

Multifunction Power Meter

User Manual

Applied to:

SDT11L

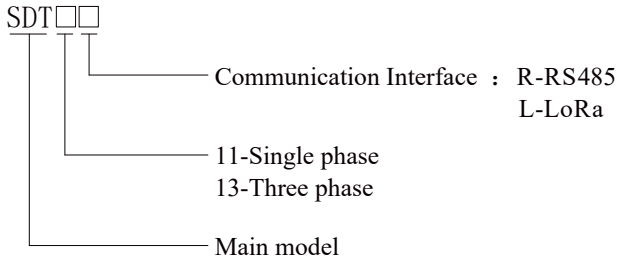
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1. Product introduction

1.1 Overview

Puncture-mounted power meters can measure single-phase or three-phase loop power grid parameters, including voltage, current, power, frequency, energy, demand, limits, total harmonic distortion, 2-31 harmonic content, voltage and current imbalance and other parameters. The meter adopts the open current transformer access method, which supplies power to the entire instrument and measures the full power parameter through the puncture method. The product can be installed without interrupting power. The instrument communication can use LoRa wireless or RS-485 interface, and the communication protocol adopts ModBus-RTU Protocol.

1.2 Model Selection



Model	Single phase
	SDT11L
V/A/F/P/Q/S/PF	•
Neutral current	-
Demand / Limits / Average	•
Load rate	•
THD	•
2 - 31 harmonic content	•

Voltage/current imbalance	•
Voltage/frequency deviation	•
Phase angle	•
Bidirectional energy	•
Tariff energy	•
Temperature	•
Max./min. value record	•
Data freezing	•
LoRa communication interface	•
RS485 communication interface	-

2 Technical specification

2.1 Technical parameter

Working environment conditions	
Operating temperature	-10°C -- 55°C
Storage temperature	-25°C -- 70°C
Relative humidity	≤95%RH, non-condensing
Working altitude	≤2500m
Antifouling level	No corrosion gas
Protection grade	Panel IP54, case IP20
Insulation	Resistance of the signal, power and output terminal to the shell is >100MΩ
Withstand voltage	Input and power supply≥2kV, input and output≥2kV, power supply and output≥2kV
Working power supply	
Nominal range	AC/DC (80~270) V
Consumption	≤5VA
Withstand voltage	≥2kV
Voltage input	
Range	3×230/400V

Resolution	0.1 V	
Impedance	$\geq 1.7 \text{ M}\Omega/\text{phase}$	
Consumption	$\leq 0.1 \text{ VA /phase}$	
Overload	Continuous: $1.2V_n$, Instantaneous: $2V_n/10s$	
Frequency	45-65 Hz	
Current input		
Range	50 (600) A	
Resolution	1 mA	
Impedance	$\leq 20\text{m}\Omega/\text{phase}$	
Consumption	$\leq 0.2 \text{ VA /phase}$	
Overload	Continuous: $1.2I_n$, Instantaneous: $10I_n/5s$	
Energy pulse output		
Pulse width	80ms \pm 20%	
Port maximum voltage	35V	
Port maximum current	10mA	
Pulse frequency	$\leq 10\text{Hz}$	
Output object	Import active energy, import reactive energy	
Communication interface		
Physical interface	RS-485	LoRa
Baud rate	Up to 9600bps	Up to 9600bps
Communication protocol	Modbus-RTU	Modbus-RTU
Insulation voltage	2000 VAC (1 min)	--
Electromagnetic compatibility		
Electrostatic discharge immunity	Level IEC 61000-4-2-III	
Radiated susceptibility	Level IEC 61000-4-3-III	
Electrical fast transient pulse immunity	Level IEC 61000-4-4-IV	
Shock (surge) noise immunity	Level IEC 61000-4-5-IV	
Conducted interference noise immunity of radio frequency field induced conduction	Level IEC 61000-4-6-III	
Power frequency magnetic field immunity	Level IEC 61000-4-8-III	
Voltage sag and short interruption immunity	Level IEC 61000-4-11-III	

2.2 Measurement parameters

The following table lists the correlation variable that can be measured, including basic electrical quantities and further calculations.

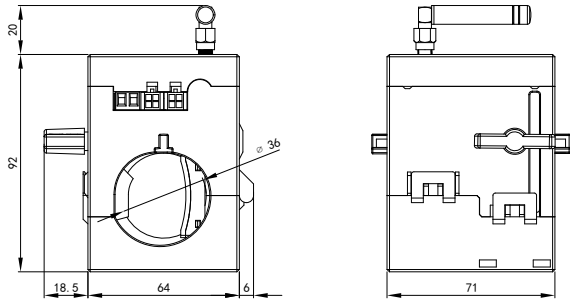
Measurement function	Accuracy level	Real-time	Limits	Demands	Average
Voltage	0.5	•	•	—	•
Current	0.5	•	•	•	•
Frequency	±0.01Hz	•	•	—	
Split-phase active power	1	•	•	•	
Total active power	1	•	•	•	
Split-phase reactive power	1	•	•	—	
Total reactive power	1	•	•	—	
Split-phase apparent power	1	•	•	—	
Total apparent power	1	•	•	—	
Split-phase power factor	1	•	•	—	
Total power factor	1	•	•	—	
Demands					
Total harmonic distortion rate	Level B	•			
2-31 harmonic content	Level B	•			
Voltage imbalance		•			
Current imbalance		•			
Voltage deviation		•			
Frequency deviation		•			
Phase angle		•			
Import/export active energy	1	•	—	—	
Import/export reactive energy	2	•	—	—	
Tariff energy	1	•	—	—	
Puncture point temperature	±2°C	—	—	—	

Notes: "•" Yes; "—" No.

3. Installation and wiring

3.1 Dimensions

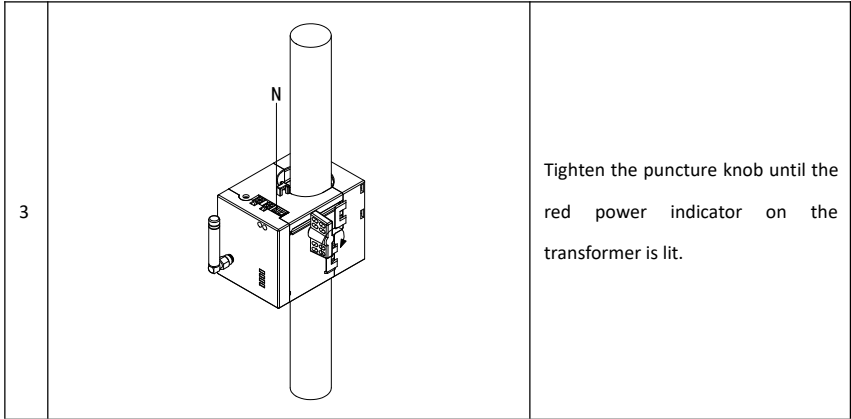
3.1.1 SDT11L



3.2 Installation

3.2.1 SDT11L installation

1		<p>Connect the N line to the Un wiring hole of the SDT11.</p>
2		<p>Open the puncture transformer, and connect the transformer to the cable and close the transformer and tighten screws. If the cable diameter is small, the cable can be fixed with a tie.</p> <p>Make sure that the current direction of the cable is consistent with the arrow on the transformer.</p>



Note: In the field installation, it is recommended to use insulating gloves to operate to prevent electric shock.