

Instructions for the Miniguide Mobility Aid

Welcome to the Miniguide. Before reading other sections of these instructions and before using the Miniguide, please read these important warnings.

WARNING: The Miniguide is designed to provide information to a blind traveller, which will supplement that provided by other aids, such as the long cane or guide dog. It is stressed that it is not designed as a blind person's sole aid.

Only use the Miniguide in a safe and familiar environment.

Always check that the Miniguide is working properly before using it. Check that the aid is detecting objects, and is in the expected range. Make sure that the cap has been removed from the case.

Please note that drop-offs such as kerbs, edges of railway station platforms, etc. cannot be detected. Low height objects are often difficult to detect.

Objects that reflect or absorb the ultrasonic beam can also be difficult to detect. For example, smooth surfaces at a slight angle, soft furnishings.

To summarise, rely on your primary aid for safe travel and use the Miniguide to provide extra non-critical information. If you have any doubts about your ability to use this aid, please seek assistance from an organisation with experience in mobility training.

BATTERY WARNING: The lithium battery used in this aid can be dangerous if mistreated. Keep the battery out of the reach of children. Do not disassemble, damage or mistreat the battery. The battery is not rechargeable; do not attempt to

recharge the battery. Do not short circuit the battery. Do not apply excessive heat or incinerate the battery. Keep the aid and the battery in a cool, dry place.

Introductory Note

The following instructions assume you are using a new aid that has not had its settings changed. If your aid is not new and there is the possibility the settings have been changed, you will need to return your settings to the factory defaults. You can return your aid to its factory default settings by removing the battery for two minutes.

Description of the Aid

The Miniguide is about 80mm long, 38mm wide and 23mm thick.

At the front of the aid are two sensors. The sensors are circular in shape with a fine mesh covering.

There is a single 18mm diameter switch located near the front of the Miniguide. Pressing the switch will allow you to turn the aid on and off and change settings.

A wrist strap is attached to the rear of the aid. A cap is usually attached to the wrist strap. The cap can be placed over the front of the aid when it is not in use.

An earphone socket is at the rear of the aid. This can be used to provide audio feedback.

Installing the Battery

When installing a new battery, make sure that the battery is around the correct way. On one end of the battery there is a small bump. This end of the battery needs to be positioned towards the rear of the Miniguide, that is, away from the sensors.

If the battery is inserted backwards, the aid will vibrate at full speed until the battery is removed. This will also reset the aid to its factory defaults.

If you want your present settings to be saved while changing the battery you should change the battery as quickly as possible.

To open the battery cover, hold the aid with the switch pointing downwards. Place a small coin in the slit above the lanyard attachment point and gently twist the coin. The battery cover should lift up at the rear. There are two latches at the rear of

the cover. If both latches have disengaged the cover can be removed completely from the aid. If one latch is still engaged, lift the rear of the cover with your fingers until both latches have disengaged.

The battery sits between two upright metal battery contacts. Remember that the bump end of the battery goes towards the rear of the case. Hold the battery at its bump end and place the other end into the battery compartment. Now gently press down on the bump end of the battery until it clicks into place.

To install the battery cover, rest the front lip of the cover on the battery and slide it forward until it stops. The front of the cover fits under the front of the case. Check that the back of the cover is aligned with the case. Gently press down the rear of the cover until both latches engage. Forcing the rear of the cover down when it is not properly

aligned could break the latches.

Switching the Aid ON or OFF

First remove the cap from the aid. Now locate the ON/OFF switch near the front of the aid.

Pressing the switch will result in a short vibration, or pulse, from the aid. Make sure you release the switch once you feel the vibration. The pulse indicates that the aid has been switched ON. You will probably now notice the aid continuing to vibrate, try waving your hand in front of the aid to make the vibration speed change. Pressing the switch again should result in a longer vibration pulse. This indicates that the aid has been switched OFF. Waving your hand in front of the aid now should not produce any vibration. Practise switching the aid ON and OFF to familiarise yourself with the ON and OFF vibrations.

