

LANCOM VP-100

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Contents

1	Installation	7
1.1	Package content	7
1.2	System requirements	7
1.2.1	Configuring the LANCOM VP-100	7
1.2.2	Telephoning with VoIP	7
1.3	Introducing the LANCOM VP-100	8
1.3.1	Keys and status displays	8
1.3.2	Overview of key functions	9
1.3.3	The rear panel of the device	10
1.4	Hardware installation	11
2	Basic configuration of the LANCOM VP-100	12
2.1	Quick installation via keypad (LANCOM Easy Setup)	12
2.1.1	No local authentication	13
2.1.2	With local authentication	13
2.2	Basic configuration with the web interface	14
2.2.1	Open the web interface for configuration with LANconfig	14
2.2.2	Opening the web interface for configuration	14
2.2.3	The Installation Wizard	15
2.2.4	Registration at a public SIP provider	17
2.2.5	Registering at the LANCOM VoIP Router	19
2.2.6	Registration at an upstream PBX	21
3	Making telephone calls with the LANCOM VP-100	22
3.1	Initiating calls	22
3.1.1	By direct dialing	22
3.1.2	From the calls lists	22
3.1.3	About speed-dial keys	23
3.1.4	From the telephone book	23
3.2	Accepting calls	23
3.3	Options during telephone calls	24

4	Advanced configuration	26
4.1	Installation Wizard	26
4.2	Network settings	26
4.2.1	IP settings	26
4.2.2	Quality of Service	27
4.3	SIP settings	28
4.3.1	Basic settings	28
4.3.2	SIP account settings	29
4.3.3	Server settings	30
4.3.4	NAT-Traversal	30
4.3.5	Security	31
4.4	Telephone settings	31
4.4.1	Voice settings	31
4.4.2	General settings	32
4.4.3	Call-forwarding settings	32
4.4.4	Function keys	33
4.4.5	Alarm setting	34
4.4.6	Telephone book	35
4.4.7	Do not disturb	37
4.5	Information	38
4.6	Management	38
4.6.1	User administration	38
4.6.2	System log settings	38
4.6.3	Date/time	39
4.6.4	Ping test	40
4.6.5	Configuration	40
4.6.6	Firmware update	40
4.7	Logout	42
5	Appendix	43
5.1	Performance and characteristics	43
5.2	Keypad navigation	44
5.3	Connector wiring	47
5.4	CE-declarations of conformity	47

Preface

Thank you for your confidence in us!

The LANCOM VP-100 is a SIP telephone which has been especially optimized for user acceptance and wide application in business environments. It fits in seamlessly with the familiar office work place and helps to provide all the advantages of a unified infrastructure for data and voice.

The main features of the LANCOM VP-100 include:

- 2-port Ethernet switch for installation between PC and network socket
- Power supply optionally via PoE or power adapter
- Two-line display
- Speakerphone function and headset connector
- 14 programmable function keys
- Telephone book, call lists, redirect, DTMF, hold call, swap call, transfer call, and three-way conference



Documentation structure

This documentation is intended for VoIP-infrastructure administrators and for users of the LANCOM VP-100.

- The chapters 'Installation' → page 7, 'Basic configuration of the LANCOM VP-100' → page 12 and 'Advanced configuration' → page 26 (PDF documentation only; available on CD or as an Internet download) are primarily intended for administrators.
- The chapter 'Making telephone calls with the LANCOM VP-100' → page 22 shows users how to operate the LANCOM VP-100. The appendix additionally contains an overview of 'Keypad navigation' → page 44.

This documentation was created by ...

... several members of our staff from a variety of departments in order to ensure you the best possible support when using your LANCOM product.

In case you encounter any errors, or just want to issue critics enhancements, please do not hesitate to send an email directly to:

info@lancom.de



Our online services www.lancom-systems.com are available to you around the clock should you have any queries regarding the topics discussed in this manual or require any further support. The area 'Support' will help you with many answers to frequently asked questions (FAQs). Furthermore, the knowledgebase offers you a large reserve of information. The latest drivers, firmware, utilities and documentation are constantly available for download.

In addition, LANCOM support is available. For telephone numbers and contact addresses of LANCOM support, please see the enclosed leaflet or the LANCOM Systems website.

Information symbols



Very important instructions. Failure to observe this may result in damage.



Important instruction that should be observed.



Additional information that may be helpful but which is not required.

1 Installation

This chapter will assist you to carry out the installation as quickly as possible. First, check the package contents and system requirements. The device can be installed and configured quickly and easily if all prerequisites are fulfilled.

1.1 Package content

Before beginning with the installation, please check that nothing is missing from your package. Along with the device itself, the box should contain the following accessories:

	LANCOM VP-100
Power adapter	✓
LAN connector cable (black)	✓
Telephone handset	✓
Handset connector cable	✓
LANCOM CD	✓
Printed documentation	✓

Should anything be missing, please take up immediate contact to your dealer or to the address on the delivery note supplied with your device.

1.2 System requirements

1.2.1 Configuring the LANCOM VP-100

Configuring the LANCOM VP-100 can be done by using the keypad on the device. Even more convenient is to use a browser to make your settings from a computer that can access the LANCOM VP-100 via TCP/IP.


1.2.2 Telephoning with VoIP

In addition to the LANCOM VP-100, VoIP telephony also requires a SIP gateway or a SIP proxy to handle the conversion between IP-based telephony using the SIP protocol and other telecommunications networks (e.g. ISDN). A SIP gateway can be provided by:

- A LANCOM VoIP Router in your local network: The SIP gateway is then integrated into the router; the VoIP telephone registers itself with the LANCOM VoIP Router via the LAN (local registration)
- A VoIP-ready PBX located in the local network or in the network at headquarters: The VoIP telephone registers itself with the PBX using a LAN or VPN connection (upstream registration)
- A SIP provider account: The SIP gateway is located in the provider network, the VoIP telephone registers itself with this gateway via the Internet (public registration)

1.3 Introducing the LANCOM VP-100

This section introduces your device. You will find an overview of all status displays, function keys and connectors here.

 This section is of help to the installation but is not absolutely essential reading. If you prefer you can skip this section and continue to section 'Hardware installation' on page 11.

1.3.1 Keys and status displays











On the top of the phone you will see the display, the function keys and the LEDs.









1 Display


The two-line display shows various information including the user and the device status.

The symbols in the display have the following meanings:

-  Keypad input mode is set to digits
-  Keypad input mode is set to lower-case letters
-  Keypad input mode is set to upper-case letters
-  Messages (MWI)
-  Do not Disturb (DnD)
-  Call forwarding
-  Mute
-  Call waiting
-  Call on hold
-  Alarm

-  LED 2 Blinks red in case of missed calls, illuminates constantly when DnD is active.
-  LED 1 Illuminates constantly in red when audio is switched to the headset.
Blinks red in case of error with the network connection or registration.
-  4 Programmable function keys 14 programmable function keys which can be set with a predefined function or a speed-dial number.
-  5 Keypad The keypad is used to enter digits and alpha-numerical characters for the telephone's functions and to configure the LANCOM VP-100.









 To enter alphanumerical characters you use the hash key  to toggle the input mode between digits, lower-case and upper-case letters. Alphanumerical characters can only be used when configuring the LANCOM VP-100.

-  6 Speakerphone key The speakerphone key switches the phone into speakerphone mode.

