

# CURRENT MEASUREMENT PROBES



# CURRENT MEASUREMENT PROBES

## MINIFLEX® SERIES

### HIGH FREQUENCY OSCILLOSCOPE COMPATIBLE MINIFLEX® PROBES

A compact AC current measurement device composed of a flexible sensor and an electronic module designed to measure frequency response up to 1MHz



Model MF 300-6-2-10-HF (6" probe)

Model MF 300-10-2-10-HF (10" probe)



### FEATURES

- Measures from 0.5 to 300Arms
- Accuracy  $\pm 1\%$  of Reading  $\pm 0.2A$
- TRMS measurements when connected to a TRMS instrument
- No core saturation or damage if overloaded
- 9V battery for typical 150 hours continuous operation
- 1MHz frequency response
- Low phase shift for power measurements
- Insensitive to DC, measures only AC component on DC + AC signals
- Excellent linearity
- Lightweight
- Sensor is resistant to oils and aliphatic hydrocarbons
- Perfect accessory for all oscilloscopes

### SPECIFICATIONS

MODELS	MF 300-6-2-10-HF		MF 300-10-2-10-HF
ELECTRICAL			
Range	30/300A		
Signal Output	100mV/10mV/A		
Frequency Range	5 to 1MHz @ -3db		
Influence of Conductor Positioning	1.5% typical, 3% max		
Influence of Conductor Positioning in Sensor Against Handle	4% typical, 6% max		
External Conductor Influence	35dB to 40dB on contact		
Power Source	9V Alkaline battery (6LF22)		
MECHANICAL			
Sensor Diameter	Ø 0.2" (5mm)		
Sensor Length	6" (152mm)	10" (250mm)	
Max Conductor Size	1.77" (45mm)	2.95" (70mm)	
Connection Cable Length	6.5ft (2m)		
Drop Test	Per IEC 68-2-32		
Vibration	Per IEC 68-2-6		
Mechanical Shock	Per IEC 68-2-27		
Weatherproofing	IP50		
ENVIRONMENTAL			
Operating Temperature Range	14° to 131°F (-10° to +55°C)		
Storage Temperature Range	-40° to 158°F (-40° to +70°C)		
Altitude	Operating: 0 to 6562ft (0 to 2000m), working voltage derating above; Non-operating: 0 to 39,000ft (0 to 12,000m)		
SAFETY			
Safety Rating	EN 61010, 1000V CAT III; 600V CAT IV		

#### CATALOG NO.

#### DESCRIPTION

2126.83	MiniFlex® Model MF 300-6-2-10-HF
2126.84	MiniFlex® Model MF 300-10-2-10-HF

# CURRENT MEASUREMENT PROBES

## FLEXIBLE CURRENT PROBES

### MINIFLEX® FLEXIBLE CURRENT PROBES FOR GENERAL USE

A flexible sensor equipped with banana or BNC connector that can be connected directly to any multimeter, wattmeter or logger for effective measurements at the standard frequencies



Model MF 300-6-2-10 (6" probe)



Model MF 3000-10-2-1 (10" probe)



## FEATURES

- Measures from 0.5 to 3000Arms
- Accuracy  $\pm 1\%$  of Reading  $\pm 0.25A$
- TRMS measurements when connected to a TRMS instrument
- No core saturation or damage if overloaded
- Overrange LED for measurement circuitry
- 20kHz frequency response
- Low phase shift for power measurements
- Insensitive to DC, measures only AC component on DC + AC signals
- Excellent linearity
- 9V Alkaline battery, provides typical 150 hours of continuous operation
- EN 61010; 1000V CAT III; 600V CAT IV

## SPECIFICATIONS

MODELS	MF 300-6-2-10	MF 3000-10-2-1
ELECTRICAL		
Range	30/300A	300/3000A
Signal Output	100mV/10mV/A	10mV/1mV/A
Frequency Range	10 to 20kHz with current derating	
Influence of Conductor Positioning	1.5% typical, 3% max	
Influence of Conductor Positioning in Sensor Against Handle	4% typical, 5% max	
External Conductor Influence	35dB to 40dB on contact	
Power Source	9V Alkaline battery (included)	
MECHANICAL		
Sensor Diameter	Ø 0.2" (5mm) – vs 0.5" (12.5mm) for AmpFlex®	
Sensor Length	6" (152mm)	10" (250mm)
Max Conductor Size	1.77" (45mm)	2.95" (74.9mm)
Connection Cable Length	6.5ft (2m)	
Drop Test	Per IEC 68-2-32	
Vibration	Per IEC 68-2-6	
Mechanical Shock	Per IEC 68-2-27	
ENVIRONMENTAL		
Operating Temperature Range	14° to 131°F (10° to 55°C)	
Storage Temperature Range	-40° to 158°F (-40° to 70°C)	
Altitude	Operating: 0 to 6562ft (0 to 2000m), working voltage derating above; Non-operating: 0 to 39,000 (0 to 12,000m)	
SAFETY		
Safety Rating	EN 61010, 1000V CAT III; 600V CAT IV; Pollution Degree II	

CATALOG NO.	DESCRIPTION
2126.81	MiniFlex® Model MF 300-6-2-10
2126.82	MiniFlex® Model MF 3000-10-2-1
2119.94	Adapter – BNC (Female) to 4mm Banana (Male)

# CURRENT MEASUREMENT PROBES

## MINIFLEX® SERIES

### MODEL MA114

Provide a welcomed solution when accessing electrical conductors in tight places or clamping onto cable bundles



### FEATURES

- 14-inch flexible sensor capable of clamping around a 3.93 inch cable or bundle
- Waterproof sensor rated to IP 67
- User selectable ranges of 3, 30, 300 and 3000 Amps
- 600V CAT IV, 1000V CAT III rated
- Not effected by magnetic saturation, provides excellent linearity and low phase shift
- Battery or USB powered for long term use
- Red LED indicates overload condition
- Positive click locking sensor eliminates disconnection errors
- Banana plug termination compatible with multimeters, data loggers and other instruments



**3Aac**  
1 mV/mA



**30Aac**  
100 mV/A



**300Aac**  
10 mV/A



**3,000Aac**  
1 mV/A



### SPECIFICATIONS

MODEL	MA114
Nominal Range	3; 30; 300; 3000Aac
Measurement Range	3A Range: 0.5 to 3Aac, 30A Range: 2 to 30Aac 300A Range: 5 to 300Aac, 3000A Range: 50 to 3000Aac
Transformation Ratio	Voltage Output
Output Signal	3A Range: 1V/A (1mV/mA) (3Vac @ 3A), 30A Range: 100 mV/A (3Vac @ 30A) 300A Range: 10 mV/A (3Vac @ 300A), 3000A Range: 1 mV/A (3Vac @ 3000A)
Accuracy	3A, 30A Range: $\leq 1\%$ of Reading $\pm 40\text{mA}$ 300A, 3000A Range: $\leq 1.5\%$ of Reading $\pm 40\text{mA}$ ( $\leq 10\%$ Inom) $\leq 1\%$ of Reading $\pm 40\text{mA}$ ( $\geq 10\%$ Inom)
Phase Shift	$\leq 1^\circ$ (0.5° typical)
Overload	3A Range: 4.5A, 30A Range: 45A, 300A Range: 450A, 3000A Range: 4500A
Frequency Range	3A Range: 10Hz to 10kHz, 30A, 300A, 3000A Range: 10Hz to 20kHz
Load Impedance	$\geq 1\text{M}\Omega$
Working Voltage	600Vrms (CAT IV), 1000Vrms (CAT III)
Battery	Two 1.5V AA batteries or LR6 alkaline, +5Vdc with type B micro-USB
Battery Life	300 hours typical. Approximately 1,800 10-minute measurements.
Output Termination	1.6ft (0.5m) lead with two 4mm safety banana plugs
MECHANICAL	
Operating Temperature	14° to 131°F (-10° to 55°C)
Storage Temperature	-40° to 158°F (-40° to 70°C)
Operating Relative Humidity	0 to 95% @ 95°F (35°C)
Sensor Length	14" (35.6 cm)
Cable Length	6.5ft (2m)
Maximum Conductor Size	$\varnothing 3.93"$ (10cm)
Dimensions	4.7 x 2.3 x 1.4" (12 x 5.8 x 3.6cm)
Weight	Approximately 10.58oz (300g)
SAFETY	
Electrical	IEC 61010-2-32 type B, 1000V CAT III, 600V CAT IV, Pollution Degree 2
Electromagnetic Compatibility	IEC 61326-1
Protection	IP54 (electronic unit), IP67 (flexible sensor)
Double Insulation	Yes

