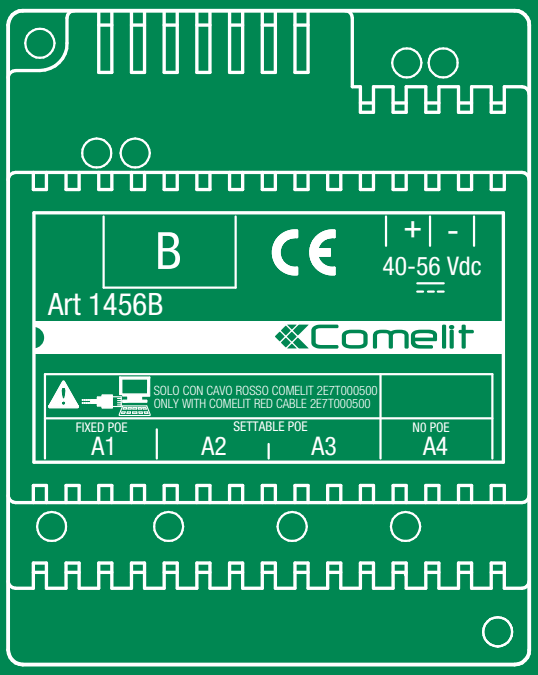
EN

TECHNICAL
MANUAL



Technical manual for Multi Apartment Gateway 1456B

Comelit®
Passion.Technology.Design.

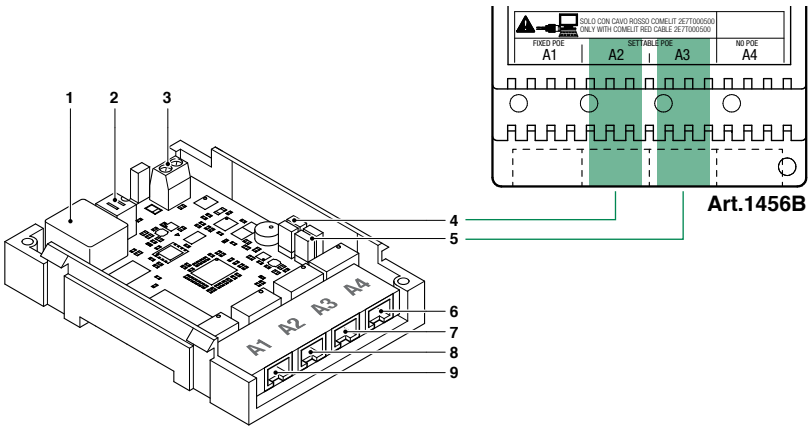
Warnings

- Install the equipment by carefully following the instructions given by the manufacturer and in compliance with the standards in force.
- All the equipment must only be used for the purpose it was designed for. **Comelit Group S.p.A.** declines any responsibility for improper use of the apparatus, for any alterations made by others for any reason or for the use of non-original accessories or materials.
- All the products comply with the requirements of Directive 2006/95/EC (which replaced Directive 73/23/EEC and subsequent amendments) as certified by the **CE** mark they carry.
- Do not route the riser wires in proximity to power supply cables (230/400V).
- Installation, mounting and assistance procedures for electrical devices must only be performed by specialised electricians.
- Cut off the power supply before carrying out any maintenance work.

Article **1456B** is a multi-apartment gateway that:

- can serve up to 200 apartments, with a maximum of 15 slave devices per apartment;
- can answer calls from a external unit via a virtual door entry monitor App for smart phone/tablet or using a normal GSM or landline telephone;
- incorporates the SIP protocol to enable telephone calls via SIP server or via virtual lines purchased from a SIP services provider;
- allows up to 4 simultaneous audio/video calls;
- can be configured remotely from a web page.

Description of Art.1456B



1. Ethernet port for ViP system riser input (default addressing: Autoip).
2. Dip switches for the procedures "Reboot with predetermined network settings" on page 19 and "Restoring factory settings" on page 20.
3. Power supply input via **Art. 1441, Art. 1441B**.
4. **CV1** and **CV2** for setting port **A2.**
5. **CV3** and **CV4** for setting port **A3.**
6. **A4 non POE** Ethernet port for PC or router connection (default: Static IP address 192.168.1.200, netmask 255.255.255.0).
7. **A3 non POE** settable Ethernet port POE (default: Static IP address 192.168.1.200, netmask 255.255.255.0). Set the port as POE if you want to connect devices that require a power supply (door entry monitors, for example).
8. **A2 non POE** settable Ethernet port POE (default: Static IP address 192.168.1.200, netmask 255.255.255.0). Set the port as POE if you want to connect devices that require a power supply (door entry monitors, for example).
9. **A1** Ethernet port POE (default: Static IP address 192.168.1.200, netmask 255.255.255.0).

	SETTABLE POE	
	A2	**A3**
SETTABLE	CV1 CV2 **POE** DO NOT USE STANDARD ETHERNET*	CV3 CV4 **POE** DO NOT USE STANDARD ETHERNET*
DEFAULT	CV1 CV2 **NON POE** STANDARD ETHERNET	CV3 CV4 **NON POE** STANDARD ETHERNET

*** Only connect to the router or PC using the red Comelit cable 2E7T000500**

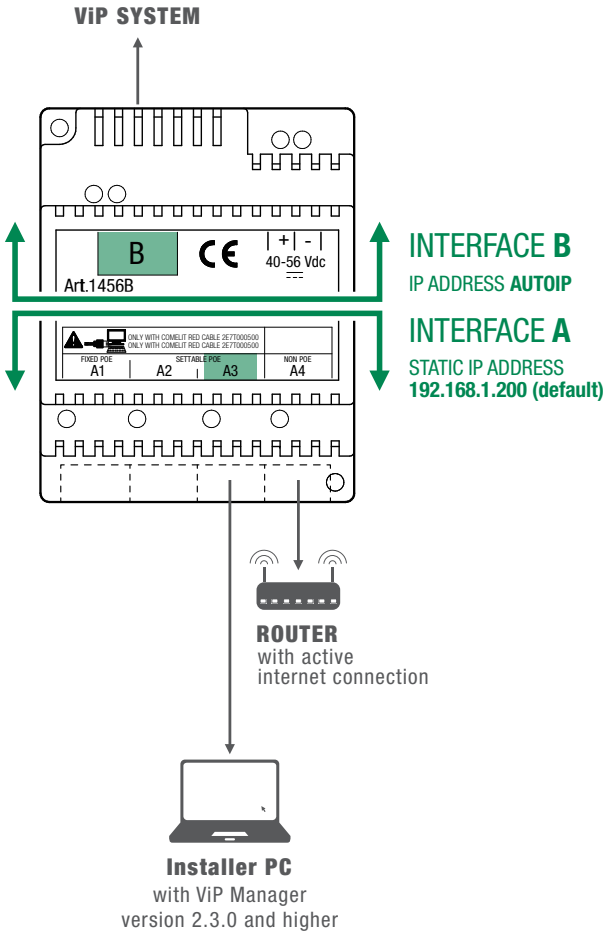
Configuration of Art.1456B

✓ This operation requires a PC loaded with the software ViP Manager version 2.3.0 or later (downloadable from the website **www.comelitgroup.com**).
✓ An active internet connection is also required.

1) Connection

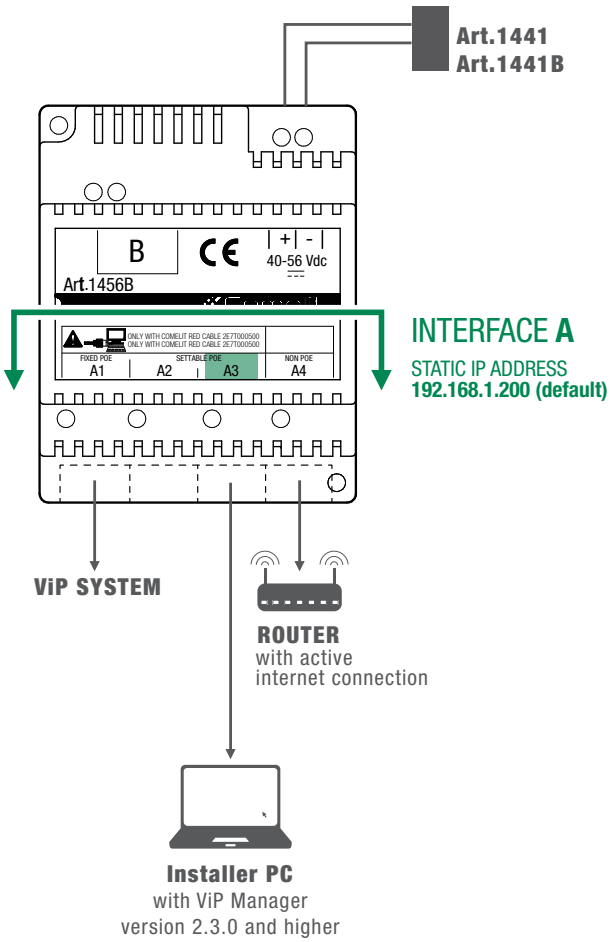
▶ Article1456B has 2 network interfaces, A and B, labelled for easy identification, which can be configured separately to meet different system requirements. Depending on the type of system, connect the devices as shown in the following figures:

VIP NETWORK + INTERNET CONNECTION NETWORK



Take particular care with regard to the network interface settings and do not configure interfaces A and B with the same addresses or similar parameters: each IP address must be unequivocal, the addresses of the interfaces A and B must not belong to the same subnet.

SYSTEM WITH SINGLE NETWORK

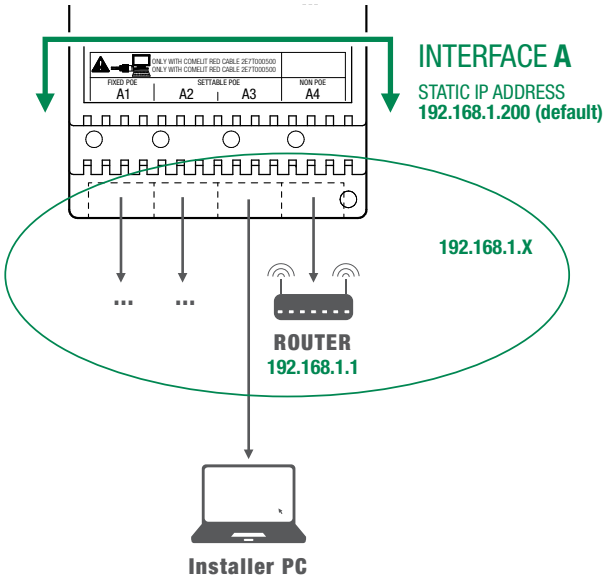


All system devices form part of a single network, so it it is only necessary to configure interface A.
In this case, DO NOT alter the configuration of interface B.

2) ViP Manager addressing

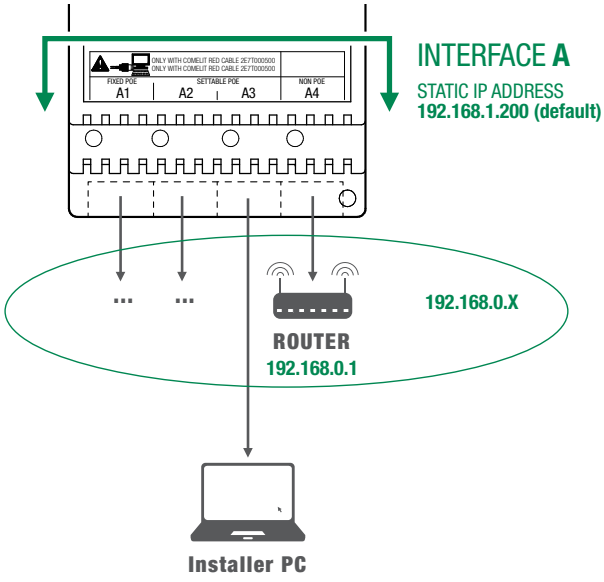
CASE 1

default address of the device (192.168.1.200) belonging to the same router network (e.g.: 192.168.1.1)



CASE 2

default address of the device (192.168.1.200) NOT belonging to the same router network (e.g.: 192.168.0.1)



interface A must be assigned a new Static IP address belonging to the same network as the devices connected to interface A

