

# **NOXON 2**radio *for iPod*

## **NOXON 2**audio

**Detailed manual**  
**ENGLISH**

Version: EH1  
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CE / FCC Declaration

We:

TerraTec Electronic GmbH, Herrenpfad 38, D-41334 Nettetal, Germany

hereby declare that the product:

**NOXON 2 Audio / NOXON 2 Radio for iPod (Wireless Audio Adapter)**

to which this declaration refers is in compliance with the following standards or standardizing documents:

- EN 55022:1994 + A1:1995 + A2:1997, CLASS B
- EN 301 489-1 (2002-08)
- EN 301 489-17 (2002-08)
- EN 60950:2000
- EN 300 328-1 (2001-12)
- EN 300 328-2 (2001-12)

This device may only be used in the following environments and operating conditions: residential, commercial and industrial environments, as well as small businesses. The basic protective requirements of EMC Directive 89/336/EEC are thus fulfilled. CE conformity has been demonstrated. As stipulated in R&TTE Directive (1999/5/EC), this device corresponds to a Class 1 radio system (Commission Decision 2000/299/EC). This declaration is based on:

Test report(s) of the EMC testing laboratory



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## 1 - Your new NOXON

### Welcome!

We're pleased that you've chosen a **TerraTec** product. Your NOXON is designed to give you simple, convenient access to thousands of Internet radio stations worldwide, to audio content within your home network and even to external USB storage media—via wired and wireless network connections!



**NOXON 2 audio**



**NOXON 2 radio for iPod**

We would like to start by exciting your imagination a bit and introducing the central features of your new device.

**Access your media library!** The device integrates into your existing network with ease using a wireless (called WLAN or Wi-Fi) or cable (Ethernet, LAN) connection. Simply add a media server to your network (you'll find out how later in this manual) and your complete collection of audio files (MP3, WMA, WAV, AAC+ etc.) will be available anywhere in your home.

**Or better still, straight from your mobile device!** Alternatively, place your files on an external USB2 hard drive and connect it to the USB port of the NOXON for access to all of your audio treasures. The NOXON 2 radio for iPod also has a port for iPods—this is the easiest way possible to play back iPod audio contents, and in addition the NOXON charges the device when it's not in use.

**Always online, always something to listen to!** The NOXON is an ideal complement to your DSL or other broadband Internet connection. With a flat-rate connection, you can use the NOXON to enjoy the wide selection of radio stations on the Internet (regardless of whether you access the Internet via your desktop, laptop or router). The NOXON is your key to completely new, active radio listening pleasure—with over 10000 stations on the Internet!

The days are over in which you were stuck with listening to the programming on a handful of decent FM stations in your “service area”—and the sometimes strange musical tastes of their program directors. No more waiting for programs featuring your favorite music to come on at odd times of day, and then having to put up with annoying commercials! And even then, it was rare to hear the sort of tunes you would put on your shelf at home—or the right sounds to match your momentary mood.

**It's a whole different world of radio on the Internet!** Your new “service area” is the world—from Albania to Zambia, and everywhere in between!

Now you can count on the right music at any hour of the day or night—the choice is all yours. The options are virtually limitless. Your NOXON and the included vTuner premium service lifetime subscription (more about that later) puts the vast and growing world of Internet radio at your fingertips. Each of the many pre-sorted categories (rock, pop, hip-hop, alternative, jazz, blues, classical, news and much more) can contain up to several hundred stations from around the world.

And that's not all. There are even more ways for you to use your NOXON: Practice listening to foreign languages, or take an audio tour to exotic and faraway places! International news stations have their own category, as do specialty stations for sports, comedy, weather and much more. Thanks to your NOXON, you can feel right at home while in distant lands—and vice versa. Expand your horizons and keep your finger on the world's pulse—put the thrill back into radio! And to make sure that you don't get lost in the new, bewildering abundance of new radio stations, your NOXON arranges and organizes them all for you! More about this later.

**Premium audio without noise.** We have provided the NOXON with an optical (TOSlink) digital output, letting you transfer the signal to high-quality HiFi environments without losses. But bear in mind that the reproduction quality can only ever be as good as the input material: though they are constantly being improved, some Internet sources still don't satisfy more discerning quality standards, because the data rate is limited—usually sacrificed for faster transmission speeds. On the other hand, this may not be so very important, considering the vast selection and the worldwide availability, which after all is quite respectable...

**Hand and glove.** The NOXON not only has a fixed MAC address, but it also supports WEP / WPA and WPA2 encryption to ensure a long and happy integration in your network. The device can also connect to proxy servers with ease, thanks to a convenient wizard. Don't worry if some of these terms don't mean anything to you right now—we'll walk you through the setup on the following pages so that you'll be up and running in no time, even as a network newbie.

**Last but not least:** We hope you enjoy your NOXON, and would like to suggest that you browse this manual in detail when you get the chance. In addition to the important information about the use of its technology, we have outlined a number of typical applications wherever appropriate. We're convinced that even experienced users will profit from this guide.

Thank you very much.

...your TerraTec Team

**Setup, safety and care information.**

- You need to be aware of some basic information before you start...
- Do not place objects filled with liquid such as vases or bottles on the audio player.
- In addition, be sure to unplug the device from the AC outlet in the event of a thunderstorm.
- Place the device on a level, dry surface to prevent fire and electrical shock hazards as well as possible damage to the player itself.
- Keep it away from radiators and ensure that the player is at a safe distance from other HiFi devices to prevent overheating.
- Use the accompanying power supply unit. Be sure that the voltage is correct before connecting the power supply. (Details are printed on the power supply itself.) If you are not going to use the device for an extended period, disconnect it from the power supply. To avoid short circuits, never pull on the cable itself. In addition, be sure to unplug the device from the AC outlet in the event of a thunderstorm.
- If the device has been exposed to extreme differences in temperature, allow it to adjust to the room temperature for one hour before plugging it in. Condensation may have formed inside the device which impairs its functionality.
- Use a dry or slightly moistened, lint-free cloth to clean the NOXON. Do not use cleaning products as they may damage the finish of the unit.

**To put it simply**, just use the device sensibly. The warranty does not cover deliberate damage to the device, of course. Thank you.

### ***From opening the package to installation***

Start by making sure that the contents of the package are complete. The NOXON package should contain at least the following items:



- When purchasing the NOXON 2 audio:  
The NOXON as receiver
- When purchasing the NOXON 2 radio for iPod:  
The NOXON as receiver and the matching NOXON 2 speaker<sup>1)</sup>



- a device-specific power supply
- an infrared remote control including batteries
- software CDs, depending on the delivered package, with digital detailed manual (also available online)
- this manual and a quick start guide
- a service request form
- and a TerraTec registration card with the serial number.

So, before you put your NOXON into operation, please check the configuration of your system and network to ensure that they correspond to the minimum requirements listed on the package. We cannot guarantee its correct operation if your environment does not meet these requirements.

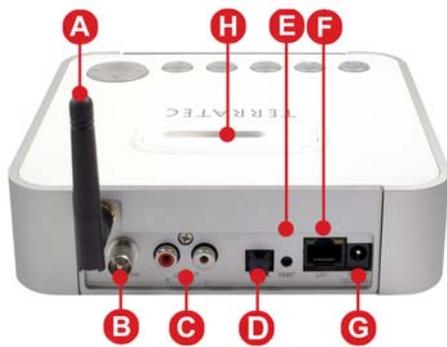
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<sup>1</sup> Available separately in stores and in the TerraTec Webshop at [www.terratec.com](http://www.terratec.com).

## 2 - The connectors of your NOXON

### 2.1 Overview

After taking the NOXON out of its packaging material, take a moment to get to know its connectors and controls.



- A** WLAN antenna port
- B \*** FM antenna port<sup>2</sup>
- C** Analog audio output (RCA)
- D** Digital audio output (TOSlink)
- E** Reset button
- F** Network port (RJ-45)
- G** Connection for power supply
- H \*** iPod dock<sup>2</sup>



- 1** Headphone output (1/8" jack)
- 2** USB port (Master/Type A)



- 3** Integrated speaker output  
(the 2.1 loudspeaker NOXON 2 speaker for the NOXON 2 audio can be bought separately in stores or in the TerraTec Webshop.)
- 4** Label with the MAC address

More about the connectors on the next few pages.

On the bottom of your NOXON you will see a label with the MAC address [4]. You'll need this intriguing little access code when you want to take advantage of the online capability of vTuner—the service that conjures up all those radio stations on your NOXON. For more information, see page 33 under “

2) Only applies for NOXON 2 radio for iPod

Managing favorites and own stations”.

OK, on we go ...

## 2.2 The power adapter socket—

Plug the power adapter in here. Please use the supplied adapter. While some universal power adapters feature the same plugs and voltage, their amperage is not sufficient. Should you need a replacement, please contact our service, see page 60.



## 2.3 WLAN antenna connector

If you have access to a wireless LAN (WLAN), screw the antenna provided onto this connector.

If possible, ensure that the antenna is set to a vertical position to ensure the best possible reception.



## 2.4 The network port

Use this port if you would like to integrate the NOXON into your network via a wired connection. To distinguish it from the wireless or WLAN connection, it is frequently referred to as a LAN or Ethernet port. The port supports data rates of 10 and 100 Mbps. To connect the NOXON to your router in this manner, use a standard network cable (twisted pair with RJ45 plugs). To connect the NOXON “directly” to your desktop PC or laptop, either use a network switch (also known as a bridge) or a hub. To connect the NOXON without any intermediate devices, use a crossover cable instead of a standard network cable.



Two LEDs near the port show the status of the **link**: **orange** indicates a live connection to the network junction (“node”); network **traffic** is signaled by a **green** LED (usually flickering).

## 2.5 FM antenna connector <sup>3)</sup>

Still just white noise on the airwaves? For better reception, plug an FM antenna (coaxial, 75 Ohm) in here! The NOXON 2 radio for iPod package includes a handy dipole antenna, which fits this connector.



3) Only available on NOXON 2 radio for iPod

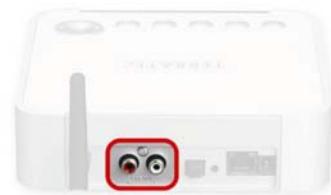
## 2.6 The integrated speaker output

This port output connects your device to the powerful NOXON 2 speaker<sup>4)</sup>, which combines perfectly with the NOXON to look like a single unit—elegant, and completely cable-free! The connectors on the back of the NOXON are reserved for your HiFi equipment. After unpacking, simply remove the protective cap and mount the NOXON on the loudspeaker—it's ready!



## 2.7 The analog audio output

The line output on the back of the device is intended to be connected to the Line input of a HiFi amplifier or a pair of active speakers (speakers with built-in amplifiers). The output is designed for a voltage level of 2 VRMS. Before making the audio connection to your amplifier, please make sure the volume is at a suitable level to prevent damage to your hardware or your ears.



## 2.8 The digital audio output

Use this output to connect a digital amplifier using an optical cable (also known as an optical waveguide or Toslink). One of the advantages of digital transmission of the audio signal to the amplifier is that interference cannot affect the signal and reduce the quality as can occur with analog transmission. You can also connect the optical input of a MiniDisc recorder to this output to save the playback on MD.



The output uses the **S/PDIF** (Sony / Philips Digital Interface) protocol. This is a standard protocol for digital transmission of audio signals, and it is supported by just about any device with a digital interface.

Before making the audio connection to your amplifier, please make sure the volume is at a suitable level to prevent damage to your hardware or your ears.

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**Note:** in its DRM license agreement (Digital Rights Management), Microsoft stipulates that the digital output must be disabled when playing content with DRM protection. That's not very nice, but there's nothing we can do about it. Luckily we still have MP3 ... (see also p. 44).

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4) Available separately in stores or in the TerraTec Webshop at [www.terratec.com](http://www.terratec.com). On the NOXON 2 radio for iPod, the NOXON 2 speaker is already integrated in the set.

## 2.9 The iPod port <sup>5)</sup>



For proud iPod owners, there's a recess on the top of the device with an iPod docking station. To use it, remove the protective cover. This port allows you to play back and charge your iPod quickly and easily. For playback, the iPod is controlled directly from the NOXON main menu—of course, you can make a selection and operate it by remote control as well.

You have to put an iPod insert in the recess around the docking station before you can use it—it should be included with any iPod when you buy it<sup>6)</sup>. The insert is essentially a kind of bracket that retains and supports the iPod and ensures that it's positioned correctly in the recess. Each iPod comes with a different insert, which is adapted to the shape of the housing—a couple of different inserts are pictured on the left.

Plug the insert in the recess provided, and then just mount your iPod on the seating. If the NOXON is already switched on, it appears in the main menu as soon as it is seated correctly, and it's ready to play back. If nothing is playing on the iPod at the time, the NOXON will charge it automatically—so you don't need any other chargers, and you can use your NOXON as a safe place to keep your iPod so that it's always at the ready.

## 2.10 The USB port

You can use this USB master port for connecting USB mass storage media, like external hard disks. The NOXON supports USB 1.x and USB 2.0 storage devices. Please note that not all USB devices can be used on this port: keyboards and mice are not supported, nor are external MP3 storage devices with additional functions (USB hub, data encryption, etc.). Some MP3 players encrypt the files stored on them and thus unfortunately also cannot be read.



While it is not very common or well-known yet, USB devices are sometimes classified as OTG, or On The Go. These devices are capable of exchanging data with other OTG devices.

