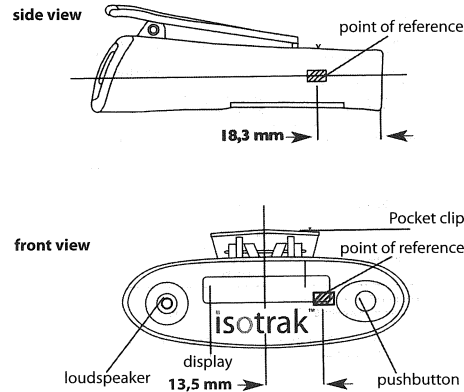## DoseGUARD

User Guide (Date: 1.6.2009)

DoseGUARD is a personal alarm dosimeter for people who may be exposed to gamma- and X-ray radiation during their work. The instrument should be worn in a chest pocket, with the pocket clip on the outside. There should be no metal objects in the same pocket.

This User Guide contains instructions on selecting alarm levels, testing and changing the battery, and selecting display modes. The DoseGUARD dosimeter has been designed as a stand-alone dosimeter. It is possible to re-configure the dosimeter using a reader interfaced to a personal computer and to de-activate some pushbutton functions if they are not required. This manual, however, includes instructions for all the available functions.

isotrak™

🔹 Eckert & Ziegler
Nuclitec

DoseGUARD Top view

side view

point of reference

18,3 mm

front view

Pocket clip
point of reference

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loudspeaker   display   pushbutton
13,5 mm

To switch on
Press the pushbutton and release it when a long bleep is heard. The display will look like:

$$8.8.8\ \mu Sv$$

The instrument then shows either the dose or the dose rate.

To change from displaying dose to displaying dose rate (or vice versa)
To change the display for 10 seconds only:
1. Press the pushbutton once
2. The dose (or dose rate) will be displayed for 10 seconds

To change the display permanently:
1. Press the pushbutton once
2. The display changes to dose (or dose rate)
3. Within 10 seconds, press the pushbutton again and hold it pressed until a long bleep is heard

To switch off
1. Press the pushbutton twice
2. The display changes to "OFF"
3. Press the pushbutton in and release it when a long bleep is heard
4. The display will go blank

To switch the chirp on and off
If a loudspeaker symbol is shown in the top left hand corner of the display, the chirp is switched on. If no loudspeaker symbol is shown, the chirp is switched off.
1. Press the pushbutton three times
2. The display changes to "CHr"
3. Press the pushbutton in again and release it when a long bleep is heard

To reset the dose to zero
1. Press the pushbutton four times
2. The display changes to "CLr"
3. Press the pushbutton in again and release it when a long bleep is heard
4. The dose will be shown blinking
5. To reset the dose to zero, press the pushbutton one more time while the dose is shown blinking, and release it when a long bleep is heard

Setting alarm levels

To display current dose alarm level (dAL)
1. Press the pushbutton five times
2. The display changes to "dAL"
3. Press the pushbutton in again and release it when a long bleep is heard

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4. The dose alarm level will be displayed for a few seconds

Note: If zero is shown, the alarm is switched off.

To change the dose alarm level
1. Press the pushbutton five times
2. The display changes to "dAL"
3. Press the pushbutton in again and release it when a long bleep is heard
4. The dose alarm level will be displayed for a few seconds
5. While the level is displayed, press the pushbutton briefly to step through the available dose alarm levels (preset to 10 μSv, 100 μSv, 1 mSv, 10 mSv, 100 mSv or 1 Sv (1 mR, 10 mR, 100 mR, 1 R, 10 R, or 100 R))
6. When the required dose alarm level is displayed, press the pushbutton again and release it when a long bleep is heard.

Note: to disable the alarm, select zero (0).

To display current dose-rate alarm level (drA)
1. Press the pushbutton six times
2. The display changes to "drA"
3. Press the pushbutton in again and release it when a long bleep is heard

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4. The dose-rate alarm level will be displayed for a few seconds

Note: If zero is shown, the alarm is switched off.