OBSERVE THE FOLLOWING PROCEDURE IN CASE 1

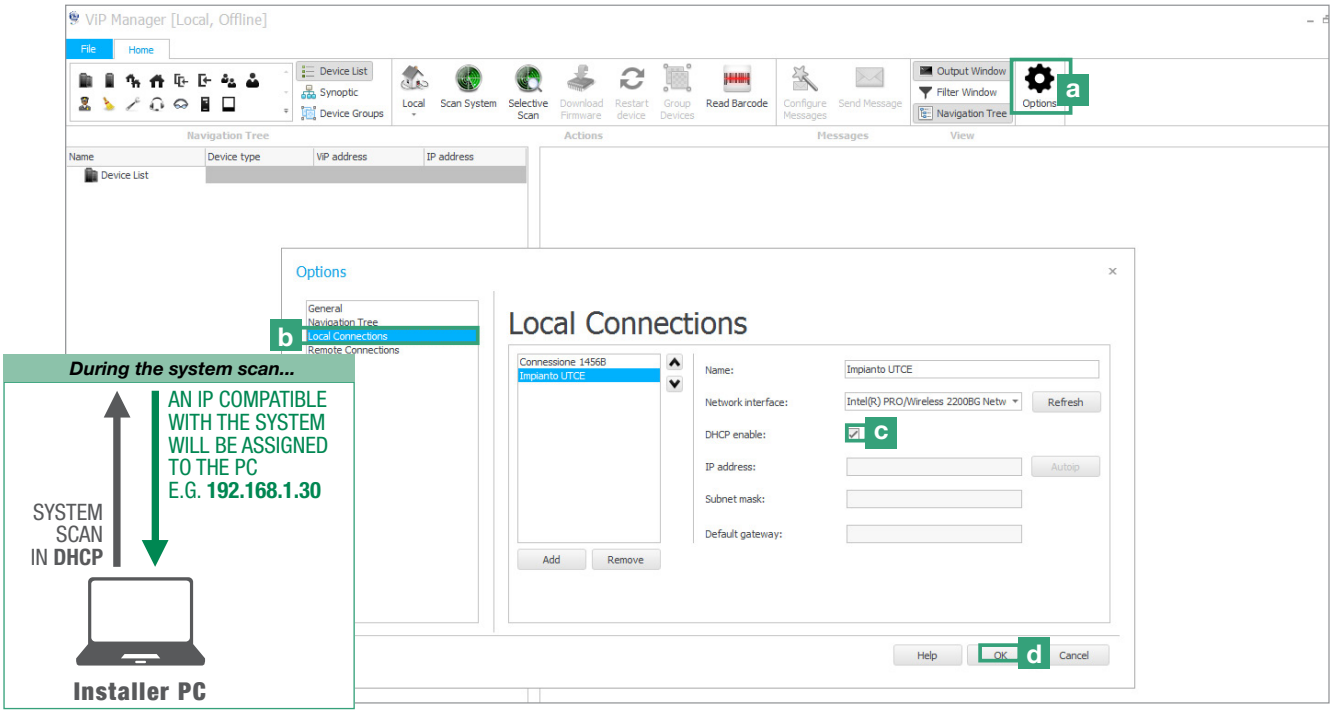
CASE 1

PERFORM A DHCP SYSTEM SCAN AND ASSIGN A VIP ADDRESS

Follow the procedure below to perform a system scan in DHCP, to locate all the devices connected to interfaces A and B:

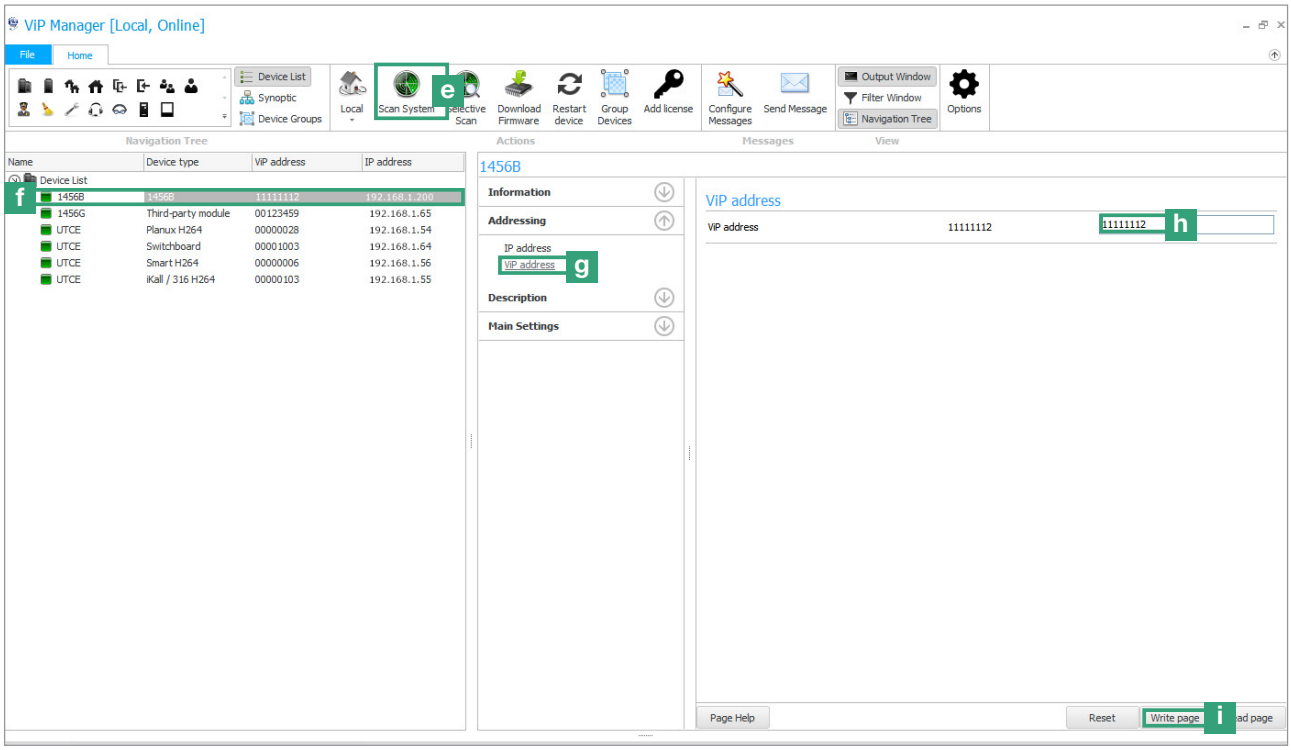
- *an IP address will be automatically assigned to the devices in addressing mode Autoip (connected to interface B);*
- *an IP address will be automatically assigned to the devices in addressing mode DHCP (connected to interface B), if the system is connected to a server with the DHCP function active;*
- *devices with Static IP address will be identified only if they have a network address that is compatible with that of interface A.*

1. From **Options [a] / Local connections [b]** tick **DHCP Enable [c]** and confirm **[d]**.



CASE 1

2. Launch the system scan by pressing **Scan System [e]**.
   » *all the devices connected to the system will be displayed in the device list.*
3. Select device 1456 B **[f],** select **Addressing/ViP address [g]**, assign an unequivocal ViP address to the device **[h]** and press **Write page [i]** to save the current settings.



In the case of a system with 2 1456B devices, it will be necessary to assign to interface A of one of the two devices a new Static IP address (as described in "case 2"), as each device must have a unequivocal IP address.

*OBSERVE THE FOLLOWING PROCEDURE IN **CASE 2***

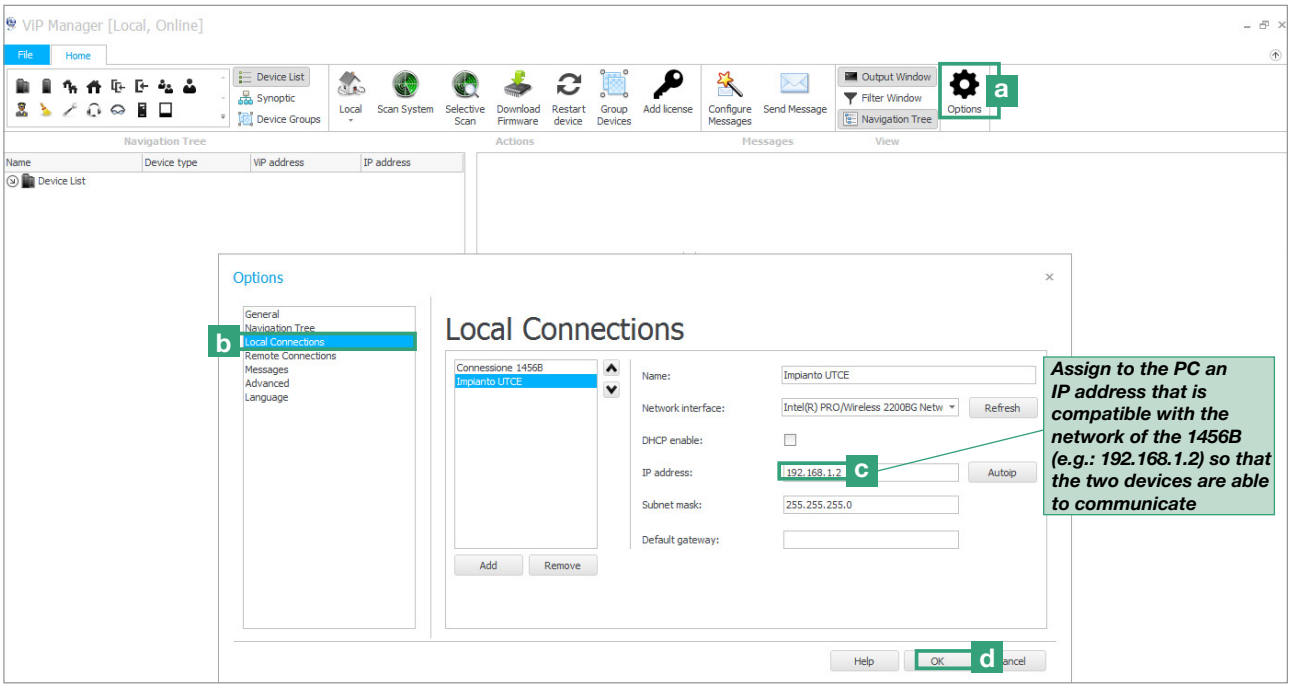
CASE 2

ASSIGN TO INTERFACE "A" A NEW Static IP address

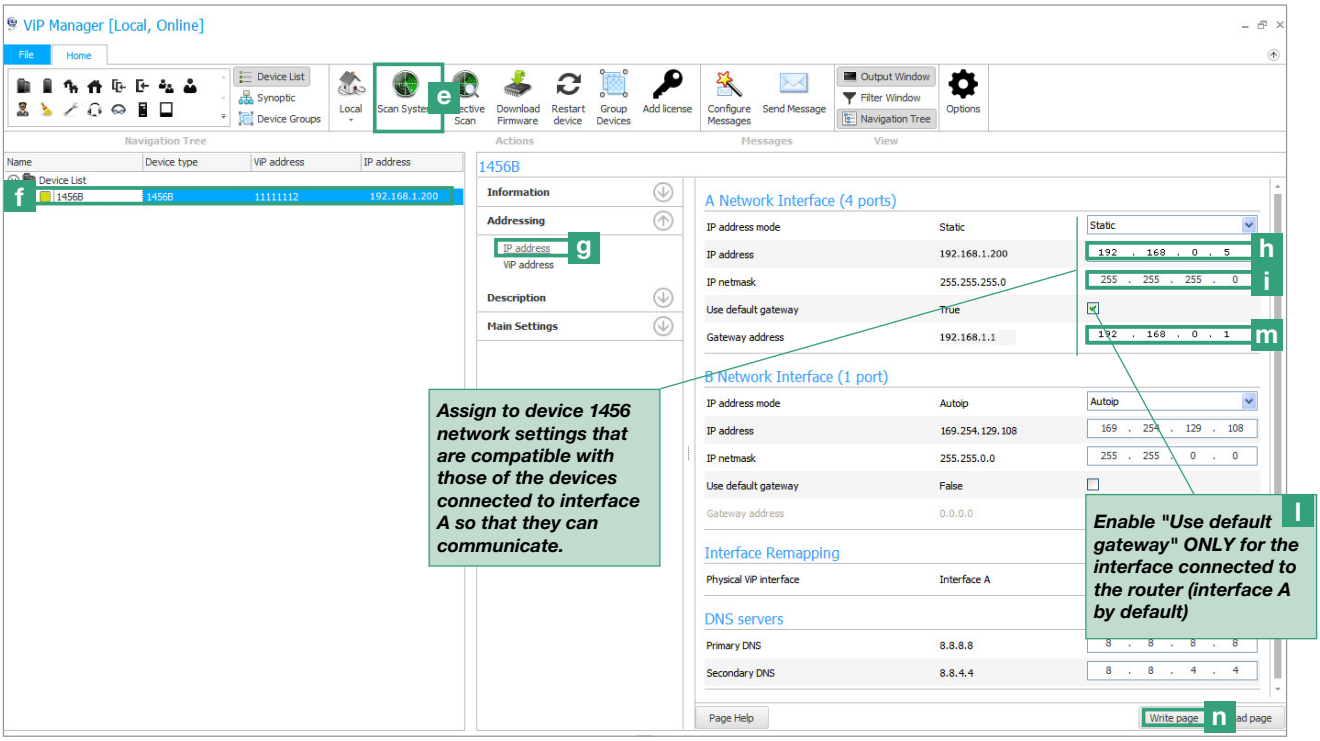
The following procedure describes how to assign network settings to the device1456B that are compatible with those of the devices connected to interface A.

