Bodyguard® 1500
PASS (Personal Alert Safety System)

Instructions for Use

Dräger

1 For your safety

1.1 General safety statements

- Before using this product, carefully read the instructions for use.
- Strictly follow the instructions for use. The user must fully understand and strictly observe the instructions. Use the product only for the purposes specified in the Intended Use section of this document.
- Do not dispose of the instructions for use. Ensure that they are retained and appropriately used by the product user.
- Only fully trained and competent users are permitted to use this product.
- Comply with all local and national rules and regulations associated with this product.
- Only trained and competent personnel are permitted to inspect, repair and service the product. Dräger recommends a Dräger service contract for all maintenance activities and that all repairs are carried out by Dräger.
- Use only genuine Dräger spare parts and accessories, or the proper functioning of the product may be impaired.
- Do not use a faulty or incomplete product, and do not modify the product.
- Notify Dräger in the event of any component fault or failure.

1.2 Definitions of alert icons

Alert icons are used in this document to provide and highlight text that requires a greater awareness by the user. A definition of the meaning of each icon is as follows:

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in physical injury or damage to the product or environment. It may also be used to alert against unsafe practices.

NOTICE

Indicates additional information on how to use the product.

2 Description

2.1 Product overview

The Bodyguard® 1500 is a battery powered Personal Alert Safety System that provides audible and visible alarm signals. Audible signals are loud and easily recognized with varying alarm patterns to distinguish between different warning conditions. The alarm is from an electronic sounder that uses the tally slots as amplification chambers to provide clear and loud alarm signals.

Visible signals are provided by red, blue, green and amber LEDs on the casing. During use the unit displays a flashing green LED that indicates active mode, and pulsing blue LEDs that are used as a visual identification signal (or buddy-beacon) for fellow team members.

The unit is configured as either a button version or a button version with a tally cancel. The main difference between the version types is the alarm cancelling method:

- Button version – the buttons on the side of the unit are used to arm and cancel automatic alarms (a tally is not supplied with button versions).
- Button version (with tally cancel) – the buttons on the side of the unit are used to arm and cancel automatic alarms. The tally is intended for use during maintenance. Inserting the tally prevents audible alarms from sounding during maintenance.

The unit is fixed on to the outside of protective clothing or equipment using one of three different fixing options. The standard fixing is a low-profile harness clamp. An alternative (supplied with the unit) is an adaptor which attaches the unit to a universal accessory clip. An optional alternative (supplied as an accessory) is a crocodile clip with combined wire D-ring.

2.1.1 Distress alarms

The main function of the unit is to provide automatic and manual distress alarms. The automatic distress alarm uses an internal motion sensor and timer to measure the time that wearer has been motionless, in order to indicate that the wearer may be unconscious or trapped. The automatic distress alarm activates a pre-alert (◀) and a full alarm (▶◀) at predetermined timed intervals when the wearer does not move in excess of normal breathing movement. The manual alarm is operated by pressing the yellow button ((!)), to allow the wearer to signal for help or attention.

2.1.2 Thermal exposure alarm

Protective clothing insulates the wearer from the thermal environment, making it difficult to appreciate the level of heat or thermal exposure. The Bodyguard® 1500 includes a thermal sensor that monitors exposure and starts a timer at a set start temperature (the default start temperature is 40 °C). Once the timer has started, two thermal exposure alarms activate at time-weighted temperature thresholds. The alarms warn the user of a relatively long period of exposure to slightly elevated temperatures, or of a short period of exposure in high temperature situations.

The thermal sensor can be disabled or the start temperature can be configured to meet the individual operational needs of the user using Dräger PC Link (see Section 2.1.3).

