FSG8
VHF/AM Hand-Held-Transceiver for Aircraft-Radio-Communication

P/N   F10800-(xxx)-(xxx)

Operating Instructions

(Document-No. 01.150.010.71e)
### List of Changes

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Change description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.00</td>
<td>21.02.2019</td>
<td>First Release</td>
</tr>
<tr>
<td>1.10</td>
<td>22.07.2019</td>
<td>CTC-Test Certificate, BAF Certificate added; §3.6 Warning Tones added; §10 technical data corrected; §11 list of accessories corrected;</td>
</tr>
<tr>
<td>1.11</td>
<td>21.07.2020</td>
<td>Chapter 11 “Accessories” updated</td>
</tr>
</tbody>
</table>

### List of Service Bulletins (SB)

Service bulletins are to be inserted in the manual and to be recorded in the table.

<table>
<thead>
<tr>
<th>SB Number</th>
<th>Rev. No.</th>
<th>Date of Issue</th>
<th>Date of Insertion</th>
<th>Name</th>
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<tbody>
<tr>
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</tbody>
</table>
Table of Contents

1 INTRODUCTION ....................................................................................................................... 3
  1.1 SYMBOLS ........................................................................................................................... 3
  1.2 CUSTOMER SERVICE ......................................................................................................... 3

2 GENERAL INFORMATION ......................................................................................................... 4

3 DEVICE INFORMATION ............................................................................................................ 5
  3.1 OPERATING ELEMENTS OVERVIEW ............................................................................... 5
  3.2 FIRST USE: SWITCHING ON / OFF ..................................................................................... 6
  3.3 RECEIVER OPERATION ........................................................................................................ 7
  3.4 TRANSMIT OPERATION ....................................................................................................... 7
  3.5 CHARGING THE BATTERY ................................................................................................. 8
  3.6 WARNING TONES ................................................................................................................. 9

4 FREQUENCY CONTROL .......................................................................................................... 10
  4.1 GENERAL INFORMATION .............................................................................................. 10
  4.2 OPERATING MODES ...................................................................................................... 11
  4.3 OVERVIEW OF KEY FUNCTIONS .................................................................................... 11
  4.4 OVERVIEW OF MENU STRUCTURE ............................................................................. 12
  4.5 LOCKED MODE .................................................................................................................. 13
  4.6 CHANNEL MODE .............................................................................................................. 13
  4.7 FREQUENCY MODE .......................................................................................................... 13
  4.8 MENU MODE ..................................................................................................................... 14
  4.9 MEMORY MODE ................................................................................................................. 16

5 ACCESSORIES ....................................................................................................................... 17
  5.1 OVERVIEW ...................................................................................................................... 17
  5.2 PIN ASSIGNMENT ............................................................................................................. 17

6 SHUTTING DOWN - STORAGE ............................................................................................... 18

7 FUNCTIONAL CHECKS .......................................................................................................... 19
  7.1 TROUBLE SHOOTING ..................................................................................................... 19
  7.2 SITING ............................................................................................................................... 19

8 SAFETY INFORMATION ......................................................................................................... 20

9 FREQUENCY/CHANNEL PLAN ................................................................................................ 21

10 TECHNICAL DATA ............................................................................................................... 22

11 LIST OF ACCESSORIES ..................................................................................................... 23

12 CERTIFICATION ................................................................................................................ 24

13 EU DECLARATION OF CONFORMITY .............................................................................. 27

14 ATTENTION – CONDITIONS OF USAGE .......................................................................... 29

15 RELIABILITY INFORMATION .............................................................................................. 30

16 DISPOSAL ................................................................................................................................... 31
1 INTRODUCTION

This manual contains information about the physical, mechanical and electric characteristics and instructions on operation of the handheld Transceiver FSG8.

- Before operating the transceiver, please read this instructions thoroughly!
- Keep for future use!
- Please observe the Safety Information!

1.1 Symbols

Advice, non-observance of which could cause radiation damage to the human body or ignition of combustible materials.

Vital information that if not followed may cause damage in the device or in other parts of equipment or may have a negative impact on the correct function of the device.

Information

1.2 Customer Service

For fast handling of returns please follow the instructions on the form for complaints and returns provided in the service area of the f.u.n.k.e. AVIONICS GmbH website www.funkeavionics.de.

Suggestions for the improvement of our manuals are welcome. Contact: service@funkeavionics.de.
2 GENERAL INFORMATION

This Operating Instruction refers to a handheld Transceiver FSG8, Article-No. F10800. The FSG8 is a radio that is working within the airband frequency range of 118.000 MHz to 136.975 MHz in 25 kHz or 8.33 kHz increments (760 / 2268 channels). The operation mode is Simplex, which is transmitting or receiving only in turns.

Before using the radio the first time charge the battery for at least 10 hours with 250 mA!

The FSG8 has its own internal charging electronics and must therefore **not** be charged by "intelligent" chargers. Best only use original f.u.n.k.e. AVIONICS chargers.

