [°].) Input Range: -180.0 to 180.0 (0.0: Default)</p> <p>Mean</p> <p>Sets the current rectification method to MEAN. Input Range: False (OFF: Default), True (ON)</p>
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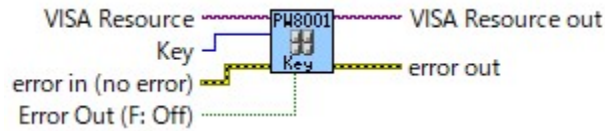
Output

Name	Data Type	Explanation
ConfCurrent out		<p>Outputs the query results of the each function related to current.</p> <p>Range</p> <p>Auto</p> <p>Manual (A)</p> <p>Input</p> <p>RATE</p> <p>Phase Shift</p> <p>Correct</p> <p>Frequency (kHz)</p> <p>Degree (°)</p> <p>Mean</p>

3.13 Screen Display

3.13.1 HIOKI PW8001 Display Key.vi

Executes the same operations with the ones by the instrument.

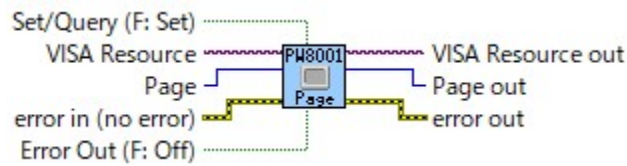


Input


Name	Data Type	Explanation
Key		<p>Sets the Key.</p> <p>Input Range: RUN / SINGLE / MANUAL / KNOBR / KNOBL / PHOLD / START / DRESET / HOLD / IRA / IRM / IRP / URA / URM / URP / COPY / SAVE / 0ADJ / CHR / CHL / FILE / SYSTEM / INPUT / MEAS</p> <p>Note:</p> <ul style="list-style-type: none"> RUN: Waveform storage RUN/STOP SINGLE: Single trigger MANUAL: Manual trigger KNOBR: Press right knob KNOBL: Press left knob PHOLD: Peak hold START: Integration START/STOP DRESET: Data reset HOLD: Hold key IRA: Current auto-range IRM: Current range - IRP: Current range + URA: Voltage auto-range URM: Voltage range - URP: Voltage range + COPY: Screen hardcopy SAVE: Data save 0ADJ: Zero adjustment CHR: Right channel key CHL: Left channel key FILE : FILE Key SYSTEM: SYSTEM key INPUT: INPUT key MEAS: MEAS key

3.13.2 HIOKI PW8001 Conf Display Page.vi


Switches the screen.



Input

Name	Data Type	Explanation
Page		Switches the screen. Input Range: BASIC / CUSTOM / WAVE / WAVEVALUE / VECTOR1 / VECTOR2 / VECTOR4 / LIST / BAR / WIRING / CH / COMMON / EFF / UDF / MOTOR / CONFIG / TIME / DATA / COM / OUTPUT / CAN / FILE

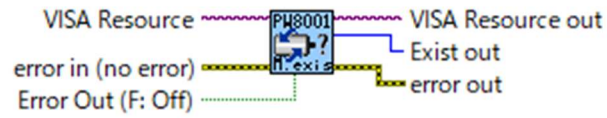
Output

Name	Data Type	Explanation
Page out		Outputs the query results of current screen name.


3.14 Motor Analysis Option

3.14.1 HIOKI PW8001 Motor Exist.vi

Reads availability of the motor analysis options.

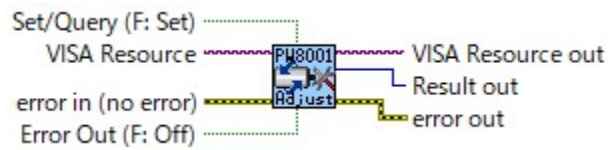


Output


Name	Data Type	Explanation
Exist out		Outputs the query results of availability of the motor options. Output Value: 0 (Y), 1 (N) Note: Y : Option available N : Option unavailable

3.14.2 HIOKI PW8001 Motor ZeroAdjust.vi

Executes zero adjustment of the motor channel.

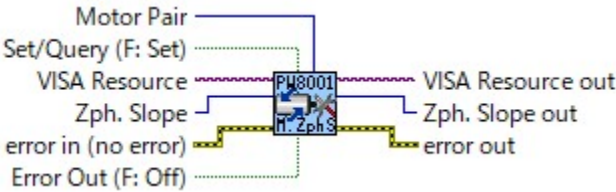


Output

Name	Data Type	Explanation
Result out		<p>Outputs the query results of the zero adjust.</p> <p>Output Range:</p> <p>OK (0) : Normal complete</p> <p>BUSY (1) : Demagnetization being executed</p> <p>YET (2) : Not executed yet before start</p> <p>ERROR (3) : Zero adjustment failure</p> <p>Note:</p> <p>The zero adjust takes more than 20 seconds to execute and in that period, you may get an execution command.</p>

3.14.3 HIOKI PW8001 Conf Motor Z Slope.vi

Sets and reads the Z-phase reference.



Input

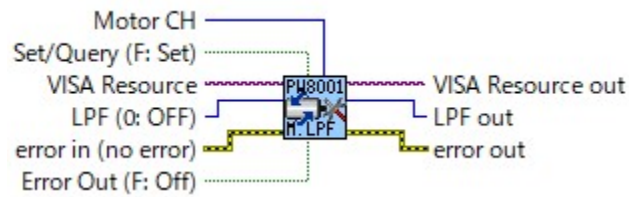
Name	Data Type	Explanation
Motor Pair		Specify the motor pair. Input Range: 0 (A_D), 1 (E_H)
Zph. Slope		Sets the Z-phase reference. Input Range: 0 (RISING: Default), 1 (FALLING) Note: RISING: Rising edge FALLING: Falling edge

Output

Name	Data Type	Explanation
Zph. Slope out		Outputs the query results of the Z-phase reference.

3.14.4 HIOKI PW8001 Conf Motor Analog LPF.vi

Sets and reads the analog lowpass filter for the specified motor channel.



Input

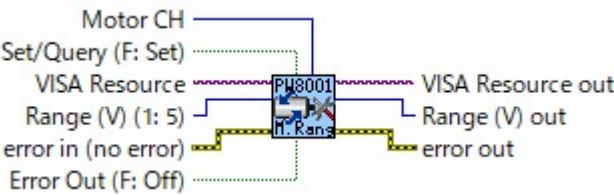
Name	Data Type	Explanation
Motor CH		Specifies the analog motor channel. Input Range: 0 (CHA), 1 (CHC), 2 (CHE), 3 (CHG)
LPF (0: OFF)		Sets the analog lowpass filter. Input Range: 0 (OFF: Default), 1 (1kHz)

Output

Name	Data Type	Explanation
LPF out		Outputs the query results of the analog lowpass filter.

3.14.5 HIOKI PW8001 Conf Motor Analog Range.vi

Sets and reads the voltage range for the specified motor channel.



Input

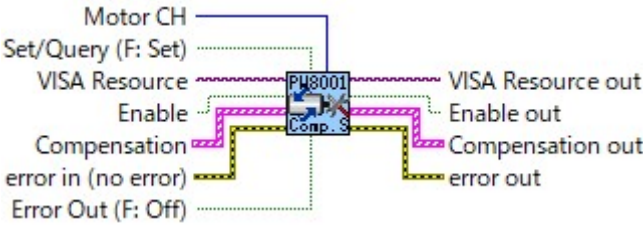
Name	Data Type	Explanation
Motor CH		Specifies the analog motor channel. Input Range: 0 (CHA), 1 (CHC), 2 (CHE), 3 (CHG)
Range (V) (1: 5)		Sets the voltage range. Input Range: 0 (1: Default), 1 (5), 2 (10)

Output

Name	Data Type	Explanation
Range (V) out		Outputs the query results of the voltage range.

3.14.6 HIOKI PW8001 Conf Motor Comp Speed.vi

Sets and reads the friction correction function of the specified motor channel.



Input

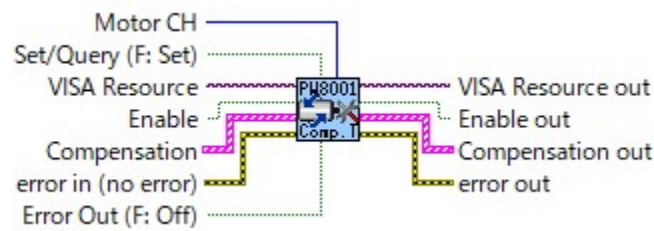
Name	Data Type	Explanation
Motor CH		Specifies the analog motor channel. Input Range: 0 (CHA), 1 (CHC), 2 (CHE), 3 (CHG)
Enable		Sets the friction correction function. Input Range: False (OFF), True (ON)
Compensation		Sets the correction value. Speed calibration point (r/min), Torque calibration value (Nm) Value Input Range: Signed significant number of 6 digits Unit Input Range: 0 (T), 1 (G), 2 (M), 3 (k), 4 (), 5 (m), 6 (u), 7 (n) Note: Enter the speed calibration point in ascending order. Otherwise, a command error occurs.

Output

Name	Data Type	Explanation
Enable out		Outputs the query results of the friction correction function.
Compensation out		Outputs the query results of the correction value.

3.14.7 HIOKI PW8001 Conf Motor Comp Torque.vi

Sets and reads the nonlinearity correction function of the specified motorchannel.



Input

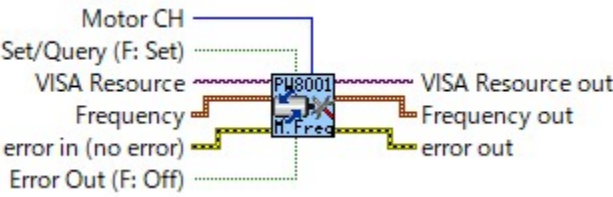
Name	Data Type	Explanation
Motor CH		Specifies the analog motor channel. Input Range: 0 (CHA), 1 (CHC), 2 (CHE), 3 (CHG)
Enable		Sets the friction correction function. Input Range: False (OFF), True (ON)
Compensation		Sets the correction value. Torque calibration point (N/m), Torque calibration value (Nm) Value Input Range: Signed significant number of 6 digits Unit Input Range: 0 (T), 1 (G), 2 (M), 3 (k), 4 (), 5 (m), 6 (u), 7 (n) Note: Enter the torque calibration point in ascending order. Otherwise, a command error occurs.

Output

Name	Data Type	Explanation
Enable out		Outputs the query results of the nonlinearity correction function.
Compensation out		Outputs the query results of the correction value.