#### CATALOG NO.

#### DESCRIPTION

2153.41 MiniFlex® 14" Model MA114 (3A/1mV/A, 30A/100mV/A, 300A/10mV/A, 3000A/1mV/A)



# CURRENT MEASUREMENT PROBES

## FLEXIBLE CURRENT PROBES



### AMPFLEX® FLEXIBLE CURRENT PROBES

Flexible AC current probe composed of a flexible sensor and an electronic module

#### FEATURES

- Models ranging from 0.5 to 30,000Arms
- Accuracy  $\pm 1\%$  of Reading
- TRMS measurements when connected to a TRMS instrument
- No core saturation or damage if overloaded
- Overrange LED for measurement circuitry
- Waterproof sensor
- 9V Alkaline battery, provides typical 150 hours of continuous operation (battery included)
- Shape memory for custom pre-shaping of sensor before use (no drooping)
- Very high frequency response
- Low phase shift for power measurements of  $<1.3^\circ$ ,  $0.7^\circ$  typical
- Insensitive to DC, measures only AC component on DC + AC signals
- Excellent linearity
- Lightweight



### FLEXPBROBE® FLEXIBLE CURRENT PROBE MODEL 24-3001

Low cost AC current measurement probe designed to plug into digital multimeters, oscilloscopes and power recorders

#### FEATURES

- 24" flexible sensor fits around conductors up to 7.6" in diameter
- Dual measurement ranges of 300A and 3000 AAC
- Read amperage directly on DMM display
- mV output directly proportional to the AC current measured
- Output is 10mV/A on 300A range and 1mV/A on 3000A range
- Accuracy of  $\pm 1\%$  of Reading  $\pm 500\text{mA}$
- 4% influence of conductor position in jaw
- Up to 150 hours of battery life
- Dual banana plug termination for direct input into DMMs
- Flashing LED low battery indicator
- 9V Alkaline battery, provides typical 150 hours of continuous operation (battery included)

#### SPECIFICATIONS

MODEL	24-3001
<b>ELECTRICAL</b>	
Current Range	300/3000AAC
Output Signal	mV output (4000mV peak max)
Three Position Slide Switch 10mV/A 1mV/A ON/OFF	5A to 300Arms 50A to 3000Arms
Power Source	9V Alkaline battery (included)
<b>MECHANICAL</b>	
Maximum Conductor Size	7.6" (193mm)
Sensor Length	24" $\pm 1"$ (610mm $\pm 25.4\text{mm}$ )
Cable Length	6.5ft (2m)
Output Connection	Double insulated 14" (355mm) lead with safety banana plugs

#### ACCESSORIES

##### BANANA (FEMALE) BNC (MALE) (XM-BB)

Catalog #2118.46  
(optional for AmpFlex® & FlexProbe® Flexible Current Probes)



CATALOG NO.	DESCRIPTION
2120.81	FlexProbe® Model 24-3001 (300/3000AAC, 24", 10mV/A/1mV/A, Lead)
2118.46	Adapter – Banana (Female) – BNC (Male) (XM-BB)

# CURRENT MEASUREMENT PROBES

## DC/AC MICROPROBES AND CURRENT PROBES

### MD SERIES & K SERIES

MD Series probes are rugged and designed for use on cables and bus bars. K Series small probes designed for high accuracy measuring low currents

MD SERIES

K SERIES



### SPECIFICATIONS

MODELS	MD301	MD305
ELECTRICAL		
Nominal Range	500AAC	600AAC
Measurement Range	2 to 500AAC	1 to 700AAC
Transformation Ratio	Voltage output	1000:1
Output Signal	1mV/A (0.5Voc @ 500A)	1mA/A (0.6AAC @ 600A)
Accuracy	(500A Range) 25A 5% of Reading 100A 2% of Reading 250A 1% of Reading 500A 1% of Reading 600A -	(600A Range) 3% of Reading 1.5% of Reading 1% of Reading 1% of Reading 2% of Reading
Phase Shift	25A - 100A - 250A - 500A - 600A -	3° 1.5° 1° 1° 1°
Overload	700A for 10 min	
Frequency Range	48 to 1000Hz (error: add 2% to the ref.)	40 to 1000Hz (error: add 2% to the ref.)
Load Impedance	≥100kΩ	5Ω max non-inductive
Working/Common Voltage	600Vrms	
Output Termination	Double-insulated 5ft (1.5m) lead with two 4mm safety banana plugs	
MECHANICAL		
Operating Temperature	5° to 122°F (-15° to 50°C)	
Storage Temperature	-40° to 185°F (-40° to 85°C)	
Jaw Opening	1.3" (33mm)	
Maximum Conductor Size	1.18" (30mm), Max Bus Bar size: 2.48 x 0.20" (63 x 5mm)	
Dimensions	2.6 x 7.68 x 1.34" (66 x 195 x 34mm)	
Weight	14.82 oz (420g)	
Material	Polycarbonate UL 94	
SAFETY		
Electrical	EN 61010-2-032 600V CAT III, Pollution: 2; 300V CAT IV, Pollution: 2	
Electromagnetic Compatibility	EN 50081-1 Class B; EN 50082-2 Electrostatic discharge IEC 1000-4-2; Radiated field IEC 1000-4-3; Fast transients IEC 1000-4-4; Magnetic field at 50/60Hz IEC 1000-4-8	
Double Insulation	Yes	
CE Mark	Yes	

### SPECIFICATIONS

MODELS	K100	K110
Current Range	0 to ±4.5Adc 0 to 3Arms	0 to ±450mAac 0 to 300Arms
Output Signal	1mV/mA	10mV/mA
Resolution	DC: 50µA typical, AC: 100µA typical	DC: 50µA typical, AC: 100µA typical
Accuracy	DC: ±1% of Reading, ±200µA AC: ±2% of Reading, ±200µA	DC: ±0.5% of Reading, ±150µA AC: ±0.8% of Reading, ±200µA
Output Noise	<100µV, DC to 3kHz	<100µV, DC to 3kHz
Frequency Response	DC to 2kHz (@ -3dB sine)	DC to 1.5kHz (@ -3dB sine)
Output Termination	5ft (1.5m) lead with two 4mm safety banana plugs; standard 3/4" (19mm) spacing	
Power Source	One 9V Alkaline battery (included)	
Battery Life	20 hours	

### CHARACTERISTICS

#### K SERIES

- Measures extremely low level DC from 100µA
- Outputs signal proportional to total current (DC + AC)
- Low noise
- Ultra-compact size and non-contact clamp-on convenience
- Simple plug-in operation
- Designed for use with digital multimeters and oscilloscopes
- Accurate display of waveforms
- No range or mode (AC/DC) switching required
- Red LED indicates momentary or continuous overload
- Green LED indicates power and battery condition

#### MD SERIES

- 600A range with mA or mV output
- Unique hook-shaped jaws that enable the user to "pry" into or "hook" onto cables
- Maximum conductor size is 2 x 500kcmil
- Works as a traditional current transformer with ratio of 1000:1
- AC/DC outputs available

CATALOG NO.	DESCRIPTION
1200.67	DC/AC MicroProbe Model K100
2111.73	DC/AC MicroProbe Model K110
1201.07	AC Current Probe Model MD301
1201.36	AC Current Probe Model MD305
1017.45	Adapter - 4mm Non-insulated for Safety Leads
2119.94	Adapter-BNC (Female) to 4mm Banana (Male) 600V CAT III

# CURRENT MEASUREMENT PROBES

## SL SERIES AC/DC CURRENT PROBES

### SL SERIES



Compact, long nose probes designed for accurate measurements of low currents with 10mA dc sensitivity, capable of measuring both AC and DC current



Only SL261

## FEATURES

### SL SERIES AC/DC CURRENT PROBES

- Low AC and DC measurements
- Measures from 10mA to 100A
- Dual range selection
- Unique design for probing in crowded wiring areas
- Hall effect sensor technology
- UL approved for the US and Canada
- Flame retardant UL94 V2 rated
- Use with DMMs, voltmeters and other voltage measuring instruments