The device may only be operated by trained specialist personnel.
3 DEVICE INFORMATION

3.1 Operating Elements Overview
### Operating Instructions

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OFF/VOL</td>
<td>Power on/off switch and volume control</td>
</tr>
<tr>
<td>2</td>
<td>ANT</td>
<td>TNC Antenna connector</td>
</tr>
<tr>
<td>3</td>
<td>CON</td>
<td>Connector for external headset / PTT</td>
</tr>
<tr>
<td>4</td>
<td>SQ</td>
<td>Squelch switch</td>
</tr>
<tr>
<td>5</td>
<td>PTT</td>
<td>PTT button (Push-to-Talk)</td>
</tr>
<tr>
<td>6</td>
<td>LCD</td>
<td>LCD status display</td>
</tr>
<tr>
<td>7</td>
<td>T1</td>
<td>Button 1</td>
</tr>
<tr>
<td>8</td>
<td>T2</td>
<td>Button 2</td>
</tr>
<tr>
<td>9</td>
<td>LED</td>
<td>LED status indication</td>
</tr>
<tr>
<td>10</td>
<td>USB</td>
<td>Micro USB Port (for maintenance / service only)</td>
</tr>
</tbody>
</table>

### 3.2 First use: Switching on / off

1. Connect antenna to the antenna socket ★.
2. Rotate the VOL control ○ clockwise to turn the radio ON.
3. After switching on, the LCD display shows "FSG8 f.u.n.k.e. AVIONICS" as ticker and a progress bar from left and right shows the initialization progress.
4. After initialization, the set channel and the battery charge status will be displayed. The radio is always in the LOCKED state after being switched on.
5. Turning the VOL knob further right increases the volume.
6. Turning back to the left stop switches off the device.
7. The radio starts at the same frequencies and settings as before the last power off.
3.3 Receiver Operation

1. Standard Receive Operation
   Switch the Squelch-circuit ON (SQ-toggle switch ④ towards right position "SQ"). Receiver noise, weak signals and interference pulses are blocked. Adjust the volume control ① to a desired level.

2. To obtain full receiving radio range switch OFF the squelch ④. Now the radio is noisy during standby operation but no weak signals are suppressed.

3. In noisy environment hold speaker close to your ear or use the noise cancelling headset Art.No. W00048 for this purpose.

3.4 Transmit Operation

1. When using the helical antenna hold transceiver vertically, preferably with the left hand.

2. Care for an all-round obstacle free location; the called station should be within line-of-sight distance.

3. Do not hold the radio such as the antenna gets very close to, or touching, exposed parts of the body, especially the face, shoulder or the eyes. The minimum distance should be at least 15 cm.

4. Please keep radio discipline. The channel must be clear before transmitting.

5. Rotate the volume control ① clockwise to turn ON the radio.

6. With the control buttons ⑦ and ⑧ set the desired operating frequency (see below).

7. Press and hold the push-to-talk button ⑤. Speak loud, slow and clear! During transmission, the LED status indicator light is red.

8. When the built-in microphone is used, speak into the microphone from a distance of 3 to 5 cm. After your message release the PTT button ⑤ to clear the channel and hear the reply.
3.5 Charging the Battery

1. Plug DL-5A charger into accessory jack ③. Connect charger to mains.

2. Observe charging temperature of 0 °C … +40 °C / 32 °F … 104 °F.

3. Normal charge: ca. 10 hours with up to 250 mA.

4. Transceiver not in use should be left connected to the charger DL-5A Art.No. F10198 or the NiMh/NiCad charger Art.No. F10059. This keeps the battery fully charged and allows maximum operating time.

5. Continuous charging via ③ of FSG8 in operation or switched OFF is permitted.

6. Best use only f.u.n.k.e. AVIONICS chargers.

7. Always recap accessory jack ③ after charging.

At the right edge of the display, the battery charge status is shown with a battery symbol.

- 3 bars visible: Charge level 70 - 100%
- 2 bars visible: Charge level 40 - 70%
- 1 bar visible: Charge level 10 - 40%
- No bar visible: Charge state <10%
- Flashing icon: Charge state critical, device will turn off in the next five minutes
- Lightning icon: Device is charging
3.6 Warning tones

Warning sound at very low and critical battery level:

As soon as a very low battery level (only battery frame, without bars) is displayed, two short, consecutive warning tones are emitted via the loudspeaker after two minutes. When using a headset, these are played through the headphones. The tones will repeat every two minutes and the volume will be according to the volume setting of the VOL knob. The warning tones are also emitted at critical battery status (flashing frame, without bars).

Warning sound when switching off the device:

As soon as a critical battery level (flashing frame, without bars) is displayed, the device will switch off after 5 minutes. Shortly before switching off, three consecutive warning tones are emitted and the red LED lights up. When using a headset, the sounds are played through the headphones, otherwise through the speaker. The volume is independent of the VOL knob position and is set to the loudest level.
4 FREQUENCY CONTROL

4.1 General Information

The FSG8 is controlled by means of the two push-buttons on the left and right side beneath the frequency display.

