Desktop 1–8 Port VoIP Voice Gateway

Model: FCT-1520 Series

FXO / FXS / Magneto / E&M 2-wire and 4-wire
Built-in IPPBX · 32 SIP registrations · 8 concurrent channels.



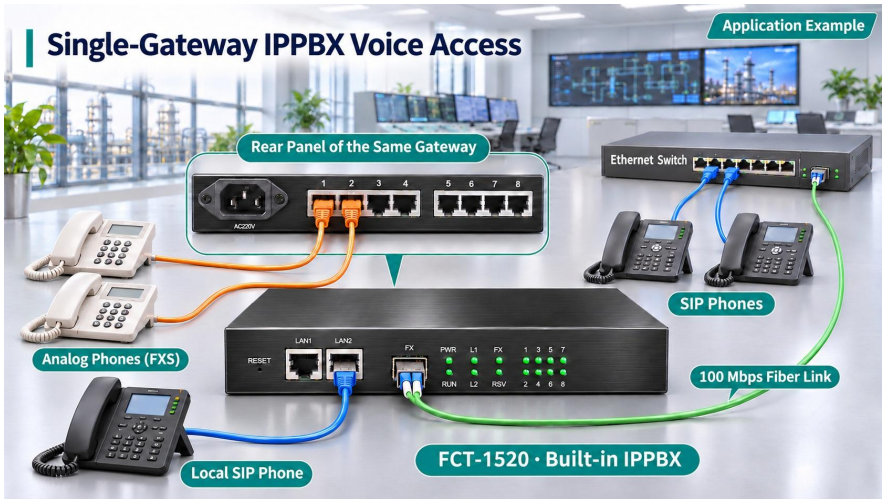
Product Overview

- Connects analog telephone and audio circuits to IP networks for line extension, branch communications and dispatch services.
- 1–8 analog voice channels: FXO, FXS, magneto, or E&M 2-wire / 4-wire, selected for the connected equipment.
- Embedded Linux, Asterisk solution, built-in IPPBX; supports 32 SIP registrations and up to 8 simultaneous calls.
- Supports SIP peer-to-peer trunks and IP phones, with inbound, outbound and direct-call routing.

Key Features

- **Voice Ports** FXS connects analog phones; FXO connects PBX subscriber lines. Magneto and E&M interfaces support triggered direct calls.
- **Call Services** Configurable IVR, auto attendant, ring groups, queues, paging groups and conferences.
- **Fiber/Copper** 2 Fast Ethernet copper ports and 1 Fast Ethernet SFP fiber port, suitable for cable or fiber access environments.
- **Management** Web, command line, CDR call records, logs, packet capture diagnosis, and configuration backup/firmware upgrade.

Typical Applications

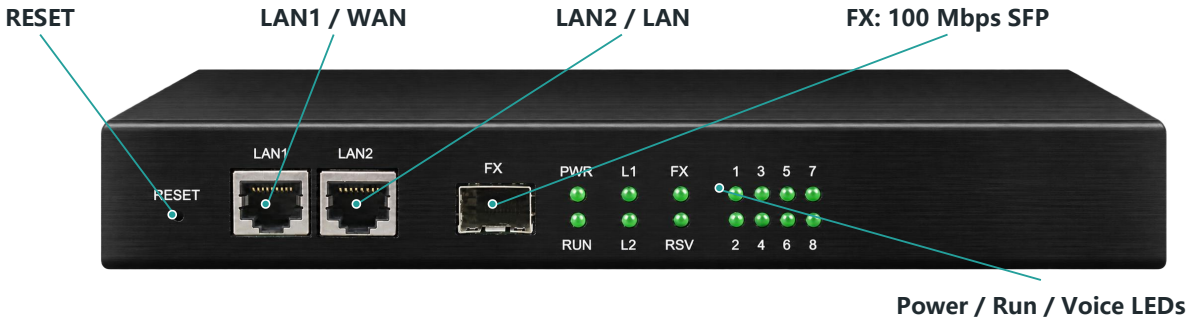


One gateway with built-in IPPBX: analog phones use FXS, a local SIP phone connects directly to LAN2, and the 100 Mbps SFP link reaches SIP phones on the Ethernet switch.

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As shown in diagram, for FXS application; other voice interfaces shall be selected according to the connected equipment. The network must be IP accessible, policies allowed, and SIP registration and encoding/decoding shall be configured according to the service requirements.

Interfaces and Installation



Network side: 2 × 10/100 Mbps RJ45 Ethernet ports + 1 × Fast Ethernet SFP slot; LAN1 is WAN, LAN2 is LAN.



Example of 8-channel appearance; the purpose of the voice port depends on the installed circuit module and cannot be used as an Ethernet port. The power interface is configured according to the power supply version.



Example of 4-channel appearance; interface purpose and labeling method are the same as the 8-channel configuration. Provide 1–8 voice channels according to the order.