1.3.2 Overview of key functions

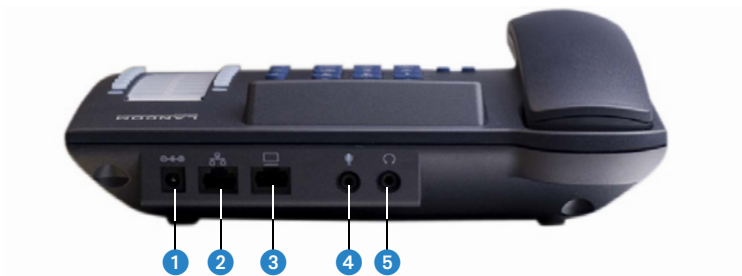
The keys of the LANCOM VP-100 have the following functions:

Key	Function
Keypad	Input of digits and alphanumerical characters depending on the current device status.
Programmable function keys	Speed dialing of stored telephone numbers or execution of predefined telephone functions.

Key	Function
	Opens the lists of missed and received calls. Navigate within the lists to make a selection.
	Confirms the current selection.
	Cancels the current action. When dialing numbers or entering values in the configuration this deletes the last character.
	Opens the menu.
	Opens the list of dialed numbers for redialing.
	Mute on/off
	Hands free on/off
	Adjust volume
Flash/Call hold	Places the current call on hold. Swap between two active calls.
Transfer	Transfer a caller to a third person.
Conference	Telephone conference with two active calls, toggle on/off
Missed calls	Opens the list of missed calls.
Received calls	Opens the list of received calls.
DnD (Do not disturb)	Toggles do not disturb on/off.
Headset	Toggles between handset/speakerphone mode and the headset.

1.3.3 The rear panel of the device

The rear panel accommodates the LANCOM VP-100's connectors:



- ① Connector for the supplied power adapter
- ② Switch port for the LAN connection
- ③ Switch port for connecting an additional network device
- ④ Headset connector for the microphone plug
- ⑤ Headset connector for the headphone/loudspeaker plug

1.4 Hardware installation

Installation of the LANCOM VP-100 involves the following steps:

- ① **LAN** – First of all connect your LANCOM VP-100 to the LAN. Plug in one end of the supplied network cable to a LAN connector on the device ②, and the other end into an available network connector socket in your local network (a free socket on a switch or hub).
- ② **Connect the telephone handset** – attach the short end of the spiral telephone cable to the handset end and the long end to the telephone socket on the underside of the device. Insert the non-spiraled portion of the handset cable into the recessed channel.
- ③ **Power supply** – The socket ① is for connecting the supplied power adapter.



Use only the supplied power adapter! The use of the wrong power adapter can be of danger to the device or persons.

- ④ **Connect further network devices** – You can optionally connect further network devices such as your PC or notebook to the second switch port on the LANCOM VP-100 to share a single network connection.
- ⑤ **Connect the headset** – You can optionally connect a headset to the LANCOM VP-100 so that your hands are free when conducting calls. Ensure that you use the right connectors for the microphone and loudspeaker.

Your LANCOM VP-100 is now ready to operate. With an unconfigured device, the display presents the LANCOM Easy Setup.

2 Basic configuration of the LANCOM VP-100

In order to make and receive telephone calls the LANCOM VP-100 requires a connection to a SIP gateway at a public provider, a LANCOM VoIP Router or a VoIP-capable PBX.



We will describe the configuration of the LANCOM VP-100 primarily based on the web interface. Configuration via the keypad is also possible. Information of configuration via the keypad can be found in the description of the menu in the appendix ('Keypad navigation' → Page 44).

2.1 Quick installation via keypad (LANCOM Easy Setup)

The LANCOM VP-100 is optimally equipped for a quick and easy setup. The start up is particularly easy with the LANCOM VP-100 when a LANCOM VoIP Router is available in the LAN to regulate communications between VoIP subscribers. In this situation, LANCOM Easy Setup can be used to enter all of the parameters necessary for operating the LANCOM VP-100. The "normal" configuration will be necessary to register the LANCOM VP-100 at a public SIP provider or a VoIP-capable PBX.



Requirements for a successful quick installation: The LANCOM VoIP Router has to work as the DHCP server in the LAN and control the assignment of IP address information.

For the quick installation, all information is entered into the LANCOM VP-100 which is necessary for registration at the LANCOM VoIP Router. The procedure differs depending on the setting for local authentication in the LANCOM VoIP Router:

- If there is no local authentication, any VoIP device can register at a LANCOM VoIP Router as long as it sends (any) telephone number and valid domain. The domain is communicated by DHCP from the LANCOM VoIP Router to the devices in the LAN. Thus there is no need for terminal devices to be entered explicitly into the LANCOM VoIP Router.
- In case of local authentication, only devices with an explicit entry as a SIP user can register with the LANCOM VoIP Router. The telephone number is defined along with an authentication name and a password.



If you do not wish to conduct the quick installation via keypad, then simply confirm the values as suggested by the installation wizard and configure the device via the web interface.

2.1.1 No local authentication

If local authentication in the LANCOM VoIP Router is **not activated**, the LANCOM VP-100 merely requires a telephone number to register.

- ① After starting the LANCOM VP-100, LANCOM Easy Setup appears in the display. Use to select the language for the configuration and confirm with .
- ② When requested to enter the 'Telephone number' enter the internal telephone number or the SIP name for the device.



To enter alphanumerical characters you use the hash key to toggle the input mode between digits, lower-case and upper-case letters.

- ③ Confirm your entries with the key .

The LANCOM VP-100 now tries to register with the LANCOM VoIP Router with the number entered:

- Registration will succeed if the LANCOM VoIP Router is configured to allow registration without authentication. If this is the case then the telephone displays its name as 'VP-100'.
- If it is not possible to carry out registration without authentication, then LANCOM Easy Setup continues to request further information.

2.1.2 With local authentication

If local authentication in the LANCOM VoIP Router is **activated**, the LANCOM VP-100 requires the telephone number, a registration ID and a registration password to register.

- ① After entering the telephone number you will be prompted for the 'Authentication Name'. Enter the 'Authentication user name' from the entry for the SIP user here. Confirm your entries with the key .
- ② In the next step, enter the 'Password' from the entry for the SIP user. Confirm your entries with the key .

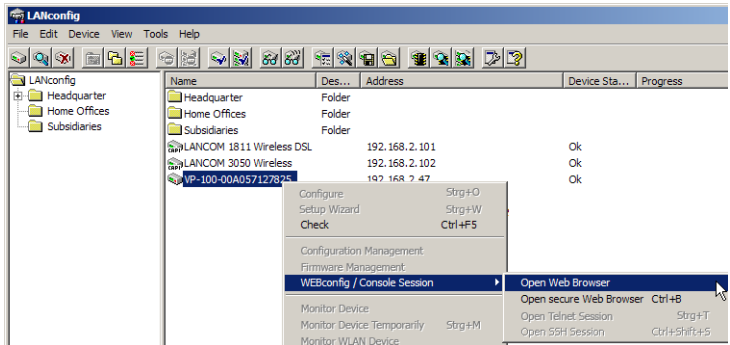
The LANCOM VP-100 now again tries to register with the LANCOM VoIP Router with the number entered, the registration ID and the password.

- Registration will succeed if the information agrees with an active entry for a SIP user. If this is the case then the telephone displays its name as 'VP-100'.
- If registration is not possible with the data you entered, the device displays the message 'Register Error'. In this case, check and correct your entries by using the web interface.

2.2 Basic configuration with the web interface

2.2.1 Open the web interface for configuration with LANconfig






LANconfig, the management software for LANCOM products, also supports the LANCOM VP-100 Voice over IP telephones. After installation of the hardware, the LANCOM VP-100 is displayed in the list of devices under a name consisting of the model type and MAC address.