The display shows the following elements:

On the left side of the display, the operating modes are displayed as follows:

- **LOCKED**: the buttons of the radio are locked
- **CHANNEL** mode: display of selected memory position
- **FREQUENCY** mode: enables entry of free selectable frequencies / channels.
- **MEMORY** mode: allows to save channels

In the middle of the display, the current channel used is displayed in light letters on a dark background:

The battery charge indicator is located on the right side of the display.
4.2 Operating Modes

There are 6 different operational modes of the FSG8:

1. OFF - when the volume knob ① is turned all the way left.

2. LOCKED - The radio is always in the locked state after being switched on. To leave the LOCKED mode, both buttons ⑦ and ⑧ must be pressed together for at least 3 seconds.

3. In CHANNEL mode from up to 10 stored channels (F and 1-9) can be selected.

4. Free entry of a frequency (operating mode FREQUENCY) can only be done in channel F. In this operating mode, a number in the frequency display is displayed inverted.

5. In MEMORY mode the actual channel can be stored to one of the 10 channel memories.

6. The MENU mode allows to change parameters such as channel spacing and squelch level.

4.3 Overview of Key Functions

The table below lists the key functions in each mode:

<table>
<thead>
<tr>
<th>Mode</th>
<th>LEFT</th>
<th>UNLOCK LOCK (2s)</th>
<th>RIGHT</th>
<th>Push Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHANNEL</td>
<td>UP CH MENU</td>
<td>---</td>
<td>FREQUENCY</td>
<td>Short Long</td>
</tr>
<tr>
<td>FREQUENCY</td>
<td>UP NUM ---</td>
<td>SEL MEMORY</td>
<td>Short Long</td>
<td></td>
</tr>
<tr>
<td>MEMORY</td>
<td>UP CH CANCEL</td>
<td>---</td>
<td>SAVE</td>
<td>Short Long</td>
</tr>
<tr>
<td>MENU</td>
<td>DOWN ---</td>
<td>SEL ---</td>
<td>Short Long</td>
<td></td>
</tr>
</tbody>
</table>

Table 1 – Key functions
4.4 Overview of Menu Structure

Switch On
Turn VOL right

Initial Indication
L 127.500

Unlock
B0L B1L

Betriebsart KANAL
CHANNEL Mode
3 127.500

B0s

nächster Kanal
next channel

channel 1–9, F

4 132.435

Betriebsart MENU
MENU Mode

Menu 25k mode: OFF

B0s B1s

exit
next menu item
modify entry
config del mem sw version

Betriebsart FREQUENZ
FREQUENCY Mode
F 127.000

B0s B1s

frequency up
next digit
frequency setting

Betriebsart SPEICHERN
MEMORY Mode

F 127.500

B0s B1s

select memory
save to memory
channel 1–9, F

B0s Button left short push
B1s Button right short push
B0L Button left long push
B2L Button right long push
4.5 LOCKED Mode

Immediately after switching on, the FSG8 is always LOCKED and channel F is active.

If the FSG8 is connected to the charger, the last used channel is taken over after switching on.

The lock is released by simultaneously pressing both buttons ⑦ and ⑧ for 3 seconds. Then the device changes to the operating mode CHANNEL. The same procedure locks the radio again.

4.6 CHANNEL Mode

After unlocking, the FSG8 is in the CHANNEL mode by default.

In CHANNEL mode, the FSG8 allows to quickly change the channel from up to 10 pre-selected stations. Channels F and 1 to 9 are shown inverted on the left side of the display.

Each press of the left button ⑦ will switch to the next memory position. If a memory position is unused (empty), it will be left-out. Only in channel F a free entry of a frequency is feasible.

The channels only become visible in CHANNEL mode when a frequency has been stored by the user to the memory position of the channel. As a result, when programming only one frequency on the first channel, it is possible to quickly switch between two frequencies in CHANNEL mode.

If the frequency entry is aborted, the last entry is stored in channel F.

4.7 FREQUENCY Mode

In order to enter a frequency freely, the right button ⑧ must be pressed long in CHANNEL mode. The FSG8 then jumps from each channel to the FREQUENCY mode.

In this case, the FSG8 changes to channel F and displays the indicator F not inverted. Now the user can enter a frequency directly and shows the position to be changed inverted (dark number on light background) in the frequency display.

Initially, the 10 MHz value is displayed inverted (dark text, light background) and can be changed with a short press of the left button ⑦.

The next value (1 MHz) is selected with a short press of the right button ⑧ which then can be set with the left button ⑦.
When the last digit is set, another press of the right button selects the 10 MHz value, again.

At any time, pressing the PTT button will use the currently shown channel as the operating frequency for transmissions. Reception is always performed on the currently indicated channel.