1. Open the software ViP Manager version 2.3.0 or later (downloadable from the website **www.comelitgroup.com**).
2. From **Options [a] / Local connections [b]** untick the **DHCP enable** box and assign an IP address to your PC **[c]** (in the example: 192.168.1.2)* that belongs to the same network as the IP address of interface A (default=192.168.1.200) and confirm **[d].**

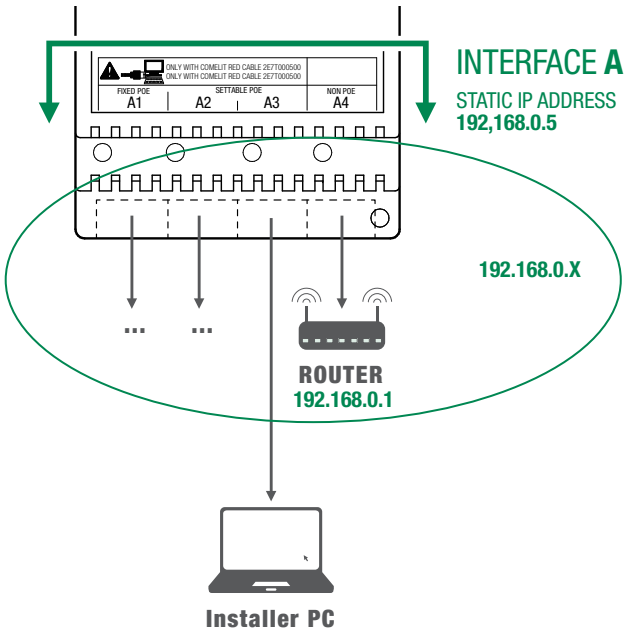
   ***the last value must be within the range of 2 to 253 excluding:** 200 (assigned to the gateway Art. 1456B) and the values already assigned to other devices connected to the network.



3. Launch the system scan by pressing **Scan System [e]**
   » *the 1456B will appear in the device list* **[f]**
4. In **Addressing/ IP address [g]** assign device 1456B a Static IP address **[h]** and a **IP netmask [i]** compatible with the system for example **IP: 192.168.0.5, netmask: 255.255.255.0** (warning: the IP address must **not** already be in use).
5. Enable "Use default gateway" **[l]** ONLY for the interface connected to the router (interface A by default)
6. Set the gateway address**[m]** , for example **192.168.0.1** press **Write page [n]** to save the current settings.



» *device 1456B will now be in the same network as the router (**192.168.0.X**)*



In the cases of "ViP Network + Internet connection network" systems, take particular care with regard to the network interface settings and do not configure interfaces A and B with the same addresses or similar parameters: each IP address must be unequivocal, the addresses of the interfaces A and B must not belong to the same subnet.

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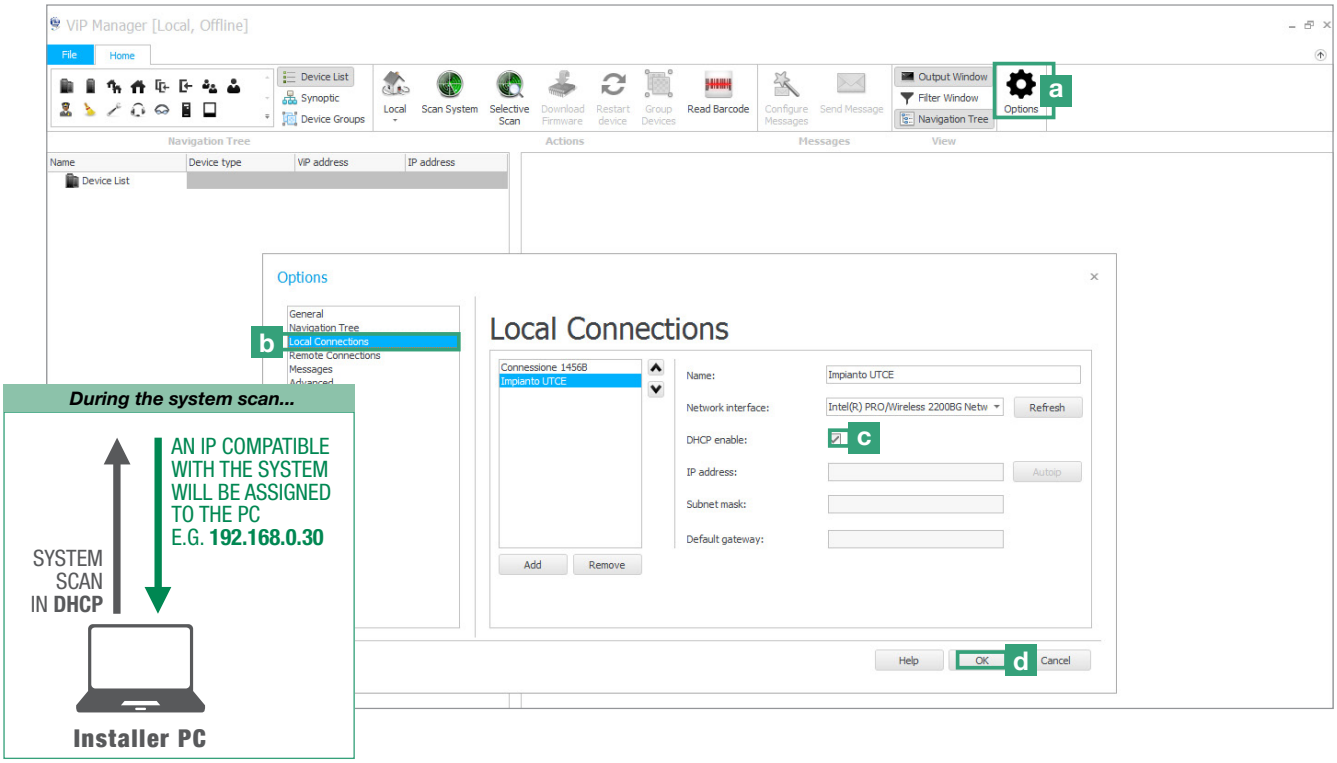
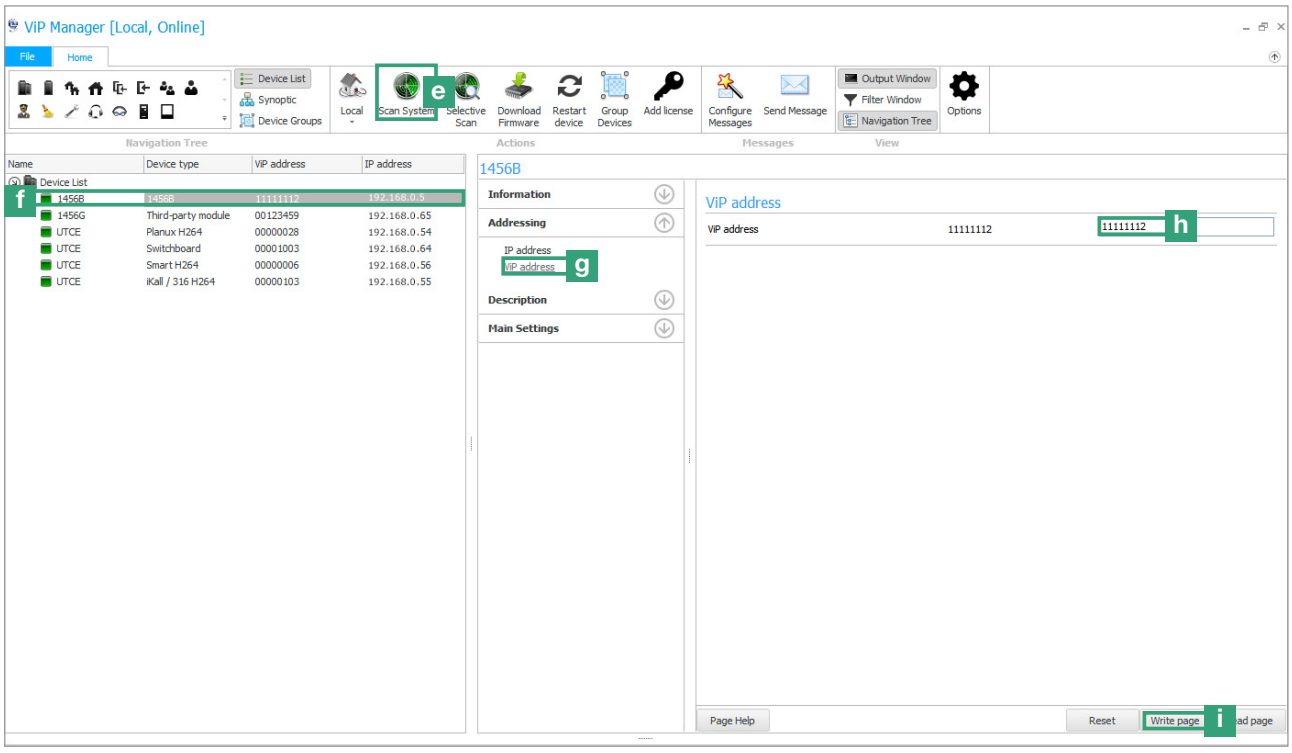


2. Launch the system scan by pressing **Scan System [e]**.
   » *all the devices connected to the system will be displayed in the device list.*
3. Select the device 1456 B **[f],** select **Addressing/ViP address [g]**, assign an unequivocal ViP address to the device **[h]** and press **Write page [i]** to save the current settings.



3) Licence activation:

Activation of the licenses for each apartment allows the users of that residential unit to use the special functions provided by the device 1456B (see page 9 for further information about licenses):

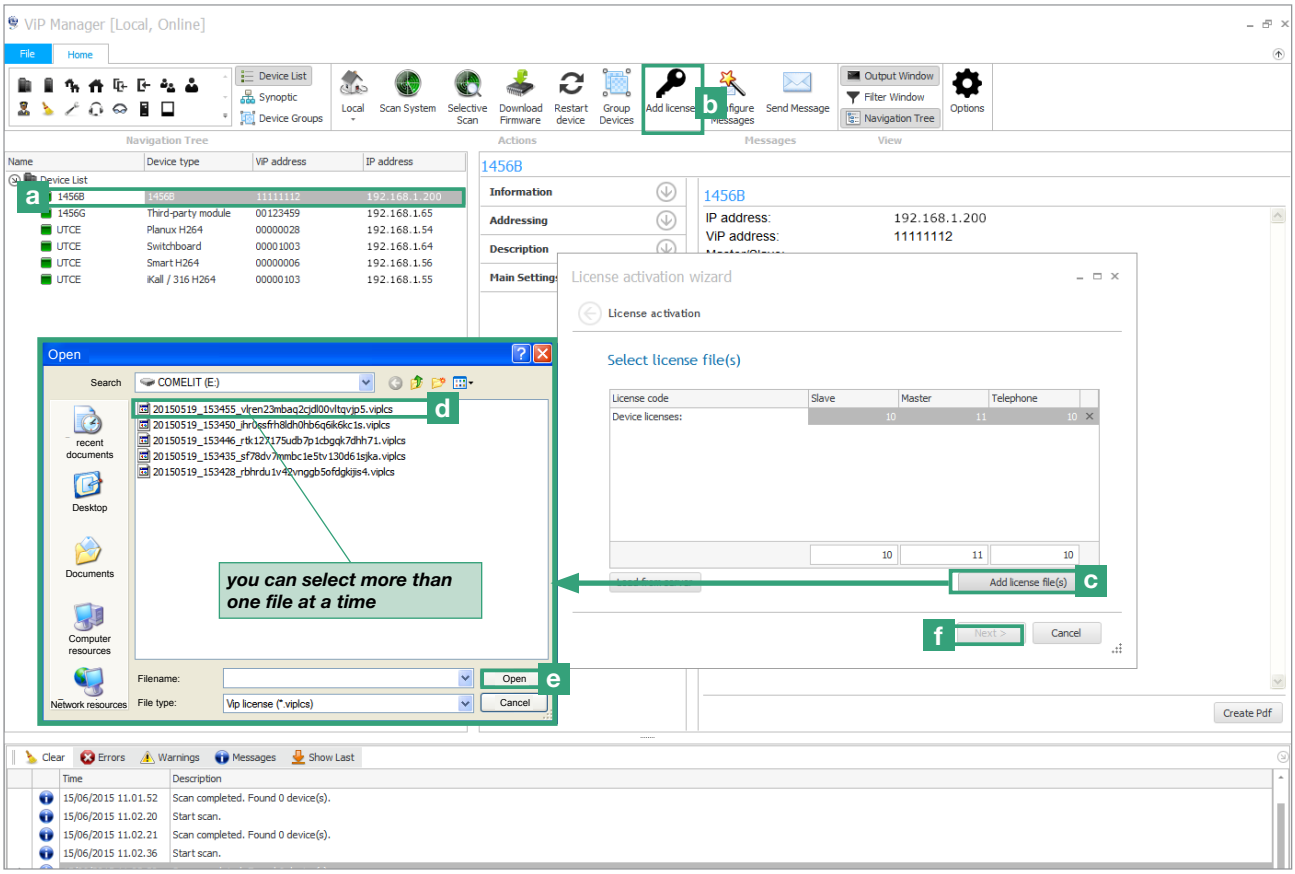
- *remotely answer an audio/video call from an external unit using a smartphone or tablet (master and slave license);*
- *answer an audio call from a GSM or landline telephone (all licenses);*
- *perform an audio telephone backup of an unreachable device (master and slave license);*
- *the possibility to dispense with a master internal unit (master license).*

✓ An active internet connection is required to complete the license activation procedure.
✓ A license is needed for each apartment that wishes to make use of the functions described above.

