



**PW4001 Power Analyzer
Driver Function
User's Manual
(Function Manual)**

Revision History

Edition	Contents	Reviser	Date
1.00	First Edition	HIOKI	2025/09/30

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1. Overview

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

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

This LabVIEW driver was created for firmware version 1.00 of the PW4001. Operation may differ from earlier or later versions. Please refer to the instruction manual of the PW4001 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_PW4001" 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, USB
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

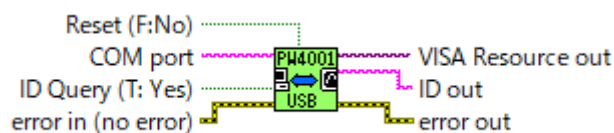
3.1.2 Output Items

Name	Data Type	Explanation
VISA Resource out		TCP/IP, USB
error out		Please refer the LabVIEW online reference's section on error report for a detailed explanation on error output. When PW4001 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 PW4001 instruction manual.

3.2 Standard Command

3.2.1 HIOKI PW4001 Initialize USB.vi

Starts the USB communication with the PW4001 device.
This VI is selectable from “HIOKI PW4001 Initialize.vi”.



Input

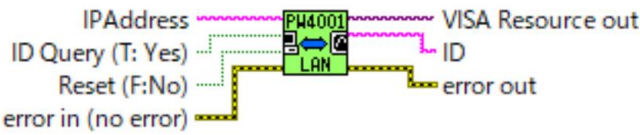
Name	Data Type	Explanation
ID Query (T: Yes)		Output the connection device's ID.
Reset (F: No)		Send the RST command to the connection device and reset the settings.
COMPort		Specify the COM Port number. The default setting is COM1.

Output

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

3.2.2 HIOKI PW4001 Initialize LAN.vi

Starts the LAN communication with the PW4001 device.
This VI is selectable from “HIOKI PW4001 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.
IPAddress		Specify the PW4001 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 PW4001 Close.vi

Disconnects the communication with the PW4001 device.



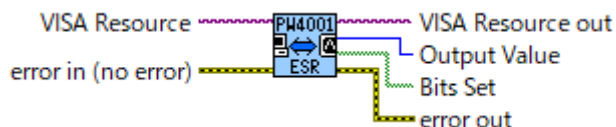
3.2.4 HIOKI PW4001 CLS.vi

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




3.2.5 HIOKI PW4001 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.

3.2.6 HIOKI PW4001 IDN.vi

Queries the Device ID.

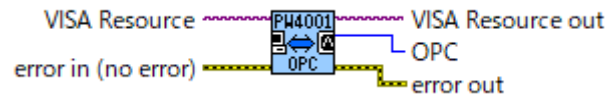


Output


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

3.2.7 HIOKI PW4001 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.

3.2.8 HIOKI PW4001 OPT.vi

Queries the options available on the instrument.



Output

Name	Data Type	Explanation
OPT	abc	Outputs the query results of the options. Output Items: <CH1 Sensor type>, <CH2 Sensor type>, <CH3 Sensor type>, <CH4 Sensor type>, <Motor option>, <D/A output option>, <DC power option>

3.2.9 HIOKI PW4001 RST.vi

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

- Language and communication settings are not initialized.



3.2.10 HIOKI PW4001 TRG.vi

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



3.2.11 HIOKI PW4001 WAI.vi

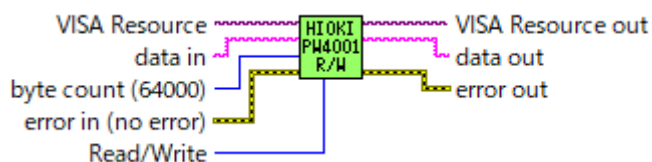
Waits until the next refresh is completed.



3.2.12 HIOKI PW4001 Read_Write.vi

Sends and receives the command(Sets and reads the data) for PW4001.

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 PW4001 of Write mode.

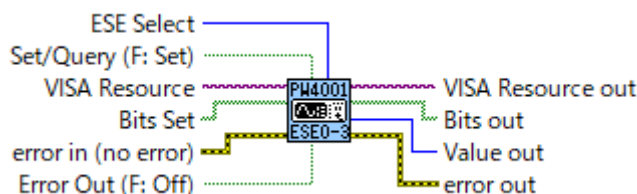
Output

Name	Data Type	Explanation
data out		Output the received data to PW4001 of Read mode.

3.3 Device-specific Event Status Register

3.3.1 HIOKI PW4001 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 Bit 6: UCU : Calculation unavailable (Measured data is invalid as immediately after range change). Bit 5: ZP : Power calculation (synchronized source) with forced zero-cross Bit 4: ZI : Current frequency with forced zero-cross Bit 3: ZU : Voltage frequency with forced zero-cross Bit 2: DP : Power calculation (synchronized source) without data update Bit 1: DI : Current frequency without data update Bit 0: DU : Voltage frequency without data update </div> <div>ESE1</div> <div> Bit 7: - : Unused Bit 6: - : Unused Bit 5: - : Unused Bit 4: - : Unused Bit 3: PU4 : CH4 voltage peak exceeded Bit 2: PU3 : CH3 voltage peak exceeded Bit 1: PU2 : CH2 voltage peak exceeded Bit 0: PU1 : CH1 voltage peak exceeded </div> <div>ESE2</div> <div> Bit 7: - : Unused Bit 6: - : Unused Bit 5: - : Unused Bit 4: - : Unused Bit 3: PI4 : CH4 current peak exceeded Bit 2: PI3 : CH3 current peak exceeded Bit 1: PI2 : CH2 current peak exceeded Bit 0: PI1 : CH1 current peak exceeded </div> <div>ESE3</div> <div> Bit 7: - : Unused </div>

		Bit 6: - : Unused Bit 5: - : Unused Bit 4: - : Unused Bit 3: - : Unused Bit 2: - : Unused Bit 1: RC : CHC overload Bit 0: RA : CHA overload
--	--	---

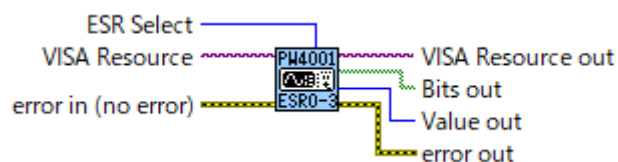
Output

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 PW4001 ESR0-3.vi

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



- When "HIOKI PW4001 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)

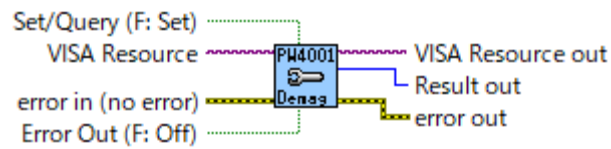
Output

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 PW4001 Demag.vi

Executes zero adjustment.

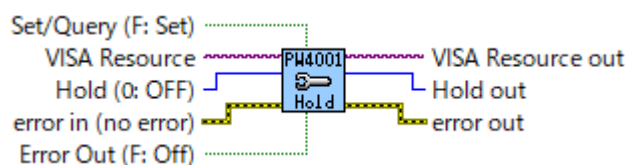


Output

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 PW4001 Hold.vi

Sets and reads the Hold Status.



Input

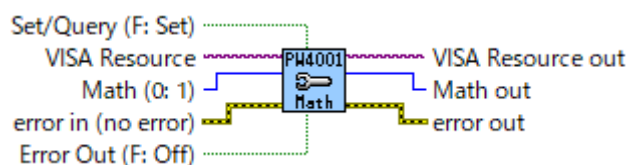
Name	Data Type	Explanation
Hold (0: Off)		Sets hold state. Input Range: 0 (OFF: Default), 1 (ON), 2 (PEAK) Note Use "HIOKI PW4001 TRG.vi" in the hold state or the peak hold state to update the data.

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 PW4001 Conf MATH.vi

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



Input

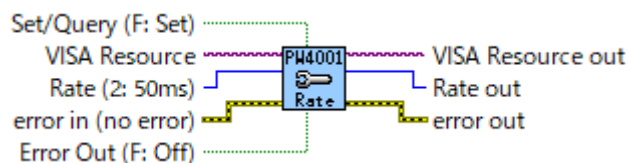
Name	Data Type	Explanation
Math (0: 1)		<p>Sets formulas for apparent power, reactive power and power factor of three-phase power.</p> <p>Input Range: 0 (1: Default), 1 (2), 2 (3)</p> <p>Note:</p> <ol style="list-style-type: none"> 1 TYPE1 : Compatible with the respective TYPE1 of PW3390, 3193, and 3390 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 PW4001 Conf RATE.vi

Sets and reads a data refresh rate.



Input

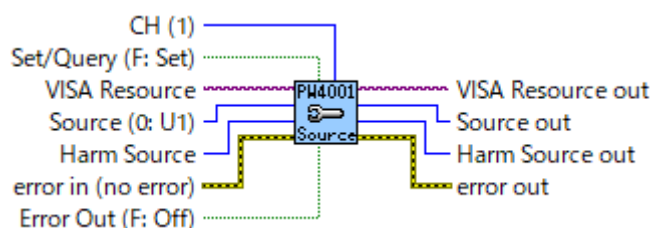
Name	Data Type	Explanation
Rate (2: 50ms)		Sets a data refresh rate. Input Range: 0 (1ms), 1 (10ms), 2 (50ms: Default), 3 (200ms)

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 PW4001 Conf Source.vi

Sets and reads a synchronization source.



Input

Name	Data Type	Explanation
CH (1)		Specifies the channel. Input Range: 1 (Default) to 4
Source (0: U1)		Sets a synchronization source for the specified channel. Input Range: 0 (U1: Default), 1 (U2), 2 (U3), 3 (U4), 4 (I1), 5 (I2), 6 (I3), 7 (I4), 8 (DC), 9 (Ext1), 10 (Ext2), 11 (Zph1), 12 (CHB), 13 (CHD), 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(Ext1) Note: When Zph1 is selected for the synchronization source, only Zph1 and Ext1 can be set.

