

VTSYIQI ETCR007

VTSYIQI ETCR007 AC/DC Clamp Leakage Current Sensor User Manual

Model: ETCR007 | Brand: VTSYIQI

1. INTRODUCTION

The VTSYIQI ETCR007 AC/DC Clamp Leakage Current Sensor is designed for precise measurement of AC/DC current and leakage current. It operates under line voltages up to 600V. This device utilizes advanced CT technology and digital integration for accurate, non-contact current measurement. It is suitable for various applications including power analysis, electrical testing, industrial maintenance, and scientific research.

This manual provides essential information for the safe and effective use of your ETCR007 sensor. Please read it thoroughly before operation.

2. PRODUCT FEATURES

- **Function:** Measures AC/DC current and leakage current.
- **Measurement Method:** Clip-on CT, non-contact measurement.
- **Clamp Size:** \varnothing 7mm.
- **Input Range:** 0mA to 60.0A AC/DC.
- **Output Voltage:** Selectable 10mV/A or 100mV/A.
- **Resolution:** 1mA AC/DC.
- **Accuracy:** $\pm 3\%$ FS (at 23°C $\pm 5^\circ$ C, below 5%RH).
- **Phase Error:** $\leq 3^\circ$ (AC 50Hz/60Hz; 23°C $\pm 2^\circ$ C).
- **Frequency Range:** AC: 45Hz-400Hz; DC: DC-100kHz.
- **Output Interface:** BNC plug.
- **Power Supply:** 9V battery (6LR61/6F22) or external power supply.
- **Safety Standards:** Complies with IEC1010-1, IEC1010-2-032, Pollution level 2, CAT III (600V).

3. SAFETY INFORMATION

To ensure safe operation and prevent electric shock or damage to the device, please observe the following safety precautions:

- Always disconnect the line being tested before opening the clamp sensor housing.
- Do not use the sensor on circuits exceeding AC600V line voltage.
- Ensure the battery compartment is securely closed during operation.
- Do not operate the device in wet environments or if it appears damaged.
- Refer to the applicable safety rules: IEC1010-1, IEC1010-2-032, Pollution level 2, CAT III (600V).
- Keep the device away from strong electromagnetic fields to avoid measurement interference.

4. PACKAGE CONTENTS

Verify that all items are present and undamaged upon unpacking:

- AC/DC Clamp Leakage Current Sensor (1 piece)
- 9V Battery (6F22, 1 piece)
- User Manual / Warranty Card / Certification (1 copy)



Image 1: The VTSYIQI ETCR007 clamp sensor, output cable, and user manual, shown partially in its packaging box.



Image 2: The VTSYIQI ETCR007 clamp sensor, its attached cable, and the user manual, displayed outside of the product box.

Your browser does not support the video tag.

Video 1: An unboxing video demonstrating the contents of the VTSYIQI ETCR007 package, including the clamp sensor and accessories.

5. SETUP

5.1 Battery Installation

1. Locate the battery compartment cover on the back of the sensor.
2. Open the cover and insert the provided 9V (6F22) battery, ensuring correct polarity.
3. Close the battery compartment cover securely.

5.2 Connecting the Output Wire

The sensor comes with an integrated output cable. The core wire provides the signal positive output, and the shielding wire serves as the signal ground. Connect the BNC plug of this cable to a compatible measuring instrument (e.g., digital multimeter, oscilloscope, power quality analyzer).



Image 3: A detailed view of the BNC connector at the end of the sensor's output cable, ready for connection to a measuring device.

6. OPERATION

6.1 Powering On and Range Selection

1. Locate the POWER switch on the sensor.

- Slide the switch to select the desired output range: **10mV/A** or **100mV/A**. The "OFF" position powers down the device.
- The selected range determines the output voltage per ampere of measured current. For example, 100mV/A means 100mV output for every 1A of current.



Image 4: A close-up view of the sensor's control panel, showing the power switch with 10mV/A, 100mV/A, and OFF positions.

6.2 Zero Calibration

Before taking measurements, especially for DC current or leakage current, it is crucial to perform a zero calibration to eliminate external electric field interference and ensure accuracy.

