



Thank you very much for choosing a Barryvox avalanche beacon. Barryvox stands for **quality-conscious** development, production and testing. **State-of-the-art technology** has been applied for use under **extremely hard conditions**. Due to the **choice of personal settings the latest generation of avalanche beacons are ideally suited to the user's needs and abilities**. The **default setting**, which can be restored at any time, **is the most appropriate one for novices and average users**. **To operate the beacon in this setting only a single key will be used and the functions are limited to the very user-friendly Digital Search Mode**.

Advanced and professional users have the possibility to activate special functions in order to meet their individual requirements.

The beacon is fully compatible with all beacons that meet the requirements of the ETS 300 718 standard and operates at a frequency of 457 kHz.

**An avalanche beacon does not provide you protection from avalanches!** As an outdoor recreation-  
alist you must **keep yourself well informed about avalanche prevention**. Also, you should always **plan your tours carefully**. **Avalanche rescue must be practiced regularly to ensure quick success**. However, it is only the means of last resort for the worst case.

Be aware that, in spite of practice and all the technical advances, only about half of all victims who have been

**The new Barryvox provides both digital and analog search modes.**



completely buried in avalanches are rescued alive!

This User's Manual contains **important information about how to operate the beacon, rescue companions, as well as some basics of avalanche awareness**.

For your own personal safety, please take time to read this information.

**Before using the Barryvox, remove the protective sheet from the front panel and carefully stick the avalanche rescue plan on the cover of the battery compartment** on the back of the beacon.

**The enclosed** quick reference chart is intended to be a useful guide when you are on your tour.

**An avalanche beacon does not provide protection from avalanches!**



**As an outdoor recreationalist you must keep yourself well informed about avalanche prevention and always plan your tours carefully.**

*We wish you lots of fun and thank you for your confidence!*



## Controls and Indicators

See the fold out front and rear covers.

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## 1. Quick Start – Barryvox in 10 steps

Stick the enclosed **avalanche rescue plan** on the cover of the battery compartment!

### 1 An avalanche beacon does not provide protection from avalanches!

As an outdoor recreationalist, you must keep yourself well informed about avalanche prevention. Also, you should always plan your mountain tours carefully.

**Avalanche rescue must be practiced regularly to ensure quick success.**

**We strongly advise you to also carry a shovel and an avalanche probe.**

Avoid in general that there are electronic devices (i.e. cellular phones) or metal parts (i.e. pocket knife) in close proximity to a transceiver which is turned on.

### 2 The harness system should be worn on the innermost layer of clothing, inside other layers. Wear the beacon on your body throughout the tour; not in your backpack!

**A layer of clothing should always cover the beacon!**

Please note the instructions on the back of the harness system.

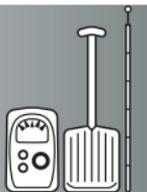
Before using it for the first time, the harness system must be fitted properly to your body. When performing a search, release the red buckle on the front. During the search, the Barryvox remains attached to your body by means of the snap hook and the wrist strap. If you carry the Barryvox in your trouser pocket, **make sure the pocket's zipper is closed throughout the tour.** Sewn-on pockets are not suitable. Whatever way it is carried, the transceiver's **display must face the body!**

### 3 The ON/OFF switch is on the back of the Barryvox. In the upper position, the beacon is switched off. In the lower position, the beacon is switched on. To switch the beacon on or off, press the ribbed button and then slide it up or down.

Once the beacon has started up, it runs a self-test. If the self-test has been run successfully, this is indicated by a triple beep. Then, the remaining battery life as a percentage of the full charge is displayed. The flashing SEND LED confirms that the beacon is properly transmitting.

#### Personal rescue equipment:

- **Avalanche beacon**
- **Avalanche shovel**
- **Avalanche probe**



**Before leaving the hut or trailhead, check the beacons of all group members.**



# QUICK START

**4** Before a group leaves the hut or trailhead, the beacons of all group members must be checked.

For this check, the **group test function (CHECK)** is activated on just one of the beacons. Keep the MODE key pressed during the self- and battery test, until "CH" appears on the display. Now check that all the beacons of the group members are in SEND mode.

The test is successful if you can hear clear beeps from all beacons when they are at a distance of approximately one meter. After completion of the group test, the Barryvox must be returned to the SEND mode. This can be done by pressing the MODE key for at least 2 seconds. If different transceiver types are used in a group, do a **double group check** testing transmit and receive separately!

**5** The transmit mode (SEND) is the normal operating mode when outdoors or in all situations where there is any risk of an avalanche.

**6** Pressing the MODE key three times, each time within one second, enters the SEARCH (receiving) mode. It is highly recommended to switch off cell phones while searching!

## SEND mode:

**normal operating mode when outdoors.**

**SEND LED flashing**



You can return to the SEND mode by keeping the MODE key pressed for at least 2 seconds.

**7** On the back of the Barryvox, you will find **important instructions** about what to do in case of an avalanche. When the Barryvox prompts you to start the **primary search** by displaying the **lightning arrow**, the available **search strategies** and the **width of the search strips** indicated on the back of the beacon should be taken into account.

**In primary search, turn the Barryvox in all directions!**

**8** Particular attention should be paid to the following points:

- Use the beacon in a calm and concentrated way. Avoid jerky movements. This will allow you to complete your search in the quickest and most reliable way!
- Hold the beacon horizontally in front of you.
- Watch the distance and direction information on the display.
- Move in the indicated direction.

**Enter the SEARCH mode by briefly pressing the MODE key 3 times within one second each.**





- If the **distance decreases**, then you are **approaching** the victim.
  - If the **distance increases**, then you are **moving away from** the victim. Continue the search in the **opposite direction**.
  - **The closer you approach** the victim, the **slower and more concentrated** your movements should be.
- 9 The beacon has an **automatic revert to SEND** feature (optional). If there is no user interaction, the beacon automatically reverts to the SEND mode (preset to 8 minutes). You are notified of the impending switch-over by 20 seconds of warning tone. To remain in SEARCH mode, press any key during the alarm period.

10 In the digital SEARCH mode, **multiple burials** are indicated by the following symbol:



Additionally, the analog tones are now enabled to differentiate between the individual transmitters. The beacon favors the nearest transmitter. Multiple burials will

usually be recognized within the search strip width.