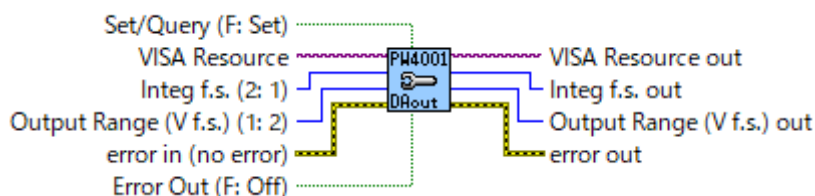
Output

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 (I1), 5 (I2), 6 (I3), 7 (I4), 8 (DC), 9 (Ext1), 10 (Ext2), 11 (Zph1), 12 (CHB), 13 (CHD),
Harm Source out		Outputs the query results of the harmonics synchronization source for the specified channel. Output Value: 0 (Zph1), 1(Ext1)

3.5 D/A Output Option

3.5.1 HIOKI PW4001 Conf Aout General.vi

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



Input

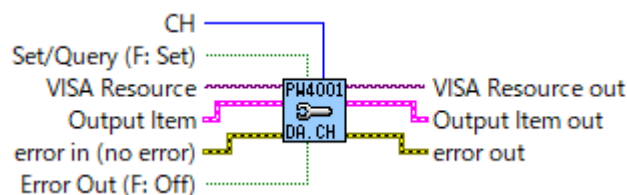
Name	Data Type	Explanation
Integ f.s. (2: 1)		Sets full-scale D/A output integration coefficient. Input Range: 0 (1/10), 1 (1/2), 2 (1: Default), 3 (5), 4 (10), 5 (50), 6 (100), 7 (500), 8 (1000), 9 (5000), 10 (10000)
Output Range (V f.s.) (1: 2)		Sets full-scale D/A waveform output. Input Range: 0 (1), 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 PW4001 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) 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 (fI), 33 (Ih+), 34 (Ih-), 35 (Ih), 36 (WP+), 37 (WP-), 38 (WP), 39 (EFF), 40 (Loss), 41 (Tq), 42 (Spd), 43 (Pm), 44 (Slip), 45 (CH), 46(UDF),47 (OFF) CH Input Range: 0 (1: Default), 1 (2), 2 (3), 3 (4),4(12), 5 (23), 6 (34), 7 (123), 8 (234), 9(A), 10 (B), 11 (C), 12 (D)

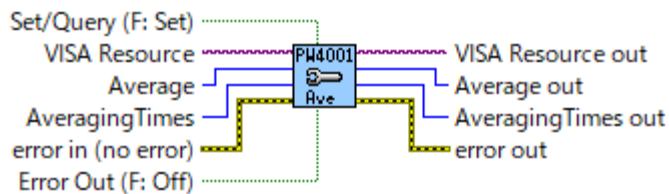
Output

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 PW4001 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 (2: Default), 1 (4), 2 (8), 3 (16), 4 (32), 5 (64)</p>

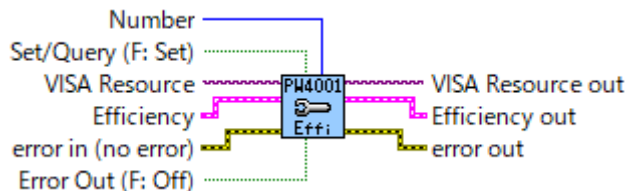
Output

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 PW4001 Conf Efficiency.vi


Sets and reads the efficiency and loss formulas.



Input

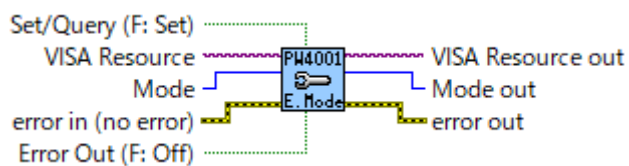
Name	Data Type	Explanation
Number		Specifies the number. Input Range: 1 (Default) to 4
Efficiency		Sets Pin and Pout items for efficiency and loss formulas. Pin, Pout Input Range: 0 (OFF), 1 (P1: Default), 2 (P2), 3 (P3), 4 (P4), 5 (P12), 6 (P23), 7 (P34), 8 (P123), 9 (P234), 10 (Pfnd1), 11 (Pfnd2), 12 (Pfnd3), 13 (Pfnd4), 14 (Pfnd12), 15 (Pfnd23), 16 (Pfnd34), 17 (Pfnd123), 18 (Pfnd234), 19 (Pm1), 20 (Pm2), 21 (UDF1), 22 (UDF2), 23 (UDF3), 24 (UDF4), 25 (UDF5), 26 (UDF6), 27 (UDF7), 28 (UDF8), 29 (UDF9), 30 (UDF10), 31 (UDF11), 32 (UDF12), 33 (UDF13), 34 (UDF14), 35 (UDF15), 36 (UDF16), 37 (UDF17), 38 (UDF18), 39 (UDF19), 40 (UDF20)

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 PW4001 Conf Efficiency Mode.vi

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



Input

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

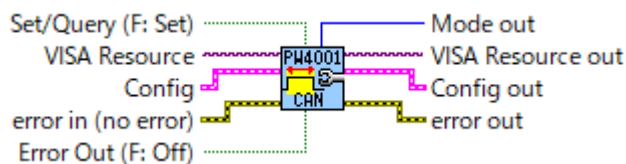
Output

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 PW4001 Conf CAN Communication CAN.vi



Sets and reads the communication settings of the CAN protocol.
This VI is selectable from “HIOKI PW4001 Conf CAN Communication.vi”.



Input

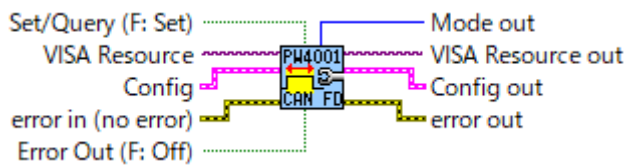
Name	Data Type	Explanation
Config		<p>Sets the communication settings of the CAN protocol.</p> <p>Speed (bps) Sets the transmission speed. Input Range: 0 (125k), 1 (250k), 2 (500k : Default), 3 (1M)</p> <p>Sampling Point (%) Sets the sampling point. Input Range: 0.0 - 99.9</p> <p>Terminal Resist Set the terminal resistor. Input Range: False (OFF), True (ON: Default)</p> <p>Transport Sets the transfer method. Input Range: 0(NONE:Default), 1 (ISO15765-2)</p>

Output


Name	Data Type	Explanation
Mode out		<p>Outputs the query results of the CAN mode.</p> <p>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 PW4001 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 PW4001 Conf CAN Communication.vi”.



Input

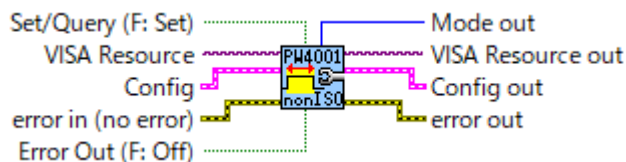
Name	Data Type	Explanation
Config		<p>Sets the communication settings of the CAN FD protocol.</p> <p>Arbitration Speed (bps) Sets the transmission speed of the arbitration field. Input Range: 0 (500k: Default), 1 (1M)</p> <p>Arbitration Sampling Point (%) Sets the sampling point for the arbitration field. 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> <p>Transport Sets the transfer method. Input Range: 0(NONE:Default), 1 (ISO15765-2)</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 PW4001 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 PW4001 Conf CAN Communication.vi”.



Input

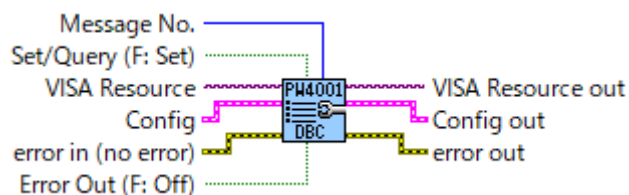
Name	Data Type	Explanation
Config		<p>Sets the communication settings of the CAN FD protocol.</p> <p>Arbitration Speed (bps) Sets the transmission speed of the arbitration field. Input Range: 0 (500k: Default), 1 (1M)</p> <p>Arbitration Sampling Point (%) Sets the sampling point for the arbitration field. 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> <p>Transport Sets the transfer method. Input Range: 0(NONE:Default), 1 (ISO15765-2)</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 PW4001 Conf CAN Database.vi

Sets and reads the CAN database.



Input

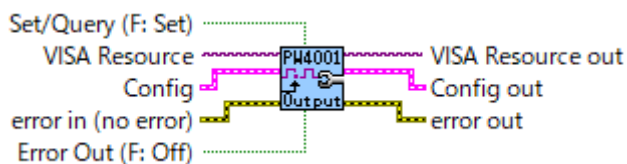
Name	Data Type	Explanation
Message No.		Specifies the CAN message number. Input Range: 1 (Default) to 32
Config		Sets the CAN database of the specified message number. Format Set the message format. Input Range: 0 (STD: Default), 1 (EXT) Note This is a common setting for all CAN message numbers. STD: 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 PW4001 Conf CAN Output.vi


Sets and reads the CAN output.



Input

Name	Data Type	Explanation
Config		<p>Sets the CANI output.</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

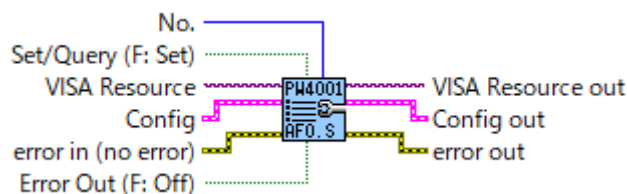
Name	Data Type	Explanation
Config out		Outputs the query results of the CAN output.

3.8.6 HIOKI PW4001 Conf CAN Arbitrary Frame Output Standard .vi

Sets and reads the CAN Arbitrary Frame Output.

The CAN transport method is set to NONE.

This VI is selectable from “HIOKI PW4001 Conf CAN Arbitrary Frame Output.vi”.



Input

Name	Data Type	Explanation
No.		Specifies the number. Input Range: 1 (Default) to 20
Config		Sets the CAN Arbitrary Frame Output of the specified number. Use Sets the CAN output. Input Range: 0(OFF:Default), 1 (ON) Format Sets the format of the arbitrary frame. Input Range: 0 (STD: Default), 1 (EXT) Message ID (0x) Sets the ID of the arbitrary frame in hexadecimal. Interval Sets the output interval for arbitrary frame. Input Range: 0 (10ms: Default), 1 (50ms), 2 (200ms), 3 (START), 4 (STOP) DLC Set the DLC of arbitrary frame. Input Range: 0(0:Default), 1 (1), 2 (2), 3 (3), 4 (4), 5 (5), 6 (6), 7 (7), 8(8), 9(12), 10 (16), 11 (20), 12 (24), 13 (32), 14 (48), 15 (64) Data (0x) Set the data for arbitrary frame in hexadecimal.

Output

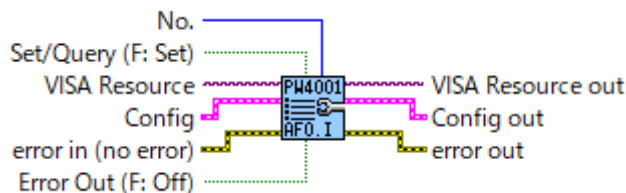
Name	Data Type	Explanation
Config out		Outputs the query results of the CAN Arbitrary Frame Output of the specified number.

3.8.7 HIOKI PW4001 Conf CAN Arbitrary Frame Output ISO15765-2 .vi

Sets and reads the CAN Arbitrary Frame Output ISO15765-2.

The CAN transport method is set to ISO15765-2.

This VI is selectable from “HIOKI PW4001 Conf CAN Arbitrary Frame Output.vi”.



Input

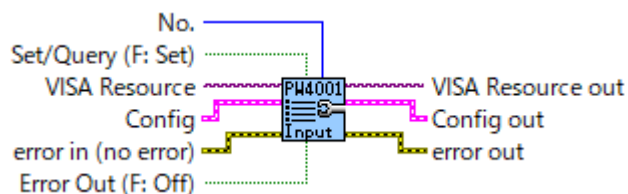
Name	Data Type	Explanation
No.		Specifies the number. Input Range: 1 (Default) to 20
Config		Sets the CAN Arbitrary Frame Output ISO15765-2 of the specified number. Use Sets the CAN output. Input Range: 0(OFF:Default), 1 (ON) Format Sets the format of the arbitrary frame. Input Range: 0 (STD: Default), 1 (EXT) Message ID (0x) Sets the ID of the arbitrary frame in hexadecimal. Interval Sets the output interval for arbitrary frame. Input Range: 0 (10ms: Default), 1 (50ms), 2 (200ms), 3 (START), 4 (STOP) DataLength Set the date length of arbitrary frame. Input Range: 0 - 41 Data (0x) Set the data for arbitrary frame in hexadecimal.

