en/Hexa-BL-Ctrl_3

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1 Hexa XL V3 - Combi

1.1 power

- voltage : 10 to 30V -> 3 -7S Lipo
- 6 -layer PCB for optimal heat dissipation . 70u copper layers make the entire circuit board to the heat sink .
- current: up to 30A (per unit) and 120A (Total) - with appropriate cooling
- current limiting and temperature limiting
- Active freewheeling -> less power loss

1.2 Fast response with speed control

- rapid acceleration and braking of the propeller. Active and seamless braking gives the speed precisely and quickly on the new setpoint .
- return energy to the lipo when braking. Seamless transition from acceleration to braking
- significantly faster control with speed control

1.3 Other Features

- Integrated 12V voltage regulator for external LED-Supply
- Switchable LED output -> LEDs can flash in case of undervoltage
- Adjustable motor timing in several steps of 13-28° - compatible with the most common BL motors
- Adjustable switching frequency (10kHz - 20kHz)
- PPM to 500 Hz with simultaneous I2C - bus operation for telemetry and data logging
- Integrated 12V stabilization for LED lighting and other 12V appliances
- Switchable outputs for lighting -> ZB The blinking lights at low voltage
- Software adjustable direction of rotation
- Adjustable current and temperature limits
- Adjustable start-PWM
- Silent Start: test tone at startup can be disabled

1.4 Interface

- various interfaces for setpoint input (I2C, PPM (500Hz) , serial)
- Integrated current measurement measurement of the actual current and the used capacity on the Mikrokopter control
- voltage and temperature measurement with data transmission to the ground station and data logging
- 11-bit resolution (2048 steps)
- various feedback to the MikroKopter-FlightCtrl (blocked motor , power limiting , etc.)
- extented configuration options (eg current limit , temperature limit , ...)
- two LEDs (OK and Error)
- all BLCs are already adressed (address 1-8)
- I2C bus access possible in PPM mode - for data logging and telemetry in PPM mode
- status messages are transmitted to the FC (engine blocks , Current, Self-test error ...)
- current measurement up to 75A per controller
- Convenient configuration of the BL controller via FC

1.5 mechanical data

- hole: 3mm
- Dimensions (W x H):

- weight: appr. 119g

1.6 delivery

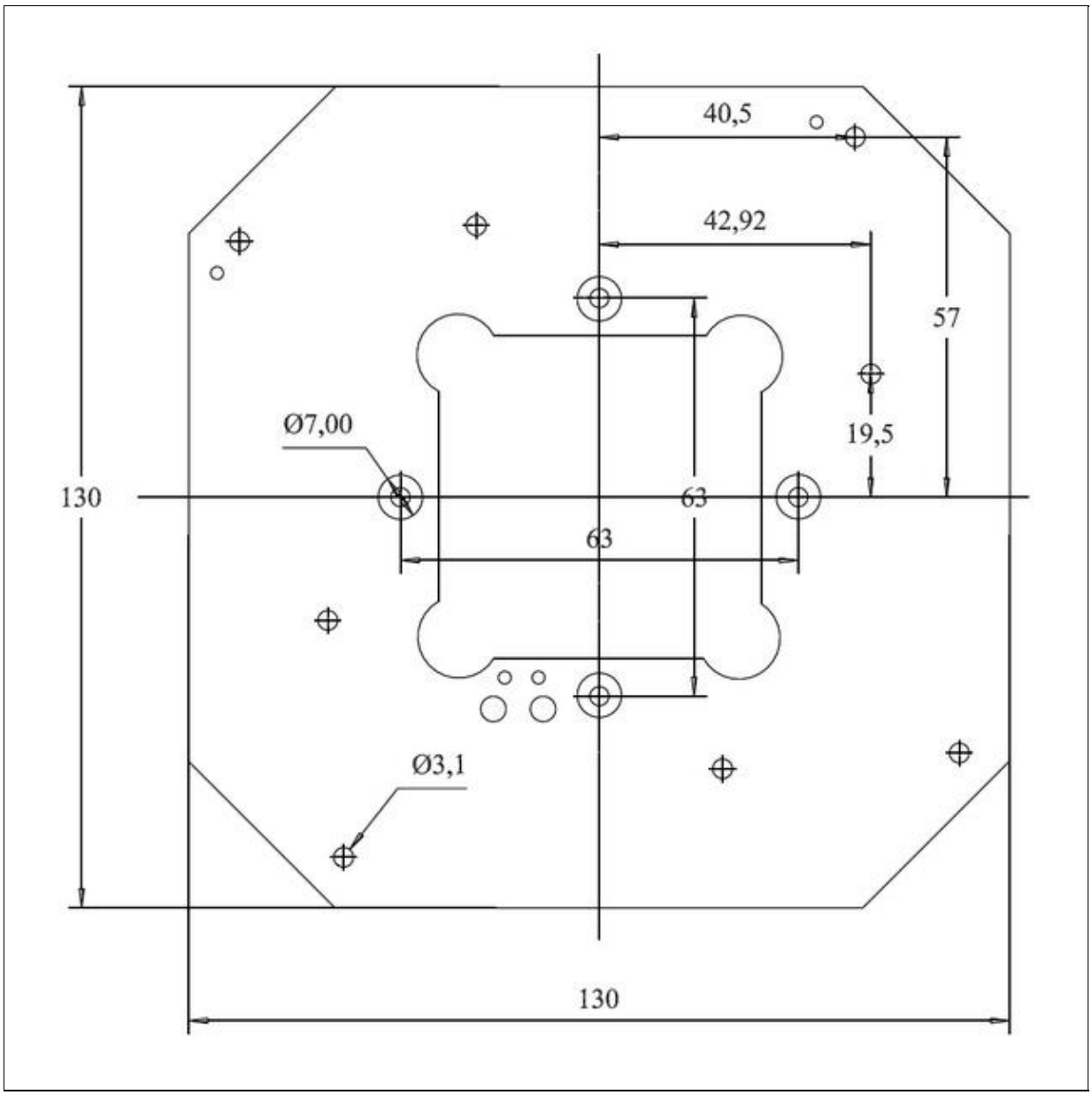
- 1 SMD preassembled, programmed and tested board with 8 ESCs
- Lipo Power cable (open ends)
- 1-line cable for LED output control

