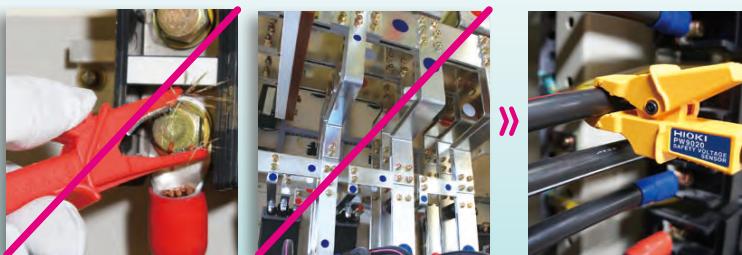




## Eliminate the risk of short-circuits and electrical accidents



The world's first instrument to offer no-metal-contact power measurement

Free from the risk of short-circuit accidents since no metal comes into contact with energized parts, the Clamp On Power Logger PW3365-20 can measure voltage, current, and power right on the cable, letting you safely test in locations that were dangerous or even impossible in the past.



\*For Voltage Sensor PW9020

# 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



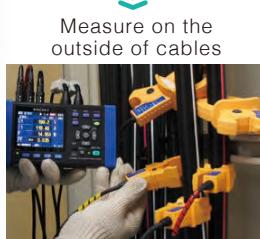
Freely clip either horizontally or vertically

Measure both thick and thin cables

Measure in potentially hazardous locations



Locations without energized parts



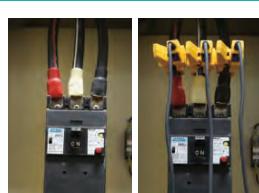
Measure on the outside of cables



Locations with covered terminals



Measure without removing the covers



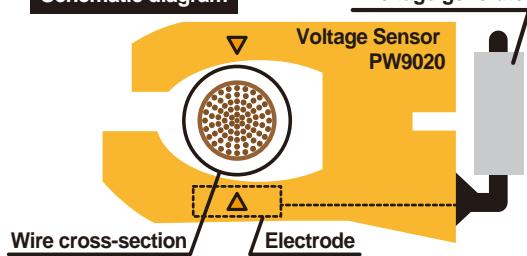
Locations with a risk of electric shock



Measure at safer points

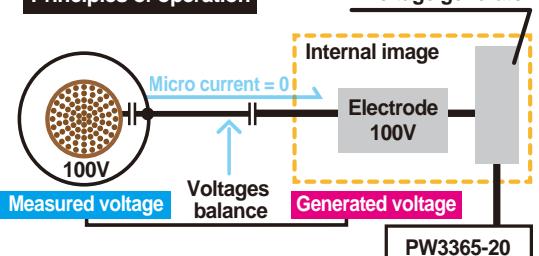
How is voltage measured without any metallic contact?

Schematic diagram



Voltage generator

Principles of operation



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.



#### SAFETY VOLTAGE SENSOR PW9020 Specifications

Compatible conductor types	Insulated wires* <sup>1</sup> 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	±1.5% rdg. ±0.8 V (combined accuracy with PW3365-20)* <sup>2</sup>
Effect of phase	Accuracy combined with the PW3365-20 is within ±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 to 122°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



\* includes relay box on cord



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.

\*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.

MEAS	LIST	SD	1	YEAR	REC	18-05-24	17:48:16
3P4W			I123	9661	10A		
U1	230.0	V	I1	10.008	A		
U2	229.0	V	I2	9.780	A		
U3	230.3	V	I3	9.406	A		
f	60.00	Hz					
P	6.485kW		WP+	6.6776kWh			
S	6.707kVA		ELAPSED	0001:01:51			
Q	LAG 1.710kvar						
PF	LAG 0.967						

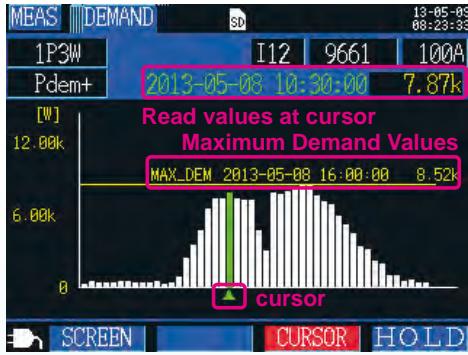
SCREEN HOLD

List display screen

MEAS	WAVE	SD	1	YEAR	REC	18-05-24	17:49:58
3P4W			I123	9661	10A		
U1	231.1	V	U1	231.1	V		
U2	229.0	V	U2	229.0	V		
U3	229.1	V	U3	229.1	V		
I1	10.01	A	I1	10.01	A		
I2	9.78	A	I2	9.78	A		
I3	9.41	A	I3	9.41	A		
VOLT	10.000	AC/DC					
CURR	10.000	AC/DC					
f	60.00	Hz					

SCREEN MAGNIFY HOLD

Waveform display screen



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

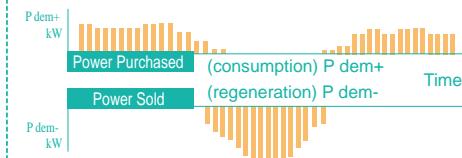
### Demand Graph Display

Display demand value trends

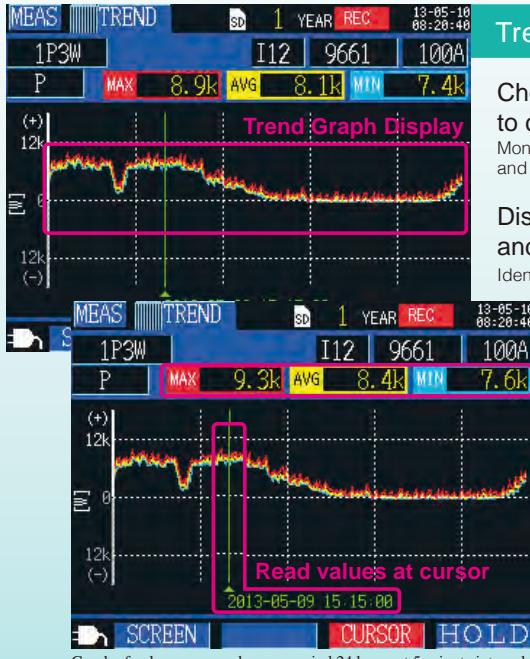
It's easy to check the maximum demand value and the time at which it occurred.

Particularly useful in power management applications

### Evaluate Photovoltaic Generation Capabilities



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

Identify these parameters right on the time-axis graph display

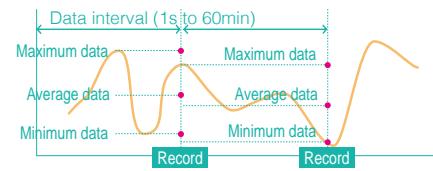
Example Power trend graph display

MAX 9.3k Maximum Value

MIN 7.6k Minimum Value

AVG 8.4k Average Value

### Capture and record all fluctuations

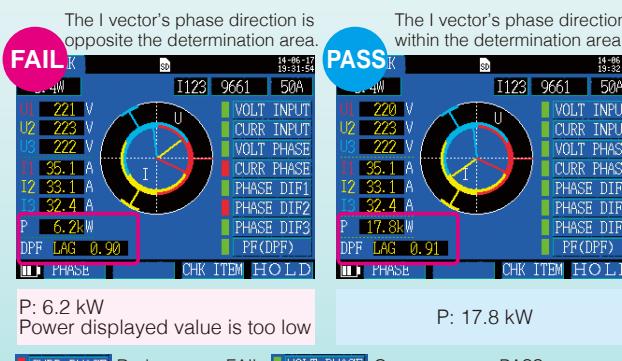
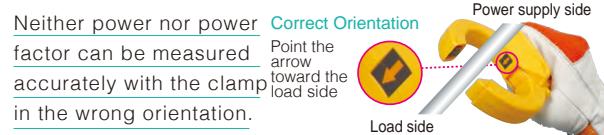


Set the power logger to save all parameters to record the maximum, minimum, and average values during the set recording interval.

