CatKnobz Firmware Update

Thank you for choosing CatKnobz to enhance your Yaesu experience.

Due to the technical complexity involved, CatKnobz is not designed to be end user updateable. Regrettably, I am unable to provide support for the installation of the necessary programming software. However, to ensure a smooth and reliable firmware update experience, I offer a convenient return service.

Return Service for Firmware Update

If you prefer to ensure a hassle-free and error-proof firmware update for your CatKnobz, simply return your device to me clearly including **return address & your contact details**.
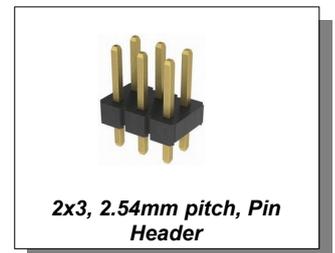
Please send your CatKnobz to:

> Chris Day
> 54 Wilson St,
> Seaview
> Timaru 7910
> New Zealand
> zl1cvd@gmail.com

The actual firmware update service is free however there is a return shipping fee of US$20.75.

Requirements

To update the firmware, you will need:

- AVRDUDESS programming software
  https://github.com/ZakKemble/AVRDUDESS
  - Windows (Windows Vista/7/8/10/11)
  - Linux
  - macOS

- USBasp programmer **with a 10-pin to 6-pin adapter**

- 2x3, 2.54mm pitch, Pin Header

- Soldering equipment and skills for attaching a 3x2 Pin Header

- Acknowledge that the firmware you will receive is for CatKnobz is copyrighted by Chris Day, New Zealand.
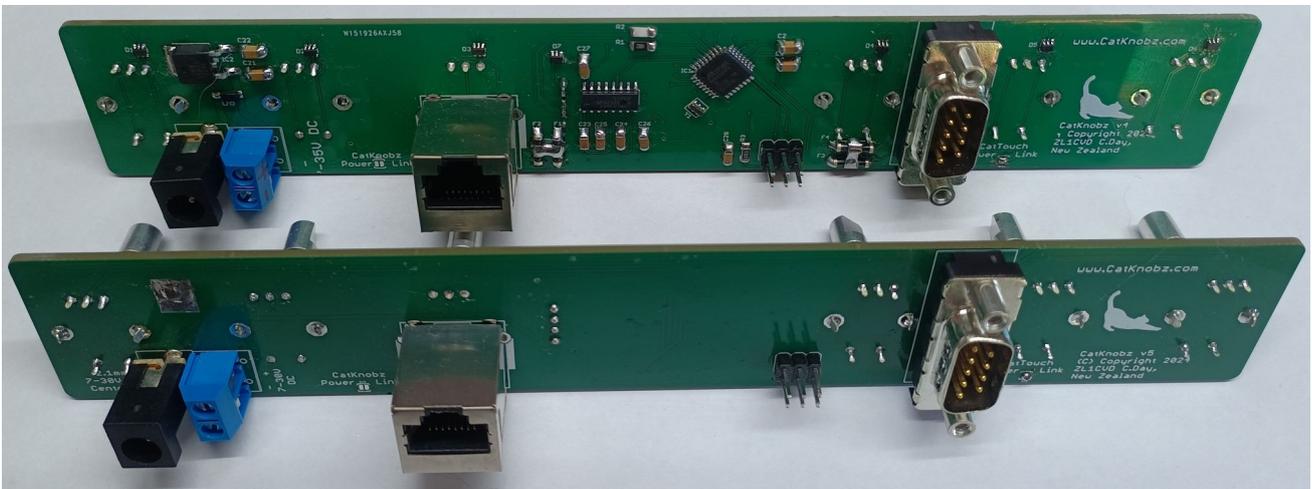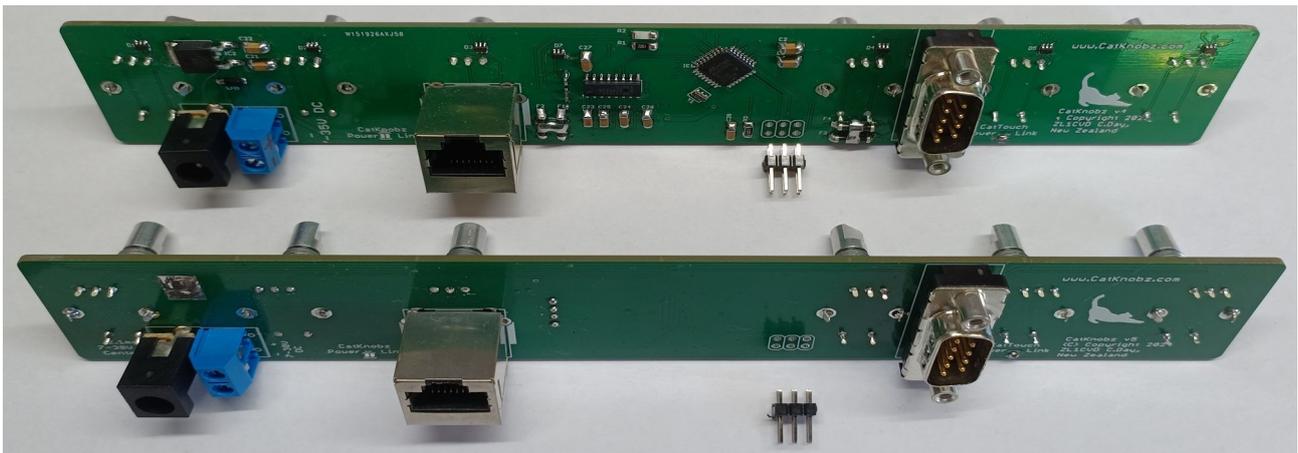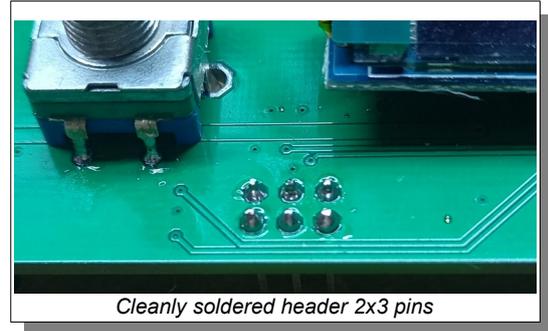

