Zensol

AC/DC Current Clamp 30A

Ref: CT-CLAMP-AC/DC

General Description

The Zensol CT-CLAMP-AC/DC clamp is an AC/DC current probe based on Hall effect cell technology. Unlike standard current transformers, this technology allows measuring both direct (DC) and alternating (AC) components with high precision. It delivers an analog voltage signal (mV) proportional to the measured current, perfectly suited for data acquisition systems, signal conditioners, and multimeters.

1. Ranges and Sensitivity

- **Nominal Range:** 30 A RMS AC or DC (maximum non-destructive current: 45 A).
- **Output Sensitivity:** 100 mV / A, providing a sufficient signal level to facilitate analog conditioning of the downstream measurement chain.
- **Accuracy:** ± 1% of reading ± 2 mA, subject to a load impedance greater than 100 kΩ.
- **Power Supply:** 9 V alkaline battery (approx. 30 hours battery life), essential to bias the Hall effect element.

2. Dynamic Characteristics

- **Bandwidth:** DC to 20 kHz (–0.5 dB), ideal for harmonics analysis or capturing transient signals.
- **Phase Shift:** Less than 1° from DC up to 65 Hz. This very low angular drift guarantees the integrity of measurements when calculating dynamic resistance or power on highly inductive equipment.

3. Ergonomics and Mechanical Design

- **Clamping Capacity:** Jaw opening allows isolating a conductor up to 19 mm in diameter.
- **Zero Adjustment:** Integrates an offset compensation dial (DC zero) to cancel the remanent magnetization and thermal drifts of the sensor before each test campaign.

4. Connectivity

- **Acquisition Interface:** The sensor is equipped with a 1.5 m cable terminated by 4 mm safety male banana plugs. To ensure measurement reliability during field tests and eliminate any risk of accidental disconnection, it is often wise to replace this termination with robust industrial connectors (e.g., 4-pin Neutrik) when integrated into diagnostic instruments.

5. Standards & Industry Compliance

This sensor is designed and tested to meet stringent international standards, ensuring reliability and safety for critical power utility applications:

- **IEC/EN 61010-1 & 61010-2-032:** Strict safety standards governing portable current sensors, guaranteeing 300 V CAT III protection category.
- **EN 61326-1 / IEC 61326-1:** Electromagnetic Compatibility (EMC) standards ensuring the internal conversion electronics (Hall effect cell) are not disrupted by intense electromagnetic fields typical of electrical substations.
- **RoHS & CE Directives:** Fully compliant with environmental safety and European conformity requirements.

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