ALDEN @

User Manual

Version 1.0

IPcopter GmbH & Co KG

Date: July 2007

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1 IMPORTANT SAFETY PRECAUTIONS

- Before installing the satellite modem, make sure your electrical outlet is properly wired and your computer equipment is properly grounded. Consult with a licensed electrician if you are not sure.
- Read and understand all operating instructions in your user's guide located in the satellite modem shipping box.
- Read and understand all safety precautions prior to connecting any cables to the satellite modem.

1.1 WARNINGS

Definition

A warning is defined as a procedure or practice that, if not correctly followed, could result in injury, death, or long term health hazard. Always observe the following warnings.

- There are no user-serviceable parts in your system. There are potentially lethal voltages inside the equipment. It should only be opened by a technician trained and certified to service the product.
- RF Radiation Hazard. The transmitting equipment is capable of generating RF levels above the maximum permissible exposure level. Do not enter the radiation beam pattern of the transmitter feed horn and/or antenna dish when the transmitter is on. Keep the space between feed horn and reflector clear!
- When the satellite modem is powered on, DC voltages are present on the rear panel Tx and Rx connectors.
- To prevent fire or shock hazard, do not expose this appliance to rain or moisture. The apparatus must not be exposed to dripping or splashing and no objects filled with liquids, such as vases, should be placed on the apparatus.
- Postpone satellite modem installation until there is no risk of thunderstorm or lightning activity in the area.
- To prevent electrical shock, if the unit is provided with a polarized plug, do not connect the plug into an extension cord, receptacle or other outlet unless the plug can be fully inserted with no part of the blades exposed.
- The in-line power supply input power cord must be connected to a properly grounded three-prong AC outlet. Do not use adapter plugs or remove the grounding prong from the plug.
- The in-line power supply input power cord must not be used when damaged in any form!

1.2 CAUTIONS

Definition

A caution is defined as a procedure or practice that, if not correctly followed, could result in equipment damage or destruction. Always observe the following cautions.

- Always use the in-line power supply with the satellite modem. Using a different power supply may cause equipment damage.
- To ensure regulatory and safety compliance, use only the provided power and interface cables or cables conform to the specifications within this manual.
- Do not open the unit. Do not perform any servicing other than that contained in the installation and troubleshooting instructions. Refer all servicing to qualified service professionals.
- Avoid damaging the satellite modem with static by first touching the coaxial cable connector when it is attached to the earth grounded coaxial cable wall outlet. Always first touch the coaxial cable connector on the satellite modem when you are disconnecting or re-connecting your Ethernet cable from the satellite modem or your PC.
- To prevent overheating, do not block the ventilation holes on the sides and top of the unit.
- Only wipe the unit with a clean, dry cloth. To avoid equipment damage, never use fluids or similar chemicals. Do not spray cleaners directly on the unit or use forced air to remove dust.
- The user should install an AC surge arrestor in the AC outlet to which this device is connected. This to avoid damaging the equipment by local lightning strikes and other electrical surges.

1.3 NOTICES

- This product was qualified under test conditions that included the use of the supplied cable between the components. To be in compliance with regulations, the user must use this cable – or equivalent – and install it properly.
- Different types of cord sets may be used for connections to the main supply circuit. Use only a main line cord that complies with all product safety requirements of the country of use.
- Installation of this product must be in accordance with national wiring codes.

2 OVERVIEW

The Sat3Play Terminal is a state-of-the-art equipment allowing cost effective, plug & play connection to an extended variety IP based applications.

The Sat3Play terminal consists of:

- an interactive LNB (iLNB) comprising of a low noise block down converter and integrated 500 mW upconverter/transmitter,
- an IP modem providing an Ethernet connection to the end-user PC or LAN,
- a self-pointing antenna, with a GPS based antenna control unit.

The integrated iLNB is a light weight, easy-to-install and highly reliable low power equipment. All parts are built using a state-of-the-art microwave design that guarantees an unequalled reliability for many years.

Connected to the integrated iLNB by means of transmit and receive cables, the high speed IPmodem provides an asymmetrical 2-way broadband access to IP applications. Its small size design, in line with the best practice in the telecom and IT industry, makes it suited for any type of user, business or consumer.

Figure 1: Sat3Play Terminal

3 GETTING TO KNOW YOUR SAT3PLAY TERMINAL

3.1 IPMODEM

3.1.1 Front Panel

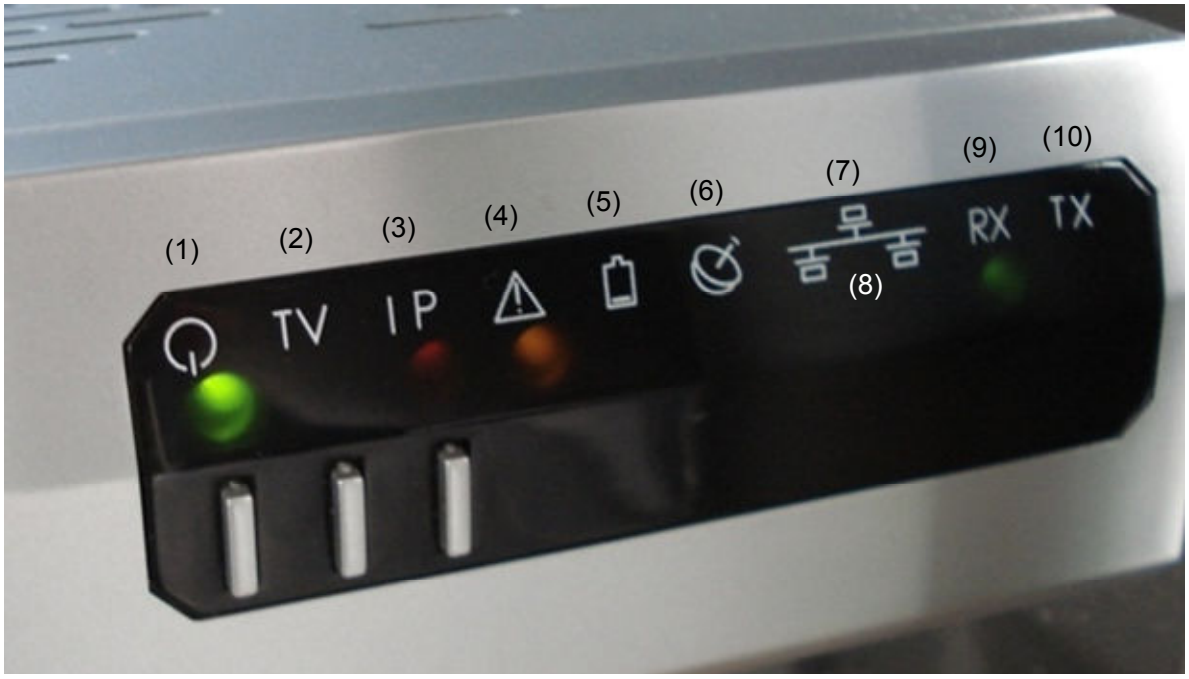


Figure 2: IPmodem Front panel

Nr	What	Description
(1)	Power LED	Green continuous – when powered up. Controlled by button below
(2)	TV LED	Off – controlled by the push button. (previous settings are stored) Red - TV Antenna pointing failed or antenna is stowed Yellow – TV Antenna pointing is going on Green – Antenna is pointed correctly for TV reception
(3)	IP LED	Off – controlled by the corresponding button. (previous settings are also stored) Red – Antenna pointing failed or antenna is stowed Yellow – Initialization is going on (satellite pointing or satellite network logon) Green – Terminal is logged on to the Internet

Nr	What	Description
		satellite network.
(4)	Warning LED	Yellow – The system is powering down and the antenna is not stowed yet.
(5)	Low power LED	Red - Battery voltage is too low
(6)	Antenna CTRL Unit error LED	Red – General Antenna CTRL unit reported a general failure or communication with Antenna CTRL unit is lost.: Not in use
(7)	LAN status LED	Green – Ethernet link status
(8)	LAN traffic LED	Ethernet frames are received or transmitted
(9)	Rx indicator LED	Green continuous – L2 data received via the Internet air interface
(10)	Tx indicator LED	Green blinking / continuous – L2 bursts are transmitted via the Internet air interface (CSC or TRF bursts)