USBasp Programmer with adapter

2x3, 2.54mm pitch, Pin Header

Step-by-Step Instructions

1. **Download Firmware:**

   - The firmware copyrighted by Chris Day, New Zealand. By downloading & receiving the firmware, you agree that it is solely for the purpose of updating CatKnobz, and you undertake not to copy, distribute, or transmit it to any third party by any means. Your compliance with these terms ensures the protection of intellectual property rights and preserves the integrity of my product.

   - Go to https://www.catknobz.com/ Click on CatKnobz and scroll to the bottom of the product page. Both old and latest firmware is available. The older firmware had 2 versions – once for FTdx10 only and one for all other models (generic). The latest firmware is the same for all models, only the plastic mounting bracket varies.

   - The firmware is supplied in a compressed zip format with a copy of these instructions.

   - Using your systems tools, uncompressed the zipped firmware.
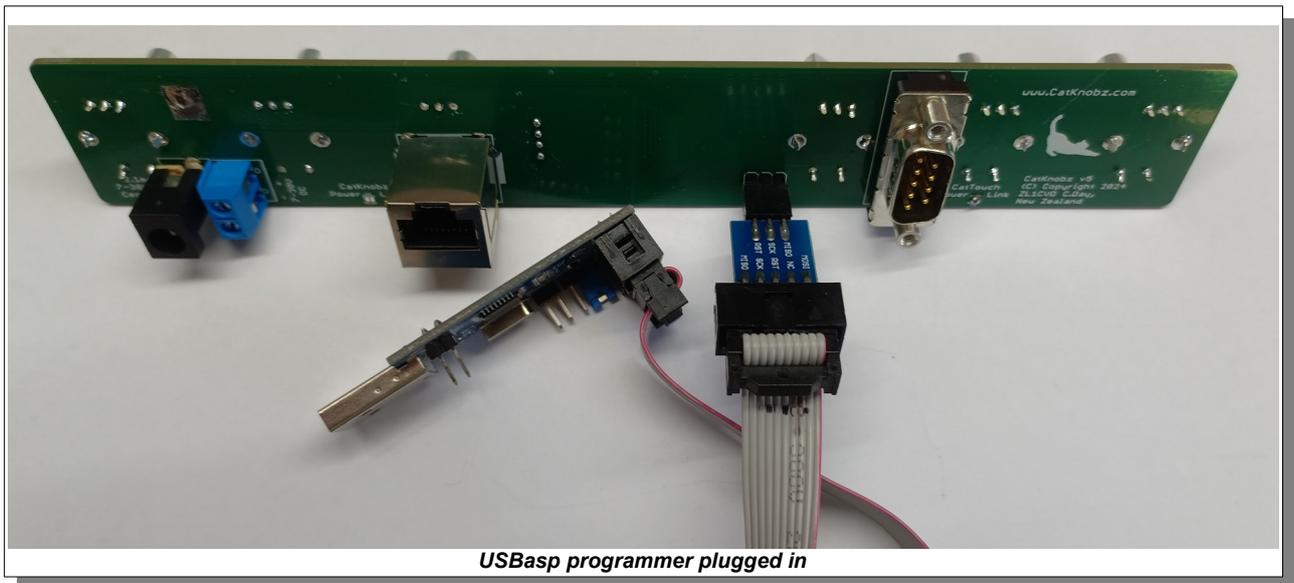
2. Soldering the Pin Header

- Remove all knobs by carefully pulling them off

- Undo & remove all encoder nuts & washers

- Carefully remove CatKnobz PCB assembly from bracket

- Carefully solder a 2x3, 2.54mm pitch, Pin Header

- There have been several board releases, the most popular and current are shown. In all cases, the header is in about the same location.

Cleanly soldered header 2x3 pins

Header location for old (top) and new (bottom) PCB's

Header Soldered

3. **Connecting the Programmer**

- Obtain a USBasp programmer with a 10-pin to 6-pin adapter (eBay, AliExpress & Amazon all stock it)

- There is normally a jumper on USBasp marked 3.3V or 5V - set it to 5V

- Refer to the provided image to ensure correct orientation, and plug the programmer into the CatKnobz pin header.

- The top row pins of the adaptor board are RST, SCK & MISO

- If then plugged into the PC, the lights on the USBasp programmer are not lit, you have the programmer plugged in the wrong way

