

# SUPER QUICK START CHEAT SHEET

## Audio EQ Cookbook HP15c CE software pac

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### Pre-requisites

**Calculator in 15.2 mode** (this program is huge, can't be run in default mode)

### Registers

- R9 : Sampling frequency in Hz
- R.0 : Center/Cutoff frequency in Hz
- R.1 :  $Q$ . If necessary, it can be calculated as a function of bandwidth via **GSB B**
- R.2 :  $A$ . Can be calculated as function of *Gain in dB* and  $S$  via **GSB A**. If not needed, set to 1.0.

### Run Main Biquad Coefficients Generation Program

**GSB C**

**Return Frequency Response at arbitrary frequency  $f_x$  in Hz** (Program C must be run first)

**GSB D** (place  $f_x$  in x-register, desired *filter type index* in y-register)

### Memory Layout (after execution)

```
Matrix A [4 3]
Matrix B [9 3]
Matrix C [3 2]
Matrix D [4 2]
Matrix E [9 2]
```

See user's guide for definition of the output matrices and filter type indexing.

### Register states after execution of Prog C and D

Registers	Description
R9	Sampling Frequency $F_s$
R.0	Center/cutoff frequency $f_0$
R.1	Quality Factor $Q$
R.2	Gain in linear form $A$
R.3	$\sin(\omega_0)$
R.4	$\cos(\omega_0)$
R.5	$\alpha$
R.6	$A-1$
R.7	$A+1$
R.8	$2 \cdot \sqrt{A} \cdot \alpha$
R.9	Bandwidth
R6	$f_x/F_s$
R7	Desired filter type row index for matrix A
R8	Desired filter type row index for matrix B