



# User manual

SG Compact

VER 1.3

## FCC Compliance statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.



Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Spectrum Compact does not contain serviceable parts. Warranty will not be applicable in the event Spectrum Compact has been opened.

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To get up to date information about accessories and their availability, please contact sales representative.

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# 1 OVERVIEW

## 1.1 Front view



## 1.2 Technical specification

P/N	JOSSAG11	JOSSAG12	JOSSAG13	JOSSAG14
Frequency bands	6/7/8/10/11 GHz	10/11/13/15/17 GHz	17/18/23/24 GHz	24/26/30/32/38 GHz
Frequency range	5.925-12.000 GHz	10.000-18.000 GHz	17.000-24.300 GHz	24.000-40.000 GHz
Output power range	-3...+13 dBm	-3...+11 dBm	-3...+10 dBm	-3...+5 dBm
Adjustable frequency step	1 MHz			
Adjustable power step	1 dBm			
Signal form	Continuous wave			
Guaranteed accuracy	+/- 1 dBm			
Interface	mini USB 2.0 (1.1)			
Operating temperature	-15°C to +40°C / 5°F to 104°F			
Battery	LiPo 2200 mAh (3.7V)			
Battery life	up to 4h		up to 3h	
Output	50 ohm SMA (f)		50 ohm 2.92mm (f)	
Dimensions	128 x 81 x 24 mm / 5.04 x 3.2 x 0.94 in		130 x 81 x 28 mm / 5.11 x 3.2 x 1.1 in	
Weight	0.3 kg / 10.6 oz		0.4 kg / 14.11 oz	

## 1.3 Unpacking

Before opening, please inspect the package for any visible damage.  
The following accessories are available:



SG Compact accessories

- 1 – AC/DC USB charger with USB cable;
- 2 – Leather bag for Spectrum Compact (P/N JOAPAC11);
- 3 – Attenuators 20/40dB or 60dB kit;
- 4 – Watertight, crush and dust proof case for Spectrum Compact (P/N JOSPAC03);
- 5 – Rugged RF cable, 2.92mm-2.92mm, 0.3 m (P/N JOACRF02);

**6** – Waveguide adapter UBR to SMA:

- P/N J0S07WA004: UBR84 to SMA, 5.9 –10 GHz, WR112;
- P/N J0S10WA003: UBR100 to SMA, 8.2–12 GHz, WR90;
- P/N J0S15WA003: UBR140 to SMA, 12–17 GHz, WR62;
- P/N J0S22WA003: UBR220 to SMA, 17–24.3 GHz, WR42;
- P/N J0S26WA001: UBR260 to SMA, 22–33 GHz, WR34;
- P/N J0S38WA001: UBR320 to SMA, 26–40 GHz, WR28;

**7** – Rifle scope, tripod and case for sniffer antennas (P/N JOAASA01, JOAASA02, JOAASA03);**8**– Horn antennas:

- P/N JOAA0610HG02: SMA connector, 6.0–10.0 GHz, Gain: 14.5–18.0dBi;
- P/N JOAA1115HG01: UBR120 flange; 10.7–15.35 GHz, Gain: 19.5–20.5dBi;
- P/N JOAA1724HG01: UBR220 flange; 17.0–24.5 GHz, Gain: 21.0–21.5dBi;

**9** – Lanyard (P/N JOAPAC21).

## 1.4 Initial power-up

Slide power switch towards the red dot (●) to power on your SG Compact. If the battery meter is indicating **LOW BATTERY**, connect USB charger via USB connector and charge the SG Compact. Full charging cycle (with 1A power source) is approximately 5 hours.

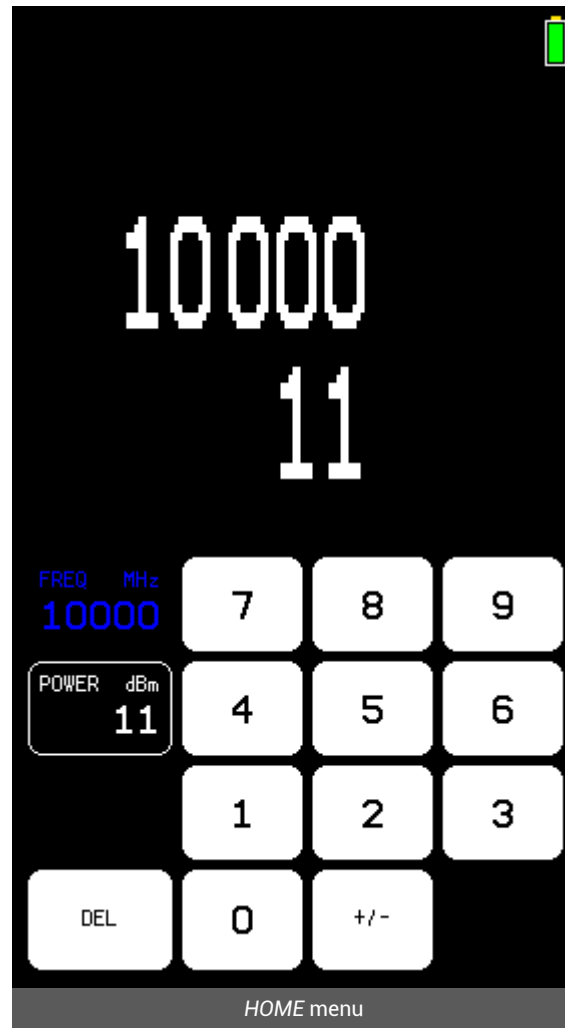
Operation time with a fully charged battery is up to 4 hours for P/N JOSSAG11/JOSSAG12/JOSSAG13 and up to 3 hours for P/N JOSSAG14. Using a SG Compact while charging it via USB will prolong its operation time by approximately 1 hour, but it can't ensure continuous operation.

