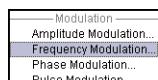




It is not possible to use frequency modulation simultaneously with phase modulation.  
See "[Simultaneous Operation of Several Modulations or Other Operating Modes](#)" on page 203 for an overview in detail.

#### 4.4.3.1 Frequency Modulation Settings

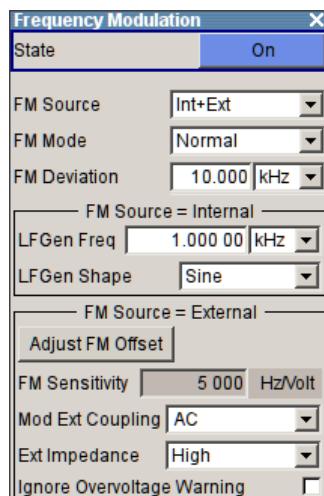


To access the "Frequency Modulation" dialog, select "Modulation > Configure > Frequency Modulation" or use the [MENU] key under "Modulation".

In the upper section of the dialog, you can select the modulation source and activate modulation. The modulation source can be selected independently for the different modulation types and the LF output.

The configuration of the selected external and/or internal modulation source is performed in the lower section of the menu (internal source only).

These settings affect all modulations which use the same modulation sources.



##### State

Activates frequency modulation.

Activation of FM deactivates phase modulation.

Remote command:

[\[:SOURce<hw>\]:FM:STATE](#) on page 346

##### FM Source

Selects the source for the FM signal.

"Internal"      Uses the internal LF generator as modulation signal source for FM.

"External"      Uses an externally applied modulation signal.

The external signal is input via the [MOD EXT] connector.

"Internal + External"

Uses both, the internal and externally applied modulation signal, for example to perform two-tone FM.

Remote command:

[[:SOURce<hw>](#)] :FM:SOURce on page 345

### FM Mode

Selects the mode for the frequency modulation.

"Normal" The maximum range for modulation bandwidth and FM deviation is available.

"Low Noise" Frequency modulation with phase noise and spurious characteristics close to CW mode. The ranges of modulation bandwidth and FM deviation are reduced (see data sheet).

"High Deviation"

Frequency modulation with full setting range for FM deviation. The range of modulation bandwidth is reduced (see data sheet).

Remote command:

[[:SOURce<hw>](#)] :FM:MODE on page 344

### FM Deviation

Sets the modulation deviation in Hz.

The maximum deviation depends on the RF frequency and the modulation mode (see data sheet).

Note that you can set a deviation that is too high for a specific RF frequency, or set an RF frequency outside of the adjustable range of the deviation. In both cases, the instrument sets the maximum deviation and displays an error message.

In "Int + Ext" modulation source mode, the instrument divides the deviation into half for each source.

Remote command:

[[:SOURce<hw>](#)] :FM[:DEViation] on page 343

[[:SOURce<hw>](#)] :FM:INTernal:DEViation on page 344

[[:SOURce<hw>](#)] :FM:EXTernal:DEViation on page 344

### LF Gen Freq

Sets the frequency of the LF generator.

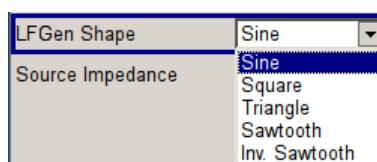
This setting affects all analog modulations which use the LF generator as the internal modulation source.

Remote command:

[[:SOURce](#)] :LFOOutput<ch>:FREQuency on page 355

### LF Gen Shape

Selects the waveform shape of the LF signal.



**Note:** The installed hardware determines the available settings. Use the [Hardware Config](#) dialog to check the hardware the instrument is equipped with.

For information on the required hardware revision, refer to the release notes.

Remote command:

[\[:SOURce\] :LFOutput :SHAPe](#) on page 363

### FM Sensitivity

Displays the input sensitivity of the externally applied modulation signal at the [MOD EXT] input in Hz/V.

The modulation deviation entered with **FM Deviation** is achieved with 1 Volt (=  $U_{peak}$ ) of the input signal.

**Note:** The input voltage must not exceed 1.1 V<sub>p</sub> otherwise modulation distortions occur.

Remote command:

[\[:SOURce<hw>\] :FM:SENSitivity?](#) on page 345

### Adjust FM Offset

Starts the adjustment for the FM/PhiM modulator. The option is adjusted concerning DC-offset.

Remote command:

[:CALibration<hw>:FMOFFset \[:MEASure\]?](#) on page 291

### Mod Ext Coupling

(Source "External" only)

Selects the coupling mode (AC or DC) for the externally applied frequency modulation signal.

**Note:** Coupling for external feed via input [MOD EXT] can be set independently for all modulations using the external modulation signal.

"AC" Disconnects the DC voltage component and uses only the AC component of the modulation signal.

"DC" Uses the modulation signal with both components, AC and DC.

Remote command:

[\[:SOURce<hw>\] :FM:EXTernal:COUpling](#) on page 343

### Ext. Impedance

(Source "External" only)

Sets the impedance for the external modulation signal, applied at the [MOD EXT] connector.

You can select 600 Ohm or high (>100 kOhm).

This setting affects all analog modulations which use the external modulation signal.

Remote command:

[\[:SOURce<hw>\] :INPut:MODext:IMPedance](#) on page 353

### Ignore Overvoltage Warning

Suppresses warnings the instrument generates when the modulation signal input is overloaded.