Table 1: Description elements of the IPmodem front panel

3.1.2 Back Panel

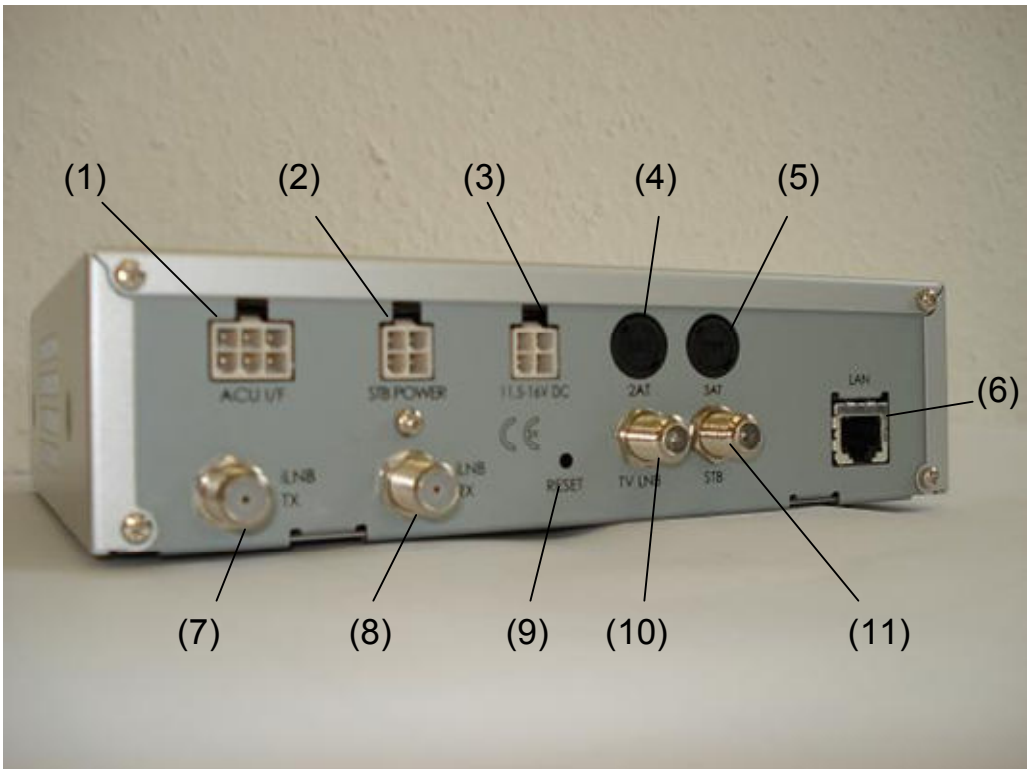


Figure 3: IPmodem Back panel

Nr	What	Description
(1)	ACU I/F	Interface to Antenna CTRL Unit: ACU enable + RS232
(2)	STB Power	Set-Top box power supply (12 V)
(3)	11,5-16V DC	Power cable
(4)	2 AT	2 A S – For the modem
(5)	3AT	3 A fuse – For the power supply Set-Top Box
(6)	Ethernet cable connector	RJ-45 – 100 Base-T
(7)	iLNB Tx	Indoor connection for the transmit coax cable to iLNB (IP traffic)
(8)	iLNB Rx	Indoor connection for the receive coax cable to iLNB (IP traffic)
(9)	Reset button	Reboot: press once Factory reset: and hold for 5 seconds: will reset the factory settings. (IP management address + reset the installer password)
(10)	TV LNB	Indoor connection for the receive coax cable to LNB (video signal)
(11)	STB	Connector to Set-Top Box

Table 2: Description elements of the IPmodem back panel

3.2 ILNB

The iLNB – interactive LNB – is used for two-way IP traffic. It has an integrated casing and is fully sealed except for its ventilation slots.

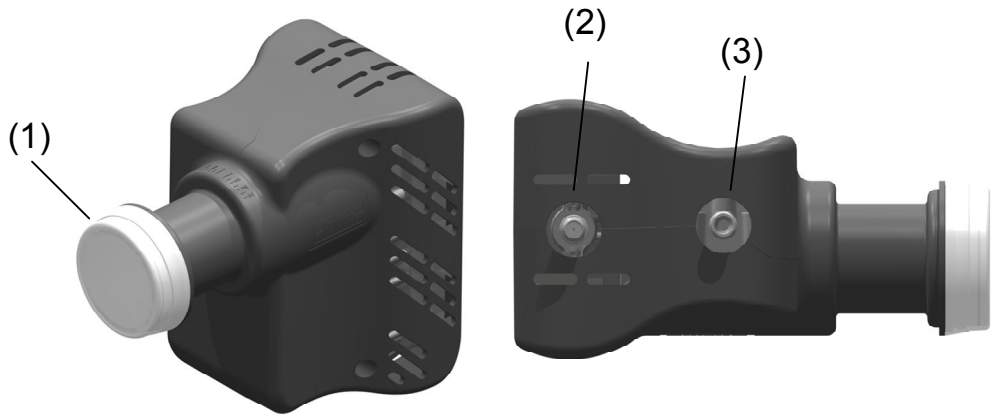


Figure 4: iLNB > Perspective and bottom view

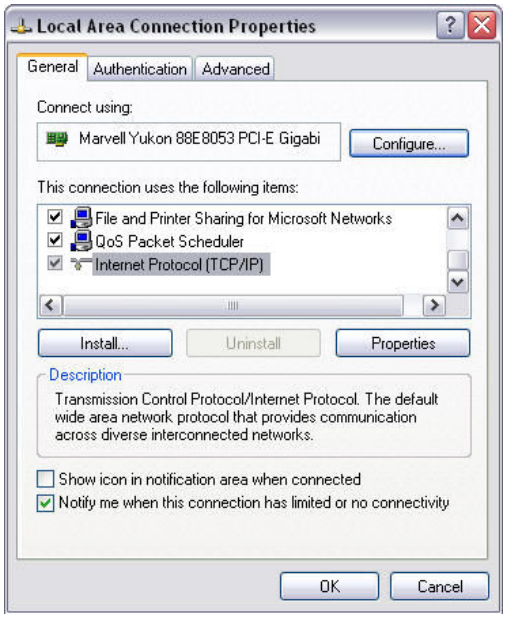
Nr	What	Description
(1)	Feed horn	Radiating feed horn of the iLNB, pointed towards reflector
(2)	Tx connector	Outdoor connection for the transmit coax cable, connected with iLNB Tx of IPmodem
(3)	Rx connector	Outdoor connection for the receive coax cable, connected with iLNB Rx of IPmodem

Table 3: Description elements of the iLNB

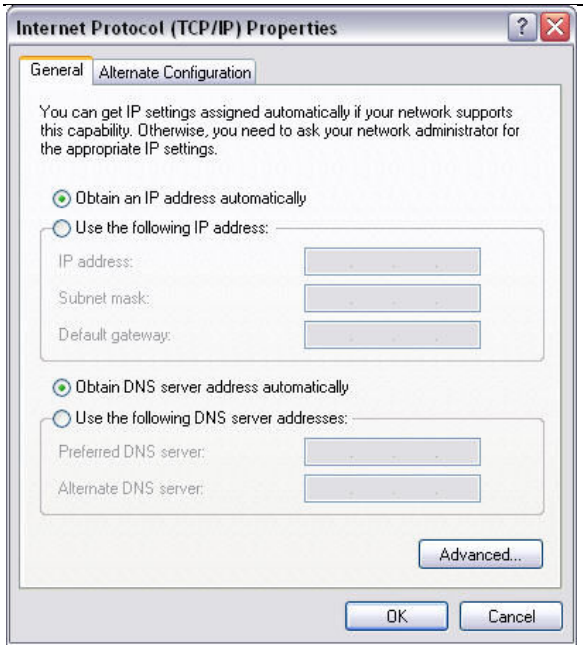
4 PREPARATION OF THE IP SETTINGS IN YOUR PC OR LAPTOP

4.1 WINDOWS XP

- Open the Network Connections window.
- Right click on the active LAN connection and select **Properties**
- The **Local Area Connections Properties dialogue** will open.



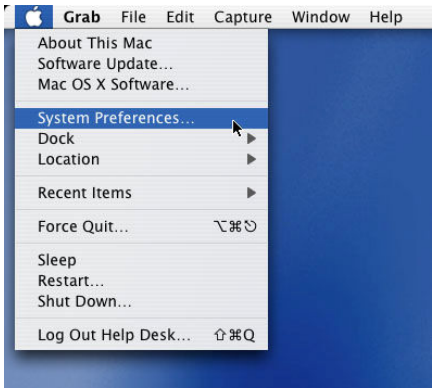
- Select the tab **General**.
- Scroll down the items and select **Internet Protocol (TCP/IP)**.
- Click the **Properties** button
- The **Internet Protocol (TCP/IP) Properties dialogue** will open.
- By default the dialogue is set as shown below.



- Select the tab **General**.
- Change your IP settings by selecting the appropriate radio button
- Obtain an IP address automatically to set the IP setting on DHCP
- Click the **OK** button.

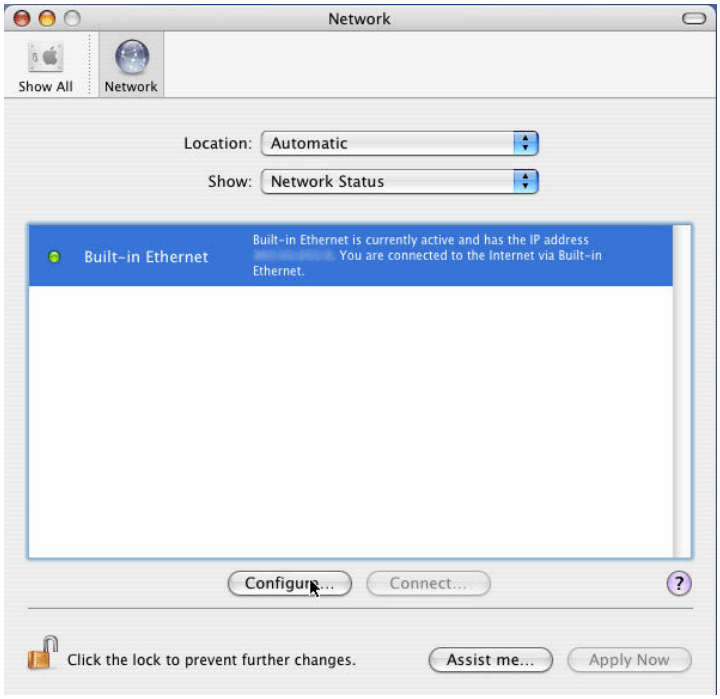
4.2 MAC OS X

- Click on your **Apple** menu and choose **System Preferences**:

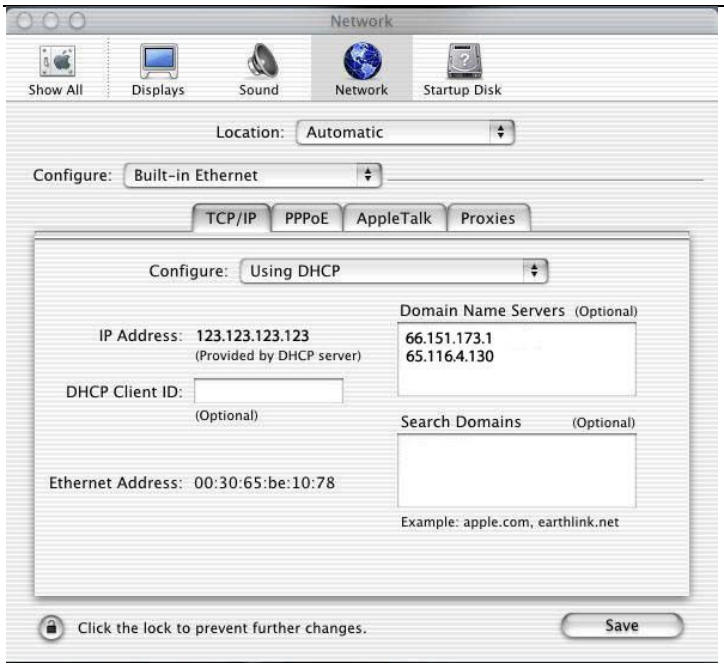


- Double-click on the **Network** icon.

