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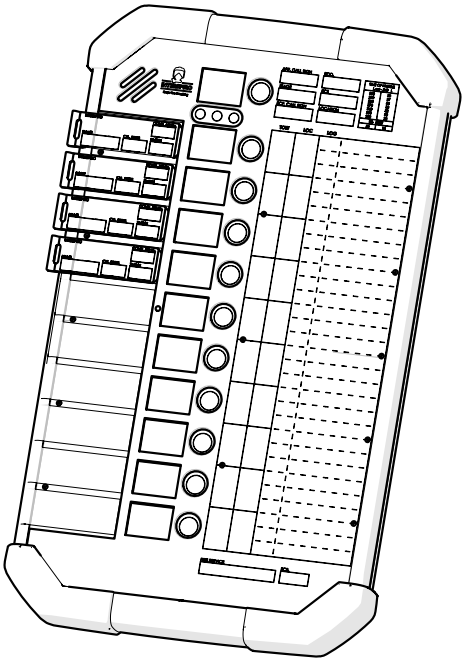

Entry control board and repeater

User Manual

35379B01

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Contents

Introduction and safety

General

The Entry Control Board and Repeater offers a precise overview of the status of Breathing Apparatus wearers to the Entry Control Operative (ECO). Vital status information is communicated directly between the wearer and the Entry Control Point in near real time. The equipment is designed to BS 8608 and applicable elements of BS 10999. The system displays, and operation have been designed to be consistent with existing UK Fire & Rescue Services entry control procedures.
The system consists of four major parts:

- Entry Control Unit (ECU)
- ID system (RFID)
- BA telemetry unit (firefighter node)
- Repeater unit

The telemetry system comprises a firefighter node that is incorporated within the back-plate of the Incurve Breathing Apparatus set, which transmits and receives data from an Entry Control Unit (ECU) incorporated into a conventional entry control Whiteboard / Tally Entry Control Board (ECB).
The RFID allows rapid and accurate input of identification information of the key personnel involved in Breathing Apparatus Operations. The names of wearers, ECO and Entry Control Point Supervisors (ECS) are easily entered electronically into the system and recorded with all other data relating to the operations.
A repeater unit is provided to increase the range of the telemetry system in difficult radio conditions. The units operate automatically once deployed and a single unit can be utilised by multiple ECB's and BA sets.
The telemetry system provides continuous monitoring of BA set including cylinder pressure, calculated remaining time to whistle, absorbed temperature, and link status. Warnings are displayed on the ECB for low cylinder content, high temperatures and loss of link and alarms instigated by the wearer.
Alarms from the BA set due to non-movement, manual override or withdrawal, are displayed on the ECB. Acknowledgment of the alarms is returned to the BA wearer to provide confidence that their alarm has been received.
The ECB displays the status for up to 10 BA set users divided into different teams as required, and with the required stage level being automatically selected by the logic of the board, once the numerically deployed BA wearers goes over the prescribed level.
Once activated, there is a continuous near real time display of the following data:

- Cylinder Air pressure
- Time to Whistle (based on actual user consumption)
- Absorbed temperature measured at Digital Display Unit
- Status of ADSU
- Status of telemetry link signal

Audible and/or visible warnings are given for:

- Low Cylinder Pressure
- Time to Whistle

- Loss of telemetry link (with clock to indicate elapsed time of lost signal)
- ADSU non-movement alarm
- ADSU manual activation
- Wearer Activated Withdrawal alarm
- Evacuation signals can be sent to an individual, one team or all active wearers from the Entry Control Board and from individual users to the Entry Control Board to alert the ECO of risks or wearer withdrawal from incident.

Confirmation signals will be displayed when:

- Evacuation signal has been sent to the BA set
- Evacuation signal has been received by the BA set
- Evacuation signal has been actively acknowledged by the user of the BA set

All information transmitted via telemetry is shown through the existing Digital Display Unit (DDU) and Audible Alarms use the BA set speaker.
The ECB maintains an accurate clock via a connection to the Global Positioning System (GPS) and will automatically update the time and date of any BA set attached to it. By using GPS time, the clocks in all ECB at an incident will be synchronised. The GPS system does not provide positioning data.

Function

The Entry Control Board and Repeater is designed to provide a detailed overview of the status of BA wearers in real time and to allow enhanced BA management to be undertaken by the ECO. The system increases the safety of wearers by providing near real time monitoring of their air consumption and safety critical alarms whilst providing a two way means of communicating safety critical signals independent of voice communication systems.

Safety notice

The product must only be used with other approved Interspiro products. The apparatus must be maintained, serviced and tested as described in this user manual, Interspiro service manuals and Interspiro test instructions.
Interspiro is not responsible for:

- combinations of products, unless put to market by Interspiro
- changes or adaptations made to the product by a third party

Changes to this document - necessitated by typographical errors, inaccuracies of current information or improvements and changes of equipment - may be made at any time without prior notice.
Exposure to extreme conditions, may require different procedures rather than those described in this manual. The guarantees and warranties specified in the conditions of sale are not extended by this Safety notice.
Radio communications cannot be relied on in all circumstances. The ECO must continue to monitor the progress of a BA wear using standard entry control procedures.
Entry Control Points must be set up in “safe air”.
By their nature, operational incidents are dynamic. Safe use of the equipment will also be subject to the safe working requirements resulting from the operational risk assessment in force at the time.

Safety terminology and symbols

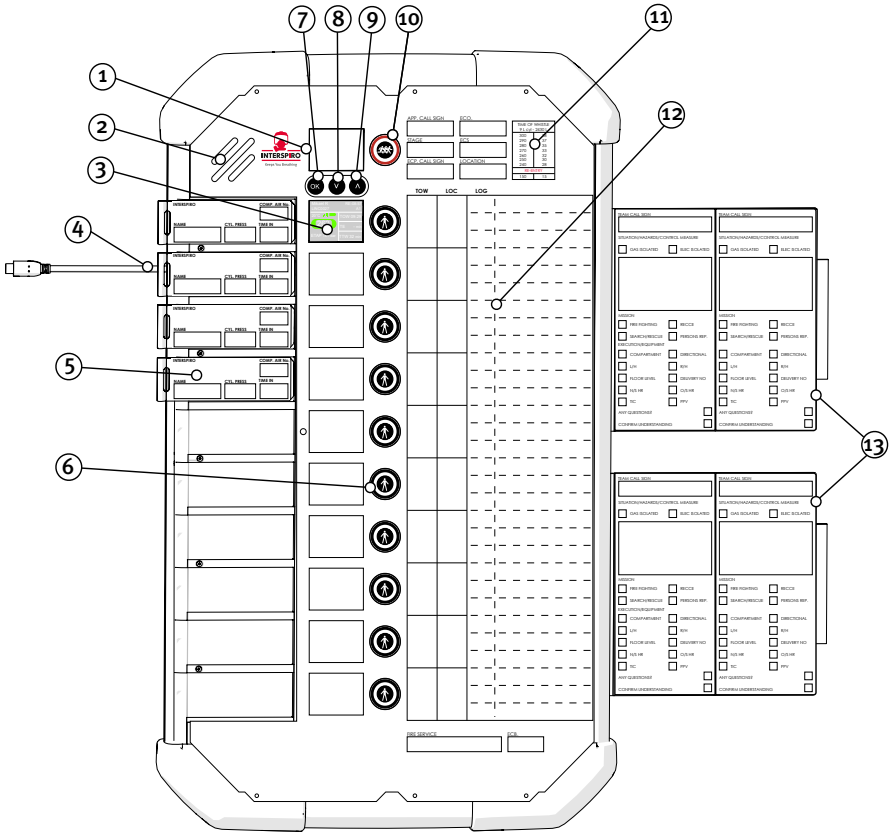
In this document, the terms WARNING and NOTICE are used to indicate potential hazards. Read the accompanying information carefully and follow the safety instructions.

