

# Product Specifications

## Internet Telephony PBX System

IPX-2100

Version 3.0

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### Change History:

Revision	Date	Author	Change List
Version 1.0	2013/08/02	David Yao	Initial release
Version 1.1	2014/02/07	David Yao	Add IPX-21PR(PRI) and IPX-21BR (BRI)
Version 2.0	2015/12/24	Anthony Chen	1. H/W and chipset revision 2. Improve S/W function 3. Remote ISDN function 4. Separate ETH port to WAN port and LAN port
Version 3.0	January 31, 2018	Jonas Yang	1. Add Quick setup Wizard function 2. Improve S/W function 3. User interface web page with a great many icons and helpful information

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## 1. PRODUCT DESCRIPTION



### Intuitive, Ease-of-Use IP PBX Management

PLANET next-generation IPX-2100 IP PBX telephony system is easy to set up and manage thanks to a perceptive web-based user interface and **quick setup wizard**. Since it is an **Asterisk-based** equipment, the entire benefits of the pre-loaded **SIP** can be had as any other enterprise-level appliance would come equipped with the feature. The IPX-2100 is able to accept **100 user registrations**, and easy to manage a full voice over IP system with the convenience and cost advantages. The equipment is best paired with PLANET color IP phones to get the function going smoothly and to have a seamless connection between the software and hardware.

### Off-net Calling Capability, Call Restriction, Call Access Control

The IPX-2100 integrates **up to 8 calls** via the IPX-21FO (4 FXO), IPX-21SL (2 FXO + 2 FXS) and IPX-21GS (4 GSM) modules to form a feature-rich PBX system that supports seamless communications between the existing PSTN calls, analog phones, IP phones and SIP-based endpoints.

### Replacing Old PBX Directly without New Wiring

Cost-effective, easy-to-install and simple-to-use, the IPX-2100 converts standard telephones into IP-based networks. It enables the service providers and enterprises to offer users traditional and enhanced telephony communication services via the existing broadband connection to the Internet or corporation network.

With the IPX-2100, home users and companies are able to save the installation cost and extend their past investments in telephones, conferences and speakerphones. The IPX-2100 can be the bridge between the traditional analog system and IP network without having to invest heavily.

### Distributed VoIP Network Infrastructure

In the new-generation communication age, the IPX-2100 supports IPv6 and VPN (client/server) connection to provide users with more flexible and advantageous communications products. With PLANET DDNS function,

the IPX-2100 also helps users to apply and remember the login information easier. Moreover, its multiple language features help user to quickly and friendly manage the system. The IPX-2100 supports Lync server to which smart phone (using third-party app) and analog phone are connected via its communication with other devices of Lync server.

### **Standard Compliance**

Compliant with the Session Initiation Protocol 2.0 (RFC 3261), the IPX-2100 is able to broadly interoperate with equipment provided by VoIP infrastructure providers, thus enabling them to provide their customers with better multi-media exchange services.

### **Green IP Office**

The Fax to Email/Email to Fax service provided by the IPX-2100 allows users to transfer/receive faxes directly to/from your email inbox as file attachments. It is an easy and confidential way of receiving, storing and forwarding important fax documents, thus creating a paperless or green office.

### **Full Security with VPN Support**

The IPX-2100 VPN securely and cost-effectively connects geographically disparate offices of an organization, creating one cohesive virtual network. The IPX-2100 VPN technology is also used by ordinary Internet users to connect to proxy servers for the purpose of protecting one's identity. It includes VPN server and client function that can support users' full security login.

