![Honeywell logo]

# QUIETPRO QP100Ex

## User Manual

## Language EN
Version 1.2

[MENU]

[CONFIRM]
[ON/OFF]

[PTT]

Volume [+]

Volume [-]

[HEADSET]  [COM]

**Please read before proceeding**

**This User Manual contains proprietary information of Nacre A/S, a member of the Honeywell International Inc. group, and is protected by copyright and other state, federal, and international laws. Its receipt or possession does not convey any rights to reproduce, disclose its contents, or to manufacture, use or sell anything it may describe. Reproduction, disclosure or use without specific written authorization of Nacre A/S is strictly forbidden.**
**QUIETPRO® is a registered trademark of Nacre A/S.**

**Patents**

QUIETPRO QP100Ex is manufactured under Honeywell's U.S. patent numbers 6,661,901 – 6,754,359 – 7,039,195 – 6,728,385 - 6,567,524 – 6,456,199 B1, patent pending U.S. Patent Applications Serial No. 13/275,216 and international equivalents.

**Disclaimer**

The information in this QUIETPRO User Manual is subject to change without notice and Honeywell is under no obligation to provide the user with updates, amendments or modifications.

By assembling and/or using this product, you agree that you have read and understood the entire user manual, including without limitation all instructions and warnings contained or referred to herein, prior to using the product. You also agree that you will ensure that any additional or subsequent user of your product will read and understand the entire QUIETPRO User Manual, including without limitation, all instructions and warnings contained in this manual, prior to allowing that person to use the product.

The product is designed by Honeywell for use by trained personnel ("authorized personnel") and should not be used by anyone other than authorized personnel. Do not under any circumstances use the product in any manner other than as described in this User Manual.

Use of the product and any of its components involves certain inherent risks, dangers, and hazards, which could result in serious personal injury. By using the product, you freely and voluntarily assume and accept any and all known risks of injury to you that may occur while using this product.

Opening or otherwise tampering with any one or more of the control unit, headset or accessories invalidates Honeywell's limited warranty. Only original manufacturer approved accessories and batteries may be used together with this product. It is extremely important that the user activates, adjusts, cleans and maintains the product in accordance with the instructions described in this user manual. Failure to properly activate, adjust, clean and maintain the product in accordance with the instructions in this user manual invalidates any limited warranty.

In consideration of the provision of the product to you, you herby agree to the fullest extent permitted by law that Honeywell will have no liability to you or any user of the product if the product is not used and maintained in all respects in accordance with the provisions of this User Manual.

## Important safety information

QP100Ex is approved for use in hazardous environments according to the ATEX directive 94/9/EC and the IECEx scheme.

The Ex protection rating per **ATEX** Directive 94/9/EC is:
- **Ex ia IIB T4 Ga** (Category 1 Approved for Zone 0, Equipment group 2, Gas group IIB Temperature class T4)
- Ambient temperature range: $-30°C \leq T_{amb} \leq +50°C$ / $-22°F \leq T_{amb} \leq +122°F$

QP100Ex is also in compliance with following intrinsically safe apparatus standards:

LISTED

ETL
c LISTED us

Intertek
4005471

- Conforms to UL Std. UL913
- Cert. to CSA Std. C22.2 No.157-92

The Ex protection rating per **UL and CSA** is:
- **Class I Div.1 Group C&D  Ex ia T4**
- Ambient temperature range: $-30°C \leq T_{amb} \leq +50°C$ / $-22°F \leq T_{amb} \leq +122°F$

### Safety parameters:

| | | | |
|---|---|---|---|
| Ui = 12V | Uo = 4.6V | Ci = 0 | Co = 1000µF |
| Ii = 167 mA | Io = 64 mA | Li = 0 | Lo = 33.6 mH |
| Pi = 2W | Po = 74 mW | | |

**Before connecting or using QP100Ex, all below safety instructions must be read and followed to avoid risk of explosion and maintain the ATEX protection rating of the system.**

- ! **WARNING** QP100Ex may only be used within the specified operating temperature -30°C to +50°C / -22°F to +122°F.
- ! **WARNING** The battery may never be exposed to temperatures above 100°C / 212°F**.**
- ! **WARNING** Never charge QP100Ex in a hazardous environment.
- ! **WARNING** Only Honeywell approved accessories, for example radio cables, chargers and headsets are allowed to be used.
- ! **WARNING** Service of QP100Ex must be carried out ONLY by Honeywell trained personnel. Contact your Honeywell distributor or authorized dealer for details.
- ! **WARNING** The battery may only be replaced with a battery that is approved by Honeywell to be used in QP100Ex.

4

- ! **WARNING** The battery compartment may never be opened inside a potentially hazardous environment. Only replace the battery in a safe environment. The battery should only be replaced by skilled personnel.
- ! **WARNING** Ensure that there is no external damage to the unit as it may compromise the safety and integrity of the unit, for example:
  - Deep scratches or cracks of the enclosure
  - Missing parts
- ! **WARNING** The safety and integrity of the unit may also be compromised by for example:
  - Damage sustained during transit/incorrect storage.
  - Exposure to excessive loads/temperatures where permitted limitations are exceeded.
  - Engraving by the user.
- ! **WARNING** Keep QP100Ex clean to avoid any risk of ignition due to the build-up of electrostatic charges.
- ! **WARNING** When connecting QP100Ex with a radio, the resulting classification for the system is always the lowest classification of the system elements.
- ! **WARNING** QP100Ex may only be connected to ATEX certified radios with matching interface parameters.
- ! **WARNING** Using the system with radios that are not ATEX/IS compliant (even in non-hazardous locations) will void the ATEX/IS certification of QP100Ex. This could also affect the safety of the end user.
- ! **WARNING** The connector shells contain aluminum. When used in Zone 0, precautions must be taken to prevent the creations of impact sparks.

## FCC and Industry Canada Compliance

QUIETPRO QP100Ex complies with part 15 of the FCC Rules and RSS-210 of IC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

## CE Compliance

This product has been tested and approved according to PPE directive 89/686/EEC, EMC directive 2004/108/EC and R&TTE directive 1999/5/EC.