WARNING
The WARNING type of hazard statement signifies that there is a risk of serious injury or death.

NOTICE
The NOTICE type of hazard statement signifies that there may be a risk of damage to equipment or property.

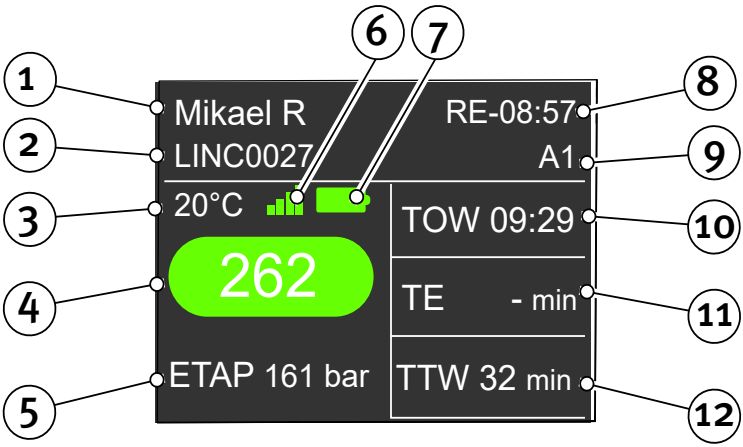
Product description

Main components



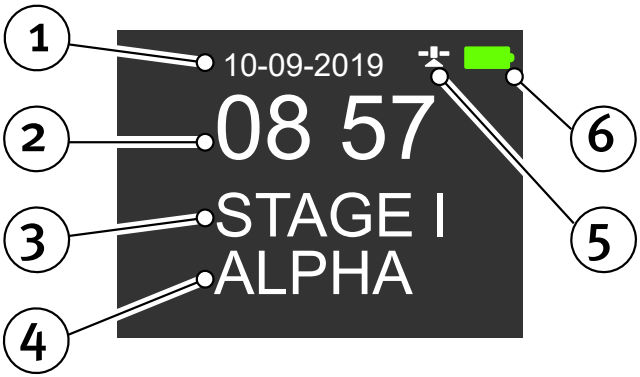
1. Main display
2. Loudspeaker
3. FF (firefighter) display
4. Charging cable
5. Tally key
6. FF (firefighter) button
7. OK Button
8. Menu Down Button
9. Menu Up Button
10. EVAC Button
11. Duration table
12. User information area
13. User information slots

Firefighter display



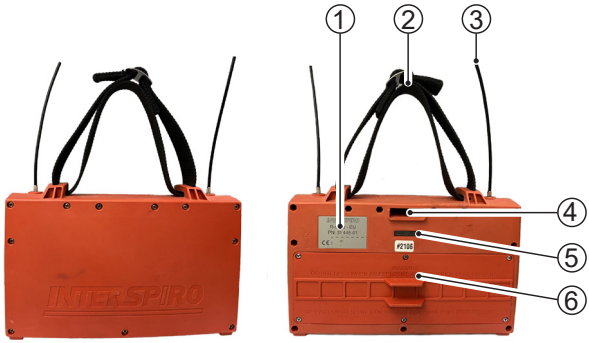
FD1. Name of wearer
FD2. BA Set ID
FD3. Absorbed temperature
FD4. Pressure in cylinder
FD5. Turn around pressure (TAP) and message/alarms display area
FD6. Signal strength
FD7. Firefighter Node remaining battery capacity
FD8. E = Entry time of tally into board RE = Re-entry time
FD9. Team (A1 = Alpha 1 B2 = Bravo 2)
FD10. TOW = Time of whistle
FD11. TE = Time elapsed (since entry)
FD12. TTW = Time to whistle

Main display



MD1. Date
MD2. Time
MD3. Stage
MD4. Entry Control Point Identification
MD5. GPS Connection
MD6. Entry Control Board remaining battery capacity

Repeater components

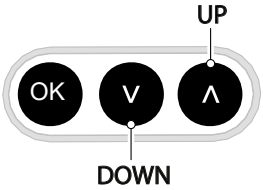


R1. MAC Address
R2. Carry Handle
R3. Aerial (1 of 2)
R4. Tally and Key
R5. LED Indicator
R6. Battery Cover

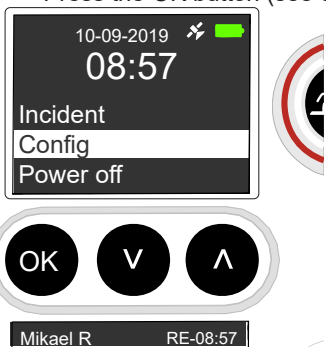
Preparation

Settings

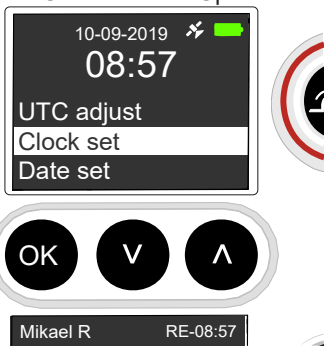
The time and date can be set manually before using the ECB if no GPS signal has been received.



1. Press the Menu Down button (see opposite) to enter the menu.
2. Press the Menu Down button until reaching “Config” in the menu. Press the OK button (see opposite) to enter Settings.



3. Scroll down to the setting you wish to adjust.
4. Press OK button to enable adjustment.
5. Use the Menu Up and Down buttons to adjust.



Calculating time of whistle

When the tally is placed into the ECB and a connection is made the ECB will report the cylinder pressure at that moment. The ECB will calculate an initial estimated time of whistle based on the notional flow rate (50 litres per minute for Standard Duration or 58 litres per minute for Extended Duration). An appropriate time of whistle will be displayed in the Firefighter Display. This time of whistle is the same as the time of whistle gained from a manual calculation based on initial entry pressure. This time of whistle should be recorded in the TOW column of the ECB to allow manual control in the event of telemetry failure.
When 5 Bar of cylinder pressure has been used an accurate real time flow rate will be established by the Breathing Apparatus Computer. This data will be used to dynamically update the time of whistle during the wear.
The updated time of whistle will vary compared to the calculated time of whistle and should be used to dynamically manage BA operations and ensure the wearers safety.