## SPECIFICATIONS

MODELS	SL206	SL261
Nominal Range	2A; 80A	10A; 100AAC/DC peak
Measurement Range	10mA to 80ADC; 10mA to 60AAC	100 mA to 100AAC/DC peak
Transformation Ratio	Voltage output	
Output Signal	2A: 1mV/mA (2V @ 2A) 80A: 10mV/A (0.8V @ 80A)	10A: 100mV/A (1V @ 10A) 100A: 10mV/A (1V @100A)
Accuracy		-
(1mV/mA Range) 10mA to 2ADC/10mA to 1.5AAC	2% of Reading ± 5mA	-
(10mV/A Range) 50mA to 50ADC 50mA to 40AAC 50 to 80ADC 40 to 60AAC	4% of Reading ± 20mA 4% of Reading ± 20mA 12% of Reading 12% of Reading	
(10mV/A Range) 500mA to 40AAC/DC Peak 40 to 80AAC/DC Peak 80 to 100AAC/DC Peak	-	4% of Reading ± 50mA 12% of Reading ± 50mA 15% of Reading
(100mV/A Range) 50mA to 10AAC/DC Peak	-	3% of Reading ± 50mA
Phase Shift (DC to 65 Hz)		
(1mV/mA Range)	1°	-
(10mV/mA Range)	1°	<1°
(100mV/mA Range)	-	<1.5°
Overload	120A continuous	Red LED indicator
Frequency Range	DC to 8kHz	DC to 100kHz (-3dB with current derating)
Load Impedance	100kΩ (1mV/mA); 10kΩ (1V/A)	>1MΩ/100pF
Working/Common Mode Voltage	600Vrms	
Output Termination	5ft (1.5m) lead with double insulated 4mm safety banana plugs	6.5 ft (2 m) coaxial cable with insulated BNC terminal
MECHANICAL		
Operating Temperature	32° to 122°F (0° to 50°C)	
Storage Temperature	-22° to 176°F (-30° to 80°C)	
Operating Relative Humidity	10° to 30°C: 85 ± 5% RH (without condensation) 40° to 50°C: 45 ± 5% RH (without condensation)	
Maximum Conductor Size	0.46" (11.8mm)	
Dimensions	9.09 x 1.42 x 2.64" (231 x 36 x 67mm)	
Weight	11.6 oz (330g) with battery	
Material	Polycarbonate UL 94	
SAFETY		
Electrical	EN 61010-2-32, 600V CAT III	
CE Mark	Yes	

CATALOG NO.	DESCRIPTION
1201.45	AC/DC Current Probe Model SL206
1201.51	AC/DC Current Probe Model SL261 (BNC)

# CURRENT MEASUREMENT PROBES

## SR SERIES CURRENT PROBES

### SR600 SERIES

Current probes well-suited for power applications where high accuracy and low phase shift is important



Model SR601

### SPECIFICATIONS

MODELS	SR600			SR601	SR604	SR634	SR651	SR661
Nominal Range	1000A <sub>AC</sub>					250, 500, 1000A <sub>AC</sub>	1000A <sub>AC</sub>	10, 100, 1000A <sub>AC</sub>
Measurement Range	0.1 to 1200A <sub>AC</sub>							
Transformation Ratio	1000: 1					250:5, 500:5, 1000:5	Voltage Output	Voltage output
Output Signal	1mA/A (1A <sub>AC</sub> @ 1000A)					5mA; 10mA; 20mA/A (5A <sub>AC</sub> @ 250; 500; 1000A)	1mV/A (1V <sub>AC</sub> @ 1000A)	1mV; 10mV; 100mV/A (1V <sub>AC</sub> @10, 100; 1000A)
Accuracy	0.1 to 10A: ≤3% of Reading ± 0.1A 10A: 3% of Reading 50A: 0.5% of Reading 200A: 0.75% of Reading 1000A: 0.5% of Reading 1200A: 0.5% of Reading					(250A Range) 1 to 5A: ≤10% of Reading ± 0.1A 5A: 10% of Reading 50A: 2.5% of Reading 250A: 2% of Reading 300A: 2% of Reading (500A Range) 1 to 10A: ≤6% of Reading ± 0.1A 10A: 6% of Reading; 25A: 3% of Reading 100A: 2% of Reading; 500A: 1% of Reading 600A: 1% of Reading (1000A Range) 1 to 20A: ≤6% of Reading ± 0.1A; 20A: 5% of Reading; 50A: 3% of Reading 200A: 1.5% of Reading; 1000A: 1% of Reading 1200A: 1% of Reading	1 to 50A: ≤3% of Reading ± 0.1 A 50 to 200A: 1.5% of Reading 200 to 1000A: 0.75% of Reading 1000 to 1200A: 0.5% of Reading	(10A Range) ≤3% of Reading ± 0.1A (100A Range) ≤2% of Reading ± 0.5 A (1000A Range) ≤2% of Reading ± 1 A
Phase Shift	10A: 3°; 50A: 1.5°; 200A: 0.75°; 1000A: 0.5°; 1200A: 0.5°					(250A Range) 12.5A: 10°; 50A: 10°; 250A: 10°; 300A: 10° (500A Range) 10A: 6°; 25A: 4°; 100A: 3°; 500A: 2.5°; 600A: 2.5° (1000A Range) 20A: 5°; 50A: 3°; 200A: 1.5°; 1000A: 1°; 1200A: 1°	10A: 3° 50A: 1.5° 200A: 0.75° 1000A: 0.5° 1200A: 0.5°	(10A Range) 10A: ≤15° (100A Range) 20A: ≤15°; 100A: ≤10° 120A: ≤5° (1000A Range) 200A: ≤3°; 1000A: ≤2° 1200A: ≤1
Overload	1200A for 40 min ON, 20 min OFF					1200A for 30 min ON, 15 min OFF	1200A for 40 min ON, 20 min OFF	
Frequency Range	30Hz to 5kHz*							
Load Impedance	5Ω max					0.4Ω max	100kΩ min	1MΩ min
Working/Common Mode Voltage	600V CAT III							
Output Surge Protection	No			30V peak			N/A	
Output Termination	Two 4mm safety banana jacks		Lead with plugs	Two 4mm safety banana jacks			Two 4mm safety banana jacks	6.5 ft (2m) coaxial cable with BNC terminal
MECHANICAL								
Operating Temperature	14° to 122°F (-10° to 50°C)							
Storage Temperature	-4° to 158°F (-20° to 70°C)							
Operating Relative Humidity	0 to 85% decreasing linearly above 95°F (35°C)							
Jaw Opening	2.25" (57mm) max							
Maximum Conductor Size	2.05" (52mm)							
Maximum Bus Bar Size	One 1.95 x 0.19" (50 x 5mm)							
Dimensions	4.37 x 8.50 x 1.77" (111 x 216 x 45mm)							
Weight	1.21 lbs (550g)							
Material	Polycarbonate UL 94							
SAFETY								
Electrical	EN 61010-2-32, 600 V CAT III							
UL Approval	Yes - Canada and United States							
Double Insulation	Yes							
CE Mark	Yes							

\*Current derating above 1kHz using the formula: 1000A x 1/F (in kHz)



### FEATURES

- Measurement range of 100mA to 1200A<sub>AC</sub>
- Large jaw opening accommodates up to two 500kcmil conductors
- Ergonomic design and easy operation
- Low phase shift for power measurements
- Available with mA or mV output signals
- Designed for DMMs, recorders, loggers, oscilloscopes, power and harmonic meters
- UL approved

### ACCESSORIES

Catalog #2152.24  
Leads, set of two, 5 ft safety (1000V)

Catalog #1017.45  
Banana plug adaptor (Safety Leads to nonrecessed plug)

Catalog #2118.46  
Banana (Female) - BNC (Male) Adaptor

#### CATALOG NO. DESCRIPTION

2113.42	AC Current Probe Model SR600
2113.43	AC Current Probe Model SR601
2113.44	AC Current Probe Model SR604
2113.48	AC Current Probe Model SR634
2113.45	AC Current Probe Model SR651
2113.49	AC Current Probe Model SR661



# CURRENT MEASUREMENT PROBES

## SR SERIES CURRENT PROBES

### SR700 SERIES



Model SR701

Excellent linearity and low phase shift, plus a broad frequency response, permit accurate measurements of current for power and power quality measurements



## FEATURES

- Measurement range of 1mA to 1200AAC
- Large jaw opening accommodates conductors up to two 500MCM conductors
- Ergonomic design and easy operation
- Low phase shift for power measurements
- Available with mA output signals
- Designed for DMMs, recorders, loggers, oscilloscopes, power and harmonic meters
- UL approved

