

# Miniminutnik (SW)

## Overview

Name	Miniminutnik
SW-Revision	v3.0.2
Archive	<a href="http://hase.seesslen.net/campo/miniminutnik/sw/archive/miniminutnik-v3.1.0.tgz">Link (http://hase.seesslen.net/campo/miniminutnik/sw/archive/miniminutnik-v3.1.0.tgz)</a> ( <a href="http://hase.seesslen.net/campo/miniminutnik/sw/archive">older (http://hase.seesslen.net/campo/miniminutnik/sw/archive)</a> )
Changelog	<a href="#">Link (CHANGELOG.md)</a>
Docu	20220601
Target MCU	stm32l011f4, stm32l031f6

“Miniminutnik” is an small egg timer. It is capable to handle up to 5 independent timers in parallel.

## Usage

By pressing the button an “cursor” can be moved among the slots/LEDs. When it rests on a LED for some seconds, the corresponding slot gets activated and the LED starts blinking. Further timers can be activated by pressing the button accordingly. An single slot can not be started multiple times.

## Flash firmware to device

### Via Openocd/GDB

To be able to flash the device via openocd/gdb following prerequisite are required:

- Device connected to host via STLink V2 (e.g. via NUCLEO-64 board via NUC64Debug adapter)
- Openocd binaries on host platform (e.g. from TCB)
- ARM cross GDB on host platform (e.g. from TCB)

Connect the device via STLink. AN NUC64Debug adapter can be used to work with an NUCLEO-64 board as STLink. Power on device and set it to a timer which lasts some time. Extract the archive and open a terminal in the subfolder

```
cd share
openocd -f ./openocd.conf
```

Use another terminal to flash device via gdb. The path of the binary may be absolute or relative to the work directory of the started openocd.

```
set arm abi AAPCS
target remote localhost:3333
monitor reset halt
monitor fast_load_image ../bin/miniminutnik.bin 0x20000000 bin
monitor fast_load
monitor reset halt
```

# Via UART-Bootloader (serial interface)

Read hardware documentation about how to enter the STM32 ROM bootloader.

**Note:** for STM32L0 devices at least stm32flash 0.6.0 is needed

**Note:** take care that no terminal application accessing the UART is running

This example assumes that the device appears at “/dev/ttyACM0” on the host.

```
stty -F /dev/ttyACM0 57600
stm32flash -w miniminutnik.bin /dev/ttyACM0
```

## Configuring

### Serial interface

The device has an command prompt via serial UART interface. To connect the device to the host the virtual COM port of the NUCLEO-64 board can be used or it can be connected directly via “ophio” USB-UART adapter. The serial configuration of the device is “115200 8N1”. Power on device an set it to an timer which lasts some time. On linux host systems minicom can be used as terminal.

```
minicom -D /dev/ttyACM0 --color=on
```

Enter “admin” to login.

### Commands

Command	Description
help	Show available commands
hwdata	Show production data
config	Show current configuration
config time [slot] [time]	Set timer duation for slot [slot] to [time] seconds
config slots [slots]	Set amount of slots to [slots]
config melody [melody]	Set alarm melody to [melody]
config mode [mode]	Set mode to [mode]
config reset	Reset configuration to defaults

### Modes

#### 0: Regular egg timer

The slots can be used as described in [usage](#).

#### 1: “Corona”-mode

The “corona”-mode alternates between the first slots for a work day. It indicates when to open/close the window for ventilation according to given regulations.

**Note:** Only available on devices with flash size  $\geq$  32KB, e.g. STM32L031xx

- Slot 0: Time the windows stays close (seconds)
- Slot 1: Time the windows lasts open (seconds)
- Slot 2: Overall time till device shuts down (seconds)

## Melodies

- 0: Alarm up-down fast
- 1: Alarm up-down slow
- 2: - (same as 0)
- 3: - (same as 0)
- 4: "Oh Tannenbaum" **Note:** Only available on devices with flash size  $\geq$  32KB, e.g. STM32L031xx

## Bugs and development

Please report bugs via issues tracker at [this link \(http://hase.seesslen.net/redmine/projects/miniminutnik\\_sw\)](http://hase.seesslen.net/redmine/projects/miniminutnik_sw) or contact me via mail to [campo@seesslen.net \(mailto:campo@seesslen.net\)](mailto:campo@seesslen.net)