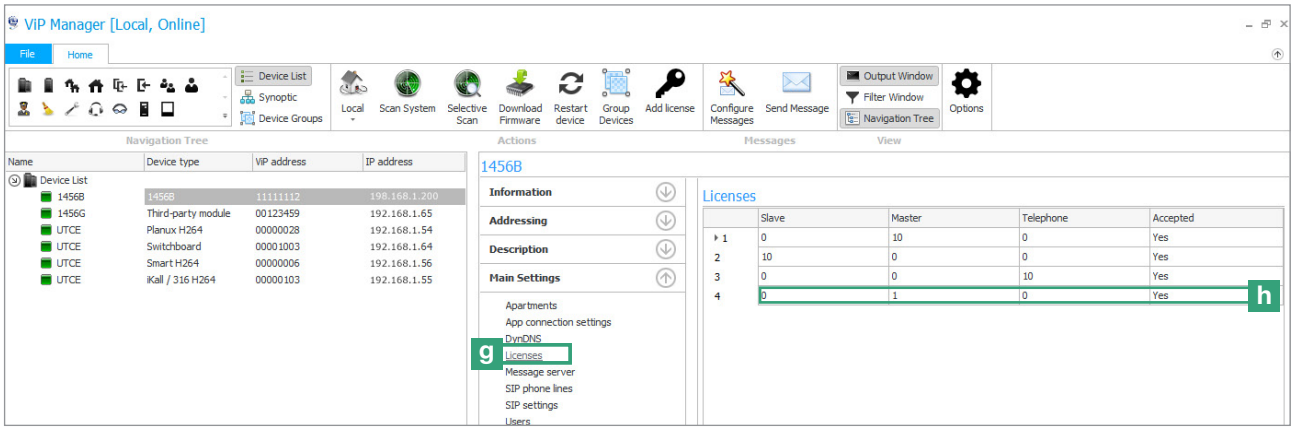
1. Select device 1456B **[a].**
2. Press **Add license [b].**
3. Press **Add license file/s [c].**
4. Look for license files with the extension **.viplcs [d]** on the USB storage device (if supplied at time of purchase) or from the folder where it was saved when purchased and confirm by pressing **Open [e]**.

» *a new line with the newly installed licenses will appear in the **license activation wizard** window.*

5. Repeat steps 3 and 4 to install other licences.
6. Press **Next [f],**
7. enter a valid email address, press **Next** and confirm.



» *In **main settings/Licenses** **[g]** you can view all the licenses installed**[h]**.*

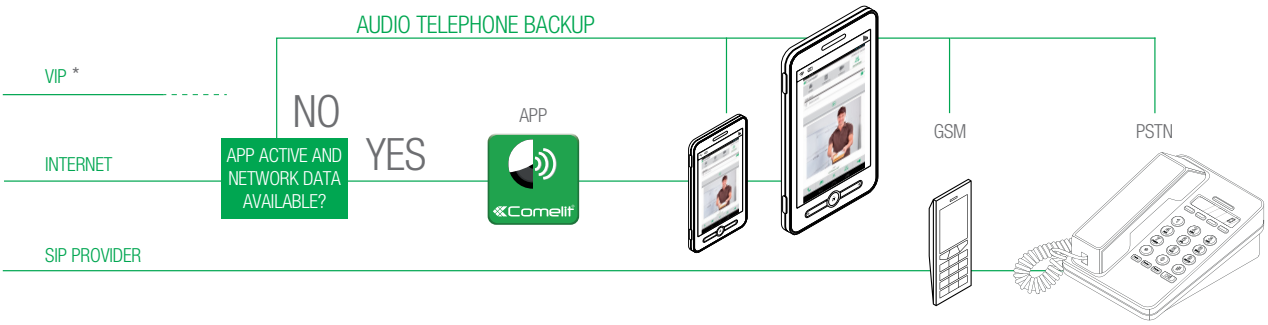


LICENSES AVAILABLE FOR PURCHASE

MASTER LICENSE:

- Master door entry monitor not required (already integrated in the 1456B)
- Up to 15 slaves devices can be added for each apartment, including:
  - Smartphone / Tablet + Comelit App
  - PSTN/GSM telephone
  - Door entry monitor (configured as slave)

EXAMPLE APARTMENT WITH MASTER LICENSE:

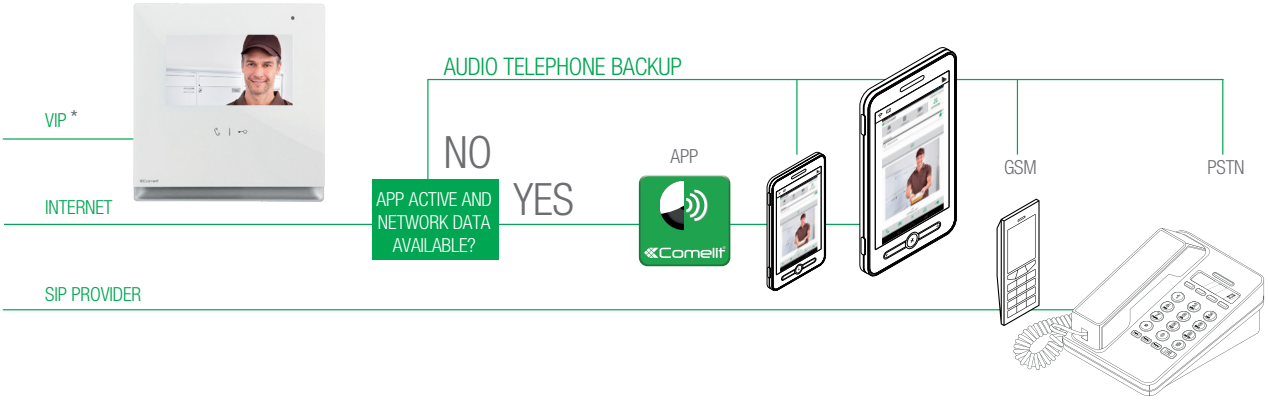


* it is possible to add ViP internal units in Slave mode

SLAVE LICENSE:

- A master door entry monitor is required
- Up to 15 slaves devices can be added for each apartment, including:
  - Smartphone / Tablet + Comelit App
  - PSTN/GSM telephone
  - Additional door entry monitors (configured as slaves)

EXAMPLE APARTMENT WITH SLAVE LICENSE:



* it is possible to add ViP internal units in Slave mode

TELEPHONE LICENSE:

- Master door entry monitor not required (already integrated in the 1456B)
- Up to 15 slaves devices can be added for each apartment, including:
  - PSTN/GSM telephone
  - Door entry monitor (configured as slave)

EXAMPLE APARTMENT WITH TELEPHONE LICENSE:

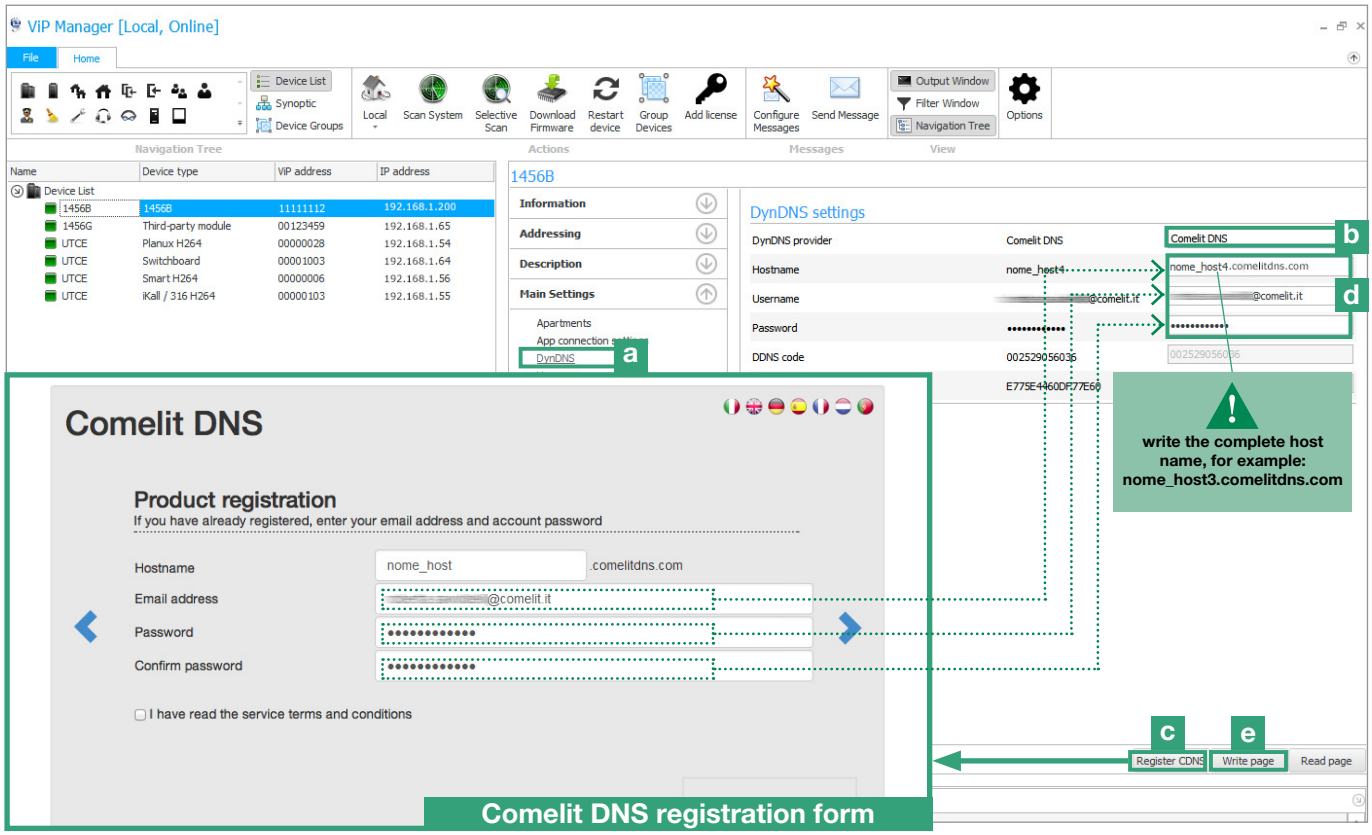
* it is possible to add ViP internal units in Slave mode

4) DynDNS configuration for remote connection

The DynDNS address (Dynamic DNS) allows a DNS name to be permanently associated with the IP address of the same host, even if that address subsequently changes.
A DynDNS must be registered in order to make the 1456B accessible from a remote web page and to allow operation of the Comelit ViP remote application.

✓ An active internet connection is required to complete the license activation procedure.

1. Select article 1456B and select **Main Settings/DynDNS [a].**
2. Select **ComelitDNS [b]** in order to use the free ComelitDNS service .
3. Press **Register CDNS [c]** to register a ComelitDNS hostname.
4. Complete the registration panel (**NB:** make a note of the data entered or copy and paste them directly into the configuration page) and press › to complete the registration.
5. Enter the "hostname", "user name" and "password" in the **"DynDNS settings"** screen of the ViP Manager software **[d].**
6. Press **Write page [e]** to confirm the current settings.



5) Port Forwarding setting for remote connection

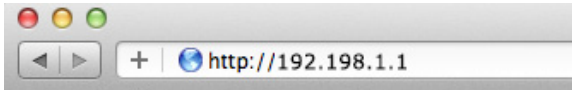
Port forwarding *is the operation that allows the transfer of data from one device to another via a specific communication port. This procedure enables an external user (mobile phone) to access a device on a local network (1456B).*

*The procedure for opening router ports for the article 1456B is required in order to allow remote access to the system via a web page (**port TCP 8080**) and via an App (**port TCP 64100*, port UDP 64100***).*

*** For some internet service providers, port 64100 is not available. In this case, try changing the address of the port with one of the following: 25, 80, 110, 143 or call your internet service provider.**

✓ With the PC still connected by Ethernet cable to article 1456B (see page 3).