To change the dose-rate alarm level
1. Press the pushbutton six times
2. The display changes to "drA"
3. Press the pushbutton in again and release it when a long bleep is heard
4. The dose-rate alarm level will be displayed for a few seconds
5. While the level is displayed, press the pushbutton briefly to step through the available dose-rate Alarm levels (preset to 10 μSv/h, 100 μSv/h, 1 mSv/h, 10 mSv/h, 100 mSv/h or 1 Sv/h (1 mR/h, 10 mR/h, 100 mR/h, 1 R/h, 10 R/h or 100 R/h))
6. When the required dose alarm level is displayed, press the pushbutton in again and release it when a long bleep is heard

Note: to disable the alarm, select zero (0).

Alarm/overflows

Dose or dose-rate alarm
If the dose or dose rate exceeds the alarm level, the display will blink and a continuous audible alarm will sound. To stop the alarm sounding, press the pushbutton.

Audible Alarms
Dose-rate alarm:	- - - -	(4 bleeps per second)
Dose alarm:	-	(1 bleep in two seconds)

Simultaneous dose and dose-rate alarms
If the dose and dose-rate exceed the alarm levels at the same time, the dose rate alarm will sound.

Dose/dose-rate overflow alarms
If the measurement limit is exceeded for the dose (10 Sv) or dose-rate (3 Sv/h):

dose overflow: display shows "doo" audible warning (2 bleeps per second)
dose-rate overflow: display shows "dro" audible warning (8 bleeps per second)

Overflow alarms cannot be reset.

Testing the battery

Low battery alarm, normal operation
When the battery is low, the battery symbol will be shown blinking and a long bleep will be heard once an hour. The dose/dose-rate measurement will be unaffected.

Low battery alarm when switched on (Lob)
If the battery is low when the instrument is switched on, the display shows "Lob" and the battery symbol will be shown blinking. An audible alarm will sound (one bleep per second). The instrument will not measure the dose or dose-rate, and the battery must be changed.

Battery test
1. Press the pushbutton seven times
2. The display changes to "diA"
3. Press the pushbutton in again and release it when a long bleep is heard
4. The alarm will sound for 5 seconds

If a battery symbol is shown on the display, after the test, the battery is weak and should be replaced.

Note: Pushbutton functions are disabled if the battery is low.

Error messages (DEF)

If an error occurs with the instrument, the display will alternate between "DEF" and a code to show the type of error. Please note the error code (shown below) and return the instrument for servicing.

Error Codes

Er1 = calibration error
Er2 = problem with non-volatile RAM
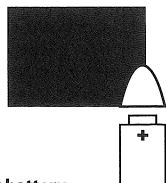Er3 = problem with detector
Er4 = problem with RAM

Maintenance and decontamination

No specific maintenance is required, but the instrument calibration should be tested periodically in line with national regulations. The housing may be cleaned and decontaminated with any solution suitable for use on ABS polymer and polycarbonate.

To replace the battery

1. Open the battery compartment cover with a coin.
2. Remove the old battery and replace it with a new battery, positive electrode first
3. Close the compartment cover

The dosimeter will automatically switch on after the battery has been replaced.

To check the new battery

1. Press the pushbutton seven times
2. The display changes to "diA"
3. Press the pushbutton in again and release it when a long bleep is heard
4. The alarm will sound for 5 seconds

If a battery symbol is shown on the display after the test, the battery is weak and should be replaced.

Specifications

Radiation detected:	Gamma and X-rays
Measurement range:	
dose	1 µSv – 9.99 Sv
	0.1 mrem – 999 rem
dose-rate	5 µSv/h – 3 Sv/h
	0.5 mrem/h – 300 rem/h
Measurement accuracy:	better than ± 5%
	(Cs-137, 662 keV)
Energy response:	60 keV – 3 MeV,
	better than ± 25%
Dose rate linearity:	better than ± 15%
Operational temperature range:	-20° C to +50° C
Operational humidity:	10 – 90% RH
Dimensions:	78 x 67 x 22 mm, excluding pocket clip
Weight:	80g, including battery
Battery type:	1.5 V LR03 (AAA)

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