Clicking with the right-hand mouse key on the device opens up a context menu which, among other things, can be used to start a web browser for configuring the device.

2.2.2 Opening the web interface for configuration

The factory settings allow the LANCOM VP-100 to automatically obtain an IP address by DHCP. Once started, the device displays its current IP address.

- ① If you cannot read the IP address after starting the device, use the menu key  and the key  to reach the menu entry 'Network settings' and select with the  key. Use the key  to select the menu entry 'IP address' and confirm your selection with the key . You will see the current IP address for the device in four blocks of three figures.

- ① If the installation wizard starts in the display when the device is switched on, confirm the suggested values and then access the menu to read out the IP address.
- ② Start your browser and enter the current IP address for the device into the address field. You can omit any leading zeros in the blocks of numbers (e.g. if '192.168.001.050' is displayed, enter '192.168.1.50' into your browser). In the top right-hand corner you can select the language for the configuration.

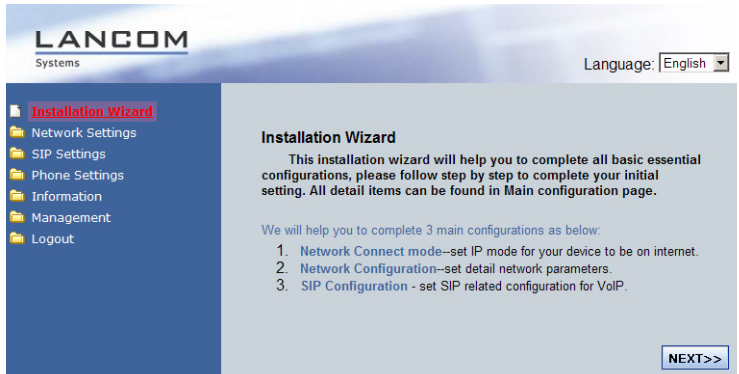


- ① If the LANCOM VP-100 cannot retrieve an IP address from a DHCP server, then it uses the standard IP address '172.23.56.253'. In this case, the computer which is to be used to carry out the configuration needs to have a fixed IP address from which '172.23.56.253' can be reached.
- ② If the LAN also has a DNS server for name resolution and this communicates the allocation of IP addresses and names to the DHCP server, then the LANCOM VP-100 can be reached under the name 'VP-100-<MAC address>' (e.g. "VP-100-00a057xxxxx"). You will find the MAC address on a sticker on the base of the device.

2.2.3 The Installation Wizard

This Installation Wizard assists you with the initial basic configuration of the LANCOM VP-100. It carries out the following settings:

- The method of address allocation (static, DHCP, PPPoE)
- Parameters for network connections
- Information for SIP registration



- ① Start the Installation Wizard with the navigation on the left screen column.
- ② The first step is to select the IP mode:
 - With static IP address allocation, the following steps of the configuration involve manually setting the network parameters in your LAN (IP address, subnet mask, default gateway and DNS server).
 - With DHCP address allocation, all information is automatically supplied by a DHCP server and no further network settings have to be made.
 - For registration at a PPPoE server, all of the relevant PPPoE access data (user name and password) has to be entered in the following stages of configuration.
- ③ The second step is to enter the SIP configuration parameters. The values for entry here have to match with those in the SIP-user configuration in the LANCOM VoIP Router.

SIP Configuration

Please input SIP related parameters below: Mark with *are essential.

*	Phone Number	<input type="text" value="123456"/>
	Registering Account Name	<input type="text" value="user"/>
	Registering Account Password	<input type="password" value="•••••"/>
	Confirmed Password	<input type="password" value="•••••"/>
*	SIP Domain	<input type="text" value="internal"/>
	Register Server Address	<input type="text"/>

- Enter internal telephone number as SIP ID.
- Authentication name and password match with the SIP user values.
- As SIP domain, enter (preferably) the internal VoIP domain of the LANCOM VoIP Router or the domain of an upstream IP PBX. As an alternative, the internal IP address of the LANCOM VoIP Router can be used.



When the LANCOM VP-100 retrieves its IP address information via DHCP from the LANCOM VoIP Router, the SIP domain is entered automatically.

2.2.4 Registration at a public SIP provider

If you wish to use a SIP account with a public SIP provider for telephony, you have to enter the SIP-account details into the LANCOM VP-100.

- ① To do this, access the menu 'SIP Settings' and the 'Account Settings' entry. Enter the details of your SIP account sent to you by your provider here.

Account Setting		
Account 1	Phone Number	123456
	Display Name	VP-100
	Authentication User Name	user
	Authentication Password	•••••
	Confirmed Password	•••••
	MWI User Name	
	MWI Authentication User Name	
	MWI Authentication Password	
	MWI Confirmed Password	
	MWI Refresh Timeout	3600 (default:3600)
P-Asserted <input type="checkbox"/> Enable (default:disabled)		

- SIP ID/Name: The telephone number of your SIP account.



Depending on the SIP provider, the telephone number as the SIP ID may require the country code and/or area code to be entered as leading digits.

- Display name: The name for display to the person you are calling. If the display name is left blank, the number of your SIP account will be displayed instead.



The display name is only displayed if the SIP protocol is supported by the telephone infrastructure of the person you are calling.

- Authentication name: The User ID or SIP ID of your SIP account.
- Authentication password: Your SIP-account password.
- Password confirmation: Confirmation of your SIP-account password.



The entry of further data, e.g. MWI information (Message Waiting Indication) is only required if your SIP provider explicitly gives you this information.

Confirm your changes with the button **Submit**.

- ② Access the menu 'SIP Settings' and the 'Server Settings' entry. Enter the details of the SIP server as provided by your provider.

Server Setting	
Authentication Expired Time	120 seconds (60..65535, default:120)
Lines	
Account 1	Register Server Address <input type="text" value="sipprovider.com"/>
	Register Server Port <input type="text" value="5060"/> (1-65535, default:5060)
	Proxy Address <input type="text" value="sipprovider.com"/>
	Proxy Port <input type="text" value="5060"/> (1-65535, default: 5060)
	Use Outbound Proxy <input type="checkbox"/> Enable (default:disabled)
	DNS SRV support <input checked="" type="checkbox"/> Enable (default:enabled)

- Registrar: The address of the registrar server at your SIP provider.
- Proxy: The address of the proxy server at your SIP provider.



If your provider did not give you details of a proxy address, enter the registry server address here.



The entry of further data, e.g. outbound proxy or special ports, is only required if your SIP provider explicitly gives you this information.

Confirm your changes with the button **Submit**.

2.2.5 Registering at the LANCOM VoIP Router

A LANCOM VoIP Router located in your local network can function as a SIP proxy for the VoIP terminal equipment in the network. VoIP-capable terminal devices such as a LANCOM VP-100 can then register locally at the LANCOM VoIP Router. The SIP proxy handles the switching of calls to a public SIP provider or to a VoIP PBX at a different site. Alternatively, the LANCOM VoIP Router as a SIP gateway can perform the conversion to other telephone networks (e.g. ISDN) itself.

Where the LANCOM VoIP Router also functions as a DHCP server in your LAN, configuration of the LANCOM VP-100 can be very fast and convenient with the Installation Wizard ('The Installation Wizard' → Page 15).

If IP address information in the LAN is not communicated by the LANCOM VoIP Router (e.g. fixed IP addresses or a different DHCP server in the LAN), then the corresponding SIP-user data from the LANCOM VoIP Router must be entered into the LANCOM VP-100.

