

THIẾT BỊ GHI CÔNG SUẤT 3 PHA PW3365



Loại bỏ các nguy cơ ngắn mạch và tai nạn điện







Thiết bị đầu tiên trên thế giới cho phép đo công suất không tiếp xúc kim loại

Thiết bị ghi công suất 3 pha PW3365-20 có thể đo điện áp, dòng điện và công suất ngay trên dây cáp mà không tiếp xúc kim loại với các phần có điện, từ đó xóa bỏ nguy cơ tại nạn ngắn mạch, cho phép bạn thực hiện đo lường một cách an toàn tại các khu vực nguy hiểm hoặc khó đo lường trong quá khứ









Tiết kiệm HƠN khi mua theo gói thay vì mua le!

Thiết Bị GHI CÔNG SUẤT 3 PHA

V3365
Gói ưu đãi >>>

THIẾT BỊ GHI CÔNG SUẤT 3 PHA PW3365-20

Sản phẩm bảo hành trong 3 năm Độ chính xác đảm bảo trong 1 năm



Dòng điện sơ cấp định mức 500 A AC



PW3365-20



CLAMP ON SENSOR 9661 X 3 Chiếc Chiều dài dây 3 m $(9.84 \mathrm{ft})$ $\phi 46$ mm (0.81")

Dòng điện sơ cấp định mức 1000 A AC



PW3365-20



CLAMP ON SENSOR 9669 X 3 Chiếc **LAMP ON SENSON** 5005 Σ 2 Chiều dài dây 3 m (9.84ft) φ55 mm (2.17") 80 (3.15")×20 (0.79") mm

5000 Bộ

Dòng điện sơ cấp định mức AC500 A/ AC5000 A (Có thể chuyển đổi)



PW3365-20

PW3365-20





AC FLEXIBLE CURRENT SENSOR CT9667-01 x 3 Chiếc (φ100 mm) AC ADAPTER 9445-02



3 WAY HARNESS CABLE

3 WAY HARNESS CABLE

3 WAY HARNESS CABLE

x 3 AC FLEXIBLE CURRENT SENSOR





PW3365-20



AC FLEXIBLE CURRENT SENSOR CT9667-03 x 3 Chiếc (φ254 mm)

AC ADAPTER 9445-03

Chiều dài dây : Cảm biến - mạch: 2 m (6.56ft) , Mạch - đầu nối: 1 m (3.28ft)

BỘ PIN PW9002



Hộp đựng và pack pin



CẢM BIẾN ĐIỆN ÁP AN TOÀN PW9020



PW3365-20 tích hợp với 4 cảm biến Các cảm biến đơn bổ sung cũng có sẵn Chiều dài dây: 3 m (9.84 ft)

• AC ADAPTER Z1008 x1 • Cáp USB (Chiều dài 0.9 m, 2.95 ft) $\times 1$ • Hướng dẫn sử dụng ×1 • Hướng dẫn đo lường ×1 • Kẹp màu (đỏ, xanh lá, vàng, trắng) 4 each • Őng xoắn ×10

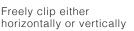
Safe, Easy, Voltage Measurement

The PW3365-20's dedicated voltage sensor delivers the world's first no-metal-contact measurement.

Free yourself from the risk of short-circuits by measuring right on the cable sheath without ever needing to touch metal to energized parts











Measure both thick and thin cables

Measure in potentially hazardous locations





Locations without energized parts

Measure on the outside of cables





Locations with covered terminals

Measure without removing the covers



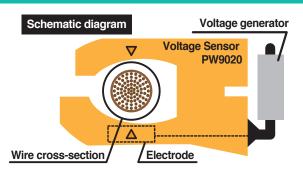


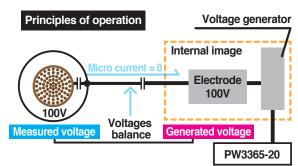


Locations with a risk of electric shock

Measure at safer points

How is voltage measured without any metallic contact?





Inside the PW9020 is an electrode (a metal plate). When there is a potential difference between this electrode and the measured line, a minute current flows as a result. By detecting this minute current and generating a voltage such that the current declines to zero, it is possible to accurately measure the voltage without being affected by the outer diameter of the measured cable or its insulation.



Compatible conductor types	Insulated wires*1 In door PVC or metal parts
Compatible conductor diameters	Finished outer diameter φ6mm to φ30mm
Effective measurement range	90 V rms to 520 V rms
Accuracy	$\pm 1.5\%$ rdg. $\pm 0.8~V$ (combined accuracy with PW3365-20)*2
Effect of phase	Accuracy combined with the PW3365-20 is within $\pm 1.3\%$ (at 50 Hz/60 Hz, f.s. input)
Maximum rated voltage to earth	CATIV 300V / CATIII 600V
Cord length	3m (9.84 ft)
Mass	Approx. 220g (7.8 oz)
Operating temperature and humidity	0°C to 50°C(32°F to122°F), 80% RH or less (no condensation)
Storage temperature and humidity	-10°C to 60°C (14°F to 122°F), 80% RH or less (no condensation)
Dielectric strength	7.06k Vrms AC
Applicable standards	Safety: EN61010, EMC: EN61326



Soil, residue, or moisture on the insulated wires may result in lower voltage and power values than their true values. Use a dry cloth to remove before measuring.

- *1: Shielded wires cannot be measured. The product may not be able to accurately measure multi-core cables or cables that have thick insulation.
- measure multi-core cables or cables that have thick insulation.

 *2: For frequencies of 45 Hz to 66 Hz.

 Effects of humidity: Add the following to the combined accuracy
 (for voltage, power, and phase) with the PW3365-20

 Accuracy within ±1% f.s., phase within ±1%
 measuring an insulated wire at a humidity of 70% to 80% RH

 Effects of adjacent wires: Add the following to the combined accuracy
 (for voltage and power) with the PW3365-20

 Within ±1% f.s. while a wire with a phase
 difference of 400 V is in contact with the grip

Review Results

At the Worksite

Display measured values as a graph and evaluate results at a glance

Measured values can be displayed as a graph, which is convenient when using the instrument in power management applications. Since you can statistically review not only the measured value at that moment, but also measured values that have been recorded, it's easy to check values on the spot.