# Configure Settings with Quick Set



## Miswiring Example (Clamp Orientation)



## 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.

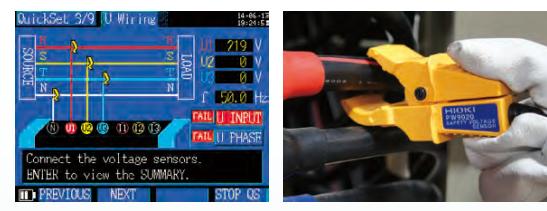
## Setup Flow (example: 3P4W)

### STEP1 Quick Set START / Choose the wire type

### STEP2 Connect the leads to the PW3365-20



### STEP3 Connect the voltage sensor

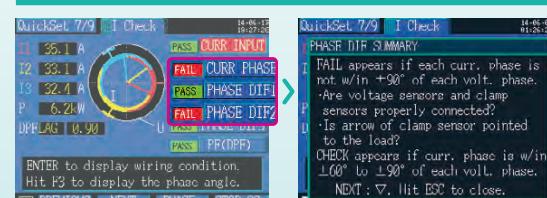


### STEP4 Connect the clamp sensors



### 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.

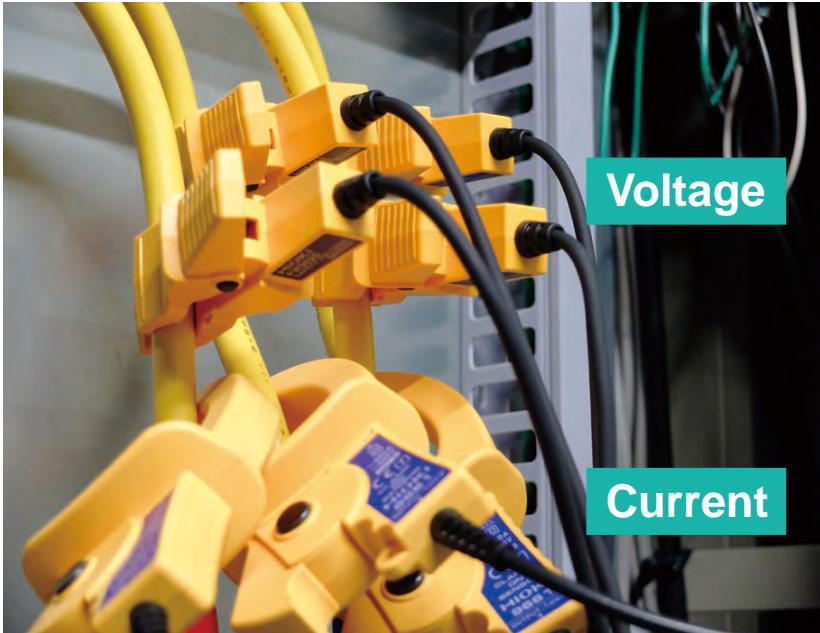
### Measurement

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.



## 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

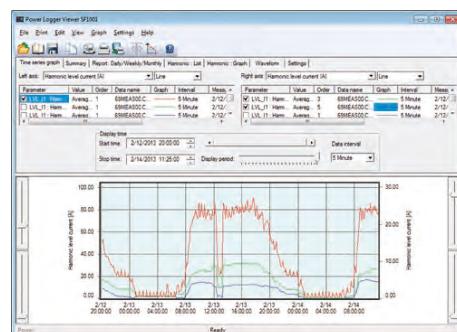
You can save maximum, average, and minimum values in binary format for each time interval to the instrument's SD card.

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



## Time-series display of harmonics

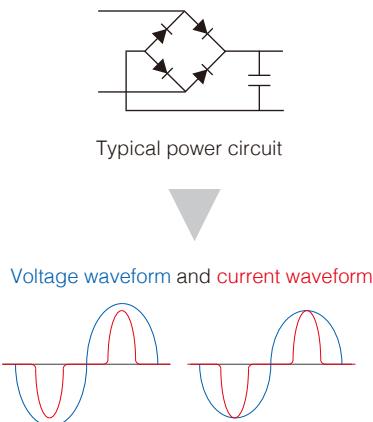
Select the fundamental wave, 3rd order, or 5th order for current harmonics to display a time-series graph.



# 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

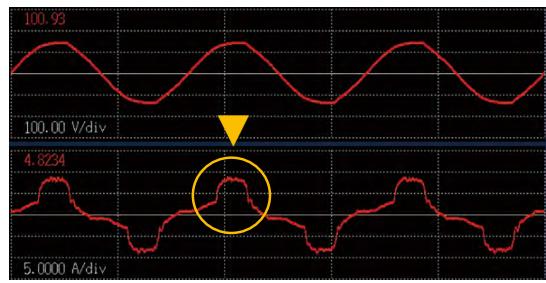


Current flows only near the peak of the voltage waveform, resulting in a voltage drop that flattens the peak portion of the voltage waveform.



## Analysis points

Waveform as measured by an instrument designed for observing harmonics

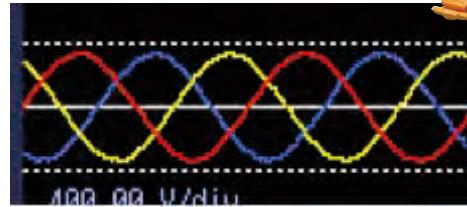


Current flows only near the peak of the voltage waveform



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).

A screenshot of the PW3365 measurement software. The top bar shows 'MEAS', 'HARM', 'SD', '18-06-18', and '18-57-08'. The main table displays harmonic content and THD values:

	U	I	P	SD
1	100.00	0.23	0.05	I123 9694 5A
2	0.23	0.28	0.05	U1 %ofFND THD 2.57 % [%]
3	0.28	0.28	0.05	1 0.11 0.11 0.11 0.71
4	0.05	0.05	0.01	2 0.90 0.11 0.19 0.18
5	2.17	2.17	0.08	3 0.56 0.11 0.19 0.56

Buttons for 'SCREEN' and 'HOLD' are at the bottom.

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

# Convenient Functions For the Worksite

## More Uses for the PW3365-20

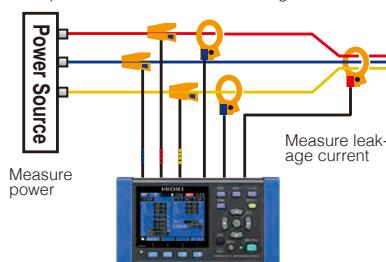
The Hioki PW3365-20 is not just a power logger. Added-value features and functions let you meet many other electrical testing applications.

