

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 |
|-----------------------------|--|--|------------------------|---|--------------------------------|
| ELECTRICAL | | | | | |
| 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 | | | | |
| MECHANICAL | | | | | |
| 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 | | | | |
| ENVIRONMENTAL | | | | | |
| 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) | | | | |
| SAFETY | | | | | |
| 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/A 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/A 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* | – | <2.5° | 0.78" (19.8mm) | N/A | Jacks | 2116.24 |
| | MN352 | – | 0.1 to 150A | – | – | 10mV/A | <2.5° | 0.78" (19.8mm) | N/A | Jacks | 2116.26 |
| | MN353 | – | | – | – | 10mV/A | <2.5° | 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 500kc-mil | 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 _{Ac} | 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 | | <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 | 6.6 ft (2m) Lead w/BNC |
|  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) | |
|  MR527 | 0.5 to 100A 0.5 to 1000A | 0.5 to 150A 0.5 to 1400A | | ≤2.2° ≤1.5° | 1.53" (39mm) | 2 bus bar 1.96 x 0.19" (50 x 5mm) | |

*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.