**Switch off the transceivers of rescued persons in order to make continued search easier.**

**Primary search:**  
**In order to obtain the best range, slowly turn the transceiver in all directions**



**Work with the beacon in a calm and concentrated manner. Avoid jerky movements.**



# THE BASICS OF AVALANCHE AWARENESS

## 2. The Basics of Avalanche Awareness

We would like to provide you with some basic information about this complex subject. We recommend that you take a course and continuously update your knowledge by further training.

### The snow slab: a primed trap

Most winter recreationalists involved in an avalanche accident have triggered the avalanche themselves due to the additional load that they imposed on the snowpack.

The **snowpack** is **fragile**.

Snow on a steep slope is like a primed trap. If you touch the trigger, the trap snaps shut. Remember that a small snow slab of 100 m<sup>3</sup> weighs approximately 25 tons!

### 2.1 Recognizing Danger

#### Particularly Critical Weather Situations

The risk of avalanches rises abruptly after a **snowfall** accompanied by **stormy winds** and **low temperatures**. Slopes which have been loaded by **snow drift** (= snow driven by the wind) are particularly dangerous! Drifting snow may also accumulate during windy periods after a snowfall, in very clear weather.

**Most winter recreation-  
alists are caught in  
slab avalanches that  
they have triggered with their  
own additional load.**



The first fine day after a period of snowfall is particularly dangerous.

Most accidents occur when, after a period of several weeks of fine, cold weather, a cold front with stormy winds brings the fresh snow which everybody has been waiting for! With these types of weather conditions, **10–20 cm of fresh snow** may be sufficient to create a **critical situation**, which can last for several days.

The risk of avalanches can also increase rapidly with a **sudden and strong rise in temperature** (warm winds, rain). With subsequent cooling, the risk will be reduced again.

With an irregular and thin snowpack, the risk is extremely hard to recognize. This is often the case in early winter or during periods of low precipitation.

In spring, when the snow has undergone considerable metamorphosis, as a rule the risk increases in parallel to the passage of the day: e.g. from **LOW** (early in the morning after a clear night) to **CONSIDERABLE** in the afternoon.

**The risk of avalanches  
rises abruptly after  
a snowfall accompanied  
by stormy winds and  
low temperatures.**



**The first fine day after  
a period of snowfall is  
particularly dangerous.**





### Alarm signals:

- Whumphing noises and shooting cracks when walking on the snow surface.
- Recent spontaneous avalanches
- Remote triggering
- Vibrations of the snowpack, "Hollow" sounds



### Particularly dangerous slopes:

Extremely steep, often scattered with boulders, shadowed, covered with freshly driven snow, rarely used.  
Risk factors are cumulative!



## 2.2 Assessing the Risk

### Critical Amounts of New Snow

If the new snow which has fallen in the last 1–3 days is:

**10–20 cm** with unfavorable conditions

**20–30 cm** with moderate conditions

**30–50 cm** with favorable conditions

then you should assume that the risk level is **CONSIDERABLE**.

### Unfavorable conditions

- strong winds (>50 km/h)
- low temperatures (< -8 °C)
- slope rarely used

### Favorable conditions

- light winds
- temperature slightly below 0 °C
- slope used regularly

### Triggering the Trap Through the Additional Weight of a Person

**The steeper the slope and the more it is in the shade, the greater the probability of triggering an avalanche.**

The chances of triggering an avalanche are increased by large groups without spacing between group members, by taking hard turns when descending on skis, but above all by falls and jumps (over snow cornices) and similar shock-type loading.

At and above a **CONSIDERABLE** level of risk, remote triggering becomes a possibility. The person triggering the avalanche may be dozens of meters away from the fracture line. This is particularly fatal at the base of a slope because you may set the entire snowpack lying above you in motion!

**Note:** Sparsely wooded slopes (trees separated enough to ski or snowboard through) do not protect from avalanches. Also, scattered boulders sticking up through the snow surface will not prevent slab avalanches.

# THE BASICS OF AVALANCHE AWARENESS

## 2.3 Precautions

### Basic Precautions

Always take these elementary precautions regardless of the risk level:

- Set beacons to SEND (a shovel and an avalanche probe must be part of your personal rescue equipment)
- Keep off sites with a deposit of wind-transported snow
- Be aware of the temperature throughout the day, particularly in spring (**also applies to access routes; e.g. to a hut**)
- Continuously re-check the conditions during the tour

### Handle the Snowpack with Care

To handle the snowpack with care, spacing between group members should be maintained. When climbing, the spacing should be at least 10 meters. When descending, take into account the increased loading. Stay about 30–50 meters apart. Hazardous slopes must be traversed one person at a time.

### Proper Techniques for Safe Travel in Avalanche Country

When the risk is **HIGH**, the possibilities outside the secure ski area runs are extremely limited. When the risk is **CONSIDERABLE**, you should **avoid all slopes steeper than 35° degrees**. Slopes steeper than 30° must be crossed one person at a time.

In this situation, give preference to regularly used slopes. Treat the snow surface with the utmost care; avoid jumping or shock loading the slope!

When the risk level is **MODERATE**, you should **avoid slopes steeper than 40° (frequently interspersed with rock) in all orientations**.

## 2.4 Avalanche Warning Services

It would be impossible in the context of this User's Manual to publish a list of all the avalanche warning services.

Up-to-date information about all avalanche warning services (worldwide) can be found on the Homepage of Cyber Space Avalanche Center: <http://www.csac.org>

## 2.5 Literature

Further information about the topics of avalanches and tour planning directed specifically at outdoor recreationalists can be found in the following books:

**"The Avalanche Handbook"** David McClung & Peter Schärer, The Mountaineers. Available through book retailers.

**"Snow Sense; a Guide to Evaluating Snow Avalanche Hazard"** Jill Fredston & Doug Fesler. Available from the Alaska Mountain Safety Center or through book retailers.



## 2.6 International Avalanche Risk Scale

Risk Level	Snowpack	Typical Indications	Tours
<b>1</b> <b>LOW</b>	Snowpack generally well bonded.	None.	Generally favorable conditions.
<b>2</b> <b>MODERATE</b>	On some steep slopes snowpack only moderately bonded.	Difficult to recognize.  No alarm signals.	Generally favorable conditions. Careful choice of route on steep slopes of orientation and altitude as given in the avalanche forecast.
<b>3</b> <b>CONSIDERABLE</b>	On many steep slopes medium to poor snowpack bonding only.	“Whumphing” noises. Some spontaneous avalanches. Remote triggering at the foot of slopes.	Partly unfavorable conditions. Experience in assessing avalanche risk required. Wherever possible avoid steep slopes of orientation and altitude as given in the avalanche forecast.
<b>4</b> <b>HIGH</b>	Poor bonding of snowpack on most steep slopes.	Spontaneous avalanches. Remote triggering.	Unfavorable conditions. Tours only in moderately steep terrain < 30°. Be aware of avalanche runoff zones.
<b>5</b> <b>VERY HIGH</b>	Generally poor bonding of snowpack, mostly unstable.	Spontaneous avalanches and remote triggering on a large scale.	Very unfavorable conditions. Refrain from tours.

