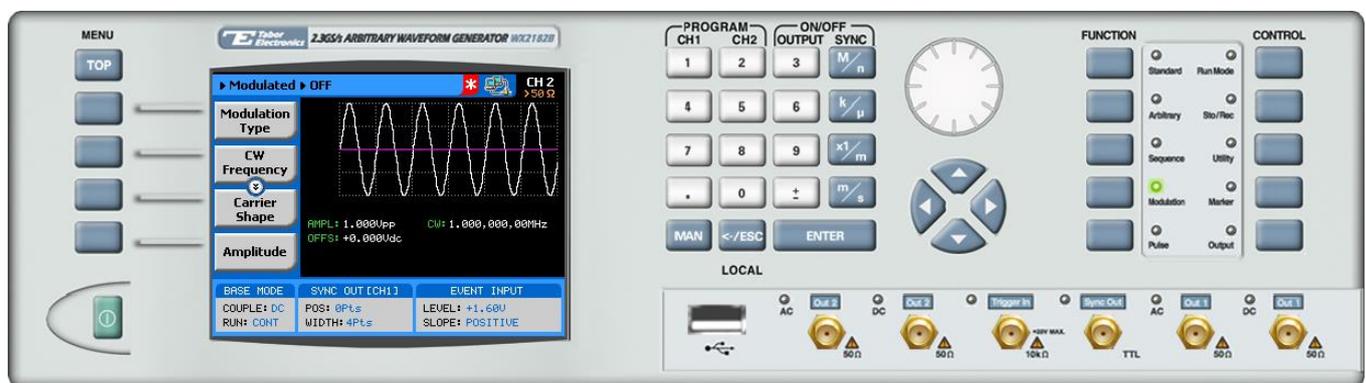# How to Simply Generate an FSK Modulation

Frequency Shift Key (FSK) Modulation is a method of transmitting digital information, in which data is coded in a carrier wave by shifting between discrete frequencies. The Tabor family of Arbitrary Waveform Generators (AWGs) supports binary modulation between a carrier frequency (representing 0) and a shifted frequency (representing 1).   This document will quickly guide you through the definition process.

NOTE

You can also generate an **Amplitude Shift Key Modulation** by following steps similar to those described in this document.

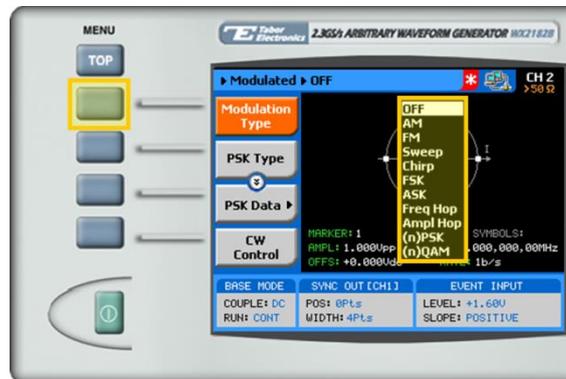---

The front panel of the AWG is depicted below.

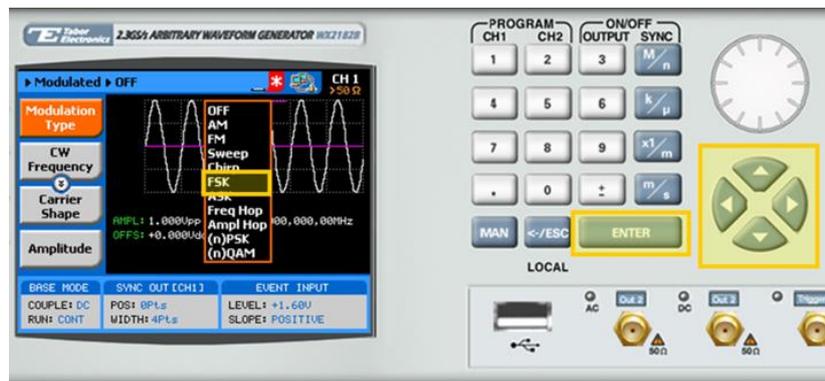➔   **To generate an FSK Modulation using the front panel:**

1.   Press the **Modulation** button in the function menu.

2. Press the **Modulation Type** menu button. A list of modulation types appears on the screen. By default, the modulation type is set to "OFF".