Operation

RAPID DEPLOYMENT

If a rapid deployment is required, the BA tallies are placed firmly into the ECB slots. This will cause the board to power up and record the time the tallies were entered into the board (FD8).

When air is detected as being consumed the Time Elapsed (FD11) counter will commence indicating the length of time the wearers have been under air. The ECB will monitor air consumption in real time and display the cylinder pressure (FD4) and Time of Whistle (FD10) for each wearer.

The main display will have an Orange background and display RAPID to clearly indicate that rapid deployment is in effect.

Once resources allow, Stage 1 operation should be initiated. The ECB will automatically change to Stage 1 when an ECO is registered (see below). Alternatively, the ECB can be manually changed to Stage 1 (see below).

An initial time of whistle calculation is undertaken by the ECB when the tally is first entered. This is the TOW normally entered in the column on the board by the ECO. When an ECO takes over the ECB and moves to stage 1 the original TOW calculated by the system can be accessed by pressing the FF button (**6**) next to each wearer to scroll through the messages stored on the FF display (**3**).

When moving the ECB from Rapid Deployment to Stage 1 the ECO must record the original TOW on the ECB.

Normal Start up Procedure:

1. Place the ECB on the tripod.
2. Start by briefly (1 second) pressing the **OK** button (**7**) (Note: if the OK button is pressed for 3 seconds the board will enter test mode).
3. Nominate the ECO.

4. (The ECB will automatically revert to Stage 1 when the ECO is registered).
5. Fill out the details of the incident at the top of the ECB.
6. Register BA wearers into the incident by placing the tally key from their set into the appropriate slot on the board.
7. Ensure the ECB has details of the stage of operation and incident number added at an appropriate time.

Nomination of ECO (Entry Control Operative) and ECS (Entry Control-Point Supervisor)

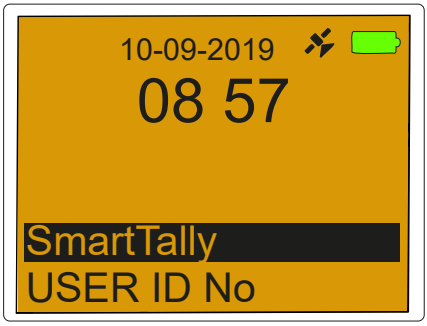
Unless the criteria for Rapid Deployment are met there must be an ECO in charge of the ECB. If the situation requires, the ECP will be supervised by an ECS.

The nominated ECO will register on the ECB with their personal RFID tag. Registering the ECO will automatically change the ECB to Stage 1 operations. Registering the ECS will automatically change the ECB to Stage 2 operations.

Registering of the ECO is preferably done before connecting BA sets to the ECB via their tally keys but, in urgent situations, it can be done at a later point in the incident.

Information about the ECO and ECS is stored in the internal log on the ECB.

1. Use the Menu Down button to open the menu. Highlight Enter ECO or Enter ECS as appropriate and press the OK button. Then either highlight Smart-Tally or USER ID no. and press OK.



SmartTally

2. The main screen will display instructions to hold user's tag over slot 10 of ECB to register ECO (see opposite). Main display will then show name of registered ECO. Then either press OK, or wait and the ECB will return automatically to the main screen.

USER ID No

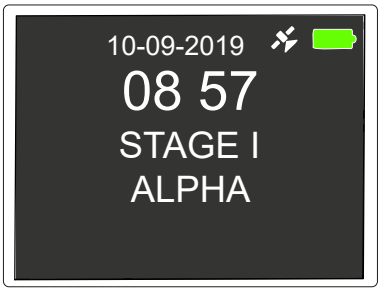
1. Manually enter Service prefix and service number of ECO. Scroll to correct letter or digit and press OK button. When the last digit is entered and OK button pressed, the ECB will return automatically to the main screen.

Stage

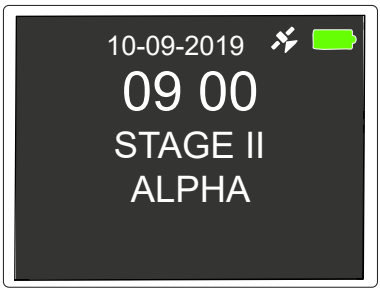
The ECB can be set to one of four stages and will automatically determine the stage based on a series of parameters. The four stages available are:

- Rapid Deployment – This is the default stage in which the ECB starts. This stage cannot be manually selected.

- Stage 1 – automatically determined by either entering a ECO name or exceeding 2 BA wearers.



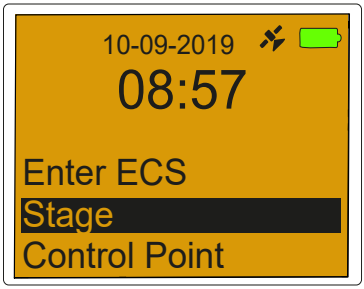
- Stage 2 – automatically determined by either entering a ECS, changing the ECP from Alpha to any other designation or exceeding 6 wearers or more than 3 teams.



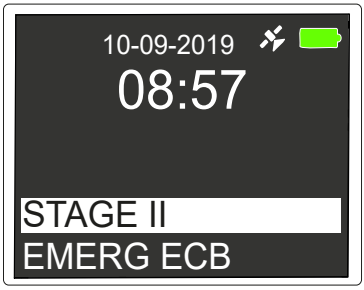
- Emergency Team – can only be set manually and is to denote the ECB is for the sole use of an emergency team

The Stage can be adjusted manually:

1. Use the Menu Down button to open the menu. Highlight Stage and press the OK button.



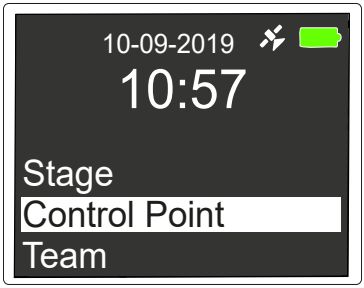
2. Highlight the required stage using the Down button.
3. Press the OK button to select.
4. The ECB will change to the selected stage and return to the main screen unless one of the automatic triggers for a different stage is present (e.g. it is not possible to change a board set to CHARLIE etc. to Stage 1 operation).