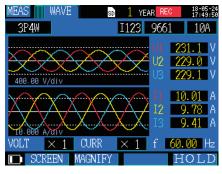
Parameter List and Waveform Displays

Select a display with the screen selection button

Review a list of principal test parameters, including voltage, current, power, frequency, and energy

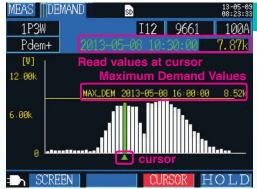
Select the WAVE display to check voltage and current waveforms.





List display screen

Waveform display screen



Bar graph of values measured over a period of 24 hours at a 30-minute interval

Demand Graph Display

Display demand value trends

It's easy to check the maximum demand value and the time at which it occurred

Particularly useful in power management applications



You can create a bar graph that makes it obvious whether power is being bought or sold by switching the active power demand value display from consumption to regeneration



Trend Graph Display

* Except for demand

Choose one measured parameter to create a time-series display as a graph

Monitor power variations to check for connections between equipment operating status and power consumption.

Display the maximum, minimum, and average values at the cursor position

Maximum

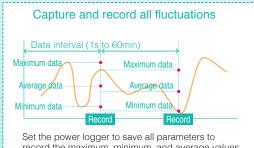
Minimum

Average

Identify these parameters right on the time-axis graph display



Graph of values measured over a period 24 hours at 5-minute intervals



record the maximum, minimum, and average values during the set recording interval.

Configure Settings with Quick Set

Graphical, easy-to-understand guidance for connection procedures

Quick Setup guides you through the process of setting up the instrument for measurement, right up to starting measurement, on the screen to simplify set work. Since any mistaken connections will trigger a FAIL message, the feature also helps prevent measurement mistakes. If you receive a FAIL result, the instrument will also indicate the location of the problem.



Setup Flow (example: 3P4W)

Quick Set START / Choose the wire type

Connect the leads to the PW3365-20





Connect the voltage sensor





STEP4 Connect the clamp sensors





STEP5

Select the current range

STEP6 Check wire connection status





If you receive a FAIL result

Highlight the FAIL message with the cursor and press ENTER to view information about where the connection needs to be corrected.

Measurement

Miswiring Example (Clamp Orientation)

Neither power nor power Correct Orientation factor can be measured accurately with the clamp toward the load side in the wrong orientation.







The I vector's phase direction is within the determination area

P: 6.2 kW Power displayed value is too low

P: 17.8 kW

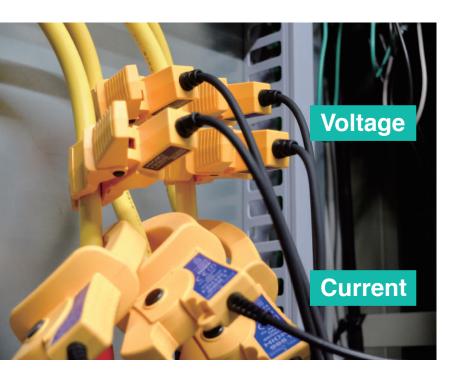
CURR PHASE Red means: FAIL VOLT PHASE Green means: PASS

Safely and Easily

Measure Harmonic

Measure harmonics with no-metal-contact voltage measurement technology

This useful feature has come to the PW3365, enabling the instrument to measure voltage and current harmonics in addition to power. Hioki's no-metal-contact voltage measurement technology lets you safely and easily measure THD and the dominant 5th- and 7th-order harmonics.



Measurement parameters

Harmonic voltage

Harmonic current

Voltage total harmonic distortion

Current total harmonic distortion

Screen displays

Voltage and current levels

Graph display

Voltage and current content percentage

List display

Harmonic Display

Display harmonics up to the 13th order

Present harmonic RMS values and content percentages as a list of numerical values or graph and display total harmonic distortion ratio.

The PW3365 can analyze voltage and current harmonic components from the fundamental wave to the 13th order on 50 Hz/60 Hz power lines.





Harmonic Graph Display



Harmonic Value List Display

You can save maximum, average, and minimum values in binary format for each time interval to the instrument's SD card.

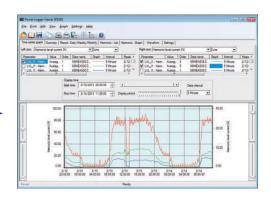
The Power Logger Viewer SF1001 is required in order to display data on a computer.





Time-series display of harmonics

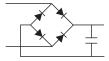
Select the fundamental wave, 3rd order, or 5th order for current harmonics to display a time-series graph.



What causes harmonics?

Many electric devices incorporate power circuits with capacitor input. Such devices have rectification circuits to convert the AC power supply to DC power, and distortion in the resulting voltage and current waveforms causes harmonics.

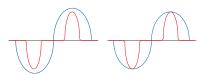
Power circuits that distort waveforms



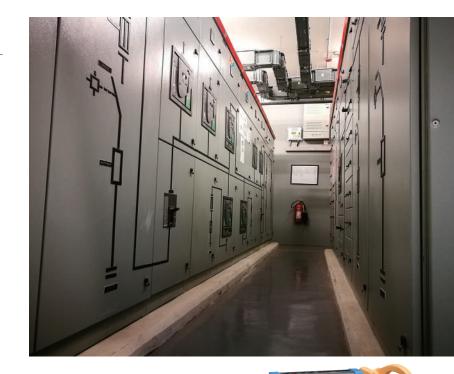
Typical power circuit



Voltage waveform and current waveform

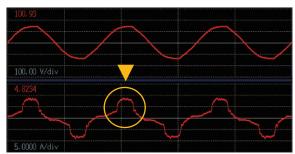


Current flows only near the peak of the voltage waveform, resulting in a voltage drop that flattens the peak portion of the voltage waveform.



Analysis points

Waveform as measured by an instrument designed for observing harmonics

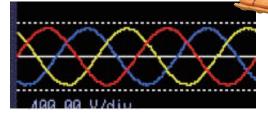


Current flows only near the peak of the voltage waveform



THD and dominant orders

Waveform as measured by the PW3365





The PW3365 displays content percentages for each harmonic voltage order as well as the voltage total harmonic distortion (THD).