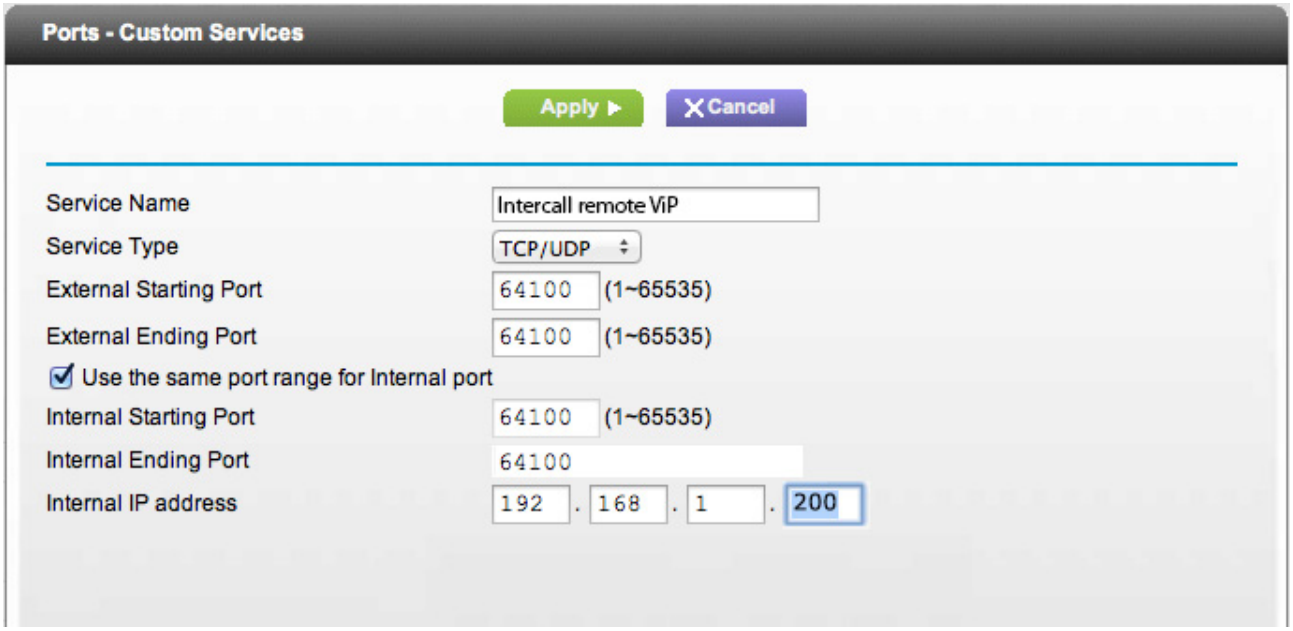
1. Access the browser and enter the IP address of the router in the navigation bar, for example: **192.168.1.1**



2. Log in by entering the username and password (these can be found in the router user manual).

The port configuration method may differ according to the brand and type of router used

3. Look for the sections "Port Opening" or "Apps and games" or "Port Forwarding" (if not displayed on the main menu, search for them in Advanced settings) and add the ports you wish to configure.
4. Fill in the configuration panel (see example in the figure below):
   a. Enter a name.
   b. Select the desired protocol (for example: TCP for the port 8080, TCP/UDP for the port 64100).
   c. For the external port, enter the desired value (e.g. 8080 / 64100); enter the same value in the Starting and Ending fields to open a single port.
   d. For the internal port, enter the desired value (8080 / 64100); enter the same value in Starting and Ending fields to open a single port.
   e. Enter the IP address of the ViP gateway, for example (default= **192.168.1.200**).
   f. Confirm.
5. Repeat the procedure for each port you wish to open.



6) SIP settings configuration

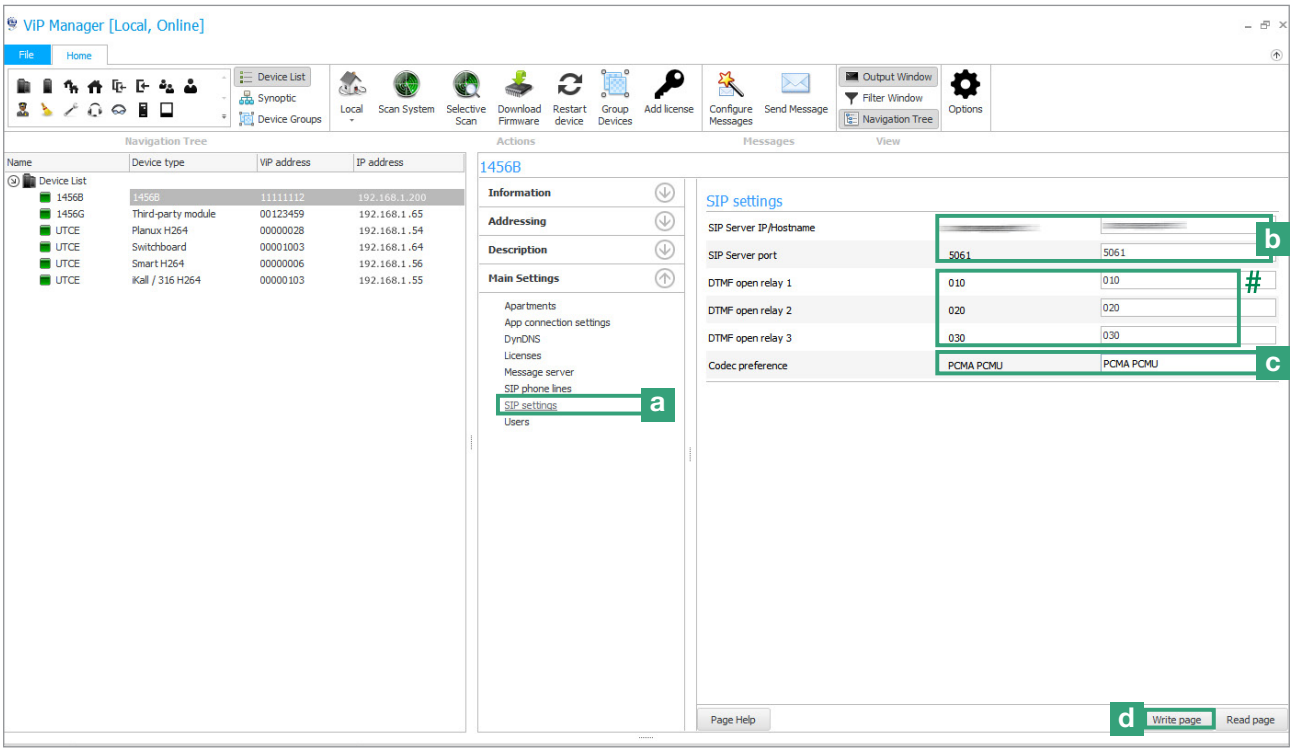
The SIP settings configuration procedure is only to be used when you wish to channel a door entry phone communication to a SIP digital telephone line (PSTN/GSM).
It is possible to purchase up to 15 SIP phone lines to be shared between all the apartments. Each phone line is a communication channel: when a call is received from an external unit to landline or mobile phone, the first available SIP line is used.

✓ **Purchase the desired number of SIP phone lines (max 15) from a SIP services provider: each phone line is a valid account on the SIP server used to make telephone calls; the user settings and password are to be entered in the "SIP settings" screen (see page. 13).**

1. Select the device 1456B and select **Main Settings/SIP settings [a]**.
2. Enter the IP address of the SIP service provider (for example: sip.messagenet.it) and the UDP port of the server supplied by the service provider (for example: 5061) **[b]**.
3. Leave the parameter **"Codec preference" [c]** (for audio encoding/decoding) on the default setting: PCMA/PCMU.

   US users only, select the codec PCMU. 

4. Press **Write page [d]** to save the current settings.

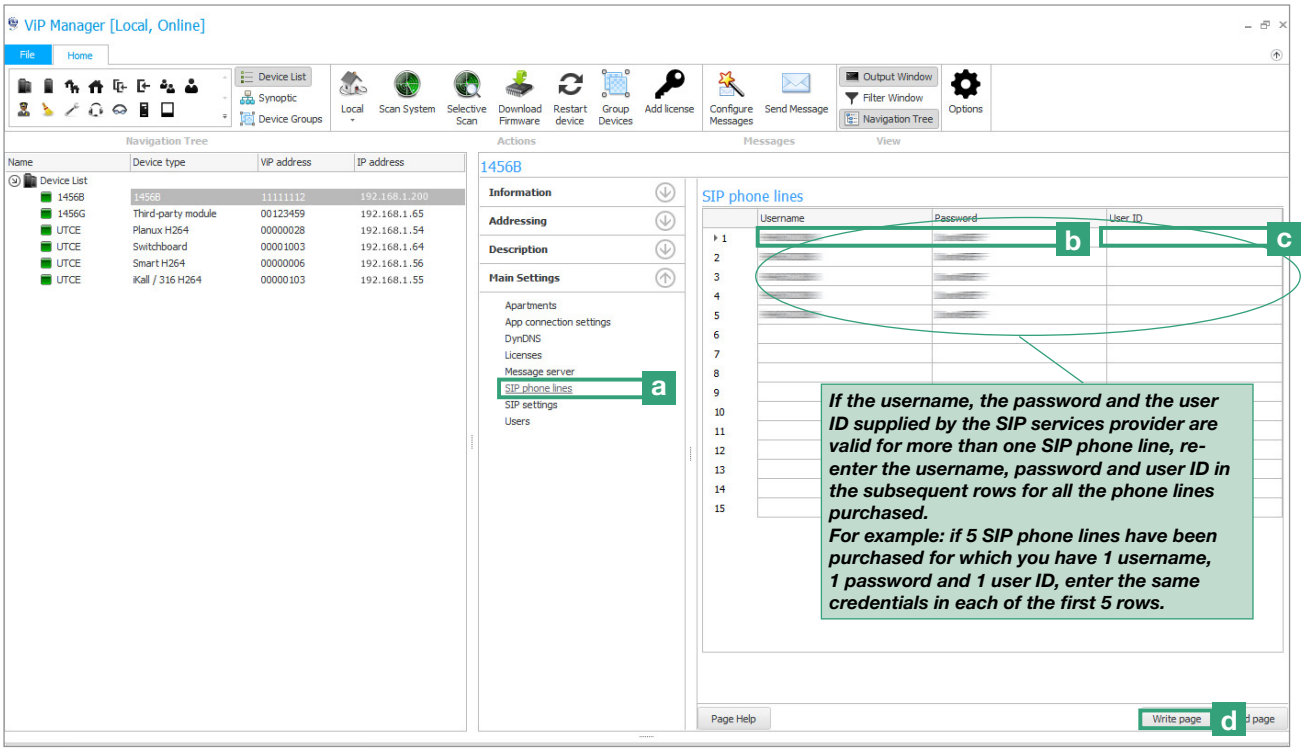


\# DTMF open relay 1/2/3: sequence of keys to press (minimum 3, maximum 6) to send a command to activate the relay from a telephone (the default values can be changed)

7) SIP phone lines configuration

Access to SIP phone lines is controlled by the username and password supplied by the SIP services provider at the time of purchase. Some providers also provide a User ID (which can be variously designated "User authentication", "user auth" or "user ID". The procedure for phone lines configuration is described below.

1. Select the device 1456B and select **Main Settings/SIP phone lines [a]**.
2. For each SIP phone line purchased, enter the respective username and password **[b].**
3. For each SIP phone line purchased, enter the **user ID [c]** only if this has been provided by the SIP services provider, otherwise leave the field blank.
4. Press **Write page [d]** to save the current settings.



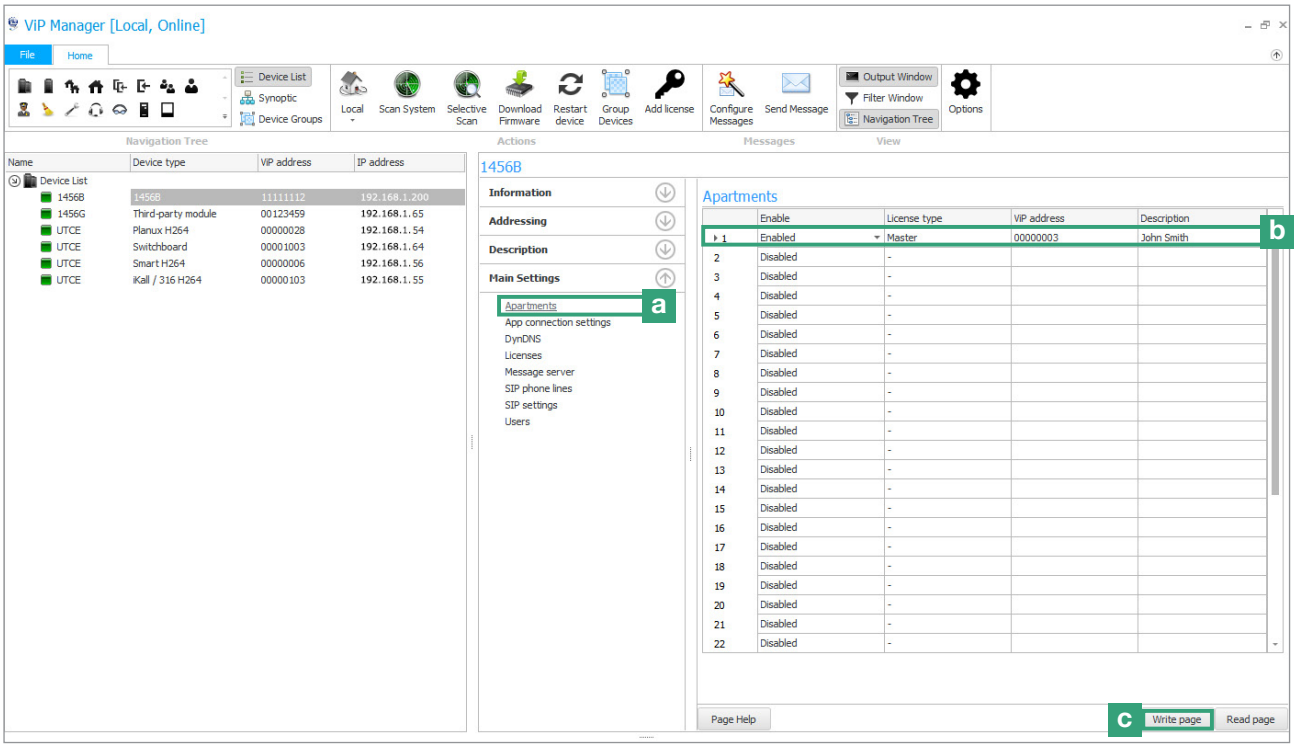
A maximum of 15 SIP phone lines may be enabled.
The phone lines are shared between all the users of the system connected to the device 1456B and are managed on a "first come, first served" basis.

