CURRENT MEASUREMENT PROBES

MR SERIES AC/DC CURRENT PROBES



MODELS MR417/MR527

Hall Effect AC/DC current probes for Oscilloscopes and other instruments with waveform displays





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_{AC} and 1400 A_{DC} (model dependent)
- Equipped with a Zero DC reset function
- Auto Power Off enable/disable function
- LED overload and low battery indicators
- Millivolt output compatible with most equipment and instruments
- Equipped with a coaxial lead and isolated BNC connectors for direct connection to an oscilloscope
- · Battery life up to 50 hours
- Safety rating 600 V CAT III

Frequency RangeDC to 30 kHz (-3 dB) (depending of current value)Phase Shift At (50 / 60) Hz $\leq 2 \circ @ 40 A$ $\leq 1.5 \circ @ 100 A$ $\leq 1.5 \circ @ 100 A$ Load Impedance> 1 MΩ and $\leq 100 \text{ pF}$ Overload3000 Abc or 1000 Abc continuous for < 1 kHz	MODELS	MR417	MR527							
Current wange(0.5 to 400) Aac, 600 Abc(0.5 to 1000) Aac, 1400 AbcOutput Signal10 mV/A, 1 mV/AFrequency RangeDC to 30 kHz (-3 dB) (depending of current value)Phase Shift At (50 / 60) Hz $\leq 2 \circ @ 40$ A $\leq 1.5 \circ @ 400$ A $\leq 2.2 \circ @ 100 A$ $\leq 1.5 \circ @ 1000 ALoad Impedance> 1 MΩ and \leq 100 \text{ pF}Overload3000 Abc or 1000 Abc continuous for < 1 kHzZero AdjustAutomatic on both rangesPower Supply9 V alkaline battery (NEDA 1060 A, 6LR61)or 5 V DC Micro-USB Type BBattery Life50 h typicalLow Battery IndicationGreen LED blinkingOverload IndicationRed LED on when the measurement is greater than selected rangeOutput Termination6.5 ft (2 m) coaxial cable with insulated BNC terminalMaximumConductor SizeCables:(1) 0.18 in (5 mm) or(2) (1.23 x 0.39) in (50 x 10) mm or(3) (0.98 x 0.31) in (25 x 8) mmDimensions (H x W x D)Weight (with Battery)(8.82 x 3.82 x 1.73) in(224 x 97 x 44) mmWeight (with Battery)0.98 lb (440 g)Ingress ProtectionIP 40ENVIRONMENTALSAFETYIngress ProtectionIP 40ENCEN 61326-1$		ELECTRICAL								
Frequency RangeDC to 30 kHz (-3 dB) (depending of current value)Phase Shift At (50 / 60) Hz $\leq 2 \circ @ 40 A$ $\leq 2.2 \circ @ 100 A$ Load Impedance> 1 MΩ and $\leq 100 \text{ pF}$ Overload3000 Abc or 1000 Ac continuous for <1 kHz	Current Range	(0.5 to 400) AAC, 600 ADC (0.5 to 1000) AAC, 1400 ADC								
Phase Shift At (50 / 60) Hz $\leq 2 \circ @ 40 A$ $\leq 2.2 \circ @ 100 A$ $\leq 1.5 \circ @ 1000 A$ Load Impedance> 1 MΩ and $\leq 100 \text{ pF}$ Overload3000 Aoc or 1000 Ac continuous for < 1 kHzZero AdjustAutomatic on both rangesPower Supply9 V alkaline battery (<i>NEDA 1060 A, 6LR61</i>) or 5 V DC Micro-USB Type BBattery Life50 h typicalLow Battery IndicationRed LED on when the measurement is greater than selected rangeOutput Termination6.5 ft (2 m) coaxial cable with insulated BNC terminalMaximum Conductor SizeCables: (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) mmDimensions (H x W x D)(8.82 x 3.82 x 1.73) in (224 x 97 x 44) mmDimensions (H x W x D)(8.82 x 3.82 x 1.73) in (224 x 97 x 44) mmWeight (with Battery)0.98 lb (440 g)Ingress ProtectionIP 40EMCIP 40EMCEN 61326-1	Output Signal	10 mV/A, 1 mV/A								
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ENVIRONMENTAL Operating Temperature (14 to +131) °F (-10 to 55) °C Storage Temperature (-40 to +176) °F (-40 to 80) °C Relative Humidity Up to 85 % RH @ 35 °C SAFETY Ingress Protection IP 40 EMC EN 61326-1	Dimensions (H x W x D)									
Operating Temperature (14 to +131) °F (-10 to 55) °C Storage Temperature (-40 to +176) °F (-40 to 80) °C Relative Humidity Up to 85 % RH @ 35 °C SAFETY Ingress Protection IP 40 EMC EN 61326-1	Weight (with Battery)	0.98 lb (440 g)	1.15 lb (521 g)							
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Relative HumidityUp to 85 % RH @ 35 °CSAFETYIngress ProtectionIP 40EMCEN 61326-1	Operating Temperature	(14 to +131) °F	- (-10 to 55) °C							
SAFETY Ingress Protection IP 40 EMC EN 61326-1	Storage Temperature	(-40 to +176) °F (-40 to 80) °C								
Ingress ProtectionIP 40EMCEN 61326-1	Relative Humidity	Up to 85 % RH @ 35 °C								
EMC EN 61326-1		SAFETY								
	Ingress Protection	IP 40								
Safety Rating IEC 61010-1, EN 61010-2-32, Pollution Degree 2, 600 V CAT III	EMC	EN 61326-1								
	Safety Rating	IEC 61010-1, EN 61010-2-32, Pollution Degree 2, 600 V CAT III								

