IP 301 Internet Phone

[VoIP]

User Manual(V1.0)

Index

Introduction

IP is abbreviation of Internet Protocol. An IP phone is a telephone transporting voice by grouping data package of IP protocol. IP phone can be used on IP Networks from an enterprise-wise LAN to a city-wide WAN.

An IP phone transports voice message over data communication network at extremely low price but of excellent sound quality just like ordinary fixed telephone lines do. With our IP301 Internet phone, you're going to save dramatically on internetional calls.

With its unique generalized outline and linner line modes. IP301 Internet phone functions much like an ordinary telephone switching between inner and out line, it brings great convenience to the users. When IP301 Internet phone is in generalized inner line mode, it is free of charge to call another IP301 wherever the destination phone is in the world. When IP301 series IP net phone is in generalized out line mode, it can place calls to every ordinary telephones in the world at an extremely low price.

With its stability, sound quality, compatibility and rich functionalities, IP301 leverages your wealth with high quality communications!

1.1 Hardware Overview

- Main Chip – CM5000
- Data Memory – 16M
- Program Memory – 64M
- Ethernet Jack – 2 x 10/100M jacks
- AC/DC adapter – Input AC230V, output 9V 1200mA

1.2 Software Overview

- Network Protocol
  - SIP V1 (RFC2543), V2 (RFC3261)
  - IP/TCP/UDP/RTP/RTCP
  - ICMP/ARP/RARP/SNTP
  - TFTP Client/DHCP Client/ PPPoE Client, Static IP
  - Telnet/HTTP Server
  - DNS Client

- Codec
  - G.711
  - G.723
  - G.726
  - G.729A
  - G.729B

- IP Assignment
  - Static IP
  - DHCP
  - PPPoE

- Voice Quality

- VAD(Voice Activity Detection)
- CNG(Comfortable Noise Generator)
- LEC(Line Echo Canceller)
- Packet Loss Compensation
- Adaptive Jitter Buffer

- Security
  - HTTP 1.1 basic/digest authentication for Web setup
  - MD5 for SIP authentication (RFC2069/ RFC 2617)

- Configuration
  - Web Browser
  - Telnet
  - Keypad Configuration

- Firmware Upgrade
  - TFTP
  - HTTP

1.3 Operating requirements:

- Operation temperature: 0 to 50 ºC

- Storage temperature: -10 to 60 ºC

- Humidity: 10 to 90% no dew

1.4 Electric requirements:

- Voltage: 9V DC

- Power adaptor: AC/DC input 230V, output 9V 1100mA

- Network interface: 2 X RJ-45 Ethernet connectors

1.5 Size:

204 x 187 x 75 mm (L x W x H)

1.6   Phone diagram

1. IP key
2. FWD key
3. DND key
4. Men Key
5. L1~L3 key
6. Mute Key
7. Speaker Key
8. Call In Key
9. Call Out key
10. PhoneBooK Key
11. Menu Key
12. Confirm Key
13. Conference
14. Transfer
15. Hold key
16. Redial
17. Up Key
18. Down Key
19. Right Key
20. Left key
21. Number key
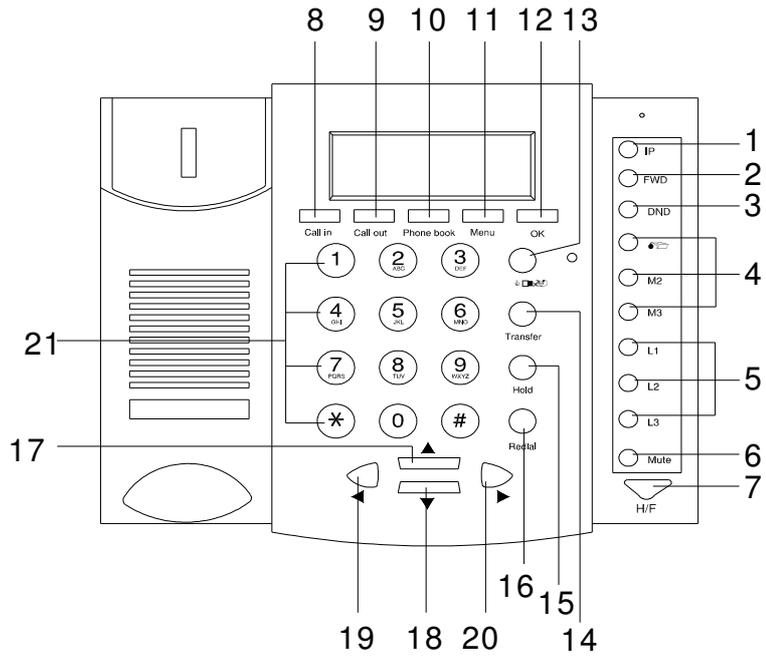
1.7   Keypad description

Key Name	Description
1	"1", "-", ",", "!", "?"
2	"2", "a", "b", "c", "A", "B", "C"
3	"3", "d", "e", "f", "D", "E", "F"
4	"4", "g", "h", "I", "G", "H", "I"
5	"5", "j", "k", "l", "J", "K", "L"
6	"6", "m", "n", "o", "M", "N", "O"
7	"7", "p", "q", "r", "s", "P", "Q", "R", 'S"
8	"8", "t", "u", "v", "T", "U", "V"
9	"9", "w", "x", "y", "z", "W", "X", "Y", "Z"
0	"0", "space"
*	"*", "•", ":", "@", Switch between PSTN dialing and IP dialing
#	Start dialing process
UP/DOWN	This is Up↑ and Down↓ key
MENU	This is the "Menu" key to set the IP Phone
LEFT/RIGHT	This is Left← and Right→ key
CONF	This is three way conference function
TRANSFER	This is "Transfer" to the other phone number
HOLD	This is "HOLD" function
Phone book	Go to Phone book directly
Mute	This is "Mute" function
OK	This is "OK", accept setting
Mute	This is "Mute" function
Reg LED	Show the status of IP Phone's registration
L1~L3	Selec different Serve
DND	Dot not Disturb
IP	Check Lacal IP
LED	Rigister LED

Installating the IP Phone

Before installing your IP phone, it is useful to know what kind of IP addressing your LAN or router is using.

2.1 What is the IP addressing of your network?

Most networks, including the Internet, use identification codes IP (Internet Protocol) addresses to identify and locate the devices that share their services.

There are two systems for assigning these addresses:

● DHCP Addressing: With this system, your LAN or router automatically assigns all the required IP parameters to any device connected to it when the device logs on. (Some ISPs who use DHCP require a host name, which must be entered manually.)

Note: Your IP Phone is shipped from the factory with DHCP on, or enabled. So, if your LAN or router is configured to use DHCP addressing, your IP Phone's LAN parameters will automatically be configured as soon as it is connected to the LAN or router and powered up.

