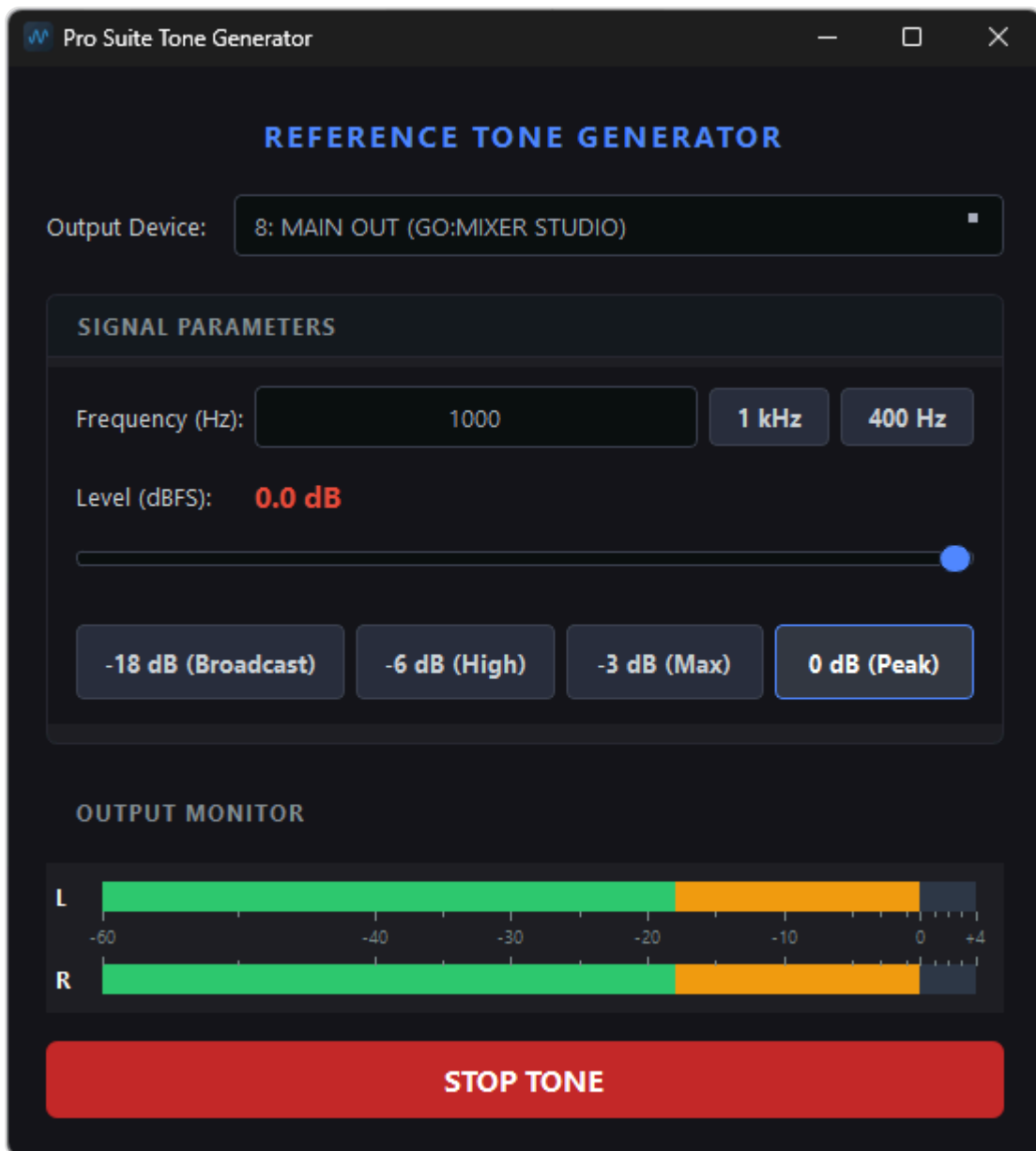


V 9.0.0

# USER MANUAL

**Pro Suite Tone Generator V9** is an advanced reference tone analyzer and generator designed for professional broadcast environments, recording studios, and high-precision equipment calibration.

