# Boredbrain Music Optx v2




Boredbrain Music announces completion of Optx v2 as its next-generation ADAT Lightpipe converter module for Eurorack modular synthesizers - readily representing nearly two years of engineering and prototyping to greatly improve upon the features and performance of the original Optx, completely redesigned from the ground up for the best overall performance possible in a 10 HP offering that duly



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delivers bi-directional encoding/decoding of eight analogue inputs/outputs with extremely low noise and CV signals with near-zero offset, as well as an internal sample clock that permits one-way operation without ADAT input and standalone interconnection of two Optx modules - with preorders going live as of September 6…

“Optx v2 represents nearly two years of engineering and prototyping, and greatly improves upon the features and performance of Optx v1.” So says Boredbrain Music Founder/Designer/Engineer Adam Harding by way of a revealing introduction, adding: “With this new version we focused heavily on the quality of the digital conversion, so the module has been designed with high-performance input op-amps and professional-grade converters from Cirrus Logic; this combo provides incredibly low noise and excellent detail overall.”

On the face of it, Optx v2 is a pro-quality ADAT Lightpipe converter for Eurorack modular synthesizers. Since many computer audio interfaces are equipped with one or more pairs of ADAT expansion ports allowing for additional input and output channels, Optx v2 takes full advantage of those - often unused - ports, providing multi-channel connections directly to and from Eurorack systems. Therefore, the module itself accepts any eight-channel ADAT-encoded (24-bit, 44.1/48kHz) digital signal at its Rx TOSLINK connection (via Lightpipe optical cable) and converts it into eight discrete analogue signals; conversely, it accepts eight discrete analogue signals and converts them into an eight-channel ADAT-encoded (24-bit, 44.1/48kHz) digital signal at its Tx connection. Thanks to those high-performance op-amp input buffers and professional-grade Cirrus Logic analogue-to-digital converters providing extremely low noise and distortion, maximum dynamic range, and excellent overall detail, Optx v2’s eight inputs - IN 1 through to IN 8 - and outputs - OUT 1 through to OUT 8 - have very precise level scaling with a range of 20 Vpp (±10 V), thereby allowing a typical Eurorack signal of 10 Vpp to translate to exactly -6 dBFS while maintaining an equal amount of headroom.

Obviously Optx v2 acts as an excellent interface for audio, but - when used in conjunction with software, such as Bitwig Studio or Ableton CV Tools - it also works with control voltages like 1V/Oct pitch and gate signals, LFOs (Low Frequency Oscillators), ADSR (Attack, Decay, Sustain, and Release) envelopes, and other modulators. Indeed, its high-quality analogue outputs are DC-coupled, supporting both audio and CV (control voltage) signals at all times. The module’s analogue inputs also accept both audio and CV signals, but each pair of inputs - IN 1 and IN 2, IN 3 and IN 4, IN 5 and IN 6, and IN 7 and IN 8 - have a front panel-positioned switch that selects the conversion mode appropriate for each of those two signal types to ensure the best possible quality and precision. Simply select AUDIO and the associated pair of inputs are AC-coupled, enabling high-pass filters within the ADC (Analogue-to-Digital Converter) to ensure that the audio signals are converted with no DC offset and the best possible signal-to-noise ratio. Choose CV and the associated pair of inputs are DC-coupled, undergoing a self-calibration period of five seconds to detect and actually correct any inherent DC offset so CV signals are converted with accuracy and precision.

It is, of course, essential that high-quality digital conversion is accurate and free from jitter, so Optx v2 can - just like its predecessor - either sync to an external sample clock via ADAT input or produce its own stable clock that allows other devices to sync to the module itself, including standalone interconnection of two Optx modules. As a result, two settings for sample clock sync are selectable using DIP switches on the back of the module: SYNC selects whether Optx v2 syncs to an external clock (EXT) or to its internal one (INT); RATE determines the sample rate - 44.1 or 48 kHz - of the latter. It is recommended, though, to sync Optx v2 to the external clock of an audio interface for typical two-way ADAT connection by setting the SYNC switch to EXT - requires a valid ADAT signal at the Tx connection, indicated by the blue LED (labelled EXT SYNC), but if the audio interface in question does not have an ADAT port then Optx v2 can effectively provide it with sample clock by setting the SYNC switch to INT and choosing the desired sample rate with the RATE switch.

Additional assistance comes courtesy of Optx v2 also providing visual signal indication of the eight decoded ADAT channels feeding the OUT 1 through to OUT 8 jacks, whereby each pair of white LEDs indicates the polarity (-Ve left, +Ve right) and relative strength of the signal (±10 V). Although audio-rate signals will generally light both LEDs continuously, LFOs will alternate more apparently between the two, while gates, triggers, and positive-going envelopes will generally light only the right LED (+Ve).

It is surely fair to say, then, that the nearly two years of engineering and prototyping involved in completing Optx v2 as Boredbrain Music’s next- generation ADAT Lightpipe converter module for Eurorack modular synthesizers has truly been time well spent. “The module has been completely redesigned from the ground up for the best overall performance possible in 10 HP,” concludes Adam Harding, happy with the clearly impressive end result.

Scheduled to ship as of October 17, 2024 with a price of $369.00 USD, Boredbrain Music is already accepting preorders for Optx v2 both directly and through its global network of dealers. (Note that Boredbrain Music now directly accepts any dealer orders outside of Europe, while distribution within Europe is now handled by Signal Sounds.)

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