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## Product information

### About these operating instructions

These operating instructions are meant to make it easier for you to get to know the LP4100 and to use its functions. The instructions contain important information for a safe and proper operation of the LP4100. Observing these instructions will help to minimize any maloperation and downtimes as well as to make use of the full range of features offered by this telephone in a network environment.

These operating instructions shall be read and applied by every person installing, operating or administrating the LP4100.



For your own safety, please read the section dealing with the safety precautions. Follow every detail of the information given there in order not to endanger yourself and other persons, and to avoid any damages to the unit.

These operating instructions are laid out in a user-oriented manner, which means that the you are led through the operation of the LP4100 step by step – starting from the description of simple basic functions, continuing through the setting of all operating parameters, and ending up in the special functions and administrative tasks at the end of the manual. The separate quick reference guide is meant to give you quick and reliable explanations regarding frequently used functions.

### Use as prescribed

The LP4100 telephone is a desktop unit designed for voice transmission and for connection to LAN. It can be operated also as a stand-alone unit. Any other use is regarded as not prescribed.

### Identifying marking

The identification details of your telephone are given on the nameplate containing the exact product designation and serial number on the bottom of the base unit. Please have these data ready whenever you are calling our service department in the case of any trouble or defects on the unit itself.

## Notes and symbols

### Safety

Any safety information or general information is shown as follows in the present operating instructions:



This sign stands for imminent dangers. Any nonobservance of the safety information may lead to personal injuries or cause damages to the unit.



Information which is important for the proper use of the unit is shown by this sign.

### Symbols

The operating steps of actions are shown as follows:

- Lift off the handset.
- Dial the required number.
- ...

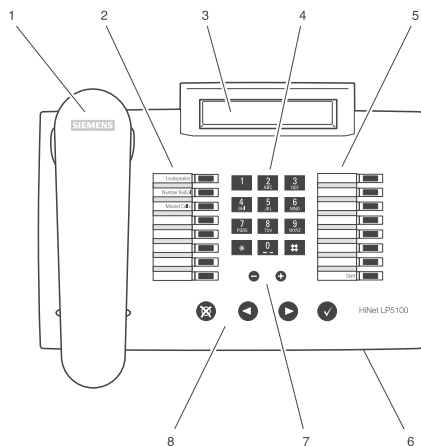
Listings may be identified by the following layout:

- Option A
- Option B
- ...

The symbols located on the telephone keys are used to show the individual operating steps or actions.

Symbol	Meaning
> or <	page forward or backward in the menu
?	call the indicated menu, confirm a value, or the highlighted function
h	cancel the action
+	increase the value depending on the current operating mode
-	reduce the value depending on the current operating mode

## Layout of the telephone



1	handset
2	key block with 8 function keys
3	two-line display
4	dialing keypad
5	key block with 8 function keys
6	handsfree microphone
7	2 control keys
8	4 dialog keys

## Display and operator's controls

### Display and dialog keys

The LP4100 is provided with a two-line display. In the normal operating mode, it displays the basic menu where you make or receive telephone calls.

13:15	20.06.98
Page forward with	>

The basic menu shows in its first line the date and time, and the way to enter the menu structure of the telephone in the second line.

If you want to define settings, use the four dialog keys <, >, ? and h to navigate through the hierarchically built up menu structure. The menu structure is nested into a maximum of three levels. Within this structure, the first line shows the currently selected menu, the second line a menu item of that menu.

### Dialing keypad

The dialing keypad of the LP4100 is labeled with digits, letters and some special characters. You can key in letters and special characters in the corresponding input mode by pressing the corresponding key as often as is necessary until the required letter or the required special character appears on the display.

Examples of letter inputs are the password, the user name, or FTP download files and file paths respectively.

For example, if you want to enter the letter "R", press the key "7" three times as "R" is at the third position. For the letter "U", press the key "8" twice.



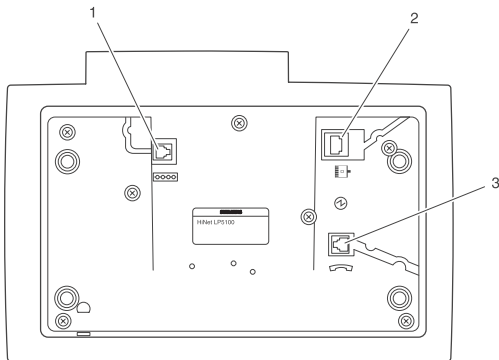
## Setting into operation

This chapter describes how to connect the individual elements of the LP4100 with each other and how to set up the unit ready for operation.

The network administrator is in charge of making the connection to LAN and of setting of the ambient variables, as described in the chapter "Settings".

### Installing the telephone

Proceed as follows to connect the elements of the telephone with each other:



The two cable ends of the handset cord are equipped with identical four-pin Western plugs (RJ 11).

- Latch the Western plug of the handset cord in the handset receptacle.
- Latch the other end of the cord in the receptacle (3) on the bottom of the telephone.
- Feed the cord through the guide channel in the base unit.
- Latch the LAN cord with the eight-pin Western plug (RJ 45) in the receptacle (2) on the bottom of the telephone, and connect with LAN.
- Feed the LAN cord through the guide channel in the base unit.

## Integrating the telephone into the communication environment

Since the LP4100 is managed as a data terminal unit within an individual LAN, it must have an IP address like any other units connected. Below you will find a description of how to integrate your telephone into your communication environment. The LP4100 can be operated using either a SIP proxy server, Gateway or Direct routing environment.

If you have any questions about the individual terms used or about your LAN environment, please contact your network administrator.

### system with DHCP server

The LP4100 is factory-configured to have an IP address automatically assigned to it by the DHCP server as soon as it's connected to LAN.

