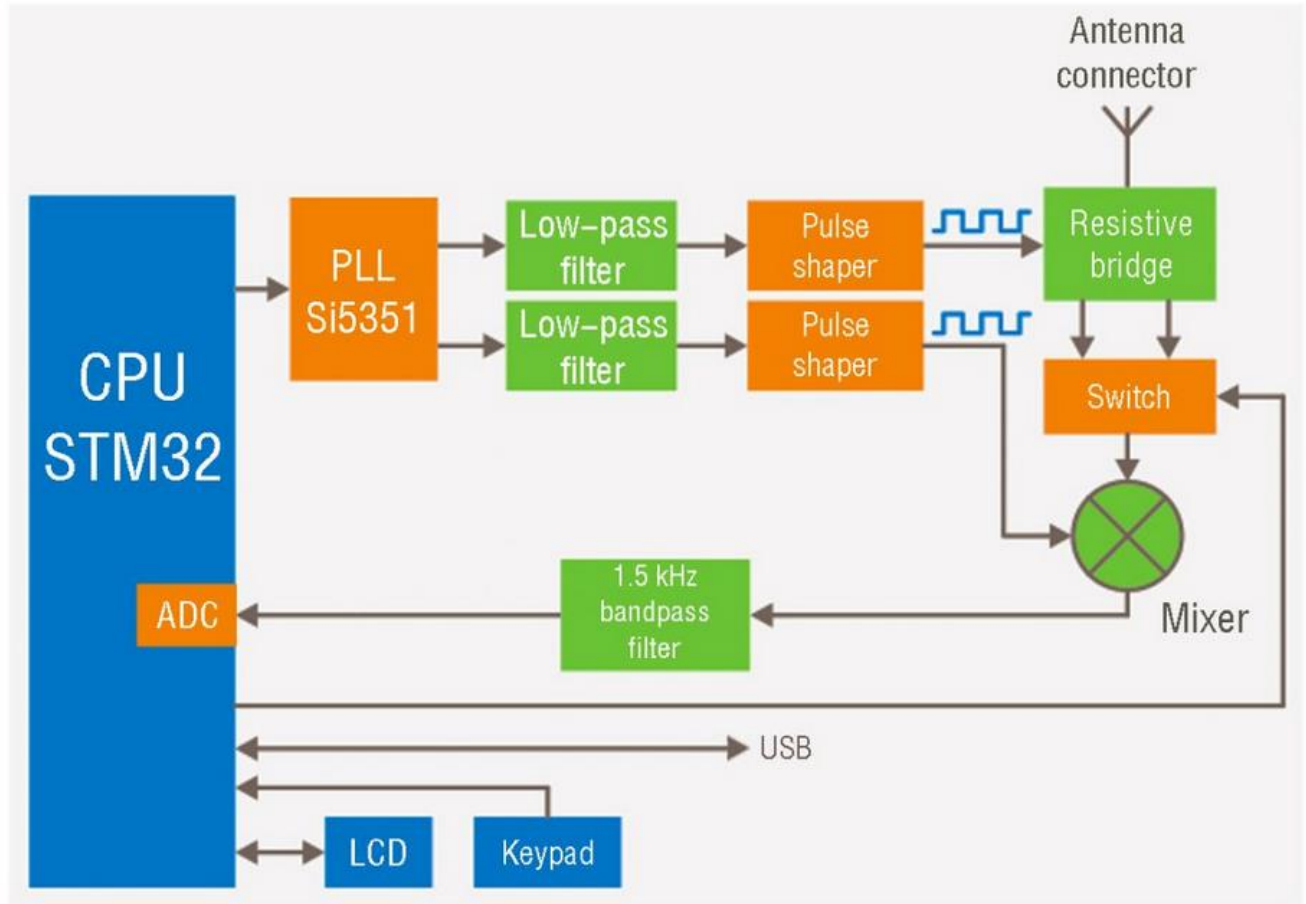


RigExpert AA-35 ZOOM. How it works?