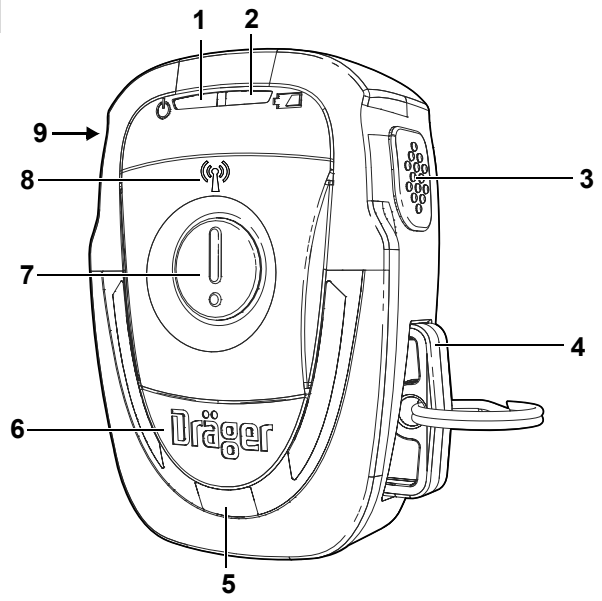
2.1.3 Radio frequency link

The radio frequency (RF) link allows one or more units to be paired with a Dräger Bodyguard® TX Gauge on a breathing apparatus. When paired with a TX Gauge, the Bodyguard® 1500 will automatically switch on if it is within 1 m of the paired TX Gauge when the gauge is switched on. The paired Bodyguard® 1500 cannot be switched off until the TX Gauge is switched off. See Section 3.4.3 for details of pairing the unit.

The Bodyguard® 1500 is equipped with radio frequency communication circuitry that enables wireless reading and reprogramming of the unit. This information includes unit identity, a record of events (datalog), parameter maintenance and firmware reprogramming. The parameter settings that are configurable include enabling/disabling of alarms, motion alarm times, alarm sounds, etc. The alarm parameters described in this document are the default settings for the unit.

Reprogramming the unit requires Dräger PC Link. Contact Dräger for details.

1



1 Active LED
2 Low battery LED
3 Right-hand button
4 Tally (option)
5 Thermal sensor
6 LED panel
7 Manual alarm button
8 RF communication point
9 Left-hand button

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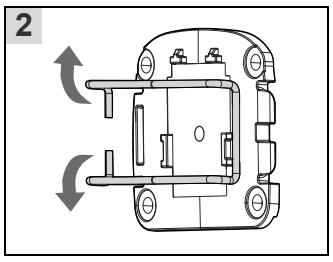

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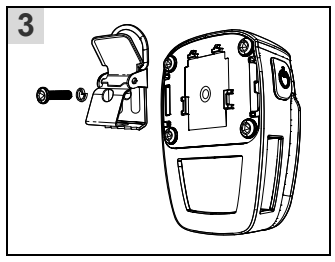

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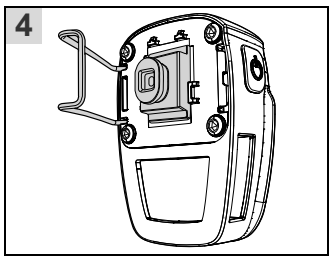

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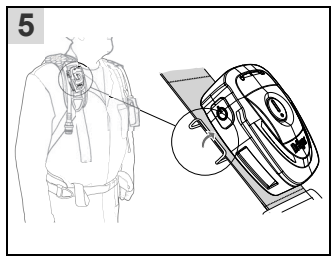

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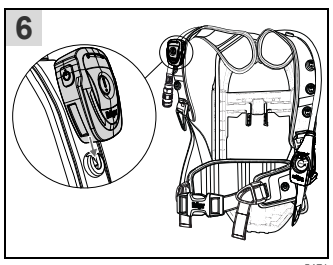

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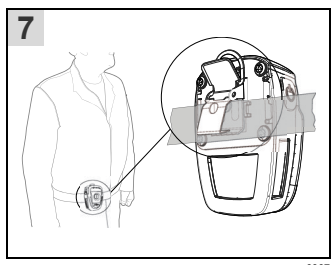

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2.2 Intended use

The Bodyguard® 1500 is intended for use by firefighters, other emergency services, and industrial users engaged in fire fighting, rescue and other hazardous duties with a TX Gauge. The unit provides clear, distinct and easily recognized alarm signals that indicate wearer immobilization, a call for help or attention, or warn of excessive thermal exposure. Distress alarms can be used by rescue teams to pinpoint the position of the source of the alarm. The unit may be used as a stand-alone device.