Testing the Aid

Switch the aid ON. Now place your hand about 5cm away from the front of the aid. The aid should be producing very fast vibrations. Move your hand further away from the aid, keeping your hand in front of the aid. The speed of the vibrations should get slower as the hand is moved away. Try moving your hand around, to get used to how the aid reacts. Try pointing the aid at an uncluttered wall (or ceiling) and moving the aid forwards and backwards. The vibration speed should change as the distance changes.

Now point the aid in all different directions. If you are in a small room, the aid will most likely be always vibrating. If you're in a large room, or outside, then pointing the aid in certain directions will cause the vibrations to stop. The vibrations stop when the aid cannot detect an object within

its present range - the present range should be the factory default range of 4 metres.

Please note that the aid automatically switches itself off after about 90 minutes. So it is recommended that you switch the aid off occasionally, for example every 20 to 30 minutes. This will avoid the aid automatically switching off while it is in use.

Changing Settings

The following are the basic settings of the Miniguide

- * Setting 1 4 metre range**
- * Setting 2 2 metre range**
- * Setting 3 1 metre range**
- * Setting 4 half metre range**
- * Setting 5 8 metre range**

When learning how to use the aid, it is often less confusing to practise with a setting that has a shorter range e.g. the 1 metre or the half metre ranges. These shorter ranges mean that the aid will not be vibrating most of the time, except when there is an object close to the user.

Settings are changed by holding the switch down continuously for two seconds or longer.

Releasing the switch after a certain number of pulses, selects the setting. Once a new setting is selected the aid will use that setting whenever it is switched on. That is, the aid remembers the selected setting.

To select a setting, first make sure the aid is off. Now switch the aid ON, but DO NOT RELEASE THE SWITCH. You should feel the short ON-pulse. About two seconds after the ON-pulse, the aid will start pulsing every second.

To select a setting, you count the number of pulses after the ON-pulse. For example, to select setting 4, count 4 pulses after the ON-pulse, and then release the switch.

Here is a description of how to select setting 4, the half metre range:

- 1. Make sure the aid is off.**
- 2. Press and keep pressing the switch, the aid will give a quick ON-pulse.**
- 3. Count the pulses that start occurring several seconds after the ON-pulse.**
- 4. Release the switch immediately after counting four pulses.**

The aid should now be ON and in the half metre range.

Use your hand in front of the aid to confirm that the correct range is selected. The vibrations should stop when your hand is further than half a metre from the aid. If you misjudge the number of pulses, then just release the switch and go

through the above steps again.

So far, we have discussed the use of one Miniguide range at a time. If the Miniguide is set to the 1 metre range, and a user wants to know if there is a landmark 3 metres ahead, the unit must be turned off, turned on, and its button must be held down for 2 seconds until the first pulse, indicating the 4 metre range is selected. Think of this situation as involving one preset range. Only one range is available to the user while the Miniguide is on. Swapping between ranges can be cumbersome and inconvenient. Therefore, the Miniguide offers options to select two or three range presets and to swap between ranges with one press of a button.

Presets are described in more detail in the "Settings" section below.

Battery Maintenance

The Miniguide contains a single battery, a type 123 lithium battery. This type of battery is commonly available, particularly from stores selling photographic supplies. Only use batteries from well-known and respected manufacturers. Spare batteries should be kept in their original packaging in a cool dry place.

This type of battery has many advantages. It stores a lot of power for its size. It has a shelf life of up to 10 years. The battery life depends greatly on how often the aid is vibrating. On average, the battery should give about 100 hours of continuous use. If the audio output is used and not the tactile output, then the battery should last around 1000 hours. It is surprising how many products drain a significant amount of power from their batteries

even when they are switched off. The Miniguide uses virtually zero power from the battery when it is switched off.

If the aid starts to lose sensitivity, especially in the longer ranges, or behaves erratically, then try installing a new battery. Discard the old battery if things improve noticeably with the new battery.

The aid also has a low battery warning. The battery voltage is checked only when the aid is being switched off. When the battery voltage is very low, the normal switch-off pulse is repeated 4 times. That is, instead of just one switch off pulse, there will be five switch off pulses, all within one second.

