

CFO HÅRNET CHEAT SHEET

```
// FREQUENCY AND DETUNE FUNCTIONS
void setFrequency(float frequency); // 0.0 – whatever, not sure what happens when negative :)
void setFrequency1(float frequency1);
void setFrequency2(float frequency2);
void setFrequency3(float frequency3);

void setSemitone1(int8_t semi); // -24 to 24
void setSemitone2(int8_t semi);
void setSemitone3(int8_t semi);

void setDetune(float detune); // 0.0 to whatever.
void setDetune1(float detune); // 1.0 is one octave.
void setDetune2(float detune); // best results with detune between 0.00 and 0.02
void setDetune3(float detune);

void setOsc1LFO(bool lfo); // true or false
void setOsc2LFO(bool lfo);
void setOsc3LFO(bool lfo);

void setFM1(uint8_t fm); // 0 – 127
void setFM2(uint8_t fm);
void setFM3(uint8_t fm);

void setFMoctaves(uint8_t octs); // 1 – 128, it won't go down to zero.
void setFM1octaves(uint8_t octs);
void setFM2octaves(uint8_t octs);
void setFM3octaves(uint8_t octs);

void setFM1Source(uint8_t source); // 0 – 3 where
void setFM2Source(uint8_t source); // 0 is linear, 1 is Osc1
void setFM3Source(uint8_t source); // 2 is Osc2 and 3 is Osc3
```

```
void setFM1Shape(uint8_t shape); // 0 - 5 where
void setFM2Shape(uint8_t shape); // 0 is linear full signal
void setFM3Shape(uint8_t shape); // 1 is envelope1, 2 is envelope2,
                                // 3 is oscillator1, 4 is oscillator2 and 5 is oscillator 3
```

```
void fmToZeroHertz(bool); // true or false, if set to true the FM sounds more harmonic
```

```
void setPortamento(int32_t port); // 0 - 127
```

```
void set12bit(bool) // true or false
```

// FILTER FUNCTIONS

```
void setCutoff(int32_t c); // 0 - 65535
void setFilterType(uint8_t type); // 0 - 3 where filter type can be seen below
void setCutoffModAmount(int32_t amount); // -65536 to 65535
void setCutoffModSource(uint8_t source); // 0 - 5, same as FM shape
```

// SHORTNAMES FOR FILTER TYPES

```
LOWPASS 0
HIGHPASS 1
BANDPASS 2
NOTCH 3
```

// WAVEFORM FUNCTIONS

```
void setWaveform(uint16_t waveForm); // JUST FOR 8bit WAVEFORMS
void setWaveform1(uint16_t waveForm); // 0 - 15
void setWaveform2(uint16_t waveForm); //
void setWaveform3(uint16_t waveForm); //
```

```
// SHORTNAMES FOR WAVEFORMS
```

```
SINE 0
```

```
SQUARE 1
```

```
PULSE 2
```

```
TRIANGLE 3
```

```
SAW 4
```

```
FUZZ 5
```

```
DIGI1 6
```

```
DIGI2 7
```

```
DIGI3 8
```

```
DIGI4 9
```

```
NOISE 10
```

```
DIGI6 11
```

```
TAN1 12
```

```
TAN2 13
```

```
TAN3 14
```

```
TAN4 15
```

```
// GAIN FUNCTIONS
```

```
void setGain(float value); // 0.0 - 1.0
```

```
void setGain1(float value); // 0.0 - 1.0
```

```
void setGain2(float value); // 0.0 - 1.0
```

```
void setGain3(float value); // 0.0 - 1.0
```

```
float getGain(); // 0.0 - 1.0
```

```
float getGain1(); // 0.0 - 1.0
```

```
float getGain2(); // 0.0 - 1.0
```

```
float getGain3(); // 0.0 - 1.0
```

```
// NOTE FUNCTIONS
```

```
void noteOn(uint8_t note, uint8_t vel); // 0 - 127
```

```
void noteOn(uint8_t note); // 0 - 127
```

```
void noteOff(uint8_t note); // 0 - 127
```

```
void noteOff();
```

```
float getNoteFrequency(uint8_t note); // 0 - 127
```

```
// ENVELOPE FUNCTIONS
```

```
void enableEnvelope1();
```

```
void disableEnvelope1();
```

```
void setEnv1Attack(uint8_t att); // 0 - 127
```

```
void setEnv1Decay(uint8_t dec); // 0 - 127
```

```
void setEnv1Sustain(uint8_t sus); // 0 - 127
```

```
void setEnv1Release(uint8_t rel); // 0 - 127
```

```
void enableEnvelope2();
```

```
void disableEnvelope2();
```

```
void setEnv2Attack(uint8_t att); // 0 - 127
```

```
void setEnv2Decay(uint8_t dec); // 0 - 127
```

```
void setEnv2Sustain(uint8_t sus); // 0 - 127
```

```
void setEnv2Release(uint8_t rel); // 0 - 127
```

```
void getPreset(uint8_t p); // 0 - 47, 0 to 15 are user presets on EEPROM  
// 16 to 47 are "factory presets"
```

```
void savePreset(uint8_t p); // 0 - 15, saves current instrument to EEPROM
```

```
void sendInstrument(); // send current instrument via MIDI as controller messages
```

```
//synth parameters as MIDI controller numbers
//synth functions and parameters as MIDI controller numbers
PRESET_SAVE 0
PRESET_RECALL 1

IS_12_BIT 3
CUTOFF 4
ZERO_HZ_FM 5
FM_OCTAVES 6
PORTAMENTO 8
FILTER_TYPE 9

LF01 10
SEMITONE1 11
DETUNE1 12
GAIN1 13
WAVEFORM1 14
FM1 15
FM1_OCTAVES 16
FM1_SOURCE 17
FM1_SHAPE 18
FREQUENCY1 19

LF02 20
SEMITONE2 21
DETUNE2 22
GAIN2 23
WAVEFORM2 24
FM2 25
FM2_OCTAVES 26
FM2_SOURCE 27
FM2_SHAPE 28
FREQUENCY2 29
```

LF03 30
SEMITONE3 31
DETUNE3 32
GAIN3 33
WAVEFORM3 34
FM3 35
FM3_OCTAVES 36
FM3_SOURCE 37
FM3_SHAPE 38
FREQUENCY3 39

CUTOFF_MOD_AMOUNT 70
CUTOFF_SOURCE 72

ENV1_VELOCITY 112
ENV1_ENABLE 113
ENV1_ATTACK 114
ENV1_DECAY 115
ENV1_SUSTAIN 116
ENV1_RELEASE 117

ENV2_VELOCITY 122
ENV2_ENABLE 123
ENV2_ATTACK 124
ENV2_DECAY 125
ENV2_SUSTAIN 126
ENV2_RELEASE 127