

# User's Manual Model 96001 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 96001. Read them along with this manual.

RG 108-E: User's Manual (this manual)  
 IM WEEE001E: Waste Electrical and Electronic Equipment  
 IM CROHS-96001: 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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 2015, Yokogawa Meters & Instruments Corporation  
 2017, Yokogawa Test & Measurement Corporation  
 Printed in Japan

**YOKOGAWA** RG 108-E  
 Yokogawa Test & Measurement Corporation 9th Edition: Oct. 2017 (YMI)

## 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.

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 instrument is for domestic use (Class B) and meets the electromagnetic compatibility requirements.
- Do not use the instrument in areas subject to rapid temperature fluctuations.
- 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.

### Cleaning

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

## Measurement Category

### WARNING

The probe is designed for measurement category II. (The RATED circuit-to-earth voltage: 600 Vrms)  
 Do not use the probes for measurements in locations falling under Measurement Categories III, and IV.  
 The probes are 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.

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.

## Measuring Method

### To avoid damage to instrument

### CAUTION

Do not apply a current exceeding the maximum allowable current, as this may cause damage to the instrument.

- Turn the digital multimeter's power on and then set the function switch to [AC V].
- Connect the lead plugs from the clamp probe to the digital multimeter input terminals. In this case, connect the red plug to terminal [V], the black plug to terminal [com].
- Squeeze on the Open/Close lever to open the clamping JAWS and clamp one of the wires to be measured. Make sure that the end of the clamp is closed securely.
- Read the indication value of the digital multimeter.

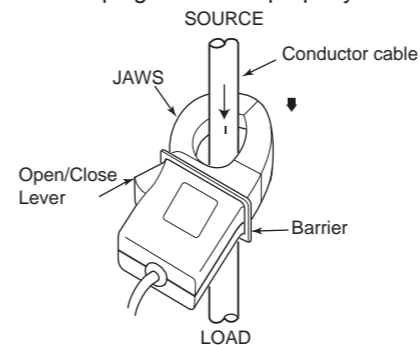
### < The current value calculation >

Example When the output voltage is 150.0 mV:

$$\text{Current (I)} = \frac{150.0}{10} = 15.00 \text{ A}$$

## For Precise Measurements

- Clamp only one wire. Clamping a tough rubber-sheathed cable and a parallel PVC-cable together disables measurement.
- 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 below, when voltage and current phase related measurement. The output waveform will thus be positive and the current phase can be correctly measured.
- Do not connect to the output terminals a resistive load less than 100 kΩ or a capacitive load over 100 pF. Otherwise, an error may result.
- Ensure that the clamping JAWS are properly closed.



## Specifications

Item	96001	
Measurement range	0 to 400 Arms AC (600 Apk)	
Output voltage	0 to 4 Vrms AC (10 mV/A)	
Accuracy	Amplitude	±1.5% rdg ± 0.4 mV (20 Hz ≤ f < 40 Hz) ±1.0% rdg ± 0.2 mV (40 Hz ≤ f ≤ 1 kHz) ±(0.8+0.2xf kHz)% rdg ± (0.2+0.04xf kHz) mV (1 kHz < f ≤ 20 kHz)
	Phase	±3°(45 Hz to 1 kHz) (for temperature of 23°C±5°C, relative humidity of 35 to 75%, and sinewave input)
Temperature coefficient	±0.05% f.s./°C in ranges of 0 to 18°C and 28 to 50°C	
Maximum allowed current	See the figure below.	
Output impedance	Approximately 30 Ω	
Load impedance	100 kΩ minimum/100 pF maximum	
Effect of magnetic fields	0.2 A equivalent or less (at 400 A/m, 50/60 Hz)	
Effect of conductor position	Included in accuracy	
The RATED circuit-to-earth voltage	600 Vrms AC max.	
Withstand voltage	3.7 kVrms AC for one minute (across core and casing, and across core and output)	
Measurable conductor diameter	φ 33 mm max.	
Operating temperature and humidity ranges	0 to 50°C, 80% RH or less (no condensation)	
Storage temperature and humidity ranges	-20 to 60°C, 90% RH or less (no condensation)	
External dimensions	Approx. 73 (W) × 130 (H) × 30 (D) mm	
Weight	Approx. 220 g	
Output cable length	Approx. 2.5 m	
Accessory	User's manual ...1, Portable case ... 1	

### Safety standards

EN 61010-1, EN 61010-2-032  
 Measurement category II (The RATED circuit-to-earth voltage: 600 Vrms)  
 Measurement category III (The RATED circuit-to-earth voltage: 300 Vrms)  
 Indoor use, altitude 2000 m or less, pollution degree 2  
 Insulation class II (Double insulation)

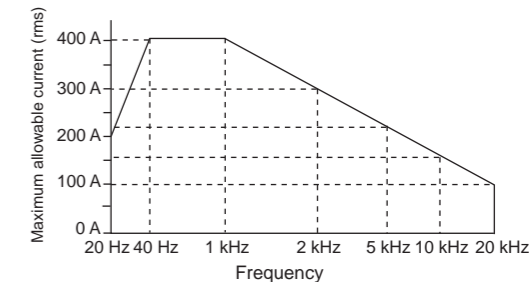
### EMC standards

EN 61326-1 Class B, EN 61326-2-1  
 EN 55011 Class B Group 1  
 Immunity Effectiveness of radiation immunity:  
 [Rated accuracy +1% of Maximum output voltage(4 V)] for the strength of a radio-frequency electromagnetic field of 3 V/m

### Environmental standard:

EN 50581  
 Monitoring and control instruments including industrial monitoring and control instruments

### Maximum allowable current



### External Dimensions

