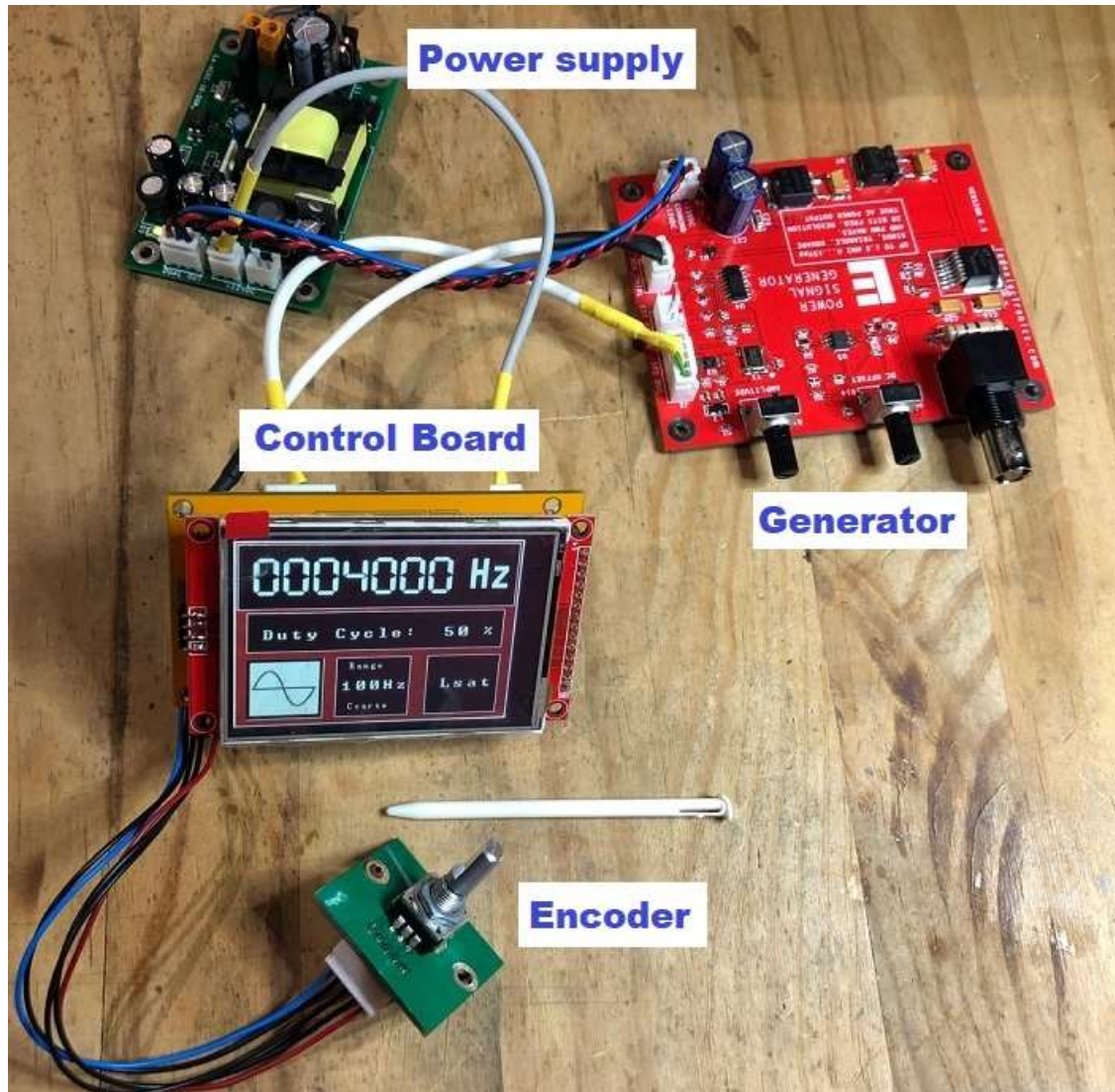


FUNCTION GENERATOR KIT



- Xmega256A3U CPU On Board
- Power Output Signal (Sine, Triangle, Square, PWM) up to 2.5 MHz
- 0...18V Vpp
- Overload and short circuit protection
- True AC output with frequency, amplitude and offset adjustment
- Output signal Current up to 1000 mA
- Touch screen and rotary encoder
- Supply voltage: 100V...230V AC

GENERATOR KIT Packing List

1. AC/DC Power supply Board
2. Xmega256A3U Control PCB (programmed)
3. Power generator Board
4. Display TFT2.8 with touch screen
5. Rotary Encoder
6. Interconnections cables
7. AC Line cable
8. Signal output coaxial cable with 50Ω connector
9. B type USB Connector for firmware upload
10. Touchpad pointer

This kit allows you to build a high-performance function generator, very useful in the analysis of various electronic circuits.