After that, the display prompts you to enter the Administrator password:

Enter admin password  
\*\*\*\*\*

Enter the administrator password and confirm

Enter E164  
—

Enter the telephone number assigned to this telephone set and use

Enter E164  
1228

to confirm the input number

Enter Server IP address  
—

Enter the SIP Server Address.

Enter Server IP address  
19.0.34.56

to confirm the input.

Following the entry of your own telephone number, the telephone changes over to its normal operating mode (Basic menu). You can now receive and make calls.

13:15 20.06.98  
Page forward with >

Basic menu



## system without DHCP server

If there is no DHCP server integrated into your environment, you have to enter the IP address manually via your dialing keypad. When DHCP is set off and the terminal does not have a configured IP at start up, the screen "No IP address" is displayed. You have to enter the admin menu and configure it manually. This will require a restart to take effect.

The following display will appear:

Enter admin password *****	Enter the administrator password and
?	confirm
Enter IP Addr 000.000.000.000	Enter the IP address assigned to this telephone and use
Enter IP Addr 128.098.053.008	to confirm the IP address
?	

If the terminal does not have a configured SIP server address at start up, the screen "No Server address" is displayed. You have to enter the admin menu and configure it manually. This will require a restart to take effect.

The following display will appear:

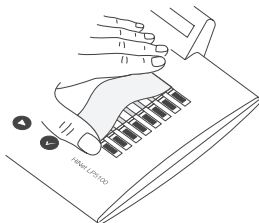
Enter admin password *****	Enter the administrator password and
?	confirm
Sip Server 000.000.000.000	Enter the SIP Server address.
Sip Server 128.098.053.008	to confirm the SIP Server address
?	

Enter your own telephone number if not yet configured.

Enter E164 —	Enter the telephone number assigned to this telephone and use
Enter E164 1228	to confirm the input number
?	
LP4100 Initialising...	

## Filling out the labelling cards

To prepare the programmable keys, you can take out the two labelling cards and write the names of those functions on them which you aim to subsequently assign to the corresponding keys.



- Push forward the transparent foil cover of the labelling cards and remove it.
- Take out the labelling cards and write the required names or functions on it.
- Place the labelling cards in the recess and fix the transparent foil cover into place.

Write the telephone numbers for fire and emergency on the fire/emergency label and affix it to the matching recess on the telephone's base unit.

## Convenience functions

- The equipment only offers those functions that can be activated in the current mode.
- Individual menu options for features appear or disappear in the corresponding menu after activation/deactivation via the configuration menu (intelligent menus).
- Only one function, rather than several functions, is offered at any one time per display.
- For call-related functions, the most probable function in each case is displayed first (default).
- The next most important functions in the priority list can be selected by moving the cursor to the left or right of the default setting to obtain the function with the fewest possible key strokes.
- An arrow symbol in the second display line points to additional functions offered.
- As a rule, in idle mode no function is offered (zero prompt) in order to avoid giving the user the impression that he has to select an option. In this mode, the message "page forward with >" in the second display line refers to the possibility of selecting a function.

## Function selection

As is normal in menu controls, a function is acknowledged with the keys < or > and confirmed, and then activated, with the ? key. The "page forward with >" text in the second line for an additional range of functions is an optical reminder that there are other functions which can be selected. In the idle mode, no menu options are offered (zero prompt).

At the end of the menu list the > key goes to the beginning of the list, and at the beginning of the list the < key goes to the end of the list.

As a reaction to the selection of a function using the ? key, you are led step by step through the call procedure until all parameters have been entered.

## Incoming call

In the case of an incoming call, you normally hear the ringer tone. If you are defining settings on the telephone during this, the process is hold. After the telephone conversation you will be returned to the point in the menu structure you were in before the call.

However, if you are using the menus "Administration" or "Diagnosis", you will not be interrupted, and the person calling will receive a busy signal.

### Incoming call in idle mode

#### Picking up a call

The LP4100 rings giving the set call signal.

```
Xxxxxxxxxxxxxxxxxxxx
Pickup call?
```

If the number of the caller is transmitted, it will appear in the display. Otherwise the display will read:

```
Call no. not known
Pickup call? >
```

You can now lift off the handset and talk with the person calling.

#### Refuse call

You can refuse an incoming call. If the number of the caller is transmitted, it will be stored in the Missed Calls list so that you will be able to call that person back at a later date.



```
08972261485
Pickup call? > Choose "Refuse call"
```

```
08972261485
Refuse call? > ? Confirm your choice
and
```

```
13:15 20.06.98
Page forward with > return to the basic
menu
```

The person calling will receive the message "Rejected".

## Dialing with handset replaced

18:10 20.06.98 Page forward with >	Display of the basic menu
722_ Dial?	Enter the call number
72261496 Dial?	Confirm the call number entered
	Press this key to hear the dial tone
	The loudspeaker is switched on
72261496 calling	The dialing process is confirmed
72261496 ringing	The ringing tone signal sounds
You will hear the dial tone from the loudspeaker in the base unit. As soon as the subscriber answers, you can pick up the handset and make the conversation. During the conversation, you will see the standard display for an active connection:	
72261496 Disconnect? >	The active connection is displayed

## Switching handsfree/handset

You can replace the handset during a telephone call and continue with the conversation in handsfree mode.

- Keep the key "Loudspeaker" pressed and replace the handset. The loudspeaker and the microphone in the base unit are switched on.

You can pick up the handset during the telephone call in handsfree mode in order to continue your call.

- Pick up the handset during the handsfree call. The loudspeaker and the microphone in the base unit are switched off.

## Switching loudspeaker on

If any persons present in the room should also hear what's being said during the telephone call that you are making by means of the handset:

- Press the key "Loudspeaker".  
The voice of the called party can be heard over the loudspeaker in the base unit.