# COMPANION RESCUE

## 3. Companion Rescue

Companion rescue means the victims are located and rescued by the other members of the group immediately after the avalanche has occurred.

The rescue of buried victims is a race against time!

During the first quarter of an hour after an avalanche has occurred, most of the buried victims can be rescued alive. Then, the chances of survival drop very rapidly. **Companion rescue yields the greatest chances of survival for a buried person.**

### 3.1 Avalanche Conduct

If caught:

- Try escaping to the side
- Toss poles and release skis  
→ They act as an anchor
- Try to remain on the surface
- Close your mouth, cover your face with your arms  
→ **Create an air pocket when the avalanche comes to a standstill**

As observer:

- Fix the victim's last-seen point and the direction of flow of the avalanche.  
→ **Primary search stripe defined** (see Section "Primary Search Phase")

### 3.2 Personal Rescue Equipment

We recommend that you carry a radio or mobile phone (range?) with you to notify organized rescue services.

**The rescue of buried victims is a race against time!**

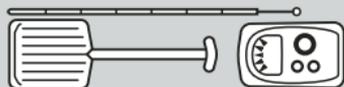
**Companion rescue yields the greatest chances of survival.**



**Personal rescue equipment:**

- **Avalanche beacon**
- **Avalanche shovel**
- **Avalanche probe**





### 3.3 "Avalanche Rescue Plan"

The avalanche rescue plan lists all the basic actions for a promising approach to companion rescue.

The procedures must be adapted to the actual situation.

For additional information about companion rescue, please consult the appropriate literature.

The avalanche rescue plan is split into four sections:

Search strategy for **one rescuer** on foot or on skis

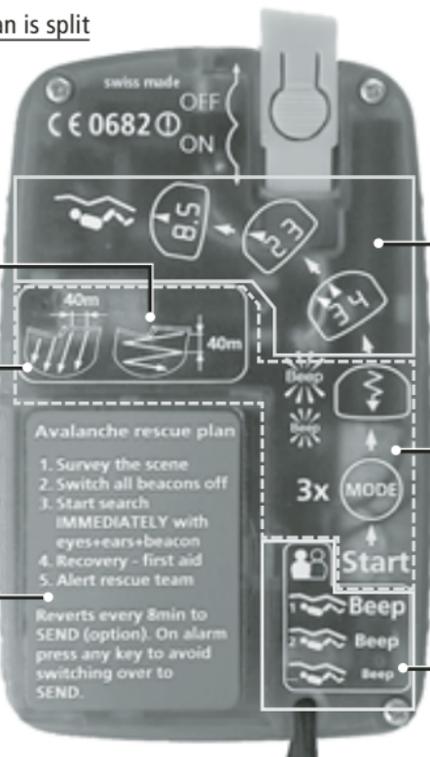
Search strategy for **multiple rescuers**

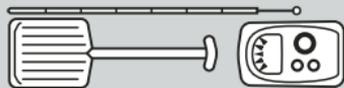
Memory aid for companion rescue

Instructions for the **secondary search phase**

Instructions for the **primary search phase**

Searching for **multiple burials**





## 3.4 Rescue – First Aid

It is not possible to pinpoint a buried victim with absolute accuracy using a beacon.

**The depth of burial and the spatial orientation of the person** to be recovered can, however, be determined by using an avalanche probe. **Always probe rectangularly to the snow surface.** Make sure the hole you are digging is wide enough.

Be aware of the victim's **air pocket** and do not **inflict injury** on the victim!

In case of **multiple burials**, the **beacons** of rescued persons **must be switched off** as soon as possible.

**First aid:** After checking on the patient, life saving and life maintaining measures must be started immediately.

The rescued person must be protected against hypothermia.

Avalanche victims should be transported as smoothly as possible. (If possible by helicopter.)

## 3.5 Notifying Organized Rescue Services – Reporting the Accident

It is not possible within the context of this User's Manual to publish a complete list of all mountain and air rescue services.

Please enquire locally before starting your tour about the rescue services in charge and about telephone numbers and radio frequencies for notifying organized rescue services.

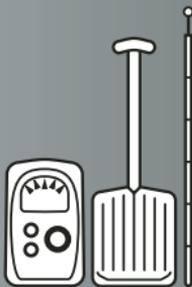
**The notification should include the following items:**

- Who** – is calling?
- What** – has happened?
- Where** – is the site of the accident?
- When** – did the accident occur?
- How many** – injured (type of injury), rescuers?
- Weather** – in the accident area

**The depth of burial and the spatial orientation of the victim can be determined by means of an avalanche probe.**

**Make sure the hole you are digging is wide enough.**

**Multiple burials:**  
**Switch off the beacons of rescued victims immediately.**





## 4. How to Handle the Barryvox

During the design of the Barryvox, care was consistently taken to achieve a robust and reliable design. As with all other beacons, however, the Barryvox contains ferrite antennas that are sensitive to shock.

In your own interest, therefore, these life-saving beacons should be **handled with great care!**

**Never drop your Barryvox on the floor**, transport the beacon with care and **avoid mechanical shocks**. Store the beacon in a dry place that is not subjected to extreme cold or heat and is not exposed to direct sunlight.

It is strongly recommended that you let periodically check the proper function of your transceiver. (see chapter "Periodic Checks")

Avoid in general that there are electronic devices (i.e. cellular phones) or metal parts (i.e. pocket knife) in close proximity to a transceiver which is turned on.

**Never drop your Barryvox on the floor, transport it with great care and avoid mechanical shocks.**



## 5. Harness System/ Wrist Strap

The Barryvox is supplied with a comfortable harness system.

The harness system must always be worn on the innermost layer of clothing. Keep it on your body throughout the tour; not in your backpack!

**A layer of clothing should always cover the beacon.**

The harness system consists of an adjustable shoulder strap (grey/black) as well as an adjustable elastic waist belt (black). Once the harness system has been adjusted to fit your body, only the big black buckle needs to be opened or closed.