**Attention:** Only values that form an allowed frequency can be set. Therefore, it may be necessary to first set another digit before one digit can be set to the desired value.

For instance, if one wants to change from 132.000 MHz to 118.000 MHz it is necessary to first set the second digit to 2, then set the third digit to 8 and then set the second digit to 1.

This is necessary as the unit will immediately use any indicated frequency for reception.

The following table shows which values can be set for the third digit depending on the second digit setting:

<table>
<thead>
<tr>
<th>Second Digit</th>
<th>Third Digit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8,9</td>
</tr>
<tr>
<td>2</td>
<td>0,1,2,3,4,5,6,7,8,9</td>
</tr>
<tr>
<td>3</td>
<td>0,1,2,3,4,5,6,7</td>
</tr>
</tbody>
</table>

### 4.8 MENU Mode

From the CHANNEL mode, pressing the left button for 2 seconds will bring the FSG8 into MENU mode.

The menu points are displayed in two lines. The next menu point is shown in the second line.

In this mode, scrolling through the various entries in the menu is possible with the left button. The right button is used to modify a menu entry.
Following points in the menu are shown or can be modified:

<table>
<thead>
<tr>
<th>Menu point</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>25k mode</td>
<td>ON / OFF</td>
<td>switches to 25kHz channel spacing</td>
</tr>
<tr>
<td>SQL-LVL</td>
<td>LOW/MID/HIGH</td>
<td>setting of squelch level</td>
</tr>
<tr>
<td>Delete Ch.</td>
<td>-/1/2/3/4/5/6/7/8/9</td>
<td>deletes selected memory position</td>
</tr>
<tr>
<td>SW-Ver.</td>
<td>X.XX</td>
<td>shows software version</td>
</tr>
<tr>
<td>SVN-Nr.</td>
<td>XXXXX</td>
<td>shows SVN-No. (5 digits)</td>
</tr>
<tr>
<td>Exit</td>
<td></td>
<td>back to CHANNEL mode</td>
</tr>
</tbody>
</table>

The last menu item is labelled "Exit". When this is selected and the right button ® is pressed, the FSG 8 will go back to CHANNEL mode and displays channel F.
4.9 MEMORY Mode

Pressing the right button for at least 3 seconds in FREQUENCY mode, switches to the MEMORY mode and enables the storing of the indicated frequency into one of the 10 channel memories. This will cause the mode indicator to show underlined "F" respectively 1 – 9".

With the left button, the location can be selected where the channel shall be stored. The FSG8 will allow either to overwrite one of the already assigned memory positions or offer the next free position. E.g. when memory 1 and 2 are occupied, the FSG8 will offer memory position 1, 2 or 3.

When the desired station number is shown, pressing the right button for at least 3 seconds will write the current channel into that memory position and bring the FSG8 into CHANNEL mode using the selected channel. The LED status indication shows the saving of the channel with a green light.

Alternatively, pressing the left button for at least 3 seconds will cause the FSG8 to leave the MEMORY mode and go back into CHANNEL mode without writing into any memory position.
5 ACCESSORIES

5.1 Overview

The accessory jack ➃ allows connection of accessories for various applications and operating conditions.

When an external dynamic microphone of < 200 Ω DC impedance is connected, the built-in microphone is automatically switched OFF.

In noisy environment a second loudspeaker or a noise canceling headphone with at least 30 Ω is recommended.

5.2 Pin assignment

➊ Earphone/headphone/loudspeaker, at least 30 Ω

➋ Dynamic or special Electret microphone, 5 … 600 Ω

➃ +11.7 … 15.1 V DC

input to charge the battery

output (switched) to supply VOX 90 and/or special Electret microphone

supply from 12 V DC car or aircraft battery.

➍ Microphone Ground

➎ Ground (minus power; GND for PTT, AF)

➏ PTT button; common return by ➋ (GND)

![Accessory jack ➃ top view](image)
6 SHUTTING DOWN - STORAGE

For transport or storage switch off the device (volume switch \(\circ\) to OFF). Storage of the radio should be done with fully charged batteries at an ambient temperature of 0 °C... +40 °C.

A self-discharge of the batteries in the off state is allowed.

Protect your radio from moisture and weather.

Avoid deep discharge of the accumulators, as this can destroy the battery pack

To avoid deep discharge of the accu pack, it should be charged every three months latest.
7 FUNCTIONAL CHECKS

7.1 Trouble Shooting

If the transceiver does not operate correctly, check the following:

- Is channel correctly set?
- Is battery capacity sufficient? Carry out a battery test without any charger connected!
- Weak signals? Switch OFF the squelch!
- Is the transceiver's helical antenna vertically held or is it screened by the operator's body?
- Operate radio without any accessory. Same malfunction?
- Are helical antenna or antenna plug/cable damaged?
- Is voice level too low or distance to microphone too far?
- Does multipath effect occur? Change location.
- At radio interference change location. Suppress interference of your car/airplane.

