s.QUAD C55

Operating Manual for Personal Emergency Device

07/2024 V1

Please Read the Safety Instructions
Before Using the Device.

Table of Contents

1 Terms and definitions

1.1 Emergency call system

These are systems for triggering and transmitting volitional and non-volitional alarms in emergencies. Personal emergency signal systems consist of emergency devices in conjunction with an emergency call platform.

1.2 Emergency devices

These devices should be worn by persons at risk. They trigger a personal alarm in the emergency call platform manually or automatically in case of emergency. Swissphone offers a comprehensive portfolio of emergency devices. The s.QUAD C55 is one of these emergency devices.

1.3 Emergency call platform

This is an installation in which emergency signals of emergency devices are received, displayed and processed enabling emergency assistance measures to be initiated reliably and immediately.

1.4 Emergency signal

The emergency signal is a signal that triggers a personal alarm in the emergency call platform.

1.5 Manual personal alarm

Is an optical and acoustic signal that is triggered by deliberate manual activation of the emergency devices in the emergency call platform.

1.6 Unintentional personal alarm

Is an optical and acoustic signal that is automatically triggered by the emergency devices in the emergency call platform.

1.7 Pre-alarm

Is a visual and acoustic signal that is displayed on the emergency devices before a personal alarm is triggered. It is possible to cancel an alarm transmission to the emergency call platform for the duration of the pre-alarm. The aim of the pre-alarm is to avoid false alarm transmissions to the emergency call platform.

1.8 Emergency call system operation

"Emergency call system mode" is a secure operating state in which a personal emergency signal device is registered with the emergency call platform and is monitored. Depending on the selected scope of services, this is indicated on the display of the s.QUAD C55 by "Emergency devices active" or "DGUV 112-139".

1.9 German DGUV 112-139 rule

This operating mode is based on the German DIN VDE V 0825-11. This operating mode includes a functional test of the device, device monitoring and monitoring of the communication path. The trigger times for alarms and notifications in accordance with DIN VDE V 0825-11 are complied with.

1.10 Legal or state requirements

Both the German Social Accident Insurance (DGUV) and the Swiss Accident Insurance (SUVA) issue regulations and recommendations on working alone. These regulations are a compilation or concretization of content, e.g., from state occupational safety regulations (laws, ordinances), trade association regulations (accident prevention regulations), technical specifications and the experience of trade association prevention work.

It is the responsibility of every employer to assess the risk situation of people working alone and to implement appropriate measures about occupational safety. Certain activities may be carried out alone if an automatic alarm system has been instructed and is available. One such device is the SOS portal and the s.QUAD C55.

Please note that certain hazardous work must not be carried out alone.

2 Scope of delivery

- Swissphone s.QUAD C55
- Battery (NiMH Round cell AA)
- Belt clip
- Quick guide

3 s.QUAD C55 software packages

s.QUAD C55		
Software packages	**Connected**	**DGUV 112-139**
Connection type	Permanently connected	Permanently connected
Trigger time for emergency calls	A few seconds	A few seconds
Will-dependent emergency call function (Emergency button)	✓	✓ (mandatory)
Emergency call functions independent of will	✓	✓ (mandatory)
Emergency devices Functional test	✓	✓ (mandatory)
Transfer of emergency devices status information	✓	✓
Transmission of the emergency devices	✓	✓
Receiving mobile phone messages	✓	✓
Warning if mobile connection is lost	✓	✓ (mandatory)
DGUV 112-139 conformant	–	✓

4 Technical data

Radio Technology	Frequency Range / ITU Bands	max. Output Power
Bluetooth LE	2.402 - 2.48 GHz	0 dBm
LTE Cat M1	UTRA Band 20 / 8 / 3	+23 dBm

Temperature range: -10 to +55 °C
Relative air humidity: 20% to 75%
IP protection type: IP 67
Dimensions: 81 x 64 x 22 mm
Weight (incl. battery):   115 g
Emergency detection sensors: 3-axle
Localization via siren: Volume >95 dB(A) at 30 cm

5 First steps: Inserting the battery, switching on

Insert battery
Before you can start using your s.QUAD, you must first insert the battery. Pay attention to the correct polarity. After inserting the power source, the s.QUAD switches on automatically. A functional test follows.

Further information on the power supply can be found in chapter 13 "Charging the battery/power supply".

Switch on
To switch on the s.QUAD manually, press and hold one of the four buttons until the start screen or start text appears on the display. After a few seconds, the basic view is visible and the s.QUAD is ready for operation.

6 Overview of devices

6.1 Control elements

Navigation button BACK(up)	Navigation button FORWARD	Confirmation button / Emergency button OK
• Scroll up in the menu • Changing settings • Display of the start screen or start text	• Show user menu • Scroll down in the menu • Changing settings • Display the secondary menu with a long press	• Show user menu • Confirm menu selection • Trigger manual emergency signal • Acknowledge pre-alarm in the event of unwanted personal alarms

ESC button
• Exit the current menu level
• Press and hold to return to the basic view.
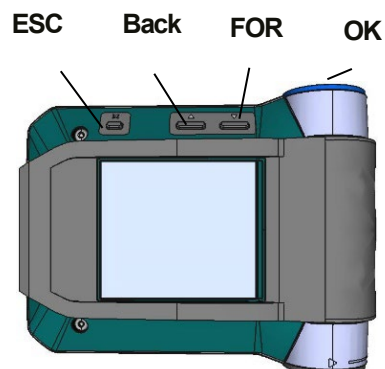
6.2 Display

The basic view of the display is divided into four areas:

1st line: Icon line
2nd line: Profile display
3rd line: Date, alarm clock, time
4th line: User line
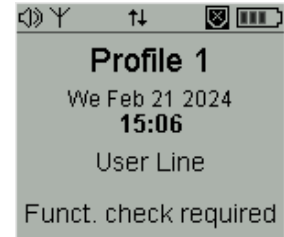5th line: Status line (unread messages, battery charger masks etc.)

