Acrel DTSD1352

Acrel DTSD1352 Three Phase Bidirectional Energy Meter User Manual

Model: DTSD1352 | Brand: Acrel (Manufactured by TGLGTQPX)

1. Introduction

This manual provides comprehensive instructions for the installation, operation, and maintenance of the Acrel DTSD1352 Three Phase Bidirectional Energy Meter. This device is designed for accurate measurement of three-phase energy consumption and generation, featuring RS485 communication for integration into monitoring systems. Please read this manual thoroughly before installation and operation to ensure safe and efficient use.

2. Safety Information

WARNING: Risk of Electric Shock!

- Installation and maintenance should only be performed by qualified electricians.
- Ensure all power is disconnected before installing or servicing the meter.
- Do not touch live terminals.
- Verify correct wiring connections to prevent damage to the meter or electrical system.
- The meter must be installed in a dry, well-ventilated area, free from excessive dust, corrosive gases, and direct sunlight.

3. Product Overview

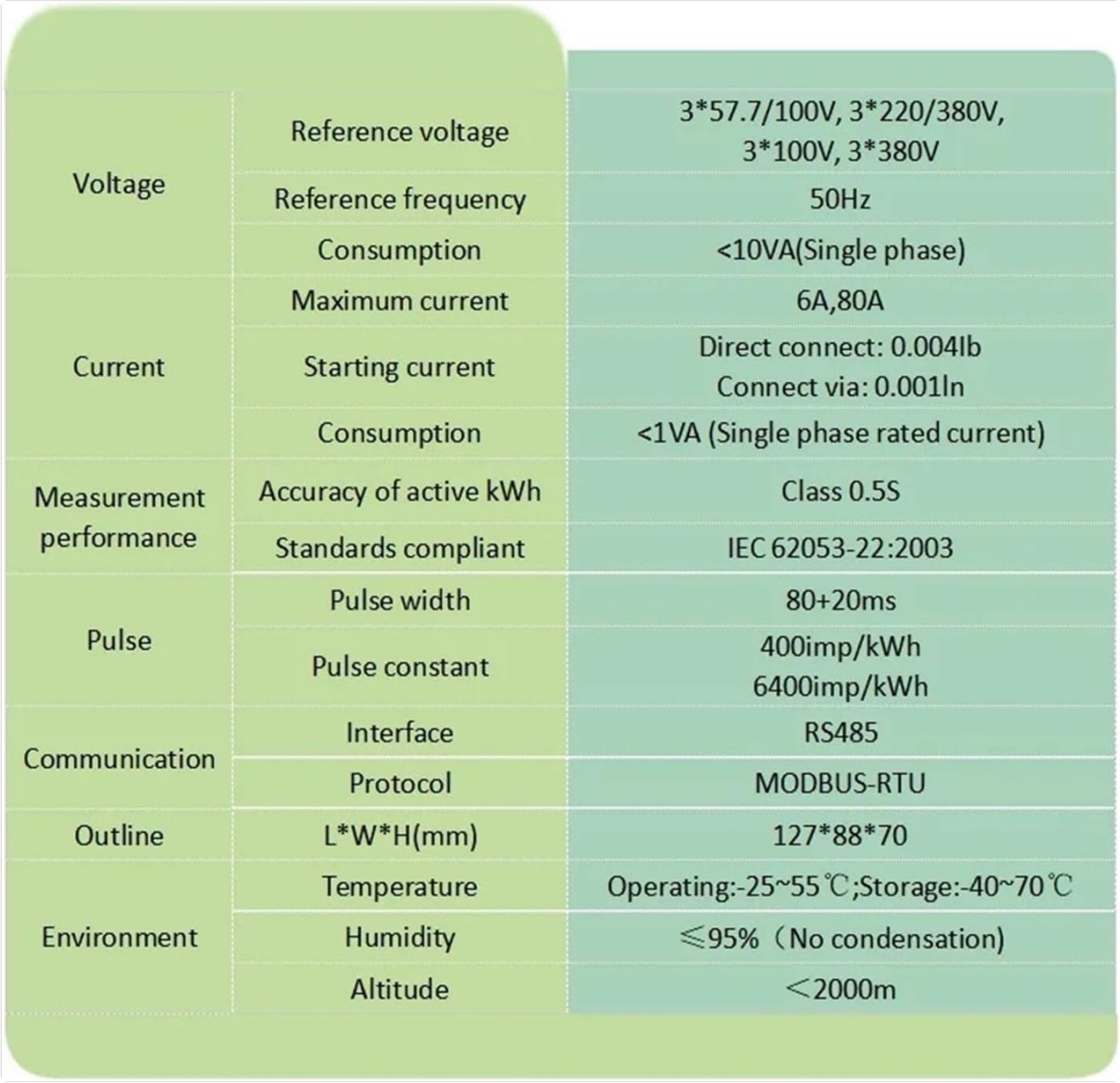
The Acrel DTSD1352 is a compact and robust three-phase multi-function energy meter. It features a clear LCD display for real-time data, intuitive control buttons, and various connection terminals.