TABLE OF CONTENTS
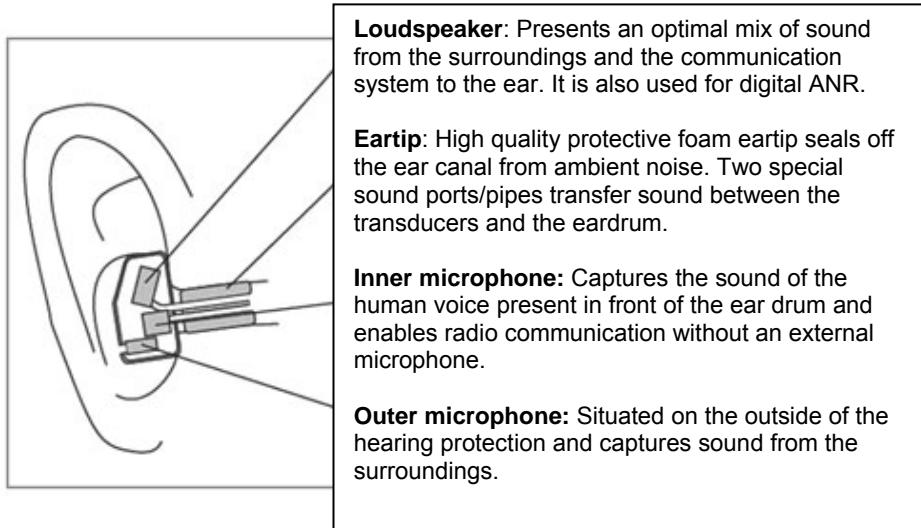
7

# 1   System Description

QUIETPRO is a digital lightweight, intelligent hearing protector and communication terminal for use by noise exposed personnel. The main components of the system are:

- A control unit with the connectors and push-buttons
- A headset with the required transducers (microphones and loudspeakers)
- High attenuating eartips for sufficient hearing protection
- A radio cable for connection to the appropriate radio system
- An external power supply for battery charging

QUIETPRO is equipped with a user-friendly voice feedback system and indicator lights. Voice messages are given to guide you through the steps in the menu system and will be used to communicate warnings and alerts.

QUIETPRO is designed to provide the best possible situational awareness and communication while at the same time protecting the hearing. The electronic circuitry analyses the surrounding sound and adapts the hearing protector continuously to achieve this. This means that QUIETPRO only attenuates surrounding sound when needed and to the degree that is needed. The control unit includes volume control buttons, allowing you to reduce or increase the level of the surrounding sound.

The product uses a range of techniques to protect against noise-induced hearing loss, including high attenuating eartips, adaptive hear-through, impulse noise protection, and digital Active Noise Reduction (ANR) to increase attenuation of low frequency noise. QUIETPRO has a built-in fit test that alerts you at start-up if the eartips are not properly inserted in each ear canal.  The system monitors the personal sound exposure based on measurements from the microphones inside the earpiece. These microphones capture the sound on the inside of the protective seal, and therefore can be used to calculate the precise personal sound exposure without the need to measure or estimate the sound attenuation properties of the hearing protection device.

**Loudspeaker**: Presents an optimal mix of sound from the surroundings and the communication system to the ear. It is also used for digital ANR.

**Eartip**: High quality protective foam eartip seals off the ear canal from ambient noise. Two special sound ports/pipes transfer sound between the transducers and the eardrum.

**Inner microphone:** Captures the sound of the human voice present in front of the ear drum and enables radio communication without an external microphone.

**Outer microphone:** Situated on the outside of the hearing protection and captures sound from the surroundings.
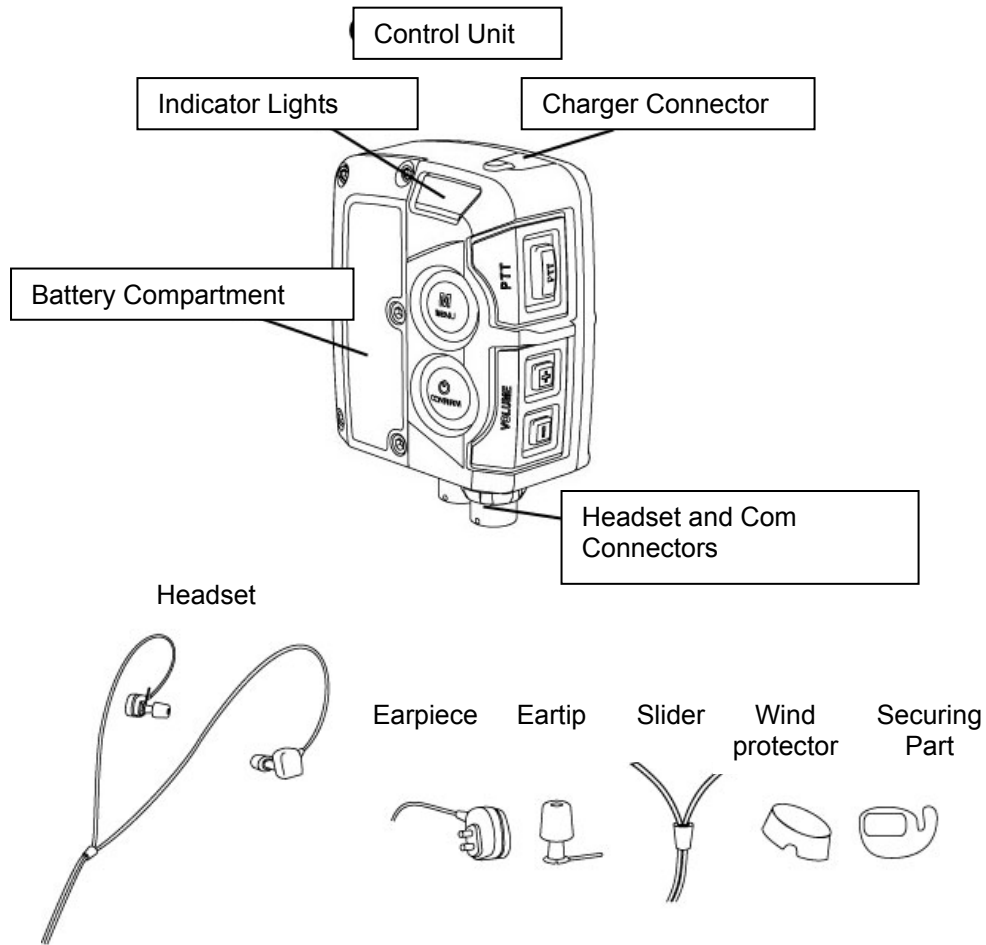
QUIETPRO provides noise protected two-way speech communication when connected to a personal radio. With the in-ear headset for high noise scenarios, both voice pick-up and sound regeneration are done in the ear canal, on the inside of the protective seal. This eliminates the need for a boom microphone in most sound environments, which make QUIETPRO highly compatible with other personal protective equipment (PPE) including respirators and masks, firefighter helmets and other head PPE. The control unit includes a push-to-talk (PTT) button for radio keying, as well as a volume control mechanism for incoming communications.

The radio cables for use with QUIETPRO can be mated with the appropriate connector in the control unit. All cables have an integrated memory chip with the information needed for the control unit to set up the appropriate electrical interface to the radio.

The external power supply allows QUIETPRO to charge its built-in battery. Note that this shall not be done in hazardous areas.

