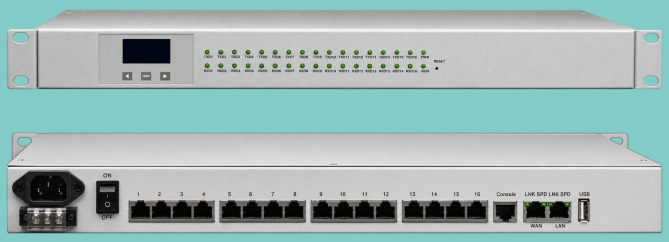
19-Inch Rackmount 16-Port Serial Server

Model: FCT-1700-F2S16

Up to 16 serial ports · dual 100 Mbps network ports
Web switching · MQTT / JSON · OLED display



Product Overview

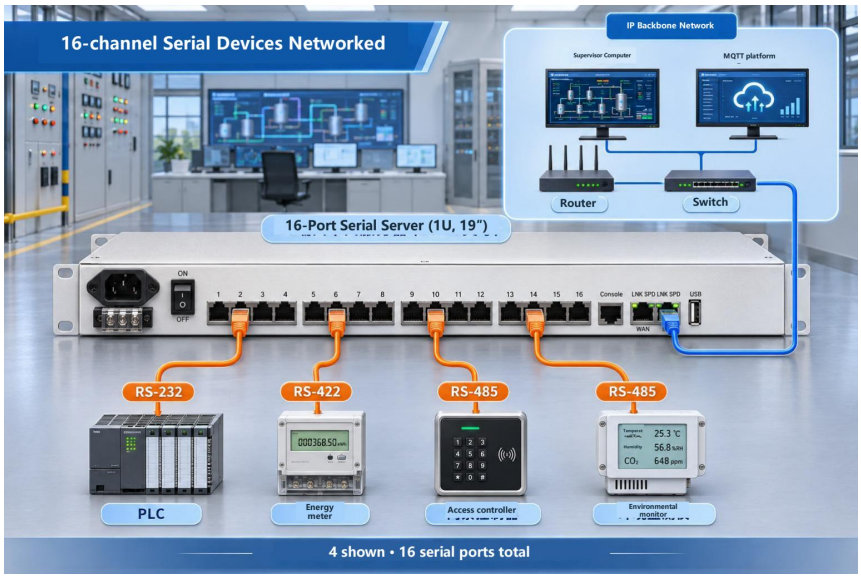
- Connect 16-channel RS-232/422/485 devices to Ethernet for centralized management of distributed serial devices and hosts; each channel’ s parameters and sessions can be configured independently.RS-485 has independent shielded lines per channel, 2.5 kV electrical isolation between grounds, reducing ground potential difference interference and limiting fault propagation.
- Suitable for PLC control, instrument acquisition, building energy and environmental monitoring, also compatible with security access, medical, and smart home serial devices.
- Dual IP, dual MAC support for multi-network management or network backup
- Fanless, low-power, and wide temperature/pressure range design; suitable for centralized deployment in industrial sites

Key Features

- **Serial Port Modes** Web-selectable RS-232/422/485. Fixed and mixed options.
- **Dual Network Access** Dual IP / dual MAC, facilitating multi-network management
- **Cloud reporting** MQTT multi-topic, transparent transmission, and Modbus to JSON.
- **Legacy Soft Access** Virtual serial ports and Socket for compatibility with existing applications
- **Secure transmission** SSL encryption, access control support
- **Locally visible** OLED displays IP address and serial port type
- **Remote Management** SNMP, Web, and local/remote upgrade.
- **Port Surge Protection** Power supply/serial port 6 kV; network port 4 kV
  Each serial port has 2.5 kV isolation.

