

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® 1000 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 tally version. The main difference between the version types is the alarm arming and 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).
- Tally version (BS 10999:2010) – the tally is removed or inserted to arm and cancel alarms.
- Tally version (with button cancel) – the tally is removed to arm the alarms. Alarms are cancelled by inserting the tally or by pressing the buttons on the side of the unit.

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® 1000 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).

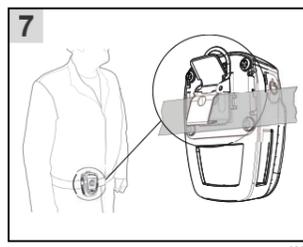
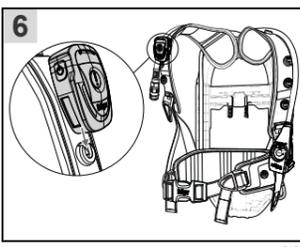
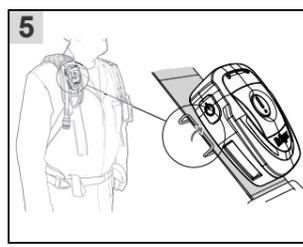
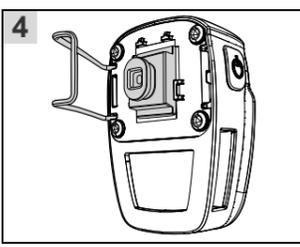
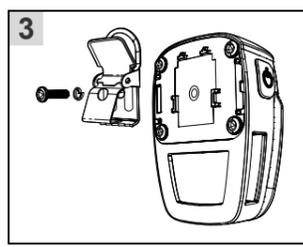
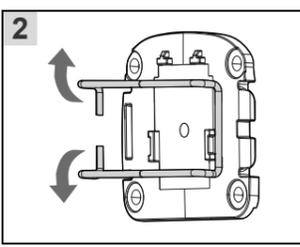
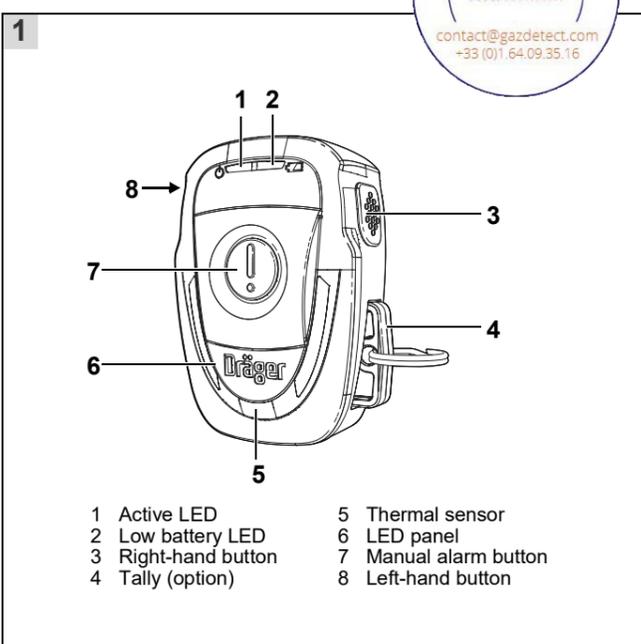
2.1.3 Radio frequency link

The Bodyguard® 1000 is equipped with radio frequency (RF) communication circuitry that enables wireless reading and reprogramming of the unit. 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.

The radio frequency link requires the Dräger PC Link. Contact Dräger for details.

2.2 Intended use

The Bodyguard® 1000 is intended for use by firefighters, other emergency services, and industrial users engaged in fire fighting, rescue and other hazardous duties. 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.



2.3 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.

2.4 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).

2.5 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

3 Use

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. Carry out a functional test (see Section 3.4.1).
3. Fit the unit to a breathing apparatus harness strap or to protective clothing.

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® 1000 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.

3.2 During use

3.2.1 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.