6.2.1 1st line of the display (icon line)

The following symbols are displayed in the icon line:

Type of alarm		
	⊲))	Alarm loud
	⊲)	Alarm quiet
	⊲◀	Alarm increases
	⊲	Discreet alerting
	⊲※	Alarm mute

For details, see chapter 7.2.10.7 «Alerting».

Field strength indication		
	Ⴤ	No valid paging signal was received within a defined time (timeout).

Bluetooth		
	⅋!	Bluetooth switched on but not connected to a device
	⅋	Bluetooth is connected with a device
	▯	There is an error in the module or in the connection

Key lock		
	🔒	Key lock is activated.

For details, see chapter 7.2.10.18 «Key lock».

Mobile phone status			
	↑↓	blinking	Connecting to the mobile network
	↑↓	permanent	Connected with mobile radio
	⇅	blinking	Device is in energy-saving mode or there is an error in the mobile radio module
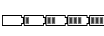
GPS-Status		blinking	GPS satellites are sought for outdoor localization.
	⚲	permanent	The device receives GPS data, and the position is determined.
	⚲	Display	GPS module off: faulty or energy saving mode

For details, see chapter 10.2 «Outdoor positioning (GPS and A-GPS)».

In-house positioning	⌂	permanent	Connection to a Swissphone position transmitter (beacon) established.

For details, see chapter 10.3 «In-house positioning (position transmitter)».

Emergency status		permanent	All configured emergency call functions are available.
	⊠	permanent	User has manually deactivated the "fall/dead man detection" on the emergency devices (not possible in DGUV mode).
	⊠	blinking	A general error is displayed. • Battery capacity too low. • Function test must be performed or has failed. • Loss of connection to emergency call platform
			Emergency call functions deactivated by configuration (not possible in DGUV mode).

Battery status	▮▮▮▮	Permanent	80 % – 100 % Residual capacity
	▮▮▮		60 % – 80 % Residual capacity
	▮▮		40 % – 60 % Residual capacity
	▮		20 % – 40 % Residual capacity
	▯		0 % – 20 % Residual capacity
	▯	Blinking	Battery flat
	▭▭▭▭	Charging animation	Battery is charging
	▯	Blinking	Wrong or faulty power source

When switched on, the battery symbol is visible on the display and shows you the remaining battery capacity. The operating time depends on the supply source, the mains configuration, and the programmed operating mode.

When the available battery capacity is almost exhausted, the empty battery symbol flashes. At the same time, a regular acoustic signal sounds as a reminder. You now have approximately two hours of operating time left. Press the confirmation button to switch off the acoustic battery alarm. The empty battery symbol continues to flash.

Warning / important notice
• **If the battery capacity falls below the defined minimum value of the device, the GPS and mobile radio are automatically deactivated. The s.QUAD C55 can still receive paging**

messages. However, outdoor localization and emergency call transmission are no longer available, which means that the device loses its function as a personal emergency signal device.
- **The s.QUAD C55 requires energy even when switched off. In this state, this leads to the battery discharging within a few weeks.**

6.2.2 2nd line of the display (profile display)

This line indicates the currently selected profile.

6.2.3 3rd line of the display (date, time, alarm clock)

This line shows the date and time. In addition, it indicates whether the alarm clock function is active.

6.2.4 4th line of the display (user line)

This line shows the configurable user line.

6.2.5 5th line of the display (status line)

This line displays unread messages, charger masks, notes, warnings, and error messages.

6.3 Start image/start text

From the basic view, the navigation button "BACK" takes you to the programmed start screen or start text.

7 Menu structure

Information:
Depending on the configuration of your s.QUAD C55, menu items within the menu structure may differ from this standard setting. If you wish to customize the menu structure, please contact your Swissphone sales partner.

Menu structure:

Level 1

- User menu
  - Read last / unread messages
  - Activate device
  - Emergency call test
  - Device functional test
  - Start/Stop Lifecheck
  - Restart Lifecheck
  - Fall / man down detection
  - **Message Inbox**
  - Emergency call log
  - **Settings**
  - Switch off

Level 2

- **Message Inbox**
- **Settings**
  - Detailed status
  - GPS update
  - GPS
  - Bluetooth
  - Profiles
  - Message font size
  - Alerting
  - Vibration
  - Alarm clock
  - Date and time
  - Alert reminder
  - Contrast
  - Confirmation tone
  - Key tone
  - Key vibration
  - Rotate display
  - Language
  - Check for updates

> **ℹ Information:**
> The following menu items are not available for the "DGUV 112-139" package: "Fall/dead man detection" and "Activate emergency devices"

7.1 Navigation in the menu

Press the OK confirmation button to switch from the basic view to the user menu. Use the navigation buttons BACK and FORWARD to navigate through the menu. Press the OK button to confirm the selection you have made or the value you have just changed.
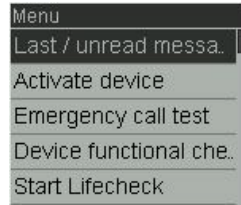
Press the ESC button to exit the current menu level. If you press and hold the ESC button (regardless of which submenu you are in), you will return directly to the basic view. Each press of the button activates the backlighting.