- Click on the adapter that you wish to change (usually *Built-in Ethernet*) and then click the **Configure...** button.



- Go to the **TCP/IP** tab. If your computer is configured to use a dynamic IP address, you should see a screen like the one below (notice **Using DHCP** in the drop-down box next to **Configure**).



- This is where you can change your DNS settings, by entering the appropriate DNS servers in the **Domain Name Servers (Optional)** box.

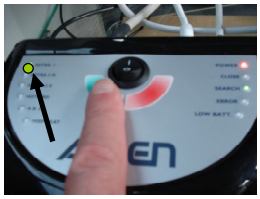
5 GETTING STARTED

5.1 INTERNET

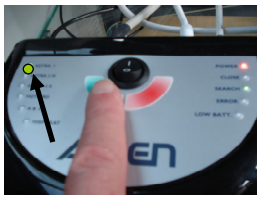
Power on the Alden SSC	
Power on your IPmodem. The power and the alarm LED are now on	
If necessary toggle on the green field to “Internet” LED on the Alden SSC	
Now the antenna searches the Internet satellite. This might take some minutes. A double beep indicates, that the satellite pointing is completed.	
Meanwhile connect your computer to the IP Modem via Ethernet Cable	
You can follow the network log in process on the IP Modem: At first the Rx LED becomes green	

After some seconds the Tx LED becomes green. In the next step the Warning LED, which was orange during the whole process, is switched off. You are connected!	
Open your browser and start surfing!	

5.2 TV

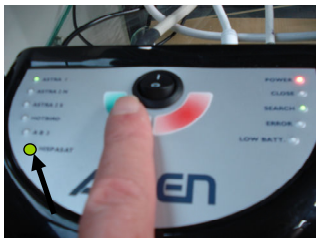
Power on the Alden SSC	
Power on the TV receiver and the TV set	
If necessary, toggle on the green field of the Alden SSC to your TV satellite, most probably Astra 1	
Now the antenna searches the TV satellite. This might take some minutes. A double beep indicates, that the satellite pointing is completed.	
You now should receive a TV channel !	

5.3 FROM INTERNET TO TV

Power on the TV receiver and the TV set	
Toggle on the green field of the Alden SSC to your TV satellite, most probably Astra 1	

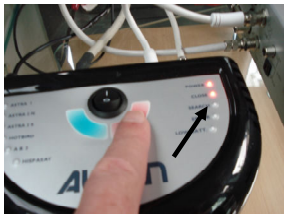
Now the antenna searches the TV satellite. This might take some minutes. A double beep indicates, that the satellite pointing is completed.	
You now should receive a TV channel !	

5.4 FROM TV TO INTERNET

Power on your IPmodem. The power and the alarm LED are now on	
- Toggle on the green field to “Internet” LED on the Alden SSC	
Now the antenna searches the Internet satellite. This might take some minutes. A double beep indicates, that the satellite pointing is completed.	
Meanwhile connect your computer to the IP Modem via Ethernet Cable	
You can follow the network log in process on the IP Modem: At first the Rx LED becomes green	
After some seconds the Tx LED becomes green. In the next step the Warning LED, which was orange during the whole process, is switched off. You are connected!	

Open your browser and start surfing!	

6 STOWE THE ANTENNA

Toggle to “close” LED on the red area of the Alden SSC	
Antenna is stowed, when only Power LED is lighting	
Power off the Alden SSC and all other equipment	

Note 1: If the system is installed correctly, the antenna is stowed automatically, if the ignition is switched on.

Note 2: If power of SSC is switched off, although the antenna was up, the antenna will be stowed automatically as soon as the power of SSC is switched on again.

7 FAIR USE OF BANDWIDTH

Although the IPcopter network is designed to make efficient use of the satellite bandwidth, additional rules are implemented to provide a real broadband experience for most of the users.

- The bandwidth is always equally shared between all users of the same type of service, This means, that a minority of users cannot block the service for the majority of the users.

- Especially in peak times some bandwidth consuming applications are shaped in order to keep the overall service quality, e.g.

  - Peer to peer applications including Skype
  - Heavy download activities
  - Unicast video streaming

  This does not mean, that those applications won´t work, but speed and quality might be reduced.

8 VOIP, WIFI

In general the IP Modem acts as an Ethernet bridge and has no routing functionality. Therefore only a single unit can be connected to the IP Modem. This unit gets from the IP Modem via DHCP the public IP address. This unit can be e.g

- PC, Laptop
- WiFi router or access point with DHCP and NAT functionality
- VoIP telephone adapter with integrated router with DHCP and NAT functionality

Optionally as well a WiFi access point or a VoIP telephone adapter are available at Alden. We strongly recommend to use those products, because they are already preconfigured for the implementation in the network. Alden cannot support the installation of 3rd party units in the network.

The figures below show the schematics of the implementation of a WiFi access point and of a VoIP adapter.

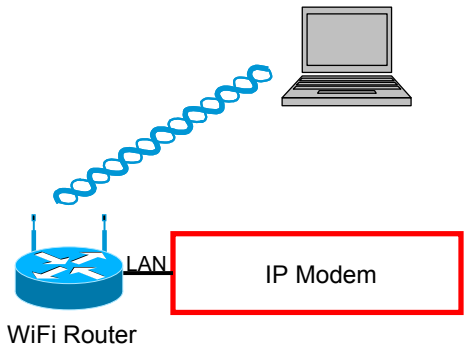


Figure 5: WiFi configuration

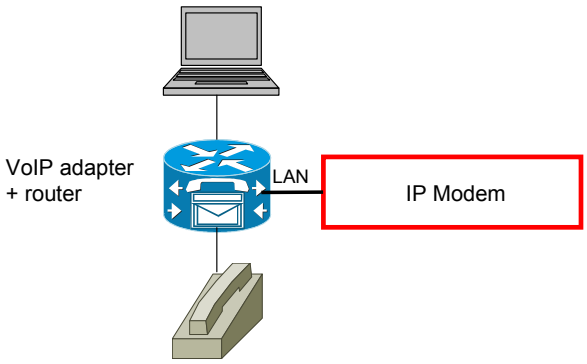


Figure 6: VoIP configuration

9 IP MODEM WEB INTERFACE

9.1 HOW TO GET THERE

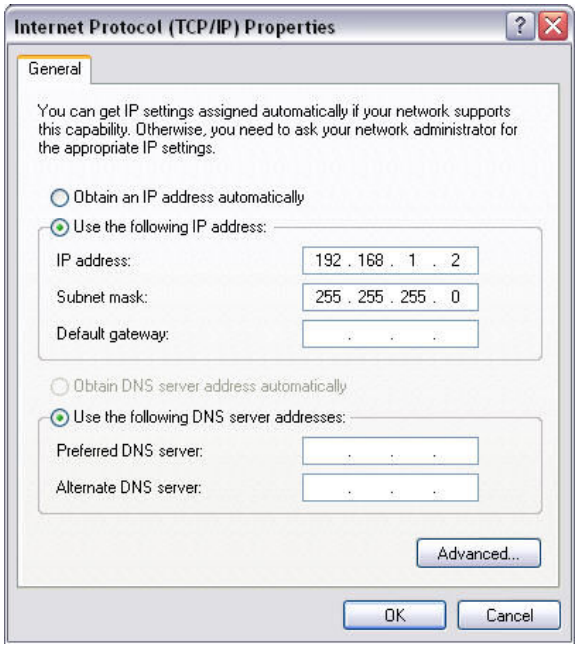
There are two cases to be disitinguished: If the **IP Modem is already logged on the network and you have internet access**, then simply type http://192.168.1.1 as address in your browser.

If you don´t have internet access, the network properties in your PC have to be adapted:

Assign an IP address in the range 192.168.1.x (2 ≤ x ≤ 254) to your computer

Set the default netmask on 255.255.255.0

type http://192.168.1.1 as address in your browser



9.2 GENERAL LAYOUT

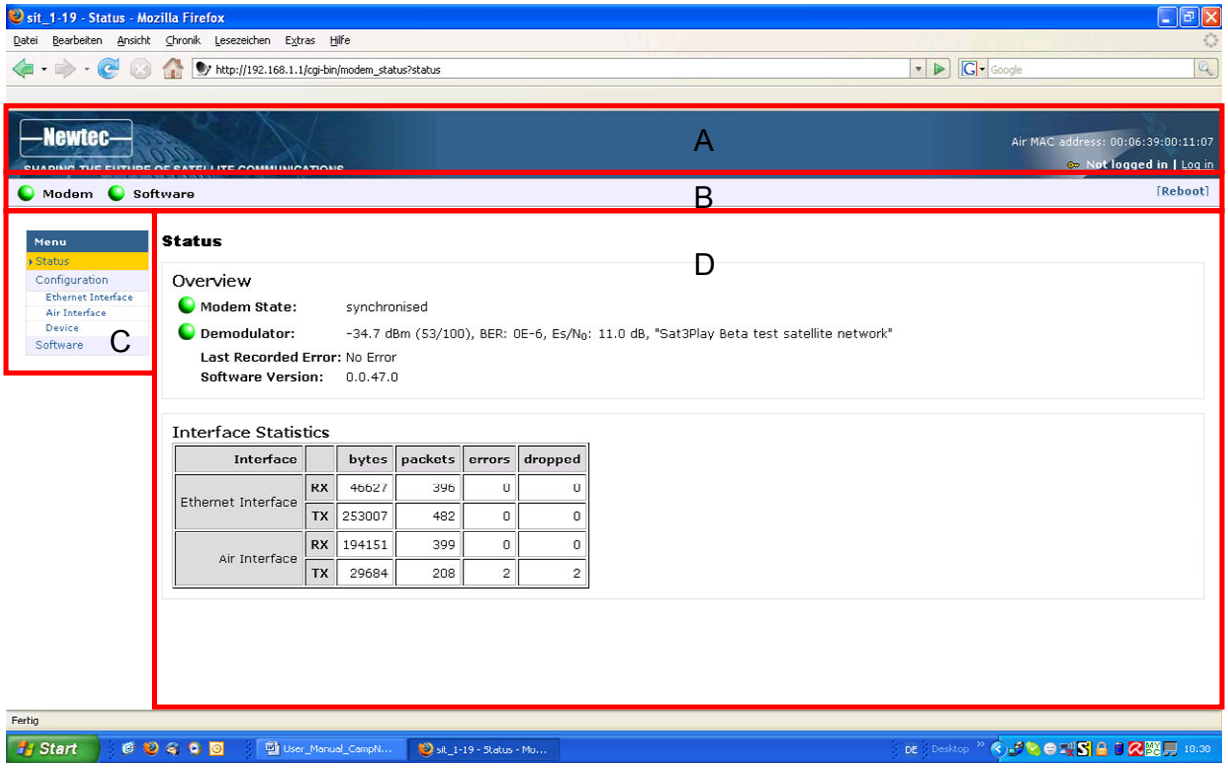


Figure 7: Web interface > Page layout

Each of the web interface pages contains the same elements.