## SPECIFICATIONS

MODELS	SR701	SR704	SR752	SR759
Nominal Range	1000A <sub>AC</sub>			1; 10; 100; 1000A <sub>AC</sub>
Measurement Range	1mA to 1200A <sub>AC</sub>		100mA to 1200A <sub>AC</sub>	1mA to 1200A <sub>AC</sub>
Transformation Ratio	1000: 1		Voltage output	
Output Signal	1mA/A (1A <sub>AC</sub> @ 1000A)		1mV/A (1V <sub>AC</sub> @ 1000A)	1000; 100; 10; 1mV/A, (1V <sub>AC</sub> @ 1, 10, 100 or 1000A)
Accuracy	1 to 100mA: ≤3% of Reading ± 5 mA 0.1 to 1A: ≤2% of Reading ± 3 mA 1 to 10A: <1% of Reading 10 to 100A: ≤0.5% of Reading 100 to 1200A: ≤0.3% of Reading		0.1 to 1A: ≤2% of Reading ± 3µA 1 to 10A: <1% of Reading 10 to 100A: ≤0.5% of Reading 100 to 1200A: ≤0.3% of Reading	(1A Range) 1 to 10 mA: 3% of Reading ± 1mA 10mA to 0.1 A: ≤3% of Reading ± 1mA 0.1 to 1.2 A: ≤0.7% of Reading ± 1mA (10A Range) 10mA to 0.1A: 1% of Reading ± 2mA 0.1 to 1A: ≤0.5% of Reading ± 2mA 1 to 12A: ≤0.5% of Reading (100A Range) 0.1 to 1A: 1% ± 20mA 1 to 10A: ≤0.5% of Reading ± 20mA 10 to 100A: ≤0.3% of Reading 100 to 120A: ≤0.2% of Reading (1000A Range) 1 to 10A:1% of Reading ± 0.2A; 10 to 100A: ≤0.5% of Reading ± 0.2A; 100 to 1200 A: ≤0.2% of Reading
Phase Shift	1 to 10A: ≤2° 10 to 100A: ≤1° 100 to 1200A: ≤0.7°		1 to 10A: ≤2° 10 to 100A: ≤1° 100 to 1200A: ≤0.7°	(1A Range) 0.1 to 1.2 A: ≤10 ° (10A Range) 0.1 to 1A: ≤5°; 1 to 12A: ≤2° (100A Range) 1 to 10 A: ≤2°; 10 to 120A: ≤1° (1000A Range) 10 to 100A: ≤2°; 100 to 1200A: ≤1°
Overload	1200A for 40 min ON, 20 min OFF			
Frequency Range	30Hz to 5kHz; current derating above 1kHz using the formula: 1000A x 1/F (in kHz)			
Load Impedance	5Ω max		100kΩ min	
Working/Common Mode Voltage	600V CAT III			
Output Termination	Two 4mm safety banana jacks		5ft (1.5m) lead with 4mm safety banana plugs	
MECHANICAL				
Operating Temperature	14° to 122°F (-10° to 50°C)			
Storage Temperature	-4° to 158°F (-20° to 70°C)			
Operating Relative Humidity	0 to 85%		0 to 90%	
Jaw Opening	2.25" (57mm) max			
Maximum Conductor Size	2.05" (52mm)			
Maximum Bus Bar Size	One 1.95 x 0.19" (50 x 5mm)			
Dimensions	4.37 x 8.50 x 1.77" (111 x 216 x 45mm)			
Weight	1.21 lbs (550g)			
Material	Polycarbonate UL 94			
SAFETY				
Electrical	EN 61010-2-32			
UL Approval	Yes - Canada and United States			
Double Insulation	Yes			
CE Mark	Yes			

## ACCESSORIES

Catalog #2152.24  
Leads, set of two, 5 ft safety (1000V)

Catalog #1017.45  
Banana plug adaptor (Safety Leads to nonrecessed plug)

Catalog #2118.46  
Banana (Female) - BNC (Male) Adaptor

CATALOG NO.	DESCRIPTION
2116.29	AC Current Probe Model SR701
2116.30	AC Current Probe Model SR704
2116.32	AC Current Probe Model SR752
2116.33	AC Current Probe Model SR759

# CURRENT MEASUREMENT PROBES

## MN SERIES AC CURRENT PROBES

### MN SERIES

Small and compact, ideal complement for any meter to measure AC currents in low-power secondary transformers or industrial applications



Model MN01



### SPECIFICATIONS

MODELS	MN01	MN02	MN03	MN05
ELECTRICAL				
Nominal Range	150AAC	100AAC		10; 100AAC
Measurement Range	2 to 150AAC	50mA to 100AAC (1Ω load) 50mA to 90AAC (10Ω load)	1 to 100AAC	5mA to 10AAC 1A to 100AAC
Transformation Ratio	1000:1		Voltage output	
Output Signal	1mA/A (150mA <sub>AC</sub> @ 150A)	1mA/A (100mA <sub>AC</sub> @ 100A)	1mV/A (100mV <sub>AC</sub> @ 100A)	1mV/mA, 1mV/A (10V <sub>AC</sub> @ 10A, 100mV <sub>AC</sub> @ 100A )
Accuracy	2.5% ± 0.15A (1Ω load)  3% ± 0.15A (10Ω load)	≤ 1% of Reading ± 0.02A (1Ω load)  ≤ 1.5% of Reading ± 0.01A (10Ω load)	≤ 2% of Reading ± 50mA	(10A Range) ≤ 3% of Reading ± 0.15mA (100 Range A) ≤ 2% of Reading ± 50mA
Phase Shift	Not specified	<3° (1Ω load) <6° (10Ω load)	Not specified	
Overload	170A for 10 min ON, 30 min OFF		150A	10A Range: 15A 100A Range: 150A
Frequency Range	48 to 500Hz	48Hz to 10kHz	48 to 500Hz	
Load Impedance	≤10Ω		≥1MΩ	
Open Secondary Voltage	≤30V		-	
Output Termination	5ft (1.5m) lead with two 4mm safety banana plugs			
MECHANICAL				
Operating Temperature	14° to 122°F (-10° to +50°C)			
Storage Temperature	-40° to 176°F (-40° to +80°C)			
Operating Relative Humidity	0 to 85% RH decreasing linearly above 95°F (35°C)			
Protection	IP40 (EN 60529 Ed. 1995)			
Maximum Conductor Size	Ø 0.39" (10mm)			
Dimension	4.43 x 1.48 x 1.02" (112.5 x 37.5 x 26mm)			
Weight	6.35 oz (180g)			
Material	Polycarbonate UL 94			
SAFETY				
Electrical	IEC 1010-2-32 300 V CAT IV, 600V CAT III Pollution Degree 2			
Double Insulation	Yes			
CE Mark	Yes			

### FEATURES

#### MODEL MN01

- "Clothes pin" shape makes them ideal for use in tight areas, such as breaker panels, controller panels or outlets
- Measurements from 1mA to 150AAC
- Excellent companions to all DMMs, permits very low AC current measurements

#### MODEL MN02

- Measurement ranges of 50mA to 100A (1Ω load) 50mA to 90A (10Ω)
- Jaw opening accommodates conductors up to 0.39" diameter
- Designed for DMMs, loggers, recorders and oscilloscopes
- 48 to 10,000Hz frequency range
- 1mA/A from 1Ω to 10Ω output signals

#### MODEL MN03

- Measurement range of 1 to 100AAC
- Jaw opening accommodates conductors up to 0.39" diameter
- Designed for DMMs, loggers, recorders and oscilloscopes
- 48Hz to 500Hz response
- 1mVAC/AAC output signals
- Designed to EN 61010, 600V CAT III safety standard

#### MODEL MN05

- Measurements from 5mA to 100AAC (Model MN05)
- Measurements from 1mA to 10AAC (Model MN114)
- Excellent companion to DMMs
- Permits very low AC current measurements

### CATALOG NO. DESCRIPTION

2129.17	AC Current Probe Model MN01
2129.20	AC Current Probe Model MN02
2129.18	AC Current Probe Model MN03
2129.19	AC Current Probe Model MN05

# CURRENT MEASUREMENT PROBES

## MN SERIES AC CURRENT PROBES

### MN SERIES



Compact sized probes ideal for measuring low currents and leakage currents. Standard millivolt or milli-amp outputs are compatible with multimeters, data loggers and oscilloscopes

### SPECIFICATIONS

MODELS	MN103	MN106	MN114	MN185
ELECTRICAL				
Nominal Range	10, 100Aac	150Aac	10Aac	120Aac
Measurement Range	1mA to 10Aac 1A to 100Aac	2 to 150Aac	1mA to 10Aac	50mA to 120Aac
Transformation Ratio	Voltage output	1000:1	Voltage output	1000:1
Output Signal	1mV/mA, 1mV/A (10V <sub>AC</sub> @ 10A, 100mV <sub>AC</sub> @ 100A)	1mA/A (150mAac @ 150A)	100mV/A (1V <sub>AC</sub> @ 10A)	1mA/A (120mAac @ 120A)
Accuracy	(10A Range) 45 to 65Hz: ±3% of Reading ± 1mA 65 to 500Hz: -2, +6% of Reading ± 1mA (100A Range) 45 to 65Hz: ±2% of Reading± 0.1A 65 to 500Hz: -2, +3% of Reading ± 0.1A	45 to 65Hz: ±2.5% of Reading ± 0.15 A 65 to 1000Hz: ±4.5% of Reading ± 0.15 A	1mA to 10A: 2% of Reading ± 2mA 40Hz to 3 kHz: 3.5% of Reading ± 2mA	50mA to 100A: 1% of Reading ± 0.01A (with non-inductive load) 100 to 120A: 1.5% of Reading ± 0.01 A
Phase Shift	-	2 to 120A, 50 to 60Hz: ≤10°	10A to 100A, 45 to 65Hz: ≤8°	1 to 100A, 50 to 60Hz: ≤3.5°
Overload	-	170A continuous	20A continuous	170A continuous
Frequency Range	45 to 500Hz	45Hz to 1kHz	30Hz to 5kHz	30Hz to 10kHz
Load Impedance	≥100 kΩ	≤5Ω non-inductive	≥100kΩ	≤5Ω non-inductive
Working/Common Mode Voltage	250V <sub>AC</sub> /250V <sub>AC</sub>			250V <sub>AC</sub> /30V <sub>AC</sub>
Output Termination	5ft (1.5m) lead with 4mm safety banana plugs			Two 4mm banana jacks
MECHANICAL				
Operating Temperature	14° to 122°F (-10° to 50°C)		-13° to 122°F (-25° to 50°C)	
Storage Temperature	-40° to 176°F (-40° to 80°C)			
Jaw Opening	0.78" (20mm)			
Maximum Conductor Size	0.47"Ø max (12mm)			
Dimensions	1.26 x 4.53 x 0.87" (32 x 115 x 22mm)			
Weight	5.6 oz (160g)			
Material	Polycarbonate UL 94			
SAFETY				
Electrical	3kV 50/60Hz dielectric for 1min			