## End of connection

### Outgoing

To actively end the connection, all you have to do is to replace the handset or press the loudspeaker key if in handsfree mode. The telephone goes into idle mode, with the Basic menu displayed. If there is still a call waiting at the end of the outgoing connection, this is then signalled as a normal incoming call.

### Incoming

If the connection has been broken by the other party, you will be informed of the disconnection.

The following display will appear:

87684564	
Cleared	>

You have a total of 16 function keys in two levels (= 32 key assignments) at your disposal for programming them with call numbers or functions. One function is assigned to four function keys on delivery:

- loudspeaker
- number redial
- missed calls and
- shift

You can change the assignments even for these four keys as required. The procedure is very easy and explained below by an example.

#### Assigning the Mute function to a function key

During your telephone calls, you often want to switch off the microphone and then switch it on again, and therefore you would like to assign this function to one function key:

18:10 20.06.98 Page forward with >		Display of the Basic menu
>		
Go to "Service?"		
18:10 20.06.98 Service? >	?	Call the "Service" menu
>		
Go to "Function keys"		
Service 4=Function keys? >	?	Call the menu "Function keys"
>		
Go to "Function keys"		
?		
Call the menu "Function keys"		
>		
Go to "Function keys"		
?		
Choose the displayed function		
>		
A signal will sound to confirm		

The new function is assigned to the function key.

## Dialing aids

The LP4100 provides you with a number of dialing aids and memory functions by means of which it'll be considerably easier for you to make telephone calls and to administer call numbers.

### Selected dialing key

You can assign frequently dialed numbers to function keys. Once a function key is pressed, the stored call number is shown in the display, and you can set up the connection.

#### Assign call number

<div>18:10 20.06.98</div> <div>Page forward with &gt;</div>	Display of the Basic menu
<div>Frank Miller</div>	
<div>Program destination: IP? &gt;</div> <div>?</div>	Press the desired function key Choose input mode "IP" or "#" and confirm
<div>08972226944_</div> <div>Program destination?</div> <div>?</div>	Enter the call number to be stored and confirm
<div>Frank Miller</div>	Press the function key
<div>18:10 20.06.98</div> <div>Page forward with &gt;</div>	
	Display of the Basic menu

#### Selected dialing

<div>18:10 20.06.98</div> <div>Page forward with &gt;</div>	Display of the Basic menu
<div>Frank Miller</div>	
<div>08972226944_</div> <div>Dial?</div>	Press the programmed function key The stored call number is displayed
<div>08972226944_</div> <div>Dial?</div> <div>?</div>	Confirm the call number; the connection is set up
<div>08972226944</div> <div>Consultation? &gt;</div>	The active connection is displayed



## Missed calls

If a caller does not reach you (fail to pickup) or a call waiting is refused, his call (if the telephone number is known) will be stored in the missed calls list.

The last 20 numbers are stored. At the same time, the number of call attempts will also be displayed for each call number (max. 99).

The list is sorted according to date and time, with the most recent entry coming first. If a new call is entered in the list, the "Missed calls" key LED flashes on a request to display the list. After checking the list, the LED stops flashing but remains lit. The LED is switched off when all calls in the Missed call list have been deleted.

### Calling Missed Calls list

Calls Missed calls (1 new)?	1 new call has been entered in the list
<div data-bbox="816 529 839 648">Missed Calls</div> <div data-bbox="816 648 839 681"></div> 1) 12*72226944 Dial?	Press the function key "Missed Calls" 1st entry with the total number of calls and list position

### Scrolling through and dialing the Missed Calls list

1) 12*72226944 Previous entry?	> Choose "Next entry" or "Previous entry"
2) 3*08972256442 Dial?	< Choose "Dial"
2) 3*08972256442 Dial?	> Confirm the number to be called
08972256442_ Dial?	? Start the dialing process

## Abbreviated dialing

To simplify the dialing process, you can call twelve abbreviated dial numbers.

Assigning a call number to a digit

18:10 Page forward with >	20.06.98 >	Display of the Basic menu
Program abbreviated no. 1)08972228596_	>	? Press the function key "Abbreviated Dialing"
Program abbreviated no. 2)Not programmed?	>	? go to the next unconfigured entry, press key and
Program abbreviated no. 2)_	>	? enter a call number
Program abbreviated no. 2)722615448?	>	? go to the next unconfigured entry
18:10 Page forward with >	20.06.98 >	Display of the Basic menu
Abbreviated dialing: 1)08972261456?	>	? Press the function key "Abbreviated Dialing"
Abbreviated dialing: 2)722615448?	>	? The call number stored at digit 1 is displayed
089722556442_ Dial?	>	? Confirm the call number or press number between 1 ... 0 or go to the next digit and confirm
		? Start the dialing process



Entries that are not currently configured are shown as Not programmed.

Dialing a call number by abbreviated dialing

## Ringer off

If you do not wish to be disturbed by an incoming call ringing, you can switch off the ringer. To signal the incoming call, the "Ringer off" key LED flashes as an optical call signal.



This setting remains in effect as long as the LED is on.

18:10	20.06.98
Page forward with	>

Display of the Basic menu

Ringer off	
------------	--

Press the function key  
"Ringer off"

Ringer off	
------------	--

The LED "Ringer off" is on

If there's an incoming call, the ringer remains mute, and the LED "Ringer off" flashes.

08972261495
Pickup call?

A call comes in

Ringer off	
------------	--

The LED "Ringer off"  
flashes

To switch off the function, press the key "Ringer off" once; the LED will go off.

## Configuration

To define the basic settings for the LP4100, use the menu "Configuration".

### Country options

This setting adapts your telephone to any country-specific characteristics.

Service: 2=configuration?	>	?	Call "Configuration"
		>	Go to "Country Options"
Configuration: 01=Country option?	US >	?	Call "Country Options"
		>	Choose country
Country option: 02=US?	US >	?	Confirm the country option displayed

### Language

Use this function to define the language for operator prompting.