The Barryvox is pushed into the harness system as shown in the picture on the next page and attached to the red ring on the harness system using the red snap hook of the wrist strap.

**The harness system must be worn over the innermost layer of clothing**



# OPERATING INSTRUCTIONS



In order to use the Barryvox for searching, open the red buckle on the front. The beacon remains firmly attached to the harness system/body by the snap hook or to the wrist/body by means of the wrist strap. Adjusting the length of the wrist strap (quick catch) facilitates comfortable use. If you carry the Barryvox in your trouser pocket, **make sure the pocket's zipper is closed throughout the tour.** Sewn-on pockets are not suitable. Whatever way it is carried, the transceiver's display must face the body!

**Wear the harness system on the innermost layer of clothing. A layer of clothing should always cover the beacon.**



## 6. Inserting/ Replacing Batteries

### Batteries:

Use only 1.5 V alkaline batteries (Type LR03/AAA). Use 3 new batteries of the same type. **Do not use rechargeable batteries** and replace all three at the same time.

### Open the battery compartment:

Press the cover firmly inwards with a fingernail, then push the cover horizontally to the left and hinge it upwards.

### Close the battery compartment:

Hinge the cover downwards, then press firmly on the notch and simultaneously push the cover horizontally to the right until it clicks into place.

### When inserting the batteries please note the following:

- Keep both the compartment and the batteries dry. (Moisture in the battery compartment may cause corrosion of the contacts)
- Do not touch the contacts.
- Regularly check on the battery compartment and clean/dry it.

When storing the Barryvox for any extended period of time (summer!), remove the batteries and leave the battery compartment open.



## 7. Startup

The ON/OFF switch is located on the back of the Barryvox. **To switch the beacon on or off, press the ribbed button and then slide it up or down. In the upper position, the Barryvox is switched off and in the lower position it is switched on.**

A bi-directional locking mechanism ensures that the Barryvox cannot inadvertently be switched on or off.

**Once the Barryvox has been switched on, it runs an automatic self-test.**

All electronic circuits, the antennas and the display are checked.

If the battery voltage is very low, the self-test cannot be run.

If the **self-test** has been **completed successfully**, this is confirmed by a **triple beep**.

Then, the **remaining battery capacity** is displayed for four seconds as a **percentage of full capacity**.

If the self-test fails, an error code is displayed for 20 seconds and an alerting tone is produced.

The error codes are explained in the section on "Problems and Solutions".

Check your Barryvox before you leave home to go for a tour. Switch it on and check the display of the self-test and of the battery test. This gives you a chance to replace low capacity batteries or to repair any defects.

**Check your Barryvox at home before you set out for a tour.**



Battery capacity indication

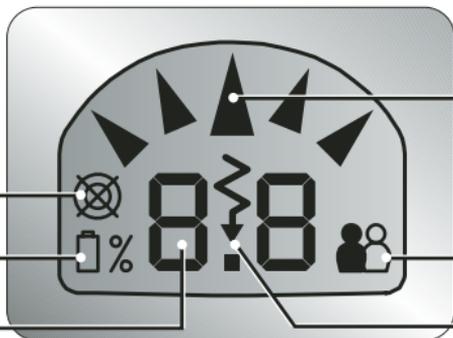


Display during self-test

"Automatic revert off" indicator

Battery capacity in %

Digits for distance display



Direction indicators

"Multiple burials" indicator

"Primary search phase" indicator

# OPERATING INSTRUCTIONS

## 8. Battery Status Display

The following table shows the boundary values for the battery status display. Low temperatures, age and brand can affect the battery life.

99% indicates:	200 hours SEND mode or 15 hours SEARCH mode minimum
less than 20% or when battery symbol displayed:	Emergency reserve: 20 hours SEND mode and 1 hour SEARCH mode, <b>the batteries must be replaced as soon as possible!</b>

If the battery capacity has dropped below 20%, you are warned by an acoustic alarm when you switch on the Barryvox.

**Before leaving the hut or the trailhead the beacons of all group members must be checked.**



## 9. Group Test (CHECK)

**Before leaving the hut or trailhead, the beacons of all group members must be checked.**

To run the test, the group test function is activated on a single beacon from the group. Keep the **MODE** key pressed during the self- and battery test until **"CH"** is displayed. Now check that all the members of the group have their beacons in the SEND mode.

The test is successful if a beep can be heard clearly at a distance of 1 meter. Make sure the individual members of the group are sufficiently far apart to avoid interference.

After five minutes the Barryvox automatically reverts to SEND. You are notified about the impending switchover by 20 seconds of warning tone.

To remain in CHECK mode, press any key during the alarm period.

**After completion of the group test the Barryvox must be switched to the SEND mode.** To do this, press the **MODE** key for at least 2 seconds.

If different transceiver types are used in a group, do a **double group check** testing transmit and receive separately!

Group test display (CHECK)





## 10. Transmit Mode (SEND)

The SEND mode is the normal operating mode outdoors or in all other situations where there is any risk of an avalanche. Every signal pulse transmitted is checked and acknowledged by the flashing of the SEND indicator.

## 11. Search Mode (SEARCH)

The SEARCH mode is entered by briefly pressing the MODE key 3 times, each time within 1 second.

This procedure ensures that the SEARCH mode cannot be entered unintentionally. The Barryvox is now in the digital search mode. It is highly recommended to **switch off cell phones** while searching!

You can return the Barryvox to the SEND mode by pressing the MODE key for at least 2 seconds.

The **digital SEARCH mode** eases and simplifies the locating of a victim.

The **analog SEARCH mode** is equivalent to the traditional analog search using a bracketing pattern. It offers advantages to experienced users under certain special circumstances.

**SEND mode:**  
**normal operating mode outdoors.**



## 12. Automatic Revert to SEND

In the absence of any user interaction, the beacon automatically reverts to the SEND mode after a predefined time (preset to 8 minutes).

You are notified of the impending switch-over by a 20 second warning tone. To remain in SEARCH mode, press any key during the alarm period.

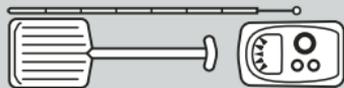
This ensures that a Barryvox cannot be left in SEARCH mode, e.g. after a search or search training, etc. It is automatically switched to SEND mode.

In the event of a second avalanche burying the rescuers themselves, this function allows them to be located through their beacons.

