Compact RS-485 or RS-232 Serial Server

Model: FCT-1100-F1D1/FCT-1100-F1R1

F1D1：RS-485 / F1R1：RS-232

24 × 80 × 20 mm · 1 Fast Ethernet port

DC 9–50 V · Standard PD power supply optional



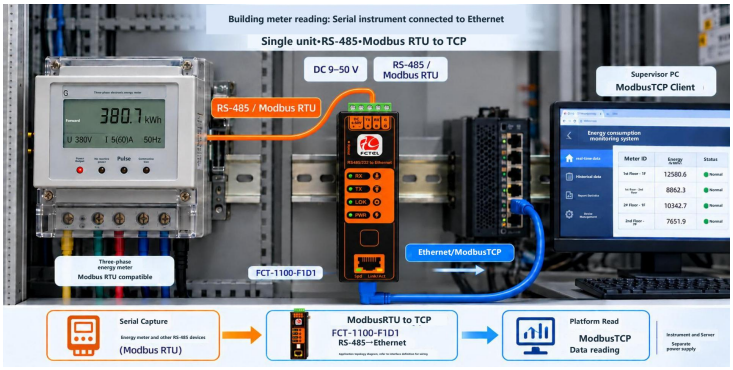
Product Overview

- Connect serial devices such as instruments and PLCs to Ethernet; support Modbus RTU to TCP, MQTT transparent transmission, and Modbus to JSON data packets.
- D1 corresponds to 1 RS-485 channel, R1 corresponds to 1 RS-232 channel; both hardware versions can be selected based on terminal interfaces for easy networking of field devices.
- 24 × 80 × 20 mm steel casing, supports rail mounting or wall mounting; optional standard PD, powered by server via network cable, reducing power wiring.

Key Features

- **Port Surge Protection** Power supply and RS-232 / RS-485: 6 kV
- **Existing Software** Virtual serial port / Socket, reduces software modification
- **Platform Integration** MQTT transparent transmission / Modbus to JSON
- **Parameter Adaptation** Supports custom baud rate matching the field terminal
- **Remote Management** Cross-routing, reconnection after network outage, remote upgrade
- **Multi-terminal access** Up to 4 TCP / UDP sessions
- **Displacement and Wiring** Long and thin steel casing; standard PD power supply optional

Single unit application - Network connection for building power distribution rooms