MEAS HARM	SD		18-06-18 10:57:08
3P4W	I123	9694	5A
U1 %ofFND	THD 2.57	%	[%]
1 100.00	6 0.11	11	0.71
2 0.23	7 0.90	12	0.18
3 0.28	8 0.11	13	0.56
4 0.05	9 0.19		
5 2.17	10 0.08		
SCREEN		H	OLD

The instrument is especially useful for measuring the dominant 5th and 7th orders.

Convenient Functions

For the Worksite

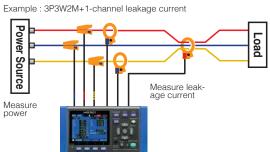
More Uses for the PW3365-20

The Hioki PW3365-20 is not just a power logger. Added-value features and functions let you meet many other electrical testing applications.

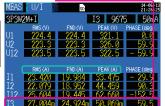
Leakage Current Measurement

Requires optional clamp-on leak sensor

Measure power + 1-channel of leakage current



With the ability to calculate and process data every 200ms, you can do simple checks of intermittent leakage current. Choose from average, maximum and/or minimum value of the measured interval.

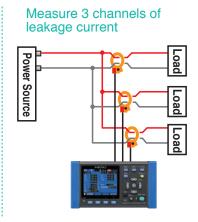


Leakage current results

By capturing the RMS of the fundamental wave, you can also identify the leakage current of the 50/60Hz component.

RMS (A) RMS that includes harmonic components

FND (A) RMS of fundamental wave PEAK (A) Peak value (waveform peak)



LAN

LAN

LAN

. . . .

HUB

Control and Monitor from a Remote Location

Use a LAN cable to connect the PW3365-20 to a personal computer for real-time remote monitoring and measurement display on a web browser.

Files recorded in the Clamp On Power Logger's internal memory or SD card are accessible via a LAN or USB connection, and are downloadable using the free PW3365-20 Setup and Download Software



Enter the IP address in the browser.

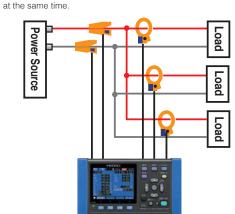


Display the power logger's screen and make adjustments virtually by clicking the buttons and entering new information.

Other Convenient Features

Simultaneous Measurements

Measure three single-phase, 2-wire circuits in the same system





Small form factor lets you

Small form factor lets you set the power logger even inside cramped cubicles

Key lock function

Lock the buttons to prevent erroneous operation



Battery power

Power the instrument for about five hours with batteries if the power goes out

Display hold

Freeze the displayed value for easier reading



Outage recovery

Resume recording automatically following recovery from a power outage

Save & Analyze

Measurement Results on PC

Easily download and interpret data on a PC

Download the measurement results to a computer via the power logger's LAN or USB interface or its SD card. Simultaneously monitor all data in real-time, control your device and download the recorded data remotely with GENNECT One software. For more detailed analysis, Hioki's optional SF1001 application software is recommended

Storage media for data

SD card 2GB

Stores up to one year's data that is acquired at one minute intervals. Performance cannot be guaranteed on storage media other than SD cards sold by Hioki.



Loading data

SD card 2GB

LAN interface

USB interface



Available Recording Time

	Save Time		
Interval time	Saving of harmonic data: OFF	Saving of harmonic data: ON	
1 seconds	15.6 days	2.8 days	
2 seconds	31.2 days	5.5 days	
5 seconds	77.9 days	13.8 days	
10 seconds	155 days	27.6 days	
15 seconds	233 days	41.5 days	

	Save Time			
Interval time	Saving of harmonic data: OFF	Saving of harmonic data: ON		
30 seconds	1 year	82.9 days		
1 minutes	1 year	165 days		
2 minutes	1 year	331 days		
5 minutes	1 year	1 year		
More than 10 minites	1 year	1 year		

[Save conditions for above figures]

Measurement target : 3P4W

Storage media : Z4001 2-GB SD card

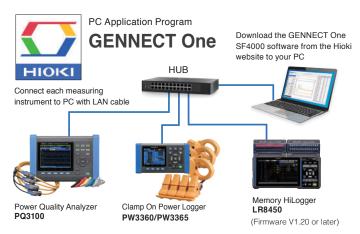
Saved parameters : All data: average, maximum, and minimum values

Screen copy saving : OFF Waveform save : OFF

In all cases, the maximum single file size for measurement data is about 200 MB.

When this is exceeded, a new file is created and saving continues. The maximum recording period is one year.

GENNECT One SF4000 (available as a free download from the HIOKI website)



■ Remote control (HTTP)

Control and configure LAN-connected measuring instruments in remote locations from a computer

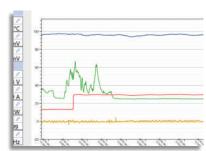
The application displays a virtual instrument and allows you to control it directly with the mouse.



You can also easily change instrument settings and control the instrument, for example to start and stop measurement

■ Real-time measurement (logging)

-Regularly (as quickly as once every second) collect measurement data from up to 30 LAN-connected measuring instruments and display it on a computer. -Simultaneously capture power data from a power meter and temperature or flow rate data from a data logger.



Automatic file transfer (FTP)

Automatically transfer measurement files from LAN-connected instruments to a computer

This function lets you acquire data in real time on a PC, including data created when the instrument's trigger is activated and measurement files that are automatically generated on a daily basis. Example uses include capturing abnormal phenomena with an instrument installed in the field and automatically acquiring daily power consumption data on a PC.



Downloading GENNECT One SF4000 (for Windows)

HIOKI website > Search

Model No. (Order code)

SF4000

Search

Save & Analyze

Measurement Results on PC

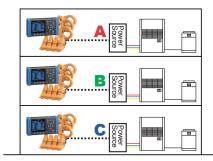
Use Hioki's Power Logger Viewer to gather, view, and compare data

Assessing the status quo is the first step in saving energy. Ascertain trends by simultaneously measuring the energy needed to maintain environmental conditions and the energy needed for production by using as many individual instruments as possible throughout plants and on individual department floors. Hioki's Power Logger Viewer SF1001 lets you download data saved at sites in the field to instruments' SD cards and internal memory to a computer to display, tabulate, analyze, and incorporate it into printed reports.