## 2. PRODUCT FEATURES

### ➤ System Highlights

- 30 concurrent calls and up to 100 registers
- HD voice codec G.722 for perfect voice quality
- Fax to Email and Email to Fax for green office
- Voicemail to Email for not missing any important message
- Paging and intercom function strengthens the work efficiency
- Built-in SIP Proxy Server following RFC 3261
- Multiple Language of GUI for international business
- Web-based Control Panel for easy configuration and management of the system
- Hardware Echo Cancellation module for great and smooth communication
- Strong security features protect your system from hacking
- Maximum 8 ports FXO/FXS/GSM (on 2 slots)
- Records voice and voicemail to external USB disk
- Quick Setup Wizard

### ➤ Codec and Protocol

- SIP 2.0 (RFC3261), IAX and Lync server compliant
- Audio Codec: G.711-Ulaw, G.711-Alaw, G.722, G.726, G.729, GSM, Speex and Opus
- Video Codec: H.261, H.263, H.263+, H.264 and VP8
- DTMF: RFC 4733, SIP info, in-band and auto

### ➤ Network and Security Features

- DHCP Server, DDNS Client (PLANET DDNS & Easy DDNS)
- SNMP v1/v2, IEEE 802.1Q of VLAN
- IPv4/IPv6, TR069
- Manual Configuration of Static Route Table
- Troubleshooting (Ping, Traceroute)
- VPN Server, VPN Client
- Refuse SIP Register DoS,
- Refuse Abort Invite Dos
- Refuse SSH Login DoS
- Firewall and enhances HTTPS connection

### ➤ PBX Features

- SIP Register with UDP/TCP/TLS

- One Touch Recording
- Mobility Extension
- Black List
- BLF (Busy Lamp Field)
- CDR (Call Detailed Record)
- Conference Room
- DID (Direct Inward Dialing Number)
- SRTP (Secure Realtime Transport Protocol)
- DND (Do Not Disturb)
- IVR (Interactive Voice Responses)
- Follow Me, Call Spy and PIN Set
- Distinctive Ringtone
- Multi-language System Prompt
- Phone Book, Speed Dial
- Ring Group, SIP Trunk
- Skype for SIP, Smart DID, System Log
- T.38 fax (pass-through), voicemail and voicemail to e-mail

➤ **Call Features**

- Call Back, Call Forward, Call Group
- Call Hold, Call Paging and Intercom
- Call Park, Call Pickup, Call Queue
- Call Record, Call Route, Blind Transfer
- Attend Transfer, Call Waiting
- Caller ID, Dial by Name
- Customized IVR, On-hold Music, Transfer
- Three-way Conferencing, Video Call

### 3. SPECIFICATIONS

#### 3.1 Main Components

<b>CPU/DSP</b>	Dual Core 1GHz DSP
<b>Memory</b>	8G (Default SD Card)
<b>SDRAM</b>	1GB SDRAM

#### 3.2 Functional Specifications

Product	IPX-2100 Internet Telephony PBX system (100 SIP Users registrations)
<b>Hardware</b>	
LAN	1 x 100BASE-TX RJ45 for LAN
WAN	1 x 100BASE-TX RJ45 for WAN
2 Slots	Supports maximum 8 ports (FXS/FXO/GSM)
USB	Store data for external disk
Console	Console Interface
Reset Button	Reset to factory default
<b>Protocols and Standard</b>	
Standard	SIP 2.0 (RFC 3261), IAX2
Protocols	RFC 793 TCP RFC 826 ARP RFC 1034, 1035 DNS RFC 1631 NAT RFC 2068 HTTP RFC 2131 DHCP RFC 2516 PPPoE RFC 3261, RFC 3311, RFC 3515 RFC 3265, RFC 3892, RFC 3361 RFC 3842, RFC 3389, RFC 3489 RFC 3428, RFC 2327, RFC 2833 RFC 2976, RFC 3263
Voice Codec	G.711-Ulaw, G.711-Alaw, G.722, G.726, G.729, GSM, Speex and Opus
Video Codec	H.261, H.263, H.263+, H.264 and VP8
Fax over IP	T.38 Fax (pass-through) Note: T.38 support is dependent on fax machine, SIP provider and network/ transport resilience
Voice Processing	DTMF detection and generation RFC 4733, SIP info, in-band and Auto
Protocols	SIP 2.0 (RFC 3261), TCP/IP, UDP/RTP/RTCP, HTTP, ICMP, ARP, DNS, DHCP, NTP/SNTP, PPP, PPPoE
<b>Internet Sharing</b>	
Network Features	DDNS client (Planet DDNS and easy DDNS) DHCP server/SNMP v1/v2 IEEE 802.1Q of VLAN IP assignment (DHCP/Static) IPv4, IPv6 Manual configuration of static route table