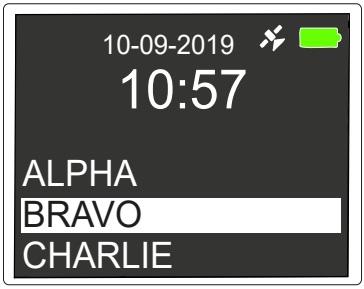
Setting Control Point Identification

The ECB will automatically set the control point identification to Alpha at start up. The identification can only be changed manually:

1. Use the Menu Down button to open the menu.
2. Highlight Control Point and press the OK button.



3. Highlight the required identification (Alpha – Echo) using the Down button.
4. Press the OK button to select.
5. The ECB will change to the selected identification and return to the main screen.



Setting Team Identification

The ECB will automatically group two wearers into a team and identify them in the firefighter display (FD9). The ECB will use the ECP identification letter and a sequential number to identify each team (A1 B3 E2 etc.). As the incident progresses the ECB will allocate a new team number up to a maximum of 15 teams at which point it will cycle back to one. The count will reset for each new incident.

NOTICE
Wearers must be grouped into teams to enable correct function of team specific communication functions. Team grouping must be checked prior to teams being committed to the risk area.

Teams of more than 2 wearers can be created by one of two methods. The first method requires the first tally to be inserted in the first slot and the second tally to be inserted in the last slot required for that team. Once the first two tallies are in the board the other slots are then filled. The ECB will automatically band all the wearers together in a single team.

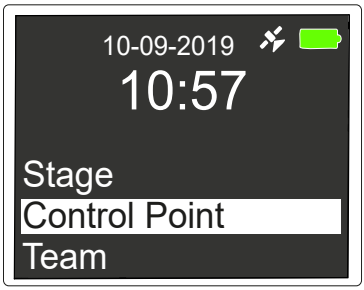
1. Insert first tally

2. Insert last tally

3. Fill in between

The second method is to manually set the team in the menu system:

1. Use the Menu Down button to open the menu.
2. Highlight Team.



3. Press the **OK** button to choose Team.

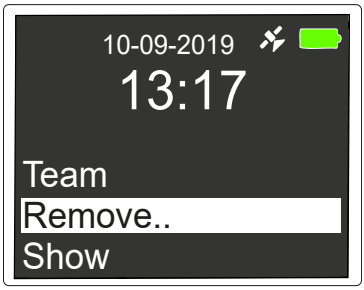
4. Press the FF button to select which firefighter's team identification is changed. Press the FF button as many times as needed until the correct team identification is shown.

Remove

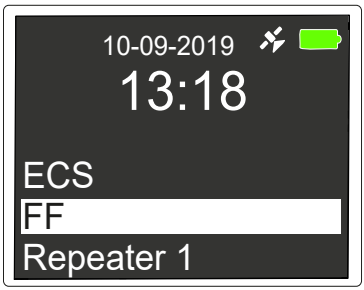
The Remove function allows the ECO to remove one of the following from the Entry Control Board: ECO, ECS, Firefighter, Repeater1 and Repeater2.
All the actions and data will still be retained.

To remove ECO, ECS, Repeater1 and Repeater2:

1. Use the Menu Down button to open the menu.



2. Highlight Remove.
3. Press the **OK** button.



4. Scroll to the required option.

To remove Firefighter:
When a BA wear has concluded, and the tally has been returned to the wearer, the firefighter screen will retain the wearer details. If these need to be removed use the Remove Firefighter function in the menu.

1. Pull out the tally key from the ECB for the firefighter whose information is to be removed.
2. Use the Menu Down button to open the Remove menu.

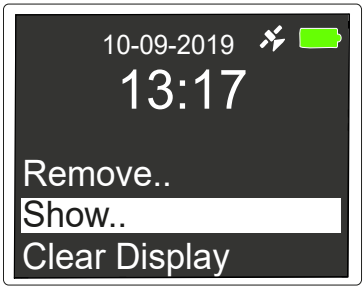
3. Highlight FF and press OK button.

4. Press FF button beside the firefighter whose information is to be removed.

Show

By using the Show heading, it is possible to check the status of the ECO, ECS and any repeater.

1. Select Show.
2. Highlight function to be checked.
3. Press **OK** button.
4. Status of function will be displayed.



Communication and Alarms

- The BA wearer and the ECO can communicate using the telemetry system with the ability to send critical messages such as evacuation and withdrawal between the DDU and the ECB

WARNING!
All alarms and communications must be backed up with a voice radio communication.

When an alarm signal is being sent a red message box is displayed in the bottom left-hand corner of the Firefighter display detailing the alarm signal being sent. When the DDU acknowledges that the alarm signal has been received then the message box turns amber. When the wearer acknowledges the message by pressing the DDU button indicated on screen then the message box on the Firefighter display turns green.
This allows the status of a message to be verified:

Message being sent	
Message received by DDU	
Wearer acknowledges message	

Contact ECO

The ECO is able to use the function ‘Contact ECO’ to send a message direct to a BA Team, alerting them of the requirement to contact the ECO. The BA wearers receive an audio and visual alert via their DDU. The signal is sent to all members of the team but only one person needs to acknowledge it.

1. Use the Menu Down button to open the menu.
2. Highlight **Cont. ECO**.

3. Press the **OK** button to choose **Cont. ECO**.

4. Press the FF button of a member of the team who need to make contact.

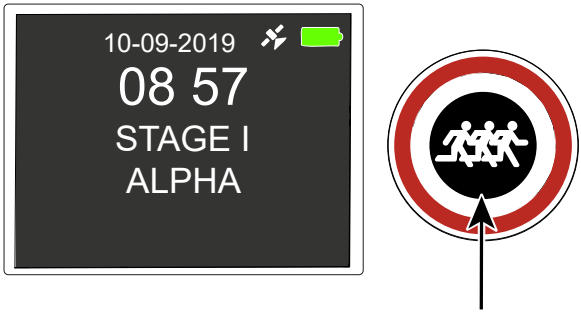
5. A signal is sent to each member of the team's DDU.
6. The signal is acknowledged by pressing the black button on the DDU.
7. When one team member acknowledges the alert, it acknowledges the alert for all other team members.
8. The BA team initiate voice communications with the ECO when safe to do so.

Evacuation Signal

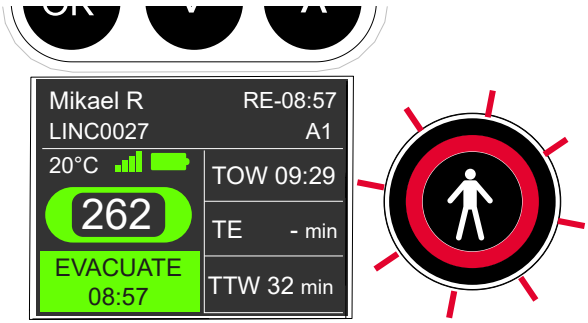
An evacuation signal can be sent simultaneously to all BA wearers logged onto the ECB. The BA wearers receive an audible and visual alert via their DDU. Each BA wearer must acknowledge receipt of the signal. This is used to initiate an evacuation of the risk area.