Collect data that reflects changes in multiple locations and compare to gain an understanding of the big picture

Example data use case 1

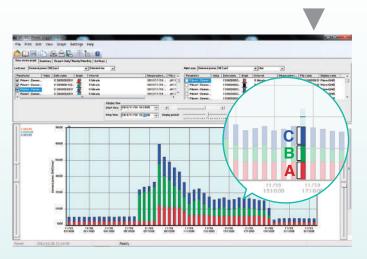
Simultaneously measure and record loads using three PW3365s.



Building A



You can load data from multiple instruments.



Group power consumption data for multiple locations together and display on a single graph so that you can readily identify the times and locations that are characterized by high power consumption.

Display easy-to-understand time-series graphs

Choose a line graph or bar graph depending on your purpose.

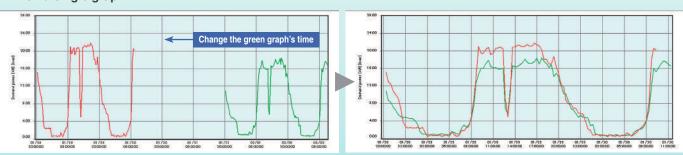
Consolidate data

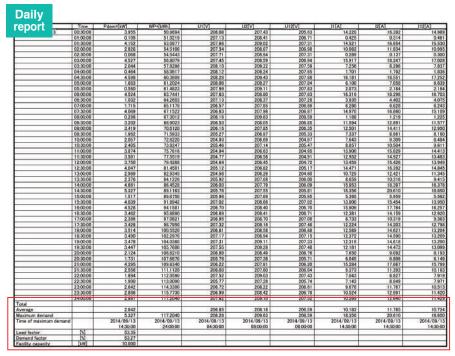
Consolidate up to 16 sets of data into a single file so that it can be loaded more quickly.

Example data use case 2

Display data for measurements made at different times on a single graph

Functionality for changing the date associated with a set of data lets you change the time of data to facilitate comparison so that you can identify the benefits of energy-saving measures at a glance.





Example data format

Choose from four display formats

Form

Display data for a user-specified interval as a summary form.

Daily report

Tabulate data by demand time and display a form summarizing a one-day period.

Weekly report

Tabulate data by day and display a form summarizing a one-week period.

Monthly report

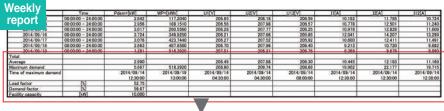
Tabulate data by day and display a form summarizing a one-month period.

Check average and maximum values as well as the time at which the maximum value occurred

(Maximum values for daily, weekly, and monthly reports indicate maximum values as tabulated by demand time.)

When demand power is selected, the following quantities are calculated:

Load rate and demand rate



| Average | 2.990 | Maximum demand | 5.667 | 518.3920 | 12:30:00 | 13:00:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 | 10:00 |

WP+ [kWh]: Active energy

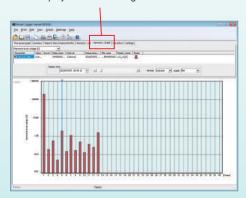
Active energy (consumption) from the start of recording

Pdem+ [kW]: Active power demand value

Average active power value (consumption) for each interval

Display harmonics and waveform data, convert to CSV format, and save screenshots

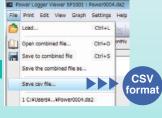
Configure the PW3365's recording settings to save harmonic data and display harmonics using the SF1001.



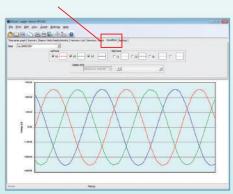
Convert binary data and save as a CSV file.

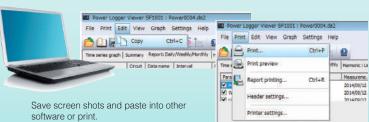
Binary format

·Harmonic data
·Waveform data



Configure the PW3365's settings to save waveforms and display them using the SF1001.