Output



Name	Data Type	Explanation
Config out		Outputs the query results of the CAN Arbitrary Frame Output ISO15765-2 of the specified number.

3.8.8 HIOKI PW4001 Conf CAN Input.vi

Sets and reads the CAN Input.




Input

Name	Data Type	Explanation
No.		Specifies the number. Input Range: 1 (Default) to 20
Config		Sets the CAN Input of the specified number. Name Sets the CAN signal name . Unit Sets the CAN signal unit . Format Sets the format. Input Range: 0(STD:Default), 1 (EXT) Message ID (0x) Sets the ID of the CAN signal in hexadecimal. ByteOrder Sets the byte order. Input Range:0 (MOTOROLA:Default), 1 (INTEL) DataType Sets the data type. Input Range: 0 (UNSIGNED:Default), 1 (SIGNED), 2 (FLOAT), 3 (DOUBLE) BitLength Sets the bit length. Start Bit Sets the start bit index. Factor Sets the factor value. 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)

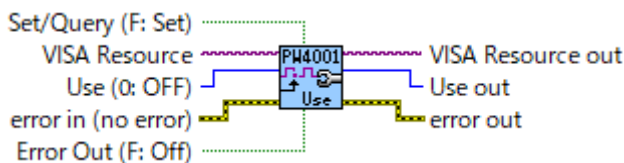
		Offset Sets the offset value. Value Input Range: Signed significant number of 6 digits. Unit Input Range: 0 (T), 1 (G), 2 (M), 3 (k), 4 (), 5 (m), 6 (u), 7 (n)
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Output

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

3.8.9 HIOKI PW4001 CAN Use.vi

Sets and reads the CAN Interface use.



Input

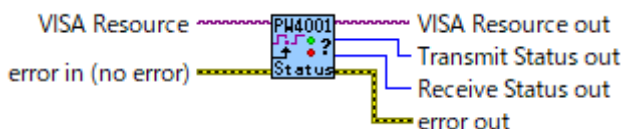
Name	Data Type	Explanation
Use(0:OFF)		Sets CAN interface use state Input Range: 0 (OFF: Default), 1 (ON)

Output

Name	Data Type	Explanation
Use out		Outputs the query results of CAN interface use state.

3.8.10 HIOKI PW4001 CAN Status.vi

Reads the CAN input /output status.



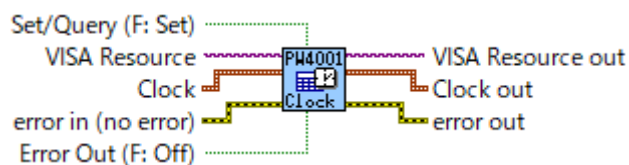
Output

Name	Data Type	Explanation
Transmit 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)
Receive Status out		Outputs the query results of CAN input status. Output Range: 0 (NONE), 1 (READY), 2 (OK), 3 (WARNING), 4 (ERROR), 5 (SETUP_ERR)


3.9 Calendar and Clock

3.9.1 HIOKI PW4001 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: 2025 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

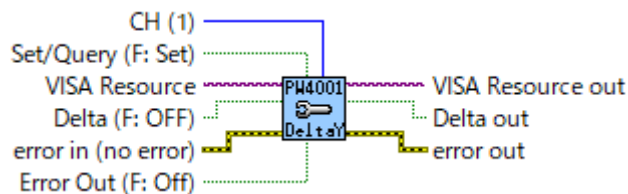
Output

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 PW4001 Conf Deltay.vi

Sets and reads Δ - Y calculation.



Input

Name	Data Type	Explanation
CH (1)		Specifies the channel. Input Range: 1 (Default) to 4
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.

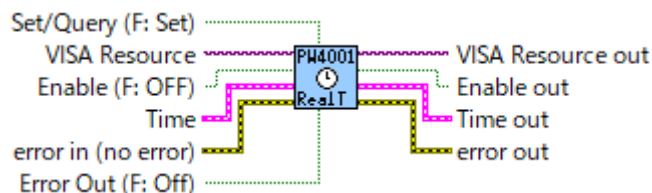
Output

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



3.11 Time Control

3.11.1 HIOKI PW4001 Conf RealTime All.vi



Sets and reads the real-time control for all wiring integration.
This VI is selectable from “HIOKI PW4001 Conf RealTime.vi”.



Input

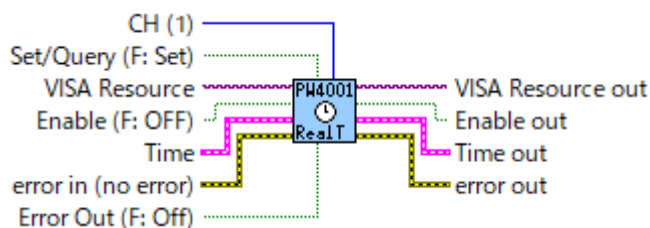
Name	Data Type	Explanation
Enable (F: OFF)		Sets the real-time control for all wiring integration. Input Range: False (OFF: Default), True (ON)
Time		Sets time for the start and stop time. Start, Stop Year Input Range: 2025 to 2099 Month Input Range: 1 to 12 Day Input Range: 1 to 31 Hour Input Range: 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 PW4001 Conf RealTime Each.vi

Sets and reads the real-time control for the wiring including the specified channel.
This VI is selectable from “HIOKI PW4001 Conf RealTime.vi”.



Input

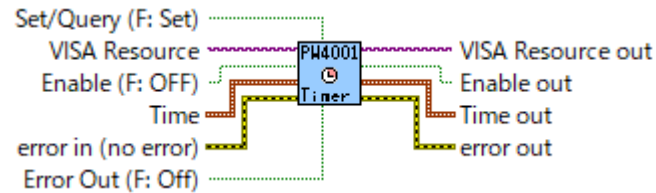
Name	Data Type	Explanation
CH (1)		Specifies the channel. Input Range: 1 (Default) to 4
Enable (F: OFF)		Sets the real-time control for all wiring integration. Input Range: False (OFF: Default), True (ON)
Time		Sets time for the start and stop time. Start, Stop Year Input Range: 2025 to 2099 Month Input 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 PW4001 Conf Timer All.vi

Sets and reads the timer control for all wiring integration.
This VI is selectable from “HIOKI PW4001 Conf Timer.vi”.



Input

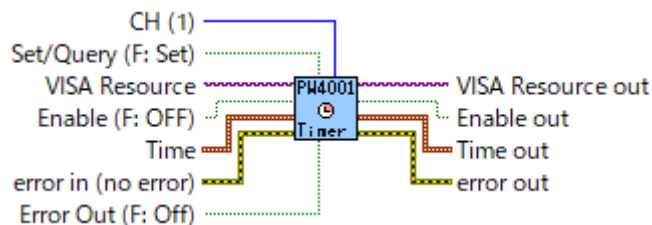
Name	Data Type	Explanation
Enable (F: OFF)		Sets the timer control for all wiring integration. Input Range: False (OFF: Default), True (ON)
Time		Sets time for the timer. Hour Input Range: 0 to 9999 Minute Input Range: 0 to 59 Second Input Range: 0 to 59

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 PW4001 Conf Timer Each.vi

Sets and reads the timer control for the wiring including the specified channel.
This VI is selectable from “HIOKI PW4001 Conf Timer.vi”.



Input

Name	Data Type	Explanation
CH (1)		Specifies the channel. Input Range: 1 (Default) to 4
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

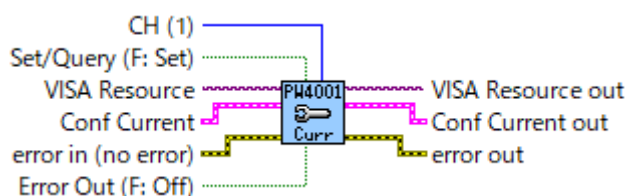
Output

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 PW4001 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 4
ConfCurrent		<p>Sets the each function related to current.</p> <p>Range Auto (F: OFF), Manual (A) (15: 50)</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>Correct (0: OFF) Sets phase correction formulas for current sensors. Input Range: 0 (OFF: Default), 1 (ON), 2 (AUTO)</p> <p>Note: OFF: Does not perform phase compensation calculation for current sensors ON: Performs the phase compensation calculation for current sensors.</p>

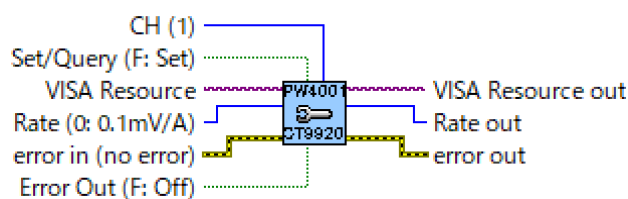
		<p>AUTO: Performs phase compensation calculation using compensation values saved in the current sensor.</p> <p>Frequency Sets phase correction frequency for current sensors. (The unit is [kHz].) Input Range: 0.1 to 5000.0 (0.1: Default)</p> <p>Degree Sets phase correction angle for current sensors. (The unit is [°].) Input Range: -180.0 to 180.0 (0.0: Default)</p> <p>Mean Sets the current rectification method to MEAN. Input Range: False (OFF: Default), True (ON)</p>
--	--	--

Output

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

3.12.2 HIOKI PW4001 Conf CT9920.vi

Sets and reads sensor output rate when connected to conversion cable CT9920.



Input

Name	Data Type	Explanation
CH (1)		Specifies the channel. Input Range: 1 (Default) to 4
Rate (0: 0.1mV/A)		Sets for sensor output rate. Input Range: 0 (0.1mV/A: Default), 1 (1mV/A), 2 (10mV/A), 3 (100mV/A), 4 (1V/A)

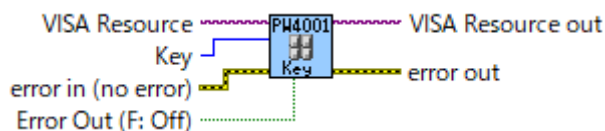
Output

Name	Data Type	Explanation
Rate out		Outputs the query results of sensor output rate.


3.13 Screen Display

3.13.1 HIOKI PW4001 Display Key.vi

Executes the same operations with the ones by the instrument.