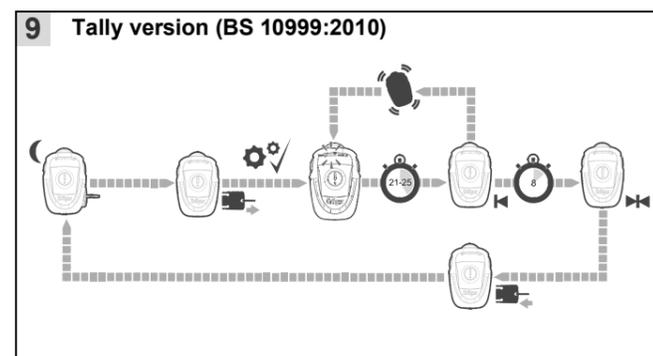
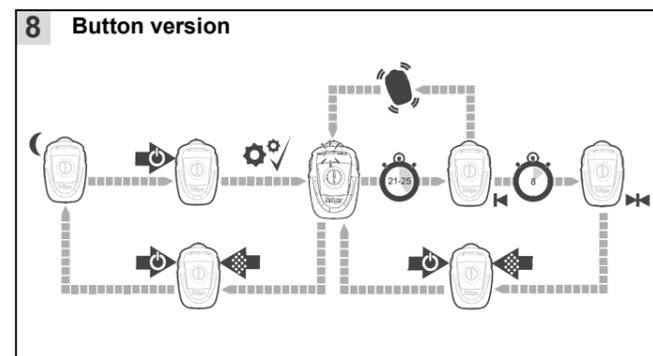
Buddy-beacon – Blue LEDs pulsing at low frequency.

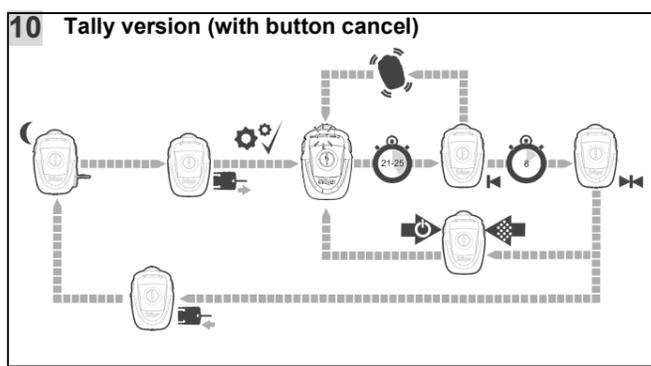
Full alarm signal – A high-pitched pulsating alarm signal accompanied by alternating red and blue LEDs.

3.2.2 Automatic distress alarms

Key

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





3.2.3 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.
 - o To disconnect the harness clamp, use a flat-bladed screwdriver, with a blade width of 3 mm or wider (Fig 11 or Fig 12).
 - o To disconnect the adaptor from the universal accessory clip use a 2.5 mm hexagon key (Fig 13).
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® 1000 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® 1000.

1. Check that the Bodyguard® 1000 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 or cancel alarms is shown in Fig 8, 9 or 10.)
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.

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.

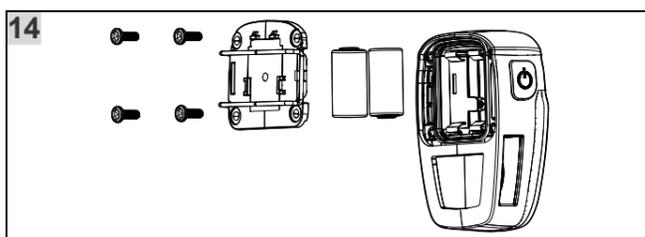
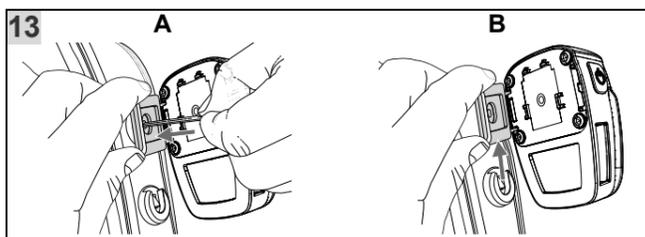
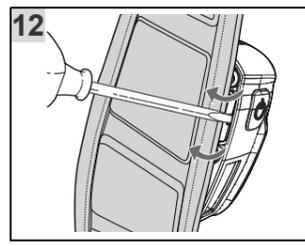
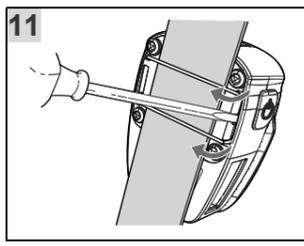
Risk of explosion if a battery is replaced by an incorrect type. Use only the recommended battery type.

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 14).



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).

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
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

5 Maintenance

The Bodyguard® 1000 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® 1000 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 IIB 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

