

This User Instruction describes the enhancements in the operation of the Sentinel electronic monitoring unit when used in conjunction with PSS® Merlin® Data Radio Unit and the PSS® Merlin® Telemetry System. It is important that the instruction be read in conjunction with the User Instructions for the following products:

1. Sentinel
2. PSS® Merlin® Telemetry System and the
3. Associated self contained respiratory protection apparatus (SCBA).

### For Your Safety

- ◆ The assembly of the PSS® Merlin® Data Radio Unit to the SCBA and Sentinel must be carried out by Dräger personnel.
- ◆ Refer to and take note of the 'For Your Safety' statements in the User Instruction supplied with the Sentinel electronic monitoring unit.
- ◆ Refer to and take note of the 'For Your Safety' statements in the User Instruction supplied with the self contained respiratory protection equipment (SCBA).
- ◆ Use equipment and any approved ancillary units only in the combination as outlined in this Instruction for Use.
- ◆ Use equipment only for the purpose as specified in this User Instruction.
- ◆ The Merlin ECB and Portable Unit meet the FCC requirements regarding exposure of human beings to radio frequency radiation. Occupational/Controlled limits apply when persons are exposed to radio frequency radiation as a consequence of their employment provided these persons are fully aware of and exercise control over their exposure. Awareness of exposure can be accomplished by use of warning labels or by specific training or education through appropriate means, such as an RF safety program in a work environment.

### Liability Statement

Responsibility for reliable function of this equipment and approved ancillary units transfers to the owner or operator when the equipment is serviced, or repaired by untrained personnel, (not employed or authorised by Dräger) or when used in a manner not conforming to its intended use.

Changes or modifications to the equipment not expressly approved by Dräger Safety could void the user's authority to operate the equipment.

### Description and Intended Use

The PSS® Merlin® Data Radio Unit provides a means of 2way digital data interface communication between the wearer of the self contained respiratory protection apparatus (fitted with a Sentinel and Data Radio Unit) and an external support control module (Entry Control Board - ECB).

To achieve this communication, the PSS® Merlin® Telemetry System modules (ECB and Data Radio Unit) interface with the Dräger Sentinel electronic monitoring unit.

The Data Radio Unit is battery-powered and incorporates an integral digital radio transmitter and receiver with associated antenna. The radio is programmed with a radio identification code together with a unique User Code. A label on the radio identifies the radio identification code.

The 'Electronic Tally' that is supplied is also encoded with the same codes as the corresponding Data Radio Unit. A label on the 'Tally Key' identifies the numeric code of the user and the identification code for the Data Radio Unit.

Refer to the User Instruction for the PSS® Merlin® Telemetry System for full details of the PSS® Merlin® Data Radio Unit.

### Operation

#### Log On Procedure

- ◆ Activate the Sentinel to 'operating mode'. The Red LED on the IR link cover at the rear of the Sentinel begins to flash.

**Note:** An intermittent short 'flash' Off of the Red LED signals a low charge condition of the radio battery. Fit a fully charged battery.

- ◆ Pass the tally key to controller of the Entry Control Board (ECB). The controller will initiate a logon to the ECB. The Green LED on the IR link cover at the rear of the Sentinel begins to flash when the logon is established indicating a successful radio link and the display shows Fig. 1.

- ◆ The wearer is now released for entry to the risk area.

### In Use - Communication

#### Loss of contact

If there is a loss of radio contact between the radio of the ECB and the Data Radio Unit then the 'lost' communication icon (Fig. 2) will be displayed on the Sentinel display accompanied by an audible 'bleep' tone. During the communication failure the 'lost' communication icon will be displayed alternating with the normal Sentinel icon (Fig. 1). In addition, the 'Green' LED at the rear of the Sentinel will stop flashing.

If at any time radio contact is re-established then the Sentinel will emit a 'bleep' tone and the 'lost' communication icon will be cancelled. In addition, the 'Green' LED of the Bodyguard will begin flashing.

**Important Safety Note:** In the case of possible permanent loss of radio contact then the wearer of the Sentinel must take appropriate actions in line with established user guidelines and control procedures.

#### Voluntary Withdraw Function

Should the wearer of the SCBA make a decision to withdraw from an incident, a signal can be transmitted to the ECB by pressing and holding the RH button of the Sentinel until the radio icon (Fig. 3) is displayed. On observing the radio icon, the wearer should release the RH button. The display of the Sentinel will change back to 'operational mode' (Fig. 1).

On acknowledgement from the controller of the ECB of the decision to withdraw the Sentinel emits a short audible bleep alarm, during which time the radio icon is displayed. When the alarm stops the Sentinel will change back to 'operational mode'.