Consult factory for NIST Calibration prices.

CAT. # DESCRIPTION

AC/DC Current Probe Model MR417 (40 Aac, 60 Abc, 10 mV/A & 400 Aac, 600 Abc, 1 mV/A, BNC Output) Replaces MR461
AC/DC Current Probe Model MR527 (100 Aac, 150 Abc, 10 mV/A & 1000 Aac, 1400 Abc, 1 mV/A, BNC Output) Replaces MR561



CURRENT MEASUREMENT PROBES GENERAL PURPOSE PROBES SELECTION CHART

Series	Model	Ratio	Measurement Range		Output Signal		Phase Conductor Siz		mum tor Size	70 Output	CAT. #
ounes	MOUCI	nauo	AC	DC	Current	Voltage	Shift**		Bus Bar	Connection	
	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 mVdc / Aac	N / A	0.39 in (10 mm)	N/A	Leads	2129.21
	MN134	-	1 mA to 10 A	-		100 mVac / Aac	< 10°	0.39 in (10 mm)	N / A	Leads	2129.22
CHS	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 mVdc / Aac	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
0	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
$\mathbf{\vee}$	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
0	SL206	-	10 mA to 1.5 A 50 mA to 60 A	10 mA to 2 A 50 mA to 80 A	-	1 mV/mAac/dc 10 mV/Aac/dc	<1°	0.46 in (12 mm)	N/A	Leads	1201.45
R	MD301	1000:1	(2 to 500) A	_		1 mVdc / Aac	N / A	1.18 in (30 mm) (2 x 500) kcmil	(2.48 x 0.20) in (63 x 5) mm	Leads	1201.07
0	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: Model MN185 are not CE compliant. MN200 & MN300 series are UL approved except MN379. Consult factory for NIST Calibration price.

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CURRENT MEASUREMENT PROBES

GENERAL PURPOSE PROBES SELECTION CHART

SERIES	MODEL	RATIO	MEASUREMENT RANGE		OUTPUT SIGNAL		PHASE SHIFT**	MAXIMUM CONDUCTOR SIZE		OUTPUT	CAT. #
			AC	DC	CURRENT	VOLTAGE	SHIF1**	Ø CABLE	BUS BAR	CONNECTION	GAI. #
	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	$\begin{array}{r} \textbf{0.05 mA to } \pm \\ \textbf{4.5 A} \end{array}$	-	1 mV/mA	N/A	0.18 in (4.5 mm)	N / A	Plugs	1200.67
	K110	-	(0.1 to 300) mA	$(0.05 \text{ to } \pm 450) \\ \text{mA}$	-	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





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



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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
800	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
S.	24-3001	-	300 A / 3000 Aac	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	PHASE SHIFT*	MAXIMUM CO	ONDUCTOR SIZE	OUTPUT
MODEL	AC	DC	VOLTAGE	SHIFT*	Ø CABLE	BUS BAR	CONNECTION
	100 mA (1 to 10		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
	(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	\leq 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.



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