SOSODBBM TAC4371CT

SOSODBBM TAC4371CT Three-Phase Multi-Function Energy Meter User Manual

Model: TAC4371CT

1. Introduction

The SOSODBBM TAC4371CT is a three-phase multi-function energy meter designed for comprehensive energy monitoring. This device accurately measures and analyzes various power parameters, making it suitable for applications such as photovoltaic inverter monitoring, energy consumption analysis, and power management in industrial and commercial settings.

This manual provides essential information for the safe and efficient installation, operation, and maintenance of your TAC4371CT energy meter.

2. Safety Information

Please read and understand all safety instructions before installing or operating the device. Failure to comply with these instructions may result in electric shock, fire, or damage to the product.

- Installation and maintenance should only be performed by qualified personnel.
- Ensure that all power is disconnected before performing any wiring or installation procedures.
- Verify correct wiring connections to prevent damage to the meter or connected equipment.
- Do not operate the device in environments exceeding its specified operating temperature or humidity ranges.
- Do not open the meter casing; there are no user-serviceable parts inside.

3. Package Contents

Verify that all items are present and undamaged upon unpacking:

- 1 x SOSODBBM TAC4371CT Three-Phase Multi-Function Energy Meter
- 3 x Current Transformers (CTs), 100A/5A (16mm aperture)

4. Product Overview

The TAC4371CT series meters are designed for accurate measurement and analysis of various electrical parameters in three-phase systems. Key functionalities include:

- Measurement of voltage, current, active power, reactive power, apparent power, power factor, and frequency.
- Four-quadrant energy measurement (import/export active and reactive energy).
- Harmonic content analysis.
- Monthly and daily electricity consumption statistics.
- RS485 communication interface for integration with SCADA, control systems, and energy management systems.

Figure 4.1: Front view of the TAC4371CT energy meter and included 100A current transformers.

Figure 4.2: Rear view of the TAC4371CT meter, illustrating the terminal block for wiring connections and the RS485 communication port.

5. Specifications

Parameter	Value
Model Number	TAC4371CT
Phase	Three Phase
Frequency	45 ~ 65 Hz
Rated Voltage (L-N)	230 Vac
Rated Voltage (L-L)	400 Vac
Measured Voltage Range (L-N)	30 to 300 Vac
Measured Voltage Range (L-L)	30 to 500 Vac
Max Operating Current (Meter)	50A - 79A (via CTs)
Current Transformers (CTs)	3 x 100A/5A (16mm aperture)
Total Active Energy Range	0 to 99999999.999 kWh
Accuracy Class	1
Display Type	LCD
Communication Interface	2-wire RS485
Default Baud Rate	9600 bps
Operating Temperature	-25 to +55 °C
Dimensions (L x W x H)	72 x 100 x 66 mm
Power Supply	AC

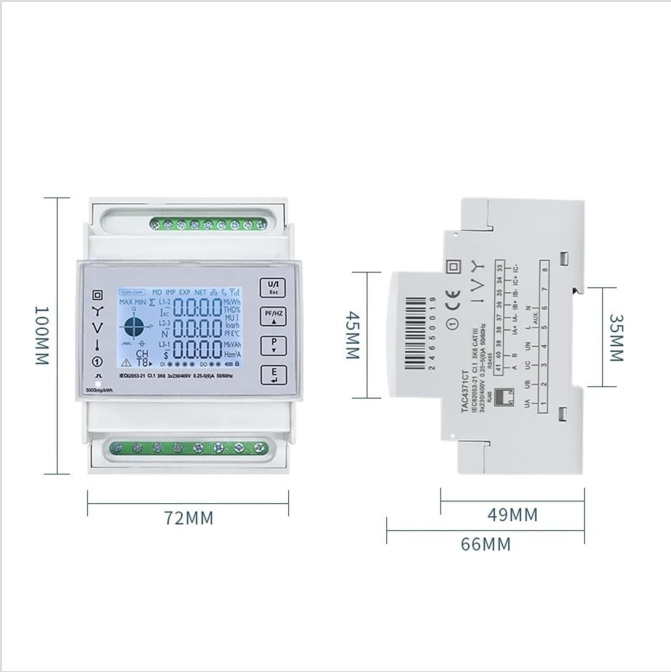

Figure 5.1: Dimensional drawing of the TAC4371CT meter, showing key measurements for installation planning.