- Ensure no current is flowing through the clamp jaw.
- Locate the ZERO adjustment knob (often a rotary knob) on the sensor.
- Rotate the knob until the connected measuring instrument displays zero current.



Image 5: A detailed view of the clamp jaw and the area where the zero adjustment knob is typically located, indicated by a yellow arrow symbol.

6.3 Taking Measurements

- Open the clamp jaw by pressing the trigger.
- Place the wire carrying the current to be measured inside the center of the clamp jaw. Ensure only one conductor is within the jaw for accurate measurement.
- Release the trigger to close the clamp jaw securely around the conductor.
- Read the current value from your connected measuring instrument, applying the selected output ratio (e.g., if 100mV/A is selected and the instrument reads 500mV, the current is 5A).
- For optimal accuracy, ensure the tested wire is positioned in the jaw's center.



Image 6: Side profile of the VTSYIQI ETCR007 clamp sensor, showing the ergonomic design for gripping and clamping around a conductor.

7. SPECIFICATIONS

Parameter	Value
Function	Measurement of AC/DC current, leakage current
Power Supply	9V Battery (6LR61/6F22), or external power supply
Battery Life	Approx. 100 hours continuous use
Test Mode	Clip-on CT, non-contact measurement
Clamp Size	φ7mm
Input Range	0mA - 60.0A AC/DC
Output Voltage	10mV/A; 100mV/A (corresponding)

Parameter	Value
Output Range	1V peak max
Resolution	1mA AC/DC
Accuracy	±3%FS (23°C ±5°C, below 5%RH)
Phase Error	≤3° (AC 50Hz/60Hz; 23°C ±2°C)
Calibration	Adjust ZERO to calibrate
Output Wire Length	2m
Dimensions (LWH)	168mm × 65mm × 34mm
Frequency (AC)	45Hz - 400Hz
Frequency (DC)	DC - 100kHz
Test Position	Tested wire in the jaw center
Line Voltage	AC600V
Weight	170g (including battery)
Working Current	5mA
Working Temperature	-10°C to 50°C
Working Humidity	Below 80%RH
Storage Temperature	-10°C to 60°C
Storage Humidity	Below 70%RH
Insulating Strength	AC3700V/rms (between alloy of clamp and housing)
Applicable Safety Rules	IEC1010-1, IEC1010-2-032, Pollution level 2, CAT III (600V)



Image 7: The back of the sensor, displaying a product label with model information, specifications, and a barcode (00770112).

8. MAINTENANCE

- **Cleaning:** Use a soft, dry cloth to clean the sensor. Do not use abrasive cleaners or solvents.
- **Storage:** When not in use for extended periods, remove the battery to prevent leakage. Store the device in a dry environment, away from direct sunlight and extreme temperatures.
- **Battery Replacement:** Replace the 9V battery when the power indicator light dims or the device fails to power on.
- **Calibration:** Regular calibration by a qualified technician is recommended to maintain measurement accuracy, especially after prolonged use or if accuracy is suspected to have drifted.

9. TROUBLESHOOTING

Problem	Possible Cause	Solution
Device does not power on	Dead or incorrectly installed battery	Check battery polarity, replace with a new 9V battery.
Inaccurate readings	<ul style="list-style-type: none"> - Improper zero calibration - Tested wire not centered in jaw - External electromagnetic interference - Multiple conductors in jaw 	<ul style="list-style-type: none"> - Perform zero calibration before measurement. - Ensure wire is centered. - Move away from strong magnetic fields. - Ensure only one conductor is clamped.
No output signal	<ul style="list-style-type: none"> - Loose or faulty output cable connection - Measuring instrument not configured correctly 	<ul style="list-style-type: none"> - Check cable connection to both sensor and measuring instrument. - Verify measuring instrument settings (e.g., input type, range).

10. WARRANTY AND SUPPORT

This VTSYIQI ETCR007 AC/DC Clamp Leakage Current Sensor comes with a **1-year warranty** from the date of purchase, covering defects in materials and workmanship under normal use.

For technical support, warranty claims, or service inquiries, please contact the manufacturer:

- **Manufacturer:** VETUS INSTRUMENTS
- **Contact Email:** ericbai@vetusgroup.cn

Please retain your purchase receipt as proof of purchase for warranty purposes.