



## **GOTEK USB Floppy Emulator** **With Flashfloppy firmware – setup for the BBC Micro**

Thankyou for purchasing this USB Floppy emulator drive from RetroClinic. It functions as a modern solid state disk drive, allowing you to have all your disk images on one USB stick, instead of multiple floppies. The USB drive connects to the Disk Drive port on your BBC Micro, and requires a functional disk interface to be present. All BBC Master 128s have a 1770 DFS fitted, as do most Model B+. Model Bs came with a variety of disk interfaces. This drive is known to work with those from Acorn and Watford Electronics, using the 8271 and 1770/1772 disk controller ICs.

### **Connecting the drive**

Underneath your BBC Micro, connect the flat, 34 way ribbon cable to the DISK DRIVE connector. It is possible to also plug it into the 1MHz BUS port, but please do not! The cable can only be inserted one way round, and the red marker on the cable should be the same side as the Pin 1 marker. Then connect the power connector to the AUX power socket, this can only be fitted one way round.

### **Using the drive**

Once connected, power up your computer. Within a fraction of a second, the display should read

```
FlashFloppy  
XXXXXX
```

Where XXXXXX is the version of firmware that the system is running. Please see later on in this leaflet for information on how to upgrade.

The display will remain like this until a USB stick is inserted. If a USB stick came with your purchase, then go ahead and insert it now. If your drive did not come with one, see below “Using a new USB Stick”.

After a breif delay, the display will change, and show the current Disk Image that is selected, along with the Eject Menu. This menu allows you to perform various functions which are described in more detail on the GitHub page for the project, see the link later in this leaflet. For now, press the rotary encoder button once, and this will select the current image. You can select which disk image you want the emulator to use by rotating the encoder. Once you have the image you want selected, pressing the encoder will insert the disk, and it’s ready to be used as if you had inserted a real floppy, so you can \*CAT, or SHIFT-BREAK to load a menu, if the image has one. Be sure to select \*DISK for SSD and DSD images, and \*ADFS for ADL or ADF images. To use another image, simply rotate the encoder to select the new one.

You can navigate directories as well, and they will show up as “DIR” on the display. Press the encoder to select that directory, and after a short delay, it’s contents will be avaiable. To go back up a level, go back to entry 000, which will show “..”, select this and you’ll come back out of that directory.

When you're ready to select a new disk image, just rotate the encoder to select the image you want, then press the encoder again to select the new image.

## Using a blank image

The current firmware can now clone an image, using that function in the eject menu. The Clone operation clones an image.suffix to image\_000.suffix, image\_001.suffix, and so on. The selected clone number is always the highest existing clone number, plus 1. Alternatively, to make a new blank disk, simply copy a full length SSD/DSD/ADF on a PC and rename it as a new disk. You can then FORMAT it on the BBC Micro, and use it as a new disk image.

## Using a new USB Stick

I would recommend using a separate dedicated stick for the GOTEK system, as if you use one of multiple Gigabytes, with 10s of 1000s of programs on it, the ARM controller inside the GOTEK can slow down trying to navigate all the files, looking for disk images.

So, use your PC/MAC etc to format your new stick to remove any existing files, then try downloading some software onto it in the form of SSD or DSDs. These can be obtained from the net from such places as:

<http://www.stairwaytohell.com/bbc/index.html?page=diskimages>

<http://www.bbcmicrogames.com/GettingStarted.html>

## Changing the drive number

Your drive is set to be Drives 0 and 2 on a BBC Micro with DFS. If using ADFS, it will just be drive 0, or if you have ADFS with a Hard Drive, it will be Drive 4. To change the drive selection, there is a jumper on the rear, called S0 and S1. Simply change this over to what you want the setting to be.

## Using a configuration file

Your drive comes setup ready to go, but you can modify it's configuration using a file called FF.CFG. If your drive came with a USB stick, you will find this file in the root directory. If you don't have this file, you can download it from the FlashFloppy Github repository (link at the end of this leaflet), or I can email one setup specifically for the BBC Micro to you.

FlashFloppy has many configurable settings. An example is provided in the examples/ subfolder of the FlashFloppy distribution.

Out of the box, FlashFloppy loads default values for these options. In the list below, where an option specifically applies to the Acorn machine, this will be set, and it's not recommended to change them. Other values can be changed as you wish. When the GOTEK reads an FF.CFG file from the stick, the values are recorded into the Gotek's Flash memory, and become the new default values when the drive is next powered on.

If you wish to return to 'factory defaults', press the Prev and Next buttons (or Select, or the rotary encoder, if you have them) for three seconds with no USB stick inserted. The display will show "RST" or "Reset Flash Configuration", and FlashFloppy will return to factory defaults when the buttons are released.

## Error Messages

When an unrecoverable error occurs a message will be displayed on the OLED screen.

- **Fnn / \*FAT\*nn\* / \*FATFS\* nn**

A 2-digit error code defined by the FatFS library. This error usually indicates bad physical media or a bad filesystem. Try formatting or replacing your USB drive.

- **Enn / \*ERR\*nn\* / \*ERROR\* nn**

A 2-digit error code defined by the FlashFloppy firmware:

- **30** Disk Full: Some writes were lost. Delete some files or use a larger USB drive.
- **31** Bad Image File: The selected image is invalid or unsupported.
- **32** Bad HXCSDFE.CFG: The config file is invalid or unsupported. Copy a fresh version to the USB drive. (Not yet supported on the Acorn BBC Micro)
- **33** Bad IMAGE\_A.CFG: The last-image file has become corrupted. Delete it from the USB drive and it will be automatically recreated.
- **34** No entries to navigate: Direct Navigation mode found no valid directories or image files to display. Add some valid image files to the USB drive.
- **35** Path too deep: Folders are nested too deeply to navigate.
- **USB** / USB Power Fault. Over-current condition on the USB port. The port is powered down until a button is pressed.

## Upgrading the Firmware

The firmware can be updated easily from the USB stick, by downloading the latest version from here:

<https://github.com/keirf/FlashFloppy/wiki/Downloads>

And following the Download Flashfloppy link. To upgrade the firmware, follow this procedure.

- Remove any old **\*.upd** files from the root of the USB stick.
- Copy the **\*.upd** file from the root of the release archive to the root of the USB stick.
- Power on your BBC Micro with both select buttons pressed, you should now be in the bootloader ("UPD") mode.
- Release both buttons.
- Insert the USB stick into the Gotek and it should perform the update in a matter of moments.

The latest firmware will be programmed and the Gotek will reboot into it, and indicate the new version on the display.

Any errors during update are reported on the display:

- **E01** No update file found
- **E02** More than one update file found
- **E03** Update file is invalid (bad signature or size)
- **E04** Update file is corrupt (bad CRC)
- **E05** Flash programming error
- **Fxx** FatFS error (probably bad USB drive or filesystem)

## Further help

If you require any further assistance, please do not hesitate to contact me, and I will try and help. The FlashFloppy firmware is still being constantly developed, so check for updates regularly.

There is also a FlashFloppy Facebook page, and support forum, should you wish to join and get answers direct from other users, and the firmware author.

For more detailed technical information, along with the complete source code for the firmware, please visit the FlashFloppy main Github page:

<https://github.com/keirf/FlashFloppy>

Thanks once again for purchasing this item from me.

*Thanks also to Keir Fraser for the development of the FlashFloppy firmware.*

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