

# ZIP 2x2

## IP Telephone

### Overview

The ZIP 2x2 integrates the functions of a managed switch with a business phone, and provides a backlit display for convenient viewing. The phone is referred to as a “two by two” because it has two call appearances and two Ethernet circuits. The phone is available in white and black.

The ZIP 2x2 is based on open standards. It uses SIP for call control, making it compatible with any IP phone system using the SIP standards. The switch on the phone supports all applicable standards for VLANs and QoS, ensuring that it is compatible with most networks, new or old. The phone can be powered from an ac adapter or receive power over an Ethernet connection.

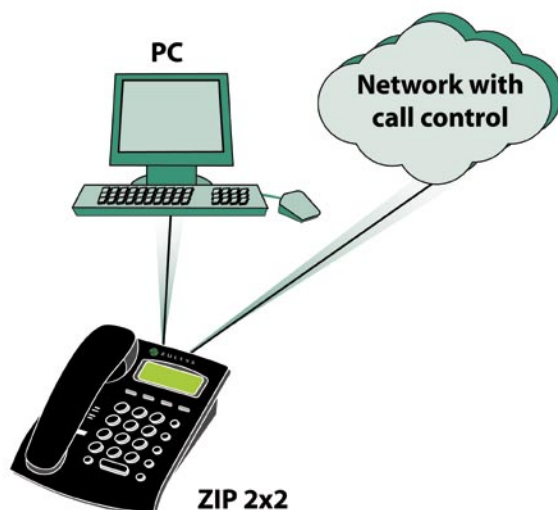
In deploying a ZIP 2x2, only a single Ethernet circuit needs to be taken to the desktop, to provide both voice and data communications. The phone is simple for an administrator to install, manage, and maintain. After initial installation the phone can be moved anywhere in the network, normally without any reprovisioning or rewiring.

The phone is compact and takes up little space on the desktop. In day to day operation, end users can access all features quickly and unambiguously as there are buttons and keys for all functions.

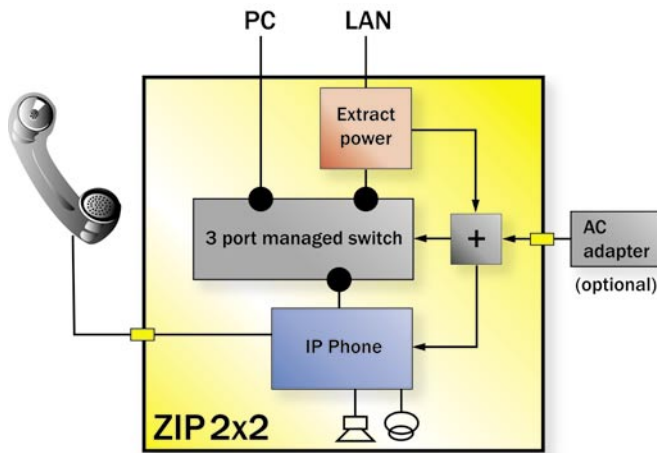


### Key Features

- *Uses SIP to operate with any standard IP phone system or network*
- *Supports all standard PBX functions*
- *Two call appearances support two simultaneous calls*
- *Two 10/100 Ethernet circuits connect to the LAN and an additional device*
- *Graphical backlit LCD*
- *Buttons and keys for all commonly used functions*
- *Menus in multiple languages*
- *4 LEDs provide instant indication of status*
- *Speech quality ensured by QoS at the Ethernet and IP layers and comprehensive jitter buffer*
- *Speaker phone mode with acoustic echo cancellation for high quality audio*
- *Speech encryption for secure conversations*
- *Receives power over Ethernet (PoE) or from an ac adapter*
- *Downloadable ring tones*
- *Menu, browser, and TFTP support for configuration and updates*
- *Based on highly stable embedded Linux operating system*



## ZIP 2x2 IP Telephone



### Speech Quality

The phone is designed for high fidelity for the handset and speaker phone. These audio components are fine tuned to provide the best possible sound quality. The speaker phone has full duplex acoustic echo cancellation (AEC) so that the phone is fully functional as a speaker phone in an office or cubicle.

The phone incorporates Zultys' patented jitter buffer. This ensures that speech quality is optimal, even when the network has varying delays and lost packets. This technology provides a distinct advantage even within an office, but proves itself when communicating over a WAN or the Internet. Competitive phones without this feature will have poor quality audio under identical network conditions.

The phone indicates the quality of service as a sequence of bars on the display. This lets the user know when there are network issues that may affect speech quality.

### Hands Free Operation

The phone allows any standard headset to be inserted in series with the handset. You can configure the device to behave as an intercom so that all internal calls are automatically answered by the speakerphone after one ring. This feature allows users to be reached without needing to physically pick up the handset or headset.



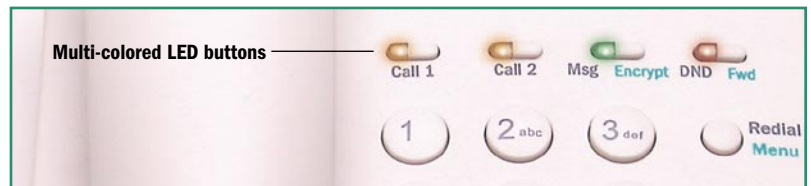
### Physical Convenience

The ZIP 2x2 has the appearance of a modern business telephone set. There are 24 buttons and keys for convenient access to every feature, such as hold, transfer, conference, do not disturb (DND), call forward, and mute.

There are 4 LEDs that show red, green, and orange, each appropriately marked. With these, a user can quickly identify the status of the phone, calls, or the phone system. There is a separate indication for new voice mails, new instant messages, new incoming calls, calls on hold, conference calls, mute, forwarding, encryption, and do not disturb.