In case of doubt, compare operation of the transceiver with another transceiver on the same location or call another station. Should the unit require service, please contact your nearest authorized dealer or certified repair station.

7.2 Siting

The radio operates in the VHF frequency band, this is a Line-Of-Sight (LOS) frequency; therefore, siting of the radio greatly affects its operating range. The longest range is normally obtained when a direct LOS is maintained between the radios. Use of hilltop or tower locations will increase the LOS range. Location in valleys with intervening hills, behind buildings or in dense woods may reduce or prevent communications. If possible, avoid locations near electrical interference sources, such as power and telephone lines, radar's, welders and electrical generators.
8 SAFETY INFORMATION

Every radio, when transmitting, radiates energy into the atmosphere that may, under certain conditions, cause the generation of sparks. All users of our radios should be aware of the following warning:

Do not operate radio near flammable liquids or nearby explosive devices.

During normal use, the radio will subject you to radio energy substantially below the level where any kind of harm is reported.

To ensure personal safety, please observe the following simple rules:

- The radio FSG8 can get hotter than + 50 °C / + 122 °F due to high ambient temperature, e.g. sunlight. Then use appropriate gloves to operate the radio!
- DO NOT transmit when the antenna is very close to, or touching, exposed parts of the body, especially the face and eyes.
- DO NOT transmit inside vehicles or aircraft with the helical antenna, always operate the radio with a suitable external antenna. Assure appropriate lightning protection where elevated outdoor antennas are used.
- DO NOT hold the transmit (PTT) key in when not actually desiring to transmit.
- DO NOT allow children to play with any radio equipment containing a transmitter.
- DO NOT operate the radio whilst driving. It should also be noticed that the use of a hand held microphone while driving could constitute an offence under the Road Traffic Regulations.
9 FREQUENCY/CHANNEL PLAN

The following table lists some example values for indicated channel and the associated frequency. Please note that the same frequency has different channel indications depending on the operation mode (25 kHz or 8.33 kHz).

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>Channel spacing (kHz)</th>
<th>Indicated channel 25 kHz Mode</th>
<th>Indicated channel 8.33/25 kHz Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>118.0000</td>
<td>25</td>
<td>118.000</td>
<td>118.000</td>
</tr>
<tr>
<td>118.0000</td>
<td>8.33</td>
<td>118.000</td>
<td>118.005</td>
</tr>
<tr>
<td>118.0083</td>
<td>8.33</td>
<td>118.010</td>
<td>118.010</td>
</tr>
<tr>
<td>118.0166</td>
<td>8.33</td>
<td>118.015</td>
<td>118.015</td>
</tr>
<tr>
<td>118.0250</td>
<td>25</td>
<td>118.025</td>
<td>118.025</td>
</tr>
<tr>
<td>118.0250</td>
<td>8.33</td>
<td>118.030</td>
<td>118.030</td>
</tr>
<tr>
<td>118.0333</td>
<td>8.33</td>
<td>118.035</td>
<td>118.035</td>
</tr>
<tr>
<td>118.0416</td>
<td>8.33</td>
<td>118.040</td>
<td>118.040</td>
</tr>
<tr>
<td>118.0500</td>
<td>25</td>
<td>118.050</td>
<td>118.050</td>
</tr>
<tr>
<td>118.0500</td>
<td>8.33</td>
<td>118.055</td>
<td>118.055</td>
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<tr>
<td>118.0583</td>
<td>8.33</td>
<td>118.060</td>
<td>118.060</td>
</tr>
<tr>
<td>118.0666</td>
<td>8.33</td>
<td>118.065</td>
<td>118.065</td>
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<tr>
<td>118.0750</td>
<td>25</td>
<td>118.075</td>
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<tr>
<td>118.0750</td>
<td>8.33</td>
<td>118.080</td>
<td>118.080</td>
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<td>118.0833</td>
<td>8.33</td>
<td>118.085</td>
<td>118.085</td>
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<tr>
<td>118.0916</td>
<td>8.33</td>
<td>118.090</td>
<td>118.090</td>
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<tr>
<td>118.1000</td>
<td>25</td>
<td>118.100</td>
<td>118.100</td>
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<tr>
<td>118.1000</td>
<td>8.33</td>
<td>118.105</td>
<td>118.105</td>
</tr>
<tr>
<td>etc.</td>
<td>etc.</td>
<td>etc.</td>
<td>etc.</td>
</tr>
</tbody>
</table>
10  TECHNICAL DATA

Frequency range: 118.000 MHz … 136.975 MHz

Number of channels: 760 channels (25 kHz)
2278 channels (8.33 kHz), free selectable

Frequency accuracy: < ± 1 ppm at -20°C … +55°C

RF carrier output: 1.5 Watt typ./ 50 Ω at 12 V_Batt

AF output power: 0.7 Watt / 8 Ω @ 12 Vdc

Sensitivity: -103 dBm (SINAD 12 dB / m = 0.3)