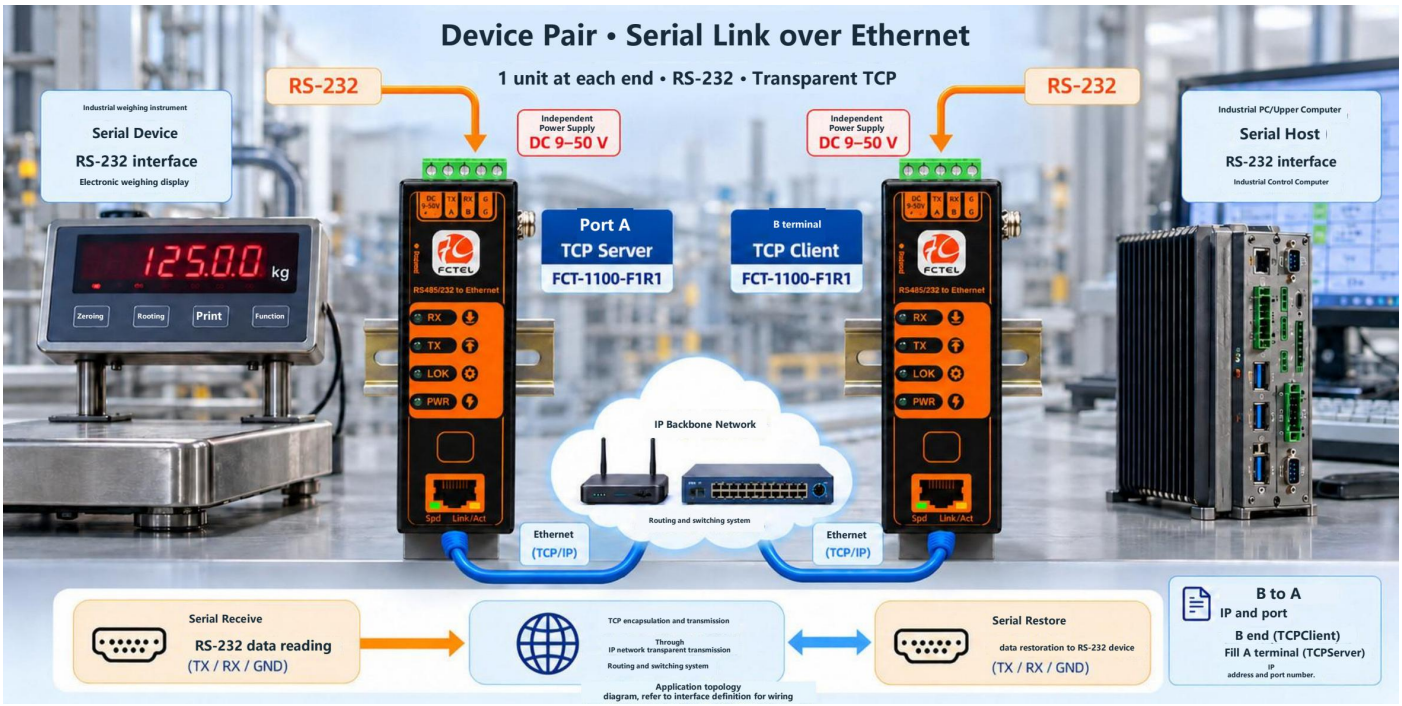


Example of D1 application: Electric meter connected to server via RS-485, upper computer collects data via Modbus TCP; instruments must support the corresponding protocol.

Illustration shows DC terminal power supply; PD version can draw power via compatible PSE network cable, instruments have independent power supply. Multiple session requests on the same serial port are coordinated by the upper system.

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Two devices connected in pairs for production weighing data networking

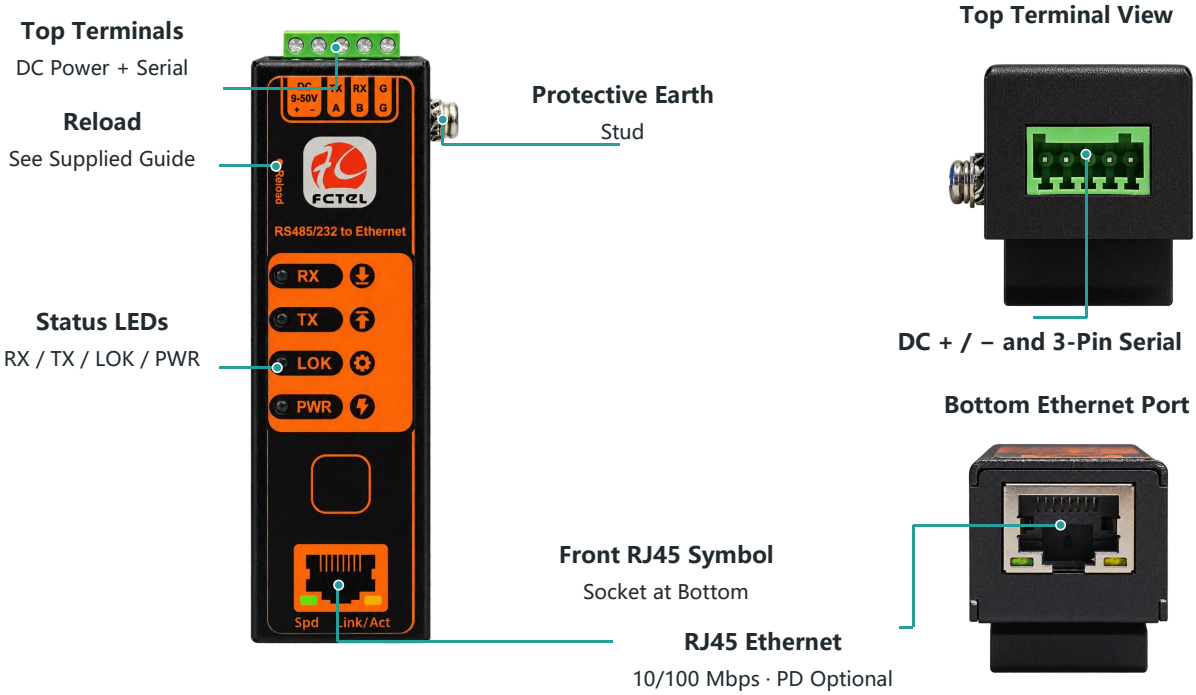


R1 application diagram: one RS-232 line at each end, using IP-based network for transparent transmission; serial port protocols at both ends must be compatible.