● Static Addressing: If your LAN does not use DHCP addressing, each device concurrently connected to it must be assigned its own unique IP address. In this case, your LAN's configuration information must be manually entered into the IP phone. You will need to know the following parameters:

- IP address
- Subnet mask
- Gateway address
- Primary DNS address
- Secondary DNS address (required by some systems)

Note: If your system uses static addressing, this is a good time to make sure know these parameters, since you will need them to configure your IP Phone. If you don't know them, contact your network administrator to obtain the necessary information.

2.2 Connection of the IP phone:

1. Connect handset to the base: insert handset cord into handset jack at the left side of the base.
2. Connect IP phone to Internet: Plug a RJ-45 Ethernet cable into the Ethernet jack named 'WAN' of the IP phone. Plug the other end of the cable into an appropriate LAN or DSL/Cable router port or a HUB.
3. Connect IP phone to a computer if necessary: Plug a RJ-45 Ethernet cable into the Ethernet jack named 'LAN' of the IP phone. Plug the other end of the cable to a computer.
4. Power on IP phone: Plug the power adapter into the Power Jack of the IP phone. Then plug the other end of the power adapter into the appropriate wall outlet.

To Power adaptor
To computer
To LAN or DSL/Cable router port or a HUB
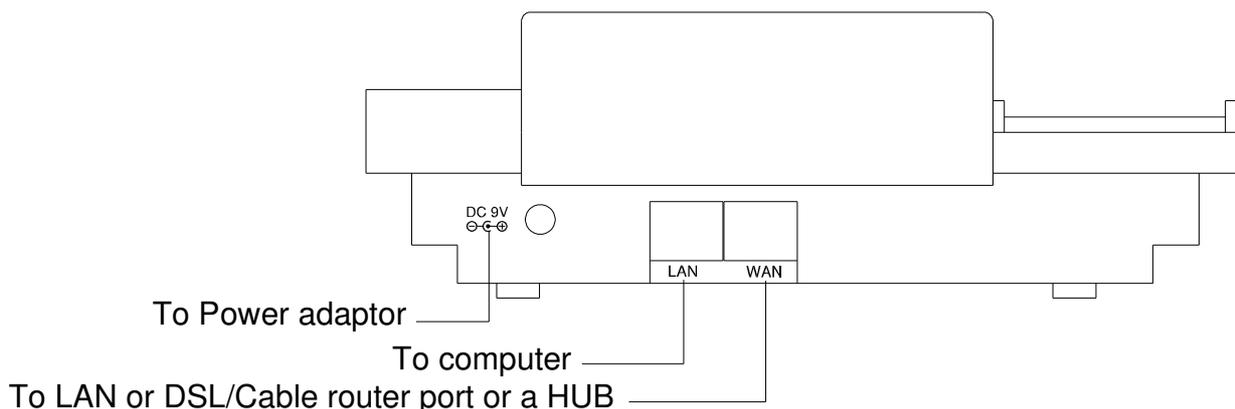
Setup the VoIP Phone by Keypad

The configuration of the VoIP phone can be set by the keypad on the unit.

1.8 Keypad Setting List

1. **Phone Book**
   - ❑ Search:Search Phone Book.
   - ❑ Add entry:Add new phone number to phone book
   - ❑ Speed dial:Add speed dial phone number to speed dial list.
   - ❑ Erase all:Erase all phone number from Phone Book.

2. **Call history**
   - ❑ Incoming calls: Show all incoming call.
   - ❑ Dialed numbers: Show all dialed call.
   - ❑ Erase record: Delete call history.
     - o **All**: Delete all call history.
     - o **Incoming**: Delete all incoming call.
     - o **Dialed**: Delete all dialed out call.

3. **Phone setting**
   - ❑ Call forward
   - o All Forward.
     - ➢ **Activation**: To Enabled/Disabled this function.
     - ➢ **Number**: Forward to a Speed Dial Number.

   - o Busy Forward.
     - ➢ **Activation**: To Enabled/Disabled this function.
     - ➢ **Number**: Forward to a Speed Dial Number.

   - o No Answer Forward.
     - ➢ **Activation**: To Enabled/Disabled this function.
     - ➢ **Number**: Forward to a Speed Dial Number.

   - o Ring Timeout: **Set the time to start the no answer forward function, ex: 20 means after 20 seconds then forward to the dedicated number.**

   - ❑ Block Setting

     - o **All:** Block all the incoming calls
     - o **By Time**: Block all the incoming calls within a period of time

      o **Duration:** Set the start time and end time to Block Setting.

   ❏ Date/Time setting
   o   Date & Time: **Set the IP Phone Date and Time.**
   o   SNTP setting
   ➢   SNTP : **Enabled / Disable SNTP.**
   ➢   Primary SNTP: **Set Primary SNTP server IP address.**
   ➢   Secondary SNTP: **Set Secondary SNTP server IP address.**
   ➢   Time zone: **Set Time zone.**
   ➢   Adjustment Time: **Set adjustment time period.**

   ❏ Volume & Gain
   o   Handset volume: **Set Handset volume from 0~15 (max.).**
   o   Speaker volume: **Set Spearer phone volume from 0~15 (max.).**
   o   Handset Gain: **Set Handset gain from 0~15 (max.).**
   o   Speaker Gain: **Set Speaker gain from 0~15 (max.).**

   ❏ Ringer
   o   Ringer volume: **Ringer volume setting from 0~15 (max.).**
   o   Ringer type: **Ringer tone selection from 1~4.**

4. **Network**
   ❏ WAN Setup
   o   IP Type
   ➢   Fixed IP client
   ➢   DHCP client
   ➢   PPPoE client

   o   Fixed IP setting
   ➢   IP Address
   ➢   Subnet mask
   ➢   Default Gateway
   ➢   MAC address

   o   PPPoE setting
   ➢   User name
   ➢   Password

   ❏ LAN Setup
   ➢   Bridge
   ➢   NAT

   ❏ DNS
   ➢   Primary DNS
   ➢   Secondary DNS

   ❏ VLAN
   ➢   Activation
   ➢   VID: service provider to set your VID Priority(VID 2~4094)
   ➢   CFI: Canonical Format Indicator(0~1)
   ➢   Status: Show WAN and LAN IP addresses