3.14.8 HIOKI PW8001 Conf Motor Freq.vi

Sets and reads the upper and lower frequency limit of the specified motor channel.



Input

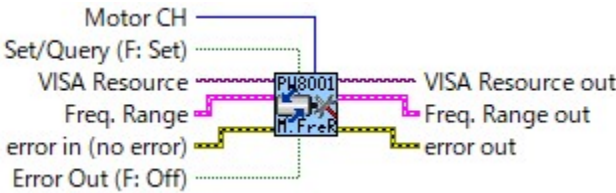
Name	Data Type	Explanation
Motor CH		Specifies the motor channel. Input Range: 0 (CHA), 1 (CHC), 2 (CHE), 3 (CHG)
Frequency		Sets the upper and lower frequency limit of the specified motor channel. Upper Freq (9: 2MHz): Input Range: 0 (100Hz), 1 (500Hz), 2 (1kHz), 3 (5kHz), 4 (10kHz), 5 (50kHz), 6 (100kHz), 7 (500kHz), 8 (1MHz), 9 (2MHz: Default) Lower Freq (0: 0.1Hz): Input Range: 0 (0.1Hz), 1 (1Hz), 2 (10Hz), 3 (100Hz)

Output



Name	Data Type	Explanation
Frequency out		Outputs the query results of the upper and lower frequency limit of the specified motor channel.

3.14.9 HIOKI PW8001 Conf Motor Freq Range.vi


Sets and reads the center frequency and the frequency range of the input frequency range.



Input

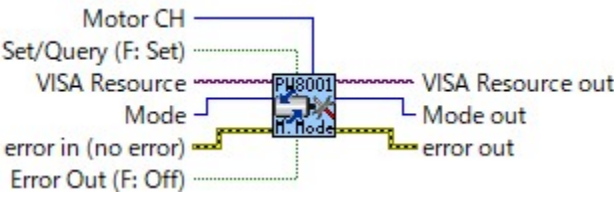
Name	Data Type	Explanation
Motor CH		Specifies the motor channel. Input Range: 0 (CHA), 1 (CHB), 2 (CHC), 3 (CHE), 4 (CHF), 5 (CHG)
Freq. Range		Sets the torque scaling, the center frequency and the frequency range of the input frequency range. Rated Torque (Nm): Value Input Range: ±0.01 to 9999.99 Unit Input Range: 0 (k), 1 (), 2 (m) Center Freq. (kHz): Input Range: 1 to 500 Freq. Range (kHz): Input Range: 1 to 500 Note: Set the center frequency so that the two conditions shown below are satisfied. If these conditions are not satisfied, an execution error occurs. $(\text{Center frequency} + \text{frequency range}) \leq 500\text{kHz}$ $(\text{Center frequency} - \text{frequency range}) \geq 1\text{kHz}$

Output

Name	Data Type	Explanation
Freq. Range out		Outputs the query results of the torque scaling, the center frequency and the frequency range of the input frequency range.

3.14.10 HIOKI PW8001 Conf Motor Analog Mode.vi

Sets and reads the input type of the specified motor channel.



Input

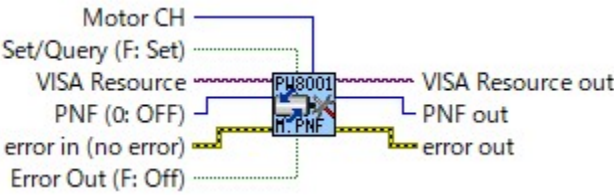
Name	Data Type	Explanation
Motor CH		Specifies the analog motor channel. Input Range: 0 (CHA), 1 (CHC), 2 (CHE), 3 (CHG)
Mode		Sets the input type. Input Range: 0 (ANALOG: Default), 1 (PULSE) Note: ANALOG: Analog DC input PULSE: Pulse input, Frequency input

Output

Name	Data Type	Explanation
Mode out		Outputs the query results of the input type.

3.14.11 HIOKI PW8001 Conf Motor Pulse PNF.vi

Sets and reads the pulse noise filter of the specified motor channel.



Input

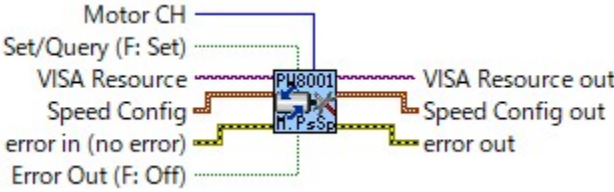
Name	Data Type	Explanation
Motor CH		Specifies the motor channel. Input Range: 0 (CHA), 1 (CHB), 2 (CHC), 3 (CHD), 4 (CHE), 5 (CHF), 6 (CHG), 7 (CHH)
PNF (0: OFF)		Sets the pulse noise filter. Input Range: 0 (OFF: Default), 1 (WEAK), 2 (STRONG) Note: OFF: Noise filter: OFF WEAK: Noise filter: weak STRONG: Noise filter: strong

Output



Name	Data Type	Explanation
PNF out		Outputs the query results of the pulse noise filter.

3.14.12 HIOKI PW8001 Conf Motor Pulse Speed.vi


Sets and reads the pulse number, the number of poles and the input frequency source for slip calculation of the specified motor channel.



Input

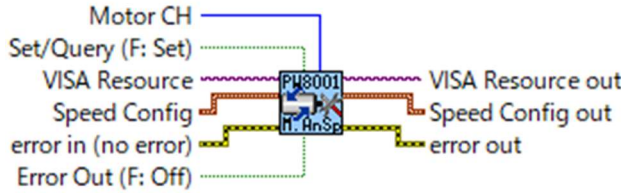
Name	Data Type	Explanation
Motor CH		Specifies the motor channel. Input Range: 0 (CHB), 1 (CHC), 2 (CHD), 3 (CHF), 4 (CHG), 5 (CHH)
Speed Config		Sets the pulse number, the number of poles and the input frequency source for slip calculation. Pulse Number Input Range: ± 1 to 60000 Poles Number Input Range: Any even value from 2 to 254 Slip Input Range: 0 (fU1), 1 (fU2), 2 (fU3), 3 (fU4), 4 (fU5), 5 (fU6), 6 (fU7), 7 (fU8), 8 (fI1), 9 (fI2), 10 (fI3), 11 (fI4), 12 (fI5), 13 (fI6), 14 (fI7), 15 (fI8)

Output



Name	Data Type	Explanation
Speed Config out		Outputs the query results of the pulse number, the number of poles and the input frequency source for slip calculation.

3.14.13 HIOKI PW8001 Conf Motor Analog Speed.vi


Sets and reads the RPM scaling, the number of poles and the input frequency source for slip calculation of the specified motor channel.



Input

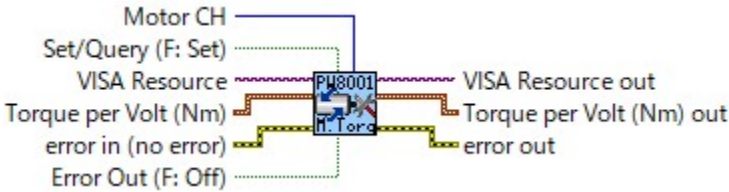
Name	Data Type	Explanation
Motor CH		Specifies the motor channel. Input Range: 0 (CHC), 1 (CHG)
Speed Config		Sets the RPM scaling, the number of poles and the input frequency source for slip calculation. Speed per Volt (r/min) Input Range: ± 0.00001 to 99999.9 Poles Number Input Range: Any even value from 2 to 254 Slip Input Range: 0 (fU1), 1 (fU2), 2 (fU3), 3 (fU4), 4 (fU5), 5 (fU6), 6 (fU7), 7 (fU8), 8 (fI1), 9 (fI2), 10 (fI3), 11 (fI4), 12 (fI5), 13 (fI6), 14 (fI7), 15 (fI8)

Output



Name	Data Type	Explanation
Speed Config out		Outputs the query results of the RPM scaling, the number of poles and the input frequency source for slip calculation.

3.14.14 HIOKI PW8001 Conf Motor Torque.vi


Sets and reads the torque scaling of the specified motor channel.



Input

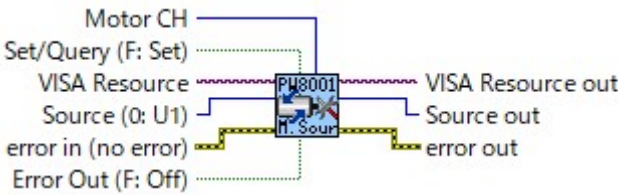
Name	Data Type	Explanation
Motor CH		Specifies the motor channel. Input Range: 0 (CHA), 1 (CHB), 2 (CHC), 3 (CHE) , 4 (CHF), 5 (CHG)
Torque per Volt (Nm)		Sets the torque scaling. Value Input Range: ± 0.01 to 9999.99 Unit Input Range: 0 (k), 1 (), 2 (m)

Output

Name	Data Type	Explanation
Torque per Volt (Nm) out		Outputs the query results of the torque scaling.

3.14.15 HIOKI PW8001 Conf Motor Source.vi

Sets and reads the motor synchronization source of the specified motor channel.



Input

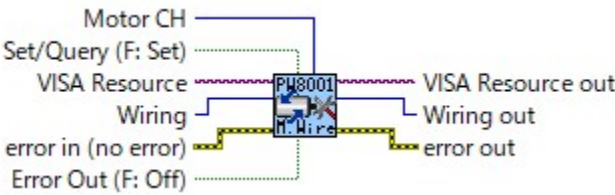
Name	Data Type	Explanation
Motor CH		Specifies the motor channel. Input Range: 0 (CHA), 1 (CHC), 2 (CHE), 3 (CHG)
Source (0: U1)		Sets the motor synchronization source. Input Range: 0 (U1), 1 (U2), 2 (U3), 3 (U4), 4 (U5), 5 (U6), 6 (U7), 7 (U8), 8 (I1), 9 (I2), 10 (I3), 11 (I4), 12 (I5), 13 (I6), 14 (I7), 15 (I8), 16 (DC), 17 (Ext1), 18 (Ext2), 19 (Ext3), 20 (Ext4), 21 (Zph1), 22 (Zph3), 23 (CHB), 24 (CHD), 25 (CHF), 26 (CHH)

Output

Name	Data Type	Explanation
Source out		Outputs the query results of the motor synchronization source.

3.14.16 HIOKI PW8001 Conf Motor Wiring.vi

Sets and reads the motor wiring including the specified motor channel.