## 2 Definitions

Control Unit

Indicator Lights

Charger Connector

Battery Compartment

Headset and Com Connectors

Headset

Earpiece   Eartip   Slider   Wind protector   Securing Part

| Term | Definition |
|---|---|
| ❗ **WARNING** | Intrinsic safety may be compromised |
| ❗ **CAUTION** | Personal injury (hearing damage) may occur |
| ❗ **NOTE** | Equipment damage may occur |
| 💡 **TIP** | Tips to improve your interaction with the unit |

## 3    Getting Started

### 3.1 Charging the battery

Connect the charger to the control unit and fully charge the battery before use. It takes approximately 4 hours to fully charge the battery. For further instructions regarding battery charging, see section 12.

### 3.2 Connect cables

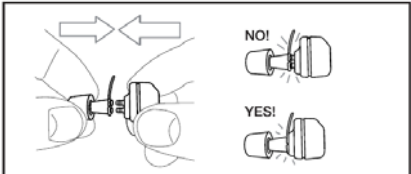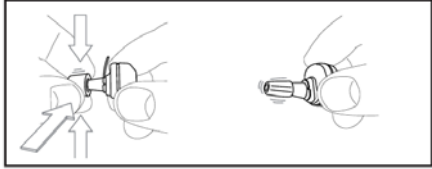Connect the cable from the headset to the connector on the control unit marked [HEADSET].
Connect the radio cable to the communication radio and then to the connector on the control unit marked [COM].

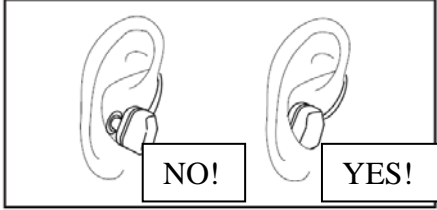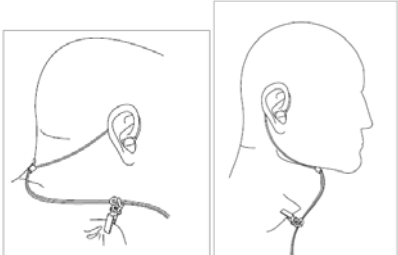> ☀ **TIP** There is a red dot on the connectors to show you how to align the connectors.

> ! **NOTE** The radio cable plug has a locking mechanism. To release the connector make sure you take hold of the locking ring and then pull straight out. By pulling the cable instead of the locking ring, the cable may be damaged.
> ! **NOTE** Depending on your radio(s), there may be connectors with locking mechanisms also in the radio end of the cable.

### 3.3 Fitting headset and eartips

A proper fit of eartips ensures good comfort during prolonged use. The eartips are therefore provided in several different sizes.
> ☀ **TIP** Insertion of the eartips and the comfort of the fitting improve with practice. Honeywell recommends getting help from a QUIETPRO-trained instructor or experienced user to learn how to insert the eartips in the best way.

| 1. With clean hands, fit the eartips to the earpiece. Make sure the tips fully cover the pipes. | 2. Compress the foam to a small crease-free cylinder. |
|---|---|
|  |  |

11

| | |
|---|---|
| 3. Reach around your head and pull the ear to straighten the ear canal.  | 4. Push the eartip into the ear canal while gently twisting the headset.<br>There is a difference between the left and right hand side earpieces. A marking on the cable will show you which earpiece is made for which ear.  |
| 5. Keep the eartip in place until the foam has started to expand and the headset stays in place in the ear, about 5-10 seconds. It may take 20-30 seconds before the foam is fully expanded.  | 6. The earpiece shall be inserted well into the bowl of the ear. The earpiece shall not protrude far out from the ear canal entrance. <br>NO!        YES! |
| 7. Fit the cable behind your neck or under your chin. Use the clip to remove tension from the cable on the earpieces and secure it to your shirt or jacket. Make sure the cable is secured in a way so that it does not get caught up during use.  | ☀ **TIP** A securing part can be used together with the earpiece. The securing part comes in two sizes. Some users find it easier to fit the earpiece when using the securing part. Please note that it comes in a pair of one left and one right part.  |

**!** **CAUTION** Some actions or situation can cause noise-induced hearing loss. You should ensure that:
- The fit test warning is adhered to by ensuring that the eartips are properly fitted.
- The dose warning is adhered to by seeking out a quieter environment.
- The sound environment does not consist of extreme impulsive noise where the attenuation provided by the unit is not enough to protect the hearing.
- The eartips are not used as standalone earplugs.
- The headset is used at all times in noisy surroundings.

If the recommendations above are not adhered to, the protection afforded by the headset will be severely impaired.

**!** **CAUTION** Remove the eartip slowly from the ear canal with a twisting motion to gradually break the seal. Rapid removal may damage the eardrum.

**!** **CAUTION** Before using the QUIETPRO headset, ensure your ear canals are sufficiently clean. People with excessive amounts of ear wax or problems related to the ear canal must consult a doctor before using the headset. Do not use headset if you are experiencing any medical issues in your ear or ear canal.

**!** **NOTE** Always fit the earpiece with eartips. Tips mounted to the transducer housing will protect the sound ports/pipes and prevent them from being filled with dirt or water. Dirt or water in the sound tubes will affect the system performance and may cause permanent damage to the equipment.

**!** **NOTE** The eartips may be adversely affected by certain chemical substances. Further information should be sought from the manufacturer.

### 3.4 Starting up the unit

Press [CONFIRM] and hold for 2 seconds to turn ON. When you hear sound in the headset or see the indicator lights you can let go of the button. At start up, QUIETPRO performs a fit test to make sure the eartips are properly fitted in each ear. At the same time, it runs a system test that detects possible errors such as a damaged transducer or blocked sound tubes. The system also analyses the fitting of the eartips and determines which ear that has the best seal. The microphone in the ear with the best seal will then be used to pick up speech for radio transmission. During this system test, you will hear a complex sound sequence.

13

- If the test is successful, the system will enter normal use mode. No particular notification is given, but you will typically notice that the hear-through is activated such that normal hearing is restored.
- If the system detects an error, a voice warning will be presented ("poor fit left ear", "poor fit right ear", or "poor fit both ears") followed by a warning signal. If the fit test failed only for one ear, the warning signal will be heard in the other. The warning can be acknowledged by double clicking [CONFIRM]. This will silence the alarm but does not improve the fit. Please remove and refit the earpiece and restart the system to perform a new fit test. Refer to section 3.3 for fitting instructions.
- **!** **CAUTION** If the fit test fails, the attenuation level cannot be guaranteed, and you are at a greater risk for hearing damage. To avoid this you have to improve the insertion of the eartip(s) and restart the system.
- **!** **CAUTION** If the fit test fails, the digital ANR functionality is disabled. To enable the ANR you have to improve the insertion of the eartip(s) and restart the system.
- ☀ **TIP** If the eartip is removed from the ear with the unit turned on, feedback from the system may occur. To avoid this, make sure the unit is turned off before removing or inserting the eartip.