5. **SIP Settings**
- ❑   Service domain
  - ○   First realm
    - ➢   Activation
    - ➢   User name
    - ➢   Display name
    - ➢   Register name
    - ➢   Register password
    - ➢   Proxy server
    - ➢   Domain server
    - ➢   Outbound proxy
  - ○   Second realm
    - ➢   Activation
    - ➢   User name
    - ➢   Display name
    - ➢   Register name
    - ➢   Register password
    - ➢   Proxy server Proxy
    - ➢   Domain server
    - ➢   Outbound proxy
  - ○   Third realm
    - ➢   Activation
    - ➢   User name
    - ➢   Display name
    - ➢   Register name
    - ➢   Register password
    - ➢   Proxy server Proxy
    - ➢   Domain server
    - ➢   Outbound proxy
- ❑   Codec
  - ○   Codec type
    - ➢   G.711 uLaw
    - ➢   G.711 aLaw
    - ➢   G.723
    - ➢   G.729
    - ➢   G.726-16
    - ➢   G.726-24
    - ➢   G.726-32
    - ➢   G.726-40
  - ○   VAD: **To Enabled/Disabled the Voice Active Detection function.**
- ❑   RTP setting
  - ○   Outband DTMF
  - ○   Duplicate RTP
    - ➢   **No duplicate**
    - ➢   **One duplicate**
    - ➢   **Two duplicate**
- ❑   RPort Setting: RPort Enabled/Disabled
- ❑   Hold by RFC : On the talk state selece the hold for disable or enable(RCF:3261)
- ❑   Status
  - ○   **First Realm**: First SIP server register status

     o **Second Realm**: Second SIP server register status
     o **Third Realm:** Third SIP server register status

6. **NAT Transversal**
   ❑ STUN setting
   o STUN: **To Enabled/Disabled this function.**
   o STUN server

7. **Administrator**
   ❑ Auto Config
   o Config mode
   ➢   Disable
   ➢   TFTP
   ➢   FTP
   o TFTP server**: Setting the TFTP server IP address.**
   o FTP server**: Setting the FTP server IP address**
   o FTP Login Name**: Setting the FTP login name**
   o FTP Password: **Setting the FTP password**

   ❑ Default setting

   ❑ System Authentication: To do the SIP setting from Keypad, need to input the password first. Default is "24234880".

   ❑ Version

   ❑ Watch dog

   ❑ Restart

Setup the VoIP Phone by Web Browser

The VoIP Phone provides a built-in web server. You can use Web browser to configure the VoIP Phone. First please input the IP address in the Web page. In the end of IP address, please add the port number ":9999". Ex:http://192.168.1.100:9999

1.9 Login

1.9.1 Please input the username and password into the blank field. The default setting is:
1. For Administrator, the username is: admin; and the password is: 24234880. If you use the account login, you can configure all the setting.
2. For normal user, the username is: user; and the password is: user. If you use the account login, but you cannot configure the SIP setting.

1.9.2 Click the "Login" button will move into the VOIP PHONE web based management information page.

1.9.3 If you change the setting in the Web Management interface, please do remember to click the "Submit" button in that page. After you finished the change of the setting, click the "Save" function in the left side, and click the Save Button. When you finished the setting, please click the Reboot function in the left side, and click the Reboot button in that page. After the system restart, all the setting can work properly.
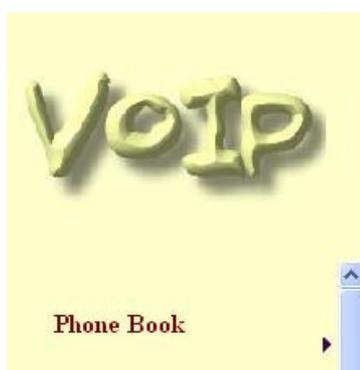

1.10 System Information for the VOIP PHONE

1.10.1   When you login the web page, you can see the VOIP PHONE current system information like firmware version, company… etc in this page.
1.10.2   Also you can see the function lists in the left side. You can use mouse to click the function you want to set up.

1.11 Phone Book

1.11.1   In Phone Book contains Phone Book and Speed Dial Settings. You can setup the Phone Book and Speed Dial number. The Phone Book can store 140 phone numbers and the

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Speed Dial can store 10 phone numbers. If you want to use Speed Dial you just dial the speed dial number (from 0~9) then press "#".

1.11.2 In the Phone Book function you can add/delete the phone number in the phone book list. You can input maximum 140 entries phone book list.
❑ If you need to add a phone number into the phone book, you need to input the position, the name, and the phone number (by URL type). When you finished a new phone list, just click the "Add Phone" button.
❑ If you want to delete a phone number, you can select the phone number you want to delete then click "Delete Selected" button.
❑ If you want to delete all phone numbers, you can click "Delete All" button.

1.11.3 In Speed Dial setting function you can add/delete Speed Dial number. You can input maximum 10 entries speed dial list.
❑ If you need to add a phone number into the Speed Dial list, you need to input the position, the name, and the phone number (by URL type). When you finished a new phone list, just click the "Add Phone" button.
❑ If you want to delete a phone number, you can select the phone number you want to delete then click "Delete Selected" button.
❑ If you want to delete all phone numbers, you can click "Delete All" button.

1.12 Phone Setting

1.12.1   In Phone Setting contains Call Forward, SNTP Settings, Volume Settings, Melody Settings, Block Setting, and Call waitting .

1.12.2   Call Forward function: you can setup the phone number you want to forward in this page. There are three type of Forward mode. You can choose All Forward, Busy Forward, and No Answer Forward by click the icon.

❑   All Forward: All incoming call will forward to the number you choosed. You can input the name and the phone number in URL field. If you select this function, then all the incoming call will direct forward to the speed dial number you choose.

❑   Busy Forward: If you are on the phone, the new incoming call will forward to the number you choosed. You can input the name and the phone number in URL field.

❑   No Answer Forward: : If you can not answer the phone, the incoming call will forward to the number you choosed. You can input the name and the phone number in URL field. Also you have to set the Time Out time for system to start to forward the call to the number you choosed.

❑   When you finished the setting, please click the Submit button.

1.12.3   SNTP Setting function: you can setup the primary and second SNTP Server IP Address, to get the date/time information. Also you can base on your location to set the Time Zone, and how long need to synchronize again. When you finished the setting, please click the Submit button.

1.12.4   Volume Setting function: you can setup the Handset Volume, Ringer Volume, and the Handset Gain. When you finished the setting, please click the Submit button.
❑   Handset Volume is to set the volume you hear from the handset.
❑   Speaker Volume is to set the volume you hear from the speaker phone.
❑   Ringer Volume is to set the ringer volume.
❑   Handset Gain is to set the volume send out from the handset.
❑   Speaker Gain is to set the volume send out from the micro phone.

1.12.5   Melody Setting function: you can select the melody for the imcoming call. When you finished the setting, please click the Submit button.

1.12.6 Block Setting function: you can setup the Block Setting to keep the phone slience. You can choose Always Block or Block a period.

❑   Always Block: All incoming call will be blocked until disable this feature.
❑   Block Period: Set a time period and the phone will be blocked during the time period. If the "From" time is large than the "To" time, the Block time will from Day 1 to Day 2.
❑   When you finished the setting, please click the Submit button.

1.12.7 Dial Plan function: This function is when you input the phone number by the keypad but you don't need to press "#". After time out the system will dial directly.

