VOLTCRAFT FG-1302 (VC-13082820)

VOLTCRAFT FG-1302 Function Generator User Manual

Model: FG-1302 (VC-13082820)
Brand: VOLTCRAFT

1. INTRODUCTION

This manual provides comprehensive instructions for the safe and efficient operation of the VOLTCRAFT FG-1302 Function Generator. The FG-1302 is a versatile, mains-powered device designed for generating various waveforms across a wide frequency range. It features two independent channels, a high-resolution display, and supports SCPI commands for remote control.

Key Features:

- Frequency output up to 30 MHz
- Frequency resolution of 1 µHz
- Two independent output channels
- 9.14 cm (3.6") TFT LCD display (480 x 272 pixels)
- SCPI command support for remote control
- Durable and robust construction

2. SAFETY INFORMATION

Read all safety warnings and instructions carefully before operating the device. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- **Power Source:** Connect the device only to a mains power supply that matches the voltage and frequency specified on the device label.
- **Grounding:** Ensure the power cord is properly grounded. Do not defeat the grounding plug.
- **Environment:** Operate the device in a dry, well-ventilated area. Avoid exposure to moisture, extreme temperatures, or direct sunlight.
- **Ventilation:** Do not block ventilation openings. Adequate airflow is essential to prevent overheating.
- **Servicing:** Do not attempt to service the device yourself. Refer all servicing to qualified service personnel.

- **Cleaning:** Disconnect the power before cleaning. Use a soft, dry cloth. Do not use liquid cleaners or aerosol cleaners.

3. PACKAGE CONTENTS

Verify that all items are present and in good condition upon unpacking. If any items are missing or damaged, contact your supplier immediately.

- VOLTCRAFT FG-1302 Function Generator
- Power Cord
- USB Cable (for SCPI control)
- User Manual (this document)
- BNC to Alligator Clip Cables (quantity may vary)

4. PRODUCT OVERVIEW

The VOLTCRAFT FG-1302 features a user-friendly interface with a clear display and intuitive controls for efficient operation.

4.1 Front Panel Layout

The front panel houses the main display, control buttons, rotary knob, and output connectors.

Figure 4.1: Front view of the VOLTCRAFT FG-1302 Function Generator. This image displays the device from a slightly elevated angle, showcasing its main display, control buttons, rotary knob, and the two output channels (Out1 and Out2) with their BNC connectors. The display shows a sine wave with frequency, amplitude, offset, and phase settings. The device is black with a silver stand.

Figure 4.2: Front view of the VOLTCRAFT FG-1302 Function Generator. This image provides a direct front view, highlighting the display which shows a square wave and its associated parameters like frequency, period, amplitude, offset, and phase. The layout of the control buttons and the numerical keypad are clearly visible.

Figure 4.3: Angled view of the VOLTCRAFT FG-1302 Function Generator. This perspective shows the device from the front-right, emphasizing its compact design and the ventilation grilles on the side. The front panel display and controls are still prominent, with the display showing a sine wave.

Figure 4.4: Another angled view of the VOLTCRAFT FG-1302 Function Generator. Similar to Figure 4.3, this image provides a slightly different angle, showcasing the device's front panel and the side ventilation. The display shows a square wave, and the overall robust build of the instrument is evident.

4.2 Controls and Connectors

- **Display:** 9.14 cm (3.6") TFT LCD for waveform visualization and parameter settings.
- **Rotary Knob:** Used for adjusting parameter values and navigating menus.
- **Function Buttons:** Dedicated buttons for waveform selection (Sine, Square, Pulse, Ramp, Arbitrary, Noise, etc.).
- **Numerical Keypad:** For direct entry of numerical values (frequency, amplitude, offset).
- **Channel Output Buttons (On/Off):** Activate or deactivate output for Channel 1 (Out1) and Channel 2 (Out2).
- **Output Connectors (Out1, Out2):** BNC connectors for signal output.
- **Utility Button:** Accesses system settings and utility functions.
- **Power Button:** Turns the device on or off.
- **USB Port (Rear Panel):** For connecting to a computer for SCPI control.
- **Mains Power Input (Rear Panel):** For connecting the power cord.

5. SETUP

1. **Placement:** Place the function generator on a stable, level surface with adequate ventilation around the unit. Ensure it is away from direct heat sources or excessive moisture.

2. **Power Connection:**

    ○ Ensure the power switch is in the OFF position.

    ○ Connect the provided power cord to the mains power input on the rear panel of the FG-1302.

    ○ Plug the other end of the power cord into a grounded AC power outlet.

3. **Initial Power On:** Press the Power button on the front panel to turn on the device. The display will illuminate, and the system will perform a self-test.

4. **Output Connection:** Connect your test leads (e.g., BNC to alligator clips) to the desired output connector (Out1 or Out2) on the front panel. Connect the other end of the leads to your test circuit or device.

5. **USB Connection (Optional):** If you plan to control the device via SCPI commands from a computer, connect the USB cable from the rear USB port of the FG-1302 to an available USB port on your computer. Install any necessary drivers as per the manufacturer's website or included software.

6. OPERATING INSTRUCTIONS

6.1 Basic Waveform Generation

1. **Select Channel:** If operating in dual-channel mode, ensure the desired channel (CH1 or CH2) is selected or active. The display will show the active channel's settings.