USBasp programmer plugged in

4. **Install USBasp drivers (if required) for your operating system**
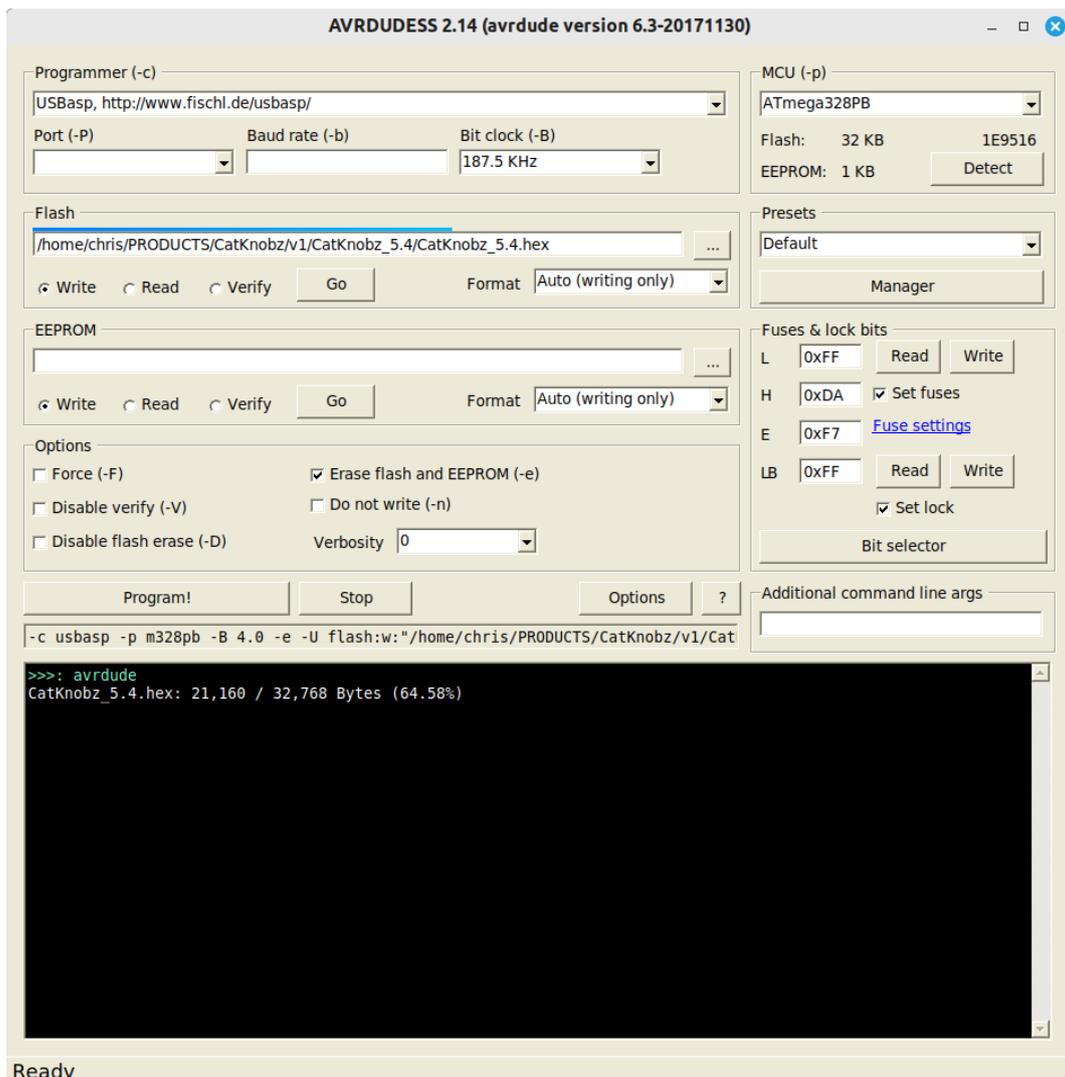
- Windows & MAC users will need to search the Internet for instructions on how to install USBasp drivers for your operating system. Some sites include:

    - https://www.instructables.com/USBASP-Installation-in-Windows-10/

    - https://www.youtube.com/watch?v=OHOnxpph0sM

    - https://aaroneiche.com/2016/11/06/programming-avrs-using-a-usbasp-on-a-mac/

- I run Linux Mint and did not need to install any drivers. YMMV & google is your friend..

5. **Download & install AVRDUDESS**

- Navigate to the AVRDUDESS website and download & install the software suitable for your operating system from https://github.com/ZakKemble/AVRDUDESS

6. **Launch & Set up AVRDUDESS**

- Launch AVRDUDESS.

- Load the firmware file you saved in step 1 by clicking the button in Flash & navigating to the saved file

- Configure AVRDUDESS settings according to the following page.

- Pay attention to:

  - Programmer Type: **USBasp**

  - Processor type: **ATMEGA328PB**

  - Bit clock: **187.5kHz**

  - Flash: Click **…** button & select the CatKnobz firmware file to flash

  - Fuse & Lock Bits: **L: 0xFF**
                          H: 0xDA
                          E: 0xF7
                          LB: 0xFF

  - Options: **Erase flash & EEPROM**

7. **Reprogramming CatKnobz**

- With AVRDUDESS configured, CatKnobz plugged into USBasp programmer & USBasp programmer plugged into your computer, initiate the programming process by clicking the **Program!** button.

- Wait for the firmware update to complete successfully.

AVRDUDESS Programming Completed

Note and error message regarding setting SCK speed is normal for many Chinese supplied USBasp programmers. It simply means the clock speed could not be adjusted & it reverts back to a default speed.

For any further assistance or inquiries, please don't hesitate to contact me – zl1cvd@gmail.com