



v1.4 – Nov. 2023

Congratulation, you have become an owner of this K1 product.

Product description

Device is designed to adjust controller parameters of your CAN bus Bafang motor. Controller parameters are saved in AutoSet.txt file on SD card (included). Just edit this file on SD card over your computer (with SD card slot or with SD to USB adapter), power up K1 Flash over UCB-C cable and connect CAN connector to your motor. Wait for steady GREEN light and all is set successfully.

Device is working only with Bafang motors with CAN bus – 5 pin connector with "house" shape green connector.

All CAN Bafang motors are supporting : **Speed limit***, **Circumference** and **Wheel size**

Latest M510 and M560 motors are supporting also advanced power setup: **Max power**, **Cadence**, **Acceleration**, **Support level**, **StartUp Angle** – description of these parameters can be found in a file AutoSet.txt – see print screen of this file on page 3.



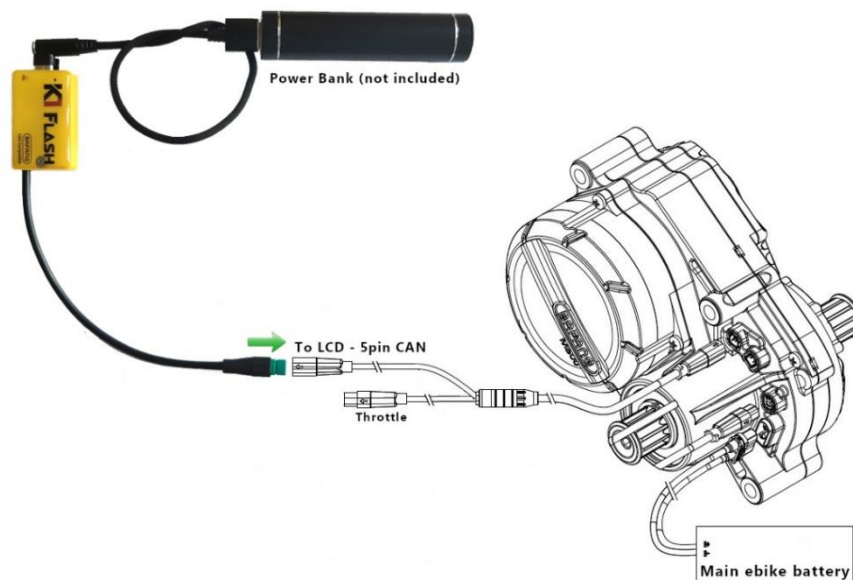
* Speed limit for pedalling. Some controllers/motor firmwares have Throttle Speed hardcoded to speed (32 km/h or 45km/h – M510 FC2.0, M560).

How to use K1 and Set motor Configuration Parameters:

1. **Edit** AutoSet.txt file on SD card over your computer (with SD card slot or over SD to USB adapter, use Notepad or any simple text editor). Or skip this step and go with factory defaults.
2. **Insert SD card** (included in a package) with pins facing to USB-C connector



3. **Power up K1 Flash** over USB-C cable (run power from mobile phone, power bank – be careful here – some power banks are turning off due to small K1 energy consumption, USB charger, USB computer port ...) - **Green LED** starts to **blink**.
4. **Unplug the main 5-pin CAN connector** from your LCD display or disconnect connector between LCD and motor. **And connect to K1 Flash**.



5. **After few seconds** motor is identified and parameters are set (the one which your motor supports). **Green LED** change to **steady** - **parameters are set successfully**. You can disconnect K1 Flash and connect back your display. Check for new speed limit under Info menu for verification.

- ✓ LED will turn Red when AutoSet.txt does not exist.
- ✓ After each connecting to motor, K1 Flash will store your current controller settings into file CfgLog.txt on SD Card.