A – Banner

The banner contains the Newtec logo, shows the Air MAC address of the terminal and holds the login functionality.

B – Status bar

The status bar always shows the most important status LEDs. This information will be specified in the body of the Status page

C – Menu structure

On the left hand side of the page the site navigation is found. Click an item to select it. The menu structure may differ depending on your login status.

D – Body

The actual content of the web interface is shown in the body. It always shows the page title and one or more content blocks or forms.

9.3 MENU STRUCTURE

The normal user and the logged in installer share approximately the same menu structure. Parameters can only be changed in the installer menu

- **Status**
  Check on the device and network status
- **Configuration**
  - *Ethernet Interface*
    Check and edit the Ethernet interface configuration.
  - *Air Interface*
    Check or edit satellite connectivity configuration for IP traffic only.
  - *Device Interface*
    Check device configuration.
- **Software**
  Check on or alter the software version.
- **Installation Carrier** (installer only)
  Perform a connectivity test.
- **Logfile** (installer only)
  Look up log files.

9.4 LOGIN AS INSTALLER

Important: The IPmodem has as default installer password “s3p”.

In case you have changed and forgotten the new password, press the **Reset** button (> 5 seconds) at the back of the IPmodem to reset the password. All configurations will be reset to factory settings.

Click the **Log in** link in the top right corner.

A login page is shown below

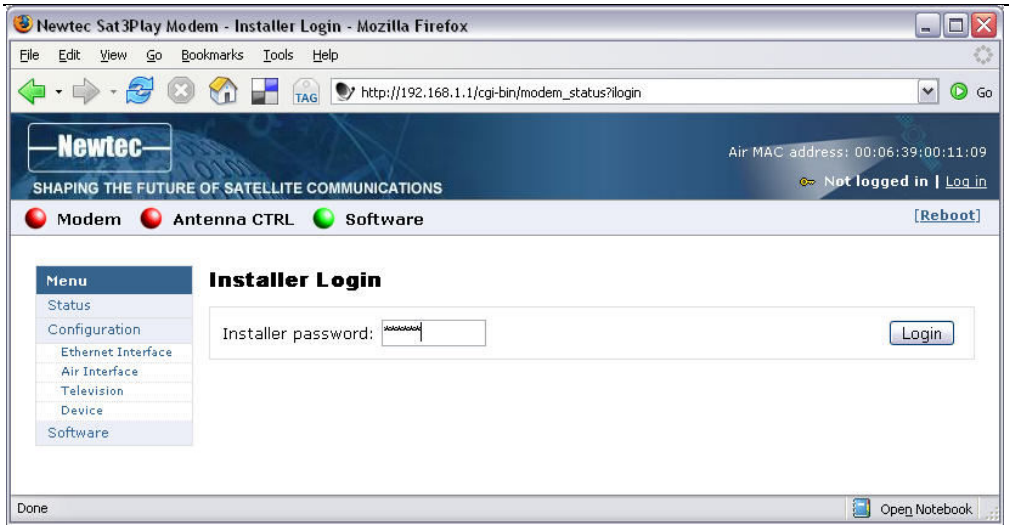


Figure 8: Installer Login page

Provide your password in the text field in the body.

Click **Login**.

You are logged in. The login utilities will change as follows.

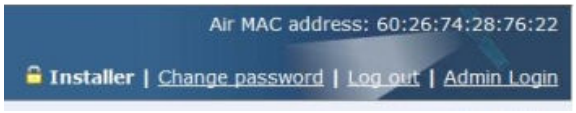


Figure 9: Installer utilities

Click the **Log out** link to log out.

9.5 CHANGE THE INSTALLER PASSWORD

When you are logged in as an installer, you can change the installer password.

Click the **Change password** link to change your password. The Change Password page is shown below.

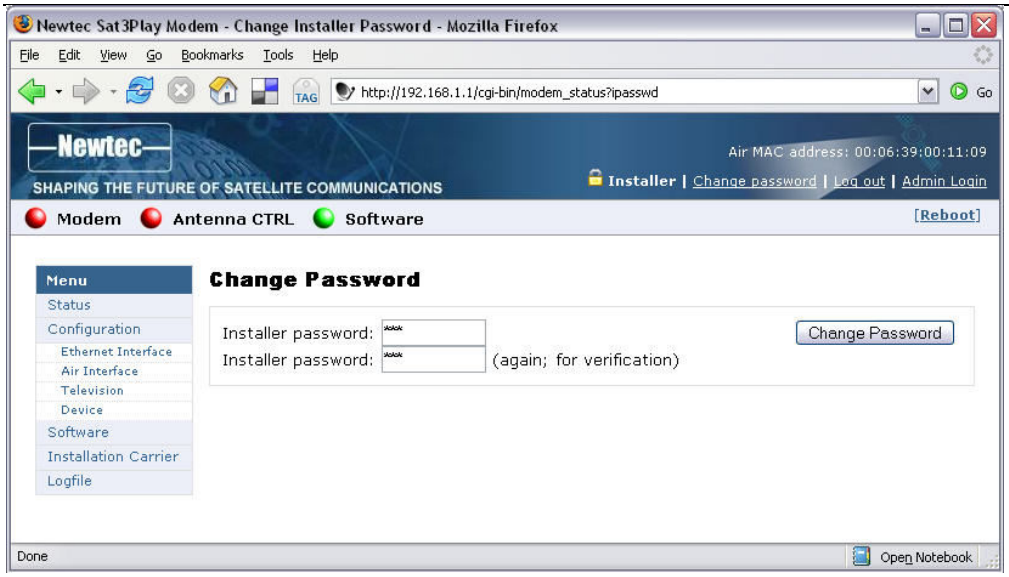


Figure 10: Change Password page

Provide your new password and repeat it in the confirm text field.

Click **Change Password**
You get a confirmation of the change.

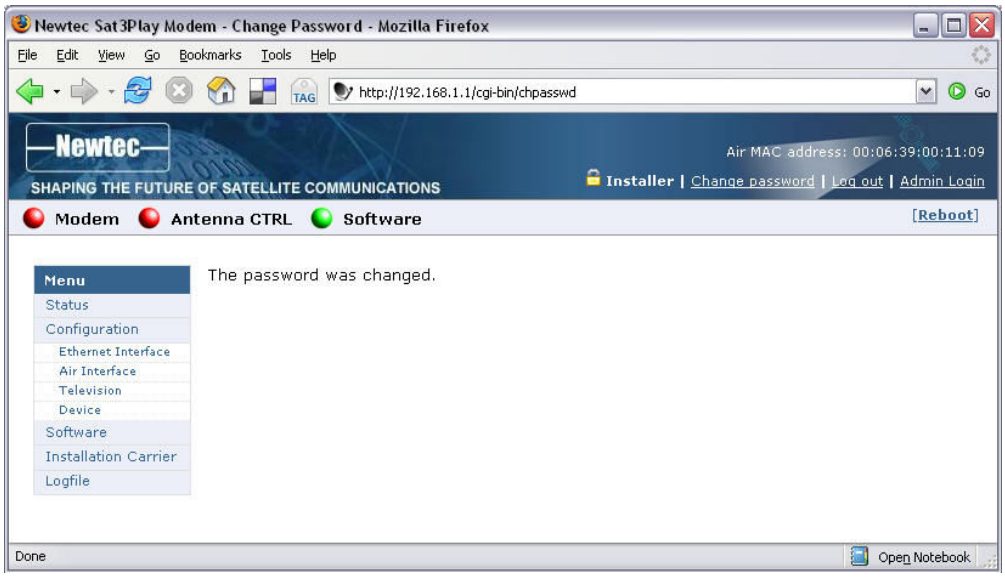


Figure 11: Change Password confirmation

9.6 REBOOT

Click the **Reboot** button on the right of the status bar to reboot the terminal.

You will be provided with two options:

Normal Reboot
This will trigger a normal device reboot.

Factory Reset
This will force a factory reset of the terminal. The following settings are reset to default values: management IP address, netmask and installer password.

Choose one of the above options.

The terminal will reboot and bring you back to the Status page. This may take up to one minute, including satellite link initialisation.

Note:

The reboot of the terminal is needed when a (re)configuration has been performed. Changes may not take effect until after the next reboot.

9.7 STATUS LEDS

9.7.1 Modem LED

The **Modem** LED gives the general status of the IPmodem and is as such an indication for the IP connectivity.

LED colour code	Description
Red	No connectivity, no valid signal received.
Yellow	A valid signal was received. The terminal is busy entering the satellite network.
Green	The system is operational *and* the user is logged in on the network.