Figure 3.1: Front view of the DTSD1352 meter. This image displays the main LCD screen showing power readings (e.g., 0.00 kW), the "SET" button, and three orange arrow buttons for navigation. Terminal blocks are visible at the top and bottom for electrical connections.

Figure 3.2: Angled view of the DTSD1352 meter. This perspective highlights the compact design and the various input/output terminals on the top and bottom, as well as the side labeling for model identification.

4. Specifications

The following table outlines the key technical specifications of the Acrel DTSD1352 energy meter. For detailed information, refer to the product datasheet.



Voltage	Reference voltage	3*57.7/100V, 3*220/380V, 3*100V, 3*380V
	Reference frequency	50Hz
	Consumption	<10VA(Single phase)
Current	Maximum current	6A,80A
	Starting current	Direct connect: 0.004Ib Connect via: 0.001In
	Consumption	<1VA (Single phase rated current)
Measurement performance	Accuracy of active kWh	Class 0.5S
	Standards compliant	IEC 62053-22:2003
Pulse	Pulse width	80+20ms
	Pulse constant	400imp/kWh 6400imp/kWh
Communication	Interface	RS485
	Protocol	MODBUS-RTU
Outline	L*W*H(mm)	127*88*70
Environment	Temperature	Operating:-25~55℃;Storage:-40~70℃
	Humidity	≤95%（No condensation)
	Altitude	＜2000m

Figure 4.1: Detailed technical specifications. This image presents a table covering various parameters such as reference voltage (3*57.7/100V, 3*220/380V, 3*380V), reference frequency (50Hz), maximum current (6A, 80A), accuracy (Class 0.5S), communication interface (RS485, MODBUS-RTU), dimensions (127*88*70 mm), and environmental conditions (operating temperature -25~55°C, humidity ≤95%).

Table 4.1: General Specifications

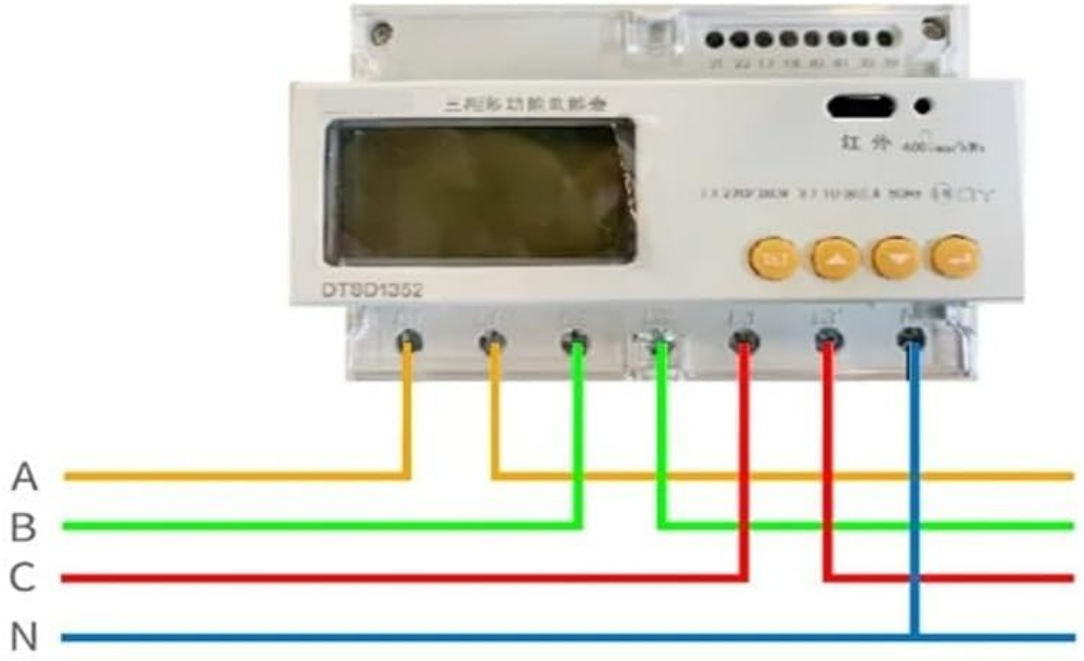
Parameter	Value
Reference Voltage	3*57.7/100V, 3*220/380V, 3*380V
Reference Frequency	50Hz
Maximum Current	6A, 80A (depending on model)
Accuracy of active kWh	Class 0.5S
Communication Interface	RS485
Communication Protocol	MODBUS-RTU
Dimensions (L*W*H)	127mm * 88mm * 70mm
Operating Temperature	-25°C to 55°C

