

MAGNELAB RCT COIL SERIES ROPE CT INSTALLATION INSTRUCTIONS

1. **Intended use of the equipment** -The Magnelab RCT Series Rope CT is designed to sense a sinusoidal AC current input and output a low voltage signal. The typical input current is up to 5000 A AC RMS. The maximum output voltage is typically up to 1.08 V AC RMS.

Also note that if the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

2. **Technical specification**
 - a. Input 0 to 5000 A AC RMS (On customer supplied primary conductor)
 - b. Output up to 1.08 V AC RMS
 - c. Accuracy $\pm 0.5\%$
 - d. Phase angle $< \pm 0.1$ degrees measured at 50% rated current when connected to suitable integrator, otherwise output is 90 deg ± 0.1 deg.
 - e. Output flying lead wires 18 AWG (depending on requirements) with 600 V rated insulation
3. **Name and address of manufacturer**

Magnelab, Inc.
600 Weaver Park Rd.
Longmont, CO 80501
4. **Equipment ratings**
 - a. **Description of all input and output connections**
 - i. **Input (Primary, customer supplied)** – This device is rated for contact with bare copper bus bar of up to 600 V, CAT IV (Service Entrance). Maximum Primary Current is 5000 A at Frequencies from 40 to 400 Hz.
 - ii. **Output (Secondary, 2 leads)** – for connection to metering device or integrator circuit, nominal output 0.35 V AC RMS, max output 1.08V AC RMS.
 - b. **Rating of insulation** – 600V AC, CAT IV Service Entrance
 - c. **Environmental conditions** –
 - i. Intended for indoor use.
 - ii. Altitude up to 2 000 m
 - iii. Operating Ambient Temperature -30 °C to 55 °C
 - iv. Relative humidity tolerance of 0-95%
 - v. Pollution Degree 2
 - d. **Operation Requirements** – Unit is suitable for any metering device that works with Rogowski Coil type sensors or integrator circuit.

5. Equipment installation

This document provides general guidelines for the installation of the Magnelab RCT-Coil Series Rope CT. This is a current sensor designed to be installed and on exiting primary conductors. This shall act as a reference only and a working knowledge of the equipment being installed is required for safety.

DANGER! – Installing any current transformer or signal conditioner onto an energized circuit can result in severe injury or death. Installation should be performed by qualified personnel only. Disconnect all power sources before attempting installation of current transformers or signal conditioners. For the safest installation, properly connect all input and output leads to the signal conditioner to before installing it onto the conductor to be measured.

WARNING - To reduce the risk of electric shock, always open or disconnect circuit from power-distribution system (or service) building before installing or servicing current transformers.

- Open the CT and place the conductor through the center opening. Securely close the CT ensuring you do not damage the connector and outer jacket.
- Allow the CT to hang or lay in an area that will allow the leads to be dressed safely away from any potential damaging sharp edges or voltage sources.
- The CT may not be installed in equipment where they exceed 75% of the wiring space of any cross-sectional area within the equipment.
- Restrict installation of current transformers in an area where it would block ventilation openings.
- Restrict installation of current transformers in area of breaker arc venting.
- Not suitable for Class 2 wiring methods.
- Not intended for connection to Class 2 Equipment.
- Secure current transformer and route conductors so that they do not directly contact live terminals or busbar. The min cross sectional surface area of the busbar shall be 833 A per square inches. For example, when the primary current is 5000 A, the bus bar shall have min 6 square inches cross sectional area surface. The busbar shall be located right in the center of the coil such that there is uniform air clearance between the busbar and the coil
- Connect output of device to meter or monitoring device.

The label on the connector indicates the orientation CT in relation to the current source. All installations are subject to inspection and approval by authorized personnel before operation of the device.

6. Equipment Operation

- a. Install RCT-Coils as described in Section 5.
- b. Activate power supply that is connected to your meter or integrator circuit.
- c. Energize the primary conductor that the current sensors is attached to.
- d. The output terminals of the RCT-Coil should produce an AC voltage that varies linearly with the current passing through the corresponding center conductors. This should be detectible by the meter or monitoring device connected to the output.

7. Equipment maintenance and service

- a. Occasionally inspect for damage to insulation on sensor jacket, connector, or lead wires from the RCT-Coil. Contact manufacturer for replacement materials in case of damage.
- b. There are no components within the device that can be serviced by the end user. Please contact the manufacturer if there are issues with the output of the RCT-Coil.