Input

Name	Data Type	Explanation
Motor CH		Specifies the motor channel. Input Range: 0 (CHA), 1 (CHB), 2 (CHC), 3 (CHD), 4 (CHE), 5 (CHF), 6 (CHG), 7 (CHH)
Wiring		Sets the motor wiring. Input Range: 0 (Individual input), 1 (Torque Speed (Pulse)) , 2 (Torque Speed Direction Origin) , 3 (Torque Speed Direction) , 4 (Torque Speed Origin) , 5 (Torque Speed (Analog))

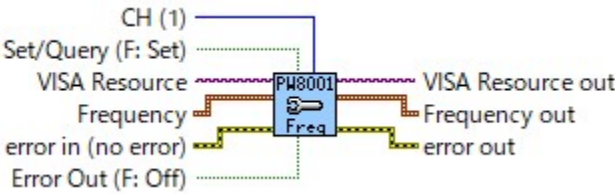
Output

Name	Data Type	Explanation
Wiring out		Outputs the query results of the motor wiring.



3.15 Setting Frequency

3.15.1 HIOKI PW8001 Conf Frequency.vi


Sets and reads the functions related to frequency measurement.



Input

Name	Data Type	Explanation
CH (1)		Specifies the channel. Input Range: 1 (Default) to 8
Frequency		Sets the upper and lower measurement frequency limit and the frequency (HPF) for the zero-cross filter. Upper (9: 2MHz) Input Range: 0 (100Hz), 1 (500Hz), 2 (1kHz), 3 (5kHz), 4 (10kHz), 5 (50kHz), 6 (100kHz), 7 (500kHz), 8 (1MHz), 9 (2MHz: Default) Lower (0: 0.1Hz) Input Range: 0 (0.1Hz), 1 (1Hz), 2 (10Hz), 3 (100Hz), 4 (1kHz), 5 (10kHz), 6 (100kHz) Hpf (1: ON) Input Range: 0 (OFF), 1 (ON)

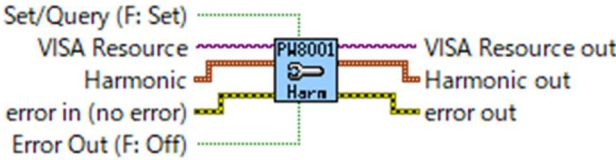
Output

Name	Data Type	Explanation
Frequency out		Outputs the query results of the upper and lower measurement frequency limit and the frequency (HPF) for the zero-cross filter.


3.16 Harmonic Measurement

3.16.1 HIOKI PW8001 Conf Harmonic.vi


Sets and reads the functions related to the Harmonic measurement.



Input

Name	Data Type	Explanation
Harmonic		<p>Sets the grouping, the maximum analysis order and the THD calculation for harmonics measurement.</p> <p>Grouping (1: TYPE1) Input Range: 0 (OFF), 1 (TYPE1: Default), 2 (TYPE2)</p> <p>Order Input Range: 2 to 500 (Default)</p> <p>THD Input Range: 0 (F: Default), 1 (R)</p> <p>Note: F: THD-F (Reference fundamental wave) R: THD-R (Total reference harmonics)</p>

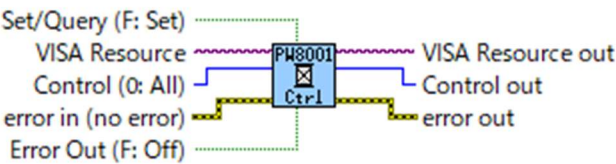
Output

Name	Data Type	Explanation
Harmonic out		Outputs the query results of the grouping, the maximum analysis order and the THD calculation for harmonics measurement.

3.17 Integration

3.17.1 HIOKI PW8001 Conf Integ Control.vi

Sets and reads the integration control method.



Input

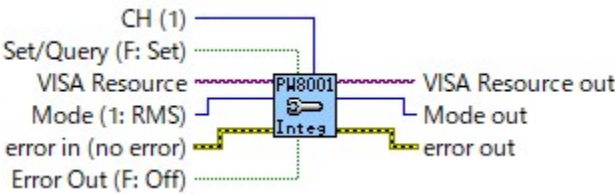
Name	Data Type	Explanation
Control (0: All)		Specifies the integration control method. Input Range: 0 (All: Default), 1 (Each) Note: ALL: All wiring integration EACH: Each wiring integration

Output

Name	Data Type	Explanation
Control out		Outputs the query results of the integration control method.

3.17.2 HIOKI PW8001 Conf Integrate.vi

Sets and reads the functions related to the Integration Mode.



Input

Name	Data Type	Explanation
CH (1)		Specifies the channel. Input Range: 1 (Default) to 8
Mode (1: RMS)		Sets integration mode. Input Range: 0 (DC), 1 (RMS: Default) Note: Integration DC mode can be set only in 1P2W wiring.

Output

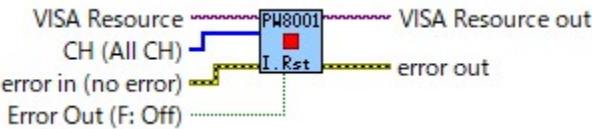
Name	Data Type	Explanation
Mode out		Outputs the query results of integration mode.

3.17.3 HIOKI PW8001 Integrate Reset.vi

Resets integrated data.

Note:

This action is the same with the one by the DATA RESET key of the instrument.
This command is valid only when integration state is in STOP.

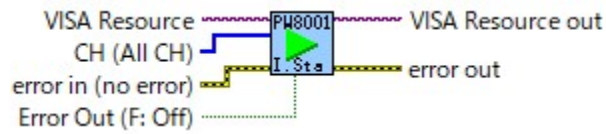


Input


Name	Data Type	Explanation
CH (All CH)		<p>Specifies the channel. Input Range: 1 to 8</p> <p>No input Resets the integrated data of all wiring integration. It is valid only for all wiring integration.</p> <p>Input Resets the integrated data of the wiring including the channel specified by the parameter. It is valid only for each wiring.</p>

3.17.4 HIOKI PW8001 Integrate Start.vi

Starts integration (time control).



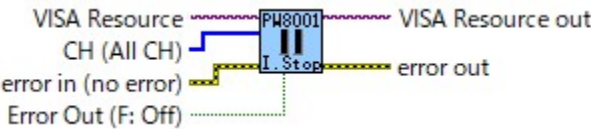
Input

Name	Data Type	Explanation
CH (All CH)		<p>Specifies the channel. Input Range: 1 to 8</p> <p>No input Starts the integration of all wiring integration. It is valid only for all wiring integration.</p> <p>Input Starts the integration of the wiring including the channel specified by the parameter. It is valid only for each wiring.</p>


3.17.5 HIOKI PW8001 Integrate Stop.vi

Stops integration (time control).

Note:
This command is valid only when integration state is in RUN/WAIT.

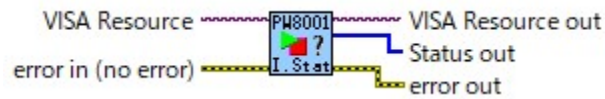


Input

Name	Data Type	Explanation
CH (All CH)		<p>Specifies the channel. Input Range: 1 to 8</p> <p>No input Stops the integration of all wiring integration. It is valid only for all wiring integration.</p> <p>Input Stops the integration of the wiring including the channel specified by the parameter. It is valid only for each wiring.</p>

3.17.6 HIOKI PW8001 Integrate Status.vi

Reads the integration (time control) state.



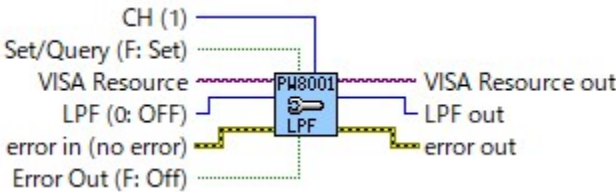
Output

Name	Data Type	Explanation
Status out		<p>Outputs the query results of integration state of the instrument. Output Value: 0 (RESET), 1 (STOP), 2 (WAIT), 3 (RUN), 4 (OTHER), 5 (0ADJ)</p> <p>Note:</p> <p>RESET : Integration is in reset STOP : Integration is in stop WAIT : Integration is in standby RUN : Integration is in process OTHER : States other than the above 0ADJ : Zero adjustment is in process</p> <p>The number of responses may vary depending on the setting of the integration control method.</p>

3.18 Lowpass Filter

3.18.1 HIOKI PW8001 Conf LPF.vi

Sets and reads the cutoff frequency for lowpass filter (LPF).



Input

Name	Data Type	Explanation
CH (1)		Specifies the channel. Input Range: 1 (Default) to 8
LPF (0: OFF)		Sets the cutoff frequency for lowpass filter (LPF). Input Range: 0 (OFF: Default), 1 (500Hz), 2 (1kHz), 3 (5kHz), 4 (10kHz), 5 (50kHz), 6 (100kHz), 7 (500kHz), 8 (2MHz) Note: Depending on the combination of lines to be measured, lowpass filter (LPF) settings for other channels combined will be changed. Only the U7005 Input Unit can set the cutoff frequency to 2MHz.

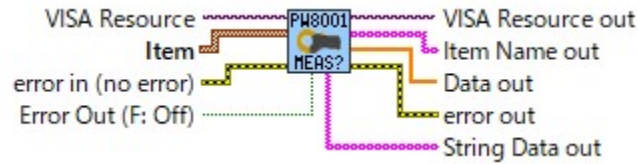
Output

Name	Data Type	Explanation
LPF out		Outputs the query results of the cutoff frequency for lowpass filter (LPF).

3.19 Measured Value Acquisition

3.19.1 HIOKI PW8001 Measure with Item.vi

Reads the measurement data with item designation mode.
This VI is selectable from “HIOKI PW8001 Measure.vi”.



Input

Name	Data Type	Explanation
Item		Creates measurement data specified by the <Item>. Number of maximum items is 800. The data is created in the order as specified by the <Item>.

Output

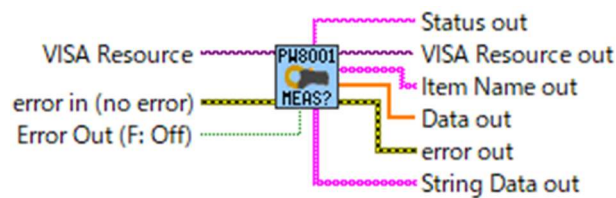
Name	Data Type	Explanation
Item Name out		Outputs the query results of the name of the specified item.
Data out		Outputs the query results of measurement data.
String Data out		Outputs the query results of measurement data in a string.

