

# CURRENT MEASUREMENT PROBES

## MR SERIES AC/DC CURRENT PROBES



### MODELS MR415/416/526

General Purpose Hall Effect Current Probes for use with DMMs, Data Loggers and Power Analyzers



MR415

MR416

MR526

MODELS	MR415	MR416	MR526
<b>ELECTRICAL</b>			
<b>Current Range</b>	(0.5 to 400) A <sub>AC</sub> , 600 A <sub>DC</sub>	(0.5 to 40) A <sub>AC</sub> , 60 A <sub>DC</sub> (0.5 to 400) A <sub>AC</sub> , 600 A <sub>DC</sub>	(0.5 to 100) A <sub>AC</sub> , 150 A <sub>DC</sub> (0.5 to 1000) A <sub>AC</sub> , 1400 A <sub>DC</sub>
<b>Output Signal</b>	1 mV/A	10 mV/A, 1 mV/A	
<b>Frequency Range</b>	DC to 30 kHz (-3 dB) (depending of current value)		
<b>Phase Shift at (50 / 60) Hz</b>	≤ 1.5° @ 400 A	≤ 2.2° @ 40 A ≤ 1.5° @ 400 A	≤ 2° @ 100 A ≤ 1.5° @ 800 A
<b>Load Impedance</b>	> 1 MΩ and ≤ 100 pF		
<b>Overload</b>	3000 A <sub>DC</sub> or 1000 A <sub>AC</sub> continuous for < 1 kHz		
<b>Zero Adjust</b>	Automatic on both ranges		
<b>Power Supply</b>	9 V Alkaline battery (NEDA 1060A, 6LR61) or 5 V DC Micro-USB Type B		
<b>Battery Life</b>	50 h typical		
<b>Low Battery Indication</b>	Green LED blinking		
<b>Overload Indication</b>	Red LED on when the measurement is greater than selected range		
<b>Output Termination</b>	Double-insulated 5 ft (1.5 m) lead with (2) 4 mm safety banana plugs		
<b>MECHANICAL</b>			
<b>Maximum Conductor Size</b>	Cables: (1) 1.18 in (30 mm) or (2) .94 in (24 mm)  Bus Bar: (1) (1.97 x 0.39) in (50 x 10) mm or (2) (1.23 x 0.39) in (31 x 10) mm or (3) (0.98 x 0.31) in (25 x 8) mm	Cables: (1) 1.5 in (38 mm) or (2) 1 in (25 mm)  Bus Bar: (1) (1.97 x 0.49) in (50 x 12) mm or (2) (0.98 x 0.2) in (25 x 5) mm; (1) (1.24 x 0.30) in (31 x 8) mm or (3) (0.98 x 0.31) in (25 x 8) mm	
<b>Dimensions (H x W x D)</b>	(8.82 x 3.82 x 1.73) in (224 x 97 x 44) mm	(9.31 x 3.82 x 1.73) in (236 x 97 x 44) mm	
<b>Weight (with Battery)</b>	0.98 lb (444 g)	1.15 lb (521 g)	
<b>ENVIRONMENTAL</b>			
<b>Operating Temperature</b>	(14 to +131) °F (-10 to 55) °C		
<b>Storage Temperature</b>	(-40 to +176) °F (-40 to 80) °C		
<b>Relative Humidity</b>	Up to 85 % RH @ 35 °C		
<b>SAFETY</b>			
<b>Ingress Protection</b>	IP40		
<b>EMC</b>	EN 61326-1		
<b>Safety Rating</b>	IEC 61010-1, EN 61010-2-32, Pollution Degree 2, 600 V CAT III		

### FEATURES

- The jaw shape enables users to clamp on to cables or small bus bars
- Powered by battery or standard external 5 V power source via micro-USB connector
- Measures up to 1000 A<sub>AC</sub> and 1400 A<sub>DC</sub> (model dependent)
- Automatic Zero DC reset function
- Auto Power Off enable/disable function
- Millivolt output compatible with most equipment and instruments
- Battery life up to 50 hours
- Safety rating 600 V CAT III

Consult factory for NIST Calibration prices.