### Leakage Current Measurement

Requires optional clamp-on leak sensor

#### Measure power + 1-channel of leakage current

Example : 3P3W2M+1-channel 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			
3P3W2M+I			
RMS (V)	FND (V)	PEAK (V)	PHASE (deg)
U1	224.4	224.4	321.1
U2	223.3	223.3	326.0
U3	223.5	223.5	-59.9
RMS (A)	FND (A)	PEAK (A)	PHASE (deg)
I1	23.420	19.984	33.475
I2	22.079	18.952	44.459
I3	25.604	19.445	62.660
I3	27.0004m	24.924m	50.069m
			59.5
SCREEN			
HOLD			

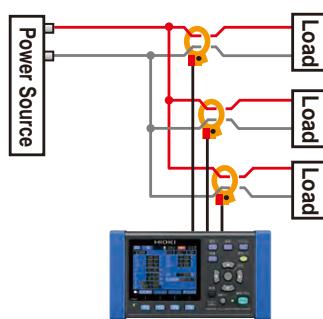
By capturing the RMS of the fundamental wave, you can also identify the leakage current of the 50/60Hz component.

RMS (A) RMS that includes harmonic components

FND (A) RMS of fundamental wave

PEAK (A) Peak value (waveform peak)

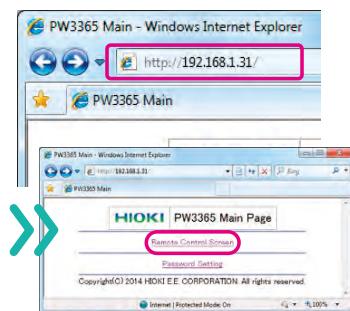
#### Measure 3 channels of leakage current



### 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.

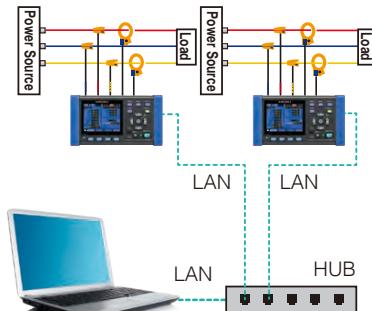
Files recorded in the Clamp On Power Logger's internal memory or SD card are accessible via a LAN or USB connection, and are downloadable using the free PW3365-20 Setup and Download Software



Enter the IP address in the browser.

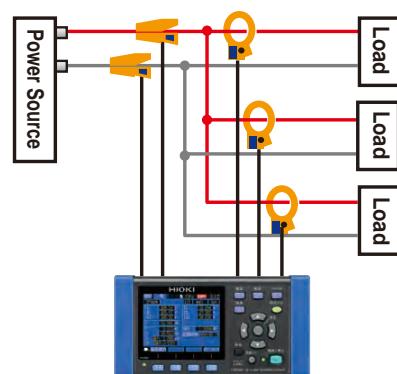


Display the power logger's screen and make adjustments virtually by clicking the buttons and entering new information.



### Simultaneous Measurements

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



### Other Convenient Features

#### Compact, lightweight

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

# 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

Interval time	Save Time		Interval time	Save Time	
	Saving of harmonic data: OFF	Saving of harmonic data: ON		Saving of harmonic data: OFF	Saving of harmonic data: ON
1 seconds	15.6 days	2.8 days	30 seconds	1 year	82.9 days
2 seconds	31.2 days	5.5 days	1 minutes	1 year	165 days
5 seconds	77.9 days	13.8 days	2 minutes	1 year	331 days
10 seconds	155 days	27.6 days	5 minutes	1 year	1 year
15 seconds	233 days	41.5 days	More than 10 minutes	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

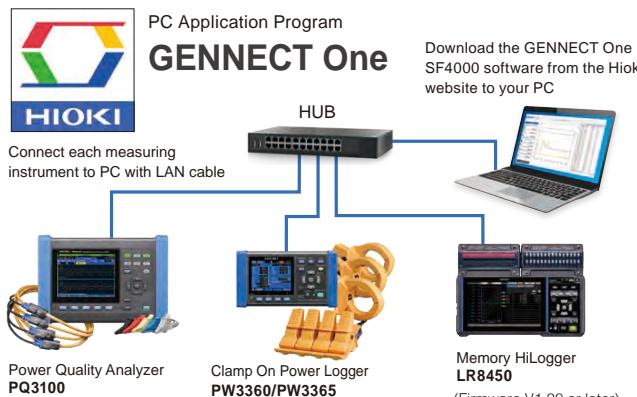
Screen copy saving : OFF Waveform save : OFF

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.

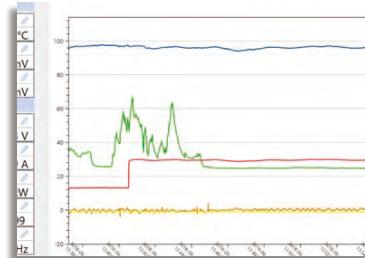
The maximum recording period is one year.

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



#### 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.



#### 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

#### 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.

Automatically transfer measurement files to a PC.



### Downloading GENNECT One SF4000 (for Windows)

Model No. (Order code)

SF4000

Search

# Save & Analyze

Measurement Results  
on PC

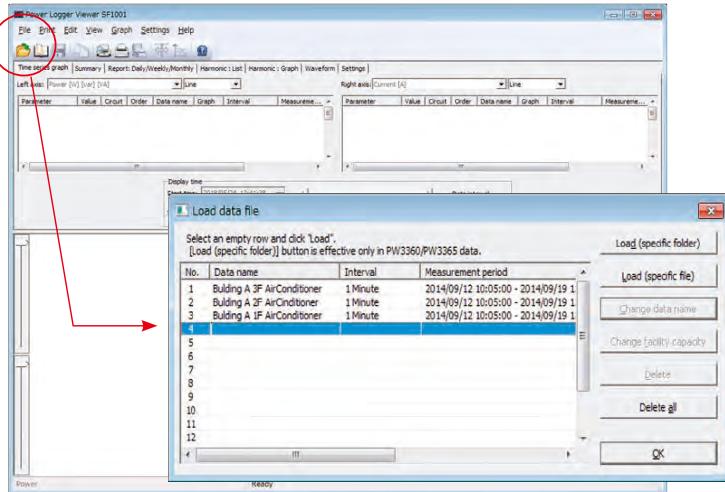
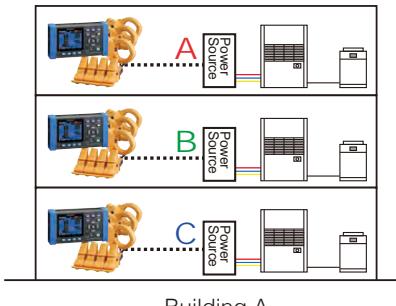
## Use Hioki's Power Logger Viewer to gather, view, and compare data

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.



You can load data from multiple instruments.