PW3365-20 Specifications

Measurem	ent				
Number of inpu	t channels	Voltage: 3 channels / Current: 3 channels			
Measurement ta (50/60Hz)	argets	Single-phase 2-wire (1P2W, 1P2W × 2 circuits, 1P2W × 3 circuits) Single-phase 3-wire (1P3W, 1P3W+I, 1P3W1U, 1P3W1U+I) Three-phase 3-wire (3P3W2M, 3P3W2M+I, 3P3W3M/Y-wiring only) Three-phase 4-wire (3P4W), Current only: 1 to 3 channels			
Simultaneous power/current measurement m	nodes	1P3W+I 3P3W2M	: 1 power circuit and 1 current ch		
	Voltage	RMS val	ue, fundamental wave value, wavefo	rm peak (abs	solute value), fundamental wave phase angle, frequency (U1)
	Current	RMS val	ue, fundamental wave value, wavefo	rm peak (abs	solute value), fundamental wave phase angle
Measurement	Power	active en	ower, reactive power, apparent power ergy (consumption, regeneration, reg ost display (per-kWh price × power of	generation), r	
items	Demand	reactive po	ower demand value (consumption, re cower demand value (lag, lead), wer demand quantity (consumption, ctor demand value), reactive power demand quantity (lag, lead),
	Harmonics	Harmonic	voltage, harmonic current, voltage to	otal harmonic	distortion (THD-F or THD-R), current total harmonic distortion (THD-F or TDH-R)
Voltage range		Display ra	ange: 5 V to 520 V (less than 5 V disp	lays as 0 V)	(harmonic voltage value of 0 indicated for all orders when voltage RMS value is 0)
		Effective	measurement range: 90 V rms to 52	0 V rms, pea	ak: ±750 V peak [OVER] indicates over-range warning
		CLAMP	ON SENSOR 9660	: 5/10/50/1	00 A
		CLAMP	ON SENSOR 9661	: 5/10/50/1	00/500 A
		CLAMP	ON SENSOR 9669	: 100/200/	1 kA
	Load	CLAMP	ON SENSOR 9694	: 500 m/1/:	5/10/50 A
	current	CLAMP	ON SENSOR 9695-02	: 500 m/1/:	5/10/50 A
		CLAMP	ON SENSOR 9695-03	: 5/10/50/1	00 A
Current ranges		AC FLEXIE	BLE CURRENT SENSOR CT9667-01, -02, -03	: 50/100/5	00 A (500A range)
		AC FLEXIE	BLE CURRENT SENSOR CT9667-01, -02, -03	: 500/1 k/5	k A (5000A range)
	Leakage	LEAK C	LAMP ON SENSOR 9675	: 50 m/100	m/500 m/1/5 A
	current	LEAK C	LAMP ON SENSOR 9657-10	: 50 m/100	m/500 m/1/5 A
	Total display range: Within 0.4 to 130% of the range (zero is suppressed for less than 0.4%) (harmonic current value of 0 indicated for all orders when current RMS value is 0)		**		
	Effective measurement range: Within 5 to 110% of the range [OVER] indicates over-range warning				
	200.00 W to 6.0000 MW Depends on voltage/ourset combination and measured line type (see Measurement Pance Configuration Tables)				
Power ranges Depends on voltage/current combination and measured line type (see Measurement Range Configuration Tables) Total display range: Within 0 to 130% of the range ("0W" display indicates zero rms voltage and/or current)					
Effective measurement area: Within 5 to 130% of the range		,			
Measurement a (50/60Hz)	ccuracy	Voltage: ±1.5% rdg. ±0.8 V (combined accuracy with PW3365-20 + PW9020) Current: ±0.3% rdg. ±0.1% f.s. + clamp sensor accuracy Active power: ±2.0% rdg. ±0.3% f.s. + clamp sensor accuracy (power factor = 1)			
Calculations		RMS calculation/ fundamental wave calculation			
VT ratio settings	5	Any 0.01 to 9999.99 Selections 1/60/100/200/300/600/700/1000/2000/5000		1/60/100/200/300/600/700/1000/2000/2500/5000	
CT ratio settings		Any	0.01 to 9999.99	Selections	1/40/60/80/120/160/200/240/300/400/600/800/1200
Input methods		Voltage: Isolated inputs using Voltage Sensor PW9020 Current: Isolated input using a clamp-on sensor		Current: Isolated input using a clamp-on sensor	
Display update	rate	Approx. 0.5 sec (except when accessing SD card or internal memory, or during LAN/USB communication)		al memory, or during LAN/USB communication)	
Measurement m	nethod	Digital sampling and zero cross synchronization calculation method Sampling: 10.24 kHz (2048 points) Calculation processing 50 Hz: Continuous, gapless measurement at 10 cycles 60 Hz: Continuous, gapless measurement at 12 cycles			

 $^{^{\}ast 1} For individual clamp sensors' accuracy and combined accuracy figures, see pages 14 and 15.$

Harmonic Specifications	
Standard	IEC 61000-4-7:2002 (but without harmonics for intermediate orders)
Window width	50 Hz: 10 cycles; 60 Hz: 12 cycles (with interpolation)
Analyzed orders	Up to 13th order
Analysis parameters	Harmonic levels: Voltage and current harmonic level for each order (With 3P3W2M connection, U12 and I12, which are calculated as part of third channel computations, are not displayed.) Harmonic content percentages: Voltage and current content percentages for each order; total harmonic distortion: voltage and current (THD-F or THD-R)
Measurement accuracy	Harmonic level Voltage PW3365 alone: ±5% rdg. ±0.2% f.s. Combined accuracy for PW3365 and PW9020: ±30% rdg. ±3% f.s. (input for each order up to 5% of the fundamental wave, THD-F up to 10%) Current ±5% rdg. ±0.2% f.s. + sensor accuracy Total harmonic distortion: Accuracy not defined

Screen Display	
List	Voltage, current, frequency, active/apparent/reactive power power factor, integrated power use, elapsed time
U/I	RMS value, fundamental wave value, waveform peak, phase angle
Power	Per-channel and total active power, apparent power, reactive power,power factor
Integ	Active energy, reactiv energy, recording start time recording stop time, elapsed time, energy cost
Demand	Active power demand value, reactive power demand value power factor demand value
Waveform	Displays voltage and current waveform
Zoom	Enlarged view of 4 user-selected parameters
Trend	For one selected measurement item (not including harmonics other than demand and THD) displays maximum, average and minimum values
Harmonics	Displays voltage and current levels and content percentages as a graph or list

Recording	
Save destination	SD Card, internal memory (capacity: approx. 320 KB)
Save interval time	1/2/5/10/15/30 seconds, 1/2/5/10/15/20/30/60 minutes Available storage time is displayed on the PW3365-20's setting screen
Save items	Measurement save : Average only/all (without harmonics) Average only/all (with harmonics) Screen save : Saves the displayed screen as a BMP at a fixed interval* Waveform save : Stores binary waveform data* ²
Recording start methods	Interval time, manual, or at specified time, repeat
Recording stop methods	Manual, or at specified time (up to one year), timer

^{*1} The minimum interval time for saving screen copies is 5 min. If the setting is less than 5 min., screen copies will be saved every 5 min.

^{*2} With shortest interval of 1 minute. When set to less than 1 minute, waveforms are saved once every minute

External Interfaces		
SD card	Settings data, measurement data, screen data, waveform data	
LAN	100BASE-TX IEEE802.3 Compliance - HTTP server function, FTP server function	
USB	USB Ver 2.0, Windows 10 (32/64bit)/Windows 8 (32/64bit)/ Windows 7 (32/64bit) / Vista (32bit) /XP - When connected to a computer, the SD Card and internal memory are recognized as removable storage devices.	

