# Current Probes for WaveBooks™

## General Information & Specifications

## General Overview

Clamp-on current probes are an ideal non-invasive method of measuring AC or DC currents in a circuit. There is no need to open the circuit to insert a shunt. Simply clamp onto the wire of interest and attach the other end to the WaveBook. The voltage measured is proportional to the current in the wire. It's that simple.

IOtech offers a wide variety of current probes allowing users to connect either AC or DC amperage to their data acquisition system. In order to accommodate a wide array of applications, IOtech provides probes in a variety of current ranges. Each probe ships with all of the required adapters for direct BNC connection to IOtech's WaveBook system*.

*Current Probe family*

## Probe/AC/10 & Probe/AC/100

*These probes are particularly suitable for making AC current measurements in confined areas*

**Current Probe Application Matrix**

| Probe | Available Ranges | Current Range | Sensitivity |
|---|---|---|---|
| Probe/AC/10 | 1 | 1 mA to 10A | 100 mV/A (1V @ 10A) |
| Probe/AC/100 | 1 | 1A to 100A | 10 mV/A (1V @ 100A) |
| Probe/AC/1000 | 1 | 1A to 1000A | 1 mV/A (1V @ 1000A) |
| Probe/ACDC/100 | 2 | 100 mA to 10A peak<br>1A to 100A peak | 100 mV/A (1V @ 10A)<br>10 mV/A (1V @ 100A) |
| Probe/ACDC/1000 | 1 | 1A to 1000A DC or 700A AC | 1 mV/A (1V @ 1000A) |
| Probe/MR461 | 2 | 200 mA to 20A peak<br>500A to 600A peak | 10 mV/A (0.6V @ 60A)<br>1 mV/A (0.6V @ 600A) |
| Probe/SR661 | 3 | 100 mA to 20A peak<br>500 mA to 200A peak<br>5A to 2000A peak | 100 mV/A<br>10 mV/A<br>1 mV/A |

### Probe/AC/10 Electrical Specifications

**Current Range:** 1 mA to 10A AC, continuous duty cycle
**Output Signal:** 100 mV AC/A AC (1V at 10A)
**Accuracy and Phase Shift**:**
**Accuracy:**
1 mA to 10A: 2% of reading ±2 mA
40 Hz to 3 kHz: 3.5% of reading ±2 mA
**Phase Shift:**
45 to 65 Hz
100 mA to 10A: ≤ 8˚
**Frequency Range:** 30 Hz to 5 kHz
**Working Voltage:** 600V AC
**Common Mode Voltage:** 600V AC

### Probe/AC/100 Electrical Specifications

**Current Range:** 1A to 100A AC, continuous duty cycle
**Output Signal:** 10 mV AC/A AC (1V at 100A)
**Accuracy and Phase Shift**:**
**Accuracy:**
1 to 100A: 2% of reading ±50 mA
40 Hz to 3 kHz: 3.5% of reading ±50 mA
**Phase Shift:**
1 to 100A: ≤6˚ 50 to 60 Hz
**Frequency Range:** 30 Hz to 5 kHz
**Working Voltage:** 600V AC
**Common Mode Voltage:** 600V AC

### Probe/AC/10 & Probe/AC/100 Mechanical Specifications

**Maximum Conductor Size:** Max 0.47 in. (12 mm)
**Polycarbonate Material:**
**Handles:** 10% fiberglass charged polycarbonate UL 94 V0
**Dimensions:** 115 mm W x 22 mm D x 32 mm H (4.5" x 0.87" x 1.26")
**Weight:** 5.6 oz (160 g)
**Output:** 5 ft. (1.5 m) lead with safety 4 mm banana plug with BNC adapter

* The probes also connect to IOtech's DaqBook, DaqBoard, Daq PC-Cards, LogBook, or ADC488 series data acquisition systems when configured with BNC-equipped options
** Reference conditions: 23˚C ±3˚C, 20 to 85% RH, 48 to 65 Hz, external magnetic field <40 A/m, no DC component, no external current carrying conductor, test sample centered, load impedance 1M Ohm