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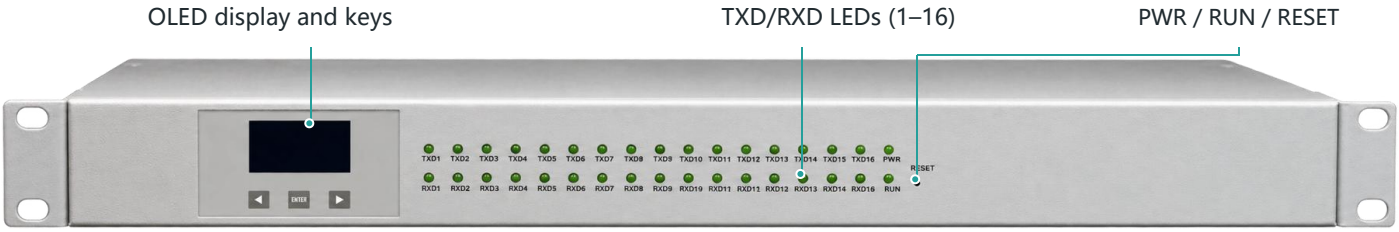
Typical Application



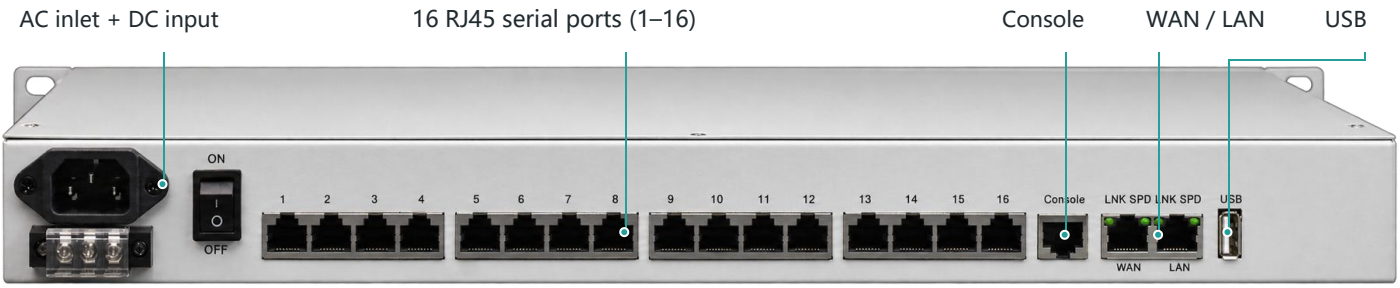
Serial line connected to the corresponding channel; two Ethernet ports for network access. Figure shows 4 serial channels; the same applies to other channels.

Interfaces and Installation

Front Panel



Rear Panel



19-inch 1U rack installation; the ear is used for fixation. The purpose of each RJ45 port is indicated by the label; serial ports are not wired like Ethernet ports.

Hardware and Electrical Specifications

Item	Specification
Processor / system	Dual-core heterogeneous processor with Cortex-A35 + Cortex-M4, main frequency 650 MHz; Linux / OpenWrt.
Serial interface	16 RS-232/422/485 channels, RJ45 socket; three-in-one configuration can be switched per channel via Web, with a single channel selecting one electrical standard. It can also be fixed in configuration at factory according to the order.
Serial port speed	RS-232: 300 bps ~ 256 kbps; RS-422/485: 300 bps ~ 1.5 Mbps, supports non-blocking communication at line rate.

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Item	Specification
Ethernet interface	2 10/100Base-T RJ45 electrical ports, dual IP and dual MAC; IEEE 802.3 / 802.3u; automatic negotiation full/half-duplex, Auto-MDI/MDIX. MAC address table supports learning 4096 addresses.
Display / auxiliary interface	OLED displays IP address and serial port type; 3 panel operation buttons, 16 TXD/RXD channels and PWR/RUN indicators, RESET; 1 Console interface, 1 USB-A port.
Power Supply Options	Nominal AC 220 V, DC −48 V or DC 24 V; supports dual AC, dual DC, or AC+DC dual power backup, with specific power combinations determined by the order.
Environment / Reliability	Operating temperature: −40～+85 ℃; storage temperature: −40～+85 ℃; relative humidity 0%～95%, no condensation; MTBF > 100000 h.
Structure / Weight	19-inch 1U rack-mounted steel casing, fanless; panel 480×45 mm, body 440×200×45 mm; weight 1.6 kg per unit.
Industrial Adaptability	Low power consumption, wide temperature and voltage range design; passes industry standard tests, suitable for industrial sites with strict EMC requirements.