Everything is integrated into a color TFT screen, so all functions are accessible via a rotary encoder and the touch panel.

SIGNAL GENERATOR

Based on the popular AD9833 programmable synthesizer with 25 MHz crystal. Output frequency:

$$F_{OUT} = \frac{25 \text{ MHz} \times REG_VAL}{2^{28}} \quad [\text{Hz}]$$

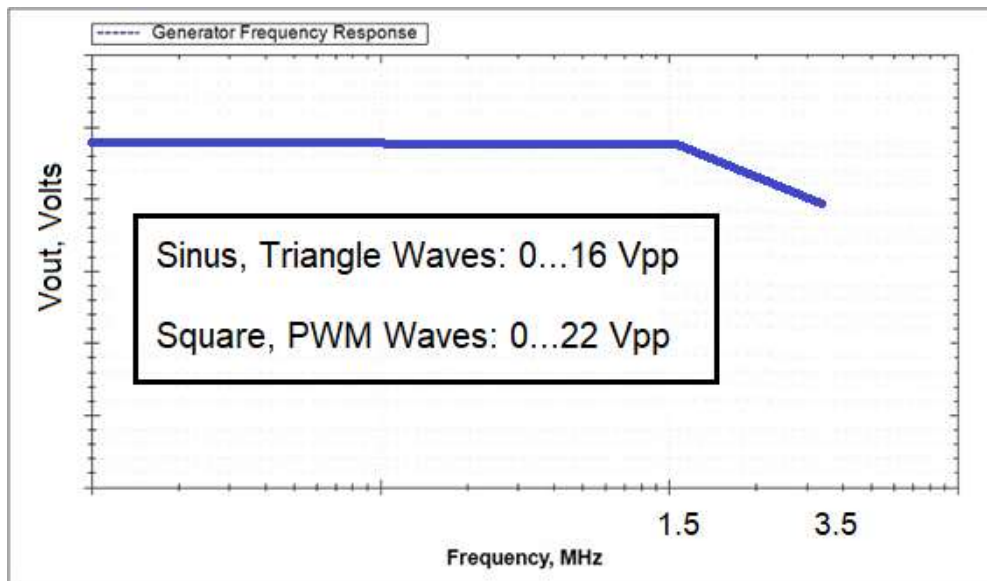


Fig.1. Amplitude/frequency curve of the signal generator.

Unlike most function generators on the market, this one features the LT1210 amplifier capable of supplying an output current of up to 1 A so it can be very useful in a wide range of applications, such as checking amplifiers, filters, coils, capacitors, determining resonance frequency, checking pulse transformers, etc.



Fig.2. Different waves generated by the equipment.

The output frequency can be modified from its minimum value of 1 Hz to a maximum of 2.5 MHz using the rotary encoder on the front of the unit. This operation can be performed in either fine or coarse mode. The frequency can also be entered precisely using a touch keypad, which can be invoked by pressing on the top of the screen. The duty cycle of the PWM signal can only be modified using the rotary encoder.



Fig.3. Setting a specific frequency, using the keyboard.

The amplitude and offset of the output signal can be adjusted using the two potentiometers located on the generator board.

The curve type and frequency range can be modified by repeatedly pressing the buttons on the touch screen.