6. Installation

6.1 Mounting

The TAC4371CT meter is designed for DIN rail mounting. Ensure the mounting location is free from excessive vibration, moisture, and direct sunlight, and within the specified operating temperature range.

1. Securely attach a standard 35mm DIN rail in the desired location.
2. Clip the meter onto the DIN rail, ensuring it is firmly seated.

6.2 Wiring Connections

All wiring must be performed with the main power supply disconnected. Refer to the wiring diagram (if available in product packaging) for specific terminal assignments. The meter typically requires connections for voltage inputs, current transformer inputs, and RS485 communication.

- **Voltage Inputs:** Connect the three-phase voltage lines (L1, L2, L3) and Neutral (N) to the corresponding voltage input terminals on the meter.
- **Current Transformer (CT) Inputs:** For each phase (L1, L2, L3), pass the respective phase conductor through one of the provided 100A/5A CTs. Connect the secondary wires of each CT to the corresponding current input terminals on the meter. Ensure correct polarity (P1/K and P2/L markings on CTs, and corresponding terminals on the meter). Incorrect polarity will result in negative power readings.
- **RS485 Communication:** Connect the RS485 A and B wires from your communication network to the designated RS485 terminals on the meter.

After completing all wiring, double-check connections for correctness and tightness before restoring power.

7. Operation

7.1 Display and Navigation

The TAC4371CT features an LCD display and several buttons for navigating through measurement parameters and settings.

- **Display:** The LCD shows various electrical parameters such as voltage, current, power, energy, and harmonics.
- **Buttons:** Typically, buttons are used to scroll through different display screens, access menus, and confirm selections. Refer to the meter's front panel for button labels (e.g., U/I, PF/HZ, P, E, Esc).

7.2 Reading Parameters

Upon power-up, the meter will typically display a default parameter. Use the navigation buttons to cycle through the available measurement screens. Common parameters include:

- Voltage (L-N, L-L)
- Current (L1, L2, L3)
- Active Power (Total, per phase)
- Reactive Power (Total, per phase)
- Apparent Power (Total, per phase)
- Power Factor
- Frequency
- Total Active Energy (kWh)
- Total Reactive Energy (kVarh)
- Harmonic Distortion (THD)

7.3 RS485 Communication

The meter supports RS485 communication for remote data acquisition and control. The default baud rate is 9600 bps. For detailed communication protocols and register maps, refer to the separate communication protocol document or contact technical support.

8. Maintenance

The TAC4371CT energy meter is designed for long-term, maintenance-free operation. However, periodic checks are recommended to ensure optimal performance:

- **Cleaning:** Keep the meter's display and casing clean using a soft, dry cloth. Do not use abrasive cleaners or solvents.
- **Connection Checks:** Periodically inspect wiring connections for tightness and signs of corrosion. Ensure all terminals are securely fastened.
- **Environmental Conditions:** Verify that the operating environment remains within the specified temperature and humidity limits.

No internal user-serviceable parts are present. Do not attempt to open or repair the meter.

9. Troubleshooting

If you encounter issues with your TAC4371CT meter, refer to the following common troubleshooting steps:

- **No Display/No Power:**
  - Check the main power supply to the meter.
  - Verify that voltage input connections are correct and secure.
- **Incorrect Current/Power Readings:**
  - Ensure CTs are correctly installed with the primary conductor passing through the aperture.

- Verify CT secondary wiring polarity (P1/K and P2/L). Reversed polarity will result in negative power readings.
- Confirm that the CT ratio setting in the meter (if configurable) matches the installed CTs (e.g., 100A/5A).

- **Communication Failure (RS485):**
  - Check RS485 wiring for correct A/B connections and continuity.
  - Verify that the baud rate and other communication parameters (parity, stop bits) match between the meter and the master device.
  - Ensure the meter's Modbus address is unique on the network.

If the problem persists after attempting these steps, contact SOSODBBM technical support for further assistance.

10. Warranty and Support

SOSODBBM products are manufactured to high-quality standards. For warranty information, please refer to the warranty card included with your product or visit the official SOSODBBM website. Technical support is available for assistance with installation, operation, and troubleshooting.

Please have your product model number (TAC4371CT) and purchase details ready when contacting support.