2 Connections

2.1 Top

2.2 Bottom

2.3 Drills


40,5
42,92
57
19,5
Ø7,00
130
63
63
Ø3,1
130

DXF (CAD-File)

2.4 Connect

- FlightCtrl: by the 5-lines molex cable
- LiPo: LiPo plus / LiPo minus
- Stabilized 12V supply: +12V / -
- Adressing: The BL-Ctrls are already adressed
- LiPo-Voltage outputs (for low currents up to 3A)
- switched LED Stripes connections (4x)(switched by Out1 or Out2 of the flight control)
    - => Plug the gray connector cable int Out1 or Out2 of the FC to use switchable LED-Lights
      => A / -
- Motor 1-4
    - => Motor outputs 1-4 / A, B, C
      => You can either solder the cables on the top or the bottom side => the cable colour is marked for the standart MK-rotation direction
- Optional: Second Recom -> You can add a second voltage converter (for example 5V)
- Buzzer: connect the buzzer ba a 2-line cable to the "BuzZ" marked connections

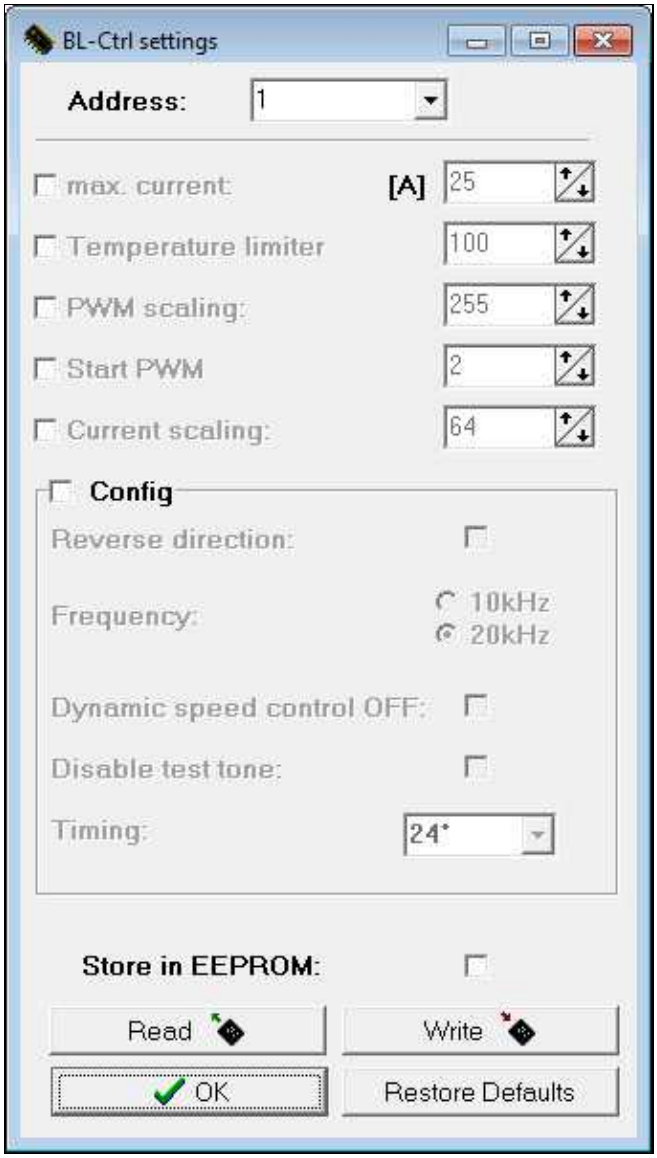
3 Settings

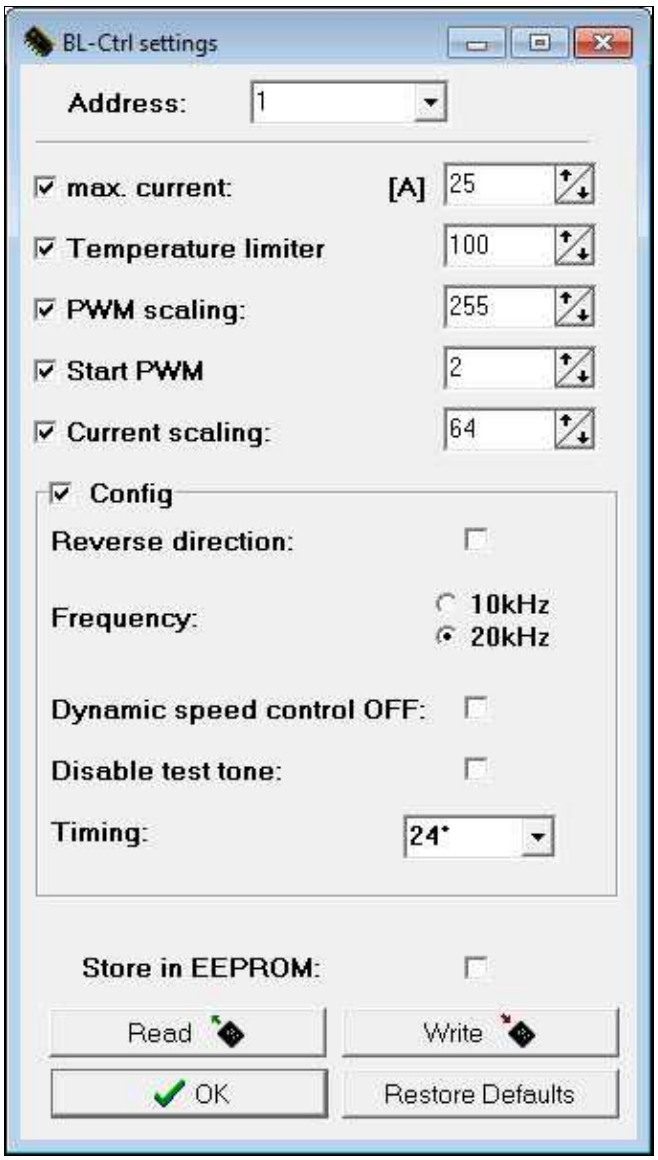
IMPORTANT: To change the Settings of the BL-Ctrl V3.0 you need a Software version since V2.02a (KopterTool, FlightCtrl, NaviCtrl)!

Normally you have not to change the settings! If you have to to it you can do it like described:

- open KopterTool
- press button "Strg" on your keyboard and hold it down.
- Then "click" "Settings" in the KopterTool.

Now you will see the window of the BL-Ctrl V3.0.
INFO: only if you "click" and activate the single settings there you can change them.




BL-Ctrl settings
Address:
1
max. current:
[A]
25
Temperature limiter