## 3.5 Shutting down the unit

Press [CONFIRM] and hold for 3 seconds to turn off the unit. You will hear an exit sound as the unit shuts down. The unit also switches off if the headset is disconnected from the QUIETPRO control unit.

## 4 Menu

QUIETPRO uses a voice feedback menu to handle different settings. The settings selected at the time the unit is turned off will be stored and activated when the unit is turned on again.

## 4.1 Navigation

QUIETPRO uses voice feedback together with the two buttons [MENU] and [CONFIRM] to navigate in the menu. One press on the [MENU] button will enter the menu. The voice feedback will present the first menu item. Continue to press the [MENU] button to cycle through the top level of the menu and you will hear the different options being presented to you. To move to a sub-level or to activate a menu item, press the [CONFIRM] button. Voice feedback will let you know your next option or inform you that the item has been activated.

If no button is pressed for 3 seconds, the system will exit the menu and return to normal operation. You will hear a time-out signal as the normal operation is resumed. If you re-enter the menu, you will always start at the top-most menu item. It is not possible to move backwards in the menu. If you want to go to an earlier option, either cycle through the menu with the [MENU] button until you hear the option again or wait for time out and re-enter the menu from the top.

☀ **TIP** You do not have to wait until the voice message is finished before you move to the next option or to confirm a choice.

## 4.2 Menu overview

Note that the menu items are presented in the same order independent of the system status. This means for instance that when you access the "ANR Options" menu node, the first option presented to you will always be "ANR On", no matter if the current status for ANR is on or off. The menu tree is shown below, but available menu items may vary dependent on the configuration of the unit.

| Navigate: |
| --- |
| Press [MENU] to enter the menu |
| Press [MENU] to cycle through a level |
| Press [CONFIRM] to enter a sub-level |
| Press [CONFIRM] to activate a menu item |

Press [MENU] to enter

| | | |
| --- | --- | --- |
| Radio Volume | | |
| Keying Mode | PTT | |
| | Open Mike | |
| Fit Test | | |
| Dose Options | Dose Reset | Confirm Dose Reset |
| | Get Dose Status | |
| Get Battery Status | | |
| Advanced System Setup | Menu Volume | |
| | Menu Language | Default Language |
| | | Alternative Language |
| | Radio Model | Radio Model X |
| | | Radio Model Y |
| | Automatic Shutdown Options | Automatic Shutdown On |
| | | Automatic Shutdown Off |
| | ANR Options | ANR On |
| | | ANR Off |

## 4.3 Menu volume

It is possible to change the volume of the voice feedback. To do this, enter the menu and go to "Advanced System Setup" – "Menu Volume". Press confirm and then adjust the volume using the Volume [+] and [-] buttons.

**4.4 Menu language**

Two alternative languages for the voice feedback are stored in the unit. To change language enter the menu and go to "Advanced System Setup" – "Menu Language". Cycle through the language options using the [MENU] button and press [CONFIRM] to select the language you wish to use.

## 5    Hear-Through

The system uses the outer microphones to pick up ambient sound. The sound is then analyzed in the unit and reproduced inside of the eartip at a safe level (below 85 dBA). The volume level of the hear-through is adjustable and weak sounds can be reinforced. During normal operation (i.e. when not operating the menu), press the [+] button to increase and [-] button to decrease ambient sound level step by step. A long beep indicates that the maximum or minimum level is reached.

## 6    Digital Active Noise Reduction (ANR)

QUIETPRO uses digital ANR to improve attenuation. With the ANR activated, the inner microphone captures the noise signal and from this the electronics generate the appropriate signal through the loudspeaker in order to emit an inverted sound wave. The result is a reduced noise level. ANR works best in low frequency noise environments. QUIETPRO will only activate ANR when the noise level is sufficiently high.

The ANR calibration takes place during system start-up and this process adapts the ANR algorithm to you and the way the eartips are inserted. If the fit test fails during start-up, the ANR is disabled. The only way to achieve a successful ANR calibration is to adjust the fit of the eartips and re-start the system. The user initiated (through the menu) fit test will not enable ANR. It is possible to disable the ANR function through the menu. Go to "Advanced System Setup" – "ANR Options" to turn the ANR function on or off.

> !   **CAUTION** ANR may generate high sound pressure levels in the ear if calibrated incorrectly. To avoid this, always switch the unit off before inserting the eartips. If during use, the position of the eartips changes significantly in the ear canals, the calibration may also be damaged. Refer to section 3.3 for further fitting instructions.

## 7    Indicator Lights

The indicator lights are there to support the user interface. They are used according to different principles, depending on their purpose:
- Green/yellow/red as in low/medium/high for noise dose (see section 11) or high/medium/low for battery status (see section 12.1).
- Green pulsing to signal that a user action succeeded.
- Yellow pulsing to signal that an action is running, such as fit test (see sections 3.4 and 9).

16

- Red pulsing to signal a warning. All warnings are accompanied by an explanatory voice message.
- All three colors will flash as the unit is turned off.

## 8    Radio Interface

QUIETPRO QP100Ex is only allowed to be used together with intrinsically safe radios with ATEX/IS entity parameters that are compatible with those of QUIETPRO QP100Ex.

> **!**    **WARNING** Using the system with radios that are not ATEX/IS compliant (even in non-hazardous locations) will void the ATEX/IS certification of QUIETPRO QP100Ex. This could also affect the safety of the end user.

The radio cables are equipped with a small memory chip where the parameters, required for the interface between the radio and QUIETPRO, are stored. When the radio cable is connected to the unit, it triggers the settings for the correct radio and the name of the radio model will be presented by voice. For cables that are compatible with multiple radios, a default radio for the cable will be selected. It is possible to select among the available radio models through the menu. To do this go to "Advanced System Setup" – "Radio Model" and select your radio model. The selected radio model is stored and used as default in the next session.

### 8.1 Setting the radio volume

To change the radio volume, enter the menu by pressing [MENU]. The radio volume will be your first option. Press the [+] button to increase and [-] to decrease the radio volume step by step. Because this action will be performed quite often it is handled differently than other menu items. You do not need to push [CONFIRM] to activate the function but can start adjusting the volume directly. The voice feedback will announce the volume level and also let you know when maximum or minimum level is reached. After the radio volume is set and no button is pushed for 3 seconds, the system will exit radio volume mode with a time-out signal. The volume buttons will now operate the hear-through volume again.