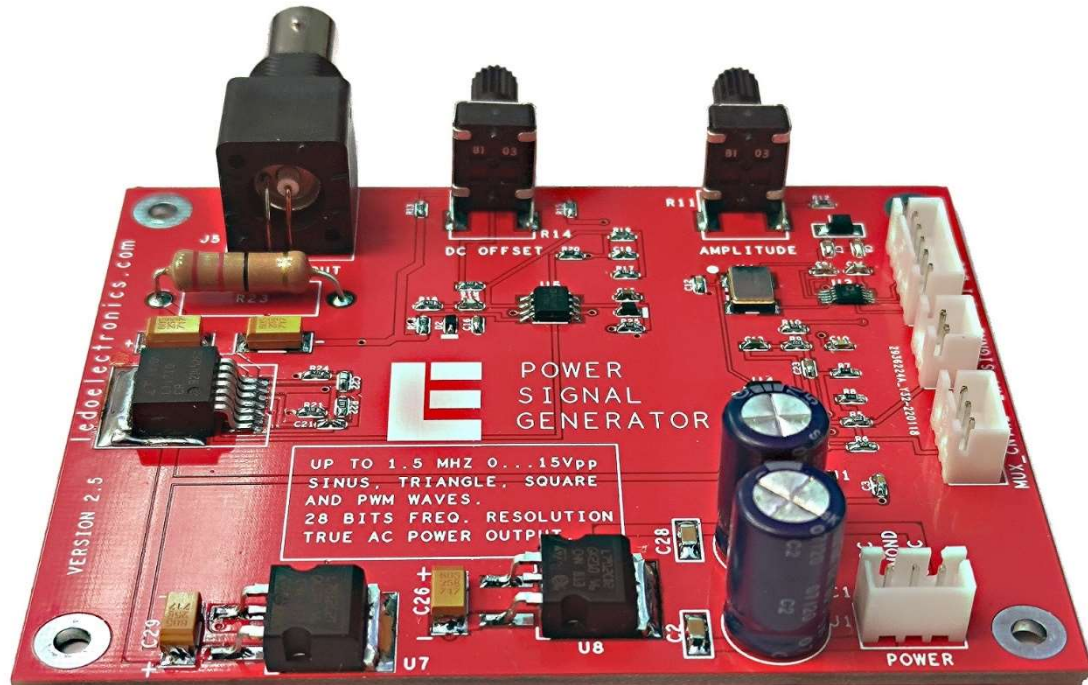


Fig.4. Function Generator PCB.

[Function Generator Board Datasheet](#)

Function Generator Specifications

Output waves	Sine, Triangular, Square, PWM
Frequency interval	1 Hz...2.5 MHz
Frequency resolution	1 Hz (limitado por software)
Duty Cycle Adjustment (PWM)	1...99 %
Maximal amplitude (Sine and Triangular)	18 Vpp
Maximal amplitude (Square wave)	22 Vpp
Maximal amplitude (PWM)	12 Vpp
Amplifier Output resistance	10 Ohms
Output connector impedance	50 Ohms
Maximal Output current	1 A
Amplitude regulation	0...22 Vpp
Offset regulation	-1V...+1V
Harmonic distortion	0.5 %
Signal to noise ratio	45 dB
Frequency stability	40 ppm / °C
Edge time Square Wave and PWM	200 ns
Output protection	Overheating, overload, short circuit