Practical experience has shown, however, that any external storage device that supports read and write operations like a normal hard drive under Windows can be used. The first time they are connected to a Windows PC, these devices appear in the Device Manager with names such as USB Mass Storage Device or Pendrive. FAT16 (sometimes referred to simply as FAT) and FAT32 file systems are supported. FAT12,

<sup>5)</sup> Only available on the NOXON 2 radio for iPod

<sup>6)</sup> If you need an insert like this, you can reorder them at [www.apple.com](http://www.apple.com). Go to the Apple "Store" there and search for "Universal Dock Adapters" (the official term for the insert) in "iPod Accessories". The inserts are fully compatible with the NOXON 2 radio for iPod. You simply have to select the correct insert for your iPod.

NTFS, the Macintosh file system and others will not work. For more information on playing music files on external storage devices, please see page 30 under “Playback from a USB storage device”.

## 2.11 The headphone output

You probably already guessed it, and it's true—this socket is intended for a 1/8-inch headphone jack.

Plugging headphones into this socket automatically disables the Line and S/PDIF outputs, a feature known from many older cassette recorders. To adjust the volume, use the remote control as usual.



## 2.12 The Reset button

Press this button of the NOXON to do a reset. If the NOXON ever freezes unexpectedly, use this button to reboot the device.

To reset the device to its factory defaults—which will also permanently clear all settings such as network keys—switch the device on and press the reset button for around ten seconds until the Ethernet LED flashes once. The display will now go blank. Unplug the power adapter from the AC outlet. Reconnect the NOXON after waiting for a few seconds and it will be back in its original state. It will be necessary to run the installation procedure again at this point.



Before making such a drastic move, try a soft reset first: press and hold the POWER button on the remote control for several seconds to trigger the soft reset.

**Note:** Unfortunately, it's impossible to cover the topic of networking without juggling the occasional bit of cryptic terminology. That's why we've included a glossary in the appendix, as well as a FAQ with the answers to the most common questions. See the FAQs and the glossary, p. 55!

### 3 - The remote control and the buttons on the NOXON

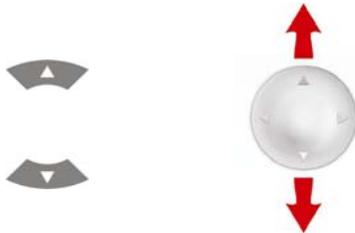


Here it is—your infrared calorie saver. Most of the controls will probably be familiar from other products from the world of consumer electronics. A selection of controls corresponding to those on the remote control are located on the top of the NOXON, as you have probably already discovered on the right.



#### 3.1 The most important buttons for fast orientation

Here is an overview of the most important and frequently-used “keystrokes”:



**Navigation buttons:** Use these buttons to control the highlight bar in the NOXON menus.

**Volume:** You can adjust the volume in all Play views while your NOXON is playing by pressing up/down.

**Text input:** With up/down in configuration menus—after entering numbers with the 1-9 buttons on the remote control—you can “scroll” through letters and numbers. This will also give you special characters, e.g. for entering network keys.



**Next / OK and Back / Cancel:** Use the right arrow button to confirm and the left arrow button for corrections and to cancel actions.



**Play:** As with the Play button, you can also use this to access specific radio stations and audio files!

**Various View modes** are connected with the right button, if it is pressed in a Play view (not a list). For example, you can display the time without the remote control, or call the Zoom mode. If you keep pressing, you'll eventually return to the starting display.



**Skip forwards & Skip back / Delete:** Skip to the next or previous item in the playback list (doesn't work with Internet radio).

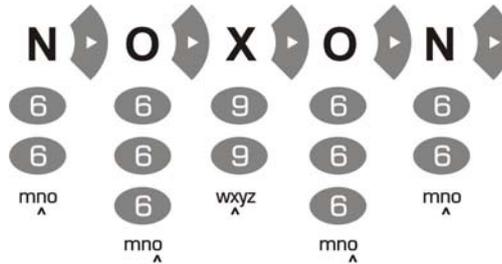
**Skip back also backspaces one character when entering text.**

## 3.2 Additional buttons and their functions

	<b>On/Off:</b> Wouldn't you know it: Switches the NOXON on—and off, if need be!
	<b>Home button:</b> Returns you safe and sound to the main menu (Home) every time.
	<b>Internet radio:</b> Jumps directly to the extensive Internet radio station selection lists which are continuously kept up to date for you by your vTuner premium subscription.
	Opening the <b>configuration menu</b> . For more information, see page 25.
	<b>Favorites:</b> Opens your Favorites list.
	<b>Info button:</b> This button shows the playback screen during playback, with information about what's playing, and toggles between alternative views such as a time display and the Zoom view with larger letters.
	<b>Store or delete Favorites:</b> The happy face (press any time while listening to music) means: This I like, keep it! The song that's currently being played is immediately saved to your Favorites list, which you can access from the main menu or the Favorites button (see above)! If you get tired of a Favorite, select it in the Favorites menu and press the frowning face to get rid of it!
	<b>Shuffle and Repeat:</b> Plays the contents of a list in random order, or repeats a single item. Press Repeat twice and a little "All" will appear in the display, indicating that <i>everything</i> on the list will be repeated once the last item has been reached.
	<b>Save Preset button:</b> Use the Save Preset button to assign titles or stations to the preset number buttons for quick access. As soon as it's saved, you can call the station up again just by pressing the assigned number button.
	<b>The number buttons</b> are labeled with the input characters that are associated with them—similar to SMS input, which you will know from your cell phone. In lists, the buttons call the Search function for fast retrieval of entries in long lists (the Search field appears in the first line, but the search doesn't start until you press the right button to end input!). Read more about this in the next subsection on text entry.
	<b>Play and Pause.</b> Use these to start and pause playback or to switch to a new menu entry.
	<b>Stop:</b> Stops all playback.
	<b>Volume up and down / Change case</b> when entering text.

### 3.3 Entering letters

Letters can be entered into the NOXON via the numerical keypad in the same way you would with a cell-phone keypad when writing an SMS. This can be useful when configuring the device or changing the device's name. Here you can see how text entry works using the example of the word NOXON ... (use the + button to switch between upper and lower case, by the way!)



Pressing a button several times in a row switches through the row of available letters as shown. Once you have finished entering your text, press the right arrow button once more to confirm your entry. If you have made a typo, press to delete the character over the cursor. You can also use the navigation buttons to move the cursor to the left and right through text you have already entered. In addition, you can enter special characters via the 0 and 1 buttons. Other, less frequently used characters such as accents, inverted commas or the backslash can be accessed with the up and down buttons on the remote control as soon as the cursor is positioned on a letter you have already entered.

### 3.4 SMS quick-search in lists



We have integrated a quick-search function that you will probably be familiar with from cell phones (address book) to save your fingers and your nerves when navigating lists with many entries. Use the number buttons in lists to enter the initial letter or letters of the entry you are looking for. A text entry field appears in the top line and here you will see the characters you have entered. You can make corrections with . Press the right arrow to confirm (or the left arrow to cancel), and the NOXON will jump straight to the first matching entry in the list.

**Note:** if you search at precisely the moment in which the TwonkyVision MusicServer is rescanning its database, you may get hits that are actually misses. While this may help you rediscover the occasional bit of buried treasure, it's not really the point of the exercise. Such occurrences are quite rare, however.

## 4 - The first time: switching on the NOXON.

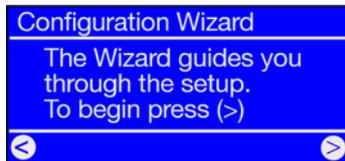
To start the NOXON, press the ON/OFF button on the NOXON itself marked with the  icon.

**Note:** If you have just connected the power adapter and are now trying to turn the device on, don't get nervous if nothing happens at first. It takes several seconds before the NOXON can be switched on after it has been connected for the first time to an AC power source.

When switching the device on for the first time, it will display a language selection dialog. The selection applies to the menus and operating system messages of the NOXON; not to the contents it accesses (e.g. on the Internet).

### 4.1 The network configuration wizard

When switching it on for the first time, the NOXON network device does not yet have any information about the possible network environments from which it will be getting its content. After switching it on for the first time and selecting a language, the Configuration Wizard will be displayed automatically.



As in other NOXON menus, press the right arrow button for “Next/OK” and the left arrow button for “Back/Cancel”.

The following chapter describes how to configure access, both for wired and wireless network integration.



If you are not satisfied with the way things are working after running the Wizard, you can run it again by pressing the  button to open the configuration menu and selecting the Configuration Wizard menu item.

### 4.2 Wired or radio?

The NOXON is designed to play files located on a network, either the Internet or the your home network. Two options are available for integrating the device into a network:

**a wired connection**  
(Ethernet, LAN)



Use a standard network cable to connect the device to a router, switch or hub—to connect it to your PC directly, use a crossover cable.

**Via a wireless connection**  
(WLAN, Wi-Fi)



A wireless connection uses a radio link to an access point, router or computer.

If both are available, the motto applies: faster is better. Well, in most situations, anyway—and certainly when it comes to networks. To ensure reliable playback without interruptions, the NOXON automatically selects the faster connection when powering up.

**This means: if a network cable is plugged in and a 'link' is available (orange LED lit), the NOXON will always favor it over the wireless link.**

If you would like to switch from Ethernet to WLAN, switch your NOXON off, unplug the power adapter and the network cable, take a deep breath and hold it for a few seconds, reconnect the power adapter, and turn the NOXON on! If a profile for a WLAN connection is already available, it will be used automatically. Otherwise, the setup wizard for a new network connection will be launched, as you can see above.

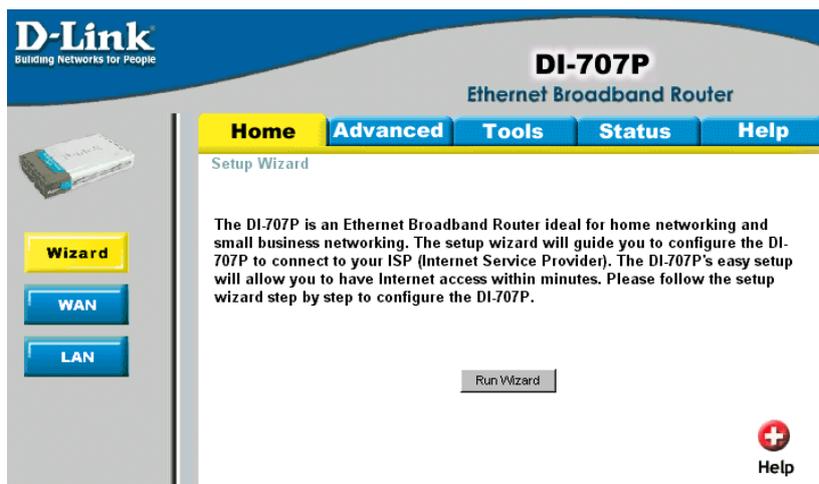
For more information on WLAN setup, see page 22.

### ***4.3 For deeper understanding: about routers, SSID, MAC & IPs***

You will come across a number of the following topics automatically when integrating your NOXON. Together with the glossary in the appendix, these brief explanations will give you a better understanding for making decisions with regard to your network settings. A number of items are relevant only in connection with wireless networks. We will continue with the actual configuration in “4.4 Before setup: network profiles”.

#### ***Setting up the router options***

For this purpose, you must be sufficiently familiar with the router—or its administrator—to change its configuration and understand its overall handling. Normally, these devices use Web interfaces for their administration. In other words, you only need to enter a specific address (e.g. 192.168.0.1) in your Web browser for it to display a convenient user interface giving you access to all of the router's options.



*As an example, an administration interface of a router.*

***Hello, here we are: SSID broadcast (WLAN).***

As explained in the technical glossary, the abbreviation SSID stands for the network name sent out to all wireless network devices within range, informing them of the presence of a network with this identification. Some routers, however, have an option to suppress the broadcast of the network name. The option is a toggle that is usually called SSID broadcast. If the broadcast is disabled, you must know the name in order to enter it manually when setting up the NOXON.

***To identify or not to identify: the MAC address.***

The so-called MAC address is a unique identifier assigned to all network devices. The MAC address is permanently assigned to the device and cannot be modified. They can therefore be used to configure routers to permit only devices with specific MAC addresses to access the network or the Internet.

In such a case, it will be necessary to configure the router with the NOXON's MAC address so that it will be able to establish a network connection. The address can be found on a label on the back of the NOXON.

***Sometimes required: a fixed IP.***

Under certain circumstances, it can be useful for a device to always have the same address. Most networks these days are set up to assign the so-called IP address—the identifier for the TCP/IP protocol—dynamically. In other words, the first time a device connects, the so-called DHCP server assigns it a valid IP address which the device will keep as long as the address is not needed elsewhere.

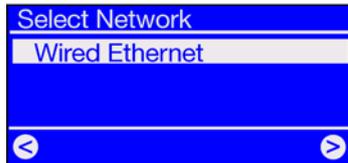
This occurs completely automatically, without the user's knowledge. If a network is based on static IPs—i.e. fixed addresses, rather than dynamically assigned ones—there will generally be a precise set of rules governing the addresses that can be assigned. And our friend the NOXON also has such an IP address. If the network requires a fixed address, the rules for assigning them must be known. But once again, a fixed IP is really the exception; generally, everything happens automatically.

***4.4 Before setup: network profiles***

The NOXON lets you either create a single network profile (a collection of all of the values and settings necessary for a network connection)—this is the default setting, assuming you will use the NOXON in a single location or network—or you can switch to managing multiple profiles. You can also use the configuration menu (📄) on the device itself to administer profiles or to create and edit them using a wizard. You can permanently store up to three network profiles—that way you don't have to enter a full set of parameters every time you move the NOXON to a different network. See p. 25 !