AGC range: ≤ 6 dB / 5 μV … 100 mV / m = 0.3

Microphone threshold voltage 1.1 mV (m=0.85)

Charging voltage: 14.0 … 17.0 Vdc external

Built-in battery: Ni-MH 12 Vdc / 1.5 Ah nominal

Operating time: 6 hrs at 80% RX / 20% TX
(Normal condition) 7 hrs at 90% RX / 10% TX
17 hrs at 40% RX / 60% standby

Power consumption: Transmit 500 mA typical
Receive 200 mA typical
Standby 14 mA typical

Operating temperature: -10 °C … +55 °C / -4 °F … +131 °F
(with battery pack E51388)

Charging temperature: 0°C … +40°C / +32 °F … 104 °F

Dimensions: 209 x 84 x 44.5 mm w/out antenna

Weight: ca. 810 g / 1.8 lbs.

Via accessory jack: Connection of battery charger, external 12 Vdc supply, protected 12 Vdc output for special accessory, additional dyn. microphone 5 to 600 Ω, additional ear/headphone min. 30 Ω, external PTT key.

Robust aluminum die-cast housing, sidetone via headphone, matrix LCD with 184(H) × 38(V) pixel for display of frequency and charging status.
11 LIST OF ACCESSORIES

Following articles can be ordered separately as accessory:

<table>
<thead>
<tr>
<th>Article-No.</th>
<th>Article Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>F10198</td>
<td>NiMh/NiCad automatic rapid charger DL-5 A, 115/230 VAC, 250 mA, 4 hrs</td>
</tr>
<tr>
<td>F10059</td>
<td>NiMh/NiCad charger for FSG 4/5/8</td>
</tr>
<tr>
<td>F10027</td>
<td>12V car DC supply cable, coiled cord, 6-pole connector</td>
</tr>
<tr>
<td>F10044</td>
<td>Dyn. hand-microphone/loudspeaker, coiled cord, 6-pole connector, sealed</td>
</tr>
<tr>
<td>E24906</td>
<td>Holding clamp device for F10044</td>
</tr>
<tr>
<td>W00049</td>
<td>Dynamic headset, noise cancelling, coiled cord, 4-pole plug U-174/U</td>
</tr>
<tr>
<td>F10052</td>
<td>Inline PTT key U-94 A/U with clamp, coiled cord, for headset W00048 or helmet, 6-pole connector, for FSG4, FSG5, FSG8</td>
</tr>
<tr>
<td>W00044</td>
<td>Universal leather pocket for FSG4, FSG5, FSG8 with 1 carrying strap</td>
</tr>
<tr>
<td>W00023</td>
<td>Additional carrying strap for pocket W00044</td>
</tr>
<tr>
<td>W00043</td>
<td>Magnet mount antenna, 4m cable, UHF connector</td>
</tr>
<tr>
<td>W00114</td>
<td>Rod antenna, swivel type, 4 m cable, FME-connection</td>
</tr>
<tr>
<td>W00126</td>
<td>FME/TNC-Adapter for use with Rod Antenna W00114</td>
</tr>
<tr>
<td>F10035</td>
<td>Adapter cable for W00048, coiled cord, 6-pole plug / 4-pole socket</td>
</tr>
<tr>
<td>E08976</td>
<td>TNC antenna connector for RG-58C/U, solder type</td>
</tr>
<tr>
<td>11-9BP6P</td>
<td>Accessory connector for FSG4, FSG5, FSG8, 6-pole</td>
</tr>
<tr>
<td>E51388</td>
<td>NiMh replacement battery 12V/1.500 mAh, for FSG4, FSG5, FSG8</td>
</tr>
<tr>
<td>E51359</td>
<td>Spare helical antenne for FSG4, FSG5, FSG8</td>
</tr>
</tbody>
</table>
12 CERTIFICATION

Bundesaufsichtsamt für Flugsicherung

Urkunde

Ein(e) Handfunkgerät für Bodenfunkstellen des Flugfunkdienstes

Typ FSG8 in dem im Anhang zur Zulassungsurkunde festgelegten Konfigurationsständen.

Frequenzbereich 118 – 136,975 MHz

Kanalraster 8,33 kHz / 25,00 kHz

der Firma f.u.n.k.e.AVIONICS GmbH
Heinz-Strachowitz-Str. 4
86807 Buchloe

für die Betriebsart 6K80A3EJN (25 kHz) / 5K00A3EJN (8,33 kHz)

ist auf Einhaltung der Anforderungen an Anlagen und Geräte für Zwecke der Flugsicherung gemäß § 4 Flugsicherungs-Anlagen- und Geräte-Musterzulassungs-Verordnung (FSMusterzulV) geprüft worden.


Es wird daher als Muster mit den umsichtig aufgeführten Auflagen in der Bundesrepublik Deutschland zugelassen.

Der Gerätetyp hat die Zulassungsnummer D-0061/2019 erhalten.