3.19.2 HIOKI PW8001 Measure with NoItem.vi





Reads the measurement data with no item designation mode.
This VI is selectable from “HIOKI PW8001 Measure.vi”.

Note:

Creates measurement data for the item specified by "HIOKI PW8001 Conf MeasureItem.vi".
In this case, the order of the measurement data is fixed. (See 4.2 List and Order of Direct Specification Items for HIOKI PW8001 Measure.vi).



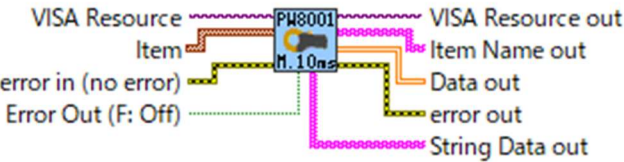
Output

Name	Data Type	Explanation
Status out		Outputs the query results of the status data.
Item Name out		Outputs the query results of the name of the measurement item.
Data out		Outputs the query results of measurement data.
String Data out		Outputs the query results of measurement data in a string.


3.19.3 HIOKI PW8001 Measure 10ms with Item.vi

Reads the measurement data with item designation mode. (Interval: 10 ms)
 This VI is selectable from “HIOKI PW8001 Measure 10ms.vi”.




Note:
 Even when this query is sent continuously, the measurement data to be output is not duplicated.
 Therefore, a response may be returned after the data update has been put in standby.



Input

Name	Data Type	Explanation
Item		Creates measurement data specified by the <Item>. Number of maximum items is 800. The data is created in the order as specified by the <Item>. Returns the measurement data every 10ms for 5 samples collectively as the response. When the data refresh rate is 50ms or more, the measurement data for 1 sample is output.

Output

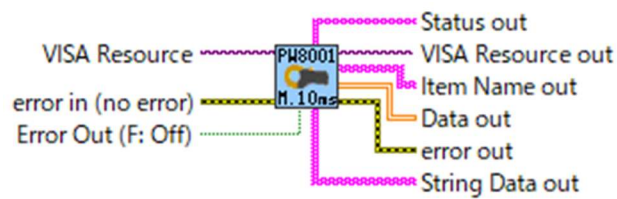
Name	Data Type	Explanation
Item Name out		Outputs the query results of the name of the specified item.
Data out		Outputs the query results of measurement data.
String Data out		Outputs the query results of measurement data in a string.

3.19.4 HIOKI PW8001 Measure 10ms with Noltem.vi





Reads the measurement data with no item designation mode. (Interval: 10 ms)
This VI is selectable from "HIOKI PW8001 Measure 10ms.vi".

Note:

- Even when this query is sent continuously, the measurement data to be output is not duplicated. Therefore, a response may be returned after the data update has been put in standby.
- Creates measurement data for the item specified by "HIOKI PW8001 Conf MeasureItem.vi". In this case, the order of the measurement data is fixed. (See 4.2 List and Order of Direct Specification Items for HIOKI PW8001 Measure.vi).



Output

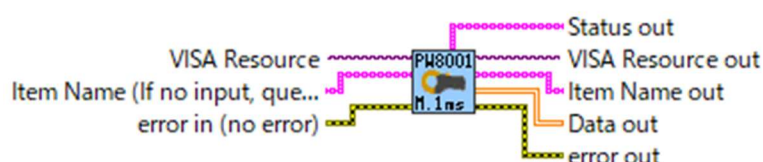
Name	Data Type	Explanation
Status out		Outputs the query results of the status data.
Item Name out		Outputs the query results of the name of the measurement item.
Data out		Outputs the query results of measurement data.
String Data out		Outputs the query results of measurement data in a string.

3.19.5 HIOKI PW8001 Measure 1ms with Noltem.vi


Reads the measurement data with no item designation mode. (Minimum 1ms Interval)
 If the data refresh rate is 1 ms, 100 samples of data are read in ascending order.
 If the data refresh rate is 10 ms, 10 samples of data are read in ascending order.
 If the data refresh rate is other than the above, one sample of data is read in ascending order.
 This VI is selectable from "HIOKI PW8001 Measure 1ms.vi".

Note:




- Even when this query is sent continuously, the measurement data to be output is not duplicated.
 Therefore, a response may be returned after the data update has been put in standby.
- Creates measurement data for the item specified by "HIOKI PW8001 Conf MeasureItem.vi".
 In this case, the order of the measurement data is fixed. (See 4.2 List and Order of Direct Specification Items for HIOKI PW8001 Measure.vi).



Input

Name	Data Type	Explanation
Item Name (If no input, query item name)		Enter the name of the specified item. By entering the name, it is expected to shorten the time required for processing. If no entry, the specified item name is queried and output. Note The order of the measurement data is fixed. (See 4.2 List and Order of Direct Specification Items for HIOKI PW8001 Measure.vi). Note that the data will not be sorted in the order of the names entered here.

Output

Name	Data Type	Explanation
Status out		Outputs the query results of the status data.
Item Name out		Outputs the query results of the name of the measurement item.
Data out		Outputs the query results of measurement data.

3.19.6 HIOKI PW8001 Measure 1ms Item Name.vi

Reads the pre-specified item names used in "HIOKI PW8001 Measure 1ms with NoItem.vi".
This VI is selectable from "HIOKI PW8001 Measure 1ms.vi".

Note:

Creates the item name specified in "HIOKI PW8001 Conf MeasureItem.vi".

In this case, the order of the item name is fixed. (See 4.2 List and Order of Direct Specification Items for HIOKI PW8001 Measure.vi).

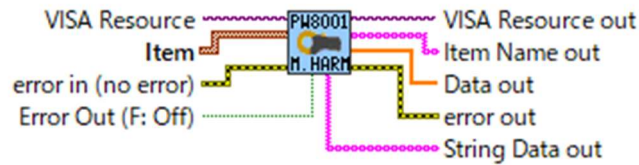


Output


Name	Data Type	Explanation
Item Name out		Outputs the query results of the name of the specified measurement item.

3.19.7 HIOKI PW8001 Measure Harmonic with Item.vi




Reads the harmonic measurement data with item designation mode.
This VI is selectable from “HIOKI PW8001 Measure Harmonic.vi”.



Input

Name	Data Type	Explanation
Item		Creates measurement data specified by the <Item>. Number of maximum items is 800. The data is created in the order as specified by the <Item>.

Output

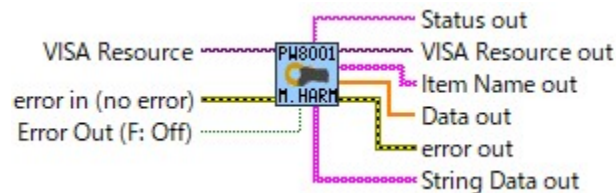
Name	Data Type	Explanation
Item Name out		Outputs the query results of the name of the specified item.
Data out		Outputs the query results of measurement data.
String Data out		Outputs the query results of measurement data in a string.

3.19.8 HIOKI PW8001 Measure Harmonic with Noltem.vi

Reads the measurement data with no item designation mode.
This VI is selectable from “HIOKI PW8001 Measure Harmonic.vi”.

Note:

Creates measurement data for the item specified by "HIOKI PW8001 Conf MeasureItem Harmonic.vi".
In this case, the order of the measurement data is fixed. (See 4.5 List and Order of Direct Specification Items for HIOKI PW8001 Measure Harmonic.vi).



Output

Name	Data Type	Explanation
Status out		Outputs the query results of the status data.
Item Name out		Outputs the query results of the name of the measurement item.
Data out		Outputs the query results of measurement data.
String Data out		Outputs the query results of measurement data in a string.

3.19.9 HIOKI PW8001 Conf MeasureItem AllClear.vi

Initializes communication output data Items.

All the communication output data Items will be turned OFF.

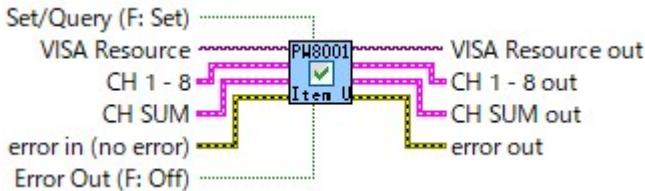


3.19.10 HIOKI PW8001 Conf MeasureItem U.vi

Sets and reads communication output items of voltage data and total voltage data.
This VI is selectable from "HIOKI PW8001 Conf MeasureItem.vi".

Note:

This VI specifies the output measurement item for "HIOKI PW8001 Measure with NoItem.vi", "HIOKI PW8001 Measure 10ms with NoItem.vi" and "HIOKI PW8001 Measure 1ms with NoItem.vi".



Input

Name	Data Type	Explanation
CH1 - 8		Sets communication output items of voltage data.
CH SUM		Sets communication output items of total voltage data.

Output

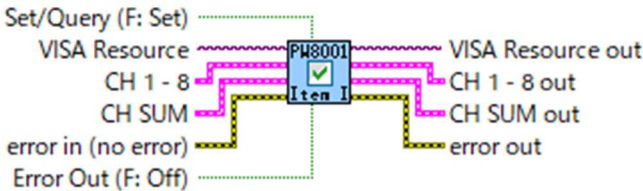
Name	Data Type	Explanation
CH 1 - 8 out		Outputs the query results of communication output items of voltage data.
CH SUM out		Outputs the query results of communication output items of total voltage data.

3.19.11 HIOKI PW8001 Conf MeasureItem I.vi

Sets and reads communication output items of current data and total current data.
This VI is selectable from "HIOKI PW8001 Conf MeasureItem.vi".

Note:

This VI specifies the output measurement item for "HIOKI PW8001 Measure with NoItem.vi", "HIOKI PW8001 Measure 10ms with NoItem.vi" and "HIOKI PW8001 Measure 1ms with NoItem.vi".



Input

Name	Data Type	Explanation
CH1 - 8		Sets communication output items of current data.
CH SUM		Sets communication output items of total current data.

Output

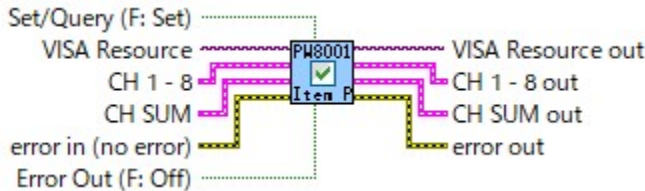
Name	Data Type	Explanation
CH 1 - 8 out		Outputs the query results of communication output items of current data.
CH SUM out		Outputs the query results of communication output items of total current data.

