

User's Manual **96035**
Clamp-on Probe

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 instruction manual in a place that facilitates ease of reference whenever necessary.

YOKOGAWA ◆
Yokogawa M&C Corporation

IM 96035-E
3rd Edition, Apr. 2002

■ **Checking Package Contents**

When opening the package, check the package contents before use. If the product is the wrong one or if any defects are found in the appearance of the product, contact the distributor from which you purchased the product.

■ **Cleaning**

- The air-core and its latching system require no special care. Simply ensure that no foreign body is allowed to obstruct the latching mechanism.
- Clean the box with a cloth slightly dampened in soapy water. Clean off with a damp cloth.
Dry immediately afterwards with a cloth or with blown air at 80°C maximum.

YOKOGAWA ◆
Yokogawa M&C Corporation

YOKOGAWA M&C CORPORATION
International Operations
Musashino Center Bldg. 1-19-18 Nakacho,
Musashino-shi, Tokyo, 180-0008 Japan
Phone: 81-422-55-8755 Facsimile: 81-422-55-8954

YOKOGAWA CORPORATION OF AMERICA (U.S.A.)
Phone: 1-770-253-7000 Facsimile: 1-770-251-2988

YOKOGAWA EUROPE B. V. (THE NETHERLANDS)
Phone: 31-334-64-1511 Facsimile: 31-334-64-1510

YOKOGAWA AMERICA DO SUL S. A. (BRAZIL)
Phone: 55-11-7295-1433 Facsimile: 55-11-7295-1329

YOKOGAWA ENGINEERING ASIA PTE. LTD. (SINGAPORE)
Phone: 65-783-9537 Facsimile: 65-786-6650

YOKOGAWA MEASURING INSTRUMENTS KOREA CORPORATION (KOREA)
Phone: 82-2-551-0660 to -0664 Facsimile: 82-2-551-0665

YOKOGAWA TAIWAN CORPORATION (TAIWAN)
Phone: 886-2-2321-1113 Facsimile: 886-2-2322-5593

YOKOGAWA AUSTRALIA PTY. LTD. (AUSTRALIA)
Phone: 61-2-9805-0699 Facsimile: 61-2-9888-1844

YOKOGAWA BLUE STAR LTD. (INDIA)
Phone: 91-80-227-1513 Facsimile: 91-80-227-4270

LTD. YOKOGAWA ELECTRIC (RUSSIAN FEDERATION)
Phone: 7-095-967-0350 Facsimile: 7-502-253-3508

KIM3E-20001.7

Regarding Safe Use of This Product

Always observe the following instructions. Failure to do so may result in electrical shock or other dangers that may lead to serious injury or a loss of life. Yokogawa M&C Corporation is in no way liable for any damage resulting from the user's mishandling of the product.

For safe use of this product, the following safety symbols are used on the product:

⚠ WARNING

This indicates that the operator must refer to an explanation in the instruction manual in order to avoid the risk of serious injury or loss of life.

⚠ CAUTION

This indicates that the operator must refer to an explanation in the instruction manual in order to avoid the risk of injury or damage to product.

The following symbols are used on the Clamp-on Probe.

- ⚠ 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.
- ~ Alternating Current
This symbol indicates AC voltage/current.
- Double insulation
This symbol indicates double insulation.

⚠ WARNING

- 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, do not use this product for a circuit that carries a voltage exceeding 1000 Vrms AC.
- Do not use the product when there are raindrops or droplets of condensed water on its surface, or if your hands are wet.
- Do not use this product for a conductor that is not insulated.
- Do not use any other AC adapter than the Yokogawa-specified AC adapter.
- When an abnormality occurs, such as when smoke or a smell is emitted from the product or there is an abnormal rise in the temperature of the product, immediately stop using the product. Should an abnormality or failure in the product be found, contact the distributor from which you purchased the product or the nearest sales representative office. Do not attempt to repair the product yourself, as doing so is extremely dangerous.

⚠ CAUTION

Do not install the instrument in a location that is:

- exposed to direct sunlight or close to a heat source;
- close to such a noise source as high-voltage equipment or a motive power supply;
- exposed to a relatively large amount of lampblack, steam, dust or corrosive gas;
- exposed to frequent mechanical vibration;
- close to a source of strong electromagnetic fields; or
- unstable.

The clamping CT (current transformer) is precision assembled to ensure high performance. When using the clamp, do not apply any intense mechanical shock, vibration or force to the clamping CT.

If dust or any other foreign matter gets in the clamping CT, do not close the clamping cores tight. First remove the dust and then make sure the clamping cores on both sides close smoothly.

Battery Replacement

The battery must be replaced when the green LED flashes or fails to light up when the box is used.

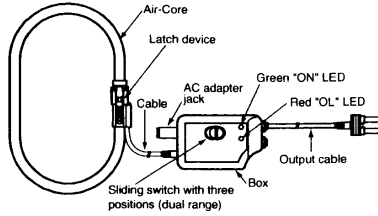
⚠ CAUTION

- Remove the flexible probe from the circuit to be measured.
- Set the box switch to "OFF".
- Disconnect the box from the measurement device.
- Unscrew the two fastening screws on the box.
- Replace the used battery with a 3V alkaline battery (type 6LF22)
- Close the box again, refitting the two screws.

Operation

CAUTION

- Illumination of the red LED indicates an overload of the integrator circuit.
- If the green LED fails to light, or flashes, the battery requires replacement. It begins to flash when around 8 hours of battery life remain.