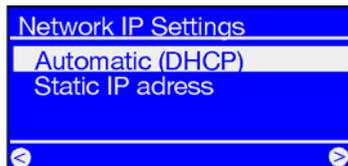
## 5 - Scenario 1 – the wired network integration

If an Ethernet cable of a functioning network is plugged in at the time the device is switched on, follow the steps below to set up the device quickly and easily:



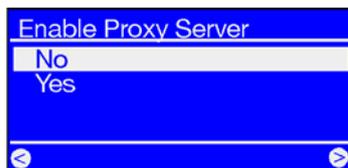
1) If a wired connection is available, then “Wired Ethernet” is the correct choice.

Confirm with: 



2) At this point, select the method by which the NOXON obtains its IP address<sup>7)</sup> in the network. Every device in the network must have such an identifier to ensure that the IP packets arrive in the right place.

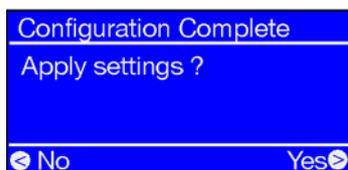
The address is normally generated automatically via the DHCP protocol. In rare cases, however, static IP addresses are assigned—for more information, have a word with your network administrator. See “Sometimes required: a fixed IP.” on page 19!



3) At this point you will be asked whether your network uses a so-called proxy server.

Most home networks do not. If you are not sure, and cannot be bothered to find out for certain, just select “No”—and hope for the best! If the NOXON will NOT access Internet radio stations or podcasts after setup is complete (but has no problems playing the MP3 collection within your home network after installing the included software), you may have to correct the configuration at this point. Press the  button to call up the Configuration Wizard at any time.

**For more information on existing proxy servers, turn to the next page.**



4) Now, simply select “Apply Settings”.



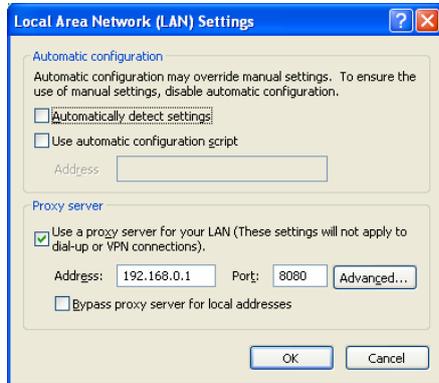
5) If you've done everything right, you can now access thousands of (Internet) radio stations and podcasts from all over the world via your Internet connection, and when you've installed the accompanying software, you can even listen to music from your hard drive via the wireless network (see p. 41).

Congratulations.

7) Don't worry if we seem to be talking about the networked world in a language you don't understand yet—we've tried to explain the basic elements of this admittedly quite complex subject in the appendix. See the FAQs and the glossary, 55!

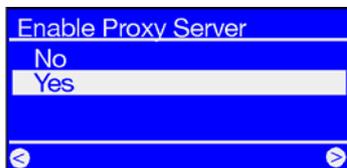
### *If you are using a proxy server...*

**For users of proxy servers, the procedure is different as of Item 3.** Proxy servers are common in companies and other major Internet users. Check the Internet settings of Internet Explorer on a computer connected to the same network to see whether your network is using a proxy server.

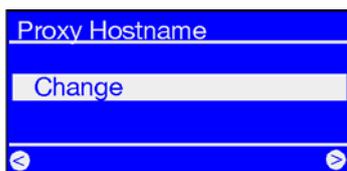


Open Internet Explorer, select “Internet Options” from the “Tools” menu and select the “Connections” tab. On the bottom third of the tab, you’ll find the “LAN Settings...” button. Press the button to open the dialog box shown here.

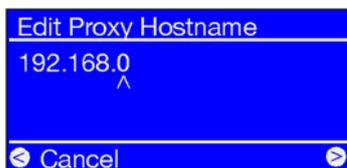
If a proxy server has been activated there, use the same settings for the NOXON.



1-3) To set up the NOXON to work with a proxy server, follow **steps 1 & 2 as described above...** and in step 3 (Enable Proxy Server Yes/No), select YES!



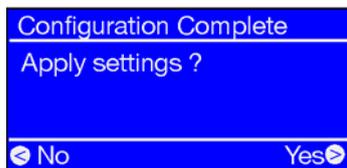
4) Then select “Change” ...



5) ... and enter the name (“proxy\_internet”) or the IP address. **The buttons you need to make an entry:** the number buttons 0-9, 1 for dots, Left/Right to move the cursor, + for upper/lower case, Up/Down to “scroll” characters, Skip back to delete a character entered by mistake! (see chapter 3.1. et seq.) Then press the Right button to confirm...



6) ... enter the correct port—8080 is very common—and the proxy is set up. Again, if you have any doubts about the parameters, please check with your network admin—or with the method described above (3.).



7) Now simply select “Apply Settings”, and ...



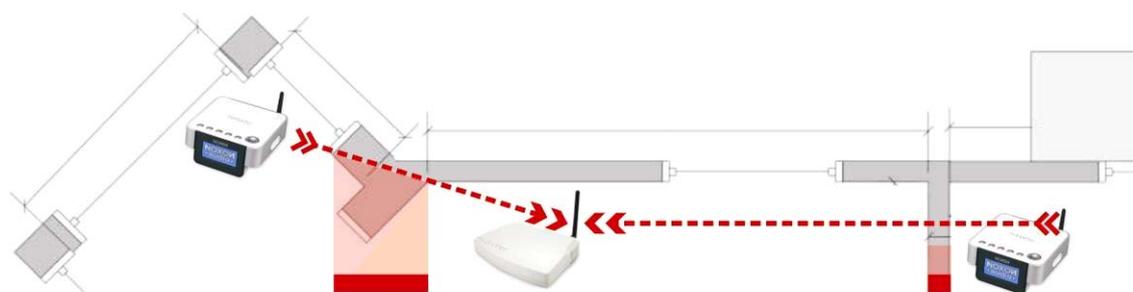
8) ...after a successful restart (and installing the software for wireless access to the music on your hard drive), you will be able to access your music collection across the network—and connect to thousands of Internet radio stations and podcasts worldwide! Congratulations.

## 6 - Scenario 2 – the wireless network integration

We would also like to give you the information necessary to integrate your NOXON wirelessly via a router as an alternative to the wired network connection as described under “5 - Scenario 1 – the wired network integration”.

### 6.1 Not unimportant: the location

A wireless signal always travels along a direct point-to-point, i.e. antenna-to-antenna, path. The quality of a wireless connection thus stands or falls with the obstacles in the line of sight from the NOXON to the opposite network device. Setting the device up in some locations may therefore result in a poorer signal, even if the actual distance is shorter. For example, if a large amount of masonry or sources of interference are located between the devices, the signal quality will decrease despite the short distance.



Needless to say, the more powerful the transmitter performance of your router, the greater the range will be.

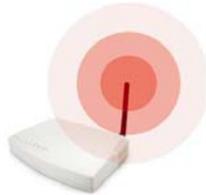
**Note:** Use the display of your NOXON (p. 27) to determine the signal strength at selected locations.

## 6.2 Wireless integration using a router

In comparison to wired networks, a wireless local area network (WLAN) link provides considerable additional freedom, but also requires a bit more attention—especially if you do not want to completely neglect security aspects. In the case of wireless, data is transmitted over one or more access points (AP). The WLAN access point is generally integrated into the broadband router of your Internet access line. While exact figures are not available, one can nevertheless safely assume that this is currently the most common way to use broadband Internet access and share it locally among several users. The NOXON is also the most fun to use this way, as you can receive radio from the Internet or music from other computers in your home network without necessarily having your own computer running at the time.



Using the NOXON with a router generally does not require any configuration work on the router itself. Special settings may be advisable for security reasons, however.

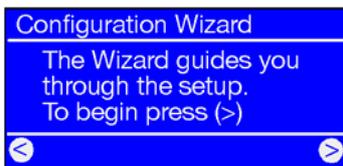


As the media have frequently reported, it's not very advisable to use a router exclusively with its default settings, as that leaves the network wide open for intrusion or misuse of the Internet connection. The advantage of using the router with its default settings is naturally the simplicity with which devices accessing the router can be configured. However, since the need for a basic level of network security is commonly accepted, please read "For deeper understanding: about routers, SSID, MAC & IPs" for background information on the relevant terms.

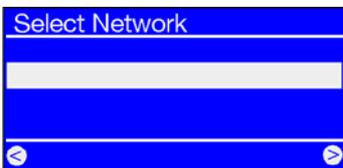
### 6.3 Setting up the wireless connection on the NOXON

Using the  button on the remote control, go to the configuration menu, and then call up the wizard for network configuration.

Just a reminder: During the course of the configuration, confirm your entries by pressing the right navigation button on the remote control or on the device, or press the left button to cancel or correct your entries. Use the same buttons to move the cursor in data entry situations. Use the number keys 1-9 for entering characters, the 1 key (pressed more than once) to enter periods, and the 0 for spaces. Also, for switching between uppercase and lowercase, use the “+” key, use the “up/down” keys to scroll through characters, and use the “skip left/back” key to delete a character that you’ve entered by mistake. (See page 14.)



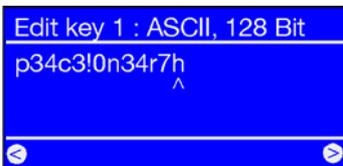
While still in its factory default state, the NOXON will start the configuration wizard to complete the integration in your network.



The names of the receivable access points (routers) and existing ad hoc networks are shown here.

If you know of a name that should be on the list but is missing, start by checking the distance to the router or computer. Go ahead and place the NOXON right next to it to eliminate distance as a possible source of errors.

Also, SSID broadcasting may be disabled on the router, in which case it will not be visible on the list. If that's the case, select “Edit Network SSID” and enter the name manually. See also p. 19!



When selecting a network protected by **WEP/WPA/WPA2 encryption**, you will be prompted to enter the appropriate key. The person who set up your network should know this key. The information in parentheses in the top line does not appear until the number of characters you have entered corresponds to a valid key.

If you are using **WPA encryption** in your network, the screen will be the same except for the title bar; in that case you can use a string of characters containing at least eight letters. While a technically skilled person with the proper equipment can crack this encryption, WPA is clearly more secure than WEP. Unfortunately, older wireless network equipment frequently does not support it. If your router supports WPA 2, you can update the firmware of older NOXONs—firmware updates available for download on the TerraTec Support website—to make them compatible with this security protocol.

**From here on, the configuration steps are the same as those described in “Scenario 1 – the wired network integration” on page 20, starting with item 2. For the sake of brevity, please continue at that point!**

## 7 - The configuration menu of your NOXON

Press the  button of the remote control to open the configuration menu of the device. There you will find the following entries:

Configuration menu	
Device status	Important indicator for problems: query of current parameters such as IP address, MAC No., firmware version, etc.
Internet radio [RSDB]	Submenu for configuring the station directory—see the chapter on “The radio station directory (RSDB – Radio Station Database)”, page 32
Configuration wizard	Start the network configuration wizard here.
Select language	Select a language for the menus here.
Advanced Settings	To the Advanced Settings submenu (see below.).
Config. Date/Time	All settings that relate to your NOXON's internal clock.

Advanced Settings	
Select profile	Switch between the various location profiles, for example if you want to register your NOXON on different networks.
Profile management	With the profile management activated, another profile is selected automatically any time the connection is lost. This also lets you switch locations easily without setting up the same profile each time. Enable or disable profile management here. Select the profile you intend to use under “Profile Selection”.
Key management	If more than one network key has been stored, the key management will attempt to use them to maintain contact to the AP / network access point.
Edit device name	Assign a name to the device here.
LCD brightness	Controls the brightness of the LCD. The following options are available:  <b>Low</b> – The “evening setting”: The display is set to continuous low brightness.  <b>High</b> – The display is set to continuous full brightness.  <b>Automatic</b> – The software determines the brightness based on how the NOXON is being used. In this case, the display is set to high brightness, but is dimmed if there is no activity for a certain amount of time or if the shutoff timer is in use.
FM sensitivity	The lower you set the gain, the fewer stations the automatic station scan will find, but the ones it does find are those with clearer reception.

The appearance of the menu for synchronizing time settings, “**Config. Date/Time**” (see above) may vary depending on the device you have and how your device is equipped. The NOXON2radio, the NOXON2audio's “big brother”, is fitted with its own integral quartz clock, while the NOXON2audio is not. The latter keeps its clock correct with regular Internet updates. If there is no Internet connection for some time, the NOXON2audio disables its clock function until the connection to the Internet is reestablished.

Internet radio (RSDB)	
Internet radio	Displays the current version of the Internet radio database and the version of the subscription service. TerraTec customers always receive the <b>PREMIUM</b> class of service.  Note: Other information might appear here based on the product variant, such as additional regional services.
Update	Here, you can determine whether the radio list should be automatically updated online. You can also start an update here manually.

Config. Date / Time	
Set date & time	In this menu item, the time can be set. To make this mundane procedure a little more exciting, we've implemented three possible methods:
Manual <i>(only on the NOXON2radio)</i>	Manual time setting, same as for standard video recorders and digital clocks.
NTP Synchronize	NTP stands for Network Time Protocol. With this function, the NOXON fetches the time, accurate to the second, directly from the TerraTec Time Server via the Internet. Of course, the Internet connection has to be up and running at the time.
RDS Synchronize <i>(only on the NOXON2radio)</i>	RDS is the commonly used Radio Data System, one of the functions of which is to display the callsign of the current radio station. With this menu item function, the NOXON sets its clock from the time stamp it receives through the RDS signal.
Select time format	"15:00" or "3:00 PM"?
Select date format	"05 Jan 2000" or "Jan 05 2000"?
Select time zone	Use this to select your time zone, such as GMT+1 (Greenwich Mean Time +1) for Central European Time. If you make the wrong choice here, the wrong time will be shown.
Daylight saving	If regional or daylight savings time adjustments apply, these can be enabled during the daylight savings period using this setting.
Standby clock (on/off)	If this feature is enabled, the NOXON displays the time when it is switched off. In this state, the display is kept at the lowest brightness setting.

