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Low-power Edge gateway

Product Specification

Model:USR-SC150



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1. Product

The USR-SC150 is a new low-power scenario-specific DTU (Data Acquisition Terminal) developed by Jinan Youren Internet of Things Technology Co., Ltd. This rail-mounted device combines traditional sensor data acquisition with remote transmission, featuring advanced low-power operation logic for genuine energy efficiency. Capable of integrating with solar photovoltaic power systems, it maintains stable operation even during prolonged rainy weather. Designed to industrial standards, it supports wide-voltage terminal power supply and integrates mainstream communication interfaces including RS485 and AI. Compatible with TCP and MQTT network protocols for standard IoT platform integration, it enables local Modbus RTU autonomous polling and edge computing, with proactive JSON data reporting to facilitate remote field equipment data collection. Widely applicable to low-power scenarios such as urban lifelines, smart farming, intelligent industries, and smart agriculture.

2. Product Features

The Cortex-M33 core features a low-power mode, ensuring stable and reliable performance.

Supports sensor power control with smart power-saving features including sleep/wake cycles, significantly reducing energy consumption.

Integrated with RS485, AI, and DI interfaces, it supports data acquisition from multiple sensors.

DIP switch for flexible mode adjustment and quick parameter configuration

Supports edge computing capabilities, enabling edge data collection and JSON reporting via the Modbus protocol.

Supports edge-side change threshold reporting to enable real-time alerts for out-of-bound conditions and enable rapid response.

Supports integration with third-party cloud platforms via TCP and MQTT, enabling seamless device cloud migration.

Supports standard MQTT and SSL/TLS encryption, and can connect to mainstream cloud platforms such as Alibaba Cloud and Huawei Cloud.

Supports connection to Renyun, enabling configuration and monitoring of Renyun, as well as device status tracking and remote upgrades.

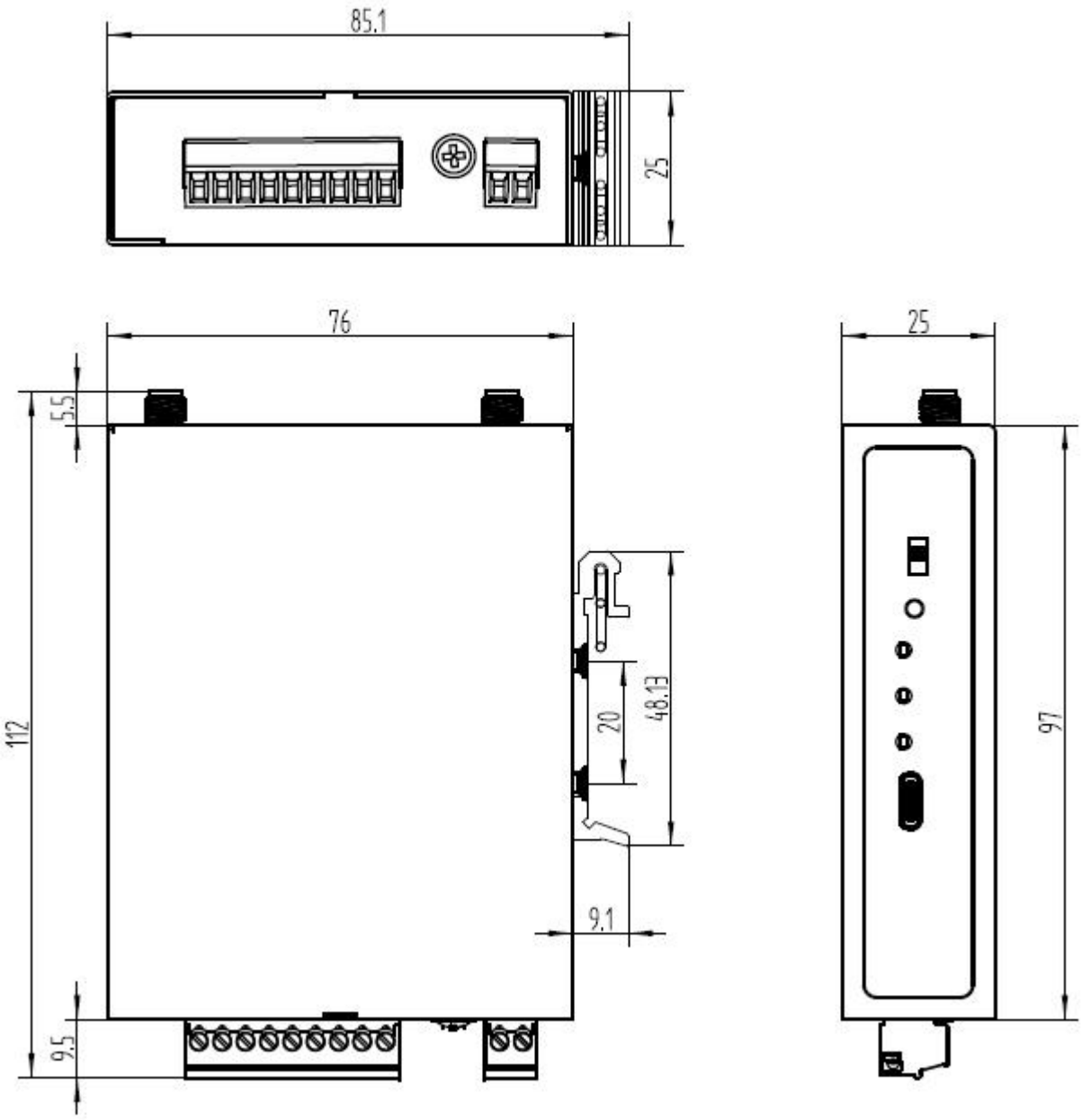
Simple and user-friendly, supports WeChat Mini Programs and DM platform management and configuration.