Utilizing a low-latency audio synthesis engine (based on sounddevice technology), the program offers real-time adjustable frequency sound generation, ultra-low latency, and audiophile quality to optimally calibrate processing chains and ensure interruption-free live broadcasts.



*Pro Suite Tone Generator V9 Main Interface:  
Oscillator and Real-Time Monitoring*

## SYSTEM REQUIREMENTS

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To ensure the continuity and stability required by mission-critical broadcast systems operating continuously **24/7/365**, the following requirements must be met (and preferably exceeded).

## Minimum Requirements

<b>Processor (CPU):</b>	Intel Core i3 or equivalent AMD (2 physical cores)
<b>RAM Memory:</b>	4 GB
<b>Storage:</b>	50 MB available space
<b>Operating System:</b>	Windows 10 / 11 (64-bit)
<b>Audio Interface:</b>	Generic sound card, compatible with DirectX or WASAPI

## Recommended Requirements (24/7/365 Operation)

<b>Processor (CPU):</b>	Intel Core i5 or latest generation AMD Ryzen 5
<b>RAM Memory:</b>	8 GB or higher
<b>Storage:</b>	Solid State Drive (SSD) recommended
<b>Operating System:</b>	Windows 10 / 11 Pro or Enterprise (64-bit) with controlled automatic updates
<b>Audio Hardware:</b>	Professional dedicated PCIe or USB audio interface (ASIO or WASAPI Exclusive driver support to avoid OS bottlenecks)
<b>Power:</b>	Uninterruptible Power Supply (UPS Server)

# INTERFACE PHILOSOPHY

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The suite has been designed with the sound engineer in mind. It features a dark theme ("Digital Night") with minimalist frames and controls distributed via an easy-to-use touch grid (Grid Layout). This layout avoids eye strain under the typical low lighting of radio and mastering studios.

## 1. Output Device

At the top header is the "**Output Device:**" drop-down selector. The software scans all physical and logical system outputs at startup and lists them there. If you connect a new USB audio device, restart the tone generator for it to be detected.

# SIGNAL PARAMETERS

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This is the main block (`SIGNAL PARAMETERS`). Here, the numerical characteristics of the wave feeding the selected output are modeled.

- **Frequency Control (Hz):** Allows numerical input from 20 Hz to 20,000 Hz. Includes two quick-insert buttons:
  - **1 kHz:** The universal standard for analog calibration.
  - **400 Hz:** Frequently used for references in tape and cinematic systems.
- **Amplitude Level (dBFS):** An algorithmic attenuator represented by a horizontal fader operating from -60 dB to 0 dB (Full Scale). Connected to the attenuator base are automatic presets for instant chain calibration:
  - **-18 dB (Broadcast):** European EBU standard for RMS alignment.
  - **-6 dB (High):** For dynamic peak testing.
  - **-3 dB (Max) / 0 dB (Peak):** Absolute digital quantization limit, useful for checking Brickwall Limiter integrity.

# OUTPUT MONITOR (VU METER)

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Monitoring is essential. The software includes a dual exact analog replica meter computed by blocks of 2048 *frames* of raw post-generation PCM data.

- **Independent L/R Visualization:** Analyzes with extreme precision the root mean square (RMS) in real-time with a predefined +3dB compensation.
- **Semantic Color Codes:**
  - **Green:** Safe or attenuated signal (< -18 dBFS).
  - **Yellow:** Caution zone (RMS between -18 dBFS and 0 dBFS).
  - **Red:** Critical or virtual saturation zone, visible only if a setting overflows the curve.

# BASIC OPERATION

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Once the device, frequency, and level are configured, navigate to the main rectangular bottom button: **START TONE** (in blue).

When pressed, the system sets aside an exclusive broadcast stream at **48 kHz (Stereo)** calculating sine samples on the fly. The button will turn **red** revealing the text "**STOP TONE**" and the sound card selection menu will be disabled for safety to avoid routing accidents (Audio Pop). Press again to stop the broadcast immediately.