### FEATURES

- Measurement range of 1mA to 150Aac
- Jaw opening of 0.78"
- Accommodates conductors up to 0.47" in diameter
- Ergonomic design and easy operation
- Compact size accommodates hard to reach locations
- Low phase shift for power measurements
- Available with mV or mA output signals
- Constructed with UL94VO flame retardant material
- Designed for DMMs, recorders, loggers and oscilloscopes

CATALOG NO.	DESCRIPTION
1031.02	AC Current Probe Model MN103
1031.17	AC Current Probe Model MN106
2110.71	AC Current Probe Model MN114
100.185	AC Current Probe Model MN185

# CURRENT MEASUREMENT PROBES

## LM SERIES

### MODEL LM102 & LM103

Equipped with high performance magnetic material offering excellent linearity and improved performance. Ideal current measurement tool for use with multimeters, data loggers and power analyzers



### SPECIFICATIONS

MODELS	LM102	LM103
ELECTRICAL		
Nominal Range	200A <sub>AC</sub>	
Measurement Range	50mA to 200 A <sub>AC</sub> (1Ω load) 50mA to 200A <sub>AC</sub> (10Ω load)	100mA to 200A
Transformation Ratio	1000:1	Voltage Output
Output Signal	1mA/A (200mA <sub>AC</sub> @ 200A)	1mV/A (200mV <sub>AC</sub> @ 200A)
Accuracy	≤1% of Reading + 0.02 A (1Ω load) ≤1.5% of Reading + 0.01 A (10Ω load)	≤1.5% of Reading+ 0.02A
Phase Shift	≤3° (1 Ω load) ≤6° (10Ω load)	≤3°
Overload	350A continuous @ ≤1kHz 200 A continuous @ ≤8kHz	
Frequency Range	48 Hz to 10kHz	
Load Impedance	≤10Ω	≤10kΩ
Open Secondary Voltage	≤30V	-
Output Termination	Double-insulated 5ft (1.5m) lead with two 4mm safety banana plugs	
MECHANICAL		
Operating Temperature	14° to 122°F (-10° to 50°C)	
Storage Temperature	-40° to 176°F (-40° to 80°C)	
Operating Relative Humidity	0 to 85% RH decreasing linearly above 95°F (35°C)	
Protection	IP20 (EN 60529)	
Maximum Conductor Size	Ø 0.63" (16mm)	
Dimensions	5.13 x 1.81 x 1.34" (130.4 x 46 x 34mm)	
Weight	Approximately 8.8oz (250g)	
Material	Polycarbonate UL 94	
SAFETY		
Electrical	EN 61010-1, EN 61010-2-031, EN 61010-2-032 600V CAT III, 300V CAT IV Pollution Degree 2	
Double Insulation	Yes	
CE Mark	Yes	

### FEATURES

- Clamping diameter 0.63" (16mm)
- Measurement range from 0.1 to 200 Amps
- Over range up to 350 Amps continuous
- 1mA/A output (model LM102)
- 1mV/A output (model LM103)
- Clothes pin design allows access to tight places
- Frequency response from 48 to 10kHz
- Arrow marker clearly assist in proper orientation for power measurement applications

CATALOG NO.	DESCRIPTION
2153.04	AC Current Probe Model LM102
2153.05	AC Current Probe Model LM103



### MODEL MH60



## FEATURES

- Clamping diameter 1.02" (26mm)
- Measurement range from 0.5 to 140 Amps AC, 100 Amps DC
- Measures AC+DC signals
- 10mV/A output
- Automatic compensation for earth's magnetic influence
- Battery Power (8 hour battery life) or USB continuous
- Frequency response from DC to 1 MHz
- Selectable 3 or 30kHz filter selection
- Push button zero adjust
- LED indicators for power, overload and filter selection
- UL 94 V2 self-extinguishing case material

Designed to measure AC and DC currents using dual Hall effect and transformer technology at frequencies to 1MHz

## SPECIFICATIONS

MODEL	MH60
<b>ELECTRICAL</b>	
Nominal Range	100AAC/DC (140A peak)
Measurement Range	500mA to 140AAC/100Adc
Transformation Ratio	Voltage Output
Output Signal	10mV/A (1VAC/DC @ 100A)
Accuracy	0.5 to 64AAC/DC: ≤1.5% of Reading + 0.01A 64 to 90AAC/DC: ≤4% of Reading 90 to 140AAC/100Adc: ≤5% of Reading
Phase Shift	≤1°
Overload	150A Continuous
Frequency Range (@ -3dB)	DC to 1MHz
Load Impedance	0.25mΩ (at 400Hz) 0.628mΩ (at 1MHz) In RF: 0.1μH for a primary transition
Common Mode Voltage	(600V Max) At 50Hz: 3.5mA/5mA @ 100V At 400Hz: 25.9mA/50mA @ 100V
Battery	Internal NiMH rechargeable battery; 5 Vdc external via female micro-USB type B connection
Battery Life	8 hours typical with fully-charged battery
Output Termination	6.6ft (2m) lead with molded isolated male BNC connector
<b>MECHANICAL</b>	
Operating Temperature	14° to 122°F (-10° to 50°C)
Storage Temperature	-4° to 122°F (-20° to 50°C)
Operating Relative Humidity	0 to 85% RH decreasing linearly above 95°F (35°C)
Maximum Conductor Size	Ø 1.02" (26mm)
Dimensions	5.43 x 1.92 x 1.10" (138 x 49 x 28mm)
Weight	Approximately 705oz (200g)
Material	Polycarbonate UL 94
<b>SAFETY</b>	
Electrical	EN 61010-1 EN 61010-2-31 600V CAT II, 300V CAT III Pollution Degree 2
Double Insulation	Yes
Protection	IP40 (EN 60529)
CE Mark	Yes

CATALOG NO.	DESCRIPTION
2153.03	AC/DC Current Probe Model MH60

# CURRENT MEASUREMENT PROBES

## MN SERIES AC CURRENT PROBES

### MN200 SERIES

General purpose AC current probe with voltage outputs, for use with DMMs or with measuring instruments with voltage inputs. Permits measurement or recording of current with instruments that do not have current ranges. Voltage output proportional to current measured