Table 4: Status LEDs: Modem

9.7.2 Software LED

The **Software** LED gives the general status of the installed software or the updates.

LED colour code	Description

LED colour code	Description
Red	The terminal has a newer software version then the running software version, **and** The newer software version was not selected because the software validation process failed. See paragraph **Error! Reference source not found.** for possible actions and follow-up.
Yellow	The terminal is retrieving new software over the air.
Green	No problem.

Table 5: Status LEDs > Software

9.8 STATUS PAGE

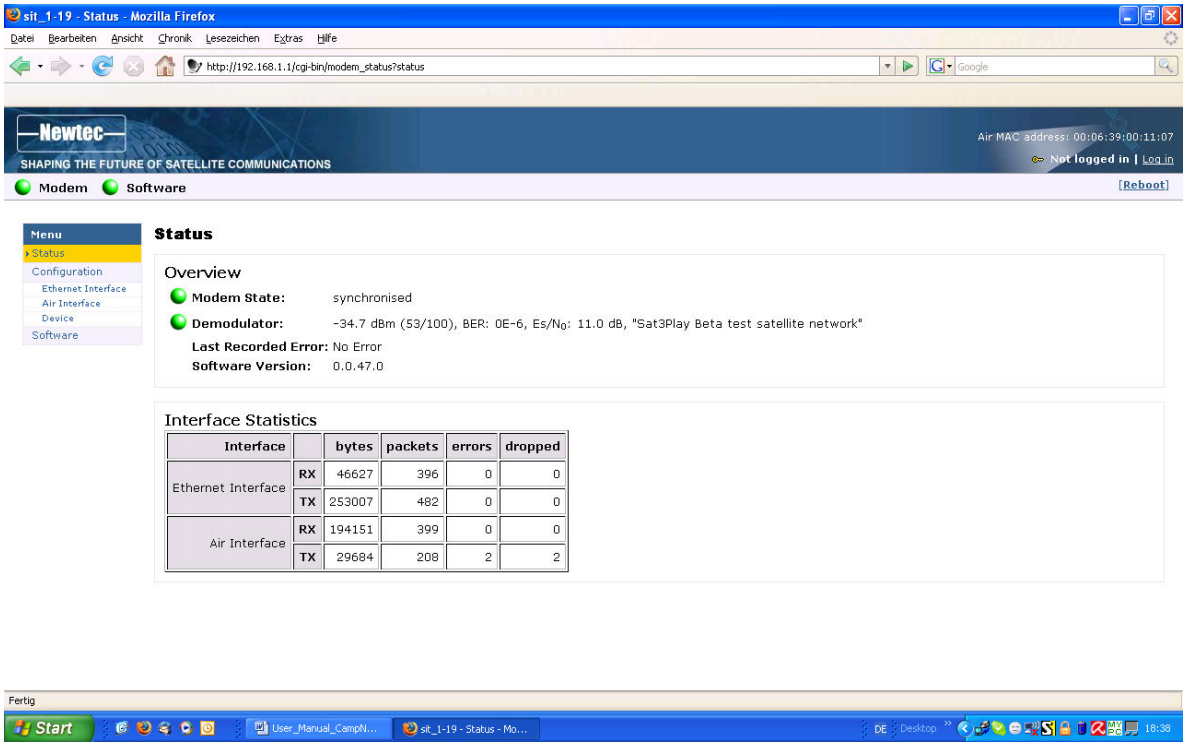


Figure 12: Web interface > Status

9.8.1 Modem State

The IPmodem state is indicated by a coloured LED and a state description.. The possible modem state descriptions are given below.

Modem state	Description
Idle	IPmodem is in Initial state.
Satellite network lookup	The terminal is looking for the satellite network.
Synchronising	Time synchronization is taking place
Synchronised	The terminal is synchronised and can directly log in on the satellite network when IP traffic is received via the Ethernet interface.
Network login	The terminal is trying to log in on the satellite network.
Operational	The terminal is logged in.
Idle	IPmodem is in Initial state.

Table 6: Status page > Modem state

9.8.2 Demodulator

The Demodulator connectivity state is indicated by a coloured LED and a state description.

LED colour code	Description
Grey	Off – controlled by the corresponding button. (previous settings are also stored)
Red	Antenna pointing failed or antenna is stowed
Yellow	Initialization is going on (satellite pointing or satellite network logon)
Green	Receiver is synchronised with the Internet satellite network.

Table 7: Status page > Demodulator LED

The IP state is built as follows:

-67.0 dBm (10/100), BER 4R-6, Es/No: 23.2 dB, xyz satellite network

Demodulator label value	Description
y dBm (x/100)	Indication of the received signal strength expressed in dBm.
BER	Bit Error Rate, measured before error correction

Demodulator label value	Description
	(only displayed when the demodulator is locked)
Es/No	Carrier to Noise ratio (Rx signal) expressed in dB. (only displayed when the demodulator is locked)
xyz satellite network	Name of satellite network

Table 8: Status page > Demodulator labels

9.8.3 Last Recorded Error

The following error messages can be displayed. This error message display will be reset when the terminal has entered the satellite network and the terminal is operational.

Reference

Error info	Description
No error	
Network connectivity lost	The connectivity with the satellite network was lost.
Network connectivity lost – Tx timing error	The connectivity with the network was lost because a transmit timing error occurred.
Network connectivity lost - timing error	TBTP received too late: the network connectivity is lost because the TBTP table we received too late. Timing problem.
Network login failed	Couldn't login to the satellite network. Verify whether the terminal is provisioned in the network.
Network login failed - timing error	Couldn't login to the satellite network. Verify whether the terminal is provisioned in the network. Timing problem.
Network login failed – Tx synthesizers are not locked:	Couldn't login to the satellite network. The transmit synthesizers couldn't lock. This could be a terminal hardware problem.
Network login failed – Tx timing error	Couldn't login to the satellite network. A transmit timing error occurred.
Network lookup failed:	The satellite network lookup failed
Network lookup failed –	The satellite network lookup phase failed because no

Error info	Description
NIT Table not received	Network Information Table was received.
Network lookup failed – RMT table lookup failed	The satellite network lookup phase failed because no RCS Map Table was received or an error occurred in the parsing the signalization table.
Network lookup failed – RMT table lookup failed (verify Population Id)	The satellite network lookup phase failed because an error occurred in the parsing of the RCS Map Table. Verify the setting of the Population Identifier. (see Configuration – Air Interface)
Network lookup failed – no demodulator lock on RMT transponder	The satellite network lookup phase failed because an error occurred in the handling of the Rx signal of the transponder which contains the RCS Map Table.
Network lookup failed – no demodulator lock on Logon transponder	The satellite network lookup phase failed because an error occurred in the handling of the Rx signal of the operational transponder.
Network lookup failed – SDT table lookup failed	The satellite network lookup phase failed because no Service Description Table was received or an error occurred in the parsing the signalization table.
Network lookup failed – PAT table lookup failed	The satellite network lookup phase failed because no Program Association Table was received or an error occurred in the parsing the signalization table.
Network lookup failed – PMT table lookup failed	The satellite network lookup phase failed because no Program Mapping Table was received or an error occurred in the parsing the signalization table.
No demodulator lock:	Error in handling of the Rx signal. The Rx demodulator cannot lock.
Synchronization process failed	The time synchronization process failed.
Synchronization process failed – FCT table lookup failed	The time synchronization process failed because no Frame Composition Table was received or an error occurred in the parsing of signalization table.
Synchronization process failed – SCT table lookup failed	The time synchronization process failed because no Superframe Composition Table was received or an error occurred in the parsing of signalization table.
Synchronization process failed – TCT table lookup failed	The time synchronization process failed because no Time-slot Composition Table was received or an error occurred in the parsing of signalization table.

Error info	Description
Synchronization process failed – WCT table lookup failed	The time synchronization process failed because no Waveform Composition Table was received or an error occurred in the parsing of signalization table.
Synchronization lost	Time synchronization is lost
Synchronization lost – jump on NCR value	Time synchronization is lost. The received timing information contained a timing error.
Synchronization lost - timing error	Time synchronization is lost. The received timing information contained a timing error. Timing problem.
Installation carrier setup failed	The activation of the installation carrier test mode failed because the terminal was not in the correct state.

Table 9: Status page > Error info

9.8.4 Software Version

The running software version is indicated by its version number.

9.8.5 Interface Statistics

Modem state		Description
Interfaces	Ethernet interface	User side interface (Ethernet frames)
	Air interface	Satellite side interface (IP packets)
Directions	Rx	Receive
	Tx	Transmit
Statistics	Bytes	Total number of received (or transmitted) bytes
	Packets	Received (or transmitted) Ethernet frames or IP packets
	Errors	Number of occurred errors
	Dropped	Dropped Ethernet frames or IP packets

Table 10: Status page > Interface Statistics

9.9 CONFIGURATION

Note:: The reboot of the terminal is needed when a (re)configuration has been performed. Changes may not take effect until after the next reboot.

9.9.1 Ethernet interface

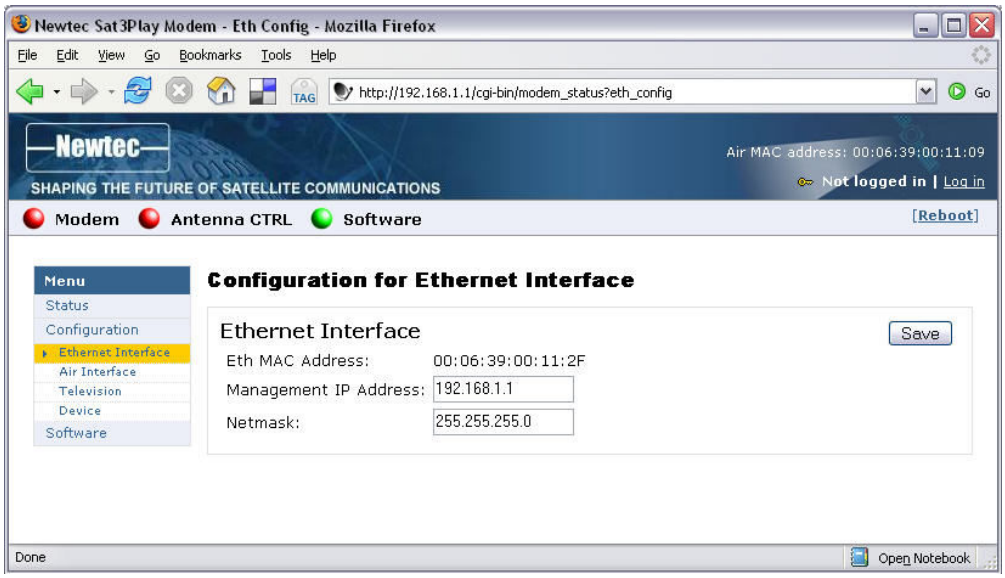


Figure 13: Web Interface > Configuration Ethernet interface

Below are given the displayed parameters, their description and access mode.