7.2 Explanation of the menu items

7.2.1 Read last/unread messages

All unread messages are listed chronologically. If no unread messages are available, the last message is displayed.

7.2.2 Activate Emergency devices

If you have made an emergency call with the s.QUAD, the device automatically switches to "Emergency call status". In this status, you cannot send any new emergency calls, among other things. To reset the s.QUAD to normal operating status, select this item. For details, see chapter 11 – «Emergency call initiated».

7.2.3 Emergency call test

The test emergency call is used to check the emergency call transmission without triggering the rescue process in the emergency call platform. In order to guarantee the closed system chain of the Swissphone emergency call system in the long term, this test must be carried out at regular intervals together with a function test.
By selecting the "Test emergency call" menu item, you can activate the test emergency call for two minutes. As long as the test emergency call is active, "Test emergency call" appears on the display.
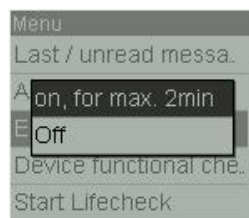
7.2.4 Emergency device's function check

See chapter 8.1 «Start the function test».

7.2.5 Start/Stop Life check

See chapter 9.2.3 «Remote-Life check».

7.2.6 Restart Life check

See chapter 9.2.3 «Remote-Life check».

7.2.7 Fall/man down detection

The wearer can activate or deactivate the fall and dead maneuver emergency call functions.
For details see chapter 9.2 «Automatic personal alarms».

7.2.8 Incoming message

All messages (whether received via POCSAG or mobile radio) are stored in the input folders. Depending on the configuration of the s.QUAD, up to three input folders are available.

7.2.8.1 Next

Shows the next message.

7.2.8.2 Delete messages

Deletes a message. Protected messages cannot be deleted.

7.2.8.3 Empty folder

Deletes all messages in a folder. Protected messages cannot be deleted.

7.2.9 Emergency call log

The s.QUAD logs relevant events such as intentional and non-intentional personal alarms, including test emergency calls. You can view these in the "Emergency call log" menu item.

The following information is compiled:

- Type of event (e.g., "Emergency button" or "Dead man")
- Transmission result "Success" or "Error"+ mobile radio – Error code)
- Date and time of the event

7.2.10   Settings

Specific device settings can be made in this area.

7.2.10.1   Detailed status

Here you will find detailed information on the following areas:

• Battery:
Status display of the power source used
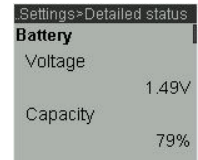
• POCSAG:
Five-level display of the signal strength at the current location
Last measurement: Signal strength of the last transmission in the network
Last message: Signal strength of the last message received

• LTE:
Last GPS position and iBeacon connections
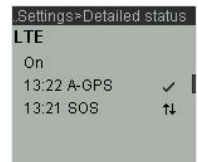
• Location:
Last GPS position and iBeacon connections

• Bluetooth connection status
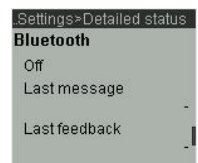
• Device information:
Current firmware, serial number

7.2.10.2   Update GPS position

If this menu item is selected, the s.QUAD starts the GPS module and attempts to receive an exact position via GPS satellites. If a connection to the GPS satellites is not possible (e.g., inside buildings), this process is aborted after around 5 minutes.

7.2.10.3   GPS

The s.QUAD has a GPS receiver that can be used to localize the position of the person involved in an emergency. This data is then transmitted to the emergency call platform, and emergency services can be quickly directed to the scene of the accident. The exact mode of operation is explained in chapter 10.2 "Outdoor localization (GPS and A-GPS)".

7.2.10.4   Bluetooth

The connection to Bluetooth-enabled devices and sensors can be activated or deactivated here.

7.2.10.5   Profile

The profiles can be activated or deactivated here. One selection profile and any number of switching profiles are active.

7.2.10.6   Message typeface

The font size of the message texts can be changed here.
Alarm system
You can select the following alarm types in the "Alarm system" menu:

- Loud   The alarm pattern is played according to the programming.
- Quiet   The alarm pattern is played quietly.
- Ascending   The alarm pattern starts quietly and then becomes louder.
- Discrete   The alarm is announced by the display lighting up and vibrating for ten seconds, after which the alarm pattern is played once quietly.
- Mute   The alarm is triggered by the display lighting and vibration for ten seconds.
- The device is completely silent, no button clicks are audible.

