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DE53LR

Product Datasheet



Version V1.01

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About this document

This document focuses on LoRa Rail-mounted Three-Phase Power Measurement Actuator DE53LR of the specification parameters.

Product selection

Model	Frequency band	Current transformer
DE53LR REV.B(LC22S-1B1T4Y,60A)	430-510MHz	60A: 40mA, change ratio 1500: 1
DE53LR REV.B(LC22S-1B1T4Y,120A)	430-510MHz	120A: 40mA, change ratio 3000: 1
DE53LR REV.B(HC22S-1B1T4Y,60A)	860-928MHz	60A: 40mA, change ratio 1500: 1
DE53LR REV.B(HC22S-1B1T4Y,120A)	860-928MHz	120A: 40mA, change ratio 3000: 1

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1. Version information

Date	Version	Updated content
2023.12.07	V1.00	Create this document
2023.12.11	V1.01	Additional Product Selection

2. Packing list

Serial number	Name	Number
1	LoRa triphase electric measuring actuator	1
2	EUI Copy	3
3	Certificate	1
4	Suction cup antenna	1
5	Current transformer	3

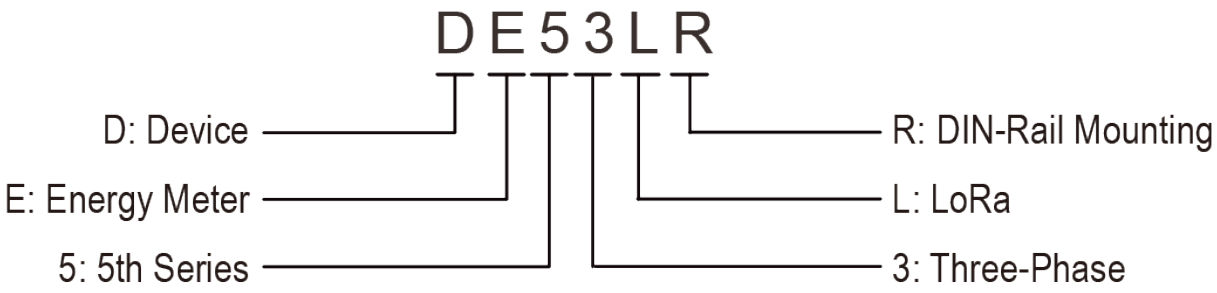
3. Product Overview

DE53LR is an external open and close transformer rail type three-phase electrical testing actuator based on Sub1G wireless transmission technology, which is suitable for power monitoring and power demand side management of distributed photovoltaic grid-connected cabinets. The utility model has the characteristics of no need to dismantle a busbar, simple and convenient wiring, safe construction, and saving transformation cost for users.

The device integrates the measurement of all power parameters as well as power monitoring functions. At the same time, it has a variety of peripheral interface functions for users to choose: with RS-485 communication interface, Sub-1G wireless communication interface, Modbus-RTU protocol can meet the needs of communication network

management; Four relay outputs can realize the function of remote on-off of circuit breaker switch. The OLED display interface is adopted and the panel buttons are used to realize the parameter view and control, which is very suitable for the real-time power supervisory control system. Supports BLE near-field wireless communication function, and can connect devices through mobile phones to realize parameter configuration and real-time power parameter monitoring, which provides great convenience for on-site operation and maintenance and deployment.

4. Model Dxplaination



5. Basic functions

- Network mode: three phase four wire
- Frontal Voltage: 3L + N / 400V AC
- Voltage range: 0.7 ~ 1.2 Un
- Input frequency: 45 Hz ~ 65 Hz
- Input current: 60 A / 120A with external transducer, Default: 60 A / 40mA
- Static power consumption: power consumption ≤10VA
- Measurement parameters: three phase, each phase voltage / current / active power / reactive power / power factor / frequency
- Measurement: Four quadrant electric energy measurement
- Measurement accuracy: voltage, current 0.5S, active power0.5Level, reactive power level 2, frequency 0.05 Hz
- Pulse constant: 400imp / kWh (60A), 200imp / kWh (120A)
- Calibration output: open collector，Optocoupler pulse output

6. Product function

- Built-in clock: independent RTC real-time clock, with calendar, power down protection

- Display mode: 128 × 64 pixel OLED, support two-dimensional code display, Chinese operation interface, key operation
- Switch output: 4 DO outputs, support remote control
- Wireless communication: WiFi communication, data rate 54 Mbps, support IPv6 link, MQTT / TCP / UDP
- Wired communication: 1 RS-485, Modbus-RTU, maximum speed 9600 bps, maximum cable length 1000 m
- Configuration: BLE Bluetooth, RS-485 / WiFi distribution network can be configured with Mini programs, power parameter reading
- Firmware maintenance: WiFi fota remote upgrade, BLEfota near field upgrade, Type-C local upgrade
- Wide area network: Sub-1G
- Security features: password protection measures to prevent unauthorized personnel from modifying operating parameters
- Carbon Meter: Support for carbon emissions statistics and display in the interface

7. Product characteristics

- Open and closed CT, simple and safe construction
- Sub-1G wireless communication, following the Modbus-RTU protocol
- Support 4-way relay output, can control 4-way contactor on and off

