

## Plus 1 Mini Acorn Electron Expansion Unit - Quick Start Guide

[www.ramtop-retro.uk](http://www.ramtop-retro.uk)

### Installation

1. Thank you for purchasing a Plus 1 Mini! The package should contain the Plus 1 Mini unit in an anti-static bag and a box of accessories. Remove the Plus 1 Mini from the bag and check that it is intact and has not been damaged in shipping.
2. Clean the Electron's expansion slot contacts. Use of a pencil eraser followed by cleaning with Isopropyl Alcohol or contact cleaner is recommended.
3. Connect the expansion unit to the Electron's expansion slot and secure it using the provided screws. Take care not to overtighten the screws as this may damage the expansion unit. At boot up you should see a new banner on the screen which reads **P1 Mini MMFS SPI**. This indicates the expansion is active and available for use. You should also see the count of fitted memory has increased from 32K to 96K.
4. For more detailed information a full user guide is available at <http://ramtop-retro.uk/Plus-1-Mini.html>

### Preparing the SD Card

Disk images (.SSD files) are stored on the memory card as part of a master file called 'beeb.mmb'. There are several pre-made beeb.mmb files available on the internet with a selection of games. If you download one of these please make sure it contains Electron games, BBC Micro ones will not work.

A pre-made image with a collection of games, along with a full user manual and other downloads are available at : <http://ramtop-retro.uk/Plus-1-Mini.html>

Download the elkbig.zip file, which contains a wide selection of games. Unzip it and copy the beeb.mmb file to an SD card no larger than 8GB and formatted as FAT16 or FAT32. Insert the SD card into the slot on the rear of the Plus 1 Mini with the contacts facing upward; the SD socket is a push-push type, so gently press the card in if you need to remove it. Next, switch on the Electron. To load the games menu, hold down **Shift** and tap **Break** at the same time, and keep holding **Shift** until the menu loads. Alternatively, you can type

#### **\*DBOOT 0**

If you wish to create your own beeb.mmb file, please consult the relevant section of the user manual. After you have finished playing a game it is recommended to press **Ctrl** and **Break** to reset the Electron, and then **Shift** and **Break** if you wish to reload the game menu.



**It is recommended that you do not insert or remove the SD card while the Electron is switched on as this can lead to data corruption.**

**Do not remove the Plus 1 Mini while the Electron is switched on. Doing so may damage the expansion unit and the Electron.**

### Using the Joystick Port

The Plus 1 Mini features a 9-pin Atari/Commodore type joystick port. Most 9-pin digital joysticks will work, but other devices such as joypads and paddles will not. The joystick plug should be attached or removed only when the Electron is switched off.

Once you have connected a joystick and powered on the Electron, correct functioning of the joystick can be tested by typing:

#### **\*JOYSTICK 2 TEST**

And then moving the joystick.

Four interface standards are supported by the Plus 1 Mini; Acorn Plus 1, First Byte and Slogger joystick interfaces, plus keyboard emulation. Games which support the Plus 1 joystick port should work without any configuration. Games supporting First Byte, Slogger or compatible interfaces may request an I/O port address to be entered. On the Plus 1 Mini these are &FCC0 for First Byte and &FCD0 for Slogger. A 'code' or 'polarity' number may need to be entered as well, this will be either 0 or 1 depending on the game.

Finally, keyboard emulation is available for games that have no joystick support. Not all games work with emulation, but many do. This can be configured by typing:

#### **\*JOYSTICK 2 SETUP**

You will then need to enter the keys used by the game for up/down/left/right and fire. An 'address' must also be entered, this is where the small code patch that enables keyboard emulation is located. Pressing return will accept the default location of &150.

After this you can load the game – please note that pressing SHIFT-BREAK should not be used for this. You will need to boot the game or game menu using the DBOOT command. For the games collection downloadable from the Plus 1 Mini web page the command would be:

#### **\*DBOOT 0**

To load the game menu, after which you can select the game as normal.

#### Using Disk Images

1. Typing \*DCAT will list all available disk images and their slot numbers.
2. Typing \*DIN followed by the slot number will 'insert' a disk image and make it available for use.
3. \*CAT will show a directory of files on the disk image.
4. Typing CHAIN "NAME" will load and run a program, where NAME is the program to be loaded. Some games can also be loaded by pressing **Shift** and **Break** at the same time.
5. If you require assistance with your Plus 1 Mini please email [support@ramtop-retro.uk](mailto:support@ramtop-retro.uk)

For more information on disk image commands please see Plus 1 Mini user guide.

#### Cartridges

The Plus 1 Mini has two cartridge slots which can accept Plus 1 compatible cartridges. Cartridges should only be inserted when the Electron is switched off. Please make sure the cartridges are inserted in the correct orientation, label side forward – uncased cartridges will often have a note on the PCB showing which side faces forward.

#### Compatibility Switches

On the rear of the Plus 1 Mini is a DIP switch block to enable compatibility settings. With the switch in the up position the setting is software controlled; down position disables the named feature. From left to right the switches are:

- 1- TUBE interface
- 2- SD card ROM
- 3- Cartridge slots
- 4- Safe mode (all hardware except cartridge slots disabled)

Software commands for these settings are:

\*TUBE ON / \*TUBE OFF  
\*NOSD  
\*NOCARTS  
\*SAFEMODE

### Troubleshooting

1. If your Electron does not boot with the expansion unit installed or the 'Plus 1 Mini MMFS SPI' banner is missing, please clean the cartridge slot contacts again.
2. If you receive a **Card?** error when using disk image commands, check the SD card is inserted correctly. Some very cheap, off-brand SD cards are known to function incorrectly in SPI mode, which the Plus 1 Mini uses. It is recommended to use cards from major brands such as SanDisk, Kingston or Samsung.
3. If you receive an **Image not found** error, check that the SD card is formatted as FAT32 and contains only a beeb.mmb file.
4. Avoid cards smaller than 1GB and those from unknown brands; the ElkSD128 is tested before shipping with cards from Samsung, Kingston and SanDisk to ensure correct operation. SD cards larger than 8GB will often work with the Plus 1 Mini provided they are formatted as FAT32, but this is not guaranteed.
5. If you encounter any issues you cannot solve, please email [support@ramtop-retro.uk](mailto:support@ramtop-retro.uk)

### Acknowledgements

The Plus 1 Mini interface uses the MMFS software, originally developed by Martin Mather and maintained by David Banks, and the RH Plus 1 ROM which is maintained by J.G. Harston. Many thanks to these gentlemen for their excellent software, on which the Plus 1 Mini depends. The Plus 1 Mini joystick ROM is based on the Slogger joystick interface ROM.