Bundesaufsichtsamt für Flugsicherung
Langen, den 15.07.2019

Im Auftrag

[Signature] Bodo Heinzl
Obligation:
The approval of the handheld radio FSG8 only applies to the configuration status listed in the appendix to the approval certificate.
The approval applies to devices starting from the Part Number variant: **F10800- (105) - (101)**

The type approval does not replace the factory acceptance and technical / operational acceptance tests to be performed by the operator.

Compliance with the legal and technical requirements of the equipment for operational use shall be validated by the operator on the basis of the acceptance tests.

Nevertheless, the operator has to ensure the long-term security of the signals and reliabilities required for its operational use.
Operating Instructions

Certificate Holder: funke AVIONICS GmbH
Heinz-Strachwitz-Str. 4
8807 Bachioe
Germany

Product Manufacturer: See Certificate Holder

Product Designation: FSG8

Product Description: Handheld VHF AM Airband Transceiver

Conformity Assessment:

<table>
<thead>
<tr>
<th>Essential requirements</th>
<th>Examined documentation</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>Technical documentation including test report</td>
<td>conform</td>
</tr>
<tr>
<td>RED, Article 3.1a</td>
<td>Technical documentation including test report</td>
<td>conform</td>
</tr>
<tr>
<td>Health</td>
<td>Technical documentation including test report</td>
<td>conform</td>
</tr>
<tr>
<td>RED, Article 3.1a</td>
<td>Technical documentation including test report</td>
<td>conform</td>
</tr>
<tr>
<td>EMC</td>
<td>Technical documentation including test report</td>
<td>conform</td>
</tr>
<tr>
<td>Radio spectrum</td>
<td>Technical documentation including test report</td>
<td>conform</td>
</tr>
<tr>
<td>RED, Article 3.2</td>
<td>Technical documentation including test report</td>
<td>conform</td>
</tr>
</tbody>
</table>

EU Type Examination Certificate:
In accordance with Annex II of the European Council Directive 2014/53/EU on radio equipment, our opinion is that this equipment type complies with the essential requirements stated above.

Marking:
The product shall be marked with the CE marking as required in the Council Directive 2014/53/EU.

Annexes:
The certificate is only valid in conjunction with the following number of annexes: 1

Validity:
Conformity is provided unless changes/modifications have been done to the standard and/or assessed type of equipment.

Certificate Registration No.: T818488L-01-TEC

C.T.C advanced GmbH

Authorized signature / TUE

Seerbrücken
13 EU DECLARATION OF CONFORMITY

EG-Konformitätserklärung zur Richtlinie 2014/53/EU

EC-Declaration of Conformity to Directive 2014/53/EC

CE-Déclaration de conformité à la directive 2014/53/CE

<table>
<thead>
<tr>
<th>Hersteller: Manufacturer/fabricant:</th>
<th>f.u.n.k.e. AVIONICS GmbH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anschrift: Adresse/adresse:</td>
<td>Heinz-Strachowitz-Str. 4, D-86807 Buchloe, Germany</td>
</tr>
<tr>
<td>Produktbezeichnung: Product name:</td>
<td>VHF Bodenfunkstelle, Handfunkgerät, mobil</td>
</tr>
<tr>
<td>Nom du produit:</td>
<td>Ground-based VHF transceiver, hand-held, mobile</td>
</tr>
<tr>
<td>Typen: Types/types:</td>
<td>Émetteur-récepteur VHF au sol, portative, mobile</td>
</tr>
<tr>
<td>Produktbeschreibung: Product description: Description du produit:</td>
<td>FSG 8</td>
</tr>
</tbody>
</table>

VHF Handfunkgerät bestehend aus Hardware und Software (Firmware) zur Verwendung als mobile Bodenfunkstelle für den mobilen Flugfunk.

VHF hand-held transceiver comprising hardware and software (firmware) to be used as a mobile ground radio station.

Émetteur-récepteur portative VHF, comprenant le matériel et le logiciel (microprogramme) d’être utilisé comme une station de radio mobile.

**Technische Daten:**
- Gewicht: ca. 810 g
- 25 KHz and 8.33 KHz Raster
- Ausgangsleistung: typ. 1.5 Watt / 5 Watt PEP
- Arbeits Temperaturbereich: -10 bis +55 °C
- Abmessungen: 209 x 84 x 44.5 mm (ohne Antenne)
- Frequenzbereich: 118,000 bis 136,975 MHz

**Technical Data:**
- Weight: approx. 810 g
- 25 KHz and 8.33 KHz channel spacing
- Output power: typ. 1.5 watts / 5 watts PEP
- Operating temperature: -10 to +55 °C
- Dimensions: 209 x 84 x 44.5 mm (without antenna)
- Frequency range: 118,000 to 136,975 MHz

