

Please note the following alterations(with under line) to the IM253710-01E.

Page ii “MODEL and SUFFIX codes”

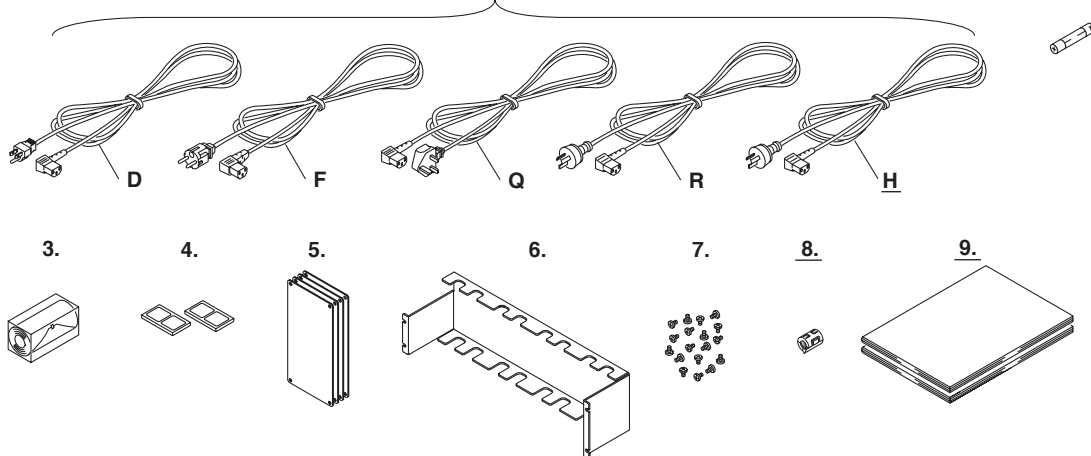
Model Code	Suffix Code	Specifications
.....
Power cord
	-R	AS Standard Power Cord (Part No. : A1024WD) [Maximum rated voltage : 250 V, Maximum rated current : 10 A]
	-H	GB Standard Power Cord (complies with the CCC)(Part No.: A1064WD) [Maximum rated voltage : 250 V, Maximum rated current : 10 A]

Page iii “Standard Accessories for the PZ4000”

Included Accessories

Part Name	Part Number	Q'ty	Notes
.....
2.Spare power fuse	A1463EF	1	250 V, 6.3 A, time lag (Attached to the fuse holder)
.....
8.Clamp filter (Ferrite core)	A1179MN	1	For GP-IB cable
9. • User's Manual	IM253710-01E	1	This manual
• Communication Interface User's Manual	IM253710-11E	1	-

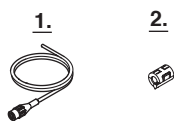
1. (one of the following power cords is supplied according to the instrument's suffix codes.)



Page v “Standard Accessories for the Input Module”

Included Accessories

Part Name	Part Number	Q'ty	Notes
1.External sensor cable	B9284LK	1	Provided with the 253751 and 253752
2.Clamp filter (Ferrite core)	A1179MN	2	For measurement cable



Page v “Spare Parts (Sold Separately)”

Part Name	Part Number	Q'ty	Notes
1.Printer roll paper	B9850NX	5	One roll is one set, thermal-sensitive paper, total length 30 m
2.Power fuse	A1463EF	2	250 V, 6.3 A, time lag

Page vi “Symbols”

Please note the additions indicated by the underlined text.



Protective Earth Terminal. To ensure safety, if the current to be measured exceeds 7 A (RMS), use a cable or conductor that allows current greater than the current to be measured to flow through it, and always connect protective grounding prior to use of this instrument. For products shipped as of January 2004, the protective earth terminal is located on the rear panel.

Page 2-1 “Rear Panel”

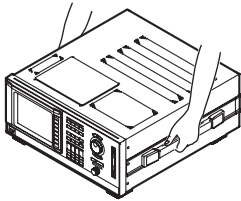
The following note has been added.

Protective Earth Terminal 

For products shipped as of January 2004, the protective earth terminal is located on the rear panel. To ensure safety, if the current to be measured exceeds 7 A (RMS), use a cable or conductor that allows current greater than the current to be measured to flow through it, and always connect protective grounding prior to use of this instrument. If you need to confirm whether a protective earth terminal is installed, please contact the dealer from whom you purchased the instrument.