WARNING!
The evacuation signal is only transmitted to wearers logged onto the ECB that initiates the Evacuation. BA wearers logged onto a separate ECB will not receive an evacuation signal unless it is initiated from that ECB.

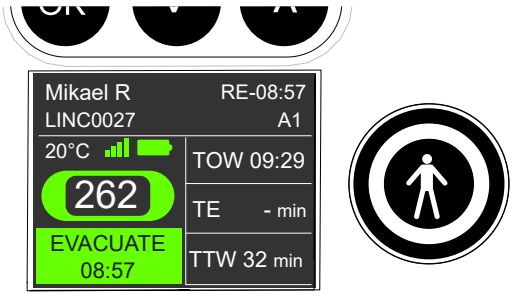
1. Press and Hold the **Evacuation** button for 3 seconds.



2. The FF Button for each wearer will start to flash and the FF display will change to amber to indicate that the alert has been sent.



3. The BA wearer acknowledges the Evacuation signal by pressing the black button on the DDU.
4. When the acknowledgement is received the FF button stops flashing and the Alarm message changes to green to indicate acknowledgement.



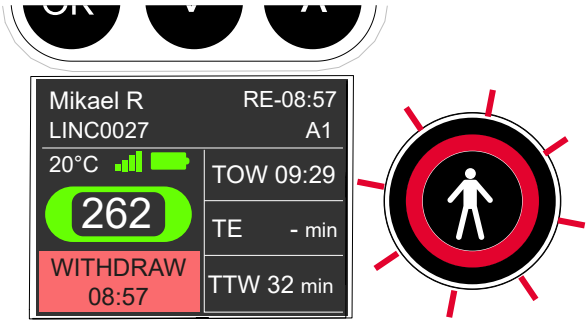
NOTICE
Although you can cancel an EVAC alarm, the Red EVAC button on the ECB will stay lit until all BA sets are reset by replacing tally key into each DDU.

Withdraw Signal (Tactical withdrawal) by ECO

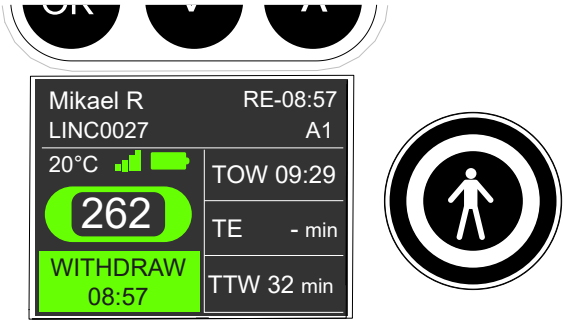
If it is only necessary to withdraw a single team of BA wearers rather than every wearer in the risk area a withdraw signal can be sent.
As with the Evacuation signal, this must be acknowledged by the BA wearers.

1. Press and Hold the Firefighter button for 3 seconds for any member of the team requiring withdrawal.

2. The FF Button for each wearer in the team will start to flash and the FF display will change to indicate the alert has been sent.



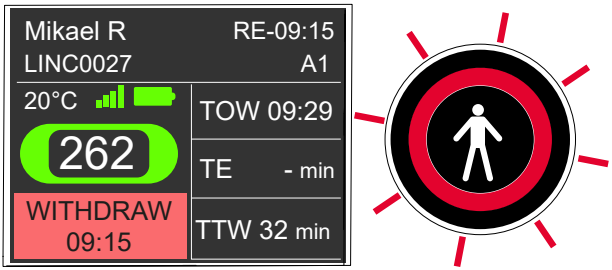
3. The BA wearer acknowledges the Withdraw signal by pressing the black button on the DDU.
4. When the acknowledgement is received the FF button stops flashing and the Alarm message changes to green to indicate acknowledgement.



Withdrawal Signal by Wearer

A withdraw signal can also be sent from the wearer's DDU to the ECB to alert the ECO that a team is withdrawing.

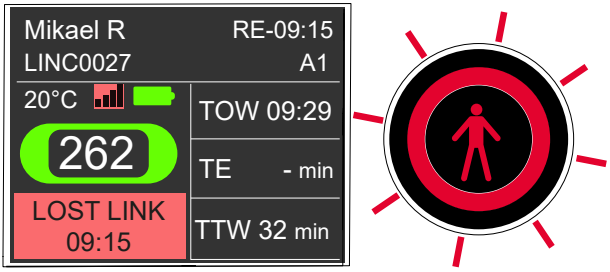
1. The BA wearer holds down the black button on the DDU and then presses the red button.



2. The wearer's DDU will turn red and state 'WITHDRAW' (see opposite).
3. The ECB FF button starts to flash, an alert is sounded from the ECB speaker and a withdraw alert is displayed in the FF screen.
4. The alert is acknowledged by the ECO by pressing the FF button.
5. Wearer's DDU will then read 'CONFIRMED'.
6. The warning in the FF display will change to green and the FF button will stop flashing.

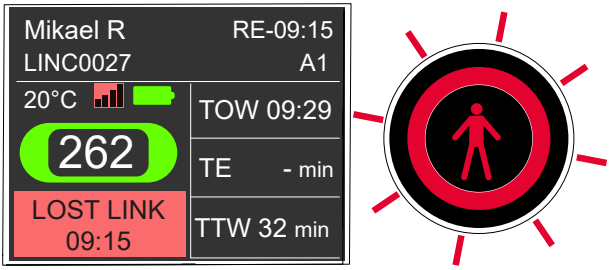
Lost Connection

1. When a firefighter has lost the connection to the ECB, the FF button starts blinking red. The time at which the link was lost is shown in the red area under the text:



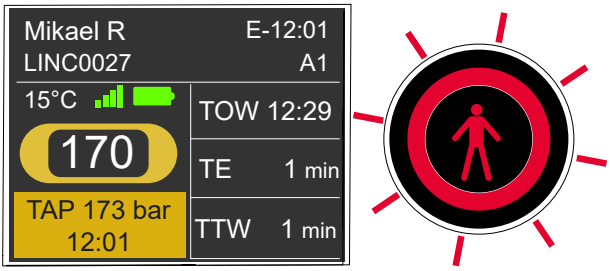
2. Stop the red blinking by pressing the FF button. The red information on the FF display will still be visible.