TCP Client connects to the IP and port of the TCP Server; the IP must be accessible and the access policy allows, and the baud rate and frame format must match the terminal.

Interfaces and Installation

Top section: 2-pin power + 3-pin serial port; PD optional version uses bottom RJ45 power input. D1 / R1 wiring must be verified according to the ordered model and label.



D1: A / B / GND; R1: TXD / RXD / GND. Only 1 serial port per unit; cannot mix different voltage levels.

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Technical Specifications

Hardware and Electrical

Item	Specification
Processor	ARM Cortex-M4, main frequency 240 MHz
Ethernet	1 × RJ45, 10/100BASE-T(X), full / half-duplex adaptive; Auto-MDI/MDIX
Serial port version	D1: 1-channel two-wire RS-485; R1: 1-channel RS-232
Serial port speed	D1: 300–921600 bps; R1: 300–256000 bps; support for custom baud rates
Top terminal	Power supply 2 bits + serial port 3 bits; 2.54 mm screwless terminals
Power supply / Power consumption	DC 9–50 V； < 2 W
PD power input (optional)	IEEE 802.3af/at standard PD; powered from compatible PSE via RJ45, data transmission via network cable.
Protection function	Terminal power supply and RS-232 / RS-485: 6 kV surge protection; overload and reverse connection protection
Body / Weight	Steel casing, no fan; 24 × 80 × 20 mm; 68.9 g / unit.
Mounting	35 mm rail or wall mount; mounting components to be supplied as per order
Operating / Storage temperature	-40 ℃ to +85 ℃
Operating humidity / MTBF	0%–95% RH, no condensation; > 100000 hours

Communications and Management

Item	Function
Network Protocol	TCP、UDP、ARP、ICMP、HTTP、DNS、DHCP、SNMP、MQTT
Operating Mode	TCP Server / Client； UDP Server / Client
Modbus conversion	Modbus RTU to Modbus TCP, for collection by upper-level machines over network
MQTT / JSON	Supports MQTT transparent transmission; supports Modbus to JSON data packet conversion
Application access	Virtual serial port driver, TCP/IP Socket; communication across gateways and routers.
Session Connection	Up to 4 TCP or UDP sessions per serial port; UDP supports single-machine or multi-machine communication
Data Framing	Supports serial data framing configuration
Operation monitoring	Serial port status and parameter monitoring; automatic reconnection on network interruption.
Configuration Management	Web, Windows tools, serial configuration; access control, quick configuration, SNMP network management.
Maintenance	Local and remote system firmware upgrade

Multiple sessions do not increase physical serial ports; requests from the same terminal are coordinated by the upper system. MQTT topics, message format, and Modbus registers are configured per item.

Location / Stamping	D1 version	R1 version
Power Supply + / –	DC 9–50 V positive / negative terminal	DC 9–50 V positive / negative terminal
Serial port TX / A, RX / B, G / G.	A（TX+） / B（TX−） / GND	TXD / RXD / GND

Mounting Hardware

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Wall-mounted mounting bar and mounting holes