**Enter the SEARCH mode by briefly pressing the MODE key 3 times within one second each.**



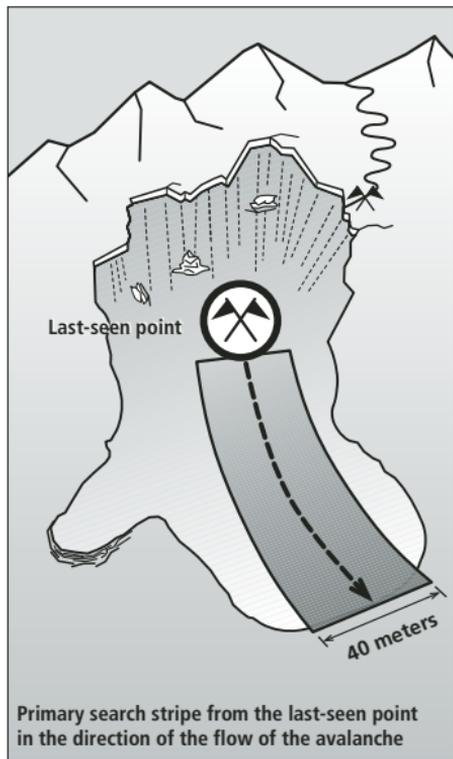
# PRIMARY SEARCH PHASE



## 13. Primary Search Phase

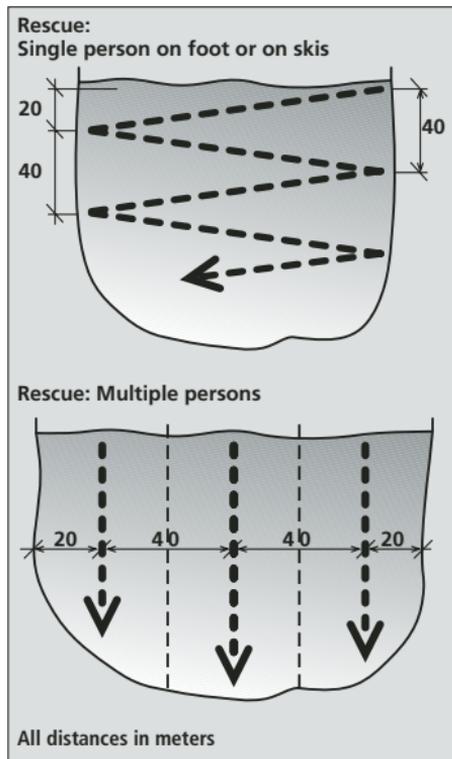
From the start of the search until clearly heard signals are received, you are in the **primary search phase**.

### Search strategy "Last-seen point known"



Regardless of the receive mode selected, the following search strategies apply:

### Search strategy "Last-seen point not known"



**In order to obtain the best range, slowly turn the beacon in all directions. If a signal is received stop moving the beacon. Proceed in this direction until the signal can be heard clearly. This marks the end of the primary search phase.**

## 14. Secondary Search Phase

### 14.1 Digital Search Mode

The digital search mode offers the user optical guidance.

At distances above 40 meters the display prompts you by means of the lightning arrow to apply one of the "Primary Search Phase" strategies:



Even in this early phase, a well-trained rescuer may shorten the search path with the aid of the analog tones or recognize a multiple burial situation through the typical dual tones.

If the **distance to the victim is less than 40 meters, the distance and the direction are given.**

The microprocessor automatically adjusts the sensitivity of the receiver for optimum detection of the received signals.

This search mode requires less training and makes it easier to locate a victim. Due to the laws of physics, it is not possible to determine the distance with absolute precision. The figures shown are only to be interpreted as relative. **Focus is therefore on the tendency, to increase or decrease and not the absolute values.** Due to the changing shape of the flux lines in the immediate vicinity of a victim, the direction display is suppressed at distances below 3 meters. The pinpoint location is done by means of the **distance display only.**

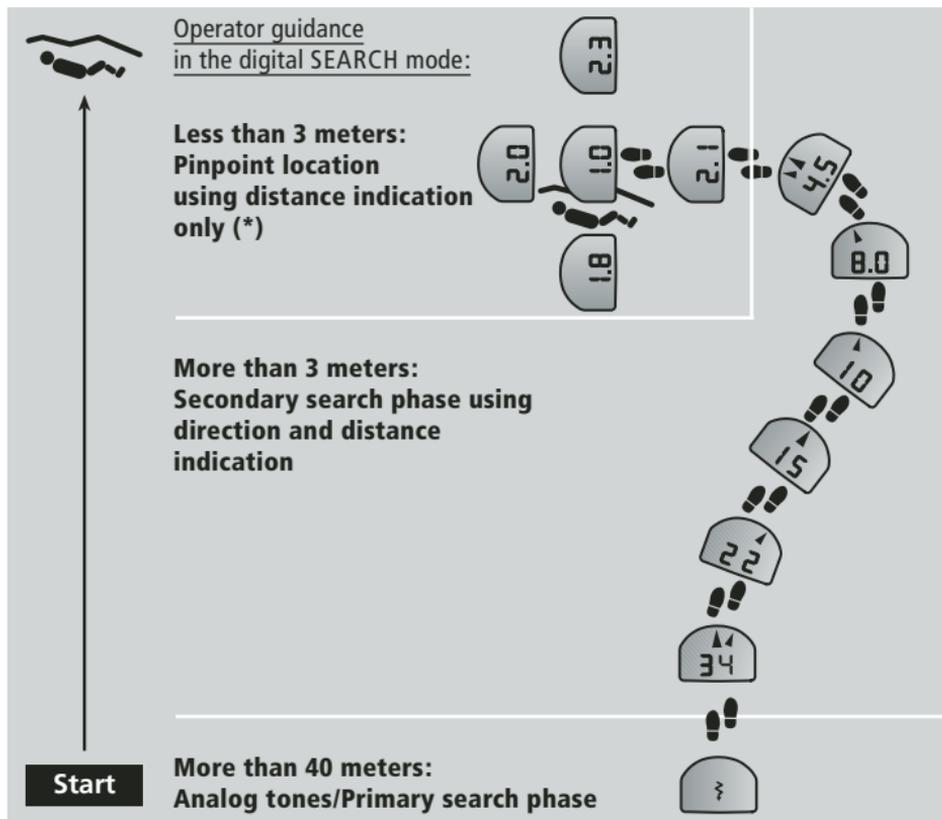
Important points to be noted  
when using the digital search mode:

- Hold the Barryvox **horizontally** in front of you.
- **Watch the distance and direction information on the display.**
- **Move in the indicated direction.**
- If the **distance decreases**, you are **getting closer** to the victim.
- If the **distance increases**, you are **moving away** from the victim. Continue the search in the **opposite direction.**

**The digital search mode requires less training and makes it easier to locate a victim.**



# SECONDARY SEARCH PHASE DIGITAL SEARCH MODE



- The closer you get to the victim, the more slowly and concentrated you should move.
- Normally you would approach the victim in a curved line. You thus follow the path of the flux lines.
- **Warning:** Electrical cables and large metal objects (e.g. high voltage power lines or ski lift cables) can interfere with the digital search. They can produce misleading indications for direction and distance.