3. When the link is restored, the warning in the FF display will change and the FF button will stop blinking red.

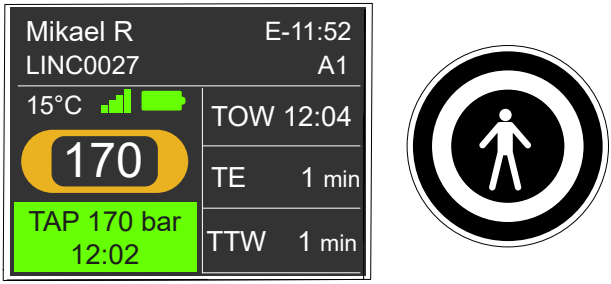


Low Pressure

1. When the pressure drops below the TAP (turn around pressure) point, the FF button starts blinking red.

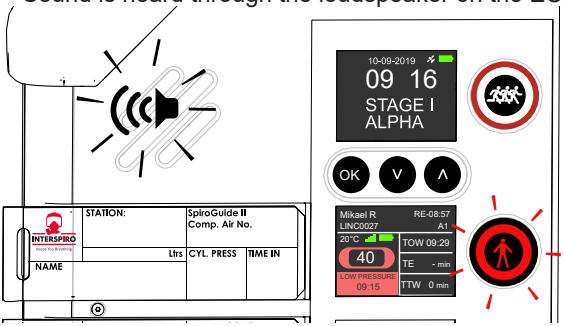


2. The colour around the pressure changes to amber and there is an amber information box showing the time when the TAP dropped below 50%.
3. The ECO acknowledges the alarm by pressing the FF button. The warning in the FF display will change to green and the FF button will stop blinking red.

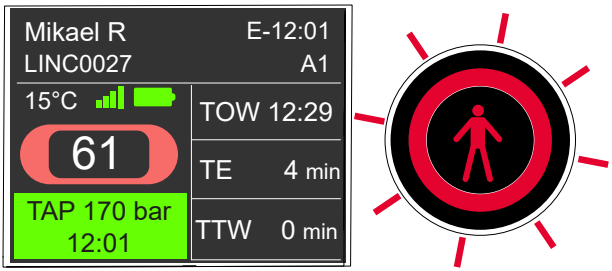


If the pressure on the firefighter drops below 75 Bar, the following alerts will occur:

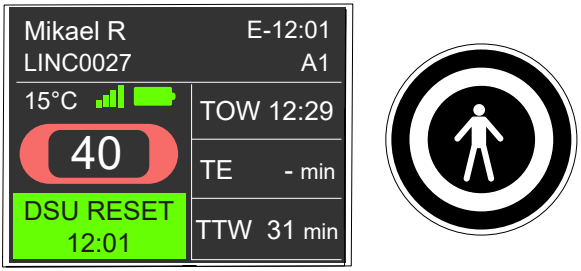
1. The colour around the pressure changes to red.
2. The FF display will show a red warning message.
3. The FF button starts blinking red.
4. Sound is heard through the loudspeaker on the ECB.



5. The ECO can acknowledge the alarm by pressing the FF button. The sound will stop and the colour on the warning in the FF display will change to amber.

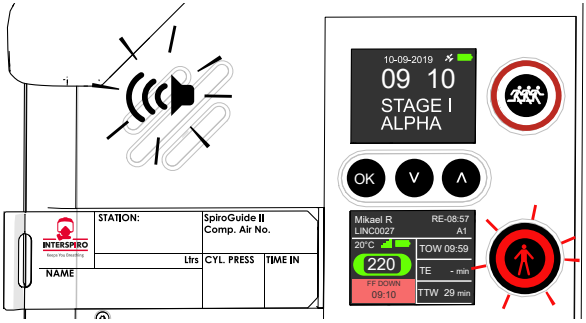


6. If an emergency team is deployed and inserts a rescue tally key into the affected wearer's DDU, the warning in the FF display will change to green.

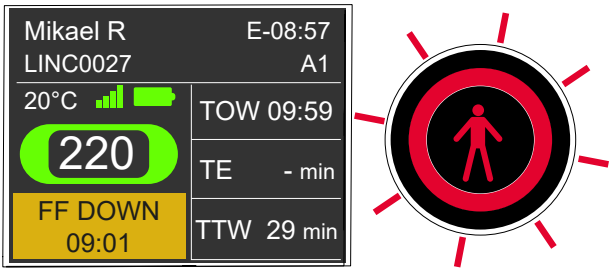


ADSU Alarm

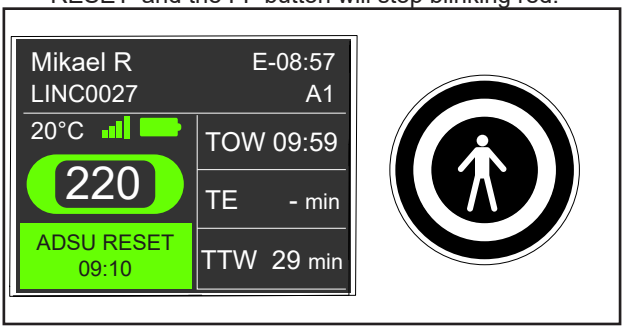
1. If the DDU is not moved for 30 seconds, it will go into pre-alarm If it is not moved for a further 15 seconds, it will go into full alarm. The FF display will show the warning ‘FF DOWN’, the FF button starts blinking red and a sound is heard through the loudspeaker on the ECB.



2. The ECO can acknowledge the alarm by pressing the FF button. The sound will stop and the colour on the warning in the FF display will change to amber.

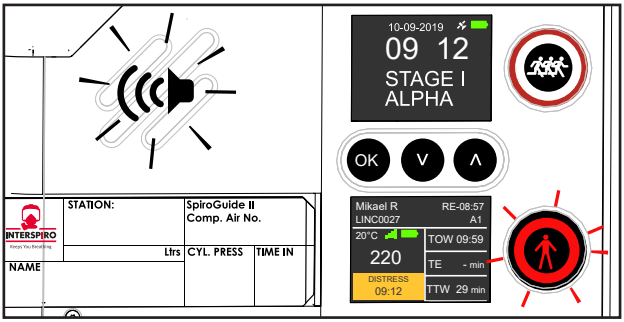


3. If an emergency team is deployed and pushes in the rescue tally key in the affected BA set: The warning in the FF display will change to green ‘ADSU RESET’ and the FF button will stop blinking red.

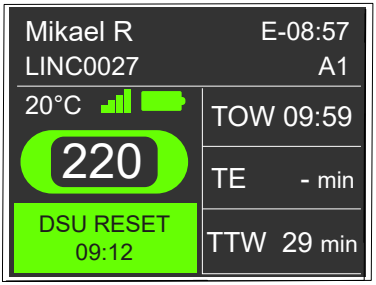


Manual ADSU Alarm Activation

1. When the firefighter pushes the red button on the DDU to initiate a manual activation of the ADSU, the FF display will show the warning ‘FF DISTRESS’, the FF button starts blinking red and a sound is heard through the loudspeaker on the ECB.



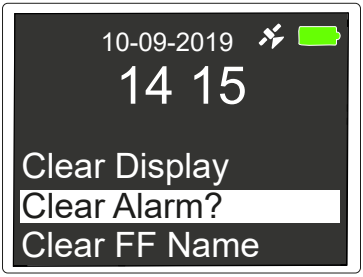
2. If an emergency team is deployed and pushes in the tally key in the firefighter’s DDU, the sound will stop, the FF button will stop blinking red and the warning in the FF display will change.