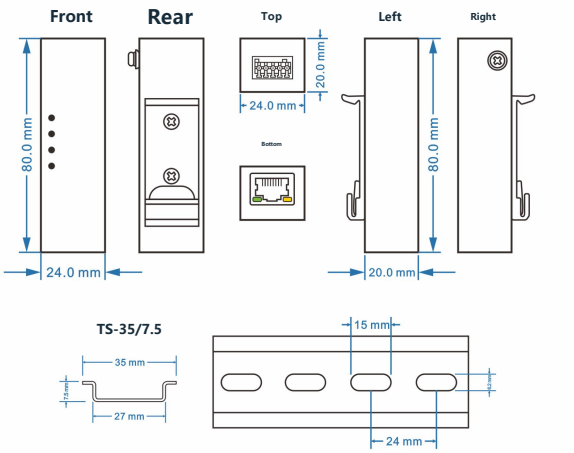


35 mm rail clamp

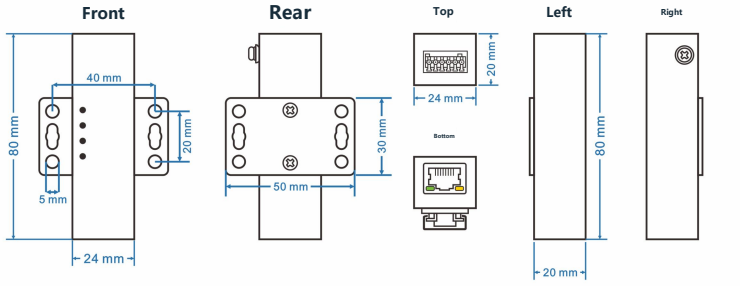


Body dimensions: 24 × 80 × 20 mm; space is reserved for top terminals, bottom network cable, and cooling; mounting parts are provided according to the order.

Dimensions and Mounting



Weight: 68.9 g



Body dimensions: 24 × 80 × 20 mm

Two installation methods: rail or wall-mounted

Wall-mounted hole spacing: 40 × 20 mm

Mounting parts and cables provided as per order

Rail mounting (left) and wall-mounted mounting (right); unit: mm. Space is reserved for top terminals, bottom network cable, and disassembly/assembly

Port Surge Protection

Interface or test item	Rating / Test Conditions	Protection Notes
DC terminal power	6 kV surge protection	Reduce lightning-induced surges and switch operation surges from power lines; also supports overload and anti-backswitch protection.
RS-232 / RS-485	Open-circuit peak voltage = 6 kV (open-circuit peak voltage)	Three-level surge protection; reduces lightning induction and switching surge risks on signal lines
Standards for serial device server surge protection testingGB/T 17626.5 (IEC 61000-4-5) surge immunity test; **Open-circuit voltage waveform:**10/700 μs； **Test source impedance:**40 Ω		

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Ordering Codes and Configuration

FCT-	1100-	F1	D1 / R1	-PD
Company and product type	Redundant industrial serial device server series	1 Fast Ethernet copper port	1 RS-485 / 1 RS-232 channel	Standard PD power supply option

D1 / R1 selected according to terminal interface; both models support PD; add -PD after the full model if optional, omit if not optional.

NO	Name	Definition
1	**Company and type**	FC = Feichang; T is the type identifier in this product model.
2	**Product Series**	1100 = This model is a 24 × 80 × 20 mm steel-case red-dot industrial serial device server series.
3	**Ethernet specifications**	F = Fast Ethernet copper port; F1 = 1 10/100 Mbps RJ45.
4	**Serial port specifications**	D = RS-485, D1 = 1 two-wire RS-485 channel; R = RS-232, R1 = 1 RS-232 channel.
5	**Power Supply Configuration**	Standard version: 2 terminals at the top for DC 9–50 V input; optional -PD: IEEE 802.3af/at standard PD, powered via RJ45 from compatible PSE.
6	**Installation and Accessories**	35 mm rail or wall-mounted; mounting components, network cables, serial cables, and PSE accessories for PD version to be confirmed upon order.

Ordering Examples

Full Model Code	Configuration	Confirm When Ordering
FCT-1100-F1D1	1 RS-485 line + 1 100 Mbps RJ45 line	DC 9–50 V; A / B / GND; mounting parts and cables
FCT-1100-F1R1	1 RS-232 line + 1 100 Mbps RJ45 line	DC 9–50 V; TXD / RXD / GND; maximum 256 kbps.
FCT-1100-F1D1-PD	1 RS-485 channel + 1 100 Mbps RJ45 channel; standard PD power supply	IEEE 802.3af/at; compatible with PSE; confirm power budget and installation accessories
FCT-1100-F1R1-PD	1 RS-232 channel + 1 100 Mbps RJ45 channel; standard PD power supply	IEEE 802.3af/at; compatible with PSE; confirm power budget and installation accessories

-PD is optional for server power supply only; does not supply power to instruments or PLCs; peripherals have independent power supply; PSE must comply with standards and meet power budget requirements.

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