- ① To do this, access the menu 'SIP Settings' and the 'Account Settings' entry. Enter your SIP user information as configured in the LANCOM VoIP Router.

Account Setting	
Account 1	Phone Number <input type="text" value="123456"/>
	Display Name <input type="text" value="first name last name"/>
	Authentication User Name <input type="text" value="authentication name"/>
	Authentication Password <input type="password" value="•••••"/>
	Confirmed Password <input type="password" value="•••••"/>
	MWI User Name <input type="text"/>
	MWI Authentication User Name <input type="text"/>
	MWI Authentication Password <input type="password"/>
	MWI Confirmed Password <input type="password"/>
	MWI Refresh Timeout <input type="text" value="3600"/> (default:3600)
P-Asserted <input type="checkbox"/> Enable (default:disabled)	

- SIP ID/Name: The internal telephone number of your SIP user.
- Display name: The name for display to the person you are calling. If the display name is left blank, the number of your SIP account will be displayed instead.



The display name is only displayed if the SIP protocol is supported by the telephone infrastructure of the person you are calling.

- Authentication name: The SIP user's authentication name.
- Authentication password: The SIP user's password.
- Password confirmation: Confirmation of the SIP user's password.

Confirm your changes with the button **Submit**.

- ② Access the menu 'SIP Settings' and the 'Server Settings' entry. Enter the SIP information for your LANCOM VoIP Router.

Server Setting	
Authentication Expired Time	<input type="text" value="120"/> seconds (60..655; default:120)
Lines	
Account 1	Register Server Address <input type="text" value="internal"/>
	Register Server Port <input type="text" value="5060"/> (1-65535, default:5060)
	Proxy Address <input type="text" value="internal"/>
	Proxy Port <input type="text" value="5060"/> (1-65535, default:5060)
	Use Outbound Proxy <input type="checkbox"/> Enable (default:disabled)
	DNS SRV support <input checked="" type="checkbox"/> Enable (default:enabled)

- Registrar: The local VoIP domain of the LANCOM VoIP Router.
- Proxy: Also the local VoIP domain of the LANCOM VoIP Router.

Confirm your changes with the button **Submit**.





2.2.6 Registration at an upstream PBX

Configuring the LANCOM VP-100 for registration at an upstream PBX is generally similar to that for registration at the LANCOM VoIP Router.

3 Making telephone calls with the LANCOM VP-100

3.1 Initiating calls

3.1.1 By direct dialing









- ① Enter the desired telephone number with the numbers on the LANCOM VP-100 keypad. The phone number can be edited if need be: Use the  key to delete the last number from the display.
- ② Lift the handset and the number will be dialed.
 - To initiate a call when using the speakerphone mode, press the speakerphone key .
 - When using a headset, initiate the call by pressing the 'Headset' function key.
- ③ Alternatively you can pick up the handset first (or press the speakerphone key  or the 'Headset' function key) and then dial. In this case, dialing commences when the LANCOM VP-100 considers the number to be complete (ca. 3 seconds after the last key press). In this case, too, the number can be edited by pressing the  key.

 By pressing the hash key  or  the number will be dialed without delay.



- ④ After you have completed your call, simply return the handset to the hook or press the speakerphone key or the 'Headset' function key.

3.1.2 From the calls lists

Telephone numbers contained in the calls lists can be used to initiate calls.


- ① With the menu key  and the key  access the 'Call records' list and confirm your selection with the  key.
- ② Use the   keys to select one of the lists for 'Missed calls', 'Received calls' or 'Dialed calls' and confirm your selection with the  key.
- ③ Use the   keys to select the desired telephone number.

- ④ Dialing commences when the handset is picked up, or by pressing the speakerphone key  or the 'Headset' function key.

 You can also directly open the lists for missed and received calls with the function keys 'Missed calls' and 'Received calls'. The list of dialed numbers is opened directly with the  key.









3.1.3 About speed-dial keys


Numbers which you call frequently can be programmed into the telephone's 14 programmable keys.

- ① To dial the number simply press the appropriate speed-dial key. The number for dialing is shown on the display.
- ② Dialing commences when the handset is picked up, or by pressing the speakerphone key  or the 'Headset' function key.

3.1.4 From the telephone book





The telephone book is a convenient way of accessing known telephone numbers for dialing.

- ① Use the menu key  to select the menu entry 'Phone book' and confirm your selection with the key .
- ② Use the   keys to select the menu entry 'View entry' and confirm your selection with the key . The list of stored telephone numbers is displayed.
- ③ Use the   keys to select the desired telephone number.
- ④ Dialing commences when the handset is picked up, or by pressing the speakerphone key  or the 'Headset' function key.

 Instructions on how to save telephone numbers to the telephone book can be found in section 'Telephone book' → Page 35 (PDF documentation only; available on CD or as an Internet download).

3.2 Accepting calls



- Answer the call as you would normally by lifting the handset.
- Alternatively you can press the speakerphone key to accept and conduct a call in speakerphone mode.

- When using a headset, accept the call by pressing the 'Headset' function key.
- Press the key , use   to go to 'accept' and .



3.3 Options during telephone calls





The following telephone operations are available to you via the keypad and function keys:





- Adjust volume



The keys  and  allow you to adjust the volume of the ring tones and of the handset/headset loudspeaker.
- Switching between handset and speakerphone

You can switch between the handset and speakerphone mode at any time during a call.

 - While telephoning with the handset, press the speakerphone key  and replace the handset in its cradle.
 - While telephoning in speakerphone mode, lift up the handset and then press the speakerphone key .
- Accepting calls

If the telephone rings during a call you can open the options with the  key. Use the   keys to select the menu entry 'Accept' and confirm your selection with the key . The second call is accepted and the previous call is placed on hold.
- Rejecting calls

When the telephone rings you can open the options with the  key. Use the   keys to select the menu entry 'Reject' and confirm your selection with the key . The incoming call is then rejected.
- Mute

To activate mute during a call, press the  key. To deactivate mute again, press the  key again.
- Holding and continuing with calls

To place a call on hold, press the Flash/Call hold key. The caller can no longer hear you and you can, for example, conduct a second call on another line.

To continue with a call which is on hold, press the Flash/Call hold key again.

■ Swap call

If you have two simultaneous connections you can use the Flash/Call hold key to switch between them. You will be connected to one of the other callers; the other caller is placed on hold.

■ Call forwarding, Transfer

□ Unattended call forwarding

To forward a call to the third person, press the Call hold key, dial the required telephone number and then press Hold key. As soon as the dialed subscriber accepts the call, the two callers are connected. If the dialed subscriber is not available, you can retrieve the call by pressing the Hold button again.

□ Attended call forwarding

If you are connected with two callers, one being on hold, you can connect them with one another. Similarly, a caller you have placed on hold can be connected with another telephone number of your choice. The existing call is placed on hold with the Flash/Call hold key. Now dial a number to make a second call. After reaching the second caller and, for instance, informing them of the call, press the Transfer key. To two callers are now connected and you no longer have any active calls or calls on hold.



Support of the transfer function depends upon the SIP proxy that the LANCOM VP-100 is registered with.

■ Conference calls

To initiate a telephone conference with three callers, the first connection has to be established and the caller placed in hold with the Flash/Call hold key. You then dial the number of the second participant and press the hash key (#) or (+) to dial. Once the dialed person picks up the call, press the Conference key and all three participants will be connected. By pressing the Conference key again the conference call is stopped and you can swap between the two lines .

■ Do not disturb

The 'Do not Disturb' function activated with the DND key places the telephone on standby. In this state the telephone receives no calls and does not ring. You can make calls yourself, however.