General	
Product guarantee	3 year
	3.5 inch TFT color LCD (320 × 240 pixel)
Display	Japanese, English, Chinese, Korean, German, Italian, French, Spanish, Turkish Backlight auto-off function (after 2 minutes) When AUTO OFF is active, the Power LED blinks
Operating environment	Indoors, Pollution degree 2, altitude up to 2000 m (6562-ft.)
Operating temperature and humidity (no condensation)	-10°C to 50°C (14°F to 122°F), 80% RH or less During battery operation: 0°C to 40°C (32°F to 104°F), 80% RH or less During battery charging: 10°C to 40°C (50°F to 104°F), 80% RH or less
Storage temperature and humidity (no condensation)	0°C to 60°C (32°F to 140°F), 80% RH or less However, the battery's storage temperature range is -10°C to 30°C (14°F to 86°F)
Maximum rated voltage between terminals	Voltage input section: 1.7 VAC, 2.4 Vpeak Current input section: 1.7 VAC, 2.4 Vpeak
Maximum rated voltage to earth	Voltage input section: 600V Measurement Category III 300V Measurement Category IV Current input section: Depends on clamp sensor in use.
Dielectric strength	7.06 kVrms AC
Applicable standards	Safety: EN61010, EMC: EN61326
Power supply	(1) Z1008 AC Adapter : 100 V AC to 240 V AC Maximum rated power : 45 VA (including AC adapter) (2) Model 9459 Battery Pack : Ni-MH DC7.2 V 2700 mAh Continuous battery operation time Approx. 5 hr. Maximum rated power : 3 VA
Charge function	Charge time: Max. 6 hr. 10 min. (reference value at 23°C) Charges the battery regardless of whether the instrument is on or off
Backup battery life	Clock and settings (Lithium battery), Approx. 10 years @23°C (@73.4°F)
Dimensions	Approx. 180W(7.09") × 100H(3.94") × 48D (1.89") mm (without PW9002)
Mass	Approx. 180W(7.09") × 100H(3.94") × 68D (2.68") mm (with PW9002)
iviass	Approx. 540g (19 oz) (without PW9002), Approx. 820g (28.9 oz) (with PW9002)
Accessories	SAFETY VOLTAGE SENSOR PW9020 (4) AC ADAPTER Z1008 (1) USB cable (1) Instruction manual (1) Measurement guide (1) Red, yellow, blue and white color clips (4 each) Spiral tubes (10)

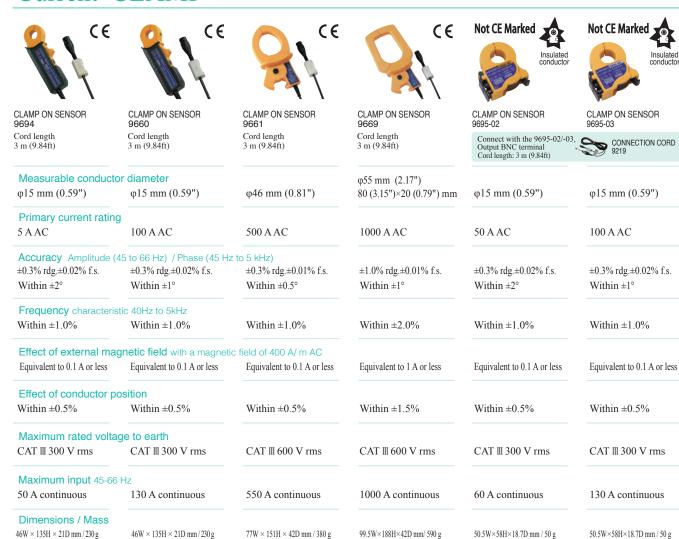
POWER LOGGER VIEWER SF1001 Specifications

Functions	
Trend graph	Display items Voltage, current, active power, reactive power, apparent power, power factor, frequency, integrated active power, integrated reactive power, demand volume, demand value, voltage disequilibrium factor
. ,	Stacked bar graph display: Up to 16 types of data series
	Cursor measurements Measurement values can be displayed by the cursor
	Displayed items are the same as for the trend Graph Display
Summary dis- play function	Daily, weekly and monthly report displays: Accumulates and displays daily, weekly and monthly reports over specified period.
	Load factor calculation display: Calculates and displays load factor and demand factor results with daily, weekly and monthly reports
	Time span aggregation: Aggregates data into up to four specified time spans
Waveform display	Displays waveform data at specified date and time
Copy function	Captures any display image to the clipboard

Print function	Preview and print content shown on the trend graph, report, harmonic graph and settings displays.
	Comment entry (Text comments can be entered in any printout)
	Header/Footer settings: Sets the header and footer for each printout
	Printing support Any color or monochrome printing supported by the operating system
Report printing	Print (static) contents over a specific time period
	Output contents: Standard or selected output items
	Available output items: Trend graph, summary, daily report, waveform
	Report creation method: Standard print
	Report output settings: Save/load report output settings

General Specifications		
Supported models	PW3365-20 / PW3360-20 / PW3360-21 LR5000 series; Data previously loaded by the LR5000 Utility (.hrp2 format) using a PC	
Supported computer operating systems	Windows 10 (32/64bit) Windows 8 (32/64bit) Windows 7 SP1 or later (32/64bit)	

Current CLAMP



 $(3.03") \times (5.94") \times (1.65") / (13.4 \text{ oz})$

(3.92")×(7.40")×(1.65") / (20.8 oz)

(2.28")×(2.28")× (0.74") / (1.8 oz)

CLAMP ON LEAK SENSOR

Leakage Current Measurement Only

Cord length: 3 m (9.84ft)

9657-10

(2.28")×(2.28")×(0.74") / (1.8 oz)

CLAMP ON LEAK SENSOR

Cord length: 3 m (9.84ft)

Leakage Current Measurement Only

9675



 $(1.81") \times (5.31") \times (0.83") / (8.1 \text{ oz})$

CT9667-01 CT9667-02 CT9667-03 AC FLEXIBLE CURRENT SENSOR

Cord length : Sensor - circuit: $2\ m\ (6.56ft)$, Circuit - connector: $1\ m\ (3.28ft)$