> ☀ **TIP** Adjust the volume control on the radio to approximately 80%. Use the volume buttons on the QUIETPRO control unit to increase and decrease the volume further.

> ☀ **TIP** Setting the volume on both the radio and the QUIETPRO unit too high may cause sound distortion. Always use the lowest possible volume setting that gives sufficient speech intelligibility.

### 8.2 Communication keying mode

There are two different modes for keying the communication radio; Push-to-Talk (PTT) and Open Mike. The default at start-up is PTT mode. To switch between the different modes, enter the menu and go to "Keying Mode". Cycle through the options and use [CONFIRM] to select the mode you wish to use. Note that in both cases, the hear-through function will shut down in one ear during transmission to ensure optimal voice pick-up.

Push-to-Talk

To transmit on the radio or intercom system, press and hold the [PTT] button on the side of the control unit. Release the button to go back to listening mode.

Open Microphone
The Open Mike mode is designed for communication systems that allow constant keying, typically intercom systems. This mode will only be enabled if the connected radio cable identifies itself as being connected to such a system. It will key the intercom system and keep the voice pick-up microphone constantly open. Remember that a microphone adds noise to the communication system when kept open.

## 9   Fit Test

QUIETPRO uses a test to verify that the eartips are fitted properly in each ear and that a minimum acceptable level of attenuation is achieved. The fit test is automatically run when starting up the unit. It is also possible to initiate a fit test during use. Enter the menu and go to "Fit Test". Press [CONFIRM] to start the test.

☀ **TIP** Hot-key for fit testing – double click [CONFIRM] during normal use.

If the test is successful, the system will return to normal use mode. No particular notification is given, but you will typically notice that the hear-through is activated such that normal hearing is restored.

If the system detects an error, a voice warning will be presented ("poor fit left ear", "poor fit right ear", or "poor fit both ears") followed by a warning signal. If the fit test failed only for one ear, the warning signal will be heard in the other. The warning can be acknowledged by double clicking [CONFIRM]. This will silence the alarm but does not improve the fit. Please remove and refit the eartip(s) and restart the system to perform a new fit test. Refer to section 3.3 for fitting instructions.

! **CAUTION** If the fit test fails, the attenuation level cannot be guaranteed, and you are at a greater risk for hearing damage. To avoid this you have to improve the insertion of the eartip(s) and re-run the fit test.
! **CAUTION** A user initiated fit test does not enable ANR functionality. The unit needs to be restarted and a successful start-up sequence performed to enable ANR.

### Hot-Keys

Some frequently used functions can be accessed from outside the menu system, using key combinations called "hot-keys".

| Action | Hot-key |
|---|---|
| Radio Volume | Press [MENU] then adjust with [+] or [– ] |
| Hear-Through Default Volume | Press and hold [+] and [–] for 3 sec |
| Acknowledge Warning | Double click [CONFIRM] when a warning is presented |
| Fit Test | Double click [CONFIRM] during normal use |
| Battery Status | Press and hold [MENU] and [CONFIRM] for 3 sec |

## 10  Dose Measurements

QUIETPRO is equipped with means of measuring the sound energy reaching your ear – your noise dose. 100% dose corresponds to the permissible exposure level, i.e., the maximum sound energy that is considered as a safe exposure in one full work shift[1]. During normal operation the unit will communicate the dose that you have been exposed to using the LED indicators.

| | |
|---|---|
| Green light flashing slowly | Less than 50% |
| Yellow light flashing slowly | 50 to 80% |
| Yellow light flashing quickly | 80 to 95% |
| Red light flashing quickly | More than 95% |

When the 95% mark is reached, a voice message will warn you that the dose will exceed the permissible exposure level. This warning is followed by a wobble tone. You can turn the warning signal off by pressing [CONFIRM] twice. This will only silence the warning. In order to protect the hearing it is important that you find work in a quiet area for the remainder of the work shift.

Turning the unit off will not reset the dose to zero. In order to deal with situations where QUIETPRO is switched on/off several times during a work shift, the unit calculates dose in a sliding time window. This means that at any time, the exposure is defined to be the cumulative exposure during the latest 16 hour period. If you want to override this functionality, it is possible to implement a procedure where you reset the dose to zero at the start of every work shift. To do so, enter and cycle the menu using [MENU] until you hear "Dose Options" then press [CONFIRM]. Select "Dose Reset" and "Confirm Dose Reset" using [CONFIRM].

---

[1] The permissible exposure level varies between different countries and different organisations. It is defined through system configuration.

20

It is possible to request the dose status. To do so, enter and cycle the menu using [MENU] until you hear "Dose Options" then press [CONFIRM]. Select "Get Dose Status" in this new menu level using [CONFIRM]. The noise dose status will be reported using the indicator lights and voice feedback.

## 11  Battery / Charging

QUIETPRO is powered by a lithium-ion rechargeable battery.

### 12.1 Battery status

The typical battery capacity for continuous use is 40 hours. Battery capacity depends on a range of factors such as usage pattern, noise environment, battery condition and temperature. The system allows you to check the remaining capacity of the batteries. To do so, enter the menu and go to "Get Battery Status", then press [CONFIRM]. It is also possible to request the battery status using the hot-key access.

☀ **TIP** Hot-key for battery status: Press and hold [MENU] and [CONFIRM] for 3 seconds.

The battery status is presented by voice messages and indicator lights. The values below are valid for typical conditions and lower battery capacities can be expected for older/used batteries. Note that for temperatures below -20°C / -4°F, the battery capacity will be significantly lower than what is stated here.

Green steady light / "*Battery level full*"          More than 36 hours left
Yellow steady light / "*Battery level medium*"    Between 12 – 36 hours left
Red steady light / "*Battery level low*"             Between 1 – 12 hours left
Red blinking light / "*Battery level very low*"     Less than 1 hour left
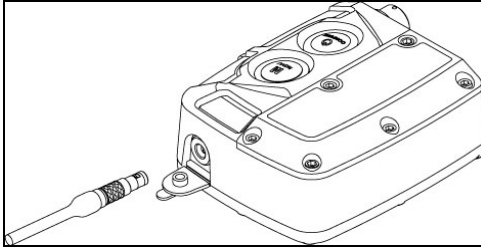
### 12.2 Low battery warning

The system will automatically give you a low battery warning when there is approximately 1 hour left of the expected battery life. The warning will be repeated every 10 minutes. When the low battery warning is announced, the unit should be charged immediately.

### 12.3 Automatic shutdown

To avoid full battery discharge, the system will shut down after 4 hours of inactivity (no button pressed).  A warning message will be given 10 minutes before shut down.  To avoid automatic shutdown in this case, press any button. Automatic shutdown can be disabled through the menu system under "Advanced System Setup" - "Automatic Shutdown Options".