	Troubleshooting (ping, traceroute) VPN server ,VPN client
Security Features	Refuse SIP Register DoS Refuse Abort Invite Dos Refuse SSH Login DoS Firewall and enhances HTTPS connection
<b>Features</b>	
PBX Features	SIP Register with UDP/TCP/TLS Phone Auto-Provision One Touch Recording Mobility Extension Black List BLF (Busy Lamp Field) CDR (Call Detailed Record) Conference Room DID (Direct Inward Dialing Number) DISA (Direct Inward System Access) DNIS (Dialed Number Identification Service) SRTP (Secure Realtime Transport Protocol) DND (Do Not Disturb) FOP (Flash Operation Panel) Status Monitoring IVR (Interactive Voice Responses) Follow Me, Call Spy and PIN Set Distinctive Ringtone Multi-language System Prompt Multiple Language of GUI Phone Book, Speed Dial LDAP Server for phonebook Record Files Download Ring Group, SIP Trunk Skype for SIP, Smart DID, System Log T.38 fax (pass-through), voicemail and voicemail to e-mail Time-based Rule PBX log, web access log and PBX debug log
Call Features	Call Back, Call Forward, Call Group Call Hold, Call Paging and Intercom Call Park, Call Pickup, Call Queue Call Record, Call Route, Blind Transfer Attend Transfer, Call Waiting Caller ID, Dial by Name Customized IVR, On-hold Music, Transfer Three-way Conferencing, Video Call
<b>System Capacity</b>	
System Capacity	30 concurrent call legs Up to 100 IP phone registers/extensions Recording and Voicemail: 150 hours
<b>Network and Configuration</b>	
Access Mode	Static IP, DHCP
LED Indications	SYS: 1, LNK/Off WAN: 1, LNK/Off LAN: 1, LNK/Off PWR: 1, LNK/Off SLOT: FXO/GSM (Red), FXS (Green)
Dimensions (W x D x H)	343 x 154 x 35 mm

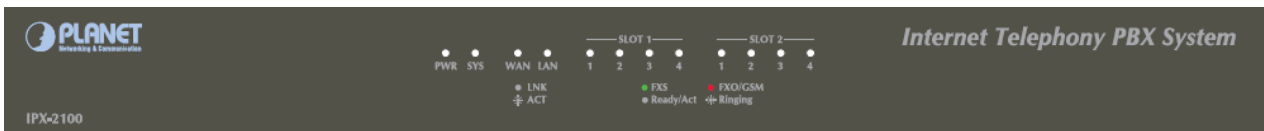
Operating Environment	0~40 degrees C, 5~95% humidity
Power Requirements	Input: 100 ~ 240V AC Output: DC 12V 2A
EMC/EMI	CE, FCC Class B, RoHS

### 3.3 Physical Specifications

#### ➤ Dimensions

Dimensions (W x D x H)	343 x 154 x 35 mm
Net Weight	1.4 kg (without package)

#### ➤ Front Panel



#### ➤ Rear Panel




#### ➤ LED definitions

Front Panel LED	Status	Description
<b>PWR</b>	Steady Green Off	PBX Power ON PBX Power OFF
<b>SYS</b>	Blinking Green On Off	System is working System doesn't boot System failure
<b>WAN</b>	Blinking Green On Off	Data transfer PBX network connection is established Waiting for network connection
<b>LAN</b>	Blinking Green On Off	Data transfer PBX network connection is established Waiting for network connection
<b>FXO</b>	Steady Red Flashing Off	Ready/Standby Ringing Module not available
<b>GSM</b>	Steady Red Flashing Off	Ready/Standby (SIM card inserted) Ringing No SIM card inserted
<b>FXS</b>	Steady Green Flashing Off	Ready/Standby Ringing Module not available