8) Apartments configuration

In the apartments configuration screen, each apartment can be assigned a license, a ViP address (unequivocal) and a description to allow easy identification of the apartment and the user.

✓ An apartment can be enabled for each available license.

1. Select device 1456B and select **Main Settings/DynDNS [a].**
2. Configure the individual apartments (max 200) **[b]**:
   - **Enabling:** enable/disable the license for the apartment by selecting **Enabled/Disabled**.
   - **License type:** assign the type of license purchased for the apartment, choosing between **Slave/Master/Telephone**.
   - **ViP address:** enter an unequivocal ViP address to identify the apartment.
   - **Description:** enter a description to identify the apartment.
3. Press **Write page [c]** to save the current settings.

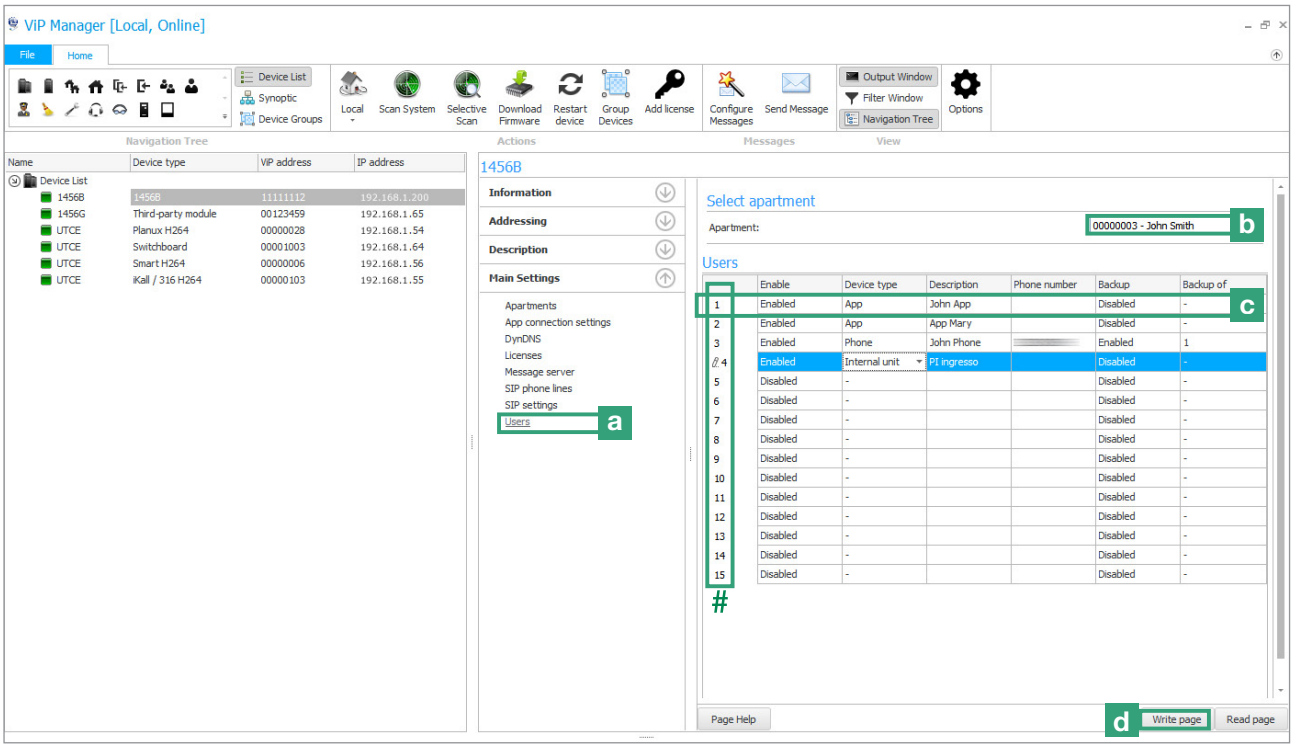


9) Users configuration (devices)

In this page you can configure the slave devices that can be activated for each apartment (max. 15) Each device is identified by its slave number. Each device must be assigned a type (internal unit, app or telephone), a description, the phone number (in the case of a telephone/ mobile phone).

1. Select device 1456B and select **Main Settings/Users [a].**
2. Select the apartment for which you wish to configure the users **[b]**
3. Configure the individual devices (max 15 per apartment) **[c]**:
   - **Enabling:** enable/disable the device for the apartment by selecting **Enabled/Disabled**.
   - **Device type:** assign the type of device choosing between:
     - **Internal unit:** Comelit ViP internal unit;
     - **App:** ComelitViP Remote App for Android or Apple devices (consult the relative manual for further details);
     - **Phone:** virtual ViP device controlled by the 1456B and used to make phone calls to a landline or mobile phone.
   - **Description:** Description: enter a description to identify the device.
   - **Phone number:** if you are configuring a telephone, enter the phone number of the device.
   - **Backup:** enable/disable the backup line to configure the current device as a backup unit to which failed calls to the device specified in the adjacent column ("Backup of") are to be forwarded.
   - **Backup of:** specify the device to be backed up by selecting the corresponding slave device.

   Backup example: the slave 3 phone number (John Phone) is enabled as the backup unit of the App slave 1 (John App) installed on the same device --> If the App "John App" cannot be reached, after a few seconds the call will be redirected to the phone number "John Phone".
4. Press **Write page [d]** to save the current settings.



 # Slave ID of the device

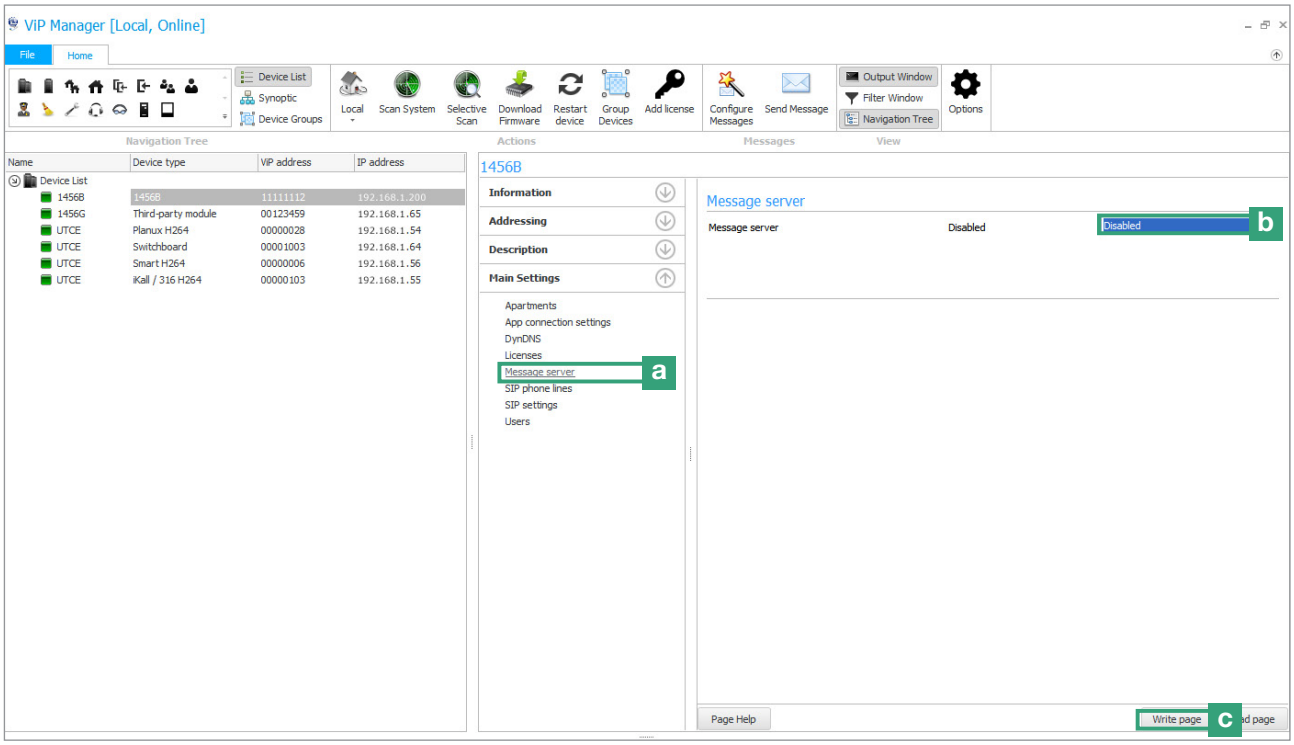
Each apartment supports 15 devices, which are assigned a device ID (slave number) that identifies the device within the apartment. The device ID assigned in this page must correspond to that assigned to the same device in the page "Addressing/ViP address".

It is advisable to assign the slave numbers 1-2-3 to devices that can receive the video signal(internal units/applications), so that during a call they can receive the video signal directly, without the user having to press a video request button.

10) Message server configuration

The following procedure describes how to specify on the art. 1456B the IP or ViP address of the art. 1952 device to be used as a message server (if present)

1. Select device 1456B and select **Main Settings/Message server [a].**
2. From the pull-down menu **[b]** select **ViP address or IP address** and enter the address of the CPS device that is to be used as a message server.
3. Press **Write page [c]** to save the current settings..



Special configurations

App connection settings

From the following configuration page you can:

- *set personalised parameters for the app connection (for example, if you wish to set a different port for connection of the app or if there is a static public address you wish to use for remote connection.*
- *change the maximum number of video connections on the network (max. 16) or on the App (max. 4).*

1. Select the device 1456B and select **Main Settings/App connection settings [a]**.
2. Edit the values you wish to personalise.

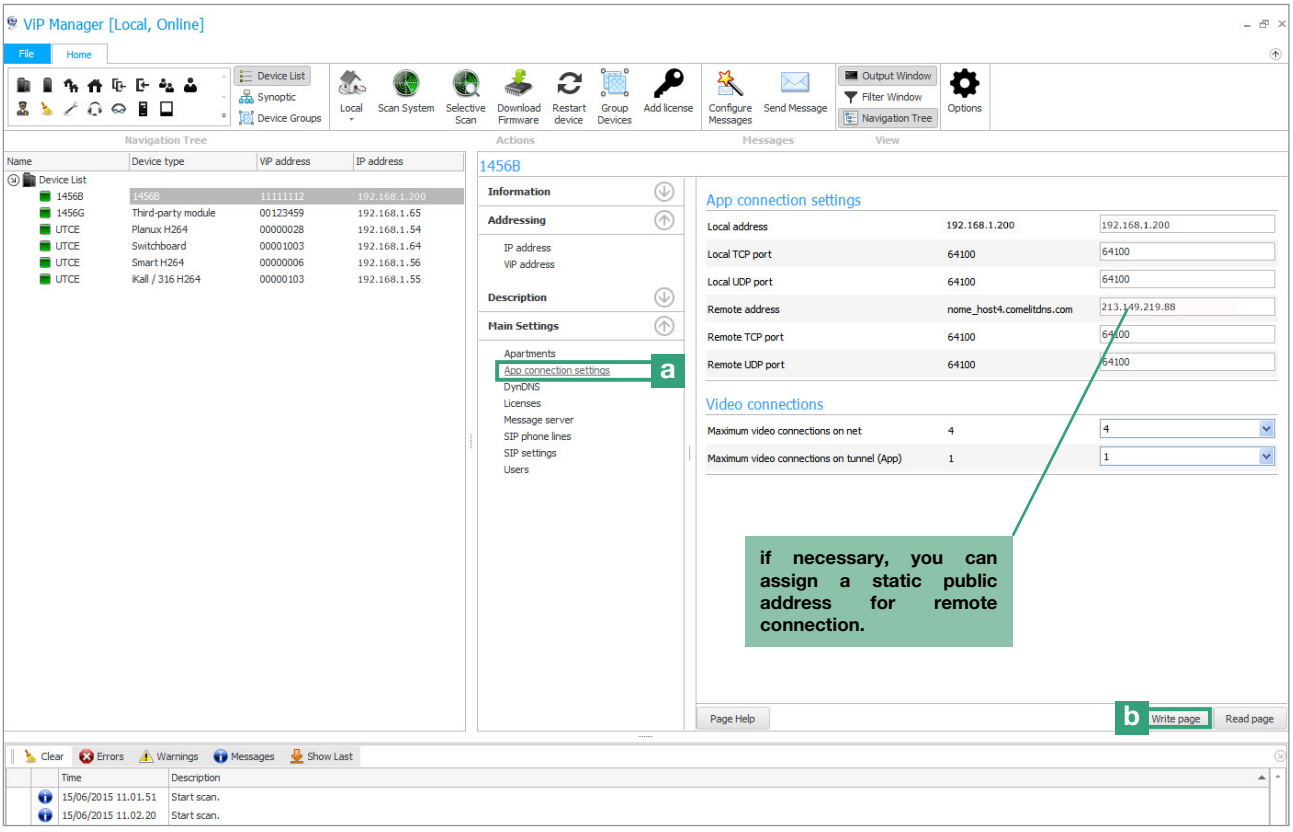
App connection settings

- **Local address:** leave the field empty if you wish to set as the local address the address of interface A, as specified in the page **Addressing/IP address**.
- **Local/remote TCP/UDP port (default 64100):** for some internet service providers, port 64100 is not available: if the ComelitViP Remote App fails to register, try changing the address of the port with one of the following: 25, 80, 110, 143 (open the respective ports on the router, see page 11 and edit the values on the ComelitViP Remote App).
- **Remote address:** leave the field empty if you wish to set as the remote address the hostname registered during configuration of the DynDNS settings. If necessary, you can assign a static public address for remote connection.