 $(1.81") \times (5.31") \times (0.83") / (8.1 \text{ oz})$

Measurable conductor diameter	CT9667-01 : φ100 mm, CT9667-02 : φ180 mm CT9667-03 : φ254 mm	Measurable conductor diameter	φ40 mm	φ30 mm
Primary current rating	AC500 A/ AC5000 A (Switchable)	Primary current rating	AC 10 A*	AC 10 A*
Accuracy 45-66Hz	$\pm 2.0\% \text{ rdg} \pm 0.3\% \text{ f.s.} / \text{Within } \pm 1^{\circ}$	Accuracy	±1.0% rdg ±0.05% f.s. / Within ±3°	±1.0% rdg ±0.05% f.s. / Within ±5°
Frequency 10-20kHz	Within ± 3dB	Frequency 40 - 5kHz	Within ± 5%	Within ± 5%
Effect of external magnetic field	1.5% / f.s. or less	Effect of external magnetic field	7.5 mA max.	7.5 mA max.
Effect of conductor position	Within ± 3%	Effect of conductor position	Within ±0.1%	Within ±0.1%
Maximum rated voltage to earth	CAT III 1000 V ms / CAT IV 600 V ms	Measurable conductor	Insulated conductor	Insulated conductor
Maximum input 45-66Hz	10000 A continuous	Maximum input 45-66Hz	30A continuous	10A continuous
Dimensions / Mass	Circuit box: 35W×120.5H×34D CT9667-01, -02: 280 g, CT9667-03: 470 g	Dimensions / Mass	74W× 145H × 42D / 380g	60W×112.5H×23.6D / 160g
Power supply	LR06 alkaline battery × 2 or AC ADAPTER 9445-02/9445-03 (optional)	Notes	Not used for power measurements *Maximum AC measurement range with PW3365-20 is 5 A	Not used for power measurements *Maximum AC measurement range with PW3365-20 is 5 A

Measurement Range Configurations

CLAMP ON SENSOR 9694 / 9695-02 * Current Voltage | Connection 500.00 mA | 1.0000 A 5.0000 A | 10.000 A 50.000 A 400.00 W 20.000 kW 1P2W 200.00 W 2.0000 kW 4.0000 kW 1P3W 1P3W1U 400.0 V 400.00 W 800.00 W 4.0000 kW | 8.0000 kW 40.000 kW 3P3W2M 3P3W3M 3P4W 600.00 W | 1.2000 kW | 6.0000 kW | 12.000 kW | 60.000 kW

CLAMF	CLAMP ON SENSOR 9660 / 9695-03 / 9661*2					
Voltage	Connection		Current			9661 only
vollage	Connection	5.0000 A	10.000 A	50.000 A	100.00 A	500.00 A
	1P2W	2.0000 kW	4.0000 kW	20.000 kW	40.000 kW	200.00 kW
400.0 V	1P3W 1P3W1U 3P3W2M 3P3W3M	4.0000 kW	8.0000 kW	40.000 kW	80.000 kW	400.00 kW
	3P4W	6.0000 kW	12.000 kW	60.000 kW	120.00 kW	600.00 kW

CLAMF	ON SENS	SOR 9669			
Voltage Connection			Current		
Voltage	Connection	100.00 A	200.00 A	1.0000 kA	
	1P2W	40.000 kW	80.000 kW	400.00 kW	
400.0 V	1P3W 1P3W1U 3P3W2M 3P3W3M	80.000 kW	160.00 kW	800.00 kW	
	3P4W	120.00 kW	240.00 kW	1.2000 MW	

AC FLE	AC FLEXIBLE CURRENT SENSOR CT9667-01, -02, -03 (5 kA)			
Voltage	Connection	Current		
vollage		500.00 A	1.0000 kA	5.0000 kA
	1P2W	200.00 kW	400.00 kW	2.0000 MW
400.0 V	1P3W 1P3W1U 3P3W2M 3P3W3M	400.00 kW	800.00 kW	4.0000 MW
	3P4W	600.00 kW	1.2000 MW	6.0000 MW

AC FLE	AC FLEXIBLE CURRENT SENSOR CT9667-01, -02, -03 (500 A)			, -03 (500 A)	
Valtaga Connection			Current		
Voltage	Connection	50.00 A	100.00 A	500.00 A	
	1P2W	20.000 kW	40.000 kW	200.00 kW	
400.0 V	1P3W 1P3W1U 3P3W2M 3P3W3M	40.000 kW	80.000 kW	400.00 kW	
	3P4W	60.000 kW	120.00 kW	600.00 kW	

Combined Accuracy PW3365-20 + PW9020 + clamp sensors

Range	9694	9695-02
50.000 A	-	±2.3% rdg. ±0.32% f.s.
10.000 A	-	±2.3% rdg. ±0.4% f.s.
5.0000 A	±2.3% rdg. ±0.32% f.s.	±2.3% rdg. ±0.5% f.s.
1.0000 A	±2.3% rdg. ±0.4% f.s.	±2.3% rdg. ±1.3% f.s.
500.00 mA	±2.3% rdg. ±0.5% f.s.	±2.3% rdg. ±2.3% f.s.

Range	9660, 9695-03	9661
500.00 A	-	±2.3% rdg. ±0.31% f.s.
100.00 A	±2.3% rdg. ±0.32% f.s.	±2.3% rdg. ±0.35% f.s.
50.000 A	±2.3% rdg. ±0.34% f.s.	±2.3% rdg. ±0.4% f.s.
10.000 A	±2.3% rdg. ±0.5% f.s.	±2.3% rdg. ±0.8% f.s.
5.0000 A	±2.3% rdg. ±0.7% f.s.	±2.3% rdg. ±1.3% f.s.

Range	9669
1.0000 kA	±3% rdg. ±0.31% f.s.
200.00 A	±3% rdg. ±0.35% f.s.
100.00 A	±3% rdg. ±0.4% f.s.

	Range	CT9667-01, -02, -03 5.000kA range	CT9667-01, -02, -03 500A range
	5.0000 kA	±4% rdg. ±0.6% f.s.	-
ĺ	1.0000 kA	±4% rdg. ±1.8% f.s.	-
ĺ	500.00 A	±4% rdg. ±3.3% f.s.	±4% rdg. ±0.6% f.s.
ĺ	100.00 A	-	±4% rdg. ±1.8% f.s.
	50.000 A	-	±4% rdg. ±3.3% f.s.