CAT. #	DESCRIPTION
1200.80	AC/DC Current Probe Model MR415 (400 A <sub>AC</sub> , 1 mV/A & 600 A <sub>DC</sub> , 1 mV/A, 4 mm Banana Plug Lead) - Replaces MR410
1200.82	AC/DC Current Probe Model MR416 (40 A <sub>AC</sub> , 60 A <sub>DC</sub> , 10 mV/A & 400 A <sub>AC</sub> , 600 A <sub>DC</sub> , 1 mV/A, 4 mm Banana Plug Lead) - Replaces MR411
1200.83	AC/DC Current Probe Model MR526 (100 A <sub>AC</sub> , 150 A <sub>DC</sub> , 10 mV/A & 1000 A <sub>AC</sub> , 1400 A <sub>DC</sub> , 1 mV/A, 4 mm Banana Plug Lead) - Replaces MR521

# CURRENT MEASUREMENT PROBES

## GENERAL PURPOSE PROBES SELECTION CHART

Series	Model	Ratio	Measurement Range		Output Signal		Phase Shift**	Maximum Conductor Size		Output Connection	CAT. #
			AC	DC	Current	Voltage		Ø Cable	Bus Bar		
	MN01	1000:1	(2 to 150) A	–	1 mA/A*	–	N / A	0.39 in (10 mm)	N / A	Leads	2129.17
	MN02	1000:1	50 mA to 100 A 50 mA to 90 A	–	1 mA/A*	–	N / A	0.39 in (10 mm)	N / A	Leads	2129.20
	MN05	–	5 mA to 10 A (1 to 100) A	–	–	1 mV/mA 1 mV/A	N / A	0.39 in (10 mm)	N / A	Leads	2129.19
	MN09	–	(1 to 150) A	–	–	100 mV <sub>DC</sub> / A <sub>AC</sub>	N / A	0.39 in (10 mm)	N / A	Leads	2129.21
	MN114	–	1 mA to 10 A	–	–	100 mV/A	< 8 °	0.47 in (12 mm)	N / A	Leads	2110.71
	MN185	1000:1	50 mA to 120 A	–	1 mA/A	–	< 3.5 °	0.47 in (12 mm)	N / A	Jacks	100.185
	MN255	–	(0.1 to 24) A (0.1 to 240) A	–	–	100 mV/A 10 mV/A	< 2.5 °	0.78 in (20 mm)	N / A	Leads	2115.81
	MN261	–	(0.1 to 24) A (0.5 to 240) A	–	–	100 mV/A 10 mV/A	< 6 °	0.78 in (20 mm)	N / A	BNC	2115.82
	MN291	–	(0.5 to 240) A	–	–	100 mV <sub>DC</sub> / A <sub>AC</sub>	N / A	0.78 in (20 mm)	N / A	Leads	2115.84
	MN307	–	10 mA to 12 A	–	–	100 mV/A	< 2.5 °	0.78 in (20 mm)	N / A	Leads	2116.23
	MN312	1000:1	(0.1 to 200) A	–	1 mA/A*	–	< 2.5 °	0.78 in (20 mm)	N / A	Jacks	2116.24
	MN352	–	(0.1 to 150) A	–	–	10 mV/A	< 2.5 °	0.78 in (20 mm)	N / A	Jacks	2116.26
	MN353	–	(0.1 to 150) A	–	–	10 mV/A	< 2.5 °	0.78 in (20 mm)	N / A	Leads	2116.27
	MN373	–	(0.01 to 2.4) A (0.1 to 200) A	–	–	1000 mV/A 10 mV/A	< 3 °	0.78 in (20 mm)	N / A	Leads	2116.28
	MN375	–	(0.1 to 10) A	–	–	100 mV/A	< 1.5 °	0.78 in (20 mm)	N / A	Leads	2115.41
	MN379	–	5 mA to 6 A (0.1 to 120) A	–	–	200 mV/A 10 mV/A	< 4 °	0.78 in (20 mm)	N / A	Leads	2153.01
	MN379T	–	5 mA to 6 A (0.1 to 120) A	–	–	200 mV/A 10 mV/A	< 4 °	0.78 in (20 mm)	N / A	Lead w / BNC	2153.02
	SL206	–	10 mA to 1.5 A 50 mA to 60 A	10 mA to 2 A 50 mA to 80 A	–	1 mV/mA <sub>AC/DC</sub> 10 mV/A <sub>AC/DC</sub>	< 1 °	0.46 in (12 mm)	N / A	Leads	1201.45
	MD301	1000:1	(2 to 500) A	–	–	1 mV <sub>DC</sub> / A <sub>AC</sub>	N / A	1.18 in (30 mm) (2 x 500) kcmil	(2.48 x 0.20) in (63 x 5) mm	Leads	1201.07
	MD305	1000:1	(1 to 600) A	–	1 mA/A	–	< 1 °	1.18 in (30 mm) (2 x 500) kcmil	(2.48 x 0.20) in (63 x 5) mm	Leads	1201.36

\*Output protection for open secondary.