Video connections

- **Maximum video connections on net:** maximum number of simultaneous video connections on the network (max. 16).
- **Maximum video connections on tunnel (App):** maximum number of simultaneous video connections on the App (max. 4).

3. Press **Write page [b]** to save the current settings.



Connection to the configuration web pages

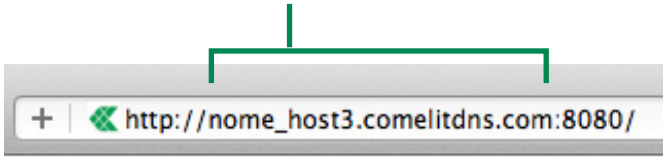
From the web pages you can perform all of the operations available on ViP Manager except license activation. The backup and restore function is only available on the web pages.

1A) Remote connection

- ✓ Once the DynDNS configuration has been completed (see page 10) and port 8080 (see page 11) on the router has been opened, remote access of the device will be possible.
- ✓ AN active internet connection is also required.

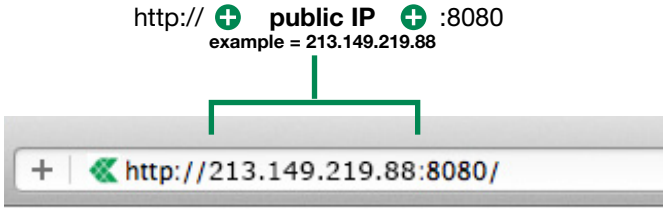
1A. Enter the registered hostname or the public IP address, as in the following examples, and press enter.

http:// **registered hostname.comelitdns.com** :8080
example = nome_host3.comelitdns.com



or:

http:// **public IP** :8080
example = 213.149.219.88

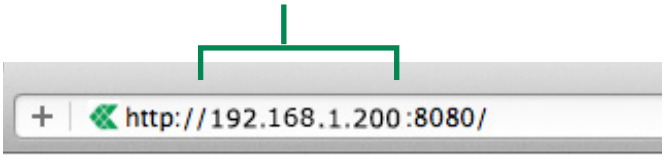


1B) Local connection

- ✓ With the PC connected via Ethernet cable to interface A of art. 1456Ba and IP address belonging to the same network as interface A.

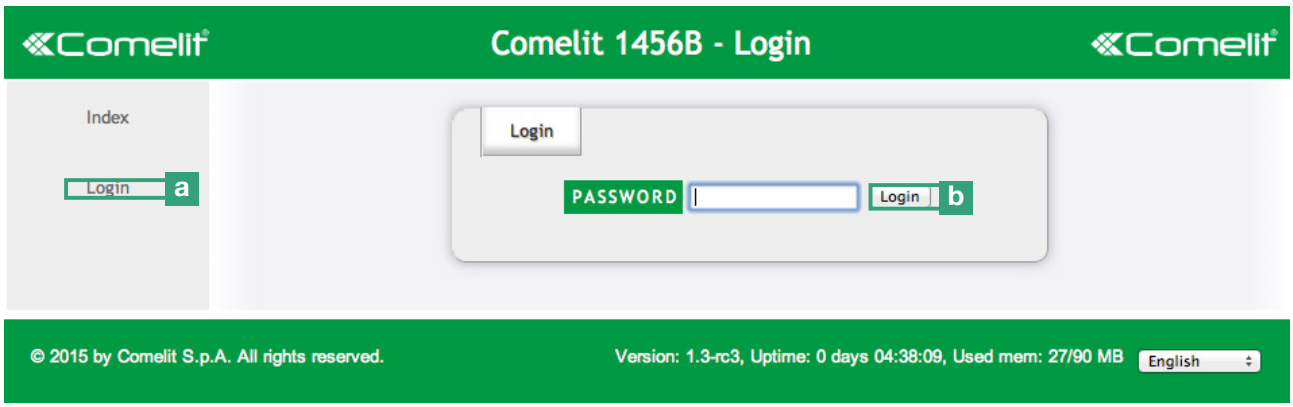
1B. Enter the IP address of interface A as in the following example, and press enter.

http:// **Interface A IP address** :8080
default = 192.168.1.200



2) Login

1. Press **Login [a]**
2. Enter the installer password (default= comelit) and conform by pressing **Login [b]**



Backup and restore

The backup function allows you to save the current configuration, which can then be subsequently called up at any time using the restore function.

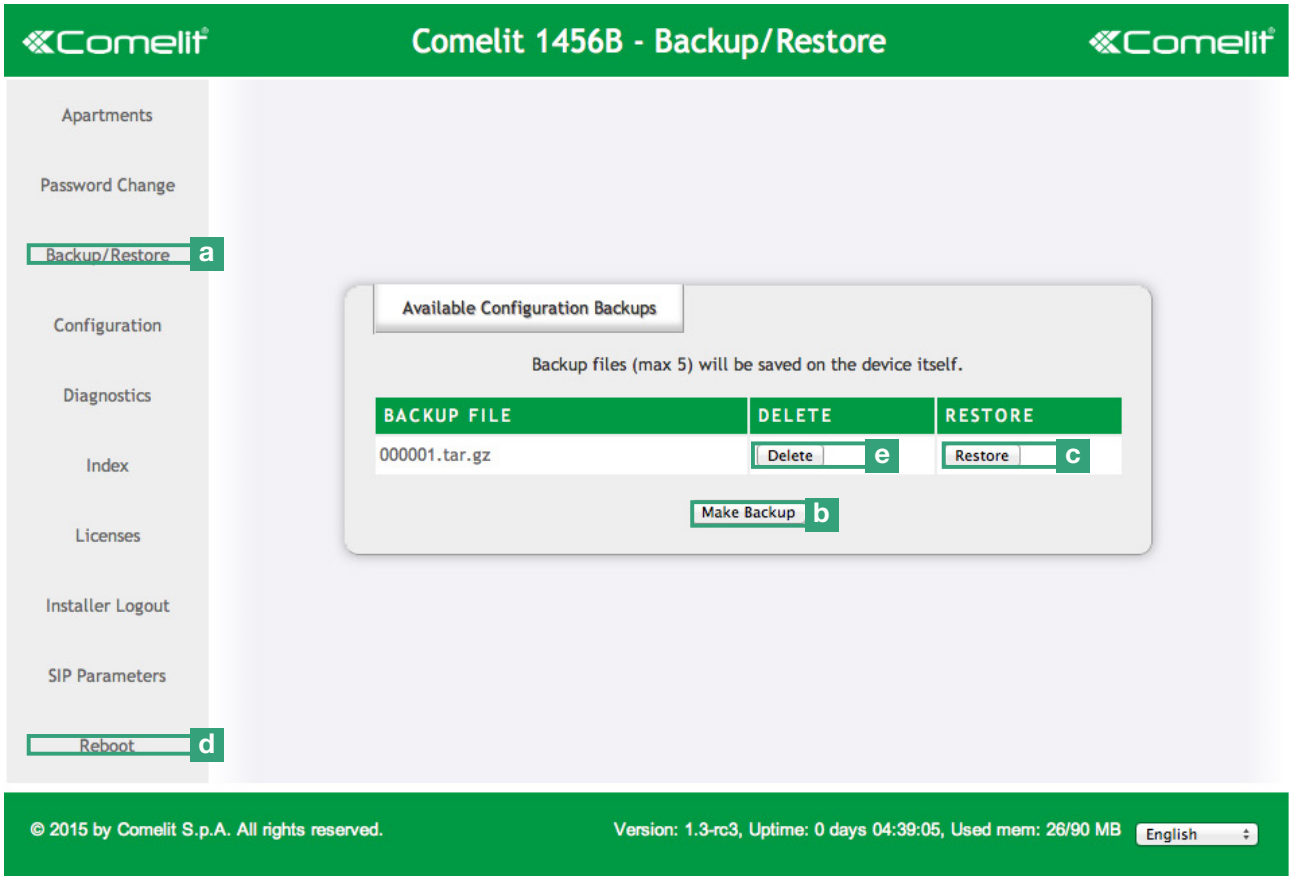
The backup and restore functions are only available from the configuration web pages (to access the web pages, see page 18)

1. As described on page 18: connect to the web pages of the device (in local or remote) and log in.
2. Access the Backup/Restore section by pressing **Backup/Restore [a]**
3. Press **Make Backup [b]** to create a backup of the current configuration.

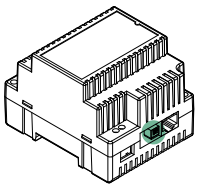
4a. Press **Restore [c]** and confirm.

5a. Press **Reboot [d]** to activate the saved configuration.

4b. Press **Delete [e]** to cancel backup of the configuration.



Reboot with predetermined network settings



*The function **reboot with predetermined network settings** allows you restart the device with the default network parameter settings (interface A= 192.168.1.200), while keeping the other settings unchanged.*

√ With the dip switches in the default positions (OFF).

1. Switch off the power supply to the device.

2. Set DIP 1 to ON
3. Power on the device.
4. Wait 20 - 40 seconds, until the LEDs start flashing slowly and alternately (1 sec red / 1 sec green).
5. Return all the dip switches to OFF.

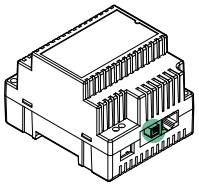
» *The green LED will flash for 5 seconds.*

» ***The device will start with the default network settings.***

6. At the next restart, the device will recover the **saved** settings.

Restoring factory settings

*This procedure allows you to **restore all the factory parameter settings** and to delete all the device configurations.*



OFF ON 1 2 ✓ With the dip switches in the default positions (OFF).