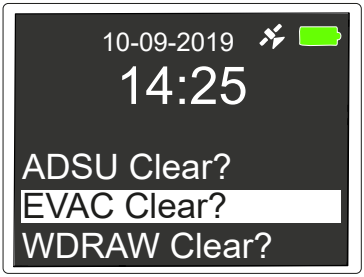
Cancelling Alarms

The ADSU, Evacuation and Withdraw alerts can be cancelled by the ECO in collaboration with the wearer affected. The cancellation message can only be sent from the ECB and requires acknowledgement from the wearer.

1. Use the Menu Down button to open the menu.
2. Highlight Clear Alarm? and press the **OK** button.



3. Select the correct alarm to be cleared and press **OK**.
   - ADSU Clear? is used to clear any ADSU activation
   - EVAC Clear? cancels a general evacuation
   - WDRAW Clear? cancels a withdraw signal



4. Follow display instructions to cancel alarms in collaboration with the wearer.

Although you can cancel an EVAC alarm, the Red EVAC button on the ECB will stay lit until all BA sets are reset by replacing tally key into each DDU.

Clear Firefighter Name

If the ECO requires to remove a wearers name shown in the Firefighter display screen.

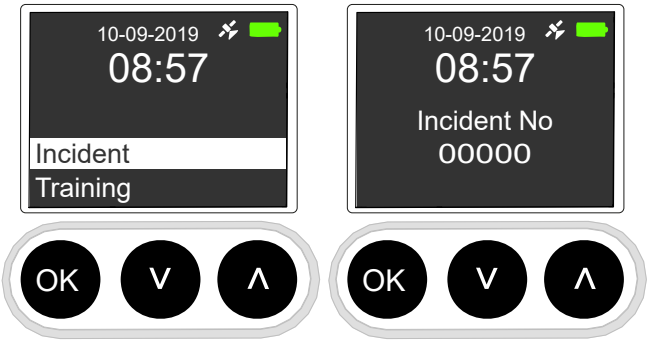
1. Use the Menu button and scroll to Clear FF Name and press the **OK** button.
2. Then press the wearers FF button.
3. The name will be removed from the FF display.
4. Press **OK** to return to main display.

Power off

All tally keys have to be removed before powering off the ECB.
There are three ways to power off the system:

1. Press the “Menu down” button until reaching **Power off** in the menu.
   Press the **OK** button.

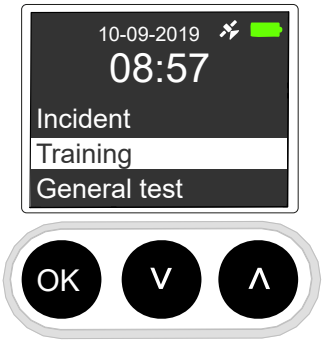
2. Select one of the following to confirm what the board was used for:



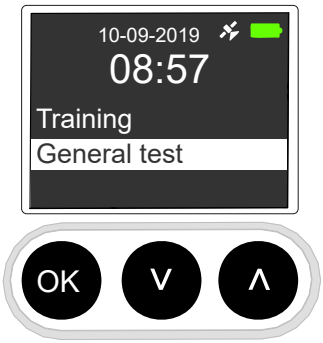
a. Incident: Click the **OK** button to confirm then carry out the following step:

When prompted with the screen opposite, enter the incident number using the up and down arrows and pressing the **OK** button to confirm the number each time.

Ensure any additional zeros are placed at the start of the number, not the end.



b. Training: Click the **OK** button to confirm.



c. General Test: This is used after a General Test on the BA Set. After the Telemetry Check of a set, close down the ECB using this function.

Reset TAP for Re-Entry

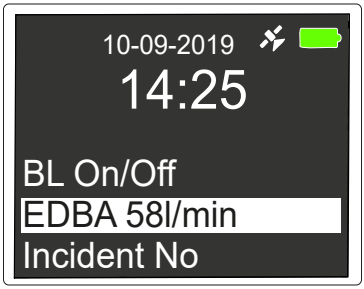
Under the direction of the ECO, the wearer is instructed to start the re-entry process:

1. The BA wearer uses the black and red buttons on the DDU to reset the TAP for the current cylinder pressure.
2. The wearer completes the Pre-Entry Test and hands the tally to the ECO.
3. The ECO enters the tally into the Entry Control Board using the same slot as the original wearer, and selects ‘RE-Entry’ when prompted by the main display.

4. The ECB will then show the wearer's new time of entry call sign prefixed by R.E. ("**RE 10.05**", for example).
5. The ECB will then calculate a revised TOW and TAP for the actual cylinder contents.
6. ECO to enter onto the ECB details of Re-Entry and new TOW.

Extended Duration Breathing Apparatus (EDBA)

If the option to convert the sets to extend duration breathing apparatus is taken it will be necessary to change the air consumption rate used to calculate initial time of whistle within the ECB. This is achieved by selecting **EDBA 58 l/min** in the Menu. Press the **OK** button followed by the down button to change between 50 lpm and 58 lpm.



Repeaters

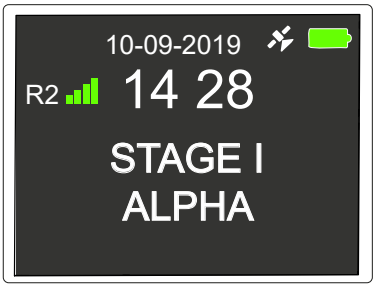
Powering On

To power on a repeater, remove the key from the rear of the unit.

The repeater LED will flash long green followed by a short red flash. If the LED has a solid red light, replace the batteries.

Registering on an ECB

To register a repeater to an ECB, once the key is removed from the rear of the unit, place the tally in either slot 1 or 2 of the ECB (slot 1 will register it as repeater 1, slot 2 for repeater 2). This will instruct the ECB to search for a repeater, to which it will connect automatically. Place the key back in the repeater unit and the next time it is taken out, the repeater will automatically connect.
Once a repeater has been connected, it will show on the main display screen as below:



The LED lights on the rear of the unit will then just show green. The key and tally can then be placed in the ECB slot 9 or placed into the entry control bag until the repeater is no longer required.

Up to two repeaters can be used with one ECB. It does not matter which order you place the repeaters. Multiple ECBs can also use the same repeater.

Siting Repeaters

When siting a repeater, users should consider where the best signal boost will be achieved for the scene(s) of operations. This may require placing in multiple locations to determine which is the best. The repeater must be stood with the aerials to the top in a location it is unlikely to get kicked over. If possible use the strap to hang the repeater off the ground.

Assigning Repeater to an ECB

1. Remove key and tally from repeater.
2. Check battery level, if solid red LED change batteries (*see below*).
3. Place the tally into Slot 1 to assign as repeater 1 or Slot 2 to assign as repeater 2.