# Current Probes for WaveBooks™

## Specifications

## Probe/AC/1000

*AC current probe is ideal for making highly accurate measurements of industrial power quality*

### Electrical Specifications

**Output & Current Range:**
1 mV/A: 1A to 1000A AC, continuous cycle
**Termination Resistance:** 1 Ohm
**Accuracy and Phase Shift*:**

| Primary Current | 50A | 200A | 1000A |
|---|---|---|---|
| Accuracy % of Reading | 0.9% | 0.55% | 0.5% |
| Phase Shift | 1.5˚ | 0.5˚ | 0.5˚ |

**Frequency Range:** 30 Hz to 10 kHz, current derating above 5 kHz for continuous use
**Working Voltage:** 600V AC
**Common Mode Voltage:** 600V AC

### Mechanical Specifications

**Jaw Opening:** 2.13 in. (54 mm) max
**Maximum Conductor Size:** 2.09 in. (53 mm)
**Polycarbonate Material:**
**Handles:** 10% fiberglass charged polycarbonate UL 94 V0
**Dimensions:** 206 mm W x 48 mm D x 105 mm H (8.11" x 1.89" 4.13" x)
**Weight:** 1.43 lbs (650 g)
**Output:** Double insulated 5 ft. (1.5 m) lead with safety banana plug with BNC adapter

## Probe/ACDC/100

*Dual-range, dual-function probe measures both AC and DC currents*

### Electrical Specifications

**Output & Current Range:**
100 mV/A: 100 mA to 10A peak AC/DC (1V at 10A)
10 mV/A: 1A to 100A peak AC/DC (1V at 100A)
**AC & DC Current Accuracy*:**
100 mV/A (50 mA to 10A peak): 3% of reading ±50 mA
10 mV/A (500 mA to 40A peak): 4% of reading ±50 mA
10 mV/A (40A to 100A peak): 15% max at 100A
**Frequency Range:** DC to 100 kHz (-3 dB with current derating)
**Working Voltage:** 600 Vrms max
**Common Mode Voltage:** 600 Vrms max
**Battery:** 9V alkaline
**Low Battery:** Green LED when ≥ 6.5V
**Overload Indication:** Red LED indicates input greater than the selected range
**Battery Life:** 55 hours typical

### Mechanical Specifications

**Zero Adjustment:** 20-turn potentiometer
**Maximum Cable Diameter:** 0.46 in. (11.8 mm)
**Handle:** Lexan® 920A, UL 94 V2
**Dimensions:** 231 mm W x 36 mm D x 67 mm H (9.09" x 1.42" x 2.64")
**Weight:** 11.6 oz (330 g) with battery
**Output:**
Insulated 6.5 ft. (2) coaxial cable with insulated BNC connector rated 600 Vrms

## Probe/ACDC/1000

*Easy-to-use probe measures both AC and DC currents in heavy industrial applications*

### Electrical Specifications

**Output & Current Range:**
1 mV/A DC: 1A to 1000A DC
1 mV/A AC: 1A to 700A AC
**Accuracy**:**
**DC: 1A to 100A:** 2% reading ±1A
100A to 700A DC: 2.5% reading
700A to 1000A DC: 3% reading
**48 to 65 Hz:**
1A to 100A: 2% reading ±1A
100A to 700A: 2.5% reading
**62 to 440 Hz:**
1A to 100A: 3% reading ±1A
100A to 700A DC: 5% reading
**Frequency Range:** DC to 440 Hz
**Working Voltage:** 600 Vrms
**Common Mode Voltage:** 600 Vrms
**Battery:** Two 1.5V "AAA"
**Battery Life:** 260 hours typical
**Consumption:** 3.5 mA typ, 4 mA max