Model MN213



### SPECIFICATIONS

MODELS	MN213	MN251	MN253	MN255	MN291
Nominal Range	200A <sub>AC</sub>	200A <sub>AC</sub>	200A <sub>AC</sub>	20A <sub>AC</sub> ; 200A <sub>AC</sub>	200A <sub>AC</sub>
Measurement Range	0.5 to 240A <sub>AC</sub>	0.1 to 240A <sub>AC</sub>		0.1 to 24A <sub>AC</sub> ; 0.1 to 240A <sub>AC</sub>	0.5 to 240A <sub>AC</sub>
Transformation Ratio	1000: 1	Voltage output	Voltage output	Voltage output	DC Voltage output
Output Signal	1mA/A (200mA <sub>AC</sub> @ 200A)	1 mV/A (200mV <sub>AC</sub> @ 200A)	10 mV <sub>AC</sub> /A (2V <sub>AC</sub> @ 200A)	20A: 100mV/A (20V <sub>AC</sub> @ 200A) 200A : 10mV/A (2V <sub>AC</sub> @ 200A)	100mV/A (20V <sub>DC</sub> @ 200A)
Accuracy (20A Range)	-			1% ± 50mV	-
(200A Range) 0.5 to 10A 10 to 40A 40 to 100A 100 to 240A	3% of Reading ± 0.5 A 2.5% of Reading ± 0.5 A 2% of Reading ± 0.5 A 1% of Reading ± 0.5A			3% of Reading ± 0.5 A 2.5% of Reading ± 0.5 A 2% of Reading ± 0.5 A 1% of Reading ± 0.5 A	3% of Reading ± 0.5 A 2.5% of Reading ± 0.5 A 2% of Reading ± 0.5 A 2% of Reading
Phase Shift (20A Range)	-			Not Specified	-
(200A Range) 0.5 to 10A 10 to 40A 40 to 100A 100 to 240A	Not Specified ≤5° ≤3° ≤2.5°			Not Specified ≤5° ≤3° ≤2.5°	N/A
Overload	240A for 10 min ON, 30 min OFF				
Frequency Range	40Hz to 10kHz				
Load Impedance	1Ω, 10Ω max. with derating	>1MΩ			
Working/Common Mode Voltage	600V				
Output Termination	Double-insulated 5ft (1.5m) lead with two 4mm safety banana plugs				
MECHANICAL					
Operating Temperature	14° to 131°F (-10° to 55°C)				
Storage Temperature	-40° to 158°F (-40° to 70°C)				
Operating Relative Humidity	10 to 90% RH				
Jaw Opening	0.83" (21mm)				
Maximum Conductor Size	Ø 0.78" max (20mm)				
Maximum Bus Bar size	0.78 x 0.19" (20 x 5mm)				
Dimensions	5.47 x 2.00 x 1.18" (139 x 51 x 30mm)				
Weight	6.5 oz (180g)				
Material	Polycarbonate UL 94				
SAFETY					
Electrical	EN/IEC 61010-2-32 600 V CAT III, EN/IEC 61010-032				
UL Approval	Yes - Canada and United States				
Protection	IP40				
Double Insulation	Yes				
CE Mark	Yes				

### FEATURES

- Small compact size
- Measurement ranges from 100mA to 240A
- Frequency response to 10kHz
- UL approved for both US and Canada
- Designed to EN61010, 600V CAT III
- Jaw opening accommodates 250kcmil cables
- Constructed with UL94VO flame retardant material
- Double insulated construction

CATALOG NO.	DESCRIPTION
2115.75	AC Current Probe Model MN213
2115.77	AC Current Probe Model MN251
2115.79	AC Current Probe Model MN253
2115.81	AC Current Probe Model MN255
2115.84	AC Current Probe Model MN291

# CURRENT MEASUREMENT PROBES

## MN SERIES AC CURRENT PROBES



Model MN307



### MN300 SERIES

Compact sized probes ideal for measuring low currents and leakage currents. Standard millivolt outputs are compatible with multimeters, data loggers and oscilloscopes

## SPECIFICATIONS

MODELS	MN307	MN312	MN313	MN352	MN353	MN373	MN375	MN379*
Nominal Range	10Aac	150Aac				2Aac; 150Aac	10Aac	5Aac; 100Aac
Measurement Range	0.1 to 12Aac	0.1 to 200Aac				0.01 to 2.4Aac; 0.2 to 200Aac	0.1 to 10Aac	5mA to 6Aac; 0.1 to 120Aac
Transformation Ratio	Voltage output	1000:1		Voltage output		Voltage output		
Output Signal	100mV/A (1Vac @ 10A)	1mA/A (150mAac @ 150A)		10mV/A (1.5Vac @ 150A)		2A: 1V/A (2Vac @ 2A) 150A: 10mV/A (1.5Vac @ 150A)	100 mV/A (1 Vac @ 10A)	5 A: 200 mV/A (1 Vac @ 5 A) 100 A: 10 mV/A (1 Vac @ 100 A)
Accuracy	0.1 to 0.5A: ≤2.5% of Reading ± 1mA 0.5 to 1A: ≤2.5% of Reading 1 to 12A: ≤1.0% of Reading	0.1 to 1A: 2% of Reading ± 20mA 1 to 80A: 1% of Reading ± 20mA 80 to 100A: 1.5% of Reading ± 0.1A 100 to 150A: 0.5% of Reading ± 0.5A 150 to 200A: Not specified		0.1 to 1 A: ≤3% of Reading ± 20mA 1 to 20 A: ≤2% of Reading ± 20mA 20 to 80A: ≤1% of Reading 80 to 150A: ≤3% of Reading 150 to 200A: ≤7% of Reading		(2A Range) 0.01 to 0.1A: ≤5% of Reading ± 2mA 0.1 to 1A: ≤3% of Reading ± 1mA 1 to 2 A: ≤1% of Reading 2 to 2.4 A: ≤1% of Reading (150A Range) 0.1 to 1A: ≤3% of Reading ± 200mA 1 to 20A: ≤2% of Reading ± 20mA 20 to 80A: ≤1% of Reading 80 to 150A: ≤3% of Reading 150 to 200A: Not specified	0.1 to 1A: 1% of Reading ± 20mA 1 to 10A: 1% of Reading ± 0.15A	(5A Range) 5mA: 1.5% ± 0.1mA 50mA: 1.5% 0.5A: 1% 5A: 1% (100A Range) 0.1 A: 1% ± 1mA 1; 10; 100 A: 1%
Phase Shift	0.1 to 1A: ≤5° 1 to 5A: ≤3° 5 to 12A: ≤2.5°	0.1 to 1A: Not specified 1 to 20A: ≤3° 20 to 80A: ≤2° 80 to 150A:≤2.5° 150 to 200A: Not specified				(2A Range) Not Specified (150A Range) 0.1 to 1 A: Not specified 1 to 20 A: ≤3° 20 to 80 A:≤2° 80 to 150 A: ≤3° 150 to 200 A: ≤4°	1 to 5A : ≤1° @ 60 Hz 5 to 10A: ≤1.5° @ 60 Hz	(5A Range) 5mA: 6.5° 50mA: 5° 0.5A: 4.5° 5A: 4° (100A Range) 0.1A: 3.2° 1; 10; 100A: 2.2°
Overload	20A Continuous	200A Continuous		240A for 10 min ON, 30 min OFF		240A for 10 min ON, 30 min OFF	20A Continuous	200A Continuous
Frequency Range	40Hz to 10kHz							
Load Impedance	1MΩ	1Ω		1MΩ				
Crest Factor	3 @ 10Arms with an error (due to CF) of 3%	3 @ 200A peak with an error (due to CF) of 3%		3 @ 150A peak (due to CF) of 3%		3 @ 2A; 3 @ 150A peak with an error (due to CF) of 3%	3 @ 10Arms with an error (due to CF) of 3%-	Not specified
Working/Common Mode Voltage	600Vrms							
Output Termination	Double-insulated 5ft (1.5m) lead with two 4mm safety banana plugs	Two standard safety 4mm banana jacks	Double-insulated 5ft (1.5m) lead with two 4mm safety banana plugs	Two standard safety 4mm banana jacks	Double-insulated 5ft (1.5m) lead with two 4mm safety banana plugs			
MECHANICAL								
Operating Temperature	14° to 131°F (-10° to 55°C)							
Storage Temperature	-40° to 158°F (-40° to 70°C)							
Operating Relative Humidity	85% RH without roll-off above 95°F(95°C)							
Jaw Opening	0.83" (21mm)							
Maximum Conductor Size	0.78" max (20mm)							
Dimensions	5.47 x 2.00 x 1.18" (139 x 51 x 30mm)							
Weight	6.5 oz (180g)							
Material	Polycarbonate UL 94							
SAFETY								
Electrical	EN/IEC 61010-1 600 V CAT III, EN 61010-2-32, Pollution Degree 2							
UL Approval	Yes - Canada and United States *excludes MN379							
Protection	IP40							
Double Insulation	Yes							
CE Mark	Yes							

CATALOG NO.	DESCRIPTION
2116.23	AC Current Probe Model MN307
2116.24	AC Current Probe Model MN312
2116.25	AC Current Probe Model MN313
2116.26	AC Current Probe Model MN352
2116.27	AC Current Probe Model MN353
2116.28	AC Current Probe Model MN373
2115.41	AC Current Probe Model MN375
2153.01	AC Current Probe Model MN379

# CURRENT MEASUREMENT PROBES

## JM SERIES AC CURRENT PROBES

### JM800 SERIES

High performance for higher currents, AC current probes have excellent transformation and low phase shift