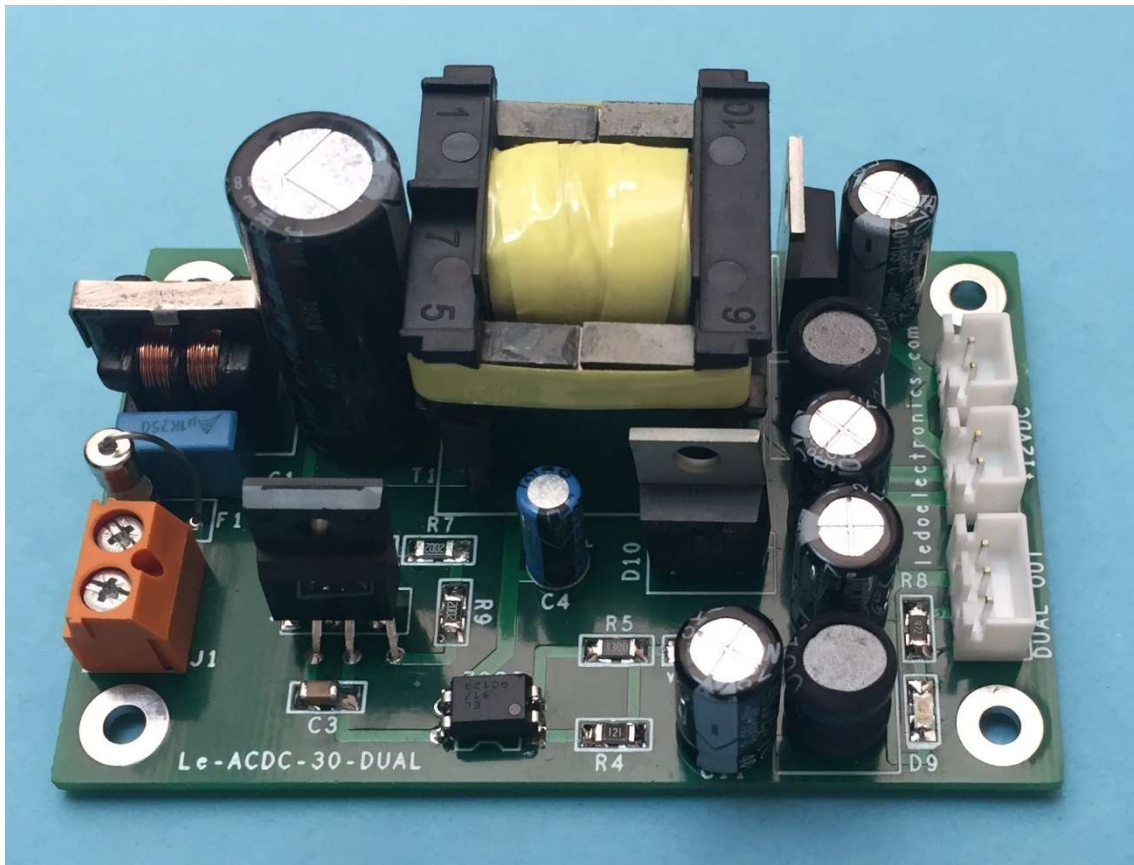


Fig.5. $\pm 15V$ DC AC/DC Power Supply.

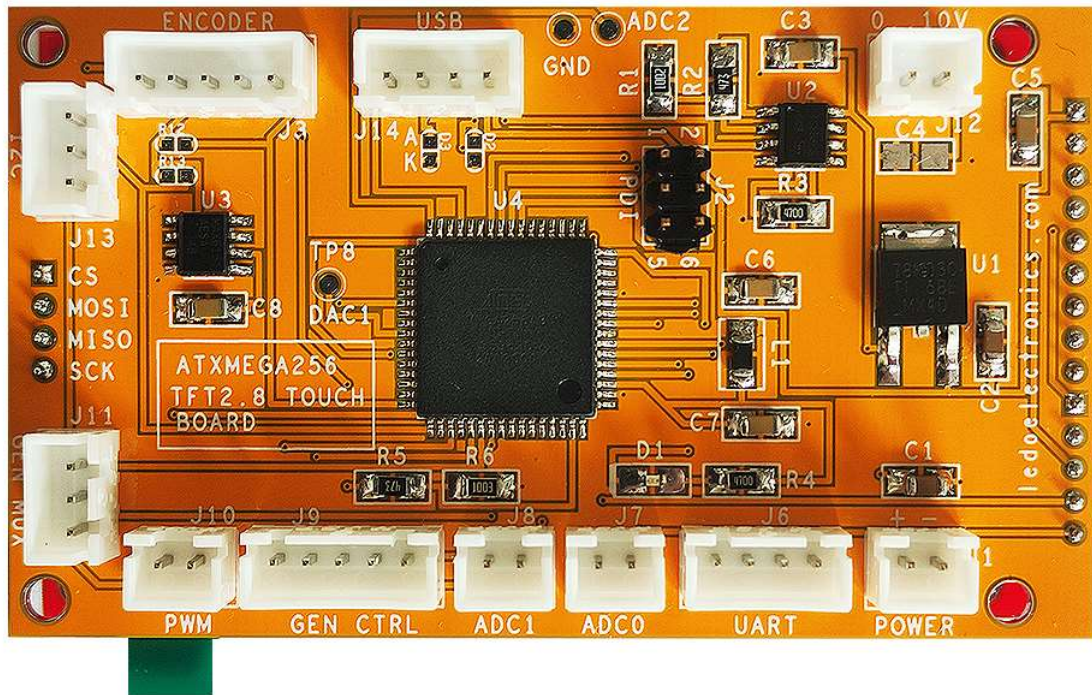


Fig.6. Control PCB.