- The following table shows the different types of alarms that are available:

Alert type	Symbol	Alert	Alert for a priority message
Loud	⊂⑴⟩	Stadard signalling	Standard-signalling
Quiet	⊂⑴⟩	Standard signalling - quiet	Crescendo volume
Ascending	⊂⑴	Crescendo volume	Crescendo volume
Discreet	⊂⑴	10-second vibration, quiet sound	10-second vibration, crescendo volume
Silent	⊂⑵	10-second vibration	10-second vibration, crescendo volume

■ Sound as defined   □ Quiet   ▨ Medium volume
□□ Vibration

Messages with priority are always signaled at the end with the programmed volume.
s.QUAD in the charger:

- Vibration is not active.
- The alarm type can be overridden with the charger mask.

7.2.10.7   Melody

Here you can assign a melody to each configured alarm address. There are 32 melodies to choose from, which can be configured individually.

7.2.10.8   Vibrator

The vibration can be activated or deactivated here.

7.2.10.9   Alarm clock

You can make the settings for the alarm clock function in this area. Activate the alarm clock by defining the alarm time.
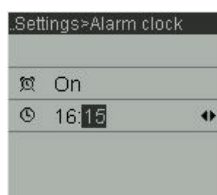
When the alarm clock function is active, the alarm clock symbol appears in the basic view.

The alarm function is also available when the s.QUAD is switched off. As soon as the alarm time is reached, the device is activated and alarms acoustically, visually and with a vibrator. The alarm can be stopped or delayed by seven minutes (snooze).

7.2.10.10   Date and time

The date and time can be set either automatically or manually. The s.QUAD has a GPS module that automatically updates the time and date. Another automatic setting is possible via the selected mobile network operator. If automatic setting is not possible, you can set the date and time manually via the "Date and time" menu item.
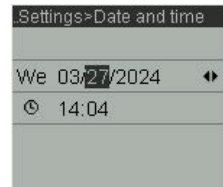
7.2.10.11   Call reminder

The call reminder can be activated or deactivated here. If the call reminder is active, you will be reminded again after the pre-programmed time of messages that have not yet been read (see chapter 7.2.10.7 "Alerting"). The call reminder is switched off as soon as you have read all messages.
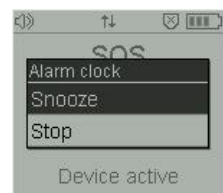
7.2.10.12   Contrast

Select the optimum display contrast for you. This can be selected from 1 (very low) to 8 (very high).

7.2.10.13   Confirmation sound

The confirmation tone can be activated or deactivated. It sounds when a change is accepted in the menu or when the s.QUAD is switched off.

7.2.10.14   Key tone

You can activate/deactivate the key tone in this menu item. If the "Discrete" or "Silent" alarm profile is selected, the button tones are not played back.

7.2.10.15   Keypad vibration

In this menu item, you can activate/deactivate the button vibration. This signals when the menu is reached with a short vibration. If the "Discrete" or "Silent" alarm type is selected, the button vibration is not active.

7.2.10.16   Rotate display

The screen display can be rotated for easier operation. This can be advantageous for left-handed users, for example.

7.2.10.17   Key lock

The button lock prevents unintentional incorrect manipulation. As soon as the selection in the menu under "Key lock" has been set to "On", it is automatically activated after one minute if no button has been pressed.
The button lock can be deactivated by pressing the "FORWARD" and "BACK" navigation buttons simultaneously.

7.2.10.18   Language

Here you can change the menu language in the s.QUAD.

7.2.10.19   Display backlight

The display lighting can be switched on or off here. Each press of the button activates the display lighting (if generally switched on).

7.2.10.20   Search for updates

If updates are available for the s.QUAD, they are downloaded here and the s.QUAD is updated with them. This function requires the corresponding service.

7.2.11   Switch off

Switch off the s.QUAD with this menu item.

8 Emergency call system operation

Personal alarm system mode is the secured operating state in which an emergency device is logged on to the central unit and monitored. Depending on the selected scope of services, this is indicated on the display of the s.QUAD C55 by "Emergency device active" or, if the DGUV package is used, "DGUV 112-139".

The following two criteria are a prerequisite for active Personal alarm systems operation:

- **Successful device functional test**
  With the "DGUV 112-139" package, a functional test must be completed after 24 hours at the latest. In addition, the function test must be carried out before each start of operation (e.g., after removal from the charger) and before each start of work or change of personnel.

  Otherwise, all parameters relating to the function check are freely configurable. The function check can also be completely deactivated. In this case, the function check is not relevant for emergency call system operation.

  - **Active mobile data connection (GPRS) with the emergency call platform**
    As soon as the emergency devices is in emergency call system mode, the corresponding icon is displayed in the basic view and the text "Emergency devices active" or "DGUV 112-139" is permanently displayed.

Warning / important notice:
According to DGUV 112-139, the emergency devices is only ready for operation if both the function test and the connection with the emergency call platform are successful. emergency call operation is indicated acoustically (once) and visually (permanently) on the emergency devices.

8.1 Start the function test

The purpose of the function test is to test the most important basic functions of the Emergency devices for proper operation. This minimizes the risk that a malfunction of the device will only be detected in an emergency.
Depending on the package and configuration, it is defined when a function test is required. As soon as a function test needs to be carried out, the information "Function test required" appears on the display and a short signal tone sounds continuously every 20 seconds.