Display easy-to-understand time-series graphs

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

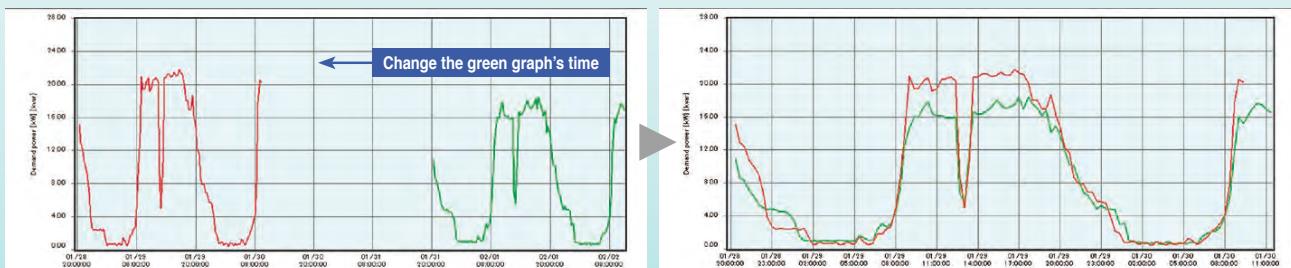
### Consolidate data

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

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.

### 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.

## Generate daily and weekly reports to review survey results and benefits

### Daily report

Time	Pdem+[kW]	WP+[kWh]	U1[V]	U2[V]	U12[V]	I1[A]	I2[A]	I12[A]
00:00:00	3.955	50.664	208.08	207.43	205.63	14.220	16.392	14.988
01:00:00	0.105	51.021	207.13	208.41	205.71	0.425	0.314	0.461
02:00:00	4.322	53.077	207.60	205.69	207.31	14.021	16.124	15.50
03:00:00	2.828	54.108	207.24	208.47	208.03	10.062	11.624	10.985
04:00:00	0.068	54.544	207.71	208.54	207.31	0.289	0.137	0.300
05:00:00	4.527	56.807	207.45	208.59	208.94	15.917	18.247	17.028
06:00:00	2.048	57.629	208.10	205.22	201.59	7.796	8.296	7.687
07:00:00	3.445	58.517	208.12	205.43	207.07	1.703	1.752	1.687
08:00:00	4.598	60.360	208.28	208.43	207.88	16.181	18.551	17.252
09:00:00	1.883	61.204	208.08	209.27	207.94	6.106	7.058	6.839
10:00:00	6.020	62.047	208.11	207.99	208.11	20.373	2.184	2.164
11:00:00	3.529	63.744	207.43	208.59	207.31	10.518	12.261	11.033
12:00:00	1.032	64.260	207.13	208.37	207.28	3.835	4.402	4.075
13:00:00	7.115	65.117	206.57	207.85	208.88	6.280	6.826	6.243
14:00:00	4.069	67.152	205.63	207.95	208.87	14.970	16.860	15.199
15:00:00	8.203	67.912	206.16	208.08	208.78	1.741	1.757	1.741
16:00:00	3.302	68.923	208.53	208.05	208.83	11.594	12.881	11.577
17:00:00	3.419	70.610	206.16	207.85	206.55	12.501	14.411	12.950
18:00:00	0.862	71.933	205.27	205.97	205.33	7.337	8.881	8.60
19:00:00	3.007	72.920	205.49	205.49	205.49	7.741	8.944	8.741
20:00:00	2.405	73.824	205.46	207.14	205.47	8.057	10.504	9.611
21:00:00	3.874	75.761	204.94	208.63	204.93	13.900	15.826	14.413
22:00:00	3.581	77.551	204.17	208.58	204.84	12.962	14.927	13.483
23:00:00	7.302	79.426	204.84	208.75	208.45	14.446	16.449	15.001
00:00:00	4.047	81.450	205.12	208.82	205.17	14.471	15.382	14.845
01:00:00	2.569	82.934	204.38	206.26	204.60	10.729	12.421	11.345
02:00:00	2.376	84.122	205.52	207.68	206.00	8.659	10.316	9.415
03:00:00	4.001	85.455	205.41	207.09	207.09	15.933	18.537	17.033
04:00:00	5.227	88.113	205.18	207.55	205.31	18.356	20.610	18.656
05:00:00	1.517	89.276	205.98	207.69	205.95	5.365	5.059	5.582
06:00:00	4.039	91.854	207.02	208.68	207.02	13.800	15.454	13.950
07:00:00	2.503	94.841	207.41	208.51	208.51	17.143	18.743	17.543
08:00:00	3.462	95.850	205.69	205.41	205.71	12.381	14.156	12.920
09:00:00	2.386	97.082	206.89	206.70	207.08	8.733	10.319	9.363
10:00:00	3.730	98.750	207.32	205.16	207.48	12.224	14.203	12.788
11:00:00	3.426	100.000	206.01	208.58	206.89	14.821	16.204	14.204
12:00:00	3.000	102.203	207.17	207.58	207.15	12.372	14.503	13.204
13:00:00	3.478	104.036	207.31	209.11	207.33	12.318	14.618	13.200
14:00:00	3.447	105.760	207.55	208.28	207.48	12.181	14.473	13.099
15:00:00	2.124	106.821	206.80	205.49	206.80	7.650	8.982	8.193
16:00:00	1.733	107.000	206.23	205.78	205.71	6.045	6.553	6.063
17:00:00	4.295	109.830	209.22	207.81	205.23	15.284	17.667	15.799
18:00:00	2.556	111.120	209.03	207.60	206.04	9.973	11.983	10.163
19:00:00	1.898	112.550	207.53	205.03	201.43	7.043	8.827	7.919
20:00:00	3.903	113.650	206.17	205.38	205.38	11.145	13.849	12.760
21:00:00	2.642	114.320	206.72	205.22	205.61	9.978	11.767	10.513
22:00:00	2.886	115.720	206.99	208.42	206.78	10.024	12.691	11.420
23:00:00	2.961	117.204	207.62	208.10	207.32	10.289	12.940	11.429
<b>Total</b>	<b>2.842</b>	<b>208.65</b>	<b>206.18</b>	<b>206.59</b>	<b>205.18</b>	<b>10.182</b>	<b>11.785</b>	<b>10.724</b>
<b>Average</b>	<b>2.842</b>	<b>208.65</b>	<b>206.18</b>	<b>206.59</b>	<b>205.18</b>	<b>10.182</b>	<b>11.785</b>	<b>10.724</b>
<b>Maximum demand</b>	<b>5.327</b>	<b>117.204</b>	<b>208.65</b>	<b>206.59</b>	<b>205.18</b>	<b>10.182</b>	<b>11.785</b>	<b>10.724</b>
<b>Time of maximum demand</b>	<b>2014/09/13 20:40:15</b>							
<b>Load factor</b>	<b>53.35</b>	<b>24.900</b>						
<b>Demand factor</b>	<b>53.27</b>	<b>51.832</b>						
<b>Facility capacity</b>	<b>10.000</b>							

### 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

#### WP+[kWh]: Active energy

Active energy (consumption) from the start of recording

#### Pdem+[kW]: Active power demand value

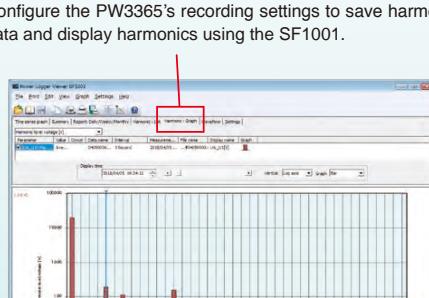
Average active power value (consumption) for each interval

