The Arbitrary/Function Generator: Basic Features & Functions

Generating a Signal: Easy as 1, 2, 3

1 Choose your signal type

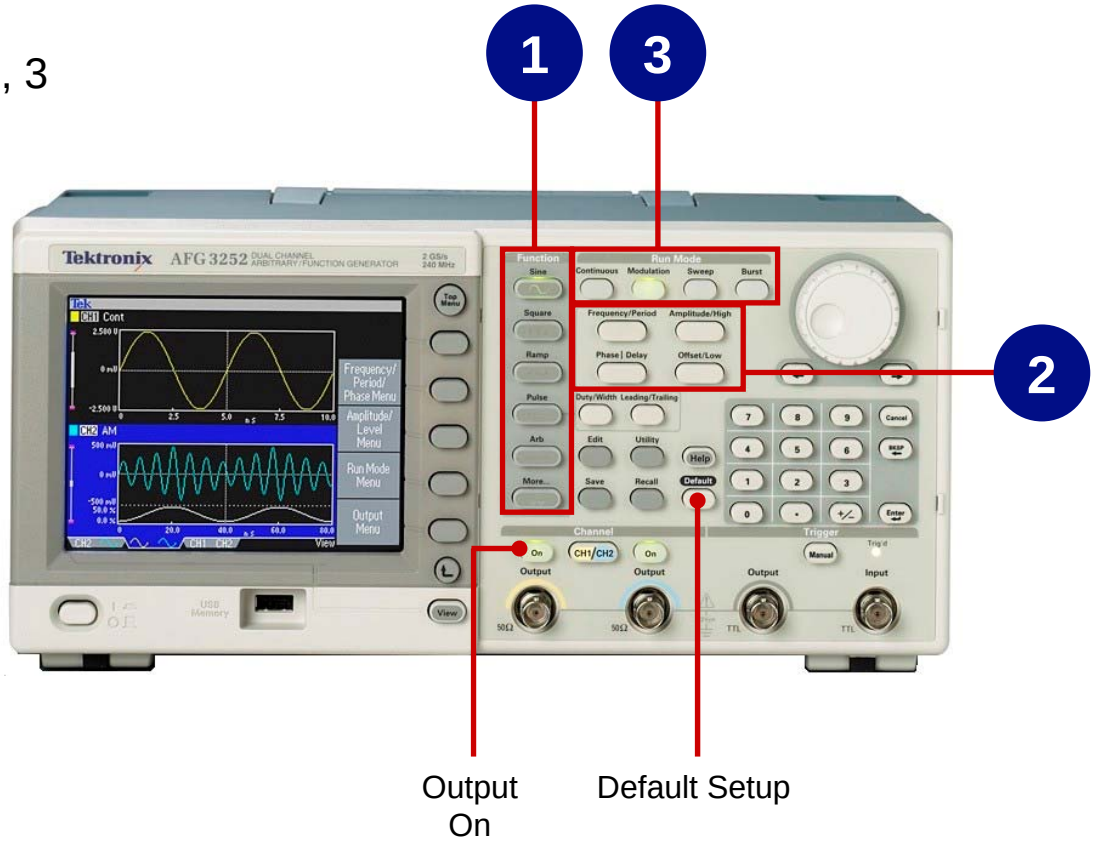
- The AFG3000 has a dedicated front panel button for common signal types.
- Less common signals are selected from the on-screen menu once you select the signal category.

2 Define your signal parameters

- When you select a signal type, the relevant signal parameters are shown on the display and a menu of controls appears at the right side of the screen.
- The AFG3000 has dedicated front panel buttons for setting common signal parameters.

3 Select the Run mode

- Choose Continuous mode to continuously generate your signal as specified.
- Choose Modulation mode to add amplitude, frequency or phase modulation to your signal.



Tip: To return the signal generator to a known state, press the Default button.

Tip: You must press the Output On button to turn on the output. To protect your circuit, the output is off by default and only activated when you are ready for a signal.

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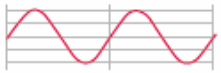
Common Signal Types

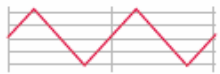
- **Sine Wave**: A curved wave shape defined by the mathematical sine function.



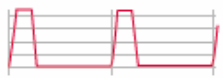
- **Square Wave**: A wave shape consisting of repeating square pulses.

- **Sawtooth Wave**: A waveform that ramps up slowly, then falls off quickly.

- **Triangle Wave:** A waveform with symmetrical rise and fall times.

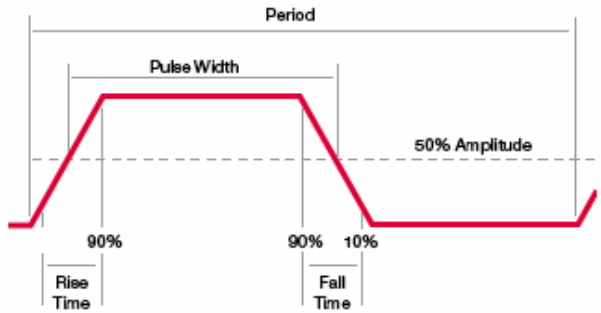


- **Pulse Wave**: A waveform with a fast rising edge, a period of time at a constant amplitude, and a fast falling edge.



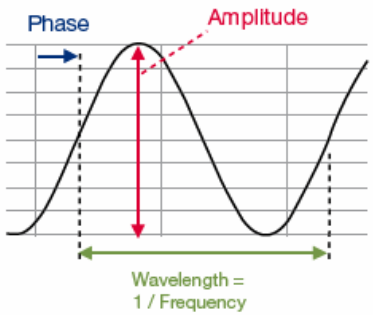
Pulse Characteristics

- **Rise Time**: Amount of time required for a pulse edge to transition from low to high level.
- **Fall Time**: Amount of time required for a pulse edge to transition from high to low level.
- **Pulse Width**: Amount of time the pulse takes to go from low to high and back to low again, measured at 50% of full voltage.



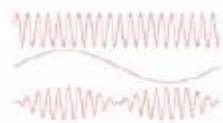
Waveform Characteristics

- **Amplitude**: The voltage strength of a waveform.
- **Frequency**: The number of times a full waveform cycle repeats in one second, measured in Hertz (Hz). Frequency equals 1 divided by period.
- **Phase**: Time placement of a cycle relative to a reference waveform or point in time.

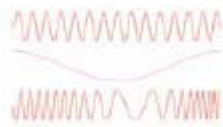


Waveform Modulation

- **Amplitude Modulation**: A type of analog modulation in which amplitude variations embed lower-frequency information into a carrier signal of higher frequency.



- **Frequency Modulation**: A type of analog modulation in which frequency variations embedded lower-frequency information into a carrier signal of higher frequency.



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