Structure diagram

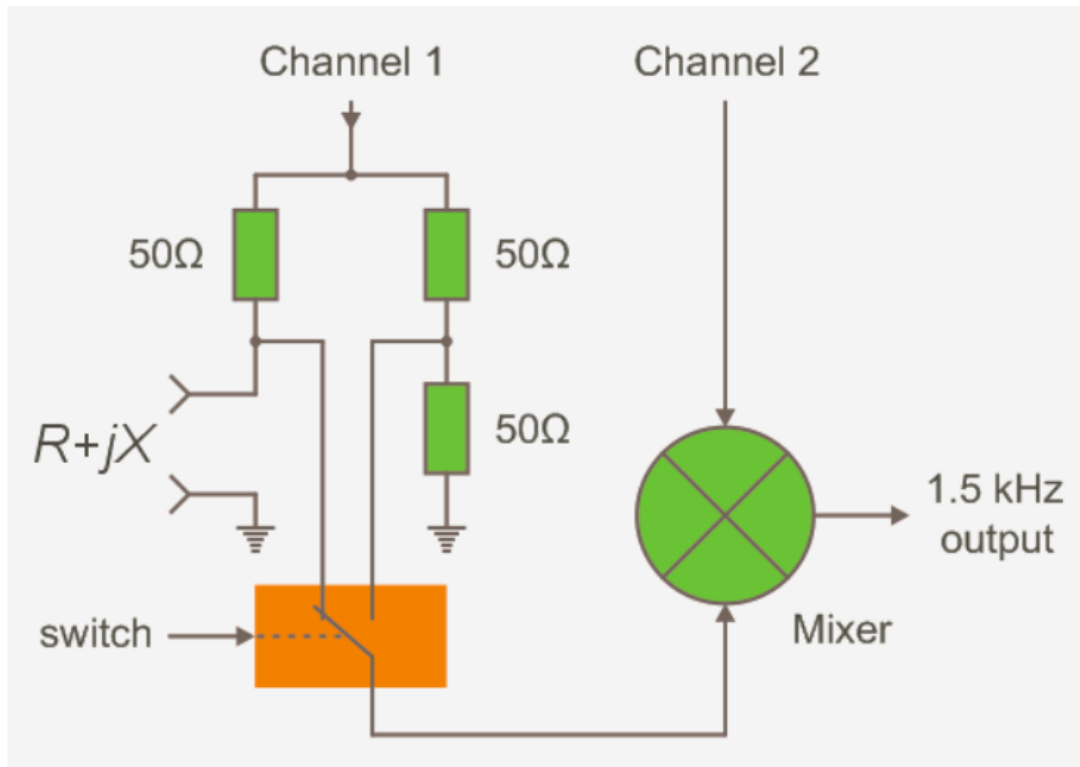
The structure diagram of RigExpert AA-35 ZOOM is located below:



The "brain" of the analyzer is STM 32-bit RISC microcontroller. It controls a Si5351 PLL chip running at 500 MHz and generating two sinusoidal signals. Both signals are low-pass filtered and then put through pulse shapers, producing two square signals with CMOS levels. Resistive bridge was chosen to measure parameters of a load because of its simplicity and good frequency response. The switch commutates two outputs of the bridge. After the switch, the signal is mixed with the second channel output to produce audio frequency of 1.5 kHz. This signal is then filtered and fed on the 12-bit ADC of the microcontroller. The 320x240 color TFT display and the 6x3 keys keypad are connected directly to the CPU. The USB interface allows connecting the analyzer to the PC. The analyzer uses internal Flash memory to store measurement results (10 memory slots).

Close look at the bridge

This is a diagram of the resistive bridge and its connection to the mixer:



The switch which is controlled by the CPU feeds the signal from the certain side of the bridge to the mixer chip. When the load is totally active and its resistance is 50Ω , the bridge is balanced and the switch outputs the same signal in both positions. This eliminates the need of calibration of the analyzer, also giving very good precision near $\text{SWR}=1$.