Parameter	Description	Installer	User
Ethernet Interface			
Eth MAC address	MAC address of the Ethernet interface	Read only	Read only
Management IP address	Management IP address of the Ethernet interface	Read / write	Read / write
Netmask		Read / write	Read / write

Table 11: Configuration page > Ethernet interface parameters

9.9.2 Air interface

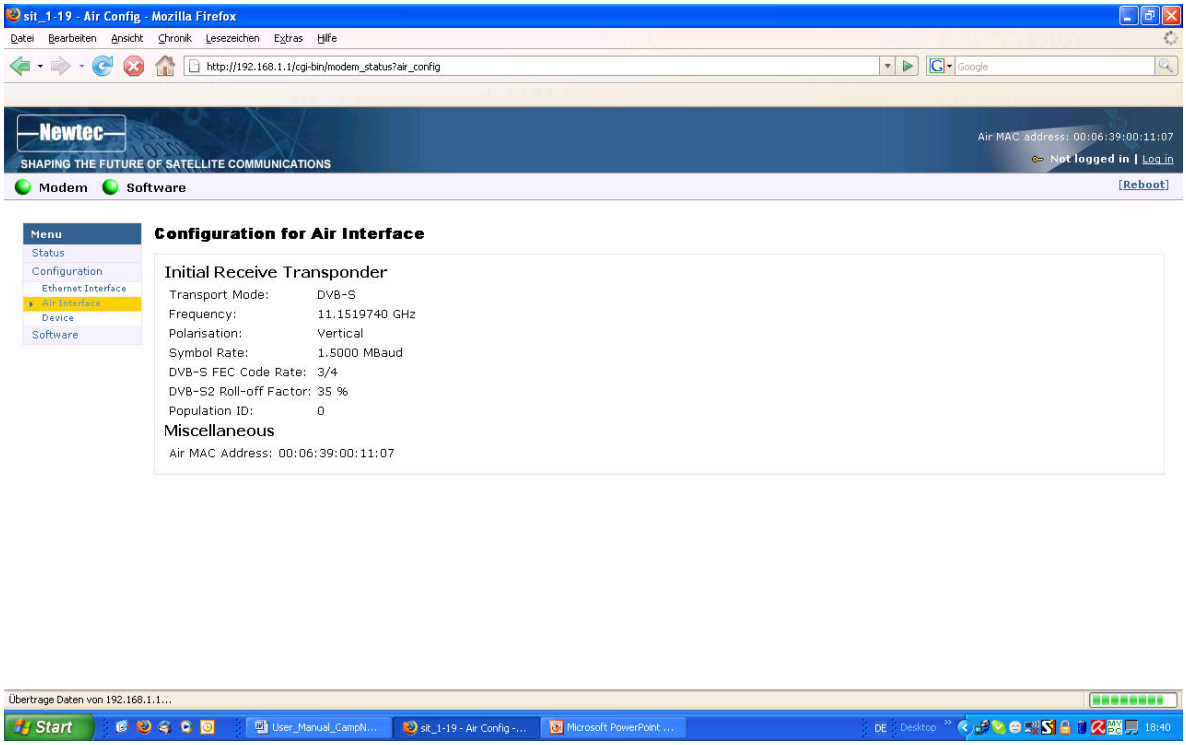


Figure 14: Web Interface > Configuration Air interface > User (read only)

Below are given the displayed parameters, their description and access mode.

Parameter	Description	Installer	User
Initial Receive Transponder The initially set parameters with which the terminal locks onto the satellite. These parameters are used during the lookup of the Internet satellite network.			
Transport Mode	DVB-S DVB-S2 (CCM)	Read / write	Read only
Frequency	Initial receive frequency (GHz)	Read / write	Read only
Polarisation	Initial polarisation of the receive signal Horizontal: horizontal polarization Vertical: vertical polarization	Read / write	Read only

Parameter	Description	Installer	User
Symbol Rate	Initial receive symbol rate (Mbaud)	Read / write	Read only
DVB-S FEC Code Rate	DVB-S specific parameter. Forward Error Correction code rate. Auto: automatic mode. The receive code rate will be detected automatically. 1/2 2/3 3/4 5/6 7/8	Read / write	Read only
DVB-S2 Roll-off Factor	Only configurable in DVB-S2 mode. Shape of the Rx signal spectrum. 35 % 25 % 20 %	Read / write	Read only
Orbital Position	Orbital position of the terminal. This value will be used for pointing the antenna.	Read/write	Read Only
Population Id	Specify the population group to which a terminal belongs. Within a network one could group terminals on different transponders. The population ID is required to identify the corresponding interactive satellite services. Default value: 0	Read / write	Read only
Miscellaneous			

Parameter	Description	Installer	User
Air MAC address	Unique identifier of the terminal. The Air MAC address will be used when the terminal tries to log in on the network.	Read only	Read only

Table 12: Configuration page > Air interface parameters

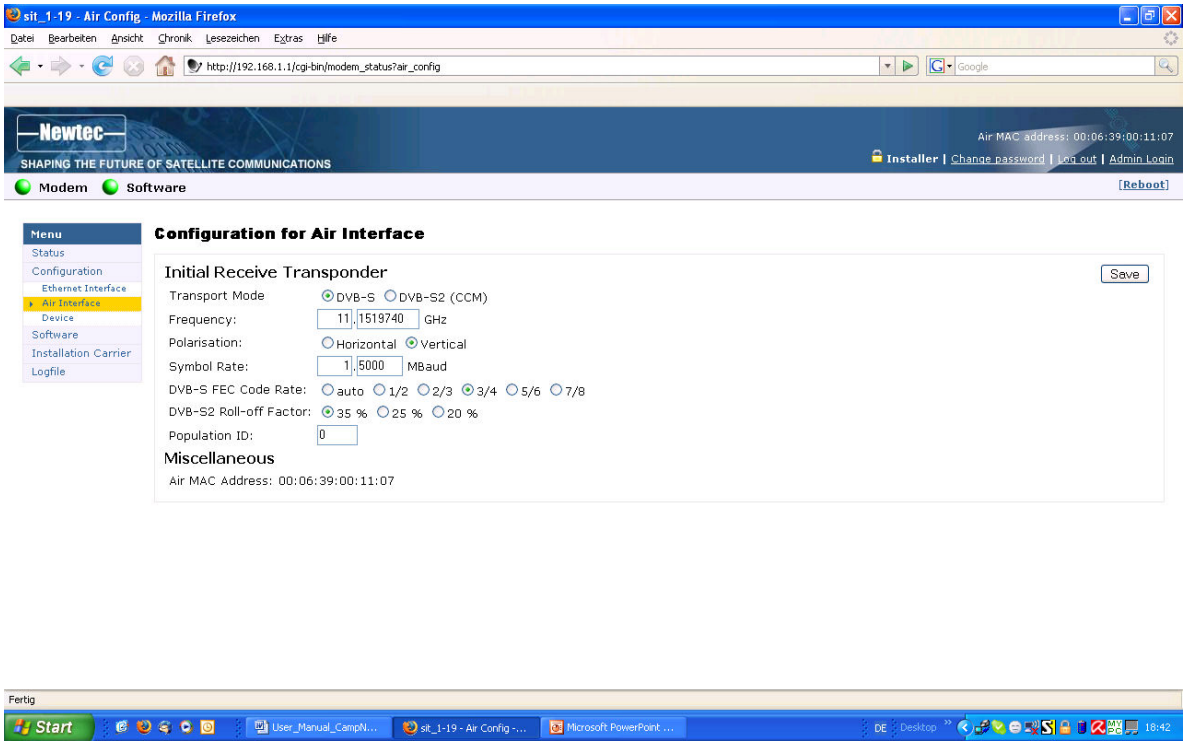


Figure 15: Web Interface > Configuration Air interface > Installer (edit)

9.9.3 Device

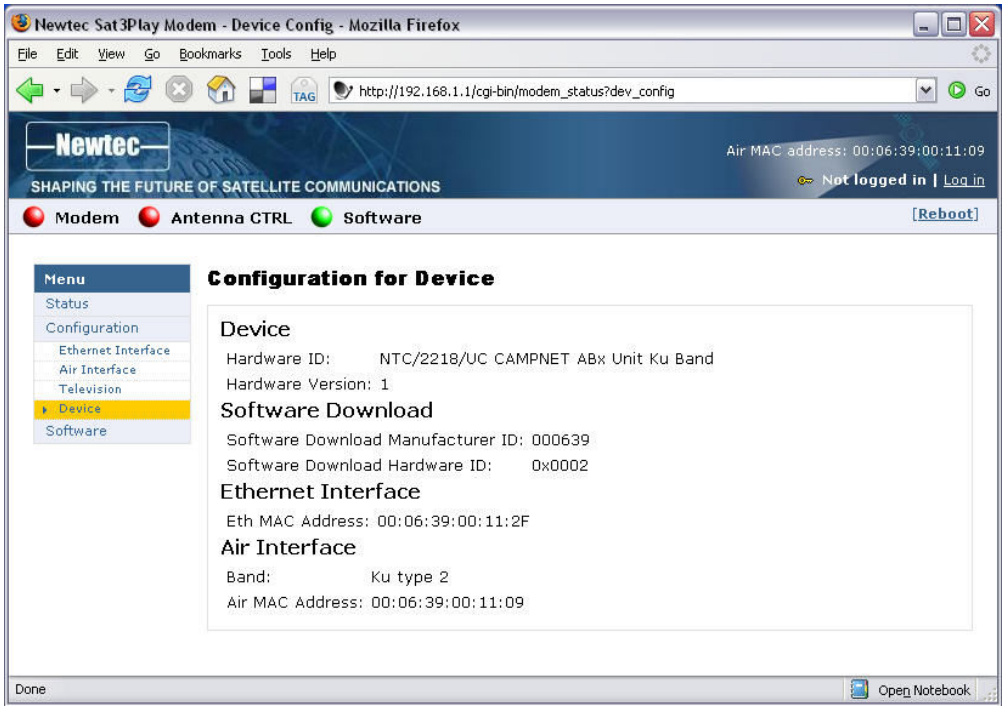


Figure 16: Web Interface > Configuration Device

Below are given the displayed parameters, their description and access mode.