❑   Symbol explan:

❑
x or X	0,1,2,3,4,5,6,7,8,9
+	or

❑   Replace rule:If replace prefix code is ON and prefix number is matched with rule then 005 will replace prefix.
❑   Auto Dial Time : Stop dialing after seconds then send dial number out.
❑   Dial Plan: When match with pattern then send dial number out but if fisrt digit is '0' then dial plan will be ignored.
        Example:

*xx	If matched with one of *00,*01….*99 then will send number out
#xx	If matched with one of #00,#01….#99 then will send number out
10x	If matched with one of 100,101….109 then will send number out
11x	If matched with one of 110,111….119 then will send number out
Xxxxxxxx	If dial with 8 digits then send number out

❏   Auto Prefix : Number for add before dial number.
❏   Prefix Unset Plan : When first digit or dial numeb match with pattern then ignore auto prefix.
❏   When you finished the setting, please click the Submit button.
❏   If there is nothing need to change, please click the Save Change Item in the left side, then click the Save button. The change you made will save into the system and the system will Reboot automatically.

1.12.8 Call Waiting Setting function: If user doesn't want to be inform there is a new incoming call, user can set the function off.

1.13 Network

1.13.1 In Network you can check the Network status, configure the Network Settings and DDNS settings.

1.13.2 Network Status: You can check the current Network setting in this page.

1.13.3 WAN Settings: You can configure the VoIP Phone Network setting in this page.

❑ You can choose Brigde or NAT for the LAN mode. If you set the Bridge On, then the two Fast Ethernet ports will be transparent.

❑ The WAN setting item is to setup the LAN port's network environment. You may refer to your current network environment to configure the VoIP Phone properly.

❑ The PPPoE Configuration item is to setup the PPPoE Username and Password. If you have the PPPoE account from your Service Provider, please input the Username and the Password correctly.

❑ When you finished the setting, please click the Submit button.

WAN Settings

You could configure the WAN settings in this page.

LAN Mode: ○ Bridge ◉ NAT

WAN Setting

IP Type: ○ Fixed IP ◉ DHCP Client ○ PPPoE
IP: 192.168.1.108
Mask: 255.255.255.0
Gateway: 192.168.1.254
DNS Server1: 168.95.192.1
DNS Server2: 168.95.1.1
MAC: 00094551ff01

PPPoE Setting

User Name:
Password:

[Submit] [Reset]

1.13.4 LAN Settings: You can configure the VoIP Phone Network setting in this page.

LAN Settings

You could configure the LAN settings in this page.

LAN Setting

IP: 192.168.123.1
Mask: 255.255.255.0
MAC: 00094551ff02

DHCP Server

DHCP Server: ◉ On ○ Off
Start IP: 150
End IP: 200
Lease Time: 1 : 0 (dd:hh)

[Submit] [Reset]

1.13.5 DDNS Setting: You can configure the DDNS setting in this page. You need to have the DDNS account and input the informations properly. You can have a DDNS account with a public IP address then others can call you via the DDNS account. But now most of the VoIP

applications are work with a SIP Proxy Server. When you finished the setting, please click the Submit button

DDNS Settings

You could set the configuration of DDNS in this page.

DDNS:	● On ○ Off

Host Name:	[_____]
User Name:	[_____]
Password:	[_____]
E-mail Address:	[_____]

DDNS Server:	[_____]
DDNS Server List:	User Input ▼
Type:	dyndns ▼
Wild Card:	on ▼

BACKMX:	○ On ● Off
Off Line:	○ On ● Off

[Submit] [Reset]

1.13.6 VLAN Settings: ou can set the VLAN setting in this page. There are two parts in this page. First one is to set the packets related to the IP Phone, and the second parts is if you use the VLAN setting in the NAT Mode.

❑ There are two kind of destination packets will come from the WAN port of IP Phone, one kind of packets will go to the IP Phone , the other will go through the LAN port to the PC.

❑ VLAN Packets: if you enable the first VLAN Packets and set the VID, User Priority, and CFI, then all the incoming packets will be check with the IP Address and the VID.

❑ VID: You can follow your service provider to set your VID.

❑ User Priority: Defines user priority, giving eight (2^3) priority levels. IEEE 802.1P defines the operation for these 3 user priority bits. Usually this will be defined by your service provider.

❑ CFI: Canonical Format Indicator is always set to zero for Ethernet switches. CFI is used for compatibility reason between Ethernet type network and Token Ring type network. If a frame received at an Ethernet port has a CFI set to 1, then that frame should not be forwarded as it is to an untagged port.

❑ When you enable the first VLAN Packets and set the VID, User Priority, and CFI, then all the incoming packets with the IP address of IP Phone and the same VID will be accept by the IP Phone. If the incoming packets with theIP Phone IP address but the different VID then the packets will be discard by the IP IPhone. The Other incoming packets with different IP address will go through the LAN port to the PC.

❑ NAT VLAN Setting: When you set your device in NAT mode, the IP Phone can help you to filter the wrong incoming packets. You can separate the other device connectd behind the IP Phone into 4 VLAN group. You can set different VID for these 4 groups. When the incoming packets go through the WAN port of IP Phone then the IP Phone will check the VID, if the packets is not going to the IP Phone (with the IP address of IP Phone and the correct VID), and the VID is not these four VID you set, then the packets will be discard by the IP Phone.

VLAN Settings

You could set the VLAN settings in this page.

VLAN Packets:	⦿ Off ○ On
VID:	136 (2 ~ 4094)
User Priority:	0 (0 ~ 7)
CFI:	0 (0 ~ 1)

NAT VLAN Setting

VLAN Packets:	⦿ Off ○ On
VID1:	4 (2 ~ 4094), 0->Off
VID2:	5 (2 ~ 4094), 0->Off
VID3:	6 (2 ~ 4094), 0->Off
VID4:	7 (2 ~ 4094), 0->Off

[Submit] [Reset]

1.14 SIP Settings

1.14.1   In SIP Settings you can setup the Service Domain, Port Settngs, Codec Settings, Codec ID Settings, RTP Setting, RPort Setting and Other Settings. If the VoIP service is provided by ISP, you need to setup the related informations correctly then you can register to the SIP Proxy Server correctly.

1.14.2   In Service Domain Function you need to input the account and the related informations in this page, please refer to your ISP provider. You can register three SIP account in the VoIP Phone. You can dial the VoIP phone to your friends via first enable SIP account and receive the phone from these three SIP accounts.

❑   First you need click Active to enable the Service Domain, then you can input the following items:
o   Display Name: you can input the name you want to display.
o   User Name: you need to input the User Name get from your ISP.
o   Register Name: you need to input the Register Name get from your ISP.
o   Register Password: you need to input the Register Password get from your ISP.
o   Domain Server: you need to input the Domain Server get from your ISP.
o   Proxy Server: you need to input the Proxy Server get from your ISP.
o   Outbound Proxy: you need to input the Outbound Proxy get from your ISP. If your ISP does not provide the information, then you can skip this item.
o   Register Period: you need to input the Register Period get from your ISP. This is count in minute.
o   You can see the Register Status in the Status item. If the item shows "Registered", then your VoIP Phone is registered to the ISP, you can make a phone call direcly.
o   If you have more than one SIP account, you can following the steps to register to the other ISP.
o   When you finished the setting, please click the Submit button.