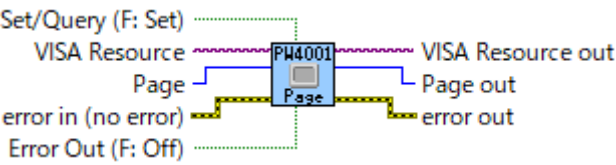


Input

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 / SCREENSHOT /SAVE / 0ADJ / CHR / CHL / FILE / SYSTEM / INPUT / MEAS</p> <p>Note:</p> <table><tr><td>RUN:</td><td>Waveform storage RUN/STOP</td></tr><tr><td>SINGLE:</td><td>Single trigger</td></tr><tr><td>MANUAL:</td><td>Manual trigger</td></tr><tr><td>KNOBR:</td><td>Press right knob</td></tr><tr><td>KNOBL:</td><td>Press left knob</td></tr><tr><td>PHOLD:</td><td>Peak hold</td></tr><tr><td>START:</td><td>Integration START/STOP</td></tr><tr><td>DRESET:</td><td>Data reset</td></tr><tr><td>HOLD:</td><td>Hold key</td></tr><tr><td>IRA:</td><td>Current auto-range</td></tr><tr><td>IRM:</td><td>Current range -</td></tr><tr><td>IRP:</td><td>Current range +</td></tr><tr><td>URA:</td><td>Voltage auto-range</td></tr><tr><td>URM:</td><td>Voltage range -</td></tr><tr><td>URP:</td><td>Voltage range +</td></tr><tr><td>SCREENSHOT:</td><td>Screen hardcopy</td></tr><tr><td>SAVE:</td><td>Data save</td></tr><tr><td>0ADJ:</td><td>Zero adjustment</td></tr><tr><td>CHR:</td><td>Right channel key</td></tr><tr><td>CHL:</td><td>Left channel key</td></tr><tr><td>FILE :</td><td>FILE Key</td></tr><tr><td>SYSTEM:</td><td>SYSTEM key</td></tr><tr><td>INPUT:</td><td>INPUT key</td></tr><tr><td>MEAS:</td><td>MEAS key</td></tr></table>	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 +	SCREENSHOT:	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
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 +																																																		
SCREENSHOT:	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 PW4001 Conf Display Page.vi

Switches the screen.



Input

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

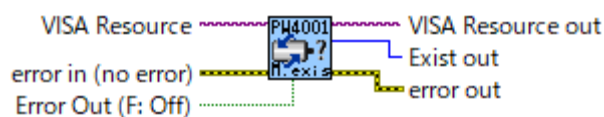
Output

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

3.14 Motor Analysis Option

3.14.1 HIOKI PW4001 Motor Exist.vi

Reads availability of the motor analysis options.

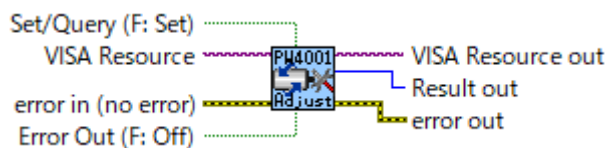


Output


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 PW4001 Motor ZeroAdjust.vi

Executes zero adjustment of the motor channel.

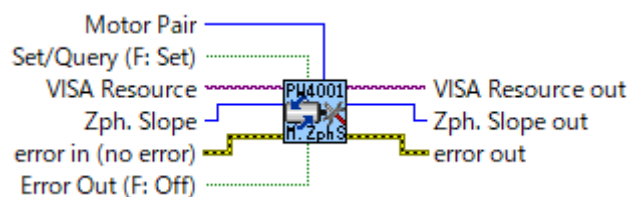


Output

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 PW4001 Conf Motor Z Slope.vi

Sets and reads the Z-phase reference.



Input

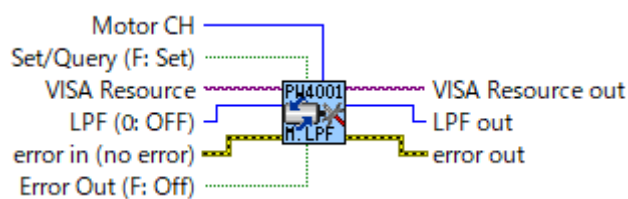
Name	Data Type	Explanation
Motor Pair		Specify the motor pair. Input Range: 0 (A_D)
Zph. Slope		Sets the Z-phase reference. Input Range: 0 (RISING: Default), 1 (FALLING) Note: RISING: Rising edge FALLING: Falling edge

Output

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

3.14.4 HIOKI PW4001 Conf Motor Analog LPF.vi

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



Input

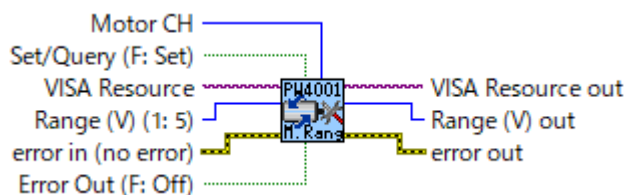
Name	Data Type	Explanation
Motor CH		Specifies the analog motor channel. Input Range: 0 (CHA), 1 (CHC)
LPF (0: OFF)		Sets the analog lowpass filter. Input Range: 0 (OFF: Default), 1 (1kHz)

Output

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

3.14.5 HIOKI PW4001 Conf Motor Analog Range.vi

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



Input

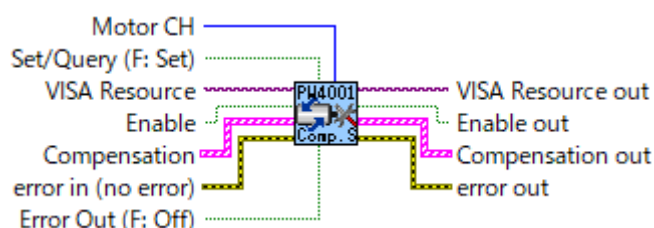
Name	Data Type	Explanation
Motor CH		Specifies the analog motor channel. Input Range: 0 (CHA), 1 (CHC)
Range (V) (1: 5)		Sets the voltage range. Input Range: 0 (1: Default), 1 (5), 2 (10)

Output

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

3.14.6 HIOKI PW4001 Conf Motor Comp Speed.vi

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



Input

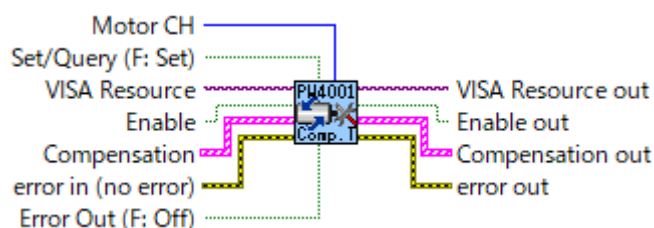
Name	Data Type	Explanation
Motor CH		Specifies the analog motor channel. Input Range: 0 (CHA), 1 (CHC)
Enable		Sets the friction correction function. Input Range: False (OFF), True (ON)
Compensation		Sets the correction value. Speed calibration point (r/min), Torque calibration value (Nm) Value Input 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 PW4001 Conf Motor Comp Torque.vi

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



Input

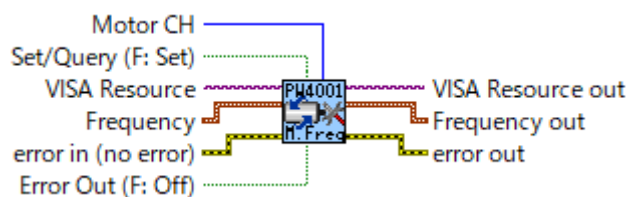
Name	Data Type	Explanation
Motor CH		Specifies the analog motor channel. Input Range: 0 (CHA), 1 (CHC)
Enable		Sets the friction correction function. Input Range: False (OFF), True (ON)
Compensation		Sets the correction value. Torque calibration point (N/m), Torque calibration value (Nm) Value Input 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 PW4001 Conf Motor Freq.vi

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



Input

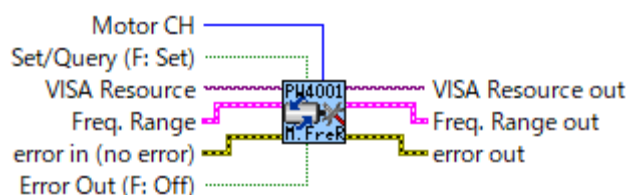
Name	Data Type	Explanation
Motor CH		Specifies the motor channel. Input Range: 0 (CHA), 1 (CHC)
Frequency		Sets the upper and lower frequency limit of the specified motor channel. Upper Freq (9: 2MHz): Input Range: 0 (100Hz), 1 (500Hz), 2 (1kHz), 3 (5kHz), 4 (10kHz), 5 (50kHz), 6 (100kHz), 7 (500kHz), 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 PW4001 Conf Motor Freq Range.vi


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



Input

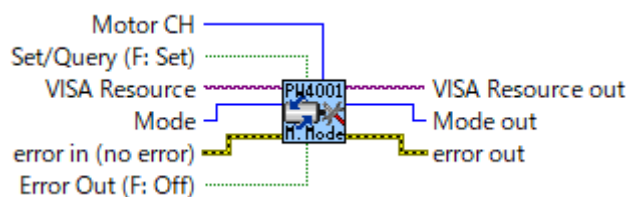
Name	Data Type	Explanation
Motor CH		Specifies the motor channel. Input Range: 0 (CHA), 1 (CHB), 2 (CHC)
Freq. Range		Sets the torque scaling, the center frequency and the frequency range of the input frequency range. Rated Torque (Nm): Value Input Range: ± 0.01 to 9999.99 Unit Input Range: 0 (k), 1 (), 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 PW4001 Conf Motor Analog Mode.vi

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



Input

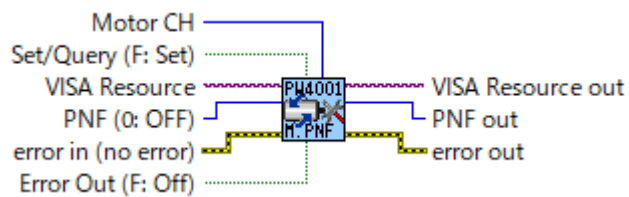
Name	Data Type	Explanation
Motor CH		Specifies the analog motor channel. Input Range: 0 (CHA), 1 (CHC)
Mode		Sets the input type. Input Range: 0 (ANALOG: Default), 1 (PULSE) Note: ANALOG: Analog DC input PULSE: Pulse input, Frequency input

Output

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

3.14.11 HIOKI PW4001 Conf Motor Pulse PNF.vi

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



Input

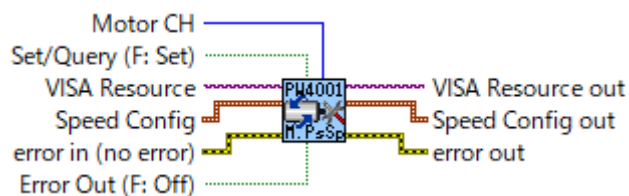
Name	Data Type	Explanation
Motor CH		Specifies the motor channel. Input Range: 0 (CHA), 1 (CHB), 2 (CHC), 3 (CHD)
PNF (0: OFF)		Sets the pulse noise filter. Input Range: 0 (OFF: Default), 1 (WEAK), 2 (STRONG) Note: OFF: Noise filter: OFF WEAK: Noise filter: weak STRONG: Noise filter: strong

Output



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

3.14.12 HIOKI PW4001 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

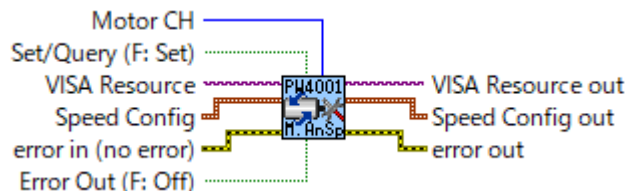
Name	Data Type	Explanation
Motor CH		Specifies the motor channel. Input Range: 0 (CHB), 1 (CHC), 2 (CHD)
Speed Config		Sets the pulse number, the number of poles and the input frequency source for slip calculation. Pulse Number Input Range: ± 1 to 60000 Poles Number Input Range: Any even value from 2 to 254 Slip Input Range: 0 (fU1), 1 (fU2) , 2 (fU3) , 3 (fU4) , 4 (fI1) , 5 (fI2) , 6 (fI3) , 7 (fI4)