If the strength of the vibration is still weak or non-existent after installing a new battery, then it is possible that the vibration unit needs to be replaced. As a vibration unit starts to wear out, its

vibrations become weaker and more erratic. How long a vibration unit lasts depends on how much it is used. It is anticipated that for all reasonable usage the vibration unit will last for years. On rare occasions the vibration unit can fail suddenly and completely. To test if the vibration unit is working, insert the battery the wrong way around for a short time. This should make a working vibration unit run at full speed. Always remove the battery immediately after this test, whether the vibration unit is working or not.

The vibration unit is best replaced by a technician or a handy person. Two screws need to be loosened, this allows the vibration unit to be removed. The new vibration unit is then inserted into the socket and the screws tightened again. Tighten the screws evenly. Do not over tighten the screws. If in doubt get your nearest mobility agency to assist you.

Interference

The Miniguide detects objects by sending out an ultrasonic pulse and then listening for the echo. If something in the area is also producing ultrasonic pulses then the aid may indicate there is an object within range when really there is no object present. Many high-pitched natural sounds contain a small proportion of ultrasound. The interference is usually occasional and short lived. For example the interference may feel as if someone quickly waved their hand in front of the aid.

If two Miniguides are used near each other, they will interfere with each other. The aid will still be usable, but the user must be careful to determine what is interference and what are real objects.

The shorter ranges are more immune to

interference than the longer ranges. So if interference becomes persistent in a certain area, switching to the one metre or the half metre range will help reduce the problem.

The Miniguide has been designed and tested to be relatively immune to radio frequency transmitters such as mobile phones and CB radios. However interference may occur if the aid is very close to a transmitter, or the transmitter is very strong.

All the above types of interference cause phantom detections. That is, the aid vibrates as if an object is present, even though no object is present.

Interference does not stop the detection of normally detectable objects.

Care of the Miniguide

Avoid dropping or knocking the Miniguide. The ultrasonic sensors or the case could be permanently damaged by a severe blow.

The ultrasonic sensors are covered by a very fine mesh. Dirt and other substances can clog this mesh. If this mesh becomes clogged then the sensitivity of the Miniguide will be reduced, or the aid will stop working completely. Store the aid in a clean location, and avoid using the aid in dusty or dirty conditions. Place the cap over the sensors when it is not in use.

The Miniguide is not waterproof. It should certainly not be immersed in water or any other type of liquid. If possible, it should not be exposed to heavy rain. If you are caught in rain without an umbrella, aiming the aid downwards

will help to protect the sensors from the rain. If the aid does get wet and, especially if it stops working, it is important to dry it as soon as possible. Water can cling to the front of the sensors, blocking the ultrasound. Wipe away any surface water with an absorbent, lint free cloth. If the aid does not work, place it in a warm, dry place. If water has got inside the aid, remove the battery and leave the aid open to dry for several hours or overnight.

When using the Miniguide, it is a good idea to put the cord attached to it over your wrist. If you want to let go of the aid to use your hand to hold something else, the Miniguide will then hang from the cord. Having the cord over your wrist is also a safeguard in the event of dropping it or having it bumped from your hand.

Settings

The settings are divided into two groups - basic settings and advanced settings. With a new aid, only the basic settings can be accessed. This prevents beginners from changing settings that might cause confusion. It also makes the aid simpler for those who have no need for the remaining settings.

The following are the basic settings of the Miniguide

- * **Setting 1** 4 metre range
- * **Setting 2** 2 metre range
- * **Setting 3** 1 metre range
- * **Setting 4** half metre range
- * **Setting 5** 8 metre range

The following are the advanced settings:

- * Setting 6 1 preset only, default**
- * Setting 7 2 presets**
- * Setting 8 3 presets**
- * Setting 9 Chirp audio, default**
- * Setting 10 Sweep audio**
- * Setting 11 Vibration on when plug in, default**
- * Setting 12 Vibration off when plug in**
- * Setting 13 Remote switch disabled, default**
- * Setting 14 Remote switch enabled**
- * Setting 15 4 metre gap finding range**
- * Setting 16 2 metre gap finding range**
- * Setting 17 1 metre gap finding range**

- * **Setting 18 not used**
- * **Setting 19 not used**
- * **Setting 20 Lock present settings**

Basic Settings

Setting 1, 4 metre range: The aid will vibrate if there is a detectable object within 4 metres of the aid. The closer the object, the higher the speed of the vibration. This is the default range when switching on a new aid.