Service: 2=configuration?	>	?	Call "Configuration"
		>	Go to "Language"
Configuration: 02=Language?	English >	?	Call "Language"
		>	Choose language
Language: 2=English?	English >	?	Confirm the language option displayed

Configuration: 09=Contrast?	3 >
--------------------------------	--------

The switchover to 3 is  
displayed

## I/C call display

This function allows you to select the default CLI (calling line identification) information to be displayed on an incoming call. The priority order is name, number and IP. If the relevant information is not available, the next in priority is shown. If you don't want any CLI information, you can select the "No Display" option.

Service:	
2=configuration?	>

? Call "Configuration"

Configuration:	Number
11=I/C call display?	>

> Go to "I/C call display"  
? Confirm your choice ("Number" is active)

I/C call display:	Number
02=Number?	>

> Go to "IP address" and

Configuration:	IP
11=I/C call display?	>

? confirm  
The switchover is displayed

## Daylight saving

Use this function to indicate that daylight saving applies.



If set this adds one hour to the timezone offset defined in the administration menu.

Service:	
2=configuration?	>

? Call "Configuration"

Configuration:	On
12=Daylight saving?	>

> Go to "Daylight saving"  
? Confirm your choice ("Daylight saving" is on)

Daylight saving:	On
Switch over?	>

? Confirm to switch off "Daylight saving"

Configuration:	Off
12=Daylight saving?	>

The switchover is displayed

0451524486_ Program destination?	>
-------------------------------------	---

Enter digits

? Confirm

Program abbreviated no. 5) 0451524486	>
--	---

New number is displayed

You may now use the arrow keys to browse or program other abbreviated numbers.

## User password

Use this function to set or change your user password. Your password will protect all your user-specific settings including the language settings.

Service: 2=Configuration?	>
------------------------------	---

&gt; Go to "Local Functions"

Service: 3=Local Functions?	>
--------------------------------	---

? Call "Local Functions"

&gt; Go to "User password"

Local Functions: 02=User password?	>
---------------------------------------	---

? Confirm your choice  
("User password" is activated)

User password: Change?	>
---------------------------	---

? Confirm to change

Enter user password _	>
--------------------------	---

Enter a new password  
(minimum 6 characters)  
and

? confirm

Confirm user password _	>
----------------------------	---

Reenter password  
and

? confirm

Local Functions: 02=User Password?	>
---------------------------------------	---

Return to  
"Local Functions"

## As-supplied condition

Use this function to set the as-supplied condition. This command only restores **user** data to the as-supplied condition, it does not alter any data relevant to the basic configuration of the phone as defined in the Administration menu.

Service: 2=Configuration?	>
------------------------------	---

> Go to "Local Functions"

Service: 3=Local Functions?	>
--------------------------------	---

? Call "Local Functions"

> Go to "Memory"

Local Functions: 03=Memory?	>
--------------------------------	---

? Confirm your choice

Memory: 01=clear abbr. dial. nos	>
-------------------------------------	---

> Go to "As-supplied condition"

Memory: 02=As-supplied condition	>
-------------------------------------	---

? Confirm your choice

As-supplied condition: Cancel?	>
-----------------------------------	---

> Go to "Clear"

As-supplied condition: Clear?	>
----------------------------------	---

? Confirm your choice

All user data are reset to the as-supplied condition



## Ringer volume in idle mode

Service: 2=Configuration?	>	
	>	Go to "Audio Settings"
Service: 5=Audio Settings?	>	? Call "Audio Settings"
	>	Go to "Ringer volume"
Audio Settings: 02=ringer volume?	2 >	? Confirm your choice (volume is at 2)
Ringer volume: ■■■■	2 >	> Increase to required volume or
	<	< reduce and
Ringer volume: ■■■■	1 >	? confirm the setting
Audio Settings: 02=Ringer volume?	1 >	The new setting is displayed

## Ringer volume with incoming call

When your telephone rings at an incoming call, you can vary the volume of the ringer tone by means of the keys + and -. Then press the  $\gamma$  key to save the setting. Otherwise the setting will only apply to the current telephone call.

The menu "Ringer volume" will disappear after 5 seconds if you make no entries.

## Room character

The acoustic character of the handsfree talking equipment can be adapted to the room conditions with this setting. Settings for normal, echoing or muffled rooms are available for selection.

Service: 2=Configuration?	>	>	Go to "Audio Settings"
Service: 5=Audio Settings?	>	?	Call "Audio Settings"
Audio Settings: 05=Room character?	Normal >	>	Go to "Room character"
		?	Confirm your choice (setting "normal")
Room: 1=Normal	>	>	Go to "Echoing" or "Muffled" and
Audio Settings: 05=Room character?	Muffled >	?	confirm your choice
			The new setting is displayed

### Setting room character during a call

If you're talking in handsfree mode, you can vary the room character only if you have assigned the functions "echoing" and "muffled" to function keys. Please read the section "Programming other functions" in the chapter "Operation" on this.



Please note that the setting for room character is reset to "normal" if you deactivate the function keys "echoing" or "muffled".

## Administration

This chapter and the following chapter "Service Documentation" describe more detailed settings and the administration of the LP4100. These operations require good knowledge of network technology as well as of network protocols, and they are normally carried out by network administrators. The LP4100 can be considered as a normal data terminal within an individual LAN and be managed as such.

### Administration menu

All settings and administrative tasks are processed via the menus "Administration" and "Diagnostics". Both menus are protected against illegal accesses by the Administrator password.

#### Access to the Administration menu

In the as-supplied condition, the Administrator password is 123456.

