

# 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*



MN01



### SPECIFICATIONS

Patent #1385787 - Mini-Clamp Design

MODELS	MN01	MN02	MN03	MN05	MN09
<b>ELECTRICAL</b>					
Nominal Range	150Aac	100Aac		10; 100Aac	150Aac
Measurement Range	2 to 150Aac	50mA to 100Aac (1Ω load) 50mA to 90Aac (10Ω load)	1 to 100Aac	5mA to 10Aac 1A to 100Aac	1 to 150Aac
Transformation Ratio	1000:1		Voltage output		N/A
Output Signal	1mA/A (150mAac @ 150A)	1mA/A (100mAac @ 100A)	1mV/A (100mVac @ 100A)	1mV/mA, 1mV/A (10Vac @ 10A, 100mVac @ 100A)	100mV/A (15Vdc @ 150Aac)
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	170A for 10 min ON, 30 min OFF
Frequency Range	48 to 500Hz	48Hz to 10kHz	48 to 500Hz		
Load Impedance	≤10Ω		≥1MΩ		≥ 50KΩ
Open Secondary Voltage	≤30V		-		≤30V
Output Termination	5 ft (1.5m) lead with two 4mm safety banana plugs				
<b>MECHANICAL</b>					
Maximum Conductor Size	Ø 0.39" (10mm)				
Dimension	5.12 x 1.5 x 1" (130 x 37 x 25mm)				
Weight	6.35 oz (180g)				
Material	Polycarbonate UL 94 V2				
<b>ENVIRONMENTAL</b>					
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)				
<b>SAFETY</b>					
Safety Rating	IEC 61010-2-32: 300 V CAT IV, 600V CAT III, Pollution Degree 2				
Ingress Protection	IP40				
Double Insulation	Yes				
CE Mark	Yes				

Consult factory for NIST Calibration prices

CATALOG NO.	DESCRIPTION
2129.17	AC Current Probe Model MN01 (150A, 1mA/A, Lead)
2129.20	AC Current Probe Model MN02 (100A, 1mA/A, Lead, 1% Accuracy)
2129.18	AC Current Probe Model MN03 (100A, 1mV/A, Lead)
2129.19	AC Current Probe Model MN05 (100A, 1mV/A & 10A, 1V/A, Lead)
2129.21	AC Current Probe Model MN09 (150A, 100mVdc/Aac, Lead)

### FEATURES

- “Clothes pin” shape makes them ideal for use in tight areas, such as breaker panels, controller panels or outlets
- Jaw opening accommodates conductors up to 0.39" diameter

#### MN01

- Measurements from 1mA to 150Aac
- Excellent companions to all DMMs, permits very low AC current measurements

#### MN02

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

#### MN03

- Measurement range of 1 to 100Aac
- Designed for DMMs, loggers, recorders and oscilloscopes
- 48Hz to 500Hz response
- 1mVac/Aac output signals
- Designed to EN 61010, 600V CAT III safety standard

#### MN05

- Measurements from 5mA to 100Aac
- Measurements from 1mA to 10Aac
- Permits very low AC current measurements






#### MN09

- Measurements from 1 to 150Aac
- DC voltage output enables you to overcome low AC sensitivity of certain measurement instruments