Service Domain Settings

You could set information of service domains in this page.

Realm 1 (Default)

Active:	⊙ On ○ Off
Display Name:	
User Name:	
Register Name:	
Register Password:	
Domain Server:	
Proxy Server:	
Outbound Proxy:	
Status:	Not Registered

Realm 2

Active:	○ On ⊙ Off
Display Name:	
User Name:	
Register Name:	
Register Password:	
Domain Server:	
Proxy Server:	
Outbound Proxy:	
Status:	Not Registered

Realm 3

Active:	○ On ⊙ Off
Display Name:	
User Name:	
Register Name:	
Register Password:	
Domain Server:	
Proxy Server:	
Outbound Proxy:	
Status:	Not Registered

Submit   Reset

1.14.3 Port Settings: you can setup the SIP and RTP port number in this page. Each ISP provider will have different SIP/RTPport setting, please refer to the ISP to setup the port number correctly. When you finished the setting, please click the Submit button.

Port Settings

You could set the port number in this page.

SIP Port:	5060	(10~65533)
RTP Port:	60000	(10~65533)

Submit   Reset

1.14.4 Codec Settings: you can setup the Codec priority, RTP packet length, and VAD function in this page. You need to follow the ISP suggestion to setup these items. When you finished the setting, please click the Submit button.

Codec Settings

You could set the codec settings in this page.

Codec Priority

Codec Priority 1:	G.711 u-law
Codec Priority 2:	G.711 a-law
Codec Priority 3:	G.729
Codec Priority 4:	G.723
Codec Priority 5:	G.726 - 16
Codec Priority 6:	G.726 - 24
Codec Priority 7:	G.726 - 32
Codec Priority 8:	G.726 - 40

RTP Packet Length

G.711 & G.729:	20 ms
G.723:	30 ms

G.723 5.3K

G.723 5.3K:	○ On ⊙ Off

Voice VAD

Voice VAD:	○ On ⊙ Off

Submit   Reset

1.14.5 Codec ID Settings: you can set the Codec ID to meet the other device's requirement. When you finished the setting, please click the Submit button.

Codec ID Setting

You could set the value of Codec ID in this page.

Codec Type	ID		Default Value
G726-16 ID:	23	(95~255)	☑ 23
G726-24 ID:	22	(95~255)	☑ 22
G726-32 ID:	2	(95~255)	☑ 2
G726-40 ID:	21	(95~255)	☑ 21
RFC 2833 ID:	101	(95~255)	☑ 101

Submit   Reset

1.14.6 DTMF Setting: you can choose among 2833, Inband DTMF and Send DTMF SIP info in this page. To change this setting, please following your ISP information. When you finished the setting, please click the Submit button. This

DTMF Setting

You could set the DTMF setting in this page.

- ⊙ 2833
- ○ Inband DTMF
- ○ Send DTMF SIP Info

[Submit] [Reset]

1.14.7 RPort Function: you can setup the RPort Enable/Disable in this page. To change this setting, please following your ISP information. When you finished the setting, please click the Submit button.

RPort Setting

You could enable/disable the RPort setting in this page.

RPort: ○ On ⊙ Off

[Submit] [Reset]

1.14.8 Other Settings: you can setup the Hold by RFC, Voice/SIP QoS and SIP expire time in this page. To change these settings please following your ISP information. When you finished the setting, please click the Submit button. The QoS setting is to set the voice packets' priority. If you set the value higher than 0, then the voice packets will get the higher priority to the Internet. But the QoS function still need to cooperate with the others Internet devices.

Other Settings

You could set other settings in this page.

Hold by RFC:	○ On ⊙ Off	
Voice QoS:	40	(0~63)
SIP QoS:	40	(0~63)
SIP Expire Time:	60	(60~86400 sec)

[Submit] [Reset]

1.15 NAT Trans.

1.15.1 In NAT Trans. you can setup STUN function. These functions can help your VoIP Phone working properly behind NAT.

1.15.2 STUN Setting: you can setup the STUN Enable/Disable and STUN Server IP address in this page. This function can help your VoIP Phone working properly behind NAT. To change these settings please following your ISP information. When you finished the setting, please click the Submit button.

STUN Setting

You could set the IP of STUN server in this page.

STUN: ○ On ◉ Off

STUN Server: 66.7.238.210
STUN Port: 3478   (1024~65535)

[Submit] [Reset]

1.16 Others.

1.16.1 In Others you can setup Auto config function. The function can configure your VoIP Phone automatically.

1.16.2 Auto Config: you can setup the Auto Configuration to Disable, Enable by TFTP or FTP, and auto configuration TFTP or FTP Server IP address in this page. This function can automatically download the configure file to setup your VoIP Phone. When you finished the setting, please click the Submit button.

Auto Configuration Setting

You could enable/disable the auto configuration setting in this page.

Auto Configuration: ◉ Off   ○ By TFTP   ○ By FTP

TFTP Server: 192.168.1.10
FTP Server: 0.0.0.0
FTP Username:
FTP Password:
File Path:

[Submit] [Reset]

1.16.3 ICMP Setting: you can setup the ICMP Setting Enable/Disable in this page. When you finished the setting, please click the Submit button.

ICMP Setting

You could enable/disable the ICMP setting in this page.

ICMP Not Echo: ○ On ◉ Off

[Submit] [Reset]

1.17 System Authority

1.17.1 In System Authority you can change your login name and password.

1.18 Save Change

1.18.1 In Save Change you can save the changes you have done. If you want to use new setting in the VoIP Phone, You have to click the Save button. After you click the Save button, the VoIP Phone will automatically restart and the new setting will effect.

1.19 Update

1.19.1 In Update you can update the VoIP Phone's firmware to the new one or do the factory reset to let the VoIP Phone back to default setting.

1.19.2 In New Firmware function you can update new firmware via HTTP in this page. You can ugrade the firmware by the following steps:

❑   Select the firmware code type, Risc or DSP code.
❑   Click the "Browse" button in the right side of the File Location or you can type the correct path and the filename in File Location blank.
❑   Select the correct file you want to download to the VoIP Phone then click the Update button.

1.19.3 In Default Setting you can restore the VoIP Phone to factory default in this page. You can just click the Restore button, then the VoIP Phone will restore to default and automatically restart again.

Restore Default Settings

You could click the restore button to restore the factory settings.