Parameter	Description	Installer	User
Device			
Hardware ID	Hardware identifier of the modem	Read only	Read only
Hardware Version	Hardware version number of the modem	Read only	Read only
Software Download The firmware of the modem can be upgraded over air. To uniquely identify the terminal variant for SW download following keys are reserved for software update.			
Software Download Manufacturer ID	Software download manufacturer Identifier (fixed to 639 for Newtec devices).	Read only	Read only
Software Download Hardware ID	Software download hardware identifier.	Read only	Read only

Parameter	Description	Installer	User
Ethernet interface			
Eth MAC address	MAC address of the Ethernet interface	Read only	Read only
Air interface			
Band	Air transmit band type Ka band type (29,50 – 30,00 GHz) Ku band – type 1: RF hardware type (13,75 – 14,50 GHz) Ku band – type 2: RF hardware type (13,75 – 14,50 GHz)	Read only	Read only
Air MAC address	Unique identifier of the terminal. The Air MAC address will be used when the terminal tries to log in on the network.	Read only	Read only

Table 13: Configuration page > Device parameters

9.10 SOFTWARE

9.10.1 Introduction – General case

The terminal software is automatically upgraded over the air without any user interaction. In general, the only requirement for an upgrade to be successful is for the terminal to have satellite connectivity during the time of upgrade of the software.

To allow a secure terminal software upgrade mechanism, the flash of the modem can contain two different software versions. A newly installed software version has to pass an automatic software validation procedure. After a software upgrade, the IPmodem is automatically reset.

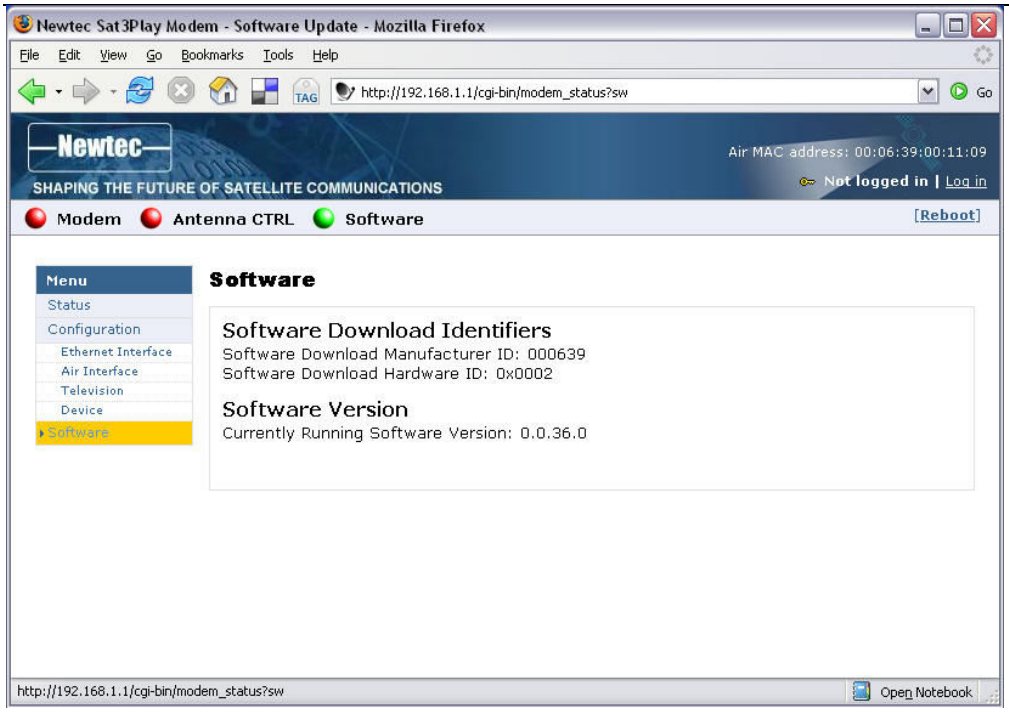


Figure 17: Web Interface > Software

Parameter	Description	Installer	User
Software Download Identifiers To uniquely identify the terminal variant for software download triggered from the hub side, following keys are reserved for SW update.			
Software Download Manufacturer ID	Software download manufacturer Identifier (639 for Newtec devices)	Read only	Read only
Software Download Hardware ID	Software download hardware Identifier.	Read only	Read only
Software version			
Currently Running Software Version	The currently installed software version is displayed. When an alternate software version is available, you will be provided with a link **Try Alternate Version**.	Read only	Read only

Parameter	Description	Installer	User
Alternate Software Version	Only displayed when an alternative software version is present.	Read only	Read only

Table 14: Software page

9.10.2 Software upgrade failure

A newly installed software version has to pass an automatic software validation procedure. When this software validation process fails the old software version remains the software version in use. The passive bank now contains a newer software version that did not pass the validation process. In this case, the user has the possibility to re-trigger the validation process. This situation can occur when a user turns off his IPmodem during the validation process or when satellite connectivity was not possible to establish during the validation process.

Figure 18: Web Interface > Software (alternate version)

To re-trigger the validation process:

Click the link **Try Alternate Version**.

The Software Upgrade page will be displayed indicating the new software version number (see below).

If the web interface doesn't refresh automatically, navigate back to the Status page.

A total reboot, including satellite link initialisation might take up to 1 minute.

Figure 19: Web Interface > Software Upgrade confirmation

When a newer version is present and validation fails, the software LED is red. Also read paragraph 9.7.2 for more information on the meaning of the software status LEDs.

9.11 INSTALLATION CARRIER TEST MODE

The Installation Carrier must not be used.

9.12 LOGFILE

Note

This section is only accessible when you are logged in as an installer.

The most important IPmodem state changes, occurred errors, events, are logged in this logfile. The installer has the possibility to filter on severity level, buffer size and data type.

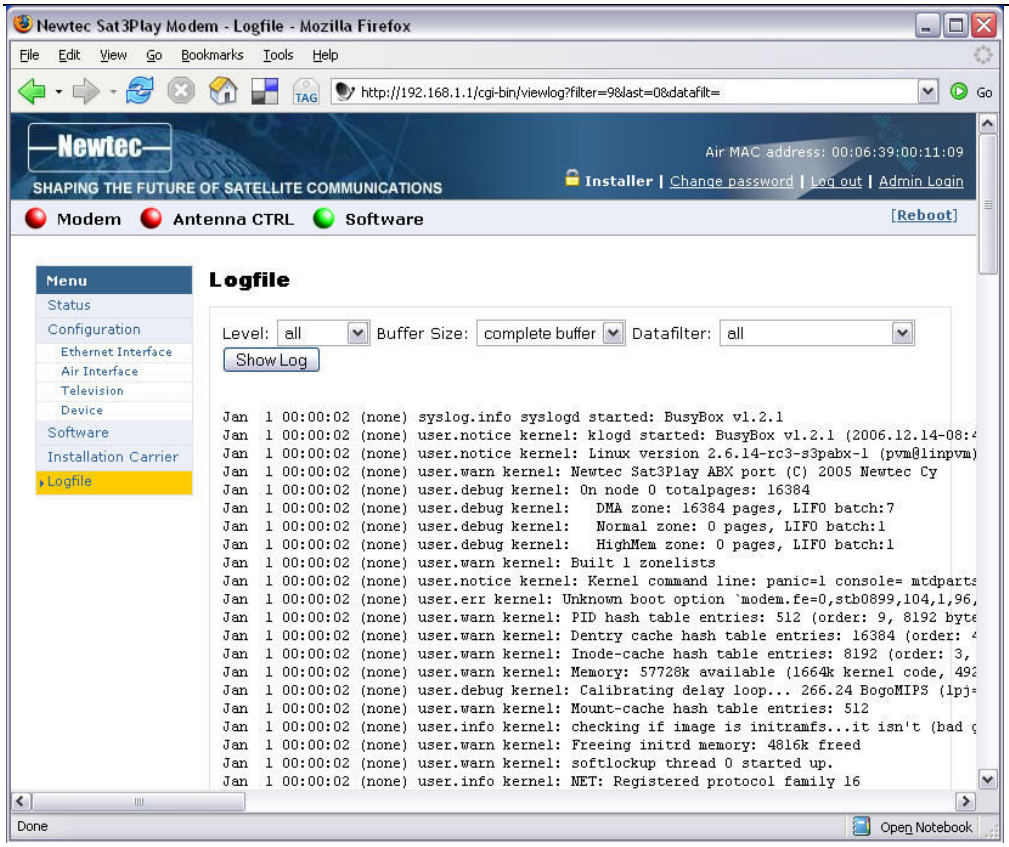


Figure 20: Logfile

Filter the required logs by choosing:

- The severity level
- The buffer size
- The data type

Click **Show Log**.