# 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		
	MN01	1000:1	2 to 150A	–	1mA/A*	–	N/A	0.39" (10mm)	N/A	Leads	2129.17
	MN02	1000:1	50mA to 100A 50mA to 90A	–		–	N/A	0.39" (10mm)	N/A	Leads	2129.20
	MN03	–	2 to 100A	–	–	1mV/A	N/A	0.39" (10mm)	N/A	Leads	2129.18
	MN05	–	5mA to 10A 1 to 100A	–	–	1mV/mA 1mV/A	N/A	0.39" (10mm)	N/A	Leads	2129.19
	MN09	–	1 to 150A	–	–	100mVdc/Aac	N/A	0.39" (10mm)	N/A	Leads	2129.21
	MN103	–	1mA to 10A 1 to 100A	–	–	1mV/mA 1mV/A	N/A	0.47" (12mm)	N/A	Leads	1031.02
	MN114	–	1mA to 10A	–	–	100mV/A	<8°	0.47" (12mm)	N/A	Leads	2110.71
	MN185	1000:1	50mA to 120A	–	1mA/A	–	<3.5°	0.47" (12mm)	N/A	Jacks	100.185
	MN255	–	0.1 to 24A 0.1 to 240A	–	–	100mV/A 10mV/A	<2.5°	0.78" (19.8mm)	N/A	Leads	2115.81
	MN291	–	0.5 to 240A	–	–	100mVdc/Aac	N/A	0.78" (19.8mm)	N/A	Leads	2115.84
	MN307	–	10mA to 12A	–	–	100mV/A	<2.5°	0.78" (19.8mm)	N/A	Leads	2116.23
	MN312	1000:1	0.1 to 200A	–	1mA/A*	–		0.78" (19.8mm)	N/A	Jacks	2116.24
	MN352	–	0.1 to 150A	–	–	10mV/A		0.78" (19.8mm)	N/A	Jacks	2116.26
	MN353	–		–	–		0.78" (19.8mm)	N/A	Leads	2116.27	
	MN375	–	0.1 to 10A	–	–	100mV/A	<1.5°	0.78" (19.8mm)	N/A	Leads	2115.41
	MN379	–	5mA to 6A 0.1 to 120A	–	–	200mV/A 10mV/A		0.78" (19.8mm)	N/A	Leads	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)	N/A	Leads	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)	Leads	1201.07

\*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 except MN379.

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		
	MR415	–	0.5 to 400A	0.5 to 600A	–	1mV/A	≤1.5°	1.18" (30mm)	2 bus bar 1.24 x 0.39" (31.5 x 10mm)	5 ft (1.5m) Lead	1200.80
	MR416	–	0.5 to 40A 0.5 to 400A	0.5 to 60A 0.5 to 600A	–	10mV/A 1mV/A	≤2.2° ≤1.5°	1.53" (39mm)	2 bus bar 1.95 x 0.19" (50 x 5mm)	5 ft (1.5m) Lead	1200.81
	MR526	–	0.5 to 100A 0.5 to 1000A	0.5 to 150A 0.5 to 1400A	–	10mV/A 1mV/A	≤2° ≤1.5°	1.53" (39mm)	2 bus bar 1.95 x 0.19" (50 x 5mm)	5 ft (1.5m) Lead	1200.83
	SR601	1000:1	0.1 to 1200A	–	1mA/A*	–	<0.5°	2.05" (52mm)	1.95 x 0.19" (50 x 5mm)	Jacks	2113.43
	SR604	1000:1	0.1 to 1200A	–	1mA/A*	–	<0.5°	2.05" (52mm)	1.95 x 0.19" (50 x 5mm)	Leads	2113.44
	SR651	–	0.1 to 1200A	–	–	1mV/A	<0.5°	2.05" (52mm)	1.95 x 0.19" (50 x 5mm)	Jacks	2113.45
	SR701	1000:1	1mA to 1000A	–	1mA/A*	–	<0.7°	2.05" (52mm)	1.95 x 0.19" (50 x 5mm)	Jacks	2116.29
	SR704	1000:1	1mA to 1000A	–	1mA/A*	–	<0.7°	2.05" (52mm)	1.95 x 0.19" (50 x 5mm)	Leads	2116.30
	SR752	–	0.1 to 1000A	–	–	1mV/A	<0.7°	2.05" (52mm)	1.95 x 0.19" (50 x 5mm)	Leads	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°	2.05" (52mm)	1.95 x 0.19" (50 x 5mm)	Leads	2116.33
	K100	–	0.1mA to 3A	0.05mA to ±4A	–	1mV/mA	N/A	0.18" (4.5 mm)	N/A	Plugs	1200.67
	K110	–	0.1mA to 300mA	0.05mA to ±450mA	–	10mV/mA	N/A		N/A	Plugs	2111.73
	LM102	1000:1	50mA to 200A	–	1mA/A*	–	<3°	0.63" (16 mm)	N/A	Leads	2153.04
	LM103	–	0.1 to 200A	–	–	1mV/A	<3°		N/A	Leads	2153.05

\*Output Protection for open secondary

\*\*Phase shift indicated at maximum rating

Note: All SR probes listed on this chart are UL approved, however not all SR series probes are UL approved; please consult factory. Consult factory for NIST Calibration price.