### Weekly report

Time	Pdem+[kW]	WP+[kWh]
00:00:00 - 24:00:00	2.990	206.49
01:00:00 - 24:00:00	5.667	518.392
02:00:00 - 24:00:00	3.017	349.920
03:00:00 - 24:00:00	3.794	349.920
04:00:00 - 24:00:00	2.023	205.73
05:00:00 - 24:00:00	2.663	206.70
06:00:00 - 24:00:00	1.381	203.01
<b>Total</b>	<b>2.990</b>	<b>206.49</b>
<b>Average</b>	<b>2.990</b>	<b>206.49</b>
<b>Maximum demand</b>	<b>5.667</b>	<b>518.392</b>
<b>Time of maximum demand</b>	<b>2014/09/14 20:40:00</b>	<b>2014/09/14 20:40:00</b>
<b>Load factor</b>	<b>52.75</b>	
<b>Demand factor</b>	<b>56.67</b>	
<b>Facility capacity</b>	<b>10.000</b>	

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

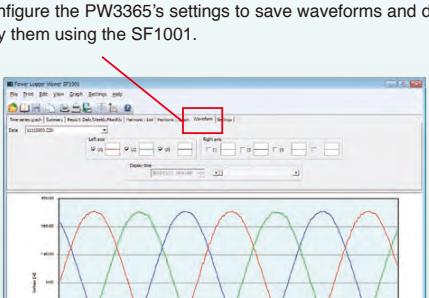
Configure the PW3365's recording settings to save harmonic data and display harmonics using the SF1001.



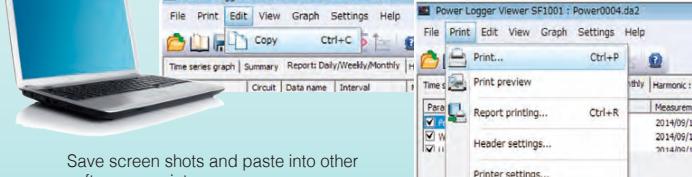
#### Binary format

- Harmonic data
- Waveform data

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



#### Save screenshots and paste into other software or print.



# PW3365-20 Specifications

No dirt or moisture on insulated wire or voltage sensor,  
(Accuracy guaranteed for 1 year)

Measurement											
Number of input channels	Voltage: 3 channels / Current: 3 channels										
Measurement targets (50/60Hz)	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 modes	1P3W+I : 1 power circuit and 1 current channel 3P3W2M+I : 1 power circuit and 1 current channel										
Measurement items	<table border="1"> <tr><td>Voltage</td><td>RMS value, fundamental wave value, waveform peak (absolute value), fundamental wave phase angle, frequency (U1)</td></tr> <tr><td>Current</td><td>RMS value, fundamental wave value, waveform peak (absolute value), fundamental wave phase angle</td></tr> <tr><td>Power</td><td>Active power, reactive power, apparent power, power factor, (with lag/lead display) or displacement power factor (with lag/lead display), active energy (consumption, regeneration, regeneration), reactive energy(lag, lead) Energy cost display (per-kWh price × power consumption)</td></tr> <tr><td>Demand</td><td>Active power demand value (consumption, regeneration), reactive power demand value (lag, lead), active power demand quantity (consumption, regeneration), reactive power demand quantity (lag, lead), power factor demand value</td></tr> <tr><td>Harmonics</td><td>Harmonic voltage, harmonic current, voltage total harmonic distortion (THD-F or THD-R), current total harmonic distortion (THD-F or TDH-R)</td></tr> </table>	Voltage	RMS value, fundamental wave value, waveform peak (absolute value), fundamental wave phase angle, frequency (U1)	Current	RMS value, fundamental wave value, waveform peak (absolute value), fundamental wave phase angle	Power	Active power, reactive power, apparent power, power factor, (with lag/lead display) or displacement power factor (with lag/lead display), active energy (consumption, regeneration, regeneration), reactive energy(lag, lead) Energy cost display (per-kWh price × power consumption)	Demand	Active power demand value (consumption, regeneration), reactive power demand value (lag, lead), active power demand quantity (consumption, regeneration), reactive power demand quantity (lag, lead), power factor demand value	Harmonics	Harmonic voltage, harmonic current, voltage total harmonic distortion (THD-F or THD-R), current total harmonic distortion (THD-F or TDH-R)
Voltage	RMS value, fundamental wave value, waveform peak (absolute value), fundamental wave phase angle, frequency (U1)										
Current	RMS value, fundamental wave value, waveform peak (absolute value), fundamental wave phase angle										
Power	Active power, reactive power, apparent power, power factor, (with lag/lead display) or displacement power factor (with lag/lead display), active energy (consumption, regeneration, regeneration), reactive energy(lag, lead) Energy cost display (per-kWh price × power consumption)										
Demand	Active power demand value (consumption, regeneration), reactive power demand value (lag, lead), active power demand quantity (consumption, regeneration), reactive power demand quantity (lag, lead), power factor demand value										
Harmonics	Harmonic voltage, harmonic current, voltage total harmonic distortion (THD-F or THD-R), current total harmonic distortion (THD-F or TDH-R)										
Voltage range	<table border="1"> <tr><td>Display range: 5 V to 520 V (less than 5 V displays as 0 V) (harmonic voltage value of 0 indicated for all orders when voltage RMS value is 0)</td></tr> <tr><td>Effective measurement range: 90 V rms to 520 V rms, peak: ±750 V peak [OVER] indicates over-range warning</td></tr> </table>	Display range: 5 V to 520 V (less than 5 V displays 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 520 V rms, peak: ±750 V peak [OVER] indicates over-range warning								
Display range: 5 V to 520 V (less than 5 V displays 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 520 V rms, peak: ±750 V peak [OVER] indicates over-range warning											
Load current	<table border="1"> <tr><td>CLAMP ON SENSOR 9660 : 5/10/50/100 A</td></tr> <tr><td>CLAMP ON SENSOR 9661 : 5/10/50/100/500 A</td></tr> <tr><td>CLAMP ON SENSOR 9669 : 100/200/1 kA</td></tr> <tr><td>CLAMP ON SENSOR 9694 : 500m/1/5/10/50 A</td></tr> <tr><td>CLAMP ON SENSOR 9695-02 : 500m/1/5/10/50 A</td></tr> <tr><td>CLAMP ON SENSOR 9695-03 : 5/10/50/100 A</td></tr> <tr><td>AC FLEXIBLE CURRENT SENSOR CT9667-01, -02, -03 : 50/100/500 A (500A range)</td></tr> <tr><td>AC FLEXIBLE CURRENT SENSOR CT9667-01, -02, -03 : 500/1 k/5 k A (5000A range)</td></tr> </table>	CLAMP ON SENSOR 9660 : 5/10/50/100 A	CLAMP ON SENSOR 9661 : 5/10/50/100/500 A	CLAMP ON SENSOR 9669 : 100/200/1 kA	CLAMP ON SENSOR 9694 : 500m/1/5/10/50 A	CLAMP ON SENSOR 9695-02 : 500m/1/5/10/50 A	CLAMP ON SENSOR 9695-03 : 5/10/50/100 A	AC FLEXIBLE CURRENT SENSOR CT9667-01, -02, -03 : 50/100/500 A (500A range)	AC FLEXIBLE CURRENT SENSOR CT9667-01, -02, -03 : 500/1 k/5 k A (5000A range)		
CLAMP ON SENSOR 9660 : 5/10/50/100 A											
CLAMP ON SENSOR 9661 : 5/10/50/100/500 A											
CLAMP ON SENSOR 9669 : 100/200/1 kA											
CLAMP ON SENSOR 9694 : 500m/1/5/10/50 A											
CLAMP ON SENSOR 9695-02 : 500m/1/5/10/50 A											
CLAMP ON SENSOR 9695-03 : 5/10/50/100 A											
AC FLEXIBLE CURRENT SENSOR CT9667-01, -02, -03 : 50/100/500 A (500A range)											
AC FLEXIBLE CURRENT SENSOR CT9667-01, -02, -03 : 500/1 k/5 k A (5000A range)											
Current ranges	<table border="1"> <tr><td>LEAK CLAMP ON SENSOR 9675 : 50m/100m/500m/1/5 A</td></tr> <tr><td>LEAK CLAMP ON SENSOR 9657-10 : 50m/100m/500m/1/5 A</td></tr> <tr><td>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)</td></tr> <tr><td>Effective measurement range: Within 5 to 110% of the range [OVER] indicates over-range warning</td></tr> </table>	LEAK CLAMP ON SENSOR 9675 : 50m/100m/500m/1/5 A	LEAK CLAMP ON SENSOR 9657-10 : 50m/100m/500m/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						
LEAK CLAMP ON SENSOR 9675 : 50m/100m/500m/1/5 A											
LEAK CLAMP ON SENSOR 9657-10 : 50m/100m/500m/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											
Power ranges	<table border="1"> <tr><td>200.00 W to 6.0000 MW</td></tr> <tr><td>Depends on voltage/current combination and measured line type (see Measurement Range Configuration Tables)</td></tr> <tr><td>Total display range: Within 0 to 130% of the range ("0W" display indicates zero rms voltage and/or current)</td></tr> <tr><td>Effective measurement area: Within 5 to 130% of the range</td></tr> </table>	200.00 W to 6.0000 MW	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						
200.00 W to 6.0000 MW											
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 accuracy (50/60Hz)	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	Any 0.01 to 9999.99 Selections 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										
Display update rate	Approx. 0.5 sec (except when accessing SD card or internal memory, or during LAN/USB communication)										
Measurement method	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										

