Wildsync VP-1 Voltage Processor User Manual

The **Wildsync VP-1** module is designed for flexible signal processing and control in a modular synthesizer system. It can be used for attenuating, inverting, amplifying signals, and mixing them.

Front Panel Elements

Pots (control knobs)

- **CH1, CH2, CH3** — control the signal level on the respective channels. Depending on the operating mode, the pots either attenuate the signal (attenuator mode) or change its polarity and level (attenuverter mode).

Inputs

- **IN1, IN2, IN3** — inputs for control or audio signals. If no signal is connected, a reference voltage of +5V is applied to the input, allowing the channel to be used as a fixed voltage source for modulation or other purposes.

Outputs

- **OUT1, OUT2, OUT3** — outputs for processed signals. If no cable is connected to the output, the signals are automatically mixed with the adjacent channels:
  - If **OUT1** is not used, its signal is mixed with **OUT2**.
  - If **OUT2** is not used, both signals (from **OUT1** and **OUT2**) are mixed at **OUT3**.

Mode Switches

1. **MODE Switch (attenuator/attenuverter)**:
   - **(>)** — in attenuator mode, the pot decreases the signal level from 100% to 0%.
   - **(><)** — in attenuverter mode, the pot changes the signal in both amplitude and polarity, from -100% through 0% to +100%.
2. **Gain Switch (0.5X / 1X / 2X)**:
   - **0.5X** — reduces the signal by half (50% of the input).
   - **1X** — no change in signal level.
   - **2X** — doubles the signal (200% of the input).

LED Indicators

Each channel features a bipolar LED that indicates the polarity and level of the output signal:

- **Green** — positive voltage at the output.
- **Red** — negative voltage at the output.

Functional Features

Signal Attenuation and Inversion

Using the attenuator and attenuverter modes, you can control the signal's level and polarity. In attenuator mode, the signal smoothly decreases to zero, and in attenuverter mode, the signal can be inverted (negative values) and amplified.

Reference Voltage

If no input signal is connected to a channel, a reference voltage of +5V is automatically applied to the input. This allows the channel to be used as a fixed voltage source for controlling other modules or creating modulation signals.

The reference voltage changes according to the selected gain setting:

- In **attenuator** mode:
  - With **0.5X** gain — the output voltage is 2.5V.
  - With **1X** gain — the standard output voltage is 5V.
  - With **2X** gain — the output voltage increases to 10V.
- In **attenuverter** mode:
  - With **0.5X** gain — the voltage range is from -2.5V to +2.5V.
  - With **1X** gain — the voltage range is from -5V to +5V.
  - With **2X** gain — the voltage range extends from -10V to +10V.

Channel Mixing

The module supports automatic channel mixing. If **OUT1** is not connected, its signal is routed to **OUT2**. Similarly, if **OUT2** is not connected, both signals are mixed and output through **OUT3**. This is convenient for creating complex control signals or audio mixes without requiring an external mixer.

Usage Examples

1. **Attenuating an LFO signal to control a filter**: Connect a low-frequency oscillator (LFO) to **IN1**. Select the attenuator mode and use the **CH1** pot to adjust the desired level of modulation.
2. **Inverting an envelope signal**: Connect an envelope to **IN2**, set the **MODE** switch to attenuverter **(><)**, and invert the signal to create a reversed envelope.
3. **Creating constant voltage for modulation**: If no input is connected to a channel, the pot can be used to adjust the level of the reference voltage. In attenuator mode, the output voltage can be set to 2.5V, 5V, or 10V, depending on the selected gain setting. In attenuverter mode, the voltage range can be set from -2.5V to +2.5V, from -5V to +5V, or from -10V to +10V.
4. **Mixing signals**: Connect different signals to **IN1** and **IN2**, leaving the outputs unconnected. As a result, both signals will be summed and output through **OUT3**.
5. **Using one channel as an Offset Voltage**: If you need to add a constant voltage offset to a signal, one of the module's channels can be used as an offset voltage source. For example, if no signal is connected to **IN1**, the **CH1** pot will control the reference voltage:
   - In attenuator mode with **1X** gain, you can generate an offset ranging from 0V to +5V.

- In attenuverter mode with **1X** gain, the offset can range from -5V to +5V.

To add this offset to another signal, connect the signal to **IN2** and leave both **OUT1** and **OUT2** unconnected. This will mix the **Offset** voltage from **CH1** with the signal on **IN2**, and output it through **OUT3**.

Conclusion

The Wildsync VP-1 module is a versatile tool for signal processing, inversion, and mixing. Its flexible control options make it suitable for precise modulation level adjustments as well as creating complex audio effects. The ability to modify reference voltages, adjust gain, and use channels as fixed voltage sources (**Offset Voltage**) makes this module an indispensable component in any modular system.