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 PW4001 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

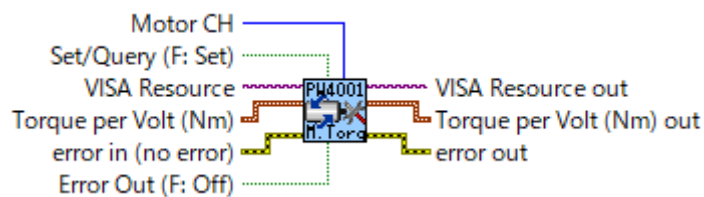
Name	Data Type	Explanation
Motor CH		Specifies the motor channel. Input Range: 0 (CHC)
Speed Config		Sets the RPM scaling, the number of poles and the input frequency source for slip calculation. Speed per Volt (r/min) Input Range: ± 0.00001 to 99999.9 Poles Number Input Range: Any even value from 2 to 254 Slip Input Range: 0 (fU1), 1 (fU2), 2 (fU3), 3 (fU4), 4 (fI1), 5 (fI2), 6 (fI3), 7 (fI4)

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 PW4001 Conf Motor Torque.vi


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



Input

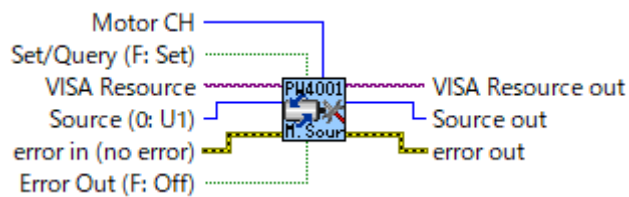
Name	Data Type	Explanation
Motor CH		Specifies the motor channel. Input Range: 0 (CHA), 1 (CHB), 2 (CHC)
Torque per Volt (Nm)		Sets the torque scaling. Value Input Range: ± 0.01 to 9999.99 Unit Input Range: 0 (k), 1 (), 2 (m)

Output

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

3.14.15 HIOKI PW4001 Conf Motor Source.vi

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



Input

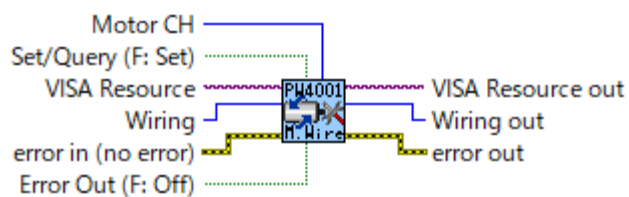
Name	Data Type	Explanation
Motor CH		Specifies the motor channel. Input Range: 0 (CHA), 1 (CHC)
Source (0: U1)		Sets the motor synchronization source. Input Range: 0 (U1), 1 (U2), 2 (U3), 3 (U4), 4 (I1), 5 (I2), 6 (I3), 7 (I4), 8 (DC), 9 (Ext1), 10 (Ext2), 11 (Zph1), 12 (CHB), 13 (CHD)

Output

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

3.14.16 HIOKI PW4001 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)
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))

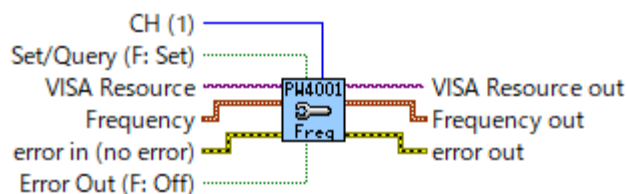
Output

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



3.15 Setting Frequency

3.15.1 HIOKI PW4001 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 4
Frequency		Sets the upper and lower measurement frequency limit and the frequency (HPF) for the zero-cross filter. Upper (8: 1MHz) Input Range: 0 (100Hz), 1 (500Hz), 2 (1kHz), 3 (5kHz), 4 (10kHz), 5 (50kHz), 6 (100kHz), 7 (500kHz), 8 (1MHz: 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)

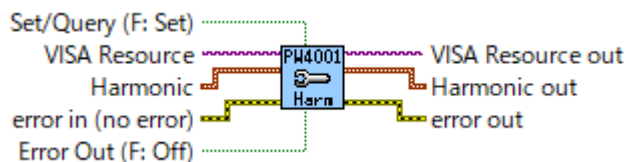
Output

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 PW4001 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>

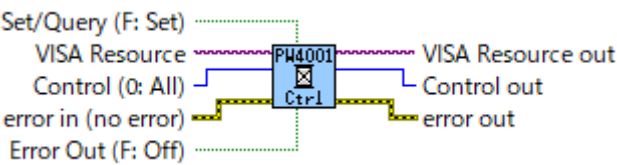
Output

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 PW4001 Conf Integ Control.vi

Sets and reads the integration control method.



Input

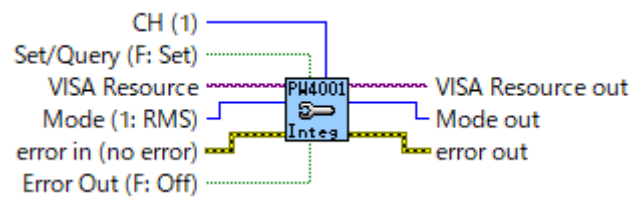
Name	Data Type	Explanation
Control (0: All)		Specifies the integration control method. Input Range: 0 (All: Default), 1 (Each) Note: ALL: All wiring integration EACH: Each wiring integration

Output

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

3.17.2 HIOKI PW4001 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 4
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.

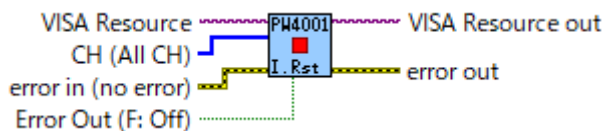
3.17.3 HIOKI PW4001 Integrate Reset.vi

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.

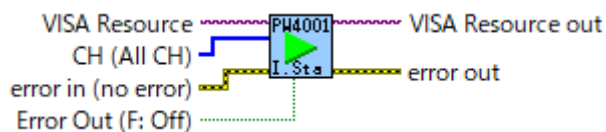


Input


Name	Data Type	Explanation
CH (All CH)	U8	<p>Specifies the channel. Input Range: 1 to 4</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 PW4001 Integrate Start.vi

Starts integration (time control).



Input

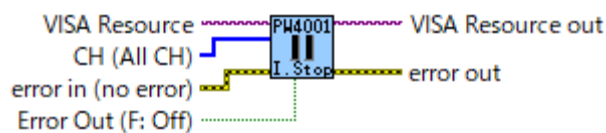
Name	Data Type	Explanation
CH (All CH)		<p>Specifies the channel. Input Range: 1 to 4</p> <p>No input Starts the integration of all wiring integration. It is valid only for all wiring integration.</p> <p>Input Starts the integration of the wiring including the channel specified by the parameter. It is valid only for each wiring.</p>

3.17.5 HIOKI PW4001 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 4</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 PW4001 Integrate Status.vi

Reads the integration (time control) state.



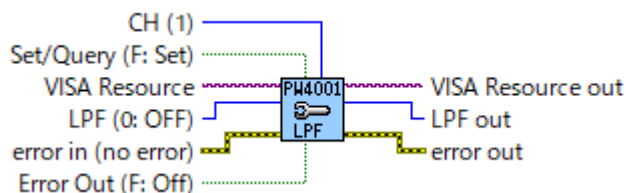
Output

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 PW4001 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 4
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) Note: Depending on the combination of lines to be measured, lowpass filter (LPF) settings for other channels combined will be changed.

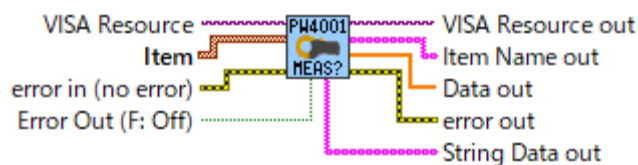
Output

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 PW4001 Measure with Item.vi




Reads the measurement data with item designation mode.
This VI is selectable from “HIOKI PW4001 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

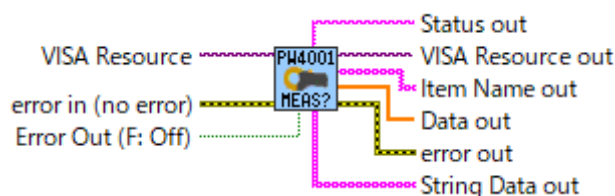
Name	Data Type	Explanation
Item Name out		Outputs the query results of the name of the specified item.
Data out		Outputs the query results of measurement data.
String Data out		Outputs the query results of measurement data in a string.

3.19.2 HIOKI PW4001 Measure with NoItem.vi





Reads the measurement data with no item designation mode.
This VI is selectable from "HIOKI PW4001 Measure.vi".

Note:

Creates measurement data for the item specified by "HIOKI PW4001 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 PW4001 Measure.vi).



Output

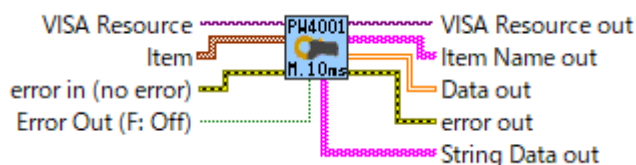
Name	Data Type	Explanation
Status out		Outputs the query results of the status data.
Item Name out		Outputs the query results of the name of the measurement item.
Data out		Outputs the query results of measurement data.
String Data out		Outputs the query results of measurement data in a string.

3.19.3 HIOKI PW4001 Measure 10ms with Item.vi


Reads the measurement data with item designation mode. (Interval: 10 ms)
This VI is selectable from “HIOKI PW4001 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

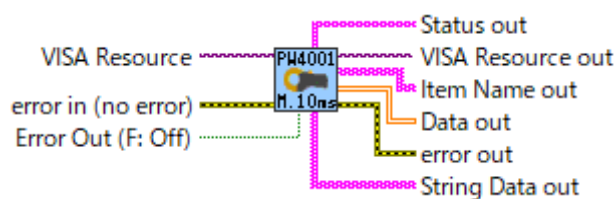
Name	Data Type	Explanation
Item Name out		Outputs the query results of the name of the specified item.
Data out		Outputs the query results of measurement data.
String Data out		Outputs the query results of measurement data in a string.

3.19.4 HIOKI PW4001 Measure 10ms with NoItem.vi





Reads the measurement data with no item designation mode. (Interval: 10 ms)
This VI is selectable from "HIOKI PW4001 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 PW4001 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 PW4001 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 PW4001 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.

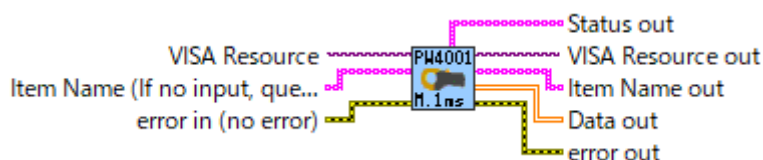
This VI is selectable from "HIOKI PW4001 Measure 1ms.vi".

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 PW4001 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 PW4001 Measure.vi).



Input

Name	Data Type	Explanation
Item Name (If no input, query item name)	[abc]	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 PW4001 Measure.vi). Note that the data will not be sorted in the order of the names entered here.