Conditions of guaranteed accuracy	After 30 minute warm-up, with 50/60 Hz sine wave input voltage to earth 400V or less
Temperature and humidity for guaranteed accuracy	23°C ±5°C (73 ± 9°F), 80%RH or less (applies to all specifications unless otherwise noted)
Display area of guaranteed accuracy	Effective measurement range
Real-time clock accuracy	Within ±0.3 sec/day (with power on, within specified operating temperature and humidity ranges)
Temperature characteristic	Within ±0.1% f.s./ °C (except 23±5°C)
Effect of external magnetic field	Within ±1.5% f.s. (in a magnetic field of 400 A/m rms AC, 50 Hz/60 Hz)
Effect of radiated, radio-frequency, electromagnetic field	Within ±5% f.s. for voltage and active power at 10 V/m

±1 dgt. for the calculation obtained from each measurement value
Fundamental waveform calculations ±2.0% rdg. ±3.0% f.s. + clamp-on sensor accuracy (w/power factor = 1)
Rms calculations From each measurement applied to calculation ±1 dgt.
Active and reactive power measurement accuracies ±1 dgt.
From each measurement applied to calculation ±1 dgt.
±0.5% rdg. (with 90 to 520 V sine wave input)
Active and reactive power measurement accuracies ±1 dgt.
Active and reactive power measurement accuracies ±1 dgt.

 $^{^{\}rm *I}$ For the 9694 sensor, the range of guaranteed accuracy is from 500 mA to 5 A, and for the 9695-02, from 500 mA to 50 A.

Current Display and Effective Measurement Ranges

typical

	Range	Total display range	Effective measurement range		Total display range	Effective peak
		Minimum	Minimum	Maximum	Maximum	Range
Voltage	400 V Range	5.0 V	90.0 V	520.0 V	520.0 V	±750 V peak
Current	5 A Range	0.0200 A	0.2500 A	5.5000 A	6.5000 A	±20 A peak
	10 A Range	0.040 A	0.500 A	11.000 A	13.000 A	±40 A peak
	50 A Range	0.200 A	2.500 A	55.000 A	65.000 A	±200 A peak
	100 A Range	0.40 A	5.00 A	110.00 A	130.00 A	±400 A peak
	500 A Range	2.00 A	25.00 A	550.00 A	650.00 A	±1000 A peak

 $^{^{*2}}$ For the 9660 and 9695-03 sensors, the range of guaranteed accuracy is from 5 A to 100 A and for the 9661, from 5 A to 500 A.



Model: CLAMP ON POWER LOGGER PW3365

Model No. (Order Code) (Note)

PW3365-20 (English model, main unit only)

Accessories -----

SAFETY VOLTAGE SENSOR PW9020

• AC ADAPTER Z1008 ×1

• USB cable (0.9 m, 2.95 ft length) ×1 • Instruction manual x1

• Measurement guide ×1 • Color clips (red, green, yellow, white)

4 each • Spiral tubes ×10



Clamp On Power Logger PW3365-20 by itself does not support current and power measurements. Current and power measurements require clamp on sensors, sold separately. Use only HIOKI SD cards guaranteed to work for saving measurement data (options, sold separately).

 $\times 4$

Options

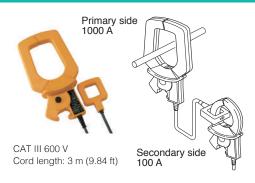
CLAMP ON SENSOR (for load current measurement) CLAMP ON SENSOR 9694 (AC 5 A) **CLAMP ON SENSOR** 9660 (AC 100 A) CLAMP ON SENSOR 9661 (AC 500 A) **CLAMP ON SENSOR** 9669 (AC 1000 A) CT9667-01 (AC 500 A/ 5000 A) AC FLEXIBLE CURRENT SENSOR CT9667-02 (AC 500 A/ 5000 A) AC FLEXIBLE CURRENT SENSOR CT9667-03 (AC 500 A/ 5000 A) AC FLEXIBLE CURRENT SENSOR CLAMP ON SENSOR (Not CE marked) * 9695-02 (AC 50 A) CLAMP ON SENSOR (Not CE marked) * 9695-03 (AC 100 A) (for connection to 9695-02, 9695-03) **CONNECTION CORD** 9219

* When purchasing the 9695-02 and 9695-03, we recommend also purchasing the separately sold 9219 Connection Cord.

CLAMP ON LEAK SENSOR (for leakage current measurement)

CLAMP ON LEAK SENSOR 9657-10 CLAMP ON LEAK SENSOR 9675

CLAMP ON ADAPTER 9290-10



Measurable conductor diameter

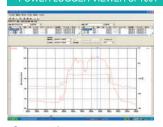
φ55 mm (2.17 in)

Bus bar: 80 mm (3.46in) 5 20 mm (0.79 in)

CT ratio : 10:1

MAX. 1500 A AC (continuous: 1000 A)

POWER LOGGER VIEWER SF1001



Supported computer operating systems

Trend graph display function Summary display function Waveform display, Print function Report printing

BATTERY SET PW9002



Battery Case and Battery Pack Set

BATTERY PACK 9459

For purchase as replacement battery pack

SAFETY VOLTAGE SENSOR PW9020



PW3365-20 is bundled with 4 sensors Additional single sensors also available Cord length: 3 m (9.84 ft)

CARRYING CASE C1005/C1008

The photo shows C1008.



C1005 Dimension : 390W (15.4") 275H (10.8") (Approx) 110D (4.3") mm

C1008 390W (15.4") 275H (10.8") 150D (5.9") mm

AC ADAPTER Z1008



For separate purchase

SD MEMORY CARD Z4003



8 GB capacity

Stores up to one year's data when acquired at one minute intervals. Performance cannot be guaranteed on storage media other than Hioki-specified SD card options.

SD MEMORY CARD 2GB Z4001 LAN CABLE 9642



Straight Ethernet cable, supplied with straight to cross conversion adapter, 5 m (16.41 ft) length

Note: Company names and product names appearing in this catalog are trademarks or registered trademarks of various companies

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