4 Advanced configuration

If you open the configuration interface in your web browser you will see the main screen containing general information such as the firmware version and current IP address.



Instructions for accessing the configuration interface are to be found here 'Opening the web interface for configuration' → Page 14.

The screenshot shows the LANCOM Systems web interface. The top left features the LANCOM logo and 'Systems' text. The top right shows a language dropdown menu set to 'English'. A left sidebar contains navigation options: Installation Wizard, Network Settings, SIP Settings, Phone Settings, Information, Management, and Logout. The main content area is titled 'Information' and contains a table with system details.

System	
Model Name	VP-100
Firmware Version	0706.31.01.0336
Host Name	VP-100-00A05712783D
System Date	2007-06-21 08:34:03
Up Time	18:06
Device Mode	Bridge

4.1 Installation Wizard

Information on the Installation Wizard is available under 'Installation Wizard' → Page 26.



Parameters in this area can only be changed if your are logged in as 'admin'.

4.2 Network settings



Parameters in this area can only be changed if your are logged in as 'admin'.

4.2.1 IP settings

In the 'IP Settings' area you can adjust the following parameters:

VoIP IP Setting	
WAN Port IP Assignment	<input type="radio"/> Static IP <input checked="" type="radio"/> DHCP <input type="radio"/> PPPoE
WAN Port Speed	Auto-Negotiated (default:Auto-Neg)
Set DNS server	<input checked="" type="radio"/> Manually <input type="radio"/> Automatically
Primary DNS Server	172.23.56.254
Secondary DNS Server	172.23.56.254

- IP address retrieval
 - 'Static IP': For the static definition of IP address, subnet mask, default gateway and DNS server.
 - 'DHCP': Automatic retrieval of IP address information by DHCP.
 - 'PPPoE': For entry of PPPoE information for registration at a PPPoE server.
- Network connection speed
 - Automatic negotiation
 - Set to 10/100 Mbps.
- Retrieval of DNS server information
 - 'Automatic': For automatic allocation of DNS server information via DHCP.
 - 'Manual': For the manual definition of primary and secondary DNS servers.



This option is only available when IP address information is retrieved by DHCP or PPPoE.

4.2.2 Quality of Service

In the 'Quality of Service' area you can adjust the following parameters:

VLAN QoS Setting	
QoS	<input checked="" type="checkbox"/> Enable
Voice VLAN Priority	1
Voice VLAN ID	1 (1..4094)
Data VLAN Priority	0
Data VLAN ID	1 (1..4094)
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	
VOIP QoS Setting	
SIP TOS/DiffServ	0 (0x0..0xff)
RTP TOS/DiffServ	46 (0x0..0xff)

- VLAN QoS: Activate this option if your local network uses virtual networks for the prioritization of data traffic. If the VLAN QoS is activated, the priority and the ID of the VLAN can be entered for voice (VoIP) and data.
- SIP and RTP ToS/DiffServ: If your local network uses ToS or DiffServ values to prioritize VoIP data traffic, the corresponding values can be entered here.



It is common to use DiffServe marking DSCP_EF ('Expedited Forwarding') for Voice over IP in LANs. For this, enter either the hexadecimal value '0x2e' or the decimal equivalent '46'.

4.3 SIP settings



Parameters in this area can only be changed if you are logged in as 'admin'.

4.3.1 Basic settings

The 'Basic setting' area is used for setting the various parameters for the VoIP protocols, such as the SIP and RTCP port:

Basic Setting		
SIP Port Number	<input type="text" value="5060"/>	(1..65535, default: 5060)
Session Timer	<input type="text" value="1800"/>	seconds (1..65535, default:1800)
Media Port Start	<input type="text" value="5000"/>	(1024-65526, default:5000)
Media Port End	<input type="text" value="5009"/>	(1033-65535, default:5009)
RTCP Port	<input type="text" value="5060"/>	(1-65535, default:5060)
Transport	<input checked="" type="radio"/> UDP (default) <input type="radio"/> TCP	
SIP Time Interval	<input type="text" value="500"/>	(100-1000, default:500)



This parameter only has to be adjusted if this is required by the SIP gateway and SIP proxy being used. Refer to the documentation from the corresponding manufacturers.

4.3.2 SIP account settings

In the 'Account settings' area you can enter the parameters for your SIP account:

Account Setting	
Phone Number	<input type="text" value="123456"/>
Display Name	<input type="text" value="VP-100"/>
Authentication User Name	<input type="text" value="user"/>

- SIP ID/Name: The telephone number of your SIP account.
- Display name: The name for display to the person you are calling. If the display name is left blank, the number of your SIP account will be displayed instead.



The display name is only displayed if the SIP protocol is supported by the telephone infrastructure of the person you are calling.

- Authentication name: The User ID or SIP ID of your SIP account.
- Authentication password: Your SIP-account password.
- Password confirmation: Confirmation of your SIP-account password.



The entry of further data, e.g. MWI information (Message Waiting Indication) is only required if your SIP provider explicitly gives you this information.

4.3.3 Server settings

In the 'Server settings' area you can enter the parameters for your SIP gateway and/or SIP proxy:

Server Setting		
Authentication Expired Time	120 seconds (60..65535, default:120)	
Lines		
Account 1	Register Server Address	sipprovider.com
	Register Server Port	5060 (1-65535, default:5060)
	Proxy Address	sipprovider.com
	Proxy Port	5060 (1-65535, default:5060)
	Use Outbound Proxy	<input type="checkbox"/> Enable (default:disabled)
	DNS SRV support	<input checked="" type="checkbox"/> Enable (default:enabled)

- Registrar: The address of the registrar server at your SIP provider.
- Proxy: The address of the proxy server at your SIP provider.



If your provider did not give you details of a proxy address, enter the registry server address here.



The entry of further data, e.g. outbound proxy or special ports, is only required if your SIP provider explicitly gives you this information.

4.3.4 NAT-Traversal

For some applications, VoIP telephones such as the LANCOM VP-100 have to be able to receive data directly from the Internet. In local area networks this is often prevented by firewalls or routers using network address translation (NAT). The STUN protocol (Simple Traversal of UDP over NAT) enables VoIP phones to be operated in these LANs without having to alter the configuration of the routers or firewalls. The devices register at a publicly-available STUN server for a convenient setup.

To configure this, the STUN protocol is activated and the STUN server is entered along with the port to be used.

NAT Traversal	
STUN	<input checked="" type="checkbox"/> Enable (default:disabled)
STUN Server Address	0.0.0.0
STUN Server Port	3478

4.3.5 Security

The Secure Real-Time Transport Protocol (SRTP) allows the encryption of the voice data being transferred by the Real-Time Transport Protocol (RTP). The method of encryption is the Advanced Encryption Standard (AES).

Security Settings	
Secure RTP	<input type="checkbox"/> Enable
Accept Non-SRTP Call	<input checked="" type="checkbox"/> Enable
Lines	
Account 1	SRTP Security Type <input type="text" value="Encryption and Authentication"/> (default and Authentication)
	SRTP Pre-Shared Key <input type="text" value="0000000000000000"/> (1-16chars.)

- Secure RTP: Activates/deactivates SRTP
- Accept non-SRTP call: Activates/deactivates the acceptance of calls from subscribers who do not use SRTP.
- SRTP security type:
 - Encryption: The data are encrypted only; no authentication takes place.
 - Authentication: The device has to be authenticated by the SIP gateway; data is not encrypted.
 - Encryption and authentication: Data is encrypted and the device has to be authenticated at the SIP gateway.
- SRTP pre-shared key: Password for encryption/authentication via SRTP.