\*\*Phase shift indicated at maximum rating.

Note: Models MN103, MN114 and 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	CAT. #
			AC	DC	CURRENT	VOLTAGE		Ø CABLE	BUS BAR		
	MR415	—	(0.5 to 400) A	(0.5 to 600) A	—	1 mV/A	≤ 1.5 °	1.18 in (30 mm)	2 bus bar (1.24 x 0.39) in (31 x 10) mm	5 ft (1.5 m) Lead	1200.80
	MR416	—	(0.5 to 40) A (0.5 to 400) A	(0.5 to 60) A (0.5 to 600) A	—	10 mV/A 1 mV/A	≤ 2.2 ° ≤ 1.5 °	1.53 in (39 mm)	2 bus bar (1.95 x 0.19) in (50 x 5) mm	5 ft (1.5 m) Lead	1200.82
	MR526	—	(0.5 to 100) A (0.5 to 1000) A	(0.5 to 150) A (0.5 to 1400) A	—	10 mV/A 1 mV/A	≤ 2 ° ≤ 1.5 °	1.53 in (39 mm)	2 bus bar (1.95 x 0.19) in (50 x 5) mm	5 ft (1.5 m) Lead	1200.83
	SR601	1000:1	(0.1 to 1200) A	—	1 mA/A*	—	< 0.5 °	2.05 in (52 mm)	(1.95 x 0.19) in (50 x 5) mm	Jacks	2113.43
	SR604	1000:1	(0.1 to 1200) A	—	1 mA/A*	—	< 0.5 °	2.05 in (52 mm)	(1.95 x 0.19) in (50 x 5) mm	Leads	2113.44
	SR651	—	(0.1 to 1200) A	—	—	1 mV/A	< 0.5 °	2.05 in (52 mm)	(1.95 x 0.19) in (50 x 5) mm	Jacks	2113.45
	SR701	1000:1	1 mA to 1000 A	—	1 mA/A*	—	< 0.7 °	2.05 in (52 mm)	(1.95 x 0.19) in (50 x 5) mm	Jacks	2116.29
	SR704	1000:1	1 mA to 1000 A	—	1 mA/A*	—	< 0.7 °	2.05 in (52 mm)	(1.95 x 0.19) in (50 x 5) mm	Leads	2116.30
	SR752	—	(0.1 to 1000) A	—	—	1 mV/A	< 0.7 °	2.05 in (52 mm)	(1.95 x 0.19) in (50 x 5) mm	Leads	2116.32
	SR759	—	1 mA to 1 A 10 mA to 10 A (0.1 to 100) A (1 to 1000) A	—	—	1000 mV/A 100 mV/A 10 mV/A 1 mV/A	< 1 °	2.05 in (52 mm)	(1.95 x 0.19) in (50 x 5) mm	Leads	2116.33
	K100	—	0.1 mA to 3 A	0.05 mA to ± 4.5 A	—	1 mV/mA	N / A	0.18 in (4.5 mm)	N / A	Plugs	1200.67
	K110	—	(0.1 to 300) mA	(0.05 to ± 450) mA	—	10 mV/mA	N / A	0.18 in (4.5 mm)	N / A	Plugs	2111.73
	LM102	1000:1	50 mA to 200 A	—	1 mA/A*	—	< 3 °	0.63 in (16 mm)	N / A	Leads	2153.04
	LM103	—	(0.1 to 200) A	—	—	1 mV/A	< 3 °	0.63 in (16 mm)	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 (2 m) coaxial cable with insulated BNC connector rated 600 Vrms



### Jacks

Two standard safety banana jacks (4 mm)