Serial Standards and Pinout

Electrical Standard	Standard and Signals
RS-232	EIA/TIA-232（ITU-T V.28）；RXD、TXD、GND。
RS-422	EIA/TIA-422（ITU-T V.11）；TxD+、TxD−、RxD+、RxD−、GND。
RS-485	EIA/TIA-485; four-wire: TxD+, TxD−, RxD+, RxD−, GND; two-wire: A (TX+) and B (TX−), GND.

Above is signal definition; RJ45 wiring sequence must be connected according to delivery wiring, and serial port pins cannot be inferred from Ethernet wiring sequence.

Networking and Software

Function	Capabilities and Conditions
Operating Mode	TCP Server, TCP Client, UDP Server, UDP Client, Modbus TCP, etc.; 16 serial ports are transmitted via Ethernet.
Multiple Session Access	Each serial port supports 4 TCP or UDP sessions. TCP allows up to 4 users to monitor or manage serial devices simultaneously; UDP supports communication between single or multiple machines.
Protocol support	TCP、UDP、ARP、ICMP、HTTP、DNS、DHCP、SNMP、Telnet、SSH、MQTT。
Modbus Interconnection	Supports transparent conversion from Modbus RTU to Modbus TCP, reading serial devices via network; supports Modbus to MQTT conversion.
MQTT / JSON	Supports multi-topic subscription and publishing; supports MQTT transparent transmission, Modbus to JSON data packets, JSON distribution from parsing server, and scheduled reporting.
Cloud platform connection	Supports integration with Huawei Cloud, Alibaba Cloud, and Mobile Cloud platforms via MQTT protocol, configured according to platform access parameters.
SSL / Access control	Supports SSL security protocol for encrypted transmission of serial data; supports access control.
Existing software connection	Supports virtual serial port driver access mode and standard TCP/IP Socket application access, facilitating serial port software networking.
Cross-Network & Recovery	Supports gateway and cross-routing communication; automatic connection restoration after network interruption
Data Framing	Supports flexible setting of serial data framing to meet the packetization requirements of various services.
Monitoring and Display	Supports monitoring of serial status and parameters; OLED displays IP address and serial type in real time for easy on-site verification.
Configuration and Network Management	Supports Windows management configuration tools, Web, SSH, Telnet, and SNMP network management; supports quick configuration.

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Function	Capabilities and Conditions
Firmware Maintenance	Supports online firmware upgrade for both local and remote system firmware.
Network Organization	Dual IP, dual MAC, meets needs for multi-network management or network backup; each serial port channel can be configured with corresponding network sessions separately.

Port Protection and Channel Isolation

Protection for power, serial ports, and network ports reduces the risk of transient overvoltages caused by lightning induction and switch operations entering and damaging the interfaces via cables; each serial port provides 2.5 kV isolation.

Interface / Test	Rating / Test Conditions	Protection Notes
Power Interface	Open-circuit peak voltage = 6 kV (open-circuit peak voltage)	Surge protection to reduce the risk of transient overvoltage from power lines.
All serial ports	Open-circuit peak voltage = 6 kV (open-circuit peak voltage)	Surge protection and isolation; 2.5 kV isolation for each serial port
RJ45 Ethernet interface	4 kV (open-circuit peak voltage)	Reduces the risk of lightning-induced surges and switch operation surges transmitted via network cables.
Serial port optical isolation	2.5 kV per channel	Each serial port provides optical isolation.
RS-485 separate ground	2.5 kV electrical isolation	Each RS-485 line has independent shielding and grounding; grounds of different lines are isolated from each other.
AC connection isolation	AC220V / AC380V	When a serial port is directly connected to the above voltage, other serial port devices on the isolation side will not be damaged; non-serial port normal operating input voltage.