<pre>13:15      20.06.98 Page forward with  &gt;</pre>	Display of the Basic menu
<pre>13:15      20.06.98 Page forward with  &gt;</pre>	> Go to "Service?" and
<pre>Service: l=status?      &gt;</pre>	? Call the menu "Service"  Enter the digit "6"
<pre>Enter admin password: _____ Continue with OK</pre>	Enter admin password  and then
<pre>Enter admin password: ***** Continue with OK</pre>	? Confirm
<pre>Admin: 00=End?      &gt;</pre>	

## DHCP IP assignment

Use this function to specify whether the terminal IP address is assigned dynamically via DHCP.

Admin: 00=End?	>
-------------------	---

> Choose  
"DHCP IP assign"

Admin: 03=DHCP IP assign?	On >
------------------------------	---------

? Confirm

DHCP IP assign Switch over?	On >
--------------------------------	---------

? Confirm

Admin: 03=DHCP IP assign?	Off >
------------------------------	----------

The change is displayed



After changing this setting, you will be prompted to restart the phone. The change will otherwise not become effective.

## E.164 address

Use this function to read/change the E.164 address for the terminal.

Admin: 00=End?	>
-------------------	---

> Choose "E164 address"

Admin: 06=E164 address?	456788 >
----------------------------	-------------

? Confirm

E164 address: Change?	456788 >
--------------------------	-------------

? Confirm

E164 address: 456788	
-------------------------	--

Enter a new number

and

E164 address: 454667	
-------------------------	--

? Confirm the change

Admin: 06=E164 address?	454667 >
----------------------------	-------------

The change is displayed

## Terminal mask

Use this function to define the terminal network mask.

```
Admin:
00=End?
>
```

> Choose "Terminal mask"

```
Admin: 123.113.019.012
08=Terminal mask? >
```

? Confirm

```
Termin: 255.000.000.000
Change? >
```

? Confirm

```
Terminal mask
000.000.000.000
```

Make the change

```
Terminal mask
019.003.035.021
```

? Confirm the change

```
Admin: 019.003.035.021
08=Terminal mask? >
```

The change is displayed



After changing this setting, you will be prompted to restart the phone. The change will otherwise not become effective.

## Download server IP address

Use this function to read or change the IP address of the software download server.

Admin:  
00=End? >

> Choose  
"Download IP addr."

Admin: 123.113.19.12  
10=Download IP addr.? >

? Confirm

Download IP addr. 123.113.19.12  
Change? >

? Confirm

Download IP addr.  
000.000.000.000

Make a change

Download IP addr.  
19.34.35.21

? Confirm the change

Admin: 019.034.035.021  
10=Download IP addr.? >

The change is  
displayed

## Timezone offset

The SNTP server renders the current time based on Universal Time. This needs to be adjusted to allow for the geographical location of the terminal. This command enables the administrator to specify a +/- 12 hour offset to allow for all timezones. Note the Configuration menu allows the user to select whether day saving is currently in operation for the respective timezone.

```
Admin:
00=End?
>
```

> Choose  
"Timezone offset"

```
Admin:
12=Timezone offset?
>
```

? Confirm

```
Timezone offset
Change?
+10
>
```

? Confirm

```
Timezone offset
+11
```

Make a change via  
- and+ keys

? and confirm it

```
Admin:
12=Timezone offset?
>
```

The change is displayed



**Firmware download filename**

Use this function to define the base filename of the firmware file to be downloaded.

Admin: 00=End? >	>	Choose "Firm. DL filename"
------------------------	---	-------------------------------

Admin: 14=Firm. DL filename? lite-app >	>	? Confirm
--	---	-----------

Firm. DL filename: Change? > lite-app >	>	? Confirm
--	---	-----------

Firm. DL filename: lite-app		Make a change
--------------------------------	--	---------------

Firm. DL filename: lite-new		? Confirm the change
--------------------------------	--	----------------------

Admin: 14=Firm. DL filename? lite-new >	>	The change is displayed
--	---	----------------------------

## Administration password

Use this function to change the Administrator password required to gain access to all administration and diagnostic functions. The password name is ADMIN.

```
Admin:
00=End? >
```

> Choose  
"Admin password"

```
Admin:
18=Admin password? >
```

? Confirm

```
Enter admin password:
Continue with OK
```

Enter the new password  
and then

```
Enter admin password:
***** Continue with OK
```

? Confirm

```
Confirm admin password:
_ >
```

Reenter the  
password and

? Confirm

## SNMP password

Use this function to change the SNMP password required to remotely access the terminal MIB (Management Information Base) data-base via SNMP. For programming passwords, please see the standard procedure described for the Administrator password. The password name is 123456.

## FTP download password

Use this function to change the FTP password required to gain access to the Download FTP Server. For programming passwords, please see the standard procedure described for the Administrator password. The password name is 123456.

**FTP account name**

Use this function to configure the FTP account name for access to the download server.

Admin: 00=End?	>
-------------------	---

> Choose  
"FTP account name"

Admin: 23=FTP account name?	guest >
--------------------------------	------------

? Confirm

FTP account name: Change?	guest >
------------------------------	------------

? Confirm

FTP account name: guest	
----------------------------	--

Make a change

FTP account name: guest2	
-----------------------------	--

? Confirm the change

Admin: 23=FTP account name?	guest2 >
--------------------------------	-------------

The change is displayed

## MAC address (read only)

Use this function to read the current MAC address for the terminal.

Admin: 00=End?	>	
> Choose "MAC address"		
Admin: 00 00 EF 70 01 23 25=MAC address? >	>	Confirm
MAC: 00 00 EF 70 01 23 Continue? >		
		? Confirm
Admin: 00 00 EF 70 01 23 25=MAC address? >		MAC address is displayed

## Jitter buffer

Use this function to define the length of the jitter buffer.