## OUTPUT TERMINATIONS

### Lead with BNC

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



### Jacks

Two standard safety banana jacks (4mm)



### Leads

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







### Shrouded Banana Plugs

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










# AMPFLEX® AND MINIFLEX® PROBES - SELECTION CHARTS

SERIES	MODEL	RATIO	MEASUREMENT RANGE	OUTPUT SIGNAL	MAXIMUM CONDUCTOR SIZE	CATALOG NO.
	MF 300-10-2-10-HF	-	30A / 300A	100mV/A, 10mV/A	2.95" (70mm)	2126.84
	MA114	-	3A / 30A / 300A / 3000A	1mV/mA, 100mV/A 10mV/A, 1mV/A	4" (101mm)	2153.41
	300-24-2-10	-	30A / 300A	100mV/A, 10mV/A	7.48" (190mm)	2112.88
	1000-24-1-1	-	1000A	1mV/A	7.48" (190mm)	2112.39
	1000-24-2-1	-	100A / 1000A	10mV/A, 1mV/A	7.48" (190mm)	2112.98
	1000-36-2-1	-	100A / 1000A	10mV/A, 1mV/A	11" (290mm)	2113.00
	3000-24-1-1	-	3000A	1mV/A	7.48" (190mm)	2112.46
	3000-36-1-1	-			11" (290mm)	2112.48
	3000-24-2-1	-	300A / 3000A	10mV/A, 1mV/A	7.48" (190mm)	2113.05
	6000-36-2-0.1	-	600A / 6000A	1mV/A, 0.1mV/A	11" (290mm)	2113.21
	30000-24-2-0.1	-	3000A / 30,000A		7.48" (190mm)	2113.33
	24-3001	-	300A / 3000A <sub>Ac</sub>	10mV/A, 1mV/A	7.48" (190mm)	2120.81

Consult factory for NIST Calibration price

## OSCILLOSCOPE & BNC TERMINATED PROBES

MODEL	MEASUREMENT RANGE		OUTPUT SIGNAL VOLTAGE	PHASE SHIFT*	MAXIMUM CONDUCTOR SIZE		OUTPUT CONNECTION
	AC	DC			Ø CABLE	BUS BAR	
 SL261	100mA to 10A 1 to 100A		100mV/A 10mV/A	<1.5°	0.46" (11.8mm)	N/A	6.5 ft (2m) Lead w/BNC
 MN261	0.1 to 24A 0.5 to 240A			<2.5°	0.78" (19.8mm)		
 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)	
 MN251T MN379T	0.5 to 240A		1mV/A	<2.5°	0.78" (20mm)	0.78" (20mm)	10 ft (3m) Lead w/BNC
	0.005 to 6A		200mV/A	<4°			
	0.1 to 120A		10mV/A	<2.2°			
 MH60	0.5 to 100A	0.5 to 100A	10mV/A	<1°	1.02" (26mm)	N/A	
 MR417	0.5 to 40A 0.5 to 400A	0.5 to 60A 0.5 to 600A	10mV/A 1mV/A	≤2.2° ≤1.5°	1.18" (30mm)	2 bus bar 1.24 x 0.39" (31.5 x 10mm)	6.6 ft (2m) Lead w/BNC
	 MR527	0.5 to 100A 0.5 to 1000A		0.5 to 150A 0.5 to 1400A			

\*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. Consult factory for NIST Calibration price.