### Leads

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







### Shrouded Banana Plugs

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










# CURRENT MEASUREMENT PROBES

## AMPFLEX® AND MINIFLEX® PROBES - SELECTION CHARTS

SERIES	MODEL	RATIO	MEASUREMENT RANGE	OUTPUT SIGNAL	MAXIMUM CONDUCTOR SIZE	CAT. #
	MF 300-10-2-10-HF	–	(30 / 300) A	100 mV/A, 10 mV/A	2.95 in (75 mm)	2126.84
	MF 3000-14-1-1-HF	–	3000 A	1 mV/A	3.93 in (100 mm)	2126.86
	MA114	–	(3 / 30 / 300 / 3000) A	1 mV/mA, 100 mV/A 10 mV/A, 1 mV/A	4 in (101 mm)	2153.41
	300-24-2-10	–	(30 / 300) A	100 mV/A, 10 mV/A	7.48 in (190 mm)	2112.88
	1000-24-1-1	–	1000 A	1 mV/A	7.48 in (190 mm)	2112.39
	1000-24-2-1	–	(100 / 1000) A	10 mV/A, 1 mV/A	7.48 in (190 mm)	2112.98
	1000-36-2-1	–	(100 / 1000) A	10 mV/A, 1 mV/A	11 in (280 mm)	2113.00
	3000-24-1-1	–	3000 A	1 mV/A	7.48 in (190 mm)	2112.46
	3000-36-1-1	–	3000 A	1 mV/A	11 in (280 mm)	2112.48
	3000-24-2-1	–	(300 / 3000) A	10 mV/A, 1 mV/A	7.48 in (190 mm)	2113.05
	3000-48-2-1	–	(300 / 3000) A	10 mV/A, 1 mV/A	15 in (381 mm)	2112.01
	6000-36-2-0.1	–	(600 / 6000) A	1 mV/A, 0.1 mV/A	11 in (280 mm)	2113.21
	30000-24-2-0.1	–	(3000 / 30,000) A	1 mV/A, 0.1 mV/A	7.48 in (190 mm)	2113.33
	24-3001	–	300 A / 3000 A <sub>AC</sub>	10 mV/A, 1 mV/A	7.48 in (190 mm)	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	100 mA to 10 A (1 to 100) A		100 mV/A 10 mV/A	< 1.5 °	0.46 in (12 mm)	N / A	6.5 ft (2 m) Lead w / BNC
 MN261	(0.1 to 24) A (0.5 to 240) A	–	100 mV/A 10 mV/A	< 2.5 °	0.78 in (20 mm)	N / A	6.5 ft (2 m) Lead w / BNC
 SR661	(0.1 to 12) A (0.1 to 120) A (1 to 1200) A	–	100 mV/A 10 mV/A 1 mV/A	< 1 °	2.05 in (52 mm)	(1.96 x 0.19) in (50 x 5) mm	6.5 ft (2 m) Lead w / BNC
 MN251T MN379T	(0.5 to 240) A	–	1 mV/A	≤ 2.5 °	0.78 in (20 mm)	(0.78 x 0.19) in (20 x 5) mm	10 ft (3 m) Lead w / BNC
	(0.005 to 6) A (0.1 to 120) A	–	200 mV/A 10 mV/A	≤ 4 ° ≤ 2.2 °	0.78 in (20 mm)	(0.78 x 0.19) in (20 x 5) mm	10 ft (3 m) Lead w / BNC
 MH60	(0.5 to 100) A	(0.5 to 100) A	10 mV/A	< 1 °	1.02 in (26 mm)	N / A	6.6 ft (2 m) Lead w / BNC
 MR417	(0.5 to 40) A (0.5 to 400) A	(0.5 to 60) A (0.5 to 600) A	10 mV/A 1 mV/A	≤ 2.2 ° ≤ 1.5 °	1.18 in (30 mm)	2 bus bar (1.24 x 0.39) in (32 x 10) mm	6.6 ft (2 m) Lead w / BNC
 MR527	(0.5 to 100) A (0.5 to 1000) A	(0.5 to 150) A (0.5 to 1400) A	10 mV/A 1 mV/A	≤ 2.2 ° ≤ 1.5 °	1.53 in (39 mm)	2 bus bar (1.96 x 0.19) in (50 x 5) mm	6.6 ft (2 m) Lead w / BNC

\*Phase shift indicated at maximum rating. Note: All probes are rated 600 V CAT III and CE compliant. Not all models are UL approved; please consult factory. Consult factory for NIST Calibration price.