3.19.12 HIOKI PW8001 Conf MeasureItem P.vi

Sets and reads communication output items of power data and total power data.
This VI is selectable from "HIOKI PW8001 Conf MeasureItem.vi".

Note:

This VI specifies the output measurement item for "HIOKI PW8001 Measure with NoItem.vi", "HIOKI PW8001 Measure 10ms with NoItem.vi" and "HIOKI PW8001 Measure 1ms with NoItem.vi".



Input

Name	Data Type	Explanation
CH1 - 8		Sets communication output items of power data.
CH SUM		Sets communication output items of total power data.

Output

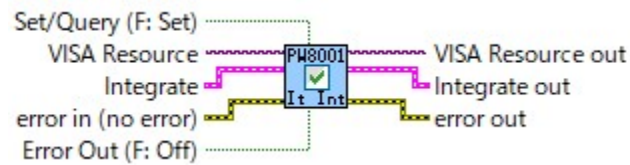
Name	Data Type	Explanation
CH 1 - 8 out		Outputs the query results of communication output items of power data.
CH SUM out		Outputs the query results of communication output items of total power data.

3.19.13 HIOKI PW8001 Conf MeasureItem Integrate.vi


Sets and reads communication output items of integration data.
This VI is selectable from "HIOKI PW8001 Conf MeasureItem.vi".

Note:


This VI specifies the output measurement item for "HIOKI PW8001 Measure with Noltem.vi", "HIOKI PW8001 Measure 10ms with Noltem.vi" and "HIOKI PW8001 Measure 1ms with Noltem.vi".



Input

Name	Data Type	Explanation
Integrate		Sets communication output items of integration data.

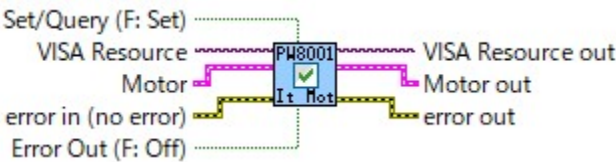
Output

Name	Data Type	Explanation
Integrate out		Outputs the query results of communication output items of integration data.


3.19.14 HIOKI PW8001 Conf MeasureItem Motor.vi

Sets and reads communication output items of motor data.
This VI is selectable from “HIOKI PW8001 Conf MeasureItem.vi”.


Note:
This VI specifies the output measurement item for "HIOKI PW8001 Measure with NoItem.vi", "HIOKI PW8001 Measure 10ms with NoItem.vi" and "HIOKI PW8001 Measure 1ms with NoItem.vi".



Input

Name	Data Type	Explanation
Motor		Sets communication output items of motor data.

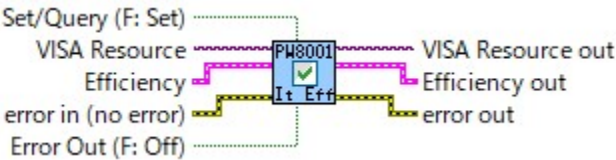
Output

Name	Data Type	Explanation
Motor out		Outputs the query results of communication output items of motor data.


3.19.15 HIOKI PW8001 Conf MeasureItem Efficiency.vi

Sets and reads communication output items of efficiency and loss data.
This VI is selectable from "HIOKI PW8001 Conf MeasureItem.vi".


Note:
This VI specifies the output measurement item for "HIOKI PW8001 Measure with Noltem.vi", "HIOKI PW8001 Measure 10ms with Noltem.vi" and "HIOKI PW8001 Measure 1ms with Noltem.vi".



Input

Name	Data Type	Explanation
Efficiency		Sets communication output items of efficiency and loss data.

Output

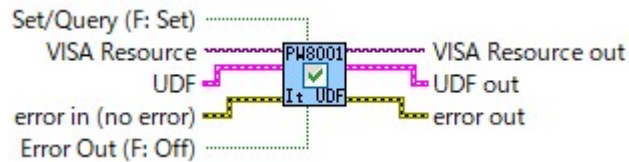
Name	Data Type	Explanation
Efficiency out		Outputs the query results of communication output items of efficiency and loss data.

3.19.16 HIOKI PW8001 Conf MeasureItem UDF.vi


Sets and reads communication output items of user-defined formulas (UDF).
This VI is selectable from "HIOKI PW8001 Conf MeasureItem.vi".

Note:


This VI specifies the output measurement item for "HIOKI PW8001 Measure with Noltem.vi", "HIOKI PW8001 Measure 10ms with Noltem.vi" and "HIOKI PW8001 Measure 1ms with Noltem.vi".



Input

Name	Data Type	Explanation
UDF		Sets communication output items of UDF.

Output

Name	Data Type	Explanation
UDF out		Outputs the query results of communication output items of UDF.

3.19.17 HIOKI PW8001 Conf MeasureItem Harmonic AllClear.vi

Initializes communication output harmonic data Items.

All the communication output harmonic data Items will be turned OFF.

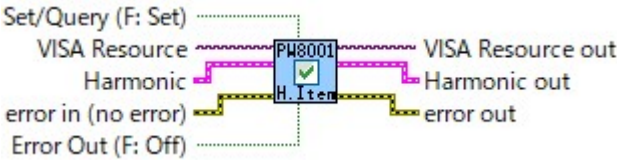


3.19.18 HIOKI PW8001 Conf MeasureItem Harmonic.vi


Sets and reads the communication output items of the harmonic measurement data.

Note:


This VI specifies the output measurement item for "HIOKI PW8001 Measure Harmonic with NoItem.vi".



Input

Name	Data Type	Explanation
Harmonic		<p>List: Sets communication output items of harmonic data.</p> <p>Order Min: Sets the lower limit order. Input Range: 0 (Default) to 100 Max: Sets the upper limit order. Input Range: 0 (Default) to 100 Select (2: All): Sets the output order. Input Range: 0 (ODD), 1 (EVEN), 2 (ALL: Default) Note: ODD : Odd order only EVEN : Even order only ALL : All orders</p>

Output

Name	Data Type	Explanation
Harmonic out		Outputs the query results of communication output items of harmonic data.

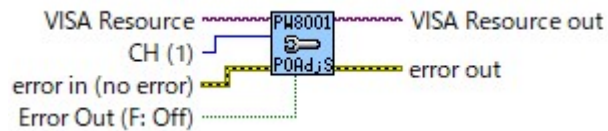
3.20 Phase Zero Adjustment

3.20.1 HIOKI PW8001 Phase ZeroAdjust Set.vi

Executes phase zero adjustment of wiring including a specified channel.
This VI is selectable from “HIOKI PW8001 Phase Adjust.vi”.

Note:

If a selected synchronous source of a wiring connection including a specified channel is other than Ext1 to Ext4, a command execution error occurs.



Input

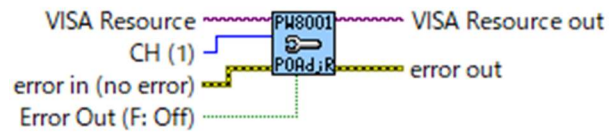
Name	Data Type	Explanation
CH (1)		Sets the Input unit. Input Range: 1 (Default) to 8

3.20.2 HIOKI PW8001 Phase ZeroAdjust Reset.vi


Resets the phase zero adjustment value of a wiring connection including a specified channel.
This VI is selectable from “HIOKI PW8001 Phase Adjust.vi”.

Note:

If a selected synchronous source of a wiring connection including a specified channel is other than Ext1 to Ext4, a command execution error occurs.



Input

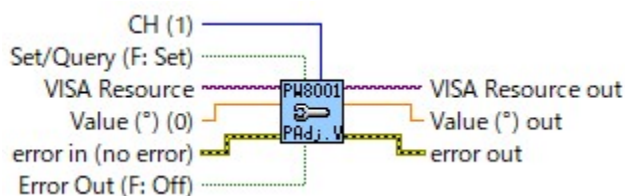
Name	Data Type	Explanation
CH (1)		Sets the Input unit. Input Range: 1 (Default) to 8

3.20.3 HIOKI PW8001 Phase Adjust Value.vi

Sets the phase zero adjustment degree of a wiring connection including a specified channel.
This VI is selectable from “HIOKI PW8001 Phase Adjust.vi”.

Note:

If a selected synchronous source of a wiring connection including a specified channel is other than Ext1 to Ext4, the setting cannot be made, and therefore, a command execution error occurs.



Input

Name	Data Type	Explanation
CH (1)		Specifies the channel. Input Range: 1 (Default) to 8
Value (°) (0)		Sets the phase zero adjustment degree. Input Range: -180.0000 to +180.0000

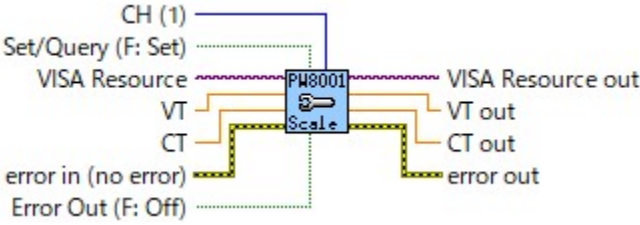
Output

Name	Data Type	Explanation
Value (°) out		Outputs the query results of the phase zero adjustment degree.

3.21 Scaling

3.21.1 HIOKI PW8001 Conf Scale.vi

Sets and reads the CT, VT.



Input

Name	Data Type	Explanation
CH (1)		Specifies the channel. Input Range: 1 (Default) to 8
VT		Sets a VT ratio for a specified channel. Input Range: 0.00001 to 9999.99 (1.00: Default) Note: The OFF setting for VT ratio is 1.0. The query response to OFF is 0001.00. Setting for other channel combined with measurement line will be changed.
CT		Sets a CT ratio for a specified channel. Input Range: 0.00001 to 9999.99 (1.00: Default) Note: The OFF setting for CT ratio is 1.0. The query response to OFF is 0001.00. Setting for other channel combined with measurement line will be changed. VT x CT must not exceed 1.0E+06.

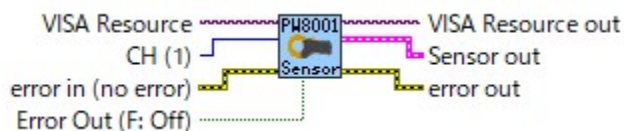
Output

Name	Data Type	Explanation
VT out		Outputs the query results of the VT ratio for specified channel.
CT out		Outputs the query results of the CT ratio for specified channel.


3.22 Acquisition of Sensor Information

3.22.1 HIOKI PW8001 Sensor.vi


Reads the information of the sensor connected to the specified channel.