4.4 Telephone settings

4.4.1 Voice settings

The 'Voice settings' area is used for setting the various voice-transmission parameters, e.g. the compression technique (codec):

Voice Setting	
Codec Priority 1	<input type="text" value="G.711/Ulaw"/>
Codec Priority 2	<input type="text" value="G.711/Alaw"/>
Codec Priority 3	<input type="text" value="G.729"/>
Codec Priority 4	<input type="text" value="iLBC"/>
iLBC mode	<input type="text" value="30 msec."/> (default:30)



This parameter only has to be adjusted if this is required by the SIP gateway and SIP proxy being used. Refer to the documentation from the corresponding manufacturers.

4.4.2 General settings

In the 'General settings' area you can set up various parameters for operating the telephone:

Volume Setting	
Ringer Volume	Volume 2 ▾
Handset Volume	Volume 2 ▾
Speaker Volume	Volume 2 ▾
Headset Volume	Volume 2 ▾

- Volume settings: Here you can separately adjust the volume settings for the ring tone, the handset, the loudspeaker, and the headset.
- Language setting: The language used in the telephone's display.
- Ring melody: Selection from 10 different ring melodies.



Ring melodies 9 and 10 can be set with your own audio files.

- Dial-tone setting: This setting should correspond with the country of operation.
- Automatic redial: Activates/deactivates the auto redial and sets the number of redial attempts.
- Time format: The time format used in the telephone's display.

Ring melody and on-hold melody import

To use your own melody as a ring or on-hold melody, you first define where the melody is to be stored (Melody 9, Melody 19, On-hold melody), you then select the audio file and confirm by pressing the **Update** button.



The audio file must be an μ -law encoded RAW file and be smaller than 22 KB.

4.4.3 Call-forwarding settings

In the 'Call-forwarding settings' area you can set the numbers to be called in case an incoming call is to be forwarded:

Call Forward Setting		
Select	Forward	Phone Number
<input checked="" type="radio"/>	Busy	-
<input type="radio"/>	No Answer	-
<input type="radio"/>	Unconditional	-

Edit Forward	
Forward Type	Busy
Phone Number	<input type="text"/> (1-32digits)

Select whether forwarding applies when the phone is busy, if there is no answer, or immediately. You then enter the desired telephone number (max. 32 digits, no alphanumerical characters).

4.4.4 Function keys

In the 'Function key settings' area you can set up the functions and telephone numbers for the programmable function keys:

Program key Setting	
Select	Key Setting
<input checked="" type="radio"/>	Flash = P1
<input type="radio"/>	Xfer = P2
<input type="radio"/>	Conf = P3
<input type="radio"/>	Missed call = P4
<input type="radio"/>	Received call = P5
<input type="radio"/>	DND = P6
<input type="radio"/>	Headset = P7

Add/Edit Program key	
Keytype Select	<input type="radio"/> Function <input checked="" type="radio"/> Memory
Phone Number	<input type="text"/> (1-32digits)
Key Select	<input type="text" value="P1"/>

The function keys 1 to 7 are pre-programmed with the following functions. Although you cannot delete these functions, they can be assigned to different keys:

Function key	Function
P1	Flash/Call hold
P2	Transfer
P3	Conference
P4	Missed calls
P5	Received calls
P6	Do not disturb
P7	Headset

Function key programming

- ① To program a function key, click on the button **Add/Edit** under the list of function keys.
- ② Select the type of program for the key (function or speed-dial) and then the setting:
 - One of the predefined functions.
 - A telephone number for speed-dialing (max. 32 digits, no alphanumerical characters).
- ③ Select the function key (P8 to P14) for programming and confirm your selection with the **Submit** button.

Delete function key

To delete the programming of a function key mark the corresponding entry in the displayed list of function keys and confirm with **Delete**.

4.4.5 Alarm setting

In the 'Alarm setting' area you can set a one-off or regular alarm:

Alarm Setting	
Select	Date Setting
<input type="radio"/>	Everyday 08:00
<input type="radio"/>	20.06.2007 08:00

Add Alarm Setting

Date Value Setting: Empty 2005 01 01

Time Value Setting: 00 00

Delete All Entries

Add alarm setting

- ① To set a new alarm, select the date and time and click on the **Submit** button.
- ② For an alarm signal which is repeated every day, click on the 'Daily' option. Now all you have to do is to set the time and confirm with **Submit**.

Delete alarm time

To delete **one** of the alarm times, mark the corresponding entry in the displayed list of alarm times and confirm with **Delete**.

Delete all alarm times

To delete **all** of the alarm times, click on the button **Delete all**.

4.4.6 Telephone book

In the 'Telephone book' area you can create and edit entries in the telephone book:

Phone Book		
Select	User Name	Phone Number
<input type="radio"/>	Max Mustermann	0123456789
<input type="radio"/>	Michaela Muster	0123987654

Add/Edit Phone book	
User name	<input type="text"/> (1-18chars)
Phone number	<input type="text"/> (1-32digits)
<input type="button" value="Save"/> <input type="button" value="Cancel"/>	

Delete All Entries

Adding an entry to the telephone book

To create a new entry in the phone book, enter the name (max. 18 alphanumerical characters) and the telephone number (max. 32 digits, no alphanumerical characters) and click on the **Save** button.

Deleting an entry from the telephone book

To delete **one** of the telephone-book entries, mark the corresponding entry in the displayed list of telephone-book entries and confirm with **Delete**.

Deleting all telephone-book entries

To delete **all** of the telephone-book entries, click on the button **Delete all**.

Importing a telephone book

Far more convenient than manually making telephone-book entries is to import an existing list of telephone numbers. The telephone book needs to be an UTF-8-coded CSV file with the following format:

```
"Name" , "Number"
"Mustermann" , "0123456789"
...
```

To import a list of this type into the telephone book, browse for and select the file and press the button **Import**.



Importing a telephone-book file overwrites corresponding entries in the device's telephone book. Any entry in the device which is not matched by an entry in the import file is left unchanged.

Save telephone book

To export device telephone-book entries to a file, click on the **Save** button and define a suitable location and name for the file.



The telephone book is exported to a file of the same format as used for importing.

4.4.7 Do not disturb

In the area 'Do not disturb list' you can enter telephone numbers which are to be ignored by the telephone.

DND(Do Not Disturb List)		
Select	User Name	Phone Number
<input type="radio"/>	Ben Smith	0123456789
<input type="radio"/>	John Doe	0123987654

Delete All Entries

Adding a Do-not-disturb entry

To add an entry to the do-not-disturb list, click on the **Add/Edit** button, add the user name (max. 18 alphanumerical characters) and the telephone number (max. 32 digits, no alphanumerical characters) and confirm with **Save**.

Calls from that number will in future be rejected.

Deleting a do-not-disturb entry

To delete **one** of the do-not-disturb list entries, mark the corresponding entry in the displayed list of numbers and confirm with **Delete**.

Deleting all do-not-disturb list entries

To delete **all** of the do-not-disturb list entries, click on the button **Delete all**.

4.5 Information

The 'Information' area displays general information about the device and also the lists of 'Missed calls', 'Dialed numbers' and 'Received calls'.

To delete all of the numbers in any of these lists, click on the button **Delete all**.