The dc power plug connects to 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 that prevent pulling the phone off the desk. On the bottom of the phone are two guides that allow for wall mounting.

The ZIP 2x2 has selectable ring tones to indicate internal calls and external calls. These can be downloaded to the phone. The phone has selectable tones to indicate a second incoming call and that a call is on hold.



### Dialling

When using the key pad, users can dial a destination by phone number, SIP address, or IP address. Letters and special characters on the key pad operate similarly to that of the mobile phone. A SIP address can be abbreviated, for example to "sales." The phone supports hot key dialling so that users can enter a number, IP address, or name prior to seizing a call appearance or picking up the handset. This allows users to review and edit the destination address prior to calling.

The ZIP 2x2 provides a phone book for storing the contact information of 100 individuals. Phone book entries can be easily searched, inserted, modified, and deleted. Each entry contains a name and destination address (phone number, IP address, or SIP address).

The phone remembers the last 32 numbers dialed and the last 32 incoming numbers. This list is quickly accessed from the redial button on the phone.





## Encryption

The phone can encrypt the voice stream to another ZIP 2x2 or other equipment that supports AES encryption. Users can activate this function before or during a call. Alternatively, the administrator can enforce encryption so that it is not possible to establish a call without encryption. Encryption prevents the conversation from being decoded on the network. A conference call can be entirely encrypted when all parties use phones that are capable of encryption. The encryption code is displayed so parties at both ends can ensure that the call has not been intercepted. The additional bandwidth required to support an encrypted call is minimal, requiring only 2% more than an unencrypted call.

## Conference

The ZIP 2x2 supports three way conferencing. The conference is easily set up with inbound or 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 to talk without the host. The LEDs on the call appearance buttons show a different color to indicate they are involved in a conference.

## Power over Ethernet (PoE)

The LAN port on the ZIP 2x2 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 2x2 to perform all of its functions without the need for an external ac adapter.

The phone is 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 the ac power fails and the LAN can supply power, operation of the phone is uninterrupted.

## Data Features

The ZIP 2x2 has a 3 port managed switch so users can connect to an additional device such as a PC, without any additional investment in an external switch. One switch port connects internally and two ports are available for external connections. The Ethernet ports are wired so they can easily be connected to the network and the PC with straight through 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, the 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.

## 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 8 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 2x2 to provide enhanced quality of service functions at the Ethernet layer and operate in a modern network.

At the IP layer the ZIP 2x2 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 2x2 internally has two queues allowing for the prioritization of voice and signalling traffic over data traffic marked as “best effort.” Each queue is serviced in such a way that neither queue is starved.

## LCD

The LCD on the phone has a high contrast that the user can adjust. Additionally, a backlight automatically turns on when there is activity on the phone. 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 among users.

For conference calls, the phone displays the name of each person on the call and their associated call appearance. The LCD also indicates when a call is encrypted to assure users that their call is secure.



### Preferences and Settings

All phone settings are accessible either from the phone or from a browser page located at the IP address assigned to the phone. There are many parameters on the phone that allow it to operate in the network. The phone automatically downloads these parameters at power on from a configuration file that is generated by the system administrator. These settings are protected by a password that can be restricted to the administrator to prevent the user from accidentally disrupting the network settings. With the menu on the phone, the user can customize personal preferences like volume level, contrast, language, format, and regional options without the password.

### Date and Time

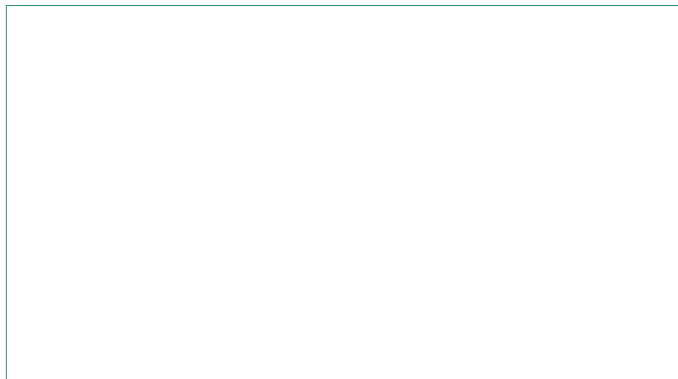
The phone uses SNTP to automatically obtain the date and time from the network. However, the date and time can be set manually in the absence of an SNTP server. The phone displays the date and time, the start time, and the duration of each call on the LCD.

### International Support

Users can select between the following languages for the menu of the phone: English, French, German, Italian, Polish, Portuguese, Russian, Spanish, and Swedish. The user's guide included with each phone is printed in these languages, and in addition Arabic, simplified Chinese, traditional Chinese, Japanese, and Korean. Each phone is shipped with a set of stickers that can be placed on the phone to replace the English text describing the functions of the buttons and keys. These stickers are in each of the 14 languages and also with international symbols.

The user can select the date and time format and also the call progress tones for any one of 70 countries. The ac adapter that is shipped with the phone is appropriate for the destination country. The phone and adapter are fully certified to be sold in that country.

Sold and serviced by:



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### Technology

The ZIP 2x2 has a powerful internal computer that 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 2x2 uses SIP for communication. This protocol is now widely recognized as the standard for IP telephony. The ZIP 2x2 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 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 (box of 10) 9.7 kg (21.3 lb)

**Size:** 165 mm (W) x 190 mm (D) x 85 mm (H) (6.5" x 7.4" x 3.3")

**Power:** 3.5 W (Classification 0 under IEEE 802.3af)

**Safety:** IEC60950, UL60950, CAN/CSA- C22.2 No. 60950

**Emissions:** FCC part 15A, EN55022 class A

**Immunity:** EN55024

**Warranty:** one year



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