To start the function test, the main menu must be opened by pressing the OK button. Use the navigation buttons to scroll until the "Emergency devices function check" menu item appears and confirm this by pressing the OK button.
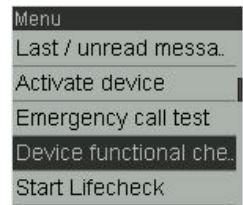
8.2 Performing the functional test

An information text is shown on the display at the start, informing the user that the function test is divided into five test phases and takes approx. 30 seconds in total.
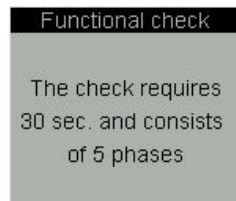
The following applies to all five test phases:

- All test phases are started by pressing the OK button.
- Successfully completed test phases are displayed visually and acoustically.
- Unsuccessful test phases are displayed visually and acoustically.
- If a test phase cannot be successfully completed, the entire functional test is negative.
- If there is an operating error, the function test is repeated.
- If a device fault is detected, it must be reported and rectified. According to "DGUV 112-139", there is NO adequate protection as long as the Emergency devices is not in emergency call system mode.

Performance of the functional test:

- **Phase 1: Battery test (operating ability)**
  The first test phase includes the testing of the battery. The remaining capacity in the battery is tested. If the total capacity is more than 20 %, the test is successful.

Informational text	**Test successful**	**Test not successful**
Check 1/5: Battery Press confirmation button to start	Check 1/5: Battery Successful	Check 1/5: Battery Not successful Charge device

- **Phase 2: Speaker test (warning and positioning)**
  The second test phase includes testing of the speakers. This is used to signal messages/warnings, but in the case of an emergency devices as a siren, its primary function is to alert people within earshot. They can use the siren as a localization aid. During this loudspeaker test, the siren is activated, and the user is asked via a selection option whether it can be heard.

Informational text	**Test successful**	**Test not successful**
Check 1/5: Battery Siren audible No Yes	Check 2/5: Siren Successful	Check 2/5: Siren Not successful Repeat functional check

- **Phase 3: Motion test (unintentional personal alarm)**
  The third test phase includes testing the acceleration sensor. It is recommended to shake the Emergency devices vigorously to detect movements on the three axes of the sensor. As soon as an acoustic signal sounds and the text "Successful" appears, the movement test is complete.

Informational text	**Test successful**
Check 3/5: Motion Move the device forcefully (shaking)	Check 3/5: Motion Successful
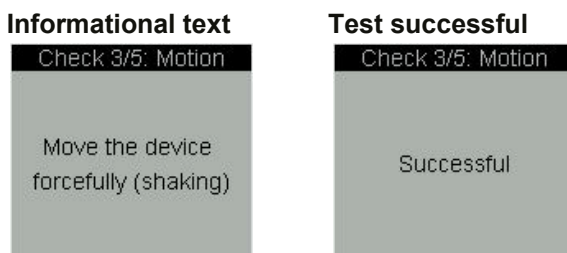
- **Phase 4: Ruhe-Test (Unwanted person alarm)**
  In the fourth test phase, the rest position is tested using an acceleration sensor. It is checked whether all three axes of the sensor detect a "stationary" position. If this is the case, you will be asked not to move the Emergency devices. It is advisable to position the Emergency devices on a stationary surface (e.g., on a table).

Informational text	**Test successful**
Check 4/5: Motionless Put the device to rest position	Check 4/5: Motionless Successful
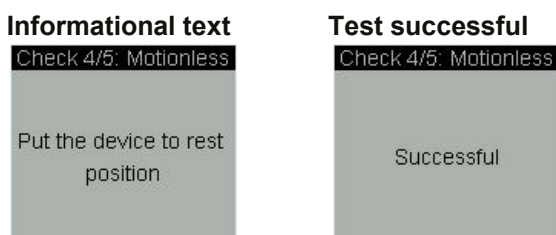
- **Phase 5: Emergency button test (manual personal alarm)**
  In the fourth test phase, the rest position is tested using an acceleration sensor. It is checked whether all three axes of the sensor detect a "stationary" position. If this is the case, you will be asked not to move the Emergency devices. It is advisable to position the Emergency devices on a stationary surface (e.g., on a table).

Informational text

Check 5/5: SOS butto..

Press emergency
button till acoustic
signal sounds

Test successful

Check 5/5: SOS butto..

Successful

As soon as the five tests have been successfully completed, this is shown on the display:

Functional check

Successful
accomplished

The function test can be canceled at any time by pressing the ESC button. An unsuccessful function test is displayed in the basic view:

SOS
Tu Apr 2 2024
15:43
s.QUAD C55

Error functional check
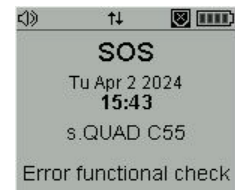
Warning / important notice:
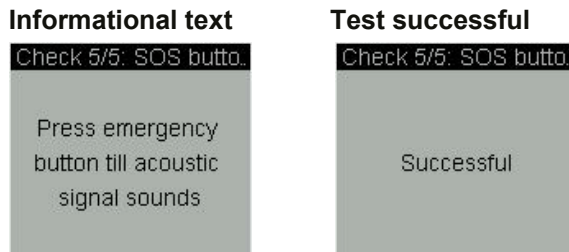**If the functional test was not successful, the device is not ready for use and must be checked. The device switches to error mode and does NOT transmit emergency calls to the Emergency call platform.**

8.3 Establishing a connection to the emergency call platform

After switching on the s.QUAD, a connection to the Emergency call platform is automatically established. This connection remains permanently active, even when the s.QUAD is being charged.
The picture shows the basic view of the connection setup with the Emergency call platform:

SOS
We Apr 10 2024
09:53
s.QUAD C55

Link connection...