Input

Name	Data Type	Explanation
CH (1)		Specifies the channel. Input Range: 1 (Default) to 8

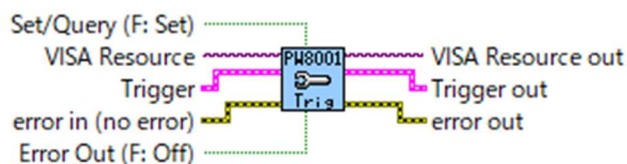
Output

Name	Data Type	Explanation
Sensor out		Outputs the query results of the information of the sensor. Sensor: Sensor type Rate: Rated value of sensor Serial number: Sensor serial number


3.23 Trigger

3.23.1 HIOKI PW8001 Conf Trigger General.vi


Sets and reads the general settings of the trigger function.



Input

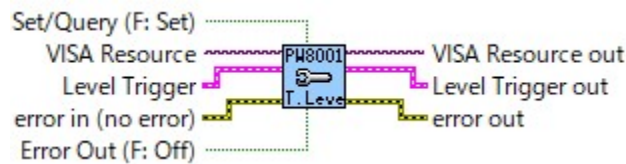
Name	Data Type	Explanation
Trigger		<p>Sets the trigger settings.</p> <p>Auto Trigger (F: OFF) Input Range: False (OFF: Default), True (ON)</p> <p>PreTrig (%) (0: 0) Input Range: 0 (0: Default), 1 (10), 2 (20), 3 (30), 4 (40), 5 (50), 6 (60), 7 (70), 8 (80), 9 (90), 10 (100),</p>

Output


Name	Data Type	Explanation
Trigger out		Outputs the query results of the trigger settings.

3.23.2 HIOKI PW8001 Conf Trigger Level.vi


Sets and reads the settings of the level trigger.



Input

Name	Data Type	Explanation
Level Trigger		<p>Sets the level trigger settings.</p> <p>Source (0: U1) Input Range: 0 (U1: Default), 1 (U2), 2 (U3), 3 (U4), 4 (U5), 5 (U6), 6 (U7), 7 (U8), 8 (I1), 9 (I2), 10 (I3), 11 (I4), 12 (I5), 13 (I6), 14 (I7), 15 (I8), 16 (U1FILT), 17 (U2FILT), 18 (U3FILT), 19 (U4FILT), 20 (U5FILT), 21 (U6FILT), 22 (U7FILT), 23 (U8FILT), 24 (I1FILT), 25 (I2FILT), 26 (I3FILT), 27 (I4FILT), 28 (I5FILT), 29 (I6FILT), 30 (I7FILT), 31 (I8FILT), 32 (EXT1), 33 (EXT2), 34 (EXT3), 35 (EXT4), 36 (CHA), 37 (CHB), 38 (CHC), 39 (CHD), 40 (CHE), 41 (CHF), 42 (CHG), 43 (CHH)</p> <p>Note: U1 - I8: Voltage and current waveforms (Zero-cross Filter OFF) U1FILT - I8FILT: Voltage and current waveforms (Zero-cross Filter ON) EXT1 - CHH: Motor waveform</p> <p>Slope (0: RISING) Input Range: 0 (RISING: Default), 1 (FALLING) Note: RISING: Rising edge FALLING: Falling edge</p> <p>Level (%) (0) Input Range: -300.0 to 300.0</p> <p>ZC Filter (F: OFF) Input Range: False (OFF: Default), True (ON) Note: ON: Zero-cross filter ON OFF: Zero-cross filter OFF</p>

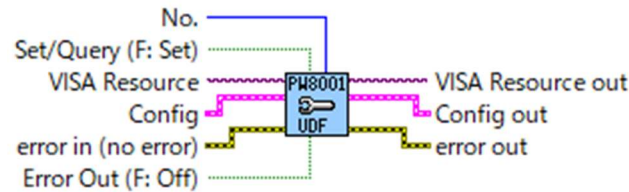
Output

Name	Data Type	Explanation
Level Trigger out		Outputs the query results of the level trigger settings.

3.24 User-defined Formulas

3.24.1 HIOKI PW8001 Conf UDF.vi

Sets and reads functions related to user-defined formulas (UDF).




Input

Name	Data Type	Explanation
No.		Specifies the UDF number. Input Range: 1 (Default) to 20
Config		Sets for the UDF settings of the specified number. Name Sets formula names for UDF. Max Auto (T: ON) Sets automatic maximum value setting function for UDF. Input Range: False (OFF), True (ON: Default) Max Value (Valid when Auto: OFF) Sets a maximum value for UDF. Input Range: 1.00000n~999.999T Note Valid only when Auto is OFF. Integ (F: OFF) Sets Integration function for UDF. Input Range: False (OFF: Default), True (ON) Unit Set a unit for UDF. Term1 Set up first item in the UDF. Function (0: OFF) Sets a basic formula for UDF. Input Range: 0 (none: Default), 1 (neg), 2 (sin), 3 (cos), 4 (tan), 5 (abs), 6 (log10), 7 (log), 8 (exp), 9 (sqrt), 10 (asin), 11 (acos), 12 (atan), 13 (sqr) Item Sets items for UDF. Const Value (Valid when Item: Const) Set a constant used for UDF. Input Range: $\pm 1.00000n \sim \pm 999.999T$ Term 2 - 16

		Set up 2 to 16 items in the UDF. Operator (0: none) Sets operator for UDF. Input Range: 0 (none: Default), 1 (+), 2 (-), 3 (*), 4 (/) Function (0: none) Item Const Value (Valid when Item: Const)
--	--	--

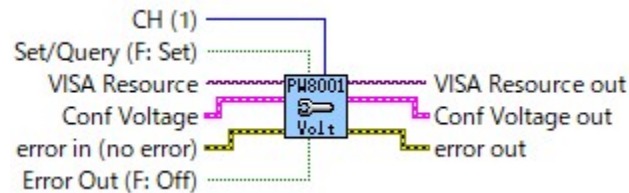
Output

Name	Data Type	Explanation
Config out		Outputs the query results of the UDF settings of the specified number.



3.25 Voltage Input

3.25.1 HIOKI PW8001 Conf Voltage.vi

Sets and reads the functions related to voltage.




Input

Name	Data Type	Explanation
CH (1)		Specifies the channel. Input Range: 1 (Default) to 8
Conf Voltage		<p>Sets for the voltage settings.</p> <p>Range Auto (F: OFF) Input Range: False (OFF: Default), True (ON)</p> <p>Note: When Auto is set to OFF, the Manual setting is enabled.</p> <p>Manual (V) (7: 1500) Input Range: 0 (6), 1 (15), 2 (30), 3 (60), 4 (150), 5 (300), 6 (600: Default), 7 (1500)</p> <p>Note: After you change the range, wait a few moments until the internal circuitry stabilizes before you read any measured values.</p> <p>Phase Shift Correct (0: OFF) Sets phase correction formulas for voltage. Input Range: 0 (OFF: Default), 1 (ON)</p> <p>Note: OFF: Does not perform phase compensation calculation for voltage. ON: Performs the phase compensation calculation for voltage.</p> <p>Frequency Sets phase correction frequency for voltage. (The unit is [kHz].) Input Range: 0.1 to 5000.0 (0.1: Default)</p> <p>Degree Sets phase correction angle for voltage. (The unit is [°].) Input Range: -180.0 to 180.0 (0.0: Default)</p> <p>Mean (F: OFF)</p>

		Input Range: False (RMS: Default), True (MEAN)
--	--	--

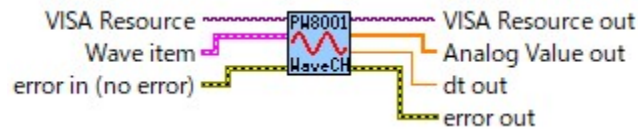
Output

Name	Data Type	Explanation
Conf Voltage out		Outputs the query results of the voltage settings.


3.26 Regarding Waveforms

3.26.1 HIOKI PW8001 Measure Wave_CH.vi



Reads the analog wave data. This VI is valid only when connected to LAN.
This VI is selectable from “HIOKI PW8001 Measure Wave.vi”.



Input

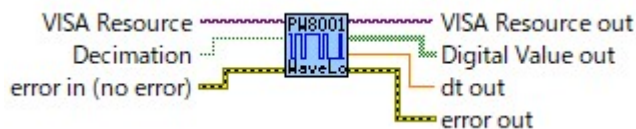
Name	Data Type	Explanation
Wave item		<p>Creates analog wave data specified by the <Item>.</p> <p>Item Input Range: 0 (U1), 1 (U2), 2 (U3), 3 (U4), 4 (U5), 5 (U6), 6 (U7), 7 (U8), 8 (I1), 9 (I2), 10 (I3), 11 (I4), 12 (I5), 13 (I6), 14 (I7), 15 (I8), 16 (A), 17 (C), 18 (E), 19 (G)</p> <p>Note: Motor waveforms (A, C, E, and G) can only be acquired with products with motor analysis option. Motor waveforms can not be acquired when the input setting is Pulse.</p> <p>Decimation Input Range: False (OFF), True (ON)</p> <p>Note: To acquire waveform data for decimation in frequency, select decimation is ON.</p>

Output

Name	Data Type	Explanation
Analog Value out		Outputs the query results of wave data.
dt out		Outputs the query results of time resolution data.

3.26.2 HIOKI PW8001 Measure Wave_LOGIC.vi

Reads the Logic waveform data from Motor CHs. This VI is valid only when connected to LAN.
This VI is selectable from “HIOKI PW8001 Measure Wave.vi”.



Input

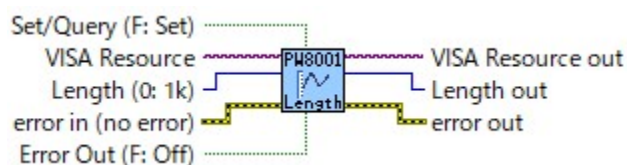
Name	Data Type	Explanation
Decimation		Decimation Input Range: False (OFF), True (ON) Note: To acquire waveform data for decimation in frequency, select decimation is ON.

Output

Name	Data Type	Explanation
Digital Value out		Outputs the query results of Logic waveform data from Motor CHs.
dt out		Outputs the query results of time resolution data.

3.26.3 HIOKI PW8001 Conf Wave Length.vi

Sets and reads the recording length for a waveform.



Input

Name	Data Type	Explanation
Length (0: 1k)		Sets a recording length for a waveform. The unit is word. Input Range: 0 (1k: Default), 1 (5k), 2 (10k), 3 (50k), 4 (100k), 5 (500k), 6 (1M), 7 (5M)

Output


Name	Data Type	Explanation
Length out		Outputs the query results of recording length for a waveform.