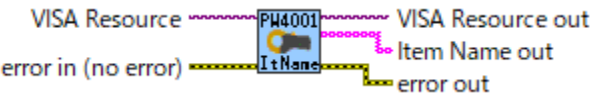
Output

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

3.19.6 HIOKI PW4001 Measure 1ms Item Name.vi

Reads the pre-specified item names used in "HIOKI PW4001 Measure 1ms with NoItem.vi".
This VI is selectable from "HIOKI PW4001 Measure 1ms.vi".

Note:
Creates the item name specified in "HIOKI PW4001 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 PW4001 Measure.vi).

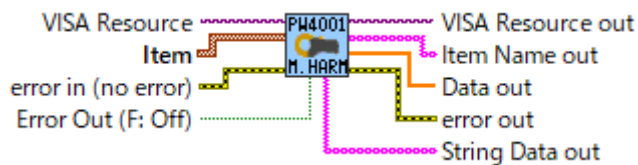


Output


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

3.19.7 HIOKI PW4001 Measure Harmonic with Item.vi




Reads the harmonic measurement data with item designation mode.
This VI is selectable from “HIOKI PW4001 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

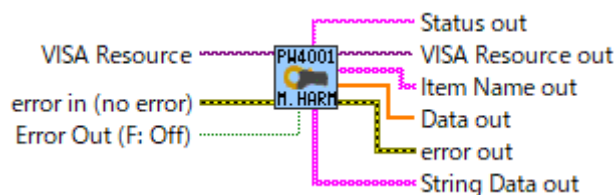
Name	Data Type	Explanation
Item Name out		Outputs the query results of the name of the specified item.
Data out		Outputs the query results of measurement data.
String Data out		Outputs the query results of measurement data in a string.

3.19.8 HIOKI PW4001 Measure Harmonic with Noltem.vi





Reads the measurement data with no item designation mode.
This VI is selectable from "HIOKI PW4001 Measure Harmonic.vi".

Note:

Creates measurement data for the item specified by "HIOKI PW4001 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 PW4001 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 PW4001 Conf MeasureItem AllClear.vi

Initializes communication output data Items.

All the communication output data Items will be turned OFF.

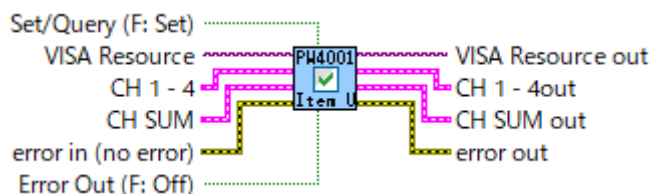


3.19.10 HIOKI PW4001 Conf MeasureItem U.vi

Sets and reads communication output items of voltage data and total voltage data.
This VI is selectable from "HIOKI PW4001 Conf MeasureItem.vi".

Note:

This VI specifies the output measurement item for "HIOKI PW4001 Measure with Noltem.vi", "HIOKI PW4001 Measure 10ms with Noltem.vi" and "HIOKI PW4001 Measure 1ms with Noltem.vi".



Input

Name	Data Type	Explanation
CH1 - 4		Sets communication output items of voltage data.
CH SUM		Sets communication output items of total voltage data.

Output

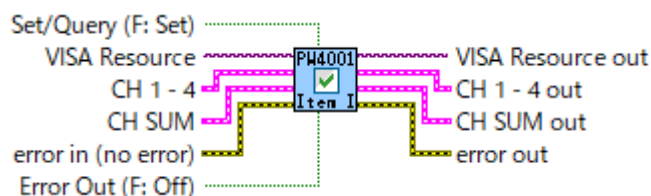
Name	Data Type	Explanation
CH 1 - 4 out		Outputs the query results of communication output items of voltage data.
CH SUM out		Outputs the query results of communication output items of total voltage data.

3.19.11 HIOKI PW4001 Conf MeasureItem I.vi

Sets and reads communication output items of current data and total current data.
This VI is selectable from "HIOKI PW4001 Conf MeasureItem.vi".

Note:

This VI specifies the output measurement item for "HIOKI PW4001 Measure with Noltem.vi", "HIOKI PW4001 Measure 10ms with Noltem.vi" and "HIOKI PW4001 Measure 1ms with Noltem.vi".



Input

Name	Data Type	Explanation
CH1 - 4		Sets communication output items of current data.
CH SUM		Sets communication output items of total current data.

Output

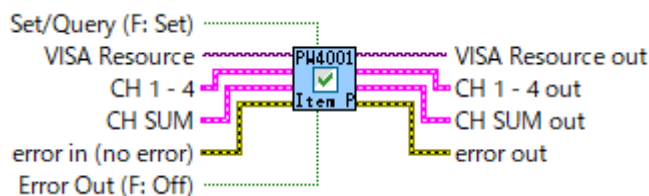
Name	Data Type	Explanation
CH 1 - 4 out		Outputs the query results of communication output items of current data.
CH SUM out		Outputs the query results of communication output items of total current data.

3.19.12 HIOKI PW4001 Conf MeasureItem P.vi

Sets and reads communication output items of power data and total power data.
This VI is selectable from "HIOKI PW4001 Conf MeasureItem.vi".

Note:

This VI specifies the output measurement item for "HIOKI PW4001 Measure with Noltem.vi", "HIOKI PW4001 Measure 10ms with Noltem.vi" and "HIOKI PW4001 Measure 1ms with Noltem.vi".



Input

Name	Data Type	Explanation
CH1 - 4		Sets communication output items of power data.
CH SUM		Sets communication output items of total power data.

Output

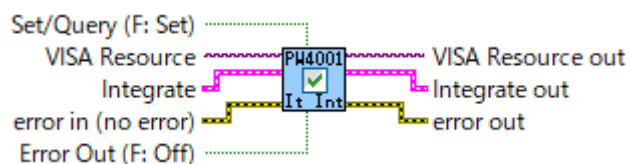
Name	Data Type	Explanation
CH 1 - 4 out		Outputs the query results of communication output items of power data.
CH SUM out		Outputs the query results of communication output items of total power data.

3.19.13 HIOKI PW4001 Conf MeasureItem Integrate.vi


Sets and reads communication output items of integration data.
This VI is selectable from "HIOKI PW4001 Conf MeasureItem.vi".

Note:


This VI specifies the output measurement item for "HIOKI PW4001 Measure with Noltem.vi", "HIOKI PW4001 Measure 10ms with Noltem.vi" and "HIOKI PW4001 Measure 1ms with Noltem.vi".



Input

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

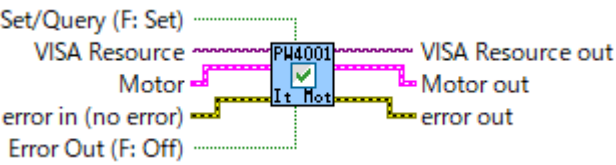
Output

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


3.19.14 HIOKI PW4001 Conf MeasureItem Motor.vi

Sets and reads communication output items of motor data.
This VI is selectable from “HIOKI PW4001 Conf MeasureItem.vi”.


Note:
This VI specifies the output measurement item for "HIOKI PW4001 Measure with Noltem.vi", "HIOKI PW4001 Measure 10ms with Noltem.vi" and "HIOKI PW4001 Measure 1ms with Noltem.vi".



Input

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

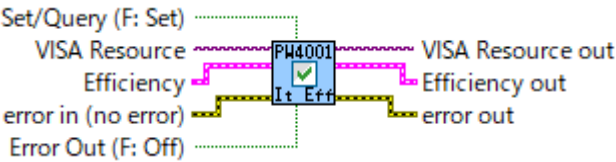
Output

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

3.19.15 HIOKI PW4001 Conf MeasureItem Efficiency.vi

Sets and reads communication output items of efficiency and loss data.
This VI is selectable from "HIOKI PW4001 Conf MeasureItem.vi".

Note:
This VI specifies the output measurement item for "HIOKI PW4001 Measure with Noltem.vi", "HIOKI PW4001 Measure 10ms with Noltem.vi" and "HIOKI PW4001 Measure 1ms with Noltem.vi".



Input

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

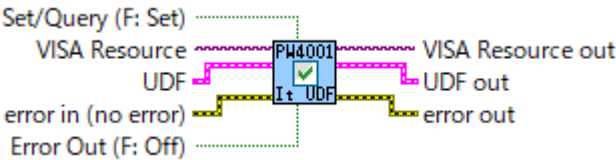
Output

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


3.19.16 HIOKI PW4001 Conf MeasureItem UDF.vi

Sets and reads communication output items of user-defined formulas (UDF).
 This VI is selectable from "HIOKI PW4001 Conf MeasureItem.vi".


Note:
 This VI specifies the output measurement item for "HIOKI PW4001 Measure with Noltem.vi", "HIOKI PW4001 Measure 10ms with Noltem.vi" and "HIOKI PW4001 Measure 1ms with Noltem.vi".



Input

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

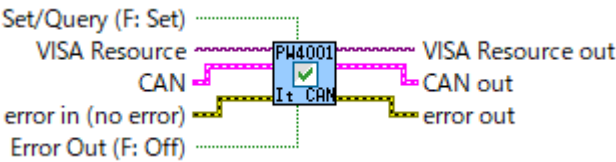
Output

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

3.19.17 HIOKI PW4001 Conf MeasureItem CAN.vi

Sets and reads communication output items of CAN.
 This VI is selectable from "HIOKI PW4001 Conf MeasureItem.vi".

Note:
 This VI specifies the output measurement item for "HIOKI PW4001 Measure with Noltem.vi", "HIOKI PW4001 Measure 10ms with Noltem.vi" and "HIOKI PW4001 Measure 1ms with Noltem.vi".



Input

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

Output

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

3.19.18 HIOKI PW4001 Conf MeasureItem Harmonic AllClear.vi

Initializes communication output harmonic data Items.

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

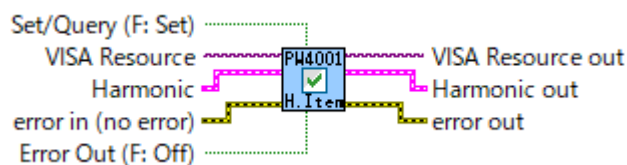


3.19.19 HIOKI PW4001 Conf MeasureItem Harmonic.vi


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

Note:


This VI specifies the output measurement item for "HIOKI PW4001 Measure Harmonic with NoItem.vi".



Input

Name	Data Type	Explanation
Harmonic		List: Sets communication output items of harmonic data. Order Min: Sets the lower limit order. Input Range: 0 (Default) to 500 Max: Sets the upper limit order. Input Range: 0 (Default) to 500 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

Output

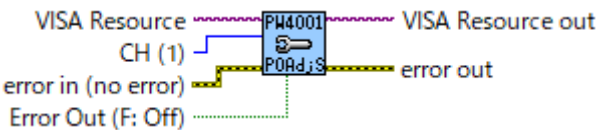
Name	Data Type	Explanation
Harmonic out		Outputs the query results of communication output items of harmonic data.

3.20 Phase Zero Adjustment

3.20.1 HIOKI PW4001 Phase ZeroAdjust Set.vi

Executes phase zero adjustment of wiring including a specified channel.
This VI is selectable from “HIOKI PW4001 Phase Adjust.vi”.

Note:
If a selected synchronous source of a wiring connection including a specified channel is other than Ext1 and Ext2, a command execution error occurs.