Admin: 00=End?	>	
> Choose "Jitter buffer"		
Admin: 26=Jitter buffer?	>	Confirm
Jitter buffer: 02=Normal?	>	? Confirm or choose "Short" or "Long"
Admin: 26=Jitter buffer?	>	Normal Any changes made are displayed

## Download

### General

TheLP4100 device will provide an internal file management system which allows to store the following data in logical file structures:

- User configuration data (local settings)
- Firmware (including language packages)

The file transfer between phone device and system is based on FTP. The following table describes the supported data flow:

Data type	Data flow	Activation
User configuration data	Upload	Local from user interface
	Download	Remote by administrator
Firmware	Download	Local from user interface and Remote by administrator

The FTP requires the following parameters to be initialized on the device side before the FTP task can be activated (set locally or via WEB server):

- IP address of FTP server
- Username
- Account name
- Password
- Path name
- File name

If FTP is invoked remotely, the file location on the FTP server must be defined completely. Remote activation is done by making use of the WEB server. If FTP is started locally and no default filename is configured a browse interface is provided to allow selection of the file to transfer. During file browsing the following keys perform the specified function:

+ key	if a directory is selected, move into that directory
- key	move up one level in the directory hierarchy
< key	move left through the list of files/directories in the current directory
> key	move right through the list of files/directories in the current directory
h key	exits browse mode
? key	selects file for transfer

## Download firmware

The LP5100 is supplied from the factory with a complete executable firmware package. After the LP5100 phone has been installed successfully and the download parameters

- IP address of FTP server
- Username
- Account name
- Password
- Path name
- File name

have been initialized, you can invoke firmware download either by the WEB server or locally. For firmware download invocation, you must login successfully using the Administrator password.



The Firmware download does not affect any customer settings and data.

If not all the mandatory download parameters are initialized and if a download is carried out locally, the following error message will be displayed:

FTP parameter missing  
EXIT?

confirm to remain in the  
administration menu so  
as to allow configuration  
parameters to be entered

## Download/upload user configuration data

ThelP4100 is supplied from the factory with default settings for the user configuration data. You may change the default user data according to your needs. After theLP4100 phone has been installed successfully and the download parameters

- IP address of FTP server
- Username
- Password
- Path name
- File name

have been initialized, you invoke user data upload/download either by the WEB server or locally.

The user data menu allows to invoke either the download or the upload for the user data. To invoke user data upload/download, you have to login successfully using the Administrator password.



The user data upload/download does not affect any customer settings and data.

If not all the mandatory download parameters are initialized and if a download is carried out locally, the following error message will be displayed:

Parameter missing  
EXIT?

? confirm to go back to the  
basic menu

## Local upload of user configuration data

Admin: 00=End? >	>	Choose "UL config"
Admin: 17=UL config? >	>	Confirm
UL Config: START? >	>	Confirm
Please wait: loading *****		Upload is carried out
18:25                      27.04.98 Config UL complete >	>	Upload has been completed
18:25 Page forward with >	>	Return to basic menu
Please wait: loading *****		Upload is carried out
18:25                      27.04.98 Config UL complete >	>	Upload has been completed
18:25 Page forward with >	>	Return to basic menu

## Remote upload of user configuration data



A full treatment of these issues is necessarily complex with user interface component representing just a part of a wider terminal management policy. On normal restart you will be presented with the following display. This screen will be visible for a few seconds:

LP4100	Vxx.yy
Initialising...	>

After the phone has successfully initialized, the terminal will display the Basic menu entry point and the date and time:

16:28	29.06.98
Page forward with	>

## Restoring the factory settings

In order to protect against the Administrator password being changed from the factory default and then forgotten, the following procedure can be invoked to reset the LP4100 back to its default factory settings:

- 1 Place the phone in one of its idle states.
- 1 Remove the network connection.
- 1 Lift the handset off.
- 1 Press the following keys simultaneously: 3 – 4 – #

You will see the following display:

Enter reset password
*****

- 1 Enter the 6-digit password: 124816

If you enter the correct password and press the ? button, the terminal will be reset to factory settings and restarted.

## Web based administration

The LP4100 provides an embedded Web server for administration purposes.

### Browser compatibility

The IP Phone web content will be compatible with:

- Internet Explorer version 3.02 and later
- Netscape Navigator version 4.5 and later

Targeting these versions of the two most popular browsers means that style sheets can be used. The web content will make no provision for browsers that do not support frames.

### Navigation

The site will be organised in a hierarchical fashion. Links to the home page and to each main section (just "Administration" at present) will appear in a banner frame which is intended to be present within a frameset at all times. However, it is always possible that users will bookmark a content page and later return to it directly, without the frameset. Therefore each page will have a link back to the frameset, which will be labelled "Home Page". The frameset will load the banner and the real home page. As well as the "Home Page" link, any page beneath a branch point in the hierarchy will contain a link up to the nearest branch point.

For example, the "Administration" section contains a menu of links to various administration options. Therefore all the administration sub pages beneath this menu will contain a link back to the menu page. Ad-hoc links between pages in different branches of the hierarchy will also be used when appropriate.

## Service Documentation

This chapter describes the menu "Diagnosis" containing numerous tests for the hardware and software of the LP4100. In addition, it contains information about the integration of the LP4100 into different communication environments, as well as about the protocols and network interfaces used.

### Diagnosis menu

#### Access to the Diagnosis menu

In the as-supplied condition, the Administrator password is 123456.

<pre>14:36                20.09.98 Page forward with    &gt;</pre>	Display of the Basic menu
<pre>14:36                20.09.98 Page forward with    &gt;</pre>	> Go to "Service?" and ? call the "Service" menu
<pre>Service: l=Status?            &gt;</pre>	Enter the digit "7"
<pre>Enter admin password: _____ Continue with OK</pre>	Enter admin password and then
<pre>Enter admin password: ***** Continue with OK</pre>	? confirm
<pre>Diagnosis: 00=End?              &gt;</pre>	

## LED test

All LEDs are switched on and flash until the tester confirms the display presented.