## 8 - Use and playback options

### 8.1 First of all: What your NOXON is telling you

Before we cover the playback options, let's have a look at the playback window. It's pretty much the same for all playback options:



- 1) Information on the current track or station. This shows you the usual information such as the title, artist and where appropriate the album of the audio source, and extra information about the current radio program.
- 2) The details of the current playback mode, mono/stereo and the **data rate**.  
The data rate is a measure of quality and an indication of the data volume of a digital source. The playback quality of your audio files or an Internet radio station depends on the data rate.  
Your NOXON has no influence on it.
- 3) The **signal strength** of the wireless network integration is indicated here—a peaked bar indicates excellent strength. It is also helpful in finding the best position for the device.
- 4) The playback **buffer status** can be seen here. An empty bar indicates a poor network connection, and that not enough data is being transferred to ensure continuous playback. Dropouts may occur as a result.
- 5) The **S** is displayed when **shuffle mode** (random selection of audio files) is activated. It corresponds to the icon on the remote control used to activate shuffle mode. The small triangle indicates that playback is currently active—it is also retained in the menu.  
 The familiar **repeat icon** refers to the current title, or to the entire playlist when followed by “all”.

 By the way, in case you were wondering what the single and double notes in the NOXON menus mean: a single note indicates that the entry is a single track (mp3, wma, etc.), while the double note identifies the entry as a playlist (e.g. m3u, pls).

## 8.2 The display modes

You can switch between the following display modes with the  button on your remote control:



**Default view**

In Play mode: Detailed display for currently playing source



**Zoom display**

(Only in Play mode)



**Time display**

### Detailed display

The ideal display for users who want to have everything on view and under control. Besides complete information about the content currently being played and its quality, the NOXON displays the WLAN signal strength, how full the buffer is, and more information about the playback mode.

### Zoom display

The detailed mode is useful, but from a few yards away, its appeal quickly diminishes. In this case, the Zoom mode offers an alternative because it shows the important information about the content currently being played in larger characters.

### Time display

Sheer, simple, and a thing of surpassing beauty. That's the only way to describe the display of chronological information in all its clarity and size.<sup>8</sup>

<sup>8</sup> In this display, we see that the NOXON 2 radio for iPod also has a wake-up time set (a bell appears in this view for each of two wake-up times, if they are active).

### 8.3 Playback from your iPod



In order to use your iPod with the NOXON, please carry out the instructions on p. 12 first as preparation. As soon as an iPod insert has been inserted in the recess on the top of the device, you can start. Simply engage the iPod<sup>9</sup> (it must be firmly seated and contact the connector properly)—this can be done while it is switched on or off—and if the NOXON is switched on, a new item appears immediately in the main menu (🏠) with the name of your iPod. On the iPod display itself, a

check should appear, confirming that the iPod and the NOXON have now been connected. Incidentally, while the iPod is connected to your NOXON, you can't use the iPod controls directly any more, and you don't need to—that would also be much too complicated with the remote! Just use the remote control instead, or the buttons on the NOXON in the same way you've learned from other areas of the NOXON menus. Pressing the Right button takes you from the main menu to the view of your iPod contents, which may be displayed slightly differently depending on your model and the way you have set it up. You can now call your audio contents directly from the iPod presorted by artist, by type of music or other criteria for example, and play them back through the connected loudspeakers or headphones.

If you are not using your iPod at any particular time, it will also be charged automatically. So you can happily keep your cherished iPod permanently perched on the NOXON, so that it will always be ready for use on the move or present and ready for local playback via the NOXON! Even when the NOXON itself is not switched on, you can always count on a fully charged power supply—and you can see this because the check mark should still appear in the iPod display even when the NOXON is switched off.

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<sup>9</sup> You can see a list of all the models that are supported online at [www.terrateg.com](http://www.terrateg.com).

## 8.4 Playback from a USB storage device



An entry for the USB storage media will appear in the main folder of the NOXON whenever a compatible USB storage device is connected. Selecting this entry will display a selection of compatible partitions. If only one is available, “Volume 1” is all that will be shown. Once you have made your selection, the folder structure will be displayed 1:1. Next, use the usual navigation to select and play a track.

When connecting a USB hard drive, it may take a moment or two for the NOXON to read the folder tree. After that, the navigation should work as usual.

### **Requirements for the mass storage device**

The NOXON supports all normal external hard disks and USB sticks, if they can be identified as USB mass storage devices. You can check this quite easily by connecting the device to a conventional PC or Mac. If the device appears as a “USB Mass Storage Device” in the Windows Device Manager, by lsusb under Linux or the Profiler on the Mac, it can also be operated on the NOXON.

It is very important to note, however, that the storage medium must be formatted for FAT32. All other formats, such as ext2, Reiser, HPFS, NTFS or Mac OS Extended are not recognized by the NOXON. We deliberately chose FAT32 in preference to the many other data carrier formats because it effectively represents the “least common denominator” of file systems, which can be read and written under all operating systems.

To put all misconceptions about FAT32 to rest once and for all: FAT32 can manage larger volumes than 32 GB (in fact up to 4 TB), and is perfectly viable as a simple, frequently implemented file system. It is particularly useful when interoperability among as many operating systems as possible is required.

### **Formatting FAT32 Volumes**

FAT32 partitions can be created under almost all operating systems with utilities. The only exception is the FAT's home platform, Windows, which has had an artificially set maximum FAT partition size since the 2000 version. We provide more information about this at <http://www.terratec.de/support>.

## 8.5 Your new FM radio<sup>10)</sup>

The NOXON 2 radio for iPod is also equipped with a classic integrated FM radio. (Unfortunately the NOXON 2 audio doesn't have this feature, but in view of the well over 10000 stations it can access via the Internet, perhaps this is not such a devastating omission.)

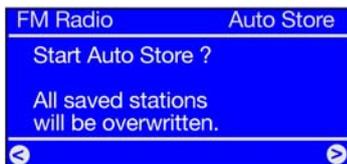
### Preparation

First make sure that your NOXON is connected to an antenna, otherwise the only thing you'll receive is a rather seductive hissing sound. This can either be the accompanying dipole antenna or a house antenna (coaxial, 75 Ohm). As soon as the antenna is connected, select the "FM Radio" item in the main menu (🏠).

### Operation



When you navigate in the FM Radio menu for the first time, select the "Stations" item. You will be informed that a station lists has not yet been saved, and asked whether you want to create a station list. Always confirm with the Right button, and the NOXON will automatically start searching for available stations immediately. From now on, you can access your station list at any time via the "Stations" menu item.

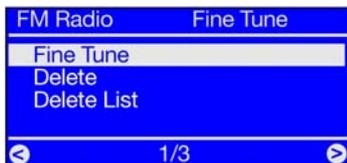


To refresh your station list, go to "Auto Search" in the FM Radio menu. There, you will be asked if you want to begin a new search and delete the old station list. Press the Right button to confirm, and your new station list will be created.



If you want to add a station manually, or edit your existing station list, of course that's easy too. The items "Manual Search" and "Edit List" provide the help you need.

To add a station to your list manually, select the "Manual Search" item in the FM Radio menu. Now you can set the frequency you want using the two SKIP buttons (⏪ and ⏩). Press the Right button to save this frequency.



Use the "Edit List" menu item to change the frequency of the selected station, delete the station, or delete the entire list (using the keys as described above for "Manual Search").

Also: If available from previously listened-to stations, the sender information is loaded via the RDS signal and is displayed as the station name the next time you call up the station list.

<sup>10)</sup> The FM radio is available only on the NOXON 2 radio for iPod.

## 8.6 Internet radio—a whole new world of radio!

In “Your new NOXON” (p. 5), we already introduced the impressive Internet radio capabilities of your NOXON. The big advantage of the NOXON over the time-honored way of listening to Internet radio via your computer's web browser is that your NOXON can tap into the full variety of the Internet WITHOUT relying on your computer—by connecting directly to the router that provides your Internet access.



**Caution—transfer volume!** Please keep in mind that constantly listening to Internet radio stations will result in the transfer of an enormous data volume over the course of a month. Your contract with your Internet service provider may be subject to a volume limit. Exceeding this limit can result in massive extra charges. We therefore recommend using an Internet access plan without volume restrictions. On the other hand, the actual bandwidth used varies greatly from one station to the next. As you already know from MP3 files, the bit rate is decisive for sound quality—a higher bit rate results in better sound, but also in a greater data volume.

### ***The radio station directory (RSDB – Radio Station Database)***

The list of Internet radio stations stored in the RSDB (Radio Service Database) of your NOXON is provided and maintained by an exclusive vTuner premium service as mentioned in the previous chapter. The service ensures that you always have a fresh, reliable selection of stations despite the continuous changes in the Internet radio world. Depending on the settings you selected in the configuration menu, the NOXON either automatically contacts the RSDB for updates daily, or waits for you to manually launch an update. For direct access to all available radio stations, press the  station button. Simply use the usual controls to navigate the presorted station list. If you find something you like, press the preset storage button  and a number button  to  to store the station and access it by pressing that number button in the future. Other options for managing your favorites are described later.



The NOXON will not have a station list until the first time you use it for Internet radio reception. When starting it the first time, the NOXON must download it from the vTuner premium service. A subscription to this service is included with your NOXON.

The option to expand the selection of radio stations available to you online as well is described in the next chapter (8.7.2), and it also serves as a very convenient way to edit your Favorites list on the NOXON!

## 8.7 Managing favorites and own stations

Besides the carefully maintained list of your vTuner Premium Services on the Internet, your NOXON also features its own list for your favorites, which you can populate with anything you want.

- It doesn't matter whether you are listening to an individual song, radio station or playlist—simply press  to add anything that's currently playing to your Favorites. To remove an item from your Favorites, press— ... you guessed it.
- Another way to store favorites in the list is to enter the Internet source addresses manually in the NOXON's own Web Interface (in this case, the NOXON must support the technical format of the address). Instructions for doing so are provided below.

You can open the Favorites list simply, quickly and at any time by pressing the  button or selecting the favorites folder from the main menu.

In addition to your favorites, you can also define Presets, or quick-select keys. To do so, simply assign a station to one of the keys (1 to 9) on the remote control by pressing , and then  to . The information that is stored can be called up again simply by pressing the number key.

### 8.7.1 The NOXON Web interface—favorites management and more

You can manage your favorites and add more via your device's own Web interface. You can access this interface with normal Web browsers (e.g. Mozilla Firefox, Camino or Internet Explorer) on a computer on the same network. The changes made here can be called up directly in the Favorites menu () via your NOXON.

To access the Web interface, enter `http://(IP address of your NOXON)` in the browser's address bar. The address would look something like this: `http://192.168.241.78`. If you don't know your device's IP address, you can call it up in the NOXON's device status menu. To do so, call up the configuration menu by pressing , select “Device status” and then scroll down the list using the down arrow until the IP address is displayed.

The Web interface offers the following options:

- **Status** - Displays general information about the connection status of the NOXON.
- **Profile** - Here you will see the settings of your various location profiles at a glance (set this up from the Configuration menu on the device, see p. 25).
- **Favorites** - In this menu you can manage your local favorites, i.e. create and delete them. This is especially useful if you want to add a radio station of your own that we don't know about.
- **Update firmware** - This menu item enables you to update the firmware on your device via the Web interface without any add-on software; this works under all operating systems. (If this option does not appear, your NOXON 2 is due for a firmware update!)

### Adding a favorite of your own

With the “Favorites” menu item, you access the Web interface for adding new favorites directly. If you have the unique URL of a stream, you can simply save it using the “Add” menu item. If you give it a meaningful name, you'll be able to find it more easily later, as well.

**Note:** It's not enough to just enter a Web page in the format `http://classicradio.com`, even if a stream is lying in wait for new NOXONs deep in the lower reaches of the Web page. It's best just to copy the address of the actual Internet radio server into the NOXON station list using the “Copy link address” function in the Web browser. For more detailed instructions on how to find Internet radio addresses, please see the appendix.

As soon as your new favorite has been saved, it will appear in your list of saved favorites and in the Favorites menu, which you can access from the main menu or via the  button.

### 8.7.2 Your Premium vTuner Service, managing favorites (part two).

One of the “premium” qualities of the vTuner subscription that comes with your NOXON is that you can customize the Internet radio list by adding stations of your own via your web browser. Here's how:

Open your web browser and enter the URL of the vTuner Premium Service:

`http://www.radio567.com`

Enter the MAC address of your NOXON in the field at the lower left of the page. You can find it on the bottom panel of the device, usually in a format such as 00-11-A5-7B-C5-70. It's not necessary to enter the separator characters: 0011a57bc570. The entry is not case-sensitive.

Click  !



You should now be seeing something like this. To add stations of your own and play them on your NOXON, register with vTuner.

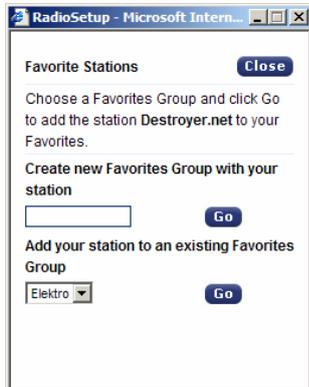
Click the link at the top right, “Create Account Login”. On the following page, enter your e-mail address and a password. If you do not want to receive consumer information, remove the check next to “Receive program updates and special offers”, then click  and you're finished.

