User's Manual

96033 Clamp-on Probe

Thank you for purchasing our Clamp-on Probe.
This manual describes the specifications and handling precautions for a Clamp-on Probe.
The following manuals, including this one, are provided as manuals for the 96033. Read them along with this manual.

IM 96033-E: User's Manual (this manual)
IM WEEE001E: Waste Electrical and Electronic Equipment
IM CROHS-96030: Document for China

Contact information of Yokogawa offices worldwide is provided on the following sheet.
PIM 113-01Z2: Inquiries List of worldwide contacts

Store this manual in an easily accessible place for quick reference.

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Yokogawa Test & Measurement Corporation
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Sales in Each Country or Region

Authorized Representative in the EEA

Yokogawa Europe B.V. is the authorized representative of Yokogawa Test & Measurement Corporation for this product in the EEA. (EEA: European Economic Area)
To contact Yokogawa Europe B.V., see the separate list of worldwide contacts, PIM 113-01Z2.

Regarding Safe Use of This Product

This product is designed to be used by a person with specialized knowledge. When operating the instrument, be sure to observe the cautionary notes given below to ensure correct and safe use of the instrument. If you use the instrument in any way other than as instructed in this manual, the instrument's protective measures may be impaired. This manual is an essential part of the product; keep it a safe place for future reference.
YOKOGAWA is by no means liable for any damage resulting from use of the instrument in contradiction to these cautionary notes.

The following safety symbols are used on the instrument and in this manual.

⚠ WARNING

Indicates a hazard that may result in the loss of life or serious injury of the user unless the described instruction is abided by.

⚠ CAUTION

Indicates a hazard that may result in an injury to the user and/or physical damage to the product or other equipment unless the described instruction is abided by.

NOTE

Indicates information that is essential for handling the instrument or should be noted in order to familiarize yourself with the instrument's operating procedures and/or functions.

⚠ Danger! Handle with Care.
This mark indicates that operator must refer to an explanation in the instruction manual in order to avoid risk of injury or death of personnel or damage to the instrument.

This symbol indicates that this instrument designed to be applied around or removed from HAZARDOUS LIVE conductors provided if the RATED circuit-to-earth voltage dose not exceed the value indicated in the measurement category.

~ This symbol indicates AC voltage/current.

⧈ This symbol indicates double insulation.

Strictly observe the following cautionary notes in order to avoid the risk of injury or death of personnel or damage to the instrument due to hazards such as electrical shock.

⚠ WARNING

- This instrument is for measuring AC current (clamping sensor). Do not use this instrument for other purpose.
- Do not use the instrument if there is a problem with its physical appearance.
- To avoid a short-circuit or an accident to personnel, use this product within the RATED circuit-to-earth voltage of measurement category.
- Do not use the product when there are raindrops or droplets of condensed water on its surface, or if your hands are wet.
- Barrier is for to avoid touching the HAZARDOUS LIVE conductor.
  Be careful not to across the Barrier when using the instrument.
- Safety protectors such as rubber-insulated gloves should be worn to prevent electrical shock when using the instrument.
- Do not use this product in a place where an explosive gas or vapor is present.
- Do not use the instrument if there is any damage to the casing or when the casing is removed. Do not attempt to repair/modify the product yourself, as doing so is extremely dangerous. Should an abnormality or failure in the product be found, contact the vendor from which you purchased the product.

⚠ CAUTION

- The clamping JAWS are precision assembled to ensure high performance. When using the clamp, do not apply intense mechanical shock, vibration, or force to the clamping JAWS.
- If dust or any other foreign matter gets in the clamping JAWS, do not close the clamping cores tight. First remove the dust and then make sure the clamping cores on both sides close smoothly.

⚠ CAUTION

This product is a Class A (for industrial environments) product. Operation of this product in a residential area may cause radio interference in which case the user will be required to correct the interference.

Cleaning

To remove dirt, disconnect the connector and gently wipe the outer surface with a clean and soft cloth.
Do not use a chemical agent such as benzene or paint thinner.

Measurement Category

⚠ WARNING

The probe is designed for measurement category III.
(The RATED circuit-to-earth voltage: 300 Vrms)
Do not use the probes for measurements in location falling under Measurement Category IV.
The probes are designed for measurement category IV.
(The RATED circuit-to-earth voltage: 150 Vrms)

Measurement category	Description	Remarks
O (None, Other)	Other circuits that are not directly connected to MEAINS.	Circuits not connected to a mains power source.
CAT II	For measurement preformed on circuits directly connected to a low-voltage installation.	Appliances, portable equipment, etc.
CAT III	For measurement preformed in a building installation.	Distribution board, circuit breaker, etc.
CAT IV	For measurement preformed at the source of a low-voltage installation.	Overhead wire, cable systems, etc.