As the connection is established within a few seconds if a mobile connection is available, the connection should be established before the function test is completed.

If the connection was not successful, one of these two error messages is displayed:

8.4 Emergency devices in emergency call system operation

As soon as the connection setup and function test have been successfully completed, the following symbol is

displayed in the basic view:

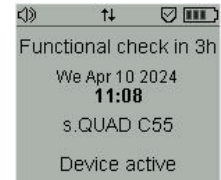In addition, "Emergency devices active" or "DGUV 112-139" is shown in the 3rd line of the display (info line). If the next test is due in less than four hours, this is shown in the profile display.

The following pop-up is displayed one hour before the next function test:

8.5 Unexpected loss of connection to emergency call platform

The basic requirement for operating the Emergency call system is a continuous connection to the Emergency call platform. This connection can be interrupted unexpectedly, especially in areas with limited mobile radio availability such as garages, basements or shafts. As soon as the connection is interrupted, the Emergency devices is no longer operational. This is signaled to the user both acoustically and visually. A continuous acoustic signal every 20 seconds indicates the loss of connection, while the text "Emergency devices active" or "DGUV 112-139" is replaced visually by the message "Connection error". This interrupted connection to the Emergency devices is also checked periodically in the Emergency call platform and the status is displayed.

9 Emergency call functions

9.1 Manual personal alarms (trigger emergency signal manually)

Pressing and holding the OK button (emergency signal button) sends an emergency signal to the Emergency call platform. The time between pressing the emergency signal button and the transmission of the emergency call is referred to as the pre-alarm. This serves as a protective measure to avoid false alarms. The pre-alarm signals to the wearer visually and acoustically that an emergency call will be triggered shortly. The pre-alarm time can be configured individually for each emergency call function. To trigger the emergency call, the emergency signal button must remain pressed during the pre-alarm until the time shown on the display has counted down to "0". Otherwise, the emergency call will be canceled. If the emergency call is triggered, the message "Emergency call triggered" appears on the display. Once the transmission is complete, "Emergency call triggered!" appears on the display.
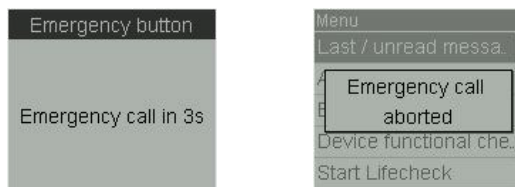
Application area: For example, the wearer's leg may have become trapped by a tree or stone. In this situation, the wearer is fully conscious and able to make the emergency call manually using the emergency call button.

Information:
An emergency call can also be placed if the key lock is activated.

If you release the confirmation button during the pre-alarm, you cancel the emergency call and the display shows "Emergency call canceled".

Emergency button	Menu
Emergency call in 3s	Last / unread messa.
	Emergency call aborted
	Device functional che.
	Start Lifecheck

## 9.2 Automatic personal alarms

9.2.1 Fall detection

Fall detection is based on an acceleration sensor integrated in the Emergency devices, which offers various options for detecting position and movement. An algorithm specially developed by Swissphone is used, which consists of three phases:

1st Phase: Case detection
2nd phase: Impact detection
3rd phase: Detection of a rest position

As soon as the Emergency devices recognizes a case based on these three phases, it triggers a pre-alarm. If the employee is unable to acknowledge this pre-alarm by pressing the confirmation button, an emergency signal is automatically transmitted to the Emergency call platform and the message "Emergency call triggered" appears on the display. If the confirmation button is pressed during the pre-alarm, the emergency call is canceled. It is also possible to cancel the emergency call process when the key lock is activated.

Warning/important notice:
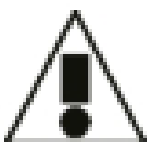
- If the Emergency devices is to be used in working environments with an increased risk of falling, we recommend activating an additional device function that is independent of the user's will.
- Due to the complex algorithm, fall detection is not possible in every working environment and not suitable for identifying every case.

Fall detected	SOS	SOS
Emergency call in 10s	Emergency call initiated	We Apr 3 2024 09:46
	s.QUAD C55	s.QUAD C55
	Link connection…	Emergency call sent

This function can be activated/deactivated by the wearer themselves using the "Fall/dead man detection" menu item. This menu item is not available for the "DGUV 112-139" package.

Application area: The carrier falls from scaffolding or a tree to the ground. The fall detection function triggers an emergency call without intervention from the victim.

9.2.2 Man down detection

The integrated acceleration sensor, which is used for fall detection, is also used for dead man detection. It recognizes different positions and movements. For example, it can determine whether a person is standing, walking, or sitting (vertical) or lying down (horizontal).