You can now add your favorite station by clicking  in “My Added Stations”—enter the name of the station, its web address (URL), its geographic origin (e.g. Germany) and its “format” or genre. Press “Go” to confirm again, and your new station will henceforth be added to the Internet radio menu  on the NOXON in “My Added Stations”!

Please note that the NOXON cannot support every data format on the Internet—you may find that it does not support one or the other station. You'll find notes toward the back of this manual—sometimes it's just a bit more difficult to get a radio stream up and running...

MP3 remains one of the most popular formats—not only for music files but also for Internet streams—and the wide range of stations using this format should be supported as a rule!

The web interface is also useful when you want to take your time and browse the vast number of stations (which are available for listening both here and on your NOXON) with greater convenience than you could with the remote control. When you find something you like, use this easy method to add the station to your Favorites online and on your NOXON:



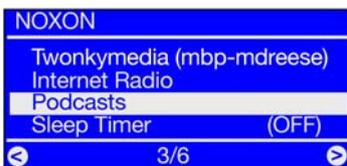
You can, for example, sample a genre such as Electronica and a specific station (e.g. Destroyer.net) by clicking , then click the  button to add the station to an existing or new Favorites group (e.g. Electro). After the next update of your NOXON's Internet radio database, the station will appear in the Favorites list under the group name (groups can only be created in the web interface).

## 8.8 Podcast & Radio-On-Demand function

### Short introduction—podcasts and RadioOnDemand

Radio On Demand in English is normally used as a synonym for podcasting. Thus for example, popular shows from a daily radio program are formatted and made available online so that they can be called up any time as podcasts—even large and well-known radio stations do this. As a listener, you are no longer tied to the set broadcast times of conventional radio programs, you can access the contents made available in this way whenever you want. That's why it's called “Radio On Demand”. The variety of these contents is vast, and growing by the day. Possibly even an interesting alternative to classic radio: and it's not only broadcast organizations that are providing content like this, more recently live recordings of university lectures, language courses, comedy programs or just plain simple audio journals have been added to the offering. There's something for just about any desire. And the best of it is: with your NOXON you have easy, free access to the podcast collection<sup>11</sup>—enormous, well sorted by origin and genre, constantly updated, and completely independent of any computer or iPod!

### The podcast menu



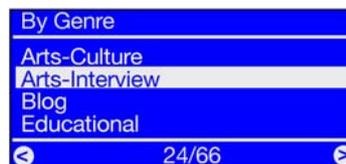
The podcast function hides modestly in the Main menu... Press the Right button to select.



Podcasts are mostly voice contents, so you can preselect a country of origin first...



“All Shows” displays all the available podcasts from the selected country (if the selection is particularly large, it can take some time for the entire list to be loaded), “By Genre” leads to preselection by topic.



Presorting by genre: All podcasts of the corresponding selection are listed.

Then just select the podcast you want and finally search for the individual episode you want from the list that appears ... and you're in business!

11) But a word to the wise: for technical reasons, the podcast collection can only be navigated in English at the moment. The contents themselves are available in any number of languages, though!

## 8.9 The wake-up functions<sup>12)</sup>

Yes, your NOXON 2 radio for iPod also features a built-in alarm clock, so waking up in the morning will be a joyful experience! We've really worked hard on this, so you don't have to greet the new day with just your usual radio stations, you can choose to be awoken gently from your slumbers by any of the over 10000 radio stations available via the Internet. Of course, your NOXON also has its own alarm. You can even set two entirely different and independent wake-up calls at once, so you don't have to reset the alarm clock for the weekend any more...

### Operation

In the main menu on the NOXON 2 radio for iPod, you will see the “Alarm Clock” menu item. Here, you can check the alarm clock setting—after the item you will either see that the alarm clock is “Off” or the next wake-up time.

To set a new wake-up time, change the one you have, or to switch it on or off, now just right click on the Alarm Clock item. You'll find the following items in the Alarm Clock menu:

- On/Off (rapid activation and deactivation of the alarms)
- Set alarm 1
- Set alarm 2
- Alarm settings (snooze time and maximum alarm duration, valid for both alarms)

### Setting the alarm clock



To set a wake-up time, select item “Set Alarm 1” (or 2).



In the view that follows, you can set the wake-up time you want with the Up/Down buttons. Continue with a click to the Right.



Now you can define the alarm clock's Repeat mode.

“Weekdays” means: The alarm clock will only go off from Monday to Friday. “Weekend” means: Saturday / Sunday.



And now we come to the fun part of setting the alarm clock: Now you choose the type of alarm sound you want. You can only select audio sources that you have placed in your Favorites list with the 😊 (you can review these beforehand by pressing 🌟).

Arrange to be reminded of your appointment with the new day by your favorite song, an Internet radio station, an FM radio broadcast, or just a normal alarm sound. It's entirely up to you. If the Internet connection should be lost so that your favorite Internet radio or favorite song title

12) Only available for NOXON 2 radio for iPod.



can't be played back, your device will automatically attempt to reestablish the Internet connection for a minute, and if it can't it will revert to the default alarm sound. So you won't be allowed to oversleep.

In the next step, set your preferred alarm clock volume with the Up/Down buttons. This setting is particularly useful if you have used the sleep timer function to rock you gently to sleep the night before—because the volume of the alarm clock can be set entirely independently, you don't need to worry your sleepy head about the volume of the NOXON in normal operation—it will wake you up with the volume you set here.

Press the Right button to confirm and your alarm clock is ready.

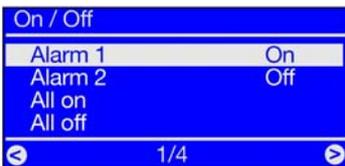
The displays in the main menu and the Alarm Clock menu now show the alarm readiness based on the time(s) set, and a small bell appears in the clock display for each active wake-up time. These can be viewed with the  button.

### Setting maximum alarm and snooze durations



To configure the maximum total duration for your morning wake-up call, or the duration between wake-up calls (snooze function) before the alarm function is finally deactivated, select the “Alarm Settings” menu item. You can now make your personal settings here.

### Switching the alarm clock on and off



To switch the alarm(s) on and off without having to reset all the items described above, simply select “ON/OFF” in the Alarm Clock menu.

Now you have the option to enable or disable the alarms, either all at the same time or individually, without having to go through the complete set up procedure described above.

### When the alarm clock goes off... deactivating and alarm repeat



As soon as the alarm clock is activated, the NOXON switches from its previous state to Alarm mode, which looks something like the illustration on the left. Depending on the setting in the configuration menu and your firmware version, the wake-up screen appears either in full brightness or somewhat dimmed (refer to page 25). You now have two choices: get up or go back to sleep! The alarm clock is only deactivated with the Stop button. Pressing any of the other buttons on the device will return the NOXON to the land of dreams again as well, though the alarm display will remain active until you definitively deactivate the alarm clock.

Until then, the alarm clock will make its presence known repeatedly at the preset snooze intervals.

## 8.10 The sleep timer function

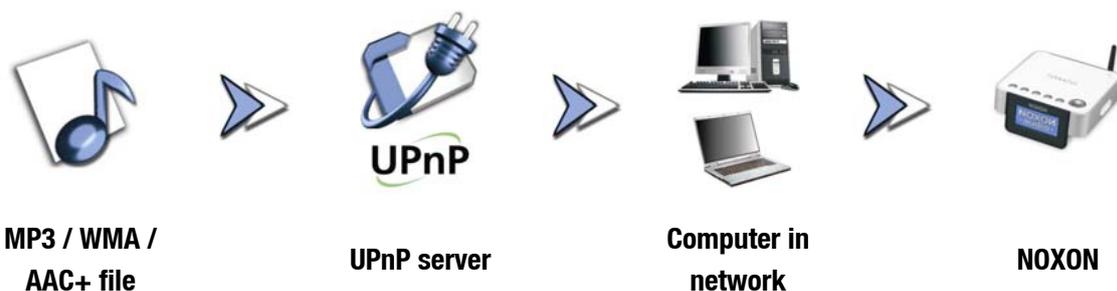
Also appearing in the Main menu: the sleep timer! When activated, the sleep timer switches the NOXON off after a predetermined time, which is particularly helpful if you've already fallen asleep in the meantime...

For activation, it doesn't matter if the NOXON is already playing something, or if the sleep timer is called before the audio source. So: turn the volume of the nighttime music or the audio book down a little, call up the sleep timer and set the switch-off time, counting down from the time of activation. And the NOXON will accompany you gently into the land of dreams.

Good night.

One more thing: Since both NOXON wake-up times can be set with a separate volume setting, you don't need to worry about sleeping through the NOXON even though you listened to it at a soothing volume while going to sleep!

## 8.11 Playing music files from the local network



You can share music files for playback in your network using special server software running on a computer or other device. The NOXON requires a **UPnP-compatible** server (UPnP: Universal Plug and Play) to provide it with files. A simple Windows file share is not readable. Thanks to the included media server software "**Twonky Media**" (e.g. for Windows systems)<sup>13</sup> however, it will not be necessary for you to give up on the folder structure that you may have spent years setting up!

Unlike inflexible static file shares, the NOXON offers flexible sorting via a virtual UPnP media server that improves the flexibility of your collection—a track can be found via the artist, genre, album or the folder structure. And don't worry—"setting up a server" is not as much work as it was just a few short years ago. Just launch the UPnP media server software and you're ready to go!

One advantage: you can run multiple UPnP servers within the same network—no need for Dad to listen to Sis' tunes or vice-versa. Each active UPnP server appears separately in the NOXON menu for fast, easy access.

13) For Mac systems, the "Elgato eyeconnect" server software is provided.



If you have a media server running in your network, you'll be shown the main menu listing all available sources, including your server, when you press the  button. Following the default settings of the server software, the computer name or network ID of the computer on which the server is running will be displayed in parenthesis for the latter, (here, for example, Wim's PC).



Navigate to the right and you will be shown this overview of available tracks.

These items are generated by the media server software based on the available title information of the music files.

The so-called ID3 tags of files in well-organized collections contain information about the artist, album, title, genre, year released and so on. The display may look completely different when using a different UPnP server application, as this data is only received by the NOXON, not generated by it.

If we stay with our TwonkyVision media server, the following selections will be available:

- Albums** Contains a list of all available albums in the library.
- All Tracks** Here you can find a list of all of the tracks available on the server. Shuffling really comes into its own here.
- Genre** Blues, Pop, Funk and Soul are possible genre entries. Select a genre to display a list of all tracks of the genre.
- Genre Index** The genres are sorted alphabetically here: ABC, EFG etc.—for B as in Blues...
- Genre/Artist** Once you have selected a genre, choose an artist to narrow the selection down further.
- Artist** Select your music by artist.
- Artist Index** Artists are presorted here in name groups: ABC, EFG and so on.
- Artist Albums** The album selection will be shown after you choose an artist.
- Year/Artist** Select the year first, then the artist—who would have thought that you have tracks THAT old in your collection?!
- Folder** Use this option to navigate directly in the file system. In other words, folder and file names will be displayed instead of title information (ID tag entries).  
Tip: if you are not happy with the other display options, you can naturally create and use your own system by intelligently renaming the folders and files!
- Playlists** Here you have access to stored playlists. In other words, all found \*.m3u files or other files containing playlists will be available here.  
The “Last Played” entry selects the last playlist used, while “Most Played” selects the list most played since the server was set up.

For further navigation, use the usual buttons on the remote control. Once you've reached the item you were looking for, just press Play, and after a brief moment to fill the NOXON cache, off you go. We would also like to again point out the search function in lists; see “SMS quick-search in lists” on page 16.

## 9 - Your own UPnP music server

As mentioned (see p. 37), a virtual music server is necessary in order to play music files located in your network on the NOXON.

### 9.1 Twonky Media

Several NOXON-compatible alternative music servers are available, most of which are not free of charge. Included with the NOXON at no additional cost is the TwonkyVision TwonkyMedia software. We have determined that working with this UPnP application was the least complicated and caused the fewest problems with files that could not be found, or with abstract interpretations of special characters and umlauts in entries. After all, a few Björk or Motörhead tracks are essential to any collection. The software not only supports Windows, but also Mac OS X, Linux, and many media formats.

Another advantage is that you are not dependent on perfectly groomed ID tags—you can also navigate using folders and file names. (The ID tag is a part of an MP3 file that contains information on the artist, album, etc.). Additionally, in Version 4.x, you receive a complete online media browser, which you can use with Internet Explorer, for example. To launch it, click the symbol with the eye in the upper-right corner.

#### Additional information

- Detailed documentation for the TwonkyVision MediaServer can be found in the TwonkyVision program group of the Start menu, on the CD, or at:

**<http://www.twonkyvision.com/Support/FAQ/faq.php>**

- The CD also contains versions of the server for other operating systems.
- Updates are free for whole-number versions. For example, you could always update from version 4.4 to version 4.6, but not from 4.4 to version 5.1, since this upgrade can be purchased and, as one would expect, includes several new and extended and improved features. You can find the latest version downloads at:

**<http://www.twonkyvision.de/Download/TwonkyMedia>**

Your license code on the CD will remain valid as long as the main version number of the download version matches that of your version.

#### Installation

We will be describing the Windows installation below. The included CD also contains versions for other operating systems.

Insert the software CD in your CD drive. An autostarter will appear with a menu from which you can launch the TwonkyMedia media server setup. If it does not, go to “START”, select “RUN...”, click “BROWSE...” and in “LOOK IN:” select the drive containing the CD. Change to the folder “\Software\TwonkyVision\Windows”. Select the file “TwonkyMediaSetup.exe” and click “OPEN”.



When the setup routine starts, select your language and click “OK”.

Once you have accepted the license agreement, you will have the opportunity to select the optional components for installation.

