

ZIP 4x4

IP Telephone

Overview

The ZIP 4x4 integrates the functions of a managed switch with a business phone, and adds an address book, a calculator, and a speaker phone. The phone is referred to as a “four by four” because it has four call appearances and four Ethernet circuits. The phone is available in white and black.

The ZIP 4x4 is 100% based on open standards. It uses SIP for call control, making it compatible with Windows Messenger and any IP phone system using the SIP standards. The switch on the phone supports all applicable standards for VLANs and QoS, ensuring it is compatible with any network, new or old. The phone can be powered from an ac adapter or receive power over an Ethernet connection.

By deploying the ZIP 4x4, an enterprise can achieve significant gains in productivity. In installation, only a single circuit needs to be taken to the desktop, to provide both voice and data communications. In deployment, by using open methods for configuration, an administrator can rapidly deploy the phones without any involvement by the end user. The phone makes moves and changes painless by requiring no reprovisioning and no rewiring.

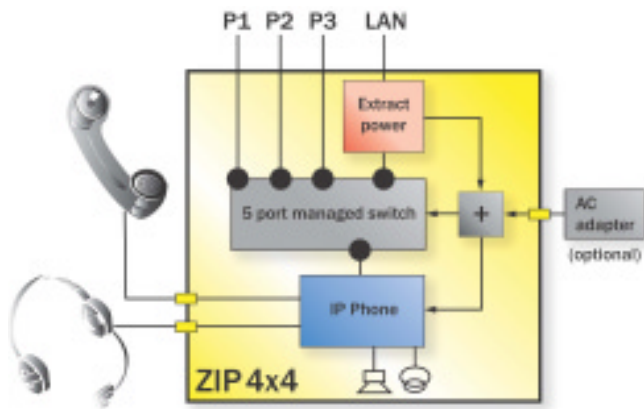
In day to day operation, end users can access all features and functions quickly and unambiguously. The phone has 35 buttons and keys which eliminate the need to plow through menus and a frustrating quagmire of soft keys.



Key Features

- Supports all standard PBX functions
- Four call appearances support four simultaneous calls
- Four 10/100 Ethernet circuits connect to the LAN and three additional devices
- Speech quality ensured by QoS at the Ethernet and IP layers
- Internal switch can forward traffic at line speeds and supports VLAN tagging
- Buttons and keys for all commonly used functions
- LCD has three lines by 20 characters and is easy to read
- 11 LEDs provide easy indication of status
- Speaker mode with acoustic echo cancellation for high quality audio
- Standard 2½ mm headset jack with headset included
- Receives power from Ethernet connection or ac adapter
- Easy to deploy with no need for any setup by end user
- SIP based – will operate with any standard IP phone system
- Based on highly stable embedded Linux operating system





Ergonomics

The phone has the appearance of a traditional business telephone set. It therefore occupies no more space than such a phone, but by incorporating the Ethernet switch, it actually saves space on the desktop and reduces the number of ac outlets required.

The LCD on the phone has a high contrast that the end user can adjust to suit the environment. Further, the LCD can be tilted to suit the viewing angle. This removes the necessity of leaning forward to view the LCD or tilting the entire phone.

Users can choose the call announcement tones by selecting a WAV file stored on the network by the system administrator. This allows users to select pleasing sounds that can distinguish the ring on their phone from others nearby.

There are 35 buttons and keys. Every standard feature is readily accessible using a button or key. For example, calls can be immediately redirected using the do not disturb (DND) button. To transfer a call, the user simply presses the transfer key.

There are 11 LEDs, eight of which show red, green, and orange. With these, a user quickly identifies the status of the phone or the phone system. For example, one LED indicates there are voice mail messages (MWI). The call appearance LEDs indicate incoming calls, calls on hold, and conference calls.

The dc power plug connects under the phone at a right angle. If the user pulls the phone forward, the connector stays in place ensuring that service is not disrupted. The phone has four rubber feet and a wire guide for the handset cord to ensure that it sits neatly on the desk.

Voice Features

The phone fully supports all commonly used PBX features. These are easily accessed and simple to use. Single keys access redial, transfer, hold, and conference.

Users can set the phone to forward calls unconditionally, when busy, or on no answer.