Setting 2, 2 metre range: The aid will vibrate if there is a detectable object within 2 metres of the aid.

Setting 3, 1 metre range: The aid will vibrate if there is a detectable object within 1 metre of the aid.

Setting 4, half metre range: The aid will vibrate if there is a detectable object within half a metre of the aid.

Setting 5, 8 metre range: The aid will vibrate if there is a detectable object within 8 metres of the aid. The Miniguide is a very low powered device, this means only very large objects will be detected beyond 4 metres, for example, a fence or wall. The vibration rate for objects at four metres and beyond is the same.

Advanced Settings

To enable the advanced settings, do the following: With the aid off, press and hold the switch. The aid will give its usual ON pulse. About two seconds later the aid will start pulsing every second. Continue to hold the switch. After about 6 pulses the aid will stop pulsing. Keep holding the switch. After about thirty seconds the aid will

give a final pulse. Release the switch now. You will now be able to access the advanced settings. To disable the advanced settings, reset the aid by removing the battery for two minutes.

Setting 6, one preset: Selecting this option resets the Miniguide to the default of having only one preset. Use this setting if you have previously selected two or three preset ranges and want to return the unit to one preset.

If changes have been made to preset 2 and preset 3, these changes are not lost, but saved for when multiple presets are enabled again.

Setting 7, two presets: Selecting this option means that there will be two preset ranges active, preset 1 and preset 2.

With two presets enabled, the user can quickly swap between two different ranges. When the aid is off, pressing the switch will put the aid into the

first preset range. If the switch is pressed again, the aid will give two quick pulses indicating that preset two is selected. Pressing the switch again will simply switch the aid off. In other words, pressing the switch swaps the user between preset 1, preset 2 and off.

Preset 1 and preset 2 can be set to any combination of the ranges, for example, preset 1 could be set to the 1 metre range and preset 2 could be set to the half metre range. It's up to the user to decide which combination of ranges they prefer. The factory default for preset 2 is the 2 metre range.

Changing presets is almost identical to the steps described in the section "Changing Settings" above.

The following is an example of how to change the first preset to the 2 metre range:

- 1. Make sure the aid is off.**
- 2. Press and keep pressing the switch, the aid will give a quick ON-pulse.**
- 3. Count the pulses that start occurring several seconds after the ON-pulse.**
- 4. Release the switch immediately after counting 2 pulses.**

The aid should now be ON and in the 2 metre range.

The following is an example of how to change the second preset to the 1 metre range:

- 1. Make sure the aid is off.**
- 2. Press and release the switch, the aid will give a quick ON-pulse.**
- 3. The aid should now be in preset 1.**
- 4. Press and keep pressing the switch, the aid will give two quick pulses.**
- 5. Count the pulses that start occurring several seconds after the two quick pulses.**
- 6. Release the switch immediately after counting 3 pulses.**

The aid should now be ON and in the 1 metre range.

The factory default for preset 2 is the 2 metre range.

Setting 8, three presets: Selecting this option means that there will be three preset ranges active, preset 1, preset 2 and preset 3.

With three presets enabled, the user can quickly swap between three different ranges. When the aid is off, pressing the switch will put the aid into the first preset range. If the switch is pressed again, the aid will give two quick pulses indicating that preset two is selected. If the switch is pressed again, the aid will give three quick pulses indicating that preset three is selected. Pressing the switch again will simply switch the aid off. In other words, pressing the switch swaps the user between preset 1, preset 2, preset 3 and off.

The following is an example of how to change the third preset to the half metre range:

- 1. Make sure the aid is off.**
- 2. Press and release the switch, the aid will give a quick ON-pulse.**
- 3. The aid should now be in preset 1.**
- 4. Press and release the switch, the aid will give two quick pulses.**
- 5. The aid should now be in preset 2.**
- 6. Press and keep pressing the switch, the aid will give three quick pulses.**
- 7. Count the pulses that start occurring several seconds after the three quick pulses.**
- 8. Release the switch immediately after**

counting 4 pulses.

