

Flapper Nimble+ Deck compatibility

(revision 2023-02, applicable to Flapper Nimble+ models from 2022 and newer)

Because the Flapper Nimble+ is not a native Crazyflie product, the use of Crazyflie expansion decks is **experimental** and has some limitations. For the correct function, firmware modifications might be necessary. Full functionality as on the Crazyflies is not guaranteed.

- The expansion connector is oriented vertically on the Nimble+ (unlike on the Crazyflie, where it is horizontal).
- The pin headers are already integrated and allow **one** expansion deck to be installed directly on top of the existing flight control stack (Figure 1). The top side of the expansion deck will be pointed forward, and the front side of the deck will be pointed upward.

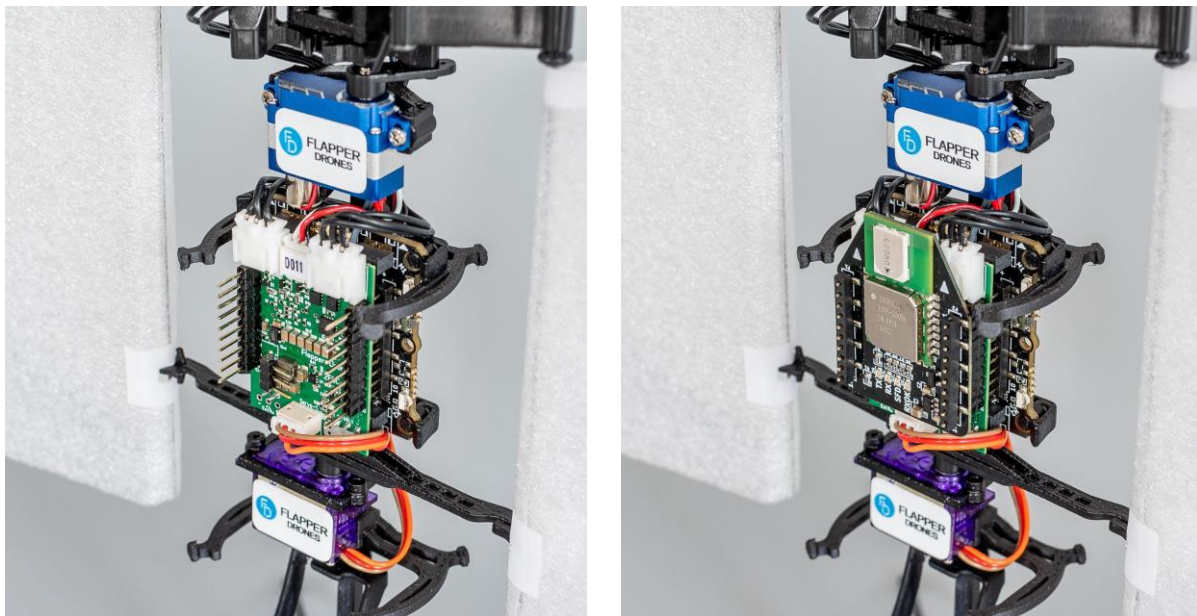


Figure 1: On-board electronics stack with integrated pin headers for 1 expansion deck: Pin header location (left) and installation of the LPS deck as an example (right)

- To install additional decks, extension cables need to be used. This solution also allows orienting the expansion decks horizontally, either above or below the Nimble+.

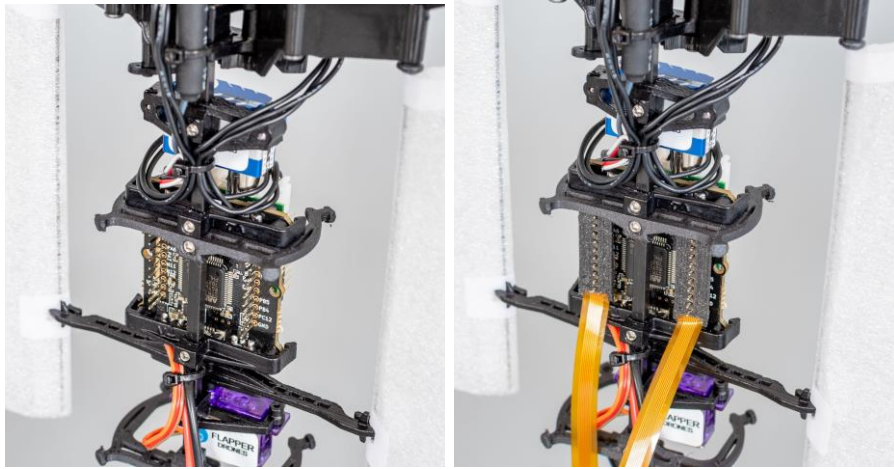


Figure 2: Extension cables can be installed also on the pin headers on the back side of the Nimble+.

- Official extension cables are under development (beta samples can be obtained from Flapper Drones upon inquiry). You can also make the extension cables yourself by soldering wires between two [breakout decks](#) or [battery holder decks](#). Care needs to be taken such that the wires do not interfere with the actuation mechanisms of the Nimble+, and **especially the gears**.
- Horizontal deck installation requires additional mounting parts. Flapper Drones can provide STL files for some of the deck mounts.

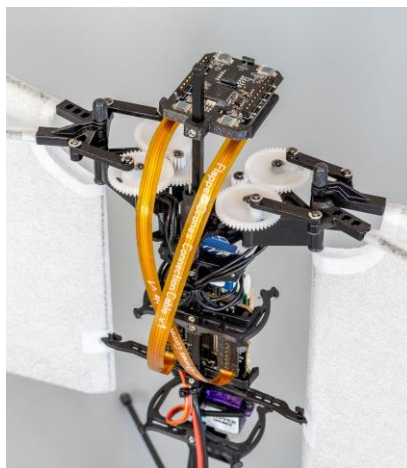


Figure 3: Example of a horizontal deck installation using an additional mount and extension cables. **Please note that the cables might need to cross, always check the pinout!**

- Firmware modifications might be necessary, especially when mounting the deck vertically, such that the data are interpreted correctly.
- Data interpretation of some sensors might be challenging due to the flapping-induced vibrations.
- For detailed information about the individual decks, please consult the following table:

Deck	Suitable	Direct mounting possible	Horizontal mount available as STL
Active marker deck	Yes	Yes (but pointed forward)	No, but possible
AI-deck 1.1	Maybe (vibrations)	Maybe (but camera pointed upward)	No, but possible
Big quad	No (but CPPM interface already integrated)	-	-
Buzzer	Yes	Yes	No, but possible
Flow V2	Maybe (vibrations)	Yes, but pointed forward	Yes, bottom
LED-ring	Yes (but interface and power supply for WS2812B already integrated)	Yes	No, but possible
Loco positioning	Yes	Yes	Yes, top
Lighthouse-4	Yes	Yes	Yes, top
Mocap marker deck	Maybe (marker placement not optimal)	Yes	No, but possible

Multi-ranger	Yes	Yes, but might get reflections from the wings and	Yes, top
Prototyping deck	Yes	Yes	No, but possible
Qi 1.2 charging	No (charging not possible)	-	-
SD-card deck	Yes, but already integrated	-	-
Z-Ranger V2	Yes	Yes (forward ranging)	Yes, bottom