2.2.1 Limitations on use

A limitation of the automatic distress alarm is that the motion sensor detects movement or vibration to which the wearer is subjected, and may not activate if the wearer is motionless on a moving platform (for example, on moving or vibrating machinery).

Special conditions for safe use:
The recessed label is made from aluminium foil. The end user shall exercise care to ensure that the label is not subject to impact or abrasion during use as this may cause incendive sparks.

The metal fixing clamp is an isolated conductive part with a capacitance of 6 pF, exceeding the values permitted by Table 9 of EN60079-0:2012 for Group II equipment. This should be taken into consideration by the user as an electrostatic discharge risk in determining suitability for use.

2.3 Approvals

The European standards, guidelines, and directives according to which this product is approved are specified in the declaration of conformity (see declaration of conformity or www.draeger.com/product-certificates).

2.4 Marking and symbols

CAUTION
Do not use marker pens or apply paint, and do not scratch or engrave the unit, as this may damage the unit or invalidate approvals. It is recommended that any personal marking of the unit is made using adhesive labels.

BRXX-1234	Dräger serial number
⏻	Left-hand button and active LED
⁘	Right-hand button
🪫	Low battery LED
(•)	Radio frequency (RF) communication symbol

3 Use

CAUTION

The tally from a Bodyguard® 1500 with a tally cancel must be removed before the automatic distress alarms will activate. Ensure that the tally is removed before commencing operations.

3.1 Preparation for use

3.1.1 Initial assembly

The rear cover and batteries are supplied loose (unfitted) with the unit. Install them before first use (see Section 3.4.2).

If the unit is supplied with the crocodile clip accessory, fit the clip as follows:

1. Remove the harness clamp from the rear cover (Fig 2).
2. Install the batteries and rear cover as normal (see Section 3.4.2).
3. Connect the crocodile clip accessory (Fig 3). Gently tighten (nip up) the screw using a T10 driver. Dräger recommend a torque of 0.8 Nm (0.6 lbf ft) – do not over tighten.

If fitting the unit to a universal accessory clip, fit the adaptor as follows:

1. Install the batteries and rear cover as normal (see Section 3.4.2).
2. Fit the universal accessory clip adaptor and secure in place with the harness clamp (Fig 4).

NOTICE

Only secure the universal accessory clip adaptor to the unit with the harness clamp. Do not use a screw, such as the one supplied with the crocodile clip accessory.

3.1.2 Preparation for use

1. Install the batteries if necessary (see Section 3.4.2).
2. Pair unit with a TX Gauge if necessary (see Section 3.4.3).
3. Carry out a functional test (see Section 3.4.1).

WARNING

Fitting the unit inside protective clothing would insulate the thermal sensor from the thermal environment and delay alarm activation, risking over exposure to high temperatures. Fix the Bodyguard® 1500 outside any protective clothing and ensure that the sensor is clear of obstructions.

NOTICE

The optimum fitting positions are on the front of the wearer at the shoulder (Fig 5 and Fig 6) or waist (Fig 7). The shoulder position may expose the thermal sensor to slightly higher temperatures, and is recommended for fire fighting operations.

The shoulder fitting position allows the unit to be paired with a TX Gauge while wearing a breathing apparatus. See Section 3.4.3 for details of pairing the unit.