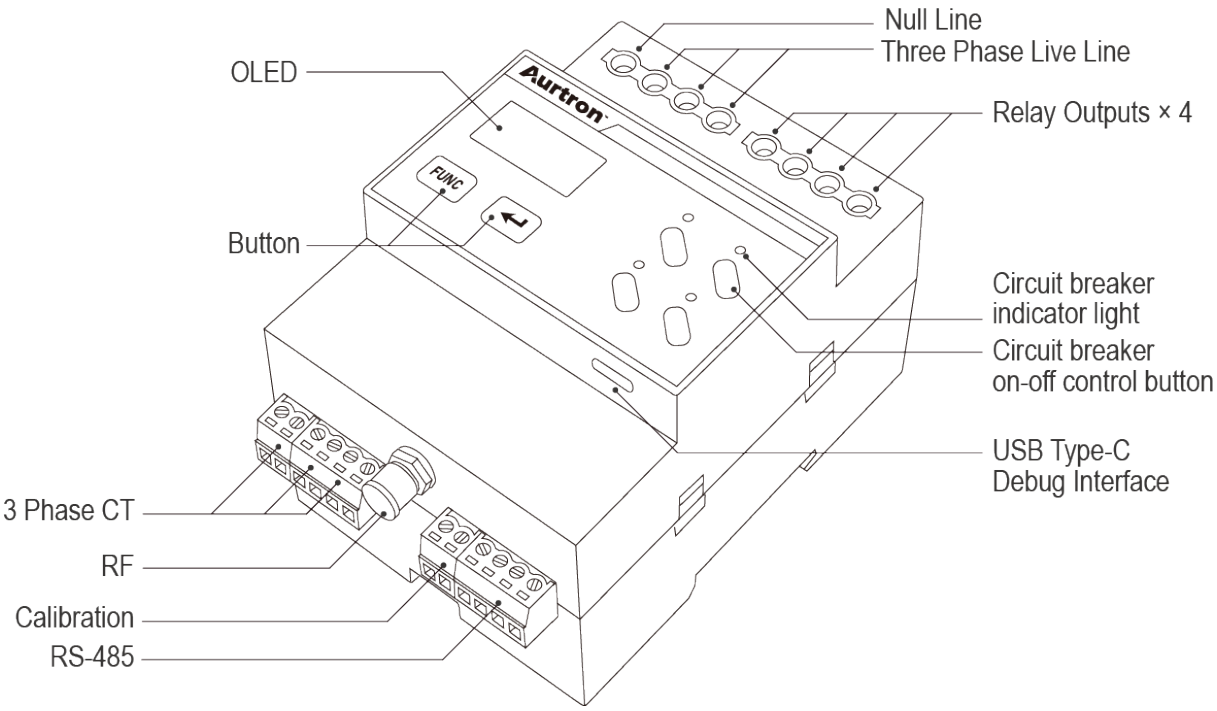
8. Environmental parameters

- Working temperature: -10 °C ~ + 55 °C (limit: -20 °C to + 65 °C)
- Storage temperature: -45 °C ~ + 85 °C
- Relative humidity: 5% ~ 95% RH, no condensation
- Altitude: ≤2500 m