Model JM813



### SPECIFICATIONS

MODELS	JM813	JM810A	JM830A	JM865A
Nominal Range	3000A <sub>AC</sub> (2400A <sub>AC</sub> >95°F [35°C])	2000A <sub>AC</sub>	3000A <sub>AC</sub> (2400A <sub>AC</sub> >95°F [35°C])	1000; 2000; 3000A <sub>AC</sub> (2400A <sub>AC</sub> >95°F [35°C])
Measurement Range	1 to 3000A <sub>AC</sub>	1 to 2000A <sub>AC</sub>	1 to 3000A <sub>AC</sub>	1 to 3600A <sub>AC</sub>
Transformation Ratio	3000:3	2000: 2	3000: 1	1000:5; 2000: 5; 3000: 5
Output Signal	1mA/A (3A <sub>AC</sub> @ 3000A)	1mA/A (2A <sub>AC</sub> @ 2000A)	0.333mA/A (1A <sub>AC</sub> @ 3000A)	5 mA/A 2.5 mA/A 1.666 mA/A (5A <sub>AC</sub> @ 1000, 2000, 3000A)
Accuracy	150A: 1.5% of Reading 600A: 0.75% of Reading 3000A: 0.5% of Reading	100A: 2% of Reading 400A: 1% of Reading 2000A: 0.5% of Reading	150A: 1.5% of Reading 600A: 0.75% of Reading 3000A: 0.5% of Reading	(1000A Range) 50A: 3% of Reading 200A: 1.5% of Reading 1000A: 1% of Reading (2000A Range) 100A: 1.5% of Reading 400A: 0.75% of Reading 2000A: 0.5% of Reading (3000A Range) 150A: 1.5% of Reading 600A: 0.75% of Reading 3000A: 0.5% of Reading
Phase Shift	150A: 1.5° 600A: 0.75° 3000A: 0.5°	100A: 1.5° 400A: 0.75° 2000A: 0.5°	150A: 1.5° 600A: 0.75° 3000A: 0.5°	(1000A Range) 50A: 3° 200A: 1.5° 1000A: 1° (2000A Range) 100A: 1.5° 400A: 0.75° 2000A: 0.5° (Rango de 3000A) 150A: 1.5° 600A: 0.75° 3000A: 0.5°
Overload	3600A for 5 min	2400A for 10 min	3600A for 5 min	1200; 2400; 3600A for 10 min
Frequency Range	30Hz to 5kHz; current derating above 1kHz for continuous use			30Hz to 1.5kHz; current derating above 1.5kHz for continuous use
Load Impedance	≤0.6Ω	≤1Ω	≤5Ω	0.1Ω; 0.2Ω; ≤2Ω
Working/Common Mode Voltage	600V			
Output Termination	Two safety 4mm banana jacks	5ft (1.5m) lead with two 4mm safety banana plugs		Two safety 4mm banana jacks
MECHANICAL				
Operating Temperature	14° to 122°F (-10° to 50°C)			
Storage Temperature	-13° to 176°F (-25° to 80°C)			
Jaw Opening	3.54" (90mm)			
Maximum Conductor Size	Ø 2.52" (64mm)			
Maximum Bus Bar Size	1.97 x 5.31" (50 x 135mm); 2.52 x 3.94" (64 x 100mm)			
Dimensions	4.72 x 12.40 x 1.89" (120 x 315 x 48mm)			
Weight	2.65 lbs (1.2kg)			
Material	Polycarbonate UL 94			
SAFETY				
Electrical	EN 61010-2-32, 600V CAT III, Pollution Degree 2			
Protection	IP20			
Double Insulation	Yes			
CE Mark	Yes			

### FEATURES

- Current output: up to 3000A<sub>AC</sub> (continuous cycle for the full temperature range)
- Designed for use on DMMs, power and harmonic meters, recorders or instruments with AC current ranges

#### CATALOG NO. DESCRIPTION

2110.93	AC Current Probe Model JM813
2110.80	AC Current Probe Model JM810A
2110.83	AC Current Probe Model JM830A
2110.88	AC Current Probe Model JM865A



# CURRENT MEASUREMENT PROBES

## DIGITAL FLEXPROBE®

### MODELS 400D & 4000D

Provide a welcomed solution when accessing electrical conductors in tight places



**MINIFLEX:**  
Model 4000D-24 (24" probe)



**MINIFLEX:**  
Model 4000D-14 (14" probe)



**MINIFLEX:**  
Model 400D-6 (6" probe)  
Model 400D-10 (10" probe)

## FEATURES

- Easy access and measurement, even in confined spaces
- Measurement from 20mAAC to 4000A (model dependent)
- Available with 6", 10", 14" and 24" sensor lengths
- Sensor diameter 1.77" to 8" (model dependent)
- Resolution down to 1mA (model dependent)
- HOLD feature
- Direct reading
- Compact and simple to use
- Flexible current sensor
- True RMS
- Safety rating of 600V CAT IV

## SPECIFICATIONS



MODEL	400D		
ELECTRICAL			
Display Range	4A <sub>AC</sub>	40A <sub>AC</sub>	400A <sub>AC</sub>
Measurement Range	0.020 to 3.999A	4.00 to 39.99A	40.0 to 399.9A
Resolution	1mA	10mA	100mA
Accuracy	±(2% + 10cts)	±(1.5% + 2cts)	±(1.5% + 2cts)
Sensor Diameter	400D-6: Ø 1.77" (45mm) / 400D-10: Ø 2.75" (70mm)		
Sensor Length	400D-6: 6" (170mm) / 400D-10: 10" (250mm)		
Bandwidth	10Hz to 3kHz		
MODEL	4000D		
Display Range	40A <sub>AC</sub>	400A <sub>AC</sub>	4000A <sub>AC</sub>
Measurement Range	0.20 to 39.99A	40.0 to 399.9A	400 to 3999A
Resolution	10mA	100mA	1A
Accuracy	±(2% + 10cts)	±(1.5% + 2cts)	±(1.5% + 2cts)
Sensor Diameter	4000D-14 : Ø 3.94" (100mm) / 4000D-24 : Ø 8" (190mm)		
Sensor Length	4000D-14: 14" (350mm) / 4000D-24: 24" (610mm)		
Bandwidth	10Hz to 3kHz		
MECHANICAL			
Power Supply	2 x 1.5V AAA / LR3 batteries		
Operating Temperature	32° to 122°F (0° to 50°C)		
Weight	approx. 0.29lbs (130g) MiniFlex		
Casing Dimensions	3.94 x 2.36 x 0.79" (100 x 60 x 20mm)		
Connection Cable Length	6ft (1.8m)		
Safety	IEC 61010, 600V CAT IV		

## PRODUCT INCLUDES





Digital FlexProbe®, 2 AAA batteries and user manual.

CATALOG NO.	DESCRIPTION
2153.30	Digital FlexProbe® Model 400D-6 w/6' Lead (TRMS, 4Aac, 40Aac, 400Aac)
2153.31	Digital FlexProbe® Model 400D-10 w/6' Lead (TRMS, 4Aac, 40Aac, 400Aac)
2153.32	Digital FlexProbe® Model 4000D-14 w/6' Lead (TRMS, 40Aac, 400Aac, 4000Aac)
2153.35	Digital FlexProbe® Model 4000D-24 w/6' Lead (TRMS, 40Aac, 400Aac, 4000Aac)
5000.44	MultiFix Multi-Position Magnetic Accessory






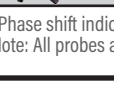
# CURRENT MEASUREMENT PROBES

## SELECTION CHARTS

### AMPFLEX® AND MINIFLEX® PROBES

SERIES	MODEL	RATIO	MEASUREMENT RANGE	OUTPUT SIGNAL	MAXIMUM CONDUCTOR SIZE	CATALOG NO.
	MF 300-6-2-10-HF	-	30A 300A	100mV/A 10mV/A	1.77" (45mm)	2126.83
	MF 3000-10-2-10-HF	-			2.95" (70mm)	2126.84
	MF 300-6-2-10	-			1.77" (45mm)	2126.81
	MF 3000-10-2-1	-	300A 3000A	10mV/A 1mV/A	2.95" (70mm)	2126.82
	MA114	-	3A 30A 300A 3000A	1mV/A 100mV/A 10mV/A 1mV/A	4" (101mm)	2153.41
	300-24-2-10	-	30A 300A	100mV/A 10mV/A	8" (190mm)	2112.88
	1000-24-1-1	-	1000A	1mV/A	8" (190mm)	2112.39
	1000-24-2-1	-	100A 1000A	10mV/A 1mV/A	8" (190mm)	2112.98
	1000-36-2-1	-	100A 1000A	10mV/A 1mV/A	11" (290mm)	2113.00
	3000-24-1-1	-	3000A	1mV/A	8" (190mm)	2112.46
	3000-36-1-1	-	3000A	1mV/A	11" (290mm)	2112.48
	3000-24-2-1	-	300A 3000A	10mV/A 1mV/A	8" (190mm)	2113.05
	3000-36-2-1	-	300A 3000A	10mV/A 1mV/A	11" (290mm)	2112.00
	3000-48-2-1	-	300A 3000A	10mV/A 1mV/A	15" (390mm)	2112.01
	6000-36-2-0.1	-	600A 6000A	1mV/A 0.1mV/A	11" (290mm)	2113.21
	30000-24-2-0.1	-	3000A 30,000A	1mV/A 0.1mV/A	8" (190mm)	2113.33
	24-3001	-	300A 3000Aac	10mV/A 1mV/A	8" (190mm)	2120.81