#### Evacuate Function

This function of the Sentinel is initiated by the controller at the ECB.

On receipt of the signal from the ECB the Sentinel unit will emit a repeating audible 'bleep' alarm and the 'running man' icon (Fig. 4) will appear in the display of the Sentinel.

To acknowledge the evacuation request to the controller at the ECB the wearer must press the RH button of the Sentinel — a single 'bleep' is emitted. Immediately release the button and the display will change to 'operational mode' (Fig. 1).

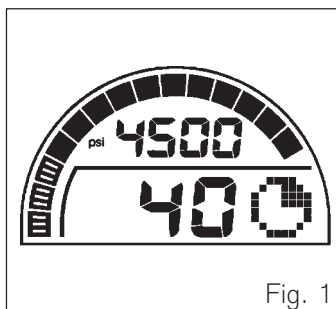


Fig. 1  
0790

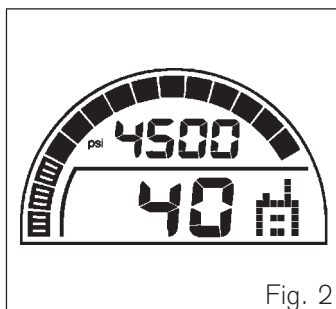


Fig. 2  
1905

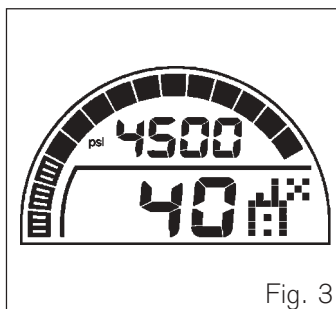


Fig. 3  
1906

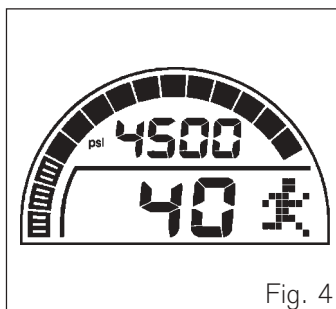


Fig. 4  
1907

### Alarm Function

On acknowledgement by the controller at the ECB of an alarm (either a Panic or PASS alarm) the Sentinel emits a short audible tone, during which time the radio icon is displayed. Following the short acknowledgement tone, the Sentinel reverts back to main alarm.

### Log Off Procedure

All wearers of SCBA that are Logged On to an ECB must return to the entry control point (ECB controller) to ensure that the Log Off procedure is followed. The procedures must be carried out under supervision and control of the controller of the ECB.

- ◆ The SCBA is to be shut down by the wearer as described in the After Use section of the User Instructions supplied with the equipment, i.e. remove facepiece, close cylinder valve, vent the system of pressure. The display of the Sentinel will show '0' psi and '0' TTW.

**Note:** The Sentinel will remain in operating mode until it switched 'Off' [deactivated].

- ◆ At the ECB the controller will remove the tally from the associated channel then hand the tally over to the wearer of the SCBA. The wearer should switch 'Off' the Sentinel. A Log Off radio signal will be transmitted from the Data Radio Unit to the ECB. After up to 20 seconds the channel screen of the ECB will switch 'Off' and the associated Data Radio Unit will return to 'Sleep Mode'.

**Important Note:** If during an incident a permanent breakdown in communication has occurred between the ECB and a Logged On Data Radio Unit, it will be necessary to remove and then refit the battery of Data Radio Unit to initiate 'sleep mode'.

### Routine Maintenance

Refer to the User Instructions for the following; the Sentinel, the PSS® Merlin® Telemetry System and the associated self contained respiratory protection apparatus (SCBA).

### Fault, Cause, Remedy

| Faults                                                                | Causes                                                                                    | Solutions                                                                                                                 |
|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Intermittent short 'flash' Off of the 'Red' LED                       | Low battery                                                                               | Charge battery                                                                                                            |
| Battery will not charge                                               | Dirty charge terminals on battery<br>Deep discharge<br>Spent battery                      | Clean terminals<br>Do Not use abrasives<br>Charge for a minimum of 24 hours - recheck<br>Replace with new                 |
| Battery will not assemble to radio                                    | Dirty dovetail guides<br>Damaged dovetail guides<br>Locking pins jammed                   | Clean battery and radio<br>Inspect and replace damaged item<br>Check action using release key                             |
| Battery will not spring back (detach) on insertion of the release key | Broken pin(s) on release key.<br>Dirty dovetail guides<br>Dirty/damaged locking mechanism | Use new key<br>Insert the release key and pull battery away manually<br>Clean battery and radio<br>Contact Dräger Service |