<sup>1</sup> 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		General
List	Voltage, current, frequency, active/apparent/reactive power power factor, integrated power use, elapsed time	Product guarantee 3 year 3.5 inch TFT color LCD (320 x 240 pixel)
U/I	RMS value, fundamental wave value, waveform peak, phase angle	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
Power	Per-channel and total active power, apparent power, reactive power, power factor	Operating environment Indoors, Pollution degree 2, altitude up to 2000 m (6562-ft.)
Integ	Active energy, reactive energy, recording start time recording stop time, elapsed time, energy cost	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
Demand	Active power demand value, reactive power demand value power factor demand value	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)
Waveform	Displays voltage and current waveform	Maximum rated voltage between terminals Voltage input section : 1.7 VAC, 2.4 Vpeak Current input section : 1.7 VAC, 2.4 Vpeak
Zoom	Enlarged view of 4 user-selected parameters	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.
Trend	For one selected measurement item (not including harmonics other than demand and THD) displays maximum, average and minimum values	Dielectric strength 7.06 kVrms AC Applicable standards Safety: EN61010, EMC: EN61326
Harmonics	Displays voltage and current levels and content percentages as a graph or list	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
Recording		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
Save destination	SD Card, internal memory (capacity: approx. 320 KB)	Backup battery life Clock and settings (Lithium battery), Approx. 10 years @23°C (@73.4°F)
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	Dimensions Approx. 180W(7.09") x 100H(3.94") x 48D (1.89") mm (without PW9002) Approx. 180W(7.09") x 100H(3.94") x 68D (2.68") mm (with PW9002)
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* <sup>1</sup> Waveform save : Stores binary waveform data* <sup>2</sup>	Mass Approx. 540g (19 oz) (without PW9002), Approx. 820g (28.9 oz) (with PW9002)
Recording start methods	Interval time, manual, or at specified time, repeat	
Recording stop methods	Manual, or at specified time (up to one year), timer	
* <sup>1</sup> 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.		
* <sup>2</sup> With shortest interval of 1 minute. When set to less than 1 minute, waveforms are saved once every minute		
External Interfaces		Accessories
SD card	Settings data, measurement data, screen data, waveform data	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)
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.	

## POWER LOGGER VIEWER SF1001 Specifications

Functions		
Trend graph display function	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	Print function Preview and print content shown on the trend graph, report, harmonic graph and settings displays.
	Stacked bar graph display : Up to 16 types of data series	Comment entry (Text comments can be entered in any printout)
	Cursor measurements Measurement values can be displayed by the cursor	Header/Footer settings: Sets the header and footer for each printout
Summary display function	Displayed items are the same as for the trend Graph Display	Printing support Any color or monochrome printing supported by the operating system
	Daily, weekly and monthly report displays: Accumulates and displays daily, weekly and monthly reports over specified period.	Report printing Print (static) contents over a specific time period
	Load factor calculation display: Calculates and displays load factor and demand factor results with daily, weekly and monthly reports	Output contents: Standard or selected output items
Time span aggregation: Aggregates data into up to four specified time spans		Available output items: Trend graph, summary, daily report, waveform Report creation method: Standard print
Waveform display	Displays waveform data at specified date and time	Report output settings: Save/load report output settings
Copy function	Captures any display image to the clipboard	
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