4. Fit the unit to a breathing apparatus harness strap or to protective clothing.

3.2 During use

3.2.1 Switching the unit on and off

To switch on the unit:
- If the unit is being used as a stand-alone device press the left-hand button.
- If the unit is paired with a TX Gauge, open the breathing apparatus cylinder valve. The unit will switch on automatically.

To switch off the unit:
- If the unit is being used as a stand-alone device simultaneously press the left-hand and right-hand buttons.
- If the unit is paired with a TX Gauge, switch off the TX Gauge (see the TX Gauge instructions for use) and then simultaneously press the left-hand and right-hand buttons.

3.2.2 Operating modes and functions

Use and activation of alarms, and any evacuation and recovery procedures, should be in line with existing command and control procedures.

Sleep mode – When the unit is switched off it enters a sleep mode (awaiting an activation signal). The automatic alarms are disabled and all LEDs are off. The manual distress alarm can be activated from sleep mode.

Active mode – When the unit is switched on, and passes the self check, a start-up signal occurs (four beeps, and brief illumination of all LEDs) and then the unit enters the active mode indicated by a flashing green LED (every second). Automatic alarms are enabled and the buddy-beacon signal is on.

Error alert – If the unit fails the self check during start-up, or if a hardware failure occurs during use, the error alert activates (five beeps plus high-frequency flash of the amber LED).

Pre-alert (◀) – No movement sensed for 21–25 seconds. Activates a repeating, increasing-volume, triple-beep alarm tone accompanied by alternating red and blue LEDs.

Automatic distress alarm (▶◀) – No movement sensed for 8 seconds of pre-alert. Activates the full alarm signal.

Manual distress alarm ((!)) – Pressing the button activates the full alarm signal.

Low battery alert (🪫) – Flashing amber LED and beep every five seconds.

Thermal exposure alarm 1 – Lower time/temperature threshold reached. Activates a short repeating double-beep alarm tone and flashing red LEDs. Press the right-hand button (⁘) to silence the alarm.

Thermal exposure alarm 2 – Higher time/temperature threshold reached. Activates the full alarm signal.

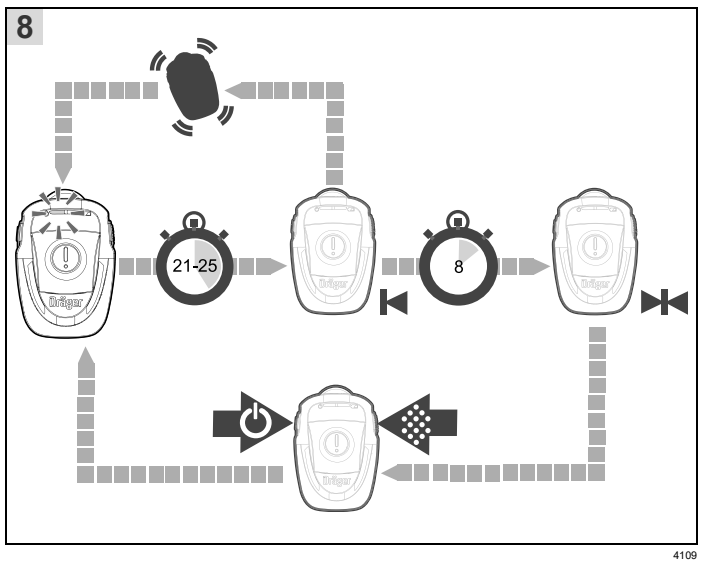
Buddy-beacon – Blue LEDs pulsing at low frequency.

Full alarm signal – A high-pitched pulsating alarm signal accompanied by alternating red and blue LEDs.

3.2.3 Automatic distress alarms

Key

- Time in seconds
- Press left-hand button
- Press right-hand button
- Movement
- Pre-alert
- Full alarm



3.2.4 Thermal exposure alarms

WARNING
Thermal exposure alarm 1 indicates that the wearer has been subjected to a high level of thermal exposure. Evacuate to a safe area immediately when the alarm sounds, and do not return to the operation area once the alarm has activated.