The aid should now be ON and in the half metre range.

The factory default for preset 3 is the 1 metre range. So the factory defaults for preset 1 to preset 3 are the 4 metre range, 2 metre range and the 1 metre range respectively.

Setting 9, chirp audio: This setting selects chirp type audio feedback. This is the default. The audio socket can be used to provide two types of audio feedback - chirp or sweep. With chirp type feedback, the unit makes a short chirp sound every time the motor vibrates. This type of feedback has to be selected if the Miniguide is to be used with an instructor accessory.

Setting 10, sweep audio : This setting selects sweep type audio feedback. Sweep type audio feedback is the alternative to the chirp type

feedback. With sweep type feedback, the unit gives a continuous tone if an object is being detected. The closer the object, the higher the pitch of the tone. The sweep feedback is very responsive, it is very easy to hear small changes in distance. Initially the sweep feedback can seem very confusing, but with practice the extra information it provides can be valuable. Sweep feedback could be useful for helping children gain spatial awareness or it could be used by advanced users who like to receive as much information as possible.

Setting 11, vibration on when plug is inserted:

This setting selects that the aid continues to give tactile feedback when an audio plug is inserted.

This is the default. This setting has to be selected if the aid is being used for training.

Setting 12, vibration off when plug is inserted:

This setting selects that the aid stops vibrating

when an audio plug is inserted. This setting is useful for people who only want to use audio feedback. Battery life is greatly extended by switching off vibrations when they are not required.

Setting 13, remote switch disabled: This setting disables the remote switch. This is the default.

Setting 14, remote switch enabled: This setting enables the remote switch. A special cable and switch can be used to switch the Miniguide ON or OFF or swap between presets remotely. This cable plugs into the earphone socket. It is not possible to change settings using the remote switch, settings can only be changed using the switch on the Miniguide. If the remote switch is enabled, only certain types of plugs and cables can be used with the Miniguide. Normal earphones and mono type plugs will cause the aid to switch off almost immediately, i. e. it won't be

possible to switch the aid on. Using the wrong type of plug or cable with this setting will cause extra power drain, whether the aid is on or off, so the inability to switch the aid on is a good warning that the remote switch has to be disabled or the proper cable used. Please note that inserting and removing the plug can be equivalent to pressing the remote switch. For example, if the aid is off and the plug is removed or inserted, the aid may switch on.

Settings 15, 16 and 17, The gap finding ranges: These are the "gap finding" ranges, Setting 15 has a 4 metre range, Setting 14 has a 2 metre range and Setting 13 has a 1 metre range. These special ranges have reduced sensitivity from a distance of half a metre and onwards. Only stronger echoes from surfaces such as walls will be detected at distances greater than half a metre. This reduced sensitivity helps to distinguish openings or gaps

in walls e. g. door openings. As a safety precaution, the sensitivity for distances less than half a metre is the same as for all the other ranges i. e. full sensitivity.

WARNING: the gap finding ranges should be used with caution. The reduced sensitivity of these ranges means that fewer objects will be detected for distances beyond half a metre. For safety, it is best to assume that these ranges are equivalent to setting 4, that is the half metre range. These gap finding ranges can only be used in preset 2 or preset 3. This ensures that preset 1 always contains a range that has full sensitivity. Any attempt to program a gap finding range into preset 1 is ignored. This allows a person to use a full sensitivity range for most of the time, and only swap occasionally to a gap finding range when required.

Settings 18 and 19: These settings are not used.

Setting 20, Lock present settings: This setting "locks" the present settings. This means that the present settings cannot be changed by pressing and holding down the switch. This option is useful in preventing accidental changes to the present settings. Mobility instructors may find this option useful as a means of pre-programming an aid for a client. The aid can be unlocked by using the same method as used for enabling the advanced settings ie. with the aid off, press and hold the switch for about 30 seconds.

Alternatively, resetting the aid unlocks the aid and returns it to its factory settings. Reset the aid by removing the battery for 2 minutes.