A headset is supplied with the phone, but users can use any headset with a single 2½ mm plug, or an older version that connects in series with the handset. The ZIP 4x4 has a speaker phone mode with acoustic echo cancellation. This gives high quality audio if the phone is used on a desk or in a conference room.

The user presses a single button or key to switch between the handset, headset, and speaker.

Conference

The ZIP 4x4 supports conferencing with three to five people. The conference is easily set up with any combination of inbound and outbound calls. Individual members can join or leave the conference at any time. The conference can be put on hold, allowing the other parties to continue without the host. The host can use a free call appearance to place or answer another call. The LEDs on the call appearance buttons show a different color to indicate those calls involved in the conference.

Dialling

Users can dial by phone number or SIP URL, which can be abbreviated for example by dialling "sales." Users can enter a number prior to seizing a call appearance or picking up the handset. This allows users to review and edit the number prior to calling. A single button (with its own LED) is used to mute the phone, regardless whether the handset, headset, or speaker is in use.

The phone remembers the last 32 numbers called by the phone and the last 32 numbers that called the phone. These numbers can be quickly accessed and redialled.

The phone provides a phone book for storing the contact information of 100 individuals. Phone book entries can be easily added, modified, and deleted. Calls can be made with two or three key presses.





Encryption

The phone can encrypt the voice stream to another ZIP 4x4. Users can access this function before or during a call. This prevents the conversation from being heard using a LAN monitoring device.

Data Features

The ZIP 4x4 has a five port managed switch so users can connect other devices without any additional investment in an external switch. One switch port is used internally and four ports are available for external connections. The four external ports are labelled LAN, P1, P2, and P3. The LAN port is connected as the uplink into the network and the other ports are used to connect to external devices such as PCs or laptop computers. The Ethernet ports support auto MDIX so they can easily be connected to other devices with straight through or crossover cables. In addition, all ports perform auto negotiation of link speed and determine whether operation will be full or half duplex.

Once a speed is negotiated, all ports are capable of switching Ethernet traffic at wire speed. The switch is based on hardware, not software running on the processor. This allows it to forward traffic at line rates without limitation, thus ensuring that devices downstream are not starved of bandwidth.

Power over Ethernet

The LAN port on the ZIP 4x4 switch supports the IEEE 802.3af standard and is capable of receiving power over the Ethernet connection. This power is sufficient to allow the ZIP 4x4 to perform all of its functions without the need for an external ac adapter.

The phone is usually shipped with an ac adapter. Using this reduces power dissipation in the network room and allows use of the phone when LAN power is not available. If ac power fails and the LAN can supply power, operation of the phone is uninterrupted.

VLAN and QoS Support

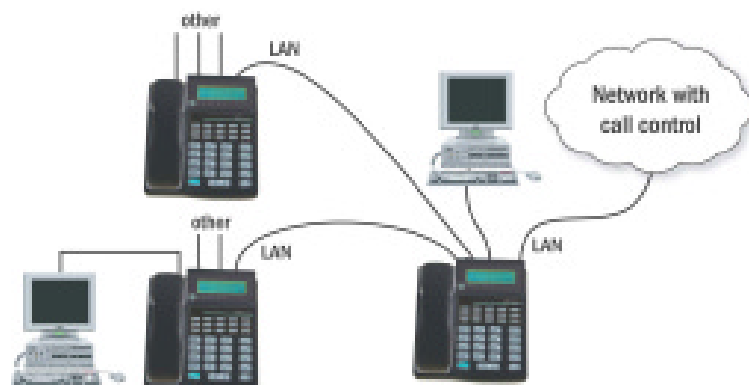
By default, all ports on the switch are untagged members of a single VLAN, so the switch can interoperate with any network. The switch supports the configuration of up to eight VLANs. Each port can be a member of a tagged VLAN, a member of an untagged VLAN, or excluded from a VLAN. Full support for IEEE 802.1q VLAN tagging and IEEE 802.1p QoS settings allows the ZIP 4x4 to provide enhanced quality of service functions at the Ethernet layer and operate in a modern network.

At the IP layer the ZIP 4x4 supports the ability to mark the lower six bits of the IP QoS byte with the various differentiated services code point (DSCP) markings. This allows for up to 64 codepoints to be defined which map to various per-hop behaviors (PHBs). The ZIP 4x4 internally has eight different priority queues which correspond to the IEEE 802.1p priority levels and DSCP values. This allows for the prioritization of voice and signalling traffic over the best effort data traffic. Each queue is serviced in such a way that no particular queue is starved.

