User's Manual

960 34
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.

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Yokogawa M&C Corporation

IM 96034-E
1st Edition, Oct. 2001

■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

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.

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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 600 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.
- 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.

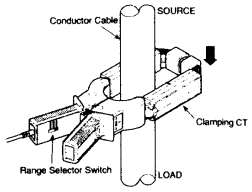
⚠CAUTION

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.

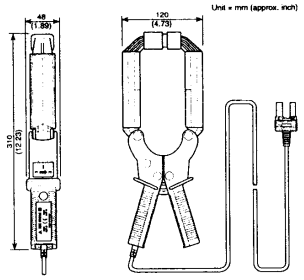
For Precise Measurements

- Use this product under the following ambient conditions.
  Temperature: 23°C ±5°C
  Relative humidity: 20 to 75% (no condensation)
- Switch the range setting according to measuring current. Select the range to be used from 1000A, 2000A and 3000A with the range selector switch.
- 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 CT is properly closed.



External Dimensions

Current Clamp-on Probe



Clamp-on Power Meter CW140 or CW120/121 Specifications (for Model 960 34)

When you are using the CW140 or CW120/121 connecting with the 96034 probe, the specifications for the CW140 or CW120/121 (power factor effects) is as follows:

- Measurement accuracy
  (At 1 to 200A, power factor = 1(including the clamp))
  CW140: Current/Active power/Reactive power 1
  45Hz ≤ f ≤ 66Hz: ± (1.0%rdg + 0.8 rng)
  CW120/121: Current/Active power
  ± (1.2%rdg + 0.8%rng)
- Power factor effects (For 20 to 200A, 45Hz ≤ f ≤ 66Hz)
  Active power : ±2.0%rng cosø=±0.5 (relative to power factor 1)
  Reactive power : ±2.0%rng sinø =±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
1000A	5
2000A	10
3000A	15

⚠ NOTE

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

Specifications

Item		Model 96034		
		1000A range	2000A range	3000A range
Measurement range		0 to 1000 Arms AC	0 to 2000 Arms AC	0 to 3000 Arms AC
Output voltage		0 to 0.5 Vrms AC (0.5 mV/A)	0 to 0.5 Vrms AC (0.25 mV/A)	0 to 0.5 Vrms AC (0.1667 mV/A)
Accuracy (Tested at 48 to 65Hz, 23 ± 5°C and 20 to 70 % relative humidity)	Amplitude	± 1% rdg + 0.045 mV (1 to 20 A) ± 1% rdg (20 to 1200 A)	± 1 % rdg + 0.0225 mV (1 to 20 A) ± 1% rdg (20 to 2400 A)	± 1 % rdg + 0.015 mV (1 to 20 A) ± 1% rdg (20 to 3600 A)
	Phase	Not specified (1 to 20 A) ± 1.0° (20 to 200 A) ± 0.5° (200 to 1200 A)	Not specified (1 to 20 A) ± 1.0° (20 to 200 A) ± 0.5° (200 to 2400 A)	Not specified (1 to 20 A) ± 1.0° (20 to 200 A) ± 0.5° (200 to 3600 A)
Maximum allowable current (600Hz or less)		1200 Arms AC (for continuous operation)	2400 Arms AC (for continuous operation)	2400 to 2800 Arms AC (for 15 minutes) 2800 to 3600 Arms AC (for 10 minutes)
Output impedance		2Ω or less		
Temperature coeffcient		0.01% rng/ °C (-10 to +50°C)		
Frequency characteristic		3% + 0.5 A equivalent or less (30 Hz to 1500 Hz)		
Effect of external magnetic fields		± 0.1%f.s (400A/m, 50/60Hz)		
Effect of conductor position		1% + 0.2 A equivalent or less		
Applicable circuit voltage		600 Vrms AC max.		
Measurable conductor diameter		ø64 x 100 mm or 5 bars x 125 x 5mm or 3 barsx100 x 10 mm		
Operating temperature and humidity		-10 to +55°C, 10 to 80% RH (non-condensing)		
Storage temperature and humidity		-40 to +70°C, 90% RH max. (non-condensing)		
External dimensions		Approx. 310(W) x 120(H) x 48(D)mm		
Weight		Approx. 1400 g		
Output cable length		Approx. 3 m		
Output terminal		Safety banana plug		
Accessory		User's Manuale, L4007MG ring markers (4 colors x 2)		

Safety standards: EN61010

- Double insration
- Overvoltage category Ⅲ
- Opeerating Voltage: 600V
- 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.
"Ⅱ" applies to normal indoor atmosphere. Normally, only non-conduc tive pollution occurs. Occasionally, however, temporary conductivity caused by condensation must be expected.
Pollution degree of the instrument is 2.

Immunity standard
EN61326: 1997