Page 3-1 “When moving the instrument”

.....To carry the instrument, use the handle or carry it using both hands.



Page 3-6 “WARNING”

Please note the additions indicated by the underlined text.



WARNING

- To ensure safety, if the current to be measured exceeds 7 A (RMS), use a cable or conductor that allows current greater than the current to be measured to flow through it, and always connect protective grounding prior to use of this instrument. For products shipped as of January 2004, the protective earth terminal is located* on the rear panel.
- * If you need to confirm whether a protective earth terminal is installed, please contact the dealer from whom you purchased the instrument.

Page 3-13 “Note”

Please note the additions indicated by the underlined text.

Note

- To measure the apparent power and power factor more accurately when measuring the power of an unbalanced three-phase circuit, it is recommended that a three-voltage, three-current (3V3A) system be used to make the measurement.
- In 3P3W and 3V3A systems, the wiring system may be different between the PZ4000 and another product (another digital power meter) due to the differences in the input element that is wired. To achieve correct measurements, check the wiring system.

Page 3-16 “Note”

Please note the additions indicated by the underlined text.

Note

- To minimize error when using a shunt-type current sensor, note the following points when connecting the external sensor cable.
 - Connect the shielded wire of the external sensor cable to the L side of the shunt output terminal (OUT).
 - Minimize the area created between the wires connecting the current sensor to the external sensor cable. The effects due to the line of magnetic force and noise that enter this area of space can be reduced.
- To measure the apparent power and power factor more accurately when measuring the power of an unbalanced three-phase circuit, it is recommended that a three-voltage, three-current (3V3A) system be used to make the measurement.
- In 3P3W and 3V3A systems, the wiring system may be different between the PZ4000 and another product (another digital power meter) due to the differences in the input element that is wired. To achieve correct measurements, check the wiring system.

Page 3-20 “Note”

Please note the additions indicated by the underlined text.

Note

- To measure the apparent power and power factor more accurately when measuring the power of an unbalanced three-phase circuit, it is recommended that a three-voltage, three-current (3V3A) system be used to make the measurement.
 - In 3P3W and 3V3A systems, the wiring system may be different between the PZ4000 and another product (another digital power meter) due to the differences in the input element that is wired. To achieve correct measurements, check the wiring system.
 - For safety reasons, this section indicates wiring diagrams in which the common terminals (+/-) of the secondary side of the PT or CT are grounded.
-

Page 4-3 “Procedudre”

1. Press the SETUP key.
2. Press the [Initialize] soft key. Select OK on the dialog box be appeared to execute the initialization.

Page 5-10 “Explanation”

The following note has been added.



WARNING

To ensure safety, if the current to be measured exceeds 7 A (RMS), use a cable or conductor that allows current greater than the current to be measured to flow through it, and always connect protective grounding prior to use of this instrument. For products shipped as of January 2004, the protective earth terminal is located* on the rear panel.

* If you need to confirm whether a protective earth terminal is installed, please contact the dealer from whom you purchased the instrument.

Page 5-10 “Setting the voltage and current ranges”

The following note has been added.

• **Fixed range**

Note

- When measuring input signals that include pulse waveforms (such as PWM (Pulse Width Modulation) inverter waveforms) through a line filter, turn the line filter OFF, and set the range so that peak value of the input signal does not cause a peak over (as determined when the Uover and lover indicators in the upper left of the screen turn red). In the case of input signals that include pulse waveforms having frequencies which are higher than line filter cut-off frequencies, the peak value of the input signal may not be correctly detected depending on the specified range.
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• **Auto range**

Note

- When measuring input signals that include pulse waveforms through a line filter, the range may not be set correctly by the auto range function, and measurements may be inaccurate. When measuring such input signals as PWM inverter waveforms, It is recommended that you perform the measurements using the fixed range determined by the PWM crest value.
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Page 6-8 “Note”

Note

- When the amplitude of the signal selected for the PLL source (CH1 to CH8) is small compared to the range,
 - When setting the external clock signal to PLL source, input an external clock signal having the same frequency as the fundamental frequency of the signal being measured.
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Page 8-7 “Note”

The following note has been added.