**Pinpoint Location:**

Depending on the burial depth of the victim, the pinpoint location starts earlier or later, normally when the distance indication is 3 meters or less. **In this phase, hold the beacon directly above the snow surface!**

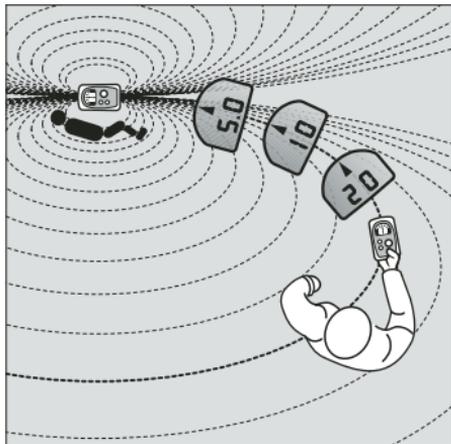
Now search for the point with the **smallest distance shown**. This value is equivalent to the approximate burial depth.

**Now use an avalanche probe to precisely locate the victim.**

The lowest distance indicated is 0.3.

At this point, all of the direction indicators are shown.

(\*) As an option, the direction indication can be displayed till the very end of the search. See section "Personal Settings" for more information.



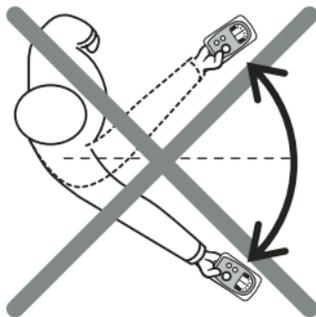
Flux line method

**Hold the beacon directly above the snow surface for pinpoint location!**  
**Use a probe for exact location.**

**When working with the beacon, remain calm and concentrated.**

**Avoid jerky movements.**

**This will allow you to complete your search in the quickest and most reliable way!**



# SECONDARY SEARCH PHASE

## MULTIPLE BURIALS

### 14.2 Multiple Burials

In the digital search mode, multiple burials are indicated by the following symbol:



When this symbol is shown, the speaker is set to reproduce the analog tones. These assist you in separating the various transmitters acoustically.

**The Barryvox indicates the nearest victim.**

Multiple burials are usually detected within the search strip width, however depending on the position and distance between the rescuer and victims the distance can vary considerably.

**Switch off the transceivers of rescued persons in order to make continued search easier.**

If you are not absolutely certain about the number of buried victims, you must search the **whole of the avalanche area** using the search pattern as described in the section on the "Primary search phase!"

**Procedure on the Avalanche Debris:**

Search strategy for multiple burials wide apart

**Mark the point** on the avalanche where the "multiple burial" symbol is shown or where **you left the primary search grid**. Search for the first victim using the information on the display and the analog tones. Once the first victim has been located, you or other helpers should immediately rescue the person.

To continue the search for further buried victims, **return to the point previously marked**. Carry on searching strictly

following the primary search grid until the Barryvox indicates another victim.

At the beginning, the transceiver still indicates the already located victim, as it is still closest to you. **Ignore the indications until you realise that the transceiver is now tracking a new victim.**

Search strategy for multiple burials in close proximity

In this case the interpretation of the analog tones is extremely important. They have to be interpreted in conjunction with the indicated distance. Example:

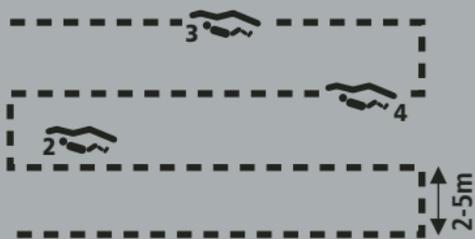
- There is a triple beep and the distance indication varies between 3.5 and 4.8 m  
⇒ within a radius of approx. 5 m,  
3 victims may be expected.

Treat the situation by searching the potential area using a "micro search strip" pattern. The more victims there are and the closer they are together, the narrower should the micro search strips be laid over the potential area. Hold the transceiver in this phase always in the same orientation close to the snow surface and concentrate on the increase and decrease of the distance indication, respectively to the volume of the analog tones.

In addition, the probe can be used to quickly locate multiple burials in close proximity.

The transceiver is locating victim 1 using the "search strategy for multiple burials wide apart"

The transceiver is locating the victims 2 – 4 using the "search strategy for multiple burials in close proximity"



*"Within approx. 7 m, there are 3 victims"*

*"Within approx. 5 m there is one victim"*



*"Within approx. 25 m there are at least 3 victims"*



# SECONDARY SEARCH PHASE ANALOG SEARCH MODE

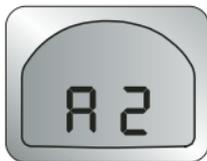
## 14.3 Analog Search Mode

The analog SEARCH mode provides the acoustic search as known from earlier beacons. Victims are located by means of an audible change in the intensity of the received signal. For best results, **this search mode requires intensive user training.** In order to be able to use the analog SEARCH mode, you must set the search mode to "dA" in the configuration. See the section on "Personal Settings" for more information.

Once you have enabled your Barryvox for analog search, you can switch between analog and digital search at any time by briefly pressing the MODE key while in the SEARCH mode.