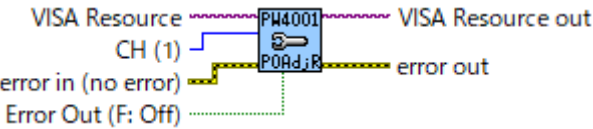
Input

Name	Data Type	Explanation
CH (1)		Sets the Input unit. Input Range: 1 (Default) to 4

3.20.2 HIOKI PW4001 Phase ZeroAdjust Reset.vi

Resets the phase zero adjustment value of a wiring connection including a specified channel.
This VI is selectable from “HIOKI PW4001 Phase Adjust.vi”.

Note:
If a selected synchronous source of a wiring connection including a specified channel is other than Ext1 and Ext2, a command execution error occurs.



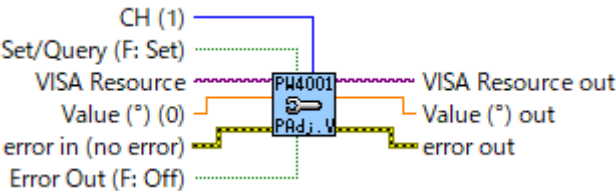
Input

Name	Data Type	Explanation
CH (1)		Sets the Input unit. Input Range: 1 (Default) to 4

3.20.3 HIOKI PW4001 Phase Adjust Value.vi

Sets the phase zero adjustment degree of a wiring connection including a specified channel.
This VI is selectable from “HIOKI PW4001 Phase Adjust.vi”.

Note:
If a selected synchronous source of a wiring connection including a specified channel is other than Ext1 and Ext2, 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 4
Value (°) (0)		Sets the phase zero adjustment degree. Input Range: -180.0000 to +180.0000

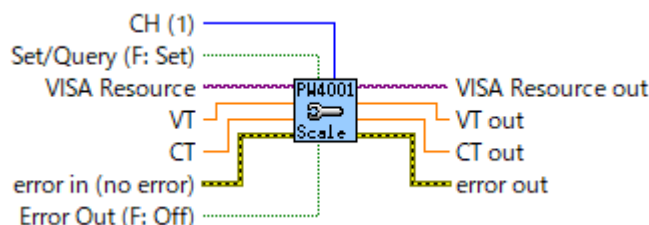
Output

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

3.21 Scaling

3.21.1 HIOKI PW4001 Conf Scale.vi

Sets and reads the CT, VT.



Input

Name	Data Type	Explanation
CH (1)		Specifies the channel. Input Range: 1 (Default) to 4
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.

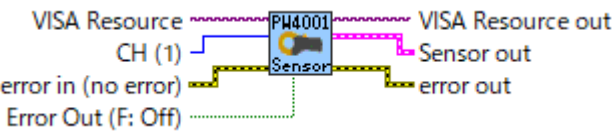
Output

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 PW4001 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 4

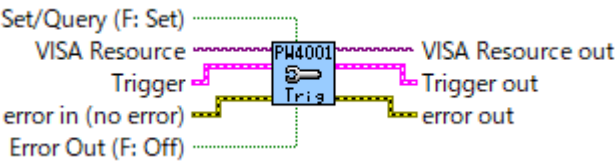
Output

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 PW4001 Conf Trigger General.vi


Sets and reads the general settings of the trigger function.



Input

Name	Data Type	Explanation
Trigger		Sets the trigger settings. Auto Trigger (F: OFF) Input Range: False (OFF: Default), True (ON) 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),

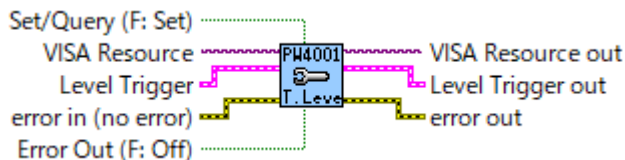
Output

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


3.23.2 HIOKI PW4001 Conf Trigger Level.vi

Sets and reads the settings of the level trigger.


This VI is selectable from “HIOKI PW4001 Conf Trigger Type.vi”.



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), 5 (I1), 6 (I2), 7 (I3), 8 (I4), 9 (U1FILT), 10 (U2FILT), 11 (U3FILT), 12 (U4FILT), 13 (I1FILT), 14 (I2FILT), 15 (I3FILT), 16 (I4FILT), 17 (EXT1), 18 (EXT2), 19 (CHA), 20 (CHB), 21 (CHC), 22 (CHD)</p> <p>Note: U1 – I4: Voltage and current waveforms (Zero-cross Filter OFF) U1FILT – I4FILT: Voltage and current waveforms (Zero-cross Filter ON) EXT1 - CHD: 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>

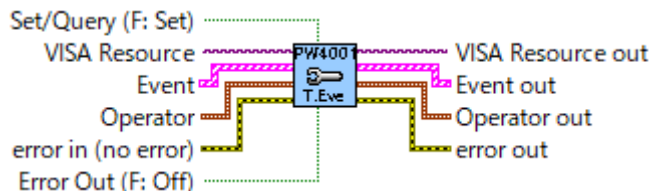
Output

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



3.23.3 HIOKI PW4001 Conf Trigger Event.vi

Sets and reads the settings of the event trigger.



This VI is selectable from “HIOKI PW4001 Conf Trigger Type.vi”.



Input

Name	Data Type	Explanation
Event		<p>Sets the event trigger settings.</p> <p>Item Sets the trigger source.</p> <p>Slope (0: LT) Sets the inequality sign. Input Range: 0 (LT: Default), 1 (GT) Note: LT: Less than GT: Greater than</p> <p>Threshold Sets the boundary value. Input Range: $\pm 1.00000n$ to 999.999T</p>
Operator		<p>Sets the logical operator.</p> <p>Ev1 – Ev2 Ev2 – Ev3 Ev3 – Ev4 Input Range: 0 (OFF: Default), 1 (AND), 2 (OR)</p>

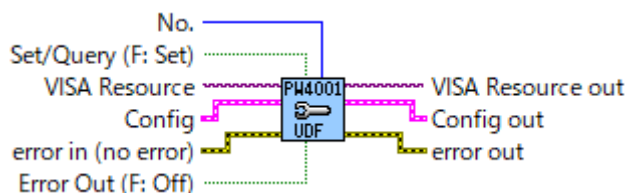
Output

Name	Data Type	Explanation
Event out		Outputs the query results of the event trigger settings.
Operator out		Outputs the query results of the operator settings.



3.24 User-defined Formulas

3.24.1 HIOKI PW4001 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 (0: OFF) Sets Integration function for UDF. Input Range: 0 (OFF: Default), 1 (Positive), 2 (Negative), 3 (Total) 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: $\pm 1.00000n \sim \pm 999.999T$

		<p>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 (/)</p> <p>Function (0: none) Item Const Value (Valid when Item: Const)</p>
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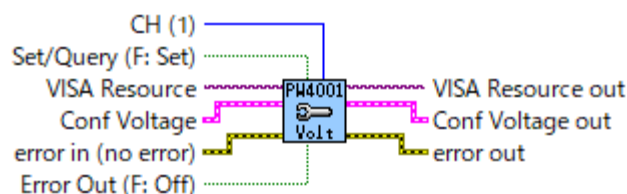
Output

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 PW4001 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 4
Conf Voltage		Sets for the voltage settings. Range Auto (F: OFF) Input Range: False (OFF: Default), True (ON) Note: When Auto is set to OFF, the Manual setting is enabled. Manual (V) (7: 1500) Input Range: 0 (6), 1 (15), 2 (30), 3 (60), 4 (150), 5 (300), 6 (600), 7 (1500: Default) Note: After you change the range, wait a few moments until the internal circuitry stabilizes before you read any measured values. Phase Shift Correct (0: OFF) Sets phase correction formulas for voltage. Input Range: 0 (OFF: Default), 1 (ON) Note: OFF: Does not perform phase compensation calculation for voltage. ON: Performs the phase compensation calculation for voltage. Frequency Sets phase correction frequency for voltage. (The unit is [kHz].) Input Range: 0.1 to 5000.0 (0.1: Default) Degree Sets phase correction angle for voltage. (The unit is [°].) Input Range: -180.0 to 180.0 (0.0: Default) Mean (F: OFF)

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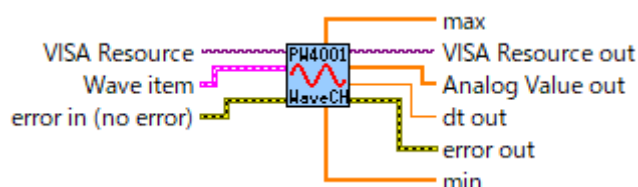
Output

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


3.26 Regarding Waveforms

3.26.1 HIOKI PW4001 Measure Wave_CH.vi





Reads the analog wave data. This VI is valid only when connected to LAN.
This VI is selectable from “HIOKI PW4001 Measure Wave.vi”.



Input

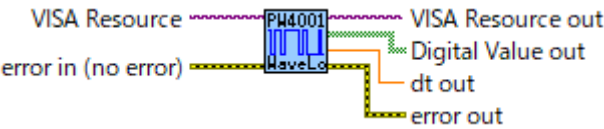
Name	Data Type	Explanation
Wave item		<p>Creates analog wave data specified by the <Item>.</p> <p>Item Input Range: 0 (U1), 1 (U2), 2 (U3), 3 (U4), 4 (I1), 5 (I2), 6 (I3), 7 (I4), 8 (A), 9 (C)</p> <p>Note: Motor waveforms (A and C) can only be acquired with products with motor analysis option. Motor 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.
max		Outputs the query results for the maximum value of the wave data
min		Outputs the query results for the minimum value of the wave data

3.26.2 HIOKI PW4001 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 PW4001 Measure Wave.vi”.

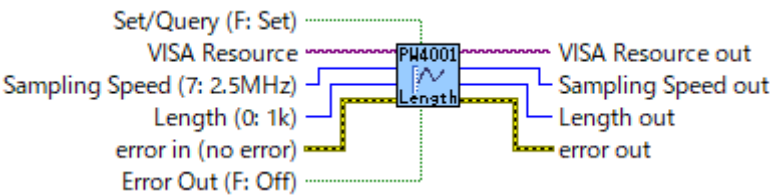


Output

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 PW4001 Conf Wave Length.vi

Sets and reads the recording length for a waveform.



Input

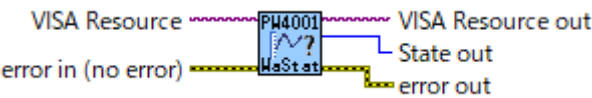
Name	Data Type	Explanation
Sampling Speed (7: 2.5MHz)		Sets the sampling speed of the waveform. Input Range: 0 (10kHz), 1 (25kHz), 2 (50kHz), 3 (100kHz), 4 (250kHz), 5 (500kHz), 6 (1MHz), 7 (2.5MHz: Default)
Length (0: 1k)		Sets a recording length for a waveform. The unit is word. Input Range: 0 (1k: Default), 1 (5k), 2 (10k), 3 (50k), 4 (100k), 5 (500k), 6 (1M), 7 (5M)

Output


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

3.26.4 HIOKI PW4001 Wave State.vi

Reads the waveform acquisition status.