4.6 Management

4.6.1 User administration

In the 'User administration' area you can limit access to the device configuration:

Remote Administration				
Remote administration		Enable		
Remote administration only from IP		0.0.0.0	(0.0.0.0 means no limit)	
<input type="button" value="Update"/>				
Admin Accounts				
Access Level	Username	Password	Confirm Password	Action
Admin	admin	•••••	•••••	<input type="button" value="Change"/>
User	user	•••••••	•••••••	<input type="button" value="Change"/>

- Remote administration: Here you enter the IP address from which access to the configuration is permitted. Access to the configuration from any other IP address is blocked.
- User accounts
 - Admin: Password for administrator access. The administrator has full access to the configuration.
 - User: Password for user access. Users only have limited access to the configuration and, for example, they cannot alter network and SIP settings.

4.6.2 System log settings

In the 'System log settings' area you can configure the transmission of device information to a Syslog server:

System Log Setting	
System Log	<input checked="" type="checkbox"/> Enable
Kernel Log Level	4 Warning (default:4)
VoIP Log	Disable (default:disabled)
Remote Log Server Address	your.syslog.server
Remote Log Server Port	514 (1..65535, default:514)
<input type="button" value="Submit"/> <input type="button" value="Reset"/>	

- System log: Activates/deactivates the transmission of device information to a Syslog server.
- Kernel log level: Selection of the level that messages require for transmission to the Syslog server (from '0=emergency' to 'None').
- VoIP log: Activates/deactivates the transmission of VoIP information to a Syslog server.
- Syslog server address: Name or IP address of the syslog server.
- Syslog server port

4.6.3 Date/time

In the 'Date/Time' area you can configure the time settings for the device:

Date/Time	
Date Time Set By	<input type="radio"/> Manual Time Setting <input checked="" type="radio"/> NTP Time Server
Daylight Saving	<input checked="" type="checkbox"/> Enable (default:enabled)
Time Zone	(GMT+01:00) Amsterdam, Berlin, Rome
NTP Update Interval	24 hours (1..1000, def
NTP Server 1	pool.ntp.org
NTP Server 2	

- Manual
 - Selecting manual time settings displays a dialog for entering date and time.
- NTP time server
 - If date and time information is to be automatically retrieved from a time server (NTP server), you can enter the values for the server here.
 - Time zone: Time zone where the device is in operation.
 - NTP update interval: Interval in hours after which the clock time is updated.

- NTP server 1 and 2: URL or IP address of the NTP server from which date and time are to be retrieved automatically.

4.6.4 Ping test

In the 'Ping test' area you can ping another station:

PING Test	
PING Destination	<input type="text" value="192.168.2.100"/>
<input type="button" value="PING"/>	
<pre> PING 192.168.2.100 (192.168.2.100): 56 data bytes 84 bytes from 192.168.2.100: icmp_seq=0 ttl=60 time=7.0 ms 84 bytes from 192.168.2.100: icmp_seq=1 ttl=60 time=0.9 ms 84 bytes from 192.168.2.100: icmp_seq=2 ttl=60 time=0.9 ms --- 192.168.2.100 ping statistics --- 3 packets transmitted, 3 packets received, 0% packet loss round-trip min/avg/max = 0.9/2.9/7.0 ms </pre>	

4.6.5 Configuration

In the 'Config' area you can backup or restore the device configuration or reset to the factory defaults:

Config Setting	
Save	Save device current configuration to local file <input type="button" value="Save"/>
Restore	Upload a local file to restore as device configuration: <input type="text"/> <input type="button" value="Durchsuchen..."/> <input type="button" value="Restore"/>
Factory Default	Set device configuration to Factory default setting <input type="button" value="Set"/>



Resetting the configuration deletes and settings and other values, such as the telephone-book entries.

4.6.6 Firmware update

In the 'Firmware update' area you can upload new firmware into the device.

Manual firmware update

Firmware Update	
Firmware File	<input type="text"/> <input type="button" value="Durchsuchen..."/> <input type="button" value="Upload"/>

To carry out a manual update to the firmware, select the desired firmware file (filename *.upv) and confirm with **Upload**.



Network devices connected to the telephone do not have network access for the duration of the telephone's firmware update.

Automatic firmware update

Auto Provision	
Firmware Update at each Boot	<input checked="" type="checkbox"/> Enable (default: disabled)
Firmware Update Periodically	<input type="checkbox"/> Enable (default: disabled)
Provision method	<input checked="" type="radio"/> HTTP first <input type="radio"/> TFTP first <input type="radio"/> HTTP only <input type="radio"/> TFTP only
HTTP Provision Config Server Address	<input type="text" value="10.20.0.2"/>
HTTP Provision Config Directory	<input type="text" value="cfg"/>
HTTP Provision Config Server Port	<input type="text" value="80"/>

As an alternative to manual firmware updates, the device can automatically retrieve updated firmware and configurations either when started and/or periodically via HTTP or TFTP.



Network devices connected to the telephone do not have network access for the duration of the telephone's firmware update.

To automatically upload firmware and/or configuration, select the following parameters:

- Firmware update at each boot: Activates/deactivates the automatic retrieval of firmware and/or configuration on booting.
- Firmware update periodically: Activates/deactivates the automatic retrieval of firmware and/or configuration periodically after a certain number of days.
- Provision method: Select the protocol which is to be used for automatically retrieving firmware and/or configuration.
- Server, directory, port: With separate entries for HTTP and TFTP, enter the source for the firmware and configuration files.



A text file with the name of “Lancom-GENERAL.cfg” must be saved to the selected configuration directory, e.g. “cfg”. This file should contain the following entries:

```
[fupdate]
```

```
fupdate_image_name=LC-VP100-3.03.0049.upv
```

Here, “LC-VP100-3.03.0049.upv” is the name of the firmware file stored to this directory and intended for firmware distribution, e.g. “image”.

- Provision retry interval, limit: If the first attempt to load the firmware or configuration fails, you can define the number of attempts to be made and the time interval between them in seconds.

4.7 Logout

In the 'Logout' area you can logout of the configuration interface or you can prompt a reboot of the device.

5 Appendix

5.1 Performance and characteristics

LANCOM VP-100		
Connectors	Ethernet ports	2 Ethernet ports 10/100 Mbps (RJ45) for placing the telephone between the PC and network socket
	Headset connection	2 analog standard connectors (microphone, headphone)
	Connector for handset/headset	RJ9 plug for the spiral cable (supplied) or a headset
	Power supply	Via Power over Ethernet (IEEE802.3af) or 9V DC external power adapter (110V - 220V), supplied
	Power consumption (max.)	ca. 4 Watt
VoIP	SIP protocol	RFC 3261 (SIPv2), RFC 2327 (SDP/RTP/RTCP), RFC 3262 (Reliability of Provisional Responses), RFC 3263 (Locating SIP Servers), RFC 3264 (Offer/Answer Model), RFC 3265 (SIP Specific Event Notification), RFC 2976 (DTMF Info Method), RFC 3842 (Message Summary), RFC 3711 (SRTP)
	Telephony functions	Hold, swap, transfer calls, three-way conference, do not disturb, call waiting, message waiting indication (MWI), mute, speakerphone, call forwarding (unconditional/on busy/no answer), redial, lists of dialed numbers, received and missed calls, telephone book (100 entries).
	Audio properties	Comfort noise generation (CNG), voice activity detection (VAD), packet loss concealment (PLC), echo cancellation AEC (G.167), automatic adaptive de-jitter buffer. Inband tone signaling, country specific. DTMF support compliant with RFC 2976 (SIP info), RFC 2833 (RTP payload type/outband). Voice encoding with G.711 μ -law/A-law (64 kbps), G.729 Annex A/B, iLBC
Hardware	Housing	Robust plastic housing, measures 240 x 70 x 180 mm (WxHxD; with on-hook handset)
	Display	128 x 26 dot-matrix LCD
	Keys	36 keys incl. 14 programmable function keys (status LED), large speakerphone button (status LED); reset key
Conformity		EN 55022, EN 55024
Environment / Temperature		Temperature range -10 – 40 °C; humidity 10-95 %; non-condensing
Package content		External power adapter (9V DC, 110-220V), LAN cable (CAT.5, STP, 3 m), printed manual (English, German), software CD