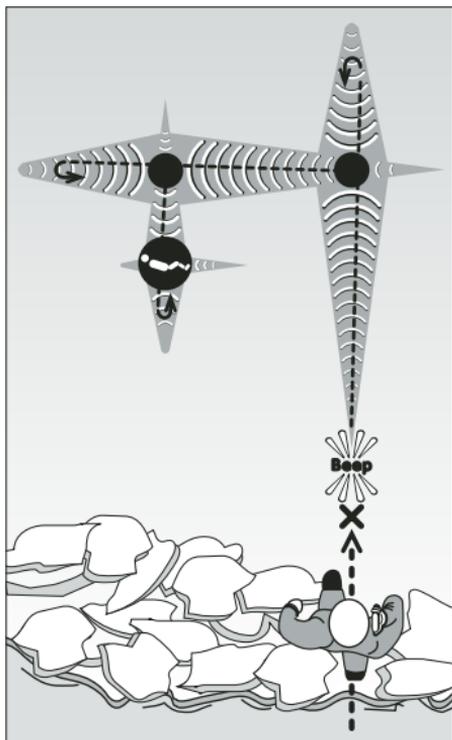
You must now manually adjust the sensitivity of the receiver by means of the UP and DOWN keys.

A1 corresponds to the smallest and A8 to the greatest distance from the victim.



Display in the analog SEARCH mode (here indicating the second lowest level of sensitivity).

**The analog search mode requires intensive training.**



**Bracketing method  
(secondary search phase)**

When you select the A8 level, this is only shown for the first 3 seconds.

Then the display changes to a single dot in order to improve the quality of the analog tones.

Pressing any key returns the full display.



## Bracketing Method in the Analog Search Mode:

### Rules

- **Maximize tone**  
Search for the strongest signal on a straight line.
- **Reduce tone**  
Reduce the volume until it can just about be clearly heard.
- **Search at right angles**  
Turn through 90° from the first search direction.

### Remember

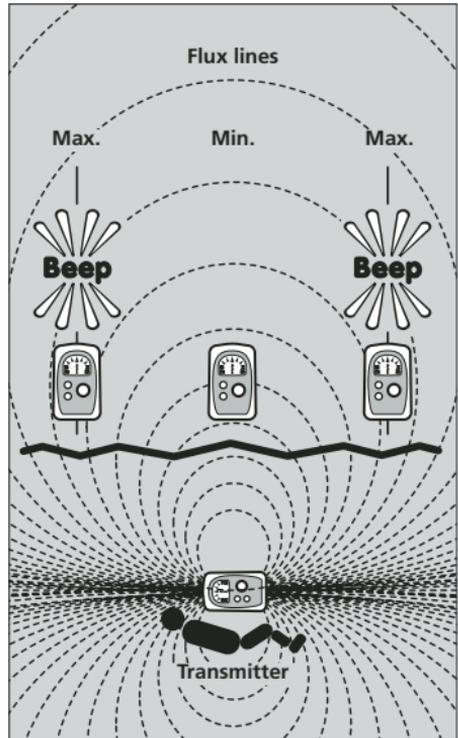
- **Hold the beacon vertically**
- **Move swiftly**  
The volume will only change when you move.
- **Search quietly**  
With low volume the differences in volume can be clearly heard.

### 14.3.1 Pinpoint Location and Flux Lines

Depending on the burial depth of the victim the pinpoint search begins earlier or later, but normally around level A3 and below. During this phase **hold the beacon vertically above the snow surface!**

After determination of the first maximum, use an avalanche probe to pinpoint the victim.

If the victim is buried at a great depth, use a **pinpoint method** such as “**pinpoint in a circle**” or “**pinpoint over a cross**”.



**The three-dimensional shape of the flux lines (pinpoint search)**

Detailed information about pinpoint search methods can be found in the specialized literature.

The three-dimensional shape of the magnetic flux lines around the buried beacon does not permit an absolutely precise location. You must use an avalanche probe or a pinpoint search method to quickly locate and rescue a victim!

# PERSONAL SETTINGS

## 15. Configuration

To enter the configuration menu press both the UP and the DOWN keys during the self- and battery test and keep them pressed until the menu is displayed.

To change between the various menu items, briefly press the MODE key. To change the setting of a menu item, press the UP or DOWN key.

To exit the configuration menu, press the MODE key continuously for at least 2 seconds.

In the absence of any user interaction, the beacon automatically reverts to the SEND mode after one minute.

You are notified of the impending switch-over by a 6 second warning tone. To remain in the configuration menu, press any key during the alarm period.

**Use the UP and DOWN keys to change the settings!**

**To exit the configuration menu, press the MODE key for at least 2 seconds.**



### SEARCH MODE



*Digital  
SEARCH  
mode only*



Digital and  
analog  
SEARCH modes

MODE

MODE

### DIRECTION INDICATION



*Direction  
indication  
stops at 3.0 m*



Direction  
indication  
stops at 0.3 m



## AUTOMATIC REVERT TO SEND

The default delay time of 8 minutes is the first-choice setting for most users. **Change this setting only if you have good reason to do so** (e.g. as an avalanche dog trainer). This setting is extremely important for your personal safety!



No automatic revert to SEND mode. This symbol is displayed:



Revert to SEND mode after 4 minutes.



**Revert to SEND mode after 8 minutes.**

MODE

## EARPHONE VOLUME



MODE

## SPEAKER CONFIGURATION IN THE DIGITAL SEARCH MODE



**Primary search phase: analog tone.**  
**Secondary search phase: the speaker is muted**



Primary search phase: analog tone.  
Secondary search phase: digital tones, increasing in number when approaching the victim.



Primary search phase: analog tone.  
Secondary search phase: analog tone.

MODE

### Note:

***Bold italics***  
= Factory default settings, equal to the settings after restoring the default configuration



## 16. Restoring the Default Configuration

During the self- and battery test, simultaneously press all three keys (UP + DOWN + MODE) and keep them pressed until "FA" is displayed.

**All user settings will now be restored to their default values.**

For confirmation, "FA" blinks three times on the display.

## 17. Earphones

Standard earphones (e.g. from a Walkman) can be used. The volume can be adjusted (see the section on "Personal Settings"). As soon as the earphones are plugged in, the built-in speaker is disabled so as not to disturb other rescuers.

**The use of earphones offers substantial advantages when searching for victims, particularly when the background noise is high (wind, helicopter, etc.).**



## 18. Maintenance and Repair

Barryvox beacons which do not operate properly (errors according to the "Problems and Solutions" list, failure of the group test, have mechanical defects) in spite of correctly inserted, fully-charged batteries, must be returned to one of the **Barryvox service centers indicated on the inside of the cover of this manual.**

## 19. Periodic Checks

In order to check the correct functioning of the beacon we strongly recommend that it be sent to a Barryvox service center every 3 years for a functional test (You will be charged for this service). **A list of service centers can be found on the inside of the cover.**

We recommend that you have this **checkup done during the summer months** so that your Barryvox is ready for use in time for the new season.