Restore default settings: [Restore]

1.20 Reboot

1.20.1   Reboot function you can restart the VoIP Phone. If you want to restart the VoIP Phone, you can just click the Reboot button, then the VoIP Phone will automatically.

Reboot System

You could press the reboot button to restart the system.

Reboot system: [Reboot]

Setup the VoIP Phone by usingTelnet (only suppurt Windonw xp)

1.21 Configure

On the PC choose Start>Run, and then type telnet 192.168.1.100 into Run field in popuping Run dialog. Or input telnet 192.168.1.100 in the DOS window. Then the following information will be displayed.

```
Telnet 192.168.3.166                                    _ □ ✕

IP phone-FX01 : CLI
Login : _
```
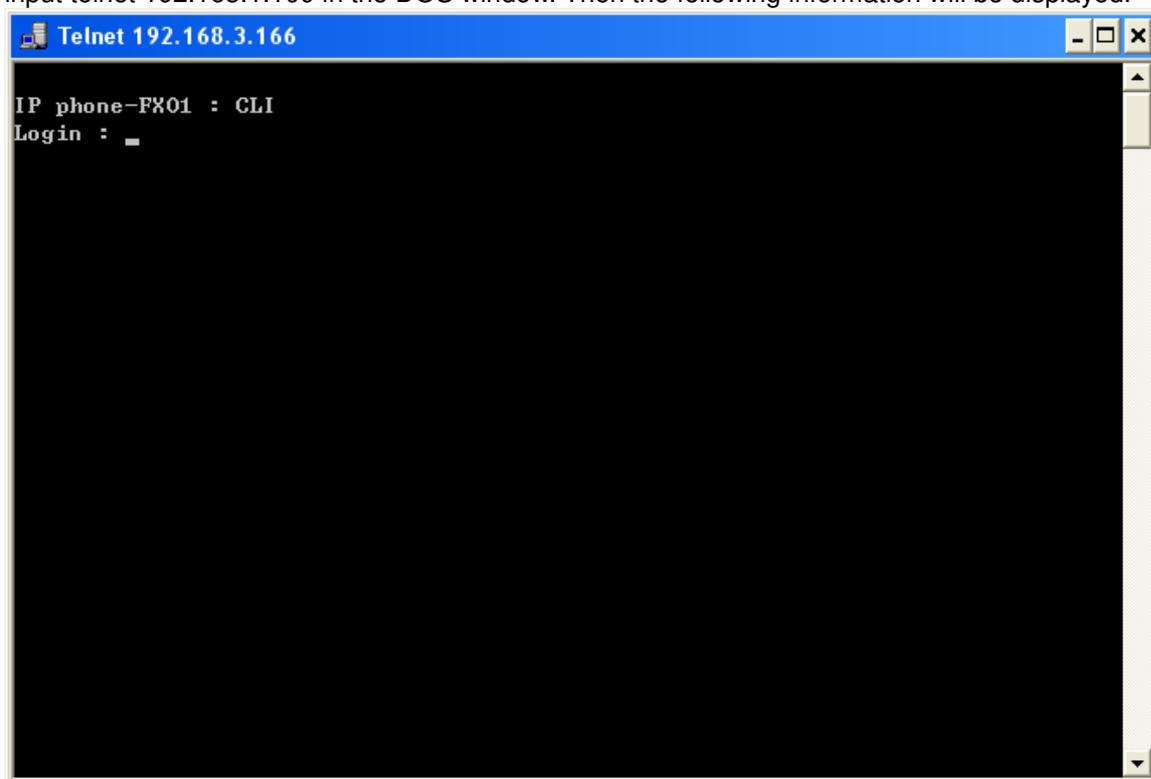
Login into the VoIP Phone

Press "Enter" and the hyper terminal will show the "Login: ". Input "admin" and press the "Enter" button. Then hyper terminal will show the "Password: "Input "2423488" and press the "Enter" button. Now you already login the VoIP Phone.

```
Telnet 192.168.3.166

IP phone-FXO1 : CLI
Login : admin
Password : 24234880
Login Correct

>
```
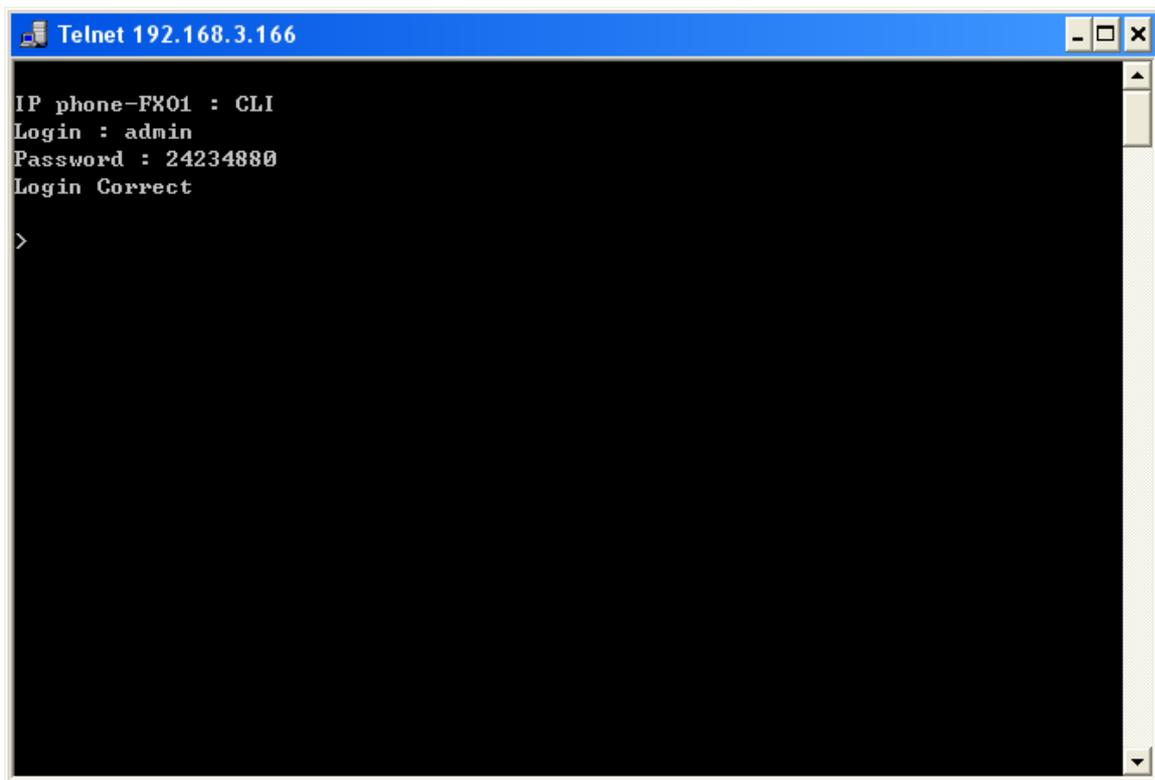
1.22 Using CLI command to configure the VoIP Phone