1. Switch off the power supply to the device.
2. Set all the dip switches to ON.
3. Power on the device.
4. Wait 20 - 40 seconds, until the LEDs start flashing rapidly and alternately (0.1 sec red / 0.1 sec green).
5. Return all the dip switches to OFF.
   - » *The red LED will flash for 5 seconds.*
   - » ***The device will reset all parameters to the factory settings and restart in the normal way.***

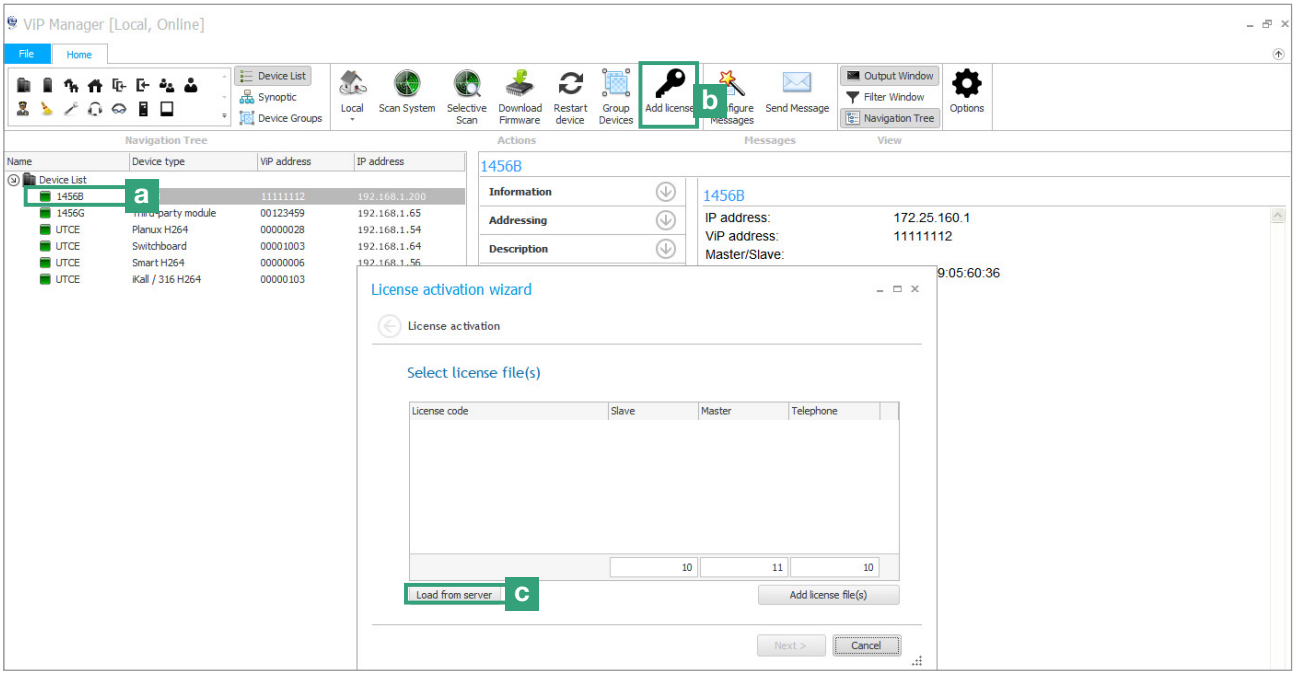
WARNING: the full reset procedure also deletes and the licenses installed on the device
You can restore the licenses (max. 2 times) using the procedure described in the following paragraph.

Restoring licenses

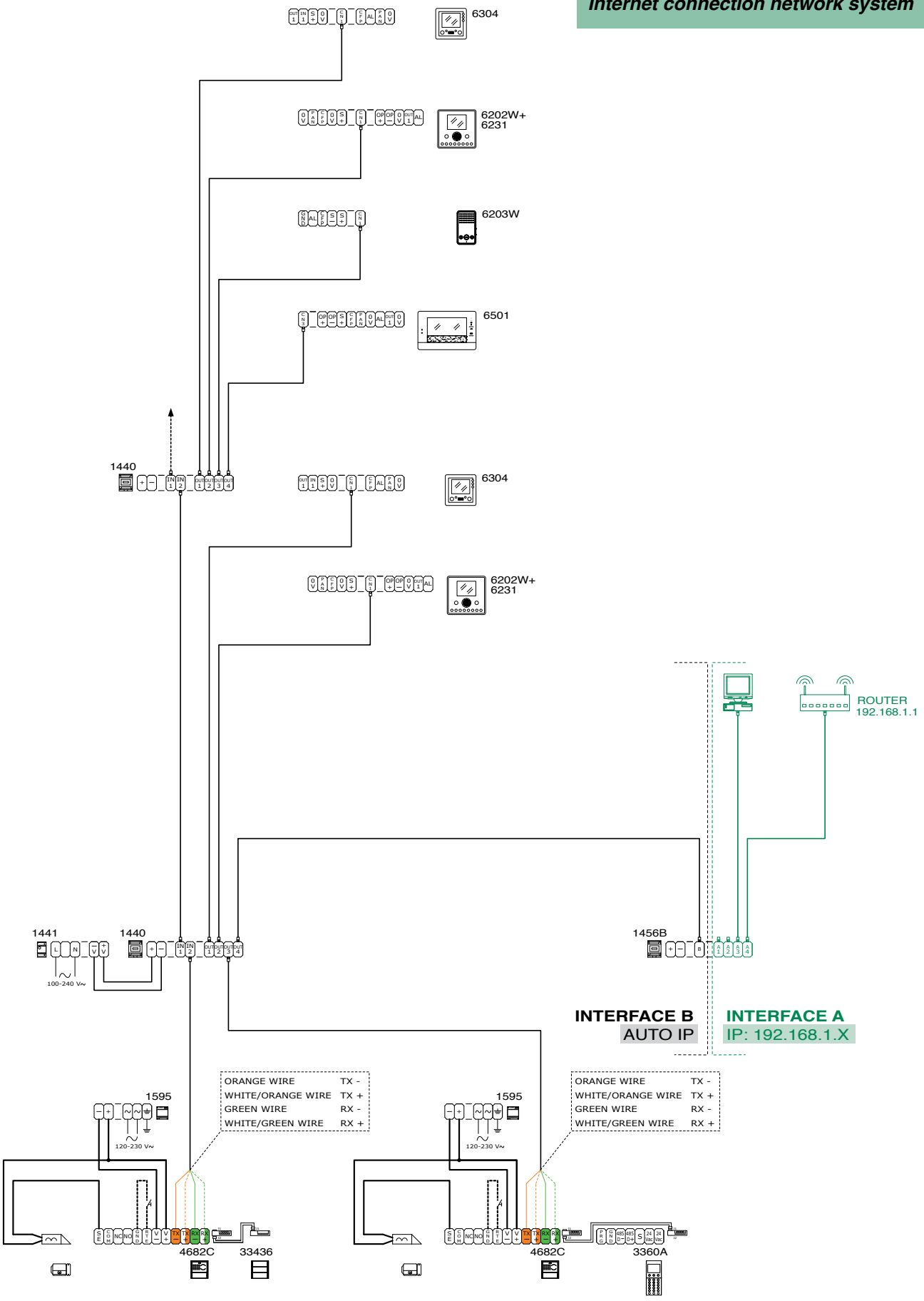
*The following procedure allows you to **restore licenses** lost during the full reset procedure:*

1. From ViP Manager, look for the device 1456B as described in the ViP Manager addressing procedure (page 4).
2. Select the device 1456B **[a]**.
3. Press "Add license" from the main menu **[b]**.
4. Press **"Load from server"** to restore previously activated licenses **[c].**

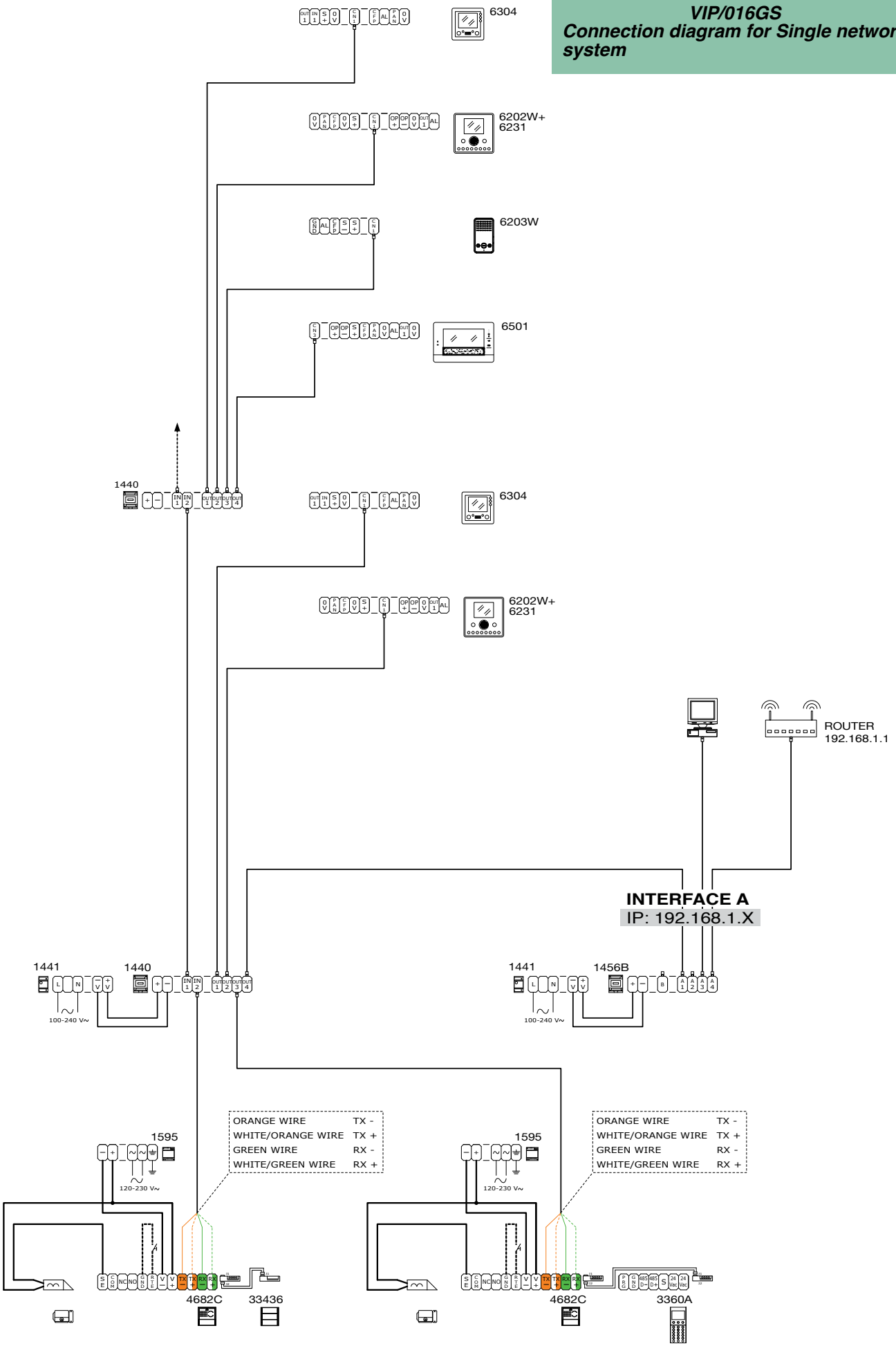
Licenses can be restored a maximum of two times only. For additional license restore operations, contact Comelit technical assistance.



VIP/016G
Connection diagram for ViP network + Internet connection network system



VIP/016GS
Connection diagram for Single network system



Glossary*

- **Autoip:** *Automatic Private IP Addressing* (known as APIPA or Auto IP), is a method for automatically assigning IP addresses to the devices connected to the network.
- **Dynamic DNS:** *Dynamic DNS* is a technology that allows a DNS name to be permanently associated with the IP address of the same host, even if that address subsequently changes.
- **DHCP:** In telecommunications and information technology, *Dynamic Host Configuration Protocol* (DHCP) is an application layer network protocol that enables the devices or terminals of a local network to automatically receive on each request to an IP network i.e. the internet) the necessary IP configuration to establish a connection and operate on a wider network based on Internet Protocol, i.e. to interact with all the other subnets, exchanging data, provided that they are also integrated in the same way with the IP protocol.
- **Gateway:** a *gateway* is a network device that operates at network level and above of the ISO/OSI model. It's main function is to transport network data packets outside a local network (LAN) Gateway is a generic term for a service that sends data packets outside of the network; the hardware device that fulfils this task is usually a router. Simpler networks have just one gateway that sends all outbound traffic to the Internet network. More complex networks have several subnets, each of which refers to a gateway which routes data traffic to other subnets or redirects it to other gateways.
- **Dynamic IP address:** dynamic addresses are used to identify non-permanent devices in a LAN. A server in the LAN automatically dynamically assigns the address, selecting it a random from a preset range. You can select the range of addresses in accordance with the number of users by setting the netmask, i.e. by telling the DHCP server how many address bits can be assigned dynamically to each single client that accesses it. For example, if the netmask has the value 255.255.255.0 (where each block of numbers separated by a point denotes a group of 8 bits), only the last 8 bits can be assigned to the hosts.
- **Static IP address:** static addresses are used to identify semi-permanent devices with a permanent IP address. Network servers, printers, etc. typically use this addressing method. Static addressing is generally used in preference to dynamic addressing for non permanent network devices if there is a limited number of hosts in the subnet and/or for security reasons, so that the actions of each host and the relative user can be kept under control.
- **Public IP address:** in telecommunications and information technology a *public IP address* is an IP address in the address range of the internet network that is unequivocally allocated and is potentially accessible from any other public IP address, and therefore can be used for addressing and routing via IP protocol.
- **POE:** *Power over Ethernet or PoE* (the acronym) is a technique for powering equipment via the same cable as that used for Ethernet connection. It is very useful when there is no convenient electrical power source near the termination or when you wish to reduce the number of elements and wires; for example, an IP phone on a desk can be powered directly via the Ethernet cable in Power over Ethernet, thereby eliminating the need for a power supplier and its cable, making for a simpler, less cluttered installation. For the moment, these techniques are used mainly to power devices that consume only a little power, such as VoIP telephones, access points and webcams.
- **Port forwarding:** in computer networks, port forwarding is the operation that allows the transfer of data from one device to another via a specific communication port.. This technique can be used to allow an external user to reach a host with a private IP address (within a LAN) via a port of the corresponding public IP address. This operation requires a router capable of automatic translation of network addresses, or NAT.

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