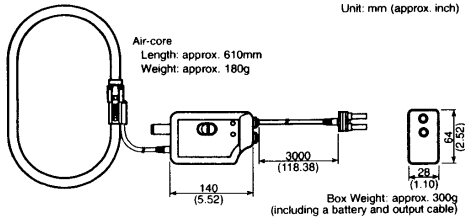


The box is fitted with a three-position switch (dual range) and two LED diodes. One indicates that the device is in use (green LED), and the other warns when the integrator circuit is overloaded (red LED).

Because of the latch-type design of the air-core's open/close mechanism, it is appropriate to use gloves when operating it.

1. Open the flexible air-core, and attach it to the conductor to be measured.
2. Close the air-core using the latching system.
3. Centring the conductor and making the air-core as circular as possible will ensure optimum measurement accuracy.
4. Connect the instrument with 100 k Ω or more of input impedance to the output.
5. Set the switch on the box to the desired range.

External Dimensions



Clamp-on Power Meter CW140 or CW120/121 Specifications (for Model 96035)

When you are using the CW140 or CW120/121 connecting with the 96035 probe, the specifications for the CW140 or CW120/121 (power factor effects) is as follows:

- Measurement accuracy (at power factor = 1 (including the clamp))
 - CW140: Current/Active power/Reactive power 1
45Hz $\leq f \leq 66$ Hz: $\pm(1.0\%rdg + 0.8\text{mg})$
 - CW120/121: Current/Active power
 $\pm(1.2\%rdg + 0.8\text{mg})$

- Power factor effects (For 45Hz $\leq f \leq 66$ Hz)
 - Active power: $\pm 2.0\%mg \cos\phi = \pm 0.5$ (relative to power factor 1)
 - Reactive power: $\pm 2.0\%mg \sin\phi = \pm 0.5$ (relative to reactive power 1)

Configuring the CW140 or CW120/121 Clamp-on Power Meter

When using the Clamp-on Probe with the CW140 or CW120/121 clamp-on power meter, configure the meter as explained below.

- Setting the clamp
 - Set the clamp to the 20-200A clamp option.
- Setting the CT ratio

Clamp range	CT ratio
300A	1.5
3000A	15

NOTE

Since the clamp is set to the 20-200A clamp option, the current range is indicated as 20/50/100/200A.

Accessories

Product Name	Part Number	Remarks
AC adapter	A1022UP	120V AC power supply
AC adapter	B9108WB	220-240V AC power supply

Specifications

Item	96035	
	3000A range	300A range
Measurement range	0 to 3000Arms AC	0 to 300Arms AC
Output voltage	0 to 0.5Vrms AC (0.1667mV/A)	0 to 0.5Vrms AC (1.667mV/A)
Accuracy (Tested at 23 \pm 5 $^{\circ}$ C and 35 to 75% relative humidity and with sine wave input)	Amplitude	$\pm 1\%$ rdg (5 to 3000A, 45 to 66Hz)
	Phase	$\pm 1^{\circ}$ (5 to 3000A, 45 to 66Hz)
Temperature coefficient	0.05% f.s. $^{\circ}$ C over -10 to +50 $^{\circ}$ C ranges	
	Maximum allowable current	3600Arms AC (10Hz to 1kHz)
Output impedance	Approx. 47 Ω	
Output offset	2mV max.	5mV max.
Effect of external magnetic fields	$\pm 0.1\%$ f.s (400A/m, 50/60Hz)	
Effect of conductor position	$\pm 2\%$ f.s	
Applicable circuit voltage	Box: 600Vrms AC max., Air-core: 1000Vrms AC max., Secondary: 30Vrms AC max.	
Mesurable conductor diameter	$\phi 170$ mm max.	
Operating temperature and humidity range	-10 to +50 $^{\circ}$ C, 10 to 80% RH (non-condensing)	
Storage temperature and humidity range	-40 to +70 $^{\circ}$ C, 90% RH max. (non-condensing)	
Environmental conditions	Operating altitude: 2000m max. above sea level; indoor use	
External dimensions	Box: Approx. 140(W) \times 64(H) \times 28(D)mm, Air-core: Approx. 610mm	
Weight	Box: Approx. 300g (including a battery and output cable), Air-core: Approx. 180g	
Output terminal	Safety banana plug	
Output cable length	Approx. 3m	
Power Supply	Battery	9V alkaline battery (of type 6LF22)
	Battery life	Continuous operation: 150 hours Intermittent use: 10,000
Accessory	AC adapter (option) User's Manual, L4007MG ring markers (4 colors \times 2)	

Safety standards: EN61010

- Double insulation
- Overvoltage category III
- Operating Voltage: 1000V (Air-core), 600V (Box), 30V (Secondary)
- Pollution degree 2

Overvoltage category (Installation category)
"Overvoltage category (Installation category)" describes a number which defines a transient overvoltage condition. It implies the regulation for impulse withstand voltage. "III" applies to electrical equipment which is power-supplied from a cable way ranging from the primary stage and branch point of equipment directly introducing electricity from a distribution board to the wall outlet.

Pollution degree

"Pollution degree" describes the degree to which a solid, liquid, or gas which deteriorates dielectric strength or surface resistivity is adhering. "2" applies to normal indoor atmosphere. Normally, only non-conductive pollution occurs. Occasionally, however, temporary conductivity caused by condensation must be expected. Pollution degree of the instrument is 2.

Immunity standard
EN61326: 1997