CLI command list as below:

Itno	Command	Description
1	?	Show CLI Command
2	arp	ARP Configuration
3	ipconfig	Interface Configuration
4	save	Save to flash
5	reboot	Reboot
6	exit	Exit
7	debugmode	Enter Debug Mode
8	update	Update Flash Code/RAM
9	auth	Change User Name and Password
10	nat	NAT Configuration
11	dns	DNS Configuration
12	ping	ping [-lN] [IP-addr|host-name]
13	sip	SIP Configuration
14	ddns	DDNS Configuration
15	sntp	SNTP Configuration
16	vlan	VLAN Configuration
17	time	Get System Time
18	mactab	Show MAC Learning Table
19	dump	Read/Write Memory
20	book	Edit phone book
21	reload	Reload Factory Setting
22	watchdog	WatchDog Function
23	phone	Phone Setting
24	weblogo	Change Web's logo
25	dsp	Show dsp type
26	addport	Add Nat Port Mapping
27	cid	Select slic Cid
28	slic	read or write slic registers
29	ver	Firmware Version

❑   "?" function is to show CLI command list in the screen.

❑   arp function

Itno	Command	Description
1	?	Show 'arp' Option
2	-a	Show ARP Table
3	-d	Delete ARP Table
4	-s	Set Static ARP Table
5	(null)	Show ARP Table

❑   ipconfig function

Itno	Command	Description
1	?	Show 'ipconfig' Option
2	-if0	Interface 0
3	-if1	Interface 1
4	-if2	Interface 2
5	-h	Set Host Name
6	-a	Set ARP Cache Expire
7	-r	Restore Current Setting
8	(null)	Show IP Setting

o   ipconfig –ifN function → N is 0, 1, 2

Itno	Command	Description
1	?	Show 'ipconfig -ifN' Option
2	-t	Set Host Type
3	-m	Set MAC Address
4	-i	Set IP Address
5	-nm	Set Net Mask
6	-g	Set Gateway
7	-dns0	Set Primary DNS server
8	-dns1	Set Secondary DNS server
9	-dr	Set Default Route
10	-nat	Set NAT
11	on	Enable Interface
12	off	Disable Interface
13	-dhcps	DHCP Server Setting
14	-ddns	Set DDNS
15	-bridge	Set Bridge
16	-dev0	Set Device 0 Setting
17	-dev1	Set Device 1 Setting
18	-dev2	Set Device 2 Setting
19	(null)	Show Interface Setting

❑   save function

Itno	Command	Description
1	?	Show 'save' Option
2	-book	Save phone book
3	-sys	Save system setting

❑   reboot function is to restart the system.

❑   exit function is to exit the CLI.

❑   debugmode function is to enter the debugmode.

❑   update function

Itno	Command	Description
1	?	Show 'update' Option
2	-os	Update OSImage(IP filename)
3	-dsp	Update DSP Image(IP filename)
4	-all	Update All Image(IP filename)
5	-server	Update Server (IP filename length)
6	-pcm	PCM(IP filename)
	-alaw	alaw (IP filename)
	-ulaw	ulaw (IP filename)
	-g729	g729 (IP filename)
	-g723	g723 (IP filename)
	-g726.16	g726.16 (IP filename)
	-g726.24	g726.24 (IP filename)
	-g726.32	g726.32 (IP filename)
	-g726.40	g726.40 (IP filename)

IP is the TFTP server's IP address, and the filename is the image you want to download into the system.

❑   auth function

Itno	Command	Description
1	?	Show 'auth' Option
2	-admin	Change Administrator user name/password
3	-sys0	Change System user0 user name/password
4	-sys1	Change System user1 user name/password
5	-sys2	Change System user2 user name/password
6	-sys3	Change System user3 user name/password
7	-sys4	Change System user4 user name/password
8	-norm0	Change Normal user0 user name/password
9	-norm1	Change Normal user1 user name/password
10	-norm2	Change Normal user2 user name/password
11	-norm3	Change Normal user3 user name/password
12	-norm4	Change Normal user4 user name/password
13	-ppp	Change PPP user name/password
14	(null)	Show auth Setting

In each item includes

Itno	Command	Description
1	?	Show 'auth' Option
2	-user	Change User Name.'auth -sys3 -user xxx '
3	-pass	Change Password. 'auth -sys3 -pass xxx xxx'
4	(null)	Show auth's System/PPP Setting

If you want to change the password, you need to type the password twice in the CLI.

❑   nat function

Itno	Command	Description
1	?	Show 'nat' Option
2	-vs	Set 'nat -vs' Option
3	-dmz	Set 'nat -dmz' Option
4	(null)	Show NAT Setting

In DMZ item includes

Itno	Command	Description
1	?	Show 'nat -dmz' Option
2	on	EnableDMZ
3	off	EnableDMZ
4	-ip	Set DMZ IP address
5	(null)	Show DMZ Setting

❑   dns function

Itno	Command	Description
1	?	Show 'dns' Option
2	-q	DNS query. dns -q domain-name
3	(null)	Show DNS Table

❑   ping function

Itno	Command	Description
1	?	Show 'ping' Option
2	-l	ping [-l N] [IP-addr|host-name]
3	(null)	ping [IP-addr|host-name]

❑ sip function

Itno	Command	Description
1	?	Show 'sip' Option
2	-proxy0	sip -proxy0
3	-proxy1	sip -proxy1
4	-proxy2	sip -proxy2
5	-upnp	sip -upnp on/off/show
6	-exts	sip -exts sip upnp external-port
7	-extr	sip -extr rtp upnp external-port
8	-sipp	sip udp port
9	-rtpp	sip rtp port
10	-stun	sip -stun on/off
11	-rport	sip -rport on/off
12	-sserver	sip -sserver stun-server
13	-out	sip -out outbound-proxy
14	-dump	sip –dump
15	-log	sip -log on/off
16	-drtp	sip -drtp 0/1/2
17	-rtpnc	sip -rtpnc on/off
18	-wanip	sip –wanip
19	-nattype	sip –nattype
20	-hbyrfc	sip –hbyrfc
21	-dereg	sip -dereg
22	-restart	sip -restart
23	-jbt	sip -jitter buffer Threshold
24	(null)	Show SIP Setting

❑ ddns function

Itno	Command	Description
1	?	Show 'ddns' Option
2	-type	Set DDNS Type
3	-host	Set Host Name
4	-wild	Set Wild Card Mode
5	-mx	Set Mail Exchanger
6	-backmx	Set Mail Exchanger Mode
7	-offline	Set Offline Mode
8	-user	Set Login User Name
9	-pass	Set Login Password
10	(null)	Show DDNS Setting

❑ sntp function

Itno	Command	Description
1	?	Show 'sntp' Option
2	-on	Enable SNTP Client
3	-off	Disable SNTP Client
4	-ip1	Set SNTP Server1 IP
5	-ip2	Set SNTP Server2 IP
6	-mode	Set SNTP Client Mode
7	-zone	Set GMT Time Zone: [+|-][hour]:[min]
8	-adjust	Set Adjustment Time: [second]
9	(null)	Show SNTP Setting

❑   vlan function

Itno	Command	Description
1	?	Show 'vlan' Option
2	-tx	Tx Vlan setting
3	-rx	Rx Vlan setting
4	(null)	Show Vlan Setting

❑   time function

Itno	Command	Description
1	?	Show 'Time' Option
2	-t	Modify Time: hour:min:sec
3	-d	Modify date: year:mon:date
4	(null)	Show Data & Time

❑   mactab function is to show MAC learning table.