					
CLAMP ON SENSOR 9694	CLAMP ON SENSOR 9660	CLAMP ON SENSOR 9661	CLAMP ON SENSOR 9669	CLAMP ON SENSOR 9695-02	CLAMP ON SENSOR 9695-03
Cord length 3 m (9.84ft)	Cord length 3 m (9.84ft)	Cord length 3 m (9.84ft)	Cord length 3 m (9.84ft)	Connect with the 9695-02/-03, Output BNC terminal Cord length: 3 m (9.84ft)	CONNECTION CORD 9219
<b>Measurable conductor diameter</b> φ15 mm (0.59")	<b>Measurable conductor diameter</b> φ15 mm (0.59")	<b>Measurable conductor diameter</b> φ46 mm (0.81")	<b>Measurable conductor diameter</b> φ55 mm (2.17") 80 (3.15")×20 (0.79") mm	<b>Measurable conductor diameter</b> φ15 mm (0.59")	<b>Measurable conductor diameter</b> φ15 mm (0.59")
<b>Primary current rating</b> 5 A AC	<b>Primary current rating</b> 100 A AC	<b>Primary current rating</b> 500 A AC	<b>Primary current rating</b> 1000 A AC	<b>Primary current rating</b> 50 A AC	<b>Primary current rating</b> 100 A AC
<b>Accuracy</b> Amplitude (45 to 66 Hz) / Phase (45 Hz to 5 kHz) ±0.3% rdg.±0.02% f.s. Within ±2°	<b>Accuracy</b> Amplitude (45 to 66 Hz) / Phase (45 Hz to 5 kHz) ±0.3% rdg.±0.02% f.s. Within ±1°	<b>Accuracy</b> Amplitude (45 to 66 Hz) / Phase (45 Hz to 5 kHz) ±0.3% rdg.±0.01% f.s. Within ±0.5°	<b>Accuracy</b> Amplitude (45 to 66 Hz) / Phase (45 Hz to 5 kHz) ±1.0% rdg.±0.01% f.s. Within ±1°	<b>Accuracy</b> Amplitude (45 to 66 Hz) / Phase (45 Hz to 5 kHz) ±0.3% rdg.±0.02% f.s. Within ±2°	<b>Accuracy</b> Amplitude (45 to 66 Hz) / Phase (45 Hz to 5 kHz) ±0.3% rdg.±0.02% f.s. Within ±1°
<b>Frequency characteristic</b> 40Hz to 5kHz Within ±1.0%	<b>Frequency characteristic</b> 40Hz to 5kHz Within ±1.0%	<b>Frequency characteristic</b> 40Hz to 5kHz Within ±1.0%	<b>Frequency characteristic</b> 40Hz to 5kHz Within ±2.0%	<b>Frequency characteristic</b> 40Hz to 5kHz Within ±1.0%	<b>Frequency characteristic</b> 40Hz to 5kHz Within ±1.0%
<b>Effect of external magnetic field with a magnetic field of 400 A/m AC</b> Equivalent to 0.1 A or less	<b>Effect of external magnetic field with a magnetic field of 400 A/m AC</b> Equivalent to 0.1 A or less	<b>Effect of external magnetic field with a magnetic field of 400 A/m AC</b> Equivalent to 0.1 A or less	<b>Effect of external magnetic field with a magnetic field of 400 A/m AC</b> Equivalent to 1 A or less	<b>Effect of external magnetic field with a magnetic field of 400 A/m AC</b> Equivalent to 0.1 A or less	<b>Effect of external magnetic field with a magnetic field of 400 A/m AC</b> Equivalent to 0.1 A or less
<b>Effect of conductor position</b> Within ±0.5%	<b>Effect of conductor position</b> Within ±0.5%	<b>Effect of conductor position</b> Within ±0.5%	<b>Effect of conductor position</b> Within ±1.5%	<b>Effect of conductor position</b> Within ±0.5%	<b>Effect of conductor position</b> Within ±0.5%
<b>Maximum rated voltage to earth</b> CAT III 300 V rms	<b>Maximum rated voltage to earth</b> CAT III 300 V rms	<b>Maximum rated voltage to earth</b> CAT III 600 V rms	<b>Maximum rated voltage to earth</b> CAT III 600 V rms	<b>Maximum rated voltage to earth</b> CAT III 300 V rms	<b>Maximum rated voltage to earth</b> CAT III 300 V rms
<b>Maximum input</b> 45-66 Hz 50 A continuous	<b>Maximum input</b> 45-66 Hz 130 A continuous	<b>Maximum input</b> 45-66 Hz 550 A continuous	<b>Maximum input</b> 45-66 Hz 1000 A continuous	<b>Maximum input</b> 45-66 Hz 60 A continuous	<b>Maximum input</b> 45-66 Hz 130 A continuous
<b>Dimensions / Mass</b> 46W×135H×21D mm / 230 g (1.81")×(5.31")×(0.83") / (8.1 oz)	<b>Dimensions / Mass</b> 46W×135H×21D mm / 230 g (1.81")×(5.31")×(0.83") / (8.1 oz)	<b>Dimensions / Mass</b> 77W×151H×42D mm / 380 g (3.03")×(5.94")×(1.65") / (13.4 oz)	<b>Dimensions / Mass</b> 99.5W×188H×42D mm / 590 g (3.92")×(7.40")×(1.65") / (20.8 oz)	<b>Dimensions / Mass</b> 50.5W×58H×18.7D mm / 50 g (2.28")×(2.28")×(0.74") / (1.8 oz)	<b>Dimensions / Mass</b> 50.5W×58H×18.7D mm / 50 g (2.28")×(2.28")×(0.74") / (1.8 oz)

				
CT9667-01 AC FLEXIBLE CURRENT SENSOR	CT9667-02 AC FLEXIBLE CURRENT SENSOR	CT9667-03 AC FLEXIBLE CURRENT SENSOR	CLAMP ON LEAK SENSOR 9657-10 Leakage Current Measurement Only	CLAMP ON LEAK SENSOR 9675 Leakage Current Measurement Only
Cord length : Sensor - circuit: 2 m (6.56ft) , Circuit - connector: 1 m (3.28ft)			Cord length : 3 m (9.84ft)	Cord length : 3 m (9.84ft)
<b>Measurable conductor diameter</b> CT9667-01 : φ100 mm, CT9667-02 : φ180 mm CT9667-03 : φ254 mm	<b>Measurable conductor diameter</b> CT9667-01 : φ100 mm, CT9667-02 : φ180 mm CT9667-03 : φ254 mm	<b>Measurable conductor diameter</b> φ40 mm	<b>Measurable conductor diameter</b> φ30 mm	
<b>Primary current rating</b> AC500 A/ AC5000 A (Switchable)	<b>Primary current rating</b> AC500 A/ AC5000 A (Switchable)	<b>Primary current rating</b> AC 10 A*	<b>Primary current rating</b> AC 10 A*	
<b>Accuracy</b> 45-66Hz ±2.0% rdg ± 0.3% f.s. / Within ±1°	<b>Accuracy</b> 45-66Hz ±2.0% rdg ± 0.3% f.s. / Within ±1°	<b>Accuracy</b>	<b>Accuracy</b> 45-66Hz ±1.0% rdg ± 0.05% f.s. / Within ±3°	<b>Accuracy</b> 45-66Hz ±1.0% rdg ± 0.05% f.s. / Within ±5°
<b>Frequency</b> 10-20kHz Within ± 3dB	<b>Frequency</b> 10-20kHz Within ± 3dB	<b>Frequency</b> 40 - 5kHz Within ± 5%	<b>Frequency</b> 40 - 5kHz Within ± 5%	
<b>Effect of external magnetic field</b> 1.5% / f.s. or less	<b>Effect of external magnetic field</b> 1.5% / f.s. or less	<b>Effect of external magnetic field</b> 7.5 mA max.	<b>Effect of external magnetic field</b> 7.5 mA max.	
<b>Effect of conductor position</b> Within ± 3%	<b>Effect of conductor position</b> Within ± 3%	<b>Effect of conductor position</b> Within ±0.1%	<b>Effect of conductor position</b> Within ±0.1%	
<b>Maximum rated voltage to earth</b> CAT III 1000 V rms/ CAT IV 600 V rms	<b>Maximum rated voltage to earth</b> CAT III 1000 V rms/ CAT IV 600 V rms	<b>Measurable conductor</b> Insulated conductor	<b>Measurable conductor</b> Insulated conductor	
<b>Maximum input</b> 45-66Hz 10000 A continuous	<b>Maximum input</b> 45-66Hz 10000 A continuous	<b>Maximum input</b> 45-66Hz 30A continuous	<b>Maximum input</b> 45-66Hz 10A continuous	
<b>Dimensions / Mass</b> Circuit box: 35W×120.5H×34D CT9667-01, -02 : 280 g, CT9667-03 : 470 g	<b>Dimensions / Mass</b> Circuit box: 35W×120.5H×34D CT9667-01, -02 : 280 g, CT9667-03 : 470 g	<b>Dimensions / Mass</b> 74W×145H×42D / 380g	<b>Dimensions / Mass</b> 60W×112.5H×23.6D / 160g	
<b>Power supply</b> LR06 alkaline battery × 2 or AC ADAPTER 9445-02/9445-03 (optional)	<b>Power supply</b> LR06 alkaline battery × 2 or AC ADAPTER 9445-02/9445-03 (optional)	<b>Notes</b> Not used for power measurements *Maximum AC measurement range with PW3365-20 is 5 A	<b>Notes</b> Not used for power measurements *Maximum AC measurement range with PW3365-20 is 5 A	