## 12.4 Charging the battery

Connect the charger to the control unit as showed in the illustration below. It takes approximately 4 hours to charge a completely discharged battery. A yellow indicator light will be lit during charging and this will change to green when the battery is fully charged. The unit should be turned off before connecting the charger.
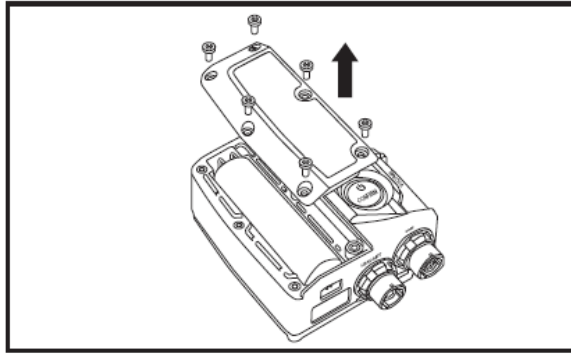


- ! **WARNING** Never charge QUIETPRO QP100Ex in a hazardous environment.
- ! **WARNING** The battery may never be exposed to temperatures above 100°C / 212°F**.**
- ! **NOTE** Charging with equipment other than that supplied with QUIETPRO may lead to unit damage and voids warranty.
- ! **NOTE** Charge at indoor room temperature, about 25°C / 77°F. Avoid charging the battery at temperatures below 0°C / 32°F or above 40°C / 104°F
- ! **NOTE** Do not leave the charger in the unit when fully charged. Continuous charging will shorten the battery life time.
- ☀ **TIP** You can charge the battery at any time and for more or less than 4 hours. You can interrupt the charging without damaging the battery.
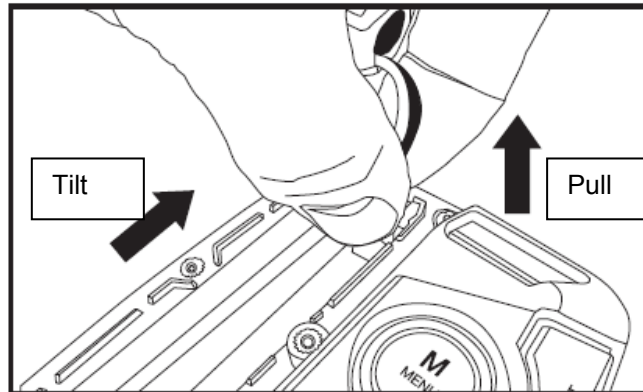
## 12.5 Replacing the battery

To replace the battery follow the instructions below. Failing to follow the instructions may compromise the safety and integrity of the unit. The battery should only be replaced by skilled personnel.
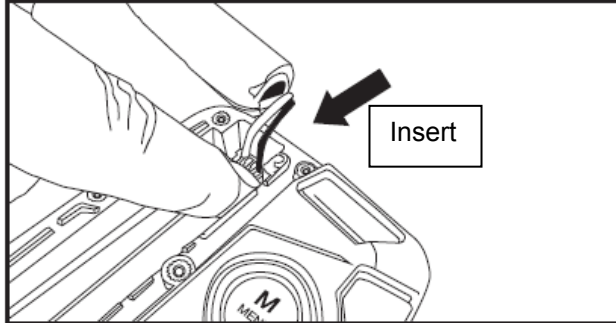
1. Unscrew the 6 screws holding the lid for the battery compartment using a TX10 screw driver.
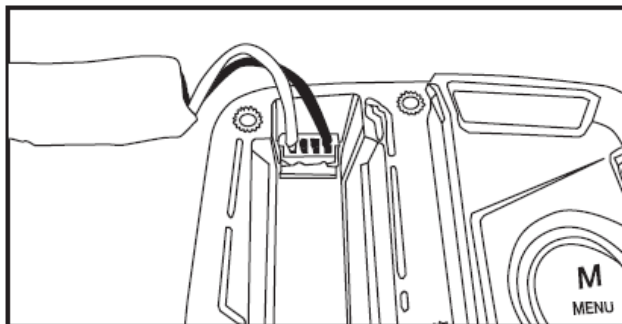


2. Remover the old battery by gently pulling the cable while tilting the connector towards the wall of the battery compartment.
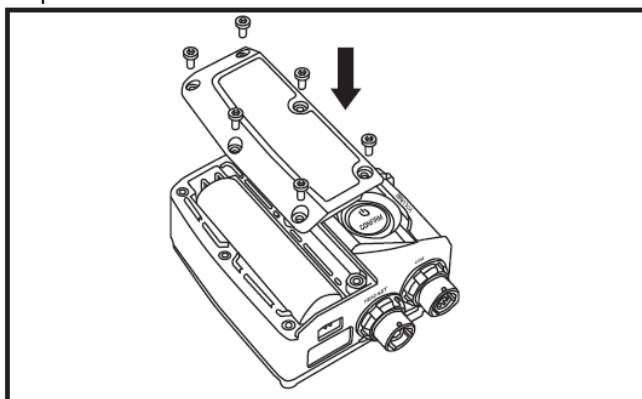


Tilt

Pull

3. Fit the connector from the new battery into the connector in the bottom of the chamber. This must be done gently and accurately.



Insert

4.  This illustration shows correctly mounted battery connector.



5.  Put the battery in place with the smooth round surface facing upward. Fold all protruding cable inside the chamber and make sure it does not conflict with the sealing between the unit and the battery lid. Put the battery lid in place and refit all of the 6 screws.



!   **WARNING** The battery compartment may never be opened inside a potentially hazardous environment. Only replace the battery in a safe environment. The battery should only be replaced by skilled personnel.
!   **WARNING** The battery may only be replaced with a battery that is approved by Honeywell to be used in QUIETPRO QP100Ex. Please contact QUIETPRO Technical Support for further instruction.
!   **CAUTION** Make sure that the unit is switched off during battery replacement. The headset should not be worn during this process as high noises are generated while changing the battery.
!   **NOTE** While changing the battery, make sure you do not damage the round ventilation filter that is placed in the battery compartment wall.

