PW3365-20
CLAMP ON POWER LOGGER
Measurement Guide

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PW3365A984-01 18-04H

HIOKI

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Thank you for purchasing the HIOKI PW3365-20 Clamp On Power Logger.
This guide introduces the PW3365-20's basic measurement procedure with the Quick Set to first time users.
Before using the instrument, be sure to read the Instruction manual carefully.

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Easy configuration with the **Quick** Set

How to configure electric energy measurement for a 3-phase 4-wire 220 V line

Setting Items	Setting Example
Wiring	: 3P4W (3-phase 4-wire)
Clamp sensor	: Model 9661 (500 A rating)
Current range	: 50 A
Save to...	: SD memory card
Save interval	: 5 minutes
Save items	: Average only
Folder/Filename	: Automatic
Rec. start method	: Interval
Rec. stop method	: Manual
Clock setting	: User-specified
Measurement frequency	: 50 Hz

You will need

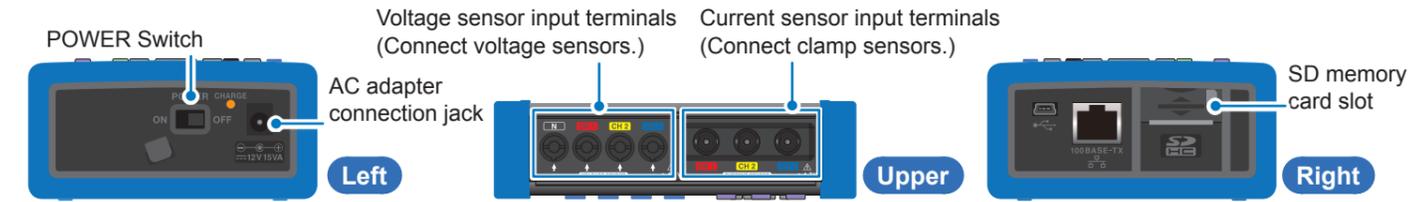**Model PW3365-20**

Model Z1008 AC Adapter

Model PW9020 Safety Voltage Sensor x4

Model 9661 Clamp on Sensor (optional) x 3

Red (CH1)
Yellow (CH2)
Blue (CH3)
Color clips for clamp sensors

Red (CH1)
Yellow (CH2)
Blue (CH3)
Color clips for voltage sensors

SD memory card (optional)

Concept image of measurement 3-phase 4-wire 220 V line

Preparations

1 Attach the color clips.

(CH1) (CH2) (CH3) (N)   (CH1) (CH2) (CH3)

Red Yellow Blue None   Red Yellow Blue

Model 9661   Model PW9020

2 Insert the SD memory card. (on right side of instrument)

Be sure to provide a Hioki optional SD Memory Card.
Operation is not guaranteed with other SD memory cards.
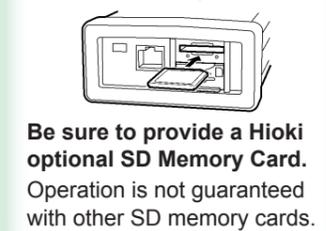
3 Connect the AC adapter.
(on left side of instrument)

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1. Starting the Quick Set

1 Turn on the instrument.
(on left side of instrument)

QUICK SET

2 Press the 〇 key.

The Quick Set Start dialog will be displayed.

QUICK SET START
Start QUICK SET.
Do you want to initialize the measurement/recording settings?
Yes: ENTER key   STOP QS: ESC key

POWER CHAR
ON ◼ OFF — 1

3 2

First time powered on only

Language setting
↓
Measurement frequency setting
(50 Hz)

3 Press the Enter key.

2. Basic settings

1 Configure settings as shown in screenshot below.

QuickSet 1/9 BasicSet   14-05-15 15:50:55
WIRING   3P4W(3Phase4Wire)
V SENSOR   PW9020
CLAMP SENSOR 9661(500A)   ALL CHANNELS
SAVE TO...   SD CARD
CLOCK   2014 Y 05 M 15 D 15 : 50 : 00
Select a wiring method using ENTER.
Wiring methods using QS are limited
              NEXT   HELP   STOP QS

→ 3P4W
→ 9661 (500 A)
→ SD CARD
→ Set the current time.

