

Oscilloscope clamp for AC current

Model D38N (insulated AC current probe)

DN series

Current	90 A peak	900 A peak	9000 A peak
Output	10 mV/A	1 mV/A	0.1 mV/A

Description

The D38N offers accurate AC current measurement and a voltage output in mV allowing direct readings on oscilloscopes. A switch with 3 positions on the handle can be used to select the ranges. The wide opening of the jaws means they can be used on cables and small busbars.

Electrical specifications

Current calibres:

1 A AC ... 30 A AC (90 A peak)
 1 A AC ... 300 A AC (900 A peak)
 1 A AC ... 2400 A AC (9000 A peak)
 (3000 A for temperature < 35°C)

Output signal:

10 mV/A AC (3 V for 30 A)
 1 mV/A AC (3 V for 300 A)
 0.1 mV/A AC (3 V for 3000 A)

Accuracy and phase shift ⁽¹⁾:

■ 30 A calibre

Primary current	1.5 A	6 A	30 A	36 A
% Accuracy of output signal	2% ± 1 mV			
Phase shift	≤ 20°	≤ 10°	≤ 5°	≤ 5°

■ 300 A calibre

Primary current	15 A	60 A	300 A	360 A
% Accuracy of output signal	2% ± 0.5 mV			
Phase shift	≤ 3°	≤ 1.5°	≤ 1°	≤ 1°

■ 3000 A calibre

Primary current	150 A	600 A	3000 A	3600 A
% Accuracy of output signal	2% ± 0.2 mV			
Phase shift	≤ 3°	≤ 1.5°	≤ 1°	≤ 1°

Bandwidth:

10 Hz to 50 kHz (depending on current)

Rise/fall time from 10 % to 90 %:

4 μs

10 % delay time:

0.3 μs

Ampere second product:

- 30 A calibre: 30 A.s
- 300 A calibre: 125 A.s
- 3000 A calibre: 180 A.s

Insertion impedance (at 400 Hz / 10 kHz):

- 30 A calibre: < 0.1 mΩ / < 1 mΩ
- 300 A calibre: < 0.1 mΩ / < 0.5 mΩ
- 3000 A calibre: < 0.1 mΩ / < 0.4 mΩ

Maximum currents:

I < 2400 A permanent
 2400 A ... 2800 A for 10 minutes and then 30 minutes shutdown
 2800 A ... 4000 A for 5 minutes and then 30 minutes shutdown

Output impedance:

- 30 A calibre: ≤ 130 Ω ± 15 %
- 300 A calibre: ≤ 140 Ω ± 15 %
- 3000 A calibre: ≤ 140 Ω ± 15 %

Influence of temperature:

≤ 0.2 % of output signal per 10 °K

Influence of adjacent conductor:

≤ 5 mA/A at 50 Hz

Influence of DC current < 10 % of rated calibre superimposed on the rated current:

0.05 % / A DC

Influence of conductor position in jaws:

≤ 1 % + 0.1 A at 50/60 Hz

Influence of frequency ⁽²⁾:

- 30 A calibre: < 1 dB from 10 Hz...10 kHz
- 300 A calibre: < 1 dB from 10 Hz...10 kHz
- 3000 A calibre: < 1 dB from 10 Hz...10 kHz

Mechanical specifications

Max. jaw opening:

90 mm

Clamping capacity:

Cable: Ø max 64 mm
 Group of busbars:
 5 busbars of 125 x 5 mm
 3 busbars of 100 x 10 mm
 (busbars spaced by their thickness)

Output:

2 m coaxial lead with insulated BNC plug

Dimensions:

310 x 120 x 48 mm

Weight:

1200 g

Operating temperature:

-10 °C to +50 °C

Storage temperature:

-25 °C to +80 °C

Relative humidity for operation:

0 to 85 % RH with a linear decrease above 35 °C

Operating altitude:

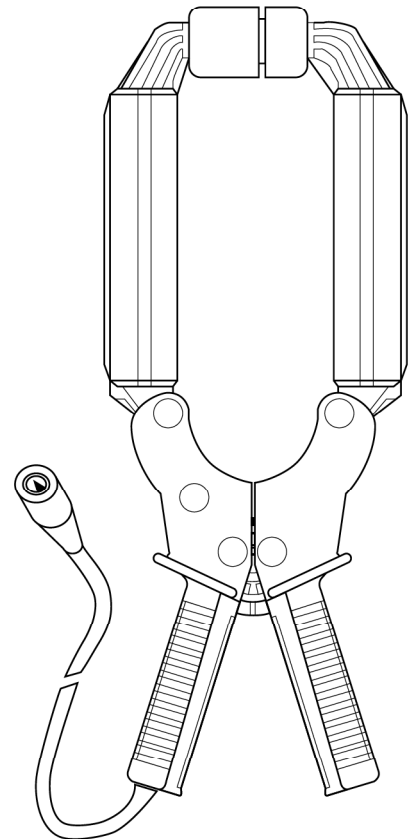
0 to 2,000 m

Casing protection rating:

IP 20 (IEC 529)

Drop test:

0.5 m (IEC 68-2-32)



Shock resistance:

100 g / 6 ms / half-period (IEC 68-2-27)

Protection against impacts:

IK04 0.5 J (EN 50102)

Vibration resistance:

10/55/10 Hz, 0.15 mm (IEC 68-2-6)

Self-extinguishing capability:

Handles: UL94 V0
 Jaws: UL94 V2

Colours:

Dark grey handles with red jaws

Safety specifications

Electrical safety:

Instrument with double insulation or reinforced insulation between the primary, the secondary and the grippable part located under the guard as per IEC 1010-1 & IEC 1010-2-032
 - 600 V category III, pollution degree 2
 - 300 V category IV, pollution degree 2