The pre-alarm is only triggered if the person remains motionless in a lying position for a defined period of time. The following three criteria must therefore be met simultaneously:

- The tilt angle indicates that the person is in a lying position.
- The person is almost immobile.
- Both criteria must be met simultaneously over a user-defined period of 30 seconds, for example.

If the person involved in the accident is unable to acknowledge this pre-alarm by pressing the confirmation button, an emergency signal is automatically transmitted to the Emergency call platform and the message "Emergency call triggered" appears on the display. If the confirmation button is pressed during the pre-alarm, the emergency signal is not transmitted to the Emergency call platform. You can also cancel the emergency call procedure when the key lock is active.
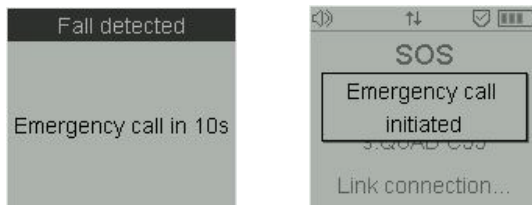
This function can be activated/deactivated by the wearer themselves via the "Fall/dead man detection" menu item. This function cannot be deactivated for the "DGUV 112-139" package.

Warning/important notice:
If the lying position is consciously assumed for a longer period of time, for example for repair work, we recommend activating another function that is independent of the user's will (see chapter 9.2.3 "Remote life check").

Application area: The wearer falls to the ground due to circulatory problems. The criteria described above automatically activate the dead man detection and trigger the emergency call.

9.2.3 Remote-Life check

If your workplace is in a location with poor or no mobile phone coverage, we recommend using the remote life check. Monitoring is also carried out in the Emergency call platform in parallel with the s.QUAD. This ensures that emergency services are dispatched even if the person concerned is in an area without mobile phone coverage.

Depending on the upcoming activity, a life check profile is selected under the "Start life check" menu item. The same time interval is also started in the Emergency call platform at the same time as the remote life check is started on the Emergency devices. Double protection is now guaranteed (on the Emergency

devices and in the Emergency call platform) and work can begin in the area with poor mobile phone coverage.

A time-definable reminder function signals to the wearer visually and acoustically that the time interval has almost been reached. The wearer now has the option of moving to an area in which they have a mobile phone connection in order to extend ("Restart Life check") or end ("Stop Life check") the life check.
If the pre-alarm is not confirmed on the Emergency devices after the time interval has elapsed, the Emergency devices attempts to send an emergency signal to the Emergency call platform. If this emergency signal cannot be transmitted due to a lack of mobile phone connection, the Emergency call platform triggers an alarm independently of the Emergency devices.

The s.QUAD allows the user to choose between different interval times depending on the activity and/or working environment. These different interval times are defined in advance in so-called life check profiles and can be selected when the life check is started. A profile contains the following data:

• Name of the profile
• Time interval
• Reminder

The values must be defined in advance and configured with one. They cannot be changed on the s.QUAD direct.

Warning/important notice:
To start, stop or extend the remote life check, the user must be in an area with sufficient mobile phone coverage.
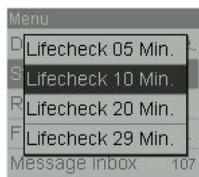
Application area: e.g., short-term work in a shaft without mobile phone coverage.

10 Positioning

10.1 Siren

As an additional safety feature, the s.QUAD has a siren. This serves both as a locating device and as an additional acoustic alarm. It is activated immediately after an emergency call is triggered to alert people in the vicinity of the injured person. The people summoned in this way can bridge the time until the emergency services arrive and immediately provide first aid to the injured person. To deactivate the siren, simply press the confirmation button and select "Yes" in the menu.
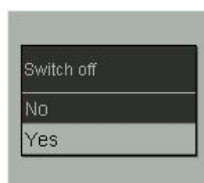
10.2 Outdoor positioning (GPS and A-GPS)

A GPS receiver module is integrated in the s.QUAD, which can transmit position data to the emergency call center in addition to a personal emergency call. If required, GPS localization can be deactivated in the menu under "Settings/GPS". Please note, however, that the GPS receiver module is automatically activated when an emergency call is made.

Warning/important notice:
It is recommended that you always leave this function activated.

To ensure optimum operating time, the GPS module is only activated at regular intervals. If the integrated motion sensor does not detect any movement, the GPS module remains deactivated. This means that a change of position is required for the GPS module to update the current position data.
The A-GPS function (Assisted GPS) is activated in the s.QUAD as standard. The required auxiliary data from the satellites is received from an A-GPS server via the mobile phone connection. Thanks to this data, the position can be determined within a few seconds.

Warning/important notice:
If the direct line of sight to the sky is interrupted, for example by covering it with the hand or pressing it against the human body, the GPS reception signal is attenuated. In addition, physical obstacles such as glass walls, buildings or valleys can cause reflections that can lead to inaccurate position information.

10.3 In-house positioning (position transmitter)

GPS localization outdoors is very accurate with the s.QUAD. The GPS signal may be too weak on company premises and especially indoors. In such situations, the s.QUAD can receive position information from a position transmitter. This information consists of a unique ID number that the position transmitter sends out regularly. In the event of an emergency, the s.QUAD sends this position information to the Emergency call platform for localization.
If the s.QUAD is within the reception range of a position transmitter, the display shows an in-house symbol and GPS localization is deactivated. If the s.QUAD leaves the reception range of the position transmitter, the in-house symbol disappears and the s.QUAD automatically switches back to GPS localization mode.