AutoSet.txt file print screen (located on SD card in Root):

```
# >>> Bafang CAN bus motor parameters settings file <<<
# >>> K1 Flash v1.3          M500,M510,M560,M600,M620 <<<
# *****

# This script will be executed after power up of K1 Flash with SD card inserted - Green LED is blinking.

# After connecting motor, device will setup your motor controller parameters (only what motor supports).
# Green LED steady - successfully set and you can disconnect K1

# Warning - Commands needs to be entered exactly, without
# any misstyping (first 5 characters are important). Otherwise device will ignore this line.

# Add "cage" # character to comment out whole line and disable the command.

# Activate this setup as following (order of first 2 steps matter):
# 1. Insert SD card in. (This file needs to be in root directory of SD card and FAT16 is needed).
# 2. Power on K1 Flash over USB-C (power bank, mobile, charger)
# 3. Connect to Bafang CAN motor (5 pin green connector
#    with "house shape" - unplug from LCD display/buttons)
# 4. You can disconnect after few seconds - when LED goes
#    steady Green - the following parameters are set:
# -----

# >>>Following commands works with ALL Bafang CAN bus motors including Bafang CAN hub motors:
Speed=45
# Wheel size in inches - does not play any role on Bafang CAN
# controllers, just to show this info on display. For 27.5 put with dot.
Wheel=29
# Circumference of rear wheel in mm, motor is counting actual
# speed out of this number, check against GPS
Circumference=2230

# -----
# >>>Following commands works with M510, M560, M820 motors:

# Global acceleration, 1 to 8, 8 is max acceleration. (M510 FC2.0 and M560 is ignoring this setting)
Acceleration=7
# How fast motor starts to assist on initial pedal turn, 0 to 13, 0 is fastest response
Startup Angle=1
# Max Current(Power) in % per each PAS level.
# Note: For M510 FC2.0 are defaults 50,75,100,100,100 - does make sense with Support level %
Max Current Map=20,32,46,72,100
# Max cadence in %
RPM Map=100,100,100,100,100

# -----
# >>>Following commands works with M510 FC2.0, M560 motors:

# Torque multiplication to pedal torque, 0 to 500%
Support level Map=120,140,140,230,340
# Acceleration (starting phase currents or ramp up) per each PAS level, 1 to 8, 8 is max acceleration
Map Acceleration=5,6,7,7,8
# Startup angle in degree, if you have FC2.0 or M560 Startup Angle form previous section is ignored.
D StartUp Angle=10

# -----
# Uncomment following command for Motor Calibration.
# Warning! Calibration will start in 5 second after
# connecting to motor (number 5 at the end). Make sure chain
# is down from chainring and you have battery charged!
#Calibration5

# -----
# Note: You can run calibration by connecting over
# terminal to K1 Flash - free "Serial USB Terminal" application
# on Android phone. And also to set Speed, Circumference and Wheel
# over terminal:
# Example: s25 - Set Speed to 25 kmh
#          c2220 - Set Circumference to 2220 mm
#          w28 - Set Wheel size to 28 inch
#          cal - Run Calibration. Put down chain before Calibration!

# >>> email: flash@K1eBikes.sk <<<
# >>> K1 eBikes, Slovakia <<<
```

Rotor Calibration

Rotor Calibration run is important when you have replaced controller board, when rotor was replaced or magnet replaced (rotor position magnet). Calibration process takes up to 10 seconds.

Important:

- Battery needs to be charged at least to 50% and battery BMS turned on
- Chain must be down from chainwheel !!!
- You can hold cranks during calibration to avoid turning and hitting objects around

Calibration can be run as follow and will start 5 seconds after connecting motor to over CAN:

1. **Uncomment "Calibration5" command** in AutoSet.txt file on SD card.
2. **Insert SD card into K1 Flash** (SD card pins facing USB-C connector).
3. **Power up K1 Flash** over USB-C - **Green LED blinking**.
4. **Connect to your motor** over CAN connector - K1 Flash will set parameters and then there is 5 seconds to start Calibration. **Green/Red is flashing**.
5. Motor will jump in few steps, rotate and stop in few seconds - **Green LED steady** - Calibration completed. You can unplug motor.

Firmware update functionality

Please check step by step instructions and videos on K1 ordering google forms page:

<https://forms.gle/HsRPbsAus3vNQS5B6>



If you like this product, we would appreciate to give us a review and stars on our **Facebook page** - www.fb.com/K1eBikes

Operation of modified electric bike on a public road may be against the law in your country. K1 Flash is determined for testing purpose only and seller (K1 eBikes - Ing. Drahomír Komár) is not responsible for any damage on property or health. Buyer is taking this in mind and consent.

Modifying your motor over K1 Flash device may void the warranty of your e-bike.



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