The thermal exposure alarms are configured to meet the operational needs of the user. The equipment owner must provide safe working procedures based on the chosen thermal alarm settings.

When thermal exposure alarm 1 sounds, acknowledge and silence the alarm by pressing the right-hand button (⁂) and evacuate to a safe area immediately. The red LEDs will continue to flash until the surrounding temperature drops below the set start temperature.

Thermal exposure alarm 2 activates the full alarm signal, to indicate a very high level of thermal exposure. Continue to evacuate as an emergency. Once in a safe area, cancel the full alarm as normal.

3.3 After use

Do not remove or switch off the unit until in safe area clear of hazards.

1. Disconnect the unit from the harness strap or from protective clothing if necessary.
   - To disconnect the harness clamp, use a flat-bladed screwdriver, with a blade width of 3 mm or wider (Fig 9 or Fig 10).
   - To disconnect the adaptor from the universal accessory clip use a 2.5 mm hexagon key (Fig 11).
2. Carry out a functional test (see Section 3.4.1).
3. Clean the unit if necessary (see Section 5.1).
4. Store the unit in accordance with the storage instructions (see Section 6).

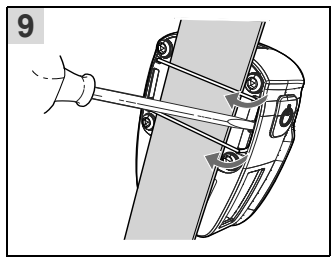
3.4 Common user tasks

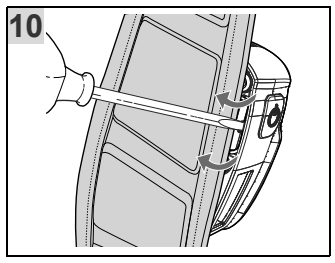
3.4.1 Functional test

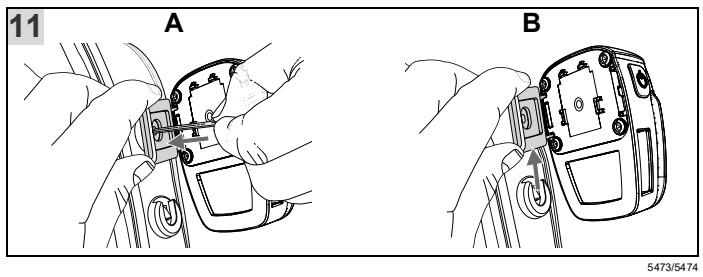
WARNING
Failure of the equipment to meet any of the standards or parameters in the functional test, or any visible signs of damage, indicates a possible system fault. Report the fault to trained maintenance personnel or contact Dräger. Do not use the Bodyguard® 1500 unless it is fully serviceable.

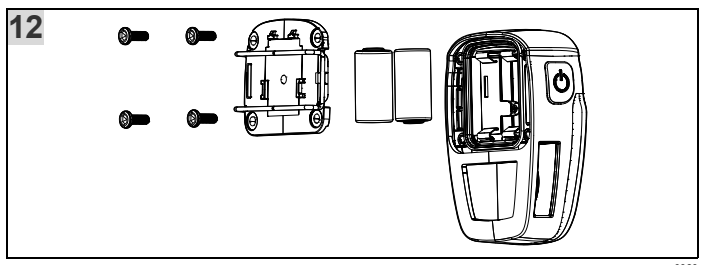
CAUTION
Sounder volume is very high. Warn personnel in the immediate vicinity and wear suitable hearing protection to prevent hearing damage when testing the Bodyguard® 1500.