> **If necessary, remove wearer tally from slot required, carry out repeater assigning, then replace wearer's tally confirming 'continued Operation' on main display.**

4. "**R1**" or "**R**" followed by the MAC number of the repeater will show in main display.
5. Confirm that the MAC number shown matches the tally and repeater.
6. Press **OK** to confirm repeater.
7. Replace the key and tally into the repeater.

Using Assigned Repeater

1. Remove the key and tally from the repeater.
2. Check the battery level, if a solid red LED displays, change the batteries.
3. The repeater LED will flash long green followed by short green.
4. "**R1**" or "**R2**", repeater signal strength and battery level will be shown on main display of the ECB.
5. Place repeater where it will be most effective.
6. The key and tally can then be left in the ECB slot 9 or placed into the entry control bag until the repeater is no longer required.
7. When the repeater is no longer required, replace the tally and key in the repeater. The **R1**" or "**R2**" icon will be removed from the main display.

Care and Maintenance

REPLACE BATTERIES ONLY IN A NON-HAZARDOUS ENVIRONMENT.

The following types of battery must be used in Interspiro equipment. No other type is authorised for use:

- **Procell PC2400 (AAA) and PC1500 (AA)**
- **Duracell MN2400 (AAA) and MN1500 (AA)**
- **Energizer E92 (AAA) and E91 (AA)**

DO NOT mix battery manufacturers or old with new batteries.

Charging the ECB

The ECB must be charged before use. Charging is accomplished via a USB C cable (opposite, left) that plugs into a port (opposite, right) on the left hand side of the board (4). Operational vehicles are fitted with a suitable outlet to trickle charge the ECB when stowed. Alternatively charging can be undertaken using a USB mains charger supplied with the ECB.
When stowed on a vehicle the USB cable is fitted with a securing device to prevent accidental disconnection of the cable from the board. The securing device utilises a cam lock mechanism and requires a half turn anticlockwise to release (a quick release is provided at the vehicle end of the cable to prevent cable strain if the lead is not released from the ECB prior to removal).

Changing Batteries in the Repeater Unit

Unscrew the six cross head screws on the battery cover (R5) on the rear of the repeater with an appropriate screwdriver.

Remove the cover and replace the eight ‘AA’ type batteries, ensuring the polarity is observed and followed for each battery.

Replace the battery cover and ensure all screws are replaced and tightened to 0.5 Nm using a torque screwdriver.

Cleaning and Storing

The ECB should have all written information wiped clean (when confirmed not to be used for debriefing).
Clean dust and debris from the equipment using mild soap and a damp cloth.
Store the equipment in a dry condition.

Do NOT submerge the equipment.

ECB Visual Inspection

Proceed as follows:

1. Inspect the equipment, checking that there are no cracks or other defects.
2. Record the test results and all observations as dictated by local procedures. Use the serial number of the equipment to reference it in the test record.
3. If the equipment fails inspection, follow the Loss and Defecting Procedure.

ECB Functional Test

Proceed as follows:

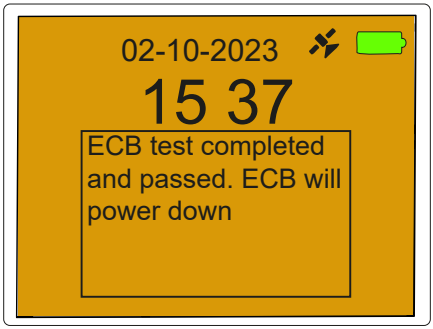
1. Press the **OK** button for 3 seconds – this will then place the board into Test Mode.

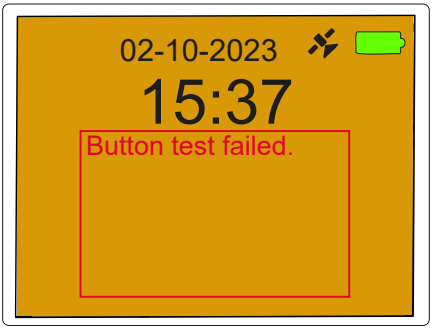
2. All screens and buttons will light up.
3. Place a tally key into slot 1, then remove and place in slot 2. Continue until slot 10.

4. Press the ‘FF’ button on each slot, ensuring the button depresses and the ECB acknowledges it by clearing the screen.

5. Press the ‘EVAC’ button, the board will sound to confirm.

6. The board will detail that the test has passed or failed (in red, confirming which elements did not pass) and switch off.





7. Record the test results and all observations as dictated by local procedures. Use the serial number of the ECB to reference it in the test record.

Repeater Functional Test

1. Switch on the repeater by removing the tally key.
2. Check the battery status
3. Ensure the LED's work correctly.
4. Connect to an ECB, ensuring a signal is detected and that the LED changes.
5. Replace the tally key to switch off.

Technical Information

Technical Specification	
Entry Control Board	
Weight:	6 kg
Size:	660 mm (L), 400 mm (W), 70 mm (H)
Battery:	Li-ion
Battery Life:	Typically 8 hours use from when fully charged
Operating Temperature:	-20°C to +60°C
Supplier:	Interspiro
Product Ref.:	Entry Control Board
ECB 240 V Charger:	Sumvision P39-25W-UK 25 Watt USB Type C PD Charger
Repeater	
Weight:	1.4 kg
Size:	90 mm (L), 250 mm (W), 170 mm (H) (plus aerials)
Battery:	8 x AA (Alkaline)
Operating Temperature:	-20°C to +60°C
Supplier:	Interspiro
Product Ref.:	Repeater

Glossary

Term	Definition
BA	Breathing Apparatus
Bar	Unit of pressure, 105 Newtons per square metre, approx imately one Atmosphere
ECB	Entry Control Board
ECO	Entry Control Officer – A qualified BA wearer, nominated to montor the entry and exit of BA wearers to and from the Risk Area through an Entry Control Point
ECP	Entry Control Point – The location of the Entry Control Officer and Entry Control Board, where entry to and exit from the Risk Area by BA wearers is monitored
ECS	Entry Control Point Supervisor
GPS	Global Positioning System
HMA	Hazardous Materials Advisor
kg	Kilogram(s)
LED	Light–Emitting Diode: An electronic semiconductor device that emits light when an electric current passes through it.
lpm	Litres per Minute
mm	Millimetre – Unit of length – 0.001 metres
Nm	Newton metre(s). The unit of torque in the SI system. One newton metre is equal to the torque resulting from a force of one newton applied perpendicularly to the end of a moment arm that is one metre long.
PPE	Personal Protective Equipment
TAP	Turn Around Pressure
TOW	Time of Whistle – the calculated time a cylinder will supply air before entering the safety margin. The safety margin is set as a minimum of 20% of the full cylinder contents. Entry into the safety margin is marked by the sounding of a pneumatic whistle or digital alternative.
V	Volt

Keeps You Breathing