## 20. Glossary of Terms

Term	Description	Synonyms
<b>SEND</b>	The beacon is transmitting. SEND is the normal operating mode outdoors or in all situations in which a risk of an avalanche exists.	SEND mode transmit
<b>SEARCH</b>	SEARCH is the mode used to locate buried victims.	SEARCH mode receive
<b>CHECK</b>	CHECK indicates that the beacon is ready for group testing. (See the section on "Group Test")	
<b>PRESS</b>	PRESS simply indicates that a key is to be pressed.	
<b>Primary search phase</b>	As long as no detectable signal is received from a victim, you are in the primary search phase. The avalanche debris is searched using a specific grid. (See the back of the beacon and the section "Primary Search Phase")	
<b>Bracketing method</b>	A search procedure in which the buried victim is located using analog tones and a right-angled search path.	grid search
<b>Analog tone</b>	The tone as received from the transmitter.	
<b>Digital tone</b>	A tone which is generated locally by the receiver.	



## 21. Problems and Solutions

Fault symptom/ error code	Problem description	Solution
No self-test when the beacon is switched on	The electronics are faulty.	<ol style="list-style-type: none"><li>1. Check and replace batteries.</li><li>2. If this does not solve the problem the beacon needs repair. Please refer to the instructions in the Section "Maintenance and Repair".</li></ol>
 displayed when in SEARCH mode	The batteries are low.	The batteries must be replaced as soon as possible. Refer to the instructions in the Sections "Inserting/Replacing Batteries" and "Battery Status Display".
The SEND indicator does not flash	The beacon is not transmitting any signals.	<ol style="list-style-type: none"><li>1. Check whether the beacon is switched on.</li><li>2. Check whether the beacon is in the SEND mode.</li><li>3. Check the batteries and if necessary replace them.</li><li>4. If this does not solve the problem the beacon needs repair. Please refer to the instructions in the Section "Maintenance and Repair".</li></ol>
E1, E2, E3, E4	The electronics are faulty.	The beacon needs repair. Please refer to the instructions in the Section "Maintenance and Repair".

## 22. Warranty

We provide a warranty for the Barryvox beacon (excluding harness system and wrist strap) for a period of 5 years from the date of purchase as shown on the purchase receipt. In case of a warranty claim, all parts that can be shown to have material or manufacturing defects will be replaced free of charge.

Damage that can be traced to incorrect handling or normal wear and tear is excluded. The warranty becomes null and void for beacons which have been opened by the customer or any unauthorized third party as well as for beacons which have been used with spare parts or accessories which are

# SPECIFICATIONS



not original or are not recommended by the manufacturer.

When no defect can be detected, you will be charged for the functional test. Work carried out under warranty does not extend the warranty responsibilities or the period of the warranty on the beacon.

A warranty of six months is provided on replaced parts.

Warranty claims can only be accepted if the beacon is sent for repair together with the purchase receipt. **Shipping and handling will be charged to the owner of the beacon. Any additional warranties and any liability for consequential damages are explicitly excluded.**

## 23. Technical Data

Operating frequency	457 kHz (international standard frequency)
Batteries	3 × Type IEC-LR03 1.5 V alkaline (AAA)
Battery life	200 hours SEND minimum, usually more than 300 hours
Maximal range	about 60 meters
Temperature range	-20° to +40 °C
Dimensions (L × W × D)	108 × 68 × 25 mm
Weight	170 g (incl. batteries)
Earphone jack	For standard HiFi earphones
The Barryvox fully complies with the standards ETS 300718	

## 24. Approval/Conformity

Manufacturer	Ascom Systec Ltd.	Model No.	Barryvox OPTO 3000
Country of manufacture	Switzerland	Code number	CE 06820
<b>USA/Canada</b>		<b>Operation is subject to the following two conditions:</b>	
Canada:	34871021670	<b>1</b> this device may not cause interference, and	
FCC ID:	OQOQOPTO 3000	<b>2</b> this device must accept any interference, including interference that may cause undesired operation of the device.	
This device complies with part 15 of the FCC Rules			

All information supplied without liability. Status July 2003

Technical data and specifications may change without notice for future transceivers.



## EU-Konformitätserklärung EC-Declaration of Conformity

Hersteller / Verantwortliche Person  
Manufacturer / responsible person

Ascom System AG

Adresse / Address

Göschelbühl

5596 Muggenwil

Switzerland

Erklärt, dass das Produkt / Declares that the product:

Typ / type

Barryvox CIP/O 3060

Modell / model

Modell Barryvox and Red Barryvox

Verwendungszweck /  
Intended use

RF device for detecting satellite systems

bei bestimmungsgemäßer Verwendung den grundlegenden Anforderungen gemäß Artikel 3 der R&TTE-Richtlinie 1999/5/EG entspricht und daß die folgenden Normen angewandt wurden  
complies with the essential requirements of Article 3 of the R&TTE 1999/5/EC Directive if used for its intended use and that the following standards has been applied

1 Gesundheit (Artikel 3.1 a der R&TTE-Richtlinie)  
Health (Article 3.1 a of the R&TTE Directive)

angewendete Norm(en) ETS 300718  
applied standard(s)

Ausgabe 3. 1997  
issue

2 Sicherheit (Artikel 3.1 a der R&TTE-Richtlinie)  
Safety (Article 3.1 a of the R&TTE Directive)

angewendete Norm(en) ETS 300718  
applied standard(s)

Ausgabe 3. 1997  
issue

3 Elektromagnetische Verträglichkeit (Artikel 3.1 b der R&TTE-Richtlinie)  
Electromagnetic compatibility (Article 3.1 b of the R&TTE Directive)

angewendete Norm(en) EN 50081-1  
applied standard(s)

Ausgabe 1. 1992  
issue

EN 50082-1 (0. 1997)

4 Effiziente Nutzung des Funkfrequenzspektrums (Artikel 3.2 der R&TTE-Richtlinie)  
efficient use of the radio frequency spectrum (Article 3.2 of the R&TTE Directive)

angewendete Norm(en) ETS 300718  
applied standard(s)

Ausgabe 3. 1997  
issue

Muggenwil, March 27, 2001  
(Ort und Datum der Konformitätserklärung)  
Place and date of EC Declaration of Conformity

Ascom System AG  
(Name und Unterschrift)  
(Name and signature)

  
Max Eberle