The serial port supports baud rates from 2400bps to 115200 bps and offers None, Odd, and Even parity modes.

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3. Product size

Product dimensions: 112*76*25 mm (L*W*H)



4. Hardware specifications

physical interface	Power supply input	DC 9- 36 V
	Power supply output	No output (default), 9~36VDC, with an external output power support of up to 10W
	analog interface	2 channels, default 4-20mA, 16-bit resolution
	RS485 interface	Protocol 1: Standard Modbus RTU data acquisition Stop bit: 1 (default), 2 Data bit: 8 Baud rate: 2400~115200 (default 9600) Check bit: EVEN, ODD, NONE (default)
	DI import	Supports DI input acquisition with DI and COM ports
	dial switch*	RUN/SLEEP mode adjustment
	antenna interface	External antenna, LET Cat1 standard
	TF block *	Supports up to 32GB TF card insertion
	SIM block	Card 1: Flip-type, standard Nano-SIM card, supports APN (hot-swappable) PAP, CHAP, PAP&CHAP, no authentication (default)
	Reload	When the module is running, press the button for 15 seconds. After releasing, the module will reset to factory settings and restart.
low power parameter	Collection interval	The time interval for external power supply data collection slave devices: 1 to 1440 minutes (default: 15 minutes)
	Report interval	Networked data upload time, 1 to 24 times the collection interval (default: 4 times)
	sensor power supply time	The data acquisition instrument powers the connected sensor for 3 to 30 seconds (default: 5 seconds).
	data cache	Supports off-network and local data caching
	power consumption mode	High-power mode: Collection interval ≤5 minutes, the device automatically enters high-power mode. Low-power mode: Collection interval>5 minutes, the device automatically enters low-power mode.
software function	NTP	NTP is enabled by default, with the default time zone set to Eastern Time (ET). For time zones-12 to 12, you can set the default. 12x NTP calibration reporting cycle, configurable from 1x to 24x
	communication protocol/platform	TCP, MQTT, and Youren Cloud support domain name resolution
	MQTT protocol	3.1, 3.1.1 (default), supports standard MQTT docking with Huawei Cloud, Alibaba Cloud, etc.
	SSL encryption	Supports SSL/TLS encryption and certificate verification
	Location reservation*	Keep GPS location
Hardware parameters	product size	112* 76* 25 mm
	way to install	guide rail installation
	work environment	5%~95% (no condensation), -25~7 5°C

Note: *Red marked functions are under development

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5. contact way

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Positioning: Trusted Smart Industrial IoT Partner

Some people have a vision: to become an ecological enterprise in the field of industrial Internet of Things

Some people have a mission: to connect value and value connection

Values: Integrity, Diligence, Critical Thinking, Seriousness, Innovation, Trust, Responsibility, Customer Service, Respect for Heaven and Love for People

Product Philosophy: Reliable, User-Friendly, and Affordable

6. Update History

Documentation Edition	Update content	refresh time
V1.0.0	editio princeps	2025-11-21

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