Diagnosis: 00=End?
>

> Choose "LED test"

Diagnosis: 02=LED test?
>

? Confirm

LEDs ON continue?
>

Check that all LED's are  
on and then

? Confirm

Diagnosis: 02=LED test?
>

## Audio loop test

With the handset lifted, the transmitter and receiver capsules are bridged with a test loop. By blowing into the mouthpiece the tester can check the general functioning state of the transmitter and receiver components.

Diagnosis: 00=End?	>
-----------------------	---

> Choose "Audio loop test"

Diagnosis: 04=Audio Loop test?	>
-----------------------------------	---

? Confirm

Blow into the handset microphone

Audio loop test continue?	>
------------------------------	---

h End test

Diagnosis: 04=Audio Loop test?	>
-----------------------------------	---

## RAM test

A function test of the RAM area is carried out with reading and writing, and a corresponding acknowledge appears on the display.

Diagnosis: 00=End?	>
-----------------------	---

> Choose "RAM test"

Diagnosis: 05=RAM test?	>
----------------------------	---

? Confirm

RAM OK continue?	>
---------------------	---

End of test

h End test

Diagnosis: 05=RAM test?	>
----------------------------	---

## Line monitor

With line monitor ON, the 4 LEDs (top 4 in the left-hand bank on the terminal) are switched to test mode with the LEDs showing the status of the 10Base-T interface.

LED		Function	Coding
Top LED	LED 1	Line status	LED on: link OK LED off: link down
	LED 2	TX	Flicker per TX-frame
	LED 3	RX	Flicker per RX-frame
Bottom LED	LED 4	Jabber	



The LEDs work in line monitor mode, until the line monitor function is switched off. The line monitor status does not affect the functioning of the LP5100 phone. The LEDs have a monitoring function only. The relevant function keys retain their function.

Switching test mode ON and OFF:

```
Diagnosis:
00=end?
>
```

> Choose "Line monitor"

```
Diagnosis:
08=Line monitor?
>
```

? Confirm

```
Line monitor:
Switch over?
>
```

? Confirm

```
Diagnosis:
08=Line monitor?
>
```

The change is displayed

## UL/DL status

This function is used to determine the status of the last firmware download and configuration upload and download.

Diagnosis: 00=end?	>
-----------------------	---

> Choose "UL/DL status"

Diagnosis: 10=UL/DL status?	>
--------------------------------	---

? Confirm

Diagnosis: 1=Firmware Download	OK >
-----------------------------------	---------

Firmware download was carried out without errors

> Go to the next status

Diagnosis: 2=Config Download	FAIL >
---------------------------------	-----------

Config download has failed

> Go to the next status message

Diagnosis: 3=Config Upload	NONE >
-------------------------------	-----------

No config upload has taken place since last reset

> Go to the next status message

10:00AM 12:01:99 Continue?	Auto >
-------------------------------	-----------

Detailed information on the transfer

h End status displays

Diagnosis: 10=UL/DL status?	>
--------------------------------	---

#### Network attributes and parameters for quality assumptions

- Switched Ethernet
- Typical delay: Not possible to define.  
For a configuration example, please refer to the figure below.  
The jitter buffer in the LP4100 supports a delay of up to 120 ms (two IP packets) and is adjustable dynamically in the Administration menu.

The parameters affecting the audio quality of the device are working assumptions for the M1 milestone.



## Annex

In the Annex you will find a menu overview of the LP4100, display messages and their handling, as well as technical data. In addition, you will find tables for standard assignment of function keys.

### Menu overview

Below you will find a graphical representation of the LP4100's menu structure for your information. The fields highlighted in gray represent the transition points to the relevant menus in each case.

In the tables below the graphics you will find explanations regarding the menu items on white background and the next possible step for each of them.

#### Basic menu

Menu selection	Action	Next step
Missed calls (x new)?	Prepare missed calls list	Missed calls menu *
Service?	Switch on programming facility	Service menu

\*only offered if there is an entry in the list

In idle mode where there are no entries in the missed calls and forward lists, only the date and time are given in the first line and the single arrow in the second line as a pointer to menu options.

If there are entries in the missed calls and forward lists, the corresponding point in the menu is offered as the first option.

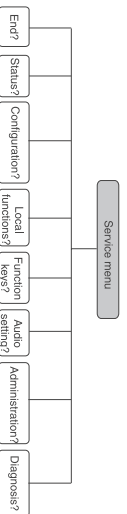
## Connection menu

Menu selection	Action	Next step
Disconnect?	Clear the current call	Basic menu

## Return menu

Menu selection	Action	Next step
Disconnect and return?	Disconnect connected user and call up user on hold	Connection menu

## Service menu

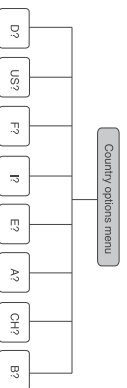


The Service menu contains eight submenus which are in turn subdivided into numerous submenus and functions. You can call all options in the Service menu both by means of the dialog keys and by entering the preceding number.

Menu selection	Action	Next step
00=End?	Quit Service menu	Basic menu
01=Status?	Listing of current equipment status; Parameter for type of call forward and Ringer on/off	Service menu
02=Configuration?	Basic configuration of telephone by the administrator	Configuration menu
03=Local functions?	Programming local parameters	Local function menu
04=Function keys?	Define arrangement of programmable keys	Function menu
05=Audio setting?	Setting the volume and melody of the ringer, volume of loudspeaker equipment etc.	Audio menu
06=Administration?	Define the settings for IP network-related issues, password management, upload- ing and downloading firmware and config- uration data (see chapter "Administration" for more details)	Administration menu
07=Diagnosis*	Test operation and resetting of individual memories (see chapter "Administration" for more details)	Diagnosis menu

\*These menus can only be called by entering the Administrator password.