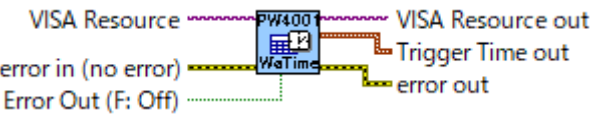


Output

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>

3.26.5 HIOKI PW4001 Wave Time.vi

Reads the waveform trigger detection time.



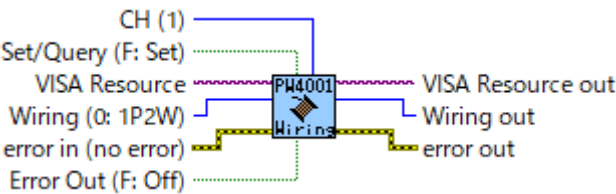
Output

Name	Data Type	Explanation
Trigger Time out		<p>Outputs the query results of the waveform detection time.</p> <p>Year Output Range: 2025 to 2099</p> <p>Month Output Range: 1 to 12</p> <p>Day Output Range: 1 to 31</p> <p>Hour Output Range: 0 to 23</p> <p>Minute Output Range: 0 to 59</p> <p>Second Output Range: 0 to 59</p> <p>Millisecond Output Range: 0 to 990</p> <p>Note: After power-on and before waveform storage is executed, all outputs are 0.</p>

3.27 Wiring Settings

3.27.1 HIOKI PW4001 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 4
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

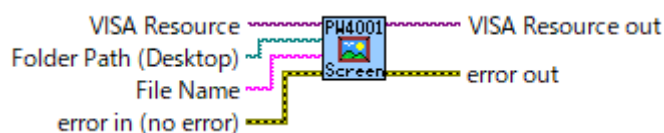
Name	Data Type	Explanation
Wiring out		Outputs the query results of the wiring method.

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 PW4001 ScreenShot.vi

The screen data displayed in PW4001 is acquired. This VI is valid only when connected to LAN.



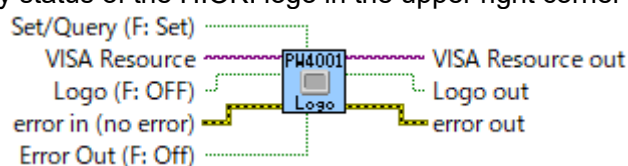
Input

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.


3.29 Logo

3.29.1 HIOKI PW4001 Logo.vi


Sets and reads the Display status of the HIOKI logo in the upper right corner of the screen.



Input

Name	Data Type	Explanation
Logo (F: OFF)		Sets the Logo Input Range: False (OFF: Default), True (ON)

Output

Name	Data Type	Explanation
Logo out		Outputs the query results of the Logo

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 Urms12, Urms23, Urms34, Urms123, Urms234
Voltage average value rectifier RMS value equivalent	Umn	Umn1, Umn2, Umn3, Umn4, Umn12, Umn23, Umn34, Umn123, Umn234
Voltage AC component	Uac	Uac1, Uac2, Uac3, Uac4
Voltage simple average	Udc	Udc1, Udc2, Udc3, Udc4
Voltage fundamental wave component	Ufnd	Ufnd1, Ufnd2, Ufnd3, Ufnd4
Voltage waveform peak +	Upk+	PUpk1, PUpk2, PUpk3, PUpk4
Voltage waveform peak -	Upk-	MUpk1, MUpk2, MUpk3, MUpk4
Total voltage harmonic distortion	Uthd	Uthd1, Uthd2, Uthd3, Uthd4
Voltage ripple factor	Urf	Urf1, Urf2, Urf3, Urf4
Voltage unbalance rate	Uunb	Uunb123, Uunb234
Current RMS value	Irms	Irms1, Irms2, Irms3, Irms4 Irms12, Irms23, Irms34 Irms123, Irms234
Current average value rectifier RMS equivalent	Imn	Imn1, Imn2, Imn3, Imn4 Imn12, Imn23, Imn34 Imn123, Imn234
Current AC component	Iac	Iac1, Iac2, Iac3, Iac4
Current simple average	Idc	Idc1, Idc2, Idc3, Idc4
Current fundamental wave component	Ifnd	Ifnd1, Ifnd2, Ifnd3, Ifnd4
Current waveform peak +	Ipk+	PIpk1, PIpk2, PIpk3, PIpk4
Current waveform peak -	Ipk-	MIpk1, MIpk2, MIpk3, MIpk4
Total current harmonic distortion	Ithd	Ithd1, Ithd2, Ithd3, Ithd4
Current ripple factor	Irf	Irf1, Irf2, Irf3, Irf4
Current unbalance rate	Iunb	Iunb123, Iunb234
Active power	P	P1, P2, P3, P4, P12, P23, P34, P123, P234
Fundamental wave active power	Pfnd	Pfnd1, Pfnd2, Pfnd3, Pfnd4 Pfnd12, Pfnd23, Pfnd34 Pfnd123, Pfnd234
Apparent power	S	S1, S2, S3, S4, S12, S23, S34, S123, S234

Measurement item	Instru- ment's notation	Measurement item
Fundamental wave apparent power	Sfnd	Sfnd1, Sfnd2, Sfnd3, Sfnd4, Sfnd12, Sfnd23, Sfnd34, Sfnd123, Sfnd234
Reactive power	Q	Q1, Q2, Q3, Q4, Q12, Q23, Q34, Q123, Q234
Fundamental wave reactive power	Qfnd	Qfnd1, Qfnd2, Qfnd3, Qfnd4, Qfnd12, Qfnd23, Qfnd34, Qfnd123, Qfnd234
Power factor	λ	PF1, PF2, PF3, PF4, PF12, PF23, PF34, PF123, PF234
Fundamental wave power factor	λ fnd	PFfnd1, PFfnd2, PFfnd3, PFfnd4, PFfnd12, PFfnd23, PFfnd34, PFfnd123, PFfnd234
Voltage phase angle	θ_U	Udeg1, Udeg2, Udeg3, Udeg4
Current phase angle	θ_I	Ideg1, Ideg2, Ideg3, Ideg4
Power phase angle	φ	DEG1, DEG2, DEG3, DEG4 DEG12, DEG23, DEG34, DEG123, DEG234
Voltage frequency	f _U	FU1, FU2, FU3, FU4
Current frequency	f _I	FI1, FI2, FI3, FI4
Positive integration current	I _{h+}	PIH1, PIH2, PIH3, PIH4
Negative integration current	I _{h-}	MIH1, MIH2, MIH3, MIH4
Positive and negative integration current sum	I _h	IH1, IH2, IH3, IH4
Positive integration power sum	WP+	PWP1, PWP2, PWP3, PWP4, PWP12, PWP23, PWP34, PWP123, PWP234
Negative integration power sum	WP-	MWP1, MWP2, MWP3, MWP4, MWP12, MWP23, MWP34, MWP123, MWP234
Positive and negative integration power sum	WP	WP1, WP2, WP3, WP4, WP12, WP23, WP34 WP123, WP234
Efficiency	η	Eff1, Eff2, Eff3, Eff4
Loss	Loss	Loss1, Loss2, Loss3, Loss4
Torque	T _q	Tq1, Tq2
RPM	Spd	Spd1, Spd2
Motor power	P _m	Pm1, Pm2
Slip	Slip	Slip1, Slip2
Free input in independent input mode	CH	CHA, CHB, CHC, CHD
User-defined Formulas	UDF	UDF1, UDF2, UDF3, UDF4, UDF5, UDF6, UDF7, UDF8, UDF9, UDF10, UDF11, UDF12, UDF13, UDF14, UDF15, UDF16, UDF17, UDF18, UDF19, UDF20

CAN	CAN	CAN1, CAN2, CAN3, CAN4, CAN5, CAN6, CAN7, CAN8, CAN9, CAN10, CAN11, CAN12, CAN13, CAN14, CAN15, CAN16, CAN17, CAN18, CAN19, CAN20
-----	-----	---

4.2 List and Order of Direct Specification Items for HIOKI PW4001 Measure.vi

Measurement item	Parameter list and order
Status	StatusAllCH: Status StatusEachCH: Status1, Status2, Status3, Status4 StatusMotor: StatusM
Integrated elapsed time	ElapsedTimeAllCH: Etime ElapsedTimeEachCH: Etime1, Etime2, Etime3, Etime4
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 Status4 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 PW4001 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 Etime4.

4.3 Channel Statuses (Status1, Status2, Status3, Status4)

Statuses for channels are Status1 through Status4. (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
----	----	----	----	----	----	----	----
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 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 PW4001 Measure Harmonic.vi

Harmonic measurement item		
Status		Status
0th	Harmonic voltage RMS value	HU1L000, HU2L000, HU3L000, HU4L000
	Harmonic voltage content percentage	HU1D000, HU2D000, HU3D000, HU4D000
	Harmonic voltage phase angle	HU1P000, HU2P000, HU3P000, HU4P000
	Harmonic current RMS value	HI1L000, HI2L000, HI3L000, HI4L000
	Harmonic current content percentage	HI1D000, HI2D000, HI3D000, HI4D000
	Harmonic current phase angle	HI1P000, HI2P000, HI3P000, HI4P000
	Harmonic active power	HP1L000, HP2L000, HP3L000, HP4L000 HP12L000, HP23L000, HP34L000, HP123L000,HP234L000
	Harmonic power content percentage	HP1D000, HP2D000, HP3D000, HP4D000 HP12D000, HP23D000, HP34D000 HP123D000, HP234D000
	Harmonic voltage/current phase angle	HP1P000, HP2P000, HP3P000, HP4P000 HP12P000, HP23P000, HP34P000 HP123P000, HP234P000
n-th	...	The suffix in 3 digits shows the order "n".
500-th	Harmonic voltage RMS value	HU1L500, HU2L500, HU3L500, HU4L500
	Harmonic voltage content percentage	HU1D500, HU2D500, HU3D500, HU4D500
	Harmonic voltage phase angle	HU1P500, HU2P500, HU3P500, HU4P500
	Harmonic current RMS value	HI1L500, HI2L500, HI3L500, HI4L500
	Harmonic current content percentage	HI1D500, HI2D500, HI3D500, HI4D500
	Harmonic current phase angle	HI1P500, HI2P500, HI3P500, HI4P500
	Harmonic active power	HP1L500, HP2L500, HP3L500, HP4L500 HP12L500, HP23L500, HP34L500, HP123L500,HP234L500,
	Harmonic power content percentage	HP1D500, HP2D500, HP3D500, HP4D500 HP12D500, HP23D500, HP34D500, HP123D500, HP234D500,
	Harmonic voltage/current phase angle	HP1P500, HP2P500, HP3P500, HP4P500 HP12P500, HP23P500, HP34P500 HP123P500, HP234P500
Harmonics synchronization frequency		HF1, HF2, HF3, HF4

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 4 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
----	----	----	----	UCU4	UCU3	UCU2	UCU1
bit 15	bit 14	bit 13	bit 12	bit 11	bit 10	bit 9	bit 8
----	----	----	----	ZH4	ZH3	ZH2	ZH1
bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0
----	----	----	----	RF4	RF3	RF2	RF1

Bit	Abbreviation	Detail
16 to 19	UCU	Calculation unavailable (If data measured immediately after frequency fluctuation of a synchronization source is invalid.)
8 to 11	ZH	Harmonics waveform with forced zero-cross
0 to 3	RF	Frequency range exceeded