3.26.4 HIOKI PW8001 Wave State.vi

Reads the waveform acquisition status.



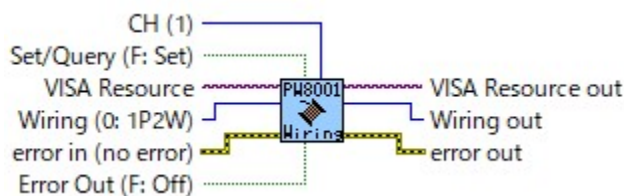
Output

Name	Data Type	Explanation
State out		<p>Outputs the query results of the waveform acquisition status. Output Value: 0 (STOP), 1 (WAIT_TRG), 2 (PRE_TRG), 3 (STORAGE), 4 (PROCESSING), 5 (ABORT)</p> <p>Note: STOP: Stop WAIT_TRG: Waiting for trigger PRE_TRG: Pre-trigger in progress STORAGE: Storage in progress PROCESSING: Compression in progress ABORT: Abort in progress</p>

3.27 Wiring Settings

3.27.1 HIOKI PW8001 Conf Wiring.vi

Sets and reads the wiring method with the specified channel used as the first channel.



Input

Name	Data Type	Explanation
CH (1)		Specifies the channel. Input Range: 1 (Default) to 8
Wiring (0: 1P2W)		Sets the wiring method with the specified channel used as the first channel. Input Range: 0 (1P2W: Default), 1 (1P3W), 2 (3P3W2M), 3 (3P3W3M), 4 (3V3A), 5 (3P4W)

Output

Name	Data Type	Explanation
Wiring out		Outputs the query results of the wiring method.

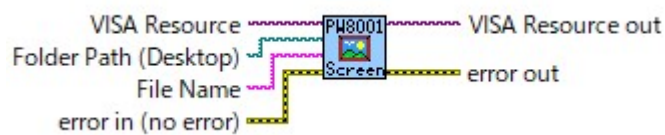
Note:

If the wiring method cannot be changed depending on the combination of connection data of a channel, a command execution error occurs.



3.28 Screenshot

3.28.1 HIOKI PW8001 ScreenShot.vi

The screen data displayed in PW8001 is acquired. This VI is valid only when connected to LAN.



Input

Name	Data Type	Explanation
Folder Path (Desktop)		Specifies the folder path to store the screenshot file.
File Name		Inputs the file name for screen data.

4. DATA Structure

4.1 Parameters for normal measurement items

Measurement item	Instru- ment's notation	Measurement item
Voltage RMS value	Urms	Urms1, Urms2, Urms3, Urms4, Urms5, Urms6, Urms7, Urms8, Urms12, Urms23, Urms34, Urms45, Urms56, Urms67, Urms78, Urms123, Urms234, Urms345, Urms456, Urms567, Urms678
Voltage average value rectifier RMS value equivalent	Umn	Umn1, Umn2, Umn3, Umn4, Umn5, Umn6, Umn7, Umn8, Umn12, Umn23, Umn34, Umn45, Umn56, Umn67, Umn78, Umn123, Umn234, Umn345, Umn456, Umn567, Umn678
Voltage AC component	Uac	Uac1, Uac2, Uac3, Uac4, Uac5, Uac6, Uac7, Uac8
Voltage simple average	Udc	Udc1, Udc2, Udc3, Udc4, Udc5, Udc6, Udc7, Udc8
Voltage fundamental wave component	Ufnd	Ufnd1, Ufnd2, Ufnd3, Ufnd4, Ufnd5, Ufnd6, Ufnd7, Ufnd8
Voltage waveform peak +	Upk+	PUpk1, PUpk2, PUpk3, PUpk4, PUpk5, PUpk6, PUpk7, PUpk8
Voltage waveform peak -	Upk-	MUpk1, MUpk2, MUpk3, MUpk4, MUpk5, MUpk6, MUpk7, MUpk8
Total voltage harmonic distortion	Uthd	Uthd1, Uthd2, Uthd3, Uthd4, Uthd5, Uthd6, Uthd7, Uthd8
Voltage ripple factor	Urf	Urf1, Urf2, Urf3, Urf4, Urf5, Urf6, Urf7, Urf8
Voltage unbalance rate	Uunb	Uunb123, Uunb234, Uunb345, Uunb456, Uunb567, Uunb678
Current RMS value	Irms	Irms1, Irms2, Irms3, Irms4, Irms5, Irms6, Irms7, Irms8, Irms12, Irms23, Irms34, Irms45, Irms56, Irms67, Irms78, Irms123, Irms234, Irms345, Irms456, Irms567, Irms678
Current average value rectifier RMS equivalent	Imn	Imn1, Imn2, Imn3, Imn4, Imn5, Imn6, Imn7, Imn8, Imn12, Imn23, Imn34, Imn45, Imn56, Imn67, Imn78, Imn123, Imn234, Imn345, Imn456, Imn567, Imn678
Current AC component	Iac	Iac1, Iac2, Iac3, Iac4, Iac5, Iac6, Iac7, Iac8
Current simple average	Idc	Idc1, Idc2, Idc3, Idc4, Idc5, Idc6, Idc7, Idc8
Current fundamental wave component	Ifnd	Ifnd1, Ifnd2, Ifnd3, Ifnd4, Ifnd5, Ifnd6, Ifnd7, Ifnd8
Current waveform peak +	Ipk+	PIpk1, PIpk2, PIpk3, PIpk4, PIpk5, PIpk6, PIpk7, PIpk8
Current waveform peak -	Ipk-	MIpk1, MIpk2, MIpk3, MIpk4, MIpk5, MIpk6, MIpk7, MIpk8
Total current harmonic distortion	Ithd	Ithd1, Ithd2, Ithd3, Ithd4, Ithd5, Ithd6, Ithd7, Ithd8
Current ripple factor	Irf	Irf1, Irf2, Irf3, Irf4, Irf5, Irf6, Irf7, Irf8
Current unbalance rate	Iunb	Iunb123, Iunb234, Iunb345, Iunb456, Iunb567, Iunb678
Active power	P	P1, P2, P3, P4, P5, P6, P7, P8, P12, P23, P34, P45, P56, P67, P78, P123, P234, P345, P456, P567, P678
Fundamental wave active power	Pfnd	Pfnd1, Pfnd2, Pfnd3, Pfnd4, Pfnd5, Pfnd6, Pfnd7, Pfnd8, Pfnd12, Pfnd23, Pfnd34, Pfnd45, Pfnd56, Pfnd67, Pfnd78, Pfnd123, Pfnd234, Pfnd345, Pfnd456, Pfnd567, Pfnd678
Apparent power	S	S1, S2, S3, S4, S5, S6, S7, S8, S12, S23, S34, S45, S56, S67, S78, S123, S234, S345, S456, S567, S678

Measurement item	Instru- ment's notation	Measurement item
Fundamental wave apparent power	Sfnd	Sfnd1, Sfnd2, Sfnd3, Sfnd4, Sfnd5, Sfnd6, Sfnd7, Sfnd8, Sfnd12, Sfnd23, Sfnd34, Sfnd45, Sfnd56, Sfnd67, Sfnd78, Sfnd123, Sfnd234, Sfnd345, Sfnd456, Sfnd567, Sfnd678
Reactive power	Q	Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q12, Q23, Q34, Q45, Q56, Q67, Q78, Q123, Q234, Q345, Q456, Q567, Q678
Fundamental wave reactive power	Qfnd	Qfnd1, Qfnd2, Qfnd3, Qfnd4, Qfnd5, Qfnd6, Qfnd7, Qfnd8, Qfnd12, Qfnd23, Qfnd34, Qfnd45, Qfnd56, Qfnd67, Qfnd78, Qfnd123, Qfnd234, Qfnd345, Qfnd456, Qfnd567, Qfnd678
Power factor	λ	PF1, PF2, PF3, PF4, PF5, PF6, PF7, PF8, PF12, PF23, PF34, PF45, PF56, PF67, PF78, PF123, PF234, PF345, PF456, PF567, PF678
Fundamental wave power factor	λ fnd	PFfnd1, PFfnd2, PFfnd3, PFfnd4, PFfnd5, PFfnd6, PFfnd7, PFfnd8, PFfnd12, PFfnd23, PFfnd34, PFfnd45, PFfnd56, PFfnd67, PFfnd78, PFfnd123, PFfnd234, PFfnd345, PFfnd456, PFfnd567, PFfnd678
Voltage phase angle	θ_U	Udeg1, Udeg2, Udeg3, Udeg4, Udeg5, Udeg6, Udeg7, Udeg8
Current phase angle	θ_I	Ideg1, Ideg2, Ideg3, Ideg4, Ideg5, Ideg6, Ideg7, Ideg8
Power phase angle	φ	DEG1, DEG2, DEG3, DEG4, DEG5, DEG6, DEG7, DEG8, DEG12, DEG23, DEG34, DEG45, DEG56, DEG67, DEG78, DEG123, DEG234, DEG345, DEG456, DEG567, DEG678
Voltage frequency	f _U	FU1, FU2, FU3, FU4, FU5, FU6, FU7, FU8
Current frequency	f _I	FI1, FI2, FI3, FI4, FI5, FI6, FI7, FI8
Positive integration current	I _{h+}	PIH1, PIH2, PIH3, PIH4, PIH5, PIH6, PIH7, PIH8
Negative integration current	I _{h-}	MIH1, MIH2, MIH3, MIH4, MIH5, MIH6, MIH7, MIH8
Positive and negative integration current sum	I _h	IH1, IH2, IH3, IH4, IH5, IH6, IH7, IH8
Positive integration power sum	WP+	PWP1, PWP2, PWP3, PWP4, PWP5, PWP6, PWP7, PWP8, PWP12, PWP23, PWP34, PWP45, PWP56, PWP67, PWP78, PWP123, PWP234, PWP345, PWP456, PWP567, PWP678
Negative integration power sum	WP-	MWP1, MWP2, MWP3, MWP4, MWP5, MWP6, MWP7, MWP8, MWP12, MWP23, MWP34, MWP45, MWP56, MWP67, MWP78, MWP123, MWP234, MWP345, MWP456, MWP567, MWP678
Positive and negative integration power sum	WP	WP1, WP2, WP3, WP4, WP5, WP6, WP7, WP8, WP12, WP23, WP34, WP45, WP56, WP67, WP78, WP123, WP234, WP345, WP456, WP567, WP678
Efficiency	η	Eff1, Eff2, Eff3, Eff4
Loss	Loss	Loss1, Loss2, Loss3, Loss4
Torque	T _q	Tq1, Tq2, Tq3, Tq4
RPM	Spd	Spd1, Spd2, Spd3, Spd4
Motor power	P _m	Pm1, Pm2, Pm3, Pm4
Slip	Slip	Slip1, Slip2, Slip3, Slip4
Free input in independent input mode	CH	CHA, CHB, CHC, CHD, CHE, CHF, CHG, CHH

4.2 List and Order of Direct Specification Items for HIOKI PW8001 Measure.vi

Measurement item	Parameter list and order
Status	StatusAllCH: Status StatusEachCH: Status1, Status2, Status3, Status4, Status5, Status6, Status7, Status8 StatusMotor: StatusM
Integrated elapsed time	ElapsedTimeAllCH: Etime ElapsedTimeEachCH: Etime1, Etime2, Etime3, Etime4, Etime5, Etime6, Etime7, Etime8
Parameters for normal measurement items	This items shows the output in the item name and order same with the parameters for normal measurement items. See 4.1 Parameters for normal measurement items for details.