➤ **Physical interfaces description**

1	<b>Reset</b>	System Reboot: Press less than 5 secs. Reset to Factory Default: Press over 10 secs.
2	<b>12V DC</b>	12V DC Power input outlet
3	<b>LAN/WAN</b>	The LAN/WAN port supports auto negotiating Fast Ethernet 10/100BASE-TX networks. The WAN port allows your IP PBX to be connected to an Internet Access device, e.g., router, cable modem or ADSL modem through a Cat5 twisted-pair Ethernet cable.
4	<b>Console</b>	Show information of system
5	<b>USB</b>	For external store device to store voice and voicemail
6	<b>Slot 1/Slot 2</b>	<p>2 external slots with compliant FXO/FXS/GSM module.</p> <p><b>FXO module</b> is connected to PBX or CO line with RJ11 analog line. FXO port is connected to the extension port of a PBX or directly connected to a PSTN line of carrier.</p> <p><b>FXS module</b> is connected to phone with RJ11 analog line. FXS port is connected to your telephone sets, fax, or trunk line of PBX.</p> <p><b>GSM module</b> is connected to Global System for Mobile Communications (GSM) with SIM card.</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">  <p><b>Note</b> Versions 2 and 3 without ISDN module support.</p> </div>

➤ **Slot 1~Slot 2 definitions**

Slot / Module	Module Description	Slot 1	Slot 2
IPX-21FO	4-Port FXO Module	V	V
IPX-21SL	4-Port Life-Line Module (2FXO + 2FXS)	V	V
IPX-21GS	4-Port GSM Module	V	V

**3.4 Environmental Specifications**

➤ **Operating**

<b>Temperature</b>	0~40°C
<b>Relative Humidity</b>	5~95% (non-condensing)

➤ **Storage**

<b>Temperature</b>	-20~55°C
<b>Relative Humidity</b>	5~95% (non-condensing)

### 3.5 Electrical Specifications

<b>Input Voltage</b>	AC 100V-240V, DC 12V/2A, 50/60Hz
<b>Power Consumption</b>	24 watts

### 3.6 Regulatory Compliance

CE, FCC, RoHS

### 3.7 Reliability

MTBF > 87,600Hrs @25 degrees C MIL-STD-781C

### 3.8 Basic Packaging

- Internet Telephony PBX system unit x 1
- Quick Installation Guide x 1
- Power Adapter x 1 (12V)
- RJ45 x 1
- Bracket x 2

### 3.9 Package Information

<b>Dimensions (W x D x H)</b>	416 x 223 x 85 mm
<b>Weight</b>	1.4 kg (gross weight), 1.8 kg (with package)
<b>Carton Dimensions (W x D x H)</b>	530 x 430 x 240 mm
<b>Carton Weight</b>	12 kg (gross weight)
<b>Carton Unit</b>	6 pcs.

## ***APPENDIX A: Default Setting***

<b>Default WAN IP Address</b>	<a href="https://172.16.0.1">https://172.16.0.1</a>
<b>Default LAN IP Address</b>	<a href="https://192.168.0.1">https://192.168.0.1</a>
<b>Default Login User Name</b>	<a href="#">admin</a>
<b>Default Login Password</b>	<a href="#">admin</a>
<b>Quick Setup Wizard</b>	<a href="#">Yes</a>

## **APPENDIX B: Accessories**

**IPX-21FO:** 4-Port FXO Module for IPX-2100, IPX-2200 and IPX-2500



**IPX-21SL:** 4-Port Life-Line Module for IPX-2100, IPX-2200 and IPX-2500 (2FXO + 2FXS)



**IPX-21GS:** 4-Port GSM Module for IPX-2100, IPX-2200 and IPX-2500