### Mechanical Specifications

**Jaw Opening:** 1.3 in. (33 mm)
**Maximum Conductor Size:** 1.18 in. (30 mm)
**Polycarbonate Material:**
**Handles:** 10% fiberglass charged polycarbonate UL 94 V0
**Dimensions:** 195 mm W x 34 mm D x 66 mm H (7.68" x 1.34" x 2.6")
**Weight:** 0.84 lbs (380g)
**Output:** Double insulated 5 ft. (1.5 m) lead with safety banana plugs and BNC adapter

* Reference conditions: 23˚C ±3˚C, 20 to 75% RH, 48 to 65 Hz, external magnetic field <40 A/m, no DC component, no external current carrying conductor, test sample centered, load impedance 1M Ohm.

** Reference conditions: 23˚C ±3˚C, 20 to 70% RH, external magnetic field <40 A/m, no DC component, no external current carrying conductor, test sample centered, 1M Ohm load, zero adjustment prior to measurement (DC only).

# Current Probes for WaveBooks™

## Specifications & Ordering Information

## Probe/MR461

*General-purpose industrial probe handles DC to 10-kHz inputs*

### Electrical Specifications

**Output and Current Range**
- **10 mV/A:** 200 mA to 60A AC peak
  400 mA to 60A DC
- **1 mV/A:** 500 mA to 600A AC peak
  500 mA to 600A DC

**Accuracy***
- **60A Range**
  - **AC:** 1.5% reading ±0.5A
  - **DC:** 1.5% reading
- **600A Range**
  - **AC:** 1.5% ±1A; DC 2.5% reading

**Frequency:** DC to 10 kHz

### Mechanical

**Zero Adjustment:** Automatic zero ±10A
**Maximum Cable Size:** 30 mm
**Handle:** UL 94 VO
**Dimensions:** 224 mm W x 97 mm D x 44 mm H (8.8″ x 3.82″ x 1.73″)
**Output:** 6.5 ft. (2 m) coaxial cable with insulated BNC connector

## Probe/SR661

*The Probe/SR661 handles the broadest range of AC currents*

### Electrical Specifications

**Output & Current Ranges**
- **100 mV/A:** 100 mA to 20A peak
- **10 mV/A:** 500 mA to 200A peak
- **1 mV/A:** 5A to 2000A peak

**Accuracy***
- **100 mA to 20A peak:** 3% reading ±10 mV
- **500 mA to 200A peak:** 2% reading
- **5A to 2000A peak:** 2 % reading

**Frequency Range:** 5 Hz to 50 kHz

### Mechanical

**Maximum Jaw Size:** 2.13 in. (54 mm)
**Handle:** Polycarbonate UL 94 VO
**Dimensions:** 105 mm W x 206 mm D x 48 mm H (4.13″ x 8.11″ x 1.89″)
**Output:** 6.5 ft. (2m) coaxial cable with insulated BNC connector

## Ordering Information

| Description | Part No. |
|---|---|
| Clamp-on probe, 10A AC with BNC connector | Probe/AC/10 |
| Clamp-on probe, 100A AC with BNC connector | Probe/AC/100 |
| Clamp-on probe, 1000A AC with BNC connector | Probe/AC/1000 |
| Clamp-on probe, 100A AC or DC with BNC connector | Probe/ACDC/100 |
| Clamp-on probe, 1000A AC or DC with BNC connector | Probe/ACDC/1000 |
| Clamp-on probe, 600A AC or DC with BNC connector | Probe/MR461 |
| Clamp-on probe, 2000A AC with BNC connector | Probe/SR661 |

## Related Products


| | |
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| WaveBook/512A | p. 29 |
| WaveBook/516A | p. 29 |
| WavePorts (all models) | p. 36-41 |
| WBK10A | p. 43 |
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* Reference conditions: 23˚C ±3˚C, 20 to 75% RH, 48 to 65 Hz, external magnetic field <40 A/m, no DC component, no external current carrying conductor, test sample centered, load impedance 1M Ohm.