100
PWM scaling:
255
Start PWM
2
Current scaling:
64
Config
Reverse direction:
Frequency:
10kHz
20kHz
Dynamic speed control OFF:
Disable test tone:
Timing:
24*
Store in EEPROM:
Read
Write
OK
Restore Defaults

4 Error codes

The BL V3 performs a selftest during startup (test-tone). In case of an error, these are the blink codes:

- 1 "1" = Shortcut between A+ and B-
- 2 "2" = Shortcut between B+ and C-
- 3 "3" = Shortcut between C+ and A-
- 4 "E" = A doesn't go to high
- 5 "F" = B doesn't go to high
- 6 "G" = B doesn't go to high
- 7 "H" = A doesn't go to low
- 8 "I" = B doesn't go to low
- 9 "J" = C doesn't go to low
- 10 "K" = Overcurrent when switching to low
- 11 "L" = Overcurrent when switching to high
- 12 "Q" = Cross-circuit between low and high
- 15 overcurrent while starting the motor
- 16 error current measurement
- 17 error voltage measurement
- 18 error temperaturen measurement

5 SW-Update

If there is a new Software for the BL V3, here you can see how to update the BL: Update

6 FAQ

6.1 Motor connection

The motors can be connected either on the top-side or on the bottom-side. You can ignore the small (pre-)soldered points on the top-side.

6.2 Adressing

The BL-Ctrls are already ardessed. This can't bechanged on this coto.

6.3 Buzzer

The buzzer is connected via a cable

6.4 What is the gray 1-line cable for?

Plug the gray connector cable into Out1 or Out2 of the FC to use switchable LED-Lights

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- KategorieMK-Baugruppe/de