1. Check that the Bodyguard® 1500 is clean and undamaged. Typical signs of damage that may affect the operation of the unit include impact, abrasion, cutting, corrosion and discolouration.
2. Switch on the unit. (How to switch on the unit is described in Section 3.2.1 and how to cancel alarms is shown in Fig 8.)
3. Ensure start-up signal occurs (four beeps, and brief illumination of all LEDs) and then the green (active) LED and the blue (buddy-beacon) LEDs operate.
4. Immobilize the unit and check that the pre-alert starts in 21 to 25 seconds. Move the unit to cancel the alert.
5. Immobilize the unit again and ignore pre-alert, check that the full alarm starts approximately 8 seconds after the pre-alert.
6. Cancel the alarm.
7. Operate the manual alarm.
8. Cancel the alarm.
9. If the Bodyguard® 1500 is to be used with a TX Gauge, ensure that the unit and gauge are paired (see Section 3.4.3) and carry out the following:
   a. Ensure that the TX Gauge and Bodyguard® 1500 are switched off.
   b. Open the breathing apparatus cylinder valve. Check that the Bodyguard® 1500 turns on within 10 seconds of the TX Gauge passing the self check.
   c. Simultaneously press the left (⏻) and right-hand (⁂) buttons of the Bodyguard® 1500. The unit should remain active (switched on) while the TX Gauge is switched on.
   d. Press and hold the TX Gauge illumination button (☼) button for 10 seconds. Check that paired Bodyguard® 1500 emits a long beep.









3.4.2 Battery installation or replacement

WARNING
Danger of explosion or fire. Do not remove or install the batteries in an explosive or flammable atmosphere.

Explosion, fire or chemical hazard. Do not expose the batteries to heat sources, do not attempt to recharge any non-rechargeable battery and do not short out the battery terminals.

Risk of explosion if a battery is replaced by an incorrect type. Use only the recommended battery type.

CAUTION
Environmental hazard. Dispose of used batteries in accordance with national or local regulations.

- Use only the recommended battery type: Panasonic® CR123A (3 V lithium). Other batteries may not provide the same operating life, and will invalidate approvals.
- Replace the batteries with a matching set. Do not mix new and used batteries.
- Remove discharged batteries from the product.
- To preserve the accuracy of the datalog clock, install new batteries within 30 seconds of removing the discharged batteries.

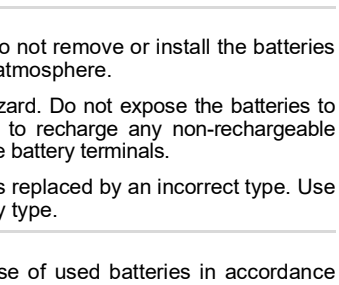
1. Remove the rear cover using a 2.5 mm hexagon key, and remove the discharged batteries (Fig 12).
2. Note the polarity shown in the battery compartment and install the new batteries.
3. Check the cover and sealing ring. Lightly coat the sealing ring with silicone grease (as a guideline, the grease should be felt on the fingers but not seen).
4. Align and refit the cover. Gently tighten (nip up) the screws. Dräger recommend a torque of 0.5 Nm (0.4 lbf ft) – do not over tighten.
5. Carry out a functional test (see Section 3.4.1).

3.4.3 Pairing with a TX Gauge

1. Ensure that the TX Gauge and Bodyguard® 1500 are switched off.
2. **Bodyguard® 1500:** Press and hold the left-hand button (⏻) of the Bodyguard® 1500 for approximately 3 seconds until the green (active) LED illuminates continuously. Release the left-hand button (⏻).
3. **TX Gauge:** Press and hold the gauge illumination button (☼) of the TX Gauge. After approximately 6 seconds the green (active) and white LEDs illuminate continuously and the red LED starts flashing.
4. **Both devices:** Immediately bring the gauge face and yellow button (⏼) into contact with each other (see Fig 13) and then release the gauge illumination button (☼).
   If pairing succeeds, the following signals occur before the devices automatically switch off:
   - Bodyguard® 1500 – blue LEDs flashing and the unit emits 4 long beeps.
   - TX Gauge – alternating white and green/amber flashing LEDs.