- TwonkyMedia. No way around this one—it's what we're here for, after all.
- Web interface shortcuts. Shortcuts in the Programs group to the web interface—certainly advisable.
- Documentation. Comprehensive music server documentation.
- Web links. Links to the TwonkyVision website.



Select the options you would like to install and click “Next >”.

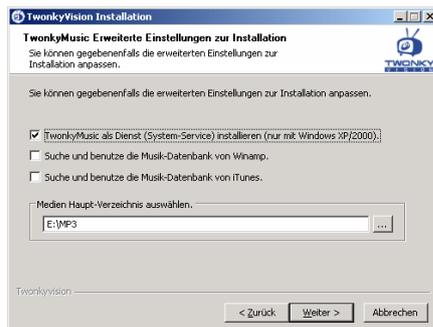
You can already take care of some of the basic configuration at this point to get you started as quickly as possible.

Install TwonkyMedia as a system service. This option keeps the media server in memory continuously and starts it every time Windows starts.

Detect and use Winamp's playlist and music database. If you manage your files in the Winamp media library, you can also use it for the media server by selecting this option.

Detect and use Winamp's playlist and music database. Same applies for iTunes...

Select your media root directory. Enter the root folder of your music collection here. This folder will be used as the starting point for indexing your media files when starting the server.



Next, select the program group and folder, click “Next” a couple of times, and you're done. To start the server, click “Start TwonkyMedia” in the new program group.

For users of Twonky Version 4.x, the NOXON comes with a license code that is printed on the CD case. Use this code to unlock the full functionality of the Twonky trial version that is provided on the CD (and can also be downloaded from [www.twonkyvision.com](http://www.twonkyvision.com)). After unlocking the program, enjoy the use of all of its functions, without the trial software limitations. After installing the Twonky software, enter the code (found on the CD sleeve) into the field when prompted to do so. After confirming your input, you can verify whether registration was successful by clicking the “i” icon located in the upper right, which opens a “License information” window.

**Caution: firewall.** If you are running a firewall on the same system as the media server, you may have to explicitly set up permissions for sharing your music, etc., and for the server to be visible. Once again, please have a word with your network administrator for more information.

### The web interface

TwonkyMedia's web interface is designed to let you configure the various settings of your TwonkyMusic UPnP server. To access the web interface, either use the TwonkyMedia Web Configuration entry in the TwonkyVision program group of the Start menu, or double-click the Twonky icon in the system tray. Either way, your Internet browser will open and display the web interface. We will not be covering every minute

detail of the web interface at this point, as the comprehensive documentation on the CD does a good job of that. We would, however, like to show you a few configuration examples and their effects. Off we go...

### Web interface – Sharing



When you open the web-based interface, the main screen (“Sharing”) opens with your media server’s current status information. A few explanations...

**Content Locations** are the directories on your computer where Twonky will look for the media (such as music files) that you want to make available to the NOXON. You can specify more than one directory.

**Rescan in minutes** specifies the intervals at which the server should automatically scan for new music files.

**Rescan content directories** manually launches a rescan of your media files to include new material, for example.

### Web interface – Clients/Security



Here, you can enter a password to protect the web interface from unauthorized access.

More important is the **Enable sharing for new clients automatically** option. Initially, you should leave this option enabled without any concern. All of the clients listed here (identified by their IP addresses) can access this computer and the media server over the network.

If NOXON does not list the corresponding server, check that the correct device IP is entered here. If you do not know the IP address of the NOXON, you can look it up in the status menu of the device. To do so, call up the configuration menu by pressing , select “Device status” and then scroll down the list using the down arrow until the IP address is displayed.

**Restart server** is useful if anything ever gets stuck.

## 9.2 UPnP servers and Macintosh

We recommend the included Elgato EyeConnect application when using the NOXON in a Mac environment. The documentation for EyeConnect can be found on the included CD or at the Elgato website:

**<http://www.elgato.com>**

## 9.3 UPnP media server alternatives

The following is an overview of alternatives to the TwonkyMedia UPnP media server software (for support, please contact the respective vendors):

	Comment	Vendor
<b>Nero MediaHome server</b>	<p>With its Home software, Nero is taking a leap toward the “digital home”. This application is especially practical thanks to its seamless integration with the “Nero 7 Premium Reloaded” software suite.</p> <p>A great advantage is its ability to transcode media files that are not supported by the playback device into a format the playback device can read. You can also specify which format should be exchanged over the network.</p>	Nero MediaHome
<p>More info under: <a href="http://www.nero.com/nero7/deu/Nero_MediaHome.html">http://www.nero.com/nero7/deu/Nero_MediaHome.html</a></p>		
<b>Microsoft Media Player 11</b>	<p>Media Player 11 is an easy-to-use UPnP implementation by Microsoft for Windows XP and Vista. It also supports files subject to Microsoft Digital Rights Management.</p> <p>A detailed user guide is provided below.</p>	Microsoft
<p>Download under: <a href="http://www.microsoft.de">www.microsoft.de</a></p> <p>FAQs under: <a href="http://www.microsoft.com/windows/windowsmedia/player/faq/sharing.mspx">http://www.microsoft.com/windows/windowsmedia/player/faq/sharing.mspx</a></p>		
<b>Elgato EyeConnect</b>	<p>EyeConnect is currently one of the most convenient UPnP implementations for Apple Macintosh. After startup and a brief configuration, it makes the content of the iTunes library available to the NOXON, including support for static and dynamic playlists. AAC content (with DRM) is not supported at present.</p>	<p>Commercial software, but included free with your NOXON!</p> <p><b><a href="http://www.elgato.com">www.elgato.com</a></b></p>

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## 9.4 Managing and playing DRM audio files

### **Where will I encounter DRM?**



DRM (Digital Right Management by Microsoft) is a solution by the music industry for protecting digital contents against piracy. At the cost of sometimes painful compromises in consumer friendliness, the market has agreed on this method: digital rights management defines how often a piece of music can be burned to a CD or stored on an external computer. Or, in the worst case, how long you can listen to a track. The fact that the DRM protection has been developed by Microsoft provides a number of advantages for the customer: better interoperability between devices and greater competition between content platforms. Each standardization has its advantages and disadvantages.

DRM audio content can be found on virtually all platforms that support online music purchasing. Portals such as Musicload (musicload.de) or the Napster subscription service (napster.com) use this form of protection. A wide range of commercial Internet radio stations also use DRM to avoid licensing disputes with the music industry.

Incidentally, there is no DRM protection for the MP3 format.

### **And now? How does DRM work with the NOXON?**

The NOXON is well-suited for DRM content, as it supports the most common DRM standard in version 10—Microsoft Windows Media DRM 10 (for WMA audio files). To allow the NOXON to play DRM content, you need server software capable of the following:

- A - verifying that the tracks were legitimately purchased and the licenses are valid
- B - providing tracks for playback on DRM-enabled devices
- C - managing the capabilities and rights of the playback devices

The NOXON supports the prescribed disabling of the digital output to prevent lossless copying. When listening to DRM content, it may therefore be necessary to use an analog connection in addition to the digital line.

Another effect is that the NOXON will remain silent if it encounters a DRM method it doesn't support. At present, the NOXON supports DRM10 only. Thus it is not possible to play tracks purchased at the iTunes Music Store, for example.

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***Please note: when it comes to DRM, the NOXON is absolutely passive. It will not infect existing files with DRM or make any other changes to played content under any circumstances.***

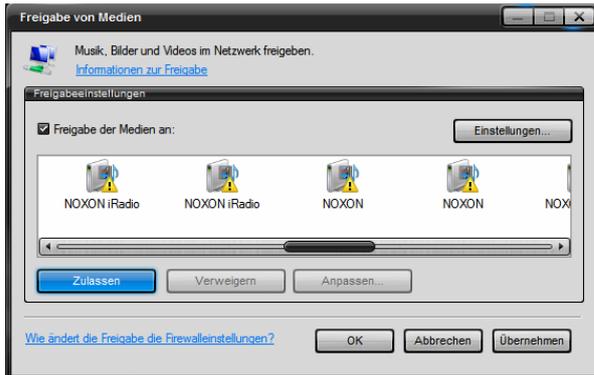
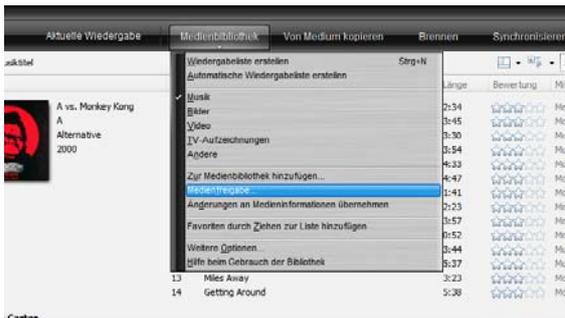
---

As was explained above, DRM-protected contents are made available by the server software. Since the strengths of TwonkyMusic are not in this area and Digital Rights Management has not been implemented (though this may soon change with a new version), we would like to provide you with a few more details about Windows Media Connect—an alternative to TwonkyMusic that does include DRM and consequently is capable of playing back DRM-protected contents! Windows Media Connect is a free Microsoft UPnP server.

### **9.4.1 Windows Media Player 11**

As the successor to the familiar old Windows Media Connect program, Microsoft is now offering Windows Media Player 11 with an integrated UPnP server. Never before has it been this easy to get the contents of your hard drive onto the NOXON. You can download Media Player 11 free at:

**<http://www.microsoft.com/windows/windowsmedia/de/player/11/default.aspx>**



### Just follow these quick instructions:

- 1) Install Media Player 11.
  - 2) Switch on your NOXON.
  - 3) Open the Media Player application.
  - 4) Click the "Library" menu item.
  - 5) Now click the "Media Sharing...".
  - 6) This opens a window entitled "Media Sharing", which should display your NOXON as a detected device. Click your device and confirm media sharing for it by clicking "Allow".
- Done! You can now restart your NOXON, after which you will find a new option in the main menu: Your media library! (If this option does not show up right away, give it a minute. If it still doesn't appear, restart the NOXON again.)

## **Appendix**

### ***A - Concepts and solutions—for the technically inclined...***

Here are a few advanced approaches to using the capabilities of your NOXON. We hope you enjoy exploring them. (We would like to point out, however, that TerraTec cannot provide technical support in connection with the following.)

#### ***A1 Creating your own Favorites from links***

##### **The web interface**

In the section on “The NOXON Web interface—favorites management and more” on page 33, we have provided explanations on adding Favorites using the Web interface.

Before we get started, we really should point out that the Web interface is not supported by our customer service. You'll surely be able to imagine why after reading the following section.

Despite the breathtaking selection of international radio stations in the NOXON, you may find that one of your favorite local stations is missing or is only available in low quality. In such cases, manually adding favorites via the interface described above can be a solution.

##### **The structure**

Unfortunately, time and again the endings of links for MP3 radio streams refer to specific formats that are not actually available, so a bit of experimentation may be unavoidable. An example: At TerraTec, we're big fans of the college station eIDorado at [www.eldorado.de](http://www.eldorado.de), which provides the following link for its 128 Kbps stream: <http://www.eldorado.de/broadcast/128.pls>. One could, without suspecting anything, enter it in the interface as PLS, but that would not be successful. It won't work until you enter <http://sender.eldorado.de:8000/128> and set the selection box to MP3.

Unfortunately, it would go beyond the scope of this manual to cover every option, definition and format description here—a wide range of rather individual solutions can be found on the Internet, and it is naturally not possible to provide support for all of them (although we are continuously expanding the capabilities of the NOXON and making the new features available on our website as firmware upgrades). So we'll just have to leave you to rely fully on your creativity and the methods listed below. Experience has shown, however, that the vast majority of stations listed on

<http://www.shoutcast.com>

can be whipped into shape for the NOXON favorites like this:

Open the link listed under “Tune In” with Winamp, and while the station is playing, press ALT+3 (or ‘View file info...’). The following info window contains details on the data stream—and the first line contains the link to the radio stream that you need to enter in the Web interface mentioned above.

##### **A couple of screenshots:**



> [ALT + 3] >



## A2 Extracting Internet radio URLs

Audio streams are easy to find on broadcasters' websites, but adding them to the NOXON's local station list can sometimes be a problem.

In many cases, it is not in the interest of the stream provider to make the content available for standalone players—in all fairness, small providers in particular depend on revenue generated by advertising on the website. The licensing terms of the stream providers must also be observed. In general, you should apply the terms of fair use.

To save your own streams, use the NOXON's web interface. (see previous chapter A1 and p. 47). The URL (the unique address of the stream) which is necessary to enter the station can be found on the website of an Internet radio station using the following methods:

### The simple method

As a rule, stream providers are experts that know the precise addresses of their streams. Maybe the provider has mentioned the URLs in support forums or FAQs. The provider may also provide them on request by e-mail.

#### 1. Linked?

The link can often be found behind a button or linked text. Simply copy the link by right-clicking it in the browser window and using the “Copy” menu item.

#### 2. That wasn't so hard!

If you can't get the address using the above technique, have a quick look at the source code of the web page. In Mozilla Firefox, for example, right-click the page and select **View Page Source** in the context menu. A brief search will usually turn up entries like this:

```
<PARAM NAME= "FileName" VALUE="mms://stream.de/stream">
```

```
<embed src="mms://stream.de/stream">
```

The stream address itself is enclosed in quotation marks. Simply copying the address to the NOXON's Favorites will make the station available, provided the station's format is supported by the device.

All providers share a common technological basis for their streams. The possibilities for individuality are restricted to connection establishment and authentication. Little effort is therefore required to make most streams “NOXON-compatible”.

Unfortunately, there are a few exceptions. If you are not successful with the approach described above, check our website at [www.terratec.com/support](http://www.terratec.com/support). We will be providing further information and more detailed technical descriptions there.