24

## 12  Error and Warning Conditions Reported by the Control Unit

The table below shows error and warning conditions that will be reported by the control unit when appropriate. Available voice feedback messages may vary dependent on the configuration of the unit.

| Problem | Voice feedback | Indicator lights | Recommended action |
|---|---|---|---|
| Fit test failed | "*Poor fit left/right/both ear(s)*" followed by warning signal (repeated until warning acknowledged by user) | Red blinking during voice message | Re-fit the eartip(s) |
| Dose exceeding upper limit | "*Dose level too high*" followed by wobble tone (repeated until warning acknowledged by user) | Continuous red blinking until acknowledged | Work in a quiet area for the remainder of the work shift |
| Battery level very low | "*Battery level very low*" | Red blinking during voice message | Charge battery |
| Automatic shutdown | "*System shutdown. Press any button to stop shutdown*" | Red blinking during voice message | Press any button to stop shutdown (this feature can be disabled if desired) |
| Radio cable not detected | "*No radio detected*" when connecting the cable | N/A | The cable memory chip is present, but not compatible with the unit. Replace cable. |
| Radio cable not detected | "*No radio detected*" (if attempting to select radio model through menu) | N/A | Make sure the connector is clean and properly mated. Replace cable if problem persists |
| Hardware error | "*Hardware error*" | Red blinking during voice message | Audio in one ear only - replace unit |

## 13  Maintenance and Storage

Ensure to mate all connectors with accompanying cap or connector to prevent water and dirt from entering the connector. Verify that there are no foreign objects, dirt or water inside cap or connector before mating. Water and dirt inside connectors may influence performance of the equipment and cause permanent damage.

Store the unit in a dry place with connector covers assembled to the connectors. Do not remove the headset from the control unit unless you need to replace it. When the unit needs to be stored for a longer period of time, this should not be done at high (above 25°C / 77°F) or low (below -20°C / -4°F) temperatures as this may reduce the performance of the battery.

Clean the unit using a moist cloth and small brush. Do not use solvents or other chemicals as they may harm the unit. Do not use sharp object on any parts of the unit or its accessories. Gently tap the earpieces and control unit to dislodge dirt and foreign objects.

Leave the eartips assembled on the transducers to prevent damage to the sound tubes. If the unit has become wet, let the unit dry before the connector covers are assembled. If the equipment is exposed to salt water, rinse with fresh water as soon as possible. Allow headset to dry well before use.

## 14  Recycling and Disposal



The use of the WEEE Symbol indicates that this product may not be treated as household waste. By ensuring this product is disposed of correctly, you will help protect the environment. For more detailed information about recycling of this product, please contact your local authority, your household/industrial waste disposal service provider, or the distributor from whom you purchased the product.

## 15  Accessories

QUIETPRO comes with a number of different accessories. For example: means of attachment, radio pocket, eartips etc. See separate list.

## 16  Attenuation Data

QUIETPRO units can be used together with different headsets and eartips. The below attenuation data is valid when the unit is used together with a QUIETPRO headset and PROTIPS LS. For other combinations, please see the individual packaging of the headset or eartip.

### 17.1 EN

QUIETPRO is tested and approved in accordance with the PPE directive 89/686/EEC, and applicable parts of European Standard EN 352-2:2002 and EN352-7:2002.
QUIETPRO attenuation data according to ISO 486-1, ISO 4869-2:1992, EN352-2:2002 (in passive mode, electronics switched off) when used together with PROTIPS LS:

| Frequency [Hz] | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|---|---|---|---|---|---|---|---|---|
| Mean Attenuation [dB] | 27.3 | 29.4 | 32.5 | 30.8 | 29.9 | 34.0 | 38.1 | 46.4 |
| Standard Deviation [dB] | 4.6 | 2.4 | 4.4 | 5.0 | 5.2 | 3.3 | 2.9 | 3.4 |
| Assumed Protection [dB] (APV) | 22.7 | 27.0 | 28.1 | 25.8 | 24.7 | 30.7 | 35.1 | 43.0 |
| H = 31dB | | M = 26dB | | | L = 27dB | | | SNR = 30dB |

Sound restoration characteristics (volume control in maximum position)
Sound restoration characteristics according to EN352-7:2002
Criterion levels  H=116dBA        M=111dBA        L=108dBA
Criterion level = Sound pressure level of external noise for which the sound pressure level under the eartips first exceeds 85 dB(A).
H = High frequency noise   M = Medium frequency noise   L = Low frequency noise

This product is provided with level-dependent attenuation. The wearer should check correct operation before use. If distortion or failure is detected, the wearer should refer to the manufacturer's advice for maintenance and replacement of the battery. Performance may deteriorate with battery usage. The typical period of continuous use that can be expected from the product's battery is 40 hours.
The output of the level-dependent circuit of this hearing protector may exceed the daily limit sound level.

Testing institute: Finnish Institute of Occupational Health (FIOH), Topeliuksenkatu 41aA, 00250 Helsinki, Finland (Notified Body number 0403).

### 17.2 ANSI

QUIETPRO units are tested and approved in accordance with ANSI S3.19-1974 standard. QUIETPRO attenuation data according to American National Standards

Institute Specifications ANSI S3.19-1974 (in passive mode, electronics switched off) when used together with PROTIPS LS:

| Frequency [Hz] | 125 | 250 | 500 | 1000 | 2000 | 3150 | 4000 | 6300 | 8000 | NRR |
|---|---|---|---|---|---|---|---|---|---|---|
| Grand Mean attenuation [dB] | 36.6 | 34.9 | 42.4 | 39.3 | 37.1 | 38.1 | 39.9 | 46.0 | 45.7 | 30 |
| Standard Deviation [dB] | 4.5 | 3.8 | 4.8 | 3.4 | 3.3 | 2.9 | 2.8 | 4.2 | 4.4 | |

### Information required by E.P.A:
The level of noise entering a person's ear, when hearing protection is worn as directed, is closely approximated by the difference between the A-weighted environmental level and the NRR.

Example:  
1. The environmental noise level at the ear is 92dB(A).  
2. The NRR is 30 decibels (dB)  
3. The level of noise entering the ear is approximately equal to 62dB(A).

**! CAUTION** For noise environments dominated by frequencies below 500Hz, the C-weighted environmental noise level should be used. Improper fit of this device will reduce its effectiveness in attenuating noise. Although hearing protectors can be recommended for protection against the harmful effects of impulse noise, the Noise Reduction Ration (NRR) is based on the attenuation of continuous noise and may not be an accurate indicator of the protection attainable against impulse noise, such as gunfire.

**! NOTE** The Noise Reduction Rating is derived from testing procedures at an independent laboratory and in accordance to acceptable A.N.S.I standards. Actual noise reduction can vary from laboratory results as labeled. Protection is maximized when: Proper protector is selected for application, a good training program is utilized and proper fitting techniques are followed.

### 17.3 AS/NZS

QUIETPRO is tested and approved in accordance with AS/NZS 1270:2002 standard.
QUIETPRO attenuation data according to AS/NZS 1270:2002 (in passive mode, electronics switched off) when used together with PROTIPS LS:

| Frequency [Hz] | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 | SLC 80 |
|---|---|---|---|---|---|---|---|---|
| Mean attenuation [dB] | 33.1 | 29.9 | 34.9 | 32.7 | 32.2 | 37.5 | 43.1 | 28.8dB |
| Standard Deviation [dB] | 5.2 | 4.8 | 6.8 | 5.8 | 4.8 | 7.0 | 7.7 | |
| APV [dB] | 27.9 | 25.1 | 28.0 | 27.0 | 27.4 | 30.5 | 35.4 | |

## 17  Service and Support

If your product needs service, please contact the distributor from whom it was purchased, or one of our service partners.