   If pairing is not successful, the following signals occur before the devices automatically switch off:
   - Bodyguard® 1500 – red LEDs flashing and the unit emits 8 short beeps.
   - TX Gauge – alternating flashing red and amber LEDs.

   If pairing does not occur within 25 seconds, the following signals occur:
   - TX Gauge – alternating flashing red and amber LEDs, and the unit automatically switches off.
   - Bodyguard® 1500 – enters active mode as described in section 3.2.2.



NOTICE
If pairing is not successful, restart the pairing procedure. Any pre-existing pairing information is retained by the Bodyguard® 1500.

4 Troubleshooting

Contact Dräger if the symptom remains after the remedy actions have been attempted, or if the symptom is not described in the table below.

Symptom	Fault	Remedy
Fails to switch on	Low batteries	Replace the batteries (see Section 3.4.2)
	Unit unserviceable	Contact Dräger
Fails to switch off	TX Gauge out of communication range when switched off (no switch-off signal received by the Bodyguard® 1500)	Bring device into RF communications range then press the TX Gauge illumination button (☼). Switch off the Bodyguard® 1500 (see Section 3.2.1.)
Flashing amber LED and beep every five seconds	Low batteries	Replace the batteries (see Section 3.4.2)
Five beeps plus flashing of the amber LED	Failed self check, or hardware fault	Contact Dräger
The green (active) LED is on for 10 seconds and then switches off	The left-hand button (⏻) has been pressed for more than 3 seconds	No action required. The unit has attempted to establish radio frequency communication, which is a normal function
TX Gauge indicates pairing failed (flashing red LED) but Bodyguard® 1500 indicates pairing successful (flashing blue LEDs and 4 long beeps)	Devices moved out of RF communications range during pairing	Pair devices again, ensuring that RF communication points remain in contact with each other

5 Maintenance

The Bodyguard® 1500 does not require any scheduled maintenance. Clean the unit and replace batteries when required.

5.1 Cleaning

CAUTION
Do not use organic solvents or abrasive materials. Products other than a mild soap solution may damage the equipment.

Do not immerse the unit in water or cleaning fluids, and do not put the unit in washing or drying machines. Do not disassemble the unit for cleaning.

Carefully clean and dry the Bodyguard® 1500 using a clean lint-free cloth. Moisten the cloth with a mild soap solution if necessary.

6 Storage

Store the equipment in a dry environment, free from dust and dirt. Do not expose to direct sunlight. The storage temperature range is 10 to 50 °C.

With the system switched off a small amount of battery power is consumed. Remove batteries if the unit will not be used for a long period (see Section 3.4.2). Note that the datalog clock will stop a short time after the batteries are removed.

7 Disposal

7.1 Disposal of electrical and electronic equipment

Electrical and electronic equipment must not be disposed of as household waste. This is indicated by the adjacent symbol.

The product can be returned to Dräger free of charge. For information please contact the national marketing organizations or Dräger.

7.2 Batteries

Dispose of used batteries in accordance with national or local regulations.

8 Technical data

Dimensions:	100 x 70 x 40 mm
Weight:	230 g with batteries fitted
Operating temperature:	-30 to +60 °C
Operating pressure:	0.75 to 2 bar
Alarm signals:	BS 10999:2010
Battery:	Panasonic® CR123A (3 V lithium)
Voltage:	6 Vdc
Nominal frequency:	125 kHz 66 dBuA/m at 10 m

II 1G Ex ia IIC T4 Ga (Ta = -30 °C to +60 °C)
II 1D Ex ia IIIB T200°C Da
I M1 Ex ia I Ma

9 Order list

Description	Quantity	Order code
Battery (Panasonic® CR123A (3 V lithium))	5 (per pack)	3356715 or Stockist
T10 driver	1	3356165 or Stockist
2.5 mm hexagon key		Stockist
Silicone grease		Stockist

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