9. Application environment

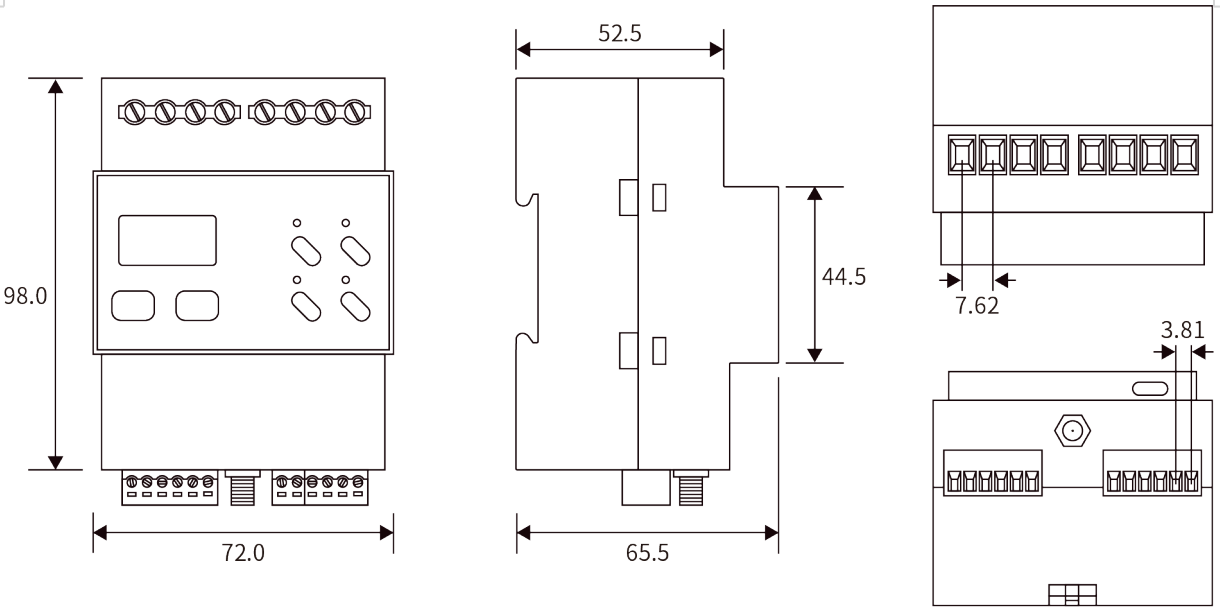


10.Hardware interface

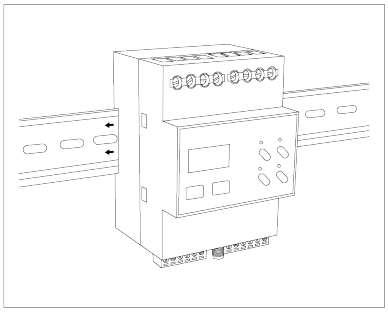


Port name	Function Dxplaination	Port name	Function Dxplaination
UN	UN Zero Line	IA	A phase transducer interface
UA	UA Firewire	IA	A phase transducer interface
UB	UB Firewire	IB	B phase transformer interface
Uc	Uc Firewire	IB	B phase transformer interface
Y0	Relay output	IC	C phase transducer interface
Y1	Relay output	IC	C phase transducer interface
Y2	Relay output	E	Calibration interface
Y3	Relay output	E	Calibration interface
--	--	N.C.	The manufacturer reserves
--	--	N.C.	The manufacturer reserves
--	--	A	RS-485 A
--	--	B	RS-485 B

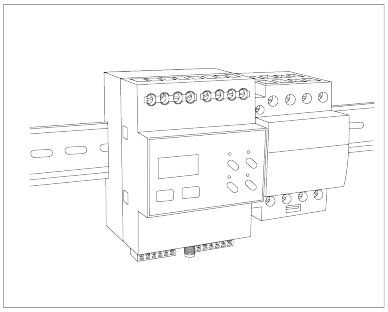
11.Mechanical dimensions



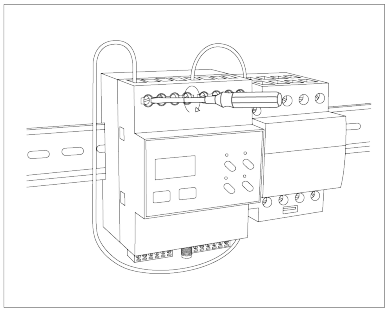
12. Installation instructions



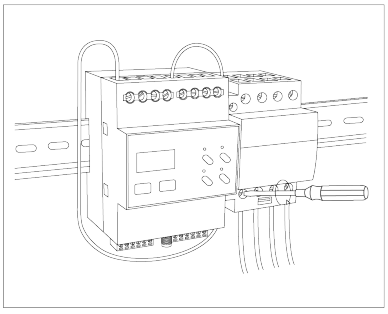
❶ DE53LR installed on the guide rail



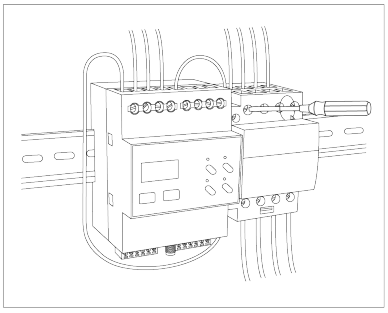
❷ The contactor is installed on the guide rail



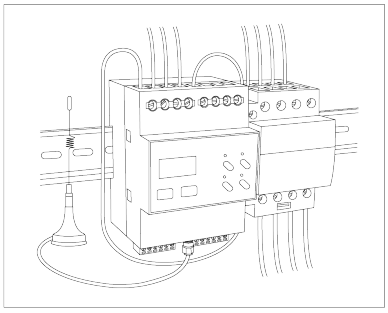
❸ Connect Y0 and zero line between DE53LR and contactor



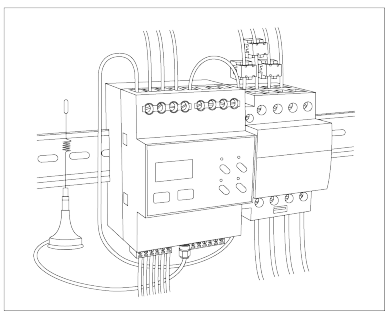
❹ Contactor connected to load line



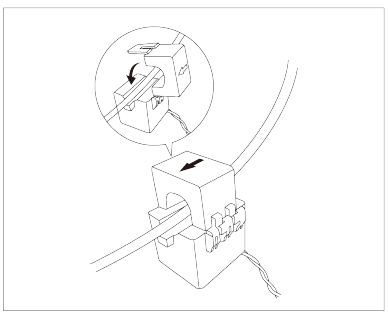
❺ Both DE53LR and contactor are connected to the power line



❻ DE53LR connected to LoRa antenna



❼ Install a current transformer on DE53LR and buckle it onto the power line of the contactor



❽ Note that the installation direction of the transformer is the same as the current direction