2. **Choose Waveform:** Press the corresponding function button (e.g., Sine, Square, Ramp) to select the desired waveform type. The display will update to show the selected waveform and its default parameters.

3. **Set Frequency:**

    ○ Use the rotary knob to adjust the frequency value.

    ○ Alternatively, use the numerical keypad to directly enter the frequency value, then press the appropriate unit button (e.g., MHz, kHz, Hz).

4. **Set Amplitude:**

    ○ Use the rotary knob to adjust the amplitude (Vpp - Volts peak-to-peak).

    ○ Alternatively, use the numerical keypad to directly enter the amplitude value, then press the appropriate unit button (e.g., Vpp, mVpp).

5. **Set Offset (DC Offset):**

    ○ Use the rotary knob or numerical keypad to set the DC offset voltage.

6. **Enable Output:** Press the "On/Off" button corresponding to the channel (Out1 or Out2) to enable the signal output. The button will typically illuminate or change color to indicate the output is active.

6.2 Advanced Functions (Refer to full manual for details)

- **Arbitrary Waveforms:** Load and generate custom waveforms.
- **Modulation:** Apply AM, FM, PM, FSK, ASK, PSK, PWM modulation.
- **Sweep Function:** Generate signals that sweep across a frequency range.
- **Burst Function:** Generate a specific number of waveform cycles.
- **Frequency Counter:** Measure external frequencies.

- **System Settings:** Adjust display brightness, language, and other system parameters via the Utility menu.

7. MAINTENANCE

Proper maintenance ensures the longevity and reliable operation of your FG-1302 Function Generator.

- **Cleaning:** Regularly clean the exterior of the device with a soft, dry, lint-free cloth. For stubborn dirt, a slightly damp cloth with mild detergent can be used, ensuring no liquid enters the device. Always disconnect power before cleaning.
- **Ventilation:** Periodically check that the ventilation openings are free from dust and debris. Use a soft brush or compressed air to clear any blockages.
- **Storage:** When not in use for extended periods, store the device in a cool, dry place, away from direct sunlight and extreme temperatures.
- **Calibration:** For precise measurements, periodic calibration by a qualified service center is recommended. Refer to the manufacturer's guidelines for recommended calibration intervals.

8. TROUBLESHOOTING

This section addresses common issues you might encounter. For problems not listed here, contact technical support.

Problem	Possible Cause	Solution
Device does not power on.	No power supply; Power cord loose; Power switch off; Blown fuse.	Check power outlet; Ensure power cord is securely connected; Turn power switch ON; Check and replace fuse if necessary (refer to service manual).
No signal output.	Output channel not enabled; Amplitude set to zero; Incorrect cable connection; Device in standby mode.	Press the "On/Off" button for the desired channel; Adjust amplitude to a non-zero value; Verify BNC cable connections; Ensure device is not in a low-power or standby state.
Display is blank or frozen.	System error; Software glitch.	Turn off the device, wait 10 seconds, then turn it back on. If the problem persists, contact technical support.
Incorrect waveform or frequency.	Incorrect settings; External interference.	Verify all waveform parameters (frequency, amplitude, offset, type); Check for external noise sources or improper grounding.

9. SPECIFICATIONS

Technical specifications for the VOLTCRAFT FG-1302 Function Generator.

Parameter	Value
Model Number	VC-13082820
Brand	VOLTCRAFT
Frequency Output	Up to 30 MHz
Frequency Resolution	1 µHz

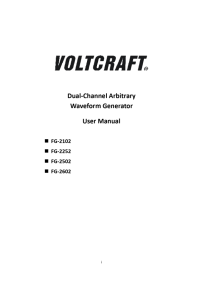| Parameter	Value
Channels	2
Display	9.14 cm (3.6") TFT LCD (480 x 272 pixels)
SCPI Support	Yes
Dimensions (L x W x H)	9 x 4 x 13 cm
Weight	1 kilogram
Material	Plastic
Color	Black

10. WARRANTY AND SUPPORT

The VOLTCRAFT FG-1302 Function Generator comes with a standard manufacturer's warranty. Please refer to the warranty card included with your product or visit the official VOLTCRAFT website for detailed warranty terms and conditions.

For technical support, troubleshooting assistance, or service inquiries, please contact VOLTCRAFT customer service through their official website or the contact information provided in your product packaging. When contacting support, please have your model number (FG-1302 / VC-13082820) and purchase details ready.

Related Documents - FG-1302 (VC-13082820)

	[VOLTCRAFT FG-1302 / FG-1602 Dual-Channel Arbitrary Waveform Generator Datasheet](#) Detailed technical specifications and features for the VOLTCRAFT FG-1302 (30 MHz) and FG-1602 (60 MHz) Dual-Channel Arbitrary Waveform Generators, including waveform types, frequency characteristics, amplitude, modulation, and general specifications.
	[VOLTCRAFT Dual-Channel Arbitrary Waveform Generator User Manual](#) Comprehensive user manual for the VOLTCRAFT Dual-Channel Arbitrary Waveform Generator, covering models FG-2102, FG-2252, FG-2502, and FG-2602. Includes safety information, technical specifications, operation guides, and troubleshooting.