❑   dump function

Itno	Command	Description
1	?	Show 'dump' Option
2	-r	dump -r XXXXxxxx
3	-w	dump -w XXXXxxxx XX

❑   book function

Itno	Command	Description
1	?	Show 'book' Option
2	-a	Show answer list
3	-c	Show call list
4	-s	speed dial
5	-p	phone book

❑   reload function is to Reload Factory Setting, please make sure you want to do the factory reset.

❑   watchdog function

Itno	Command	Description
1	?	Show 'WatchDog' Option
2	on	Enable WatchDog
3	off	Disable WatchDog
4	(null)	Show WatchDog Setting

❑   phone function

Itno	Command	Description
1	?	Show 'phone' Option
2	-autoanswer	phone auto answer
3	-vol	Volume setting
4	-block	Block Incoming call
5	-ring	Set Melody Ringer
6	-forward	Auto-forward Incall to Phone[0-9] in Book
7	(null)	Show Phone Setting

❑ weblogo function

Itno	Command	Description
1	?	Show 'weblogo' Option
2	-on	Vender Logo
3	-off	Crystal media Logo
4	(null)	Show weblogo Setting

❑ dsp function is to show dsp code type.

❑ addport function is to add Nat Port Mapping

❑ cid function

Itno	Command	Description
1	?	Show 'cid' Option
2	-off	Disable Slic Cid signal
3	-1	Tx FSK after 1st Ring
4	-2	Tx FSK before 1st Ring
5	-3	Tx DTMF before 1st Ring
6	-4	Tx FSK with Line reversal before 1st Ring
7	-5	Tx DTMF with Line reversal before 1st Ring
8	-time	FSK cid with time message
9	-single	Single type FSK CID
10	(null)	Show Cid Option

❑ slic function

Itno	Command	Description
1	?	Show 'slic' Option
2	-ring	Issue Ring signal
3	-r	read slic addr
4	-w	write slic addr
5	-a	read all slic reg
6	(null)	Show slic register

❑ ver function is to show Firmware Version.

Phone function list

When your VoIP Phone is configured properly, you can make a phone call to your friend located in the same service provider. If you want to make a phone call, you can dial the phone number then press "#" button to start to dial the phone number or wait for a while then system will dial the number automatically.

The VoIP Phone provides some functions that list as below:

1. **Call Hold:** You can push the 'Hold' buton to hold the current call for a while, then push 'Hold' button again to keep talking.

2. **Call Waiting:** When a new call is coming while you are talking, you can push the 'Hold' button to switch to the new call. You can push the 'Hold' button to switch between the two calls.

3. **3-Way Conference:** If you want to make a 3-way conference call, you can make a phone call to the first phone number. After the call is established, push the 'Hold' button then you can hear the Dial tone, then make a phone call to the second phone number. When the second call is established, press the 'Conf' button.

4. **Call Transfer:** Below is the operation method.
   Step 1: A call B
   Step 2: B press "Transfer" then A will be held
   Step 3: Make a new call to C
   Step 4: Before C answers the call, hang up the phone

5. **Redial:** User can push the Redial button to dial the last dialed number.

6. **Speaker Phone:** You can use Speaker phone to make a phone call.

7. **Pre Dial:** User can dial the number first, after finished then raise the handset or push the speaker button; the IP Phone will start to dial.

8. **Phone book:** When Press the phone book key ,the LCD will display to "Seach: [   ]" . Enter you want name, then press the "OK" key .the LCD will display to the name.and press the "SPK" key or pick up the hendset. Auto dail the number.

9. **DND**
   Pess the " DND" Key , IP-301into the Do Not Disturb" staute. Again press the " DND" key exit the function.

10. **FWD**
    Pess the "FWD" key mIP-300 into Call Forward function staute. Again press the "FWD" key exit the function.

USING THE IP PHONE

To place a call

Call another IP 300 IP phone under the same Gatekeeper:

1. Handset: Pick up the handset and listen for the Internet dial tone. Then dial the phone number you wish to call and press "#". Once the call connection has been established and the ring tone has sounded, wait for the other party to answer. When the other party answers, you can begin speaking. When the call is over, put back the handset. The dialed number will be saved into the Call Out.

2. Hand free: Press"H/F" key and listen for the Internet dial tone. Then input the phone number you wish to call and press "#". Once the call connection has been established and the ring tone has sounded, wait for the other party to answer. When the other party answers, you can begin speaking. When the call is over, Press"H/F" key again. The dialed number will be saved into the Call out.

When you're using gatekeeper provided by the manufacturer to call a fixed line or mobile

1. Lift the handset from the cradle or press "**SPK**" and listen for the dial tone

Note: Upon lifting the handset, the LCD displays the message **IP Dialing …**

2. Dial "00" (*or any prefix provided by service provider*) followed by the destination phone number and press the **#** key. When dialing a number in North America, always dial 00 + 1 + the area code + the number.

As the IP Phone attempts to connect the call, the LCD displays the message **Calling…** as well as the phone number dialed.

If the connection attempt is successful, the **Calling** message will change to **Connected.**

After displaying the **Connected** message, the phone being called will begin to ring. When the call is answered, you may start talking.

Appendix

Get a FWD account

1. The website is www.freeworlddialup.com; you can apply an account to use the VoIP communication. You can follow the instruction to input the information. After you finished, you will receive a mail sent by the FWD mail system, you will get the account information in the mail.
2. When you got the account, you can setup the related information into the VoIP Phone.
3. You can setup the related information into the VoIP Phone by web browser. Also you can use Telnet, Console via CLI command to configure the VoIP Phone. You need to input the Proxy Name, Domain Name, Register Name, and password. The Display Name you can input what you want to let others see.

4. After you registered to the SIP Server, you can try to call your friends who also registered in the same SIP Server. You just need to dial your friend's user name (registered name) and press "#" then you can make a phone call to your friend.

5. If you want to make a phone call to the other in the internet, first you need to registered in a Proxy Server (with SIP Server IP, Domain IP, registered name, Password), make sure you already enable Stun function, then you can try