F2 **2 Press the F2 [NEXT] key.**

Names of Parts (excerpt)

POWER Switch
AC adapter connection jack
Left

Voltage sensor input terminals (Connect voltage sensors.)
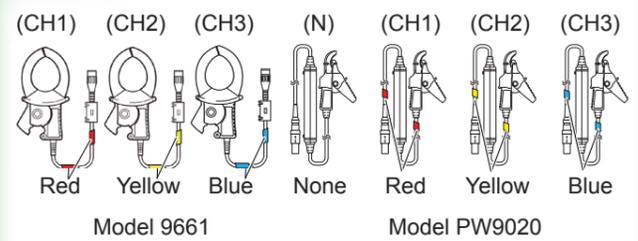Current sensor input terminals (Connect clamp sensors.)
Upper

SD memory card slot
Right

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3. Connect the sensors to the instrument.

Match the color of each sensor's color clip to the color of the terminal.

QuickSet 2/9 Connect   14-05-15 15:51:10
LOCK
SD CARD
SD
Connect the voltage sensors and clamp sensors using the color guides.
PREVIOUS NEXT   STOP QS

1 Connect the voltage sensors to the voltage sensor input terminals.

2 Connect the clamp sensors to the current sensor input terminals.

3 Be sure that the SD memory card is inserted. (on right side of instrument)
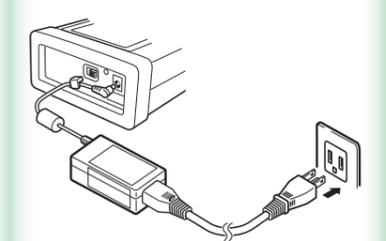
F2 4 Press the F2 [NEXT] key.

Voltage sensor connector
Align — Insert
Voltage sensor input terminals

Clamp sensor connector (BNC)
Line up — 1 Insert — Line up
Current sensor input terminals
2 Lock the connector.

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4. Connecting voltage sensors to the measurement target

QuickSet 3/9 Wiring   14-05-15 15:53:13
SOURCE R   R LOAD U1 218 V
        S   S   U2 217 V
        T   T   U3 219 V
        N   N   f   50.0 Hz
U1 U2 U3 I1 I2 I3
PASS U INPUT
FAIL U PHASE
Connect the voltage sensors.
ENTER to view the SUMMARY.
PREVIOUS NEXT   STOP QS

1 Refer to the wiring diagram to check the locations to which you have connected the voltage sensors.

2 Connect the voltage sensors to the secondary side of the breaker.

3 Check the readings.
In this example, the screen should indicate approximately 220 V and 50 Hz if there is no problem.
(Because the measurement target is a 220 V line, and the frequency being measured is 50 Hz.)

4 Verify the results of checking the wiring. All results are **PASS**.

5 Press the F2 [NEXT] key.

If there is a **FAIL** result:

1 Move the cursor to **FAIL** item.
2 Press the **Enter** key.
3 Check the contents of the dialog box and correct the wiring.

VOLTAGE PHASE SUMMARY
FAIL will display when the voltage phase exceeds the range (±10 degrees of reference.)
・Are the wiring settings correct?
・Are the voltage sensors correctly wired?
・Were the phases incorrectly laid out during construction?
NEXT : ▽, Hit ESC to close.

Proper application
Example: 3-phase 4-wire 220 V line
Secondary side of breaker

Secondary side (Load side)
A B C N

OK

Align the insulated wire with the marks on the voltage sensor to the wire.

Red
Yellow
Blue
None

For more information, see "3.6 Connecting the Voltage Sensors to Target to be Measured" in the instruction manual.

**Improper application** Failure to apply the sensor properly will prevent you from being to make an accurate measurement.

Clamped with the tips of the clip
Clamped too far back in the clip
Clamped with the measurement target at an angle
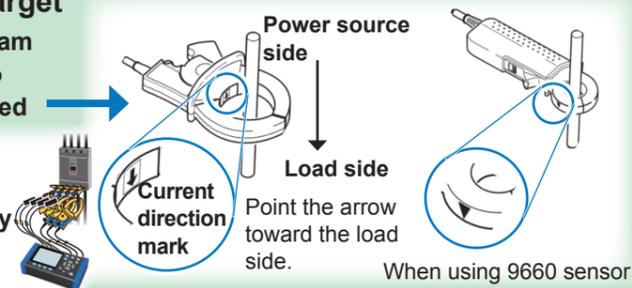Clamping targets with different voltages at the same time

💡 **Tip**

The power source side of the breaker is called the primary side; whereas the load side, the secondary side.
For your safety, connect the voltage sensors and the clamp sensors to the secondary side.

Primary side   Secondary side

A B C
Breaker
Source side   Load side

5. Connecting clamp sensors to the measurement target
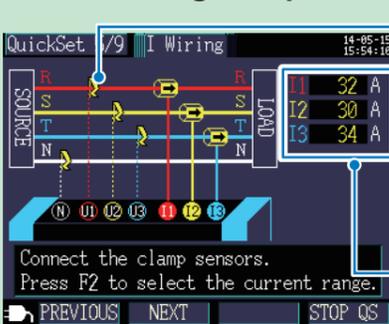
1 Refer to the wiring diagram to check the locations to which you have connected the clamp sensors.