Voice interface wiring definition

RJ45 pin	FXO / FXS / Magneto	E&M 2-wire / 4-wire
1	Not connected	Not connected
2, 3	Not connected	4-wire audio receive
4, 5	4 = Tip; 5 = Ring	2-wire / 4-wire audio transmit
6	Not connected	M-line
7	Not connected	E-line
8	Not connected	Signal Ground

Pins identified according to the manual socket view; E&M four-wire receive and send pairs use pins 2/3 and 4/5 respectively. Connect after matching the line type, wiring sequence, and signaling at both ends.

Hardware and voice parameters

System and Media Processing

Item	Specification / Function
System and Softswitch	Embedded Linux; VoIP solution based on Asterisk, with built-in IPPBX.
Registration and concurrency	Supports 32 SIP registrations, up to 8 channels for simultaneous communication; the total number of analog channels is configured as 1–8 according to the order.
Signaling and Media	SIP over UDP/TCP/TLS, SDP, RTP/SRTP.
Voice Codecs	G.711 A-law/μ-law, G.723.1, G.729A/B, G.726.
Voice enhancement	Silence suppression, comfort noise generation (CNG) and voice activity detection (VAD).
Voice quality	Adaptive jitter buffering and automatic gain control; dial, ringback and busy tones.
DTMF and NAT	RFC2833 / Signal / Inband DTMF; NAT traversal, configured for the network and NAT environment.

Analog Line Features

FXS	Connects analog phones; BELL, V23, V23_JP and DTMF caller ID; off-hook/on-hook and busy-tone detection; polarity reversal and hook-flash detection.
FXO	Connects PBX subscriber lines or analog outside lines; FSK/DTMF caller ID, polarity-reversal detection, delayed off-hook answering, busy-tone and loop-current-loss disconnect detection; FXO impedance matching.
Magneto	Connects magneto telephones; magneto ringing can automatically initiate a call through the configured direct route.
E&M 2-wire / 4-wire	Two-wire/four-wire audio and E, M signaling; automatic call via direct connection route when E signal is grounded.

E-Lead Ratings	M-Lead Ratings
Maximum current: 22 mA; saturation voltage: 3 V; dialing speed: >20 pps.	Constant current: 7 mA; Minimum detection current: 5 mA; Pulse dialing rate: >20 pps.

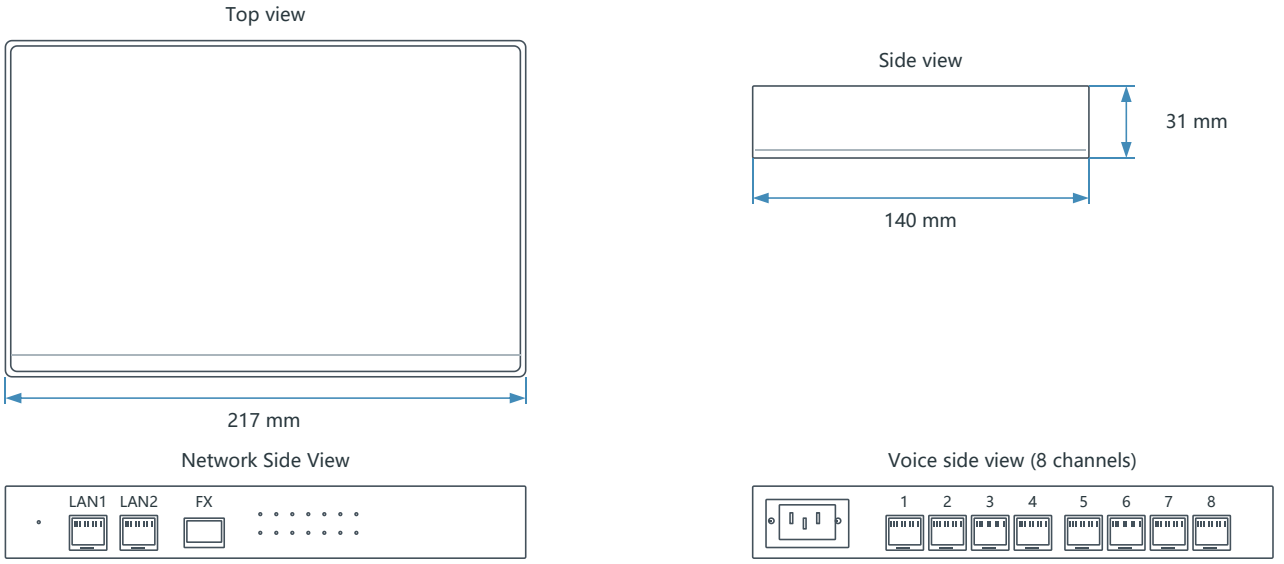
Network and Fiber Port

Copper Port	2 x 10/100 Mbps RJ45; LAN1 is WAN, LAN2 is LAN
Fiber Port	1 Fast Ethernet 100 Mbps SFP slot, optical module with LC interface; IEEE 802.3, IEEE 802.1Q VLAN.
MAC address table	It can learn 4096 MAC addresses.
Optical Wavelength	1310/1490/1550 nm optional, configured according to optical module.
Link conditions	The optical transmission distance depends on optical path loss, additional losses from connectors, and fiber bandwidth, and the optical modules and fibers at both ends must be compatible.