Parameter	Value
Storage Temperature	-40°C to 70°C
Humidity	≤95% (No condensation)
Altitude	<2000m
Item Weight	7.1 ounces (approx. 200g)

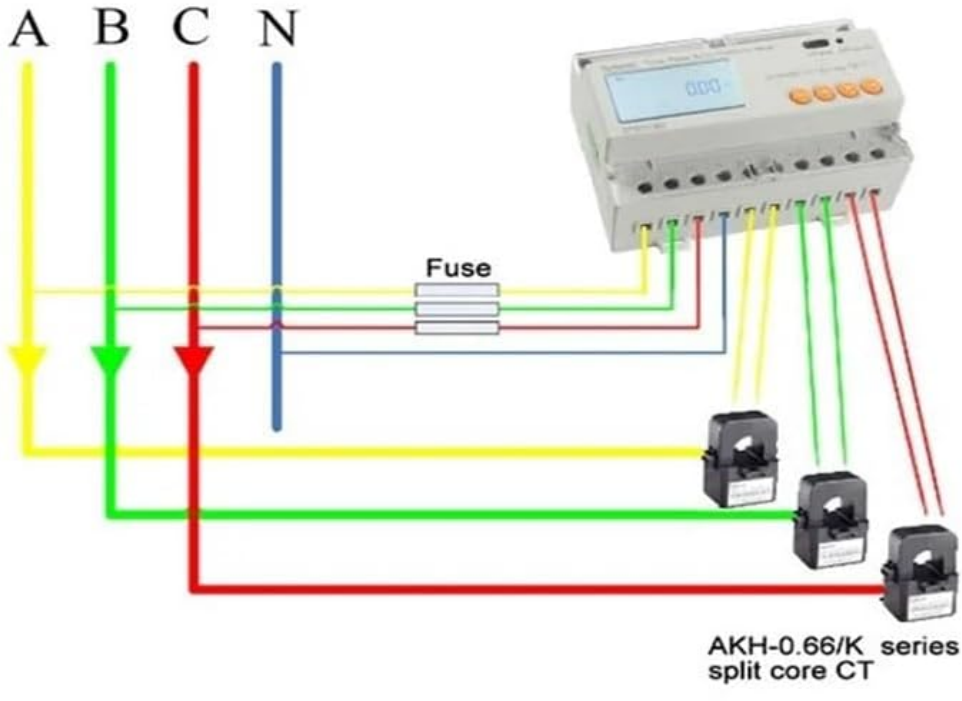
5. Installation and Wiring

Proper installation and wiring are critical for the accurate and safe operation of the DTSD1352 meter. Refer to the diagrams below for connection methods.

WIRING



3P4W Directly connection
Down in&down out



Connection via CTs

Figure 5.1: Wiring diagrams. This image illustrates two primary wiring methods: a 3-phase 4-wire (3P4W) direct connection where power lines (A, B, C, N) connect directly to the meter, and a connection via Current Transformers (CTs) for higher

current applications, showing the CTs connected to the respective phase lines and then to the meter.

5.1 Direct Connection (3P4W)

For direct connection, ensure the phase lines (A, B, C) and neutral (N) are connected to the corresponding terminals on the meter. This method is typically used for lower current applications where the meter can directly handle the load current.

- Connect Phase A to terminal 'A'.
- Connect Phase B to terminal 'B'.
- Connect Phase C to terminal 'C'.
- Connect Neutral to terminal 'N'.
- Ensure all connections are secure and properly insulated.

5.2 Connection via Current Transformers (CTs)

For higher current applications, the DTSD1352 meter can be connected via external Current Transformers (CTs). This method scales down the current to a measurable level for the meter.

- Install the CTs on each phase line (A, B, C).
- Connect the secondary windings of the CTs to the corresponding current input terminals (e.g., Ia*, Ia, Ib*, Ib, Ic*, Ic) on the meter.
- Ensure the polarity of the CTs is correct (P1/K to the source side, P2/L to the load side, and S1/S2 to the meter). Incorrect polarity will result in inaccurate readings.
- Connect the voltage inputs (Ua, Ub, Uc, N) directly from the respective phases and neutral to the meter.
- It is recommended to install a fuse on the voltage input lines for protection.

Important: Always ensure the CT secondary circuit is closed before applying power to the primary circuit. Never open the secondary circuit of a live CT.

6. Operation

Once installed and powered, the DTSD1352 meter will automatically begin measuring. The LCD display shows various parameters, which can be navigated using the control buttons.