### OSCILLOSCOPE & BNC TERMINATED PROBES

MODEL	MEASUREMENT RANGE		OUTPUT SIGNAL	PHASE SHIFT*	MAXIMUM CONDUCTOR SIZE		OUTPUT CONNECTION
	AC	DC			Ø CABLE	BUS BAR	
SL261 	100mA to 10A 1 to 100A	100mA to 10A 1 to 100A	100mV/A 10mV/A	<1.5°	0.46" (11.8mm)	N/A	Lead w/BNC
MN261 	0.1 to 24A 0.5 to 240A	—	100mV/A 10mV/A	<2.5°	0.78" (19.8mm)	N/A	Lead w/BNC
SR661 	0.1 to 12A 0.1 to 120A 1 to 1200A	—	100mV/A 10mV/A 1mV/A	<1°	2.05" (52mm)	1.96 x 0.19" (50 x 5mm)	Lead w/BNC
JM861 	1 to 30A 1 to 300A 1 to 3000A	—	10mV/A 1mV/A 0.1mV/A	<1°	2.52" (64mm)	2.52 x 3.94" (64 x 100mm)	Lead w/BNC
MN251T MN379T 	1 to 200A	—	1mV/A	<2.5°	0.78" (20mm)	0.78" (20mm)	Lead w/BNC
	0.005 to 6A 0.1 to 120A 1 to 100A		200mV/A 10mV/A	<4°			
MH60 	0.5 to 140A	0.5 to 100A	10mVAc/DC/AAC/DC	<1°	1.02" (26mm)	N/A	Lead w/BNC






\*Phase shift indicated at maximum rating.

Note: All probes are rated 600V CAT III and CE compliant. Not all models are UL approved; please consult factory.

# CURRENT MEASUREMENT PROBES

## GENERAL PURPOSE PROBES SELECTION CHART

### GENERAL PURPOSE PROBES

SERIES	MODEL	RATIO	MEASUREMENT RANGE		OUTPUT SIGNAL		PHASE SHIFT**	MAXIMUM CONDUCTOR SIZE		OUTPUT CONNECTION	CATALOG NO.
			AC	DC	CURRENT	VOLTAGE		Ø CABLE	BUS BAR		
	MN01	-	2 to 150A	-	1mA/A*	-	N/A	0.39" (10mm)		Lead	2129.17
	MN02	1000:1	50mA to 100A 50mA to 90A	-	1mA/A*	-	N/A			Lead	2129.20
	MN03	-	2 to 100A	-	-	1mV/A	N/A			Lead	2129.18
	MN05	-	5mA to 10A 1 to 100A	-	-	1mV/A 1mV/A	N/A			Lead	2129.19
	MN103	-	1mA to 10A 1 to 100A	-	-	1mV/A 1mV/A	N/A	0.47" (12mm)		Lead	1031.02
	MN106	1000:1	2 to 150A	-	1mA/A	-	<10°			Lead	1031.17
	MN114	-	1mA to 10A	-	-	100mV/A	<8°			Lead	2110.71
	MN185	1000:1	50mA to 120A	-	1mA/A	-	<3.5°			Jack	100.185
	MN213	1000:1	0.5 to 240A	-	1mA/A*	-	<2.5°	0.78" (19.8mm)	N/A	Lead	2115.75
	MN251	-	0.5 to 240A	-	-	1mV/A	<2.5°			Lead	2115.77
	MN253	-	0.5 to 240A	-	-	10mV/A	<2.5°			Lead	2115.79
	MN255	-	0.1 to 24A 0.1 to 240A	-	-	100mV/A 10mV/A	<2.5°			Lead	2115.81
	MN291	-	0.5 to 240A	-	-	100mV/A	N/A			Lead	2115.84
	MN307	-	10mA to 12A	-	-	100mV/A	<2.5°			Lead	2116.23
	MN312	1000:1	0.1 to 200A	-	1mA/A*	-	<2.5°			Jack	2116.24
	MN313	1000:1	0.1 to 200A	-	1mA/A*	-	<2.5°			Lead	2116.25
	MN352	-	0.1 to 150A	-	-	10mV/A	<2.5°			Jack	2116.26
	MN353	-	0.1 to 150A	-	-	10mV/A	<2.5°			Lead	2116.27
	MN373	-	0.01 to 2.4A 0.1 to 200A	-	-	1000mV/A 10mV/A	<3°			Lead	2116.28
	MN375	-	0.1 to 10A	-	-	100mV/A	<1.5°			Lead	2115.41
	MN379	-	5mA to 6A 0.1 to 120A	-	-	200mV/A 10mV/A	<1.5°			Lead	2153.01
	SL206	-	10mA to 1.5A 50mA to 60A	10mA to 2A 50mA to 80A	-	1mV/mAac/dc 10mV/Aac/dc	<1°	0.46" (11.8mm)		Lead	1201.45
	MD301	1000:1	2 to 500A	-	-	1mVDC/Aac	N/A	1.18" (30mm) 2 x 500kcmil	2.48 x 0.20" (63 x 5mm)	Lead	1201.07
	MD305	1000:1	1 to 600A	-	1mA/A*	-	<1°			Lead	1201.36

\*Output Protection for open secondary

\*\*Phase shift indicated at maximum rating





Note: Models MN103, MN106, MN114 & MN185 are not CE compliant. MN200 & MN300 series are UL approved.

Consult factory for NIST Calibration price

# CURRENT MEASUREMENT PROBES

## GENERAL PURPOSE PROBES SELECTION CHART



SERIES	MODEL	RATIO	MEASUREMENT RANGE		OUTPUT SIGNAL		PHASE SHIFT**	MAXIMUM CONDUCTOR SIZE		OUTPUT CONNECTION	CATALOG NO.
			AC	DC	CURRENT	VOLTAGE		Ø CABLE	BUS BAR		
	SR600	1000:1	0.1 to 1000A	-	1mA/A	-	<0.5°	2.05" (52mm)	1.96 x 0.19" (50 x 5mm)	Jack	2113.42
	SR601	1000:1	0.1 to 1000A	-	1mA/A*	-	<0.5°			Jack	2113.43
	SR604	1000:1	0.1 to 1000A	-	1mA/A*	-	<0.5°			Lead	2113.44
	SR634	250:5 500:5 1000:5	1 to 250A 1 to 500A 1 to 1000A	-	20mA/A 10mA/A 5mA/A*	-	<1°			Jack	2113.48
	SR651	-	0.1 to 1000A	-	-	1mV/A	<0.5°			Jack	2113.45
	SR701	1000:1	1mA to 1000A	-	1mA/A*	-	<0.5°			Jack	2116.29
	SR704	1000:1	1mA to 1000A	-	1mA/A*	-	<0.5°			Lead	2116.30
	SR752	-	0.1 to 1000A	-	-	1mV/A	<0.7°			Lead	2116.32
	SR759	-	1mA to 1A 10mA to 10A 0.1 to 100A 1 to 1000A	-	-	1000mV/A 100mV/A 10mV/A 1mV/A	<1°			Lead	2116.33
	JM810A	2000:2	1 to 2000A	-	1mA/A*	-	<0.5°	2.52" (64mm)	1.97 x 5.31" (50 x 135mm) 2.52 x 3.94" (64 x 100mm)	Lead	2110.80
	JM813	3000:3	1 to 2400A	-	1mA/A*	-	<0.5°			Jack	2110.93
	JM830A	3000:1	1 to 2400A	-	.333mA/A*	-	<0.5°			Lead	2110.83
	JM865A	1000:5 2000:5 3000:5	1 to 1000A 1 to 2000A 1 to 2400A	-	5mA/A 2.5mA/A 1.67mA/A	-	<0.5°			Jack	2110.88
	K100	-	0.1mA to 3A	0.05mA to ±4A	-	1mV/mAac/dc	N/A	0.18" (4.5 mm)	N/A	Plugs	1200.67
	K110	-	0.1mA to 300mA	0.05mA to ±450mA	-	10mV/mAac/dc	N/A			Plugs	2111.73
	LM102	1000:1	50mA to 200A	-	1mA/A*	-	<3°	0.63" (16 mm)	N/A	Lead	2153.04
	LM103	-	0.1 to 200A	-	-	1mV/A	<3°			Lead	2153.05

\*Output Protection for open secondary

\*\*Phase shift indicated at maximum rating

Note: SR series probes are UL approved

Consult factory for NIST Calibration price

## OUTPUT TERMINATIONS

### LEAD WITH BNC

Insulated 6.5ft (2m) coaxial cable with insulated BNC connector rated 600Vrms



### JACK

Two standard safety banana jacks (4mm)



### LEADS

Double/reinforced 5ft (1.5m) lead with 4mm safety banana plug



### SHROUDED BANANA PLUGS

Two 4mm safety banana plugs; standard ¾" (19mm) spacing

