

Thank you for purchasing our Clamp-on Probe. This manual describes the specifications and handling precautions for a Clamp-on Probe. Before using this product, thoroughly read this manual to get a clear understanding on proper use.

Store this manual in a safe place for future reference.

YOKOGAWA  **RG 108-E**
Yokogawa Meters & Instruments Corporation 7th Edition Mar. 2012 (YMI)

■ 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.

YOKOGAWA 
Yokogawa Meters & Instruments Corporation

Yokogawa Meters & Instruments Corporation

International Sales Dept.
Tachihi Bld. No.2, 6-1-3, Sakaecho, Tachikawa-shi, Tokyo 190-8586 Japan
Phone: 81-42-534-1413, Facsimile: 81-42-534-1438
YOKOGAWA CORPORATION OF AMERICA (U.S.A.)
Phone: 1-800-888-6400 Facsimile: 1-770-254-0928
YOKOGAWA EUROPE B. V. (THE NETHERLANDS)
Euroweg 2, 3825 HD, Amersfoort, THE NETHERLANDS
Phone : 31-88-4641000 Facsimile : 31-88-4641111
YOKOGAWA AMERICA DO SUL LTDA. (BRAZIL)
Phone: 55-11-5681-2400 Facsimile: 55-11-5681-4434
YOKOGAWA ENGINEERING ASIA PTE. LTD. (SINGAPORE)
Phone: 65-6241-9933 Facsimile: 65-6241-2606
YOKOGAWA MEASURING INSTRUMENTS KOREA CORPORATION (KOREA)
Phone: 82-2-551-0660 to -0664 Facsimile: 82-2-551-0665
YOKOGAWA AUSTRALIA PTY. LTD. (AUSTRALIA)
Phone: 61-2-8870-1100 Facsimile: 61-2-8870-1111
YOKOGAWA INDIA LTD. (INDIA)
Phone: 91-80-4158-6000 Facsimile: 91-80-2852-1441
YOKOGAWA SHANGHAI TRADING CO., LTD. (CHINA)
Phone: 86-21-6239-6363 Facsimile: 86-21-6880-4987
YOKOGAWA MIDDLE EAST B. S. C (C) (BAHRAIN)
Phone: 973-17-358100 Facsimile: 973-17-336100
YOKOGAWA ELECTRIC CIS LTD. (RUSSIAN FEDERATION)
Phone: 7-495-737-7868 Facsimile: 7-495-737-7869

Regarding Safe Use of This Product

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. 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.

 **WARNING**

■ 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.

- Do not use this product in a place where an explosive gas or vapor is present.
- 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 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**

- Do not use the instrument in areas subject to rapid temperature fluctuations.
- The clamping JAWS is precision assembled to ensure high performance. When using the clamp, do not apply any 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.

Measuring Method

 **CAUTION**

■ To avoid damage to instrument

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

1. Turn the digital multimeter's power on and then set the function switch to [AC V].
2. 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].
3. 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.
4. Read the indication value of the digital multimeter.

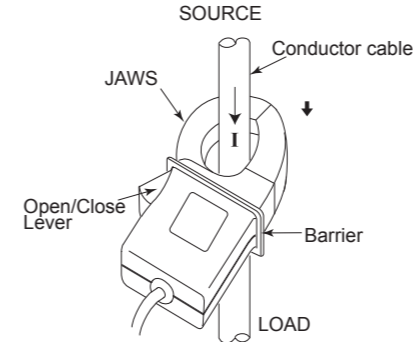
< The current value calculation >

Example When the output voltage is 150.0 mV:

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

For Precise Measurements

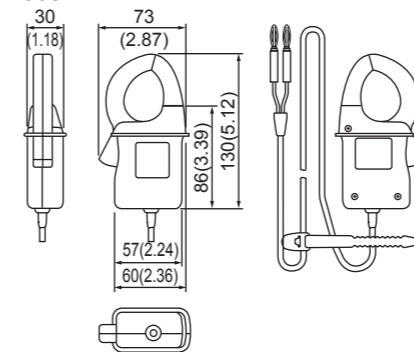
- Clamp only one wire. Clamping a tough rubber-sheathed cable and a parallel PVC-cable together disables measurement.
- When performing a measurement, hold the probe so that the measured conductor cable runs at the center of the clamp.
- Ensure that the orientation of the clamp to the direction of the 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 is properly closed.



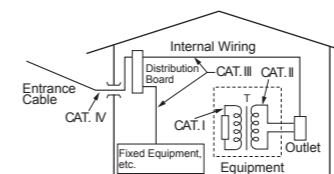
External Dimensions

Clamp-on Probe

Unit = mm (inch)



Measurement Categories



Specifications

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+0.2×f kHz)% rdg ± (0.2+0.04×f kHz) mV (1 kHz < f ≤ 20 kHz)
	Phase	±3° (45 Hz to 1kHz) (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 maximum	
Withstand voltage	3.7 kVrms AC for one minute (across core and casing, and across core and output)	
Measurable connector diameter	φ33 mm maximum	
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)	
Environmental conditions	Operating altitude: 2000 m max. above sea level; indoor use	
External dimensions	Approx. 73 (W) × 130(H) × 30 (D) mm	
Weight	Approx. 220g	
Output cable length	Approx. 2.5 m	
Accessory	User's manual ... 1	
	Portable case ... 1	

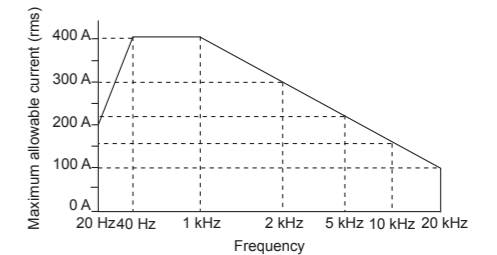
Safety standards: EN 61010-1, EN 61010-2-032

- Measurement category II (The RATED circuit-to-earth voltage : 600Vrms)
- Measurement category III (The RATED circuit-to-earth voltage : 300Vrms)
- Pollution degree 2
- Insulation class II (Double insulation)

EMC standards: EN 55011 Class B Group 1, EN 61326-1 Class B, EN 61326-2-1

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

Maximum allowable current



Measurement category	Description	Remarks
I CAT. I	For measurements performed on circuits not directly connected to MAINS.	Circuits not connected to mains power source
II CAT. II	For measurements performed on circuits directly connected to the low-voltage installation.	Appliances, portable equipment, etc.
III CAT. III	For measurements performed in the building installation.	Distribution board, circuit breaker, etc.
IV CAT. IV	For measurements performed at the source of the low-voltage installation.	Overhead wire, cable systems, etc.