## Country options menu

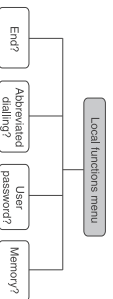


Menu selection	Action	Next step
01=D?	Setting parameter for Germany on	Configuration menu
02=US?	Setting parameter for USA on	Configuration menu
03=F?	Setting parameter for France on	Configuration menu
04=I?	Setting parameter for Italy on	Configuration menu
05=E?	Setting parameter for Spain on	Configuration menu
06=A?	Setting parameter for Austria on	Configuration menu
07=CH?	Setting parameter for Switzerland on	Configuration menu
08=B?	Setting parameter for Belgium on	Configuration menu



The country options menu is relevant to specific country packages.

## Local Functions



Menu selection	Action	Next step
01=End?	Quit Local functions menu	Service menu
02=Abbrev. dialling?	Programming of 12 abbreviated dialling numbers	Service menu
03=User password?	Programming local password	Service menu
04=Memory?	Clear abbreviated dialling settings and reset to as delivered user settings	Service menu

## Audio settings menu



Menu selection	Action	Next step
01=End?	Quit Audio menu	Service menu
02=Loudspeaker volume?	Setting loudspeaker volume	Audio settings menu
03=Ringer volume?	Setting ringer tone volume	Audio settings menu
04=Ringer cadence?	Setting ringer tone sequence	Audio settings menu
05=Room character?	Determining space/room character for handsfree mode	Audio settings menu
06=Key click volume?	Defining key click volume	Audio settings menu

Menu selection	Action	Next step
24=FTP path?	Set default FTP path	Administration menu
25=MAC address?	Read terminal NIC MAC address	Administration menu
26=Jitter buffer?	Set jitter buffer characteristics	Administration menu
27=Audio mode?	Specifies audio compression preferences	Audio mode menu

## IP routing menu

Menu selection	Action	Next step
00=End?	Quit IP routing menu	Administration menu
01=Route 1?	Define route 1	IP routing menu
02=Address 1?	Define address 1	IP routing menu
03=Mask 1?	Define mask 1	IP routing menu
04=Route 2?	Define route 2	IP routing menu
05=Address 2?	Define address 2	IP routing menu
06=Mask 2?	Define mask 2	IP routing menu
07=Route 3?	Define route 3	IP routing menu
08=Address 3?	Define address 3	IP routing menu
09=Mask 3?	Define mask 3	IP routing menu

## Messages and alarms

### Status messages

Status messages are generally displayed in the top display line. They remain there (static) until they are replaced by a new status.

Example:

The conversation has been ended by the other party:

Inactive 0897226187 Return call?	>
-------------------------------------	---

Conversation has been ended by the other party

User display (line 2)	Explanation
Unreachable	A connection to the specified destination cannot be established
Ringing	The remote terminal is alerting
Busy	The remote terminal is busy
Rejected	The remote user rejected the call
"Connection menu"	The call is connected
Cleared	The remote user cleared the call
Cleared (unknown)	The call cleared for an unknown reason



Error follow-up mode after acknowledging the error display

After manual or automatic acknowledgement of the error message, a reference back to the next error follow-up mode will be made.

- Error from connection mode or after an outgoing call from idle mode:  
Error follow-up status idle with the message "Please replace receiver"

15 : 26	27 : 07 , 98
Please replace receiver	>





















In this mode, replacing the handset is the only local action permissible.

An incoming call in the error follow-up status is treated as "Call waiting", i.e. the Call waiting menu is offered with the options "Pick-up" and "Refuse" and possibly "Deflect". "Pick-up" leads to connection mode. "Refuse" and "Deflect" lead back to the error follow-up status idle with the message "Please replace receiver".

- Error after outgoing call from connection mode:  
Return to connection mode.
- Error from return call mode:
  1. If the active (active, idle) user has hung up:  
Automatic return to connection mode.
- Errors which occur in connection with conversation transfer:  
Return to return call mode.

## Default values for as-supplied condition

### Programmable keys

Loudspeaker		
Number Redial		
Missed Calls		
		
		
		
		
		
		
		Shift 

Key no.	As-supplied condition
1	Loudspeaker
2	Number redial
3	Missed calls
16	Shift key

## Administration

Function	As-supplied condition
DHCP IP assign	on
E164 address	null
SIP Routing	Server
Terminal IP address	0.0.0.0
Terminal mask	255.0.0.0
Server addresses	0.0.0.0
DL server IP address	0.0.0.0
SNTP IP address	0.0.0.0
Timezone offset	0
IP routing	0.0.0.0 (all)
Firmware DL filename*	
Config DL filename	
Admin password	123456
SNMP password	123456
FTP password	123456
FTP username	guest
FTP account name	guest
FTP path	null
Jitter buffer	normal
Audio mode	G.711 Preferred

\*Filename is postfixed by a letter a, b, c or d for the various language packages

## Technical data

Protocols	SIP Protocol, UDP, FTP, DHCP, SNTP Server /Gateway routed and direct routed call model
Voice algorithms	G.711 (64 kbit/s), G.723. 1 (5,3 kbit/s) Room echo compensation
Interfaces	IEEE 802.3 Ethernet (10 Mbit/s) 1 x RJ 45 TP
Pin assignment: LAN receptacle (X401)	Pin 1 TX + Pin 2 TX - Pin 3 RX + Pin 4 -- Pin 5 -- Pin 6 RX - Pin 7 -- Pin 8 --
Handset receptacle (X501)	Pin 1 microphone - Pin 2 receiver cap + Pin 3 receiver cap - Pin 4 microphone +
Power supply unit receptacle (X601)	Pin 1 V - Pin 2 -- Pin 3 -- Pin 4 -- Pin 5 -- Pin 6 V ~
Power supply (external plug-in power supply unit)	EU-variant, grounding plug (230 V, 50 Hz)