

## Information about the 16th-tone Carrillo piano (for composers)

The 16th-tone Carrillo piano is an upright piano with 97 keys. It is tuned to 96-tone equal temperament (96 tones per octave). The interval between adjacent keys is a 16th-tone (12.5 cents); there are 8 such steps within each equal-tempered semitone.

The keyboard looks like that of a normal piano, except that it has 8 full octaves: it looks like CCC to c5.

The actual sounding range of the instrument is one octave: c1 (middle C) to c2.

The Carrillo piano at the Huygens-Fokker Foundation in Amsterdam is kept tuned at  $a_1 = 442$  Hz.

Apart from the number of keys, the mechanism is similar to that of a regular upright piano. The instrument is triple stringed throughout.

There are two pedals: sustain pedal and soft pedal.

The soft pedal is not an "una corda" pedal, but is of the upright piano type: it just moves the hammers closer to the strings. Since it doesn't change the sound color, I think its use can best be left entirely to the player's discretion.

Unlike some other Carrillo pianos, the one at the Huygens-Fokker Foundation in Amsterdam does not have a third (moderator) pedal.

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### Notation for the 16th-tone Carrillo piano:

The piano player needs a score written in keyboard "tablature" notation that shows which keys are to be played. This will look like normal piano notation (usually on two staves), written as if the keyboard range was from CCC to c5.

Important note: When reading music at the Carrillo piano, the unusual relationship between written and sounding pitches as well as the unusual size of the keyboard can be disorienting. As a result, it is particularly easy to make a reading error of one octave – especially if 8va or 15ma signs were involved. To minimize this problem, please consider the following:

- Do not use 8va signs any more than what's absolutely necessary for readability. 4 or 5 ledger lines is normally fine also without 8va signs.
- *Do NOT use 15ma signs at all.*

It may be good to also include a sounding pitch notation (on a separate staff). This isn't obligatory, but it can be helpful for understanding how the music sounds, and also for tracking down any errors in the transcription of the keyboard notation.

The sounding pitches can be notated in any system that suits your musical purposes. For example, if you want to only use those 31 pitches that approximate the Fokker organ's 31-tone scale, you can use the regular 31-tone notation for the sounding pitches.

The keyboard "tablature" notation is required in every case.

For playability's sake, keep in mind that all intervals on the keyboard are eight times larger than normal. Anything larger than a semitone translates to big jumps! Already a sounding major 2nd becomes a tenth on the keyboard!

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On this video you can see the Carrillo piano being played, together with the Fokker organ:

<https://www.youtube.com/watch?v=MISl-6jGiAw>

On my website you can find tables where you can see all the pitches of the Carrillo piano, how to

notate them in the keyboard notation, and how they correspond to the Fokker organ's pitches:  
<http://www.erelievonen.eu/documents/>

I don't know of any samples of the Carrillo piano for use in notation or audio software, but any normal piano samples (retuned) should be good enough for practical use.

There is now a **Carrillo piano for Finale**, which uses the Garritan sounds. You can download it from my website (see the link above).

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