

## AVR® Fuse Calculator

Welcome to the classic AVR Fuse Calculator. There is also an ALPHA version of a new fuse configurator, called confFUSE™, which utilizes an **up-to-date device database**. If you want to give it a try, switch to **confFUSE™** (/confuse). But be warned: That new version is barely tested!



# Device selection

Select the AVR device type you want to configure. When changing this setting, default fuse settings will automatically be applied. Presets (hexadecimal representation of the fuse settings) can be reviewed and even be set in the last form at the bottom of this page.

AVR part name:   (141 parts currently listed)

# Feature configuration

This allows easy configuration of your AVR device. All changes will be applied instantly.

Features

Ext. Crystal Osc.; Frequency 8.0- MHz; Start-up time: 14 CK + 4.1 ms; [CKSEL=1111 SUT=10]

☐ Clock output on PORTD2; [CKOUT=0]

☐ Divide clock by 8 internally; [CKDIV8=0]

☐ Reset Disabled (Enable PA2 as i/o pin); [RSTDISBL=0]

Brown-out detection disabled; [BODLEVEL=111]

☐ Watch-dog Timer always on; [WDTON=0]

☒ Serial program downloading (SPI) enabled; [SPIEN=0]

☐ Preserve EEPROM memory through the Chip Erase cycle; [EESAVE=0]

☐ Debug Wire enable; [DWEN=0]

☐ Self programming enable; [SELFPRGEN=0]

# Manual fuse bits configuration

This table allows reviewing and direct editing of the AVR fuse bits. All changes will be applied instantly.

Note: ☐ means unprogrammed (1); ☒ means programmed (0).

Bit	Low	High	Extended
7	<input type="checkbox"/> <b>CKDIV8</b> Divide clock by 8	<input type="checkbox"/> <b>RSTDISBL</b> External reset disable	
6	<input type="checkbox"/> <b>CKOUT</b> Clock output	<input type="checkbox"/> <b>DWEN</b> debugWIRE Enable	
5	<input type="checkbox"/> <b>SUT1</b> Select start-up time	<input checked="" type="checkbox"/> <b>SPIEN</b> Enable Serial programming and Data Downloading	
4	<input checked="" type="checkbox"/> <b>SUT0</b> Select start-up time	<input type="checkbox"/> <b>WDTON</b> Watchdog Timer Always On	
3	<input type="checkbox"/> <b>CKSEL3</b> Select Clock Source	<input type="checkbox"/> <b>EESAVE</b> EEPROM memory is preserved through chip erase	
2	<input type="checkbox"/> <b>CKSEL2</b> Select Clock Source	<input type="checkbox"/> <b>BODLEVEL2</b> Brown-out Detector trigger level	
1	<input type="checkbox"/> <b>CKSEL1</b> Select Clock Source	<input type="checkbox"/> <b>BODLEVEL1</b> Brown-out Detector trigger level	
0	<input type="checkbox"/> <b>CKSELO</b> Select Clock Source	<input type="checkbox"/> <b>BODLEVEL0</b> Brown-out Detector trigger level	<input type="checkbox"/> <b>SELFPRGEN</b> Self Programming Enable

# Current settings

These fields show the actual hexadecimal representation of the fuse settings from above. These are the values you have to program into your AVR device. Optionally, theme by colorlib (http://colorlib.com/) Powered by WordPress (http://wordpress.org/)

Low	High	Extended	Action	AVRDUDE arguments
0x EF	0x DF	0x FF *	<div>Apply values</div> <div>Defaults</div> <p>Apply manual changes to the values on the left side, or load factory default values for the selected device.</p>	<p>-U lfuse:w:0xef:m -U hfuse:w:0xdf:m -U efuse:w:0xff:m</p> <p>Select (try triple-click) and copy-and-paste this option string into your avrdude command line. You may specify multiple -U arguments within one call of avrdude.</p> <p>* Note that some numerical values refer to fuses containing undefined bits (set to '1' here). Depending on the target device these fuse bits will be read either as '0' or '1'. Verification errors will occur if the values are read back with undefined bits set to '0'. Everything is fine if the values read from the device are either the same as programmed, or the following values (undefined set to '0'): <b>Extended: 0x01.</b></p>

## References

All information based on database **ATTiny4313.xml** build 1.  
Unreviewed original XML backend database from Atmel. Probably buggy! Please report.  
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