Test Standards for Surge Protection:GB/T 17626.5 (IEC 61000-4-5) surge immunity test;**Open-circuit voltage waveform:**10/700 μs; **Test source impedance:**40 Ω。

Surge test voltage is not the continuous operating input voltage, and does not indicate resistance to direct lightning; grounding and wiring still need to be completed according to engineering requirements on-site.

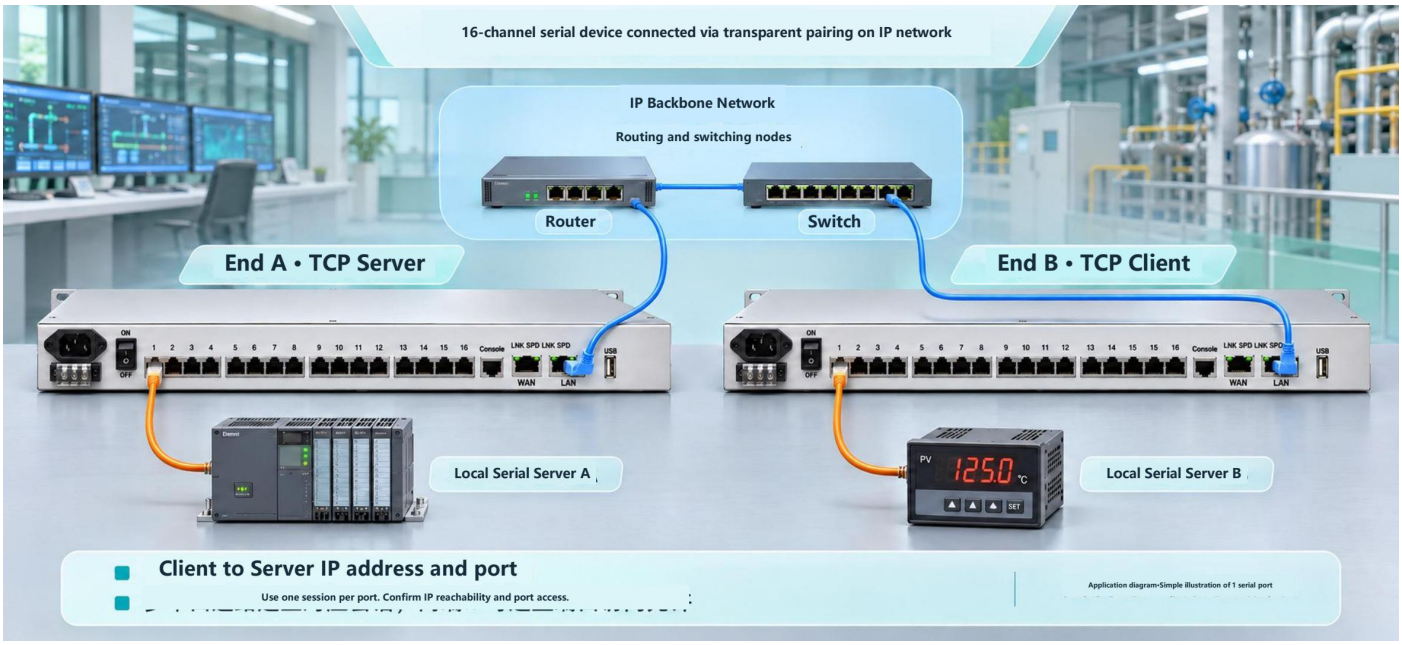
Applicable scenarios and terminals

Application	Typical Devices
Industrial Automation	PLC control and management, industrial automation production, measuring instruments, and environmental power monitoring system
Building / Energy	Building automation, building intelligence, energy monitoring, and environmental monitoring equipment.
Security access control	Network access control, alarm devices, infrared detection alarms, remote card reader.
Smart Home	Smart home gateways, smart plugs, and smart switches with serial communication.
Remote I/O	External network I/O controller, industrial remote I/O input devices, and remote relay control devices.
Healthcare	Medical care automation system, medical monitoring equipment.

Terminals must have matching serial ports and application protocols; I/O and relays refer to external terminals, not indicating that the unit has native I/O ports.