6.1 Display Navigation

- **LCD Display:** Shows real-time measurements such as voltage, current, active power, reactive power, power factor, frequency, and total energy (kWh).
- **"SET" Button:** Used to enter the parameter setting mode or confirm selections.
- **Arrow Buttons (Left, Right, Up, Down):** Used to navigate through different display screens or adjust parameter values in setting mode.

6.2 Reading Energy Data

Press the arrow buttons to cycle through the various measurement screens. Common readings include:

- Total Active Energy (kWh)
- Forward Active Energy (kWh)
- Reverse Active Energy (kWh)
- Voltage (V) per phase
- Current (A) per phase

- Active Power (kW) per phase and total
- Reactive Power (kVar) per phase and total
- Power Factor (PF)
- Frequency (Hz)

6.3 RS485 Communication

The meter supports RS485 communication with MODBUS-RTU protocol. This allows for remote reading of meter data and configuration. Refer to the MODBUS communication protocol document for detailed register addresses and commands.

7. Maintenance

The DTSD1352 energy meter is designed for long-term, reliable operation with minimal maintenance. However, periodic checks are recommended.

- **Cleaning:** Keep the meter clean and free from dust. Use a soft, dry cloth for cleaning. Do not use abrasive cleaners or solvents.
- **Connections:** Periodically check all wiring connections to ensure they are tight and secure. Loose connections can lead to inaccurate readings or overheating.
- **Environment:** Ensure the operating environment remains within the specified temperature and humidity ranges.
- **Calibration:** The meter is factory calibrated. If you suspect inaccuracies, contact qualified service personnel for recalibration.

8. Troubleshooting

This section provides solutions to common issues you might encounter with the DTSD1352 meter.

Table 8.1: Troubleshooting Guide

Problem	Possible Cause	Solution
Meter display is blank.	No power supply to the meter.	Check the main power supply and wiring connections to the meter's voltage input terminals. Ensure fuses are intact.
Inaccurate energy readings.	Incorrect wiring, incorrect CT ratio setting (if applicable), faulty CTs, or meter malfunction.	Verify all wiring connections according to Section 5. Ensure CT polarity is correct. Check if the CT ratio programmed in the meter matches the physical CTs. If issues persist, contact technical support.
RS485 communication failure.	Incorrect wiring of RS485 terminals (A/B), incorrect communication parameters (baud rate, parity, address), or software issue.	Check RS485 A and B terminal connections. Verify communication settings (baud rate, data bits, stop bits, parity, meter address) in your master device match the meter's settings. Ensure proper termination resistors are used if necessary.
Meter shows "Error" or specific error codes.	Internal fault or specific operational issue.	Note down the error code and consult the full product manual or contact technical support for specific error code interpretations and solutions.

9. Warranty and Support

This product is manufactured by TGLGTQPX and sold under the Acrel brand. For specific warranty terms and conditions, please refer to the documentation provided at the time of purchase or contact your vendor. General support for the Acrel DTSD1352 meter can be obtained through the manufacturer's official channels or your authorized distributor.
For technical assistance, troubleshooting beyond this manual, or spare parts, please contact:

Manufacturer: TGLGTQPX

Product Brand: Acrel

Model: DTSD1352

(Contact information such as website or email would typically be provided here by the manufacturer.)

Related Documents - DTSD1352

	ADL100-ET Single-Phase Electric Meter Installation and Operation Instruction Manual Comprehensive installation and operation guide for the Acrel ADL100-ET single-phase electric meter. This manual details technical specifications, functional descriptions, wiring instructions, display menus, programming procedures, and communication protocols (Modbus RTU).
	Acrel ADL3000-E Smart Meter: Installation and Operation Manual Comprehensive installation and operation instructions for the Acrel ADL3000-E smart meter, covering technical specifications, wiring, display functions, and communication protocols.
	Acrel ACR10R Rail-type Multifunction Electrical Instrument with External Split Core Current Transformer - Use and Installation Manual This manual provides comprehensive instructions for the Acrel ACR10R series rail-type multifunction electrical instrument, including its specifications, functions, installation, programming, and RS485 MODBUS-RTU communication. It details technical parameters, connection modes, operation procedures, and troubleshooting guidance for industrial and commercial power monitoring applications.
	ATE V1.7 ATE 3-35kV 0.4kV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ATE 系列无线测温传感器
ATE series Wireless Temperature Sensor

安装说明 V1.9
Installation Instruction V1.9

Acrel Co., Ltd.

Acrel ATE Series Wireless Temperature Sensor Installation Instructions V1.9

This document provides installation instructions for the Acrel ATE series wireless temperature sensors, covering product overview, type introduction, technical features, installation methods for various models (ATE100M, ATE100, ATE200, ATE400), and wireless temperature coordinators (ATC450-C, ATC600). It details the specifications, installation procedures, and important precautions for using these sensors in electrical switchgear.