## Troubleshooting Guide

Below are solutions to some problems that could be experienced with your QUIETPRO. The problems that may occur can wary dependent on the configuration of the unit.

**My unit does not start up (no audio or indicator lights) or shuts off soon after start-up:**
- Make sure that you press and hold [CONFIRM] for *at least 2 seconds* to turn on. If you release the button too soon you will experience that the unit shuts off.
- Make sure that the battery is sufficiently charged.
- Make sure that the headset connector (both male and female) is free from dirt and that it is mated properly.

**I cannot charge the battery (no indicator lights lit):**
- Refer to section 12.4 for charging instructions.
- Make sure that the charger connector (both male and female) is free from dirt and that it is mated properly.
- Make sure the charger is properly connected to the AC mains supply.

**The battery capacity is poor or the green indicator light is not lit even after many hours of charging:**
- The battery might be worn out and needs replacement. Refer to section 12.5 for instructions.

**I cannot pass the fit test successfully:**
- Refer to section 3.3 for instructions on how to use the eartips. Pay special attention to selecting the eartip size, how to compress the foam, and how to straighten your ear canal by gently pulling your pinna.
- Make sure that the eartip sound tubes are not blocked.
- Try a fresh pair of eartips.
- Make sure that the headset connector (both male and female) is free from dirt and that it is mated properly.
- Replace the headset in case any of the microphones or loudspeakers have been damaged.

**My incoming communication sound is distorted:**
- Make sure the eartips are well inserted and that the fit test does not fail. Refer to section 3.3 for instructions.
- Make sure that the control unit is set up for the appropriate radio model. When the radio cable is connected to the unit, the name of the radio model will be presented by voice. If the radio name being read to you does not

29

match the connected radio, enter and cycle the menu using [MENU] until you hear "Advanced System Setup" then press [CONFIRM]. Then cycle the menu until you hear "Radio model" then press [CONFIRM]. Then cycle through the radio names until you find the appropriate model and press [CONFIRM].

- Turn down the volume on the attached radio and adjust the radio volume setting on QUIETPRO (increase if needed) until you reach the optimum communication quality.

**My outgoing communication sound is distorted (reported by the person receiving my audio messages):**

- Make sure the eartips are well inserted and that the fit test does not fail. Refer to section 3.3 for instructions. Well inserted eartips are crucial for the quality of the voice pick-up!
- Make sure that the control unit is set up for the appropriate radio model. When the radio cable is connected to the unit, the name of the radio model will be presented by voice. If the radio name being read to you does not match the connected radio, enter and cycle the menu using [MENU] until you hear "Advanced System Setup" then press [CONFIRM]. Then cycle the menu until you hear "Radio model" then press [CONFIRM]. Then cycle through the radio names until you find the appropriate model and press [CONFIRM].
- Make sure the radio battery is sufficiently charged. Refer to the radio manufacturer's documentation for instructions.

**My radio transmission stops after a while even though the PTT button is still pressed:**

- Continuous keying of a radio for a long period of time may damage the radio. Some systems have a built-in mechanism that releases the keying after a specified time interval. Refer to the radio manufacturer's documentation for further information.

**Honeywell Safety Products Locations:**

France:
Z.I. Paris Nord II 33
rue des Vanesses BP 55288
95958 Roissy CDG Cedex
Tel.    +33 (0)1 49 90 79 79
Fax.    +33 (0)1 40 90 71 38

Belgium:
Klauwaartslaan 3 Box 5
B 1853 Strombeek - Bever
Tel.    +32 (0)2 267 38 03
Fax.    +32 (0)2 267 60 50

Germany:
Kronsforder Allee 16
D-23560 Lübeck
Tel.    +49 (0)451 702 740
Fax.    +49 (0)451 798 058

Hungary:
Forgach U.9B
1139 Budapest
Tel.    +36 1 239 31 33
Fax.    +36 1 239 31 35

Italy:
Via Vittorio Veneto 142
27020 Dorno (Pavia)
Tel.    +39 0 382 81 21 11
Fax.    +39 0 382 84 113

United Kingdom:
Unit 3 Elmwood, Chineham Park,
Basingstoke, RG24 8WG
Phone: +44 (0) 1256 693 200
Fax: +44 (0) 1256 693 300

Australia:
43 Garden Boulevard
Dingley, Victoria 3172
Tel.    +613 9565 3500 (outside)
Tel.    +1300 139 166 (inside-free)
Fax.    +1300 362 491

New Zealand:
106 Richard Pearce Drive
Mangere Auckland
Tel.    +64 7 823 7390
Fax.    +64 7 823 7391
Tel.    0 800 322 200 (inside-free)

China:
斯博瑞安（中国）
安全防护设备有限公司
上海市松江工业区
美能达路312号
邮编：201613
电话：021-51693008
传真：021-57740217

Russi
ZAO Honeywell
Kievskaya str., 7
Moscow, RF, 121059
Tel.    + 7 495 980 99 10
Fax.    + 7 495 980 99 13

Spain:
Avda. Castilla 1
San Fernando Dehenares
28830 Madrid
Tel.    + 34 91 676 4521
Fax.    + 34 91 677 0898

Nordic:
Strandbadsvägen 15
SE-252 29 Helsingborg
Sweden
Tel.    +46 (0)42 881 00
Fax.    +46 (0)42 739 68

Korea:
Paradise Bldg., 186-210, 2-Ga,
JangChung-Dong, Jung-Gu
SEOUL
Korea 100-392
Tel.    +82 2 2273 2633
Fax.    +82 2 2273 2631

Singapore:
680A Jurong West Central 1
#17-40 641680 Singapore
Tel.    +6 567 925 508
Fax.    +6 563 993 150

Hong Kong:
Room No. 1043, 14/F,
Stanhope House,
734 King's Road,
Quarry Bay, Hong Kong
Tel.    + 852 2 7070 922
Fax.    + 852 2 7070 932

Poland:
ul. Podskale 2
30-522 KRAKOW
Tel.    +00 48 12 656 57 31
Fax.    +00 48 12 656 14 54

USA:
900 Douglas Pike
Smithfield, RI 02917 USA
Tel.    1 800 430 5490
Fax.    1 401 232 311

Manufacturer:
**Nacre AS**
(a member of the Honeywell International Inc. group)
Sluppenvegen 12E
NO-7037 Trondheim
Tel.                +47 73 60 59 40
Fax.               +47 73 83 99 11
www.honeywell.com/quietpro

**Honeywell**