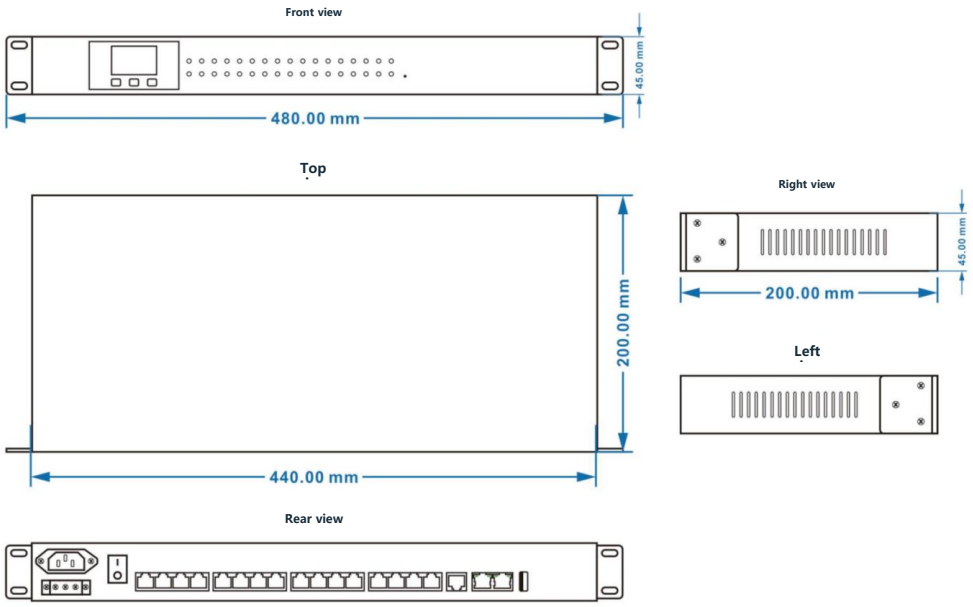
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Serial device connected via transparent IP network



IP addresses and corresponding ports for Client-to-Server connection; multiple serial ports establish separate sessions per channel. Both ends must be connected to local serial devices, and the network must meet routing accessibility and port access requirements.

Dimensions and Mounting



Unit: mm; panel 480×45, body 440×200×45. Space is reserved for rear wiring and side ventilation during installation.

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Ordering Information

Model segmentation: FCT- | 1700- | F2 | S16

NO	Name	Definition
1	FCT-	Model prefix for this series of products
2	1700-	Product series code.
3	F2	2 copper 10/100 Mbps Ethernet ports. Supports dual IP and dual MAC.
4	Serial port specifications	D = RS-485; R = RS-232; X = RS-422; S = three-in-one. The code is followed by quantity, with a total of up to 16 channels.
5	Power Supply Configuration	Dual AC, dual DC, or AC+DC; the specific combination of AC 220 V, DC −48 V, or DC 24 V shall be specified in the order.
6	Interface Selection	S16 is a 16-channel selectable version via Web per-channel selection; D/R/X can be independently selected or mixed, with configurations specified per channel.

Ordering Examples

Full Model Code	Configuration
FCT-1700-F2S16	16-channel Web-switching three-in-one serial port, dual 100 Mbps ports, OLED; dual AC power configuration
FCT-1700-F2S16	Same model with different service configurations; dual DC power, specify −48 V or 24 V combination when ordering
FCT-1700-F2S16	Configuration for the same model device; AC + DC power supply, specify the DC nominal voltage during ordering.
FCT-1700-F2D16	16 RS-485 channels, fixed format
FCT-1700-F2R16	16 RS-232 channels, fixed format
FCT-1700-F2X16	16 RS-422 channels, fixed format
FCT-1700-F2D8R4X4	8 RS-485 channels + 4 RS-232 channels + 4 RS-422 channels; fixed hybrid configuration, total 16 channels.

Power supply configuration, serial port formats, and accessories shall be confirmed during order placement; the image shows one interface and power supply appearance, but actual configuration depends on order details.

Document version: V1.8 EN Revision date: 2026-11-15

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