## Unsupported formats

The NOXON supports MP3, WMA and AAC+ streams. RealAudio (RA) streams are not supported. Such streams are becoming increasingly rare, however.

## Synchronizing multiple NOXONs

A request we received frequently was to implement the ability to “force” the NOXON to play content remotely. We initially questioned the sense of such a feature, as a decisive selling point of the NOXON is that it's not simply a “dumb” receiver, but that it can actively determine what to play. With conventional transmission systems, both wireless ones and those based on the household electrical grid, it's necessary to choose the tracks to be played at the source—and constantly going off to twiddle with a computer in the house can be a bit detrimental to entertaining the guests of your backyard barbecue.

***Nevertheless, we have to admit that such receivers have one major advantage: they all play exactly the same content when controlled centrally!***

Being exactly in step acoustically is especially useful when using multiple devices. Some TerraTec customers use NOXONs to deliver chilled sounds to club lounges, while others have whole railway stations or shopping centers covered by a small NOXON armada. It should therefore be possible to deliver the same content to multiple NOXONs in a single wireless LAN, and that with a minimum of interventions—preferably just one—at the NOXON itself.

The NOXON's Internet radio capabilities are the solution to this problem. But before we can take advantage of those capabilities, we have to demystify the term “Internet radio” a bit. Strictly speaking, there's no such thing as genuine Internet radio at the present—each Internet radio session requires a single, dedicated connection to the server, which then streams the content to the NOXON (or any other receiver), not unlike reading a CD in an optical drive.

The technology needed to create “clean” MP3 streams is open, and thus implemented in many programs, such as **Nullsoft Shoutcast** for Windows.

As a result, it's not hard to integrate a simple streaming server in the local network capable of serving identical content such as a playlist in Winamp or VideoLAN Client (VLC) to an infinite number of NOXONs (actually, the number is limited by the bandwidth of your network). In other words, the technology is called “Internet radio”, but it really doesn't matter whether the server is located on another continent or in your home, right next to your NOXON. All that matters is that the stream is available to the NOXON via TCP/IP, and that there's enough bandwidth for the transmission.

### ***A2.1 Installation under Windows operating systems***

Winamp and Shoutcast is a proven combination for Windows operating systems. A Winamp player with a Shoutcast plugin provides the content to a local or remote Shoutcast server, which in turn broadcasts the data to the terminal devices.

The combination can be installed quickly—visit <http://www.nullsoft.com> and download Winamp Lite, the Shoutcast plugin and the Shoutcast server.

All of the programs can be installed via the Nullsoft installer and need only a minimum of configuration work. The complete configuration of the Shoutcast server is stored in a single text file located by default at `/Program Files/Shoutcast/sc_serv.ini`. A number of cosmetic points, such as the name of the server, can be set up there. You should also use the “Password = (your password)” option to protect the server against overly communicative users of your network.

```

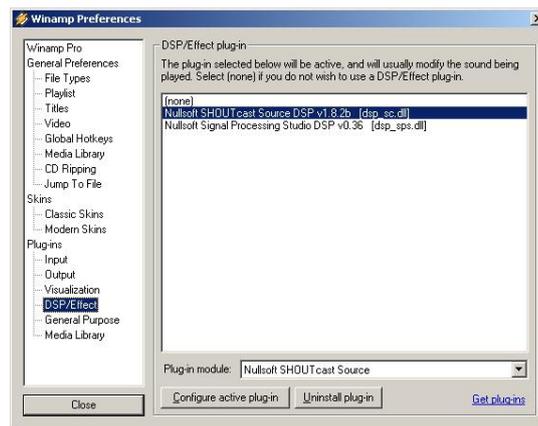
C:\Programme\SHOUTcast\sc_serv.exe
*****
** SHOUTcast Distributed Network Audio Server
** Copyright (C) 1998-2004 Nullsoft, Inc. All Rights Reserved.
** Use "sc_serv filename.ini" to specify an ini file.
*****
Event log:
<04/21/05 012:29:23> [SHOUTcast] DNAS/win32 v1.9.5 <Dec 27 2004> starting up...
<04/21/05 012:29:23> [main] loaded config from C:\Programme\SHOUTcast\sc_serv.ini
<04/21/05 012:29:23> [main] initializing (usermax:32 portbase:8000)...
<04/21/05 012:29:23> [main] No ban file found (sc_serv.ban)
<04/21/05 012:29:23> [main] No rip file found (sc_serv.rip)
<04/21/05 012:29:23> [main] opening source socket
<04/21/05 012:29:23> [main] source thread starting
<04/21/05 012:29:23> [main] opening client socket
<04/21/05 012:29:23> [main] Client Stream thread [0] starting
<04/21/05 012:29:23> [main] client main thread starting
<04/21/05 012:29:23> [source] listening for connection on port 8001
<04/21/05 012:29:27> [source] invalid password from changene 127.0.0.1
<04/21/05 012:29:31> [source] connected from 127.0.0.1
<04/21/05 012:29:32> [source] icy-name:Unnamed Server ; icy-genre:
t.com
<04/21/05 012:29:32> [source] icy-pub:1 ; icy-br:24 ; icy-url:http://www.shoutcas
t.com
<04/21/05 012:29:32> [source] icy-irc:#shoutcast ; icy-icq:0 ; icy-aim:N/A

```

*The text console of the Shoutcast server during startup*

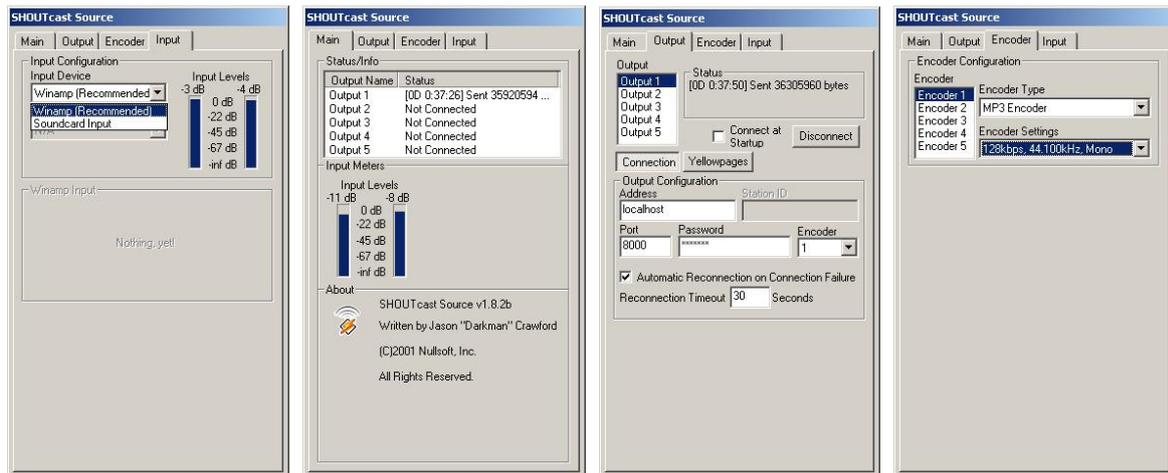
Double-click `sc_serv.exe` to launch the Shoutcast server. A text console will open, informing you of the status of the server. And with that, you have set up your Shoutcast transmitter—all you need now is to send some content to it using the Winamp player.

Very few things need to be set up here, and they are all available in the Winamp configuration: right-click, Options, Preferences. First, integrate the Shoutcast relay plugin into the signal chain. Simply select “Nullsoft Shoutcast Source Plugin” under “Plugin/DSP Effect”. The configuration of the plugin should now open automatically. If not, open it manually with “Configure Active Plugin”.



*The Winamp default settings*

The Input, Output and Encoder tabs require special attention here. The Input tab should normally specify “Winamp”. You can, of course choose an audio input of the computer to create a PC babyphone or another “listening device”. Under Encoder, select an ear-friendly bit rate—128k to 192k would be appropriate. Under Output, specify the local Shoutcast server and its password in a profile. If Winamp and the Shoutcast server are located on the same machine, enter “localhost” as the server. Click “Connect” and Winamp will set up the connection. Both Winamp and the server will signal this in their diagnostic displays.



*Shoutcast default settings:*

## A2.2 NOXON settings

The final step is to inform the NOXON of your homegrown stream. Simply use the device's web interface for this.

First, we need to find out the IP address of the server's computer by entering “**ipconfig**” at the command prompt. In our example, the address is **192.168.32.46**. The Shoutcast server uses port 8000 by default, so the correct address for the stream in this case would be **http://192.168.32.46:8000**.

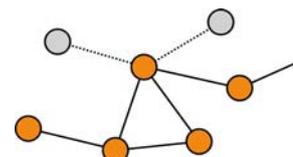
Enter **http://(NOXON-IP)** in your browser to open the web interface of the NOXON. To find the IP address of the NOXON, see the device's Status menu.

Enter the address of the new stream and give it a meaningful name. Click “Add”, and it will appear on the NOXON's Favorites list in future. All NOXONs that are aware of this stream and that are within the server's range can now play the same content in a synchronized manner.

## ***B - Dealing with tough network problems...***

### ***B1 The necessary basic knowledge***

Time to get technical! At this point we will be taking a closer look at what happens when establishing a connection between the NOXON and the media or music server. While it might seem a bit dry and obscure for the layman, possessing this knowledge will make a definite impression in certain circles. But of course, it would be even better if it were to help you get to the bottom of any communication problems between the server and the NOXON. Unfortunately, from time to time it may be impossible to establish a connection to the media server. Problems that cannot be solved with the information provided earlier tend to be nontrivial, but a systematic approach can nevertheless pinpoint them fairly quickly. Performing the troubleshooting work takes basic knowledge of network technology and an understanding of some specialized terminology.



My type, your type. As a rule, the current version of the Internet protocol (IPv4) distinguishes between A, B, C and MC address ranges. With the exception of the MC network, they are very similar technically and roughly describe the size and scope of the network (number of computers per network). The smallest network type, the C network for a maximum of 254 computers, is generally used in home environments. As described above, most of the computers then “answer” to addresses such as 192.168.0.100, 192.168.0.55 or similar, sharing the first three blocks, i.e. 192.168.0. All of the computers on the network can be reached via a single IP address, the so-called broadcast address, 192.168.0.255 (in the network, 192.168.0.0/24). A slight modification of this technique is used by our NOXON. If you have set everything up correctly, the NOXON will be located in the same network address range as the music server. Let's have a closer look at the connection process.

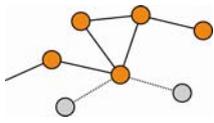
- 1 The music server starts and sends a broadcast (“Hello, I'm a music server and this is my address!”) to the address 239.255.255.250. This address is in the MC or multicast range (similar to a broadcast address like the one above, but one that reaches all lower-level networks at the same time) and will be received by all devices, including the NOXON. The NOXON continuously monitors port 1900 for such broadcasts in order to detect new media server friends.

**Note:** The SSDP service is used by Windows to detect Universal Plug & Play components such as our NOXON. The service is enabled by default in Windows XP and searches in the background for suitable devices.

- 2 The NOXON, on the other hand, sends a normal TCP/IP connection request to the target port 8080 (HTTP), transmitting its so-called client description to the music server. This description contains information on the NOXON and what it can play.
- 3 The server in turn sends a detailed description of itself (server, version and available services) to the NOXON. Everything is provided by the music server, depending also on the server's version and type. If you decide to sort by ARTIST, for example, the NOXON will send a query to the server (“Send me a list of all of the artists you have stored!”). The server will then send the contents of the directory, in this case the ARTIST list according to the filter rules transmitted by the NOXON.
- 4 Select a track to play and the music server will transfer it. The server will start the transfer on port 1024, but will change it regularly during the transmission.

## B2 Known issues

### 1. Wired connection (LAN)



As you may already know from other wired network devices, establishing a link essentially just involves plugging in the cable. Please ensure that a sound physical connection is present (**left LED lit orange**). If that is the case and a connection is still not available, then the problem will be either the settings of your gateway (the computer in your network that manages the connection to the Internet) or those of your router. The description of the network port on page 10 already brought up this topic, but please also see “4.3 For deeper understanding: about routers, SSID, MAC & IPs” on page 18 for more information. As is often the case in life, it helps to be on good terms with your favorite administrator. Heartfelt thanks and a charming smile often goes a long way.

### 2. No radio link between the server and NOXON

The fact that an MC broadcast is used for the first connection attempt between the client and server makes this initial connection relatively vulnerable. Depending on the network adapter, the MC range is often not routed at all in the network, especially when using wireless adapters. A number of local packet filters (such as firewall programs) see this form of communication as an attack on the system and thus filter it. Most better-quality firewall programs initially reject these broadcasts, but can be set up to permit unrestricted communication by entering the NOXON as a so-called trusted host.

The Windows firewall, for example, offers exceptions for a variety of protocols and technologies, and the default option “Universal Plug and Play” in the advanced settings allows unrestricted traffic for UPnP services.

If this option is not available, disable local packet filtering for the NOXON's IP address. In this case it's of course advisable to assign a fixed IP address to the NOXON to ensure that the rule does not need to be edited continually. You should also perform a check to determine whether Multicast communication is even possible. A variety of scenarios are conceivable here depending on the network adapter, especially in the case of Windows-based ad hoc wireless networks. You should also determine whether communication with the NOXON is possible at the most basic level by pinging it.