2 Connect the clamp sensors to the secondary side of the breaker.

3 Verify that measured values are being displayed.

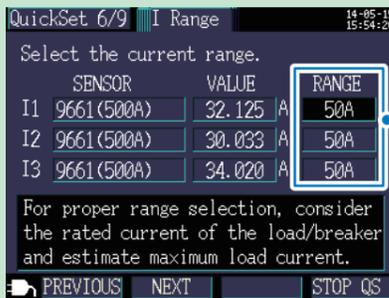**4** Press the **F2 [NEXT]** key.

Power source side

Load side

Point the arrow toward the load side.

Current direction mark

When using 9660 sensor

💡 **Tip** *Example: For the 500 A range, values that are less than or equal to 2 A (0.4% of 500 A) will be displayed as 0 A.

When the measured value is shown as 0 A
The zero-display processing˙ (which forces the display to read "0 A" when the reading is 0.4% of the range) may cause the display to read "0 A." Try lowering the current range while referring to "11.6 Range Configuration and Accuracy by Clamp Sensor" in the instruction manual.
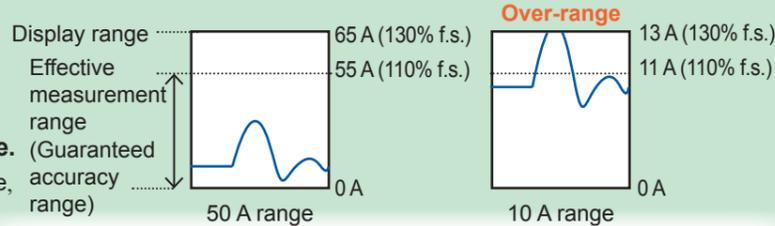
Reference
Clamp 1 conductor only.

OK **PROHIBITED**

6. Setting the current range

1 Set the range.
In this example, the instrument is set to 50 A.

2 Press the **F2 [NEXT]** key.

Display range
Effective measurement range (Guaranteed accuracy range)

Over-range

65 A (130% f.s.)
55 A (110% f.s.)
0 A
50 A range

13 A (130% f.s.)
11 A (110% f.s.)
0 A
10 A range

💡 **Tip**
Set the current range based on the anticipated maximum load current that will occur during the measurement period. (Refer to the operating status, load rating, breaker rating, and other data to make this determination.) If the range is too low, the instrument will experience an over-range event during measurement, making accurate measurement impossible. If the range is too high, a large error component will result, making accurate measurement impossible.
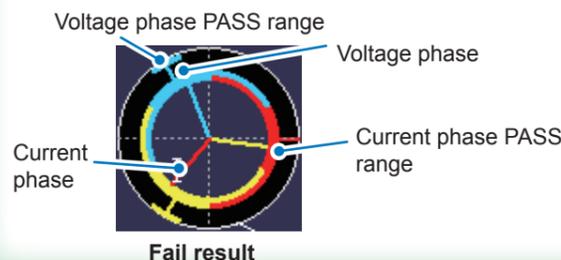
7. Checking the clamp sensor (current) wiring

1 Check measured values.
• Is the value low or negative? Verify that the instrument has been wired (connected) correctly.
• Is the value low? If the value is lower than 0.5, the instrument may be wired incorrectly. Check the wiring.
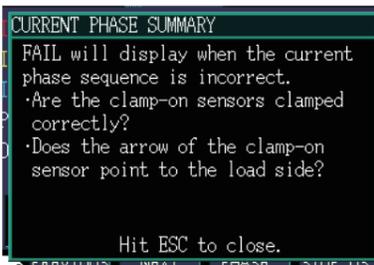
2 Verify the results of checking the wiring.
If all results are **PASS**, or if you check the wiring because **CHECK** is displayed but find no problems.

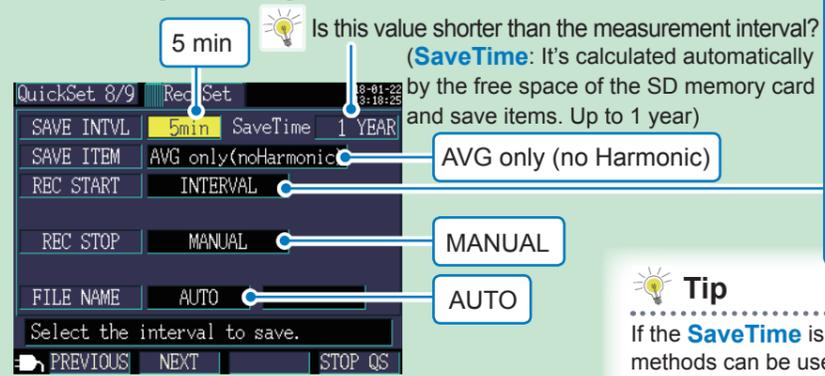**3** Press the **F2 [NEXT]** key.