Clamp-on Power Meter CW140 or CW120, CW121 Specifications (for Model 96033)

When you are using the CW140 or CW120/CW121connecting with the 96033 probe, the specifications for the CW140 or CW120 (power factor effects) is as follows:
Power factor effects (For 45Hz ≤ f ≤ 66Hz)

Active power:	±2.0%rng	cos ϕ = ±0.5 (relative to power factor 1)
Reactive power:	±2.0%rng	sin ϕ =±0.5 (relative to reactive power 1)

Specifications

Item		Model 96033
Measurement range		0 to 50 Arms AC
Output voltage		0 to 0.5 Vrms AC (10 mV/A)
Accuracy	Amplitude	±1% rdg ± 0.3 mV (20 Hz to 45 Hz) ±0.5% rdg ± 0.1 mV (45 Hz to 66 Hz) ±0.8% rdg ± 0.2 mV (66 Hz to 1 kHz) ±1% rdg ± 0.3 mV (1 kHz to 5 kHz) ±3% rdg ± 0.4 mV (5 kHz to 20 kHz)
	Phase	Within ±1°(45 Hz to 1 kHz)
	(Tested at 23 ±5°C and 35 to 75% relative humidity and with sine wave input)	
Temperature coefficient		0.05% of full scale/°C over 0 to 18°C and 28 to 50°C ranges
Maximum allowed current		130 Arms AC (45 Hz to 1 kHz)
Output impedance		Approx. 18 Ω
External magnetic field effects		0.1 A equivalent or less (at 400 A/mA, 50/60 Hz)
Connector position effects		Within ±0.5% (1 to 50 A, 45 Hz to 1 kHz)
The RATED circuit-to-earth voltage		300 Vrms AC max.
Withstand voltage		3.7 kVrms AC for one minute, (between core and case and between core and output)
Measurable conductor diameter		ϕ 18 mm max.
Operating temperature and humidity		0 to 50°C, 5 to 85% RH (no condensation)
Storage temperature and humidity		-20 to 60°C, 90% RH max. (no condensation)
External dimensions		Approx. 52 (W) × 106 (H) × 25 (D) mm (excluding protrusions)
Weight		Approx. 220 g
Output cable length		Approx. 3 m (Output terminal: Safety banana plug)
Accessory		User's manual (1 copy), Ring markers (4 colors × 2): L4007MG

Safety standards
EN 61010-1, EN 61010-2-032
Measurement category III
(The RATED circuit-to-earth voltage: 300 Vrms)
Measurement category IV
(The RATED circuit-to-earth voltage: 150 Vrms)
Indoor use, altitude 2000 m or less, pollution degree 2

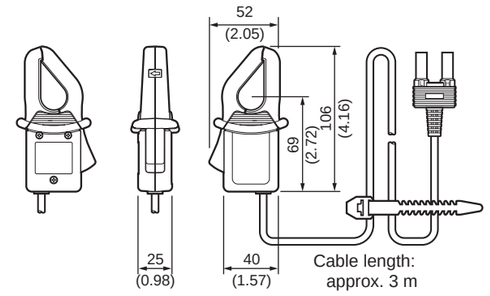
EMC standards
EN 61326-1 Class A, EN 61326-2-1, EN 61000-6-2
EN 55011 Class A Group 1
EMC Regulatory Arrangement in Australia and New Zealand
EN 55011 Class A Group 1

Effectiveness of radiation immunity:
Measuring accuracy of within ±20% of each range

Environmental standard:
EN 50581
Monitoring and control instruments including industrial monitoring and control instruments

External Dimensions

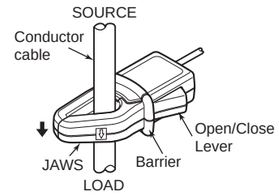
Current Clamp-on Probe Unit = mm (inch)



For Precise Measurements

Use this product under the following ambient conditions.
Temperature: 23 ±5°C
Relative humidity: 35 to 75% (no condensation)

- When performing a measurement, hold the probe so that the measured conductor cable runs at the center of the clamp.
- Ensure that the orientation of the clamp to the direction of the conductor cable (power source ⟶ load) is correct as shown right.
- Ensure that the clamping JAWS are properly closed.



Configuring the CW140 Clamp-on Power Meter

When using the Clamp-on Probe with the CW140 clamp-on power meter, configure the meter as explained below.
Setting the clamp: Set the clamp to the 50-500A clamp option.
Setting the CT ratio: Set the CT ratio to 0.1.

NOTE

Since the clamp is set to the 50-500A clamp option, the current range is indicated as "50A/100A/200A/500A.