Cascading of Phones and Devices

The ZIP 4x4 switch ports P1, P2, and P3 can be used for cascading additional ZIP 4x4 phones in addition to connecting external devices. By cascading a few layers of ZIP 4x4 phones, a switching network can be created at no additional cost that supports multiple users and devices.

Because the switch forwards traffic at line rates, and because it fully supports QoS and VLANs, cascading devices in this fashion provides the equivalent functionality of multiple switches in a network room. PCs and other phones cascaded in this way have access to the full line rate of traffic provided by the network.



LCD

The LCD intelligently shows users all relevant information without any soft keys being required. It displays all information about a call, such as the name and number of a caller and its duration. For incoming calls it displays the intended recipient of the call, which is useful if the phone is shared.

For conference calls, the phone displays the name of each person on the call and their associated call appearance.

Preferences and Settings

There are many parameters on the phone that allow it to operate in the network. The phone automatically downloads these at power on from a configuration file that is generated by the system administrator. On the phone, these settings are protected by a password. The user can customise personal preferences without preventing the phone from functioning properly in the network.

Special Functions

These features depend on the IP phone system, but are fully supported by the ZIP 4x4.

Location. If the phone is connected to a phone system, but physically remote from it, the phone system must dial a unique number to access emergency services. The ZIP 4x4 allows a user to select a location (derived from the phone system) when the phone powers up.

Call Park and Pickup. When a user parks a call, the phone system puts the call on hold, and maintains control of the call. The phone system issues a two digit number to the user. From any ZIP 4x4, the call can be retrieved (picked up) using this number.

Page. This allows a user to make an announcement through the speaker on a group of phones. The announcement is made without interaction on behalf of the recipient. The system administrator provisions the paging groups. Depending on a user's rights, the user can send an announcement to different paging groups.

Here I am. This feature enhances the follow me feature incorporated into many phone systems. Users indicate they can be contacted at a specific ZIP 4x4 by quickly entering their name or extension and PIN. Subsequently, the phone system can forward calls to that phone and any other phone associated with that user. This feature is also used by agents to log into an ACD group without using a PC. The phone system can then route calls to all agents who are logged in.

Calculator

The phone incorporates a calculator that can represent numbers up to 12 digits in fixed and scientific notation. A user can easily put the phone in calculator mode and still use the phone to make or receive calls. At the end of a call, the phone displays the calculator exactly as it was prior to the call.

Date and Time

The phone uses SNTP to automatically obtain the date and time from the network. However, the date and time can be set manually in the absence of an SNTP server. The phone displays the date and time, the start time, and the duration of each call on the LCD.

Technology

The ZIP 4x4 has an internal computer capable of performing 400 MIPS. This internal computer runs a highly reliable real time embedded Linux operating system. The phone externally looks and behaves like a regular business phone, and not like a computer with a handset attached.

The ZIP 4x4 is based on SIP. This protocol is now widely recognised as the standard for IP telephony. The ZIP 4x4 performs all of the functions of a user agent client and a user agent server. It can be used with all standard SIP servers, making it a truly open IP phone.

The phone incorporates comprehensive self tests and diagnostic capabilities. These allow for rapid isolation and resolution of problems associated with deployment.

Physical and Environmental

Operating temperature: 10°C to 40°C (50°F to 104°F)

Storage temperature: 0°C to 50°C (32°F to 122°F)

Weight: 0.9 kg (2.0 lb). Shipping weight 1.6 kg (3.6 lb)

Size: 180 mm (W) x 230 mm (D) x 100 mm (H) (7" x 9" x 4")

Safety: UL 60950, CSA-C22.2, EN 60950:2001

EMI: FCC Part 15, ICES-003 class A, CISPR 22, AS/NZS 3548 Class A

EMC: CISPR 24 (EN55024:1998), EN61000-4

Warranty: one year



Zultys Technologies
771 Vaqueros Avenue
Sunnyvale, CA 94085
USA

Tel: +1-408-328-0450
Fax: +1-408-328-0451
Email: zip4x4@zultys.com
Web: www.zip4x4.com