**Données techniques:**
- Poids: env: 810 g
- espace de 25 KHz et 8,33 KHz
- Puissance de sortie: typ. 1.5 watts / 5 watts PEP
- Température de fonctionnement: -10 à +55 °C
- Dimensions: 209 x 84 x 44.5 mm (sans antenne)
- Gamme de fréquences: 118,000 à 136,975 MHz
Wir erklären in alleiniger Verantwortung, dass die oben bezeichnete Produkte mit folgenden Europäischen Richtlinien und Verordnungen übereinstimmen:

We declare under our sole responsibility that above products are in conformity with the following directives and regulations:

Décloram sous notre seule responsabilité, que les produits repondent aux directives et réglements suivantes:

<table>
<thead>
<tr>
<th>Angewandte harmonisierte Normen und technischen Spezifikationen:</th>
<th>2014/53/EG</th>
<th>Funkanlagen-Richtlinie</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERFAHREN ZUR BESWERTUNG DER KONFORMITÄT:</td>
<td>(EG) 552/2004</td>
<td>Verordnung Interoperabilität</td>
</tr>
<tr>
<td>Conformity assessment procedures:</td>
<td>(EC) 552/2004</td>
<td>Interoperability Regulation</td>
</tr>
<tr>
<td>Étapes d'évaluation de la conformité:</td>
<td>(CE) 552/2004</td>
<td>Règlement sur l'interopérabilité</td>
</tr>
<tr>
<td>CTC advanced GmbH, No. 0682</td>
<td>1079/2012</td>
<td>Durchführungsverordnung Sprachkanalabstand</td>
</tr>
<tr>
<td>Certificate Registration No.: T818488L-01-TEC</td>
<td>1079/2012</td>
<td>Implementing Regulation Voice Channel Spacing</td>
</tr>
<tr>
<td>Benannte Stelle gemäß 2014/53/EG und Nummer der EG Baumusterprüfbescheinigung:</td>
<td>1079/2012</td>
<td>Règlement d'exécution espacement des canaux de communication vocale</td>
</tr>
<tr>
<td>Notified Body acc. to 2014/53/EC and number of the EC type examination certificate:</td>
<td>1079/2012</td>
<td></td>
</tr>
<tr>
<td>Organisme agréé à 2014/53/CE et numéro du certificat de test CE:</td>
<td>1079/2012</td>
<td></td>
</tr>
<tr>
<td>Ort, Datum der Ausstellung (Place, date of issue)/(Lieu, date de l'édition)</td>
<td>Buchloe, 07.06.2019</td>
<td></td>
</tr>
<tr>
<td>Revision: 1.2</td>
<td></td>
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</tr>
</tbody>
</table>

Diese Erklärung bezieht sich auf die Betrachtung der Gebrauchstauglichkeit innerhalb des Flugverkehrsmanagementumfeldes zur VO (EG) Nr. 552/2004. This statement refers to the consideration of the suitability for use within the air traffic management environment to regulation (EC) no. 552/2004. Cette déclaration se réfère à l'examen de l'aptitude à l'usage au sein de l'environnement de gestion du trafic aérien au règlement (CE) no. 552/2004.

Dr. Thomas Wittig
ATTENTION – CONDITIONS OF USAGE

Das handheld transceiver FSG8 works on frequencies that are regulated and not permitted to be used without authorisation in the EU countries shown in the table below.

Users of this equipment should check with their local spectrum management authority for licensing conditions applicable for this equipment.

<table>
<thead>
<tr>
<th>AT</th>
<th>BE</th>
<th>BG</th>
<th>CY</th>
<th>CZ</th>
<th>DE</th>
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</thead>
<tbody>
<tr>
<td>DK</td>
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<td>HR</td>
<td>HU</td>
<td>IE</td>
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<td>LT</td>
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<td>CH</td>
<td>IS</td>
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<tr>
<td>LI</td>
<td>NO</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
15 RELIABILITY INFORMATION

For normal operating conditions (0°C to 40°C) as a mobile ground station, the calculated MTBF (Mean Time Between Failures) is > 13 000 hours (according to MIL-HDBK-217F).

The average repair time MTTR (Mean Time to Repair) is approx. 2 weeks, including transportation and the time for repair or replacement of the device.
### 16 DISPOSAL

| Symbol | Umweltinformationen für Kunden innerhalb der Europäischen Union  
|        | Regulatory and Compliance/WEEE Legislation within the European Union |


According to the European directive 2002/96/EC on waste electrical and electronic equipment (WEEE) an the amendment 2008/34/EC: Products, that are marked with the above symbol directly at the device and/or at the packaging, may not to be disposed together with ordinary waste, but have to be disposed using the appropriate differentiated collection centres for electronic and electro waste. Appropriate differentiated waste collection and recycling helps to prevent possible negative environmental and health effects. If you need additional information about the disposal of your products after the end of their working life, please contact your local authorities or municipal waste disposal organisation, or the dealer you have purchased the product from.
Notes:
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Heinz-Strachowitz-Str. 4
DE-86807 Buchloe
Germany

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fax.: +49-8241 80066 99
E-mail:
  service@funkeavionics.de
  www.funkeavionics.de