## Measurement Range Configurations

CLAMP ON SENSOR 9694 / 9695-02 *1						
Voltage	Connection	Current				
		500.00 mA	1.0000 A	5.0000 A	10.000 A	50.000 A
400.0 V	1P2W	200.00 W	400.00 W	2.0000 kW	4.0000 kW	20.000 kW
	1P3W					
	1P3W1U	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
CLAMP ON SENSOR 9660 / 9695-03 / 9661*2						
Voltage	Connection	Current				9661 only
		5.0000 A	10.000 A	50.000 A	100.00 A	500.00 A
400.0 V	1P2W	2.0000 kW	4.0000 kW	20.000 kW	40.000 kW	200.00 kW
	1P3W					
	1P3W1U	4.0000 kW	8.0000 kW	40.000 kW	80.000 kW	400.00 kW
	3P3W2M					
	3P3W3M					
	3P4W	6.0000 kW	12.000 kW	60.000 kW	120.00 kW	600.00 kW
CLAMP ON SENSOR 9669						
Voltage	Connection	Current				
		100.00 A	200.00 A	1.0000 kA		
400.0 V	1P2W	40.000 kW	80.000 kW	400.00 kW		
	1P3W					
	1P3W1U	80.000 kW	160.00 kW	800.00 kW		
	3P3W2M					
	3P3W3M					
	3P4W	120.00 kW	240.00 kW	1.2000 MW		
AC FLEXIBLE CURRENT SENSOR CT9667-01, -02, -03 (5 kA)						
Voltage	Connection	Current				
		500.00 A	1.0000 kA	5.0000 kA		
400.0 V	1P2W	200.00 kW	400.00 kW	2.0000 MW		
	1P3W					
	1P3W1U	400.00 kW	800.00 kW	4.0000 MW		
	3P3W2M					
	3P3W3M					
	3P4W	600.00 kW	1.2000 MW	6.0000 MW		
AC FLEXIBLE CURRENT SENSOR CT9667-01, -02, -03 (500 A)						
Voltage	Connection	Current				
		50.00 A	100.00 A	500.00 A		
400.0 V	1P2W	20.000 kW	40.000 kW	200.00 kW		
	1P3W					
	1P3W1U	40.000 kW	80.000 kW	400.00 kW		
	3P3W2M					
	3P3W3M					
	3P4W	60.000 kW	120.00 kW	600.00 kW		
Leak current: CLAMP ON LEAK SENSOR 9657-10, 9675						
Range		50.000 mA	100.00 mA	500.00 mA	1.0000 A	5.0000 A

## 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.	-
1.0000 kA	±4% rdg. ±1.8% f.s.	-
500.00 A	±4% rdg. ±3.3% f.s.	±4% rdg. ±0.6% f.s.
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	
Apparent power	±1 dgt. for the calculation obtained from each measurement value	
Reactive power	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.	
Energy	Active and reactive power measurement accuracies ±1 dgt.	
Power factor	From each measurement applied to calculation ±1 dgt.	
Frequency	±0.5% rdg. (with 90 to 520 V sine wave input)	
Demand value	Active and reactive power measurement accuracies ±1 dgt.	
Demand quantity	Active and reactive power measurement accuracies ±1 dgt.	

\*1 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.

\*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.

## Current Display and Effective Measurement Ranges

typical

Range	Total display range	Effective measurement range		Total display range	Effective peak
		Minimum	Maximum		
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	±20 A peak
	10 A Range	0.040 A	0.500 A	11.000 A	±40 A peak
	50 A Range	0.200 A	2.500 A	55.000 A	±200 A peak
	100 A Range	0.40 A	5.00 A	110.00 A	±400 A peak
	500 A Range	2.00 A	25.00 A	550.00 A	±1000 A peak



\* Current sensors :  
sold separately



\* For Voltage Sensor  
\* For PW3365

\* Voltage sensors : bundled

#### Model : CLAMP ON POWER LOGGER PW3365

Model No. (Order Code) (Note)

PW3365-20 (English model, main unit only)

## Accessories

- SAFETY VOLTAGE SENSOR PW9020 x4
- AC ADAPTER Z1008 x1
- USB cable (0.9 m, 2.95 ft length) x1
- Instruction manual x1
- Measurement guide x1
- Color clips (red, green, yellow, white) 4 each x10
- Spiral tubes x10



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).

## Options

### CLAMP ON SENSOR (for load current measurement)

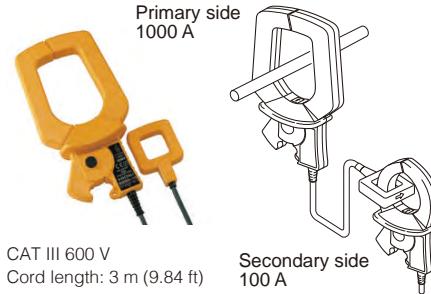
CLAMP ON SENSOR	9694	(AC 5 A)
CLAMP ON SENSOR	9660	(AC 100 A)
CLAMP ON SENSOR	9661	(AC 500 A)
CLAMP ON SENSOR	9669	(AC 1000 A)
AC FLEXIBLE CURRENT SENSOR	CT9667-01	(AC 500 A/ 5000 A)
AC FLEXIBLE CURRENT SENSOR	CT9667-02	(AC 500 A/ 5000 A)
AC FLEXIBLE CURRENT SENSOR	CT9667-03	(AC 500 A/ 5000 A)
CLAMP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

\* 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



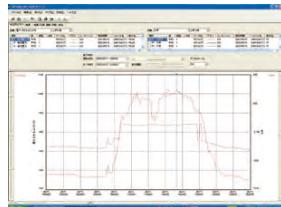
CAT III 600 V  
Cord length: 3 m (9.84 ft)

Primary side  
1000 A  
Secondary side  
100 A

### Measurable conductor diameter

φ55 mm (2.17 in)  
Bus bar : 80 mm (3.46 in) 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")  
(Approx) 275H (10.8")  
110D (4.3") mm  
C1008  
390W (15.4")  
275H (10.8")  
150D (5.9") mm

### AC ADAPTER Z1008



Includes standard  
For separate purchase

### SD MEMORY CARD Z4003



8 GB capacity

### SD MEMORY CARD 2GB Z4001



2 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.

### LAN CABLE 9642



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

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