

# Off The Shelf - Waveform Generators

- Economical Off-the-Shelf Signal Generators with Dual Channels

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Signal generators are essential tools for developing, testing, and troubleshooting electronic circuits. For projects inspired by Stanley Meyer's technology, having a versatile and affordable dual-channel signal generator can be particularly useful for driving components, testing resonance, and creating pulse patterns. In this article, we will explore several economical, off-the-shelf signal generators that offer dual-channel functionality, describing their features and potential applications.

## 1. JDS6600 Signal Generator

The **JDS6600** is an economical dual-channel function generator that offers a wide range of waveforms, including sine, square, triangle, pulse, and arbitrary waveforms. This generator is capable of producing signals up to **60 MHz** (depending on the model), with adjustable amplitude, frequency, and duty cycle.

- **Dual-Channel Output:** The JDS6600 provides two independent channels, allowing you to generate two different waveforms simultaneously. You can adjust parameters such as frequency, phase shift, and amplitude independently for each channel, which is ideal for testing circuits that require two synchronized or complementary signals.
- **LCD Display:** The device features a clear LCD screen, making it easy to adjust and monitor waveform settings.
- **Application:** This signal generator is suitable for hobbyists and professionals needing an affordable way to experiment with dual-channel signals for applications such as driving transformers, triggering oscillators, or testing resonance conditions.

## 2. FeelTech FY6900 Function Generator

The **FeelTech FY6900** is another affordable, dual-channel signal generator, offering a maximum frequency of up to **60 MHz**. This device is popular among hobbyists and DIY electronics enthusiasts due to its versatility and ease of use.

- **Waveform Variety:** It can generate a wide range of waveforms, including sine, square, triangle, ramp, pulse, and arbitrary signals, making it versatile for different testing scenarios.
- **Dual Output:** The FY6900 features two fully independent output channels, allowing users to generate different waveforms with independent frequency, amplitude, and duty cycle settings. The dual-channel functionality makes it useful for creating complementary signals or testing differential circuits.
- **Modulation Options:** This signal generator supports amplitude modulation (AM), frequency modulation (FM), and pulse-width modulation (PWM), which adds significant value to the tool, making it ideal for more advanced applications, such as resonance testing or creating complex waveforms for energy research.

### 3. Koolertron DDS Function Generator

The **Koolertron DDS Function Generator** is an affordable digital signal generator that offers **dual-channel** functionality with a maximum frequency of up to **60 MHz**. It is a popular option for those who need a reliable generator without spending too much.

- **Dual-Channel Output:** The Koolertron signal generator allows for two independent outputs, each with configurable amplitude, frequency, and waveform type. It supports sine, square, triangle, and custom arbitrary waveforms.
- **USB Connectivity:** The Koolertron signal generator includes USB connectivity, allowing users to connect to a computer for remote control, data logging, and saving waveform parameters. This is a useful feature for those looking to conduct more systematic experiments.
- **Application:** With dual-channel capabilities, this generator is well-suited for experiments that require precise signal synchronization or testing components in different configurations.

### 4. SainSmart DDS140 Dual-Channel Signal Generator

The **SainSmart DDS140** is another economical solution for those looking for a dual-channel signal generator. This function generator is well known for its versatility and intuitive interface.

- **Dual Channels:** Both channels are fully adjustable, allowing for different waveform types, frequencies, and amplitudes. The output frequency is adjustable up to **40 MHz**, which is sufficient for most hobbyist-level testing and circuit development.

- **Modulation Capabilities:** The SainSmart DDS140 features frequency and amplitude modulation, which is useful for generating complex waveforms for more detailed circuit analysis.
- **User-Friendly Interface:** With an easy-to-read display and straightforward controls, the SainSmart DDS140 is ideal for beginners who want a simple yet effective tool for signal generation.

## 5. Hantek 6022BE PC-Based Oscilloscope with Function Generator

The **Hantek 6022BE** is an economical PC-based oscilloscope that also features a dual-channel function generator. This device is particularly interesting because it combines the capabilities of a signal generator and an oscilloscope into one affordable package.

- **PC Integration:** The Hantek 6022BE uses a USB connection to interface with your computer, allowing you to generate signals and analyze them using the same software. It can generate waveforms such as sine, square, and triangle, with adjustable amplitude and frequency.
- **Two-Channel Generator:** The built-in function generator allows for two channels of signal output, with adjustable frequency and amplitude. This feature is beneficial for projects that require simultaneous signal analysis.
- **Application:** This tool is ideal for those who want to combine waveform generation and signal analysis in a single, cost-effective package.

## Conclusion

Economical off-the-shelf signal generators with dual-channel functionality are valuable tools for developing and testing electronic circuits. The **JDS6600**, **FeelTech FY6900**, **Koolertron DDS**, **SainSmart DDS140**, and **Hantek 6022BE** each offer versatile solutions with distinct features that make them suitable for different applications.

Whether you are driving transformers, testing resonance conditions, or creating complementary signals for energy research, these affordable dual-channel signal generators provide the flexibility and functionality needed to meet your experimental requirements. By selecting the right tool for your needs, you can make your research more efficient and achieve better results without breaking the bank.