- Open the configuration of the NOXON, select Status and scroll to the IP Address item. If “being configured” is displayed here, then the device has not yet found a connection to the DHCP server, or a DHCP server is not available. In this case, check your network configuration before proceeding.
- Now, ping the NOXON from the computer running the music server. Open the command prompt (Start > Run > and enter “CMD”) and enter “ping 192.168.1.157”, using the actual IP address of your NOXON, of course. If you receive replies to your ping (the time in milliseconds until the reply was received will be displayed), then basic communication is possible. If that is not the case (“host unreachable”), then carefully check your communication—especially with regard to encryption and IP addresses.

**In summary, use the following checklist:****✓ Is the music server running correctly?**

Are all of the configuration files correct and does the server appear in the Processes list (CTRL + SHIFT+ ESC)? If it is not listed, check your server-side configuration.

**✓ Is there a conflict with your filter or firewall rules?**

The firewall can be disabled completely as an extreme measure when running Windows, or its functionality should not be extended to cover the NOXON. Disabling it briefly for the test can be useful when hunting down the problem.

**✓ Is any form of communication with the NOXON possible?**

A ping to the NOXON's IP address as described above will clarify this question. If the NOXON doesn't respond to your ping, it certainly won't be able to communicate via UPnP. If you are not successful here, then you have a different network problem which can range from a typo in the encryption key to massive configuration errors.

**✓ Does the network adapter support broadcasts in the MC range?**

A number of wireless network adapters do not support MC broadcasts while in ad hoc mode. That, however, prevents a fundamental part of the connection establishment. Please contact the vendor of your network adapter for more information.

**3. The connection fails after several minutes**

This points toward one of the small peculiarities of the UPnP standard. The useful communication begins on one of 1024 ports and changes regularly during operation. Not all firewall applications recognize this knocking on various doors as a continuous connection. Depending on its configuration, the firewall may decide not to ask the unknown visitor in.

Depending on the firewall application, the following actions will solve the problem:

- Specifying the NOXON (with a static IP) as a so-called trusted host, i.e. a device whose communication is guaranteed not to be malicious.
- Allow the server to communicate with the NOXON on ports 1024-65535.
- Activate an exception for "UPnP Framework" in the Windows XP firewall, or set other firewalls to allow UPnP communication.

## ***C - FAQ – Other questions and solutions***

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***The current FAQ (Frequently Asked Questions) for initial problem-solving can be found on the Internet at <http://www.terratec.de/support>***

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### ***The NOXON finds my access point, but not my computer.***

- Please ensure that a UPnP server is installed on your system and that this is enabled. Depending on the distance and software, it may take several seconds before your selection is listed in the NOXON.
- You may have MAC address filtering enabled in your router. If so, enter the MAC address of the NOXON in your router configuration. The address can be found on the bottom of the NOXON.
- Your router may be configured to use fixed IPs. If so, enter an IP address in both the NOXON and your router.

### ***My access point (SSID) is not listed.***

- The NOXON can only find your access point if it is within range. Reduce the distance to the access point and try again.
- Depending on the configuration of your router, your SSID may be hidden. If so, you must enter the SSID in the NOXON configuration menu manually.

### ***My NOXON sees several unknown access points.***

If multiple access points are within range—those of your neighbors, for example—the NOXON will list them. Select your own access point and continue with the installation.

### ***My NOXON indicates that my network is encrypted.***

Your network uses WEP encryption as protection against intruders. Enter your WEP key in the NOXON so that your network will recognize it as a user.

### ***Where can I find my WEP key?***

If you set the network up, you will have specified it yourself. Otherwise, contact your network administrator.

### ***I can't receive radio streams, or the update fails.***

- Your network may be using a proxy server that you have not entered in the configuration of your NOXON.
- You cannot connect to the Internet. Your router must be configured so that you can establish a connection to the Internet.
- If you are using the NOXON with an ad hoc connection, your local computer must be connected to the Internet and must have Internet connection sharing enabled.

***I'm playing a music file, but I can't hear anything.***

Either the NOXON is muted, or the volume is so low that you can't hear anything. Turn up the volume and/or press the Mute button. Ensure that the connected stereo or speaker system is powered up. In the case of DRM content, the digital output is disabled for legal reasons.

***The radio stream is interrupted suddenly.***

You may have a throughput problem with your Internet connection. Sometimes the problem is also with the station itself. Switch to a different station and try again. Also see the solutions in Appendix B.

***Playback stops abruptly.***

This may be due to a communication problem. It can be the result of radio interference, being out of range, or problems with your server or router. Reboot your system and try again. Also see the solutions in Appendix B.

***My computer/NOXON has found an unknown ad hoc network.***

An additional ad hoc network is in operation in your vicinity. Should you have problems with your configuration, please ensure that the option to automatically connect with non-preferred networks is disabled in the network settings. Disable and re-enable your network connection.

***My computer cannot be found when switching from ad hoc to network mode (or back).***

Restart the music server and your NOXON. Your computer will then be recognized again.

***How can I make subsequent changes to my configurations?***

Press the network button  on your remote control to open the configuration menu, in which you can modify a wide range of settings.

***How should I proceed with a manual IP configuration?***

Press the "Network" button to open the configuration menu. Launch the wizard, select "Next" and select your access point as usual. The "Static IP address" option must be selected in the IP settings. In the next step, enter the IP address. Finish the setup with the proxy settings as usual and apply them.

***Can I check all of my settings?***

Yes, by selecting "Status" in the configuration menu. The full range of information and settings related to your current configuration is displayed here.

***I would like to set up another profile for a different location. Is that possible?***

Yes, the "Profile selection" item is located in the configuration menu. You can create three personal profiles here that will be stored in the NOXON and which can be selected whenever you need them.

***What's the maximum range?***

Outdoors, the range is around 300 m. Walls and furniture reduce the range significantly indoors. The weather and barometric pressure is a further factor. The alignment of the antenna of your access point or network adapter is also important. Taking all of these factors into account, a range of 30-100 m should be possible indoors.

***Which file types does the NOXON support?***

The NOXON plays MP3 and WMA files (with DRM10). It also supports M3U and PLS playlists and most ASX streams (please check our website from time to time for updates which may expand support for individual formats!).

***Is the data communication truly secure? Does the NOXON represent a security risk for my network?***

If your network is WPA-encrypted, data communication between it and the router will be just as secure as with any other client. The NOXON therefore does not represent a potential point of attack for hackers.

***Is it possible to read or view other data on my hard drive?***

No, the NOXON can only access data shared by the UPnP server. This is the sole route the NOXON can use for accessing your files, so nothing else on your computer will be visible or transferred.

***Which communication standards does the NOXON support?***

NOXON supports IEEE 802.11b networks at 11 Mbps as well as IEEE 802.11g at 54 Mbps.

***What are the NOXON's power requirements?***

The NOXON requires an operating voltage of +12V DC at 1000mA—which corresponds to the included power adapter.

***Is wireless data communication a health hazard?***

Due to its very low power levels, WLAN data communication is less critical than the radiation from cell-phones. As it does with cellphone radiation, however, the density of the radiation and the nature of the room also play a role in this respect.

## ***D - Technical glossary***

**Access point (AP)** — An access point is a network component that WLAN clients (terminal devices) connect to in order to exchange data with the Internet or other clients. It is identified via its SSID. The NOXON can connect with an AP in order to obtain files from computers in the local network or audio streams from the Internet.

**Ad hoc network** — Ad hoc network (ad hoc: Latin, literally “for this purpose”) refers to a wireless network topology between two or more mobile devices without a fixed infrastructure. An access point is not required. The NOXON can also be used in ad hoc mode. You merely need a local computer with a WLAN adapter and your NOXON.

**DHCP** — The abbreviation for Dynamic Host Configuration Protocol. This protocol permits IP addresses and configuration parameters to be allocated to computers dynamically. DHCP permits the integration of additional network components without configuration. The NOXON configuration wizard supports DHCP, so no further configuration parameters need to be specified.

**IEEE 802.11b/ IEEE 802.11g** — Industry standards for wireless networks issued by the Institute of Electrical and Electronics Engineers. The b standard refers to a maximum bandwidth of 11 Mbps, whereas g supports 54 Mbps. Our NOXON supports both IEEE 802.11b and IEEE 802.11g networks.

**IP (IP address)** — (Internet Protocol) refers to a common communication protocol for computer networks. Each client has its own IP address consisting of four groups of digits separated by dots (e.g. 127.80.1.34). IP addresses are allocated automatically when using DHCP. The IP address can also be entered manually if the NOXON is not configured via DHCP.

**LAN** — A LAN (Local Area Network) is a computer network in a limited geographical area (in general a cable-based network).

**MAC address** — (Media Access Control address) is the hardware address that serves as a unique identifier for every hardware component in a network. The MAC address is fixed and can not be modified. As the NOXON is a network component, it also has a fixed MAC address. It can be found on the bottom of the device.

**Peer-to-peer connection (P2P)** — This describes communication among devices of an equal rank. All partners have the same status and identical functions. In an ad hoc network, the NOXON and your local PC represent a P2P connection.

**Proxy server** — Some networks—especially large corporate ones—use proxy servers to minimize the data volume requested continuously or by multiple users. They act as a kind of buffer between the Internet and the users in the local network. A proxy stores static Web content so that it does not need to be downloaded again the next time the page is requested. If you have a proxy server in your system, enter its settings in the NOXON to prevent any complications.

**Router** — A router is a piece of communication hardware that ensures that data packets sent through a network arrive at the correct destination computer (client). In many cases, routers interconnect networks such as LANs and WLANs. The NOXON is also a client that receives data packets in this manner.

**SSID (ESSID)** — The Service Set Identifier (SSID) or network name is the identifier for IEEE 802.11-based wireless networks. Every wireless LAN has a configurable SSID or ESSID (Extended Service Set Identifier) as a unique network ID. In other words, it is the network's name. The NOXON recognizes all found networks automatically and also supports the manual entry of SSIDs.

**UPnP** — This abbreviation stands for Universal Plug and Play, which is based on a number of standardized network protocols and is designed to provide cross-vendor control of devices (stereos, printers, routers, household systems) via IP-based networks. The NOXON is a UPnP device capable of receiving files from a suitable application.

**WEP encryption** — WEP (Wired Equivalent Privacy) describes a type of encryption for WLANs. Naturally, NOXON can also receive and interpret WEP-encrypted data.

**WPA encryption** — Like WEP, WPA is an encryption and authentication standard. WPA was developed to eliminate the fundamental weaknesses of WEP encryption. WPA can thus be seen as the secure successor to WEP.

**Wi-Fi** — A certificate for WLAN products that comply with IEEE802.11 standards and are compatible with other products. The NOXON also fulfills the technical standards of the Wi-Fi consortium.

**WLAN** — Also Wireless LAN or Wireless Local Area Network. The NOXON connects to your network via WLAN. It receives data via the local wireless network, processes them and plays it in the form of audio files.

## ***E - Service at TerraTec***

“Nothing seems to work!”—This can happen even on the best systems. If this happens to you, the TerraTec team is happy to offer its service and support.

### ***Hotline and Internet***

In case of a serious problem—where you can neither solve the problem on your own nor with the guided help found in this manual, nor with the help of your dealer—please contact us directly.

If possible, try our Internet support system first: under **[www.terratec.de/support](http://www.terratec.de/support)** you will always find current answers to frequently asked questions (FAQ) and the latest drivers.

If these options do not provide the necessary help, please contact our phone helpline or contact us online at **<http://supportde.terratec.net/kontakt.php>**.

In addition, it would be helpful to our technicians if you are at your computer during the phone call so that you can carry out our tips and tricks directly. Please do not forget to write down the name of the respective support technician if you contact our Support Team. You will need this name if a defect is present and your device needs to be mailed to us.

### ***Broken?!***

Before you send your device back, be sure to contact us! Make a note of the name of your support contact and follow these simple instructions:

- Please fill out the service request form provided with your card clearly and completely. The more clearly and detailed you describe the problem, the faster we will be able to help. Cards sent in without a description of the problem cannot be processed and will be returned to you at your expense.
- Be sure to include a copy of your purchase receipt (not the original) with the package. If we do not receive a copy of a receipt, we will assume that the warranty for the product has expired and will bill you for the repair.
- Please use a sufficiently strong and padded mailing package. We recommend using the original package. Remember that the card is a sensitive electronic component.
- Be sure to include enough postage—we will cover for the postage for the return to you.

## ***F – General terms and conditions of service***

### **1. General**

By purchasing and receiving the goods, you accept our general terms and conditions of service.

### **2. Proof of guarantee**

You will require a copy of the purchase receipt or delivery slip as proof of warranty. If you do not supply proof of warranty, we will charge for repairing the goods.

### **3. Description of problem**

Shipments that do not include a description of the fault or an insufficient description ('defective' or 'for repair' is insufficient) will be returned for a processing fee, because this makes repair more difficult and could have been avoided.

### **4. Invalid returns**

In the event of an unfounded complaint (no fault could be detected, probable operating error), we will return the goods and a processing fee will be charged.

### **5. Packaging**

If possible, please use the original packaging for return shipment. Any warranty claim will be jeopardized by improper packaging. The warranty will not apply to damage caused by improper packaging.

### **6. Foreign manufactured products**

Devices that are not manufactured or distributed by TerraTec Electronic GmbH will be returned and a processing fee will be charged.

### **7. Repairs liable to your expense**

Repairs out of the warranty period are liable to your expense.

### **8. Transportation costs**

The dispatcher pays all costs associated with shipping and insurance for the goods for repair to TerraTec Electronic GmbH. If the goods are covered by warranty, TerraTec Electronic GmbH will pay the shipping costs for returning repaired goods. COD shipments will not be accepted for organizational reasons.

### **9. Final regulation**

TerraTec Electronic GmbH reserves the right to change or supplement the general terms and conditions of service at any time.

Otherwise the General Terms and Conditions of Business of TerraTec Electronic GmbH are considered to be accepted.