[Control PCB Datasheet](#)

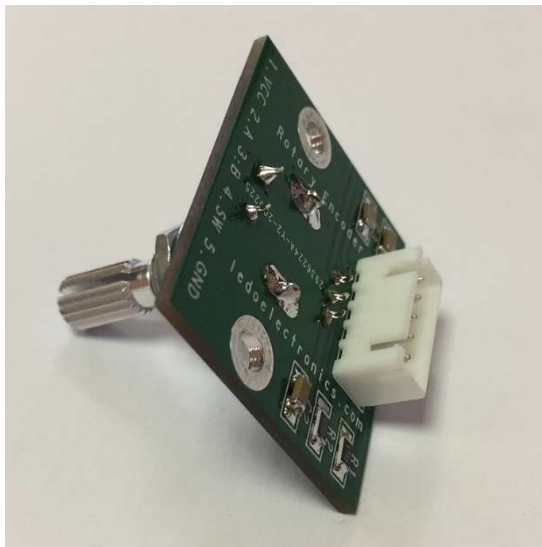


Fig.7. Rotary Encoder.

[Encoder datasheet](#)

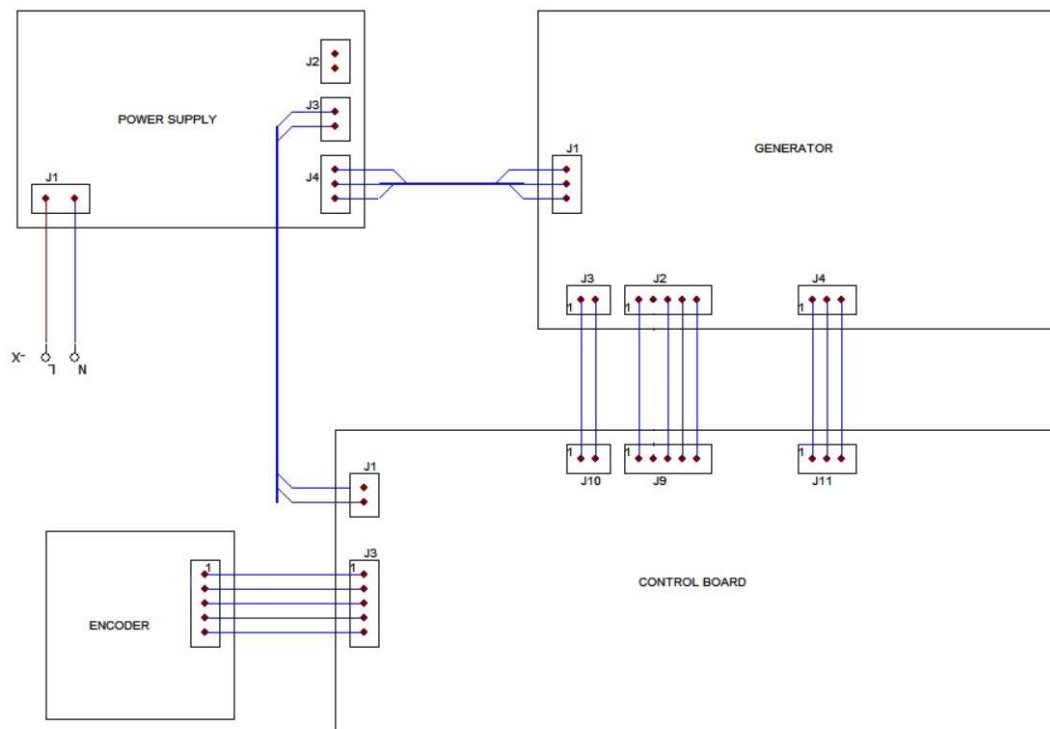


Fig.8. Interconnection diagram.

The source code of the project, as well as all the detailed information about the hardware of each of the boards, can be consulted on the website ledoelectronics.com.

Conclusions:

The kit can be a great ally for all those who are involved in the world of electronics, whether they are professionals, amateurs or students involved in the design and repair of electronic circuits. It is a compact, flexible, versatile and above all easy-to-use instrument, designed with the aim of facilitating design and diagnostic tasks, and has been manufactured without skimping on design time or cost of materials. It is a small and light device, easy to transport, which has an excellent wave generator.

Typical Applications:

- Amplifiers design and repair
- Filters design and repair
- Design of frequency equalizers
- Measurement of inductors and capacitors
- Manufacturing and testing of pulse transformers for SCR, MOSFET, and IGBT
- Gate Drivers Design and testing
- Etc.