3. Select the **FSK** modulation type from the list box using the arrow keys, and press **ENTER**.


4. Following your selection, you will be able to configure the characteristics of the modulation with the modulation-type specific menu buttons that appear on the left-hand side of the panel.
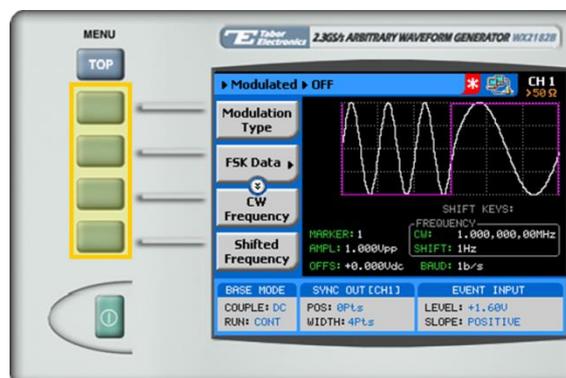
TIP

Whenever the ⬇ icon is displayed there are more attribute menu buttons to be shown below. Simply scroll down using the dial or cursor key.

5. Choose the menu buttons on the left-hand side of the screen to modify any of the following attributes:

- **FSK Data**. A table used to program a sequence of frequency changes as explained in step 6.

- **CW Frequency**. The frequency of the carrier sine wave, used to represent "0".

- **Shifted Frequency**. The sine wave frequency used to represent "1".

- **Baud.** The rate at which the frequencies are toggled. The rate can be programmed within the range of 0.1 bps to 499 Mbps.

- **Marker**. "Marks" an index point in the table at which the Sync Output generates a pulse.

- **Carrier Shape**. The shape of the carrier wave – for example, a sine wave, triangle, or square.

- **Amplitude**. The amplitude of the carrier wave (in Volts peak-to-peak).

- **Offset**. The amplitude (in VDC) offset with reference to zero-level amplitude.

6. Press the **FSK Data** menu button to program a sequence of frequency changes, as shown below.
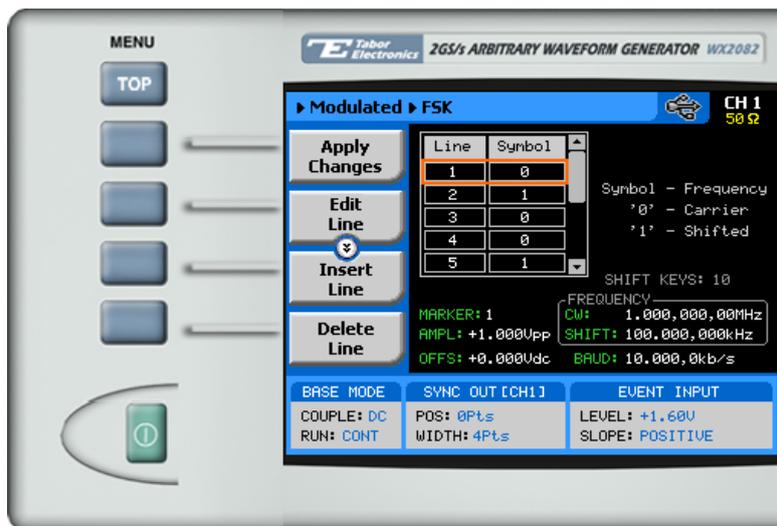
Each row in the table includes the following parameters:

- **Line.** The index number of the row.

- **Symbol.** The binary symbol. "0" for the carrier waveform frequency, and "1" for the shifted frequency.

7. When selecting a numeric attribute for modification, modify the displayed value using the dial or the cursor keys, or by entering the value using the numeric keypad. Press **ENTER** to save the modified parameter value.
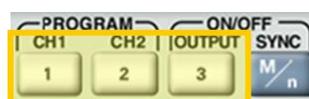

8. Press the **Output** button in the control menu to configure the output settings.
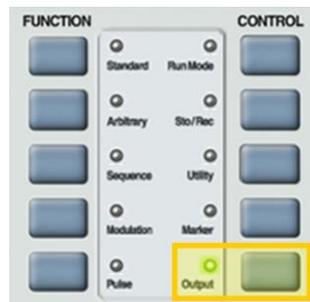
9. Define the channels in the **Output** section as being ON or OFF, modifying the settings using the dial or the cursor keys.

TIP

You can quickly modify the output settings by selecting **CH1** or **CH2** on the keypad, and toggling the **OUTPUT** key to turn the channel on or off.

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10. Select the output path of the channels in the Output Couple section, modifying the settings using the dial or the cursor keys.

- **DC** (2Vp-p into 50 Ω DC coupled)

- **HV** (High-Voltage 4Vp-p into 50 Ω DC coupled)

- **AC** (-20 to +10 dBm into 50 Ω AC coupled)

Press **ENTER** to save the output settings.

For More Information

To learn more about Tabor's solutions or to schedule a demo, please contact your local Tabor representative or email your request to info@tabor.co.il. More information can be found at our website at www.taborelec.com

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