If there is a **FAIL** result

1 Move the cursor to **FAIL** item.
2 Press the **Enter** key.
**3** Check the contents of the dialog box and correct the wiring.

CURRENT PHASE SUMMARY
FAIL will display when the current phase sequence is incorrect.
・Are the clamp-on sensors clamped correctly?
・Does the arrow of the clamp-on sensor point to the load side?

Hit ESC to close.

Check even if the graph display falls within the pass range.

Voltage phase PASS range
Voltage phase
Current phase PASS range
Current phase

Fail result **Pass result**

8. Recording settings

1 Configure settings as shown in screenshot below.

5 min 💡 Is this value shorter than the measurement interval? (**SaveTime**: It's calculated automatically by the free space of the SD memory card and save items. Up to 1 year)

AVG only (no Harmonic)
MANUAL
AUTO

2 Press the **F2 [NEXT]** key.

Rec. start method: INTERVAL
Example: With the save interval set to 5 min.

START/STOP Start recording
Recording

💡 **Tip**
If the **SaveTime** is shorter than the measurement period, the following methods can be used to increase the available save time:
• Increase the **SAVE INTVL**.
• If there is any unnecessary data on the SD memory card, delete it or reformat the card. (Exit the Quick Set and access the File screen.)
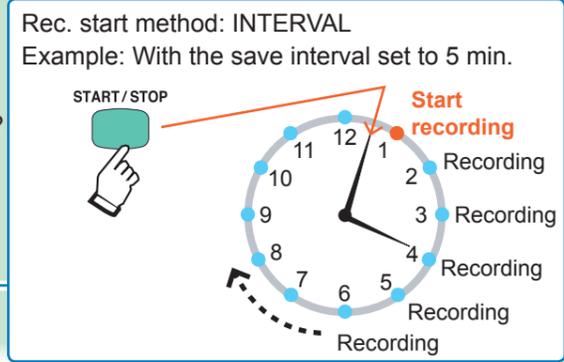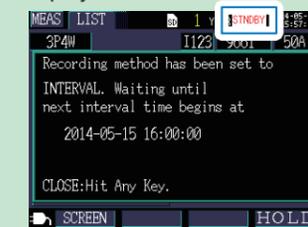
9. Checking settings and starting recording

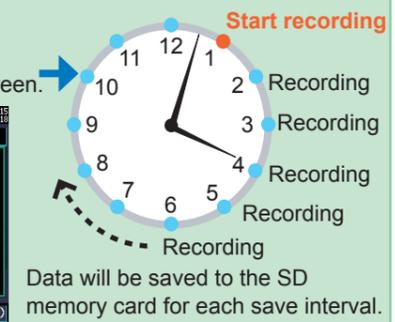For more information, see "Chapter 6 Starting and Stopping Recording and Measurement" in the instruction manual.

1 Check the settings. **2** Press the (START/STOP) key.

The standby screen will be shown. Pressing any key will display the Measurement screen.

POWER LED Recording LED flashing (standby)

(Standby state continues.)

Recording will start at a well-defined time.

Start recording
Recording

Data will be saved to the SD memory card for each save interval.

Recording LED lit up (recording)

💡 **Tip**
• The auto power-off function will cause the screen to turn off, but recording will continue (the Recording and Power LEDs will stay on).
• Press the (QUICK SET) key to display the Setting Confirmation screen, which allows you to check key recording and setting information on a single screen.

10. Stopping recording

1 Press the (START/STOP) key.
A dialog box asking you to confirm that you wish to stop recording will be displayed.

2 Press the **Enter** key.
Recording will be stopped.

Recording LED off.

After measurement is complete

1 Disconnect the sensors from the measurement target.
2 Turn off the instrument.
3 Disconnect the sensors from the instrument.
4 Disconnect the AC adapter. (on left side of instrument)
5 Remove the SD memory card.

💡 **Tip** For more information, see "9.3 SF1001 Power Logger Viewer (Optional)" in the instruction manual.

Saved data can be loaded onto a computer and analyzed using the SF1001 Power Logger Viewer (optional) or an application such as Spreadsheet software.