Power Supply and Environment

Power Supply Option	AC220 V/DC48 V/DC12 V, selected according to order.
Total Power Consumption	≤12 W; weight ≤1 kg.
Operating environment	−10–+60 °C; humidity 10%–90%, no condensation.
Storage environment	−20–+80 °C.
Reliability	MTBF >100,000 hours; independent installation on a desktop.

Dimensions and Mounting



Body: 217 × 140 × 31 mm. Units: mm. Outline and interface layout illustration; not a machining or cutout drawing.

IPPBX and software functions

Extensions, Trunks and Routing

Item	Function description
Extensions and Trunks	Add, edit and delete SIP extensions, FXS analog extensions, SIP trunks and FXO analog trunks; batch configuration of SIP extensions and trunks.
Routing and Dialing	Inbound/outbound routing, routing groups, dialing rules, caller and callee number transformation; select routing based on time, caller, callee, and source; failover routing selection.
Bidirectional interconnection	For SIP peer-to-peer trunking, enter the remote IP address on each unit and configure inbound/outbound routes and number matching for two-way FXO/FXS calls.
Magneto and E&M Direct Calling	A direct route selects the destination extension or trunk and called number; calls can be triggered manually from the configuration interface for line testing.

Call Services, Recording and CDR

IVR and Auto Attendant	Custom multilingual IVR, auto attendant and prompt/audio management.
Groups and Paging	Ring groups, queue management, group call pickup and paging groups.
Call supplementary services	Unconditional, no-answer and busy call forwarding; call waiting, hold, transfer, hotline, do not disturb and three-way conferencing.
Conference call	Addition, modification, deletion, and management of meeting rooms.
Recording and call logs	FTP recording upload settings; local CDR storage, enable/disable and storage mode settings; call-record search and export.

Management, Diagnosis, and Maintenance

Item	Function description
Management Access	Web management configuration, command-line management configuration; multi-language interface; modification of Web and Telnet management passwords.
Configuration and Upgrade	Backup, user configuration restoration, and factory reset; HTTP/TFTP/FTP upgrade and Auto Provision upgrade.
Status and logs	View SIP extension, trunk and analog-line status; search and export PBX logs and Syslog; restart the IPPBX service or the device.

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Item	Function description
Network Diagnosis	Ping, Tracert, network packet capture, network quality testing; TCP/UDP/RTP traffic statistics; automatic time synchronization.
SIP settings	SIP port, packet transmission frequency, NAT, and encoding/decoding settings; after changes, save and apply, and both sides' encoding configurations must be consistent.
Reset Button	Hold for about 1 second and release to reset; hold for about 5 seconds and release to restore factory settings.

Ordering Codes and Configuration

FCT-	1520-	AS4AO4 (example)

Model code and definition

NO	Name	Definition
1	Company and type	FC = Feichang; T is the product type identifier.
2	Product Series	1520 identifies the desktop VoIP gateway series, with 2 fixed Fast Ethernet copper ports and 1 Fast Ethernet SFP slot.
3	FXS/FXO	AS = FXS, for analog phones; AO = FXO, for PBX subscriber lines or analog outside lines.
4	Magneto	AM = magneto telephone interface.
5	E&M audio	AE = E&M two-wire audio; AQ = E&M four-wire audio.
6	Quantity and Arrangement	The number of channels follows each interface code; arranged in order of AS, AO, AM, AE, AQ, with unconfigured items omitted; total of 1–8 channels.

Example of Complete Model and Configuration

Full Model Code	Voice interface configuration
FCT-1520-AS1	1-channel FXS.
FCT-1520-AS8	8-channel FXS.
FCT-1520-AO8	8-channel FXO.
FCT-1520-AM8	8 magneto telephone channels.
FCT-1520-AE8	8-channel E&M two-wire audio.
FCT-1520-AQ8	8-channel E&M four-wire audio.
FCT-1520-AS4AO4	Example of 4 FXS + 4 FXO hybrid coding; specific combinations shall be confirmed according to the order.

Specify line type and quantity, port arrangement, power version, SFP optical module, and line accessories in the order request. Mixed combinations must be confirmed via order; the configuration of power and optical modules is not counted in the number of voice lines.

Service and delivery

Six-month replacement and three-year warranty. Repairs are free during the warranty period; material and labor charges may apply to damage caused by failure to follow the manual, unauthorized disassembly, lightning, fire, force majeure, or design/compatibility issues in other equipment.

Product parameters may be adjusted due to technical updates; supply configuration is subject to order and accompanying documents.

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