The s.QUAD transmits the battery status of the position transmitter to the SOS portal for device monitoring.

11 Emergency status "Emergency call initiated"

After an intentional or unintentional personal alarm has been triggered, the Emergency devices automatically switches from "operating status" to "emergency call status". In "emergency call status", the Emergency devices remains continuously connected to the Emergency call platform via a data channel. This provides the Emergency call platform user with various options for processing the emergency call.

There are various methods for restoring the device to its normal "operating status":

- Selection of the Emergency devices menu item "Activate Emergency devices"
- ➡ This function is not available for the "DGUV 112-139" package
- Insert Emergency devices into the charger
- Reset of the Emergency devices by Emergency call platform

> ⚠ **Warning/important notice:**
> **The Emergency devices status cannot be changed if the power supply is interrupted (battery too low or battery removed from the Emergency devices). If an emergency device is in the "Emergency call state", this device will also be in the "Emergency call state" after a battery is inserted again.**

11.1 Initial call and follow-up calls

An emergency call that is sent to the Emergency call platform is referred to as an initial call. All subsequent information or transmissions relating to this emergency call are referred to as follow-up calls. The primary function of the initial call is to transmit information about an emergency situation to the PSAP as quickly as possible. Additional information, such as a precise location, has a secondary priority at this time.

As soon as the s.QUAD has sent the initial call to the Emergency call platform, a re-localization is initiated. The GPS module is activated (even if it was previously deactivated) to determine outdoor positions. At the same time, the system searches for in-house localizations. Only when GPS coordinates have been determined, but at the latest after five minutes, are the results of the re-localization transmitted to the Emergency call platform as a follow-up call and displayed there.

11.2 Continuous subsequent positioning

Continuous post-localization is activated in the standard configuration. After the initial call and the first follow-up call have been transmitted to the Emergency call platform, the system continuously searches for localization information. This information is transmitted to the Emergency call platform at regular intervals. This means that the emergency services can always be guided to the current position of the person involved in the accident, even if they may have moved.

11.3 Emergency call confirmation via emergency call platform to the emergency devices

An emergency call is only displayed and processed in the Emergency call platform if all the necessary criteria are met. This includes, among other things, that the Emergency devices is marked as "active" in the Emergency call platform. After an emergency call has been transmitted to the Emergency call platform, each emergency devices receives a confirmation message from the Emergency call platform. This message contains information on whether the emergency call is accepted and processed, as well as a unique ID to identify the emergency call.

Successful emergency call

```
12.Apr 10:50    SOS-MSG
Emergency
dispatching
successfully initiated. -
ID: 123456
```

Emergency devices not registered

```
Apr 4 08:24    SYS-MSG
Device is not
registered. Emergency
call will not be
processed!
```

11.4 Unavailable functions in "Emergency status"

- Emergency call test
- Functional test
- Send another emergency call
- Start Remote-Life check
- Switch off device

12 Process messages

12.1 Receive and read new messages

As soon as your s.QUAD receives a message, the alarm is triggered with sound, vibration, and illumination of the OK button. If you press the OK button, you stop the alarm. The header (time stamp) shows the message date, the message time, and the address name. If you now press the BACK navigation button, the header is displayed in full. A predefined fixed text can be displayed before the sent message. The arrow pointing downwards announces further text.
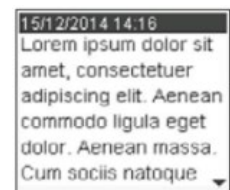
12.2 Send user reply

After reading a message, press the OK button again to access the selection menu. There you have the option of using the "FORWARD" and "BACK" navigation buttons to select a predefined user response (e.g., "I'm coming" or "I'm coming < 10"). Your answer is immediately sent to the connected system via the mobile radio return channel and evaluated there. If you select "Cancel", no user response will be sent, and you will receive a corresponding message. It is no longer possible to send a user response after a specified period has elapsed.

Information:
The prerequisite for using the user response is connection to a compatible system. Swissphone and its partners look forward to providing you with expert advice in this regard.

13 Charging the battery/power supply

During the charging process, the charger LED lights up orange. A full charge takes approximately four hours. At the end of the charging process, the color of the LED changes to green. The charging status and the name of the charging profile are shown on the display of the s.QUAD.
The way in which the s.QUAD alarms in the single and multi-charger is defined in the charging profiles.

Power source
You can use the following AA or LR6, AM3 or Mignon power sources:

- Battery: rechargeable nickel-metal hydride battery
- Leak-proof alkaline dry cell batteries should only be used as a fallback

Warning/important notice:

⚠ • Alkaline batteries must not be charged. There is a risk of explosion!
   • For safety reasons, only use original chargers from the Swissphone range of accessories.
   • Dry batteries and rechargeable batteries must not be thrown into a fire. There is a risk of explosion!

14 Miscellaneous

Further information is available on the Swissphone website at: https://www.swissphone.com

Safety notice
• This product may not be used in explosive environments.
• The device may not be opened.
• Keep out of reach of children.

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