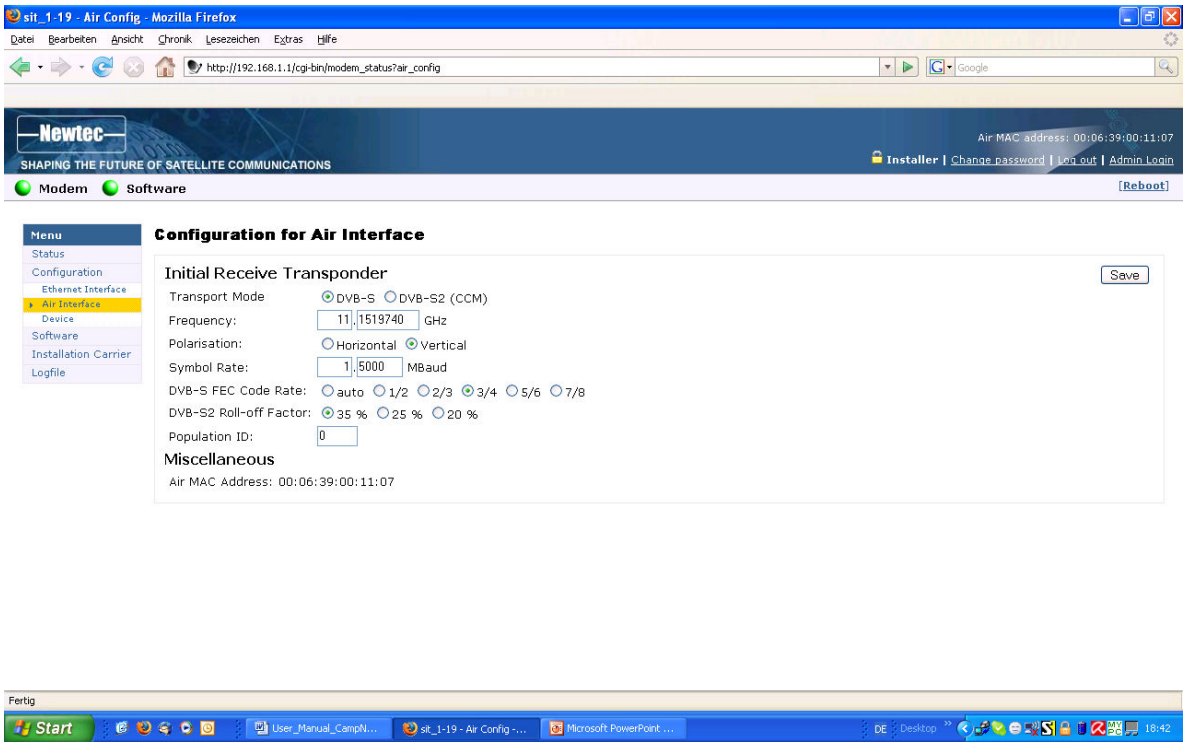
The logs are displayed. If necessary, the logs can be copy/pasted into an email to Customer Support.

Appendix A TROUBLESHOOTING GUIDE

No.	Problem indication	Possible solution
1	No satellite found (no double beep)	Please make sure, that there is a line of sight to the satellite and no building, mountain or tree inbetween
2	No satellite found (no double beep)	Please make sure, that the cabling form SSC to the iLNB is correct
3	IP Modem does not work, Low Battery LED is red	Battery voltage below 11 V, please charge battery
4	Satellite pointed, but Rx LED remains off, Warning LED remains on	Failure in pointing process. Please switch off and switch on again the IP Modem, stowe the antenna and try again
5	Satellite pointed, but Rx LED remains off, Warning LED remains on	Please make sure, that the cabling from SSC to IP Modem is correct
6	Satellite pointed, but Rx LED remains off, Warning LED remains on	IP Modem not configured correctly. Please check configuration in Web Interface (see section 8)
7	RX LED is green, but TX LED remains off and Warning LED remains on	Please make sure, that the cabling from the IP Modem to the iLNB is correct.
8	RX LED is green, but TX LED remains off and Warning LED remains on	Please check error message in web interface (see section 8)
9	Rx LED green, Tx LED green or off, Warning LED off, but no internet access	Bad Ethernet connection between IP Modem and PC, bad cable PC network not configured correctly, please see section 4
10	No connectivity with IP Modem web interface.	PC network not configured correctly, please see section 8.
11		
12	Error information in the web interface: No demodulator lock Modem LED is red	1. Is the antenna correctly pointed? 2. Is there a problem with the connectivity between terminal and antenna? 3. Verify the configuration of the air interface.

No.	Problem indication	Possible solution
		Frequency Polarisation Symbol rate …
13	Error information in the web interface: Network lookup failed – RMT table lookup failed (verify Population Id)	Verify the configuration of the population id in the configuration – air interface: Default value=0
14	Error information in the web interface: Network login failed	Is the antenna properly pointed? Is the terminal provisioned by the ISP?

Appendix B SATELLITE CONFIGURATION



Appendix C ACRONYMS

Acronym / term	Description
8PSK	8 Phase Shift Keying
AC	Alternating Current
ARP	Address Resolution Protocol
ATM	Asynchronous Transfer Mode
BER	Bit Error Rate
C/N	Carrier to Noise ratio
CCM	Constant Coding Modulation
CE approved	Conformité Européenne (European health & safety product label)
DC	Direct Current
DHCP	Dynamic Host Configuration Protocol
DVB	Digital Video Broadcasting
DVB-RCS	Digital Video Broadcasting – Return Channel Satellite
DVB-S, DVB-S2	Digital Video Broadcasting over Satellite (2)
FCT	Frame Composition Table
FEC	Forward Error Correction
FTP	File Transfer Protocol
GMSK	Gaussian Minimum Shift Keying
HTTP	Hyper Text Transfer Protocol
ICMP	Internet Control Message Protocol
iLNB	Interactive Low Noise Block-down converter
IP	Internet Protocol
ISP	Internet Service Provider
IT	Information Technology
LAN	Local Area Network

Acronym / term	Description
LED	Light Emitting Diode
LNB (iLNB)	Low Noise Block-down converter
MAC address	Medium Access Control
MF-TDMA	Multi Frequency Time Division Multiple Access
NCR	Network Clock Reference
NIT	Network Information Table
PAT	Program Association Table
PC	Personal Computer
PMT	Program Map Table
QPSK	Quadrature Phase Shift Keying
RCS	Return Channel Satellite
RF	Radio Frequency
RMT	RCS Map Table
Rx	Receive
SAP	Satellite Access Provider
SCT	Superframe Composition Table
SDT	Service Descriptor Table
TBTP	Time Burst Time Plan
TCP (TCP/IP)	Transmission Control Protocol
TCT	Time Composition Table
Tx	Transfer
UDP	User Datagram Protocol
VSAT	Very Small Aperture Terminal
WCT	Waveform Composition Table

Table 15: Acronyms

Appendix D SPECIFICATIONS

IPmodem (indoor unit)

Forward Channel

- Modulation/coding
  - DVB-S
  - Rate 1/2, 2/3, 3/4, 5/6, 7/8 (QPSK)
  - DVB-S2 CCM
  - Rate 1/2, 2/3, 3/4, 5/6, 7/8 (8PSK)
  - Rate 1/2, 2/3, 3/4, 5/6, 7/8 (QPSK)
- Symbol rate
  - DVB-S : 1-45 Mbaud
  - DVB-S2 : 3-30 Mbaud
- MPEG TS rates
  - 1-80 Mbps

Return Channel

- Modulation/coding
  - GMSK BT = 0.5
  - Rate 1/2, 2/3, 3/4 Turbo (GMSK)
- Symbol rate
  - 128, 256 Kbaud
- ATM data rates
  - 143 kbps

IDU and IFL Interface

- RF In
  - Connector: F (female)
  - Impedance: 75 Ohm

- Acquisition range : +/- 5 MHz
- Frequency: 950 – 2100 MHz
- Rx level: -65 to -25 dBm

- RF Out
  - Connector: F (female)
  - Impedance: 75 Ohm
  - Frequency: 2750-2900MHz (Ku band)
  - Tx level: 0 dBm

Performance

- IP data Throughput
  - 2 Mbit/s IP forward
  - Up-to 143 kbit/s ATM return

Management

- Web GUI

LAN interfaces

- Ethernet 10/100 baseT (RJ-45 connector)

Standards

- EN 302307: DVB-S2
- EN 300421: DVB-S
- EN 301790: DVB-RCS
- EN 50478: SATMODE
- EN 301428: VSAT spectrum usage
- IEEE 802.3: 10T Ethernet
- IEEE 802.3: 100TX Ethernet

Routing Protocol

- RFC 768: UDP
- RFC 791: IP
- RFC 792: ICMP
- RFC 793: TCP
- RFC 826: ARP
- RFC 959: FTP
- RFC 2131: DHCP
- RFC 2186, 2187: Caching protocols
- RFC 2096: IP forwarding

Power Supply

- Power supply: 210-260 VAC, 50 Hz

Environment

- Operational: 0 to 40 deg C * non condensing
- Storage: -40 to 70 deg C up to 95% condensing
- Humidity: 10% to 70% (non-condensing)

Sizes

- 190 x 50 x 167 mm

iLNB (outdoor unit)

Interface

- RF Out
    - EIRP NOMINAL: 35.8 + 20*log(f/14 GHz) dBW (with 75 cm antenna)

- Frequency range: 13.75 – 14.5 GHz (Ku Band)
- Polarisation: linear and orthogonal to Rx

- RF In
  - Frequency: 10.7 – 12.75 GHz
  - Polarisation Selection: Physical Mounting

Environment

- The ODU operates nominally under the following conditions:
  - Ambient Temperature: -30 to +60 °C
  - Weather protection: IP67
  - Humidity: 0% to 100% (condensing)
  - Solar Radiation: 500 W/m^2 maximum
  - Rain: Up to 40 mm/h
  - Wind: Up to 80 km/h keine Verschlechterung
  - Survival wind speed: 180 km/h

Performance

- Transmission Characteristics
  - Output Power. (nominal): + 27 dBm typ., 25.5 dBm min.
- Receiver transfer Characteristics
  - G/T clear weather: 14 dB/K
  - Gain (over temp. & freq.): 57 to 70 dB ± 0.5 dB/10° 2-160 kbps

Appendix E KONTAKT