

# Silverware readme

Silverware is a firmware for some micro quadcopters, which adds features not normally present in the stock firmware. Most useful of these is acro mode, but also the ability to change settings for custom builds, or to adapt to personal preferences.

Why use silverware:

- already tuned for supported quads
- learn acro mode risking a \$20 quadcopter, not a \$150 one
- try something new

## Installation

Because of differences between boards, installation is covered by a rcgroups post. For linux instructions use the install.md file. (See also [links section](#))

## Settings

Configuration options are placed mostly in file "*config.h*". This covers many flight settings, like maximum rate in acro mode, max angle in level mode, as well as switch assignments. Hardware settings can be found in file "*hardware.h*", they mainly don't need changing as they cover fixed things such as radio pins and leds. A small amount of other settings exist in other files.

Pids are set in the "*pid.c*" file for acro mode. For level mode, acro pids are used, plus the level pids in file "*angle\_pid.c*"

## Radio

The default protocol used is Bayang, a modification of it allows use of telemetry on transmitters which support it, such as Devo 7e with Deviation installed for example. Telemetry needs to be enabled in the transmitter, the quad software will support either protocol variation without changes.

## Gestures

By default, certain stick sequences, which we call gestures, are used to activate some features, or issue commands. For example, the gesture *Down - Down - Down* would be accomplished by moving the pitch stick down 3 times in a short time.

Gesture list:

Down - Down - Down: Accelerometer calibration / Save pids if changed

Left - Left - Down: acro mode

Right - Right - Down : level mode

Up - Down - Up: Cycle pid term to the next ( P - I - D )

Up - Down - Down: Cycle pid axis to be changed ( Roll/Pitch - Yaw )

Up - Down - Left: Decrease the selected value

Up - Down - Right: Increase the selected value

## Pid tuning using gestures

The pids can be tuned and saved via gestures, or by editing the pid.c file. Saving the pids after changing them using gestures, they will remain active after a power cycle. They remain usable even after flashing a firmware to the quad again, provided the pid.c values have not changed since the last upload.

## More Information

Further information can be found in the silverware wiki

<http://sirdomsen.diskstation.me/dokuwiki/doku.php?id=start>

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