

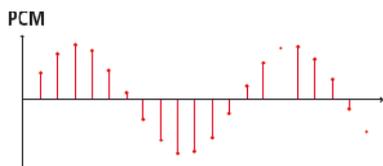
## Fully Digital Amplifier

Steinway Lyngdorf employs refined digital technology for compact, yet highly efficient sound processing - and more importantly, for amazing sound quality and real-life dynamic range.

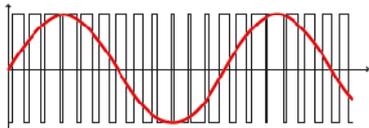
In the Steinway Lyngdorf Fully Digital Amplifier, signal processing is handled 100% in the digital domain, because only pure digital processing can release the full potential of the amplifier. Featuring the world's most advanced technology, as well as uncompromised component quality, the Steinway Lyngdorf Fully Digital Amplifiers are open loop amplifiers with zero negative feedback. To achieve this, only the most stable, durable and linear components are used. They are optimized for musical performance with an impressive Signal-to-Noise Ratio of 113 dB – the highest performance of any amplifier in the market today.

### The EQUIBIT™ Module

With core technology based on the patented EQUIBIT™ processing and output modules, EQUIBIT™ is a digitally controlled Class D amplifier also known as switching amplifier technology. The unique feature of EQUIBIT™ technology is that the PCM to PWM conversion is made 100% in the digital domain with advanced algorithms ensuring absolutely linear conversion and the highest possible audio fidelity.



Pulse With Modulation PWM and the Output Signal

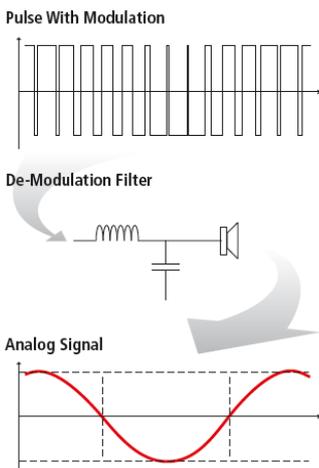


The EQUIBIT™ PCM to PWM conversion

### PWM – Pulsating in Time

In a PCM signal, each sample represents a specific amplitude. The output stage of most switching amplifiers is based on Pulse Width Modulation (PWM). The magnitude of each PWM sample is described in terms of the pulse width, as opposed to the pulse height in a PCM signal. The 24-bit PCM digital audio signal is fed to the modulator where the audio data is up-sampled 4 times – close to 400 kHz for optimal performance in the audio band. The EQUIBIT™ PCM-to-PWM modulator then translates the up-sampled signal to a PWM signal with the same switching frequency.

As a result, the Steinway Lyngdorf Digital Link offers an unbroken digital signal path throughout the entire system.



### No-Compromise Output Demodulation Filter

To re-establish the analog audio signal from the PWM pattern, a reconstruction low-pass filter is used at the output of the switching power amplifier stage. The reconstruction filter - or demodulation filter - of a switched amplifier is often overlooked - partly because optimal components are expensive and take up PCB space, and partly because the filter is regarded as far beyond the audible frequency range.

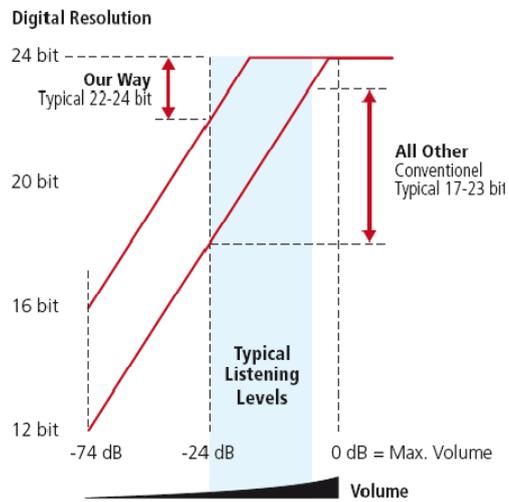
But even filters placed octaves above audible frequencies affect linearity within the audible band. In the system amplifier, uncompromising component quality ensures unsurpassed low distortion and linearity in the filter. Only two components translate the PWM pattern into the pure analog audio signal to which the loudspeaker will react at the speaker terminals.

*The translation from PWM to actual sound waves at the very end of the Fully Digital Amplifier*

### Full digital resolution - Power DAC

The output levels are kept at 24-bit resolution when operated at most typical listening levels. Within this range, regulation is carried out purely by the DC/DC-converter by adjusting the supply voltage to the amplifier output stage. Essentially, the Fully Digital Amplifier can be regarded as a high-powered Digital-to-Analog converter.

Thanks to its high-end DC/DC conversion, the Fully Digital Amplifier features volume adjustment while maintaining full digital resolution at typical listening levels. This unique and technically extremely demanding solution ensures unsurpassed control, noiseless at all sound levels.



*Maintaining full digital resolution and full dynamic range*