4.2.1 Statuses

Status shows the measurement status for measured data in a 32 bits-hexadecimal value string. The status is a logical sum of Status1 through Status8 and StatusM. For example, if bit 11 (ZU) of Status2 is set to ON and bit 17 (ZMA) of StatusM is set to ON, both bits 11 and 17 of Status are set to ON.

4.2.2 Integrated Elapsed Time (Etime)

If the integrated elapsed time is set to ON in the communication output item of integration data (**HIOKI PW8001 Conf MeasureItem Integrate.vi**), the integrated elapsed time (Etime) is output.

Etime returns a response including ms unit when the data save interval (:SAVE:AUTO:INTERval) is set to less than 1s. If it is more than 1s, the integrated elapsed time in ms unit is not included in the response.

If the integration control system is in the status of integration by each wiring connection, the integrated elapsed time is returned for all the channels from Etime1 to Etime8.

4.3 Channel Statuses (Status1, Status2, Status3, Status4, Status5, Status6, Status7, Status8)

Statuses for channels are Status1 through Status8. (e.g The status of channel 3 is Status3.)

Assignment of the 32 bits is as follows:

bit 31	bit 30	bit 29	bit 28	bit 27	bit 26	bit 25	bit 24
----	----	----	----	----	----	----	----
bit 23	bit 22	bit 21	bit 20	bit 19	bit 18	bit 17	bit 16
----	----	----	----	----	----	----	----
bit 15	bit 14	bit 13	bit 12	bit 11	bit 10	bit 9	bit 8
----	UCU	ZP	ZI	ZU	DP	DI	DU
bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0
----	----	----	----	RI	RU	PI	PU

Bit	Abbreviation	Detail
Bit 14	UCU	Calculation unavailable (measured data is immediately after change resulting in invalid)
Bit 13	ZP	Power calculation (synchronized source) with forced zero-cross
Bit 12	ZI	Current frequency with forced zero-cross
Bit 11	ZU	Voltage frequency with forced zero-cross
Bit 10	DP	Power calculation (synchronized source) without data update
Bit 9	DI	Current frequency without data update
Bit 8	DU	Voltage frequency without data update
Bit 3	RI	Current range exceeded
Bit 2	RU	Voltage range exceeded
Bit 1	PI	Current peak exceeded
Bit 0	PU	Voltage peak exceeded

4.4 Status of Motor Channel (StatusM)

The status of motor channel is shown by StatusM.

Assignment of the 32 bits is as follows:

bit 31	bit 30	bit 29	bit 28	bit 27	bit 26	bit 25	bit 24
----	----	UCUG	ZMG	RMG	UCUE	ZME	RME
bit 23	bit 22	bit 21	bit 20	bit 19	bit 18	bit 17	bit 16
----	----	UCUC	ZMC	RMC	UCUA	ZMA	RMA
bit 15	bit 14	bit 13	bit 12	bit 11	bit 10	bit 9	bit 8
----	----	----	----	----	----	----	----
bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0
----	----	----	----	----	----	----	----

Bit	Abbreviation	Detail
Bit 29	UCUG	CHG calculation unavailable (e.g., the data is invalid because the measurement is immediately after a range change)
Bit 28	ZMG	CHG motor synchronization source with forced zero-cross
Bit 27	RMG	CHG overload when input is set to analog
Bit 26	UCUE	CHE calculation unavailable (e.g., the data is invalid because the measurement is immediately after a range change)
Bit 25	ZME	CHE motor synchronization source with forced zero-cross
Bit 24	RME	CHE overload when input is set to analog
Bit 21	UCUC	CHC calculation unavailable (e.g., the data is invalid because the measurement is immediately after a range change)
Bit 20	ZMC	CHC motor synchronization source with forced zero-cross
Bit 19	RMC	CHC overload when input is set to analog
Bit 18	UCUA	CHA calculation unavailable (e.g., the data is invalid because the measurement is immediately after a range change)
Bit 17	ZMA	CHA motor synchronization source with forced zero-cross
Bit 16	RMA	CHA overload when input is set to analog

4.5 List and Order of Direct Specification Items for HIOKI PW8001 Measure Harmonic.vi

Harmonic measurement item		
Status		Status
0th	Harmonic voltage RMS value	HU1L000, HU2L000, HU3L000, HU4L000, HU5L000, HU6L000, HU7L000, HU8L000
	Harmonic voltage content percentage	HU1D000, HU2D000, HU3D000, HU4D000, HU5D000, HU6D000, HU7D000, HU8D000
	Harmonic voltage phase angle	HU1P000, HU2P000, HU3P000, HU4P000, HU5P000, HU6P000, HU7P000, HU8P000
	Harmonic current RMS value	HI1L000, HI2L000, HI3L000, HI4L000, HI5L000, HI6L000, HI7L000, HI8L000
	Harmonic current content percentage	HI1D000, HI2D000, HI3D000, HI4D000, HI5D000, HI6D000, HI7D000, HI8D000
	Harmonic current phase angle	HI1P000, HI2P000, HI3P000, HI4P000, HI5P000, HI6P000, HI7P000, HI8P000
	Harmonic active power	HP1L000, HP2L000, HP3L000, HP4L000, HP5L000, HP6L000, HP7L000, HP8L000, HP12L000, HP23L000, HP34L000, HP45L000, HP56L000, HP67L000, HP78L000, HP123L000, HP234L000, HP345L000, HP456L000, HP567L000, HP678L000
	Harmonic power content percentage	HP1D000, HP2D000, HP3D000, HP4D000, HP5D000, HP6D000, HP7D000, HP8D000, HP12D000, HP23D000, HP34D000, HP45D000, HP56D000, HP67D000, HP78D000, HP123D000, HP234D000, HP345D000, HP456D000, HP567D000, HP678D000
	Harmonic voltage/current phase angle	HP1P000, HP2P000, HP3P000, HP4P000, HP5P000, HP6P000, HP7P000, HP8P000, HP12P000, HP23P000, HP34P000, HP45P000, HP56P000, HP67P000, HP78P000, HP123P000, HP234P000, HP345P000, HP456P000, HP567P000, HP678P000
n-th	...	The suffix in 3 digits shows the order "n".
500-th	Harmonic voltage RMS value	HU1L500, HU2L500, HU3L500, HU4L500, HU5L500, HU6L500, HU7L500, HU8L500
	Harmonic voltage content percentage	HU1D500, HU2D500, HU3D500, HU4D500, HU5D500, HU6D500, HU7D500, HU8D500
	Harmonic voltage phase angle	HU1P500, HU2P500, HU3P500, HU4P500, HU5P500, HU6P500, HU7P500, HU8P500
	Harmonic current RMS value	HI1L500, HI2L500, HI3L500, HI4L500, HI5L500, HI6L500, HI7L500, HI8L500
	Harmonic current content percentage	HI1D500, HI2D500, HI3D500, HI4D500, HI5D500, HI6D500, HI7D500, HI8D500
	Harmonic current phase angle	HI1P500, HI2P500, HI3P500, HI4P500, HI5P500, HI6P500, HI7P500, HI8P500

	Harmonic active power	HP1L500, HP2L500, HP3L500, HP4L500, HP5L500, HP6L500, HP7L500, HP8L500, HP12L500, HP23L500, HP34L500, HP45L500, HP56L500, HP67L500, HP78L500, HP123L500, HP234L500, HP345L500, HP456L500, HP567L500, HP678L500
	Harmonic power content percentage	HP1D500, HP2D500, HP3D500, HP4D500, HP5D500, HP6D500, HP7D500, HP8D500, HP12D500, HP23D500, HP34D500, HP45D500, HP56D500, HP67D500, HP78D500, HP123D500, HP234D500, HP345D500, HP456D500, HP567D500, HP678D500
	Harmonic voltage/current phase angle	HP1P500, HP2P500, HP3P500, HP4P500, HP5P500, HP6P500, HP7P500, HP8P500, HP12P500, HP23P500, HP34P500, HP45P500, HP56P500, HP67P500, HP78P500, HP123P500, HP234P500, HP345P500, HP456P500, HP567P500, HP678P500
Harmonics synchronization frequency		HF1, HF2, HF3, HF4, HF5, HF6, HF7, HF8

4.6 Harmonic Status (HRMStatus)

Status shows the status for saved measurement data in a 32 bits-hexadecimal value.

The status of measured harmonics data is one of the Statuses.

Assignment of the 32 bits is as follows: (The numbers 1 through 8 after abbreviation show channel number.)

bit 31	bit 30	bit 29	bit 28	bit 27	bit 26	bit 25	bit 24
----	----	----	----	----	----	----	----
bit 23	bit 22	bit 21	bit 20	bit 19	bit 18	bit 17	bit 16
UCU8	UCU7	UCU6	UCU5	UCU4	UCU3	UCU2	UCU1
bit 15	bit 14	bit 13	bit 12	bit 11	bit 10	bit 9	bit 8
ZH8	ZH7	ZH6	ZH5	ZH4	ZH3	ZH2	ZH1
bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0
RF8	RF7	RF6	RF5	RF4	RF3	RF2	RF1

Bit	Abbreviation	Detail
16 to 23	UCU	Calculation unavailable (If data measured immediately after frequency fluctuation of a synchronization source is invalid.)
8 to 15	ZH	Harmonics waveform with forced zero-cross
0 to 7	RF	Frequency range exceeded