5.2 Keypad navigation

Menu entry	Remark
■ Telephone book	
■ New	
■ Name	
■ Telephone number	
■ View entry	
■ Dial	
■ Modify	
■ Delete	
■ Details	
■ Add to DND (do-not-disturb list)	
■ Search	
■ Memory check	
■ Delete all	
■ Call lists	
■ Missed calls	
■ Received calls	
■ Dialed calls	
■ Delete all	
■ DND list	
■ New	
■ Name	
■ Telephone number	
■ View entry	
■ Modify	
■ Delete	
■ Details	
■ Search	
■ Memory check	
■ Delete all	
■ Network settings	
■ Set IP mode	
■ DHCP	
■ PPPoE	
■ Fixed	

Menu entry	Remark
■ IP address	
■ Modify	For IP mode = Fixed
■ (IP) subnet mask	
■ Modify	For IP mode = Fixed
■ Default gateway	
■ Modify	For IP mode = Fixed
■ DNS setting	
■ Primary DNS	
■ Modify	For IP mode = Fixed
■ Secondary DNS	
■ Modify	For IP mode = Fixed
■ PPPoE settings	
■ User name	
■ Password	
■ NTP settings	
■ Set	
■ On	
■ Off	
■ Server IP	
■ Zone	
■ SIP settings	
■ Proxy settings	
■ Proxy server	
■ Outbound proxy	
■ Proxy port	
■ Registrar server	
■ Registrar port	
■ User info	
■ Auth. name)	
■ Password	
■ Phone number	
■ Phone settings	
■ Set language	
■ English	
■ English	

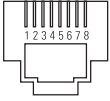
Menu entry	Remark
■ Call forwarding	
■ On busy	
■ Activate/deactivate	
■ Forward to:	
■ No answer	
■ Activate/deactivate	
■ Forward to:	
■ Unconditional	
■ Activate/deactivate	
■ Forward to:	
■ Disable all	
■ Alarm	
■ Add alarm	
■ View all	
■ Delete all	
■ Time	
■ Ring	
■ Volume (1 to 8)	
■ Melody (1 to 10)	
■ Volume	
■ Headset (1 to 8)	
■ Speaker (1 to 8)	
■ Program keys	
■ Function key	
■ Flash/Call hold	
■ Press key	
■ Swap	
■ Press key	
■ Conference	
■ Press key	
■ Missed calls	
■ Press key	
■ Received call	
■ Press key	
■ DnD (Do not disturb)	

Menu entry	Remark
■ Press key	
■ Headset	
■ Press key	
■ Memory key (speed-dial)	
■ Memory number (speed-dial)	
■ Press key	
■ Factory default	
■ Reboot	

5.3 Connector wiring

Ethernet interface 10/100Base-T

8-pin RJ45 sockets (ISO 8877, EN 60603-7)

Connector	Pin	Line
	1	T+
	2	T-
	3	R+
	4	–
	5	–
	6	R-
	7	–
	8	–

5.4 CE-declarations of conformity



LANCOM Systems herewith declares that the devices of the type described in this documentation are in agreement with the basic requirements and other relevant regulations of the 1995/5/EC directive.

The CE declarations of conformity for your device can be found in the download area of the LANCOM web site (www.lancom-systems.com).

Index

A

Accepting calls	23, 24
Adjust volume	24
Admin	38
Advanced Encryption Standard	31
AES	31
Alarm setting	34
Attended call forwarding	25
Authentication name	17, 18, 20, 29
Authentication password	18, 20, 29
Authentication, local	12

C

Call forwarding	25, 32
Calls lists	22
Conference	10, 34
Conference calls	25
Configuration interface	26
Configuration via web interface	14
Connector wiring	47
Ethernet interface	47
LAN interface	47
WAN interface	47
Connectors	10

D

Date	39
Declarations of conformity	47
DHCP	12, 14, 15, 16, 17, 27
DHCP server	15
Dial-tone setting	32
Direct dialing	22
Display	8
Display name	18, 20, 29
DnD (Do not disturb)	10, 25
DNS server	15, 27
Do not disturb	25, 34, 37
Documentation	7
Download	6

F

Firmware	6
Firmware update	40
Automatic	41
Flash/Call hold	10, 24, 34
Function keys	33
Function keys, programmable	9

H

Hands free	10
Hardware installation	11
Headphone	11
Headset	10, 11, 22, 24, 34

I

Information symbols	6
Installation	7
LAN	11
Power adapter	11
Installation Wizard	15, 26
IP address	15
IP address allocation	15, 16
IP domain	17

K

Keypad	9
Keys	8

L

LAN	
Connector cable	7
LANCOM Easy Setup	11, 12, 13
Language for configuration, selection	15
Language setting	32
LED display – see status display	
Local authentication	12
Loudspeaker	11

M

Management	38
------------	----

Configuration	40	R	
Date/time	39	Received calls	10, 34
Firmware update	40	Redial	32
Logout	42	Register error	14
Ping test	40	Registrar	19, 21, 30
System log settings	38	Rejecting calls	24
User administration	38	Remote administration	38
Message Waiting Indication	18, 29	Ring melody	32
Microphone	11	Ring melody, import	32
Missed calls	10, 34	RTCP port	28
Mute	10, 24	S	
MWI information	18, 29	Secure Real-Time Transport Protocol	31
N		Secure RTP	31
Network Address Translation	30	Server settings	18, 20
Network connection		Simple Traversal of UDP over NAT	30
Speed	27	SIP account settings	17, 19
Network settings	26	SIP gateway	7, 12
IP settings	26	SIP ID	17, 18, 20, 29
Quality of Service	27	SIP port	28
No local authentication	13	SIP provider	17
NTP	39	SIP proxy	7, 25
NTP time server	39	SIP settings	17, 18, 19, 20, 28
O		Basic settings	28
On-hold melody, import	32	NAT-Traversal	30
P		Security	31
Package content	7	Server settings	18, 20, 30
PBX		SIP account settings	17, 19, 29
upstream	21	SIP settings	17, 19
Ping test	40	Speakerphone	22, 24
Power adapter	7, 11	Speakerphone key	9, 22
PPPoE	15, 16, 27	Speed-dial keys	23
Programmable function keys	9, 33	SRTP security	31
Proxy	19, 21, 30	Static IP	27
Q		Status display	8
Quality of Service	27	STUN	30
DiffServ	28	Support	6
ToS	28	Swap	25
VLAN QoS	28	Switch port	11
		Syslog server	38

■ *Index*

System log settings	38	Time	39
System requirements	7	Time format	32
T		Transfer	10, 25, 34
Telephone book	23, 35	U	
Import	36	Unattended call forwarding	25
Save	37	Upstream PBX	21
Telephone handset	11	V	
Telephone settings	31	VoIP domain	17
Alarm setting	34	VoIP log	39
Call-forwarding settings	32	Volume	32
Do not disturb	37	W	
Function keys	33	Wahlwiederholung	32
General settings	32	Web interface	14
Telephone book	35	With local authentication	13
Voice settings	31		