## 1.5 Connecting to antenna

- 1) Select external filters (if necessary) and connect them according to chapter 3 **ADDING FILTERS**.
- 2) Connect an appropriate 50  $\Omega$  coaxial cable to SG Compact.
- 3) Attach the waveguide adapter to an antenna or radio flange.
- 4) Attach the coaxial cable to the waveguide adapter.



## 2 USING SG COMPACT



FREQ – The frequency field allows setting a *CENTRE* frequency of SG Tx frequency.  
POWER – Allows you to set SG Tx power in dBm.



! Output power range depends on SG model.

SG Compact 6–12 GHz (P/N J0SSAG11) Tx power range is -3...+13dBm.

SG Compact 10–18 GHz (P/N J0SSAG12) Tx power range is -3...+11dBm.

SG Compact 17-24.3 GHz (P/N J0SSAG13) Tx power range is -3...+10dBm.

SG Compact 24-40 GHz (P/N J0SSAG14) Tx power range is -3...+5dBm.

# 3 ADDING FILTERS

## 3.1 Overview

In order to use SG Compact in the field it is necessary to use external filters. Filters ensure filtration of additional harmonics which occur in the device's mixer.

The tables below summarize filters' usage with appropriate SG Compact units.

SG unit*	Filter	Frequency band, GHz															
		6	7	8	10	11	13	15	17	18	23	24	26	28	32	38	42
JOSSAG11	JOALPF09	•	•	•													
JOSSAG12	JOALPF14				•	•	•	×	×								
JOSSAG13	JOS22WAF01								•	•	×	×					
JOSSAG14	JOS38WAF01											•	•	•	•	×	×

\*See Chapter 1.2. **Technical specification** further details.

Legend:

•	Corresponding filter should be used at this frequency band.
×	Filter usage is not required as harmonics for particular SG Compact comply with levels defined by radio standard.
	The SG Compact unit does not support these frequencies.

Filters:

P/N	Description
JOALPF09	Low pass filter with cut-off frequency 9 GHz
JOALPF14	Low pass filter with cut-off frequency 14 GHz
JOS22WAF01	Low pass filter/waveguide-to-coax converter with cut-off frequency 21 GHz
JOS38WAF01	Low pass filter/waveguide-to-coax converter with cut-off frequency 33 GHz



Low pass filter with cut-off frequency 9 GHz  
P/N JOALPF09



Low pass filter with cut-off frequency 14 GHz  
P/N JOALPF14





Low pass filter/waveguide-to-coax converter with cut-off frequency 21 GHz  
P/N J0S22WAF01



Low pass filter/waveguide-to-coax converter with cut-off frequency 33 GHz  
P/N J0S38WAF01

### 3.2 Connecting filters to SG Compact



SG Compact interconnected with low pass filter  
P/N J0ALPF14



SG Compact interconnected with low pass filter  
P/N J0ALPF09



SG Compact interconnected with low pass filter/ waveguide-to-coax converter P/N J0S22WAF01

# CONTACTS

## Global headquarters

### **SAF Tehnika JSC**

VAT No. LV40003474109

#### **OFFICE, MANUFACTURING AND LEGAL ADDRESS:**

24a, Ganību Dambis

Rīga, LV-1005, Latvia

#### **E-MAIL:**

[info@saftehnika.com](mailto:info@saftehnika.com)

#### **TECHNICAL SUPPORT E-MAIL:**

[techsupport@saftehnika.com](mailto:techsupport@saftehnika.com)

**PHONE:** +371 670 468 40

**FAX:** +371 670 468 09

## North America office

### **SAF North America LLC**

#### **OFFICE ADDRESS:**

3250 Quentin Street,

Unit 128, Aurora CO 80011

#### **E-MAIL:**

[salesna@saftehnika.com](mailto:salesna@saftehnika.com)

#### **TECHNICAL SUPPORT E-MAIL:**

[techsupport@saftehnika.com](mailto:techsupport@saftehnika.com)

**PHONE:** 720 502 0724

Office hours: Monday – Friday

9:00 AM – 6:00 PM, UTC/GMT +3 hours