Note

- fU and fI are measured using zero cross detection. An error results if 2 or more zero cross points are not detected on the rising slope of the input signal during the observation time.
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Page 12-26 “Selecting the data type, file extension, data size”

- ASCII
 - The numerical data are saved in ASCII format. The data can be used to analyze the waveform on a PC.
 - Data in this format cannot be loaded on this instrument.
 - Float
 - The numerical data are saved in 32-bit floating point format. The data can be used to analyze the waveform on a PC.
 - Data in this format cannot be loaded on this instrument.
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Page 16-2 “16.2 Error Messages and Corrective Actions”

Included Error Codes

Error in Execution

Codes	Messages	Actions	Sections
10	Occure ACQ time out.	—	—
11	Cannot measure PLL frequency.	Check input level.	6.4

Page 16-9 “Specified Rating”

- Part number : [A1463EF](#)

Page 17-13 “17.13 General Specifications”

Please note the changes and additions indicated by the underlined text, and the deletions indicated by the strikethrough text below.

Safety standard ^{*1}	Complying standard	EN61010-1 (apply for 253710, 253751, 253752, 253771) Overvoltage category (Installation category) II ² Measurement category II ⁶ Pollution degree 2 ³
Emission ^{*1}	Complying standard	<ul style="list-style-type: none"> • EN61326 Class A (apply for 253710, 253751, 253752, 253771) • EN55011-Group1 Class A (apply for 253710, 253751, 253752, 253771)
	Cable requirement	<ul style="list-style-type: none"> • EN61000-3-2 (apply for 253710, 253751, 253752) • Measuring Input To bundle the wires between source and load for each phase and to separate the input signal wires by less than 50 mm between each phase and neutral line. Attach a ferrite core (YOKOGAWA: A1179MN) to the cable near the terminal. However, this is not necessary if the input module is 253771. • External trigger input terminal
	Tests	<ol style="list-style-type: none"> 1. Main terminal disturbance voltage (EN55011) class A 2. Electromagnetic radiation disturbance (EN55011) class A 3. Main terminal harmonic current emission (EN61000-3-2)
Immunity ^{*1}	Complying standard	EN61326 Annex A ⁵ (apply for 253710, 253751, 253752, 253771)
	Cable requirement	Same as the above cable requirement about emission.
	Tests	<ol style="list-style-type: none"> 1. Electrostatic discharge (IEC1000-4-2) : 8 kV (air discharge), 4 kV (contact discharge) 2. EM-field immunity (IEC1000-4-3) : 80 MHz to 1 GHz, 10 V/m 3. Electrical fast transient/burst (IEC1000-4-4) : 2 kV (AC line and voltage and current input) 4. HF conducted immunity (IEC1000-4-6) : 0.15 to 80 MHz, 10 Vrms 5. Power frequency magnetic field (IEC1000-4-8) : 50 Hz, 30 A/m

^{*5} Annex A (normative) : Immunity test requirements for equipment intended for use in industrial locations.

^{*6} Measurement category II (CAT II) applies to measurement of electrical equipment which is supplied from fixed installations such as a wall outlet wired from a distribution board, or of the wires themselves.

Page App-4 “Measurement Functions in the Normal Measurement Mode”

Q [var]	$\sqrt{S^2 - P^2}$	On products (PZ4000) with firmware version 2.01 or later, □ a “-” sign is attached when the phase is leading.
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Page App-4 “Note”

The following note has been added.

Note

- The polarity of the reactive power (Q) and the lead (D)/lag (G) of the phase angle (φ) are properly detected when both the voltage and current are sinuoidal. Proper detection may not be possible if the input ratio between the voltage and current differs greatly with respect to the measurement range or the voltage or current is distorted.
- Reactive power (Q), power factor (λ), phase (φ), and inductance (Xs and Xp) are computed using apparent power (S) that is determined according to the selected computing equation.

Page App-5 “Note”

The following note has been added.

Note

- Apparent power (S) or reactive power (Q) of the PZ4000’s harmonic measurement mode may differ from the measured values of the PZ4000’s normal measurement mode or those of other instruments that use different measurement principles.